June 2020

Draft EIR | State Clearinghouse Number: 2019110286 **Volume 2: Appendices**

TERRA VI LODGE PROJECT

DRAFT ENVIRONMENTAL IMPACT REPORT

for Tuolumne County

PLACEWORKS

Cover Image Credit: avrp SKYPORT, 2019.

JUNE 2020 | **DRAFT EIR**
STATE CLEARINGHOUSE NUMBER: 2019110286

VOLUME 2: APPENDICES

TERRA VI LODGE PROJECT

DRAFT ENVIRONMENTAL IMPACT REPORT

for Tuolumne County

Prepared By:

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510.848.3815

In Association With:

Sycamore Environmental Consultants

APPENDIX A

NOTICE OF PREPARATION AND COMMENTS ON THE NOTICE OF PREPARATION

COMMUNITY RESOURCES AGENCY

DAVID GONZALVES, C.B.O.
Director

Administration - Building – County Surveyor - Engineering – Environmental Health – Fleet Services - GIS – Housing - Planning – Roads – Solid Waste

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www.tuolumnecounty.ca.gov

Date: May 2, 2019

To: State Clearinghouse
State Responsible Agencies
State Trustee Agencies
Other Public Agencies
Interested Organizations

From: Quincy Yaley, Assistant CRA Director – Development
County of Tuolumne
Community Resources Agency
2 South Green Street
Sonora, CA 95370-4618

Subject: **Notice of Preparation (NOP) of the Draft Environmental Impact Report (EIR) for the Terra Vi Lodge Yosemite Project**
Lead Agency: County of Tuolumne Community Resources Agency
Project Title: Terra Vi Lodge Yosemite Project
Project Location: 11262 Sawmill Mountain Road, Groveland, CA 95321

Notice is hereby given that the County of Tuolumne (County) will be the Lead Agency and will prepare a project-level EIR for the Terra Vi Lodge Yosemite Project (proposed project) pursuant to the California Environmental Quality Act (CEQA) Guidelines (14 California Code of Regulations Section 15060(d)). The EIR is being prepared by the County in accordance with applicable law, in particular, CEQA and the State of California CEQA Guidelines.

As shown on Figure 1, the 64-acre project site is located at the intersection of Sawmill Mountain Road (Forest Road 1S03) and State Highway 120 (Big Oak Flat Road), near Groveland in unincorporated Tuolumne County. The project site located approximately halfway between Buck Meadows and the Big Oak Flat entrance to Yosemite National Park.

The project site is in a rural area within Stanislaus National Forest, and there are currently no structures on the site. The project site was heavily burned in the 2013 Rim Fire, resulting in a significant burn scar that extends several acres into the site from Highway 120, and which destroyed most of the mature trees on-site. Rural residential homes are located to the north of the site and walking and hiking trails are available within and near the site. Nearby development also includes several campsites, resorts, and recreational vehicle sites. The project site is located in a Very High Fire Hazard Severity Zone within the State Responsibility Area, as mapped by the California Department of Forestry and Fire Protection in 2007.

The proposed project would develop the western portion of the project site with a lodge containing hotel rooms, a public market, meeting space, and guest facilities. This portion of the site would also include cabins for guests, employee housing, outdoor amenities, on-site roadways and walkways, and surface parking. The eastern portion of the project site would be open space, with an existing trail maintained.

The project includes the following on-site utilities: a public water system would be developed from two existing on-site wells; water treatment and storage; graywater systems for landscape irrigation; wastewater systems utilizing septic tanks and leach fields; a food service wastewater treatment system; rainwater collection and storage; stormwater detention; and roof-mounted solar

photovoltaic and solar thermal panel systems with battery storage.

The project is zoned Commercial Recreation (C-K) and Open Space (O) and does not require rezoning. Further details of the proposed project are available at: https://www.tuolumnecounty.ca.gov/1158/Terra-Vi-Lodge-Yosemite

EIR Scope: The EIR will evaluate the project for potential impacts on the environment and determine the potential environmental consequences of future change. The proposed project could potentially affect the following environmental factors, each of which will be addressed in the EIR:

- Aesthetics
- Air quality
- Biological resources
- Cultural resources
- Energy
- Forestry resources
- Geology and soils
- Greenhouse gas emissions
- Hazards and hazardous materials
- Hydrology and water quality
- Land use and planning
- Noise
- Population and housing
- Public services and recreation
- Transportation
- Tribal cultural resources
- Utilities and service systems
- Wildfire

Cumulative impacts will consider impacts of relevant projects in and around the project area combined with those of the project. An evaluation of project alternatives that could reduce significant impacts will also be included in the EIR.

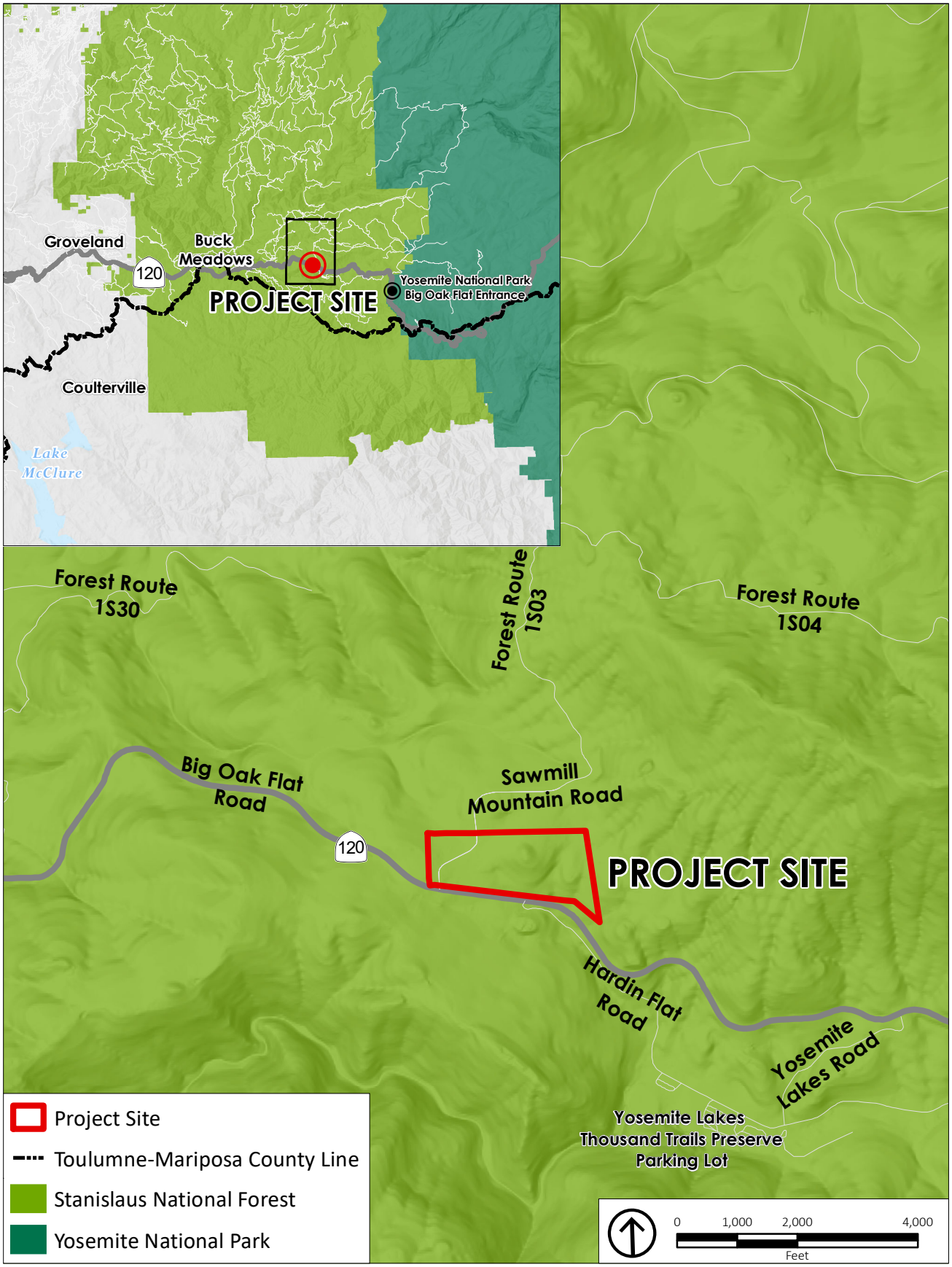
To ensure that the EIR for this proposed project is thorough and adequate and ensure that the issues of concern to the public and public agencies are addressed, the County is requesting comments and guidance on the scope and content of the EIR from interested public agencies, organizations, and individuals. Public comments on the scope of issues to be evaluated in the EIR are encouraged. With respect to the views of Responsible and Trustee Agencies as to significant environmental issues, the County needs to know the reasonable alternatives and mitigation measures that are germane to each agency's statutory responsibilities in connection with the project.

Notice of Scoping Meeting: A public Scoping Meeting will be held on Monday, May 13, 2019 at 6:00 pm at the Groveland Community Hall, 18720 Main Street, Groveland, CA. Public agencies, organizations, and interested members of the public are invited to attend this meeting and present verbal or written comments on the proposed project.

Public Review Period: May 2, 2019 to June 3, 2019. Please send all written comments to Quincy Yaley, County of Tuolumne, at the address shown above or email to QYaley@co.tuolumne.ca.us with "Terra Vi Lodge Yosemite Project EIR" as the subject. Public agencies providing comments are asked to include a contact person for the agency.

If you wish to comment during the NOP comment period, or if you cannot attend the scoping meeting, we will accept written comments until the close of the NOP comment period. Comments on the NOP are due no later than the close of the 30-day review period at 5:00 p.m. on June 3, 2019.

Please direct questions about the proposed project description to Quincy Yaley, Assistant CRA Director in the Community Resources Agency at QYaley@co.tuolumne.ca.us, (209) 533-5961.



Source: ESRI, 2019; National Park Service, 2019; Toulumne County, 2019; PlaceWorks, 2019.

Figure 1

Regional and Vicinity Map

COMMUNITY DEVELOPMENT DEPARTMENT

Quincy Yaley, AICP
Director

Land Use and Natural Resources – Housing and Community Programs – Environmental Health – Building and Safety – Code Compliance

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www.tuolumnecounty.ca.gov

Date: November 15, 2019

To: State Clearinghouse
State Responsible Agencies
State Trustee Agencies
Other Public Agencies
Interested Organizations

From: Quincy Yaley, Director
County of Tuolumne
Community Development Department
2 South Green Street
Sonora, CA 95370-4618

Subject: **Notice of Preparation (NOP) of the Draft Environmental Impact Report (EIR) for the Terra Vi Lodge Yosemite Project**
Lead Agency: County of Tuolumne
Project Title: Terra Vi Lodge Yosemite Project
Project Location: 11262 Sawmill Mountain Road, Groveland, CA 95321

Due to an error, the Notice of Preparation was not filed as required at the State Clearinghouse. To correct that error, a 30 day comment period will be opened for the public and agencies to provide comments and guidance on the scope and content of the EIR. If you have no new comments or guidance to provide, then no response to this notice is needed, as your comments are included in the record and are currently being considered by the County.

NOTICE OF PREPARATION

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The project includes the following on-site utilities: a public water system would be developed from existing on-site wells; water treatment and storage; graywater systems for landscape irrigation; wastewater systems utilizing septic tanks and leach fields; a food service wastewater treatment system; rainwater collection and storage; stormwater detention; and roof-mounted solar photovoltaic and solar thermal panel systems with battery storage.

The project is zoned Commercial Recreation (C-K) and Open Space (O) and does not require rezoning.

Further details of the proposed project, including the revisions received in September 2019, are available at: https://www.tuolumnecounty.ca.gov/1158/Terra-Vi-Lodge-Yosemite

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- Land use and planning
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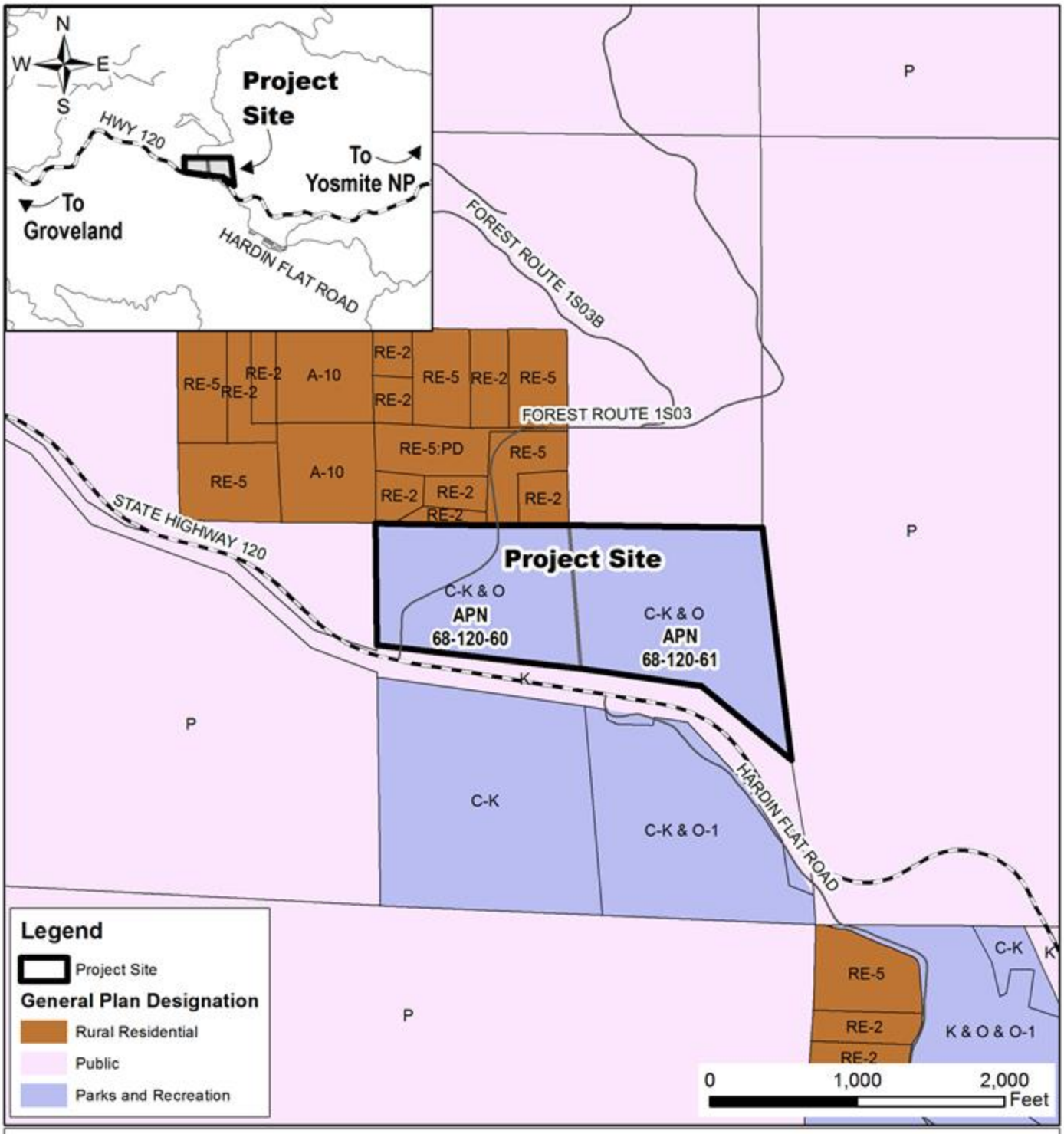
Scoping Meeting: A public Scoping Meeting was held on May 13, 2019. No additional scoping meetings will be held at this time.

Public Review Period: November 18, 2019 to December 18, 2019. Please send all written comments to Quincy Yaley, County of Tuolumne, at the address shown above or email to qyaley@co.tuolumne.ca.us with "Terra Vi Lodge Yosemite Project EIR" as the subject. Public agencies providing comments are asked to include a contact person for the agency.

Comments on the NOP are due no later than the close of the 30-day review period at 4:00 p.m. on December 18, 2019.



Owner / Applicant: Hardin Flat LLC / Hansji Corporation
APNs: 68-120-60 & 68-120-61 63.38± Ac.
Existing: C-K & O
Proposed: To allow the development of Terra Vi Lodge, a master planned lodging development
Projects: SDP18-003
Supervisorial District No. 4 BOS

COMMUNITY RESOURCES AGENCY

David Gonzalves, CBO
Director

ministration - Building – County Surveyor - Engineering – Environmental Health – Fleet Services - GIS – Housing - Planning – Roads – Solid Waste

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www.tuolumnecounty.ca.gov

Terra Vi Lodge Project
Environmental Impact Report
Scoping Meeting Summary - May 13, 2019

On May 13, 2019, Tuolumne County held a scoping meeting in Groveland on the Environmental Impact Report (EIR) for the Terra Vi Lodge project. The purpose of the meeting was to receive comments from community members on environmental issues to be addressed in the EIR. The meeting began with an open house during which community members could view site plans, elevations, and other information about the proposed project, as well as view the CEQA thresholds by which the project will be evaluated in the EIR. Following the open house, participants provided verbal and written comments addressing the scope of the issues that the EIR should address.
The input received at the scoping meeting is summarized below and organized by topic area.

Aesthetics
Consider how the proposed project could change the character of the project vicinity.
Consider how the proposed project will affect the views from neighboring properties.
Consider effects of lighting on neighboring properties.
All of the thresholds under this topic should be evaluated in the EIR.

Agriculture & Forestry Resources
Consider potential impacts on forestry resources.
A commenter noted that the site had been under contract with the State for reforestation.

Air Quality
Consider air quality impacts, including from vehicle trips.

Biological Resources
Consider impacts on mule deer migration.
A commenter stated that mule deer use the project area as a winter grazing area, requesting that the wildlife evaluation consider wildlife use year-round.

Hydrology & Water Quality
Many commenters expressed concern over potential impacts of the project groundwater drawdown and corresponding impacts to the wells of neighboring properties, including both water supply and water quality.
One commenter noted that the test wells dug last summer lowered water levels in their well.
A commenter stated that the wells that are shown as existing in the project materials were recently dug by the project applicant, prior to the application.
Consider a multiple dry year scenario and a long-term timeframe in water supply analysis (a commenter specifically noted the *Pacific Decadal Oscillation* in support of the need for a long-term analysis).
Consider how the proposed leach field will affect water quality, including for the wells in the area.
Commenters stated that the proposed leach field location is in a wet area they considered a wetland.
A commenter noted that the project applicants don't have rights to surface water.
All of the thresholds under this topic, with the exception of threshold *e* (regarding flood hazard, tsunami, and seiche zones), should be evaluated in the EIR.

Land Use & Planning
Several commenters stated that the proposed use is not appropriate for the site. One commenter stated that the Commercial Recreation zoning district is not intended for the proposed use.
A commenter stated that the proposed project site is the result of an unlawful land division.

Noise
Several commenters noted the need to consider noise impacts on neighboring properties, including from the proposed helipad.

Population & Housing
Consider population and housing impacts, including the availability of housing and potential impacts to housing supply.

Public Services
Consider the limitations of fire protection services for area.
The Groveland Community Services District (GCSD) is currently studying fire and emergency medical services along the Highway 120 corridor, including for the proposed project.
Consider whether GCSD water and wastewater service would be needed for the proposed project.
A commenter requested that the County ensure that the community/GCSD is fairly compensated for providing fire and emergency medical services to the proposed project.

Recreation
Consider impacts of the proposed project on Tuolumne River recreation areas and on the Groveland park (i.e., from lodge guests).

Transportation
When evaluating transit service, consider whether YARTS will be reliable; a commenter suggested that YARTS buses would be full by the time they reach the proposed project.
Consider traffic entering Yosemite National Park on Highway 120, which can be very heavy on holiday weekends.
Evaluate line-of-site and other safety concerns from vehicles entering and exiting the project from Highway 120. Also consider safety related to vehicles traveling to and from the project site along the whole Highway 120 corridor.
Consider impacts on the Forest Service access road. A commenter asked whether the project's main access could be provided directly from Highway 120.
Consider effects of the proposed project on bicycle safety on Highway 120. A commenter suggested that the Highway 120 shoulder be widened in the project area.

Utilities & Service Systems
A commenter stated that a public wastewater system is needed to serve the proposed project, and that the EIR should consider back-up options if the septic system fails.
Several commenters expressed concern over whether there is adequate infrastructure generally to serve the proposed project.

Wildland Fire
Consider the potential for project occupants to start a fire (e.g., from a cigarette butt, firepits, etc.).
Consider on-site wildfire risks.
Evaluate consistency with new CalFire regulations regarding development in high fire risk areas.
Many commenters expressed concern about emergency evacuation for the proposed project, and its impacts on evacuation of the surrounding area in an emergency. A commenter stated that there is only one evacuation route from the project site.

Cumulative
Cumulative analysis should include the Under Canvas project, Berkeley Tuolumne Camp rebuild, and Yosemite Lakes Thousand Trails RV park expansion.

Alternatives
Consider alternative locations (e.g., “the scar” in Big Oak Flat).

Other Issues/Comments
A commenter suggested that the project be slowed down so that it can conform to future CalFire regulations regarding development in high fire risk areas.
A commenter questioned how the proposed project will obtain fire insurance.
Several commenters expressed concerns about impacts of the proposed project on its neighbors.
Several commenters expressed concern about the lack of seasonal employees available to serve the project, noting that they would need to be imported/housed.
Questions were raised as to the economic viability of the proposed project.
A commenter expressed concern about this project attracting more hotels to the area.
A commenter supported the project because of the need for jobs and for more children in the local schools.
Several commenters expressed concerns about County communication with residents regarding other projects.

Issues to be Addressed in EIR for Terra VI

Fire Protection

The project is NOT in the GCSD fire district, thus Terra VI would not pay through property tax for service. This for both medical and fire emergencies.

How does this affect fire & medical response in Groveland while they are responding to Terra VI? Groveland pays an extra tax to have a short response time. I don't want to be fire #2 in the area.

- *How does this affect nearby mutual aid agencies coming from the USFS, YNP?*

Ambulance Coverage

The project is NOT in the ambulance district, thus Terra VI would not pay through property tax for service.

- *How does this affect medical response in Groveland while they are responding to Terra VI?* Groveland pays an extra tax to have a short response time. I do not want to be the 2nd medical emergency (in Groveland) while ambulance is responding to a Terra VI emergency.
- *How does this affect nearby mutual aid agencies coming from the USFS, YNP?*

Law Enforcement

Law enforcement along the Highway 120 corridor (south county) is relatively limited. What is going to be the impact on those resources when the need is expanded for Terra VI?

- *How will Groveland be impacted when sheriff deputies are at Terri VI?*

Employee Housing

The hospitality industry pays relatively low wages for most of its employees. The rental market in Groveland is very tight. This caused by Rush Creek, Evergreen Lodge, as well as short term rentals via Airbnb for Yosemite travelers.

RCL & EGL have onsite housing for well over than 100 employees. With that, they have purchased and/or leased more than a dozen PML properties and bought a B&B just east of Groveland. And, they still need more housing.

- *What percentage of employees will Terra VI house on site?*
- *How many employees?*
- *What provision has Terra VI made for their impact on local housing?*

Concentrated Development

Within the next several years, it appears there will be a development boom in the vicinity of the Terra VI project. Under Canvas, the glamping site across H120, rebuilding of Berkeley Camp, expansion of Thousand Trails RV Park are all near Terra VI.

- *What is the county plan to handle the basic issues with this huge jump in development?*
- *Water, Sewage, Emergency Response, Highway traffic? Etc.?*

Submitted by Bob Asquith bobasquith@yahoo.com, 209-962-7990

Issues to be Addressed in EIR for Terra VI

YARTS Service

The current bus service to Yosemite (YARTS) is already at capacity for a few days of the season. Currently, YNP is overcrowded during the season. Adding another large number will only make it worse.

- *How will a project with 800+ Yosemite bound travelers accommodate transportation to the Park?*
- *Where are they going to put the bus stop?*

Rush Creek had to redesign their interior roads to accommodate 50 foot buses. This delayed YARTS service for over a year.

- *How will Terra VI be encouraged to get it right from the outset?*
- *Has Terra VI planned accordingly?*

Highway 120 Issues

Sight lines are a real problem at that location. Imagine a bus pulling out on the highway from a turn out across from high road and highway traffic coming by at 55 miles an hour. Presently, there are no acceleration and deceleration lanes. These must be significantly longer for busses than autos.

What provision has Terra VI made, along with TCTC and Caltrans, for YARTS busses?
With incredibly bad sight lines in both directions and traffic moving at 55+ mph, it will be quite dangerous for pedestrians between Under Canvas and Terra VI for groceries and to go to the bar.

- *How will Terra VI accommodate this pedestrian traffic between the Under Canvas and Terra VI?*

Submitted by Bob Asquith bobasquith@yahoo.com, 209-962-7990

From: Addie Newcomb (addienewcomb@juno.com
Address: 1960 Wingate Way, Hayward, CA 94541

Subject: Hanajii Project

December 20, 2018

To: Quincy Yaley, Assistant Director, Development
qyaley@co,tuolumne.ca.us
cc: jgray@co.tuloumne.ca.us

Community Resources Agency
Tuolumne County
Hanajii Corporation Parcels l 068-120-060-068-120-061

Sawmill Road property owner: Adelene Newcomb parcel 068-540-016-000

Wow! I am very concerned now- What is the Big rush! To get everything done before year end.

1: Impact of the area: Sawmill Rd, Forestry Rd – have you notified them of the impact? What was their response with all this traffic & destruction? Noise, liability, Fire (did we forget about The Camp Fire & Rim Fire). Safety- For residence walking or children playing

2. Wildlife in the area: What happens to them, how many deer and other animals will we see again when this happens? Big Impact!
Do we have EIR Report? This necessary – I would like a copy please mail me one to the address above.

3. Sewage & Drainage: What do you think is going to happen to our existing wells – our well is only 30 ft. deep? This is a big concern (what a disaster if our spring is contaminated).

4. Let's Work Together and review and come up with something that property owners and developers can come to an understanding. The right thing to do!

5. Just another thought: This project has way too many hidden impacts on Sawmill road and neighbors. Requesting that the county step up to plate and evaluate the cumulative impacts of both Manly land projects and address in detail.

Thank you

Adelene Newcomb

December 24, 2018

Dear Quincy,

This letter is in reply to your request for comments regarding the submittal by Hardin Flat LLC/Hansji Corporation related to Site Development Permit SDP18-003 on Assessor's Parcel Numbers: 068-120-060 and 068-120-061.

A couple of process comments:

1. The timing of required comments being due on December 28th during the holiday period has raised questions in the community regarding transparency and good faith by the County in valuing and honoring stakeholder input. This has created the perception that an effort is underway to fast track the development and bypass stakeholders.

2. The stakeholder list not including Groveland area businesses and others along the Highway 120 corridor reinforced the concern above. We request to please be included as a stakeholder in this and other proposed new developments and expansions to existing developments along the Highway 120 corridor moving forward. We believe the owners of the Groveland Hotel & Hotel Charlotte, among others, would also like to be included.

Hansji appears to have incorporated many thoughtful elements into their design. Here are our initial comments on the proposed development:

The scale of improvements and number of rooms proposed is not consistent with the rest of the Groveland/Highway 120 corridor. 250 hotel rooms are proposed, significantly more than any other facility in the area. The exact count of rooms was unclear, as the plan cover sheet says 140 hotel rooms and 100 cabin rooms, but the drawings appear to show the following room counts on the three floors: 53, 53 and 45, which totals 151, not 140.

We believe the County is also considering a proposal for a 100+ room increase at Yosemite Lakes and a 100+ glamping sites on the Manley parcel on the south side of Highway 120. The Hansji development and these additional accommodations would much more than double the Yosemite-oriented accommodation in the immediate area and could have dramatic near-term effects on existing area hospitality businesses, which have

Evergreen Lodge
33160 Evergreen Road
Groveland, CA 95321
EvergreenLodge.com
(209) 379-2606

Rush Creek Lodge
34001 Highway 120
Groveland, CA 95321
RushCreekLodge.com
(209) 379-2373

already been financially stressed by the Ferguson Fire and last year's flooding and associated Yosemite closure. While we know the County is excited about expanding its tax base, such aggressive nearly simultaneous facilities approvals/additions put the existing tax base at risk. We encourage the County to be thoughtful about the scale and pace of development along the corridor.

The proposed improvements appear to be 175,000 sq ft, larger than anything else in the Highway 120 corridor. The plans say 101,000 square feet for phase I structures, but the individual structure square footages are called out on the plan sheets as follows: Commercial 1st floor: 19,200 sq ft, Hotel 1st floor: 33,200 sq ft, Hotel 2nd floor: 33,200 sq ft, Hotel 3rd floor: 33,200 sq ft, Reception: 3,200 sq ft. These total 122,000 sq ft, so perhaps we are misunderstanding the discrepancy between the 101,000 sq ft called out on the plan cover sheet. The proposed 100 rooms in the 4-plex two-story cabins make up the other 53,000 sq ft, which makes the scale of development 175,000 sq ft.

Highway 120 in our area is an officially designated State Scenic Highway, which Cal Trans defines in part by "…the extent to which development intrudes upon the traveler's enjoyment of the view." The development as proposed, with its continuous, sprawling complex as shown on sheet A2.0 of the architectural plans, will have an enormous, highly visible presence from Highway 120. This design does not seem in keeping with the nature of the scenic corridor and associated designation.

While the rendering on sheet T0.02 shows an extensive array of large, mature trees separating the complex from the highway, this is not the case, nor would it be any time soon. There is in fact very little visual break from the highway, and none at all in several areas. The proximity of the development to the highway and the fact that the improvements are uphill from the highway will leave the extensive complex highly visible from the road in both directions. Such a large complex designed parallel to the highway with connected structures with such dramatic visibility from the road will be highly inconsistent with the rest of the scenic corridor.

It is important that what gets constructed at Sawmill Mountain Road be appropriate for its highly visible roadside location and that it be consistent with the scale of other area hospitality facilities. This concern is also important as it relates to the long-time neighbors, many of whose families homesteaded the area, and who deserve to retain the rustic, undeveloped feel of their surroundings and view corridors.

We encourage thoughtful planning regarding traffic and access in the area. We question using Sawmill Road as the access to/from the development, as that choice may have significant impacts on area homeowners. We have general concern for the traffic and safety impact of the combination of developments planned for the area, including Hansji's, the large glamping development on Manley land immediately across the road, the rebuilding of Berkeley Camp and the Yosemite Lakes improvements, the latter two of which will impact the immediately adjacent highway area at Hardin Flat Road.

Numerous Sawmill area neighbors have reached out to us regarding their concern about a number of issues, and we encourage the County to do everything possible to address the concerns of the neighbors given their proximity to the development and their historical presence in and commitment to the area.

In particular, neighbors have expressed concern about the zoning change that went through 25+ years ago potentially without sufficient analysis regarding endangered species and development impacts. They have also raised questions about current endangered species presence and habitat, and we encourage appropriate scale of environmental review to ensure potential concerns have been analyzed and addressed, as it will serve all parties well to remove/address these issues on the front end.

On a specific note, we were surprised that the guest room and cabin wastewater system appears to be a standard septic system rather than a waste treatment system with a higher treatment standard. We had thought that level of treatment would now be the standard based on the development requirements at our facility at Rush Creek.

We were also surprised that there is no staff housing planned for the development, and that the developer is apparently relying on the immediate area to provide all staff for the project. Such a decision could have an impact on the entire Groveland area labor market and associated businesses given the very limited availability of local staff and the associated lack of moderately priced housing in the area. Note that between our two lodges, which combined have fewer rooms than this proposed development, we house over 150 staff in onsite housing and couldn't operate successfully without this employee housing.

Overall, the immediate neighbors, whose lives and lands will be significantly impacted by the development, have found this proposal inconsistent with that which was presented to them by the developers during the onsite meeting just a few months ago. Among other things, the scale of this proposal is much larger than presented and is raising grave concerns among area residents.

With this in mind, we suggest the County extend the comment period into the new year rather than rush or compromise/limit the input of concerned parties. By way of example, we understand that the National Forest Service expert who would normally coordinate such a reply is not currently in town due to the holidays, and that the NFS may have to have someone else attempt to compose a quick reply in time to meet the County deadline. The partial government shutdown is likely exacerbating this issue and is another reason to extend the comment period.

Since players have changed over time, we want to remind all parties of the extensive but very thoughtful process that was involved in approving the Evergreen Lodge and Rush Creek Lodge developments and of the success of both developments in the community as

a result of that disciplined process. Rush Creek's development approval, which pre-dated our involvement, was years in the making despite the land already having been in use for lodging and the only neighbor being the NFS (property purchased in 1987 with initial entitlements approved in 2001). This process, while painful, ensured all parties were heard and all concerns thoughtfully addressed. The addition of onsite staff housing to the planned project took nearly 3 additional years, with approval coming in 2004. We don't suggest that any project should endure that pace of approval, but given the number of immediate neighbors involved, the scale of what is being proposed and its impact on the Groveland housing, staffing and hospitality markets, along with the other hospitality additions planned in the immediate area which will exacerbate the impact of this development, we encourage discipline, thoughtfulness, and the hearing of all voices in the approval process.

Again, for historical reference, note that the additions of hotel rooms to the area by our organization happened incrementally over many years, and after years of experience to understand the area, all stakeholders, the labor pool, the Yosemite market, county priorities, etc. We bought the Evergreen Lodge in 2001 and added our initial 48 rooms there in 2004. We then added 24 more rooms in 2009. Then 7 years later in 2016 we opened Rush Creek. These stepwise additions over time allowed new inventory to be successfully absorbed into the marketplace, and this disciplined approach has proven out well for the community overall.

We hope our comments are helpful in supporting a thoughtful and methodical approach to the development analysis for the proposed project.

Feel free to call me if we can provide any additional information.

Sincerely,

Lee Zimmerman

cc John Gray, Jim Junette

We are not sure if we will be able to attend the Scoping Meeting on May 13 so we wanted to express our comments.

Our concern with this project is how will you ensure that Terra Vi Lodge contributes financially to emergency fire, medical and law enforcement services? Will Terra Vi Lodge be paying their fair share for the provision of these services? As it is, these services are limited in the Groveland area.

Emergency fire and medical services are services that the Groveland taxpayers pay an **additional** tax for in order to have these services available to us in Groveland since the County does not provide them. As it is now, the Groveland taxpayers are already providing emergency services to Rush Creek, Evergreen Lodge and Camp Tawonga without any of these resorts paying their fair share for these services.

Pulling fire and medical out of Groveland for calls at Terra Vi Lodge (in addition to Rush Creek, Evergreen Lodge and/or Camp Tawonga) will leave the Groveland taxpayers, who actually pay for these services, without fire and medical coverage if one of us were to need such services at the same time fire and ambulance were on a call at one of these other places.

How can we be assured that the County will take these concerns by those of us in Groveland seriously? We ask that in order for this project to move forward, the County insist that Terra Vi Lodge pay their fair share for emergency services.

Sincerely,
Chris and Terre Passeau
Groveland

Mr. Yaley: My family & I are requesting an email or hard copy of the Terra Vi Lodge Yosemite Project draft EIR. We are concerned about the potential cumulative impact this project (& others such as Berkeley Tuolumne Camp, Yosemite Lakes & proposed glamping campsite) will have on the Hardin Flat community where our home is located. We are also concerned about the impact on local groundwater quantity & quality, wildlife, & increased trespassing & traffic. If you have any questions, please phone me at 916-409-9016. Thanks for your help; it's appreciated. Sincerely, Lucinda Chipponeri

Sent from Mail for Windows 10

Margene Rivara

From: Margene Rivara <margene@venturesir.com>
Sent: Monday, May 13, 2019 3:43 PM
To: 'Dan Courtney'; farfallajc@gmail.com
Cc: 'John and Margaret Pfeiffer'; 'Julie and Andy Perrucci'; 'Lucinda'; 'Kevin O'Day'; 'John and Margaret Pfeiffer'; 'Andy Perrucci'; sunsetinn@mlode.com
Subject: RE: Manly Glamping Project

Thank You to Everyone Who Has Now put us on the email chain for these projects. We just learned about these proposed projects a short while ago thru a Grapevine.

To Whom This May Concern:

My Husband Lou and myself are Property Owners on 31583 Hardin Flat Rd.

Regarding the meeting tonight, we just learned of this meeting today, so the short notice is very difficult for us to make the meeting as we are coming from the Bay Area thru rush hour traffic. Did the County send out Notices to the property owners who own property in the area about this meeting tonight? If so, when was it sent and to whom was it sent. It seems to me, that we all should be noticed of Meetings such as this, as it should not be up to the property owners to be the ones, thru word of mouth to tell other interested parties.

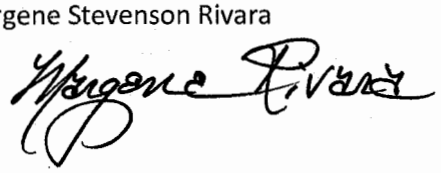
That being said, it is my strong feeling that we do not yet know the impact to the area by the New, yet to be built enlarged development of Berkeley Camp (already approved), and the enlargement of NACO with an additional 100 Camping Sites. The new Rush Creek Development, plus Berkeley Camp Development and NACO will be putting an additional strain on the Services the County already is strained to provide. (Have you ever called the County just to get the Sherriff to check on a possible Emergency in our area?) You might be surprised at the response and you will see they are spread very thin in the services they can provide). We are however concerned about more than just the Sherriff and Emergency Services to the area. We are concerned about traffic Congestion on a daily basis, let alone when there are Emergencies, concerned about the Water needs in the area, and the effects of so many people in a concentrated area, and how they will effect Nature and the surrounding land. Remember, there will not be the Rangers and Park Services Employees available (such as in Yosemite Park, or Hetch Hetchy) to monitor and care for the area surrounding these developments.

Why are we considering additional developments when we do not even know the impact on additional services needed, to accommodate Berkeley Camp, NACO, Rush Creek and the other long standing property owners already in the area.

Shouldn't we wait and see how well the County can service the already Approved Development before we Approve more Development? Shouldn't we see the impact on the immediate neighbors who will be directly effected?

The American Indians say, We should consider our Acts, unto Seven Generations. We need to move slowly on approval of more development in the area, because once you develop the area, and disturb the land and the balance of Nature, you cannot go backwards, if you make a mistake. Take a lesson from the Indians. Go slow.

Best Regards,
Margene Stevenson Rivara



Tuolumne Heritage Committee

Sonora, California 95370

RECEIVED
MAY 15 2019
COUNTY OF TUOLUMNE
Community Resources Age

May 13, 2019

Quincy Yaley,
Assistant CRA Director
CRA
2 S. Green St.
Sonora, CA 95370

Re: Terra Vi Lodge

Quincy:

Thank you for including cultural resources in your scoping process for the EIR you are requiring on this project. It is in an area that could very well be sensitive for Native Americans, gold mining and timber milling operations.

Sincerely,

Sharon Marovich, Chair

Steven Crook
P.O. BOX 142
GROVELAND, CA 95321
209-962-7716
Mobile 209-768-2716
FAX 209-962-4821

May 15, 2019

Quincy Yaley
County of Tuolumne
2 South Green St.
Sonora, CA 95370

RE: Terra VI Lodge

Dear Quincy:

These are a few subjects I would like to be addressed in the EIR for the Terra VI Lodge project.

What is the financial impact on the local communities during construction?

What is the financial impact on local communities after the project opens?

What is the impact to housing?

1. Rentals
2. New housing

With the addition of increased employment how will this impact the schools?

Will the competition for employees by employer's effect wages?

If this project increases traffic numbers how does the effect local businesses?

What is the impact of not having the project property used for timber production and cattle production?

Thank you,

Steven Crook

From: John Gray
Sent: Wednesday, May 15, 2019 10:43 AM
To: Carlyn Drivdahl
Subject: Fw: Yosemite under Canvas project

Do you want any of this as I receive it.
?

From: Mary Hollendoner <maryhollendoner@gmail.com>
Sent: Wednesday, May 15, 2019 9:15 AM
To: Community Resources Agency; John Gray; Quincy Yaley
Subject: Yosemite under Canvas project

My family owns property at Sawmill mountain road in Tuolumne county, and have recently heard about the "glamping" proposal nearby on Hardin Flat Road.

We are really concerned about water sources drying up, sewer contaminating the water, and increased fire risk from the development.

Has there been a full study into the impact on the water table in this area? And have you formed a plan with Groveland Fire dept about the increased fire risk and their ability to combat it?

Please allow us time to review any studies you have done. This is all being sprung on us with very little time to review anything.

We are especially concerned about the combined effects from this plus the proposed Terra Vi lodge - any studies for either of these need to be COMBINED. It does not help to do 2 independent studies.

Thank you!
- Mary Hollendoner, 11226 Sawmill Mtn Road

Hi Quincy, I am sorry we missed the Groveland meeting, but wanted to add my comments.
I am personally for adding responsible tourist units, and am primarily concerned with water (quantity and quality), appropriate sewage facilities, safety for foreign visitors in an area which is largely uninsurable due to wildfires, and sensitivity to those who have lived there for sometimes generations. Any company investing the money to build such accommodations needs to pay careful attention to all these aspects.
Thank you, Joy Lopez

Dear Quincy,
I have the following concerns about the Terra Vi project.
Fire- why would the county allow a massive hotel in a " very high fire hazard severity zone?" Evacuation on the two lane highway could be disastrous.
Insurance- will the county guarantee that Terra Vi has fire insurance before the project starts?
Water- will the county guarantee the project has adequate water for their guests and for fire protection? How deep are the wells? When were they drilled? Was it a drought year?
Will the amount of water needed for the project effect or reduce the water of the neighbors existing wells?
Rush Creek has had to bring in water in the past. Will this be an issue for Terra Vi too?
Sewer- is it true that there will be a 7 acre leach field located near a wet lands area? How will all of this waste effect the Tuolumne River?
Solar- is this just a few token panels or will this supply most of the power for the lodge?
What does a wastewater system for the food service mean?
How much housing for employees will there be? Labor is a real issue already as is housing.
With serious parking issues in Yosemite Park already, is it really wise to add hundreds of cars to an existing dilemma?
Thank you for taking my comments about Terra Vi.
Ellie Owen
Groveland, Ca.
Sent from my iPad

We have spent a lot of time in the Sawmill Mountain area over the past two decades. We go there to enjoy the serenity, natural beauty, and recreational opportunities (hiking, camping, fishing, and snowshoeing). Building a lodge, and the traffic that it would bring, would devastate the natural beauty and wildlife in the area, as well as the environmental damage and potential wildfires will likely be caused by humans and vehicles. Please put a halt to this kind of development in the area.

Kim Galvin
Alameda, CA

Dear Sir,

I would like to add my voice to those opposed to the Terra VI Lodge and Under Canvas Yosemite developments. I have enjoyed a range of outdoor activities in the Sawmill Mountain/Hardin Flat area over the last three decades, including hiking, fishing, biking, paragliding and relaxing at one of the many legacy cabins. The proposed commercial developments in this area are completely out of character with its rustic nature and will destroy the delicate balance between the natural environment and human activity. The environmental burdens of these proposed commercial developments will negatively and irreversibly impact the land in ways that far outweigh any possible benefit to the county. I urge you to reject both of the commercial developments.

Michael Galvin
Attorney-at-Law
35 Lavagetto Ct
Alameda, CA 94502

DEPARTMENT OF TRANSPORTATION
DISTRICT 10
P.O. BOX 2048, STOCKTON, CA 95201
(1976 E. DR. MARTIN LUTHER KING JR. BLVD. 95205)
PHONE (209) 948-7325
FAX (209) 948-7164
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

May 20, 2019

Ms. Quincy Yaley, Assistant CRA Director
County of Tuolumne
Community Resources Agency
2 South Green Street
Sonora, CA 95370-4618

TUO-120-PM 50.082
Terra Vi Lodge Notice of Preparation for EIR

Dear Ms. Yaley,

The California Department of Transportation (Caltrans) appreciates the opportunity to review and comment on the Notice of Preparation (NOP) for Environmental Impact Report (EIR) for the development of Terra Vi Lodge, a master planned lodge. Terra Vi Lodge is proposed to include one hundred and forty (140) guest rooms, twenty-five (25) 4-bedroom cabins, a market, a lodge, event space, and other support buildings. The project site consists of two parcels totaling 63.38± acres. The parcels are zoned Commercial Recreation (C-K) and Open Space (O) under Title 17 of the Tuolumne County Ordinance Code. The project site is located at the northeast corner of the intersection of Sawmill Mountain Road and State Route (SR) 120. The property is located on both sides of Sawmill Mountain Road.

Caltrans has responded to the previous routing of this project on December 27, 2018. Caltrans has additional comments on the following:

If project construction activities will encroach into Caltrans right of way, the project proponent must submit an application for an Encroachment Permit to the Caltrans Permit Office. Appropriate environmental studies must be submitted with this application. These studies will include an analysis of potential impacts to any cultural sites, biological resources, hazardous waste locations, and/or other resources within Caltrans right of way at the project site. Please include the final EIR with the encroachment permit application.

If you have any question or would like to discuss these comments, please contact Austin Sos at (209) 948-7936 (email: austin.sos@dot.ca.gov or me at (209) 948-7325 (email: gregoria_ponce@dot.ca.gov).

Sincerely,

Gregoria Ponce, Chief
Office of Rural Planning

C: Darin Grossi, Executive Director Tuolumne County Transportation Council
David Gonzalves, Director, Tuolumne County Community Resources Agency

May 20, 2019

Tuolumne County Community Resources Agency
ATTN: Quincy Yaley
Assistant Director, Development
RE: Site development Permit SDP18-003

Dear Ms. Yaley,

We have a family cabin within 700 feet of the proposed project that was built in 1969, as such, we are very concerned about this development and the glamping development across HY120 for many reasons.

I understand that this project falls within the zoned use of the land, however, with the massive size of the project and the fact that it is proposed on never before developed land near what has historically been a residential area, I would hope that the EIR would address the total impact of both developments. I am sure that the EIR that was performed many years ago when the properly was zoned commercial did on envision a projects of this magnitude. I also feel that the letter that I sent in when the last EIR report was done did not address all of our concerns.

One of my greatest concerns is water. When we dug our 55 foot well in the late nineteen sixties the level of the water after drilling the well came up to one foot of the surface. It is now over 20 feet below the surface. A couple of years ago we had a new well drilled. The driller had to go down 500 feet to get approximately the same water flow. The level and flow of the water has been dropping due to years of intermittent drought, which is now, as many meteorological studies have shown, is the "new normal". We had a wet year this year, but cannot count on that continuing in the future.

We were told that wells drilled in the granite in our area are tapping into different factures in the granite. This past summer when Hansji Corp. was having their two wells drilled, our drip watering system kept plugging up, which leads me to believe we are drawing water from the same granite facture. What's going to happen when they pump the large amount of water required for their development? How will that impact us? Although we were continually assured by Hansji that development will not negatively impact our water

source, common sense would argue otherwise. A thorough water study needs to be done.

Another concern is the traffic impact it will have in the area. Sawmill Mountain Road is a small forest road, and with two hotel entrances/exits proposed on that road, the impact to the area from both cars and people will be significant. There is no question that existing residential homes and wildlife habitat in this area will be deeply and negatively affected by this development. Bringing this number of vehicles and people to such a remote area cannot easily be mitigated. As HY120 is our only exit, what would our exit be if a fire is blocking our access to HY120? Even if we can make it to HY120, what would our exit be if the fire is blocking the west and east directions of HY120? With 45 open pits in the glamping project, a fire starting there could easily block all exist. A though EIR study must include these issues. The glamping project must be included in the EIR study.

The above are just a couple of concerns regarding these large developments, we have many more. The size of the projects are totally unacceptable for this area. We urge the County to please realize that the impacts of the two projects are incredibly significant on land that was supposed to timber production.

Sincerely.

Gene and Joann Pfeiffer
11360 Sawmill Mountain Road
Groveland, CA 95321
Mailing address:
4050 Harding Way
Oakland, CA 94602

CEQA APPENDIX G:
ENVIRONMENTAL CHECKLIST FORM

NOTE: The following is a sample form and may be tailored to satisfy individual agencies' needs and project circumstances. It may be used to meet the requirements for an initial study when the criteria set forth in CEQA Guidelines have been met. Substantial evidence of potential impacts that are not listed on this form must also be considered. The sample questions in this form are intended to encourage thoughtful assessment of impacts, and do not necessarily represent thresholds of significance.

1. Project title: Site Development Permit SDP 18-003
2. Lead agency name and address: Tuolumne County Community Resources Agency
3. Contact person and phone number: Quincy Yates
4. Project location: Sawmill MT. Road + Highway Terra VI Lodge
5. Project sponsor's name and address: LLC / Hanssji Corp. 631 W. Katella Ave 5th Floor Anaheim CA 92802
6. General plan designation: _____ 7. Zoning: C-K O
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.) Lodge, cabins, Heli Pad, water wells
9. Surrounding land uses and setting: Briefly describe the project's surroundings: Forest with 80 acres of about 18 cabin or homes
10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.) Cal Trans, Forest Dept of US
11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun? Yes

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

RECEIVED

JUN 03 2019

COUNTY OF TUOLUMNE
Community Resources Agency

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☑ Aesthetics	☑ Agriculture and Forestry Resources	☑ Air Quality
☑ Biological Resources	☑ Cultural Resources	☑ Geology /Soils
☑ Greenhouse Gas Emissions	☑ Hazards & Hazardous Materials	☑ Hydrology / Water Quality
☑ Land Use / Planning	☐ Mineral Resources	☑ Noise
☑ Population / Housing	☑ Public Services	☑ Recreation
☑ Transportation/Traffic	☑ Tribal Cultural Resources	☑ Utilities / Service Systems
☑ Mandatory Findings of Significance		

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____ _____

Signature Date

_____ _____

Signature Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

a) the significance criteria or threshold, if any, used to evaluate each question; and

b) the mitigation measure identified, if any, to reduce the impact to less than significance

SAMPLE QUESTION

Issues:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☑	☐	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☑	☐	☐	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☑	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☑	☐	☐	☐
II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☑	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☑	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☑	☐	☐	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☑	☐	☐	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☑	☐	☐	☐
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☑	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☑	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☑	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Expose sensitive receptors to substantial pollutant concentrations?	☑	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☑	☐	☐	☐
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☑	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☑	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☑	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☑	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☑	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☑	☐	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☐	☑	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☑	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☑	☐
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☑
VI. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☑	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
ii) Strong seismic ground shaking?	☐	☐	☐	☑
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☑	☐
iv) Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☑	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☑	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☑	☐	☐	☐
VII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☑	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☑	☐	☐	☐
VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☑	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☑	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☑

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☑	☐	☐	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☑	☐	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☑	☐	☐	☐
IX. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☑	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☑	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☑	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☑	☐	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☑	☐	☐
f) Otherwise substantially degrade water quality?	☐	☑	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☑
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☑
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☑
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑
X. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☑	☐	☐	☐
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☑	☐	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☑	☐	☐	☐
XI. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑
XII. NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☑	☐	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☑	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☑	☐	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☑	☐	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☑	☐	☐	☐
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☑	☐	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☑	☐	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
XIV. PUBLIC SERVICES.				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☑	☐	☐	☐
Fire protection?	☑	☐	☐	☐
Police protection?	☐	☑	☐	☐
Schools?	☐	☐	☑	☐
Parks?	☐	☑	☐	☐
Other public facilities?	☐	☑	☐	☐
XV. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☑	☐	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☑	☐	☐	☐
XVI. TRANSPORTATION/TRAFFIC. Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☑	☐	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☑	☐	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☑	☐	☐
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☑	☐	☐	☐
e) Result in inadequate emergency access?	☑	☐	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☑	☐	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☑	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☑	☐	☐
XVIII. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☑	☐	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☑	☐	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☑	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☑	☐	☐	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☑	☐	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☑	☐	☐	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☑	☐	☐	☐
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or anima community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☑	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☑	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☑	☐	☐	☐

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; *Sundstrom v. County of Mendocino,*(1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors,* (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

Revised 2016
Authority: Public Resources Code sections 21083 and 21083.09
Reference: Public Resources Code sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3/ 21084.2 and 21084.3

Assistant Director Yaley, and team,

I was just alerted to these monstrous developments in sacred wilderness, and I can't believe my eyes. How can it be that we would allow such corporate development and greed forever change the landscape of Tuolumne County?

I have grown up learning the lessons of the wild in the High Sierra and all of Tuolumne County. Now my two young sons are doing the same. It is a sacred place, only made possible by restrained development. By peace and quiet. By spaciousness.

To allow corporations to come in and build in this HIGHLY FLAMMABLE area is not only irresponsible from a safety standpoint, but will unquestionably take the wilderness out of the wild.

What kind of precedent does this forever set?

Aren't you concerned with:

- INCREASED FOREST FIRE RISK
- Traffic
- Pollution
- Worker housing and further crowding
- Water scarcity
- Water contamination
- Abandonment of the properties should business stall
- Noise
- Air quality

And did I mention FIRE? This entire region burns repeatedly. I don't see how this is responsible to build further here.

Forgive me, but are you eager to see the tax revenue and is this the driving factor? We will continue to visit and spend our money in your county, but not if this is the pattern of development.

Thank you for taking my comments. I whole heartedly protest these two developments.

- Geoff Dowd

Dear Quincy Yaley (and others),

I am writing in regards to the proposed Terra Vi Lodge near Groveland and Yosemite. My family has owned a nearby cabin for the last 50 years. I believe this project to be very irresponsible and I hope you all do the right thing for the environment and the local population. This huge hotel will bring a possible 1000 additional people a night to the area. I'm not sure why this place has to be so large and it is this size which makes this project so irresponsible and short sited. I know this must bring some much needed tax revenue to the area but at what cost? The potential fire danger and evacuation issues that this many people bring alone should have shut this down, but there are many other potential costs to the county beyond fire danger. Before I move beyond fire I want to talk about the fact that there is only one road in and out of sawmill mountain area. Imagine 1000 people plus the 20 cabins in the area trying to evacuate a fast moving fire when there is only one road. The Paradise fire showed us all the perils of one road in and out can cause. The county would be putting everyone's lives at risk if you let this project happen and would be liable since you should know the risks after the Paradise fire. Another road out to the hwy would not solve this problem because once everyone gets to Hwy 120 that is another one road in and out situation and there are many more people potently on that road from Yosemite, rush creek, evergreen, Berkeley camp, Yosemite lakes and the cabins in Harding flat (and possibly the glamping development). With global warming the fire danger will only increase with every passing year and the chance of a fast moving fire is very high.

I am also concerned about the added pressure this development could add to the area's public emergency services. Ambulance, sheriff and fire are all far away from this development and other future developments (Berkeley camp and the proposed glamping site across the HWY). Unless these emergency services are expanding soon this could be a big problem (a helicopter pad does not solve this problem)

I am mostly very concerned about the water supply, with climate change in mind I think this development is irresponsible as it will require a lot of water to service this many units, Rush Creek is not able to pump enough water for their guests so I think this development will have the same issues. They also cannot guarantee they will not contaminate the water used by surrounding residents and if those people lose their water supply the county could be liable for allowing this irresponsible project. The water supply around saw mill mountain has gone down in recent years (we just had to dig a new well) and I think we all know this will continue, I do not believe there is enough water for this project. We are also concerned about our cabin's well water, it is possible that if this project draws from the same source as our well, then our well could go dry, this is a VERY scary thought.

My last concern is about the future, I know the nearby hotels are rarely full and Yosemite will soon be limiting a number of people allowed in the park every day. What happens if they build this huge resort and in a few years they find they cannot keep it open because they are not able to fill all the rooms (or there is not enough water, or a fire comes through again) and they close. Then we have a huge empty resort which we all know what happens to empty buildings and all the problems this creates beyond just being an eye sore. But most of all if they close there will be no tax revenue.

I implore you to be responsible and forward thinking about what you are doing if you approve this project. Please think about how this project will affect the water supply, the fire danger, air quality, and the wear and tear an additional 1000 a night could bring to a forest.

People come to this area because it is not like Tahoe, we do not cater to developers we cater to the land, please continue to carry on this tradition.

Thank you for taking the time to read,
Jenny Pfeiffer

CHIEF EXECUTIVE OFFICE

Jody L. Hayes
Chief Executive Officer

Patricia Hill Thomas
Chief Operations Officer/
Assistant Executive Officer

Keith D. Boggs
Assistant Executive Officer

Patrice M. Dietrich
Assistant Executive Officer

STANISLAUS COUNTY ENVIRONMENTAL REVIEW COMMITTEE

May 24, 2019

RECEIVED

MAY 29 2019

COUNTY OF TUOLUMNE
Community Resources Agency

Quincy Yaley
County of Tuolumne
Community Resources Agency
2 S. Green Street
Sonora, CA 95370

SUBJECT: ENVIRONMENTAL REFERRAL – TUOLUMNE COUNTY – TERRA VI LODGE YOSEMITE PROJECT – NOTICE OF PREPARATION (NOP) OF THE DRAFT ENVIRONMENTAL IMPACT REPORT (EIR)

Mr. Yaley:

Thank you for the opportunity to review the above-referenced project.

The Stanislaus County Environmental Review Committee (ERC) has reviewed the subject project and has no comments at this time.

The ERC appreciates the opportunity to comment on this project.

Sincerely,

Patrick Cavanah
Sr. Management Consultant
Environmental Review Committee

PC:ss

cc: ERC Members

RECEIVED

JUN 04 2019

COUNTY OF TUOLUMNE
Community Resources Agency

May 26, 2019

Ms. Quincy Yaley
Assistant Director, Development
Tuolumne County Community Resources Agency
2 South Green Street
Sonora, CA 95370-4618

CC: Natalie Rizzi, David Gonzalves, John Gray, Community Resources Agency

RE: Terra Vi Lodge Project EIR

Dear Ms. Yaley,

As a concerned Sawmill Mountain stakeholder, I am writing in response to your request for comments and guidance on the scope of the EIR. I submitted a comment letter to you on December 26, 2018 and asked that I be notified of any future public hearings, meetings and receive all environmental documents prepared for this project. However, I was not notified about the May 13th meeting by the County and again formally request that I receive all future notifications. Please use my email address: nancy.constantino@yahoo.com. I also request that my initial letter dated December 26, 2018 be added to the Terra Vi Lodge project file to incorporate all of my concerns.

The proposed project affects every environmental factor per Appendix G, assessed by the Environmental Impact Report (EIR). In fact, there are a few missing categories in the County Notice of Preparation (NOP) which should also be detailed within the EIR: Agriculture, Mineral Resources, and Recreation. The (20) categories are all interwoven and affect factors in multiple subsections of the EIR. It is nearly impossible to discuss one subject without touching on another. I submit the following comments to address the issues in alphabetical order for the County Notice of Preparation of an Environmental Impact Report for the proposed Terra Vi Lodge development:

1. Aesthetics

Yosemite National Park is known as one of the most beautiful places in the state, country, and world. Scenic Highway 120, especially in the Sawmill Mountain area was devastated by the Rim Fire and subsequent bark beetle infestation. The proposed Terra Vi Lodge project with over 240 guest rooms, 25 four bedroom cabins, 286 parking spaces, a helipad, bus stop, shopping market, large event space, multiple out-buildings, over 1,300 guests and several hundred support staff on site, does not suit the lot size, location, and will degrade the beauty of the forest. The addition of the Glamping project, more campsites at Yosemite Lakes Thousand Trails RV park, and Berkley-Tuolumne Camp further degrade this precious, remote, rural timberland. I request that the County consider all proposed projects in the area at this time as the cumulative impact is substantial. The scenic vistas, in particular will be significantly impacted and forever destroyed.

There is no need for such a large scale operation in a remote forest and undeveloped location; this project development is detrimental to the Sawmill Mountain Area. The clash of zoning and proximity of a huge hotel development immediately adjacent to rural residential properties is an unmitigated nuisance.

The scenic views from my property as well as my neighbors on Forest Route 1S03 will be substantially impacted. Additionally, new artificial lighting will further deteriorate views of the night sky. The artificial lighting is noted under Aesthetics but also impacts Biological Resources which could disrupt many wildlife species including the vulnerable riparian habitat in this ecologically sensitive area. Many animals are cued by nightfall for feeding, mating, foraging; these normal patterns are at risk for interruption and harm to sensitive wildlife and plant species.

2. Agriculture and Forestry Resources

The County has neglected to inform the community that the proposed project area meets the definition of "Timberland" pursuant to Public Resources Code 4526. Mr. Gregory Robert Manly entered into a contract agreement with California Department of Forestry and Fire Protection (CFIP) in June, 2015.

In the stated purpose of the forest improvement work, the agreement affirms that "this project will help protect water quality, aesthetics, and wildlife values within the overall watershed." The CFIP project description goes on to explain, "The proximity of the parcels to Highway 120, a major State highway and the northern access to Yosemite Park, add to the importance of creating a safe and aesthetic forest landscape."

The project description continues, "The Tuolumne River along with the other perennial watercourses provide valuable wildlife habitat for a number of species including deer, bear, wild turkey, and gray squirrels. *The landowners want to ensure these values by improving forest health and reducing current fuel load levels."*

According to this contract, the participant (Mr. Manly) certifies that the parcel of forestland to which the Forest Improvement Program applies <u>will not be developed for uses incompatible with forest resources management within 10 years following recordation date.</u> The property has undergone reforestation efforts and CalFire has been monitoring the forest improvement work as recently as just a few months ago. The neighbors of Sawmill Mountain have always known this to be a protected timberland preserve and the County has mis-represented the zoning of this parcel.

The proposed project will replace many acres of mixed conifer forest and beautiful open mountain meadows with roads, parking lots, resort facilities, maintenance facilities, propane tanks, helicopter pad, and large leach fields for sewage treatment. It is adjacent to low density residential development on heavily forested lots and National Forest lands. The project will bring tens of thousands of new overnight visitors to a remote forested area every year for the foreseeable future. These impacts to the agricultural resources and forest are significant and will forever destroy the unspoiled natural setting.

3. Air Quality

The proposed development will expose the sensitive, rural, remote environment to substantial pollutant concentrations that will affect a substantial number of people, animals, and forestland. Air quality is a significant issue, especially when additional gas/diesel powered vehicles, cars, buses, motorcycles, motorhomes, helicopters, smokers, and campfires, all inundate the pristine mountain.

The proposed Terra Vi project and Glamping project area is currently untouched timberland and the Glamping project proposes 99 wood burning fire places, several larger community fire circles, and no water source. Air quality impacts to this sensitive forest area will have an adverse impact on the forest, wildlife, and human health. See Wildfire (#11) for more concerns.

4. Biological Resources

I highlighted significant impacts to biological resources in my original letter under "Wildlife, Habitat, and Open Space." In addition, the following impacts must be studied again as much has changed since the Initial Study performed in 1991.

In the 1991 Initial Study, the Department of Fish and Game advised that a wild-life survey be conducted prior to proceeding with any project. Recently, the Department of Fish and Wildlife commented on the nearby Glamping project and significant concerns have been raised with regard to water pollution, lighting, noise, and nesting birds. Moreover, the fish and wildlife biological resources would potentially suffer both direct, and indirect significant impacts.

The Department of Fish and Wildlife are also concerned that the proposed Terra Vi property provides habitat for the California Spotted Owl, Northern Goshawk, Mule Deer, Black Bear, Mountain Lion, Bobcat (Lynx), Coyote, Raccoon, Skunk, Bat Species, Pacific Chorus Frog, the Arboreal Salamander, and California Newt, as well as special status plants, and waterway and riparian resources. Many of these animals are on the threatened, endangered, or California Special Concern lists.

The habitat found was considered "third priority" wildlife area. In Chapter III of the 1991 Study, Implementation Measure LL of the General Plan requires that where a common habitat type located on a proposed development site is determined to be a third priority wildlife area, Open Space zoning shall be used to conserve 20 percent of the site or the entire habitat area, whichever is less. However, there is no mention of this requirement or mention of a wildlife study in the current development plan. This must be addressed by the EIR.

Additionally, the Central Sierra Chapter of the Audubon Society had also reviewed the project in 1991 and they indicated concerns regarding loss of timber producing land, distance from the site to emergency services, impacts on wildlife, and aesthetic impacts to the Highway 120 corridor through the National Forest and into Yosemite National Park. Again, the impacts on the animal habitats will be significant and must be studied during the EIR.

7. Hydrology and Water Quality

The Tuolumne County Environmental Health Division advises in the 1991 Initial Study that future examination is required to address health issues including: provision of potable water, sewage disposal, and solid waste disposal. These are obvious, huge concerns; a project of this size is an incompatible use on a remote forest site without public water or public sewer. The Glamping project does not identify a water source at all. The hotel and glamping development may deplete groundwater supplies. Our water sources are precious and scarce.

The County incorrectly describes the project as having a public water system that would be developed from two existing on-site wells. The two wells were recently drilled in August, 2018 by Canepa and Sons, Inc. as soon as the developer made intentions known about the proposed project. These wells were not existing. It is not known if the new wells drilled will be able to provide enough water for a sprinkler system, storage tank, swimming pool, laundry facilities, maintenance facilities, special events, water treatment, food service waste water treatment, and most importantly fire suppression. There has never been any water usage by wells on the property (we have owned property on Sawmill Mountain since 1961) except the natural springs that feed the watercourse, creeks, and eventually the Tuolumne river.

The developer has proposed a location for septic tanks and leach lines that may contaminate our shallow well that provides drinking water to our cabin. The proposed leach field for a 250-room hotel with toilets flushing constantly would significantly compromise the stream that supplies our wells and meadows. Our well is shallow (only 68') and is fed by the meadow stream that will be contaminated by the project's sewage. We need to be protected from contamination of our wells from raw sewage and septic leaching.

Recently, I read about CalTrans being forced to close down many rest areas and campsite septic systems due to improper usage by tourists. People have been flushing items not meant for waste-water treatment systems such as diapers, feminine products, leftover food, and syringes. Tourists are not going to be mindful or careful about the proper usage and maintenance for this type of sensitive system. If the leach system is compromised in any way, my private meadow and the wet-lands will be contaminated. The availability and quality of my water will be adversely affected by the Terra Vi project.

As mentioned under the Biological Resources heading (#4), any disturbance of the watercourses affects the riparian habitat and threatens a variety of plant and wildlife species. Many animals depend on riparian habitat, and utilize this habitat for foraging, water, shelter, and migration. The project could substantially affect riparian habitats by resulting in further destruction or loss of these vulnerable habitat types. This Spring, my meadow as well as my neighbor's adjoining meadow were full of water, streams, waterfalls, and wildlife activity, particularly the Pacific Chorus Frog, the Arboreal Salamander, and California Newt, a species of special concern in California.

The recently-constructed Rush Creek Lodge on Highway 120 has had many issues with contaminated water, raw sewage flowing above ground, and odors. On July 13, 2018, I spoke with Robert Kostlivy, Tuolumne County Environmental Health Director, about such problems.

Mr. Kostlivy stated that the proposed Terra Vi Lodge system would be vastly different than Rush Creek, however my understanding from reviewing the proposal is that only a standard septic system has been specified for construction. The size, scope, and location of this sewage system appear to be inappropriate and incompatible with the existing homes in the area. In addition, the drawings currently specify a septic system that is vastly undersized for a project of this magnitude. Black water will be discharged adjacent to existing homes and directly into my creek, meadow, streams and my drinking water. The leach fields as designed with sewage contaminating our existing water course and the potential for freezing atop the ground during winter months are a major concern and will significantly impact our private properties.

To repeat the wise words of Mr. John Buckley, Executive Director, Central Sierra Environmental Resource Center, "The proposed placement of the Terra Vi Lodge and Under Canvas lodging projects at a site without public water and public sewer is misguided and unreasonable. Tuolumne County shouldn't allow developers to create lodging for thousands of people a day based on unreliable wells and unproven septic systems. It makes far more sense to put projects like this closer to existing communities where there is public water and sewer."

8. Land Use, Overcrowding, Noise, Traffic, Crime

The Hansji development is endeavoring to make the biggest hotel possible for the most effective monetary gain. It will entail over 1,300 hotel guests daily with a few hundred hotel staff driving to and from the site every day. Highway 120 and especially Sawmill Area cannot handle the traffic safely. Currently, the turn into Sawmill Mountain Road is on a "blind curve" and is dangerous; it is especially icy and treacherous in the winter. The entrance to Hardin Flat Road is equally difficult to navigate, and the Yosemite entrance on Highway 120 is overwhelmed on weekends with two hour waits as traffic backs up. Additional traffic from the Glamping project increases the risks and further congestion in this area.

The Terra Vi project size appears to saturate a very small space with noise generating activities, 24/7 traffic, a market, a pool, a two-story event center, bus stop, and delivery services. The area will be subject to overcrowding, crime, pollution, and cause a substantial increase in ambient noise to the peaceful surroundings. The massive size of the proposed development does not suit the size of the property, nor is there a need for such a large-scale operation in a remote forest and undeveloped location. This proposed project development is an unmitigated nuisance for the Sawmill Mountain Area.

In addition to vehicular traffic, the Hansji Development is proposing a helicopter pad which would contribute more noise, fire danger, and is currently located adjacent to our access driveway. Its proximity to cars, people, and animals, is unsafe for this mountain location; there is already a helipad located nearby at Pine Mountain Lake. We maintain a quiet refuge on our private properties while enjoying the prevalent wildlife. Additional car traffic, delivery vehicles, human voices, noises, dogs barking, and continuous lighting of the hotel grounds in a remote undeveloped area all pose threats to our wildlife.

Furthermore, there are already two large hotels and several other better-situated available sites that could better absorb the influx of additional tourists.

9. Population and Housing

From my review of the layout and beds available in each hotel room, an estimated 1,303 guests could reside at the Terra Vi Lodge on any given night. This does not include babies/toddlers in cribs or the use of roll-away beds, etc. The scale of the proposed development is far greater than other lodges in Groveland and along Highway 120. This development size is greater than both the nearby Rush Creek Lodge or Yosemite Westgate Hotel. The "mom and pop" bed and breakfast and average size hotels in the Groveland area will certainly suffer from a development of this scale and magnitude.

The resort plans have specified inadequate parking spaces for only 30 employees and do not specify any on-site employee housing. For a hotel of this size, more employees would be necessary, yet there are not many nearby towns where employees could live or be recruited from. This would necessitate long commutes for housing and add to the pollution, noise, traffic, and unnecessary degradation of Sawmill Mountain.

The County is evaluating proposals for the other portion of property on Highway 120 for "Glamping" sites, and an increase to the nearby Yosemite Lakes Resort. These and other proposed project expansions cumulatively add a massive scale to the neighborhood and should be considered simultaneously during the planning process and environmental review.

It also appears as though the Hansji Development is proposing more phases with future work not yet outlined in their online application. Complete drawings and specifications are necessary for the public to understand and comment on the comprehensive proposal affecting our community.

10. Transportation, Traffic, Private Property Access

Presently, there are one-lane dirt roads and skid trails that provide the only access to our private property and neighboring properties. Due to the limited existing road access via Forest Routes and the location and activities of the CalTrans maintenance shed, I am concerned about Fire, County, Utility, and Forestry access, as well as the increased load on emergency services for such a massive development. Furthermore, the plans depict a dead-end cul-de-sac which poses a hazardous condition for proper egress in the event of an emergency.

Currently the development plans have located the main hotel entrance off of Forest Route 1S03 which may be an oversight by an out-of-town developer unfamiliar with how the area functions. Forest Route 1S03 is not designated as a road and it is not designated for commercial use; it is only a Forest Route. Locating the entrance on 1S03 would subject all of the surrounding neighbors to overwhelming non-stop day/night traffic congestion and would create dangerous traffic problems when exiting the Sawmill Mountain Area onto Highway 120. This is already a dangerous blind curve intersection not meant for an abundance of tourist traffic. We would not be able to safely turn onto or off of the Highway with so much hotel traffic directed onto our one-way dirt skid trails and driveways. This is an undue hardship to the residents of Sawmill Mountain Area.

In addition, existing dirt roads and skid trails provide the only access to the 80 acres of residential properties and the approximately 15 privately-owned cabins immediately adjacent to the proposed development. About 25' of our access trail traverses a portion of the proposed

development property and in April, 2018, the developer threatened that we may no longer utilize the driveway if we oppose the project. Without this trail, my family and the residents of the other privately-owned cabins would have no other access to our properties. Our only access to our properties is via Forest Route #1S03 which is maintained by the Forestry.

Note #8 located on Sheet V3 "NSPS Land Title Survey" of the Architectural section in the Hansji online proposal for the project refers to the aforementioned trail: "A dirt road and a gravel road encroachment have been located, no easements are recorded for these." This is inaccurate as this original dirt road / skid trail has been utilized with continuous use for over 70 years which constitutes a Prescribed Easement. Furthermore, we have no other means of access or egress to and from our properties. Placing a huge hotel at the entrance and exit from our properties puts our families at risk for emergency evacuation and potential death.

11. Wildfire

The General Plan Fire Hazard rating for the project site is stated as "extreme." We all just lived through the devastating effects of the massive Rim Fire, the drought, bark beetles, and the most recent Ferguson fire. Our water supplies are precious and scarce. The 1991 Initial Study states that the response time from "First Due Engine Company" is 20 +/- minutes. The Initial Study affirms that, "This project may create a significant adverse impact as far as the Tuolumne County Fire Department (TCFD's) and CalFire (CDF's) ability to provide fire protection within this area."

The Initial Study states that a water storage facility must be provided that can hold a minimum 150,000 gallons of water *over and above peak domestic use*. The new development may require even more than this amount and will therefore seriously compromise or drain our precious water resources.

In addition, we have been informed that the developer will need to dig additional wells, as well as supply water for the proposed swimming pool. Currently, they have only recently dug two wells; this information has been incorrectly reported by the County that states the "public water system would be developed from two existing on-site wells" yet these wells were not in existence until right after Hansji started this project proposal. The developer dug these wells at the end of the summer last year.

The Hansji documents appear incomplete and do not mention additional water sources. I am concerned about attracting over 1,300 tourists to the site each day who may wander outdoors with cigarettes and potentially cause more fire danger to the area. The proposed plans for campfire pits and stoves at the Glamping sites are another concern and potential danger for wildfire, just as the previous Rim Fire that was started by a campfire. That fire quickly raged out of control and burned 257,000 acres in the Stanislaus National Forest and 79,000 acres in Yosemite National Park. It was devastating for our community.

We were not able to renew our fire insurance after the Rim fire and this is a very serious concern for all of us on the mountain. No California insurance companies are providing fire insurance to this area as it has now been ravaged twice within a few years. We were fortunate to find a new insurance company last year after being dropped, but were recently dropped again last month.

The size of this development is a serious liability to the County and surrounding communities. Again, a development of this size and scope should not be located on Sawmill Mountain. When Hansji Development met with the Sawmill neighbors and walked the area for the first time, they admitted that they had no idea that there were private cabins in the vicinity. By negligently approving or allowing a fire-trap to be constructed at the entrance/exit to our private properties, the County is subjecting our homes and lives to significant risk, loss, and death due to fire.

Concluding Summary

A previous Initial Study was performed for this same property on June 25, 1991 and many significant issues were revealed 28 years ago. At that time, only a cell tower was proposed for the property and the Manly's themselves opposed the project. Much has changed in the environment and the property should be adequately studied.

With over 240 guest rooms, 25 four-bedroom cabins, 286 parking spaces, a helipad, bus stop, shopping market, large event space, multiple out-buildings, 1,300 guests and several hundred support staff on site, the proposed development by the Hansji Company does not suit the lot size, location, and is inconsistent with the character of our community. It would negatively and significantly impact *all* of the environmental factors outlined in the Appendix G checklist.

In conclusion, there are many areas that require thorough review and detailed report updates. I have outlined just some of the key areas that are concerning while there are many more that must be considered by appropriate agencies.

It is important that the Environmental Impact Report thoroughly evaluates the many significant impacts that the Terra Vi Lodge project and cumulative projects will have on our properties, the Sawmill Mountain Area, and the Groveland community as a whole.

Sincerely,

Nancy Constantino

Nancy Constantino

15589 Wards Ferry Road • Sonora, California 95370

May 26, 2019

Community Resources Agency
Attention Quincy Yaley
Tuolumne County
2 South Green Street
Sonora, CA 95370

Re: Highway 120 Corridor
Terra VI Lodge Yosemite Project EIR

Dear Ms Yaley:

Thank you for providing an opportunity to comment on the Notice of Preparation (NOP) for the proposed EIR for this project.

Of the alternatives studied for future growth in preparation of the revised General Plan, the concept of growth concentrated around already developed communities was chosen as the most desirable choice to preserve the beauty and historic character of this unique foothill County. However, rather than focus new tourist facilities within the greater Groveland area, the proposed Terra development will be built in an area without services and without access to water and sewer services which are provided to the Groveland area by the Groveland Community Services District.

Reliance on wells and a septic system for development will only result in future failures and problems of contamination of natural resources. As you are aware, there is no underground aquifer in Tuolumne County, only fractured rock and fissures containing water which can easily be drained and only slowly recharged, if ever, when overdrawn. Certainly a development of the size and scale of the proposed Terra project risks overdraw of water currently available to wells of nearby low density residential properties. A complete hydrology analysis is needed, including for likely protracted drought years.

The number of employees is not included in your Notice of Preparation. The County is suffering from a lack of affordable housing of all types and little new housing is being proposed currently. The cost of construction in many cases precludes affordable rental housing as the rents required to provide a reasonable return on investment exceed what most low and moderate income persons and families can afford. As a result the shortage of such housing imposes a great burden on existing businesses, and even the Park Service, in trying to recruit necessary staff. The housing shortage is compounded by the conversion of what would otherwise be rental housing into short term stays through businesses like AirBnB which is allowed in Pine Mountain Lake. Any study of the proposed Terra project should include an analysis of available housing within a reasonable commuting distance of the project site. If as I expect such housing is in short supply, the developer should be required to provide affordable rental units for staff as part of the project or within the the Groveland area. If such housing is not provided in close proximity, employees

RECEIVED

MAY 30 2019

COUNTY OF TUOLUMNE
Community Resources Agency

commuting long distances will add to congestion and air pollution as there is no other feasible way of travel to the project site than by automobile.

Any EIR for the project should include an analysis of the cumulative impact of adjoining developments including (1) the camping facility proposed on a site owned by the same owners who own the land for the Terra project, (2) the expansion of the Thousand Lakes campground, and (3) the reconstruction of the nearby City of Berkeley camp.

Thank you for your consideration of these comments.

Sincerely,

Thomas E. Parrington

TEP:co

Dear Quincy,

Please stop the Terra Vi Lodge Yosemite Project. My biggest concerns are wildfires (one road in and out of sawmill mountain), utilities (we lose power a lot in this area) and forestry resources, impact on land of 1000 people a night on property, water, or lack thereof, water contamination for nearby wells, housing for workers (they will need to bring works in from other places). Also Yosemite will be limiting how many people can go into the park soon so i wonder if they can even fill up a hotel of this size, nearby hotels rarely fill up now. I worry they will build this huge resort then a few years from now it will go out of business and be empty buildings which will bring problems and no tax revenue. (which is what is motivating the county to approve of this project) also noting the county could be liable for any disasters from these projects (wildfires or water contamination) might be good since money is what they think about most.

Thanks,
Alison Clarke

From: "Margene Rivara" <margene@venturesir.com>
Date: May 28, 2019 at 6:21:43 PM PDT
To: <NRizzi@co.tuolumne.ca.us>, <DGonzalves@co.tuolumne.ca.us>, <communitysources@tuolumnecounty.ca.gov>, <jgray@co.tuolumne.ca.us>
Subject: FW: Terra Vi Lodge Yosemite Project EIR

To Whom This May Concern,
Please see attached email from myself and my Husband Lou Rivara. We are property owners at 31583 Hardin Flat Rd., Groveland. We oppose the Terra Vi Lodge Yosemite Project, as outlined in the above attachment. As property owners, we were only told about this project because of neighbors contacting us. Why were property owners not advised of the proposed development?
Please contact me directly from this point forward, and please put a hold on this project until we see the impact to the area of the new Berkeley Camp when built. We are greatly concerned about the Services, such as Emergency Services, Fire, Water Traffic and impact on the environment.
Best Regards,
Margene Stevenson Rivara

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
NORTHERN REGION HEADQUARTERS-REDDING
6105 Airport Road
Redding, CA 96002
(530) 224-2445
Website: www.fire.ca.gov

May 29, 2019

County of Tuolumne
Community Resources Agency
Attn: Quincy Yaley
2 South Green Street
Sonora, CA 95370-4618

RE: Terra Vi Lodge Yosemite Project EIR

Dear Quincy Yaley:

A portion of the proposed project located at 11262 Sawmill Mountain Road, Groveland, CA 95321 (APN #'s 068-120-060 and 068-120-061) is associated with a completed California Forest Improvement Program (CFIP) State cost-share grant. The State Contract number for the CFIP cost-share grant is 8GG14302 and the contract was completed on 08/28/2018.

On page 1 of the approved CFIP application contract the landowner/Grantee has agreed to the following: *Will the landowner agree not to put CFIP land to any use incompatible with forest resource management for 10 years?* In addition, the landowner/Grantee has completed a CFIP Land Use Addendum (LUA) which was filed and recorded into the official records of Tuolumne County, please refer to the attached LUA. The completion and filing of the LUA the landowner/Grantee has agreed to the following:

> *The Grantee/Participant/Owner agrees not to develop lands subject to the CFIP Project Agreement referenced above and shown on the attached project map for uses incompatible with forest resource management within ten (10) years commencing from the date of recording of this Agreement. In the event this Agreement is violated, State is entitled to a refund of any cost-share payments which have been made, with interest, pursuant to Section 4797.5 of Public Resources Code. This Agreement is intended to satisfy the requirements of Public Resources Code Section 4797(e)(2). This Agreement shall apply to only those lands affected by the aforementioned CFIP Agreement and shown on the attached map, which are part of the land described below as part of that real property more fully described in that certain deed.*

The CFIP Grantee/Participant/Owner for State Contract # 8GG14302 has agreed to not develop lands subject to the CFIP Project Agreement for uses incompatible with forest resource management within ten (10) years. The approval of the Terra Vi Lodge Yosemite Project would result in the non-compliance of Public Resources Code 4797.5 and 4797(e)(2). The CAL FIRE CFIP Program recommends that the landowner comply with the requirements of Public Resources Code 4797.5 prior to the approval of the EIR for the Terra Vi Lodge Yosemite Project.

If you have any questions, please call me at (530) 744-4525.

Sincerely,

Dale Meese
CAL FIRE
Stewardship Forester
Forester II / RPF #2609
6105 Airport Road
Redding, CA 96002
(530) 744-4525
dale.meese@fire.ca.gov

STATE OF CALIFORNIA
Land Use Addendum

LAND USE ADDENDUM

DEPARTMENT OF FORESTRY AND FIRE PROTECTION

When Recorded Return to:

CALIFORNIA DEPT. OF FORESTRY & FIRE PROTECTION
Zsolt Katay
785 Mountain RanchRoad
San Andreas, CA 95249

Doc # 2018011184
Page 1 of 4
Date: 9/28/2018 08:25A
Recording Requested By:
ST OF CA DEPT FORESTRY & FIRE
Filed & Recorded in Official Records
of COUNTY OF TUOLUMNE
KAEMAN WHITMAN
COUNTY RECORDER
Fee: $0.00

LAND-USE ADDENDUM
Agreement Concerning Land Uses Incompatible with Resource Management

In further consideration of funds to be provided and actions to be undertaken by State under California forest Improvement Program

Agreement Project/contract Number 8GG14302 / 14-GHG-01-0054 dated 12/16/2015

Participant/Owner Bob Manly agrees not to develop lands subject to the CFIP Project Agreement referenced above and shown on the attached project map for uses incompatible with forest resource management within ten (10) years commencing from the date of recording of this Agreement. In the event this Agreement is violated, State is entitled to a refund of any cost-share payments which have been made, with interest, pursuant to Section 4797.5 of Public Resources Code. This Agreement is intended to satisfy the requirements of Public Resources Code Section 4797(e)(2). This Agreement shall apply to only those lands affected by the aforementioned CFIP Agreement and shown on the attached map, which are part of the land described below as part of that real property more fully described in that certain deed from

Carol L Manly Trustee of the Manly living Trust

dated 5-31-06 and recorded with the Recorder of Tuolumne County County at Book

Page or Document Number 2006010230

Subsection	Section	Township	Range	County	Assessor's Parcel #
Por SE 1/4	26	1 South	18 East	Tuolumne	068-120-60,61,62,63

State shall record this Agreement in the office of the county in which the above described lands are located and upon recording the Agreement shall be binding upon any person to whom such lands are sold, assigned, devised, or otherwise transferred by agreement or operation of law. This Agreement is a state document and shall be filed for no fee at the County Recorder's Office as per Government Code Section 27383. For purposes of this Agreement, "uses incompatible with forest resource management" are defined in Public resources Code Section 4793(s) to mean "uses not listed as subdivision (h) of section 51100 of the Government Code nor listed pursuant to Section 51111 of the Government Code by the city or county in which the parcel subject to the forest improvement project lies." Government Code Section 51100 defines "compatible use" as being "any use which does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber, and shall include but not be limited to...(1) management for watershed; (2) management for fish and wildlife habitat or hunting and fishing; (3) a use integrally related to the erection, construction, alteration, or maintenance of gas, electric, water, or communication transmission facilities; or (5) grazing." Government code Section 51111 authorizes city and/or county governments to adopt "compatible use" definitions in addition to the above. Compatible uses are land uses permitted in the Timberland Production Zones as established by the Forest Taxation Reform Act of 1976. The intention of the parties to this Agreement, therefore, is to limit the uses of identified lands to those which would be permitted if such lands were within a Timberland Production zone.

Signature of Participant/Owner(s) **All signatures must be notarized and have Acknowledgement attached.**

1. Bob Manly — Signature; 9-5-17 — Date
Bob Manly — Printed Name

3. _____ — Signature; _____ — Date
_____ — Printed Name

2. _____ — Signature; _____ — Date
_____ — Printed Name

4. _____ — Signature; _____ — Date
_____ — Printed Name

Taken from CFIP User Guide Ver. 11-1-11

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Tuolumne)

On 9/5/2017 *Date* before me, Valerie Crysta Gamez, Notary Public *Here Insert Name and Title of the Officer*

personally appeared Bob Manly *Name(s) of Signer(s)*

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

VALERIE CRYSTA GAMEZ
Notary Public - California
Tuolumne County
Commission # 2162571
My Comm. Expires Aug 13, 2020

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ *Signature of Notary Public*

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document
Title or Type of Document: Land use addendum
Document Date: 9/5/2017 Number of Pages: 1
Signer(s) Other Than Named Above: N/A

Capacity(ies) Claimed by Signer(s)

Signer's Name: Bob Manly	Signer's Name:
☐ Corporate Officer — Title(s):	☐ Corporate Officer — Title(s):
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☒ Individual ☐ Attorney in Fact	☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator	☐ Trustee ☐ Guardian or Conservator
☐ Other:	☐ Other:
Signer Is Representing: Self	Signer Is Representing:

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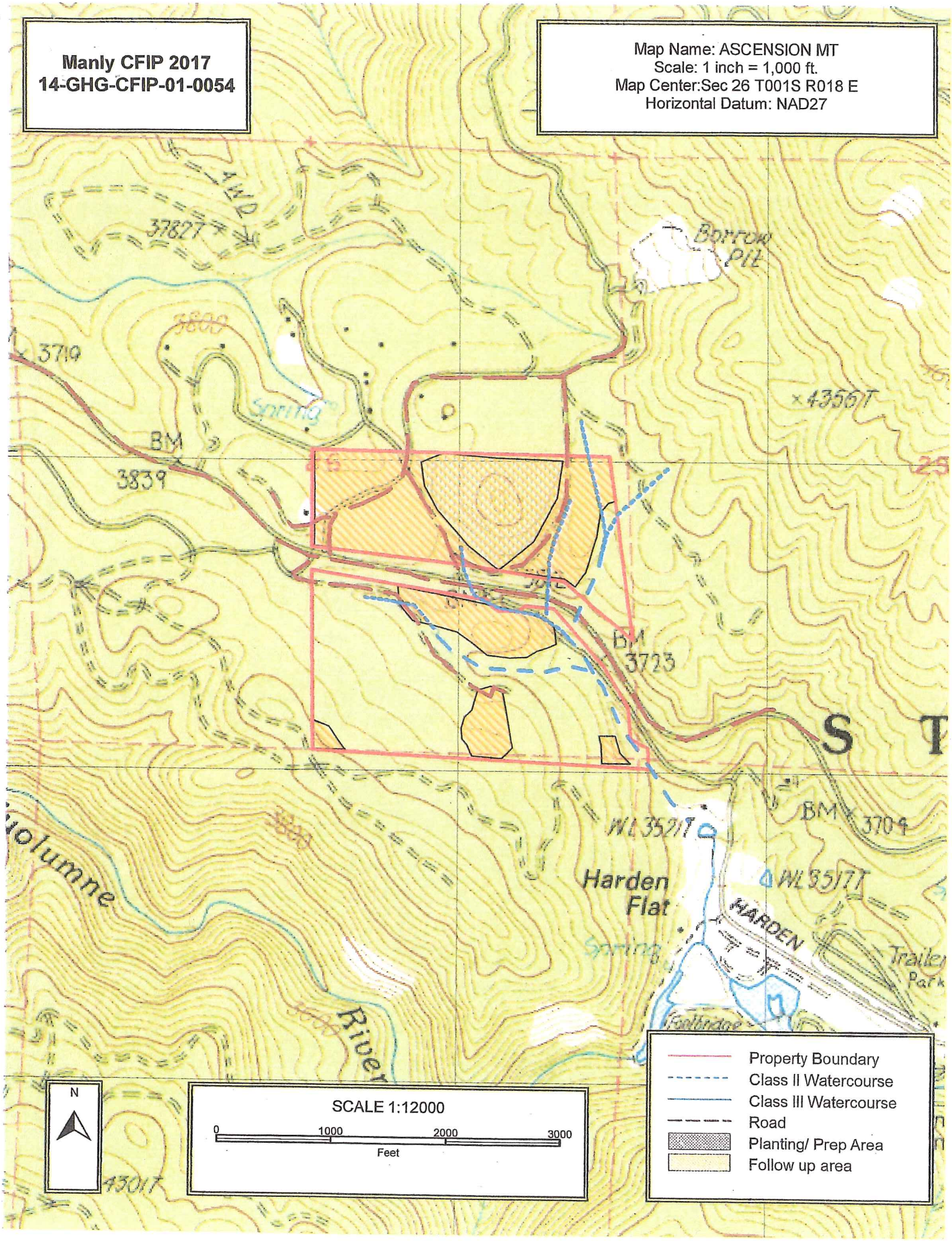
Manly CFIP 2017
14-GHG-CFIP-01-0054
Map Name: ASCENSION MT
Scale: 1 inch = 1,000 ft.
Map Center:Sec 26 T001S R018 E
Horizontal Datum: NAD27
4WD
3782T
Borrow Pit
3719
3600
Spring
BM 3839
×4356T
BM 3723
S T
WL 3521T
BM 3704
Harden Flat
WL 3577T
HARDEN
Spring
Trailer Park
Footbridge
Tuolumne
River
4301T
N
SCALE 1:12000
0
1000
2000
3000
Feet
Property Boundary
Class II Watercourse
Class III Watercourse
Road
Planting/ Prep Area
Follow up area

Manly CFIP 2017
14-GHG-CFIP-01-0054

Map Name: OAKDALE
Scale: 1 inch = 10,000 ft.
Map Center:Sec 34 T001S R017 E
Horizontal Datum: NAD27

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
Forestry Assistance Program
785 Mountain Ranch Rd.
San Andreas, CA 95249
(209) 754-2707
Website: www.fire.ca.gov

May 29, 2019

Gregory Robert Manly
PO BOX 58
Moccasin, CA 95347

Subject: **California Forest Improvement Program 14-GHG-CFIP-01-0054 / 8GG14302**

Dear Mr. Manly,

It has come to the attention of the California Department of Forestry and Fire Protection (CAL FIRE) that you have decided to pursue a development on your property that is incompatible with forest resource management. This property has recently completed a California Forest Improvement Program project, which involved significant investment of State funds in the forest on your property.

Based on communication with CAL FIRE and County of Tuolumne Community Resource Agency a Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the Terra Vi Lodge Yosemite Project has been submitted with the Tuolumne Community Resource Agency. The Yosemite Under Canvas development is proposed on the property as well.

In accordance with the California Code of Regulations Title 14, Department of Forestry, Chapter 9.5, Article 7 §1542, (a) Pursuant to these procedures and the Act, a participant in a cost sharing agreement shall refund any cost sharing payments in the event of any of the following:

(1) The filing of an application to rezone the parcel(s) to which the project applied to a zone permitting a land use(s) incompatible with forest resource management, as set forth in PRC 4797.5;

(2) A violation of a contract pursuant to PRC 4797;

(3) A finding by the Director that the participant has not complied with the terms of a cost sharing agreement and a subsequent order by the Director that the participant refund any cost sharing payments advanced.

This letter serves as notice that CALFIRE will seek reimbursement for funding that was applied to your CFIP project and will be contacting you in the near future regarding the cost sharing amount to be refunded based on our statutory authorities.

Please contact me at your earliest convenience to discuss payment terms.

Sincerely,

ZSOLT KATAY
Forestry Assistance Specialist
Forester I, RPF#2911
CAL FIRE
785 Mountain Ranch Rd.
San Andreas CA 95249
Office: (209) 754 2707
zsolt.katay@fire.ca.gov

cc: Stewart McMorrow
Guy Anderson
Dale Meese

Hello,

Thank you for the attention to my email from last December and the plan to complete an EIR.

Here are the comments I sent through at that time. Please do make sure they are all included in the EIR. In addition, I've learned of the Glamping project across the road, and would request that you study the impact of both of these projects combined.

See here my previous concerns:
I am writing with some concerns since my family owns a home on Sawmill Mountain Road, and my understanding is that this large hotel project is planned without any environmental impact study. In particular, we rely on the groundwater for our drinking water, and the creek at the bottom of the hill for the rejuvenation of the area - particularly after the recent Rim Fire - and we have great concerns about the impact that the new, significantly higher volume of sewer waste and water consumption will have on these critical elements.

I am requesting that you begin a full study into the impact the additional demand on the water supply, increased sewage, as well as noise and traffic, will have on this area, for the residents, the groundwater and the nature and wildlife - many of which have just started returning after the Rim Fire. I believe it is critical to complete such a study before continuing with this planned development in order to keep the residents, visitors and additional tourists safe, as well as the wildlife here.

Thanks again for your attention and time,
Sincerely,
Margaret Hollendoner

---------- Forwarded message ---------
From: **Margaret Hollendoner** <mhollendoner@gmail.com>
Date: Fri, Dec 21, 2018 at 9:41 PM
Subject: Concerns about the Hansji development on Sawmill Mountain Road
To: <qyaley@co.tuolumne.ca.us>
Cc: <jgray@co.tuolumne.ca.us>

Hello there,

I heard recently about the proposed hotel construction project on Sawmill Mountain Road, nearby to Yosemite's Big Oak Flat entrance (the Hardin Flat LLC/Hansji Corporation Site Development Permit SDP18-003).

I am writing with some concerns since my family owns a home on Sawmill Mountain Road, and my understanding is that this large hotel project is planned without any environmental impact study. In particular, we rely on the groundwater for our drinking water, and the creek at the bottom of the hill for the rejuvenation of the area - particularly after the recent Rim Fire - and we have great concerns about the impact that the new, significantly higher volume of sewer waste and water consumption will have on these critical elements.

I am requesting that you begin a full study into the impact the additional demand on the water supply, increased sewage, as well as noise and traffic, will have on this area, for the residents, the groundwater and the nature and wildlife - many of which have just started returning after the Rim Fire. I believe it is critical to complete such a study before continuing with this planned development in order to keep the residents, visitors and additional tourists safe, as well as the wildlife here.

Thank you for your attention,
Margaret Hollendoner

Below is the comment letter I sent back in December, I want to make sure the below issues are addressed by the EIR that you are doing.

In addition - we've recently learned about another building proposal by Under Canvas, who want to build a "glamping" site with 99 tent cabins - please ensure that you analyze the *combined impact* of these 2 developments. We are most concerned about the impact on water supply - primarily for the trees which are so fragile after the Rim fire and bark beetle, but also on our personal drinking wells - and the increased risk of fire in such a high-risk fire area from so many more people.

I recently received a notification that you are considering building a large hotel on Sawmill Mountain Road, near Yosemite's Big Oak Flat entrance. (Hardin Flat LLC/Hansji Corporation Site Development Permit SDP18-003.) I am a homeowner on Sawmill Mountain Road and would like to request that an Environmental Impact Report is conducted to address the impact of **significantly increased Sewage and Water**, before undertaking this project.

My 2 biggest concerns are:

SEWER: This will be an enormous amount of sewage pushed into our hill, from daily toilet flushings from hundreds of people. We need to understand the impact of this on our groundwater that we all drink daily, and on the creek at the bottom of our hill which houses salamanders and provides drinking water for countless animals (bears, bobcats, deer, etc).

The design plans show the leach fields on the West side of Sawmill road, next to all the private homes and near the creek. The developer should not be allowed to locate their sewer waste so that it washes into our houses, instead of their hotel! If they're going to create this enormous amount of sewage then they should be responsible for it in years to come - not to dump it at the edge of their property where it will all leach down into our groundwater.

Please evaluate the option of moving the leach fields to the far East side of the development - as far away from the creek and the private developments as possible. We are all taxpayers and deserve the right to keep our groundwater clean. Who is responsible if/when our groundwater is destroyed?

Rush Creek has had several problems with their grey and black water - freezing sewage on the surface, terrible smells for miles, leaking sewage - so we know that their system did not work. Now that we know this - we need to ensure the same thing does not happen on Sawmill Mountain.

Finally, we consulted a sewage waste treatment expert. He pointed out that the **current sewage plans are only for 50 rooms**! The plans must be revised for the correct number of rooms (current proposal says 240 rooms) before any analysis or request for opinions is done.

WATER:
Similarly, the water supply would be in jeopardy from such a large additional user base. Particularly a hotel - where they will wash sheets and towels for hundreds of people almost

every day. Not to mention drinking, showering, flushing, washing dishes in the restaurant, etc - it will require enormous water consumption compared to the current usage.

After the 2013 Rim Fire, and subsequent bark beetle infestation and drought, the land desperately needs all the water it can get. Please properly study the effect of this on our groundwater, the creek and the soil.

We recently spent $15,000 digging a well and testing that water to ensure it's high quality drinking water - who is responsible to compensate us if the water dries up because of this development? For such a profit-driven enterprise, could they be required to bring in water from elsewhere as an alternative?
A few other points:

- **Access:** 1S03 (Sawmill mountain road) is a forest service road designed for public access to the national forest, not designed for commercial use. **Please create a separate entrance from 120 into this hotel**, rather than using this small access road. It is a dangerous turn from 1S03 onto 120 due to a blind corner - even if you build in a new turn lane, there will still be a high risk for accidents if hundreds of out-of-towners, not familiar with the area or driving on mountain roads, are suddenly turning in and out of there every day. This compromises our, currently safe, neighborhood. Hwy 120 is straighter further East so would be much safer to build a new access road there and would make us residents much happier to work with you on this project. Currently, Sawmill Mtn road is so quiet - local kids ride their bikes up and down it, we go for evening walks on it, we regularly see deers walking along it - this development would transform the road from peaceful nature trail to busy road. Finally, Caltrans uses the road to get to their shed with heavy equipment, snow plows, etc - they probably won't have time to respond to this request for comments due to your placing the time period during Christmas vacation.
- **Fire Danger**: As I'm sure you're aware, the Rim Fire burned right over this area in 2013, threatening life and property. This is a high fire risk area so putting a 240-room hotel in the area means **significantly increasing the risk of future fires** - hundreds of non-residents walking around smoking, building campfires, throwing trash, not thinking about the land - plus the sparks from campfires at the hotel and their cabins. We need to be reducing the fire risk, not increasing it! Also, you'd be putting ~500 more lives at risk in the next big fire that will burn through here. (And fires are more likely in the dry Summer which is peak visitation time for tourists).
- **Easement**: When we purchased our land, our realtor did a thorough analysis of the easements and history to ensure that the dirt road access from Sawmill Mtn Road was a **legal easement**. It has been in continuous use for over 70 years, but additionally she talked to experts at the County who said it's a legal easement. I notice Manly has labeled it an "encroachment" - this language needs to be changed. Or, even better, do not use this road for access at all. At one of the meetings which I was not at, Mr. Bissell threatened one of my fellow homeowners saying that he'd make trouble for our access if we requested any environmental analysis - I'm pretty sure this is not part of a correct legal process!
- **Wildlife:** I'm also concerned about the impact on the wildlife in this area. I regularly see deer walking peacefully throughout our properties - there is so little traffic in this area that they have nothing to fear. We have bears living happily around us, Bobcats, owls, salamanders in the creek at the bottom of my property - so many creatures that took time to return after the Rim fire are now finally returning. We don't want to make this area into a loud, busy area with people walking and leaving trash everywhere.

- **Open Space:** The “open space” requirement is being fulfilled to the East of the property - why not put it to the West of the property so that there is some buffer between all of our houses and the new property? This would help to appease us residents - we are currently feeling like we are being completely ignored in this process!
- **Public Safety:** Please analyze what will be the increased burden on public services like ambulance/fire/police/hospital/etc? Will you get increased budget to cover these increased needs, or will you be needing to raise property taxes?
- **Archaeological sites:** Please consider the impact on the many archaeological Native American sites in this area, when you do your study. There is an old native american “kitchen” (grinding holes) at the bottom of our property, for example. I don’t know what may be on Manly’s property.

Thank you for listening to my concerns. We are surrounded by National Forest and only a few miles from National Park - please take this seriously and do a complete study to ensure that this development can be built in a responsible way, not just for the benefit of commercial developers, but also for the land, the water, the air, the homeowners & visitors, and the animals who’ve been here long before any of us!

Thank you,
Mary Hollendoner.

I am resending my email of December. Last year to be sure the EIR addresses all our concerns.

In addition, I have heard that there is a Glamping park project planned for across the road and would like the impact of this project to be considered as well.

Thank you for your consideration.
Susan Hollendoner

---------- Forwarded message ---------
From: **Susan Hollendoner** <shollendoner@gmail.com>
Date: Thu, 27 Dec 2018, 5:08 p.m.
Subject: Comments for Hansji development Permit SDP18-003 on Sawmill Mountain Road
To: <qyaley@co.tuolumne.ca.us>
Cc: <jgray@co.tuolumne.ca.us>

My family owns a property on Sawmill Mountain Road, which would be adjacent to the proposed hotel development. We have many concerns and feel that the residents of the area have not been taken into consideration, that includes wildlife and humans alike. Why are all the leach fields being put on the western side of the development, next to our homes? Why is the open space on the eastern side when it would form a buffer between the hotel and our homes if put on the western side? Why not make the access road further east where 120 is straighter and where there would be less impact on residents and wildlife?

I am very concerned that our water supply would be contaminated by the leach fields proposed in the plans. I also have concerns about the water table with such a big development on the doorstep. We are finally making progress at returning to normality after the rim fire which devastated the area in 2013. The deer, bears and other mammals are returning. The creek at the bottom of the properties is starting to come back to life. It would be a shame if this hotel forced the wildlife to flee the area; it would be equally devastating if the water table was so low that future fires could not be controlled; it would be a terrible health hazard to humans and wildlife if all the wells in the area and the creek became contaminated.

Please do an environmental impact study to see if this development poses a threat to the private homes in the area and on the wildlife.

Thank you for your time and consideration of this development.

Regards,
Susan Hollendoner

Central Sierra Environmental Resource Center
Box 396, Twain Harte, CA 95383 • (209) 586-7440 • fax (209) 586-4986
Visit our website at: www.cserc.org or contact us at: johnb@cserc.org

May 31, 2019

David Gonzalves and Quincy Yaley
Community Resources Agency
2 South Green Street
Sonora, CA 95370

RE: Terra Vi Lodge Yosemite Project NOP /EIR scoping comments

To the Tuolumne County Community Resources Agency:

In response to the May 4, 2019 notice in the Union Democrat newspaper, the following comments are submitted in response to the proposal to allow the development of Terra Vi Lodge, which would have 140 guest rooms, 25 four-bedroom cabins, a market, a lodge, event space, and support buildings that would be located on two parcels on the north side of Highway 120 at the intersection of what is described as Summit Mountain Road (but which is more widely known as forest road 1S03).

Our Center previously communicated with concerns about this project in our comment letter of December 22, 2019. We request that CSERC's December 22nd letter be made a part of the legal record for this project.

With this new comment letter, we narrowly focus on identifying potential environmental impacts that need to be carefully evaluated.

First and foremost, we emphasize that a reasonable range of alternatives needs to be considered for this project. Due to the many significant impacts that would be created by this project, CSERC strongly urges that the EIR carefully analyze alternative locations that could legitimately be the site for this proposed lodging facility. As was already underscored in our previous comments and our oral statements at the scoping meeting held in Groveland, there is no question that the Terra Vi Lodge project poses a high risk for creating significant impacts for issues tied to:

• Water supply - the lack of any public water supply or assured source of water – The EIR should fully analyze (a) the lack of any assured water that could service the site from a public water reservoir, stream, river, or other surface water source, (b) the lack of any assured source of subsurface water (wells) which is a water supply uncertainty underscored by the unreliability of any subsurface water supply sources during a drought or multiple years of drought; (c) We ask that the EIR contain information concerning the number of wells that failed within Tuolumne County during the most recent drought, and (d) We ask that the EIR acknowledge whether or not the similar well-dependent lodging operation in the general vicinity of the project site (Rush Creek Lodge) has needed to purchase water from off-site to be delivered by water trucks in order to meet operational demands?

(e) Last, on the issue of water supply, we urge that the EIR assess what alternatives, if any, exist at this site to provide a back-up water supply once it is determined that either the water supply well(s) are contaminated or if the water supply well(s) should fail.

• Water Quality and the high degree of potential for the project to cause contamination of subsurface or surface water due to (a) the inability of project applicants to ensure that there will be adequate assured treatment of sewage by the proposed "unproven and potentially short lifespan" engineered septic system? (b) The EIR should carefully analyze and fully assess the wide range of potential consequences for effluent from the Terra Vi Lodge septic system to contaminate not only subsurface water beneath the surface of the project site, but also to possibly contaminate water of adjoining or nearby residential parcels that depend upon wells.

• Fire risk -- This property site has already burned during the 2013 Rim Fire at high severity, so it is essential that the EIR consider not only risk to visitors and staff from another similar fire sweeping across the property, and also the risk to adjoining or nearby properties if a fire ignites on the Terra Vi Lodge property and then spreads to neighboring properties or burns expansively into adjacent national forest lands.. It is one thing for nearby small parcel owners to live on their properties (or use them for vacation properties) despite the high fire risk. It is very different for the County to intentionally approve the placement of as many as 600 tourists with additional staff on any given summer season day -- to all be located on a site along a ridgeline in forest habitat with fuels that have already shown that they can burn with an intensity that cannot be stopped by fire suppression forces. CSERC urges that the EIR evaluate whether or not the County should be approving such a large development project in the midst of such high fire risk. While sprinkler systems, water storage, high performance fire extinguishing and alarm systems may reduce the risk of a structure fire, none of those will prevent or provide reliable protection against a wind-blown wildfire at this site.

• Lack of nearby, accessible public services, including no close-by fire, ambulance, or law enforcement resources… The EIR should analyze the lack of county and emergency services, since the project site is remote from the closest town of Groveland and does not have readily available sheriff's deputies, ambulance service, or other infrastructure or services to serve the needs of the guests who will at times require emergency medical care or will at times cause the need for law enforcement presence. Due to extensive drive times for each and every call, the EIR should examine the degree to which this project will add additional strain to already overstretched county services. The EIR should carefully describe the limits of existing fire, law enforcement, and ambulance services in the context of whether any of those will be available if other residents or businesses in the Groveland Highway 120 corridor have already drawn away the capacity of the limited Groveland area services. Furthermore, the EIR should assess to what degree additional county and emergency services could become viable if the Terra Vi Lodge is required to fund the costs of a fire engine and crew, or a substantial portion of such costs.

• The EIR should describe to what degree there is potential for significant negative cumulative impacts from this project when considered in combination with the approved Berkeley Tuolumne Camp Restoration and Reconstruction Project, with the Under Canvas project that is proposed across the street from the Terra Vi Lodge project, and with the proposed expansion of sites and campground sites at the Thousand Trails Yosemite Lakes RV Park and Campground at Hardin Flat. Together the four total projects would bring an additional 1,000 or more people a day to the rural area that lacks any county service infrastructure, that has no close-by fire or ambulance service, and that is along a scenic corridor that already has periods of extremely high traffic on Highway 120 during the peak

tourist season when each of the four projects will create the highest level of traffic and visitation. The EIR should reasonably assess the additional cumulative effects of noise, night-time lighting, traffic and transportation effects, as well as the multitude of biological effects from clearing substantial portions of the habitat on the Terra Vi Lodge and glamping project sites

CSERC calls for the Environmental Impact Report to analyze potential impacts of the project for all of the various environmental impacts, and most important, to consider alternative locations for the project that may reasonably mitigate or lessen the potential significance of unavoidable impacts tied to the lack of public water and sewer, the lack of proximity and access to county services and emergency care, the extremely high fire risk of this project site, the cumulative impacts of this project combined with associated additional visitor-serving projects that are collectively proposed for this general area, as well as the cumulative impacts of the four proposed projects creating a high amount of GHG emissions due to the travel miles associated with guests accessing and utilizing the four combined proposed projects.

As examples of possibly more appropriate sites, CSERC lists the Groveland scar site (currently for sale, currently vacant, and currently highly appropriate for such a Yosemite-visitors lodge type project) or the Casa Loma site, which is far closer to public services, would not threaten neighbors' wells, and may be capable of being served by public water and sewer. An EIR would appropriately evaluate whether there are indeed alternative locations where the project could be constructed with less significant impacts.

Please notify our Center of the availability of any environmental documents produced for this project and any public hearing opportunities to comment on this project.

executive director

Thank you for pointing that out. Please find a revised version below.

Quincy Yaley,

I recently received a notification that Hardin Flat, LLC is considering building a large hotel on Sawmill Mountain Road, near Yosemite's Big Oak Flat entrance. I am a homeowner and land owner on Sawmill Mountain Road, I write now to urge the County to prepare an Environmental Impact Report for the project to evaluate the many significant effects this project will have on the environment.
My 4 biggest concerns are:

Fire Danger:

As a former US Forest Fire Fighter of 12 years and now concerned citizen, I see the increase in population to the Sawmill Mountain area through the summer (fire season) a huge increase in potential for Forest Fire and potential loss of life. This increase in potential should come with an increase in fire resources and shorter response times to the area that are paid for by "Hansji development". This increase in traffic will affect the residents on Sawmill Mountain Rd and should not increase our cost and tax base.

WATER:
Our drinking water comes from wells that we all had to drill and fund. The increase of hundreds of people per day through the hottest and driest months of the summer will take a toll on our drinking water supplies. California is experiencing longer and more severe droughts, please study the impact of so much water removal before committing to this project or find alternative, **long term** solutions to the increase water demand.

SEWER:
500+ people will create a LOT of sewage per day, from the plans I have reviewed the leach fields are to be built on the west side of Sawmill Mt Rd. All the residences are on the west side of Sawmill Mt Rd, this will leach into the natural drainage that feeds our drinking water and the seasonal creek and riparian zone in the bottom of the small canyon below our properties. Please study this and place the leach fields in a place that will not affect the residents and tax payers of Sawmill Mt Rd, we have been here for generations!

Access:
1S03 (Sawmill mountain road) is a forest service road designed for public access to the national forest, not designed for commercial use. **Please create a separate entrance from 120 into this hotel**, rather than using this small access road. It is a dangerous turn from 1S03 onto 120 due to a blind corner - even if you build in a new turn lane, there will still be a high risk for accidents if hundreds of out-of-towners, not familiar with the area or driving on mountain roads, are suddenly turning in and out of there every day. This compromises our, currently safe, neighborhood. Hwy 120 is straighter further East so would be much safer to build a new access road there and would make us residents much happier to work with you on this project. Finally, Also, Caltrans uses Sawmill mountain road to get to their shed with heavy equipment, snow plows, etc - they probably won't have time to respond to this request for comments due to your placing the time period during Christmas vacation.
A few other points:

- The "open space" requirement is being fulfilled to the East of the property - why not put it to the West of the property so that there is some buffer between all of our houses and the new property?

- Make sure you include an analysis of the impact on the many archaeological Native American sites in this area, when you do your study. The Mi Wuk council should be part of any discussions and evaluation **prior to development of this area.**
- Finally, as I'm sure you're aware, the Rim Fire burned right over this area in 2013, threatening life and property. This is a high fire risk area so putting a 240-room hotel in the area means putting ~500 lives at risk in the next big fire that will burn through here. How can we be prepared for handling that when it arises? (And fires always come in Summer which is peak visitation time for tourists)

Please consider these concerns from a tax paying land owner of Sawmill Mt Rd.

Here are my comments from last December that I want to ensure are included in your EIR. Also we've learned about a Glamping project across the road. Please study the impact of both these projects combined.

--
John Hollendoner Stanfield
415-279-8455

United States Department of the Interior

NATIONAL PARK SERVICE
Yosemite National Park
P. O. Box 577
Yosemite, California 95389

IN REPLY REFER TO:
A22(YOSE-SUPT)

MAY 31 2019

Ms. Quincy Yaley
Assistant CRA Director—Development
County of Tuolumne
Community Resources Agency
2 South Green Street
Sonora, CA 95370-4618
QYaley@co.tuolumne.ca.us

Subject: Terra Vi Lodge Yosemite Project EIR

Dear Ms. Yaley:

Thank you for the opportunity to comment. Although the National Park Service (NPS) developed these comments specifically for the Terra Vi Lodge Yosemite Project, they are applicable to many businesses in Yosemite's gateway communities.

Many of Terra Vi's future guests will visit destinations in Yosemite National Park, such as Yosemite Valley, Tuolumne Meadows, Glacier Point, and Mariposa Grove, among others. Currently, the parking in these areas fills up daily between May and October, on weekend days in the shoulder seasons, during spring break, and on holiday weekends. These areas, as well as the park's entrance gates, also experience significant traffic congestion.

The NPS encourages resorts such as Terra Vi to include infrastructure so that their guests do not have to drive private vehicles into Yosemite, and instead can take advantage of transit services (e.g. YARTS), tour operators, hotel-operated shuttle systems, or other strategies and technologies.

The NPS is actively implementing the Merced River and Tuolumne River Plans, which established user capacities and include actions to increase parking and reduce traffic congestion. In addition, the NPS is developing strategies and technologies to further reduce congestion. NPS commits to active engagement with gateway communities, businesses, and stakeholders as these strategies and technologies are developed and implemented. They could include opportunities for gateway businesses to transport visitors into the park, allowing visitors to leave their vehicles in the gateway communities, at hotels/resorts, or at other locations. The NPS would like to collaborate with gateway businesses to develop marketing and development strategies, and possibly incentives (to the extent allowed by federal law), to encourage visitors to leave their vehicles outside the park.

As part of our strategy to address the thorny issues of congestion, the NPS is increasing its engagement with Yosemite's multiple and diverse stakeholders. I am very interested in meeting with the Tuolumne County Board of Supervisors, as well as with other governmental entities. With the help of park staff, I

am also interested in participating in public meetings, workshops, conferences, webinars, and any other tool or technique that will facilitate stakeholder engagement.

Sincerely,

Michael T. Reynolds
Superintendent

Electronic Cc: Tuolumne County Board of Supervisors
Mariposa County Board of Supervisors
Madera County Board of Supervisors
Inyo County Board of Supervisors

June 1,2019

Matthew Chapman
30445 Sawmill Mt.Rd.
Groveland Ca. 95321
209 962-0663 Home
209 206-1706 Mobile
Voice mail

Tuolumne County Community Resource Agency
Quincy Yaley Assistant CRA Director
2 South Green Street
Sonora Calif. 95370-4618

RE: Response to Notice of Preparation (NOP)
Draft Environmental Impact Report (DEIR)
Project EIR Terra vi Lodge
11262 Sawmill Mt.Rd. 95321

PART A

1) Apparently no Initial Study was undertaken for the Terra vi development project.CEQA §15063 Initial Study. Unless the project is initially determined to require a Draft EIR an initial study shall be done; CEQA appendix H is provided for that mandated requirement, although a Lead Agency can adapt their own form. The development project apparently was not initially determined to require an EIR; upon submittal of the application Stake Holder notification notices were distributed by the county for comment. The Stake Holder comments in response raised an array of environmental concerns, and provided an "Initial Study" body of resource.

2) Upon the application comment period's closing, A 30 plus day period elapsed resulting in a letter dated February 12 2019 relating the status of the application. That letter indicated an incomplaete application noting 6 issues requiring study and or planning and related various Stake Holder responses delivered and or expected to be added to and or required. This letter contained answers to frequently asked questions; at this time a determin-nation relating to CEQA had not been formulated.

3) On May 2 2019 Notice of Preparation (NOP) of the Draft EIR for the Terra Vi project was released by Tuolumne county.

4) As the development project was not initially determined to require an EIR; 4 months elapsing from its application, with county knowledge of the project predating its application in providing permits to the developer for soil testing and the drilling of 2 wells, an "Initial Study" should have occured pursuant to the guidelines See CEQA §15063(a) et seq. .

5) The purpose of the "Initial Study" is described as 1) Provide the Lead Agency with information to use as a basis for deciding whether to prepare an EIR or Negative declaration 3) Assist the preparation of an EIR if one is required by; See CEQA §15063 (c). et. seq.

6) The Community Resource Agency (CRA) apparently did not utilize CEQA form appendix H for an "Initial Study" it has not been observed in the record file, no "Initial Study" has been sent out for review; the frequently asked questions of the Feb.12 2019 letter does not relate a comprehesive understanding of the required "Initial Study" as articulated in the 2019 guidelines.

7) The distributed Stake Holder Response notices elicited comments raising a vast array of environmental concerns that provide the basis of an "Initial Study". However the result of Stake Holder responses were not articulated, consolidated, acknowledged, categorized or otherwise considered. They were totally ignored; even so far as to affect the Notice of Preparation (NOP) announcing the Draft EIR.scoping process.

8) Now the county CRA seeks scoping for a Draft EIR requesting redundant input it has allready ignored and at it's disposal to have categorized and articulated and related as known environmental issues as required of the Notice of Preparation and

Determination of Scope of EIR see CEQA §15082 especially (C)Probable environmental effects of the project. (C)(2) indicating the "Initial Study may be sent with the notice to supply the ***necessary information.***" However apparently the county CRA never bothered with an "Initial Study".

9) As a consequence of facts 1-8 above I Matthew Chapman reassert all Stake Holder responses of record elicited by county CRA Stake Holder notification to be part and parcel in their entirety and cumulatively as an initial response to the draft EIR scoping. To be fully and fairly acknowledged and categorized to be addressed on their merits within the draft EIR.

10) Failure to undertake the "Initial Study" at the appropriate time has engendered substantial defects within other matters relevantly required by the CEQA process that have allowed the development project to proceed initially in ignorance of various elements of the environmental setting, environmental effects, and examination of whether the project would be consistant with existing zoning, plans , or other use controls. Moreover the recommendation of CEQA appendices G and H used together as a comprehensive means to the ***"requirements for an initial study"*** was disregarded. See in it's entirety CEQA §15063 (d)Contents. An initial study shall contain in brief form... et seq.

11) As a consequence of failing to conduct the initial study in "all phases of project planning, implimitation, and operation" as must be considered "in the initial study of the project" to thus "Facilitate environmental assessment early in the design of the project" CEQA §15063 (a)(1) and (c)(A (4), the county CRA has misrepresented thru their negligent failures in an "Initial Study" the environmental setting (they could not know the details of the setting without such initial study). That misrepresentaion

has carried forward within the NOP for the Draft EIR in which, although otherwise available from Stake Holder comments, substantive elicited facts as to the environmental setting, probable environmental issues, and asserted Land use issues, among others have not been corrected or concealed. The above inadequate under CEQA law. See CEQA §15125 Environmental Setting at (a)(1) et seq. Refer to points (12)a-k below.

12)

(a) It has not been corrected that the access road United States Forest Service (USFS) road IS03 is in fact a cul-de-sac and is the only ingress and egress for "the Rural Residential homes to the north" the CRA stating it not a cul-de sac believed to be a misdemeanor violation of State Public Resorce Fire Code. That USFS road IS03 (an easement thru private land a segment passing thru this Respondants private land)is under the jurisdiction and management of the USFS, established pursuant to federal law for Forest administration, to which commercial use is subject to federal regulation "Special Use" permit process. That alternative highway access rights exist. that are not being utilized. The inevitable commercial spillover affect to rural residence along road IS03 (to include cumulative commercial traffic from con-current development to Hardin Flat LLC land) was not reasonabley fore-seeable nor considered at the time of USFS acquistion of their roadway right for forest administration, necessitating comprehensive National Environmental Policy Act (NEPA) review by the USFS; and presenting questions of Federal law. See CEQA Article 14 Projects also Subject to NEPA §15222 Preparation of Joint Documents

(b) The location and numbers of "homes to the north" have not been indicated on the Region and Vicinity map. Their environ-mental setting as to view shed exposure not distinguished and concealed. The site setting's amphitheater affect, in relation to the development's scenic impact to conterminous land owners, provides for unobstructed overwhelming fronting view.

(b)(1) The historical existance of the rural residential homes to the north has been concealed; their existance predates the Manly CK zoning by decades, existing since 1940's, the original Homestead of 1906 established before the highway became public.

(c) The CEQA recommended USGS topograghical map was not used as a location map. The fact has been elicted that the developer has misrepresented the slope of the physical terrain of the septic waste field. That fact needs correction, the USGS topograghical map would be instramental in correcting that fact.

(d) There currently is a structure on the project site, a CalTrans storage/sand shed and road maintenance barn essential to highway snow removal maintanance. The CRA has asserted "no structures on the site" that fact is erroneous and is in need of correction. That activity utilizes USFS road IS03 for their maintanance, their only ingress and egress to the highway.

(e) The project site, as described, "was heavily burned in the 2013 Rim Fire.resulting in a significant burn scar that extends several acres into the site from Highway 120 and which destroyed most of the mature trees on the site" This statement,conceals the fact that a Timber Harvest occured after the Rim Fire, Subsequently and/or consequently ?, the land owner entered into a Calif. Forest Improvement Project (CFIP) contract, agreeing to not undertake any development activity of the nature proposed. The CFIP contract asserting at the time an agricultural zoning that contract indicates a $34,000 expenditure on the part of the State to reforest the project site. Status of that CFIP contract should preclude the CRA acting against that State contract; the existance and status of that contract within the NOP site desription was concealed although known by the CRA.

(f) The described "Nearby development..." conceals the fact that a concurrent development by and thru the same Hardin Flat

LLC was at the time apparently engaged in Tuolumne county CRA planning process. The "residents to the north", argueabley at 1040 feet from that concurrent project, were likely to be affected thru cumulative impact or otherwise, were not notified. Particularly the spillover commercial use burden to USFS road IS03 not reasonabley fore-seeabley considered at the time of USFS acquisition of their roadway rights and the amphitheater affect of those lands to the south, cumulative highway impacts as well as the affect of water usage to existing residential wells.

(g) The CRA misrepresents "two existing on-site wells" those wells in fact were only months previously permitted by Tuolumne county for the purpose of the development; development which the county had previous knowledge of being imminent. The permitting of those two wells should not have occured without benefit of an "Initial Study" as it is an action taken by Tuolumne county that could possibly restrict the lead Agency from denying the project. CEQA Article 1 General §15004 (3)(4)A-D

(h) The NOP declares the project zoned Commercial Recreation (CK). Open Space (O) and does not require rezoning. The statement conceals the fact that a complaint filed against Tuolumne county for an unlawful Land division is still pending; that complaint additionally asserted a claim of failure to lawfully zone 3 of those parcels. Their unlawful creation was premised on the declared fact as being distinct "pre-existing underlying parcels," their lawful establishment "for purposes of a highway"; they were not recognized within the CK zoning in 1991, which did not contemplate their existance. The pending complaint before the State Governor and State Attorney General on a Constitutional claim; demanding state enforcement for Tuolumne County failure to faithfully, adequately and uniformly follow dictates of the California State Sub-Division Map Act and the California State Land Surveyors Act. The referenced complaint submitted in my Matthew Chapman's Stake Holder response to the development

project, reasserted at point 9 above for CEQA scoping response, available within the project record file. The developments western parcel is so affected.

(i) The fact of highway 120 being a state scenic highway has been concealed and would have to be considered.

(j) The applicable General Plan has not been distinguished, the 1996 version or the recently approved version; and as whether the initial planning was prematurly undertaken in regard to the new 2019 General Plan.

(k) Failure of an "Initial Study" and/or the failure of the CRA to utilize the Stake Holder's responses as such, has placed the project behind a lawful deliberate CEQA environmental discovery curve concerning the environmental setting, the environmental problems, and land use issues. The Developer in ignorance of an "Initial Study" has submitted plans akin to forcing a square peg into a round environmental hole; simply taking advantage of physical characteristics of the site and cramming as much as possible and wherever possible, maximizing impacts they had no knowledge of and should have been made aware of and then disclosed within the NOP, for full and fair Draft EIR scoping.

PART B

B(1) The development site setting is at the intersection of a scenic highway and public use easement for National Forest access passing thru private lands, its amphitheatre like setting at the top of the highway grade starkly presents the development to overwhelming scenic impacts and would manifestly in its scope and density would degrade the existing character and quality of public views along the highway and accessing the National Forest thru the Development. The above cognizable CEQA Aesthetic issues.

B(2) The amphitheater affect of the setting for conterminous land owners whose residence exist on the hights directly above and/or opening directly to the development would manifestly suffer overwhelming scenic impacts. The size. scope and density would confront conterminous rural residential land owners with a city scape with helicopter pad and constant activity and traffic which would overwhelm the rural scenic residential setting. The stark setting of the amphitheater affect would present constant illumination of the development, the encroachment of Phase 2 units directly across from long established rural residence, present constant density and activity impacts to the scenic quality of the setting. The unlawful invading **spot** zoning of the site and unlawful subdivision into 4 parcels and the failure to lawfully zone 3 of those unlawful parcels established "for purposes of a highway" aggravate and present cognizable CEQA aesthetic issues and indicate inconsistancy and incompatability within the county General Plan which must by law provide consistancy and compatability thru zoning. The western parcel of the development has never been lawfull zoned.

B(3) The site setting, historically Timber Lands, was apparently subject to a Timber Harvest after the Rim Fire in 2013. The details of that Timber Harvest Plan and any contingency to allowing that Timber Harvest need to be determined. Subsequent and or a consequence of that Timber Harvest the land owner entered into a California Forest Improvement Program (CFIP) declaring in that contract his land was zoned Agriculture. Status of that CFIP contract, although previously brought to the attention of the CRA, has not been related; is it still in force and affect? Is the CRA unlawfully acting against that State contract? The subject land owner agreeing not to develop his land inconsistant with timber production for 10 years.

The fact of the historical Timber Land of the property would require investigation of the lands status under various State Acts which require the identifying and protection of State timber resource. Is the development of the CK zoned parcel subject to

restriction to the scope and density by elements of State Law due to State designated timber resource protection laws? The above would necessitate a comprehensive CEQA Agriculture and Forestry study addressing all the sub categories a-e.

B(4) Due to the setting, winds generally during the course of the day will eminate from the developmant site towards the resindents to the north. The development will attract hundreds of vehicles daily as well as service vehicle activity associated with normal business activity; another cumulative hundred plus associated with concurrent Hardin Flat LLC development. The parking area for those hundreds of vehicles is directly conterminous to long standing rural residents, vehicle access to segments of the USFS roadway easement IS03 thru neighboring private lands present overwhelming vehicle emmission impacts affecting Air Quality next to and thru residential land. Cumulative impact of a hundred woodburning stoves from concurrent Hardin Flat LLC sponsored development adding to the above affect.

The massive septic field boardering residents will subject immediate neighbors to inevitable offensive sewage odors, the massive septic field proposed on the amphitheater's western basin drainage; that drainage a water course transmitting both surface and subsurface waters that will inevitabley alter the septic field's winter performance, affecting percolation, thus eminating associated offensive stench. This has been a recurrent fact at Rush Creek and Evergreen lodges. The situation presents issues for Geology and Soils study (as well as Air Quality) to determine its suitability to discharge septic waste when saturated with seasonal water runoff

The ongoing kitchen activity of the development will continuously be eminating waste gasses and odors of various make up.

B(5) As the development site has for decades if not a century existed as undeveloped historical Timber Lands the biological Resource their has remained relatively undisturbed. This respondants personal knowledge of 30 years residency has shown it to

certainly be a deer migration corridor and nursery area. Herds of deer routinely migrate through the subject land. Because it has been relatively undisturbed a Dept.Fish and Wildlife assessment would be believed requisite to any Biological Resource study, as well as input from the National Forest Service, as the subject land is an island within the Stanislaus National Forest, their input would be of necessary value and concern to a comprehensive biological knowledge of the areas habitat of National concern in regard to migratory issues.

The aforementioned drainage basin for the development site feeds surface and subsurface water directly into a seasonal percolating meadow surrounded by several of the local residence that utilize that meadow's water resource through shallow wells. The percolating meadow of historical significance to the original homestead and Native American culture has endured as a habitat for man and animal as far back as recorded history and beyond. It is threatened now with an inundation of thousands of gallons of septic waste water daily, of unknown biological consequence, compelling a Hydrology and Water Quality resource study, and Hazardous Material release study addressing consequential hydrological failure of the septic wastewater system flowing directly to this undisturbed sensitive habitat and human species resource.

B(6) The development site will rely on well water, cumulative with concurrent Hardin Flat LLC land development south of highway 120, that aspect of Hydrology and Water Quality would necessitate extensive and comprehensive study. The rural residence of the immediate area rely on deep wells of low output, the cumulative water demands of two very large development's impacts on that water resource of impairative significance. Does the development meet the requirements of a "public water system"?

B(7) Land use and Planning; causes of significant environmental impacts are manifest to the development's conflict with land use plans, policy, or regulation. The unlawfull spot zoning in dis-

regard of comprehensive General Plan and zoning analysis in 1991 of a single 140 acre parcel was aggravated by an unlawful land division to 4 parcels in 2003. The 3 parcels derived from that unlawful land division (violating the California Subdivision Map Act and the California State Land Survey Act) were never subsequently lawfully zoned. As distinct parcels of that unlawful land division deemed "pre-existing underlying parcels" their creation for "purposes of a highway" remains unaltered by lawful zoning process; the western parcel of the development affected by that failure to lawful zoning. A complaint pending before the Tuolumne County Board of Supervisors has not been responded to, the complaint was delivered to the CRA as a Stake Holder response and it exists there as a matter of record, reasserted for purpose of CEQA scoping. It has been ignored by the CRA. Currently that complaint has been delivered to the State Governor and State Attorney General asserting a State Constitutional claim, implicating subsequential regulatory violations adapted for criminal enforcement of regulation, and land use policy "adapted for the purpose of avoiding or mitigating an environmental effect."

The proposed commercial use of USFS easement was never considered upon USFS acquisition; it was never considered as a reasonable foreseeable occurance that two commercial recreational projects would exist on Timber Lands at the IS03/highway 120 intersection (necessitating NEPA review see point (12)a.) It is now a reasonable foreseeable occurance that an innundation of traffic associated with some cumulative totals 3,4,5 ? hundreds of people/vehicles will create massive commercial impact traffic through this land owners private residential land at all hours of the day and night; dividing the rural residential setting of him and his neighbors fronting the IS03 easement, till now a quiet forest access road intersecting a residential neighborhood. The immediately above point would also be reasonabley cognizant under the CEQA category Recreation (b) as well as Land use and Planning

B(8) Noise issues are manifest to the CK development's **unlawful spot zoning** abutting Rural Residential land. Such an incompatable and inconsistant zoning anomaly an indication of sustantive defect in the General Plan/zoning scheme of Tuolumne county, land use policy and regulation that, by design,are by law expected to address and mitigate such conflicts; that is the purpose of zoning law. Further aggravated via unlawful land division in 2003 and failure to lawfully zone the same. That said, it is related the ambient noise levels in the area are practically non existant. The stark site setting, the amphitheatre affect in which conterminous land owners stare down unobstructed and openly front all aspects of the project, will present a beehive of noise inducing activity, unincumbered in it's projection to the fronting residence. Engendering Land Use & Planning CEQA issues to study, as well as Noise CEQA issues to study

It is reasonabley foreseeable that events and activity involving music and outdoor partying will be undertaken as part of regular business activity, that guests will dispense their music tastes while enjoying their stay, that their children will shriek and shout in obvious uncontrolable joy in their vacation experiance; all good and fine, except for the fact of the rural residents who must live with this day in and day out, potentially nightly, and as a parade wandering down the forest access easement road right in front of their houses;; in a zoning locale they chose to reside that was suppose to mitigate that activity.by separating it; the situation compels CEQA study

B(9) The USFS forest access easement, roadway IS03 where it intersects state highway 120 is a dangerous intersection that the development project's impact will aggravate, it requires a comprehensive study. As stated earlier at point 12(a) it has been declared erroneously by the CRA that it is not a cul-de-sac that would be news to the local residents and USFS who know it as the only ingress and egress for the rural residence, the forest road not adequate or maintained for regular vehicle traffic.

The intersection presents both a blind turn, and uphill blind approach for vehicles travelling to the east where IS03 abuts at the crest of the grade. Vehicles upon cresting the grade act to immediately pass, this is also a passing straight for the vehicles traveling westerly. The development would present a multitude of conflicting traffic; attempting both to turn left into, while vehicles attempt to turn left out of the lodge. Add to the winter mix the snowplows operating in the same congestion. Add to the mix an emergency situation where development traffic impeding emergency vehicles, and impeding the local residents from their egress in an emergency. Again add to the mix the only egress is next to the proposed propane supply depot tank facility. (see CEQA Hazards and Hazardous Materials) Realize the parking facility crowded with some 300 vehicles, motor homes included, attempting to flee; possible bumper to bumper highway traffic (routinely entering and exiting Yosemite National Park) thrown into an emergency mix. All the above warrants comprehensive CEQA study, believed to present an immitigable hazard. the intersection manifestly hazardous. Cumulative impact attributable to the cuncurrent Hardin Flat LLC land development to the south to be additionaly considered.

The access off the highway is extraordinary in that 3 groups of people, possess easement right of way, along and thru that segment of IS03; the Sawmill Mt Rural Residents(±1950), the USFS (1965), and then CalTrans(2003 as a result of quit claiming their .13 acre land fee title, for an easement), The hierarchy of those easements are the order they are listed, as a tenet of easement law a junior easement holder cannot unreasonabley interfere with that of the senior. That tenet creates issues in that the USFS, designated by Federal Law with Jurisdiction, Management and Maintenance per Federal Regulation must provide that the outstanding access rights of Sawmill Mt. residents (that predate those of the USFS) are not unreasonabley interfered with, in whatever determination they make. They must also consider that CalTrans easement rights are not unreasonabley interfered with. Moreover, that the servient land owner Hardin Flat LLC does not

unreasonabley interfear with any of the 3 dominant road easement right holders. Said determination should under Federal Regulation utilize the "Special Use" permit process for commercial use of roadway IS03, an easement acquired and established for purpose of United States Forest Administration. Alternative highway access exists for the developer, his plans not utilizing it. The above relevant to the warranted comprehensive CEQA Transportation study involving the proposed use of USFS road IS03 for the development.

B(10) The aforementioned CEQA Hazards and Hazardous Materials bomb affect the placement of the propane supply depot could have in event of a CEQA Wildfire event on ingress/egress emergency access, further engenders other concerns. The placement of the propane tanks supply depot (foreseeabley huge) in direct proximity of the western drainage basin directly above several conterminous residence; directly and or indirectly subjecting them to aggravated CEQA Hazards and Wildfire concerns. Their homes proximity to that potential bomb in event of wildfire, and in event of catastrophic or lesser physical failure (tree fall, etc.) the release of heavier than air propane meandering down the drainage basin, threatening the residence therein.

The propane supply depot is adjacent to unmaintained USFS land, it is also adjacent to CalTrans heavy equipment road maintenance operations potentially sparking latent gas release.

B(11) Continueing with CEQA Wildfire issues, The site is identified as a "Very High Fire Hazard Severity Zone within the State Responsibility Area" As recent state fire occurances have shown, wildfire occurances have escalated in their number and severity, incapable of control and catastrophic in their impacts. The USFS lands in and around the development site tied to Hardin Flat LLC lands is rife with dead and dying timber and brush extending for miles around the site. The development would place a protective burden on fire fighting allready an overexpensed and overburdened resource, possibly in place of the surrounding residence that would be deemed expendable in relation to the lodge complex.

The concurrent proposed development on Hardin Flat LLC land directly opposite, lying south of State Highway 120 proposes 100 tent cabins. That development has been described by the CRA as comparable to a Motel/Hotel development; it is more akin to a 100 dwelling unit housing subdivision. In either case, such development would require a fire sprinkler suppression system; the 100 tent cabin development, with potential to alight like matchsticks does not; with potential catastrophic consequence to the area and the established residence surrounding that 100 dwelling unit development. The affect of this cumulative fact to the threat of wildfire, and from wildfire in relation to the Terra Vi project must be comprehensively considered. Moreover the fact that any proposed 100 dwelling unit sub-division would require the consideration of Public Services in relation thereto, such Public Services are scarce to non existant, fire fighting protection a critical example.

The density of the construction at Terra Vi site, attributable to an unlawful **spot** zoning of the original 140 acre parcel, and the failure to lawfully zone the 3 parcels derived in an unlawful sub-division present density of dwellings incompatable with the surrounding 5 acre minimum Rural Residential areas as set forth in the 1996 General Plan because of the lack of Public Services. That density of development contributing to and aggravating the consequential fire fighting capabilities of Public Service to that allready overburdened duty; engendering structure to structure fire spread as recent State wind driven wildfires have exhibited. It would be remiss, if not criminal in light of recent historical wildfire characteristic to allow greater density in CEQA Wildfire zones that have historically existed, for the reason set forth in the 1996 General Plan in the area of the site, as five acre minimum zoning. The rationale set forth in the 1996 General Plan has only been reinforced by recent wildfire occurances, the situation becoming worse not better.

B(12) Beside the CEQA Public Services element discussed briefly above (the category presents greater concerns as related by the Groveland Community Services District), the CEQA category Population and Housing must be considered in the discussion for study. It is understood that Tuolumne County is out of compliance with State Housing Policy, such a development as Terra Vi will necessitate a large influx of employees in need of affordable residence; the community of Groveland and the surrounding area does not provide for that necessity. The development not providing for that housing concern in relation to the development's impact. It is understood that the current developments at Rush Creek and Evergreen employ several hundreds of people, the Terra Vi development on equal or greater demand for employess, would place housing demands on the area that are allready insufficient.

The Hardin Flat LLC lands unlawful land division and subsequent failure to lawfully zone 3 of those parcels would, under lawful process, have provided CEQA review and it's necessary public comment to address the very complications now confronted. A lawful subdivision process of those lands would have determined the necessity of any subdivision requiring the inclusion of residential zoning. Moreover, it's current CK zoning provides for residential possibility, a comprehensive application of General Plan and Tuolumne County zoning codes in light of the unlawful **spot** zoning of the original 140 acres, should be applied to provide for the underlying premise that the General Plan and zoning codes must by law ultimately provide for consistancy and compatability in development.

Matthew Chapman

Ms. Quincy Yaley
Tuolumne County Planning Department

June 3rd, 2019

RE: Scoping Comments for proposed Hansji Terra VI Hotel, Market and Event Center

Dear Ms. Yaley,

I am writing as the owner of three parcels, one with a home, adjoining the proposed development. My extended family has owned property along Sawmill Mountain Road and Hardin Flat Road for over fifty years.
We've paid property taxes for a long period and have been responsible and respectable “caretakers” of these beautiful (and threatened) forest and meadows through forest fires, bark beatles and other natural challenges.
We have deep roots as several generations have grown up here dating back to the sawmill operation and original homestead and we are determined to protect the natural beauty, abudant wildlife, peace and quiet and unique beauty of the forest and meadows along Hardin Flat and Sawmill Mountain for ourselves, future generations of our family and the thousands of annual visitors to the surrounding Stanislaus National Forest.

It's important to note there is an existing residential community consisting almost entirely of low density residential. Practically all properties in this community are single family homes on two or more acre lots.
Our property has one approximately 1,500 square foot cabin on ten acres, and is typical of this community. It shares a property line with the northwest end of the Manly property.

The EIR should evaluate and compare the bulk and scale of this proposed 325 room resort development to the typically one or two bedroom homes on mulitple acre lots in the existing community.

The evaluation would have to conclude the proposed development is completely out of character with the existing residential community.

While we hear the Manly property described as commerical / recreation we believe it's more appropriate to describe it as timberland, as that is the only use we've ever witnessed on this site and we see the property owner continues to utilize the property as timberland.
The State of California tells us this property is timberland.
It's not accurate or appropriate to say the existing community should have anticipated a massive hotel / resort / market / glamping proposal on the adjacent Manly land, which we consider to be timberland.
All possible impacts to the long-term existing residential community from such large scale commercial developments should be evaluated.

Please submit the following concerns for evaluation in the Enviornmental Impact Review.
Each of these concerns should be evaluated in combination with the impacts from the proposed Yosemite Under Canvas project on this same property.

1) Increased Fire Risk: These projects would create a greatly increased risk of major forest fires in

this extremely high risk fire area on land that was previously severelly burned through by the Rim Fire, which burned down several homes / structures in our community.

Many of the guests at the proposed Hansji resort (hereafter: Hansji) or the proposed Yosemite Under Canvas glamping operation (hereafter: Glamping) will likely not be experienced woodsmen and could easily ignite a major forest fire as easily as simply failing to completely extinguish a cigarette.

The impact of what appears to be approximately 1,000 visitors per day to the Manly property (both projects), over 100 wood burning fires, thousands of automobiles, maintenance operations and all the other risks which come with putting two large commercial developments in the middle of a dry forest, must be evaluated from the perspective of added fire risk to an area that CalFire has determined is "Extreme Fire Risk".

This is particularly worriesome due to the devastation which would be reaped upon two national treasures by a fire starting on the Manly property, which is surrounded by Stanislaus National Forest and just six miles from Yosemite National Park.

Additional concerns are the absence of the quantity and type of first responders which would be required for such a massive and dense hotel / resort.

By the time the fire trucks arrive from Groveland, assuming they are not engaged elsewhere, it's plausible a structure fire would already be out of their very limited control.

2) Evacuation Route:

The re-alignment of Hwy 120 in the 1960's left our community with only one access to Highway 120. That access is Sawmill Mountain Road which is a narrow Forest Service road, not a County road. Sawmill Moutain Road is a cul de sac, with no escape route other than onto Hwy 120.

During the Rim Fire CalFire warned us they might not provide structure protection during the next forest fire (there is always a "next" fire) due to the single exit.

If this proposal is approved our only escape route would likely be blocked by the thousand or so people and vehicles existing the resort, on a narrow Forest Service road, between our homes and the highway.

3) Watershed: Several wells in the existing community have dried up in recent years and had to be re-drilled to much lower depths. The impacts to the community of the water consumption from both Hansji and the Glamping project have to be fully evaluated.

4) Sewage: There is no failsafe system for disposing of sewage from hundreds of people per day, plus commerical water uses, with a leechfield. This leechfield is proposed to be directly above and adjacent to the meadows, streams, springs and water supply of our existing residential community.

When the ground is frozen and / or saturated sewage will find it's way into the existing watercourse which flows through the Manly property, through our properties and into the Tuolumne River.

This impact cannot be mitigated as there is no way to absolutely guarantee there will be no spilling or seepage of sewage.

5)Traffic. The proposed access from Hwy 120 onto Sawmill Mountain Road is extremely dangerous, as is the ingress and egress at Hardin Flat Road.

The traffic impacts to both roads, from both developments, need to be throughly evaluated.

Ingress and egress should be moved to the eastern section of the Manly property, where they

have an access easement onto a much straighter stretch of Hwy 120, and could install turn lanes for safety.

6) Noise, light and air pollution: The cumulative impact from both projects must be evaluated. These developments would create significant increases in each category and the impact of these increases to the adjacent community and significant and threatened wildlife have to evaluated and mitigagted.

In closing, placing a massive commercial development into a fragile and high risk national treasure, in an area with no public water or sewage, is completley inappropriate.
Both the Hansji / Terri Vi and Yosemite Under Canvass proposed developments are on the same property, the Manly property, which we believe is legally one single parcel, and each has to be evaluated in combination with the impacts from the other.
Therefore for the interest of efficiency it is prudent for the County to obtain a single unified EIR for both projects, and such is hereby requested.

Sincerely,
Dan Courtney
Trustee, The Jacqueline Courtney Trust
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La Jolla, CA 92037

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June 2, 2019

ATTN: Quincy Yaley
Assistant Director, Development
Tuolumne County Community Resources Agency

RE: Terra Vi Lodge Yosemite Project EIR
Site development Permit SDP18-003

Ms. Yaley,
I submit the following comments on the County's Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the proposed Terra Vi Lodge- Yosemite Project.

I. NOP INADEQUCY

The County's NOP does not meet this minimum standard for adequacy as it contains little information about the Project or its potential environmental impacts. I ask that the County revise and recirculate its NOP in order to provide substantive detail about the Project and its likely environmental impacts. For the sake of transparency and adequate communication, the County should provide better and more complete information to the community at large.

II. AESTHETICS
The impact of this project on scenic resources including trees, rock outcroppings and vistas is significant. There is no question that this project will forever alter the visual and aesthetic character of the area, therefore, the project must be studied in regards to the degree that it will degrade the existing visual character and quality of the site and its surroundings. This project will also bring in substantial light and glare that will permanently and adversely affect both the day and nighttime views of the area. It is important that the County study and truly consider the irreversible impact this project will have on the aesthetics of the area.

III. AIR QUALITY
This project will undoubtedly result in a considerable increase of a myriad of pollutants. Considering that the number of cars that currently traverse Sawmill Mountain Road amounts to somewhere between 5 – 15 a day (at a maximum), bringing in maintenance vehicles, hundreds of cars, as well as fire pits, and other off gassing that accompanies a project of this size, the air quality will most certainly diminish. The County needs to thoroughly investigate the impacts of not only these things, but also the proposed YARTS busses, off gassing from leach lines and various other odiferous emissions that will permanently impact the air quality for not only tourists but those that live in the area as well.

IV. BIOLOGICAL RESOURCES
This land has been known to be home to the Spotted Owl and other potentially endangered species. A thorough study must be done that acknowledges the presence of these and other sensitive/endangered species. Additionally, this area is a seasonal wetland that ultimately feeds the wells of nearby neighbors. Impact on the seasonal wetlands and the supply of water to the neighboring community must be considered. This area is also a migratory corridor for mule deer and other species. They graze, bed down and use this area throughout the year, most particularly in winter/early spring months when the higher elevations are too inhospitable. The County must study and consider the impact this project will have on the existing wildlife habitat.

V. CULTURAL RESOURCES
This land is well known as sacred medicine gathering land for the Band of Me-Wuk Indians. Additionally, adjacent land is known to have significant archeological artifacts such as grinding stones, so a complete study must be done to determine whether or not this land is of cultural significance.

VI. GREENHOUSE GAS EMISSIONS
This project will, no doubt, generate greenhouse gas emissions; from the increase in cars/busses, to the use of electricity to the running of air conditioning, greenhouse gasses will increase as a result of this project. Currently, none of those things regularly happen on this land, thus the greenhouse gas emissions for this area are very low. The County needs to study and determine whether or not the increasing greenhouse gas emissions in this area are appropriate and acceptable and what the impact will be on its nearby residents.

VII. HAZARDS AND HAZARDOUS MATERIALS
The size and scope of this project inherently puts people and/or structures at a significant risk of loss, injury or death as it is located in a Very High Fire Hazard Severity Zone and adjacent to areas intermixed with residences and wildlands. The project site and the sheer number of people and structures being proposed increases the risk of fire. The County needs to study the impacts of such a large development in conjunction with other projects being proposed in the area, and thoroughly evaluate the degree to which people and structures are exposed to loss, injury or death from wildland fires.

Further, in regards to ingress/egress in the case of wildfires, the County must study evacuation risks. This analysis must identify the number of cars evacuating the project area and any operational capacity constraints there might be. The adequacy of evacuation routes and any impacts to emergency personnel attempting to respond while an evacuation is underway must also be studied.

Additionally, this project proposes a helicopter landing pad; studies need to be done on the potential hazard this will create to not only local residents, but also to the wildlife.

VIII. HYDROLOGY AND WATER QUALITY
Studies need to be done as to whether or not this project creates substantial risk of depleting groundwater supplies as well as the degree to which it would interfere with groundwater recharge such that there would be a net deficit in aquifer volume resulting in a lowering of the local groundwater table level. It needs to be determined whether or not the production rate of preexisting nearby private wells could potentially drop to a level which would not support existing land uses. For instance, there are neighboring nearby cabins that have had existing wells for many decades and it needs to be studied whether or not this development's water usage would impact or deplete these existing and permitted wells.

IX. LAND USE AND PLANNING
The land the Hansji Corporation is proposing to develop was historically zoned Timber Production (TPZ) for almost a century. It was eventually sold and subsequently rezoned at the request of the new owner, Robert Manly, to Commercial Recreation (C-K) in 1991.

The 1991 County Board of Supervisor's decision to rezone this land did not comply with the General Plan at the time thus creating an inherent land-use conflict by forcing the abutment of two wildly opposed zoning designations: Rural Residential and Commercial Recreation. This decision, made over 25 years ago, opened the door for the proposed Hansji Corporation's development today, now putting the County in the position of having to defend and mitigate incompatible land uses. A study needs to be done on whether or not these two existing uses are compatible and what the impacts of going forward with the project will be.

X. NOISE

This project would create a substantial and permanent increase in nearby noise levels that would be above levels existing without the project, possibly permanently disrupting and diminishing the quality of life for those who currently reside adjacent to the project area. This increase in ambient noise level would be far above levels that currently exist; without the project, currently the only ambient noise is that of nature sounds, intermittent passing cars and the occasional work truck. The project, as proposed, would, without a doubt, expose people who reside in the project area to consistent and excessive noise levels that did not exist before. The County needs to look at those real and substantial impacts.

Additionally, the project proposes a helipad for "emergency/ personnel use" that is sited directly adjacent to a community of neighboring homes where currently there is nothing but open land and an emerging forest. The proposed helipad is less than 100 yards from pre-existing residences; this will surely expose the adjacent community to excessive noise levels as well as diminish the general quality of life. There needs to be a thorough study that determines the impact this would have on those who reside in the project area as well as the wildlife that frequent there.

XI. PUBLIC SERVICES

The County needs to study how it will support the increased need for fire protection, police protection and other public facilities that a project of this size requires. Currently, there is no water or sewer on the property and the closest emergency services are 16 minutes away. A thorough study needs to be done to determine how feasible and responsible it is to build a hotel of this size with the limited amount of public services that are available. Additionally, this study should also consider the cumulative impact of the other currently proposed developments in this area, specifically, the rebuilding of Berkeley Camp, the expansion of Thousand Trails in Hardin Flat and the proposed Under Canvas glamping project.

XII. RECREATION

This project would increase the visitation of the already overcrowded Yosemite National Park. It is well known that Yosemite is struggling to keep up with the 4,000,000+ people that visit yearly and, because of this its facilities are proving inadequate and in disrepair. The County needs to work with the National Park Service and study whether or not this project, along with the others being considered along this corridor (Berkeley Camp, the expansion of Thousand Trails in Hardin Flat and Under Canvas glamping), would have adverse effects on the use/overuse of Yosemite National Park.

XIII. TRANSPORTATION/TRAFFIC

The impact of a project of this size and scope on the Forest Road 1S03 cannot be understated. This road is the lone entrance for a neighboring community of homes and sees very little use on a daily basis. A YARTS stop, the number of vehicle trips from guests, the daily use of maintenance vehicles as well as traffic from day guests will impact this sparsely traveled road significantly. The EIR should seriously consider the disproportionate impact this project will have on the neighboring community in regards to traffic and its related hazards for anyone who lives on this road.

Additionally, the current proposed entrance itself with its turn on to Sawmill Mountain Road is dangerous and needs to be studied as to its viability and safety. Another alternative entrance directly from Highway 120 must be studied and considered, not only for the sake of the residents of Sawmill Mountain, but for the safety of anyone who uses Sawmill Mountain Road.

Lastly, with regards to air traffic patterns: as there is currently no form of air travel sited on the property, the proposed helipad will create a significant impact in air traffic. A study needs to be done to determine the true impact of such a mode of transportation being a component of this project and what the overall effects would be.

XIV. UTILITIES AND SERVICE SYSTEMS

This project requires the construction of new water and wastewater treatment facilities which could cause significant environmental effects, particularly to the seasonal wetlands that currently exist there as well as raise the risk of contamination of the nearby neighbors' wells.

The current Hansji Corporation proposal shows leach fields that are directly adjacent to private property on a downhill slope that feeds a meadow/seasonal wetland and a spring below. That meadow contains wells for neighboring cabins fed by groundwater. The size of the leach fields for this type of development is not insignificant. Studies must be done on what impact these fields will have in regards to potential contamination of current residents' water supply, as well as the unpleasant impacts of off-gassing and general foul odors. The risk of water supply contamination in existing wells is an impact that needs to be studied and addressed.

Further, in examining the Hansji Corporation site plan, the water flow directional arrow where the leach fields are proposed is not facing the correct direction. In the current site plan, this misdirected arrow indicates that water is flowing uphill toward Sawmill Mountain Road, which is gravitationally impossible. The site plan's directional arrows make it appear that the proposed leach lines will have no impact on existing water supply. The fact is, water flow in this area is downhill and directly feeds local residences' water supply. A study of water supply and contamination risks needs to be done to honestly determine what impact this project will have on existing wells on private land.

Additionally, a complete study of the water source and whether its supply is sufficient for the scope of this project and how this development will potentially impact existing properties' water supply needs to be done. The risk of a development of this size diminishing current water supply for the neighboring community must be studied and addressed.

XV. MANDATORY FINDINGS OF SIGNIFICANCE

This project has the very real potential to degrade the quality of the environment and substantially reduce the habitat of the wildlife in the area, potentially eliminating the community of animals that call that land home. Further, this project's impacts on the area cannot be considered alone; when viewed in conjunction with the rebuilding of Berkeley Camp, the expansion of Thousand Trails in Hardin Flat and the potential of the Under Canvas glamping project across the highway, the cumulative effects and impacts of all these projects must be considered.

Lastly, this project will have permanent, dramatic and negative environmental impacts that will create direct and substantial adverse effects to the community of homes directly adjacent to the project. The County must thoroughly analyze the project's impact on the setting's unique ambience and determine whether this project is truly compatible with the environmental setting. Alternatives to the project should be identified and considered.

XVI. CONCLUSION

I appreciate the opportunity to provide these comments. As stated above, I again respectfully request that the County revise and recirculate its NOP. The community at large needs more thorough and accurate information regarding the unavoidable impacts that come with a project of this size and scope.

Regards,
Carolyn Hill
30350 Sawmill Mountain Road
Groveland, CA 95321

CC: Natalie Rizzi; David B. Gonzalves; Community Resources Agency; Supervisor John Gray

Dear Ms. Yaley,

I am requesting that the County evaluate the cumulative impacts of both the Manley Land Projects. (Terra Vi Lodge and the Glamping)

My family has been coming to a parcel adjacent to the proposed development since the 1980's. We have been enjoying the South Fork, Middle Fork, Sawmill Mountain and the Groveland community for three plus decades. We have been attracted to the solitude and wilderness that up until now has seemed abundant.

We are requesting that a full analysis of the Manley projects be performed. Major concerns that need to be evaluated in the cumulative impact are:
-Water usage, when combined with the water drawn by the proposed Yosemite Under Canvas development; -Effluent management -Increased traffic, when combined with the additional traffic generated by the proposed Yosemite Under Canvas development.
-Biological resources

There is no way to guarantee that some of these issues can be mitigated. How can one mitigate the risk of drying up our water supply when the underground water supply is unknown? Or how do you mitigate the flow of sewage when nobody knows what direction the sewage will flow underground or how do you mitigate the risk of increase forest fires when there will be tens of thousands more individuals, each of whom has the potential to start a forest fire. Also, how do you mitigate an increase in noise and light when now there is none?

I well understand that there is always a push and pull between conservation and development. In this situation, the time has come to say enough is enough. This ill advised project is just another step in the sub-urbanization of the greater Yosemite area.

Sincerely,

Louis Canotas

ATTN: Quincy Yaley
Assistant Director, Development
Tuolumne County Community Resources Agency
qyaley@co.tuolumne.ca.us
RE: Site development Permit SDP18-003

CC: Supervisor John Gray
jgray@co.tuolumne.ca.us

Planning Director, David Gonzalez
communityresources@tuolumnecounty.ca.gov

Dear Ms. Yaley,

I am requesting that the County evaluate the cumulative impacts of both the Manley Land Projects. (Terra Vi Lodge and the the Glamping)

Our family has owned a parcel adjacent to the proposed development since the mid-1940's. We have a family cabin on the land and have been enjoying the South Fork, Middle Fork, Sawmill Mountain and the Groveland community for four generations.

We are requesting that a full analysis of the projects impacts be performed. Major concerns that need to be evaluated in the cumulative impact are:
-Water usage, when combined with the water drawn by the proposed Yosemite Under Canvas development;
-increased traffic, when combined with the additional traffic generated by the proposed Yosemite Under Canvas development.
-Biological resources

Also, there is **no way to guarantee t**hat some of these issues can be mitigated. How can one mitigate the risk of drying up our water supply when the underground water supply is unknown? Or how do you mitigate the flow of sewage when nobody knows what direction the sewage will flow underground or how do you mitigate the risk of increase forest fires when there will be tens of thousands more individuals, each of whom has the potential to start a forest fire. Also, how do you mitigate an increase in noise and light when now there is none?

Thank you,
Elizabeth Erickson
30300 Highway 120
Groveland, CA 95321

Carl & Betty Erickson
50 Rowan Way
Mill Valley, CA 94941

Eric & Sarah Erickson
41 Portola Lane
Mill Valley, CA 94941

June 3, 2019

ATTN: Quincy Yaley
Assistant Director, Development
Tuolumne County Community Resources Agency
qyaley@co.tuolumne.ca.us

RE: Site development Permit SDP18-003

CC: Supervisor John Gray, jgray@co.tuolumne.ca.us
David Gonzalez, Planning Director, communityresources@tuolumnecounty.ca.gov
Natalie Rizzi, Planner, nrizzi@co.tuolumne.ca.us

Dear Ms. Yaley,
As we noted in our letter of December 27, 2018, our family has owned a parcel adjacent to the proposed development since the mid-1940s. We have a family cabin on the land and have been enjoying the South Fork, Middle Fork, Sawmill Mountain and the Groveland community for four generations. Contrary to a recently vocalized misconception held by some, we do not rent the cabin out and we do not have guests there unless they are with us. We now have four generations that use the cabin regularly as an escape for peace and quiet and consider Tuolumne County our home away from home. Although it is a modest one-room cabin, it has been a refuge for our family since it was built in the 1040's.

We thank the County for requiring a full EIR to be prepared for this project. We respectfully urge the County to seriously and thoughtfully evaluate all the risks of environmental and other harm resulting from this project as well as the cumulative effects with the other nearby project being considered: SDP18-002 Yosemite Under Canvas.

Allowing this development carries the risk of irreparable and immitigable harm to local water supplies, to the environment from effluent, traffic, noise and light. The risk of fire and the lack of first responders is a huge concern.

As a separate issue, we are concerned that the County has not thoroughly investigated the allegations that the Manly property was illegally subdivided in the first place. We are aware that this has been brought to the County's attention but are not aware that any investigation has taken place

As a professional planner you are aware that good planning and zoning ultimately seek to avoid environmental hazards and risks, not create them. The land the Hansji Corporation is proposing to develop was historically zoned Timber Production (TPZ) for almost a century. It was eventually sold and

subsequently rezoned at the request of the new owner, Robert Manly, to Commercial Recreation (C-K) in 1991.

The 1991 County Board of Supervisor's decision to rezone this land created an inherent land use conflict by forcing the abutment of two wildly opposed zoning designations: Rural Residential and Commercial Recreation. This decision all those years ago, opened the door for the Hansji development today and thus, now puts the County in the position of having to defend and mitigate incompatible land uses.

A project the size/scope of Hansji's proposed Terra Vi Lodge-Yosemite on Sawmill Mountain Road, is absolutely unprecedented up and down the Hwy 120 Corridor. It is incumbent upon the County to recognize that the Hansji development sets a terrible precedent in regards to creating massive commercial developments on land with no supporting county infrastructure abutting historically residential areas.

At 240 rooms with an average of 3 people per room and at just 50% occupancy, a project of this size will bring, at the minimum, 130,000 people a year to a very remote area that will struggle to absorb the impact in terms of natural resources, infrastructure, county services etc.; it will specifically cause extraordinary impacts to rural residential area that only ever has fewer than a range of 1-30 people inhabit it at any given time. The nightly occupancy of the hotel has the potential to be the same size or larger than the population of the entire city of Groveland, especially in the summer.

To elaborate, again, our concerns as stated in our letters of 12/27/2018:

Increased Risk of Fire

Adjacent properties and the community as a whole, will see an increase in risk of fire ignition due to the large number of people who will be visiting this high fire area, specifically, tourists with little to no knowledge of the sensitive nature of being in this type of habitat. The massive influx of people unfamiliar with fire danger, pose a very real and serious threat in regards to their behavior and lack of knowledge around fire safety; lit cigarette butts, sanctioned and unsanctioned campfires, illegal fireworks are all dangers this area faces every day, particularly in the summer. Summer will be the hotel's busiest time and an increase in people means an increase in fire danger without nearby first responders. We see no realistic mitigation possible.

As you are aware, CalFire is currently in the process of proposing a state policy recommendation that limits and/or disallows development in high fire danger areas so as to reduce the risk of fire as well as avoid creating dense populations of people who may lose their lives in a wildfire. The Camp Fire in Paradise, CA is a recent example. Here is a link to some information about this policy recommendation: https://sanfrancisco.cbslocal.com/2018/12/11/cal-fire-chief-recommends-banning-home-construction-in-vulnerable-areas/

Water Supply

The homes that surround this development get their water from private wells. Because this development does not have access to County infrastructure such as water, it will also need to use wells to sustain their facility. The new meteorological normal that is now years of intermittent drought, suggests that a large development like this, puts nearby tax paying land owners in Tuolumne County at risk of losing their water. Water is more and more a fragile resource and this development will surely impact the neighboring homes' water supply, to suggest it won't is short sighted and, furthermore, cannot be proven. There is no guarantee that this can be mitigated.

Sewage
This site has no county utilities, not water or sewer. This means a special commercial sewage system needs to be created without county support. According to the proposal, Hansji intends to install a similar sewage system as Rush Creek Lodge. It is well known that the sewage system at Rush Creek is struggling with capacity and operational issues that are causing repugnant and hazardous spills of black/grey water. This gives area homeowners in the surrounding area grave cause for concern. How will our water supply and our overall environment be protected from these inevitable issues?

The current Hansji proposal shows leach fields that are directly adjacent to private property on a downhill slope that feeds a meadow and a spring below. That meadow contains wells for neighboring cabins fed by groundwater. At 1905 linear feet, the size of the leach fields for this type of development are not insignificant. Studies need to be done on what impact these fields will have in regards to potential contamination of current residents' water supply, as well the unpleasant impacts of off gassing and general foul odors. We see no way that the risk of effluent infiltration into groundwater can be mitigated.

Further, in examining the Hansji site plan, the water flow directional arrow where the leach fields are proposed is not facing the correct direction. The arrow erroneously indicates that water flow in the area runs downhill toward Sawmill Mountain Road. This is simply false. One visit to the land to observe its topography, clearly reveals that the water flow this directional arrow indicates is gravitationally impossible. The arrow where the leach fields are proposed should be indicating westerly downward flow toward the meadow as, in reality, this is actually what happens. Because in the current site plan, the arrow is falsely indicating that water will flow uphill toward Sawmill Mountain Road, it would make it appear that the leach lines will have no impact on existing water supply. The fact is, water flow in this area is downhill and directly feeds local residences' water supply. At best, the arrow in this site map is negligent misrepresentation of reality, at worst fraudulent.

Wildlife Habitat
This area is a significant source of food and habitat for the wildlife that live here and it is specifically used as a corridor by Mule Deer and other animals to get to the meadow below to feed. This development will completely cut off the access of this important corridor for animals and force them to find a new, and most likely more dangerous path.

In addition to being a significant and important wildlife corridor, the land in question is also known as a habitat for arboreal salamanders, spotted owl, mountain lion, bobcat (lynx), bats and pacific chorus frog. Many of these are on federal threatened/endangered lists. In fact, when this land was rezoned in 1991, the presence of the Spotted Owl was noted and yet, this was not considered and the land was rezoned anyway. More recently the area has been known to be habitat for the CA Newt, which is on the watch list of endangered species. A thorough study needs to be done to determine what type of endangered wildlife call this land home and how this development will impact their ability to continue to survive and thrive.

Traffic and Congestion
This hotel development is going to create substantial traffic and congestion for both the surrounding community, and the residents of Sawmill Mountain Road, in particular. Having the hotel entrances/exits directly off Sawmill Mountain Road creates an undue and unfair hardship for the existing residents. This development will mean a massive number of cars and people will descend upon what is now, a very remote road leading to a zoned Rural Residential neighborhood, used primarily by the residents.

Putting the access on Sawmill Mountain Road simply cannot be mitigated; it will create a substantial amount of traffic where, literally, none currently exists.

Helipad

Proposing a helipad for emergency use and for "the surrounding community" is specious. This pad sits at the base of residents' driveway and is a visual affront to all property owners and, it is designed to be out of eyesight for the hotel guests, and with convenient and easy emergency response access. It would seem that every consideration for the placement of this helipad to benefit the project was taken into account, but the plans show no consideration for the impact on the property owners who live with it daily. This is simply no mitigating the presence of a helipad for the area.

Impact

As tax paying residents of the County, we have the right to the peaceful, safe enjoyment of our property and to not be put at risk with a congestion of cars and people flooding our small area. While we understand the attraction of the potential revenue inuring to the County from this project, existing residents should not be so severely impacted as to pay for that revenue by having the intrinsic value and beauty of our homes destroyed. This project puts our community at risk of fire danger, losing our water supply, contaminating existing groundwater, and forever losing the peaceful enjoyment of our property. This simply cannot be mitigated.

Thank you for reading our comments, we appreciate your thoughtful and professional attention.

Best regards,

/Signed
Carl &Betty Erickson
Eric & Sarah Erickson
30300 Sawmill Mountain Road
Groveland, CA 95321

RESCAPE
CALIFORNIA

June 3, 2019

Quincy Yaley, Assistant CRA Director – Development
County of Tuolumne, Community Resources Agency
2 South Green Street
Sonora, CA 95370-4618

RE: Terra Vi Lodge Yosemite Project EIR

Dear Mr. Yaley:

I am writing on behalf of ReScape California, a California 501c3 non-profit organization focused on ensuring that all landscapes in California are designed, constructed and maintained to be regenerative, providing multiple eco-system services to communities and the earth on which we live. Our work is based upon eight interrelated principles: Act Local, Reduce Waste, Nurture Soil, Sequester Carbon, Save Water, Conserve Energy, Protect Water & Air, Create Habitat. In addition to providing public outreach and education on these important topics, our programs include whole-systems robust hands-on training for professionals and public agencies on how to implement the most environmentally conscious projects. We also have a Rated Landscape Program (modeled after LEED) that has been successfully rating civic, commercial and multi-family landscapes for over ten years. Given Terra Vi's location and stated goals of restoring the natural landscape that was seriously damaged from the Rim Fire as well as creating an exemplary eco-sensitive facility, we encourage the County to require that the Terra Vi achieve a ReScape Rating.

We applaud that the project will be designed to LEED standards, and believe that a ReScape Rating will complement and strengthen the project's commitment to fostering stewardship of the natural environment, while demonstrating clearly to the public and visitors that the lodge environs are truly embracing a sustainable and eco-friendly philosophy. In particular, given the site will be mass graded, our practices for regenerating healthy soil to best sequester carbon and support reforestation will be especially helpful. Rated Landscapes must also demonstrate compliance with many State and local regulations and ordinances, including the State's Model Water Efficient Ordinance, and County Construction and Demolition diversion mandates, ensuring the County that these critical requirements are met.

Requiring that Terri Vi be a Rated Landscape will also strongly support many of the MMRP's listed in the County General Plan Update, including maximizing water conservation and carbon sequestration. The cost to rate a landscape is nominal and upon review of the preliminary plans and exhibits, it appears that this development could readily qualify. For more information about ReScape California and our Rating Program, visit https://rescapeca.org/. Please do not hesitate to contact me if you have any questions, or would like to talk further.

Warmly,

Milena Fiore

Milena Fiore, Executive Director
ReScape California

1008 General Kennedy Avenue, Suite 210 • San Francisco, CA 94129
www.rescapeca.org • milena@rescapeca.org • (510) 859-8026

Hello,

I am here to voice my concerns regarding this project.

First, we need MUCH more detail regarding the impacts of water supply with concerns to nearby residents. There is no going back once the aquifer is damaged. Not to mention the leach fields targeted to run TOWARD the existing neighbors.

Second, the cumulative impacts of the area with regards to other development are not clear or known. This needs to be covered in depth. This includes traffic, noise, light and impacts to the surrounding natural features.

Third, the EIR must cover reasonable alternative sites for this development. Due to the size of this development, there are plenty of sites around the county that would not impact so many residents negatively.

Sincerely,

Ben Gardella
11220 Sawmill Mountain Road
95321

Dear Quincy Yaley,

This letter is to voice my opposition to the Hansji firm's proposed development located nearby my family's property off of Sawmill Mountain Road in Tuolumne County; a property we have owned for over 60 years. As much as I am normally an advocate of new business and enterprising projects, this particular project is being planned at the wrong time and in the wrong area.

My main concern is for the poor quality of the water we would personally experience over the life of this development as the planned leach lines for sewer will most definitely affect the residents in close proximity. As difficult as it was for us to initially find any water at all in the surrounding area, having leach lines (going through a known wetland area by the way) will allow for untreated sewage to contaminate the nearby water table. My fear is also that the amount of water this development will require will far exceed what the water table can provide, much like what Rush Creek is currently experiencing where thousands of gallons of water must be trucked in each week to meet the demand.

Another concern I have is with the potential fire danger in an already fire ravaged community, one where many of us nearly lost our structures (and some did actually). We currently are unable to purchase fire insurance from any insurance companies since we are considered too 'high a risk' for fire. If this development goes in, the risk of fire goes up, especially with so many visitors not familiar with fire prevention AND with so-called fire pits that will be built to encourage these visitors to start fires at will. Our community can ill afford to experience another Rim Fire disaster, not to mention our escape routes being limited by the development taking over our only route into and out of our respective properties.

Lastly, I am concerned with the grand scheme of this project and how it will affect both the wildlife and peaceful surroundings which led our community to purchase property here to begin with. With so much activity, you will be lucky to see any deer, coyote or bear again in the Sawmill Mountain area. Why is this project being considered? Well, for no other reason but to make a chosen few more money. Can we just for once make a decision that positively impacts the surrounding area? There are already enough hotels in the surrounding communities that can accommodate new visitors. Just building a development such as this will not bring in these visitors automatically either. If they want to experience nature, they can drive all the way into Yosemite National Park, they don't have to stay in a hotel out in the middle of nowhere to disturb long-standing residents that never expected one owner to have their property rezoned to allow for such a monstrosity. There are other locations that would be better suited to such a project such as Groveland, which already has the infrastructure to handle such an enterprising project AND is not far from Sawmill Mountain Road. Nearby Buck Meadows is another great location which can handle such a development. Building such a project right in the backyard of private residents is tantamount to building an amusement park on your front yard, which I'm sure you would not appreciate either.

So please, reconsider this development and make the right decision that future generations will understand; that you chose to forego profit for environmental and societal benefit. Be the John Muir of your time to 'do the right thing' as opposed to the 'convenient thing.' There's a reason why the saying, '…the love of money is the root of all evil' holds true today, because it's this 'love' that has the potential to destroy a community that only knows this area to be what it was meant to be, …peaceful and serene with abundant wildlife and breathtaking views. Don't ruin it just to make you or someone else more money, it's not worth it in the end.

Regards,

David George
Los Gatos Memorial Park
Family Service Counselor
2255 Los Gatos-Almaden Rd.
San Jose, CA 95124
408-356-4151 o. x1001
714-798-1497 c.

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June 3, 2019

Ms. Quincy Yaley

Assistant Director, Development

Tuolumne County Community Resources Agency

2 South Green Street

Sonora, CA 95370-4618

RE: Notice of Preparation (NOP) of the Draft Environmental Impact Report (EIR)

For the Terra Vi Lodge Yosemite Project

County of Tuolumne Community Resources Agency

Terra Vi Lodge Yosemite Project

11262 Sawmill Mountain Road, Groveland CA 95321

Dear Ms. Yaley,

I am writing in response to your request for comments and guidance on the Hansji Development EIR for their proposed Terra Vi Lodge in the Sawmill Mountain Area. My family has owned property off of Sawmill Mountain Road since 1962 near the proposed Terra Vi development. The development would be located adjacent to remote residential lands and protected forest areas, threatening the environment, wildlife and well-being of surrounding property owners.

My family and I are strongly opposed to this large scale resort style development due to potential negative impacts including increased fire danger, traffic, crime, lights, noise, and threats to the environment including air quality, water supply, archeological sites, and wildlife.

Please forward any future notification of any public hearings and the environmental documents prepared for this project to me via email (lgeorge567@gmail.com). I can also provide my home address if you prefer to mail the documents. Thank you for your attention to this matter.

Sincerely,

Laura George, DVM

CC: John Gray

Natalie Rizzi

David Gonzalves

Community Resources Agency

Tuolumne River Trust

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June 3, 2019

Quincy Yaley,
Tuolumne County Community Resources Agency
County of Tuolumne
2 S Green Street
Sonora, CA 95370

RE: Scoping Comments. Terra Vi Lodge Yosemite Project EIR

Dear Ms. Yaley,

The following comments are submitted by the Tuolumne River Trust, regarding the scope of potential environmental impacts and concerns that should be addressed in the Draft Environmental Impact Report (DEIR) for the proposed Terra Vi Lodge Yosemite Project EIR.

The Tuolumne River Trust is a California-based 501(c)(3) non-profit conservation organization dedicated to the projection and restoration of the Tuolumne River and its watershed for present and future generations. The Tuolumne River Trust has approximately 1,000 members from throughout California who live, work, and recreate in Tuolumne County and throughout the Tuolumne Watershed.

As discussed in detail below, the Project has the potential to cause irreparable damage to the Tuolumne River, its watershed, fish and wildlife, and sensitive habitat upon which they depend. In order to ensure the DEIR complies with the California Environmental Quality Act (CEQA), a complete and accurate description of the Project and an analysis of the following issues and impacts, including cumulative impacts, must be disclosed.

Environmental Setting

As stated in the CEQA Guidelines, "[t]he environmental setting will normally constitute the baseline physical condition by which a lead agency determines whether an impact is significant." CEQA Guidelines §15125(a). An EIR must include an accurate description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published. Id. The environmental setting constitutes the baseline physical conditions by which the County will use to determine whether an impact is significant. Id.

When the environmental baseline is not properly understood, environmental impacts cannot be properly assessed. As a result, there is no basis to determine whether avoidance is feasible or what other mitigation measures are necessary to reduce significant impacts to the extent possible before a project can be approved, as required pursuant to CEQA Guidelines §§ 15002(a)(3) and 15021(a)(2).

In order to properly assess the Project's impacts, the DEIR must provide a complete and accurate description of the Project's environmental setting and include the following:

The DEIR Must Disclose Locations of Creeks, Drainages and Flow- paths: The Environmental Setting should map and disclose the locations of all creeks, drainages, wetlands, meadows, and springs onsite or downstream from the site, including the Tuolumne River, South Fork of the Tuolumne River, and Middle Fork of the Tuolumne River. The DEIR should also disclose all culverts and pathways for flow around facilities in order to properly assess biological, hydrological, and other impacts of waste water and storm water runoff.

Existing Water Use Must Be Disclosed: In order to assess direct and cumulative impacts to water resources, the DEIR must disclose the applicant's current water use, including all freshwater and groundwater from existing wells and sources that support its current operations. The DEIR must also disclose water source area, quantity, and quality for residents and businesses nearby and downstream of the project site.

Biological Resources – the proposed project site is surrounded by national forest lands, which provide significant habitat for many important plants and animals. In addition to Yosemite, people will likely visit many local sites within the Stanislaus National Forest, including the Middle Fork of the Tuolumne, Rainbow Pools and other locations on the South Fork of the Tuolumne, as well as the main Tuolumne River itself. Fishing on these rivers may increase dramatically. The impacts of such a large development on biological resources must be carefully analyzed. In order to assess direct and cumulative impacts to biological resources, the DEIR must accurately and comprehensively describe biological resources of the project site and surrounding area.

Recreation – as noted above, visitors to the new development are likely to visit many local sites within the national forest, including the Middle Fork of the Tuolumne, Rainbow Pools and other locations on the South Fork of the Tuolumne, as well as the main Tuolumne River itself. This could cause significant crowding of areas that presently receive little visitation. Additionally, as the project increases fishing on local streams, the number of fish is likely to decrease, negatively impacting the recreational fishing experience. The DEIS must describe current recreational use levels at the project site and nearby recreational resources on Federal lands, such as Rainbow Pools, the Tuolumne River and its tributaries, and other locations.

Aesthetics – the Highway 120 corridor is a Gateway to arguably America's most famous national park – Yosemite. The approach to Yosemite sets the stage for visitors to the park and the experience they are about to have. The existing aesthetic conditions of the area must be described.

Greenhouse Gas Emissions – conservative estimates suggest that the proposed development might attract an additional 100,000 visitors per year to the region. The vast majority of visitors travel from hundreds, if not thousands, of miles away. This has the potential to add significantly to greenhouse gas emissions. Existing levels of Greenhouse Gas Emissions must be accurately quantified to provide a basis of comparison.

Population/Housing – a development of this size may require hundreds of employees. It is unclear where all of these workers will find housing in a relatively remote area with little available and affordable housing options. The DEIS must disclose current housing supply and demand.

Transportation/Traffic – the project may add a large volume of traffic to local roads. A analysis of impacts to traffic and transportation is necessary.

Hazards – the project site was burned intensively by the 2013 Rim Fire and many previous fires. As we know from the Camp Wildfire in Butte County, wildfires are growing more extreme in their size, severity, and speed with which they are consuming tens and hundreds of thousands of acres. The DEIS must carefully describe the current fire hazard and risk level.

Utilities – it is unclear what demand will be placed upon water, sewer, power, and mobile phone service in the area, but it is likely that a project of this size will create significant pressures. The DEIS must disclose what utilities are currently available.

Noise – There are a number of private residences nearby. The project and the thousands of additional visitors have real potential to add noise to an otherwise quite setting. The DEIS must describe current noise levels at and adjacent to the project site.

Project Description

It is a fundamental precept of CEQA that an environmental review document must define a "project" as "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment…" CEQA Guidelines § 15378(a). The DEIR's project description must be accurate in order to determine the scope of environmental review. When the project description fails to discuss the complete project, the environmental analysis will likely reflect the same mistake.

The project description must include an accurate and complete description of each component of the Project, including but not limited to structures, facilities, water demand, waste water treatment facilities, storm water runoff production, routing, and treatment, recreational facilities, housing, noise, greenhouse gas production, transportation/traffic, utilities, etc.

Impacts to Environmental Resources

An EIR must inform decision makers and the public regarding the significant effects of a proposed project, ways to minimize such effects, and alternatives to the project. Pub.

Res. Code § 21061; CEQA Guidelines § 15121(a). To be an effective informational document, an EIR must evaluate potential environmental impacts (Guidelines § 15126, 15126.2), discuss mitigation measures which could minimize significant adverse impacts (Guidelines § 15126.4), and consider alternatives that would achieve most of the basic project objectives while avoiding or substantially lessening any significant effects of the project (CEQA Guidelines § 15126.6).

In order to fully disclose the Project's potentially significant impacts on biological resources as required by CEQA, the DEIR must address the following:

Water and impacts to surface water supplies, groundwater supplies, and impacts to neighboring and nearby landowners. It is unclear how much water the proposed development will use, where that water will come from, and how that will impact the water use of nearby residents and landowners.

It is unclear how waste water from the proposed development will be captured and treated. The DEIS must fully describe the proposed treatment process and facilities, and how any waste water, treated or otherwise, will impact adjacent and nearby waterways, wetlands, residents and landowners. This must be fully disclosed in the DEIS.

It is unclear how stormwater runoff will be altered by the proposed development and how this might impact neighboring waterways, wetlands, residents, and landowners. The DEIS must fully describe these potential impacts.

It is unclear how recreation pressure on nearby environmental resources, such as the Tuolumne River and its tributaries, will be increased due to this project. The DEIS must fully describe how recreational use will change and the potential impacts on nearby resources.

It is unclear how the project will impact biological resources. The DEIS must fully describe how fish, wildlife, and plants will be impacted by the development.

Cumulative Impacts

The project is proposed to be constructed across the road from another lodging project, the Under Canvass Glamping Project. This project will provide additional lodging and associated pressures on environmental resources, including water supply, groundwater resources, biological resources, recreational resources, greenhouse gas emissions, population and housing, noise, aesthetics, and other resources. The DEIS must examine the cumulative impacts of the two projects together.

Conclusion

Thank you for the opportunity to provide comments on the scope of the Project's impacts and issues to be addressed in the DEIR. Please contact us if you have any questions regarding these comments.

Sincerely,

Patrick Koepele
Executive Director

Quincy Yaley, AICP
Community Resource Agency Assistant Director- Development
Public Comment Regarding Terra Vi draft environmental document.

I am a life long resident of Hardin Flat Road, and currently reside on a property that is directly adjacent to the site of the proposed Yosemite Under Canvas. I am very concerned about the cumulative impact of the Terra Vi and Yosemite under canvas as single developments as well as if they were both to be approved. The already approved Berkeley Camp rebuild and expansion at Yosemite Lakes RV park should also be taken into account when looking cumulative impacts of all of these developments on the area, as they are all within extremely close proximity.

It is imperative that the county study the traffic situation that will be created by the hundreds of cars per day that will be entering and exiting the highway in a location that currently only receives intermittent use and is located at one of the very few areas that allow cars to pass each other legally between Yosemite and Groveland.

The traffic volume on Hardin Flat Road, which is already in terrible condition and lined with standing dead hazard trees will increase dramatically with tourists wanting to visit the river and surrounding national forest. The impact on the Tuolumne River of the additional visitors and their effluent (there are no public facilities located at Hardin Flat) and the trash that they leave behind should be considered as well. Additionally on busy days in the summer time traffic trying to enter Yosemite often becomes backed up for miles, this must also be included on that impact study.

Sawmill mountain and the areas immediately around it are areas that contain Mule Deer migration corridors and that are critical to the health of the species, in the winter time many hundreds of deer live directly on or pass through the areas of proposed developments.

Ground water is a critical resource that other residents of Sawmill Mountain already struggle to procure from wells that produce inconsistent and often inadequate water, a large resort with massive water needs is undoubtedly going to have an impact on ground water in the area. Adjoining land owners must be given some recourse if there water is to be effected.

This is a high fire danger area without a responding agency close by, the impact and additional cost to the local fire district should be taken into consideration as well as how the county will enforce fire safety standards to prevent forest fires.

This area currently has no artificial noise or light, aside from that generated from the highway. This development will significantly increase both noise and artificial light in the area which will have a negative impact on existing properties and wildlife.

A study should be done on how the addition of 100s of jobs will affect the local rental housing market that is already extremely tight. Other local business run understaffed due lack of available housing. Adding this resort will only exacerbate that problem.

The proposed location for the septic field is directly uphill of some residents wells.

Sincerely,
Andy Nickell

--
Andy Nickell

6/3/19

Tuolumne County Community Resources Agency

This letter is in reference to:
Hardin Flat LLC/Hansji Corporation Site Development Permit SDP18-003 Assessor's Parcel Numbers: 068-120-060 and 068-120-061

This is our third request to be notified of public hearings and deadlines scheduled for this project, and to receive notification of the availability of the environmental document. Please include us on your notification list.

Tuolumne County Supervisors:

We are 43 year residents/property owners on Hardin Flat Road, and neighbors of the Sawmill Mountain property owners. We have serious concerns regarding this proposed development.

Firstly, the **location** of the proposed lodge would have a major impact on the adjacent homeowners, some of whom have been there for generations, whose properties are valued not so much by the structures, but by the peaceful solitude this natural setting offers.

Area impact: We understand the Berkeley Camp is preparing to rebuild, Yosemite Lakes (aka NACO, or Thousand Trails) is adding 125 additional sites/units, a new 'glamping' campground is being proposed across the highway from the 'Terra Vi', a new KOA is being proposed in Buck Meadows. A rough estimate of the increase in visitors to the immediate area in peak season is somewhere in the neighborhood of 2200 people per day! This does not include workers. Imagine how this mass of people will impact the highway, as well as this beautiful, peaceful area. We hope you will consider the environment, as well as the quality of life that we all value here in Tuolumne County. With increased AirBNB travel and the recent addition of Rush Creek Lodge, there is plenty of lodging in the area, and most are rarely filled to capacity.

In addition, all of these proposed developments will be bringing more visitors to Yosemite. The highway and park entrance are already seriously overburdened, as is Yosemite Valley.

How is the county going to meet of the needs of the current residents/tax payers and visitors, not to mention all the previously approved projects, as well as these new proposed projects? For instance, it is clear the county is already struggling to maintain our crumbling county roads.

Other local business: Have you considered the impact this new lodge will have on existing accommodations? The variety of natural disasters in our area have already put stress on these local businesses, including 'Yosemite's newest lodge'. There is no actual need for further lodging in the area, and the potential for putting other local businesses out-of-business is unwarranted.

Water: The current wells on individual Sawmill Mountain properties are largely inadequate for many of these single-family dwellings. How can there possibly be enough water for a huge development such as this, particularly in view of our changing climate? Clearly there can be no 'historical data' for well output, since the 'existing' wells on the Manly property were only drilled within the last year. Is

documentation for the current well output available for public scrutiny? Does it take into account project expansion in the future? How is it that current site wells "exceed anticipated requirements for full buildout" when the septic plan is only intended for 50 rooms? The amount of water required for this large-scale development would be enormous, and would reduce, or completely dry-up neighboring wells. Also, does anyone really think 'single use dishes & utensils' is a realistic answer to lack of water? In case you do, please think twice and consider the environment and the enormous amount of waste/garbage!

Sewage: Why is the sewage for a 240 room lodge designed for only 50 units? The lack of a proper sewage treatment facility means that the massive amounts of grey and black water will go back into the ground, potentially polluting the surrounding area. This whole water shed does drain into the Tuolumne River.

Staffing: Where will all the staffing come from? Groveland does not have enough willing/available workers as it is. Housing for transients moving to the area for this type of seasonal business is not readily available. The document states it will create 'sustainable' employment. How is this possible in a seasonable business?

Wildlife: The project site as well as the surrounding Sawmill Mountain area is the winter grounds for our local Mule deer herd, this massive development would be very disruptive to the herds' well-being.

Withstanding disasters: Even if they have a bullet-proof fire prevention and response system for the lodge, how does this company plan on handling the now 'normal' business-disrupting disasters of area forest fires, nocuous smoke, flash floods, heavy snows, bone-chilling temperatures, landslides, road washouts and road closures sometimes lasting weeks or months?

Safety: How would visitors cross the highway safely, from one development to the other (taking into account the Glamping project across the highway)? The Sawmill Mountain Road turn off is already a dangerous 'blind' curve. Will the helipad be available to support all the additional highway emergencies that these developments will bring?

A side-note, you might want to let Hansji know the correct spelling of TUOLUMNE.

We count on our county officials to act on our behalf to preserve and protect our county and precious way of life. Is this not your mandate?

Thank you for your consideration,

Lauren & Bill Nickell
33569 Hardin Flat Road
Groveland, CA 95321
209-962-4360
sunsetinn@mlode.com

COMMUNITY RESOURCES AGENCY

DAVID GONZALVES, CBO
Director

Administration - Building – County Surveyor - Engineering – Environmental Health – Fleet Services - GIS – Housing - Planning – Roads – Solid Waste

48 Yaney Avenue, Sonora
Mailing: 2 S. Green Street
Sonora, CA 95370
(209) 533-5633
(209) 536-1622 (Fleet)
(209) 533-5616 (fax)
(209) 533-5909 (fax – EHD)
(209) 588-9064 (fax – Fleet)
(209) 533-5698 (fax - Roads)
www.tuolumnecounty.ca.gov

Date: December 10, 2018

To: Interested Stakeholder

From: Tuolumne County Community Resources Agency

RE: Hardin Flat LLC/Hansji Corporation Site Development Permit SDP18-003
Assessor's Parcel Numbers: 068-120-060 and 068-120-061

The Community Resources Agency thanks you for your participation in the land development process in Tuolumne County. We value your comments and look forward to your continued participation in our planning process. This process provides information on your requirements and concerns to the applicant early in the review process. Involvement on your part can eliminate or minimize problems that could arise later.

We have received an application from Hardin Flat LLC/Hansji Corporation for Site Development Permit SDP18-003 to allow the development of Terra Vi Lodge, a master planned lodging development to include one hundred and forty (140) guest rooms, twenty five (25) 4-bedroom cabins, a market, a lodge, event space, and other support buildings. The project site consists of two parcels totaling 63.38± acres. The parcels are zoned C-K (Commercial Recreation) and O (Open Space) under Title 17 of the Tuolumne County Ordinance Code.

The project site is located at the northeast corner of the intersection of Sawmill Mountain Road and State Highway 120. The property is located on both sides of Sawmill Mountain Road (see attached map). A portion of Section 26, Township 1 South, Range 18 East. Supervisorial District 4.

Access: Sawmill Mountain Road Cul-de-Sac: No

Sewage Disposal Method: Private Sewage Disposal System (100% redundancy)

Water Source: Private Wells (two) Fire Hazard Rating: Very High

Additional Information:

1. Application materials and project maps are available at the Tuolumne County Planning Division website: https://www.tuolumnecounty.ca.gov/1158/Terra-Vi-Lodge-Yosemite

2. The project is comprised of various single, two- and three-story elements beginning at the northwest entrance of Sawmill Mountain Road and continuing northeast. The project will incorporate a LEED equivalent building program which will include Green building materials such as energy efficient windows, skylights, doors, insulation, roofing, lighting, plumbing, heating and cooling equipment, creating a comprehensive energy-efficient building infrastructure and envelope. Solar power panels will be constructed on the roofs of the buildings.

3. Increased building separation, low building heights, high performance fire extinguishing and alarm systems, surplus water storage, complete perimeter fire-fighting accessibility and a community emergency helicopter landing zone have been included in the proposed project to address wildfire issues.

4. Improvements to the intersection of Highway 120 and Sawmill Mountain Road are

expected with the proposed project, and exact improvement requirements will be determined during the environmental review of the project.

5. Open Space zoning is located in the eastern portion of the project site, and adjacent to Highway 120. No disturbance of the Open Space is proposed with this project.

6. The Fire Resource and Assessment Program (FRAP) maps indicate that the habitat types found on the project site are Sierran mixed conifer (smc), montane hardwood conifer (mhc), and ponderosa pine (ppn), however much of the project site was impacted by the 2013 Rim Fire.

In accordance with Section 15063(g) and 15044 of the "State EIR Guidelines" as adopted by Tuolumne County, we are offering you the opportunity to comment this project. Please complete the following and return no later than **December 28, 2018**.

Staff Contact: Quincy Yaley, Assistant Director, Development
(209) 533-5633
qyaley@co.tuolumne.ca.us

~~AGENCY:~~ Patrick T. Pfeiffer 1234 CrossGates Ln San Jose CA. 95120

COMMENTS: Please see ATTACHED Comments Regarding Proposed Development

Thank You

Patrick T Pfeiffer

12-20-18

PROPERTY OWNERS: All property owners within 2,000 feet of the proposed project will be notified of future public hearings. Due to the nature of the project, this has been expanded beyond the typically required 1,000 foot notification requirement in Ordinance Code. Property owners within 2,000 do not need to request future notification.

AGENCIES/ORGANIZATIONS ONLY: Please indicate below if you wish to be notified of public hearings scheduled for this project or if you wish to receive notification of the availability of the environmental document prepared for this project. If you do not indicate your preference, we will assume you do not want notification of the hearings or the environmental document.

Public Hearing Notification	Yes ☐	No ☐
Notification of availability of the environmental document	Yes ☐	No ☐

Signed by: _____

Agency: _____ Date: _____

December 20, 2018

John Gray, Tuolumne Co. Supervisor
Quincy Yaley, Assistant Director, Development
48 Yaney Ave
Sonora, CA 95370

Re: Terra Vi Lodge Yosemite

Dear Quincy & John,

My name is Patrick Pfeiffer I am a home owner on Sawmill Mountain (APN #68-340-17-0.). My property has been in the Pfeiffer Family since the mid 1960's when my grandfather purchased it from the Lewellen family. I am writing you today in opposition of the proposed project submitted by Hardin Flat LLC/Hansji Corp. SDP18-003 for accessors parcel numbers 068-120-060 and 068-120-061. My initial concerns are as follows.

A.) Safety concerns for access and exit at Sawmill Mountain Rd. (Forest Service Rd. 1S03)
   1.) The entrance to and from the property on to highway 120 is near the peak of the hill. Visibility of east bound traffic at the exit point is very limited. Even with cutting the bank on the north side of the highway as proposed it will still be a very dangerous location to enter onto highway 120 headed east bound towards Yosemite.
   2.) Forest Service Rd. 1S03 (AKA Sawmill Mountain Rd.) is also used to access many back-country forest service roads where logging/thinning operations are an ongoing event. Adding another 250 plus vehicles to this road on a regular basis, along with the forest service, logging and current residence use will further increase the potential of a deadly accident on an already busy highway 120.
   3.) Per sheet L2 submitted by the Hansji Group visibility approaching Sawmill Mountain Rd., when traveling east bound, is almost non-existent until you are almost past Sawmill Mountain Rd. The concern is that arriving guest will overshoot the entrance and attempt a U-turn on highway 120, resulting in an accident or at the very least adding to traffic issues.
   4.) Increased potential for a forest fire is another major concern. 300 – 400 additional people in and around Sawmill Mountain during the summer months on a regular basis is an accident in the making. This past year watching the communities of Redding & Paradise burn was terrible. Let's be cautious in moving forward with a project of this scale. I believe consultation with Cal-Fire addressing these concerns is warranted to ensure the safety of all involved.

B.) Environmental concerns.

1.) California Spotted Owls are known to inhabit the Sawmill Mountain area. While not listed as a threatened or endangered they are listed as a "species of concern". Prior to a thinning operation adjacent to my property (Pre-Rim Fire) I was notified by the Forest Service of multiple nesting pairs of Spotted Owls and Great Horned Owls, near and around Sawmill Mountain. At that time the Forest Service outlined the precautions that would be taken to ensure that the nests and habitat would not be disturbed during the thinning operations. Since then we have experienced the Rim Fire which devastated much of our surrounding forest including the Manly property where the proposed development is to take place. I encourage the board of supervisors to require an environmental impact report to make sure the development is in compliance with USFW concerns for the California Spotted Owls and other species that inhabit the area.

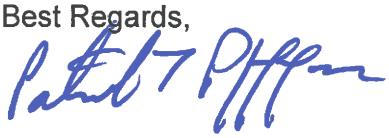
2.) Riparian zones may be impacted by the proposed development and its construction of septic/leach field installations. The leach fields are proposed to be situated at the top of a drainage that flows down through a series of closely situated meadows and finally a creek bed. This area is home to California Newts, Yosemite Frogs and other riparian life, some of which are listed as threatened or endangered. Again, I believe an environmental impact report should be required to protect our natural resources at the gateway to one of our most treasured national parks.

C.) Disruption of current residences.

1.) The proposed helicopter pad at the north side of the project is shown as emergency/personal use. While I appreciate the fact that this pad could possibly save someone's life in an emergency situation, I am concerned that it will be used for personal and/or "VIP Guest". This would be a disruption to the current residences of the Sawmill Mountain area. I would like the use of the helicopter pad to be for emergency use only.

Thank you for taking the time to review my concerns. While I can appreciate the Manly Family's right to develop their property, I hope that the county will take into account safety, the environment and respect for the existing community of the Sawmill Mountain area. This project should not be rushed through. I believe due diligence is in order, starting with an environmental impact report being completed as part of the process.

Best Regards,



Patrick T. Pfeiffer
(APN #68-340-17-0)

Sarah Carolyn Sutton
11981 McGraw Court
Groveland, CA 95321

June 3, 2019

Quincy Yaley, Assistant CRA Director – Development
County of Tuolumne
Community Resources Agency
2 South Green Street Sonora, CA 95370-4618

RE: Terra Vi Lodge Yosemite Project EIR

Dear Mr. Yaley:

Thank you for providing the public an opportunity to comment on the Terra Vi project in advance of beginning the EIR process. As a Landscape Architect for over 40 years in California, I am familiar with not only the site planning and design process for similar projects, but have also consulted on numerous CEQA ISMNDs and EIRs in my work.

I have visited the site, reviewed the materials presented thus far on the County website and applaud your commitment to making this facility a landmark eco-sensitive destination. I have a few concerns that I am sure will be addressed during the CEQA process, including:

- Existing Trees: The project information statement says "only" 10 trees will be removed onsite, but in my site observation, there aren't many more existing trees than that number onsite, including a very large black oak tree. Are there any opportunities to save more of the trees? In particular I'm concerned about the trees lining Highway 120, where the road will be widened to allow a turning lane into the project. I question that the site will truly resemble the cross-sections and aerial visual simulations as presented. I would like to see a complete tree survey, including existing topography and spot elevations at the tree bases and an assessment of each tree by a qualified local arborist which can be used to groundtruth the current site plan.
- Stormwater: The landscape statement mentions capturing parking and paving runoff onsite in surface drainage swales, however the initial footprint does not seem to provide sufficient open space to truly accommodate these important measures. I would like to see a more detailed drainage concept plan, with preliminary calculations to verify that the project will indeed capture and treat all runoff to avoid overtaxing the small existing stormdrain line. In my experience, on such a built-out and terraced site, once all the grading and retaining walls, utilities and other infrastructure are placed on the site plans, the available space for drainage measures is often too small.
- Fire Protection: CalFire Firescaping regulations will likely prohibit planting the number of trees and as close to buildings and each other as shown on the plan. I have personally run into this challenge on other developments in high fire-risk settings. Has the County met with the Fire Marshal yet regarding planting? I'm concerned that the landscaping plan at this stage is too optimistic and once plans are farther along, the overall approved planting scheme will be much more sparse, which is another reason to save as many of the large existing trees as possible.
- Grading: Mass grading proposed will completely destroy the soil profile for planting, compacting the soil and destroying any valuable soil biology. To successfully regenerate a healthy soil for the

restoration and overall plantings I encourage following all the recommendations from ReScape.org. Standard contractors are not familiar with the latest soil foodweb data and do not understand the importance of an organic approach that avoids synthetic chemical herbicides, fertilizers and pesticides.

- Biology: I'm assuming the CEQA team will do a thorough job evaluating and developing MMRP's for the sensitive biology in the region, which includes Bald Eagles. I've personally seen them in the vicinity many times.
- Traffic: Finally, as a local resident only 20 minutes from this site, I am very concerned about increased traffic to Yosemite. The park is already experiencing parking lots filled by 10AM, traffic jams with bumper to bumper traffic creeping through the park and the line of cars at the entry gate often extends back several miles, moving at barely five miles per hour. Aside from the inconvenience, this problem does not contribute to clean air goals. The project plans mention a YARTS bus stop, but can the project do more? Encourage ride-share, provide shuttle busses?

Finally, given the stated vision of an eco-sensitive resort that celebrates the Sierra setting and restores mixed-conifer forest, I'd like to suggest that the County requires this project to be rated by ReScape California. The principles and practices outlined in this program can assist the entire team in ensuring that the resulting site work meets the environmental and aesthetic vision that has been described. The cost is nominal and the rating will also ensure the project meets the state water conservation requirements (MWELO) and supports a non-toxic and optimum environment for plants, wildlife and people to thrive.

Thanks you for your consideration of these comments. I look forward to watching the project evolve.

Best Regards,

Sarah Sutton

Dear Ms. Yaley,

I am requesting that the County evaluate the cumulative impacts of both the Manley Land Projects. (Terra Vi Lodge and the Glamping)

I am requesting that a full analysis of impacts of the two projects be performed. Major concerns that need to be evaluated in the cumulative impact are:
-Water usage, when combined with the water drawn by the proposed Yosemite Under Canvas development;
-increased traffic, when combined with the additional traffic generated by the proposed Yosemite Under Canvas development.
-Biological resources

I have grave concerns that there is no way to guarantee that some of these issues can be mitigated satisfactorily.

Thank you,

Steve Vrionis

APPENDIX B

PROJECT SITE PLANS

TERRA VI LODGE

YOSEMITE LODGE
11262 SAWMILL MT. ROAD
GROVELAND, CA 95321

PROJECT OWNER

HANSJI CORP.
631 W. KATELLA AVE.
ANAHEIM, CA 92802
(714) 399-0152
INFO@HANSJI.COM

ARCHITECT

AVRP SKYPORT STUDIOS
703 16TH ST. SUITE 100
SAN DIEGO, CA 92101
PH: 619-704-2700

LANDSCAPE

SMITH + SMITH
1501 NORTH POINT ST.
SAN FRANCISCO, CA 94123
BILL SMITH: BILL@SMITH2.COM
PH: 415-543-0332
JASON SMITH: JSAON@SMITH2.COM
PH: 415-543-0332

TRAFFIC ENGINEERING

KD ANDERSON & ASSOCIATES, INC.
3853 TAYLOR RD. SUITE G
LOOMIS, CA 95650
KEN ANDERSON KANDERSON@KANDERSON.COM
PH: 916-660-1555

CIVIL ENGINEERING

LAND & STRUCTURE
105 S. STEWART ST.
SONORA,CA 95370
ZAC GARMAN ZAC@LANDSTRUC.COM
PH: 209-768-9220
REUBEN CHIRNSIDE REUBEN@LANDSTRUC.COM
PH: 209-743-3370
RICHARD JAMES RICH@LANDSTRUC.COM
PH: 209-768-9777

ENVIRONMENTAL HEALTH

DON MYERS, REHS
REGISTERED ENVIRONMENTAL HEALTH SPECIALIST
14801 TWIST RD.
JAMESTOWN, CA 95327
209-743-9493

REGULATORY DESCRIPTION

THIS APPLICATION NAMED "TERRA VI LODGE YOSEMITE LODGE" WHICH IS BEING SUBMITTED TO THE COMMUNITY RESOURCES AGENCY, HAS FOLLOWED THE CRITERIA AS OUTLINED IN THE "SITE DEVELOPMENT PERMITS INSTRUCTION TO FOR APPLICANTS."

IN ADDITION, UNDER THE TUOLUMNE COUNTY ORDINANCE CODE CHAPTER 17.31 THE PROJECT RESIDES IN THE C-K DISTRICT AND HAS THE DESIGNATION ALLOWING " HOTELS AND MOTELS." AS INDICATED IN THIS CHAPTER: "THE PURPOSE OF THE COMMERCIAL RECREATIONAL (C-K) DISTRICT IS TO ENCOURAGE WELL-PLANNED AND INTEGRATED RESORT AND VACATION-ORIENTED COMMERCIAL COMPLEXES IN WHICH THE DEVELOPER MAY INCORPORATE INNOVATIVE DESIGN TECHNIQUES."

THE TERRA VI LODGE HAS ALSO ADDRESSED ORDINANCE: 17.31.010, TITLE 15 FIRE SAFETY STANDARDS AS IT PERTAINS TO THIS PROJECT.

ARCHITECTURAL SHEETS

T0.00	TITLE SHEET
T0.01	AERIAL PERSPECTIVE 1
T0.02	AERIAL PERSPECTIVE 2
T0.03	SITE PLAN
T0.04	ENLARGED LODGE SITE PLAN
T0.05	ENLARGED CABIN SITE PLAN
T0.06	SITE CIRCULATION PLAN
A1.01	FLOOR PLAN TYPES
A1.02	MAINTENANCE YARD/BASEMENT LVL
A1.03	FLOOR PLANS RESTAURANT LVL 1
A1.04	FLOOR PLANS LVL 1
A1.05	FLOOR PLANS LVL 2
A1.06	FLOOR PLANS LVL 3
A1.07	FLOOR PLANS CABIN
A2.00	SECTIONS
A2.01	ELEVATIONS
A2.02	ELEVATIONS
A2.03	ELEVATIONS
A2.04	ELEVATIONS
A2.05	ELEVATIONS
A4.01	RENDER 1
A4.02	RENDER 2
A4.03	RENDER 3
A4.04	RENDER 4

CIVIL SHEETS

V1	TITLE SHEET
V2	BOUNDARY AND EASEMENT SURVEY
V3	TOPOGRAPHIC SURVEY
C1	GRADING AND DRAINAGE PLAN
C2	GRADING AND DRAINAGE PLAN
C3	GRADING AND DRAINAGE PLAN
C4	GRADING AND DRAINAGE PLAN

LANDSCAPING SHEETS

L1	PROPERTY CONTEXT PLAN
L2	SITE CONTEXT PLAN
L3	EXISTING CONDITIONS AND TREE DISPOSITION PLAN
L4	OPEN SPACE, FOREST MANAGEMENT AND WATER-USE PLAN
L5A	SITE CROSS - SECTION - ELEVATION A
L5B	SITE CROSS - SECTION - ELEVATION B
L5C	SITE CROSS - SECTION - ELEVATION C
L6	ILLUSTRATIVE LANDSCAPE PLAN
L7	LODGE LANDSCAPE SUB-AREAS PLAN
L8	PLANT PALETTE AND PLANT MATERIAL IMAGES
L9	LODGE LANDSCAPE ELEMENTS AND FEATURES IMAGES

ENVIRONMENTAL SHEETS

EH-01	PRELIMINARY SEPTIC LAYOUT

PROJECT INFORMATION

APN:	068-120-60-00, 068-120-61-00
LOT SIZE:	1,219,819.5 SF. (28 ARCE),
	1,566,507.3 SF. (36 ARCE)
TOTAL	2,786,326.8 SF. (64 ACRE)
ZONE:	C-K, O
OCCUPANCIES:	R-2,S-2,B
CONSTRUCTIONS TYPES:	TYPE I
STORIES:	3
CEILING HEIGHT:	VARIES
FIRE SPRINKLER:	YES
ELECTRICAL:	GRID
GAS:	TANK
SEWER:	SEPTIC
HEIGHT LIMIT:	50'
BASE F.A.R.:	0.5
FRONT SETBACK:	15'
SIDE SETBACK:	6'
REAR SETBACK:	15'

PROPOSED:
(100 GUEST ROOMS, 26 CABIN ROOMS, MARKET & EVENT SPACE, EMPLOYEE HOUSING - 5 UNITS)

TOTAL PROPOSED:	104,107 SQ. FT. (FAR 0.04)

PARKING

HOTEL:	100 SPACES
CABINS:	26 SPACES
MARKET (2,800 Sq. Ft.):	16 SPACES
EMPLOYEE:	30 SPACES
EMPLOYEE HOUSING:	40 SPACES
OVERFLOW:	74 SPACES
TOTAL PARKING:	286 SPACES

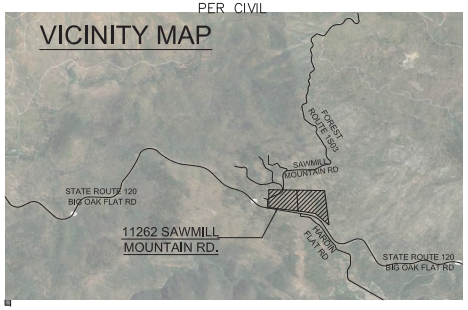
PROJECT DESCRIPTION:

THE HANSJI CORPORATION PROPOSED TO BUILD A 104,107 SQ. FT. MIXED USE LODGE WITH A MARKET LOCATED ON THEIR EXISTING PROPERTY AT 11262 SAWMILL MOUNTAIN ROAD IN GROVELAND, CALIFORNIA 95321. THE PROPOSED BUILD WILL CONSIST OF 100 GUEST ROOMS AND 26 CABIN ROOMS (R-1), WITH A MARKET (B), EVENT SPACE (A), EMPLOYEE HOUSING, AND 286 SPACES OF PARKING THROUGH OUT THE SITE.

LEGAL DESCRIPTION

PER CIVIL

VICINITY MAP



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703 16th Street, Suite 200
San Diego
California 92101
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F 619.704.2699
www.avrpstudios.com

STAMP:

CONSULTANT:

PROJECT NAME:

TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION

Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SUBMITTAL 1	11.16.2018
SUBMITTAL 2	05.10.2019
SUBMITTAL 3	10.04.2019
SUBMITTAL 3b	11.27.2019

PROJECT NO.	
AVRPSTUDIOS:	18040.00
AGENCY #:	00000.00
DRAWN BY:	AS
CHECKED BY:	XX
SHEET TITLE:	TITLE SHEET

SHEET NUMBER:

T0.00

THESE DRAWINGS AND PLANS ARE AND SHALL REMAIN THE PROPERTY OF AVRP SKYPORT STUDIOS, INC. AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE ON AND IN CONNECTION WITH THE SPECIFIED PROJECT. NONE OF SUCH IDEAS, ARRANGEMENTS OR PLANS SHALL BE USED BY OR DISCLOSED TO ANY PERSON FIRM OR CORPORATION FOR ANY PURPOSE WHATSOEVER WITHOUT THE WRITTEN PERMISSION OF AVRP SKYPORT STUDIOS, INC.

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STAMP:

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PROJECT NAME:

TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION

Terra Vi Lodge Yosemite

Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SUBMITTAL 1	11.16.2018
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SUBMITTAL 3	10.04.2019

PROJECT NO.
AVRPSTUDIOS: 18040.00
AGENCY #: 00000.00
DRAWN BY: AS
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SHEET TITLE:
AERIAL PERSPECTIVE

SHEET NUMBER.:

T0.01

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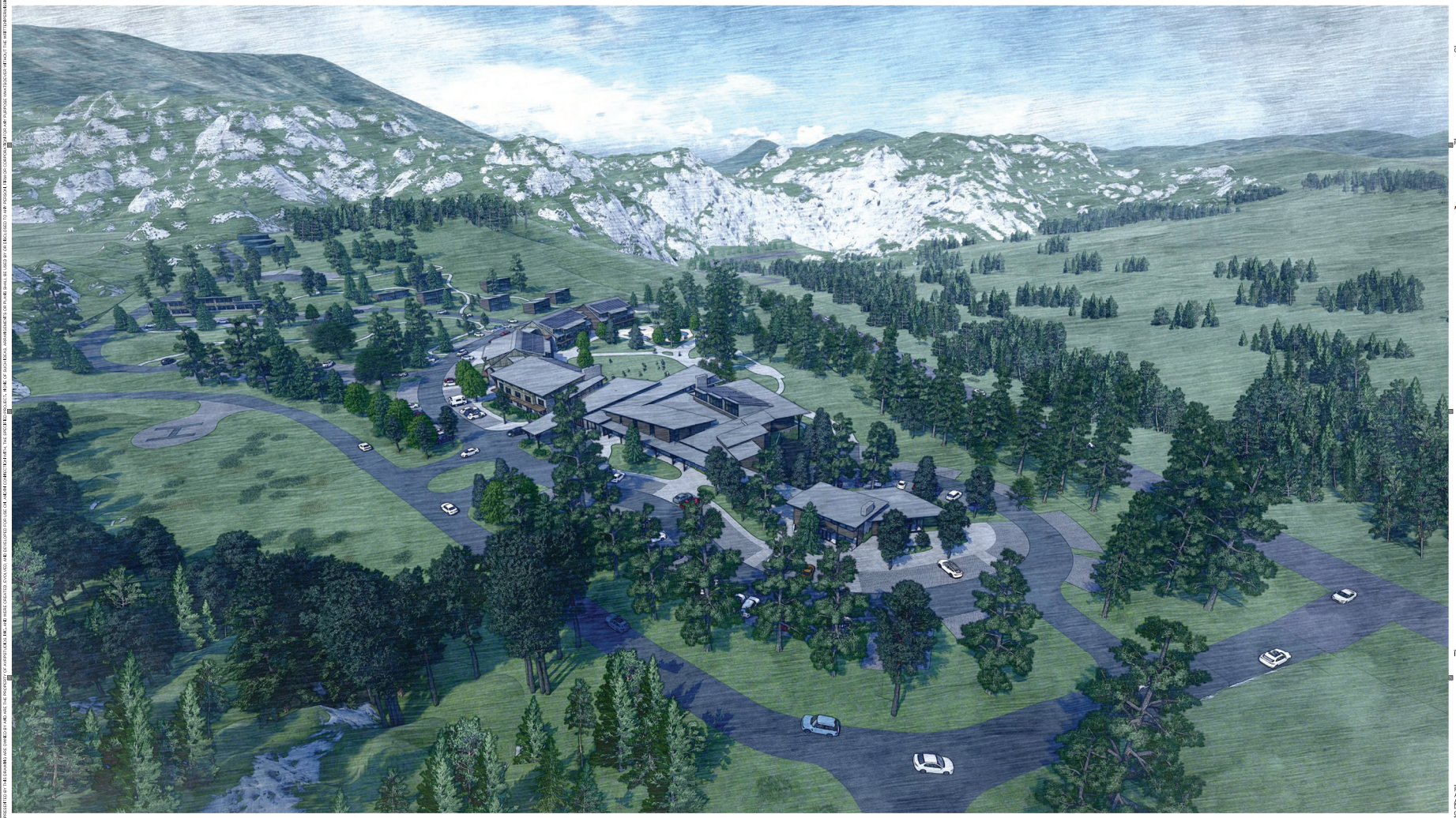

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CONSULTANT:

PROJECT NAME:

TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION

Terra Vi Lodge Yosemite

Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SUBMITTAL 1	11.16.2018
SUBMITTAL 2	05.10.2019
SUBMITTAL 3	10.04.2019

PROJECT NO.
AVRPSTUDIOS: 18040.00
AGENCY #: 00000.00
DRAWN BY: AS
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AERIAL PERSPECTIVE

SHEET NUMBER.:

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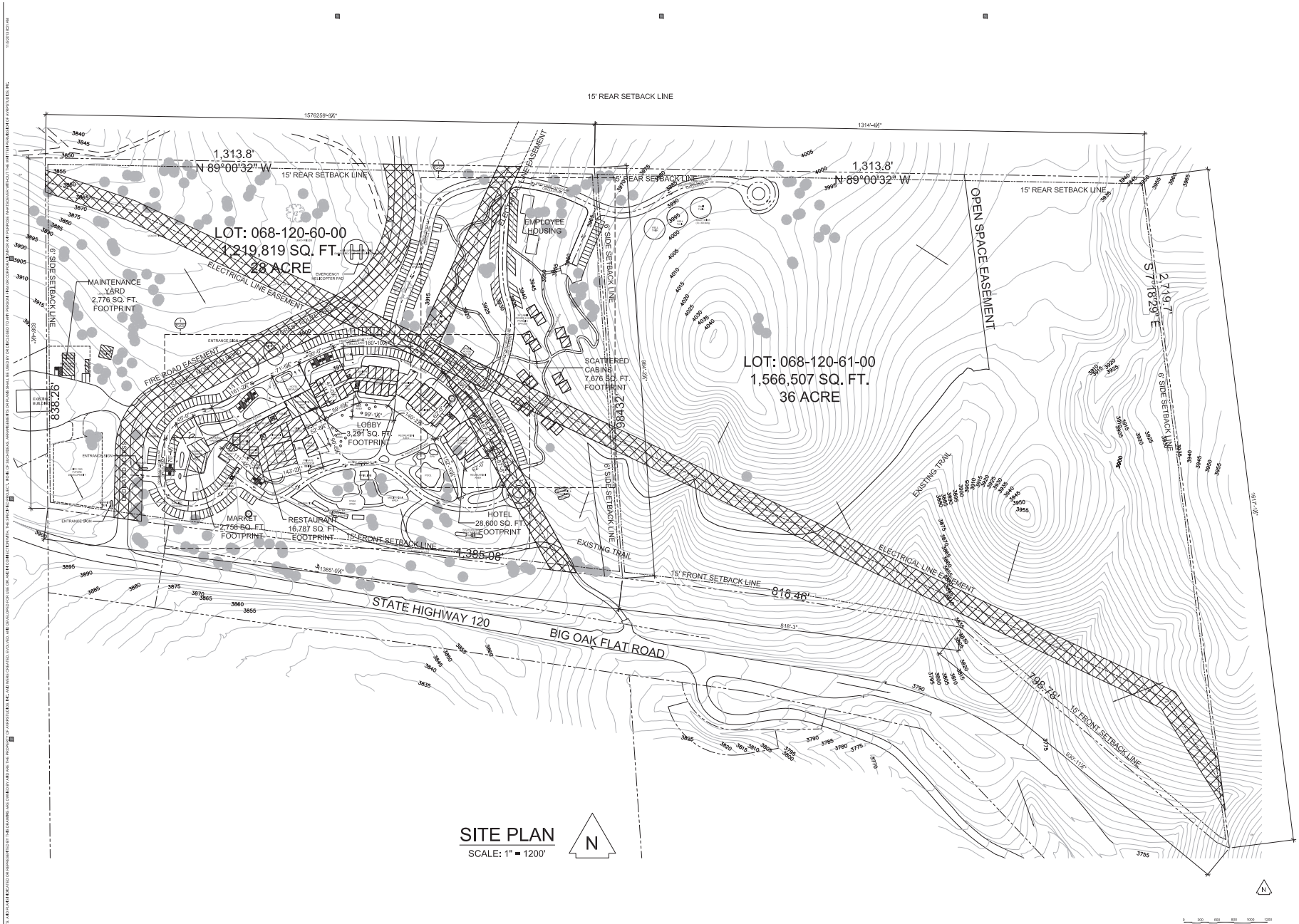

SITE PLAN
SCALE: 1" = 1200'

N

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SUBMITTAL 3b	11.27.2019

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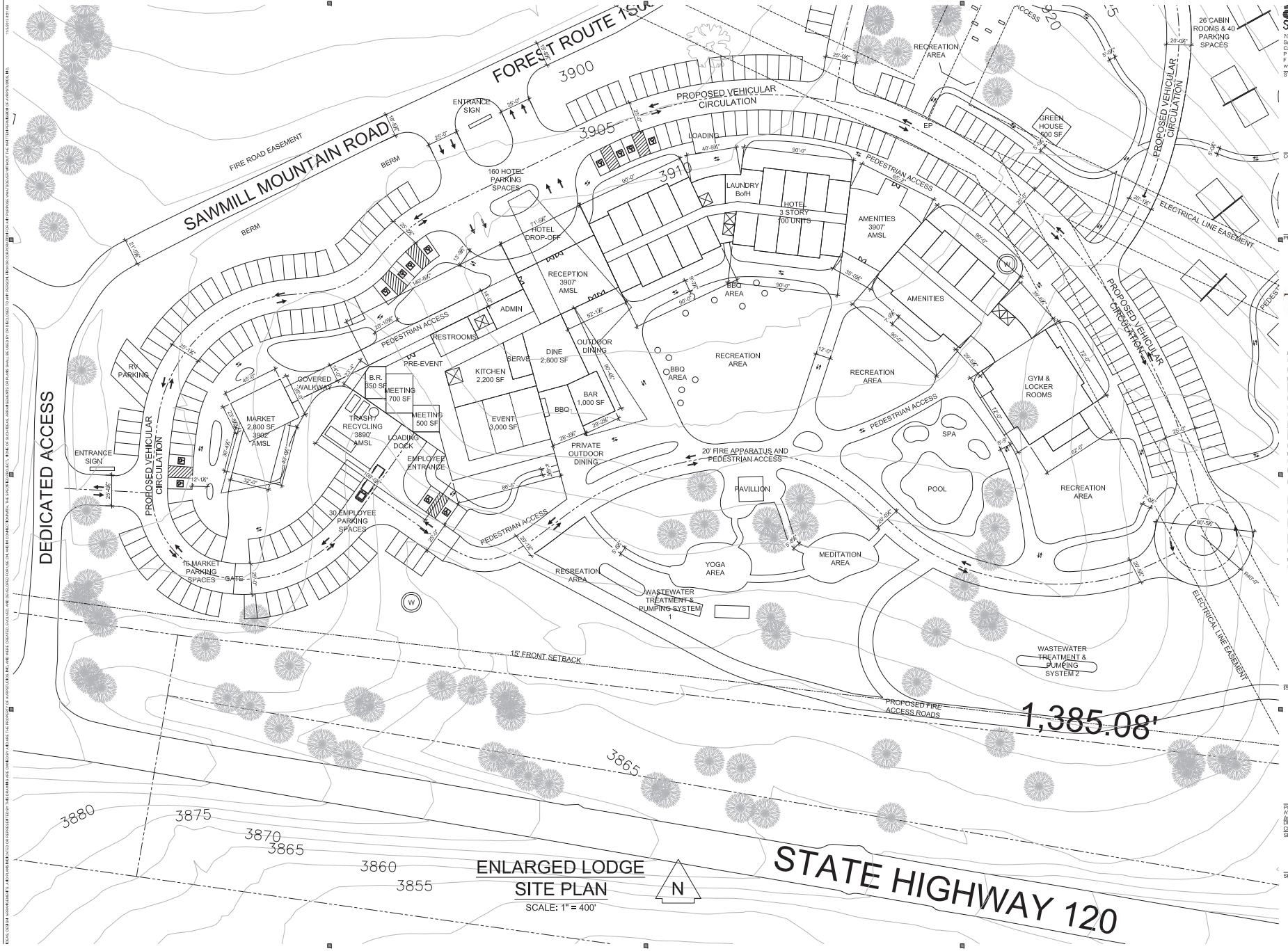
SHEET TITLE: SITE PLAN

SHEET NUMBER.:

T0.03



ENLARGED LODGE SITE PLAN

SCALE: 1" = 400'

N

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SHEET TITLE:
ENLARGED LODGE SITE PLAN

SHEET NUMBER:

T0.04

ENLARGED CABIN SITE PLAN

SCALE: 1" = 400'

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SHEET TITLE:
ENLARGED CABIN SITE PLAN

SHEET NUMBER:

T0.05

SITE CIRCULATION PLAN

SCALE: 1" = 1200'

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DRAWN BY: AS
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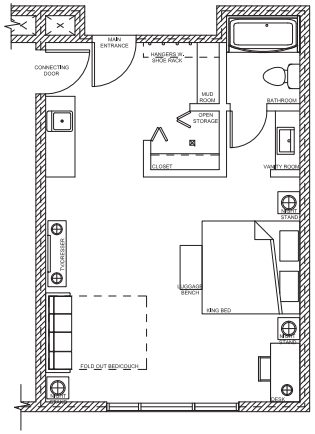
SHEET TITLE:
SITE CIRCULATION PLAN

SHEET NUMBER:

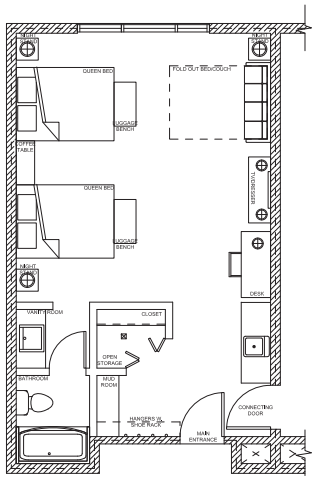
T0.06



TYPICAL KING SUITE - 1B

SCALE: 1/4"=1'-0"

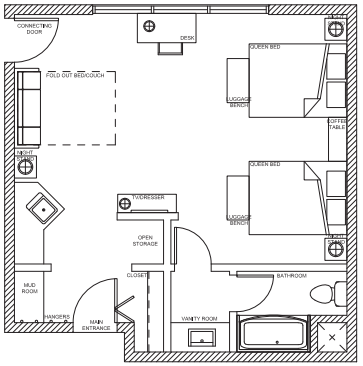
APPROX. 568 SQ. FT.



TYPICAL QUEEN SUITE - 2B

SCALE: 1/4"=1'-0"

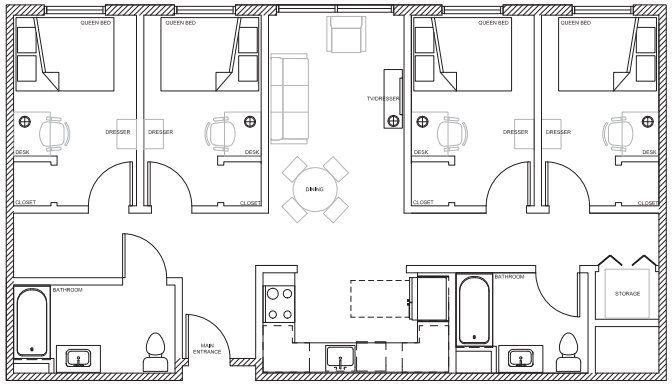
APPROX. 534 SQ. FT.



TYPICAL CABIN STUDIO - S

SCALE: 1/4"=1'-0"

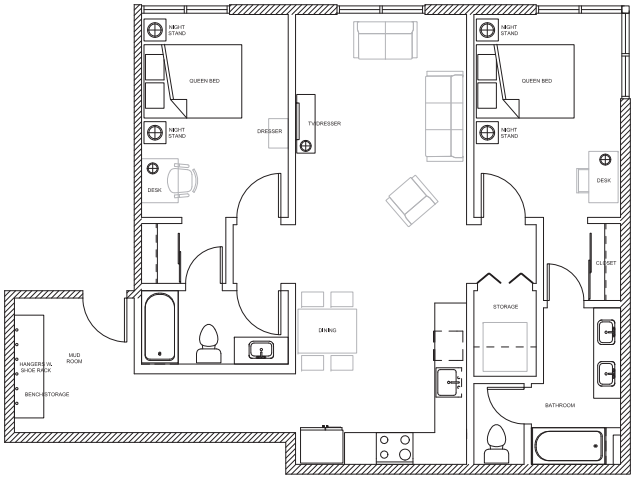
APPROX. 480 SQ. FT.



TYPICAL EMPLOYEE HOUSING

SCALE: 1/4"=1'-0"

APPROX. 1,147 SQ. FT.



TYPICAL MANAGER'S SUITE

SCALE: 1/4"=1'-0"

APPROX. 1,148 SQ. FT.

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AVRPSTUDIOS: 18040.00
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CONCEPTUAL GUESTROOM PLAN

SHEET NUMBER.:

A1.01

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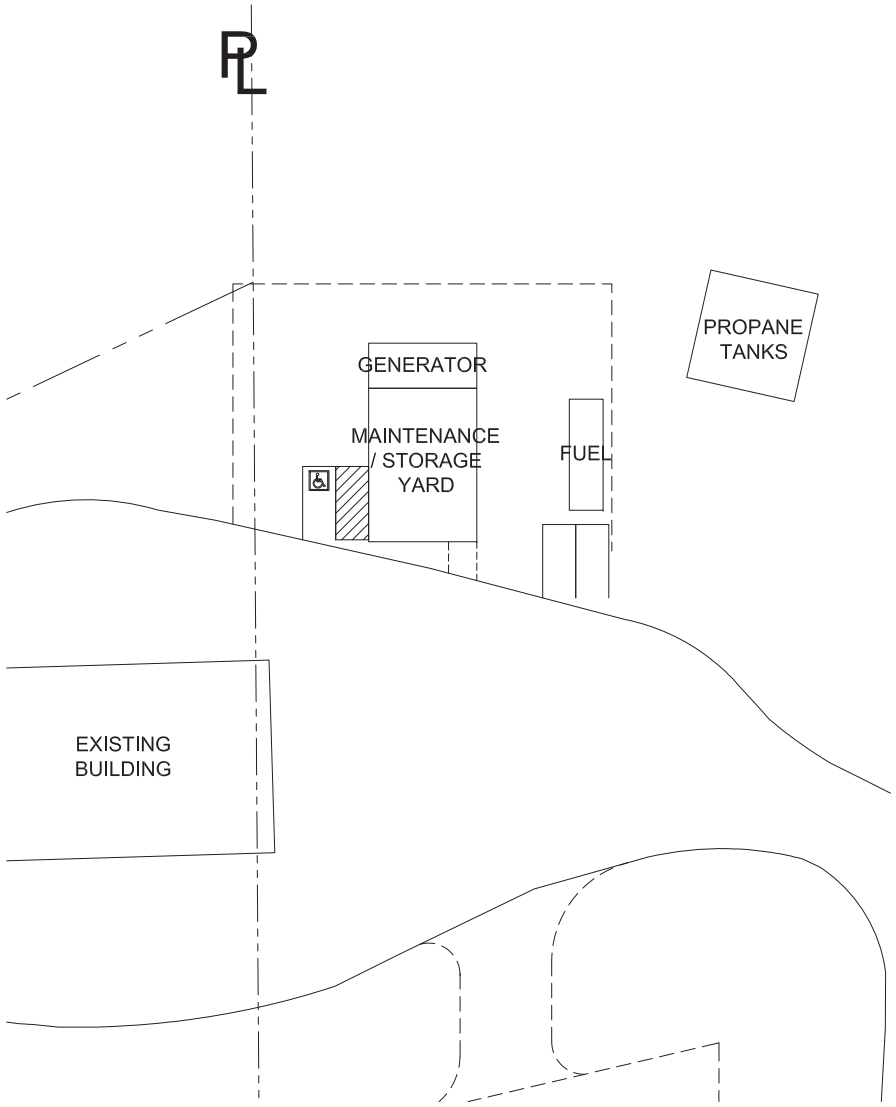
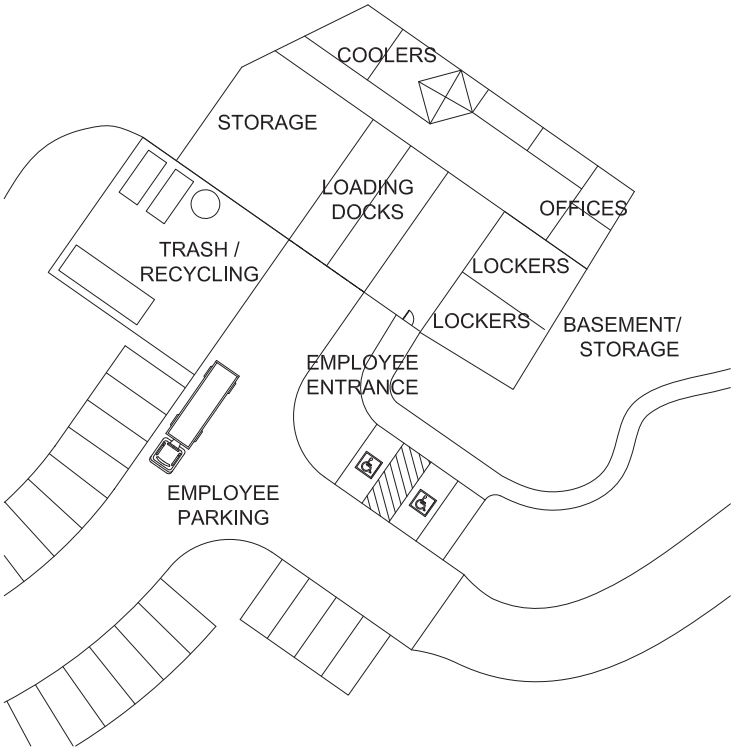


MAINTENANCE YARD

SCALE: 1/16"=1'-0"



BASEMENT LVL

SCALE: 1/16"=1'-0"

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SHEET TITLE:
MAINTENANCE YARD
BASEMENT LVL

SHEET NUMBER.:

A1.02

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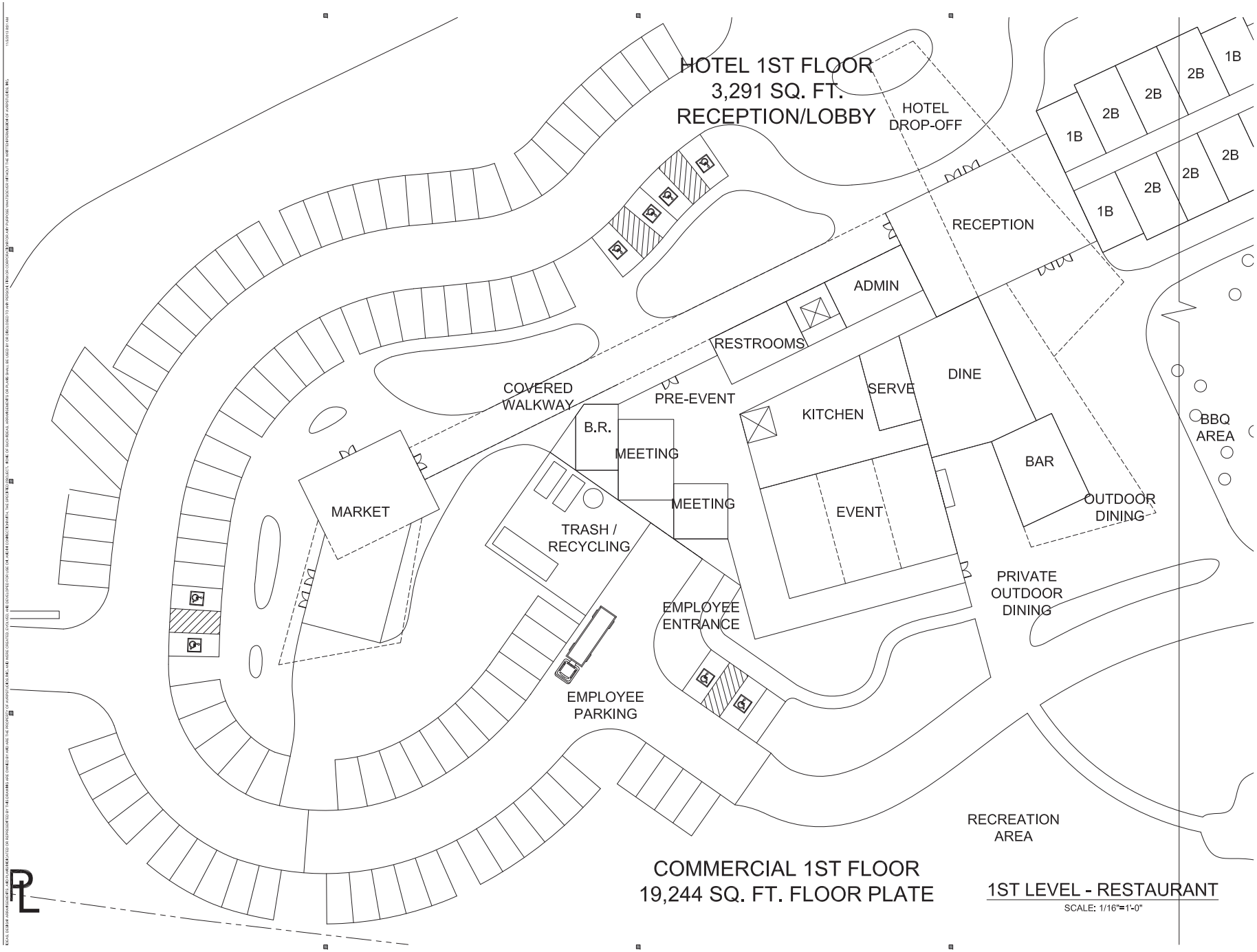

1ST LEVEL - RESTAURANT

SCALE: 1/16"=1'-0"

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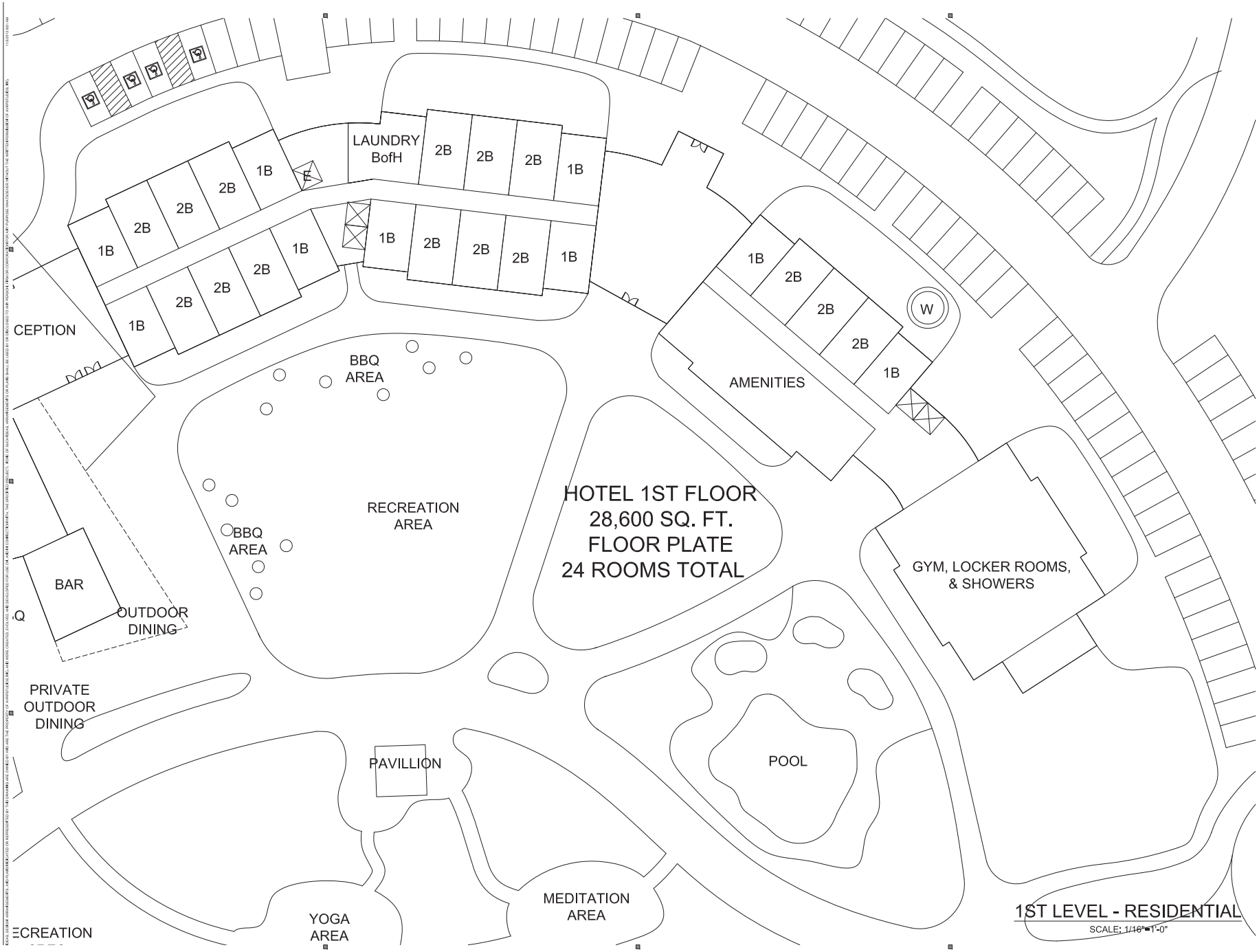
SHEET TITLE:
FLOOR PLAN
RESTAURANT LEVEL 1

SHEET NUMBER:

A1.03



1ST LEVEL - RESIDENTIAL

SCALE: 1/16"=1'-0"

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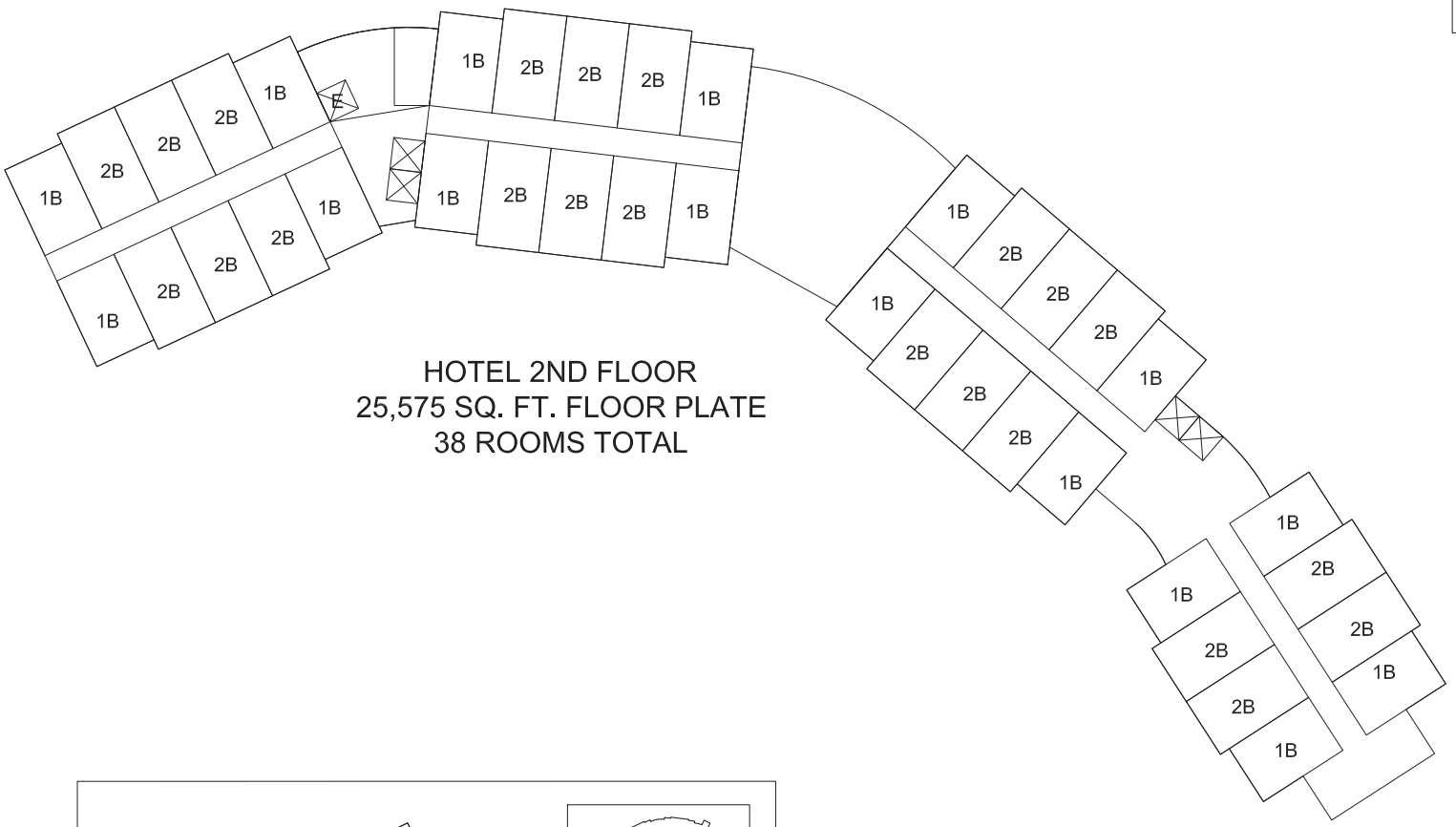
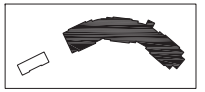
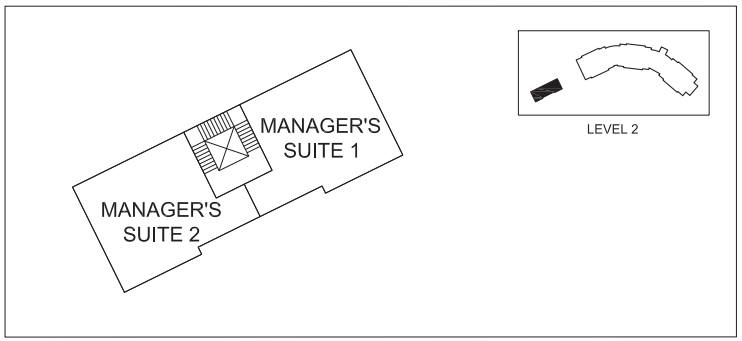
SHEET TITLE:
FLOOR PLAN LEVEL1

SHEET NUMBER.:

A1.04







2ND LEVEL - MANAGER'S SUITE'S

SCALE: 1/16"=1'-0"

2ND LEVEL - RESIDENTIAL

SCALE: 1/16"=1'-0"

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SHEET TITLE:
FLOOR PLAN LEVEL 2

SHEET NUMBER.:

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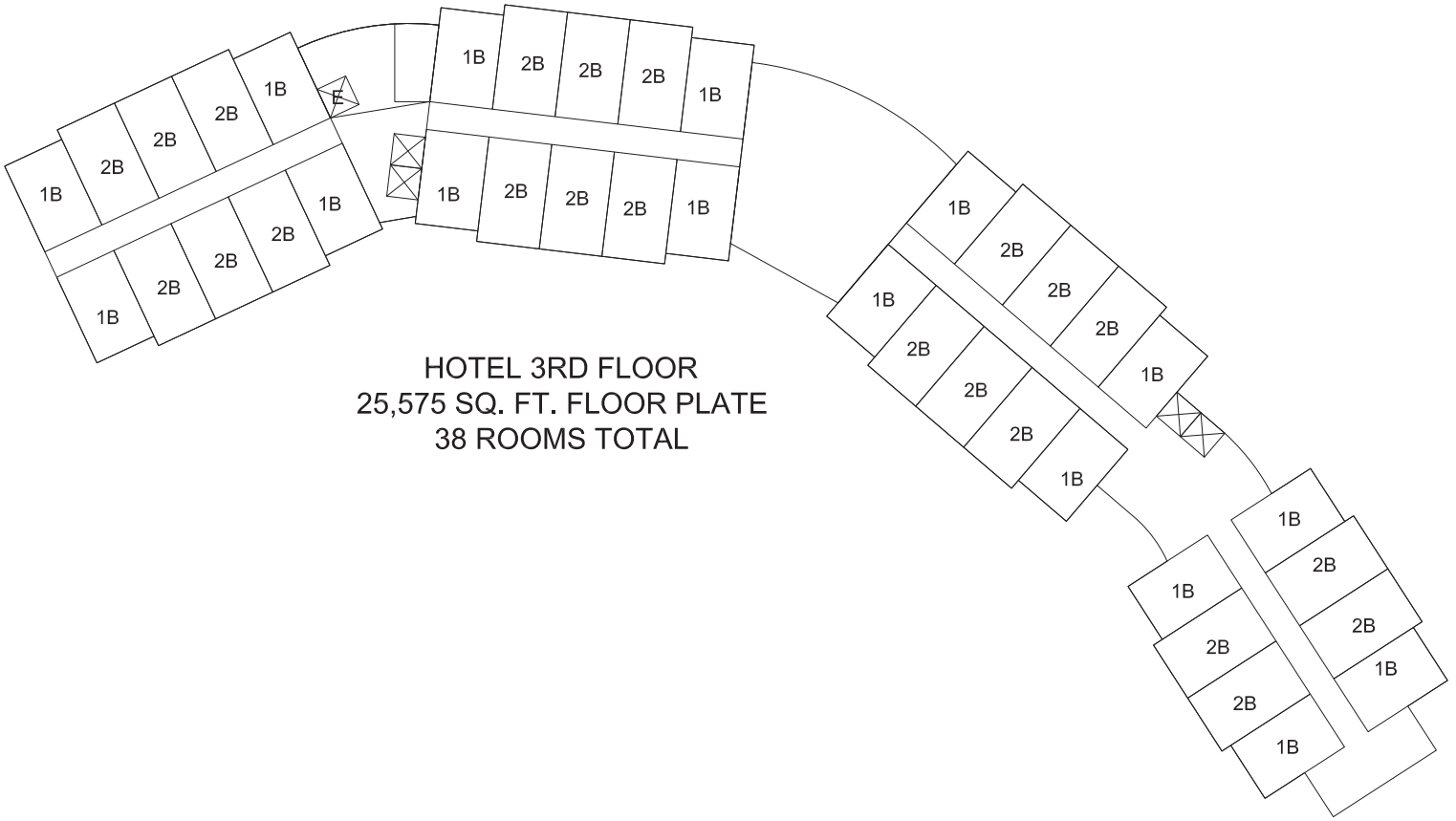

HOTEL 3RD FLOOR
25,575 SQ. FT. FLOOR PLATE
38 ROOMS TOTAL

3RD LEVEL - RESIDENTIAL
SCALE: 1/16"=1'-0"

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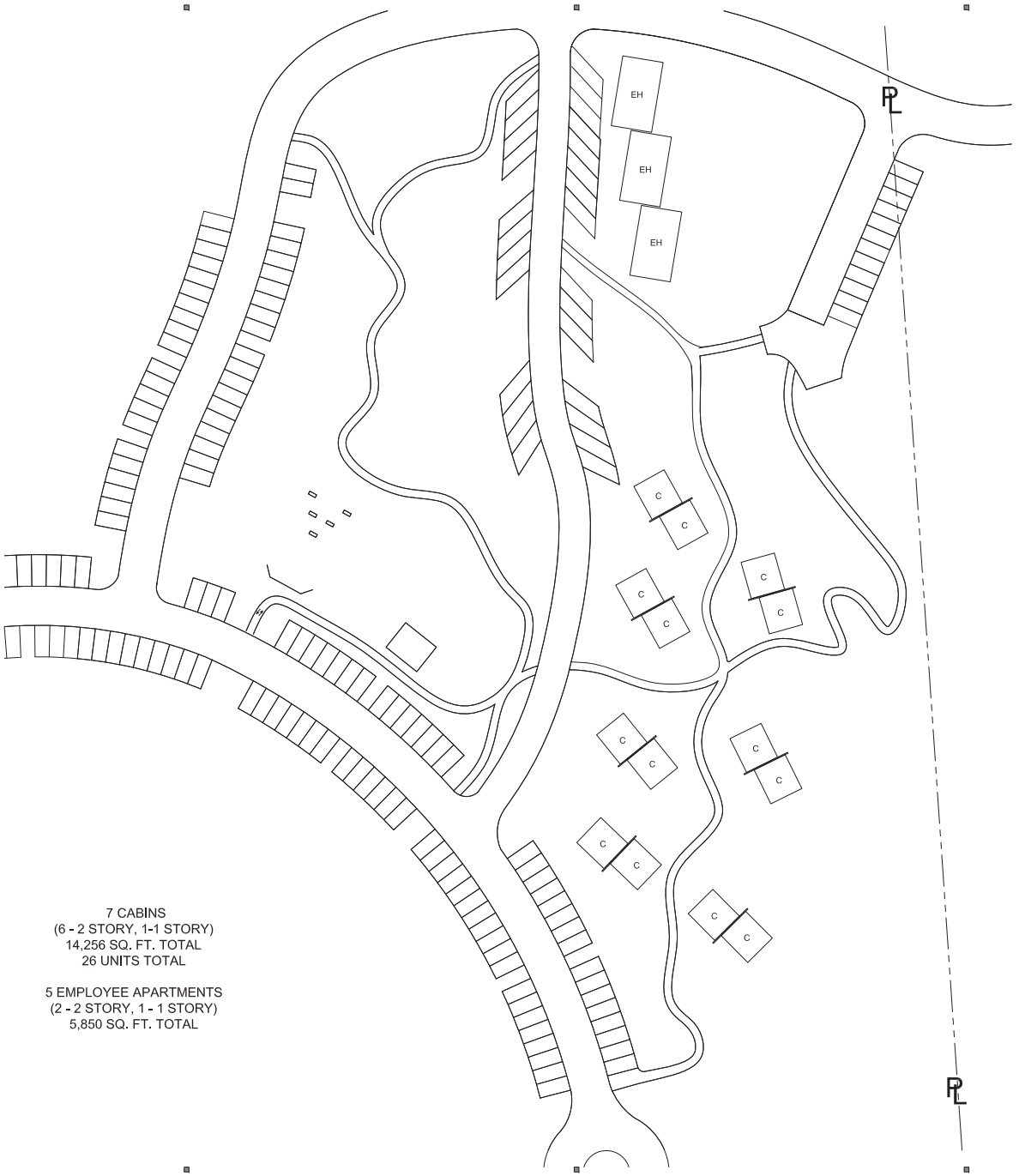
SHEET TITLE:
FLOOR PLAN LEVEL 3

SHEET NUMBER:

A1.06



7 CABINS
(6 - 2 STORY, 1-1 STORY)
14,256 SQ. FT. TOTAL
26 UNITS TOTAL

5 EMPLOYEE APARTMENTS
(2 - 2 STORY, 1 - 1 STORY)
5,850 SQ. FT. TOTAL

CABINS & EMPLOYEE HOUSING

SCALE: 1/32"=1'-0"

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FLOOR PLANS CABIN

SHEET NUMBER.:

A1.07

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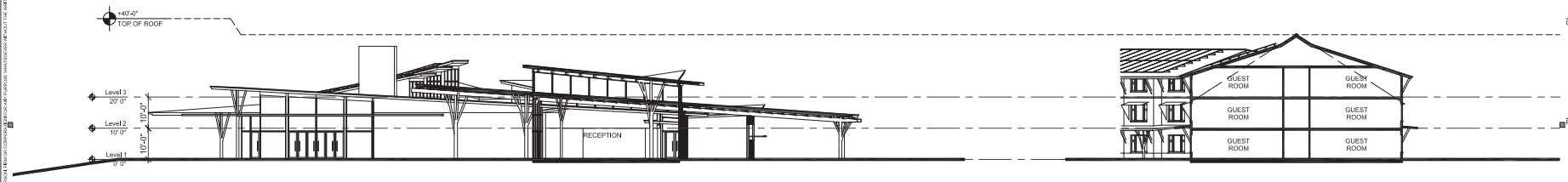
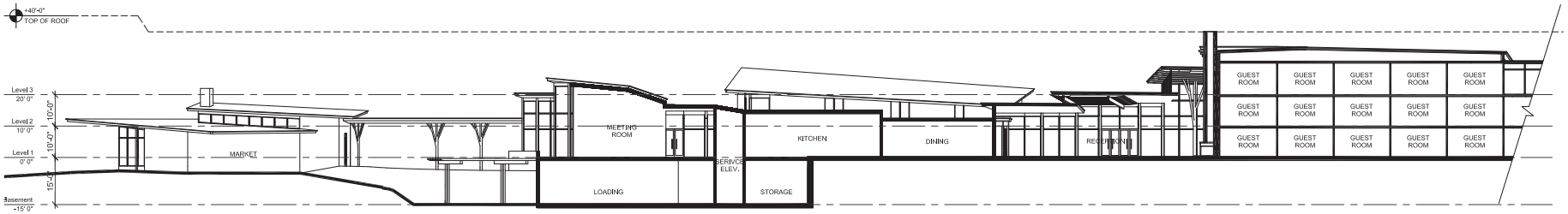


SECTION AA

SCALE: 1/16"=1'-0"

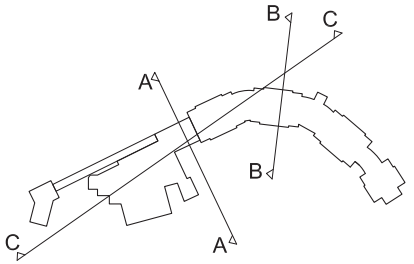
SECTION BB

SCALE: 1/16"=1'-0"



SECTION CC

SCALE: 1/16"=1'-0"



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SHEET TITLE: SECTIONS

SHEET NUMBER.:

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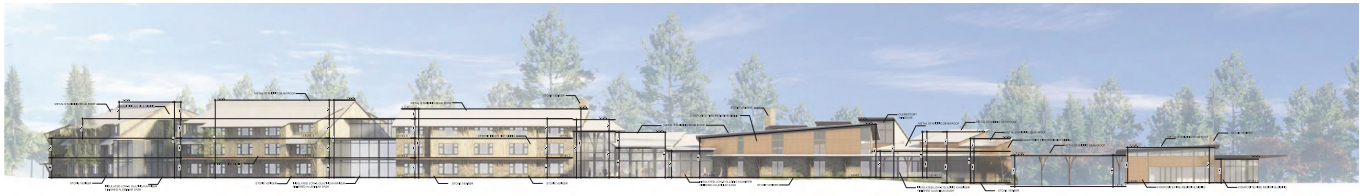

NORTH ELEVATION

SCALE: 1"= 30'-0"

SOUTH ELEVATION

SCALE: 1"=30'-0"

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SHEET NUMBER.:

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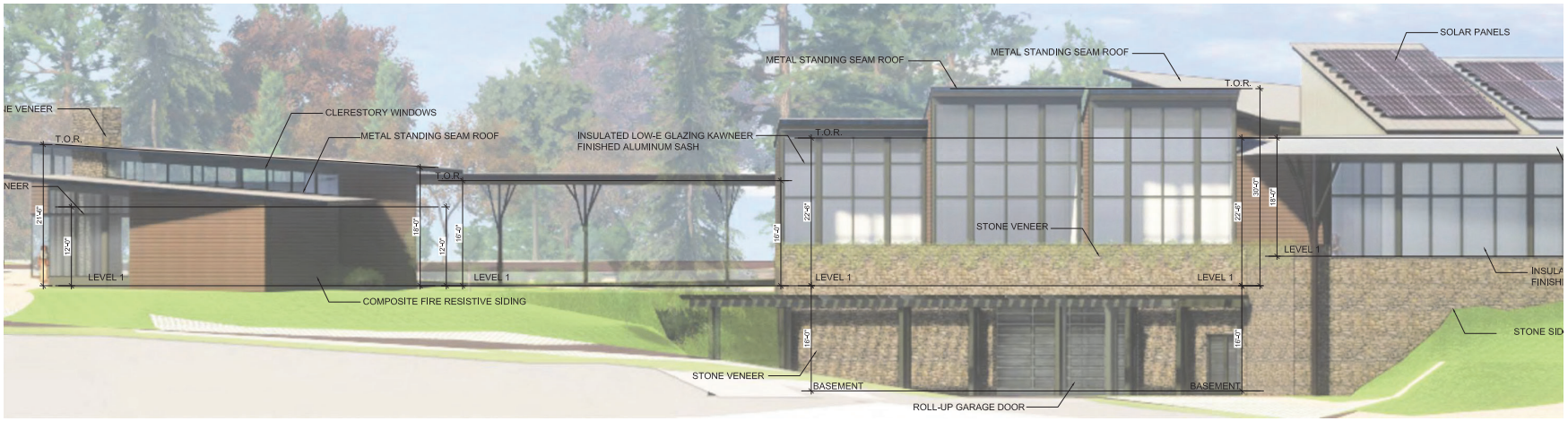
11/29/18 8:51 AM



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STAMP:

CONSULTANT:

PROJECT NAME:

TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION

Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SUBMITTAL 1	11.16.2018
SUBMITTAL 2	**05.09.2019**

PROJECT NO.
AVRPSTUDIOS: 18040.00
AGENCY #: 00000.00
DRAWN BY: AS
CHECKED BY: XX
SHEET TITLE:

ELEVATION

SHEET NUMBER:

A2.02

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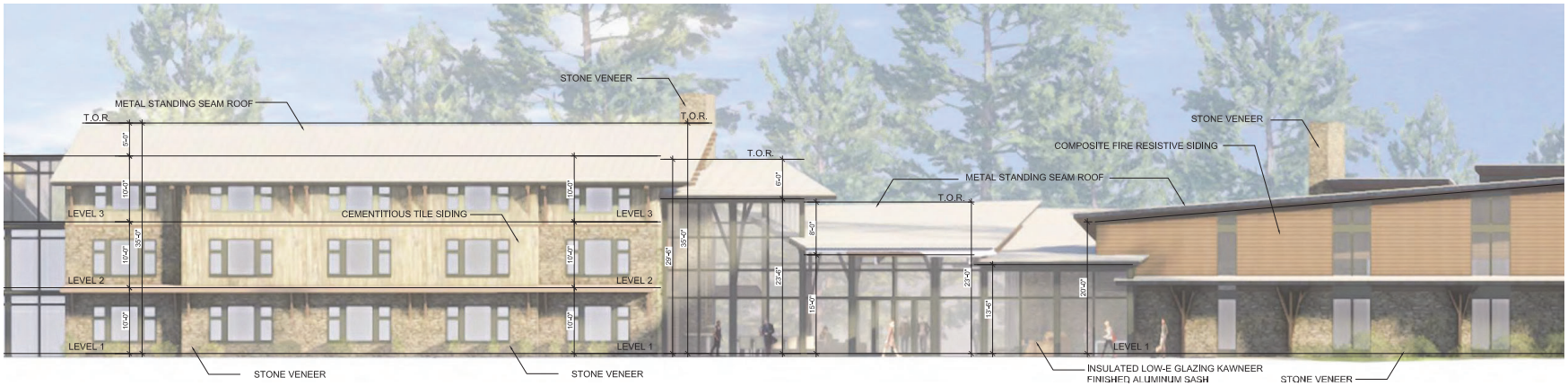

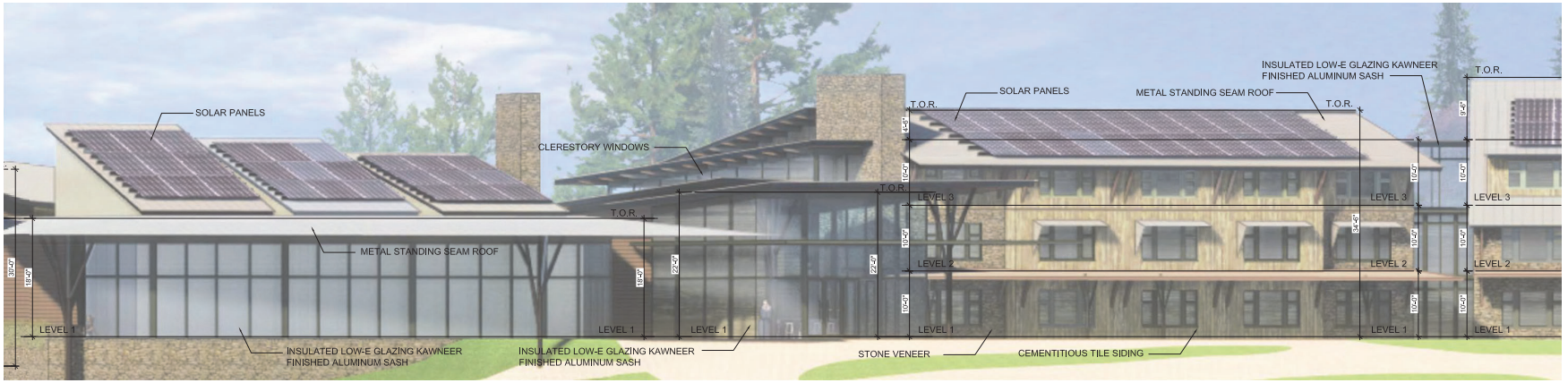

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Yosemite, CA 95321

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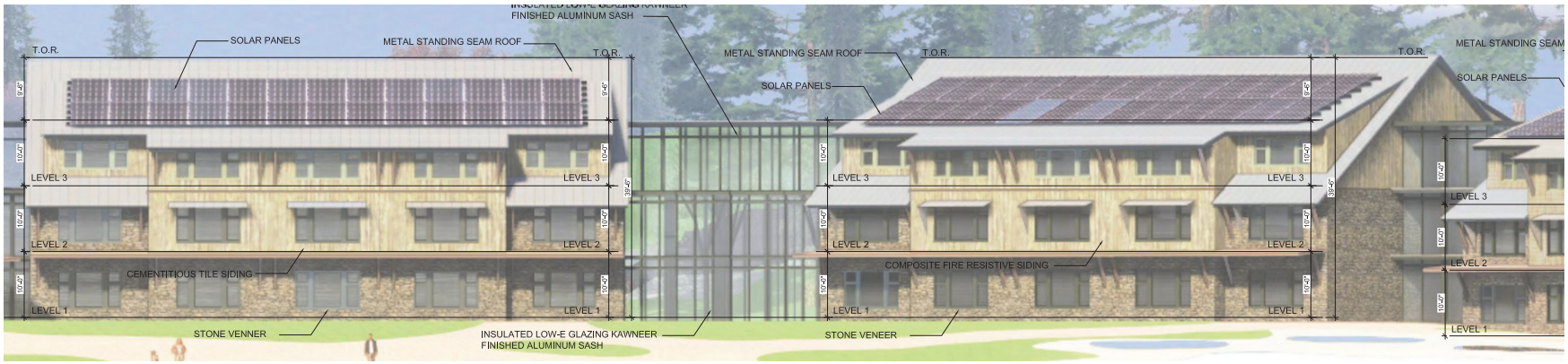

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DESCRIPTION:	DATE:
SUBMITTAL 1	11.16.2018
SUBMITTAL 2	**05.09.2019**

PROJECT NO.
AVRPSTUDIOS: 18040.00
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A2.04

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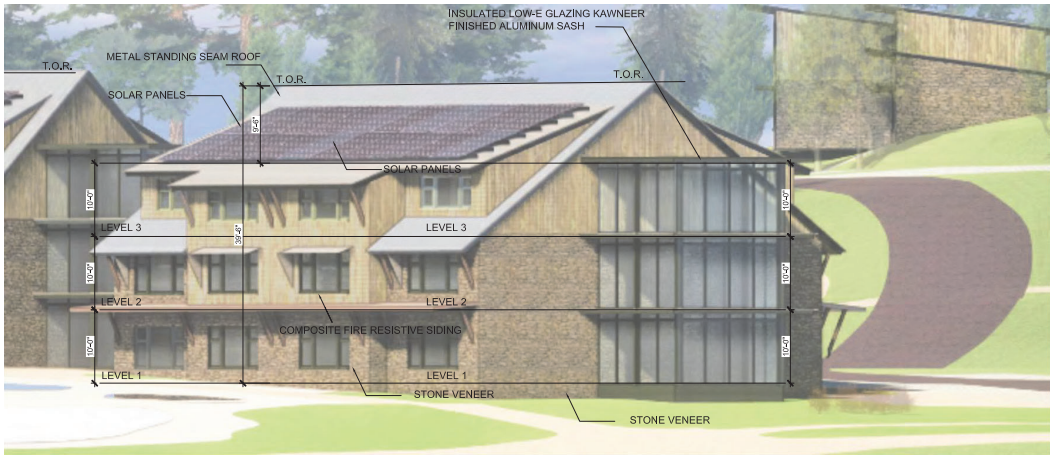

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ISSUE DATES:

DESCRIPTION:	DATE:
SUBMITTAL 1	11.16.2018
SUBMITTAL 2	05.09.2019

PROJECT NO.
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AVRPSTUDIOS: 18040.00
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RENDERING 7

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Yosemite
Yosemite, CA 95321

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DESCRIPTION:	DATE:
SUBMITTAL 1	11.16.2018
SUBMITTAL 2	05.10.2019
SUBMITTAL 3	10.04.2019

PROJECT NO.
AVRPSTUDIOS: 18040.00
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SHEET TITLE:
RENDERING 3

SHEET NUMBER.:

A4.02

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DESCRIPTION:	DATE:
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SUBMITTAL 3	10.04.2019

PROJECT NO.
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RENDERING 4

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A4.03

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A4.04

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11/09/19 8:51 AM

ALTA/NSPS LAND TITLE SURVEY

OF PARCEL A AND PARCEL B DESCRIBED IN DOCUMENT NUMBER 2004006668 ON FILE IN THE OFFICE OF THE TUOLUMNE COUNTY RECORDER, LYING WITHIN THE SOUTHEAST 1/4 OF SECTION 26, TOWNSHIP 1 SOUTH, RANGE 18 EAST, MOUNT DIABLO MERIDIAN, IN THE UNINCORPORATED AREA OF TUOLUMNE COUNTY, STATE OF CALIFORNIA.

SURVEYOR STATEMENT

TO CAROL L. MANLY, FIDELITY NATIONAL TITLE COMPANY, AND HANSJI CORPORATION:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1 THROUGH 5, 11, 13, AND 19 THROUGH 21 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON MAY 15, 2018.

DATE: ______________________ ______________________

RICHARD H. JAMES, P.L.S. 8550

FIDELITY NATIONAL TITLE COMPANY PRELIMINARY TITLE REPORT ORDER # FSST-TO18000789, DATED MARCH 15, 2018, ITEMS TO BE CONSIDERED AND EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN SAID POLICY FORM.

ITEM 5. THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE STREET, HIGHWAY, OR FREEWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED BY THE DOCUMENT RECORDED MARCH 10, 1960 IN VOLUME 111 OF OFFICIAL RECORDS AT PAGE 521, TUOLUMNE COUNTY RECORDS.

ITEM 6 WAIVER OF ANY CLAIMS FOR DAMAGES TO SAID LAND BY REASON OF THE LOCATION, CONSTRUCTION, LANDSCAPING OR MAINTENANCE OF THE STREET OR HIGHWAY ADJOINING SAID LAND, AS CONTAINED IN THE DEED TO THE STATE OF CALIFORNIA RECORDED MARCH 10, 1960 IN VOLUME 111 OF OFFICIAL RECORDS AT PAGE 521, TUOLUMNE COUNTY RECORDS.

ITEM 8 WAIVER OF ANY CLAIMS FOR DAMAGES TO SAID LAND BY REASON OF THE LOCATION, CONSTRUCTION, LANDSCAPING OR MAINTENANCE OF THE STREET OR HIGHWAY ADJOINING SAID LAND, AS CONTAINED IN THE DEED TO THE STATE OF CALIFORNIA RECORDED JUNE 18, 1962 IN VOLUME 144 OF OFFICIAL RECORDS AT PAGE 70, TUOLUMNE COUNTY RECORDS.

ITEM 12 COVENANTS AND RESTRICTIONS IMPOSED BY A LAND CONSERVATION CONTRACT EXECUTED PURSUANT TO SECTION 51200 ET SEQ. CALIFORNIA GOVERNMENT CODE (WILLIAMSON ACT) AUTHORIZING THE ESTABLISHMENT OF AGRICULTURAL PRESERVES. THE USE OF THE LAND WITHIN THE PRESERVE MAY BE RESTRICTED BY THE CONTRACT TO AGRICULTURAL, RECREATIONAL, OPEN-SPACE, AND OTHER APPROVED COMPATIBLE USES. DATED FEBRUARY 26, 1969 IN VOLUME 267 OF OFFICIAL RECORDS AT PAGE 223 AND AMENDED FEBRUARY 22, 1972 IN VOLUME 350 OF OFFICIAL RECORDS AT PAGE 271. CONTRACT DOES NOT NAME THIS PROPERTY. THESE PARCELS ARE NOT CURRENTLY UNDER A LAND CONSERVATION CONTRACT AND CANNOT ENTER INTO A NEW CONTRACT WITHOUT THE COMPLETION OF A GENERAL PLAN AMENDMENT AND ZONE CHANGE AS THE CURRENT ZONING AND GENERAL PLAN ARE NOT CONSISTENT WITH THE REQUIRED ZONING AND GENERAL PLAN FOR A LAND CONSERVATION CONTRACT.

ITEM 14 COVENANTS AND RESTRICTIONS IMPOSED BY A LAND CONSERVATION CONTRACT EXECUTED PURSUANT TO SECTION 51200 ET SEQ. CALIFORNIA GOVERNMENT CODE (WILLIAMSON ACT) AUTHORIZING THE ESTABLISHMENT OF AGRICULTURAL PRESERVES. THE USE OF THE LAND WITHIN THE PRESERVE MAY BE RESTRICTED BY THE CONTRACT TO AGRICULTURAL, RECREATIONAL, OPEN-SPACE, AND OTHER APPROVED COMPATIBLE USES. DATED FEBRUARY 22, 1972 IN VOLUME 350 OF OFFICIAL RECORDS AT PAGE 264 AND AMENDED FEBRUARY 28, 1974 IN VOLUME 406 OF OFFICIAL RECORDS AT PAGE 120. THESE PARCELS ARE NOT CURRENTLY UNDER A LAND CONSERVATION CONTRACT AND CANNOT ENTER INTO A NEW CONTRACT WITHOUT THE COMPLETION OF A GENERAL PLAN AMENDMENT AND ZONE CHANGE AS THE CURRENT ZONING AND GENERAL PLAN ARE NOT CONSISTENT WITH THE REQUIRED ZONING AND GENERAL PLAN FOR A LAND CONSERVATION CONTRACT.

ITEM 18 THE PROVISIONS OF AN INSTRUMENT ENTITLED NOTICE OF ACTION TO AMEND THE GENERAL PLAN LAND USE DESIGNATION OF TWO PARCELS TOTALING 149 + /- ACRES FROM TPZ TO R/P AND REZONE THE SITE FROM TPZ TO 112.0 + /- ACRES OF C-K, 25.3 + /- ACRES OF O AND1.7 + /- ACRES OF O-1 BY AND BETWEEN THE PARTIES NAMED BELOW, UPON THE TERMS, PROVISIONS AND CONDITIONS THEREIN PROVIDED. FIRST PARTY: COUNTY OF TUOLUMNE PLANNING DEPARTMENT SECOND PARTY: TIMOTHY AND CAROL MANLY RECORDED: AUGUST 23, 1991 IN VOLUME 1076 AT PAGE 232 OF OFFICIAL RECORDS.

ITEM 19 THE PROVISIONS OF AN INSTRUMENT ENTITLED NOTICE OF ACTION TO AMEND THE GENERAL PLAN LAND USE DESIGNATION OF TWO PARCELS TOTALING 149 + /- ACRES FROM TPZ TO R/P AND REZONE THE SITE FROM TPZ TO 112.0 + /- ACRES OF C-K, 25.3 + /- ACRES OF O AND 1.7 + /- ACRES OF O-1 BY AND BETWEEN THE PARTIES NAMED BELOW, UPON THE TERMS, PROVISIONS AND CONDITIONS THEREIN PROVIDED. FIRST PARTY: BOARD CLERK, COUNTY ADMINISTRATION CENTER SECOND PARTY: TIMOTHY AND CAROL MANLY RECORDED: AUGUST 29, 1991 IN BOOK 1076 AT PAGE 405 OF OFFICIAL RECORDS.

ITEM 20 THE PROVISIONS OF AN INSTRUMENT ENTITLED NOTICE OF ACTION TO AMEND THE GENERAL PLAN LAND USE DESIGNATION OF TWO PARCELS TOTALING 149 + /- ACRES FROM TPZ TO R/P AND REZONE THE SITE FROM TPZ TO 112.0 + /- ACRES OF C-K, 25.3 + /- ACRES OF O AND1.7 + /- ACRES OF O-1 BY AND BETWEEN THE PARTIES NAMED BELOW, UPON THE TERMS, PROVISIONS AND CONDITIONS THEREIN PROVIDED. FIRST PARTY: BOARD CLERK, COUNTY ADMINISTRATION CENTER SECOND PARTY: TIMOTHY AND CAROL MANLY RECORDED: OCTOBER 9, 1991 IN VOLUME 1083 AT PAGE 485 OF OFFICIAL RECORDS.

NOTES

1) - ALL BEARINGS AND DISTANCES SHOWN ARE MEASURED UNLESS OTHERWISE NOTED.
2) - ALL DISTANCES SHOWN ARE GROUND DISTANCES.
3) - PRELIMINARY TITLE REPORT FIDELITY NATIONAL TITLE COMPANY ORDER # FSST-TO18000789, AMENDMENT (b), DATED MARCH 15, 2018.
4) - SURVEY WAS COMPLETED ON MAY 15, 2018.
5) - THIS AREA IS IN ZONE D (AREAS IN WHICH FLOOD HAZARDS ARE UNDETERMINED, BUT POSSIBLE) PER FEMA FIRM MAP NUMBER 06109C1275C, EFFECTIVE DATE APRIL 16, 2009

SUBJECT PARCEL VESTING

CAROL L. MANLY, TRUSTEE OF THE MANLY SURVIVING SPOUSE TRUST, UNDER INSTRUMENT DATED APRIL 14, 2003
DOC. # 2006010230

LEGAL DESCRIPTIONS

PARCEL A

A PARCEL OF LAND IN THE STATE OF CALIFORNIA, COUNTY OF TUOLUMNE, LYING WITHIN A PORTION OF THE WEST 1/2 OF THE SOUTHEAST 1/4 OF SECTION 26, TOWNSHIP 1 SOUTH, RANGE 18 EAST, MOUNT DIABLO MERIDIAN, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF THE SOUTHEAST 1/4 OF SAID SECTION 26, MARKED BY A STANDARD U. S. F. S. MONUMENT AS SHOWN IN VOLUME 25 OF RECORD OF SURVEYS AT PAGE 81, ON FILE IN THE OFFICE OF THE TUOLUMNE COUNTY RECORDER,

THENCE; S 88° 57' 28" E ALONG THE NORTHERLY BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 26, A DISTANCE OF 1313.49 FEET TO THE NORTHEAST CORNER OF THE WEST 1/2 OF THE SOUTHEAST 1/4 OF SAID SECTION 26 MARKED BY A STANDARD U. S. F. S. MONUMENT AS SHOWN IN VOLUME 25 OF RECORD OF SURVEYS AT PAGE 81,
THENCE; S 03° 55' 49" E ALONG THE EASTERLY BOUNDARY OF THE WEST 1/2 OF THE SOUTHEAST 1/4, A DISTANCE OF 984.24 FEET TO THE NORTHERLY BOUNDARY OF STATE HIGHWAY 120,
THENCE; N 83° 19' 26" W ALONG THE NORTHERLY BOUNDARY OF HIGHWAY 120, A DISTANCE OF 1092.40 FEET TO A 3-INCH U. S. B. P. R. BRASS CAP,
THENCE; N 82° 03' 10" W ALONG THE NORTHERLY BOUNDARY OF HIGHWAY 120, A DISTANCE OF 292.70 FEET TO THE WESTERLY BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 26,
THENCE; N 00° 24' 01" W ALONG THE WESTERLY BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 26, A DISTANCE OF 838.37 FEET TO THE POINT OF BEGINNING,

THE ABOVE-DESCRIBED PARCEL A CONTAINS 28.08 ACRES MORE OR LESS.

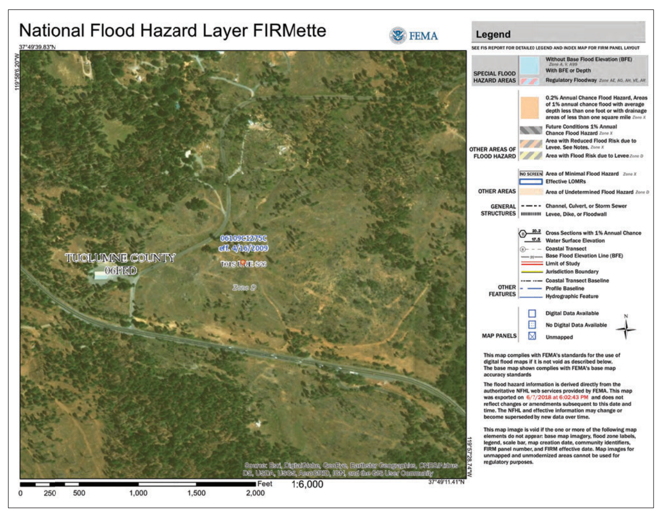
PARCEL B

A PARCEL OF LAND IN THE STATE OF CALIFORNIA, COUNTY OF TUOLUMNE, LYING WITHIN A PORTION OF THE EAST 1/2 OF THE SOUTHEAST 1/4 OF SECTION 26, TOWNSHIP 1 SOUTH, RANGE 18 EAST, MOUNT DIABLO MERIDIAN, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

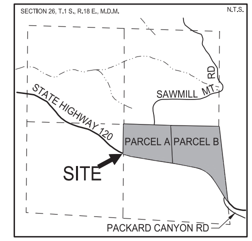
BEGINNING AT THE NORTHEAST CORNER OF THE SOUTHEAST 1/4 OF SAID SECTION 26, MARKED BY A STANDARD U. S. F. S. MONUMENT AS SHOWN IN VOLUME 25 OF RECORD OF SURVEYS AT PAGE 81, ON FILE IN THE OFFICE OF THE TUOLUMNE COUNTY RECORDER,

THENCE; S 07° 16' 59" E ALONG THE EASTERLY BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 26, A DISTANCE OF 1617.18 FEET TO THE NORTHEASTERLY BOUNDARY OF HIGHWAY 120,
THENCE; N 66° 23' 50" W ALONG THE NORTHEASTERLY BOUNDARY OF HIGHWAY 120, A DISTANCE OF 33.70 FEET,
THENCE; N 49° 53' 49" W ALONG THE NORTHERLY BOUNDARY OF HIGHWAY 120, A DISTANCE OF 798.58 FEET,
THENCE; N 80° 39' 03" W ALONG THE NORTHERLY BOUNDARY OF HIGHWAY 120, A DISTANCE OF 481.25 FEET,
THENCE; N 83° 19' 26" W ALONG THE NORTHERLY BOUNDARY OF HIGHWAY 120, A DISTANCE OF 337.42 FEET,
THENCE; N 03° 55' 49" W A DISTANCE OF 984.24 FEET TO THE NORTHERLY BOUNDARY OF THE EAST 1/2 OF THE SOUTHEAST 1/4 OF SAID SECTION 26,
THENCE; S 88° 59' 33" E ALONG THE NORTHERLY BOUNDARY OF THE EAST 1/2 OF THE SOUTHEAST 1/4 OF SAID SECTION 26, A DISTANCE OF 1314.35 FEET TO THE POINT OF BEGINNING,

THE ABOVE-DESCRIBED PARCEL B CONTAINS 35.96 ACRES MORE OR LESS.



VICINITY MAP



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LICENSED LAND SURVEYOR RICHARD HENRY JAMES No. 8550 STATE OF CALIFORNIA
PRELIMINARY FOR PLAN REVIEW ONLY

CONSULTANT:
Land & Structure
105 South Stewart Street
Sonora, CA 95370
P 209.532.5173
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www.landstruc.com

PROJECT NAME:
TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321

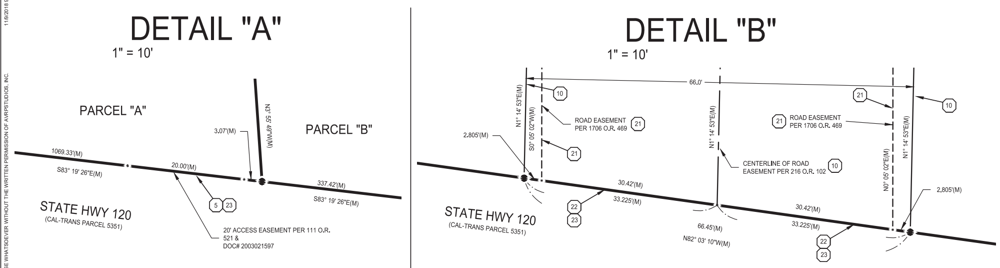
ISSUE DATES:

DESCRIPTION:	DATE:
PROGRESS SET	11.15.2018

PROJECT NO.	
AVRPSTUDIOS:	00000.00
AGENCY #:	00000.00
DRAWN BY:	RHJ
CHECKED BY:	RHJ

SHEET TITLE:
ALTA
NSPS LAND TITLE SURVEY
TITLE SHEET

SHEET NUMBER.:
V1



LEGEND

- FOUND 1/2" IRON PIPE TAGGED L.S. 8550 PER __ R/S __, OR AS NOTED.
- FOUND STANDARD U. S. F. S. MONUMENT PER 25 R/S 81, OR AS NOTED.
- FOUND 3" U. S. B. P. R. BRASS CAP, OR AS NOTED.
- FOUND 6" BY 6" CONCRETE MONUMENT.
- FOUND MONUMENT AS NOTED
- CALCULATED POINT , NOTHING FOUND OR SET.

(M) - MEASURED PER THIS SURVEY.

(R1) - RECORD PER 25 R/S 81.

(R2) - RECORD PER DOCUMENT NUMBER 2003021597

(5) - EXEMPTION NUMBER IN FIDELITY NATIONAL TITLE COMPANY TITLE REPORT NO. FSST-TO18000789, DATED MARCH 15, 2018

NOTES

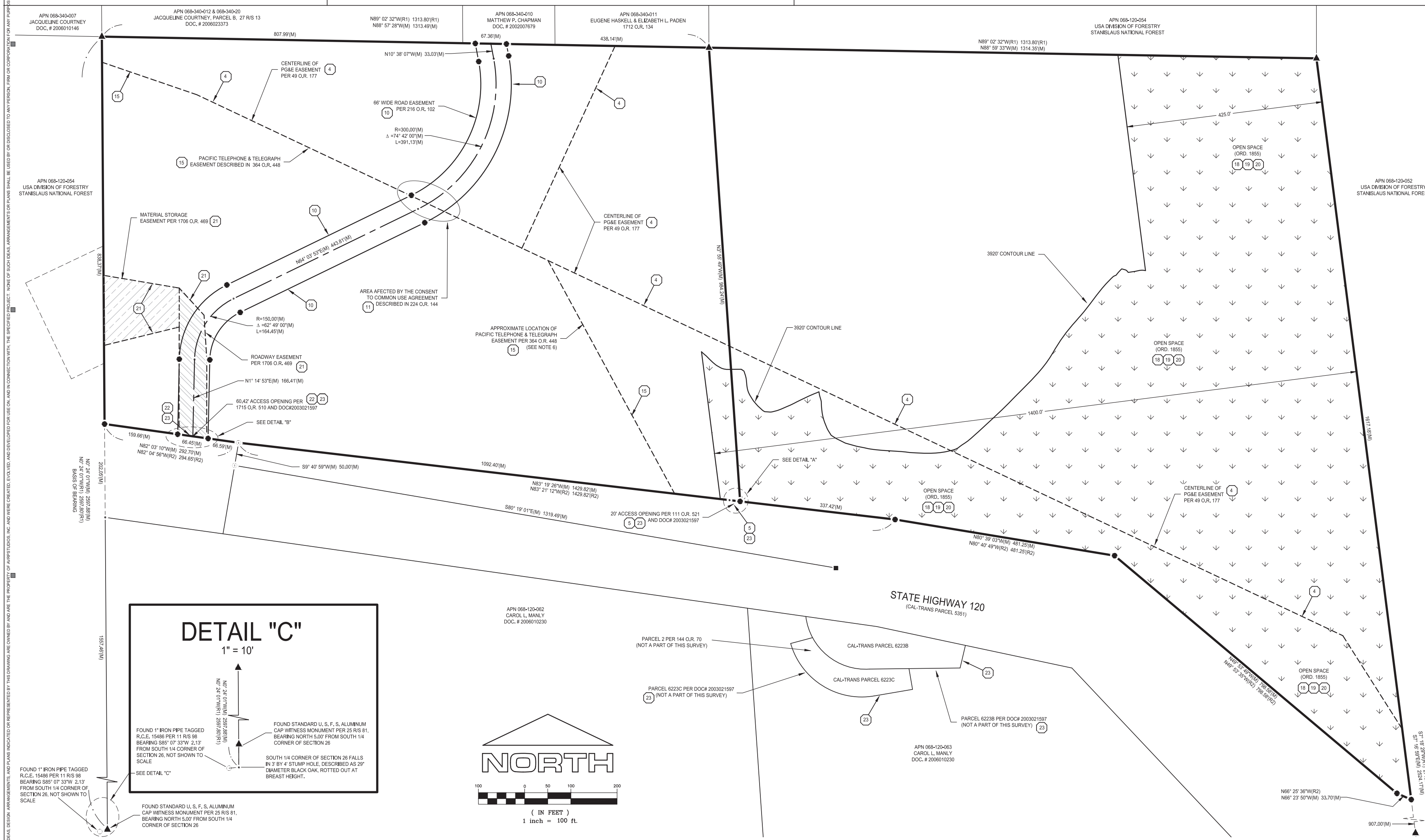
1) - ALL BEARINGS AND DISTANCES SHOWN ARE RECORD UNLESS OTHERWISE NOTED.
2) - ALL DISTANCES SHOWN ARE GROUND DISTANCES.
3) - PRELIMINARY TITLE REPORT FIDELITY NATIONAL TITLE COMPANY ORDER # FSST-TO18000789, DATED MARCH 15, 2018.
4) - SURVEY WAS COMPLETED ON MAY 15, 2018.
5) - THIS AREA IS IN ZONE D (AREAS IN WHICH FLOOD HAZARDS ARE UNDETERMINED, BUT POSSIBLE) PER FEMA FIRM MAP NUMBER 06109C1275C, EFFECTIVE DATE APRIL 16, 2009.
6) - THIS PORTION OF UTILITY IN UNDERGROUND AND COULD NOT BE LOCATED ON THE SURFACE. POT HOLING AND FIELD VERIFICATION IS REQUIRED PRIOR TO CONSTRUCTION.
7) - SEE SHEET 3 OF 3 FOR UTILITY LOCATIONS.

SUBJECT PARCEL VESTING

CAROL L. MANLY, TRUSTEE OF THE MANLY SURVIVING SPOUSE TRUST, UNDER INSTRUMENT DATED APRIL 14, 2003 DOC. # 2006010230

BASIS OF BEARINGS

AS MEASURED BETWEEN FOUND MONUMENTS AS INDICATED HEREON



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LICENSED LAND SURVEYOR RICHARD HENRY JAMES No. 8550 STATE OF CALIFORNIA

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CONSULTANT:
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P 209.532.5173
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PROJECT NAME:

TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION

Terra Vi Lodge Yosemite

Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
PROGRESS SET	11.15.2018

PROJECT NO.	
AVRPSTUDIOS:	00000.00
AGENCY #:	00000.00
DRAWN BY:	RHJ
CHECKED BY:	RHJ

SHEET TITLE:

ALTA NSPS LAND TITLE SURVEY BOUNDARY AND EASEMENT SURVEY

SHEET NUMBER.:

V2

LEGEND

- 5 FOOT CONTOUR
- APPROXIMATE 5 FOOT CONTOUR
- 5 FOOT CONTOUR DEPRESSION
- APPROXIMATE 5 FOOT CONTOUR DEPRESSION
- EDGE OF PAVEMENT
- DIRT ROAD / GRAVEL ROAD
- JEEP/FOOT TRAIL
- CURB LINE
- GUTTER (CONCRETE EDGE)
- EDGE OF CONCRETE
- FENCE
- INTERMITTENT DRAINAGE
- MISCELLANEOUS BOUNDARIES
- TREE LINE
- BRUSH
- DECIDUOUS TREE
- CONIFEROUS TREE
- POWER POLE
- POLE ANCHOR
- POST / POLE
- SIGN
- MISC. OBJECT
- UTILITY VAULT/BOX
- TEST PIT LOCATIONS, EVIDENCE OF RECENT DIRT MOVING
- PHOTO CONTROL (XYZ)
- BUILDING

NOTES

MAPPING OUTSIDE OF CONTROL PERIMETER MAY NOT MEET MAP ACCURACY STANDARDS.

DASHED LINES MAY NOT MEET MAP ACCURACY STANDARDS.

BUILDING OUTLINES INDICATE DRIP LINE AY ALSO INCLUDE STAIRS AND ATTACHMENTS.

FEATURES IN SHADOW AND VEGETATION AREAS OR NEAR TALL OBJECTS MAY BE OBSCURED DUE TO PHOTOGRAPHIC ANGLE.

SMALL SHADOW AND OBSCURED AREAS NOT SHOWN FOR CLARITY.

THIS MAP HAS BEEN PREPARED BY PHOTOGRAMMETRIC METHODS AND CONFORMS TO THE ASPRS STANDARDS OF 1990.

Prepared By:

SYNERGY MAPPING, INC.

6551 S. REVERE PKWY, SUITE 235 - CENTENNIAL, CO 80111
Phone:(303) 663-4483

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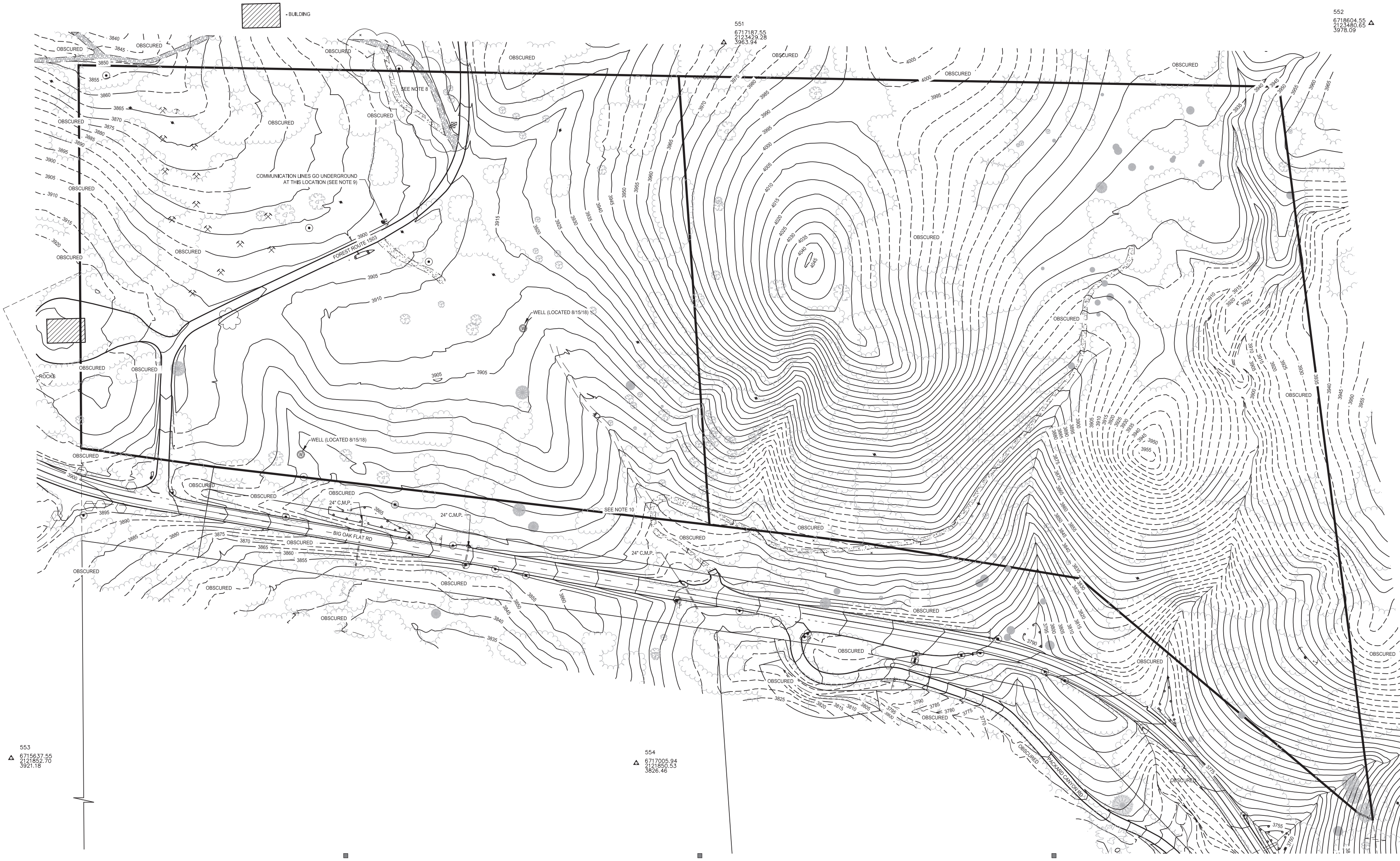
6) - THIS PORTION OF UTILITY IN UNDERGROUND AND COULD NOT BE LOCATED ON THE SURFACE. POT HOLING AND FIELD VERIFICATION IS REQUIRED PRIOR TO CONSTRUCTION.
7) - SEE SHEET 3 OF 3 FOR UTILITY LOCATIONS.
8) - A DIRT ROAD AND A GRAVEL ROAD ENCROACHMENT HAVE BEEN LOCATED, NO EASEMENTS ARE RECORDED FOR THESE.
9) - THE UNDERGROUND COMMUNICATION LINES APPEAR TO RUN NORTHERLY ALONG THE WEST EDGE OF THE EXISTING PAVED ROAD TO THE UTILITY PEDESTALS LOCATED AT THE FORK OF THE DIRT AND GRAVEL DRIVEWAYS. i WAS UNABLE TO FIND AND EASEMENT TO COVER SAID UNDERGROUND COMMUNICATION LINES.
10) - THE EXISTING DIRT ROAD IS CALLED OUT AS PARCEL 3 IN THE TITLE REPORT, HOWEVER THE EXISTING ROAD DOES NOT CROSS THE RIGHT-OF-WAY LINE AT THE POINT OF THE APPROVED 20 FOOT ACCESS OPENING.

NORTH

(IN FEET)
1 inch = 100 ft.



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Terra Vi Lodge

Yosemite

Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
PROGRESS SET	11.15.2018

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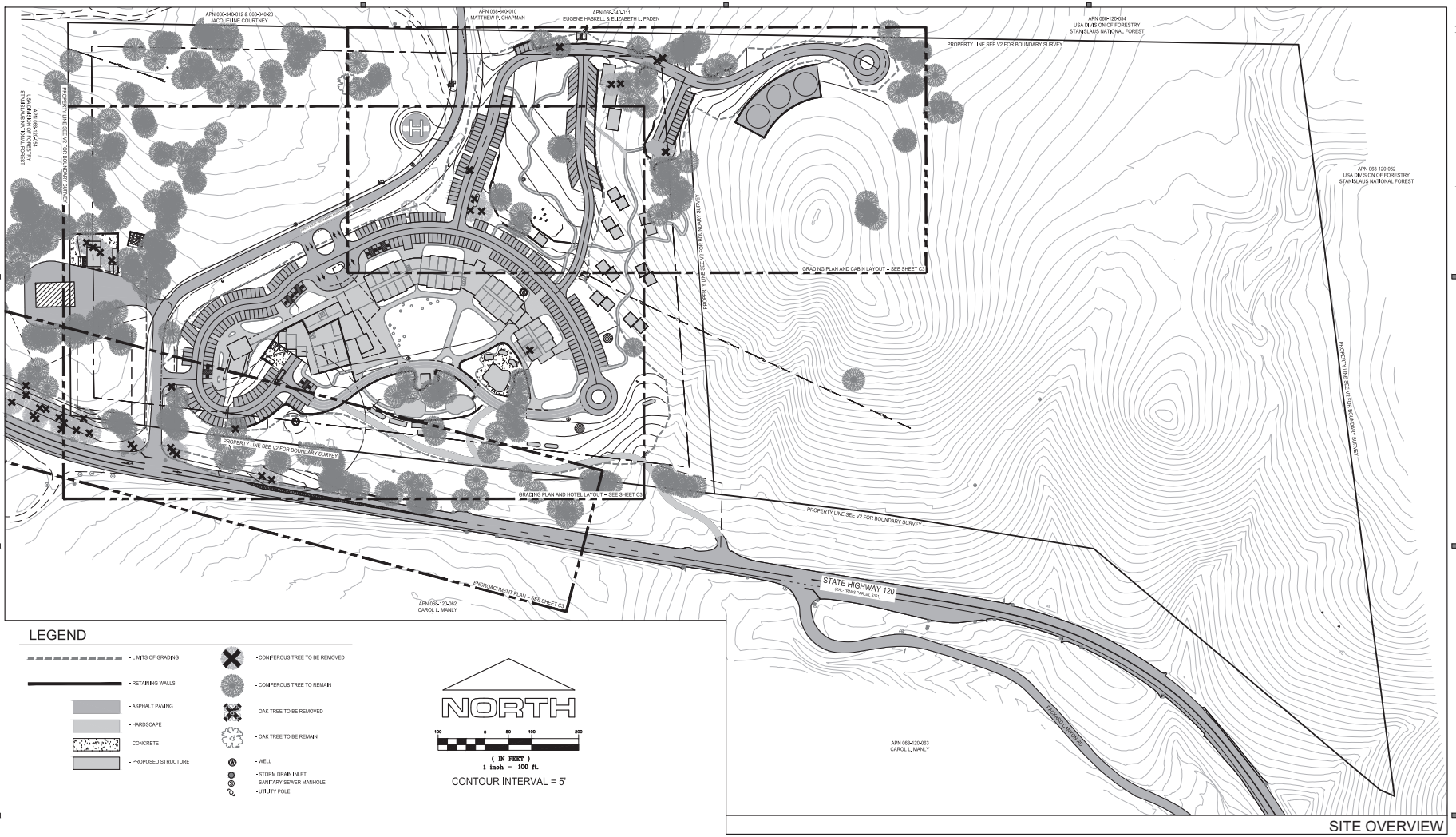
AGENCY #:	00000.00
DRAWN BY:	RHJ
CHECKED BY:	RHJ

SHEET TITLE:

ALTA
NSPS LAND TITLE SURVEY
TOPOGRAPHIC SURVEY

SHEET NUMBER.:

V3



LEGEND

- LIMITS OF GRADING
- RETAINING WALLS
- ASPHALT PAVING
- HARDSCAPE
- CONCRETE
- PROPOSED STRUCTURE
- CONIFEROUS TREE TO BE REMOVED
- CONIFEROUS TREE TO REMAIN
- OAK TREE TO BE REMOVED
- OAK TREE TO BE REMAIN
- WELL
- STORM DRAIN INLET
- SANITARY SEWER MANHOLE
- UTILITY POLE

NORTH

100 0 50 100 200

(IN FEET)
1 inch = 100 ft.

CONTOUR INTERVAL = 5'

SITE OVERVIEW

ABBREVIATIONS

AB	- AGGREGATE BASE	FS	- FINISHED SURFACE
AC	- ASPHALT CONCRETE	FT	- FOOT
BLDG	- BUILDING	INV	- INVERT ELEVATION
BM	- BENCH MARK	LF	- LINEAR FEET
BOL	- BOLLARD	MON	- MONUMENT
CL	- CENTERLINE	NTS	- NOT TO SCALE
CMP	- CORRUGATED METAL PIPE	PL	- PROPERTY LINE
CO	- CLEAN OUT	RCP	- REINFORCED CONCRETE PIPE
CONC	- CONCRETE	R/W	- RIGHT OF WAY
CY	- CUBIC YARD	SD	- STORM DRAIN
DI	- DROP INLET	SF	- SQUARE FEET
ELEV	- ELEVATION	SS	- SANITARY SEWER
E, EXIST	- EXISTING	TBM	- TEMPORARY BENCH MARK
FC	- FACE OF CURB	TOW	- TOP OF WALL
FF	- FINISHED FLOOR	TYP	- TYPICAL
FG	- FINISHED GRADE	UON	- UNLESS OTHERWISE NOTED
FH	- FIRE HYDRANT	WM	- WATER METER
FL	- FLOW LINE	WV	- WATER VALVE

SITE MASS GRADING

OF THE 64 ACRES +/- THAT MAKE UP THE SITE, THE AREA THAT WILL BE MASS GRADED FOR THE BUILDINGS, ROADS AND PARKING IS APPROXIMATELY 11.5 ACRES (±). THE AREA AFFECTED BY THE INSTALLATION OF THE PRIMARY SEPTIC SYSTEM IS AN ADDITIONAL 1.4 ACRES+/-.

THE MASS GRADING INVOLVES THE EXCAVATION OF APPROXIMATELY 35,000 CUBIC YARDS OF MATERIAL IN THE VICINITY OF THE HOTEL BUILDINGS IN ORDER TO PROVIDE A LEVEL PAD AREA AND THE PLACEMENT OF THIS MATERIAL IN LOW AREAS AT THE EAST END OF THE HOTEL, THE CABIN AREA, AND IN THE VICINITY OF THE MARKET. THE CUT AND FILL QUANTITIES ARE BALANCED ON THIS PROJECT, AVOIDING THE NEED FOR IMPORT OR EXPORT OF SOIL.

RETAINING WALLS HAVE BEEN PROPOSED THROUGHOUT THE SITE TO REDUCE THE IMPACT OF CUT AND FILL SLOPES, REDUCE TREE REMOVAL AND MINIMIZE THE GRADING FOOTPRINT OF THE PROJECT.

SITE STORM WATER MANAGEMENT

DUE TO THE TOPOGRAPHY OF THE SURROUNDING AREA, THERE IS VERY LITTLE STORM WATER THAT RUNS ON TO THIS SITE. THE AREAS OF THE SITE THAT DRAIN TOWARDS THE SOUTH CONVERGE AT A 24" CULVERT THAT PASSES UNDER THE HIGHWAY. WHILE THE INCREASE IN IMPERVIOUS SURFACES ON SITE WILL INCREASE STORM WATER RUNOFF, IT WILL BE THE INTENTION OF THE DRAINAGE DESIGN TO DETAIN STORM WATER ON SITE DURING STORM EVENTS AND METER THE OUTFLOW IN ORDER NOT TO EXCEED THE CAPACITY OF THE EXISTING CULVERT UNDER THE HIGHWAY.

ROOF DRAINAGE AND LANDSCAPE AREA DRAINS WILL DIRECT STORM WATER UNDERGROUND TO DETENTION AREAS. SHEET FLOW FROM ROADS AND PARKING AREAS WILL BE CAPTURED IN SURFACE DRAINAGE SWALES WHICH WILL ALSO BE DIRECTED TO DETENTION AREAS. DRAINAGE SWALES AND DETENTION AREAS WILL BE LANDSCAPED TO INCORPORATE THEM INTO THE BUILT ENVIRONMENT IN APPROPRIATE WAYS.

TREE REMOVAL

CARE HAS BEEN TAKEN IN THE DESIGN OF THIS SITE TO PRESERVE AS MANY AS POSSIBLE OF THE EXISTING MATURE TREES ON THE SITE. AS A RESULT OF THIS EFFORT THERE ARE ONLY 6 TREES IMPACTED ON THE HOTEL SITE, AND 4 TREES IMPACTED BY THE MAINTENANCE AREA. WITHIN THE CALTRANS RIGHT OF WAY, THERE ARE 29 TREES THAT WILL BE REMOVED TO ALLOW FOR THE ROAD SAFETY IMPROVEMENTS.

HELIPAD

THE PROPOSED LANDING ZONE FOR EMERGENCY RESPONSE HELICOPTERS HAS BEEN PROPOSED IN A LOCATION THAT IS EASILY ACCESSIBLE FROM BAMMEL MOUNTAIN RD AND HAS AN APPROACH AND DEPARTURE THAT IS CLEAR OF TREES, BUILDINGS AND OVERHEAD WIRES. THIS LOCATION WILL REQUIRE REVIEW AND APPROVAL BY CALTRANS WHO HAS JURISDICTION OVER THESE FACILITIES.

MAINTENANCE AREA PAD

THE MAINTENANCE AREA HAS BEEN LOCATED ADJACENT TO THE EXISTING CALTRANS SAND STORAGE BUILDING AND WILL UTILIZE THE EXISTING PAVED ACCESS THAT ON THE PROJECT PROPERTY WHICH IS IN A NON-EXCLUSIVE EASEMENT. UTILIZING THIS EXISTING ENCROACHMENT ON BAMMEL FLAT RD ALLOWS THE MAINTENANCE AREA TO BE REMOVED FROM THE GUEST AREA WHILE REDUCING GRADING AND ELIMINATING THE NEED FOR AN ADDITIONAL ROAD ENCROACHMENT.

PRELIMINARY QUANTITIES

RETAINING WALL	±4,000 LF
GRADING:	
CUT	35,000 CY
FILL	35,000 CY
HARDSCAPE (SURFACE TBD)	43,000 SF
CONCRETE (POOL, MAINT, TRASH)	18,000 SF
WALKING SURFACE	1,750 LF
ASPHALT DRIVING SURFACE	100,000 SF
ASPHALT PARKING SURFACE	47,000 SF
TOTAL DISTURBED AREA FOR HOTEL AND CABINS	±11.5 AC
STANDARD PARKING STALLS	245
ACCESSIBLE PARKING STALLS	12
RV PARKING STALLS	3
TOTAL	260

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PROJECT NAME:

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NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SUBMITTAL 1	11.16.2018
SUBMITTAL 2	05.01.2019
SUBMITTAL 3	10.07.2019

PROJECT NO.
AVRPSTUDIOS: 00000.00
AGENCY #: 00000.00
DRAWN BY: ZG
CHECKED BY: XX

SHEET TITLE:
GRADING AND DRAINAGE PLAN

SHEET NUMBER:
C1

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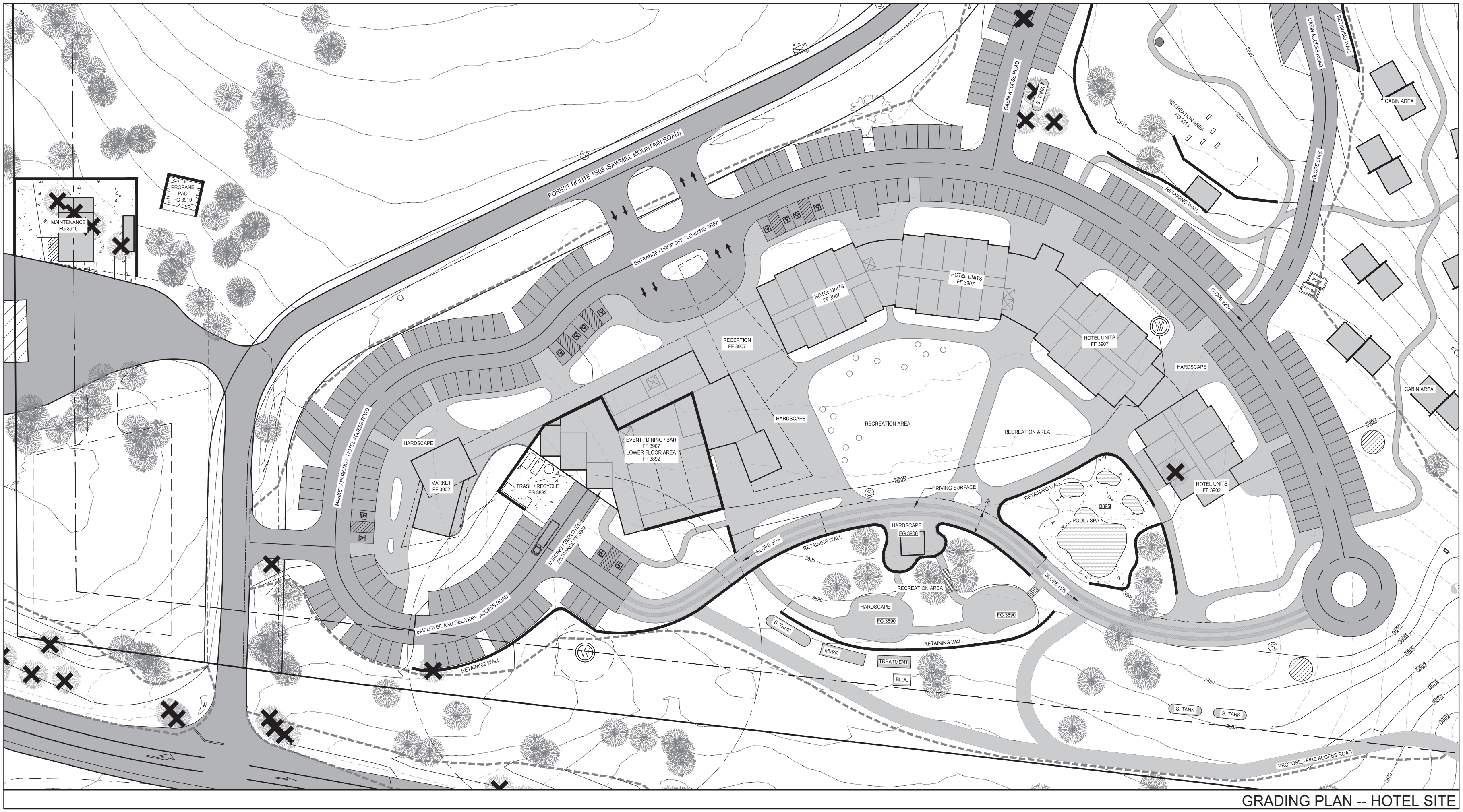

GRADING PLAN -- HOTEL SITE

LEGEND

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- RETAINING WALLS
- ASPHALT PAVING
- HARDSCAPE
- CONCRETE
- PROPOSED STRUCTURE
- CONIFEROUS TREE TO BE REMOVED
- CONIFEROUS TREE TO REMAIN
- OAK TREE TO BE REMOVED
- OAK TREE TO BE REMAIN
- WELL
- STORM DRAIN INLET
- SANITARY SEWER MANHOLE
- UTILITY POLE

ABBREVIATIONS

AB	- AGGREGATE BASE	FS	- FINISHED SURFACE
AC	- ASPHALT CONCRETE	FT	- FOOT
BLDG	- BUILDING	INV	- INVERT ELEVATION
BM	- BENCH MARK	LF	- LINEAR FEET
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FG	- FINISHED GRADE	UON	- UNLESS OTHERWISE NOTED
FH	- FIRE HYDRANT	WM	- WATER METER
FL	- FLOW LINE	WV	- WATER VALVE

NORTH

40 0 20 40 80

(IN FEET)
1 inch = 40 ft.

CONTOUR INTERVAL = 5'

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PROJECT NAME:
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NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

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AVRPSTUDIOS: 00000.00
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SHEET NUMBER.:
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GRADING PLAN -- CABINS

LEGEND

- LIMITS OF GRADING
- RETAINING WALLS
- ASPHALT PAVING
- HARDSCAPE
- CONCRETE
- PROPOSED STRUCTURE
- CONIFEROUS TREE TO BE REMOVED
- CONIFEROUS TREE TO REMAIN
- OAK TREE TO BE REMOVED
- OAK TREE TO BE REMAIN
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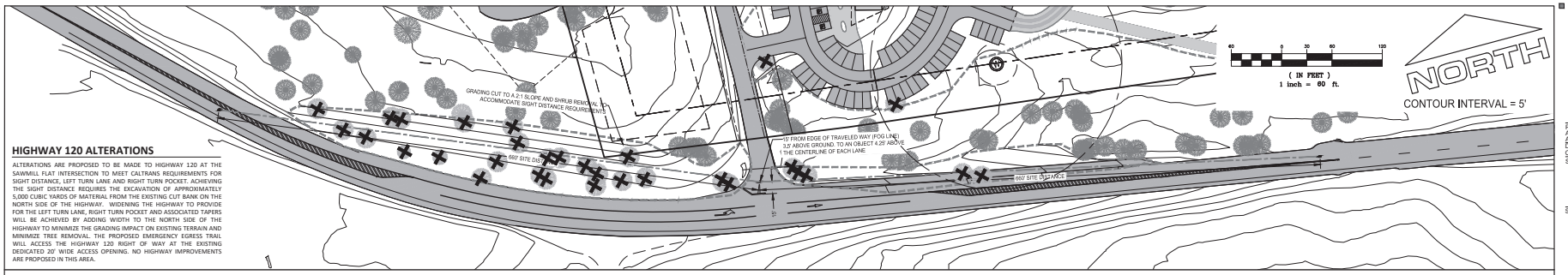

HIGHWAY 120 ALTERATIONS

ALTERATIONS ARE PROPOSED TO BE MADE TO HIGHWAY 120 AT THE SAWMILL FLAT INTERSECTION TO MEET CALTRANS REQUIREMENTS FOR SIGHT DISTANCE, LEFT TURN LANE AND RIGHT TURN POCKET. ACHIEVING THE SIGHT DISTANCE REQUIRES THE EXCAVATION OF APPROXIMATELY 5,000 CUBIC YARDS OF MATERIAL FROM THE EXISTING CUT BANK ON THE NORTH SIDE OF THE HIGHWAY. WIDENING THE HIGHWAY TO PROVIDE FOR THE LEFT TURN LANE, RIGHT TURN POCKET AND ASSOCIATED TAPERS WILL BE ACHIEVED BY ADDING WIDTH TO THE NORTH SIDE OF THE HIGHWAY TO MINIMIZE THE GRADING IMPACT ON EXISTING TERRAIN AND MINIMIZE TREE REMOVAL. THE PROPOSED EMERGENCY EGRESS TRAIL WILL ACCESS THE HIGHWAY 120 RIGHT OF WAY AT THE EXISTING DEDICATED 20' WIDE ACCESS OPENING. NO HIGHWAY IMPROVEMENTS ARE PROPOSED IN THIS AREA.

GRADING PLAN -- HIGHWAY ENCROACHMENT

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SHEET NUMBER:

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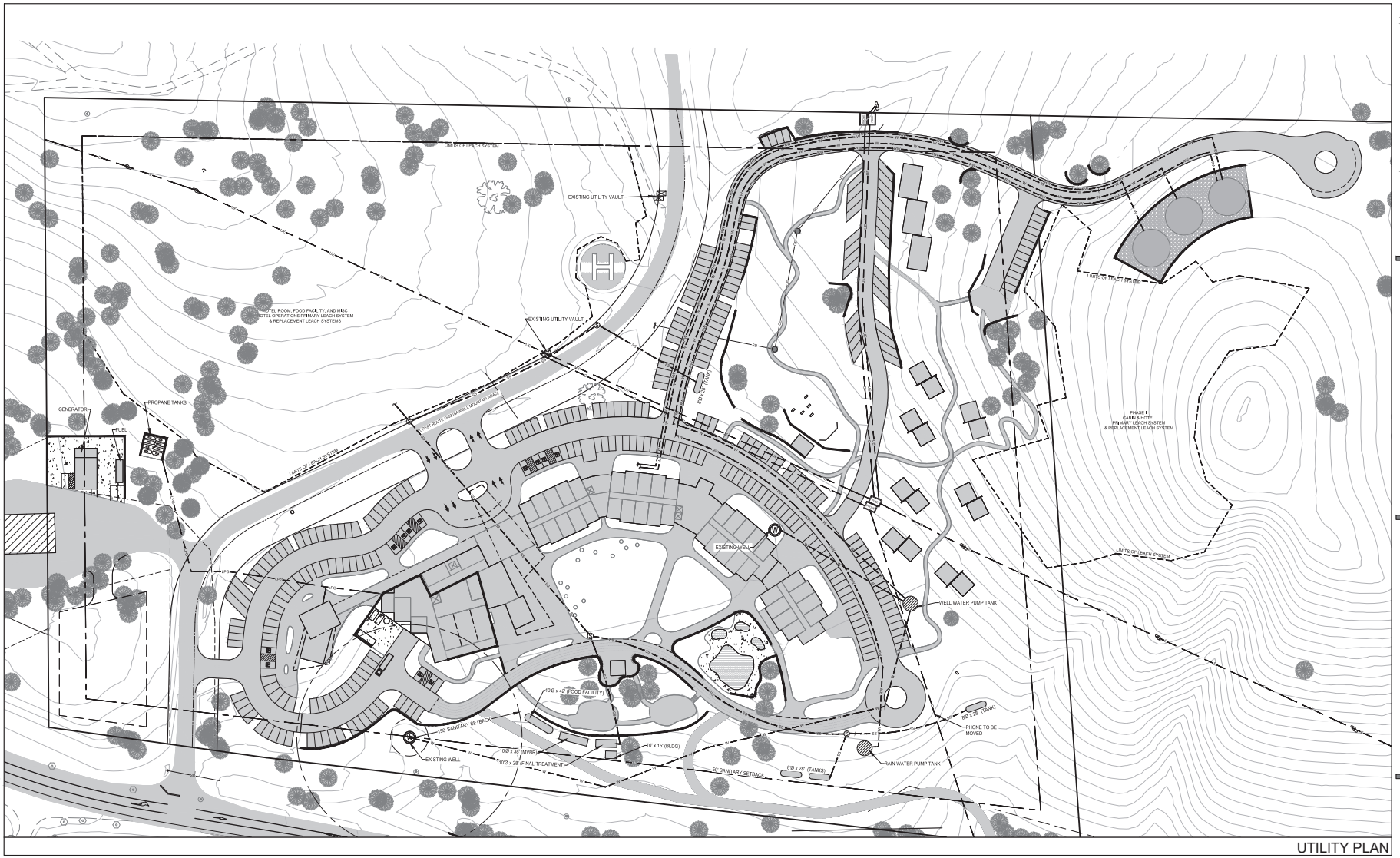

UTILITY PLAN

LEGEND

- STORM DRAIN CULVERT
- POTABLE WATER LINE
- RAIN WATER LINE
- SANITARY SEWER LINE
- PROPANE GAS LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- COMMUNICATION LINES
- STORM DRAIN INLET
- SANITARY SEWER MANHOLE
- UTILITY POLE
- WELL

NORTH

60 0 30 60 120

(IN FEET)
1 inch = 60 ft.

CONTOUR INTERVAL = 5'

SITE UTILITIES

POTABLE WATER WILL BE PROVIDED BY WATER FROM 2 ON SITE WELLS THAT WILL BE TREATED AND STORED IN APPROPRIATELY SIZED TANKS NEAR THE TOP OF THE KNOLL, APPROXIMATELY 80' ABOVE THE HOTEL, PROVIDING GRAVITY FLOW. THE WATER SYSTEM WILL BE REGISTERED WITH THE STATE OF CALIFORNIA AND WILL BE MANAGED AS A PUBLIC WATER SYSTEM.

FIRE FLOW FOR THE BUILDINGS WILL BE PROVIDED BY THE POTABLE WATER STORAGE TANKS. THE QUANTITY OF WATER STORAGE AND PRESSURE OF WATER SUPPLY WILL BE DESIGNED IN ACCORDANCE WITH TUOLUMNE COUNTY REQUIREMENTS.

WATER CONVEYANCE PIPES WILL BE ROUTED UNDER PROPOSED ROADS TO MINIMIZE IMPACTS TO NATIVE GROUND.

WASTE WATER WILL BE SEPARATED INTO BLACK WATER AND GRAY WATER AND TREATED ON SITE. THE BLACK WATER WILL BE DISPOSED OF THROUGH AN APPROVED LEACH FIELD SYSTEM. THE GRAY WATER IS PROPOSED TO BE TREATED, STORED AND RE-USED FOR ON SITE LANDSCAPE IRRIGATION. SURPLUS GRAY WATER WOULD BE DISPOSED OF IN THE LEACH FIELD SYSTEM.

ELECTRICITY WILL BE PROVIDED BY PG&E AND AUGMENTED BY PHOTOVOLTAIC SYSTEMS LOCATED ON THE ROOF OF THE HOTEL. THE EXISTING POWER LINES THAT RUN THROUGH THE AREA OF DEVELOPMENT WOULD BE REROUTED AND PLACED UNDERGROUND. TRANSFORMERS WOULD BE LOCATED AT APPROPRIATE PLACES BASED ON FUTURE PG&E DESIGN REQUIREMENTS.

PHONE AND DATA SERVICE WOULD ALSO BE INSTALLED UNDERGROUND WITHIN THE AREA OF IMPROVEMENT.

PROPANE TANKS WOULD BE INSTALLED IN THE VICINITY OF THE WORKSHOP AND CALTRANS SAND STORAGE BUILDING. THIS LOCATION IS OUT OF SIGHT AND A SAFE DISTANCE FROM ANY BUILDINGS AND PROPERTY LINES. THE STORAGE VOLUMES WOULD BE BASED ON DEMAND AND REFUELING FREQUENCIES BUT IS ESTIMATED TO INCLUDE MULTIPLE TANKS IN AN AREA OF APPROXIMATELY 30' X 30'. PROPANE WOULD BE PIPED UNDERGROUND TO THE VARIOUS BUILDINGS ON SITE.

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PROJECT NAME:

TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SUBMITTAL 1	11.16.2018
SUBMITTAL 2	05.01.2019
SUBMITTAL 3	10.07.2019

PROJECT NO.	
AVRPSTUDIOS:	00000.00
AGENCY #:	00000.00
DRAWN BY:	ZS
CHECKED BY:	XX
SHEET TITLE:	

SHEET NUMBER:

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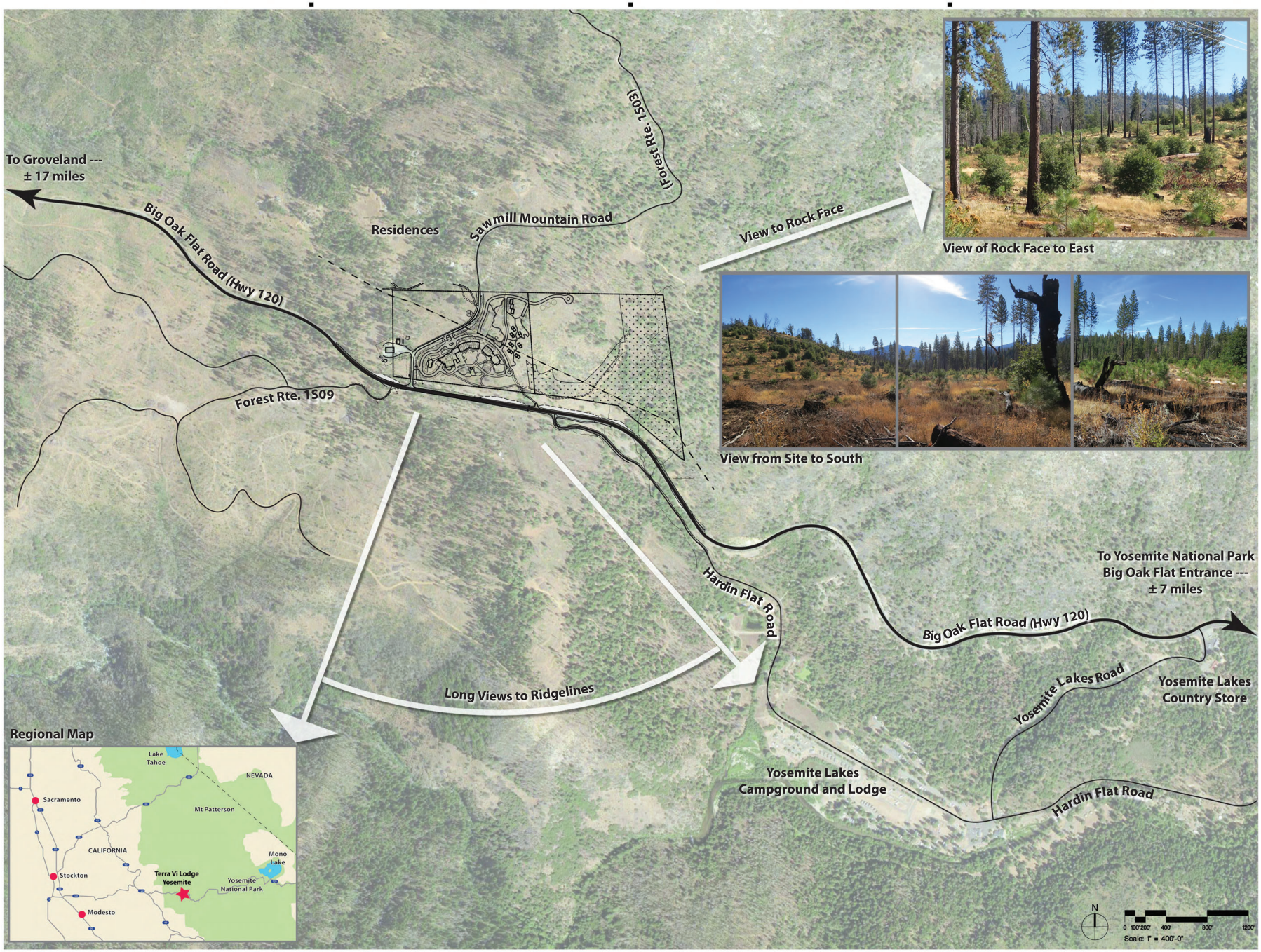

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SMITH+SMITH

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San Francisco, CA 94123
www.smith2.com

LANDSCAPE ARCHITECTS

PROJECT NAME:
TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SITE DEV'T PERMIT	11.19.2018
SITE DEV'T PERMIT	05.03.2019
SDP	07.05.2019
SDP	10.04.2019

PROJECT NO.
AVRPSTUDIOS: 00000.00
AGENCY #: 00000.00
DRAWN BY: XX
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SHEET TITLE:
Property Context Plan

SHEET NUMBER:
L1

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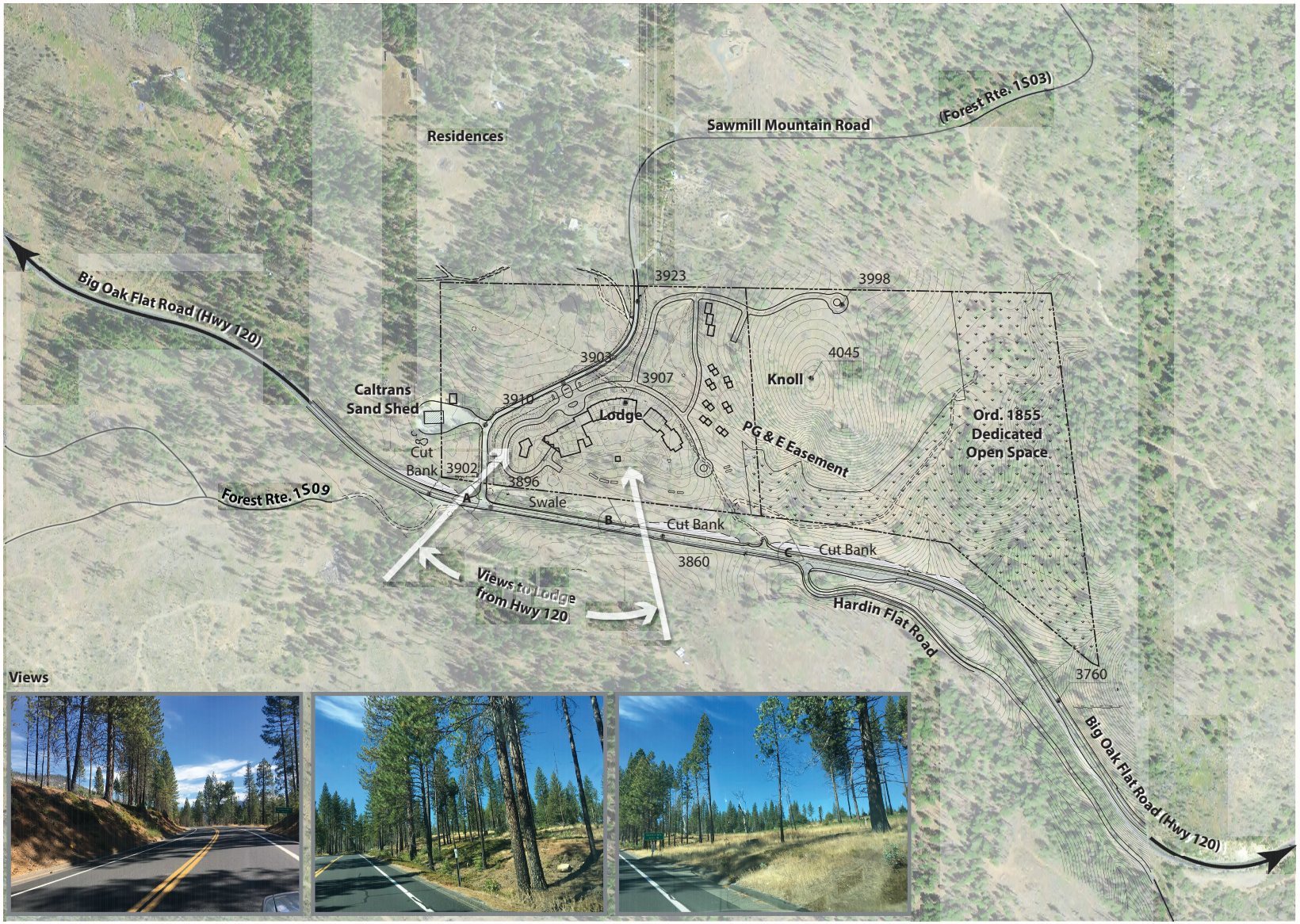

A. View east on Highway 120 approaching Sawmill Mountain Road

B. View west on Highway 120 approaching Sawmill Mountain Road

C. View west on Highway 120 approaching Lodge Site

N

0 50' 100' 200' 400' 600'

Scale: 1" = 200'-0"

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PROJECT NAME:
TERRA VI
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Yosemite, CA 95321

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PROJECT NO.	
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Site Context Plan

SHEET NUMBER.:
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Tree Inventory:
(by SMITH+SMITH)

Notes:
Tree locations as provided by from Land & Structure
10/31/2018.
X Tree to be removed

Off-Site

Notes: Tree removal in Right-of-Way to be determined per final road design.

Tree #	Species	To be removed
100	Pinus ponderosa	
101	Pinus ponderosa	
102	Pinus ponderosa	
103	Pinus ponderosa	
104	Pinus ponderosa	
105	Pinus ponderosa	
121	Pinus ponderosa	Yes
122	Pinus ponderosa	Yes
123	Pinus ponderosa	Yes
124	Pinus ponderosa	Yes
125	Pinus ponderosa	
126	Pinus ponderosa	
127	Pinus ponderosa	Yes
128	Pinus ponderosa	
129	Pinus ponderosa	
130	Pinus ponderosa	Yes
131	Pinus ponderosa	
132	Pinus ponderosa	
133	Pinus ponderosa	
134	Pinus ponderosa	
135	Pinus ponderosa	
140	Pinus ponderosa	
141	Pinus ponderosa	
142	Pinus ponderosa	
143	Pinus ponderosa	
144	Pinus ponderosa	
145	Pinus ponderosa	
146	Pinus ponderosa	
147	Pinus ponderosa	

Lodge

Tree #	Species	To be removed
146	Pinus ponderosa	
200	Pinus ponderosa	
201	Pinus ponderosa	
202	Pinus ponderosa	
203	Pinus ponderosa	
204	Pinus ponderosa	
205	Pinus ponderosa	
206	Pinus ponderosa	
207	Pinus ponderosa	
208	Pinus ponderosa	
209	Pinus ponderosa	
210	Pinus ponderosa	
211	Pinus ponderosa	
212	Pinus ponderosa	
213	Pinus ponderosa	
214	Pinus ponderosa	
215	Pinus ponderosa	
216	Pinus ponderosa	
217	Pinus ponderosa	
218	Pinus ponderosa	
219	Pinus ponderosa	
220	Pinus ponderosa	
221	Pinus ponderosa	
222	Pinus ponderosa	
223	Pinus ponderosa	
224	Pinus ponderosa	Yes
225	Pinus ponderosa	
226	Pinus ponderosa	
227	Pinus ponderosa	
228	Pinus ponderosa	
229	Pinus ponderosa	
230	Pinus ponderosa	
231	Pinus ponderosa	
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234	Pinus ponderosa	
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244	Pinus ponderosa	
245	Pinus ponderosa	
246	Pinus ponderosa	
247	Pinus ponderosa	
248	Pinus ponderosa	
249	Pinus ponderosa	
250	Pinus ponderosa	Yes
251	Pinus ponderosa	Yes
252	Quercus kelloggii	
320	Pinus ponderosa	
500	Pinus ponderosa	
501	Pinus ponderosa	
502	Pinus ponderosa	
503	Pinus ponderosa	
504	Pinus ponderosa	
505	Pinus ponderosa	

Cabins

Tree #	Species	To be removed
254	Pinus ponderosa	
255	Pinus ponderosa	
256	Pinus ponderosa	
258	Pinus ponderosa	
259	Pinus ponderosa	
260	Pinus ponderosa	
261	Quercus kelloggii	
263	Pinus ponderosa	
264	Pinus ponderosa	
265	Pinus ponderosa	
267	Pinus ponderosa	
268	Pinus ponderosa	
269	Pinus ponderosa	
270	Pinus ponderosa	
271	Pinus ponderosa	
272	Pinus ponderosa	Yes
273	Pinus ponderosa	
274	Pinus ponderosa	
275	Pinus ponderosa	
276	Pinus ponderosa	
277	Pinus ponderosa	
278	Pinus ponderosa	
279	Pinus ponderosa	
280	Pinus ponderosa	
281	Pinus ponderosa	
282	Pinus ponderosa	
283	Pinus ponderosa	
284	Pinus ponderosa	
285	Pinus ponderosa	Yes
286	Pinus ponderosa	Yes
287	Pinus ponderosa	
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291	Pinus ponderosa	Yes
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426	Pinus ponderosa	
428	Pinus ponderosa	
429	Pinus ponderosa	
430	Pinus ponderosa	
431	Pinus ponderosa	
432	Pinus ponderosa	
433	Pinus ponderosa	
434	Pinus ponderosa	
435	Pinus ponderosa	
436	Pinus ponderosa	

Leach

Notes:
Tree removal in Leach Field to be determined per Final Leach Field layout.

Tree #	Species
510	Pinus ponderosa
511	Pinus ponderosa
512	Pinus ponderosa
513	Pinus ponderosa
514	Pinus ponderosa
515	Pinus ponderosa
516	Pinus ponderosa
517	Pinus ponderosa
518	Pinus ponderosa
519	Pinus ponderosa
520	Pinus ponderosa
521	Pinus ponderosa
522	Pinus ponderosa
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531	Pinus ponderosa
532	Pinus ponderosa
533	Pinus ponderosa
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538	Pinus ponderosa
539	Pinus ponderosa
540	Pinus ponderosa
541	Pinus ponderosa
542	Pinus ponderosa
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546	Pinus ponderosa
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576	Pinus ponderosa
576	Pinus ponderosa
577	Pinus ponderosa
578	Pinus ponderosa
579	Pinus ponderosa
580	Pinus ponderosa
581	Pinus ponderosa
582	Pinus ponderosa

N

0 25' 50' 100' 200' 300'
Scale: 1" = 100'-0"

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LANDSCAPE ARCHITECTS

PROJECT NAME:
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Yosemite, CA 95321

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SITE DEV'T PERMIT	11.19.2018
SITE DEV'T PERMIT	05.03.2019
SDP	07.05.2019
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PROJECT NO.
AVRPSTUDIOS: 00000.00
AGENCY #: 00000.00
DRAWN BY: XX
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SHEET TITLE:
Existing Conditions and Tree Disposition Plan

SHEET NUMBER:
L3

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Open Space Legend

- Highway 120 Corridor (Off-site)
- Sawmill Mountain Road Corridor
- Caltrans
- Site Perimeter Screen / Buffers
- Lodge and Market
- Cabins
- Leach Field
- Managed Forest Open Space
- Ord. 1855 Dedicated Open Space

Reforestation Plant List

Existing Mixed-Conifer Forest
- Pinus ponderosa (Ponderosa Pine)
- Quercus kelloggii (California Black Oak)

Proposed Reforestation
- Abies concolor (White Fir)
- Pinus ponderosa (Ponderosa Pine)
- Quercus kelloggii (California Black Oak)
- Sequoiadendron giganteum (Giant Sequoia)

Pine Grove

Mixed-Conifor Forest to North

The Knoll

Site and Landscape Narrative

Terra Vi Lodge Yosemite

Landscape Narrative

A gateway to Yosemite National Park, Terra Vi Lodge Yosemite is a mountain retreat celebrating the dramatic views, scenic beauty and exceptional recreation opportunities of the Sierra Nevada. The Terra Vi Lodge Yosemite landscape contributes to the reestablishment of the Sierra Nevada mixed-conifer forest which creates an evergreen setting for the Lodge landscape and the visitor experience.

The landscape celebrates connections to nature, fosters stewardship of the natural environment and takes advantage of copious opportunities for outdoor recreation. Repeat visitors observe the long-term evolution of a managed native mixed-conifer forest landscape through time. The landscape offers discovery, adventure, education and outdoor recreation. It is a destination within a greater forest setting.

The Lodge is a forest setting for events and activities with direct access to nature, outdoor interpretive programs and recreation facilities including an event pavilion, hiking trails, interpretive nature walks, stargazing and other daytime and nighttime, family-oriented, communal or individual activities and opportunities.

Sustainability/Environmental Stewardship

Terra Vi Lodge Yosemite is a steward of the natural forest environment which serves as its setting. Visitors are directly connected to nature. Lodge environments and activities emphasize and celebrate the natural forest setting. Repeat visitors will observe the long-term recovery of a Sierra mixed-conifer forest from a devastating wildfire over time. Programmed landscape elements and activities such as nature walks and interpretive native gardens provide educational opportunities within nature with minimal, restorative impacts to the forest. More than half of the 60-acre site remains as natural undeveloped forest open space contributing to reforestation and providing habitat and protection for wildlife.

Water Conservation – The Lodge landscape is a low water-use landscape. Planted areas are irrigated with a high efficiency irrigation system in compliance with state and county water-efficient landscape regulations. The source for irrigation water is stormwater and gray water captured and stored on site for that purpose. The plant palette consists of native, water-conserving plant selections.

Regulatory Context

The project is in the jurisdiction of Tuolumne County and abuts the California Highway 120 right-of-way. Caltrans maintains a non-exclusive access easement across a portion of the site to service a materials storage facility. A second 66' wide easement accommodates Forest Service Route 1503 (Sawmill Mountain Road). The easement has a building setback of 35' from the center of the road (but not inside the easement). Sawmill Mountain Road is used for access by residents of several single-family homes to the north of the site. The property is not specifically encumbered by zoned building setbacks, but the County Fire Marshal requires a building setback of approximately 50' for wildland fire protection.

Codes, regulations and guidelines governing the project's landscape design include:

- Tuolumne County Landscape Guidelines
- Tuolumne County Hillside and Hilltop Development Guidelines
- Tuolumne County Guidelines for Seeding, Groundcovers and Shrubs
- Tuolumne County Plant Selection Guide
- Tuolumne County Ordinance Code – Chapter 15.20: Fire Safety Standards
- Tuolumne County Ordinance Code – Chapter 15.28: Landscaping Guidelines

Landscape Context

The Terra Vi Lodge Yosemite site is within a mixed-conifer forest dominated by ponderosa pines, white firs and black oaks. The site was heavily impacted by the 2013 Rim Fire which destroyed most of the site's mature trees with a few surviving pine groves remaining within an open mountain meadow. Much of the site, including Lodge and market development envelop in the western portion, is an exposed, sunny landscape with very little natural shade. Mixed-conifer forest persists on the slopes of the eastern half of the site.

Terra Vi Lodge Yosemite is in Sunset climate zone 1A characterized by a brief growing season (June into September), mild summers and freezing low temperatures for much of the year. The high-altitude landscape (approximately 4,000') experiences dramatic seasonal changes throughout the year.

Landscape Elements and Materials

Landscape elements are of natural materials native to the site or the region and are sympathetic to the site's existing native aesthetic. Fences are low, open split-rail or wood post-and-rail type and are used to direct visitors, announce arrival, separate site functions and delineate open space areas. Low seat walls or retaining walls, where necessary are of natural stone. Walls help organize open space and provide seating opportunities. Boulders, logs and charred tree trunks salvaged from the site are used to contribute to the natural forest landscape setting.

Landscape Open Space Framework

The 60-acre site consists of two major organizing landscape open space zones – the managed, natural forest and the Lodge area landscape.

I. ***The Forest*** – The forest is a natural environment setting the forest backdrop for the Lodge. Plantings are native to the region, and the area will ultimately return to a natural mixed-conifer forest with occasional open meadows. The project contributes to reforestation preserving augmenting wildlife habitat. New planted Ponderosa pines (*Pinus ponderosa*), white firs (*Abies concolor*) and giant sequoias (*Sequoiadendron giganteum*) are a mix of container plants and plugs. New plantings in the forest use temporary irrigation during a plant establishment period. The following eight site areas contribute to the forest area:

   a. ***Highway 120 Roadway Corridor (off-site)*** – The natural forest landscape at the Highway 120 frontage contributes to the mixed-conifer reforestation and helps to screen the lodge from view from the public realm. No off-site landscape improvements are proposed.

   b. ***Sawmill Mountain Road Roadway Corridor*** – The landscape along the Sawmill Mountain Road corridor (within a recorded access easement) reinforces the forest setting and provides visual screening of the Lodge. New plantings in the zone will be conventionally irrigated as part of the Lodge landscape.

   c. ***Caltrans Facility*** – An existing Caltrans material storage facility and access easement straddling the property's western boundary remains. New evergreen tree plantings screen the facility from view from the Lodge and contribute to the restoration of the forest.

   d. ***Site Perimeters/Buffers*** – A landscape buffer zone at the site's north and west boundaries augment the existing Ponderosa pine groves with new pine plantings to serve as a visual vegetative forest screen. New tree plantings in containers or plugs require temporary irrigation for establishment.

   e. ***Cabins*** – Visitor cabins dot the slopes to the northeast of the lodge. The Cabins area is planted with sequoias and bigleaf maples (*Acer macrophyllum*) which are nestled into the natural, mixed-conifer forest landscape.

   f. ***Leach Field*** – The proposed development includes a dedicated leach field to the north of Sawmill Mountain Road. New plantings of native forest grasses and forbs cover the leach field creating a forest meadow. A temporary irrigation system supports the new landscape during an establishment period.

   g. ***Open Space/Forest Management Area*** – The sloping open space to the east of the lodge includes a scenic knoll and remains largely natural and undeveloped. The areas are managed allowing some areas to return to the mixed-conifer forest and other areas to remain open forest meadows. The area is contiguous with the dedicated open space and contributes to the reforestation of the site. The area includes nature trails and an overlook at the knoll offering panoramic mountain views.

   h. ***Ordinance 1855 Dedicated Open Space*** – A 21-acre County-mandated permanent dedicated open space reinforces the Sierra mixed-conifer forest landscape, provides opportunities for recreation and preserves native forest and habitat. Nature trails traverse the open space. No other improvements are proposed for the area.

II. ***Lodge and Market*** – Set within the greater forest context, the Lodge and market landscape is a cohesive, comfortable outdoor environment for visitors. Plantings include occasional native conifers and black oaks (*Quercus kelloggii*) with ornamental native small trees, shrubs, groundcovers and grasses. The Lodge amenity area includes a central, flexible event lawn. The Lodge landscape is organized by the following landscape sub-areas:

   a. ***Road Corridor*** – The landscape along Sawmill Mountain Road carries visitor through Aspen groves and into the Lodge landscape. A drainage along the south side of the roadway mimics a mountain stream. Stormwater is collected and stored for utility and irrigation uses.

   b. ***Parking Lots*** – The parking areas are woven into the natural mixed-conifer forest setting within groves of sequoias and black oak.

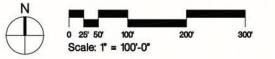
   c. ***Drop-Off, Lobbies and Walkways*** – The drop-off area, lodge lobbies and exterior walkways feature seasonal interest announce arrival with ornamental flowering native forest trees and shrubs.

   d. ***Lodge Perimeters*** – The mixed-conifer landscape with native black oaks extends to the lodge perimeters areas further reinforcing its forest setting.

   e. ***Amenity Areas*** – Native mixed-conifer forest plantings and ornamental flowering trees and shrubs provide the setting for the lodge's primary outdoor use areas including patios, barbecue areas, pool and spa areas, fitness areas and informal gathering and social areas. Lawn in key amenity locations provide flexible use areas for programmed seasonal events, active and passive recreation, and informal gathering.

   f. ***Recreational Open Space Areas*** – Recreation amenities including interpretive native gardens, nature walks, culinary gardens, a greenhouse and outdoor activities are set into the mixed-conifer forest landscape distributed throughout the site.

   g. ***Perimeter Transitional Areas*** – Mixed-conifer forest plantings in a mix of plugs and container plants provide transitional landscape areas from the lodge landscape to the surrounding natural forest and provide visual screening.



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PROJECT NO.
AVRPSTUDIOS: 00000.00
AGENCY #: 00000.00
DRAWN BY: XX
CHECKED BY: XX
SHEET TITLE:
Open Space, Forest Management and Water-Use Plan

SHEET NUMBER:
L4

11/30/2018 8:37 AM
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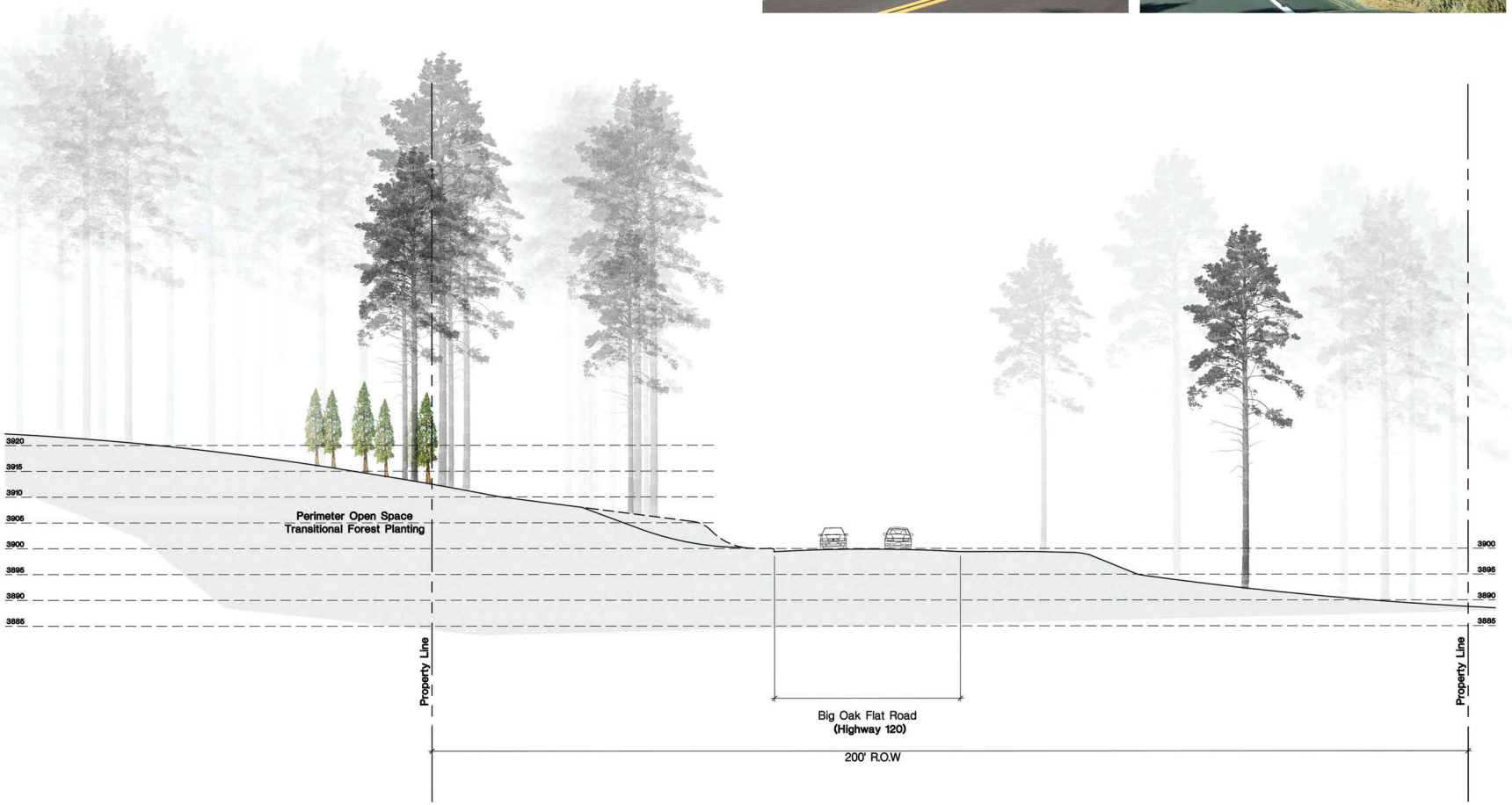

Site Cross-Section-Elevation A

Looking East on Highway 120

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AGENCY #: 00000.00
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CHECKED BY: XX
SHEET TITLE:
Site
Cross-Section-Elevation A

SHEET NUMBER.:
L5A

1/3/2020 9:31 AM
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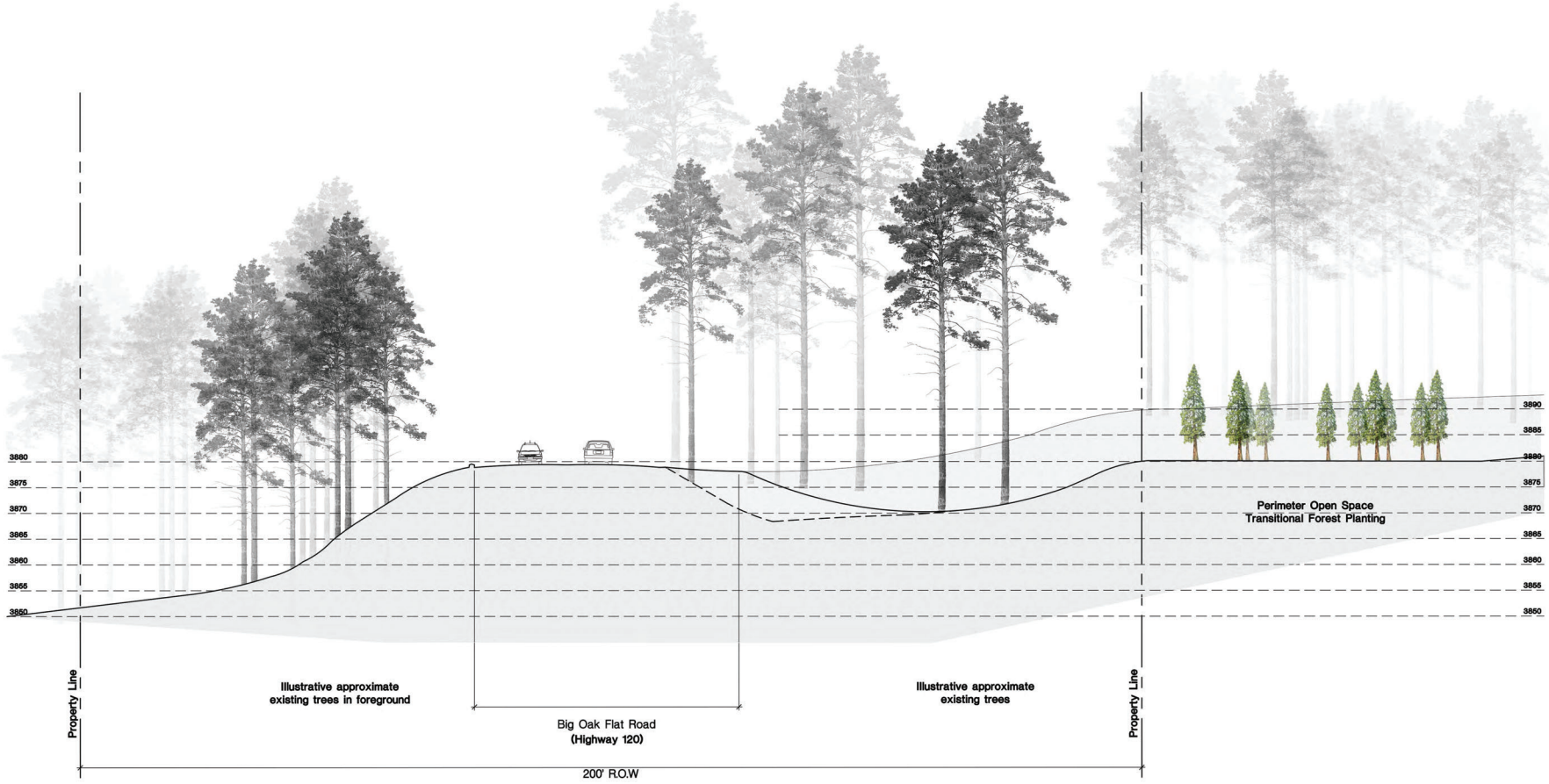

Site Cross-Section-Elevation B

Looking West on Highway 120

0 2 5 10 20 30

Scale: 1" = 10'-0"

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LANDSCAPE ARCHITECTS

PROJECT NAME:
TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SITE DEV'T PERMIT	11.19.2018
SITE DEV'T PERMIT	05.03.2019
SDP	07.05.2019
SDP	10.04.2019

PROJECT NO.	
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SHEET TITLE:
Site
Cross-Section-Elevation B

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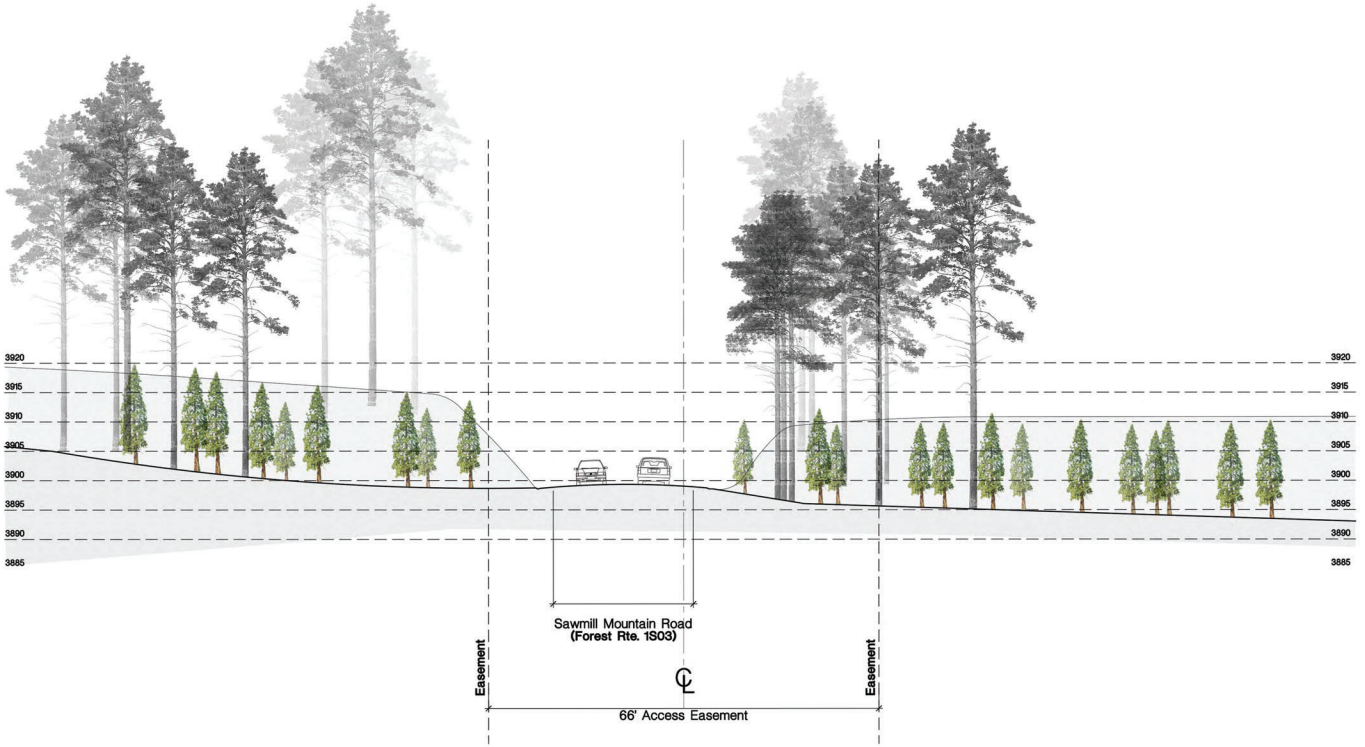

Site Cross-Section-Elevation C

Looking North on Sawmill Mountain Road

Scale: 1" = 10'-0"

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LANDSCAPE ARCHITECTS

PROJECT NAME:
TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

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Tree Legend

- Acer macrophyllum (Bigleaf Maple)
- Pinus ponderosa (Ponderosa Pine)
- Populus tremuloides (Quaking Aspen)
- Quercus kelloggii (California Black Oak)
- Sequoiadendron giganteum (Giant Sequoia)
- Existing Tree to Remain

N

0 10 30 60 120 180

Scale: 1" = 60'-0"

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LANDSCAPE ARCHITECTS

PROJECT NAME:
TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION

Terra Vi Lodge Yosemite

Yosemite, CA 95321

ISSUE DATES:

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SITE DEV'T PERMIT	05.03.2019
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Illustrative Landscape Plan

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Open Space Sub-areas Legend

1. Road Corridor
2. Parking Lot
3. Drop-off/Lobbies Walkways
4. Lodge/Building Perimeter Walkways
5. Amenity Areas
6. Recreational Open Space Areas/Meadows
7. Site Perimeter Transitional Open Spaces

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LANDSCAPE ARCHITECTS

PROJECT NAME:
TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321

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Lodge Landscape Sub-Areas Plan

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Quercus kelloggii
California Black Oak

Quercus chrysolepis
Canyon Live Oak

Abies concolor
White Fir

Calocedrus decurrens
Incense Cedar

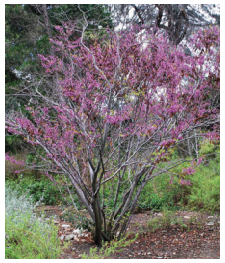
Acer macrophyllum
Bigleaf Maple

Sequoiadendron giganteum
Giant Sequoia

Acer circinatum
Vine Maple

Cornus nuttallii
Pacific Dogwood

Populus tremuloides
Quaking Aspen



Cercis occidentalis
Western Redbud

Juncus patens
California Gary Rush

Festuca idahoensis
Idaho Fescue

Blechnum spicant
Deer Fern

Zauschneria californica
California Fuschia

Salvia greggii
Autumn Sage

Spiraea densiflora
Mountain Spirea

Muhlenbergia rigens
Deer Grass

Festuca californica
California Fescue

Arctostaphylos uva-ursi
Bearberry Manzanita

Rosa woodsii
Mountain Rose

Rubus deliciosus
Rocky Mountain Thimbleberry

Vitis californica
California Wild Grape

Physocarpus opulifolius
Common Ninebark

Plant Palette

Botanical name	Common Name	Water Needs	Sun ○ / Shade ●	1. Road Corridor	2. Parking Lot	3. Drop-off/Lobbies	4. Lodge Perimeter Walkways	5. Amenity Areas	6. Recreational Open Space Areas/Meadows	7. Site Perimeter Transitional Open Spaces
Coniferous Tree:										
Abies concolor	White Fir	low	○ ●				X	X	X	X
Calocedrus decurrens	Incense Cedar	low	○				X	X	X	
Pseudotsuga menziesii	Douglas Fir	low	○				X	X	X	
Sequoiadendrongiganteum	GiantSequoia	low	○	X	X	X	X	X	X	X
Broad-Leaf Tree:										
Acer circinatum	Vine naple	mediun	●			X	X		X	X
Acer macrophyllum	Bigleaf Maple	mediun	●	X	X	X	X	X	X	X
Cercis occidentals	Western Redbud	low	●			X	X		X	X
Cornus nuttallii	Pacifi Dogwood	modernte	●			X	X	X	X	X
Populus tremulodes	Quaking Aspen	modernte	○ ●	X			X		X	
Quercus chrysolepis	Canyon Live Oak	low	○					X	X	X
Quercus kelloggi	California Black Oak	low	○ ●	X	X			X	X	X
Shrubs										
Arctostaphylos densiflora "Louis Edmund"	Louis Edmunds Manzanita	low	○				X	X	X	
Carpenteria californica	Bush Anemone	low	○ ●					X	X	X
Ceanothus velutinus	Tobacco Brush	low	○			X	X	X	X	
Cephalanthus occidentalis	California Button Willow	modernte	●					X	X	X
Cornus stolonifea	Redtwig Dogwood	modernte	○					X	X	
Cornus stolonifea 'Flaviramea'	Yellowtwig Dogwood	modernte	○			X		X	X	
Cotoneaster	Cotoneaster	low	○			X		X	X	
Forsythia x intermedia	Forsythia	modernte	○					X	X	X
Heteromeles arbutifolia	Toyon (California Holly)	low	○			X			X	X
Hydrangea	Hydrangea	modernte	○ ●			X	X	X		
Mahonia aquilifolium 'Compacta'	Compact Oregon Grape Ilolly	low	○					X	X	
Myrca california	Pacifi Wax Mrytle	modernte	○			X			X	X
Piers japonica	Dwar Lily-of-the-Valley	modernte	●				X	X	X	
Physocarpus opulifolius	Common Ninebark	modernte	○ ●	X				X	X	X
Rhamnus california	California Caffeeberry	low	○ ●	X	X			X		X
Ribes viburnifolium	Evergreen Currant	modernte	●	X	X			X		X
Rosi gymnocarpi	Little wood rose	low	○ ●	X				X		X
Rosa woocsii	Mountain Rose	low	○ ●	X				X		X
Rubus deliciosus	Rocky Mountain Thimbleberry	modernte	○ ●					X		X
Salva chamaednoides	Germader Sage	low	○ ●				X	X	X	
Salva greggii	Autumn Sage	low	○				X	X	X	
Spiraea densiflora	Mourtain Spirea	modernte	○ ●				X	X	X	X
Spiraea douglasii	Western Spirea	modernte	○ ●				X	X	X	X
Spiraea japonica	Spirea	modernte	○				X	X	X	X
Syringa vulgaris	Comnon Lilac	low	○				X		X	
Thuja occidentals	Arborvitae	low	○ ●				X	X	X	
Accents and Grasses										
Blechnum spicant	Deer fern	modernte	●					X	X	X
Carex tumulicola	Berkeley Sedge	low	○ ●	X	X	X	X	X	X	X
Festaca california	California Fescue	modernte	○ ●			X	X	X	X	X
Festaca idahoensis	IdahoFescue	low	○ ●	X	X	X	X	X	X	X
Heuchera sanguinea	Coral bells	low	○ ●				X		X	
Iris douglasiana	Pacifi Coas: Iris/Douglar Iris	low	○ ●	X	X			X	X	X
Juncus patens	California Gary Rush	modernte	○ ●	X	X			X		
Mimulus aurantiicus	StickyBush Monkeyflower	low	○ ●	X			X	X	X	X
Miscanthus	Maiden Grass	low	○			X	X	X	X	X
Muhlenbergia rigens	Deer Grass	low	○			X	X	X	X	X
Polystichum muritum	Western Sword fern	modernte	○ ●					X	X	
Woodwardia fimoriata	GiantChainfern	modernte	○ ●					X	X	
Zauschneria californica	California Fuschia	low	○	X	X			X	X	X
Groundcovers										
Arctostaphylos 'Imerald Carpet'	Manzanita	low	○			X		X	X	
Arctostaphylos revadensis	Pinenat	low	○	X	X			X	X	X
Arctostaphylos uva-ursi	Bearberry Manzanita	low	○	X				X	X	X
Baccharis pilularis "Pigeon Point"	Dwar Coyote Brush	low	○			X		X	X	X
Ceanothus gloriosus	Point Reyes California Wld Lilac	low	○	X	X					X
Mahonia repens	Creeping Oregon Grape Ilolly	low	○ ●	X			X	X	X	X
Vines										
Parthenocissus quinquefolia	Virginia Creeper	mediun	○ ●					X	X	
Parthenocissus tricuspidata	Boston Ivy	mediun	○ ●					X	X	
Vitis californica	California Wild Grape	low	○ ●	X			X	X	X	X

Plant Notes

1. Lodge landscape planted areas will be irrigated by an automatic irrigation system on a dedicated water meter to include automatic, weather-sensing controls and other equipment in compliance with the water-efficient landscape ordinance.
2. Plant material selections are climate-appropriate and will be irrigated by hydrozones. Estimated Landscape Water Use will not exceed the calculated Maximum Applied Water Allowance.
3. Transitional landscape areas, reforestation plantings and native meadow plantings may be irrigated by temporary irrigation systems during a plant establishment period.
4. Site topsoil will be amended and conditioned for planting as recommended by a soil fertility report to be provided by a qualified soil and plant laboratory.
5. No invasive plants are proposed.
6. Plant material locations shown are diagrammatic and may be subject to change in the field by landscape architect.
7. All newly planted shrub and groundcover areas are to be top-dressed with 3" of organic mulch.
8. Trees planted in Lodge landscape areas are to be minimum 15-gallon container size. Trees planted in re-forestation or transitional areas may be plugs or container plants or a combination of these.

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LANDSCAPE ARCHITECTS

PROJECT NAME:
TERRA VI LODGE
YOSEMITE

NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SITE DEVT PERMIT	11.19.2018
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Plant Palette and Plant Material Images

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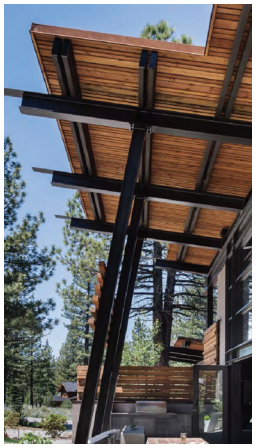
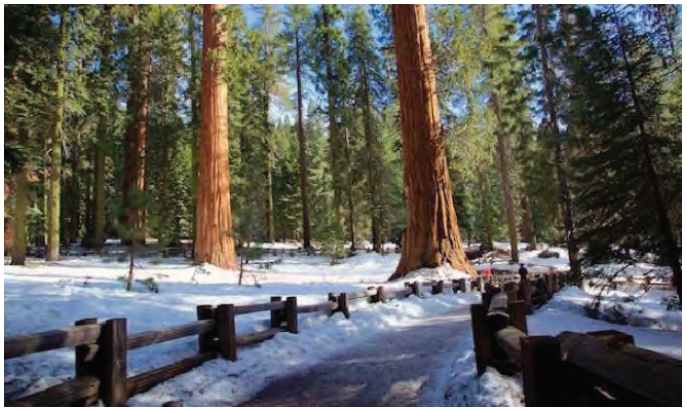


Architectural Overhang

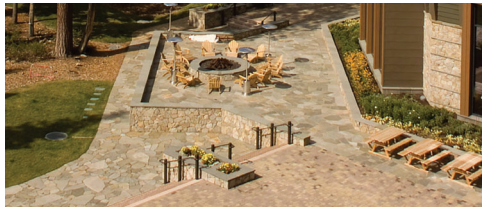
Pavilion

Meadow with Bikes

Wood Deck



Split Rail Fencing

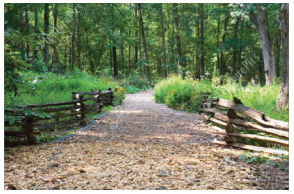


Pavers - Flagstone

Paving - Heated Concrete

Charred Log

Rock Wall



Wood Chips

Forest Wedding

Glass Pool Fence

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LANDSCAPE ARCHITECTS

PROJECT NAME:
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Yosemite
Yosemite, CA 95321

ISSUE DATES:

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Lodge Landscape Elements and Features Images

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APPENDIX C

AIR QUALITY AND GREENHOUSE GAS EMISSIONS STUDY

AIR QUALITY STUDY

FOR THE TERRA VI LODGE PROJECT

Prepared for:

Hansji Corporation

Prepared by:

KD Anderson & Associates
3853 Taylor Road, Suite G
Loomis, CA 95650
916/660-1555

June 11, 2020

Project #3577-02

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FIGURES

1. Vicinity Map
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TECHNICAL APPENDIX

CalEEMod Model Output Report – Annual Period

CalEEMod Model Output Report – Daily Summer Period

CalEEMod Model Output Report – Daily Winter Period

CalEEMod Model Output Report – With Mitigation Measures - Annual Period

Trip Generation & VMT Data for CalEEMod

EXECUTIVE SUMMARY

This *Executive Summary* is a brief overview of the analysis presented in this *Air Quality Study*. It is not intended to be a comprehensive description of the analysis. For more details, the reader is referred to the full description presented in this study.

The proposed Terra Vi Lodge Project would be located in unincorporated Tuolumne County, east of the community of Groveland and west of Yosemite National Park. The project would include:

- 100 hotel rooms,
- 26 guest cabins,
- a 2,800 building square feet (sf) market, and
- housing for 20 employees.

This *Air Quality Study* presents an evaluation of the construction-related and operational impacts of the project on the air quality environment.

The project would be located within the Mountain Counties Air Basin (MCAB). The project site is designated a nonattainment area for both state and federal ozone standards. The project site is in an attainment or unclassified area for state and federal standards for fine particulate matter smaller than 2.5 microns in diameter ($PM_{2.5}$), inhalable particulate matter smaller than 10 microns in diameter (PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2).

Implementation of the Terra Vi Lodge Project would result in the generation of short-term construction-related air pollutant emissions. The project is considered to have a less than significant impact on construction-related emissions and odor.

Air quality impacts due to long-term operation of the project were assessed by evaluating criteria pollutant emissions. Operation of the project is considered to have a less-than-significant impact on criteria pollutant air quality and odor.

Impacts associated with toxic air contaminants (TAC) were assessed. The impact of TAC emissions was found to be less than significant.

An assessment of the effects of the Terra Vi Lodge Project on global climate change was conducted. The project-related change in greenhouse gas (GHG) emissions was quantified. The project is determined to have a significant impact on global climate change. Mitigation measures are identified. However, implementation of the mitigation measures would not reduce the impact to a less-than-significant level, resulting in this impact being considered significant and unavoidable.

SECTION 1
INTRODUCTION

This *Air Quality Study* has been prepared to assess the air quality impacts of the Terra Vi Lodge Project. This study contains information that will be used in the preparation of a California Environmental Quality Act (CEQA) environmental compliance document for this project. The County of Tuolumne is the CEQA lead agency for the project environmental review.

The purpose of this *Air Quality Study* is to provide documentation of the air quality resources in the project area, and an assessment of the impacts of the project on the air quality environment.

This *Air Quality Study* presents an assessment of the localized air quality impacts of the project, the impacts of the project on regional air quality, construction-related impacts of the project, and the impacts on global climate change.

Following this *Introduction* section, this *Air Quality Study* presents a description of:

- the Terra Vi Lodge Project,
- air quality standards and existing air quality conditions,
- short-term construction-related impacts,
- long-term operational impacts,
- impacts associated with TAC emissions, and
- impacts on global climate change and GHG emissions.

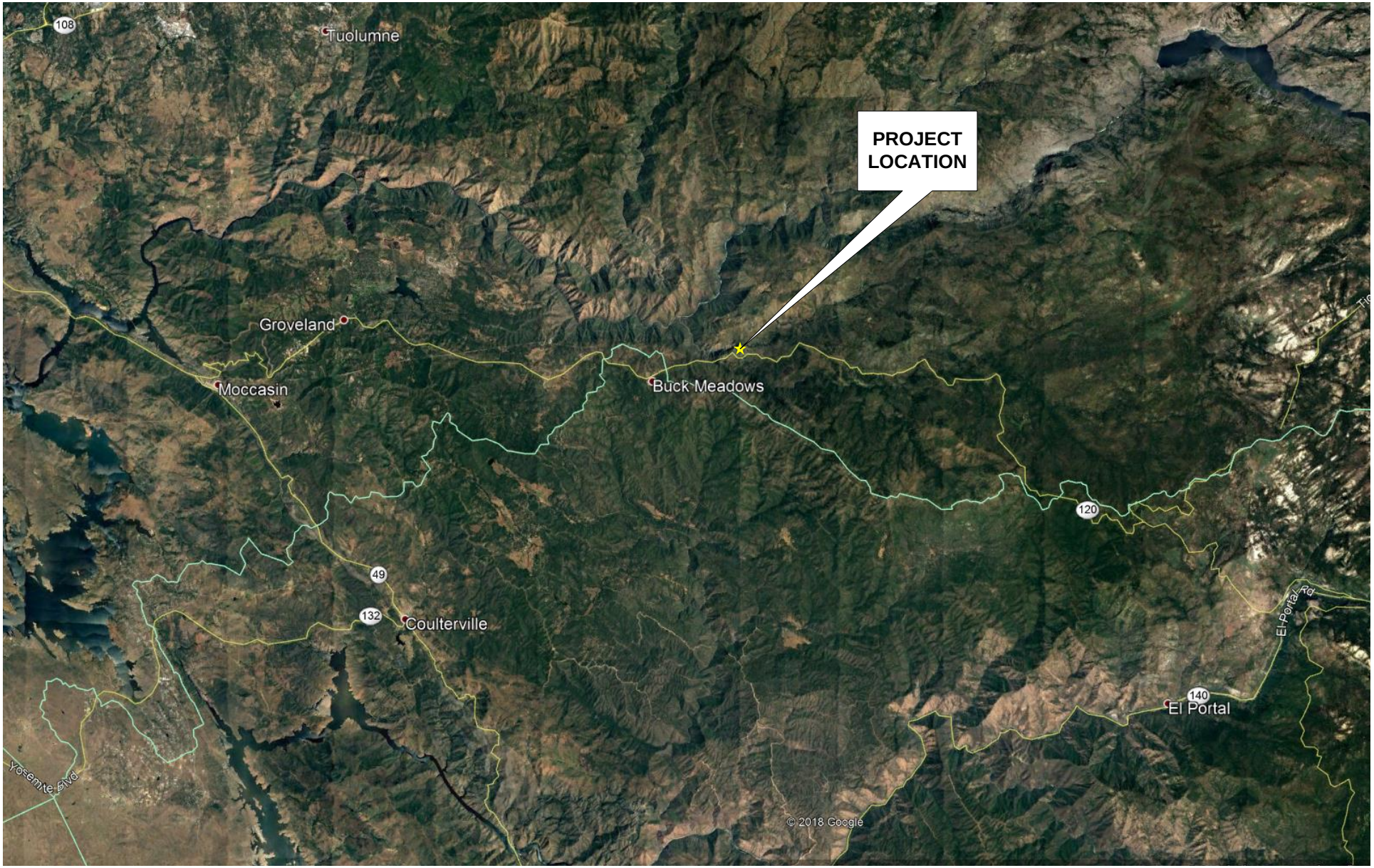
SECTION 2
PROJECT DESCRIPTION

As shown in **Figure 1**, the Terra Vi Lodge Project site is located in unincorporated Tuolumne County, east of the community of Groveland and west of Yosemite National Park. The site is on the northeast corner of the intersection of Sawmill Mountain Road & State Route (SR) 120, which is also known as Big Oak Flat Road. The site is currently undeveloped.

The Hansji Corporation proposes to build a mixed-use lodge with a market. The project would include (Sherman pers. comm.):

- 100 hotel rooms,
- 26 guest cabins,
- a 2,800 sf market, and
- housing for 20 employees.

A site plan for the proposed project is presented in **Figure 2**.

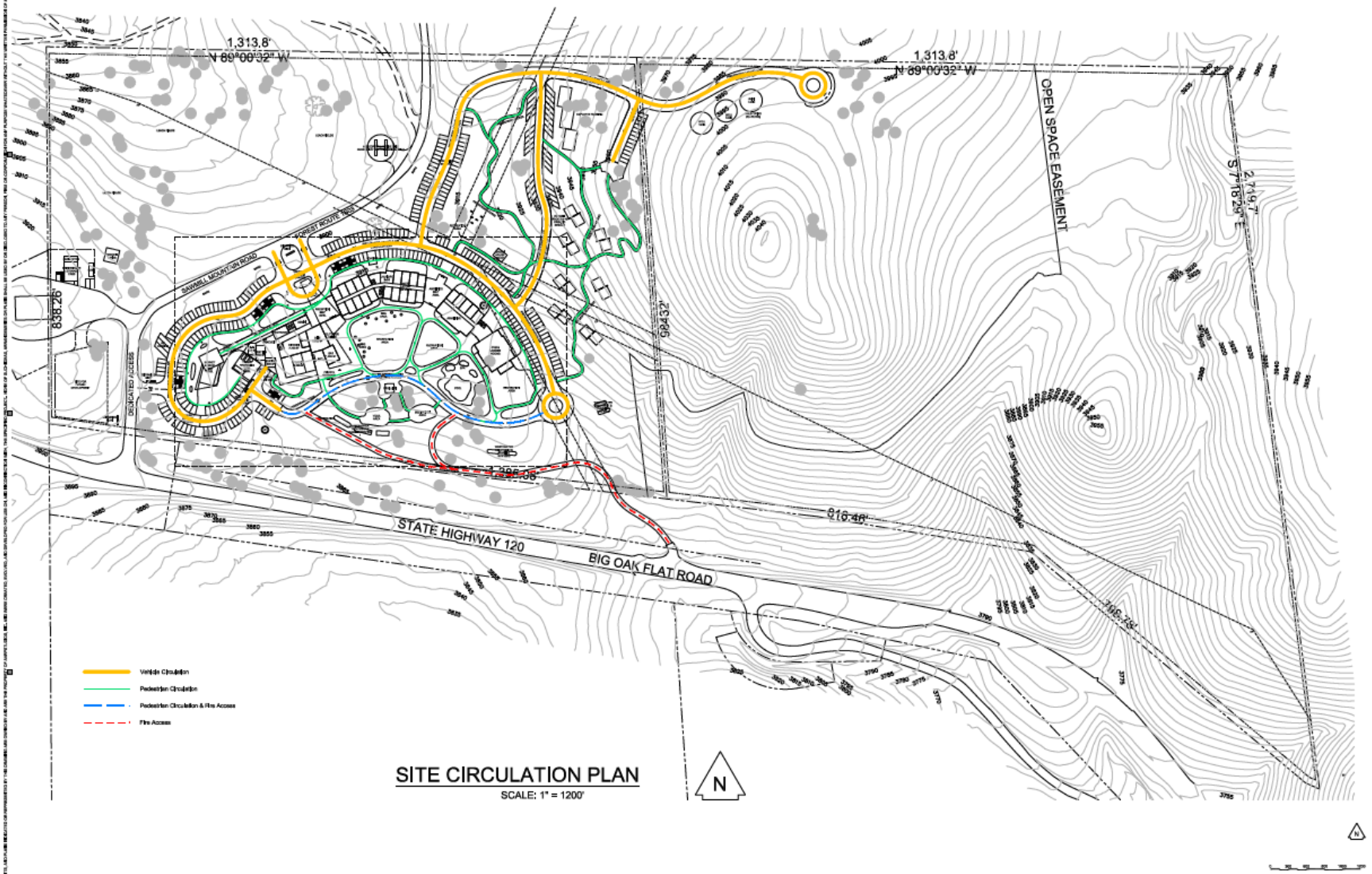


VICINITY MAP

KD Anderson & Associates, Inc.
Transportation Engineers

3577-01 RA 1/22/2020

figure 1



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PROJECT NAME:

TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION

Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SUBMITTAL 1	11.19.2018
SUBMITTAL 2	03.19.2019
SUBMITTAL 3	10.04.2019

PROJECT NO.
AVRPSTUDIOS: 18040.00
AGENCY #: 00000.00
DRAWN BY: AS
CHECKED BY: XX
SHEET TITLE:
SITE CIRCULATION PLAN

SHEET NUMBER:

T0.06

SITE PLAN

KD Anderson & Associates, Inc.
Transportation Engineers

3577-01 RA 1/22/2020

figure 2

SECTION 3
AIR QUALITY STANDARDS AND EXISTING CONDITIONS

The following is a description of ambient air quality standards and existing air quality conditions in the Terra Vi Lodge Project study area.

3.1 AIR POLLUTANTS AND AMBIENT STANDARDS

Both the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) have established ambient air quality standards for common pollutants. These ambient air quality standards indicate levels of contaminants that represent safe levels, to avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The federal and state ambient air quality standards are presented in **Table 1**. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In some cases, the California state standards are more stringent, as is the case for, PM_{10} and CO.

There are three basic designation categories: nonattainment, attainment, and unclassified. A "nonattainment" designation indicates that the air quality violates an ambient air quality standard. Although a number of areas may be designated as nonattainment for a particular pollutant, the severity of the problem can vary greatly. To identify the severity of the problem and the extent of planning required, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe). In contrast to nonattainment, an "attainment" designation indicates that the air quality does not violate the established standard. Finally, an "unclassified" designation indicates that there are insufficient data for determining attainment or nonattainment. EPA combines unclassified and attainment into one designation for ozone, CO, PM_{10} and $PM_{2.5}$.

3.2 POLLUTANTS OF CONCERN

For land use development projects, criteria pollutants that are of greatest concern are ozone, particulate matter, and CO. In addition, this *Air Quality Study* presents an analysis of the project-related effects on global climate change.

Table 1. Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	**Averaging Time**	**California Standards** [1]		**National Standards** [2]		
		Concentration [3]	**Method** [4]	**Primary** [3,5]	**Secondary** [3,6]	**Method** [7]
Ozone (O_3) [8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10) [9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5) [9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2) [10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2) [11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas) [11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas) [11]	—	
Lead [12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas) [12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles [14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride [12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

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California Air Resources Board (5/4/16)

Table 1. Ambient Air Quality Standards (Continued)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards. The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (5/4/16)**

3.2.1 Ozone

Prior to 2005, both state and federal standards for ozone were set for a one-hour averaging time. The state ozone standard is 0.09 parts per million (ppm), not to be exceeded. The federal one-hour standard was 0.12 ppm and was not to be exceeded more than three times in any three-year period. A federal eight-hour standard for ozone was issued in July 1997 by Executive Order of the President. The eight-hour ozone standard has been set at a concentration of 0.070 ppm ozone measured over eight hours.

As of June 15, 2005, the federal one-hour ozone standard was revoked. In setting the eight-hour ozone standard, EPA concluded that replacing the existing one-hour standard with an eight-hour standard was appropriate to provide adequate and more uniform protection of public health from both short-term (one to three hours) and prolonged (six to eight hours) exposures to ozone.

Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include ROG and NO_x, react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Once formed, ozone remains in the atmosphere for one or two days. It is then eliminated through chemical reaction with plants, and by rainout and washout.

3.2.2 Particulate Matter

State and federal standards for particulate matter are based on micrograms per cubic meter ($\mu g/m^3$) for a 24-hour average and as an annual geometric mean.

PM_{10} is sometimes referred to as "inhalable particulate matter" or "respirable particulate matter". The state standards for PM_{10} are 50 $\mu g/m^3$ 24-hour average, and 20 $\mu g/m^3$ annual geometric mean. The federal PM_{10} standard is a 24-hour average of 150 $\mu g/m^3$.

A federal standard for particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) was issued in July 1997 by Executive Order of the President. $PM_{2.5}$ is sometimes referred to as "fine particulate matter". The $PM_{2.5}$ standard has been set at a concentration of 12 $\mu g/m^3$ annually and 35 $\mu g/m^3$ daily. The federal standards for PM_{10} are being maintained so that relatively larger, courser particulate matter continues to be regulated. The state $PM_{2.5}$ standard is an annual average of 12 $\mu g/m^3$.

PM_{10} and $PM_{2.5}$ can reach the lungs when inhaled, resulting in health concerns related to respiratory disease. Suspended particulate matter can also affect vision or contribute to eye irritation. PM_{10} can remain in the atmosphere for up to seven days before removal by gravitational settling, rainout and washout.

3.2.3 Carbon Monoxide

State and federal CO standards have been set for both one-hour and eight-hour averaging times. The state one-hour standard is 20 ppm by volume, while the federal one-hour standard is 35 ppm. Both state and federal standards are 9 ppm for the eight-hour averaging period. CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

3.2.4 Greenhouse Gases

The average surface temperature of the Earth has risen by about one degree Fahrenheit in the past century, with most of that occurring during the past two decades (World Meteorological Organization, 2005). There is evidence that most of the warming over the last 50 years is due to human activities. Human activities, such as energy production and internal combustion vehicles, have increased the amount of climate-changing gases in the atmosphere, which in turn is causing the Earth's average temperature to rise. Rises in average temperature are leading to changes in climate patterns, shrinking polar ice caps and a rise in sea level, with a host of corresponding impacts to humans and ecosystems.

Gases which affect global climate are referred to as greenhouse gases (GHG). Greenhouse gases are atmospheric gases that act as global insulators by reflecting visible light and infrared radiation back to Earth. Some GHG, such as water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), occur naturally and are emitted to the atmosphere through natural processes. Although CO_2, CH_4, and N_2O occur naturally in the atmosphere, human activities have changed their atmospheric concentrations. From 1750 to 2004, concentrations of CO_2, CH_4, and N_2O have increased globally by 35, 143, and 18 percent, respectively. Other greenhouse gases, such as fluorinated gases, are created and emitted solely through human activities. (U.S. Environmental Protection Agency 2006)

The principal GHG that enter the atmosphere because of human activities are CO_2, CH_4, N_2O, and fluorinated gases. Carbon dioxide is the gas that is most commonly referenced when discussing climate change because it is the most commonly emitted gas. While some of the less common gases do make up less of the total GHG emitted to the atmosphere, some have more effect per molecule than CO_2.

Carbon Dioxide. The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid-1700s, each of these activities has increased in scale and distribution. Carbon dioxide was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive

measurements being made in the last half of the 20th Century. Prior to the industrial revolution, concentrations were fairly stable at 280 ppm. Today, they are around 370 ppm, an increase of over 30 percent (U.S. Environmental Protection Agency 2006). Left unchecked, the concentration of CO_2 in the atmosphere is projected to increase to a minimum of 535 ppm by 2100 as a direct result of anthropogenic (manmade) sources. This could result in an average global temperature rise of at least two degrees Celsius (Intergovernmental Panel on Climate Change 2007). The California Energy Commission (CEC) estimates that CO_2 emissions account for 84 percent of California's anthropogenic GHG emissions, nearly all of which is associated with fossil fuel combustion (California Energy Commission 2005).

Methane. Methane is an extremely effective absorber of radiation, though its atmospheric concentration is less than CO_2 and its lifetime in the atmosphere is brief (10 – 12 years), compared to some other GHG (such as CO_2, N_2O, and chlorofluorocarbons). Methane has both natural and anthropogenic sources. Landfills, natural gas distribution systems, agricultural activities, fireplaces and wood stoves, stationary and mobile fuel combustion, and gas and oil production fields categories are the major sources of these emissions (U.S. Environmental Protection Agency 2006). The CEC estimates that CH_4 emissions from various sources represent 6.2 percent of California's total GHG emissions (California Energy Commission 2005).

Nitrous Oxide. Concentrations of N_2O also began to rise at the beginning of the industrial revolution. Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizers that contain nitrogen. Use of these fertilizers has increased over the last century. Global concentration for N_2O in 1998 was 314 parts per billion (ppb), and in addition to agricultural sources for the gas, some industrial processes (fossil fuel fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load (U.S. Environmental Protection Agency 2006). The CEC estimates that N_2O emissions from various sources represent 6.6 percent of California's total GHG emissions (California Energy Commission 2005).

Fluorinated Gases. Fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6), are powerful GHG emissions that are emitted from a variety of industrial processes. Fluorinated gases are occasionally used as substitutes for ozone-depleting substances such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which have been regulated since the mid-1980s because of their ozone destroying potential. Fluorinated gases are typically emitted in smaller quantities than CO_2, CH_4, and N_2O, but each molecule can have a much greater global warming effect. Therefore, fluorinated gases are sometimes referred to as High Global Warming Potential (GWP) gases (U.S. Environmental Protection Agency 2006). The primary sources of fluorinated gas emissions in the United States include the production of HCFC-22 electrical transmission and distribution systems, semiconductor manufacturing, aluminum production, magnesium production and processing, and substitution for ozone-depleting substances. The CEC estimates that fluorinated gas emissions from various sources represent 3.4 percent of California's total GHG emissions (California Energy Commission 2005).

3.3 AIR QUALITY MONITORING

Table 2 presents air quality monitoring data for ozone and CO. **Table 3** presents monitoring data for PM_{10}, and $PM_{2.5}$. Data for the latest available three-year period (2015 through 2017 for PM_{10} and $PM_{2.5}$, and 2016 through 2018 for ozone and CO) are presented for the monitoring stations closest to the project site. **Table 2** shows recent exceedances of the state ozone standard. **Table 3** shows recent exceedances of the federal and state $PM_{2.5}$ and PM_{10} standards.

3.4 ATTAINMENT DESIGNATIONS

Current air quality attainment designations for Tuolumne County are summarized in **Table 4.** As shown in **Table 4**, Tuolumne County is designated nonattainment for the state and federal ozone standards.

Tuolumne County is designated either attainment or unclassified for the federal and state air quality standards $PM_{2.5}$, PM_{10}, CO, NO_2, and SO_2.

3.5 EMISSIONS INVENTORY

Table 5 presents estimates of emissions currently generated in Tuolumne County. The information presented in **Table 5** is divided into emission source categories. **Table 6** presents a forecast of emissions expected to be generated in Tuolumne County in the year 2035. Like **Table 6**, the information presented in **Table 6** is divided into emission source categories.

For both current and 2035 emissions, the emissions source category that generates the largest amount of ROG, CO, PM_{10}, and $PM_{2.5}$ emissions in Tuolumne County is Managed Burning and Disposal. For both current and 2035 emissions, the emissions source category that generates the largest amount of NO_x emissions in Tuolumne County is On-Road Motor Vehicles.

Table 2. Ozone and Carbon Monoxide Air Quality Monitoring Results

Pollutant Type, Station and Measurement	Air Quality Standard	Pollutant Concentration by Year 2016	2017	2018
Ozone at Sonora - Barretta Street				
Highest 1-Hour Average (parts per million)	0.09	0.099	0.089	0.101
Second Highest 1-Hour Average (parts per million)	(State)	0.097	0.088	0.100
Highest 8-Hour Average (parts per million)	0.070	0.091	0.083	0.087
Second Highest 8-Hour Average (parts per million)	(State and Federal)	0.089	0.082	0.084
Carbon Monoxide at Modesto - 14th Street				
Highest 1-Hour Average (parts per million)	20.0 (State)	1.97	2.08	2.76

Source: California Air Resources Board website: http://www.arb.ca.gov/

Note: The closest carbon monoxide monitoring station is in Modesto.

Table 3. Particulate Matter Air Quality Monitoring Results

Pollutant Type, Station and Measurement	Air Quality Standard	Pollutant Concentration by Year 2015	2016	2017
Inhalable Particulate Matter (PM_{10}) at Yosemite Village - Visitor Center				
Highest 24-Hour Average (micrograms/cubic meter)	50	218.6	62.4	141.7
Second Highest 24-Hour Average (micrograms/cubic meter)	(State)	164.7	58.1	123.6
Annual Average (micrograms/cubic meter)	20 (State)	23.7	20.0	24.9
Fine Particulate Matter ($PM_{2.5}$) at Yosemite Village - Visitor Center				
Highest 24-Hour Average (micrograms/cubic meter)	35	164.9	35.8	109.8
Second Highest 24-Hour Average (micrograms/cubic meter)	(Federal)	108.1	33.4	94.3
Annual Average (micrograms/cubic meter)	12 (State)	- -	- -	- -

Source: California Air Resources Board website: http://www.arb.ca.gov/

Note: dashes ("- -") indicate insufficient data available to determine the value.

Table 4. Air Quality Attainment Status Designations for Tuolumne County

Pollutant	State Standards	National Standards
Ozone	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Nitrogen Dioxide	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Unclassified/Attainment
Inhalable Particulate Matter (PM_{10})	Unclassified	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Unclassified	Unclassified/Attainment
Sulfates	Attainment	N/A
Lead	Attainment	Unclassified/Attainment
Hydrogen Sulfide	Unclassified	N/A
Visibility Reducing Particles	Unclassified	N/A

Notes: N/A – not applicable, standard does not exist for the pollutant.

Source: California Air Resources Board website (https://www.arb.ca.gov)

Table 5. Tuolumne County Emissions Inventory for 2012

Emission Category	Reactive Organic Gases	Carbon Monoxide	Nitrogen Oxides	Inhalable Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Fuel Combustion					
Electric Utilities	0.00	0.03	0.55	0.16	0.15
Cogeneration	0.01	0.61	0.44	0.03	0.03
Manufacturing and Industrial	0.00	0.02	0.07	0.00	0.00
Food and Agricultural Processing	0.00	0.00	0.00	0.00	0.00
Service and Commercial	0.01	0.01	0.06	0.03	0.03
Other (Fuel Combustion)	0.00	0.00	0.00	0.00	0.00
Subtotal	**0.02**	**0.67**	**1.12**	**0.22**	**0.21**
Waste Disposal					
Sewage Treatment	- -	- -	- -	- -	- -
Landfills	- -	- -	- -	- -	- -
Subtotal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Cleaning and Surface Coatings					
Laundering	0.00	- -	- -	- -	- -
Degreasing	0.12	- -	- -	- -	- -
Coatings and Related Process Solvents	0.18	- -	- -	- -	- -
Adhesives and Sealants	0.04	- -	- -	- -	- -
Subtotal	**0.34**	**0.00**	**0.00**	**0.00**	**0.00**
Petroleum Production and Marketing					
Petroleum Marketing	0.13	- -	- -	- -	- -
Subtotal	**0.13**	**0.00**	**0.00**	**0.00**	**0.00**
Industrial Processes					
Food and Agriculture	0.00	- -	- -	- -	- -
Mineral Processes	0.01	0.02	0.00	1.09	0.17
Wood and Paper	0.04	- -	- -	0.13	0.08
Other (Industrial Processes)	- -	- -	- -	0.00	0.00
Subtotal	**0.05**	**0.02**	**0.00**	**1.22**	**0.25**
Solvent Evaporation					
Consumer Products	0.30	- -	- -	- -	- -
Architectural Coatings & Related Process Solvents	0.19	- -	- -	- -	- -
Pesticides/Fertilizers	0.01	- -	- -	- -	- -
Asphalt Paving / Roofing	0.58	- -	- -	- -	- -
Subtotal	**1.08**	**0.00**	**0.00**	**0.00**	**0.00**

Table 5. Tuolumne County Emissions Inventory for 2012 (Continued)

Emission Category	Reactive Organic Gases	Carbon Monoxide	Nitrogen Oxides	Inhalable Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Miscellaneous Processes					
Residential Fuel Combustion	0.71	4.01	0.14	0.54	0.52
Farming Operations	0.39	- -	- -	- -	- -
Construction and Demolition	- -	- -	- -	0.47	0.05
Paved Road Dust	- -	- -	- -	0.43	0.06
Unpaved Road Dust	- -	- -	- -	2.22	0.22
Fugitive Windblown Dust	- -	- -	- -	0.07	0.01
Fires	0.00	0.03	0.00	0.00	0.00
Managed Burning and Disposal	6.43	91.76	0.22	8.30	7.03
Cooking	0.01	- -	- -	0.03	0.03
Other (Miscellaneous Processes)	- -	- -	- -	- -	- -
Subtotal	**7.54**	**95.80**	**0.36**	**12.06**	**7.92**
On-Road Motor Vehicles					
Light Duty Vehicles	0.81	7.05	0.68	0.06	0.04
Medium Duty Trucks	0.28	2.73	0.42	0.02	0.01
Heavy Duty Trucks	0.26	2.07	1.02	0.02	0.02
Motorcycles	0.09	0.58	0.03	0.00	0.00
Buses	0.00	0.10	0.07	0.00	0.00
Motor Homes	0.01	0.19	0.04	0.00	0.00
Subtotal	**1.45**	**12.72**	**2.26**	**0.10**	**0.07**
Other Mobile Sources					
Aircraft	0.07	2.10	0.01	0.00	0.00
Trains	0.02	0.07	0.25	0.01	0.01
Recreational Boats	2.82	9.94	0.58	0.18	0.14
Off-Road Recreational Vehicles	0.87	3.19	0.05	0.01	0.01
Off-Road Equipment	0.27	2.77	0.36	0.03	0.03
Farm Equipment	0.02	0.15	0.12	0.01	0.01
Fuel Storage and Handling	0.03	- -	- -	- -	- -
Subtotal	**4.10**	**18.22**	**1.37**	**0.24**	**0.20**
COUNTY TOTAL	**14.74**	**127.48**	**5.10**	**13.85**	**8.64**

Notes: All values are in tons per day. Dashes ("- -") indicate no data are available.
The sum of values may not equal total shown due to rounding.
Source: California Air Resources Board (CARB) website: http://arb.ca.gov

Table 6. Tuolumne County Emissions Forecast for 2035

Emission Category	Reactive Organic Gases	Carbon Monoxide	Nitrogen Oxides	Inhalable Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Fuel Combustion					
Electric Utilities	0.00	0.03	0.55	0.16	0.15
Cogeneration	0.01	0.61	0.44	0.03	0.03
Manufacturing and Industrial	0.00	0.02	0.07	0.00	0.00
Food and Agricultural Processing	0.00	0.00	0.00	0.00	0.00
Service and Commercial	0.01	0.01	0.06	0.03	0.03
Other (Fuel Combustion)	0.00	0.00	0.00	0.00	0.00
Subtotal	**0.02**	**0.67**	**1.12**	**0.22**	**0.21**
Waste Disposal					
Sewage Treatment	- -	- -	- -	- -	- -
Landfills	- -	- -	- -	- -	- -
Subtotal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Cleaning and Surface Coatings					
Laundering	0.00	- -	- -	- -	- -
Degreasing	0.12	- -	- -	- -	- -
Coatings and Related Process Solvents	0.18	- -	- -	- -	- -
Adhesives and Sealants	0.04	- -	- -	- -	- -
Subtotal	**0.34**	**0.00**	**0.00**	**0.00**	**0.00**
Petroleum Production and Marketing					
Petroleum Marketing	0.13	- -	- -	- -	- -
Subtotal	**0.13**	**0.00**	**0.00**	**0.00**	**0.00**
Industrial Processes					
Food and Agriculture	0.00	- -	- -	- -	- -
Mineral Processes	0.01	0.02	0.00	1.09	0.17
Wood and Paper	0.04	- -	- -	0.13	0.08
Other (Industrial Processes)	- -	- -	- -	0.00	0.00
Subtotal	**0.05**	**0.02**	**0.00**	**1.22**	**0.25**
Solvent Evaporation					
Consumer Products	0.30	- -	- -	- -	- -
Architectural Coatings & Related Process Solvents	0.19	- -	- -	- -	- -
Pesticides/Fertilizers	0.01	- -	- -	- -	- -
Asphalt Paving / Roofing	0.58	- -	- -	- -	- -
Subtotal	**1.08**	**0.00**	**0.00**	**0.00**	**0.00**

Table 6. Tuolumne County Emissions Forecast for 2035 (Continued)

Emission Category	Reactive Organic Gases	Carbon Monoxide	Nitrogen Oxides	Inhalable Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Miscellaneous Processes					
Residential Fuel Combustion	0.71	4.01	0.14	0.54	0.52
Farming Operations	0.39	- -	- -	- -	- -
Construction and Demolition	- -	- -	- -	0.47	0.05
Paved Road Dust	- -	- -	- -	0.43	0.06
Unpaved Road Dust	- -	- -	- -	2.22	0.22
Fugitive Windblown Dust	- -	- -	- -	0.07	0.01
Fires	0.00	0.03	0.00	0.00	0.00
Managed Burning and Disposal	6.43	91.76	0.22	8.30	7.03
Cooking	0.01	- -	- -	0.03	0.03
Other (Miscellaneous Processes)	- -	- -	- -	- -	- -
Subtotal	**7.54**	**95.80**	**0.36**	**12.06**	**7.92**
On-Road Motor Vehicles					
Light Duty Vehicles	0.81	7.05	0.68	0.06	0.04
Medium Duty Trucks	0.28	2.73	0.42	0.02	0.01
Heavy Duty Trucks	0.26	2.07	1.02	0.02	0.02
Motorcycles	0.09	0.58	0.03	0.00	0.00
Buses	0.00	0.10	0.07	0.00	0.00
Motor Homes	0.01	0.19	0.04	0.00	0.00
Subtotal	**1.45**	**12.72**	**2.26**	**0.10**	**0.07**
Other Mobile Sources					
Aircraft	0.07	2.10	0.01	0.00	0.00
Trains	0.02	0.07	0.25	0.01	0.01
Recreational Boats	2.82	9.94	0.58	0.18	0.14
Off-Road Recreational Vehicles	0.87	3.19	0.05	0.01	0.01
Off-Road Equipment	0.27	2.77	0.36	0.03	0.03
Farm Equipment	0.02	0.15	0.12	0.01	0.01
Fuel Storage and Handling	0.03	- -	- -	- -	- -
Subtotal	**4.10**	**18.22**	**1.37**	**0.24**	**0.20**
COUNTY TOTAL	**14.74**	**127.48**	**5.10**	**13.85**	**8.64**

Notes: All values are in tons per day. Dashes ("- -") indicate no data are available.
The sum of values may not equal total shown due to rounding.
Source: California Air Resources Board (CARB) website: http://arb.ca.gov

Table 7 presents estimates of GHG emissions generated in California during the years 2000 through 2017. The data are expressed as "million tonnes of CO_2 equivalent" per year. One tonne is sometimes referred to as a "metric ton" (MT) and is equal to 2,204.6 pounds.

While CO_2 is the most common component of GHG, several different compounds are components of overall GHG. The different compounds contribute to climate change with varying intensities. The term "CO_2 equivalent" (CO_2e) refers to a weighted composite of these several compounds, expressed as the equivalent amount of CO_2.

Table 7 presents estimates of GHG emissions disaggregated into the following six major source categories:

- Transportation,
- Industrial,
- Electric Power,
- Commercial and Residential,
- Agricultural, and
- High Global Warming Potential (GWP).

Each major source category is further disaggregated into minor source categories.

As shown in **Table 7**, Transportation, Industrial, and Electric Power are the three larger major source categories of GHG emissions in California. Commercial and Residential, Agricultural, and High GWP activities are relatively smaller sources of GHG emissions.

Table 8 presents forecasts of GHG emissions expected to be generated in California during the years 2009 through 2020.

The Tuolumne County Transportation Council (TCTC) conducted a regional blueprint planning effort which resulted in a countywide (including incorporated and unincorporated areas) GHG emissions inventory of existing (2010) GHG emissions, and projected (2020, 2030, and 2040) emissions for three growth scenarios. The three growth scenarios presented in the *Tuolumne County Regional Blueprint Greenhouse Gas Study* (Tuolumne County Transportation Council 2012) were:

- Scenario A – Recent Trends Forecast,
- Scenario B – Public Services Forecast, and
- Scenario C – Distinctive Communities Forecast.

Table 7. California Greenhouse Gas Inventory for 2000 - 2017

CALIFORNIA AIR RESOURCES BOARD

California Greenhouse Gas Inventory for 2000-2017
— by Category as Defined in the 2008 Scoping Plan

million tonnes of CO2 equivalent - (based upon IPCC Fourth Assessment Report's 100-yr Global Warming Potentials)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Transportation	180.33	180.65	188.07	185.54	187.19	189.05	189.02	188.82	177.35	170.20	165.13	161.76	161.31	160.91	162.53	166.18	168.76	169.86
On Road	*164.76*	*165.30*	*171.57*	*168.36*	*169.41*	*170.20*	*169.64*	*169.64*	*159.79*	*155.07*	*151.20*	*148.03*	*147.71*	*147.07*	*148.04*	*151.52*	*154.62*	*155.75*
Passenger Vehicles	125.24	125.93	130.84	127.75	127.04	126.86	125.95	125.19	118.79	117.39	114.13	111.37	111.77	111.52	112.20	116.93	119.01	119.94
Heavy Duty Vehicles	39.51	39.37	40.73	40.61	42.37	43.33	43.68	44.45	41.00	37.68	37.07	36.65	35.93	35.55	35.83	35.19	35.61	35.81
Ships & Commercial Boats	*4.86*	*4.75*	*5.14*	*5.38*	*5.46*	*5.79*	*5.93*	*6.02*	*5.78*	*5.25*	*3.66*	*3.52*	*3.43*	*3.42*	*3.49*	*3.42*	*3.24*	*3.32*
Aviation (Intrastate)	*4.21*	*4.02*	*4.17*	*4.25*	*4.49*	*4.49*	*4.56*	*4.97*	*4.50*	*4.03*	*3.84*	*3.73*	*3.75*	*3.93*	*3.90*	*4.22*	*4.44*	*4.68*
Rail	*1.88*	*1.89*	*2.50*	*2.86*	*2.91*	*3.34*	*3.53*	*3.17*	*2.38*	*1.95*	*2.31*	*2.64*	*2.47*	*2.40*	*2.63*	*2.42*	*2.17*	*1.83*
Off Road [1]	*2.63*	*2.79*	*2.77*	*2.84*	*3.03*	*3.22*	*3.32*	*3.18*	*2.82*	*2.25*	*2.03*	*2.13*	*2.23*	*2.33*	*2.43*	*2.53*	*2.63*	*2.73*
Unspecified	*1.98*	*1.90*	*1.93*	*1.85*	*1.89*	*2.01*	*2.05*	*1.84*	*2.09*	*1.66*	*2.09*	*1.72*	*1.71*	*1.77*	*2.04*	*2.07*	*1.66*	*1.54*
Industrial	97.41	95.43	96.53	95.62	98.03	95.93	93.30	90.18	90.54	87.90	91.50	90.17	91.08	93.69	94.02	91.48	89.49	89.40
Refineries and Hydrogen Production	*28.52*	*29.10*	*29.25*	*29.89*	*29.13*	*29.81*	*29.70*	*29.27*	*28.48*	*28.37*	*30.46*	*30.12*	*29.88*	*29.22*	*29.40*	*28.21*	*29.61*	*29.89*
General Fuel Use	*20.25*	*19.08*	*20.32*	*16.53*	*17.02*	*16.00*	*15.96*	*14.77*	*15.99*	*15.56*	*17.93*	*18.78*	*18.91*	*19.31*	*19.88*	*19.23*	*19.23*	*19.07*
Natural Gas	16.82	14.62	15.18	11.97	12.80	12.72	12.38	11.56	12.37	11.46	13.46	14.50	14.48	14.57	15.57	14.79	15.28	15.28
Other Fuels	3.43	4.46	5.13	4.56	4.22	3.28	3.57	3.20	3.62	4.11	4.47	4.28	4.43	4.94	4.31	4.45	3.96	3.78
Oil & Gas: Production & Processing [2]	*19.39*	*19.62*	*18.34*	*20.85*	*21.00*	*19.69*	*17.53*	*17.56*	*18.82*	*17.69*	*16.80*	*16.73*	*16.73*	*19.06*	*19.47*	*19.58*	*17.11*	*17.22*
Fuel Use	17.53	17.76	16.51	19.09	19.20	17.91	15.75	15.78	17.05	15.92	15.01	14.91	14.87	16.94	17.18	17.22	14.84	14.94
Fugitive Emissions	1.87	1.86	1.84	1.82	1.80	1.78	1.77	1.77	1.78	1.77	1.80	1.82	1.86	2.12	2.29	2.36	2.27	2.28
Cement Plants	*9.50*	*9.28*	*9.83*	*9.90*	*10.08*	*10.03*	*9.76*	*9.25*	*8.64*	*5.73*	*5.57*	*5.37*	*6.92*	*7.21*	*7.66*	*7.47*	*7.60*	*7.66*
Clinker Production	5.52	5.28	5.82	5.87	6.03	5.96	5.81	5.66	5.28	3.60	3.46	3.70	4.22	4.47	4.76	4.69	4.67	4.85
Fuel Use	3.98	4.00	4.01	4.03	4.05	4.06	3.95	3.59	3.35	2.13	2.11	1.67	2.70	2.74	2.88	2.77	2.93	2.81
Cogeneration Heat Output	*11.69*	*10.48*	*10.65*	*10.59*	*12.92*	*12.41*	*12.16*	*11.15*	*10.40*	*12.56*	*12.61*	*11.15*	*10.81*	*10.99*	*9.64*	*8.98*	*7.99*	*7.79*
Other Fugitive and Process Emissions	*8.05*	*7.87*	*8.13*	*7.85*	*7.89*	*8.00*	*8.20*	*8.19*	*8.21*	*7.98*	*8.13*	*8.02*	*7.81*	*7.90*	*7.98*	*8.01*	*7.95*	*7.78*
Natural Gas Transmission & Distribution	3.52	3.58	3.90	3.66	3.73	3.76	3.90	3.87	3.95	3.98	3.94	3.92	3.88	3.82	3.87	3.94	3.99	4.01
Manufacturing	0.32	0.32	0.27	0.27	0.29	0.28	0.27	0.27	0.24	0.22	0.24	0.22	0.19	0.20	0.17	0.18	0.10	0.11
Wastewater Treatment	1.86	1.84	1.87	1.84	1.85	1.83	1.84	1.86	1.83	1.81	1.87	1.85	1.85	1.85	1.86	1.85	1.85	1.86
Other	2.35	2.14	2.09	2.08	2.02	2.12	2.19	2.20	2.18	1.96	2.08	2.02	1.90	2.03	2.08	2.04	2.01	1.80
Electric Power	104.84	122.00	108.64	112.61	115.20	107.85	104.53	113.93	120.14	101.37	90.34	87.97	95.52	89.40	88.46	83.82	68.59	62.39
In-State Generation	*58.94*	*62.98*	*49.68*	*48.05*	*49.15*	*45.05*	*49.85*	*54.12*	*54.32*	*53.33*	*46.75*	*41.10*	*51.02*	*49.42*	*51.68*	*49.88*	*42.28*	*38.45*
Natural Gas	50.92	55.46	42.17	40.92	42.40	38.11	43.07	47.12	48.02	46.08	40.59	35.81	45.76	45.61	46.38	45.11	38.25	34.88
Other Fuels	6.84	6.36	6.36	5.98	5.59	5.77	5.63	5.85	5.15	5.90	5.05	4.03	4.44	2.91	4.40	3.65	2.54	2.61
Fugitive and Process Emissions	1.17	1.16	1.15	1.15	1.16	1.16	1.15	1.16	1.14	1.35	1.10	1.25	0.82	0.90	0.90	1.13	1.48	0.95
Imported Electricity	*45.90*	*59.02*	*58.96*	*64.56*	*66.04*	*62.80*	*54.68*	*59.81*	*65.82*	*48.04*	*43.59*	*46.87*	*44.50*	*39.98*	*36.79*	*33.93*	*26.32*	*23.94*
Unspecified Imports	14.27	25.42	26.92	32.05	32.92	30.01	27.95	32.73	37.92	14.99	13.45	15.52	17.48	11.82	13.44	11.21	9.68	8.84
Specified Imports	31.64	33.59	32.04	32.51	33.13	32.79	26.73	27.08	27.90	33.05	30.14	31.35	27.02	28.15	23.35	22.72	16.64	15.10

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Table 7. California Greenhouse Gas Inventory for 2000 – 2017 (Continued)

CALIFORNIA AIR RESOURCES BOARD

California Greenhouse Gas Inventory for 2000-2017
— by Category as Defined in the 2008 Scoping Plan

million tonnes of CO2 equivalent - (based upon IPCC Fourth Assessment Report's 100-yr Global Warming Potentials)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Commercial and Residential	43.96	42.87	44.85	43.33	44.61	43.07	43.77	43.99	44.37	44.48	45.92	46.37	43.76	44.42	38.25	38.82	40.62	41.14
Residential Fuel Use	30.16	29.25	29.41	28.95	29.99	28.81	29.20	29.34	29.67	29.32	30.06	30.51	28.21	29.02	23.75	24.17	25.27	26.00
Natural Gas	27.98	27.38	27.49	26.62	27.33	25.93	26.55	26.68	26.62	26.26	26.99	27.51	25.76	26.53	21.58	21.90	22.80	23.62
Other Fuels	1.41	1.09	1.13	1.52	1.84	2.06	1.81	1.82	2.20	2.21	2.21	2.13	1.58	1.62	1.28	1.39	1.58	1.49
Fugitive Emissions	0.78	0.79	0.79	0.80	0.81	0.83	0.84	0.85	0.85	0.85	0.87	0.87	0.87	0.88	0.88	0.89	0.89	0.89
Commercial Fuel Use	11.47	11.31	13.11	12.84	12.70	12.55	12.83	12.82	12.99	12.89	13.58	13.71	13.41	13.30	12.52	12.67	13.14	13.02
Natural Gas	10.05	10.08	11.88	11.36	11.14	10.92	11.60	11.47	11.14	11.00	11.17	11.33	11.25	11.28	10.40	10.50	10.90	11.06
Other Fuels	1.42	1.22	1.23	1.48	1.55	1.64	1.24	1.36	1.85	1.88	2.41	2.38	2.16	2.02	2.12	2.16	2.24	1.95
Commercial Cogeneration Heat Output	1.09	1.05	1.06	0.26	0.62	0.40	0.42	0.49	0.37	0.92	0.92	0.78	0.76	0.70	0.57	0.55	0.77	0.68
Other Commercial and Residential	1.24	1.26	1.27	1.29	1.30	1.31	1.32	1.33	1.34	1.35	1.36	1.37	1.38	1.40	1.41	1.42	1.43	1.44
Agriculture	30.97	31.15	33.24	33.54	32.83	33.70	34.72	35.22	35.09	32.85	33.68	34.34	35.46	33.99	35.06	33.75	33.51	32.42
Livestock	19.12	19.40	20.64	21.08	20.30	20.93	21.28	23.54	23.55	22.85	23.41	23.26	23.89	22.92	23.24	22.66	22.57	22.68
Enteric Fermentation (Digestive Process)	9.86	9.76	10.39	10.47	10.25	10.55	10.60	11.71	11.46	11.10	11.55	11.40	11.52	11.22	11.28	10.95	10.93	11.05
Manure Management	9.26	9.64	10.25	10.60	10.04	10.39	10.68	11.82	12.09	11.75	11.86	11.86	12.38	11.71	11.96	11.70	11.64	11.62
Crop Growing & Harvesting	8.04	7.93	8.22	8.21	8.04	8.17	8.15	7.90	7.45	7.39	7.49	7.42	7.70	7.36	7.30	6.70	6.96	6.63
Fertilizers	6.25	6.23	6.40	6.38	6.22	6.24	6.18	5.96	5.84	5.73	5.79	5.71	5.94	5.63	5.67	5.24	5.34	5.14
Soil Preparation and Disturbances	1.71	1.63	1.75	1.76	1.75	1.86	1.90	1.87	1.53	1.59	1.63	1.63	1.68	1.65	1.56	1.38	1.54	1.40
Crop Residue Burning	0.08	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.09
General Fuel Use	3.81	3.82	4.38	4.25	4.50	4.60	5.30	3.78	4.09	2.61	2.77	3.65	3.68	3.71	4.51	4.40	3.97	3.11
Diesel	2.52	2.69	3.04	3.00	3.17	3.40	3.86	2.68	3.18	1.75	1.96	2.52	2.47	2.53	3.39	3.66	3.21	2.40
Natural Gas	0.68	0.75	0.94	0.85	0.82	0.70	0.88	0.78	0.75	0.69	0.65	0.66	0.70	0.69	0.63	0.64	0.72	0.67
Gasoline	0.31	0.38	0.40	0.40	0.50	0.50	0.55	0.31	0.16	0.16	0.16	0.48	0.71	0.49	0.49	0.10	0.04	0.05
Other Fuels	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
High GWP	6.28	6.64	7.08	7.76	8.49	9.26	10.11	10.83	11.65	12.29	13.52	14.53	15.54	16.75	17.73	18.60	19.26	19.99
Ozone Depleting Substance (ODS) Substitutes	5.57	6.01	6.52	7.20	7.95	8.75	9.64	10.43	11.27	11.96	13.20	14.21	15.25	16.38	17.42	18.32	19.00	19.64
Electricity Grid SF6 Losses [4]	0.51	0.49	0.44	0.42	0.40	0.37	0.33	0.29	0.30	0.27	0.24	0.24	0.24	0.29	0.17	0.14	0.10	0.18
Semiconductor Manufacturing [3]	0.20	0.14	0.12	0.14	0.14	0.14	0.14	0.10	0.08	0.06	0.08	0.08	0.06	0.08	0.14	0.14	0.16	0.17
Recycling and Waste	7.35	7.51	7.46	7.60	7.60	7.78	7.86	7.94	8.11	8.27	8.37	8.47	8.49	8.52	8.59	8.73	8.81	8.89
Landfills [3]	7.22	7.36	7.31	7.43	7.42	7.59	7.65	7.71	7.88	8.02	8.11	8.19	8.20	8.22	8.28	8.40	8.47	8.54
Composting	0.13	0.15	0.16	0.17	0.18	0.20	0.21	0.22	0.24	0.25	0.26	0.27	0.29	0.30	0.31	0.33	0.34	0.35
Included Inventory Emissions	471.14	486.25	485.88	486.00	493.94	486.65	483.32	490.90	487.25	457.35	448.46	443.61	451.16	447.69	444.65	441.37	429.04	424.10

[1] Includes equipment used in construction, mining, oil drilling, industrial and airport ground operations.
[2] Reflects emissions from combustion of natural gas, diesel, and lease fuel plus fugitive emissions.
[3] These categories are listed in the Industrial sector of ARB's GHG Emission Inventory sectors.
[4] This category is listed in the Electric Power sector of ARB's GHG Emission Inventory sectors.
[5] The exceptional Aliso Canyon natural gas leak event released 1.96 MMTCO2e of unanticipated emissions in calendar year 2015 and an additional 0.53 MMTCO2e in 2016. These emissions will be mitigated in the future according to legal settlement and are presented alongside but tracked separately from routine inventory emissions.

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Source: California Air Resources Board website http://www.arb.ca.gov

Table 8. California Greenhouse Gas Emissions Forecast (2009 – 2020)

(Mid Case) Forecast for Updated Scoping Plan - MMTCO2e (AR4)												
Scoping Plan Category	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Transportation	**171.5**	**170.6**	**168.4**	**172.7**	**174.4**	**176.4**	**178.1**	**179.7**	**181.4**	**182.8**	**183.9**	**185.3**
On Road	***158.6***	***157.5***	***155.1***	***159.2***	***160.5***	***162.1***	***163.4***	***164.6***	***165.9***	***166.9***	***167.6***	***168.7***
Passenger Vehicles	122.5	121.5	119.0	122.1	122.9	123.5	123.9	124.5	125.2	125.6	125.7	126.2
Heavy Duty Trucks	36.1	36.0	36.1	37.0	37.7	38.7	39.5	40.1	40.7	41.3	41.9	42.5
Ships & Commercial Boats	***3.7***	***3.7***	***3.8***	***4.0***	***4.0***	***4.2***	***4.3***	***4.5***	***4.7***	***4.8***	***5.0***	***5.1***
Aviation (Intrastate)	***4.0***	***3.8***	***3.7***	***3.9***	***4.0***	***4.1***	***4.2***	***4.3***	***4.3***	***4.4***	***4.5***	***4.6***
Rail	***1.9***	***2.3***	***2.5***	***2.3***	***2.4***	***2.5***	***2.5***	***2.6***	***2.6***	***2.7***	***2.7***	***2.8***
Off Road [1]	***2.2***	***2.0***	***2.1***	***2.2***	***2.3***	***2.4***	***2.5***	***2.6***	***2.7***	***2.8***	***2.9***	***3.0***
Unspecified	***1.1***	***1.2***	***1.1***	***1.1***	***1.1***	***1.1***	***1.1***	***1.1***	***1.1***	***1.1***	***1.1***	***1.1***
Electric Power	**103.6**	**90.1**	**86.6**	**93.4**	**94.6**	**95.9**	**97.2**	**98.6**	**99.8**	**100.9**	**102.3**	**103.8**
In-State Generation	***55.5***	***46.5***	***39.7***	***46.9***	***48.1***	***49.4***	***50.7***	***52.1***	***53.3***	***54.4***	***55.8***	***57.3***
Natural Gas	48.9	40.6	34.5	41.0	42.2	43.5	44.8	46.2	47.3	48.5	49.9	51.4
Other Fuels	5.3	4.8	3.9	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Fugitive and Process Emissions	1.3	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Imported Electricity	***48.0***	***43.6***	***46.9***	***46.5***	***46.5***	***46.5***	***46.5***	***46.5***	***46.5***	***46.5***	***46.5***	***46.5***
Unspecified Imports	15.0	13.5	15.5	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
Specified Imports	33.1	30.1	31.3	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
Commercial and Residential	**44.2**	**45.2**	**45.5**	**45.5**	**45.9**	**46.4**	**46.8**	**47.3**	**47.9**	**48.4**	**49.0**	**49.5**
Residential Fuel Use	***28.7***	***29.4***	***29.9***	***29.9***	***30.1***	***30.2***	***30.3***	***30.6***	***30.8***	***31.1***	***31.4***	***31.7***
Natural Gas	26.3	27.0	27.5	27.5	27.7	27.9	28.0	28.2	28.4	28.7	29.0	29.3
Other Fuels	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Commercial Fuel Use	***14.6***	***14.8***	***14.9***	***14.7***	***14.9***	***15.2***	***15.6***	***15.9***	***16.2***	***16.5***	***16.7***	***17.0***
Natural Gas	12.6	12.5	12.6	12.5	12.7	13.0	13.4	13.7	14.0	14.3	14.5	14.8
Other Fuels	2.0	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Commercial Cogeneration Heat Output	***0.9***	***0.9***	***0.8***	***0.9***	***0.9***	***0.9***	***0.9***	***0.9***	***0.9***	***0.9***	***0.9***	***0.9***
Industrial	**85.3**	**92.0**	**94.4**	**91.5**	**92.0**	**92.6**	**93.0**	**93.2**	**93.3**	**93.5**	**93.6**	**93.7**
Refineries	***28.3***	***30.4***	***30.1***	***29.7***	***29.7***	***29.7***	***29.7***	***29.7***	***29.7***	***29.7***	***29.7***	***29.7***
General Fuel Use	***17.6***	***20.2***	***21.6***	***21.2***	***21.7***	***22.1***	***22.4***	***22.7***	***23.0***	***23.3***	***23.6***	***23.9***
Natural Gas	11.5	13.5	14.5	14.6	15.0	15.4	15.7	16.0	16.3	16.6	16.9	17.2
Other Fuels	6.1	6.8	7.1	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Oil & Gas Extraction [2]	***17.1***	***16.2***	***16.2***	***15.7***	***15.6***	***15.7***	***15.7***	***15.5***	***15.2***	***15.0***	***14.7***	***14.5***
Fuel Use	15.9	15.0	14.9	14.6	14.5	14.6	14.6	14.4	14.2	13.9	13.7	13.5
Fugitive Emissions	1.2	1.2	1.3	1.2	1.2	1.1	1.1	1.1	1.1	1.0	1.0	1.0
Cement Plants	***5.7***	***5.6***	***6.1***	***5.8***	***5.8***	***5.8***	***5.8***	***5.8***	***5.8***	***5.8***	***5.8***	***5.8***
Clinker Production	3.6	3.5	4.1	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Fuel Use	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Cogeneration Heat Output	***10.3***	***12.5***	***12.6***	***11.8***	***11.8***	***11.8***	***11.8***	***11.8***	***11.8***	***11.8***	***11.8***	***11.8***
Other Fugitive and Process Emissions	***6.3***	***7.2***	***7.7***	***7.2***	***7.3***	***7.4***	***7.5***	***7.7***	***7.8***	***7.9***	***8.0***	***8.1***
Recycling and Waste	**8.1**	**8.2**	**8.3**	**8.3**	**8.4**	**8.5**	**8.6**	**8.7**	**8.9**	**9.0**	**9.2**	**9.4**
Landfills [3]	***7.8***	***7.9***	***8.0***	***8.0***	***8.1***	***8.2***	***8.3***	***8.4***	***8.6***	***8.7***	***8.9***	***9.1***
Composting	***0.3***	***0.3***	***0.3***	***0.3***	***0.3***	***0.3***	***0.3***	***0.3***	***0.3***	***0.3***	***0.3***	***0.3***
High GWP	**14.1**	**16.1**	**17.3**	**19.1**	**20.6**	**22.2**	**23.7**	**25.3**	**26.9**	**28.5**	**30.1**	**31.5**
Ozone Depleting Substance (ODS) Substitutes	***13.5***	***15.4***	***16.6***	***18.4***	***20.0***	***21.5***	***23.1***	***24.7***	***26.3***	***27.9***	***29.4***	***30.9***
Electricity Grid SF6 Losses [4]	***0.3***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***
Semiconductor Manufacturing [3]	***0.3***	***0.5***	***0.4***	***0.4***	***0.4***	***0.4***	***0.4***	***0.4***	***0.4***	***0.4***	***0.4***	***0.4***
Agriculture	**35.0**	**34.9**	**35.4**	**34.8**	**34.9**	**35.0**	**35.1**	**35.2**	**35.4**	**35.6**	**35.8**	**36.2**
Livestock	***23.5***	***23.0***	***23.0***	***22.9***	***23.0***	***23.1***	***23.2***	***23.4***	***23.6***	***23.8***	***24.0***	***24.4***
Enteric Fermentation (Digestive Process)	11.3	11.1	11.1	11.1	11.1	11.2	11.2	11.3	11.4	11.4	11.5	11.7
Manure Management	12.2	11.8	11.9	11.8	11.9	11.9	12.0	12.1	12.2	12.3	12.5	12.7
Crop Growing & Harvesting	***8.8***	***9.1***	***8.8***	***8.9***	***8.9***	***8.9***	***8.9***	***8.9***	***8.9***	***8.9***	***8.9***	***8.9***
Fertilizers	7.3	7.6	7.2	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Soil Preparation and Disturbances	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Crop Residue Burning	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
General Fuel Use	***2.7***	***2.8***	***3.7***	***3.0***	***3.0***	***3.0***	***3.0***	***3.0***	***3.0***	***3.0***	***3.0***	***3.0***
Diesel	1.8	2.0	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Natural Gas	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Gasoline	0.2	0.2	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other Fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL GROSS EMISSIONS	**461.8**	**457.0**	**455.9**	**465.4**	**470.8**	**476.9**	**482.4**	**488.0**	**493.5**	**498.7**	**503.9**	**509.4**
	2020 BAU Forecast Version: May 27, 2014											

Source: California Air Resources Board internet website http://www.arb.ca.gov
Note: Because of differences in methodology, values for 2009 through 2012 differ from the GHG emissions inventory values.

Source: California Air Resources Board website http://www.arb.ca.gov

As shown in **Table 9**, in 2010 Tuolumne County emitted approximately 782,846 MT of CO_2e emissions. These emissions resulted from activities and operations in the following sectors:

- residential (energy consumption),
- non-residential (energy consumption),
- transportation,
- off-road vehicles and equipment,
- agriculture and forestry,
- wastewater, and
- solid waste.

The *Draft Environmental Impact Report - 2016 Regional Transportation Plan* analyzes GHG emissions using a ratio of GHG emissions per service population. Service population is defined as the total of residents plus employees in Tuolumne County. In 2010, service population in Tuolumne County was 79,857, with 59,293 residents and 20,564 employees (59,293 + 20,564 = 79,857). This results in 9.8 MT CO_2e per service population in Tuolumne County in 2010 (782,846 ÷ 79,857 = 9.8). (Tuolumne County Transportation Council 2016)

As shown in **Table 10**, GHG emissions in Tuolumne County are forecasted to increase from 782,846 MT CO_2e in 2010 to:

- 821,586 MT CO_2e in 2040 under Scenario A – Recent Trends Forecast,
- 820,300 MT CO_2e in 2040 under Scenario B – Public Services Forecast, and
- 821,107 MT CO_2e in 2040 under Scenario C – Distinctive Communities Forecast.

In the year 2010 and in all three 2040 scenarios:

- the sector that generates the largest amount of GHG emissions is Transportation,

- the sector that generates the second largest amount of GHG emissions is Residential, and

- the sector that generates the third largest amount of GHG emissions is Off-Road Vehicles / Equipment.

Table 9. Tuolumne County 2010 GHG Emissions by Sector

Sector	Metric Tons CO2e	Percentage
Residential		
Electricity	56,164	43%
Propane	66,691	51%
Heating Oil	4,780	4%
Fuel Wood	2,683	2%
Residential Subtotal	**130,318**	**17%**
Non‐Residential		
Electricity	36,821	72%
Propane	14,078	28%
Non-Residential Subtotal	**50,899**	**7%**
Transportation		
Passenger Vehicles	374,926	82%
Heavy‐Duty Vehicles	80,606	18%
Transportation Subtotal	**455,532**	**58%**
Off-Road Vehicles / Equipment		
Lawn and Garden Equipment	1,215	1%
Recreational Vehicles	60,892	68%
Construction and Mining Equipment	16,776	19%
Logging Equipment	10,744	12%
Off-Road Subtotal	**89,627**	**11%**
Agriculture / Forestry		
Livestock	38,537	94%
Prescribed Burning	2,286	6%
Agriculture / Forestry Subtotal	**40,823**	**5%**
Wastewater		
Central Wastewater Treatment	436	7%
Septic	6,210	93%
Wastewater Subtotal	**6,646**	**1%**
Solid Waste		
All Solid Waste	9,001	100%
Solid Waste Subtotal	**9,001**	**1%**
TOTAL	**782,846**	**100%**

Source: Tuolumne County Transportation Council 2012.
Notes: "GHG" = greenhouse gas. CO_2e = carbon dioxide equivalent

Table 10. Tuolumne County GHG Emissions Forecasts by Sector by Year

Sector	Metric Tons of Carbon Dioxide Equivalent				Percent Change 2010 to 2040
	2010	2020	2030	2040	
Scenario A: Recent Trends Forecast					
Residential	130,318	120,501	135,845	151,189	16.0%
Non - Residential	50,899	39,404	44,089	49,033	- 3.7%
Transportation	455,532	408,461	430,547	478,767	5.1%
Off - Road Vehicles/Equipment	89,627	80,665	80,665	80,665	- 10.0%
Agriculture/Forestry	40,823	40,823	40,823	40,823	0.0%
Wastewater	6,646	7,419	8,193	8,966	34.9%
Solid Waste	9,001	10,048	11,096	12,143	34.9%
TOTAL	**782,846**	**707,321**	**751,257**	**821,586**	**4.9%**
Scenario B: Public Services Forecast					
Residential	130,318	120,501	135,845	151,189	16.0%
Non - Residential	50,899	39,404	44,089	49,033	- 3.7%
Transportation	455,532	407,971	429,664	477,481	4.8%
Off - Road Vehicles/Equipment	89,627	80,665	80,665	80,665	- 10.0%
Agriculture/Forestry	40,823	40,823	40,823	40,823	0.0%
Wastewater	6,646	7,419	8,193	8,966	34.9%
Solid Waste	9,001	10,048	11,096	12,143	34.9%
TOTAL	**782,846**	**706,831**	**750,374**	**820,300**	**4.8%**
Scenario C: Distinctive Communities Forecast					
Residential	130,318	120,501	135,845	151,189	16.0%
Non - Residential	50,899	39,404	44,089	49,033	- 3.7%
Transportation	455,532	408,279	430,218	478,288	5.0%
Off - Road Vehicles/Equipment	89,627	80,665	80,665	80,665	- 10.0%
Agriculture/Forestry	40,823	40,823	40,823	40,823	0.0%
Wastewater	6,646	7,419	8,193	8,966	34.9%
Solid Waste	9,001	10,048	11,096	12,143	34.9%
TOTAL	**782,846**	**707,138**	**750,928**	**821,107**	**4.9%**

Source: Tuolumne County Transportation Council 2012.
Note: "GHG" = greenhouse gas.

3.6 REGULATORY SETTING

The following is a description of regulatory setting in Tuolumne County. Air quality within the County is regulated by such agencies as the Tuolumne County Air Pollution Control District (TCAPCD), ARB, and EPA. Each of these agencies develops rules, regulations, policies, and/or goals to attain the goals or directives imposed through legislation. Although the EPA regulations may not be superseded, both state and local regulations may be more stringent.

3.6.1 Federal Air Quality Regulations

At the federal level, EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA), which was enacted in 1963. The FCAA was amended in 1970, 1977, and 1990.

The FCAA required EPA to establish primary and secondary NAAQS, which are shown in **Table 1**. The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA has responsibility to review all state SIPs to determine conformation to the mandates of the FCAAA and determine if implementation will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

3.6.2 State Air Quality Regulations

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), which was adopted in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

ARB is primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. The ARB is primarily responsibility for statewide pollution sources and produces a major part of the SIP. Local air districts are still relied upon to provide additional strategies for sources under their jurisdiction. The ARB combines these data and submits the completed SIP to EPA.

Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in some cases are more stringent than the NAAQS), determining and updating area

designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

The CCAA, Section 39610 (a), directs the ARB to "identify each district in which transported air pollutants from upwind areas outside the district cause or contribute to a violation of the ozone standard and to identify the district of origin of transported pollutants." The information regarding the transport of air pollutants from one basin to another was to be quantified to assist interrelated basins in the preparation of plans for the attainment of State ambient air quality standards. Numerous studies conducted by the ARB have identified air basins that are impacted by pollutants transported from other air basins (as of 1993). Among the air basins affected by air pollution transport from the San Francisco Bay Area Air Basin (SFBAAB) are the North Central Coast Air Basin, the Mountain Counties Air Basin (MCAB), the San Joaquin Valley Air Basin, and the Sacramento Valley Air Basin. The SFBAAB was also identified as an area impacted by the transport of air pollutants from other air basins.

3.6.3 Local Air Quality Regulations

The following information is from the *Draft Environmental Impact Report - 2016 Regional Transportation Plan* (Tuolumne County Transportation Council 2016).

Local control in air quality management is provided by ARB through county-level or regional (multi-county) air pollution control districts (APCD). ARB establishes statewide air quality standards and is responsible for control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources.

The local APCD is required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in "attainment" or "nonattainment."

The TCAPCD is responsible for implementing emissions standards and other requirements of federal and State laws regarding most types of stationary emission sources.

3.6.4 Global Climate Change and Greenhouse Gas Emissions

Federal. The FCAA requires EPA to define NAAQS to protect public health and welfare in the U.S. The FCAA does not specifically regulate GHG emissions; however, on April 2, 2007 the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency*, determined that GHGs are pollutants that can be regulated under the FCAA. Currently, there are no federal regulations that establish ambient air quality standards for GHGs.

On December 7, 2009, EPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the FCAA (Endangerment Finding). Under the Endangerment Finding, the Administrator of EPA found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of § 202(a) of the FCAA. The Administrator of EPA also found that GHG emissions from new motor vehicles and motor

vehicle engines are contributing to air pollution, which is endangering public health and welfare. The findings do not in and of themselves impose any emission reduction requirements but, rather, allow EPA to finalize the GHG standards proposed earlier in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation. All mobile sources would be required to comply with these regulations as they are implemented.

State of California. The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California. There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing ARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have been established.

> Executive Order S-3-05. Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, to 1990 level by 2020, and to 80 percent below the 1990 level by 2050.
>
> While dated, this executive order remains relevant because a more recent California Appellate Court decision, Cleveland National Forest Foundation v. San Diego Association of Governments (November 24, 2014) 231 Cal.App.4th 1056, examined whether it should be viewed as having the equivalent force of a legislative mandate for specific emissions reductions. While the California Supreme Court ruled that the San Diego Association of Governments did not abuse its discretion by declining "to adopt the 2050 goal as a measure of significance in light of the fact that the executive order does not specify any plan or implementation measures to achieve its goal, the decision also recognized that the goal of a 40 percent reduction in 1990 GHG levels by 2030 is "widely acknowledged" as a "necessary interim target to ensure that California meets its longer-range goal of reducing greenhouse gas emissions 80 percent below 1990 levels by the year 2050.
>
> Assembly Bill 32, the California Global Warming Solutions Act Of 2006. In September 2006, Governor Schwarzenegger signed the California Global Warming Solutions Act of 2006, Assembly Bill (AB) 32. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also requires that these reductions "…shall remain in effect unless otherwise amended or repealed. (b) It is the intent of the Legislature that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020. (c) The [Air Resources Board] shall make recommendations to the Governor and the

Legislature on how to continue reductions of greenhouse gas emissions beyond 2020." [California Health and Safety Code, Division 25.5, Part 3, Section 38551]

Assembly Bill 32 Climate Change Scoping Plan and Updates. In December 2008, ARB adopted its *Climate Change Scoping Plan* (California Air Resources Board 2009), which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons of CO_2e emissions, or approximately 21.7 percent from the State's projected 2020 emission level of 545 million metric tons of CO_2e under a business-as-usual scenario (this is a reduction of 47 million metric tons of CO_2e, or almost 10 percent, from 2008 emissions).

In May 2014, ARB released and subsequently adopted the *First Update to the Climate Change Scoping Plan* (California Air Resources Board 2014) to identify the next steps in reaching AB 32 goals and evaluate progress that has been made between 2000 and 2012. According to the update, California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020. The update also reports the trends in GHG emissions from various emissions sectors (e.g., transportation, building energy, agriculture).

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan Update) (California Air Resources Board 2017), lays out the framework for achieving the 2030 reductions as established in more recent legislation (discussed below). The 2017 Scoping Plan Update identifies the GHG reductions needed by each emissions sector to achieve a statewide emissions level that is 40 percent below 1990 levels before 2030. The update also identifies how GHGs associated with proposed projects could be evaluated under CEQA. Specifically, it states that achieving "no net increase" in GHG emissions is the correct overall objective of projects evaluated under CEQA if conformity with an applicable local GHG reduction plan cannot be demonstrated. ARB recognizes that it may not be appropriate or feasible for every development project to mitigate its GHG emissions to no net increase and that this may not necessarily imply a substantial contribution to the cumulatively significant environmental impact of climate change.

Executive Order B-30-15. On April 20, 2015 Governor Brown signed EO B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union, which adopted the same target in October 2014. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, discussed above). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below

2 degrees Celsius, the warming threshold at which major climate disruptions are projected, such as super droughts and rising sea levels.

Senate Bill 32 and Assembly Bill 197 of 2016. In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize ARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

Senate Bill X1-2 of 2011 and Senate Bill 350 of 2015. SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewable sources by 2020. SB X1-2 sets a three-stage compliance period requiring all California utilities, including independently-owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewable sources by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. SB X1-2 also requires the renewable electricity standard to be met increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California. SB X1-2 mandates that renewable energy from these sources make up at least 50 percent of the total renewable energy for the 2011-2013 compliance period, at least 65 percent for the 2014-2016 compliance period, and at least 75 percent for 2016 and beyond. In October 2015, SB 350 was signed by Governor Brown, which requires retail sellers and publicly-owned utilities to procure 50 percent of their electricity from renewable resources by 2030.

Regional. In 2012, the Tuolumne County Transportation Council (TCTC) conducted a regional blueprint planning effort which presented the results of a countywide (including incorporated and unincorporated areas) GHG emissions inventory, which evaluated existing (2010) GHG emissions, and projected (2020, 2030, and 2040) emissions for three growth scenarios. The *Tuolumne County Regional Blueprint Greenhouse Gas Study* (Tuolumne County Transportation Council 2012) also identified policies and measures Tuolumne County and land use project applicants can implement to reduce GHG emissions consistent with AB 32 and prepare for the potential impacts of climate change.

The *Tuolumne County Regional Blueprint Greenhouse Gas Study* identified a countywide target to reduce Tuolumne County GHG emissions 15 percent below 2010 levels by 2020 (equivalent to 665,419 MT of CO_2e) and policies that can be implemented to ensure that the County will meet the target. The policies are organized into six categories:

1. Energy,
2. Transportation,
3. Resource Conservation,

4. Off-Road Vehicles and Equipment,
5. New Development, and
6. Adaptation.

The study also identified a project-level threshold of 4.6 MT CO_2e per service population per year that can be applied evenly to future land development applications countywide to ensure that reduction target. The *Tuolumne County Regional Blueprint Greenhouse Gas Study* and associated project-level thresholds were adopted by the County Board of Supervisors in January 2012. (Tuolumne County Transportation Council 2016)

3.7 CLIMATE, TOPOGRAPHY, AIR POLLUTION POTENTIAL

Tuolumne County is located in the MCAB. The general climate of the MCAB varies considerably with elevation and proximity to mountain peaks. The pattern of mountains and hills is primarily responsible for the wide variation in rainfall, temperature, and wind throughout the region. Temperature variations have an important influence on MCAB wind flow, dispersion along mountain ridges, vertical mixing in the atmosphere, and photochemistry.

Although the Sierra Nevada mountain range receives large amounts of precipitation from storms moving over the continent from the Pacific Ocean, precipitation in the MCAB is highly variable, changing with elevation and location. Areas in the eastern portion of the MCAB are at relatively high elevations and receive the most precipitation. Precipitation levels decline toward the western areas of the MCAB. Climates vary from alpine in the high elevations of the eastern areas to more arid at the western edge of the MCAB.

Tuolumne County experiences routine sources of air pollution: vehicles, industrial facilities, open burning, woodstoves, and earth-moving equipment. Air quality in the county is further diminished by the transport of pollutants from the more industrialized and populated San Joaquin Valley and San Francisco Bay Area.

SECTION 4
SHORT-TERM CONSTRUCTION IMPACTS

Implementation of the Terra Vi Lodge Project would result in construction activity, which would generate air pollutant emissions. Construction activities such as grading, excavation and travel on unpaved surfaces would generate dust, and can lead to elevated concentrations of PM_{10} and $PM_{2.5}$. The operation of construction equipment results in exhaust emissions, which include NO_x emissions.

4.1 SIGNIFICANCE THRESHOLDS

To evaluate the significance of pollutant emissions impacts, the TCAPCD has established significance thresholds for emissions of ozone precursors ROG and NO_x, PM_{10}, and CO. These types of emissions are referred to as "criteria" pollutants. Significance thresholds used in this report are from the TCAPCD *CEQA Thresholds of Significance* (Tuolumne County Air Pollution Control District 2019).

The TCAPCD significance thresholds listed in **Table 11** are used in this *Air Quality Study* in the evaluation of criteria pollutant impacts associated with the project. The thresholds are:

- 1,000 pounds per day (ppd) or 100 tons per year (tpy) of ROG,
- 1,000 ppd or 100 tpy of NO_x,
- 1,000 ppd or 100 tpy of PM_{10}, and
- 1,000 ppd or 100 tpy of CO.

If the project's criteria pollutant emissions exceed the above pollutant thresholds, the project will be considered to have a significant effect on air quality. These thresholds are applied to both construction-related and operational emissions.

4.2 METHODOLOGY

Short-term construction-related and long-term operational emissions associated with the project were estimated using the CalEEMod emissions modeling program (California Air Pollution Control Officers Association 2016). CalEEMod is a land use emissions computer model designed to provide a platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model quantifies direct

Table 11. Tuolumne County Significance Thresholds for Criteria Pollutants

Type of Pollutant Emissions	Amount of Pollutant Emissions in Pounds per Day	Amount of Pollutant Emissions in Tons per Year
Reactive Organic Gases (ROG)	1,000	100
Nitrogen Oxides (NO_x)	1,000	100
Inhalable Particulate Matter (PM_{10})	1,000	100
Carbon Monoxide (CO)	1,000	100

Note: These thresholds are applied to both construction-related and operational emissions.
Source: Tuolumne County Air Pollution Control District 2019.

emissions from construction and operation (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

More detailed information on the CalEEMod model is available at the internet website http://caleemod.com/. Output files from the CalEEMod model, as applied to the Terra Vi Lodge Project, are presented in the technical appendix of this *Air Quality Study*.

The CalEEMod emissions model contains default data characterizing the construction and operation of land use development projects, such as the Terra Vi Lodge Project. The CalEEMod default values were used except where:

- project-specific data are available,
- data specific to the project location are available, and
- updated technical data are available.

Project-specific data included the size of the project site and amount of asphalt-paved surfaces (Bissell pers. comm. and Chirnside pers. comm.), and an estimate of project-related vehicle miles traveled (VMT) (Tambellini pers. comm.).

Data specific to the project location included use of climate data and electricity data supplied by the Climate Registry (The Climate Registry 2019).

Updated technical data included use of vehicle trip generation estimates for the Terra Vi Lodge Project from the project traffic analysis (KD Anderson & Associates 2020).

A table showing the development and application of trip generation and VMT data used in the CalEEMod model for the Terra Vi Lodge Project is presented in the technical appendix of this *Air Quality Study*. Since the time the CalEEMod model was applied for the Terra Vi Lodge Project, the firm of Wood Rodgers has revised their original estimate of project-related VMT (Tambellini pers. comm.). The revised VMT estimate is approximately seven percent lower than the original used in the CalEEMod modeling analysis. The revised VMT estimate has not been applied in the analysis presented in this *Air Quality Study*. The analyses presented in this study are based on the original higher VMT estimate. Because the CalEEMod analysis presented in this study is based on the original VMT estimate, the resulting estimates are considered to be conservatively higher.

4.3 IMPACTS

The following is a description of construction-related impacts of the Terra Vi Lodge Project on criteria pollutant emissions.

Implementation of the project would result in construction activity, which would generate air pollutant emissions. Construction activities such as demolition, grading, excavation and travel on unpaved surfaces would generate dust, and can lead to elevated concentrations of particulate matter emissions PM_{10} and $PM_{2.5}$. The operation of construction equipment results in exhaust emissions, which include ozone precursors ROG and NO_x.

Table 12 presents construction-period emissions that would result from implementation of the Terra Vi Lodge Project.

4.3.1 Reactive Organic Gas Emissions

As shown in **Table 12**, construction of the project would result in 241.2 ppd and 2.6 tpy of ROG emissions. Construction-related ROG emissions would be less than the TCAPCD 1,000 ppd and 100 tpy significance threshold for ROG emissions. Therefore, according to methods described in the *Significance Thresholds* section of this *Air Quality Study*, this impact is considered less than significant, and no mitigation measures are required.

4.3.2 Nitrogen Oxide Emissions

As shown in **Table 12**, construction of the project would result in 46.6 ppd and 3.98 tpy of NO_x emissions. Construction-related NO_x emissions would be less than the TCAPCD 1,000 ppd and 100 tpy significance threshold for NO_x emissions. Therefore, according to methods described in the *Significance Thresholds* section of this *Air Quality Study*, this impact is considered less than significant, and no mitigation measures are required.

4.3.3 Inhalable Particulate Matter (PM_{10})

As shown in **Table 12** construction of the project would result in 20.3 ppd and 0.67 tpy of PM_{10} emissions. Construction-period PM_{10} emissions would be less than the TCAPCD 1,000 ppd and 100 tpy significance threshold for PM_{10} emissions. Therefore, according to methods described in the *Significance Thresholds* section of this *Air Quality Study*, this impact is considered less than significant, and no mitigation measures are required.

4.3.4 Carbon Monoxide

As shown in **Table 12** construction of the project would result in 38.3 ppd and 4.74 tpy of CO emissions. Construction-period CO emissions would be less than the TCAPCD 1,000 ppd and 100 tpy significance threshold for CO emissions. Therefore, according to methods described in the *Significance Thresholds* section of this *Air Quality Study*, this impact is considered less than significant, and no mitigation measures are required.

4.3.5 Odor

During project-related construction activities, construction equipment exhaust and application of asphalt and architectural coatings would temporarily generate odors. Any construction-related odor emissions would be temporary and intermittent. Winds in the area vary depending on the regional climate and topography and may carry emissions or odors to nearby areas where people are, such as nearby residential areas. Noxious odors would be primarily confined to the immediate vicinity of the construction equipment and activity, and would be diluted when carried further away. As a result, impacts from the project regarding odors would be less than significant and no mitigation measures are required.

Table 12. Terra Vi Lodge Project Construction-Related Criteria Pollutant Emissions

Time Period and Significance Factor	Reactive Organic Gas (ROG)	Nitrogen Oxides (NO_x)	Inhalable Particulate Matter (PM_{10})	Carbon Monoxide (CO)
	Emissions in Pounds per Day			
Summer	241.1	46.6	20.3	38.3
Winter	241.2	46.6	20.3	38.1
Maximum	241.2	46.6	20.3	38.3
Significance Threshold	1,000	1,000	1,000	1,000
Significant Impact?	No	No	No	No
	Emissions in Tons per Year			
Significance Threshold	100	100	100	100
Construction Emissions - 2021	0.60	3.98	0.67	4.74
Construction Emissions - 2022	2.60	1.14	0.15	1.59
Significant Impact?	No	No	No	No

Source: Tuolumne County Air Pollution Control District 2019, and CalEEMod emissions model.

SECTION 5
LONG-TERM OPERATIONAL IMPACTS

This section of this *Air Quality Study* assesses the long-term operational impact of project-related emissions on air quality.

5.1 SIGNIFICANCE THRESHOLDS

As noted in Section 4.1 of this *Air Quality Study*, significance thresholds established by the TCAPCD (Tuolumne County Air Pollution Control District 2019) are used in this study to determine the significance of operational emissions of ozone precursors ROG and NO_x, PM_{10}, and CO. The thresholds are:

- 1,000 ppd or 100 tpy of ROG,
- 1,000 ppd or 100 tpy of NO_x,
- 1,000 ppd or 100 tpy of PM_{10}, and
- 1,000 ppd or 100 tpy of CO.

If the project's criteria pollutant emissions exceed the above pollutant thresholds, the project will be considered to have a significant effect on air quality. These thresholds are applied to both construction-related and operational emissions.

5.2 METHODOLOGY

As described in more detail in Section 4.2 of this *Air Quality Study*, *Methodology*, long-term operational emissions associated with the project were estimated using the CalEEMod emissions modeling program (California Air Pollution Control Officers Association 2016).

5.3 IMPACTS

The following is a description of operational impacts of the Terra Vi Lodge Project on criteria pollutant emissions.

5.3.1 Reactive Organic Gas Emissions

As shown in **Table 12**, operation of the project would result in 12.5 ppd and 1.99 tpy of ROG emissions. Operational ROG emissions would be less than the TCAPCD 1,000 ppd and 100 tpy

significance threshold for ROG emissions. Therefore, according to methods described in the *Significance Thresholds* section of this *Air Quality Study*, this impact is considered less than significant, and no mitigation measures are required.

5.3.2 Nitrogen Oxide Emissions

As shown in **Table 12**, operation of the project would result in 19.2 ppd and 3.02 tpy of NO_x emissions. Operational NO_x emissions would be less than the TCAPCD 1,000 ppd and 100 tpy significance threshold for NO_x emissions. Therefore, according to methods described in the *Significance Thresholds* section of this *Air Quality Study*, this impact is considered less than significant, and no mitigation measures are required.

5.3.3 Inhalable Particulate Matter (PM_{10})

As shown in **Table 12** operation of the project would result in 8.5 ppd and 1.32 tpy of PM_{10} emissions. Operational PM_{10} emissions would be less than the TCAPCD 1,000 ppd and 100 tpy significance threshold for PM_{10} emissions. Therefore, according to methods described in the *Significance Thresholds* section of this *Air Quality Study*, this impact is considered less than significant, and no mitigation measures are required.

5.3.4 Carbon Monoxide

As shown in **Table 12** operation of the project would result in 65.0 ppd and 9.94 tpy of CO emissions. Operational CO emissions would be less than the TCAPCD 1,000 ppd and 100 tpy significance threshold for CO emissions. Therefore, according to methods described in the *Significance Thresholds* section of this *Air Quality Study*, this impact is considered less than significant, and no mitigation measures are required.

5.3.5 Odor

Types of facilities typically considered to have objectionable odors include wastewater treatment plants, compost facilities, landfills, solid waste transfer stations, manufacturing facilities, paint/coating operations (e.g. auto body shops), dairy farms, petroleum refineries, asphalt batch plants, and food manufacturing facilities. Hotels and lodges, like the Terra Vi Lodge Project, are not associated with foul odors that constitute a public nuisance.

The potential for long-term operational project-related odor effects would be primarily related to wastewater. Due to the subjective nature of odor, the wide range of variables that could influence the potential for odors, and the variety of odor sources, quantitative analysis to determine the presence and magnitude of substantial odor sources is not possible. However, the proposed wastewater system for the project would conform to both California State and Tuolumne County regulations and policies. These regulations and policies have been developed over time, resulting in reliable design principles.

The proposed wastewater system has been developed to serve the entire project build-out with a 100% redundancy area being preserved. System reliability would be enhanced by additional

redundant mechanical system components. The food service wastewater treatment system would include a technologically advanced treatment system and be continuously monitored. Waste and water detention materials would be separated into black and greywater segments and treated on site. The black water would be disposed of through an approved leach field system. The greywater is proposed to be treated, stored and re-used for toilets, fire suppression storage and landscape irrigation uses. Surplus greywater would be disposed of in the leach field system.

The wastewater system sizing is based on full time maximum facility use and occupancy. The sources for daily wastewater loading include guest rooms/cabins, conference facility occupancy, retail floor space, staff/employee housing, guest only food service, and a public market food service (sandwiches and coffee). The designated areas for wastewater equipment and leach systems are indicated on the site plan. All wastewater daily volumes are derived from the 2016 California Plumbing Code.

The wastewater from the project would be divided between five separate wastewater systems sized for less than 10,000 gallons per day of sewage loading each. Dividing the total wastewater volume into smaller packages improves wastewater handling efficiency. Wastewater system reliability would be provided through redundant mechanical wastewater system components. The 100% future replacement leach system area has been planned for, and the area has been set aside.

Because the wastewater system will conform to established State of California and County of Tuolumne regulations and policies, and because of redundancy proposed for the system, long-term operational project-related odor impacts would be less-than-significant and no mitigation measures are required.

Table 13. Terra Vi Lodge Project Operational Criteria Pollutant Emissions

Time Period and Significance Factor	Reactive Organic Gas (ROG)	Nitrogen Oxides (NO_x)	Inhalable Particulate Matter (PM_{10})	Carbon Monoxide (CO)
	Emissions in Pounds per Day			
Summer	12.5	17.1	8.5	60.6
Winter	11.5	19.2	8.5	65.0
Maximum	12.5	19.2	8.5	65.0
Significance Threshold	1,000	1,000	1,000	1,000
Significant Impact?	No	No	No	No
	Emissions in Tons per Year			
Annual Operational Emissions	1.99	3.02	1.32	9.94
Significance Threshold	100	100	100	100
Significant Impact?	No	No	No	No

Source: Tuolumne County Air Pollution Control District 2019, and CalEEMod emissions model.

SECTION 6
TOXIC AIR CONTAMINANT IMPACTS

This section of this *Air Quality Study* describes the impact of the Terra Vi Lodge Project related to toxic air contaminants (TAC) emissions:

6.1 SIGNIFICANCE THRESHOLDS

The following describes TAC significance thresholds applied in this air quality study.

6.1.1 Naturally-Occurring Asbestos

Naturally occurring asbestos has been identified as a TAC by the ARB. No quantitative significance thresholds have been set for NOA. However, the California Department of Conservation provides a map that may be used as a screening-level indicator of the likelihood of NOA being present on the project site. The map, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* (California Department of Conservation 2000) shows the locations considered to be subject to elevated risk of containing NOA.

If a project site is located outside of areas considered to be subject to elevated risk of containing NOA, it may be considered to have a relatively lower probability of containing NOA and, in this *Air Quality Study*, will be considered to have a less-than-significant impact.

If a project site is located within an area considered to be subject to elevated risk of containing NOA, it may be considered to have an elevated probability of containing NOA and, in this *Air Quality Study*, will be considered to have a significant impact.

If a project is considered to have a significant impact, implementation of mitigation measures to reduce asbestos emissions during construction activities will be considered to reduce the impact to a less-than-significant level.

6.1.2 Mobile Source Emissions from High-Volume Roadways

High traffic volume freeways and roads are considered a source of TAC emissions. This *Air Quality Study* applies a quantitative threshold for determining the significance of TAC emissions from high volume freeways and roads. The threshold is based on the ARB document *Air Quality and Land Use Handbook: A Community Health Perspective* (California Air Resources Board 2005). As noted in this document:

> "Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day."

Sensitive uses include, for example, the hotel and residential land uses proposed as part of the Terra Vi Lodge project. In this air quality study, locating sensitive land uses within 500 feet of a freeway or urban road with 100,000 or more vehicles per day, or rural roads with 50,000 or more vehicles per day will be considered to result in a significant impact.

6.2 METHODOLOGY

The following describes methods used to assess TAC impacts for this *Air Quality Study*.

6.2.1 Naturally-Occurring Asbestos

As noted above, the map *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* (California Department of Conservation 2000) is used in this *Air Quality Study* as a source of information on the potential for NOA to be present on the project site.

6.2.2 Mobile Source Emissions from High-Volume Roadways

Traffic volume on high volume roadways in the vicinity of the project site was based on information from the Caltrans Traffic Census Program (California Department of Transportation 2019).

6.3 IMPACTS

The following is a description of the TAC emission impacts of the Terra Vi Lodge Project.

6.3.1 Naturally-Occurring Asbestos

The map, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* shows areas more likely to contain NOA. Soil-disturbing construction activity in these areas would result in an elevated risk of entraining NOA. The asbestos map shows the project site is located approximately 15 miles away from the nearest area considered more likely to contain NOA – in the area of Coulterville, near the intersection of SR 49 and SR 132.

Because of the distance between the project site and the nearest area considered more likely to contain NOA, this impact is considered less than significant. No mitigation measures are required.

6.3.2 Mobile Source Emissions from High-Volume Roadways

The highest volume roadway in the vicinity of the project site is SR 120. According to the Caltrans Traffic Census Program (California Department of Transportation 2019), the daily traffic volume on SR 120 in the vicinity of the project site is 3,900 vehicles per day on an annual average basis, and 6,300 vehicles per day during the peak month. Because the traffic volume on SR 120 is less than 50,000 vehicles per day, the mobile source TAC emissions impact associated with the Terra Vi Lodge project is considered less than significant and no mitigation measures are required.

SECTION 7
GLOBAL CLIMATE CHANGE AND GREENHOUSE GAS IMPACTS

This section of this *Air Quality Study* describes the effects of the Terra Vi Lodge Project on global climate change and GHG emissions. Implementation of the project would generate emissions which are associated with global climate change.

7.1 SIGNIFICANCE THRESHOLDS

Section 15064.4(a) of the State CEQA Guidelines states,

> "The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project."

Section 15064.4(b) of the State CEQA Guidelines states,

> "A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:
>
> "(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
>
> "(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project."

Addressing GHG emissions generation impacts requires an agency to make a determination as to what constitutes a significant impact. The California Governor's Office of Planning and Research's (OPR's) Guidance does not include a quantitative threshold of significance to use for assessing a proposed development's GHG emissions under CEQA. Moreover, ARB has not established such a threshold or recommended a method for setting a threshold for proposed development-level analysis.

In 2012, the Tuolumne County Transportation Council (TCTC) conducted a regional blueprint planning effort which evaluated existing and projected GHG emissions. The *Tuolumne County Regional Blueprint Greenhouse Gas Study* (Tuolumne County Transportation Council 2012) identified policies and measures Tuolumne County and land use project applicants can implement to reduce GHG emissions consistent with AB 32 goals of reducing GHG emissions to 1990 levels by the year 2020. The study identified a project-level significance threshold of 4.6 MT CO_2e per service population per year that can be applied evenly to future land development applications. The *Tuolumne County Regional Blueprint Greenhouse Gas Study* and associated project-level significance threshold were adopted by the County Board of Supervisors in January 2012.

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 contains language to authorize ARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. The SB 32 emission reduction goal for 2030 is an extension of the AB 32 goal for 2020, reducing the 2020 target by 40 percent in the year 2030.

In preparing this *Air Quality Study*, it is recognized the adopted 4.6 MT CO_2e per service population per year significance threshold is consistent with the 2020 GHG emissions goal of AB32, rather than the 2030 goal of SB 32, which is 40 percent lower. For this *Air Quality Study*, a threshold reflecting the 40 percent reduction was considered. The threshold would be 2.8 MT CO_2e per service population per year (4.6 x 0.60 = 2.8).

While a significance threshold of 2.8 MT CO_2e per service population per year could be considered consistent with the 2030 goal of SB 32, this threshold has not been considered for adoption by the County. In lieu of an adopted GHG significance threshold that reflects the SB 32 GHG emission goal, this *Air Quality Study* applies a conservatively stringent threshold of no net change in GHG emissions. That is, a project is considered to have a significant impact on GHG emissions if the project would result in a net increase in GHG emissions, measured in MT of CO_2e per year (Yaley pers comm.). The project will be considered to have a less than significant impact if it would result in no net increase, or a decrease, in MT of CO_2e per year. This significance threshold is applied to both construction-related and operational GHG emissions.

Application of the conservatively stringent threshold of no net change in GHG emissions is considered to be appropriate for this *Air Quality Study*. Moving forward, it may be beneficial for the County to consider adoption of an updated GHG significance threshold that may be applied evenly to future land development applications. An updated threshold could be consistent with SB 32 GHG emission reduction goals, and applicable court decision on GHG significance thresholds (e.g., Golden Door Properties LLC v. County of San Diego [2018] 27 Cal.App.5th 892).

7.2 METHODOLOGY

As described in more detail in Section 4.2 of this *Air Quality Study*, *Methodology*, GHG emissions associated with the project were estimated using the CalEEMod emissions modeling program (California Air Pollution Control Officers Association 2016).

7.3 IMPACTS

The following is a description of the impacts of the Terra Vi Lodge Project on GHG emissions.

7.3.1 Construction-Related GHG Emissions

Construction of the Terra Vi Lodge Project would generate GHG emissions. As shown in **Table 14**, construction of the Terra Vi Lodge Project is estimated to generate 769.27 MT of CO_2e during 2021 and 263.32 MT of CO_2e during 2022. Because the project would result in construction-related GHG emissions which are greater than the significance threshold presented in Section 7.1 of this *Air Quality Study*, this impact is considered significant. Implementation of the following mitigation measures would reduce construction-related emissions, but not to a less-than-significant level.

Mitigation Measure GHG-1 – Use Electrically-Powered Construction Equipment. To the extent feasible, electrically-powered equipment will be used in the construction of the Terra Vi Lodge Project. As shown in **Table 14**, which shows reduced emissions assuming a high degree of use of electrically-powered equipment, construction-related GHG emissions would be reduced to 412.51 MT of CO_2e in 2021 and 148.49 MT of CO_2e in 2022. It is unknown if this high degree of use is feasible. However, even with this high degree of use, based on the significance threshold presented in Section 7.1 of this *Air Quality Study*, the impact would remain significant.

Mitigation Measure GHG-2 – Purchase Offsets for Construction-Related GHG Emissions. The net increase in GHG emissions associated with the Terra Vi Lodge Project could be further reduced by the applicant purchasing carbon credits to offset GHG emissions. Carbon credits, however, are market-based. The availability, amount, and price of carbon credits fluctuate over time. As a result, it is unknown if local carbon credit offsets would be available at the time the project is implemented. Additional carbon credit offsets are available on a statewide or national level. However, even though the impact of GHG emissions is considered to be global in scale, the CEQA legal adequacy of applying statewide or national offsets to individual local projects has been questioned. In addition, while the County considered application of carbon credits to offset GHG emissions due to the proposed project, the County General Plan places a higher priority on implementing local mitigation measures before application of offsets. As a result of the unknown availability of local carbon credits, mitigation measures needed to eliminate any net increase in GHG emissions are considered to be not available, application of this mitigation measure is not considered to reduce the GHG emissions impacts of the project to a less-than-significant level, and this impact is considered to be significant and unavoidable.

Table 14. Terra Vi Lodge Project Annual Greenhouse Gas Emissions

Emissions Category		Metric Tons (MT) of Carbon Monoxide Equivalent (CO_2e) per Year
Construction Emissions - Without Mitigation Measures - 2021		769.27
Construction Emissions - With Mitigation Measures - 2021		412.51
Construction Emissions - Without Mitigation Measures - 2022		263.32
Construction Emissions - With Mitigation Measures - 2022		148.49
Operational Emissions Without Mitigation Measures		
Area		0.08
Energy		415.58
Mobile		1,465.49
Waste		41.06
Water		25.52
	Total	**1,947.71**
Operational Emissions With Mitigation Measures		
Area		0.05
Energy		315.77
Mobile		1,402.90
Waste		32.85
Water		20.14
	Total	**1,771.71**

7.3.2 Operational GHG Emissions

As shown in **Table 14**, operation of the Terra Vi Lodge Project would generate GHG emissions. Based on the CalEEMod emissions model, operation of the Terra Vi Lodge Project is estimated to generate 1,947.71 MT of CO_2e per year. The largest source category of operational GHG emissions would be mobile sources – motor vehicle travel associated with the project.

Because the project would result in operational GHG emissions which are greater than the significance threshold presented in Section 7.1 of this *Air Quality Study*, this impact is considered significant. Implementation of the following mitigation measures would reduce operational emissions, but not to a less-than-significant level.

Mitigation Measure GHG-3 – Enhanced Transit Use. The *Traffic Impact Analysis for the Terra Vi Resort* (KD Anderson & Associates 2020) presents an estimate of travel reduction due to the effects of enhanced transit use by guests or park and ride uses. The traffic impact analysis estimates this measure would reduce project-related vehicle travel by approximately eight percent.

Mitigation Measure GHG-4. – Use Electrically-Powered Landscape Equipment. Using electrically-powered landscape equipment (e.g., lawnmower, leafblower, and chainsaw) would reduce emissions associated with internal combustion engines. Because electrically-powered landscape equipment is readily-available, this mitigation measure includes 100 percent of landscape equipment being electrically-powered.

Mitigation Measure GHG-5 – Implement Title 24 2019 Building Efficiency Standards. The California Energy Commission (CEC) notes,

> "Building energy efficiency standards are designed to reduce wasteful, uneconomic, inefficient or unnecessary consumption of energy, and enhance outdoor and indoor environmental quality. The standards are adopted into the California Code of Regulations (Title 24, Part 6). They apply to newly constructed buildings and additions and alterations to existing buildings."

In describing the effectiveness of the Title 24 2019 Building Efficiency Standards, the CEC (https://www.energy.ca.gov/) estimates,

> "Nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades."

Reducing energy consumption would reduce GHG emissions by reducing, for example, combustion of fossil fuels used to generate electricity.

Mitigation Measure GHG-6 – On-Site Renewable Energy. The Terra Vi Lodge Project will include solar photovoltaic electricity generating systems located on the roof of the hotel portion of the project. The systems will include solar collection and battery storage. Generation of on-site renewable energy will reduce GHG emissions by reducing, for example, combustion of

fossil fuels used to generate electricity. It is estimated the solar photovoltaic systems will generate 162,000 kilowatt-hours (kWh) per year (Bissell pers. comm.).

Mitigation Measure GHG-7 – Use Greywater for Outdoor Water Uses. Greywater will be collected, treated, stored, and re-used for outdoor water uses, including landscape irrigation. Use of greywater will reduce GHG emissions by reducing energy consumption due to the treatment and transport of potable water.

Mitigation Measure GHG-8 – Use Low-Flow Fixtures for Indoor Water Uses. Indoor water use will be reduced by using low-flow fixtures. These fixtures include: bathroom faucets, kitchen faucets, toilets, and showers. Reducing the use of water will reduce GHG emissions by reducing energy consumption due to the treatment and transport of water.

Mitigation Measure GHG-9 – Use Water-Efficient Irrigation Systems. Water-efficient outdoor irrigation systems will be used for landscaping. As noted above in Mitigation Measure GHG-7, greywater will be used for landscape irrigation. Using water-efficient irrigation systems will further reduce emissions by reducing energy consumption due to the processing and distribution of greywater.

Mitigation Measure GHG-10 – Institute Recycling and Composting Services. The transport and decomposition of landfill waste produce GHG emissions. Decomposition of waste produces methane, a GHG which has a global warming potential over 20 times that of CO_2. The transport of waste from the site of generation to the landfill produces GHG emissions from the combustion of the fuel used to power the vehicle. Strategies to reduce landfill waste include increasing recycling, reuse, and composting, which reduce waste generation.

Mitigation Measure GHG-11 – Purchase Offsets for Operational GHG Emissions. As shown in **Table 14**, the operational GHG emissions mitigation measures (i.e., Mitigation Measure GHG-3 through Mitigation Measure GHG-10, listed above) would reduce operational GHG emissions to 1,771.71 MT of CO_2e per year. The net increase in operational GHG emissions associated with the Terra Vi Lodge Project could be further reduced by the applicant purchasing GHG emissions offsets. However, as noted in the description of Mitigation Measure GHG-2, because of the unknown availability of local carbon credits, mitigation measures needed to eliminate any net increase in GHG emissions are considered to be not available, application of this mitigation measure is not considered to reduce the GHG emissions impacts of the project to a less-than-significant level, and this impact is considered to be significant and unavoidable.

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TECHNICAL APPENDIX

(Separate Electronic File)

TERRA VI LODGE PROJECT

AIR QUALITY STUDY

TECHNICAL APPENDIX

The following technical data are presented in this technical appendix:

CalEEMod Model Output File
Annual Period

CalEEMod Model Output File
Daily Summer Period

CalEEMod Model Output File
Daily Winter Period

CalEEMod Model Output File
Annual Period
With Mitigation Measures

Trip Generation & Vehicle Miles Traveled Data
for CalEEMod

CalEEMod Model Output File
Annual Period

Terra Vi Lodge

Tuolumne County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	5.50	Acre	5.50	239,580.00	0
Hotel	126.00	Room	4.20	182,952.00	0
Single Family Housing	6.00	Dwelling Unit	1.95	10,800.00	17
Convenience Market (24 Hour)	2.80	1000sqft	0.06	2,800.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	293.67	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor from The Climate Registry 2019.

Land Use - Hotel and Apartments data from Bissell pers. comm. Asphalt paved area data from Chirnside pers. comm.

Construction Phase - No demolition. Demolition phase deleted.

Vehicle Trips - Wkday/Sat/Sun effective trip rates (adj for internal) from TIS: ConvMkt 350.00/245.71/298.57, Hotel 5.87/6.62/3.94, SF Hsing 0.83/1.00/0.83. Trip length consistent with Wood-Rodgers 2019.

Woodstoves - Per Bissell pers. comm., no woodstoves or fireplaces of any kind.

Energy Use -

Water And Wastewater - All wastewater treatment by septic tank.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	3.30	0.00
tblFireplaces	NumberNoFireplace	0.60	6.00
tblFireplaces	NumberWood	2.10	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	293.67
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	12.53
tblVehicleTrips	CC_TL	6.60	12.71
tblVehicleTrips	CNW_TL	6.60	12.53
tblVehicleTrips	CNW_TL	6.60	12.71
tblVehicleTrips	CW_TL	14.70	12.53
tblVehicleTrips	CW_TL	14.70	12.71
tblVehicleTrips	HO_TL	7.90	12.53
tblVehicleTrips	HS_TL	7.10	12.53
tblVehicleTrips	HW_TL	16.80	12.53
tblVehicleTrips	ST_TR	863.10	245.71
tblVehicleTrips	ST_TR	8.19	6.62
tblVehicleTrips	ST_TR	9.91	1.00

tblVehicleTrips	SU_TR	758.45	298.57
tblVehicleTrips	SU_TR	5.95	3.94
tblVehicleTrips	SU_TR	8.62	0.83
tblVehicleTrips	WD_TR	737.99	350.00
tblVehicleTrips	WD_TR	8.17	5.87
tblVehicleTrips	WD_TR	9.52	0.83
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWoodstoves	NumberCatalytic	0.30	0.00
tblWoodstoves	NumberNoncatalytic	0.30	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.6024	3.9837	4.7403	8.5800e-003	0.5161	0.1519	0.6680	0.1833	0.1420	0.3253	0.0000	766.3108	766.3108	0.1182	0.0000	769.2667
2022	2.6013	1.1378	1.5859	2.9400e-003	0.1103	0.0405	0.1507	0.0297	0.0380	0.0677	0.0000	262.3991	262.3991	0.0368	0.0000	263.3185
Maximum	**2.6013**	**3.9837**	**4.7403**	**8.5800e-003**	**0.5161**	**0.1519**	**0.6680**	**0.1833**	**0.1420**	**0.3253**	**0.0000**	**766.3108**	**766.3108**	**0.1182**	**0.0000**	**769.2667**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.6024	3.9837	4.7403	8.5800e-003	0.5161	0.1519	0.6680	0.1833	0.1420	0.3253	0.0000	766.3104	766.3104	0.1182	0.0000	769.2662
2022	2.6013	1.1378	1.5859	2.9400e-003	0.1103	0.0405	0.1507	0.0297	0.0380	0.0677	0.0000	262.3989	262.3989	0.0368	0.0000	263.3184
Maximum	**2.6013**	**3.9837**	**4.7403**	**8.5800e-003**	**0.5161**	**0.1519**	**0.6680**	**0.1833**	**0.1420**	**0.3253**	**0.0000**	**766.3104**	**766.3104**	**0.1182**	**0.0000**	**769.2662**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	1.3930	1.3930
2	4-1-2021	6-30-2021	1.0416	1.0416
3	7-1-2021	9-30-2021	1.0530	1.0530
4	10-1-2021	12-31-2021	1.0868	1.0868
5	1-1-2022	3-31-2022	0.9740	0.9740
6	4-1-2022	6-30-2022	2.7813	2.7813
		Highest	2.7813	2.7813

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0251	5.3000e-004	0.0458	0.0000		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	0.0752	0.0752	8.0000e-005	0.0000	0.0771
Energy	0.0210	0.1905	0.1587	1.1400e-003		0.0145	0.0145		0.0145	0.0145	0.0000	412.5877	412.5877	0.0242	7.9900e-003	415.5754
Mobile	0.9438	2.8244	9.7374	0.0161	1.2851	0.0214	1.3065	0.3458	0.0201	0.3658	0.0000	1,463.0734	1,463.0734	0.0965	0.0000	1,465.4867
Waste						0.0000	0.0000		0.0000	0.0000	16.5722	0.0000	16.5722	0.9794	0.0000	41.0569
Water						0.0000	0.0000		0.0000	0.0000	0.0000	3.0748	3.0748	0.8621	2.9800e-003	25.5169
Total	**1.9898**	**3.0154**	**9.9419**	**0.0173**	**1.2851**	**0.0361**	**1.3212**	**0.3458**	**0.0348**	**0.3806**	**16.5722**	**1,878.8111**	**1,895.3832**	**1.9624**	**0.0110**	**1,947.7130**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0251	5.3000e-004	0.0458	0.0000		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	0.0752	0.0752	8.0000e-005	0.0000	0.0771
Energy	0.0210	0.1905	0.1587	1.1400e-003		0.0145	0.0145		0.0145	0.0145	0.0000	412.5877	412.5877	0.0242	7.9900e-003	415.5754
Mobile	0.9438	2.8244	9.7374	0.0161	1.2851	0.0214	1.3065	0.3458	0.0201	0.3658	0.0000	1,463.0734	1,463.0734	0.0965	0.0000	1,465.4867
Waste						0.0000	0.0000		0.0000	0.0000	16.5722	0.0000	16.5722	0.9794	0.0000	41.0569
Water						0.0000	0.0000		0.0000	0.0000	0.0000	3.0748	3.0748	0.8621	2.9800e-003	25.5169
Total	**1.9898**	**3.0154**	**9.9419**	**0.0173**	**1.2851**	**0.0361**	**1.3212**	**0.3458**	**0.0348**	**0.3806**	**16.5722**	**1,878.8111**	**1,895.3832**	**1.9624**	**0.0110**	**1,947.7130**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/14/2021	5	10	
2	Grading	Grading	1/15/2021	2/25/2021	5	30	
3	Building Construction	Building Construction	2/26/2021	4/21/2022	5	300	
4	Paving	Paving	4/22/2022	5/19/2022	5	20	
5	Architectural Coating	Architectural Coating	5/20/2022	6/16/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 5.5

Residential Indoor: 21,870; Residential Outdoor: 7,290; Non-Residential Indoor: 278,628; Non-Residential Outdoor: 92,876; Striped Parking Area: 14,375 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	181.00	70.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	36.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7179	16.7179	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7179**	**16.7179**	**5.4100e-003**	**0.0000**	**16.8530**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.8000e-004	8.8400e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1200e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	1.0112	1.0112	8.0000e-005	0.0000	1.0133
Total	**1.2100e-003**	**9.8000e-004**	**8.8400e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1200e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**1.0112**	**1.0112**	**8.0000e-005**	**0.0000**	**1.0133**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.8000e-004	8.8400e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1200e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	1.0112	1.0112	8.0000e-005	0.0000	1.0133
Total	**1.2100e-003**	**9.8000e-004**	**8.8400e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1200e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**1.0112**	**1.0112**	**8.0000e-005**	**0.0000**	**1.0133**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7425	81.7425	0.0264	0.0000	82.4034
Total	**0.0629**	**0.6960**	**0.4632**	**9.3000e-004**	**0.1301**	**0.0298**	**0.1599**	**0.0540**	**0.0274**	**0.0814**	**0.0000**	**81.7425**	**81.7425**	**0.0264**	**0.0000**	**82.4034**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0300e-003	3.2700e-003	0.0295	4.0000e-005	3.6800e-003	4.0000e-005	3.7200e-003	9.8000e-004	4.0000e-005	1.0200e-003	0.0000	3.3707	3.3707	2.7000e-004	0.0000	3.3776
Total	**4.0300e-003**	**3.2700e-003**	**0.0295**	**4.0000e-005**	**3.6800e-003**	**4.0000e-005**	**3.7200e-003**	**9.8000e-004**	**4.0000e-005**	**1.0200e-003**	**0.0000**	**3.3707**	**3.3707**	**2.7000e-004**	**0.0000**	**3.3776**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7424	81.7424	0.0264	0.0000	82.4033
Total	**0.0629**	**0.6960**	**0.4632**	**9.3000e-004**	**0.1301**	**0.0298**	**0.1599**	**0.0540**	**0.0274**	**0.0814**	**0.0000**	**81.7424**	**81.7424**	**0.0264**	**0.0000**	**82.4033**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0300e-003	3.2700e-003	0.0295	4.0000e-005	3.6800e-003	4.0000e-005	3.7200e-003	9.8000e-004	4.0000e-005	1.0200e-003	0.0000	3.3707	3.3707	2.7000e-004	0.0000	3.3776
Total	**4.0300e-003**	**3.2700e-003**	**0.0295**	**4.0000e-005**	**3.6800e-003**	**4.0000e-005**	**3.7200e-003**	**9.8000e-004**	**4.0000e-005**	**1.0200e-003**	**0.0000**	**3.3707**	**3.3707**	**2.7000e-004**	**0.0000**	**3.3776**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2101	1.9263	1.8316	2.9700e-003		0.1059	0.1059		0.0996	0.0996	0.0000	255.9592	255.9592	0.0618	0.0000	257.5030
Total	**0.2101**	**1.9263**	**1.8316**	**2.9700e-003**		**0.1059**	**0.1059**		**0.0996**	**0.0996**	**0.0000**	**255.9592**	**255.9592**	**0.0618**	**0.0000**	**257.5030**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0361	0.9366	0.3371	1.9300e-003	0.0455	3.2100e-003	0.0487	0.0131	3.0700e-003	0.0162	0.0000	182.7907	182.7907	6.0100e-003	0.0000	182.9409
Worker	0.2686	0.2181	1.9643	2.5100e-003	0.2454	2.6600e-003	0.2481	0.0653	2.4500e-003	0.0677	0.0000	224.7187	224.7187	0.0183	0.0000	225.1755
Total	**0.3048**	**1.1547**	**2.3015**	**4.4400e-003**	**0.2909**	**5.8700e-003**	**0.2968**	**0.0784**	**5.5200e-003**	**0.0840**	**0.0000**	**407.5094**	**407.5094**	**0.0243**	**0.0000**	**408.1164**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2101	1.9262	1.8316	2.9700e-003		0.1059	0.1059		0.0996	0.0996	0.0000	255.9589	255.9589	0.0618	0.0000	257.5027
Total	**0.2101**	**1.9262**	**1.8316**	**2.9700e-003**		**0.1059**	**0.1059**		**0.0996**	**0.0996**	**0.0000**	**255.9589**	**255.9589**	**0.0618**	**0.0000**	**257.5027**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0361	0.9366	0.3371	1.9300e-003	0.0455	3.2100e-003	0.0487	0.0131	3.0700e-003	0.0162	0.0000	182.7907	182.7907	6.0100e-003	0.0000	182.9409
Worker	0.2686	0.2181	1.9643	2.5100e-003	0.2454	2.6600e-003	0.2481	0.0653	2.4500e-003	0.0677	0.0000	224.7187	224.7187	0.0183	0.0000	225.1755
Total	**0.3048**	**1.1547**	**2.3015**	**4.4400e-003**	**0.2909**	**5.8700e-003**	**0.2968**	**0.0784**	**5.5200e-003**	**0.0840**	**0.0000**	**407.5094**	**407.5094**	**0.0243**	**0.0000**	**408.1164**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0674	0.6168	0.6464	1.0600e-003		0.0320	0.0320		0.0301	0.0301	0.0000	91.5315	91.5315	0.0219	0.0000	92.0797
Total	**0.0674**	**0.6168**	**0.6464**	**1.0600e-003**		**0.0320**	**0.0320**		**0.0301**	**0.0301**	**0.0000**	**91.5315**	**91.5315**	**0.0219**	**0.0000**	**92.0797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0119	0.3204	0.1081	6.9000e-004	0.0163	1.0500e-003	0.0173	4.6900e-003	1.0000e-003	5.7000e-003	0.0000	65.0319	65.0319	2.0000e-003	0.0000	65.0820
Worker	0.0906	0.0703	0.6231	8.7000e-004	0.0877	8.9000e-004	0.0886	0.0233	8.2000e-004	0.0242	0.0000	77.7114	77.7114	5.7900e-003	0.0000	77.8562
Total	**0.1025**	**0.3907**	**0.7312**	**1.5600e-003**	**0.1040**	**1.9400e-003**	**0.1059**	**0.0280**	**1.8200e-003**	**0.0299**	**0.0000**	**142.7433**	**142.7433**	**7.7900e-003**	**0.0000**	**142.9382**

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0674	0.6168	0.6464	1.0600e-003		0.0320	0.0320		0.0301	0.0301	0.0000	91.5314	91.5314	0.0219	0.0000	92.0796
Total	**0.0674**	**0.6168**	**0.6464**	**1.0600e-003**		**0.0320**	**0.0320**		**0.0301**	**0.0301**	**0.0000**	**91.5314**	**91.5314**	**0.0219**	**0.0000**	**92.0796**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0119	0.3204	0.1081	6.9000e-004	0.0163	1.0500e-003	0.0173	4.6900e-003	1.0000e-003	5.7000e-003	0.0000	65.0319	65.0319	2.0000e-003	0.0000	65.0820
Worker	0.0906	0.0703	0.6231	8.7000e-004	0.0877	8.9000e-004	0.0886	0.0233	8.2000e-004	0.0242	0.0000	77.7114	77.7114	5.7900e-003	0.0000	77.8562
Total	**0.1025**	**0.3907**	**0.7312**	**1.5600e-003**	**0.1040**	**1.9400e-003**	**0.1059**	**0.0280**	**1.8200e-003**	**0.0299**	**0.0000**	**142.7433**	**142.7433**	**7.7900e-003**	**0.0000**	**142.9382**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	7.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0182**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-003	1.4800e-003	0.0131	2.0000e-005	1.8400e-003	2.0000e-005	1.8600e-003	4.9000e-004	2.0000e-005	5.1000e-004	0.0000	1.6304	1.6304	1.2000e-004	0.0000	1.6335
Total	**1.9000e-003**	**1.4800e-003**	**0.0131**	**2.0000e-005**	**1.8400e-003**	**2.0000e-005**	**1.8600e-003**	**4.9000e-004**	**2.0000e-005**	**5.1000e-004**	**0.0000**	**1.6304**	**1.6304**	**1.2000e-004**	**0.0000**	**1.6335**

3.5 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	7.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0182**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-003	1.4800e-003	0.0131	2.0000e-005	1.8400e-003	2.0000e-005	1.8600e-003	4.9000e-004	2.0000e-005	5.1000e-004	0.0000	1.6304	1.6304	1.2000e-004	0.0000	1.6335
Total	**1.9000e-003**	**1.4800e-003**	**0.0131**	**2.0000e-005**	**1.8400e-003**	**2.0000e-005**	**1.8600e-003**	**4.9000e-004**	**2.0000e-005**	**5.1000e-004**	**0.0000**	**1.6304**	**1.6304**	**1.2000e-004**	**0.0000**	**1.6335**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4046					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**2.4067**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5600e-003	3.5400e-003	0.0314	4.0000e-005	4.4200e-003	5.0000e-005	4.4600e-003	1.1800e-003	4.0000e-005	1.2200e-003	0.0000	3.9130	3.9130	2.9000e-004	0.0000	3.9203
Total	**4.5600e-003**	**3.5400e-003**	**0.0314**	**4.0000e-005**	**4.4200e-003**	**5.0000e-005**	**4.4600e-003**	**1.1800e-003**	**4.0000e-005**	**1.2200e-003**	**0.0000**	**3.9130**	**3.9130**	**2.9000e-004**	**0.0000**	**3.9203**

3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4046					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**2.4067**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5600e-003	3.5400e-003	0.0314	4.0000e-005	4.4200e-003	5.0000e-005	4.4600e-003	1.1800e-003	4.0000e-005	1.2200e-003	0.0000	3.9130	3.9130	2.9000e-004	0.0000	3.9203
Total	**4.5600e-003**	**3.5400e-003**	**0.0314**	**4.0000e-005**	**4.4200e-003**	**5.0000e-005**	**4.4600e-003**	**1.1800e-003**	**4.0000e-005**	**1.2200e-003**	**0.0000**	**3.9130**	**3.9130**	**2.9000e-004**	**0.0000**	**3.9203**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9438	2.8244	9.7374	0.0161	1.2851	0.0214	1.3065	0.3458	0.0201	0.3658	0.0000	1,463.0734	1,463.0734	0.0965	0.0000	1,465.4867
Unmitigated	0.9438	2.8244	9.7374	0.0161	1.2851	0.0214	1.3065	0.3458	0.0201	0.3658	0.0000	1,463.0734	1,463.0734	0.0965	0.0000	1,465.4867

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market (24 Hour)	980.00	687.99	836.00	1,181,884	1,181,884
Hotel	739.62	834.12	496.44	2,244,437	2,244,437
Parking Lot	0.00	0.00	0.00		
Single Family Housing	4.98	6.00	4.98	20,754	20,754
Total	1,724.60	1,528.11	1,337.42	3,447,074	3,447,074

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market (24 Hour)	12.53	12.53	12.53	0.90	80.10	19.00	24	15	61
Hotel	12.71	12.71	12.71	19.40	61.60	19.00	58	38	4
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Single Family Housing	12.53	12.53	12.53	37.30	20.70	42.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market (24 Hour)	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Hotel	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Parking Lot	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Single Family Housing	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	204.9507	204.9507	0.0202	4.1900e-003	206.7045
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	204.9507	204.9507	0.0202	4.1900e-003	206.7045
NaturalGas Mitigated	0.0210	0.1905	0.1587	1.1400e-003		0.0145	0.0145		0.0145	0.0145	0.0000	207.6370	207.6370	3.9800e-003	3.8100e-003	208.8709
NaturalGas Unmitigated	0.0210	0.1905	0.1587	1.1400e-003		0.0145	0.0145		0.0145	0.0145	0.0000	207.6370	207.6370	3.9800e-003	3.8100e-003	208.8709

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market (24 Hour)	20188	1.1000e-004	9.9000e-004	8.3000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.0773	1.0773	2.0000e-005	2.0000e-005	1.0837
Hotel	3.79808e+006	0.0205	0.1862	0.1564	1.1200e-003		0.0142	0.0142		0.0142	0.0142	0.0000	202.6802	202.6802	3.8800e-003	3.7200e-003	203.8846
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	72699	3.9000e-004	3.3500e-003	1.4300e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	3.8795	3.8795	7.0000e-005	7.0000e-005	3.9026
Total		**0.0210**	**0.1905**	**0.1587**	**1.1500e-003**		**0.0145**	**0.0145**		**0.0145**	**0.0145**	**0.0000**	**207.6370**	**207.6370**	**3.9700e-003**	**3.8100e-003**	**208.8709**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market (24 Hour)	20188	1.1000e-004	9.9000e-004	8.3000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.0773	1.0773	2.0000e-005	2.0000e-005	1.0837
Hotel	3.79808e+006	0.0205	0.1862	0.1564	1.1200e-003		0.0142	0.0142		0.0142	0.0142	0.0000	202.6802	202.6802	3.8800e-003	3.7200e-003	203.8846
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	72699	3.9000e-004	3.3500e-003	1.4300e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	3.8795	3.8795	7.0000e-005	7.0000e-005	3.9026
Total		**0.0210**	**0.1905**	**0.1587**	**1.1500e-003**		**0.0145**	**0.0145**		**0.0145**	**0.0145**	**0.0000**	**207.6370**	**207.6370**	**3.9700e-003**	**3.8100e-003**	**208.8709**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market (24 Hour)	37856	5.0427	5.0000e-004	1.0000e-004	5.0858
Hotel	1.36482e+006	181.8031	0.0180	3.7100e-003	183.3588
Parking Lot	83853	11.1698	1.1000e-003	2.3000e-004	11.2653
Single Family Housing	52063.3	6.9352	6.8000e-004	1.4000e-004	6.9945
Total		**204.9507**	**0.0202**	**4.1800e-003**	**206.7045**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market (24 Hour)	37856	5.0427	5.0000e-004	1.0000e-004	5.0858
Hotel	1.36482e+006	181.8031	0.0180	3.7100e-003	183.3588
Parking Lot	83853	11.1698	1.1000e-003	2.3000e-004	11.2653
Single Family Housing	52063.3	6.9352	6.8000e-004	1.4000e-004	6.9945
Total		**204.9507**	**0.0202**	**4.1800e-003**	**206.7045**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0251	5.3000e-004	0.0458	0.0000		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	0.0752	0.0752	8.0000e-005	0.0000	0.0771
Unmitigated	1.0251	5.3000e-004	0.0458	0.0000		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	0.0752	0.0752	8.0000e-005	0.0000	0.0771

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2405					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7831					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4600e-003	5.3000e-004	0.0458	0.0000		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	0.0752	0.0752	8.0000e-005	0.0000	0.0771
Total	**1.0250**	**5.3000e-004**	**0.0458**	**0.0000**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**	**0.0000**	**0.0752**	**0.0752**	**8.0000e-005**	**0.0000**	**0.0771**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2405					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7831					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4600e-003	5.3000e-004	0.0458	0.0000		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	0.0752	0.0752	8.0000e-005	0.0000	0.0771
Total	**1.0250**	**5.3000e-004**	**0.0458**	**0.0000**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**	**0.0000**	**0.0752**	**0.0752**	**8.0000e-005**	**0.0000**	**0.0771**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.0748	0.8621	2.9800e-003	25.5169
Unmitigated	3.0748	0.8621	2.9800e-003	25.5169

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market (24 Hour)	0.207403 / 0.127118	0.2088	0.0471	1.6000e-004	1.4358
Hotel	3.19621 / 0.355135	2.4693	0.7262	2.5100e-003	21.3718
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.390924 / 0.246452	0.3967	0.0888	3.1000e-004	2.7094
Total		**3.0748**	**0.8621**	**2.9800e-003**	**25.5169**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market (24 Hour)	0.207403 / 0.127118	0.2088	0.0471	1.6000e-004	1.4358
Hotel	3.19621 / 0.355135	2.4693	0.7262	2.5100e-003	21.3718
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.390924 / 0.246452	0.3967	0.0888	3.1000e-004	2.7094
Total		**3.0748**	**0.8621**	**2.9800e-003**	**25.5169**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	16.5722	0.9794	0.0000	41.0569
Unmitigated	16.5722	0.9794	0.0000	41.0569

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market (24 Hour)	8.41	1.7072	0.1009	0.0000	4.2294
Hotel	68.98	14.0023	0.8275	0.0000	34.6902
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.25	0.8627	0.0510	0.0000	2.1373
Total		**16.5722**	**0.9794**	**0.0000**	**41.0569**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market (24 Hour)	8.41	1.7072	0.1009	0.0000	4.2294
Hotel	68.98	14.0023	0.8275	0.0000	34.6902
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.25	0.8627	0.0510	0.0000	2.1373
Total		**16.5722**	**0.9794**	**0.0000**	**41.0569**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Model Output File
Daily Summer Period

Terra Vi Lodge

Tuolumne County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	5.50	Acre	5.50	239,580.00	0
Hotel	126.00	Room	4.20	182,952.00	0
Single Family Housing	6.00	Dwelling Unit	1.95	10,800.00	17
Convenience Market (24 Hour)	2.80	1000sqft	0.06	2,800.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	293.67	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor from The Climate Registry 2019.

Land Use - Hotel and Apartments data from Bissell pers. comm. Asphalt paved area data from Chirnside pers. comm.

Construction Phase - No demolition. Demolition phase deleted.

Vehicle Trips - Wkday/Sat/Sun effective trip rates (adj for internal) from TIS: ConvMkt 350.00/245.71/298.57, Hotel 5.87/6.62/3.94, SF Hsing 0.83/1.00/0.83. Trip length consistent with Wood-Rodgers 2019.

Woodstoves - Per Bissell pers. comm., no woodstoves or fireplaces of any kind.

Energy Use -

Water And Wastewater - All wastewater treatment by septic tank.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	3.30	0.00
tblFireplaces	NumberNoFireplace	0.60	6.00
tblFireplaces	NumberWood	2.10	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	293.67
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	12.53
tblVehicleTrips	CC_TL	6.60	12.71
tblVehicleTrips	CNW_TL	6.60	12.53
tblVehicleTrips	CNW_TL	6.60	12.71
tblVehicleTrips	CW_TL	14.70	12.53
tblVehicleTrips	CW_TL	14.70	12.71
tblVehicleTrips	HO_TL	7.90	12.53
tblVehicleTrips	HS_TL	7.10	12.53
tblVehicleTrips	HW_TL	16.80	12.53
tblVehicleTrips	ST_TR	863.10	245.71
tblVehicleTrips	ST_TR	8.19	6.62
tblVehicleTrips	ST_TR	9.91	1.00

tblVehicleTrips	SU_TR	758.45	298.57
tblVehicleTrips	SU_TR	5.95	3.94
tblVehicleTrips	SU_TR	8.62	0.83
tblVehicleTrips	WD_TR	737.99	350.00
tblVehicleTrips	WD_TR	8.17	5.87
tblVehicleTrips	WD_TR	9.52	0.83
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWoodstoves	NumberCatalytic	0.30	0.00
tblWoodstoves	NumberNoncatalytic	0.30	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.7116	46.5808	38.3219	0.0689	18.2962	2.0469	20.3430	9.9917	1.8831	11.8748	0.0000	6,802.7097	6,802.7097	1.9642	0.0000	6,824.3743
2022	241.1358	25.0149	35.7684	0.0680	2.7373	0.8577	3.5950	0.7354	0.8069	1.5423	0.0000	6,716.9284	6,716.9284	0.8373	0.0000	6,737.8609
Maximum	**241.1358**	**46.5808**	**38.3219**	**0.0689**	**18.2962**	**2.0469**	**20.3430**	**9.9917**	**1.8831**	**11.8748**	**0.0000**	**6,802.7097**	**6,802.7097**	**1.9642**	**0.0000**	**6,824.3743**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.7116	46.5808	38.3219	0.0689	18.2962	2.0469	20.3430	9.9917	1.8831	11.8748	0.0000	6,802.7097	6,802.7097	1.9642	0.0000	6,824.3743
2022	241.1358	25.0149	35.7684	0.0680	2.7373	0.8577	3.5950	0.7354	0.8069	1.5423	0.0000	6,716.9284	6,716.9284	0.8373	0.0000	6,737.8609
Maximum	**241.1358**	**46.5808**	**38.3219**	**0.0689**	**18.2962**	**2.0469**	**20.3430**	**9.9917**	**1.8831**	**11.8748**	**0.0000**	**6,802.7097**	**6,802.7097**	**1.9642**	**0.0000**	**6,824.3743**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.6249	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003	0.0000	0.9207	0.9207	9.4000e-004	0.0000	0.9441
Energy	0.1150	1.0440	0.8693	6.2700e-003		0.0794	0.0794		0.0794	0.0794		1,254.1404	1,254.1404	0.0240	0.0230	1,261.5931
Mobile	6.7409	16.0179	59.2511	0.1058	8.2930	0.1321	8.4251	2.2238	0.1240	2.3478		10,584.2650	10,584.2650	0.6682		10,600.9709
Total	**12.4808**	**17.0677**	**60.6297**	**0.1121**	**8.2930**	**0.2143**	**8.5073**	**2.2238**	**0.2062**	**2.4300**	**0.0000**	**11,839.3261**	**11,839.3261**	**0.6932**	**0.0230**	**11,863.5082**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.6249	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003	0.0000	0.9207	0.9207	9.4000e-004	0.0000	0.9441
Energy	0.1150	1.0440	0.8693	6.2700e-003		0.0794	0.0794		0.0794	0.0794		1,254.1404	1,254.1404	0.0240	0.0230	1,261.5931
Mobile	6.7409	16.0179	59.2511	0.1058	8.2930	0.1321	8.4251	2.2238	0.1240	2.3478		10,584.2650	10,584.2650	0.6682		10,600.9709
Total	**12.4808**	**17.0677**	**60.6297**	**0.1121**	**8.2930**	**0.2143**	**8.5073**	**2.2238**	**0.2062**	**2.4300**	**0.0000**	**11,839.3261**	**11,839.3261**	**0.6932**	**0.0230**	**11,863.5082**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/14/2021	5	10	
2	Grading	Grading	1/15/2021	2/25/2021	5	30	
3	Building Construction	Building Construction	2/26/2021	4/21/2022	5	300	
4	Paving	Paving	4/22/2022	5/19/2022	5	20	
5	Architectural Coating	Architectural Coating	5/20/2022	6/16/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 5.5

Residential Indoor: 21,870; Residential Outdoor: 7,290; Non-Residential Indoor: 278,628; Non-Residential Outdoor: 92,876; Striped Parking Area: 14,375 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	181.00	70.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	36.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2480	0.1629	1.8834	2.4300e-003	0.2299	2.4000e-003	0.2323	0.0610	2.2100e-003	0.0632		239.8556	239.8556	0.0193		240.3375
Total	**0.2480**	**0.1629**	**1.8834**	**2.4300e-003**	**0.2299**	**2.4000e-003**	**0.2323**	**0.0610**	**2.2100e-003**	**0.0632**		**239.8556**	**239.8556**	**0.0193**		**240.3375**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2480	0.1629	1.8834	2.4300e-003	0.2299	2.4000e-003	0.2323	0.0610	2.2100e-003	0.0632		239.8556	239.8556	0.0193		240.3375
Total	**0.2480**	**0.1629**	**1.8834**	**2.4300e-003**	**0.2299**	**2.4000e-003**	**0.2323**	**0.0610**	**2.2100e-003**	**0.0632**		**239.8556**	**239.8556**	**0.0193**		**240.3375**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2756	0.1810	2.0926	2.7000e-003	0.2555	2.6600e-003	0.2581	0.0678	2.4500e-003	0.0702		266.5063	266.5063	0.0214		267.0417
Total	**0.2756**	**0.1810**	**2.0926**	**2.7000e-003**	**0.2555**	**2.6600e-003**	**0.2581**	**0.0678**	**2.4500e-003**	**0.0702**		**266.5063**	**266.5063**	**0.0214**		**267.0417**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2756	0.1810	2.0926	2.7000e-003	0.2555	2.6600e-003	0.2581	0.0678	2.4500e-003	0.0702		266.5063	266.5063	0.0214		267.0417
Total	**0.2756**	**0.1810**	**2.0926**	**2.7000e-003**	**0.2555**	**2.6600e-003**	**0.2581**	**0.0678**	**2.4500e-003**	**0.0702**		**266.5063**	**266.5063**	**0.0214**		**267.0417**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3170	8.2672	2.8084	0.0176	0.4254	0.0285	0.4539	0.1223	0.0272	0.1495		1,837.4640	1,837.4640	0.0567		1,838.8826
Worker	2.4937	1.6379	18.9383	0.0244	2.3119	0.0241	2.3360	0.6131	0.0222	0.6353		2,411.8818	2,411.8818	0.1938		2,416.7275
Total	**2.8107**	**9.9050**	**21.7467**	**0.0420**	**2.7374**	**0.0526**	**2.7899**	**0.7354**	**0.0495**	**0.7848**		**4,249.3458**	**4,249.3458**	**0.2506**		**4,255.6100**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3170	8.2672	2.8084	0.0176	0.4254	0.0285	0.4539	0.1223	0.0272	0.1495		1,837.4640	1,837.4640	0.0567		1,838.8826
Worker	2.4937	1.6379	18.9383	0.0244	2.3119	0.0241	2.3360	0.6131	0.0222	0.6353		2,411.8818	2,411.8818	0.1938		2,416.7275
Total	**2.8107**	**9.9050**	**21.7467**	**0.0420**	**2.7374**	**0.0526**	**2.7899**	**0.7354**	**0.0495**	**0.7848**		**4,249.3458**	**4,249.3458**	**0.2506**		**4,255.6100**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2911	7.9203	2.5221	0.0175	0.4254	0.0261	0.4514	0.1223	0.0249	0.1472		1,828.9932	1,828.9932	0.0529		1,830.3150
Worker	2.3530	1.4790	16.8829	0.0236	2.3119	0.0226	2.3346	0.6131	0.0208	0.6339		2,333.6016	2,333.6016	0.1725		2,337.9137
Total	**2.6440**	**9.3992**	**19.4050**	**0.0411**	**2.7373**	**0.0487**	**2.7860**	**0.7354**	**0.0458**	**0.7811**		**4,162.5948**	**4,162.5948**	**0.2254**		**4,168.2286**

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2911	7.9203	2.5221	0.0175	0.4254	0.0261	0.4514	0.1223	0.0249	0.1472		1,828.9932	1,828.9932	0.0529		1,830.3150
Worker	2.3530	1.4790	16.8829	0.0236	2.3119	0.0226	2.3346	0.6131	0.0208	0.6339		2,333.6016	2,333.6016	0.1725		2,337.9137
Total	**2.6440**	**9.3992**	**19.4050**	**0.0411**	**2.7373**	**0.0487**	**2.7860**	**0.7354**	**0.0458**	**0.7811**		**4,162.5948**	**4,162.5948**	**0.2254**		**4,168.2286**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.7205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8233**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1950	0.1226	1.3991	1.9500e-003	0.1916	1.8800e-003	0.1935	0.0508	1.7300e-003	0.0525		193.3924	193.3924	0.0143		193.7498
Total	**0.1950**	**0.1226**	**1.3991**	**1.9500e-003**	**0.1916**	**1.8800e-003**	**0.1935**	**0.0508**	**1.7300e-003**	**0.0525**		**193.3924**	**193.3924**	**0.0143**		**193.7498**

3.5 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.7205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8233**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1950	0.1226	1.3991	1.9500e-003	0.1916	1.8800e-003	0.1935	0.0508	1.7300e-003	0.0525		193.3924	193.3924	0.0143		193.7498
Total	**0.1950**	**0.1226**	**1.3991**	**1.9500e-003**	**0.1916**	**1.8800e-003**	**0.1935**	**0.0508**	**1.7300e-003**	**0.0525**		**193.3924**	**193.3924**	**0.0143**		**193.7498**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	240.4632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**240.6678**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4680	0.2942	3.3579	4.6900e-003	0.4598	4.5000e-003	0.4643	0.1219	4.1500e-003	0.1261		464.1418	464.1418	0.0343		464.9994
Total	**0.4680**	**0.2942**	**3.3579**	**4.6900e-003**	**0.4598**	**4.5000e-003**	**0.4643**	**0.1219**	**4.1500e-003**	**0.1261**		**464.1418**	**464.1418**	**0.0343**		**464.9994**

3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	240.4632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**240.6678**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4680	0.2942	3.3579	4.6900e-003	0.4598	4.5000e-003	0.4643	0.1219	4.1500e-003	0.1261		464.1418	464.1418	0.0343		464.9994
Total	**0.4680**	**0.2942**	**3.3579**	**4.6900e-003**	**0.4598**	**4.5000e-003**	**0.4643**	**0.1219**	**4.1500e-003**	**0.1261**		**464.1418**	**464.1418**	**0.0343**		**464.9994**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.7409	16.0179	59.2511	0.1058	8.2930	0.1321	8.4251	2.2238	0.1240	2.3478		10,584.2650	10,584.2650	0.6682		10,600.9709
Unmitigated	6.7409	16.0179	59.2511	0.1058	8.2930	0.1321	8.4251	2.2238	0.1240	2.3478		10,584.2650	10,584.2650	0.6682		10,600.9709

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market (24 Hour)	980.00	687.99	836.00	1,181,884	1,181,884
Hotel	739.62	834.12	496.44	2,244,437	2,244,437
Parking Lot	0.00	0.00	0.00		
Single Family Housing	4.98	6.00	4.98	20,754	20,754
Total	1,724.60	1,528.11	1,337.42	3,447,074	3,447,074

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market (24 Hour)	12.53	12.53	12.53	0.90	80.10	19.00	24	15	61
Hotel	12.71	12.71	12.71	19.40	61.60	19.00	58	38	4
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Single Family Housing	12.53	12.53	12.53	37.30	20.70	42.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market (24 Hour)	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Hotel	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Parking Lot	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Single Family Housing	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1150	1.0440	0.8693	6.2700e-003		0.0794	0.0794		0.0794	0.0794		1,254.1404	1,254.1404	0.0240	0.0230	1,261.5931
NaturalGas Unmitigated	0.1150	1.0440	0.8693	6.2700e-003		0.0794	0.0794		0.0794	0.0794		1,254.1404	1,254.1404	0.0240	0.0230	1,261.5931

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market (24 Hour)	55.3096	6.0000e-004	5.4200e-003	4.5500e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004		6.5070	6.5070	1.2000e-004	1.2000e-004	6.5457
Hotel	10405.7	0.1122	1.0202	0.8569	6.1200e-003		0.0775	0.0775		0.0775	0.0775		1,224.2010	1,224.2010	0.0235	0.0224	1,231.4758
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	199.175	2.1500e-003	0.0184	7.8100e-003	1.2000e-004		1.4800e-003	1.4800e-003		1.4800e-003	1.4800e-003		23.4324	23.4324	4.5000e-004	4.3000e-004	23.5716
Total		**0.1150**	**1.0440**	**0.8693**	**6.2700e-003**		**0.0794**	**0.0794**		**0.0794**	**0.0794**		**1,254.1404**	**1,254.1404**	**0.0240**	**0.0230**	**1,261.5931**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market (24 Hour)	0.0553096	6.0000e-004	5.4200e-003	4.5500e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004		6.5070	6.5070	1.2000e-004	1.2000e-004	6.5457
Hotel	10.4057	0.1122	1.0202	0.8569	6.1200e-003		0.0775	0.0775		0.0775	0.0775		1,224.2010	1,224.2010	0.0235	0.0224	1,231.4758
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.199175	2.1500e-003	0.0184	7.8100e-003	1.2000e-004		1.4800e-003	1.4800e-003		1.4800e-003	1.4800e-003		23.4324	23.4324	4.5000e-004	4.3000e-004	23.5716
Total		**0.1150**	**1.0440**	**0.8693**	**6.2700e-003**		**0.0794**	**0.0794**		**0.0794**	**0.0794**		**1,254.1404**	**1,254.1404**	**0.0240**	**0.0230**	**1,261.5931**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.6249	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003	0.0000	0.9207	0.9207	9.4000e-004	0.0000	0.9441
Unmitigated	5.6249	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003	0.0000	0.9207	0.9207	9.4000e-004	0.0000	0.9441

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3176					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0162	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003		0.9207	0.9207	9.4000e-004		0.9441
Total	**5.6249**	**5.8400e-003**	**0.5093**	**3.0000e-005**		**2.7900e-003**	**2.7900e-003**		**2.7900e-003**	**2.7900e-003**	**0.0000**	**0.9207**	**0.9207**	**9.4000e-004**	**0.0000**	**0.9441**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3176					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0162	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003		0.9207	0.9207	9.4000e-004		0.9441
Total	**5.6249**	**5.8400e-003**	**0.5093**	**3.0000e-005**		**2.7900e-003**	**2.7900e-003**		**2.7900e-003**	**2.7900e-003**	**0.0000**	**0.9207**	**0.9207**	**9.4000e-004**	**0.0000**	**0.9441**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Model Output File
Daily Winter Period

Terra Vi Lodge

Tuolumne County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	5.50	Acre	5.50	239,580.00	0
Hotel	126.00	Room	4.20	182,952.00	0
Single Family Housing	6.00	Dwelling Unit	1.95	10,800.00	17
Convenience Market (24 Hour)	2.80	1000sqft	0.06	2,800.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	293.67	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor from The Climate Registry 2019.

Land Use - Hotel and Apartments data from Bissell pers. comm. Asphalt paved area data from Chirnside pers. comm.

Construction Phase - No demolition. Demolition phase deleted.

Vehicle Trips - Wkday/Sat/Sun effective trip rates (adj for internal) from TIS: ConvMkt 350.00/245.71/298.57, Hotel 5.87/6.62/3.94, SF Hsing 0.83/1.00/0.83. Trip length consistent with Wood-Rodgers 2019.

Woodstoves - Per Bissell pers. comm., no woodstoves or fireplaces of any kind.

Energy Use -

Water And Wastewater - All wastewater treatment by septic tank.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	3.30	0.00
tblFireplaces	NumberNoFireplace	0.60	6.00
tblFireplaces	NumberWood	2.10	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	293.67
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	12.53
tblVehicleTrips	CC_TL	6.60	12.71
tblVehicleTrips	CNW_TL	6.60	12.53
tblVehicleTrips	CNW_TL	6.60	12.71
tblVehicleTrips	CW_TL	14.70	12.53
tblVehicleTrips	CW_TL	14.70	12.71
tblVehicleTrips	HO_TL	7.90	12.53
tblVehicleTrips	HS_TL	7.10	12.53
tblVehicleTrips	HW_TL	16.80	12.53
tblVehicleTrips	ST_TR	863.10	245.71
tblVehicleTrips	ST_TR	8.19	6.62
tblVehicleTrips	ST_TR	9.91	1.00

tblVehicleTrips	SU_TR	758.45	298.57
tblVehicleTrips	SU_TR	5.95	3.94
tblVehicleTrips	SU_TR	8.62	0.83
tblVehicleTrips	WD_TR	737.99	350.00
tblVehicleTrips	WD_TR	8.17	5.87
tblVehicleTrips	WD_TR	9.52	0.83
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWoodstoves	NumberCatalytic	0.30	0.00
tblWoodstoves	NumberNoncatalytic	0.30	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.9876	46.6398	38.0669	0.0665	18.2962	2.0469	20.3430	9.9917	1.8831	11.8748	0.0000	6,562.1944	6,562.1944	1.9631	0.0000	6,583.7472
2022	241.1840	25.6881	35.4115	0.0657	2.7373	0.8590	3.5963	0.7354	0.8082	1.5435	0.0000	6,482.3726	6,482.3726	0.8324	0.0000	6,503.1816
Maximum	**241.1840**	**46.6398**	**38.0669**	**0.0665**	**18.2962**	**2.0469**	**20.3430**	**9.9917**	**1.8831**	**11.8748**	**0.0000**	**6,562.1944**	**6,562.1944**	**1.9631**	**0.0000**	**6,583.7472**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.9876	46.6398	38.0669	0.0665	18.2962	2.0469	20.3430	9.9917	1.8831	11.8748	0.0000	6,562.1944	6,562.1944	1.9631	0.0000	6,583.7472
2022	241.1840	25.6881	35.4115	0.0657	2.7373	0.8590	3.5963	0.7354	0.8082	1.5435	0.0000	6,482.3726	6,482.3726	0.8324	0.0000	6,503.1816
Maximum	**241.1840**	**46.6398**	**38.0669**	**0.0665**	**18.2962**	**2.0469**	**20.3430**	**9.9917**	**1.8831**	**11.8748**	**0.0000**	**6,562.1944**	**6,562.1944**	**1.9631**	**0.0000**	**6,583.7472**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.6249	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003	0.0000	0.9207	0.9207	9.4000e-004	0.0000	0.9441
Energy	0.1150	1.0440	0.8693	6.2700e-003		0.0794	0.0794		0.0794	0.0794		1,254.1404	1,254.1404	0.0240	0.0230	1,261.5931
Mobile	5.7601	18.1505	63.5894	0.0988	8.2930	0.1330	8.4260	2.2238	0.1248	2.3486		9,873.6292	9,873.6292	0.6704		9,890.3895
Total	**11.4999**	**19.2002**	**64.9680**	**0.1051**	**8.2930**	**0.2152**	**8.5082**	**2.2238**	**0.2070**	**2.4309**	**0.0000**	**11,128.6903**	**11,128.6903**	**0.6954**	**0.0230**	**11,152.9268**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.6249	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003	0.0000	0.9207	0.9207	9.4000e-004	0.0000	0.9441
Energy	0.1150	1.0440	0.8693	6.2700e-003		0.0794	0.0794		0.0794	0.0794		1,254.1404	1,254.1404	0.0240	0.0230	1,261.5931
Mobile	5.7601	18.1505	63.5894	0.0988	8.2930	0.1330	8.4260	2.2238	0.1248	2.3486		9,873.6292	9,873.6292	0.6704		9,890.3895
Total	**11.4999**	**19.2002**	**64.9680**	**0.1051**	**8.2930**	**0.2152**	**8.5082**	**2.2238**	**0.2070**	**2.4309**	**0.0000**	**11,128.6903**	**11,128.6903**	**0.6954**	**0.0230**	**11,152.9268**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/14/2021	5	10	
2	Grading	Grading	1/15/2021	2/25/2021	5	30	
3	Building Construction	Building Construction	2/26/2021	4/21/2022	5	300	
4	Paving	Paving	4/22/2022	5/19/2022	5	20	
5	Architectural Coating	Architectural Coating	5/20/2022	6/16/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 5.5

Residential Indoor: 21,870; Residential Outdoor: 7,290; Non-Residential Indoor: 278,628; Non-Residential Outdoor: 92,876; Striped Parking Area: 14,375 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	181.00	70.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	36.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2730	0.2159	1.8124	2.2200e-003	0.2299	2.4000e-003	0.2323	0.0610	2.2100e-003	0.0632		219.2508	219.2508	0.0182		219.7066
Total	**0.2730**	**0.2159**	**1.8124**	**2.2200e-003**	**0.2299**	**2.4000e-003**	**0.2323**	**0.0610**	**2.2100e-003**	**0.0632**		**219.2508**	**219.2508**	**0.0182**		**219.7066**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2730	0.2159	1.8124	2.2200e-003	0.2299	2.4000e-003	0.2323	0.0610	2.2100e-003	0.0632		219.2508	219.2508	0.0182		219.7066
Total	**0.2730**	**0.2159**	**1.8124**	**2.2200e-003**	**0.2299**	**2.4000e-003**	**0.2323**	**0.0610**	**2.2100e-003**	**0.0632**		**219.2508**	**219.2508**	**0.0182**		**219.7066**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3033	0.2399	2.0137	2.4700e-003	0.2555	2.6600e-003	0.2581	0.0678	2.4500e-003	0.0702		243.6120	243.6120	0.0203		244.1184
Total	**0.3033**	**0.2399**	**2.0137**	**2.4700e-003**	**0.2555**	**2.6600e-003**	**0.2581**	**0.0678**	**2.4500e-003**	**0.0702**		**243.6120**	**243.6120**	**0.0203**		**244.1184**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3033	0.2399	2.0137	2.4700e-003	0.2555	2.6600e-003	0.2581	0.0678	2.4500e-003	0.0702		243.6120	243.6120	0.0203		244.1184
Total	**0.3033**	**0.2399**	**2.0137**	**2.4700e-003**	**0.2555**	**2.6600e-003**	**0.2581**	**0.0678**	**2.4500e-003**	**0.0702**		**243.6120**	**243.6120**	**0.0203**		**244.1184**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3417	8.4850	3.2673	0.0173	0.4254	0.0299	0.4553	0.1223	0.0286	0.1508		1,804.1423	1,804.1423	0.0628		1,805.7112
Worker	2.7450	2.1714	18.2244	0.0223	2.3119	0.0241	2.3360	0.6131	0.0222	0.6353		2,204.6882	2,204.6882	0.1833		2,209.2718
Total	**3.0867**	**10.6563**	**21.4917**	**0.0396**	**2.7374**	**0.0540**	**2.7913**	**0.7354**	**0.0508**	**0.7861**		**4,008.8305**	**4,008.8305**	**0.2461**		**4,014.9830**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3417	8.4850	3.2673	0.0173	0.4254	0.0299	0.4553	0.1223	0.0286	0.1508		1,804.1423	1,804.1423	0.0628		1,805.7112
Worker	2.7450	2.1714	18.2244	0.0223	2.3119	0.0241	2.3360	0.6131	0.0222	0.6353		2,204.6882	2,204.6882	0.1833		2,209.2718
Total	**3.0867**	**10.6563**	**21.4917**	**0.0396**	**2.7374**	**0.0540**	**2.7913**	**0.7354**	**0.0508**	**0.7861**		**4,008.8305**	**4,008.8305**	**0.2461**		**4,014.9830**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3133	8.1150	2.9308	0.0172	0.4254	0.0274	0.4527	0.1223	0.0262	0.1484		1,795.2699	1,795.2699	0.0586		1,796.7345
Worker	2.5953	1.9574	16.1173	0.0216	2.3119	0.0226	2.3346	0.6131	0.0208	0.6339		2,132.7691	2,132.7691	0.1618		2,136.8148
Total	**2.9086**	**10.0724**	**19.0481**	**0.0388**	**2.7373**	**0.0500**	**2.7873**	**0.7354**	**0.0470**	**0.7823**		**3,928.0390**	**3,928.0390**	**0.2204**		**3,933.5494**

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3133	8.1150	2.9308	0.0172	0.4254	0.0274	0.4527	0.1223	0.0262	0.1484		1,795.2699	1,795.2699	0.0586		1,796.7345
Worker	2.5953	1.9574	16.1173	0.0216	2.3119	0.0226	2.3346	0.6131	0.0208	0.6339		2,132.7691	2,132.7691	0.1618		2,136.8148
Total	**2.9086**	**10.0724**	**19.0481**	**0.0388**	**2.7373**	**0.0500**	**2.7873**	**0.7354**	**0.0470**	**0.7823**		**3,928.0390**	**3,928.0390**	**0.2204**		**3,933.5494**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.7205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8233**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2151	0.1622	1.3357	1.7900e-003	0.1916	1.8800e-003	0.1935	0.0508	1.7300e-003	0.0525		176.7488	176.7488	0.0134		177.0841
Total	**0.2151**	**0.1622**	**1.3357**	**1.7900e-003**	**0.1916**	**1.8800e-003**	**0.1935**	**0.0508**	**1.7300e-003**	**0.0525**		**176.7488**	**176.7488**	**0.0134**		**177.0841**

3.5 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.7205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8233**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2151	0.1622	1.3357	1.7900e-003	0.1916	1.8800e-003	0.1935	0.0508	1.7300e-003	0.0525		176.7488	176.7488	0.0134		177.0841
Total	**0.2151**	**0.1622**	**1.3357**	**1.7900e-003**	**0.1916**	**1.8800e-003**	**0.1935**	**0.0508**	**1.7300e-003**	**0.0525**		**176.7488**	**176.7488**	**0.0134**		**177.0841**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	240.4632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**240.6678**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5162	0.3893	3.2056	4.2900e-003	0.4598	4.5000e-003	0.4643	0.1219	4.1500e-003	0.1261		424.1972	424.1972	0.0322		425.0018
Total	**0.5162**	**0.3893**	**3.2056**	**4.2900e-003**	**0.4598**	**4.5000e-003**	**0.4643**	**0.1219**	**4.1500e-003**	**0.1261**		**424.1972**	**424.1972**	**0.0322**		**425.0018**

3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	240.4632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**240.6678**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5162	0.3893	3.2056	4.2900e-003	0.4598	4.5000e-003	0.4643	0.1219	4.1500e-003	0.1261		424.1972	424.1972	0.0322		425.0018
Total	**0.5162**	**0.3893**	**3.2056**	**4.2900e-003**	**0.4598**	**4.5000e-003**	**0.4643**	**0.1219**	**4.1500e-003**	**0.1261**		**424.1972**	**424.1972**	**0.0322**		**425.0018**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.7601	18.1505	63.5894	0.0988	8.2930	0.1330	8.4260	2.2238	0.1248	2.3486		9,873.6292	9,873.6292	0.6704		9,890.3895
Unmitigated	5.7601	18.1505	63.5894	0.0988	8.2930	0.1330	8.4260	2.2238	0.1248	2.3486		9,873.6292	9,873.6292	0.6704		9,890.3895

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market (24 Hour)	980.00	687.99	836.00	1,181,884	1,181,884
Hotel	739.62	834.12	496.44	2,244,437	2,244,437
Parking Lot	0.00	0.00	0.00		
Single Family Housing	4.98	6.00	4.98	20,754	20,754
Total	1,724.60	1,528.11	1,337.42	3,447,074	3,447,074

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market (24 Hour)	12.53	12.53	12.53	0.90	80.10	19.00	24	15	61
Hotel	12.71	12.71	12.71	19.40	61.60	19.00	58	38	4
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Single Family Housing	12.53	12.53	12.53	37.30	20.70	42.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market (24 Hour)	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Hotel	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Parking Lot	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Single Family Housing	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1150	1.0440	0.8693	6.2700e-003		0.0794	0.0794		0.0794	0.0794		1,254.1404	1,254.1404	0.0240	0.0230	1,261.5931
NaturalGas Unmitigated	0.1150	1.0440	0.8693	6.2700e-003		0.0794	0.0794		0.0794	0.0794		1,254.1404	1,254.1404	0.0240	0.0230	1,261.5931

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market (24 Hour)	55.3096	6.0000e-004	5.4200e-003	4.5500e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004		6.5070	6.5070	1.2000e-004	1.2000e-004	6.5457
Hotel	10405.7	0.1122	1.0202	0.8569	6.1200e-003		0.0775	0.0775		0.0775	0.0775		1,224.2010	1,224.2010	0.0235	0.0224	1,231.4758
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	199.175	2.1500e-003	0.0184	7.8100e-003	1.2000e-004		1.4800e-003	1.4800e-003		1.4800e-003	1.4800e-003		23.4324	23.4324	4.5000e-004	4.3000e-004	23.5716
Total		**0.1150**	**1.0440**	**0.8693**	**6.2700e-003**		**0.0794**	**0.0794**		**0.0794**	**0.0794**		**1,254.1404**	**1,254.1404**	**0.0240**	**0.0230**	**1,261.5931**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market (24 Hour)	0.0553096	6.0000e-004	5.4200e-003	4.5500e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004		6.5070	6.5070	1.2000e-004	1.2000e-004	6.5457
Hotel	10.4057	0.1122	1.0202	0.8569	6.1200e-003		0.0775	0.0775		0.0775	0.0775		1,224.2010	1,224.2010	0.0235	0.0224	1,231.4758
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.199175	2.1500e-003	0.0184	7.8100e-003	1.2000e-004		1.4800e-003	1.4800e-003		1.4800e-003	1.4800e-003		23.4324	23.4324	4.5000e-004	4.3000e-004	23.5716
Total		**0.1150**	**1.0440**	**0.8693**	**6.2700e-003**		**0.0794**	**0.0794**		**0.0794**	**0.0794**		**1,254.1404**	**1,254.1404**	**0.0240**	**0.0230**	**1,261.5931**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.6249	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003	0.0000	0.9207	0.9207	9.4000e-004	0.0000	0.9441
Unmitigated	5.6249	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003	0.0000	0.9207	0.9207	9.4000e-004	0.0000	0.9441

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3176					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0162	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003		0.9207	0.9207	9.4000e-004		0.9441
Total	**5.6249**	**5.8400e-003**	**0.5093**	**3.0000e-005**		**2.7900e-003**	**2.7900e-003**		**2.7900e-003**	**2.7900e-003**	**0.0000**	**0.9207**	**0.9207**	**9.4000e-004**	**0.0000**	**0.9441**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3176					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0162	5.8400e-003	0.5093	3.0000e-005		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003		0.9207	0.9207	9.4000e-004		0.9441
Total	**5.6249**	**5.8400e-003**	**0.5093**	**3.0000e-005**		**2.7900e-003**	**2.7900e-003**		**2.7900e-003**	**2.7900e-003**	**0.0000**	**0.9207**	**0.9207**	**9.4000e-004**	**0.0000**	**0.9441**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Model Output File
Annual Period
With Mitigation Measures

Terra Vi Lodge - With Mitigation Measures

Tuolumne County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	5.50	Acre	5.50	239,580.00	0
Hotel	126.00	Room	4.20	182,952.00	0
Single Family Housing	6.00	Dwelling Unit	1.95	10,800.00	17
Convenience Market (24 Hour)	2.80	1000sqft	0.06	2,800.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	293.67	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Terra Vi Lodge - With Mitigation Measures - Tuolumne County, Annual

Project Characteristics - CO2 Intensity Factor from The Climate Registry 2019. This file includes mitigation measures.

Land Use - Hotel and Apartments data from Bissell pers. comm. Asphalt paved area data from Chirnside pers. comm.

Construction Phase - No demolition. Demolition phase deleted.

Vehicle Trips - Wkday/Sat/Sun effective trip rates (adj for internal) from TIS: ConvMkt 350.00/245.71/298.57, Hotel 5.87/6.62/3.94, SF Hsing 0.83/1.00/0.83. Trip length consistent with Wood-Rodgers 2019.

Woodstoves - Per Bissell pers. comm., no woodstoves or fireplaces of any kind.

Energy Use -

Water And Wastewater - All wastewater treatment by septic tank.

Construction Off-road Equipment Mitigation - Use electrically-powered construction equipment.

Mobile Land Use Mitigation - Miles for LUT-5 calculated to cause transit percentage to be consistent with traffic study (KD Anderson 2020).

Area Mitigation - Use electrically-powered landscape equipment

Energy Mitigation - Implement Title 24 2019 Standards. Implement solar photovoltaic electricity generation.

Water Mitigation - Use greywater for outdoor irrigation. Use low-flow indoor water fixtures. Use water-efficient landscape irrigation system.

Waste Mitigation - Implement recycling and composting measures.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical

Terra Vi Lodge - With Mitigation Measures - Tuolumne County, Annual

tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	3.30	0.00
tblFireplaces	NumberNoFireplace	0.60	6.00
tblFireplaces	NumberWood	2.10	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	293.67
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	12.53
tblVehicleTrips	CC_TL	6.60	12.71
tblVehicleTrips	CNW_TL	6.60	12.53
tblVehicleTrips	CNW_TL	6.60	12.71
tblVehicleTrips	CW_TL	14.70	12.53
tblVehicleTrips	CW_TL	14.70	12.71
tblVehicleTrips	HO_TL	7.90	12.53

tblVehicleTrips	HS_TL	7.10	12.53
tblVehicleTrips	HW_TL	16.80	12.53
tblVehicleTrips	ST_TR	863.10	245.71
tblVehicleTrips	ST_TR	8.19	6.62
tblVehicleTrips	ST_TR	9.91	1.00
tblVehicleTrips	SU_TR	758.45	298.57
tblVehicleTrips	SU_TR	5.95	3.94
tblVehicleTrips	SU_TR	8.62	0.83
tblVehicleTrips	WD_TR	737.99	350.00
tblVehicleTrips	WD_TR	8.17	5.87
tblVehicleTrips	WD_TR	9.52	0.83
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AerobicPercent	87.46	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00
tblWater	SepticTankPercent	10.33	100.00

tblWoodstoves	NumberCatalytic	0.30	0.00
tblWoodstoves	NumberNoncatalytic	0.30	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.6024	3.9837	4.7403	8.5800e-003	0.5161	0.1519	0.6680	0.1833	0.1420	0.3253	0.0000	766.3108	766.3108	0.1182	0.0000	769.2667
2022	2.6013	1.1378	1.5859	2.9400e-003	0.1103	0.0405	0.1507	0.0297	0.0380	0.0677	0.0000	262.3991	262.3991	0.0368	0.0000	263.3185
Maximum	**2.6013**	**3.9837**	**4.7403**	**8.5800e-003**	**0.5161**	**0.1519**	**0.6680**	**0.1833**	**0.1420**	**0.3253**	**0.0000**	**766.3108**	**766.3108**	**0.1182**	**0.0000**	**769.2667**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.3100	1.1590	2.3398	8.5800e-003	0.5161	5.9300e-003	0.5221	0.1833	5.5700e-003	0.1889	0.0000	411.8913	411.8913	0.0246	0.0000	412.5072
2022	2.5208	0.3957	0.7757	2.9400e-003	0.1103	2.0100e-003	0.1123	0.0297	1.8900e-003	0.0316	0.0000	148.2868	148.2868	8.2100e-003	0.0000	148.4919
Maximum	**2.5208**	**1.1590**	**2.3398**	**8.5800e-003**	**0.5161**	**5.9300e-003**	**0.5221**	**0.1833**	**5.5700e-003**	**0.1889**	**0.0000**	**411.8913**	**411.8913**	**0.0246**	**0.0000**	**412.5072**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**11.64**	**69.64**	**50.75**	**0.00**	**0.00**	**95.87**	**22.52**	**0.00**	**95.85**	**43.90**	**0.00**	**45.55**	**45.55**	**78.81**	**0.00**	**45.67**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	1.3930	0.1775
2	4-1-2021	6-30-2021	1.0416	0.4133
3	7-1-2021	9-30-2021	1.0530	0.4178
4	10-1-2021	12-31-2021	1.0868	0.4516
5	1-1-2022	3-31-2022	0.9740	0.4172
6	4-1-2022	6-30-2022	2.7813	2.5130
		Highest	2.7813	2.5130

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0251	5.3000e-004	0.0458	0.0000		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	0.0752	0.0752	8.0000e-005	0.0000	0.0771
Energy	0.0210	0.1905	0.1587	1.1400e-003		0.0145	0.0145		0.0145	0.0145	0.0000	412.5877	412.5877	0.0242	7.9900e-003	415.5754
Mobile	0.9438	2.8244	9.7374	0.0161	1.2851	0.0214	1.3065	0.3458	0.0201	0.3658	0.0000	1,463.0734	1,463.0734	0.0965	0.0000	1,465.4867
Waste						0.0000	0.0000		0.0000	0.0000	16.5722	0.0000	16.5722	0.9794	0.0000	41.0569
Water						0.0000	0.0000		0.0000	0.0000	0.0000	3.0748	3.0748	0.8621	2.9800e-003	25.5169
Total	**1.9898**	**3.0154**	**9.9419**	**0.0173**	**1.2851**	**0.0361**	**1.3212**	**0.3458**	**0.0348**	**0.3806**	**16.5722**	**1,878.8111**	**1,895.3832**	**1.9624**	**0.0110**	**1,947.7130**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0244	4.1000e-004	0.0346	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.0522	0.0522	4.0000e-005	0.0000	0.0532
Energy	0.0147	0.1336	0.1112	8.0000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	313.4694	313.4694	0.0194	6.1000e-003	315.7710
Mobile	0.9306	2.7342	9.4472	0.0154	1.2276	0.0205	1.2481	0.3303	0.0193	0.3496	0.0000	1,400.5716	1,400.5716	0.0932	0.0000	1,402.9005
Waste						0.0000	0.0000		0.0000	0.0000	13.2578	0.0000	13.2578	0.7835	0.0000	32.8455
Water						0.0000	0.0000		0.0000	0.0000	0.0000	2.1880	2.1880	0.6897	2.3800e-003	20.1394
Total	**1.9696**	**2.8683**	**9.5930**	**0.0162**	**1.2276**	**0.0309**	**1.2585**	**0.3303**	**0.0296**	**0.3599**	**13.2578**	**1,716.2812**	**1,729.5390**	**1.5858**	**8.4800e-003**	**1,771.7096**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.01**	**4.88**	**3.51**	**5.96**	**4.48**	**14.48**	**4.75**	**4.48**	**14.89**	**5.43**	**20.00**	**8.65**	**8.75**	**19.19**	**22.70**	**9.04**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/14/2021	5	10	
2	Grading	Grading	1/15/2021	2/25/2021	5	30	
3	Building Construction	Building Construction	2/26/2021	4/21/2022	5	300	
4	Paving	Paving	4/22/2022	5/19/2022	5	20	
5	Architectural Coating	Architectural Coating	5/20/2022	6/16/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 5.5

Residential Indoor: 21,870; Residential Outdoor: 7,290; Non-Residential Indoor: 278,628; Non-Residential Outdoor: 92,876; Striped Parking Area: 14,375 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	181.00	70.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	36.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7179	16.7179	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7179**	**16.7179**	**5.4100e-003**	**0.0000**	**16.8530**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.8000e-004	8.8400e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1200e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	1.0112	1.0112	8.0000e-005	0.0000	1.0133
Total	**1.2100e-003**	**9.8000e-004**	**8.8400e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1200e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**1.0112**	**1.0112**	**8.0000e-005**	**0.0000**	**1.0133**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	1.9000e-004		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**1.9000e-004**	**0.0903**	**0.0000**	**0.0903**	**0.0497**	**0.0000**	**0.0497**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.8000e-004	8.8400e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1200e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	1.0112	1.0112	8.0000e-005	0.0000	1.0133
Total	**1.2100e-003**	**9.8000e-004**	**8.8400e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1200e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**1.0112**	**1.0112**	**8.0000e-005**	**0.0000**	**1.0133**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7425	81.7425	0.0264	0.0000	82.4034
Total	**0.0629**	**0.6960**	**0.4632**	**9.3000e-004**	**0.1301**	**0.0298**	**0.1599**	**0.0540**	**0.0274**	**0.0814**	**0.0000**	**81.7425**	**81.7425**	**0.0264**	**0.0000**	**82.4034**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0300e-003	3.2700e-003	0.0295	4.0000e-005	3.6800e-003	4.0000e-005	3.7200e-003	9.8000e-004	4.0000e-005	1.0200e-003	0.0000	3.3707	3.3707	2.7000e-004	0.0000	3.3776
Total	**4.0300e-003**	**3.2700e-003**	**0.0295**	**4.0000e-005**	**3.6800e-003**	**4.0000e-005**	**3.7200e-003**	**9.8000e-004**	**4.0000e-005**	**1.0200e-003**	**0.0000**	**3.3707**	**3.3707**	**2.7000e-004**	**0.0000**	**3.3776**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	9.3000e-004		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**9.3000e-004**	**0.1301**	**0.0000**	**0.1301**	**0.0540**	**0.0000**	**0.0540**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0300e-003	3.2700e-003	0.0295	4.0000e-005	3.6800e-003	4.0000e-005	3.7200e-003	9.8000e-004	4.0000e-005	1.0200e-003	0.0000	3.3707	3.3707	2.7000e-004	0.0000	3.3776
Total	**4.0300e-003**	**3.2700e-003**	**0.0295**	**4.0000e-005**	**3.6800e-003**	**4.0000e-005**	**3.7200e-003**	**9.8000e-004**	**4.0000e-005**	**1.0200e-003**	**0.0000**	**3.3707**	**3.3707**	**2.7000e-004**	**0.0000**	**3.3776**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2101	1.9263	1.8316	2.9700e-003		0.1059	0.1059		0.0996	0.0996	0.0000	255.9592	255.9592	0.0618	0.0000	257.5030
Total	**0.2101**	**1.9263**	**1.8316**	**2.9700e-003**		**0.1059**	**0.1059**		**0.0996**	**0.0996**	**0.0000**	**255.9592**	**255.9592**	**0.0618**	**0.0000**	**257.5030**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0361	0.9366	0.3371	1.9300e-003	0.0455	3.2100e-003	0.0487	0.0131	3.0700e-003	0.0162	0.0000	182.7907	182.7907	6.0100e-003	0.0000	182.9409
Worker	0.2686	0.2181	1.9643	2.5100e-003	0.2454	2.6600e-003	0.2481	0.0653	2.4500e-003	0.0677	0.0000	224.7187	224.7187	0.0183	0.0000	225.1755
Total	**0.3048**	**1.1547**	**2.3015**	**4.4400e-003**	**0.2909**	**5.8700e-003**	**0.2968**	**0.0784**	**5.5200e-003**	**0.0840**	**0.0000**	**407.5094**	**407.5094**	**0.0243**	**0.0000**	**408.1164**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	2.9700e-003		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**2.9700e-003**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0361	0.9366	0.3371	1.9300e-003	0.0455	3.2100e-003	0.0487	0.0131	3.0700e-003	0.0162	0.0000	182.7907	182.7907	6.0100e-003	0.0000	182.9409
Worker	0.2686	0.2181	1.9643	2.5100e-003	0.2454	2.6600e-003	0.2481	0.0653	2.4500e-003	0.0677	0.0000	224.7187	224.7187	0.0183	0.0000	225.1755
Total	**0.3048**	**1.1547**	**2.3015**	**4.4400e-003**	**0.2909**	**5.8700e-003**	**0.2968**	**0.0784**	**5.5200e-003**	**0.0840**	**0.0000**	**407.5094**	**407.5094**	**0.0243**	**0.0000**	**408.1164**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0674	0.6168	0.6464	1.0600e-003		0.0320	0.0320		0.0301	0.0301	0.0000	91.5315	91.5315	0.0219	0.0000	92.0797
Total	**0.0674**	**0.6168**	**0.6464**	**1.0600e-003**		**0.0320**	**0.0320**		**0.0301**	**0.0301**	**0.0000**	**91.5315**	**91.5315**	**0.0219**	**0.0000**	**92.0797**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0119	0.3204	0.1081	6.9000e-004	0.0163	1.0500e-003	0.0173	4.6900e-003	1.0000e-003	5.7000e-003	0.0000	65.0319	65.0319	2.0000e-003	0.0000	65.0820
Worker	0.0906	0.0703	0.6231	8.7000e-004	0.0877	8.9000e-004	0.0886	0.0233	8.2000e-004	0.0242	0.0000	77.7114	77.7114	5.7900e-003	0.0000	77.8562
Total	**0.1025**	**0.3907**	**0.7312**	**1.5600e-003**	**0.1040**	**1.9400e-003**	**0.1059**	**0.0280**	**1.8200e-003**	**0.0299**	**0.0000**	**142.7433**	**142.7433**	**7.7900e-003**	**0.0000**	**142.9382**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	1.0600e-003		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**1.0600e-003**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0119	0.3204	0.1081	6.9000e-004	0.0163	1.0500e-003	0.0173	4.6900e-003	1.0000e-003	5.7000e-003	0.0000	65.0319	65.0319	2.0000e-003	0.0000	65.0820
Worker	0.0906	0.0703	0.6231	8.7000e-004	0.0877	8.9000e-004	0.0886	0.0233	8.2000e-004	0.0242	0.0000	77.7114	77.7114	5.7900e-003	0.0000	77.8562
Total	**0.1025**	**0.3907**	**0.7312**	**1.5600e-003**	**0.1040**	**1.9400e-003**	**0.1059**	**0.0280**	**1.8200e-003**	**0.0299**	**0.0000**	**142.7433**	**142.7433**	**7.7900e-003**	**0.0000**	**142.9382**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	7.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0182**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-003	1.4800e-003	0.0131	2.0000e-005	1.8400e-003	2.0000e-005	1.8600e-003	4.9000e-004	2.0000e-005	5.1000e-004	0.0000	1.6304	1.6304	1.2000e-004	0.0000	1.6335
Total	**1.9000e-003**	**1.4800e-003**	**0.0131**	**2.0000e-005**	**1.8400e-003**	**2.0000e-005**	**1.8600e-003**	**4.9000e-004**	**2.0000e-005**	**5.1000e-004**	**0.0000**	**1.6304**	**1.6304**	**1.2000e-004**	**0.0000**	**1.6335**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	2.3000e-004		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	7.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.2100e-003**	**0.0000**	**0.0000**	**2.3000e-004**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-003	1.4800e-003	0.0131	2.0000e-005	1.8400e-003	2.0000e-005	1.8600e-003	4.9000e-004	2.0000e-005	5.1000e-004	0.0000	1.6304	1.6304	1.2000e-004	0.0000	1.6335
Total	**1.9000e-003**	**1.4800e-003**	**0.0131**	**2.0000e-005**	**1.8400e-003**	**2.0000e-005**	**1.8600e-003**	**4.9000e-004**	**2.0000e-005**	**5.1000e-004**	**0.0000**	**1.6304**	**1.6304**	**1.2000e-004**	**0.0000**	**1.6335**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4046					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**2.4067**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5600e-003	3.5400e-003	0.0314	4.0000e-005	4.4200e-003	5.0000e-005	4.4600e-003	1.1800e-003	4.0000e-005	1.2200e-003	0.0000	3.9130	3.9130	2.9000e-004	0.0000	3.9203
Total	**4.5600e-003**	**3.5400e-003**	**0.0314**	**4.0000e-005**	**4.4200e-003**	**5.0000e-005**	**4.4600e-003**	**1.1800e-003**	**4.0000e-005**	**1.2200e-003**	**0.0000**	**3.9130**	**3.9130**	**2.9000e-004**	**0.0000**	**3.9203**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4046					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	3.0000e-005		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.4046**	**0.0000**	**0.0000**	**3.0000e-005**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5600e-003	3.5400e-003	0.0314	4.0000e-005	4.4200e-003	5.0000e-005	4.4600e-003	1.1800e-003	4.0000e-005	1.2200e-003	0.0000	3.9130	3.9130	2.9000e-004	0.0000	3.9203
Total	**4.5600e-003**	**3.5400e-003**	**0.0314**	**4.0000e-005**	**4.4200e-003**	**5.0000e-005**	**4.4600e-003**	**1.1800e-003**	**4.0000e-005**	**1.2200e-003**	**0.0000**	**3.9130**	**3.9130**	**2.9000e-004**	**0.0000**	**3.9203**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9306	2.7342	9.4472	0.0154	1.2276	0.0205	1.2481	0.3303	0.0193	0.3496	0.0000	1,400.5716	1,400.5716	0.0932	0.0000	1,402.9005
Unmitigated	0.9438	2.8244	9.7374	0.0161	1.2851	0.0214	1.3065	0.3458	0.0201	0.3658	0.0000	1,463.0734	1,463.0734	0.0965	0.0000	1,465.4867

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market (24 Hour)	980.00	687.99	836.00	1,181,884	1,128,956
Hotel	739.62	834.12	496.44	2,244,437	2,143,925
Parking Lot	0.00	0.00	0.00		
Single Family Housing	4.98	6.00	4.98	20,754	19,824
Total	1,724.60	1,528.11	1,337.42	3,447,074	3,292,705

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market (24 Hour)	12.53	12.53	12.53	0.90	80.10	19.00	24	15	61
Hotel	12.71	12.71	12.71	19.40	61.60	19.00	58	38	4
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Single Family Housing	12.53	12.53	12.53	37.30	20.70	42.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market (24 Hour)	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Hotel	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Parking Lot	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160
Single Family Housing	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	167.8235	167.8235	0.0166	3.4300e-003	169.2596
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	204.9507	204.9507	0.0202	4.1900e-003	206.7045
NaturalGas Mitigated	0.0147	0.1336	0.1112	8.0000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	145.6459	145.6459	2.7900e-003	2.6700e-003	146.5114
NaturalGas Unmitigated	0.0210	0.1905	0.1587	1.1400e-003		0.0145	0.0145		0.0145	0.0145	0.0000	207.6370	207.6370	3.9800e-003	3.8100e-003	208.8709

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market (24 Hour)	20188	1.1000e-004	9.9000e-004	8.3000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.0773	1.0773	2.0000e-005	2.0000e-005	1.0837
Hotel	3.79808e+006	0.0205	0.1862	0.1564	1.1200e-003		0.0142	0.0142		0.0142	0.0142	0.0000	202.6802	202.6802	3.8800e-003	3.7200e-003	203.8846
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	72699	3.9000e-004	3.3500e-003	1.4300e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	3.8795	3.8795	7.0000e-005	7.0000e-005	3.9026
Total		**0.0210**	**0.1905**	**0.1587**	**1.1500e-003**		**0.0145**	**0.0145**		**0.0145**	**0.0145**	**0.0000**	**207.6370**	**207.6370**	**3.9700e-003**	**3.8100e-003**	**208.8709**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market (24 Hour)	14131.6	8.0000e-005	6.9000e-004	5.8000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7541	0.7541	1.0000e-005	1.0000e-005	0.7586
Hotel	2.6614e+006	0.0144	0.1305	0.1096	7.8000e-004		9.9200e-003	9.9200e-003		9.9200e-003	9.9200e-003	0.0000	142.0226	142.0226	2.7200e-003	2.6000e-003	142.8666
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	53767.5	2.9000e-004	2.4800e-003	1.0500e-003	2.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	2.8692	2.8692	5.0000e-005	5.0000e-005	2.8863
Total		**0.0147**	**0.1336**	**0.1112**	**8.0000e-004**		**0.0102**	**0.0102**		**0.0102**	**0.0102**	**0.0000**	**145.6460**	**145.6460**	**2.7800e-003**	**2.6600e-003**	**146.5114**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market (24 Hour)	37856	5.0427	5.0000e-004	1.0000e-004	5.0858
Hotel	1.36482e+006	181.8031	0.0180	3.7100e-003	183.3588
Parking Lot	83853	11.1698	1.1000e-003	2.3000e-004	11.2653
Single Family Housing	52063.3	6.9352	6.8000e-004	1.4000e-004	6.9945
Total		**204.9507**	**0.0202**	**4.1800e-003**	**206.7045**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market (24 Hour)	-6852.4	-0.9128	-0.0001	0.0000	-0.9206
Hotel	1.21345e+006	161.6398	0.0160	3.3000e-003	163.0230
Parking Lot	43353	5.7749	5.7000e-004	1.2000e-004	5.8243
Single Family Housing	9920.98	1.3215	1.3000e-004	3.0000e-005	1.3329
Total		**167.8235**	**0.0166**	**3.4300e-003**	**169.2596**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0244	4.1000e-004	0.0346	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.0522	0.0522	4.0000e-005	0.0000	0.0532
Unmitigated	1.0251	5.3000e-004	0.0458	0.0000		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	0.0752	0.0752	8.0000e-005	0.0000	0.0771

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2405					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7831					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4600e-003	5.3000e-004	0.0458	0.0000		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	0.0752	0.0752	8.0000e-005	0.0000	0.0771
Total	**1.0250**	**5.3000e-004**	**0.0458**	**0.0000**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**	**0.0000**	**0.0752**	**0.0752**	**8.0000e-005**	**0.0000**	**0.0771**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2405					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7831					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.6000e-004	4.1000e-004	0.0346	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.0522	0.0522	4.0000e-005	0.0000	0.0532
Total	**1.0243**	**4.1000e-004**	**0.0346**	**0.0000**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**0.0522**	**0.0522**	**4.0000e-005**	**0.0000**	**0.0532**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Grey Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.1880	0.6897	2.3800e-003	20.1394
Unmitigated	3.0748	0.8621	2.9800e-003	25.5169

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market (24 Hour)	0.207403 / 0.127118	0.2088	0.0471	1.6000e-004	1.4358
Hotel	3.19621 / 0.355135	2.4693	0.7262	2.5100e-003	21.3718
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.390924 / 0.246452	0.3967	0.0888	3.1000e-004	2.7094
Total		**3.0748**	**0.8621**	**2.9800e-003**	**25.5169**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market (24 Hour)	0.165922 / 0	0.1196	0.0377	1.3000e-004	1.1008
Hotel	2.55697 / 0	1.8430	0.5809	2.0000e-003	16.9638
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.312739 / 0	0.2254	0.0711	2.5000e-004	2.0748
Total		**2.1880**	**0.6897**	**2.3800e-003**	**20.1394**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	13.2578	0.7835	0.0000	32.8455
Unmitigated	16.5722	0.9794	0.0000	41.0569

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market (24 Hour)	8.41	1.7072	0.1009	0.0000	4.2294
Hotel	68.98	14.0023	0.8275	0.0000	34.6902
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.25	0.8627	0.0510	0.0000	2.1373
Total		**16.5722**	**0.9794**	**0.0000**	**41.0569**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market (24 Hour)	6.728	1.3657	0.0807	0.0000	3.3835
Hotel	55.184	11.2019	0.6620	0.0000	27.7521
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.4	0.6902	0.0408	0.0000	1.7099
Total		**13.2577**	**0.7835**	**0.0000**	**32.8455**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Trip Generation &
Vehicle Miles Traveled Data
for CalEEMod

Terra Vi Trip Generation and Trip Length for CalEEMod - Enter Red Values into CalEEMod

ITE LU Code	Land Use Type or Type of Adjustment	Amount of Land Use or Percentage Reduction	Saturday					Weekday					Sunday				
			Gross Trip Rate	Gross Trips	Effective External Trip Rate	Trip Length (Miles)	Vehicle Miles Traveled (VMT)	Gross Trip Rate	Gross Trips	Effective External Trip Rate	Trip Length (Miles)	Vehicle Miles Traveled (VMT)	Gross Trip Rate	Gross Trips	Effective External Trip Rate	Trip Length (Miles)	Vehicle Miles Traveled (VMT)
310	Lodge	**100 rooms**	8.19	819				8.36	836				5.95	595			
	Cabins	**26 units**	8.19	213				8.36	217				5.95	155			
	Subtotal			1,032					1,053					750			
	Less Employee Housing	-4%		-40					-42					-38			
	Less Internal to Market	-24%		-252					-177					-215			
	Net External Trips			740	**5.87**	12.71	9,405		834	**6.62**	**12.71**	10,600		497	**3.94**	12.71	6,317
210	Individual Employee Housing	20 residents	2.48	50				2.65	53				2.42	48			
	Less On-Site Commute Match	-80%		-40					-42					-38			
	Less Internal to Market	-10%		-5					-5					-5			
	Net External Trips			5	0.25	12.53	63		6	0.30	**12.53**	75		5	0.25	12.53	63
	For SFDUs, CalEEMod uses DUs, not Residents. Convert to 6 DUs	**6 SFDUs**			**0.83**					**1.00**					**0.83**		
851	Market	**2.8 KSF**	441.75	1,237				310.84	870				377.04	1,056			
	Less Internal to Lodging	-20%		-252					-177					-215			
	Less Internal to Employee Residential			-5					-5					-5			
	Net External Trips			980	**350.00**				688	**245.71**				836	**298.57**		
	Pass-By Trips (Enter in CalEEMod)	**-61%**		-598					-420					-510			
	Net New External Trips			382	136.43	12.53	4,786		268	95.71	**12.53**	3,358		326	116.43	12.53	4,085
	PROJECT SITE TOTALS FOR NET NEW EXTERNAL TRIPS			1,127			14,254		1,108			14,033		828			10,465
								VMT Estimate from Wood Rogers				14,036					

APPENDIX D

BIOLOGICAL RESOURCES STUDY

TERRA VI LODGE YOSEMITE

Biological Study Report

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1 Project Description

Terra Vi Lodge Yosemite is a master-planned lodging development on 63.4± acres bordering SR 120 on land severely burned in the 2013 Rim Fire.

Project plans (**Figure 3**) include:

- Public market,
- General lodge (single, two-and three-story elements) with 100 guest rooms. It is estimated that the hotel lodge would host an average of 290 guests, and it would accommodate a maximum occupancy of 400 guests.
- Hotel meeting space comprising of two meeting rooms (500 and 700 square feet respectively) and a 3,000-square-foot main ballroom/event room
- An indoor gym, guest laundry facilities, bar, event space, independent meeting rooms, and indoor dining
- 7 guest cabins providing 26 guest rooms
- Outdoor amenities would include two outdoor recreation areas consisting of grass-landscaped fields, a pool and spa, pavilion, yoga area, meditation area, and several barbecue areas as well as separate outdoor dining areas. There will be designated guest barbecue areas with hotel provided propane gas barbecues. Pool use would not be permitted during designated quiet hours
- 5 employee apartments with four rooms in each unit (20 total employee rooms)
- Access improvements (Sawmill Mt. Road and SR 120 entrance/exit), internal access improvements
- Helipad for emergency-only use
- On-site wells, water storage tank
- On-site sewage disposal system with graywater tanks and leach fields
- Trails
- Parking (286 on-site spaces)
- Project lighting would be designed to minimize light spillage by following Dark- Sky influenced design programs and following the California Title 24 Building Energy Efficiency Standards. For example, lighting would be downward positioned, fully shielded, high efficiency, 3000K LED fixtures.

1.1 Purpose and Need

The project descriptions states that the master-planned development is designed to address increasing demands for eco-sensitive resorts and local recreation tourism.

1.2 Location & Setting

1.2.1 Location

The project site totals 63.38± acres encompassing Assessor's Parcel Numbers: 068-120-060 and 068-120-061. It includes a portion of the southeast quarter of Section 26, Township 1 South, Range 18 East Mount Diablo Base and Meridian in the Tuolumne County Ascension Mountain USGS 7.5' Quadrangle (**Figure 1**). Elevations range between 3,840± feet and 4,045± feet above mean sea level (amsl).

1.2.2 **Setting and Vegetation:**

The site is located to the southwest of the base of Sawmill Mountain with SR 120 forming the site's southern border. Sawmill Mountain is within the Stanislaus National Forest (**Figure 1**). Surrounding land uses are shown in **Figure 2**. Stanislaus National Forest parcels of 640 and 400 acres border the project site to the northeast, east and west. Approximately fifteen privately owned parcels, some with cabins and others vacant and ranging in size from 2.0± to 10± acres, border the Project site to the northwest.

The Project was densely forested with a mixed hardwood conifer cover (**Figure 5**) until the 2013 Rim Fire devastated the site (**Figure 6** through **Figure 8**). Burned trees were removed post-fire. Today the site is covered with small, isolated patches of conifers and oaks that escaped destruction. Today, the site is primarily re-emerging vegetation characterized by sprouting ponderosa pine, shrubs and grasses.

The Biological Study Area (BSA) is defined and illustrated in **Figure 4**. On-site and adjacent vegetation/habitat types are illustrated in **Figure 5** and on-site vegetation is detailed as follows:

Table 1: Terra Vi Vegetation

Habitat Type	Acreage±
Mixed hardwood conifer forest	20.78
Mixed hardwood conifer forest (burned)	41.6
Ephemeral drainages	.0004
Perennial Drainage	0.02
Urban/Developed (Caltrans Maintenance)	1.0
TOTAL	63.4004

A complete list of plant and animal species identified on site during biological surveys and adjacent to the site are found in **Appendix A**.

Species lists obtained from the California Natural Diversity Database (CNDDB), United States Fish and Wildlife Service, National Wetlands Inventory and California Native Plant Society are included in **Appendix B** and analyzed in **Table 3.**

Figure 1: Project Location

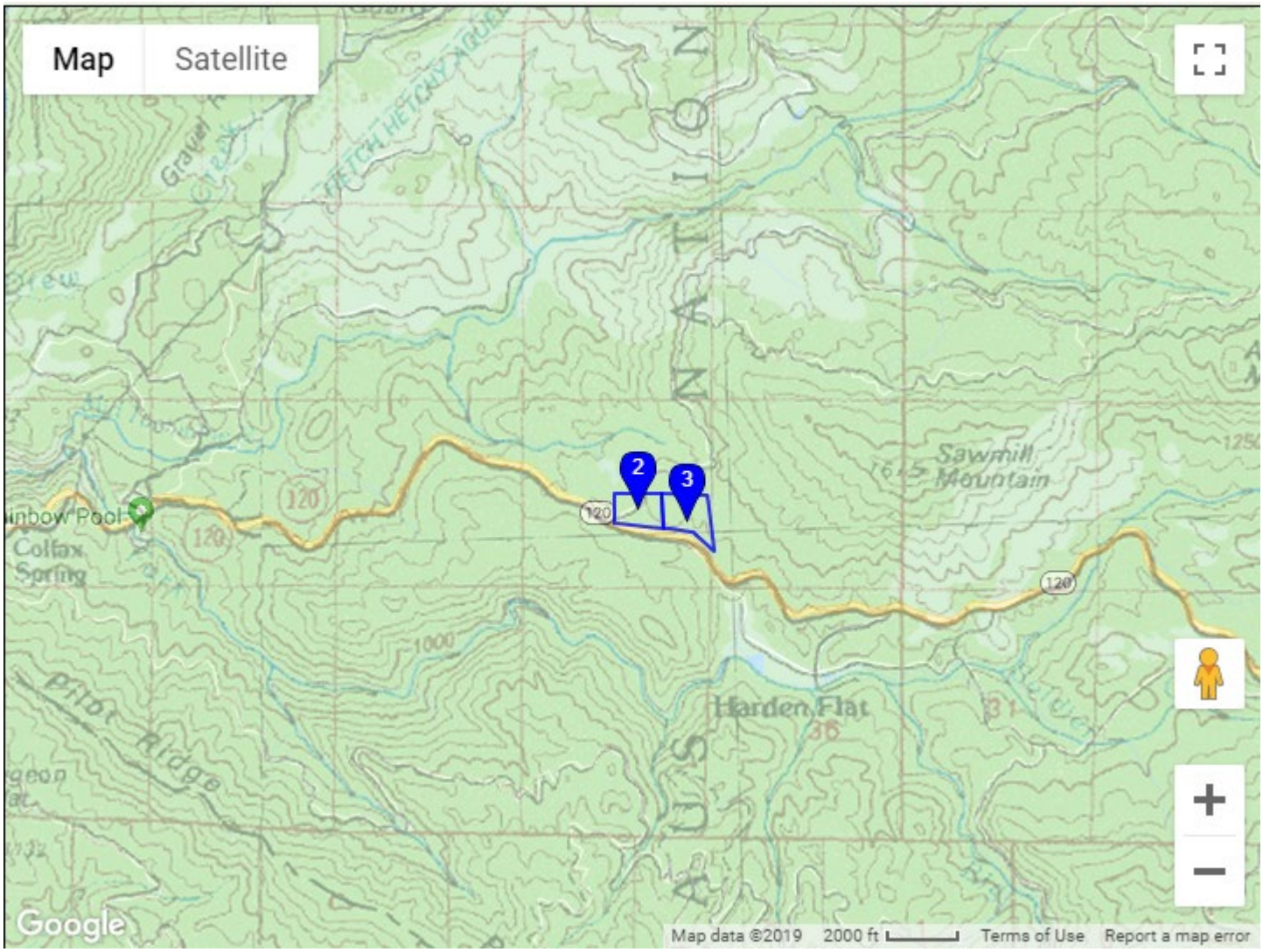


Figure 2: Project Site Surrounding Land Uses

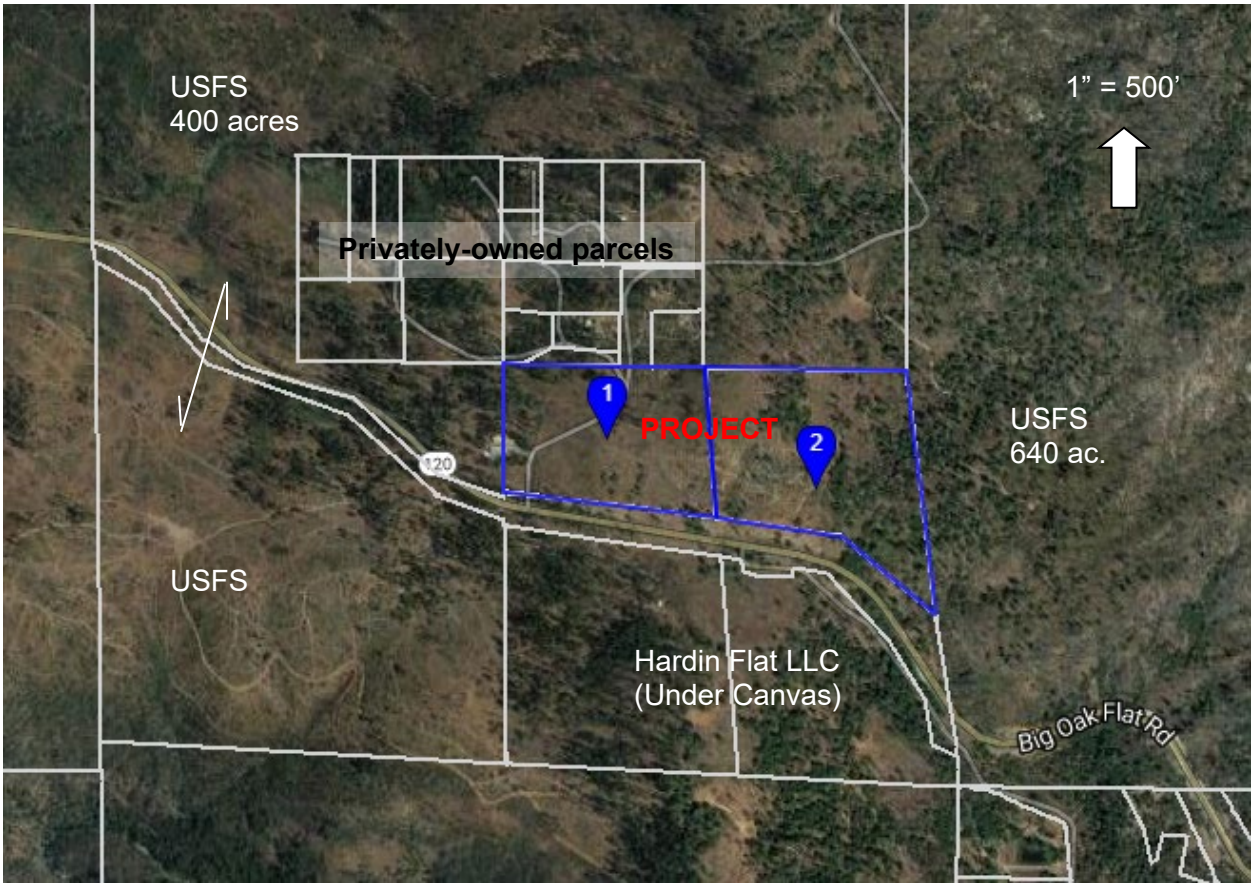
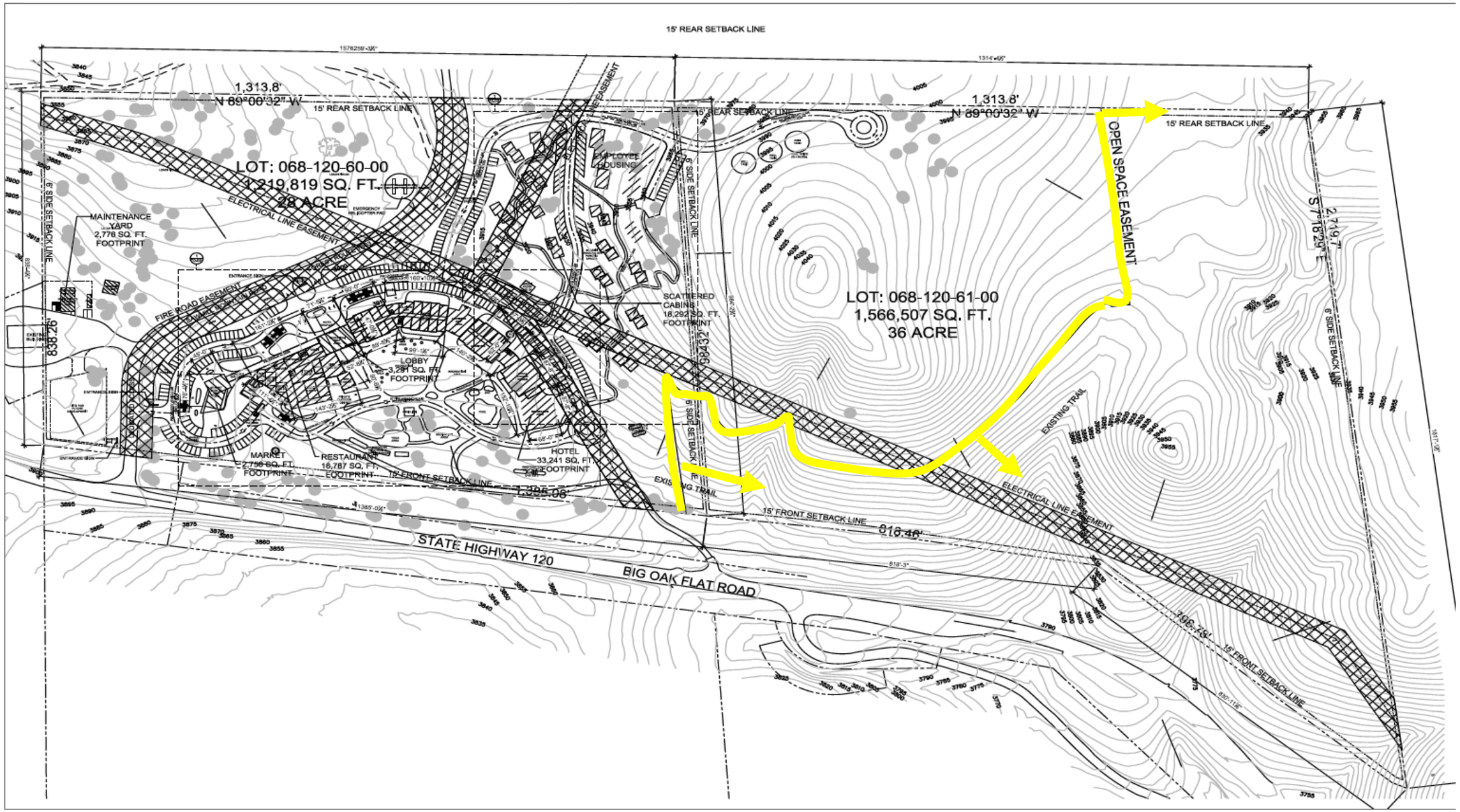


Figure 3: Project Site Plan with Open Space (highlighted)



2 Executive Summary

2.1 Potentially Significant Impacts and Proposed Mitigation

The mitigation monitoring and reporting plan for the proposed project is summarized in the following table.

Table 2: Summary of Impacts and Mitigation Measures – Biological Resources

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the Crotch bumble bee --a species identified as a candidate for listing as endangered under the California Endangered Species Act.	**Minimization Measure BIO-1: Preconstruction Bee Surveys** Prior to issuance of grading permits for any staging, construction, or ground disturbing activities between February 1 and November 30th of the construction year, a qualified biologist will survey the project boundaries for active Crotch bumble bee nests. If identified, CDFW shall be consulted for guidance on buffer distances to avoid colony disturbance (e.g., buffer surrounding the nest itself, entry/exits, and avoiding direct disturbance). If full avoidance cannot be achieved through buffers, no construction shall occur until the nest is no longer occupied. No pesticides or herbicides shall be used so long as the species occupies the site. **Avoidance and Minimization Measure BIO-2: Environmental Awareness Training** All contractors involved in site development, applicable County department staff, and environmental specialists (e.g., biologist) will attend a mandatory Environmental Awareness Training prior to any site disturbances. The program will address proper implementation of minimization and avoidance measures contained herein.	**Mitigation Monitoring BIO-1**: The required mitigation measure will be incorporated into the project bid package and contract. The measure is the responsibility of the qualified biologist under contract to either the County or construction contractor. **Mitigation Monitoring BIO-2**: The required mitigation measure will be incorporated into the project bid package and contract and implemented throughout project construction. The Project biologist shall have the authority to stop work or remove any construction worker on site that has not completed training. The measure is the responsibility of the qualified biologist under contract to either the County or construction contractor.	Less than significant
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to	**Avoidance and Minimization Measure BIO-2: Environmental Awareness Training**	**Mitigation Monitoring BIO-2**:	Less than significant

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
adversely affect the Fisher--a species state-listed as threatened under the California Endangered Species Act.	**Avoidance and Minimization Measure BIO-3: Avoid Inadvertent Animal Trapping During Construction** To avoid inadvertently trapping special status or common animal species during construction, all excavated steep-walled holes or trenches more than two feet deep shall be covered at the end of each working day with plywood or similar material, or provided with one or more escape ramps constructed of earth fill or wooden planks, or equivalent, at each end of the trench. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a tapped animal is discovered, the contractor shall place an escape ramp or other appropriate structure to allow the animal to escape. Alternatively, the contractor shall contact the project biologist or California Department of Fish and Wildlife for assistance. Similarly, stored pipes or other materials providing potential cover for animals will be inspected prior to installation or use to ensure that they are unoccupied. **Avoidance and Minimization Measure BIO-4: Food and Trash Disposal During Construction** All food and food-related trash will be enclosed in sealed trash containers at the end of each workday and removed completely from the construction site every day to avoid attracting wildlife. **Avoidance and Minimization Measure BIO -5: Construction Hours** Project construction shall be limited to 7:00 a.m. to 7:00 p.m. unless an emergency exists	**Mitigation Monitoring BIO-3:** The required mitigation measure will be implemented throughout project construction. The measure is the responsibility of the construction contractor. **Mitigation Monitoring BIO-4:** The required mitigation measure will be implemented throughout project construction. The measure is the responsibility of the construction contractor. **Mitigation Monitoring BIO-5:** The required mitigation measure will be implemented throughout project construction. The measure is the responsibility of the construction contractor	

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the special status Small's southern clarkia (*Clarkia australis*). **POTENTIALLY SIGNIFICANT ADVERSE IMPACT:** The project has the potential, through habitat modification, to adversely affect the special status Slender-stemmed monkeyflower (*Erythranthe filicaulis*).	**Avoidance and Minimization Measure BIO-6: Pre-Construction Botanical Survey** Surveys will occur during the bloom season prior to issuance of grading permits for project construction for *Clarkia australis* (May through August) and *Erythranthe filicaulis* (April through August). If found, the location of special status plant populations will be clearly identified in the field by staking, flagging, or fencing prior to the commencement of activities that may cause disturbance. A buffer surrounding the populations will be established by a qualified botanist based on the plant species, its habitat, and the nature of the proposed project activity. No activity will occur within the buffer area. If sensitive plant species cannot be avoided, transplanting (perennial species), seed collection and dispersal (annual species) may be undertaken by a qualified botanist. If transplanting or seed collection/dispersal is employed, ongoing monitoring for 5 years shall be conducted to assess the effectiveness of mitigation. The performance standard for mitigation is no net reduction in the size or viability of the local plant population. Prior to salvaging plants, written permission will be obtained from the landowner and CDFW will be notified 10 days prior to salvage activities or, for emergency situations, CDFW will be notified within 14 days following salvage activities consistent with the provisions of the California Native Plant Protection Act (California Fish and Game Code Sections 1912 and 1913) and	**Mitigation Monitoring BIO-6:** The required mitigation measure will be incorporated into the project bid package and contract. Surveys will occur during the bloom season prior to issuance of grading permits for project construction for *Clarkia australis* (May through August) and *Erythranthe filicaulis* (April through August). The measure is the responsibility of the construction contractor and Project biologist.	Less than significant

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
	California Penal Code Section 384a. Salvage shall be in accordance with California Fish and Game Code Sections 1912 and 1913(c) including CDFW notification. The performance standard for this mitigation measure is no net reduction in the size or viability of local sensitive plant populations		
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the special status olive-sided flycatcher (*Contopus cooperi*). **POTENTIALLY SIGNIFICANT ADVERSE IMPACT:** The project has the potential, through habitat modification, to adversely affect the special status American peregrine falcon (*Falco peregrinus anatum*). **POTENTIALLY SIGNIFICANT ADVERSE IMPACT:** The project has the potential, through habitat modification, to adversely affect the special status California spotted owl (*Strix occidentalis occidentalis*)	**Avoidance and Minimization Measure BIO-7: Pre-Construction Bird/Raptor Survey** Prior to issuance of grading permits for construction occurring between February 1st and August 30th (e.g., excavation, ground disturbance, or vegetation removal) a preconstruction survey for nesting birds will be conducted in accordance with the CDFW guidelines and a no-disturbance buffer will be established, if necessary. If equipment staging, site preparation, vegetation removal, grading, excavation or other project-related construction activities are scheduled during the avian nesting season (generally February 1 through August 30), a focused survey for active nests would be conducted by a qualified biologist within 15 days prior to the beginning of project-related activities. Following initial pre-construction surveys in year one of project construction, bird surveys shall be repeated annually so long	**Mitigation Monitoring BIO-7:** The required mitigation measure will be incorporated into the project bid package and contract. Surveys will occur within 15 days of commencing construction that occurs between February 1st and August 30th. The measure is the responsibility of the construction contractor and Project biologist.	Less than significant

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
	as outside construction continues. Surveys should be repeated within 15 days prior to resuming outdoor construction activities for the first time between February 1st and August 30th whenever outdoor construction activities have ceased for more than one month (e.g., if outdoor construction shuts down for the season due to winter rains in late November, preconstruction bird surveys would occur again within 15 days prior to recommencing outdoor site work between February 1st and August 30th. If work recommences in January and continues without interruption through August 30th, then no additional preconstruction survey is required). Surveys shall be conducted in all suitable habitat in the BSA. If an active nest is found, the bird shall be identified to species and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are more than the following distances from the nearest work site: (a) 300± feet for raptors; or (b) 75± feet for other non-special-status bird species. Disturbance of active nests shall be avoided to the extent possible until it is determined that nesting is complete and the young have fledged. For species protected under the California Fish and Game Code (CFGC), if active nests are closer than those distances to the nearest work site		

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
	and there is the potential for bird disturbance, CDFW will be contacted for approval to work within 300± feet of raptors, or 75± feet of other non-special-status bird species.		
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the Silver-haired bat (*Lasionycteris noctivagans*) **POTENTIALLY SIGNIFICANT ADVERSE IMPACT:** The project has the potential, through habitat modification, to adversely affect the *Hoary bat (Lasiurus cinereus)* **POTENTIALLY SIGNIFICANT ADVERSE IMPACT:** The project has the potential, through habitat modification, to adversely affect the Long eared myotis (*Myotis evotis*)	**Avoidance and Minimization Measure BIO-5: Construction Hours** **Avoidance and Minimization Measure BIO-8: Preconstruction Surveys Suitable Bat Roosting (or Nursery) Areas & Provisions for Protection, if Identified** • 15 days or less before commencing ground-disturbing activities between April and September of the construction year, a qualified biologist will survey snags, trees, rock crevices and other suitable cavities and structures in the BSA for roosting bats or bat nurseries. • If bats are not found and there is no evidence of bat use, construction may proceed. If bats are found or evidence of use by bats is present, CDFW shall be consulted for guidance on measures to avoid or minimize disturbance to the colony or nursery. Subject to CDFW approval, measures may include excluding bats from roosts before construction begins. If nurseries are discovered, no work will occur within buffer areas as established by CDFW until all young are self-sufficient and have left the nursery.	**Mitigation Monitoring BIO-5** **Mitigation Monitoring BIO-8:** The required mitigation measure will be incorporated into the project bid package and contract. Surveys will occur within 15 days of commencing construction that occurs between April and September. The measure is the responsibility of the construction contractor and Project biologist.	Less than significant
POTENTIALLY SIGNIFICANT ADVERSE	**Avoidance and Minimization Measure BIO-5: Construction Hours**	**Mitigation Monitoring BIO-5**	Less than significant

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
IMPACT: The project has the potential, through habitat modification, to adversely affect the spotted bat (*Euderma maculatum*) **POTENTIALLY SIGNIFICANT ADVERSE IMPACT**: The project has the potential, through habitat modification, to adversely affect the Western mastiff bat (*Eumops perotis californicus*)			
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential to interfere substantially with the movement of native resident wildlife species	**Avoidance and Minimization Measure BIO-3: Avoid Inadvertent Animal Trapping During Construction** **Avoidance and Minimization Measure BIO-4: Food and Trash Disposal** **Avoidance and Minimization Measure BIO-5: Construction Hours**	**Mitigation Monitoring BIO-3** **Mitigation Monitoring BIO-4** **Mitigation Monitoring BIO-5**	Less than significant
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect moderate value deer winter range. **POTENTIALLY SIGNIFICANT ADVERSE IMPACT:**	**Avoidance and Minimization Measure BIO-9: Enhance Rim Fire Burned Deer Winter Range and/or Data** Prior to issuance of a certificate of occupancy, the Project proponents shall contribute $1,100/acre for 45.4± acres to a non-profit (e.g., Yosemite Stanislaus Solutions) to be used for activities associated with either enhancing deer winter range or providing updated research data to support herd management within the footprint of the Rim Fire.	**Mitigation Monitoring BIO-9** The required mitigation measure will be implemented prior to issuance of a final certificate of occupancy.	Less than significant

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
The project has the potential to indirectly interfere with the movement of native resident mule deer traveling to and from winter range through the introduction of additional people, pets and traffic.	**Avoidance and Minimization Measure BIO-10: Keep Dogs Leashed** Dogs shall be kept on leash or otherwise prohibited from running free outdoors. Signs shall be posted along all Project trails stating that dogs shall be kept on leash. **Avoidance and Minimization Measure BIO-11: Stay on Trails/Education** Visitors shall stay on designated trails at the Project site when hiking within the Project boundaries to minimize wintering deer/human interactions. Signs shall be posted along all Project trails stating that visitors shall stay on trails and shall not approach deer (in particular between November 30 and April 30 when deer are expected to be migrating to and from their wintering grounds). In consultation with the Project biologist, the Project proponents shall prepare an interpretive trail sign/plaque or signs/plaques describing the life history of the Yosemite Deer Herd, the area's importance as wintering deer habitat and as a migratory corridor, and the necessity to avoid approaching non-resident deer during their winter migrations.	**Mitigation Monitoring BIO-10:** The Project website, booking site, and/or brochures shall advise visitors of this requirement. A Notice of Action shall be filed with the County Clerk on the Project Parcels including the project conditions specifying that this measure shall be continued throughout the life of the project. **Mitigation Monitoring BIO-11:** The Project website, booking site, and/or brochures shall advise visitors of the requirement to avoid approaching non-resident deer during winter migrations.	
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential to interfere with the movement of native resident mule deer traveling to and from winter range.	**Avoidance and Minimization Measure BIO-10: Keep Dogs Leashed** **Avoidance and Minimization Measure BIO-11: Stay on Trails/Education** **Avoidance and Minimization Measure BIO-12: Deer-Friendly Fencing** If fencing is associated with the project, prior to	**Mitigation Monitoring BIO-10** **Mitigation Monitoring BIO-11** **Mitigation Monitoring BIO-12:** The required mitigation measure will be implemented prior to	Less than significant

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
	issuance of a final Certificate of Occupancy, the project contractor will implement the following: To prevent trapping, injuring, or impeding deer movement; barbed wire fencing is prohibited. Non barb-wired fencing immediately surrounding structures (e.g., storage facilities, swimming pools) where deer are less likely to travel is permitted. . Additional fencing design shall be subject to review and approval by the Project biologist following one of the recommended designs found in a *Landowner's Guide to Wildlife Friendly Fences: How to Build a Fence with Wildlife in Mind*. 2nd edition, 2012 (or as may be updated) by the Montana Dpt. of Fish Wildlife and Parks. Alternative fencing designs shall be approved by CDFW prior to installation.	issuance of a final certificate of occupancy. The measure is the responsibility of the construction contractor with approval of the Project biologist**.** A Notice of Action shall be filed with the County Clerk on the Project Parcels including the project conditions specifying that this measure shall be continued throughout the life of the project.	
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The Project has the potential to conflict with Public Resources Code 21083.4 related to oak tree protection.	**Avoidance and Minimization Measure BIO-2: Environmental Awareness Training** **Avoidance and Minimization Measure BIO-13: Native Oak Tree Protection** Throughout project construction, for native oak trees greater than 5" diameter at breast height (DBH), to be retained, to the maximum extent feasible: • Limit ground-disturbing activities to outside the dripline of native oaks and preferably outside 1-1/2 times the dripline; • No storage equipment, supplies, vehicles, debris, construction	**Mitigation Monitoring BIO-2:** **Mitigation Monitoring BIO-13:** The required mitigation measure will be implemented throughout project construction. The measure is the responsibility of the construction contractor.	Less than significant

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
	wastewater, paint, stucco, concrete or any other clean-up waste, and temporary or permanent structures shall be placed within the driplines; • Avoid cutting oak roots; • Use boring, rather than trenching, within driplines • Avoid equipment damage to limbs, trunks, and roots of oaks trees • Do not attach signs, ropes, cables or other items to trees		
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The Project has the potential to degrade waters of the U.S. indirectly by degrading water quality through construction activities	**Avoidance and Minimization Measure BIO-14: Install Temporary Environmentally Sensitive Area (ESA) Fencing to Protect Sensitive Drainages during Construction Activities that Disturb Soils.** Prior to issuance of grading permits, the project contractor shall implement the following : Install high-visibility/ESA fencing (e.g. orange construction/safety fencing) a minimum of 50 feet from the centerline of both sides of Ephemeral Channel-1 (Northwest corner of the project site) during any time when disturbing soils within 50 feet of the drainage channel (fencing is not required when soil disturbances are not occurring sol long as erosion control from	**Mitigation Monitoring BIO-14:** The required mitigation measure will be incorporated into the project bid package and contract and implemented prior to issuance of grading permits. ESA fencing will be maintained throughout project construction. The measure is the responsibility of the construction contractor.	Less than significant

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
	any prior soil disturbances within 50 feet has been installed). Fencing shall be of flexible material that allows deer passage. Install silt fencing, fiber rolls, or equivalent erosion and sediment control devices on the Project side of the ESA fencing to prevent disturbances and erosion into the adjacent drainage. Silt fencing or other materials, as required, will be installed consistent with the applicable water quality requirements specified in the Project's Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP). Fencing or other erosion control materials or devices shall be shown on the final construction documents. No construction-related materials, equipment, trash or other related debris shall be allowed, stored or staged within the fenced area. ESA Fencing shall remain in place until soil disturbances within 50 feet have been completed and erosion control measures have been installed in accordance with approved plans. Fallen fencing shall immediately be repaired as necessary to remain visible during all construction activities. Fenced areas will be avoided throughout Project construction (i.e., active soil disturbing activities) and shall be monitored by the project manager throughout construction.		

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
	This measure shall be incorporated into the project bid package and contract. All ESA Fencing shall be removed from the site after construction activities are completed.		
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The Project has the potential to fill waters of the U.S. totaling 0.001 acre	**Avoidance and Minimization Measure BIO-15: Comply with Section 404 Clean Water Act** If Ephemeral Channel-2 is within the Caltrans right-of-way, the applicant shall secure an encroachment permit from Caltrans and comply with all conditions of the Caltrans encroachment permit including the following as it applies to Ephemeral Channel-2: Prior to issuance of grading permits, comply with Section 404 and Section 401of the Clean Water Act and comply with all current regulations (i.e., at the time of disturbance) pertaining to fill of Ephemeral Channel-2 (0.001 acre). If regulations in place at the time of site disturbance require permits from the USACE for filling an ephemeral drainage: the acreage, location, and method(s) for compensation for fill will be determined during the permitting process in accordance with USACE standards. The Project will adhere to a "no net loss" standard for waters of the U.S. and waters of the State. Suitable habitat will be restored, enhanced, and/or replaced at an acreage and location and by methods approved by the USACE and Central Valley Regional Water Quality Control	**Mitigation Monitoring BIO-15:** The required mitigation measure shall occur prior to issuance of grading permits. All permit provisions shall be implemented and maintained in accordance with the applicable permits. The measure is the responsibility of the construction contractor.	Less than significant

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
	Board, as jurisdictionally appropriate. The replacement of waters will be equivalent to the nature of the habitat lost and will be provided at a suitable ratio to ensure that, at a minimum, there is no net loss of habitat acreage or value. The replacement habitat will be set aside in perpetuity for habitat use. Compensation may also include purchasing credits from a Corps and/or state or federally approved mitigation bank at a ratio prescribed in the applicable Section 404 Permit as necessary to achieve no net loss of waters of the U.S. For waters of the state, compensation may be through the National Fish and Wildlife Foundation Sacramento District California In-Lieu Fee Program. Alternatively, if final Project plans allow for full avoidance and no fill of Ephemeral Channel 2 pursuant to the determination of the Project's wetlands biologist; **Mitigation Measures BIO-15** and **BIO-2** may be substituted to ensure avoidance.		
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The Project has the potential to adversely impact waters of the U.S. indirectly by degrading water quality through construction activities	**Avoidance and Minimization Measure BIO-16: Best Management Practices (BMPs) to Protect Water Quality (Including NOI/NPDES/SWPPP)** **Prior to issuance of grading permits, the project contractor shall implement the following:** • The Contractor shall prepare an Erosion Control Plan for implementation for any	**Mitigation Monitoring BIO-16:** The required mitigation measure will be incorporated into the project bid package and contract. Erosion control plan to be completed prior to October 15th. NOI/NPDES to be secured prior to issuance of grading permits. Implemented and maintained throughout	Less than significant

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
	construction to take place between October 15 and May 15 of any year. In the absence of such an approved plan, all construction shall cease on or before October 15, except that necessary to implement erosion control measures. If necessary, the plan shall be submitted to the County Public Works Department for review and approval. • Submit to the State Water Resources Control Board Storm Water Permitting Unit, a Notice of Intent (NOI) to obtain coverage under the General Construction Activity Storm Water Permit - California's National Pollution Discharge Elimination System (NPDES) general permit for construction related storm water discharges for the disturbance of one acre or more. Disturbances of less than one acre may also require an NOI for coverage under the NPDES General Permit for construction-related storm water discharge and the State Water Resources Control Board Permitting Unit shall be contacted for determination of permit requirements. Commercial and Industrial developments may require an NOI even if less than one acre is to be disturbed. Obtain coverage or an exemption from these requirements. [Federal Water Pollution Control Act, Section 401, California Clean Water Act]. The permit may include preparation of a Stormwater Pollution Prevention Plan (SWPPP).	project construction. The measure is the responsibility of the construction contractor.	

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
	Avoidance and Minimization Measure BIO-17: Minimize the Spread of Invasive Plant Species Throughout project construction: • All hay, straw, hay bales, straw bales, seed, mulch or other material used for erosion control on the project site shall be free of noxious weed[1] seeds and propagules (Food and Agriculture Code Sections 6305, 6341 and 6461). • All equipment brought to the project site shall be thoroughly cleaned of all dirt and vegetation prior to entering the site to prevent importing noxious weeds and shall be cleaned of all dirt and vegetation prior to exiting the site to prevent exporting noxious weeds. (Food and Agriculture Code Section 5401). All material brought to the site, including rock, gravel, road base, sand, and topsoil, shall be free of noxious weeds[2] and propagules. (Food and Agriculture Code Sections 6305, 6341 and 6461).	**Mitigation Monitoring BIO-17:** The required mitigation measure will be implemented throughout Project construction. The measure is the responsibility of the construction contractor.	
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential to interfere	**Avoidance and Minimization Measure BIO-18: Permanent Food and Trash Enclosures**	**Mitigation Monitoring BIO-18** The required mitigation measure will be implemented prior to issuance of a final occupancy	Less than significant

[3] Flowing on July 4, 2019. In dry years, likely intermittent. Not shown as a blue-line stream on USGS topo maps.

[3] Flowing on July 4, 2019. In dry years, likely intermittent. Not shown as a blue-line stream on USGS topo maps.

Impact	Mitigation Measure	Mitigation Monitoring	Significance After Mitigation
substantially with the movement of native resident wildlife species	Trash shall be stored in an animal-resistant enclosure, or bear shed throughout the life of the Project. Trash enclosure design shall be approved by the Project biologist prior to installation. The Project Proponents are encouraged to visit **http://www.waste101.com/bear-aware/** or contact the Placer County Department of Health and Human Services, Tahoe Truckee Sierra Disposal or similar entity for appropriate designs.	permit. The measure is the responsibility of the construction contractor. A Notice of Action shall be filed with the County Clerk on the Project Parcels including the project conditions specifying that this measure shall be continued throughout the life of the project.	
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The Project has the potential encroach within Open Space boundaries intended to project wildlife habitat .	**Avoidance and Minimization Measure BIO-19: Install ESA Fencing along Portions of Existing Open Space Zoning District Boundaries** Install ESA Fencing along existing Open Space Zoning District boundaries where active construction will occur within 50 feet of the boundaries. The project contractor shall install ESA fencing along Existing Open Space Zoning District boundaries where active construction will occur within 50 feet of existing Open Space. Fencing shall be shown on final construction documents.	**Mitigation Monitoring BIO-19:** The required mitigation measure will be incorporated into the project bid package and contract and implemented prior to issuance of grading permits. The measure will be implemented and maintained throughout project construction. The measure is the responsibility of the construction contractor.	Less than significant
POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential for impacts on mule deer winter range that are individually limited, but cumulatively considerable.	**Avoidance and Minimization Measure BIO-9: Enhance Rim Fire Burned Deer Winter Range**	**Mitigation Monitoring BIO-09**	Less than significant

3 Methodology

3.1 General

Review of existing data and previous surveys
Prior to commencing field surveys, APA reviewed the California Natural Diversity Database/Rarefind, obtained a USFWS species lists, reviewed the National Wetlands Inventory, CalFlora plant list, and California Native Plant Society (CNPS) plant list. The Ascension Mountain USGS 7.5' Topographic Map and Google Earth were reviewed to determine the potential for drainages, wetlands, clearings, and access points. Species lists are included in **Appendix B**.

Site Surveys:
Site surveys were conducted by foot on the following dates: 5-09-18, 3-29-19, 5-25-19, 6-23-19 and 7-04-19. Surveys were conducted using q Canon Image Stabilizer 10 X 30 binoculars, Nikon D3300 digital camera (18- 55mm and 70-300mm lens), and standard field and collection supplies.

Botanical surveys
Surveys were conducted on foot. Photos of representative vegetation were taken throughout the surveys. Where species were not readily identified in the field, plant specimens were inspected with a hand lens, sketched and, if necessary, collected and preserved then keyed in-house using a dissecting microscope and Jepson Manual.

Animal surveys
Live and dead trees were inspected with special attention to potential denning and nesting opportunities. Potential roosts and structures were inspected for whitewash.

Mud and sand were inspected for animal tracks and structures were examined for whitewash, scat, hair and presence/absence of spider webs across openings. Dirt trails also were observed for tracks. Matted grasses indicating potential bedding areas were inspected for hair and scat.

3.2 Biological Study Area (BSA)

For the purposes of this study, the Biological Study Area (BSA) is that area surveyed for biological resources and evaluated for potential direct and/or indirect and cumulative impacts to common and special status species and their habitats. It is illustrated in **Figure 4** and detailed as follows:

- Staging areas: All staging areas were assumed to be within the parcel boundaries and outside of the existing 21-acre Open Space zoned area. Staging areas were surveyed intensively.

- Plants: All areas within the project boundaries were surveyed intensively for special status plant species except for areas within the existing Open Space zoning district where development is not proposed.

- Raptors/medium-to-large mammals: All areas within the BSA (intensive study area and secondary study area) were surveyed using binoculars and listening for existing or potential raptor nests or nesting activity. Outside the project boundaries, the secondary

study area was surveyed from roadways by car with stops along the way surveyed on foot using binoculars and listening. Rock outcrops were surveyed for potential dens.

- Amphibians/Special Study Area: The drainage[3] located on USFS property west of the parcel boundaries was surveyed on foot for special status amphibians and special status plants given its proximity to the site and potential to support special status species.

3.3 Conditions that May Influence Results

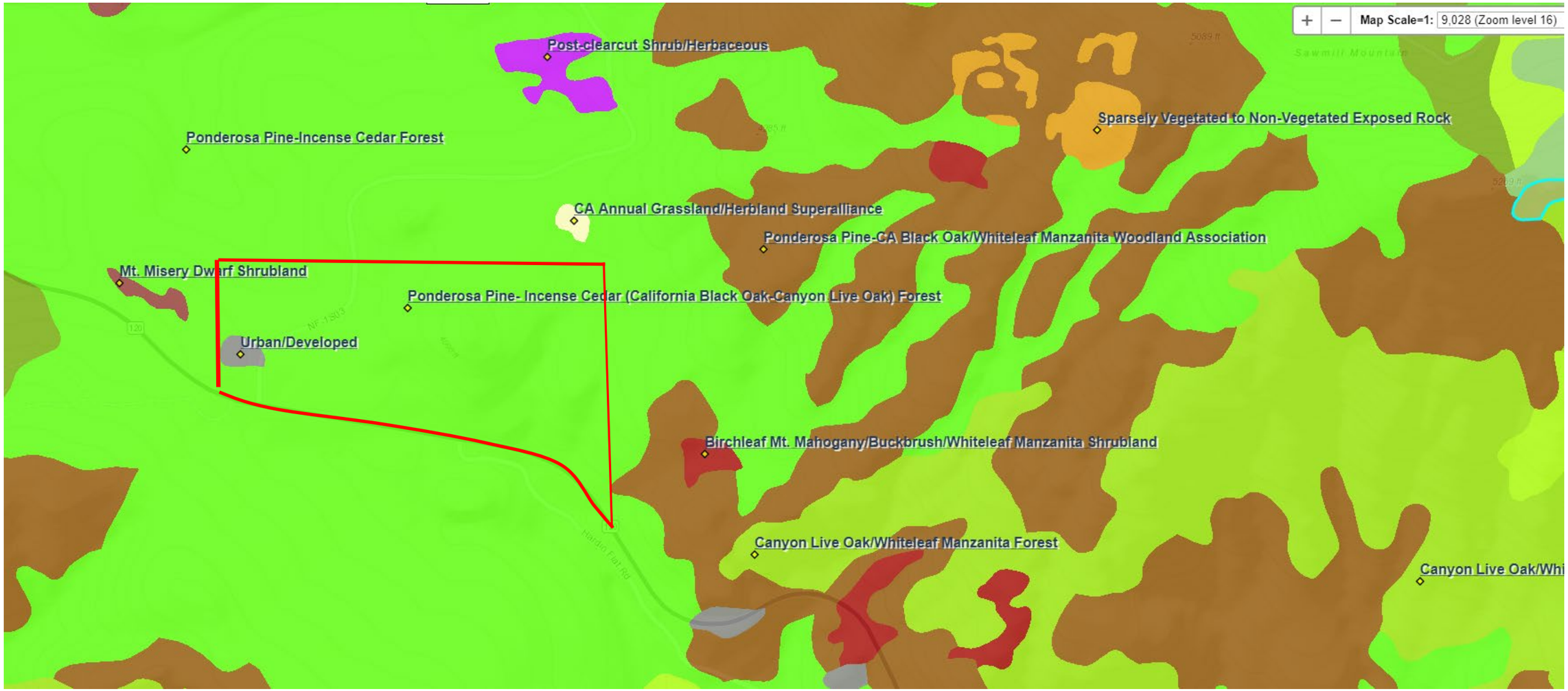
The site was decimated in the 2013 Rim Fire (See **Figures 6** through **8**). Pre-fire, the site was a heavily wooded mixed conifer habitat (**Figure 5**). Post-fire, the site was largely barren ground with isolated trees. During field studies, new trees (especially ponderosa pines) and shrubs were sprouting, and the largely open site supported an abundance of wildflowers. Bird species diversity was relatively low. As the tree canopy matures on site, the vegetation and species supported are expected to change significantly and the findings herein should be considered a snapshot in time.

Surveys were conducted during optimal blooming periods for special status plants over two blooming seasons and are considered reliable at present. However, given the fast-changing vegetative cover post-fire, species diversity and presence and absence of specific plant species are expected to change over time.

[3] Flowing on July 4, 2019. In dry years, likely intermittent. Not shown as a blue-line stream on USGS topo maps.

Figure 4: Biological Study Area

Figure 5: Pre-Rim Fire Project Vegetation



Source: Vegetation - Yosemite [ds200] BIOS – Yosemite National Park 1997, Accuracy updated 2006

Project Site (Approx.)

Figure 6: Pre- Rim Fire (2012)

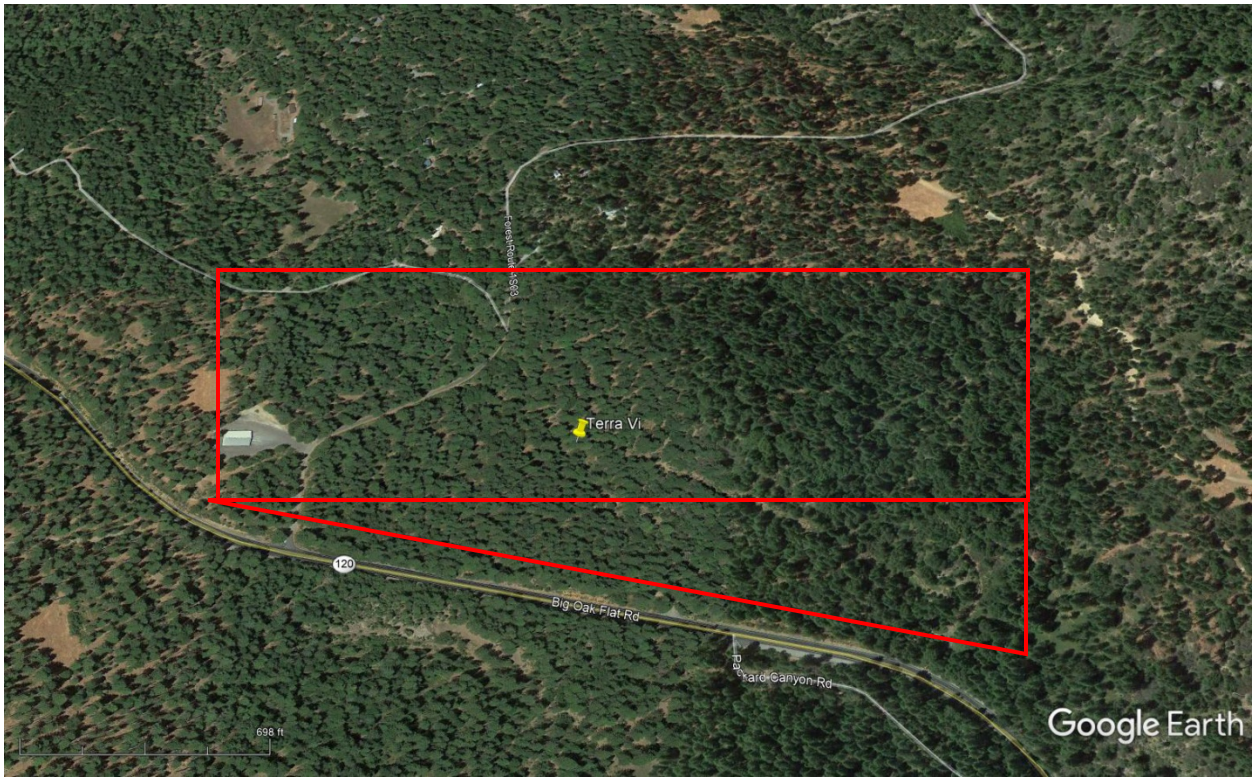
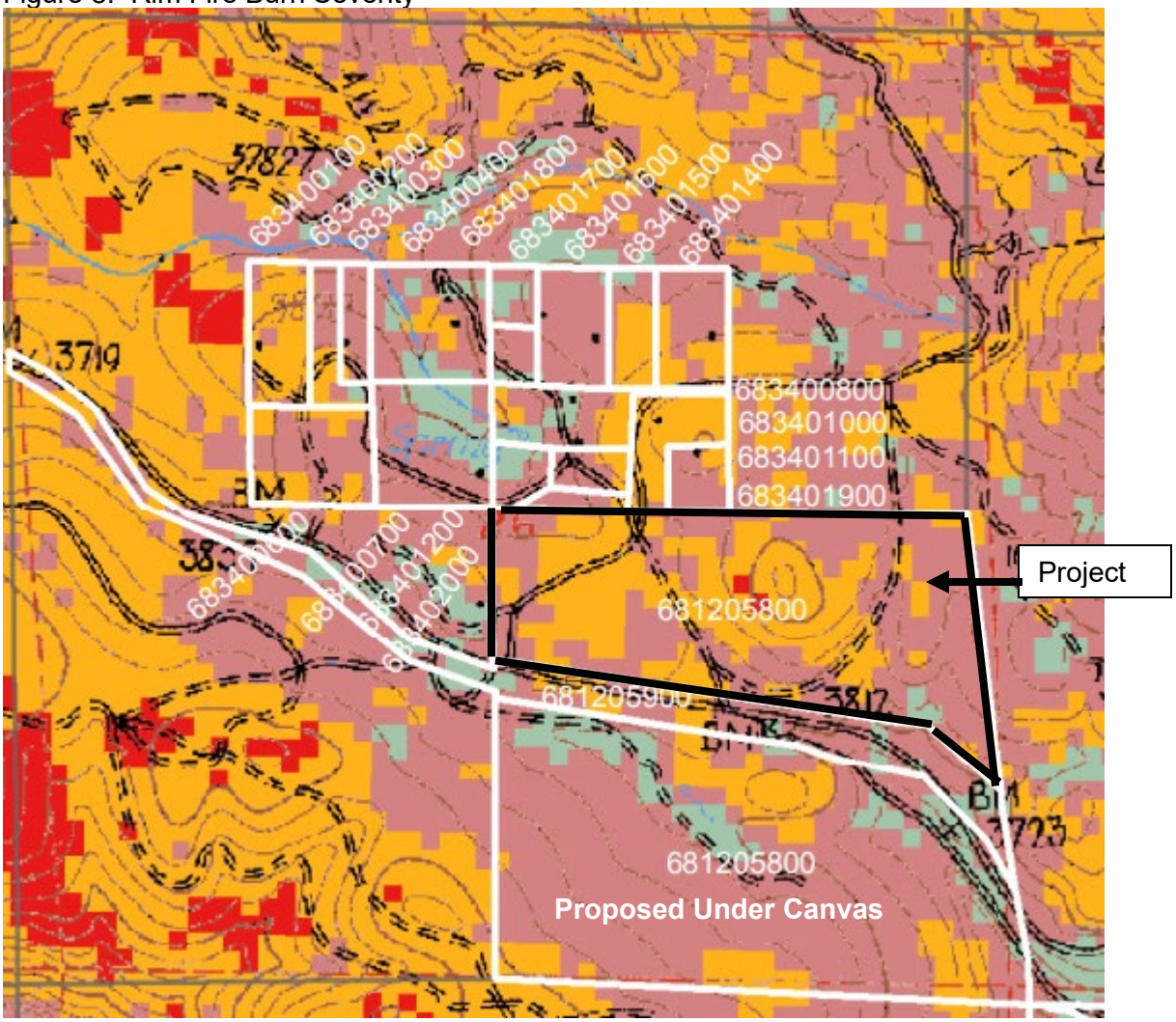


Figure 7: Post-Rim Fire May 2014

Figure 8: Rim Fire Burn Severity



Source: https://ucanr.edu/sites/forestry/files/176459.pdf Vegetative Burn Severity - Rim Fire Reference for Private Non-industrial Landowners; CalFire Forest Practice GIS October 13, 2013

4 Thresholds of Significance

For the purposes of this study, a species is considered “Special Status” if it meets one or more of the following:

- Listed pursuant to the California Endangered Species Act (CESA)
- A candidate for listing pursuant to CESA
- A species petitioned for listing pursuant to CESA
- Listed pursuant to the Federal Endangered Species Act (FESA)
- A candidate for listing pursuant to FESA
- A species petitioned for listing pursuant to FESA
- Designated by the CDFW as a Species of Special Concern (SSC)
- Designated by the CDFW as a Special Animal (SA)
- Designated by the CDFW as a Fully Protected Species (FPS)
- Designated by CNPS as List 1A (Presumed extinct in California), List 1B (Rare, threatened, or endangered in California and elsewhere), or List 2 Plant (Plants rare, threatened, or endangered in California but more common elsewhere)
- Identified by the US Forest Service as Sensitive (USFS-S)
- Identified by the US Bureau of Land Management as Sensitive (BLM-S)
- Identified by the International Union for Conservation of Nature (IUCN) as vulnerable
- Identified by the Western Bat Working Group (WBWG) as High Priority
- Identified by the WBWG as Moderate Priority

Protections for bird species include:

- Birds identified by the US Fish and Wildlife Service as Birds of Conservation Concern (USFWS BCC)

- Bird protected pursuant to CA Fish and Game Code 3503: It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.

- Birds protected pursuant to CA Fish and Game Code 3503.5**:** It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

- Birds protected pursuant to CA Fish and Game Code 3511(a)(1): Except as provided in this section, Section 2081.7, or Section 2835, a fully protected bird may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of a permit or license to take a fully protected bird, and no permit or license previously issued shall have any force or effect for that purpose. However, the department may authorize the taking of a fully protected bird for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species, and may authorize the live capture and relocation of a fully protected bird pursuant to a permit for the protection of livestock. Before authorizing the take of a fully protected bird, the department shall make an effort to notify all affected and interested parties to solicit information and comments on the proposed authorization. The notification shall be published in the California Regulatory Notice Register and be made available to each person who has notified the department, in writing, of his or her interest in fully protected

species and who has provided an e-mail address, if available, or postal address to the department.

- Birds protected pursuant to CA Fish and Game Code 3513 (a): It is unlawful to take or possess any migratory nongame bird as designated in the federal Migratory Bird Treaty Act (16 U.S.C. Sec. 703 et seq.) before January 1, 2017, any additional migratory nongame bird that may be designated in that federal act after that date, or any part of a migratory nongame bird described in this section, except as provided by rules and regulations adopted by the United States Secretary of the Interior under that federal act before January 1, 2017, or subsequent rules or regulations adopted pursuant to that federal act, unless those rules or regulations are inconsistent with this code. (b) This section shall become inoperative on January 20, 2025, and, as of January 1, 2026, is repealed.

- The Migratory Bird Treaty Act (MBTA) (16 US Code 703 *et seq.*) governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. Moreover, the MBTA prohibits the take, possession, import, exports, transport, selling, purchase, barter—or offering for sale, purchase, or barter—any migratory bird, their eggs, parts, or nests, except as authorized under a valid permit.[4] On February 3rd, 2020, the USFWS published a proposal to adopt a regulation that redefines the scope of the MBTA towards actions resulting in the injury or death of protected migratory birds.[5] The MBTA's prohibitions on take now apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs, and do not apply to take that is incidental to, and not the purpose of, a lawful activity.[6]

Pursuant to the California Environmental Quality Act (CEQA), the following thresholds of significance are used herein:

The following terminology is used in this environmental analysis to describe the level of significance of potential impacts to each resource area:

- ***Potentially Significant Impact.*** This term applies to adverse environmental consequences that have the potential to be significant according to the threshold criteria identified for the resource, even after mitigation strategies are applied and/or an adverse effect that could be significant and for which no mitigation has been identified. If any potentially significant impacts are identified, an Environmental Impact Report (EIR) must be prepared consistent with the California Environmental Quality Act (CEQA).

- ***Less-than-Significant Impact with Mitigation.*** This term applies to adverse environmental consequences that have the potential to be significant but can be reduced to less-than- significant levels through the application of identified mitigation strategies that have not already been incorporated into the proposed Project.

[4] Code of Federal Regulations Title 50 Section 21.11.
[5] Federal Register, 2020, Regulations Governing Take of Migratory Birds, available online at https://www.federalregister.gov/documents/2020/02/03/2020-01771/regulations-governing-take-of-migratory-birds, accessed March 24, 2020.
[6] United States Department of the Interior, 2017, Memorandum, Subject: The Migratory Bird Treaty Act Does Not Prohibit Incidental Take, dated December 22, 2017, https://www.doi.gov/sites/doi.gov/files/uploads/m-37050.pdf, accessed March 24, 2020.

- ***Less-than-Significant Impact.*** This term applies to potentially adverse environmental consequences that do not meet the significance threshold criteria for that resource. Therefore, no mitigation measures are required.

- ***No Impact.*** This term means no adverse environmental consequences have been identified for the resource or the consequences are negligible or undetectable. Therefore, no mitigation measures are required.

The following thresholds were used to determine significance:

BIOLOGICAL RESOURCES: Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒
Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐

The level of significance identified herein for each category is identified in the preceding table and discussed in the following.

In general, if the answer to one of the preceding questions is “yes,” then this study assumes that the potential exists for a significant adverse impact to the biological resource and identifies appropriate mitigation to minimize or reduce the impact(s) to a level of less than significant.

For species that are listed or candidates for listing under the California endangered species act or federal endangered species act; potential harm to a single individual either indirectly (habitat modification) or directly (habitat modification, killing, harassing, harming) is assumed to be a potentially significant adverse impact.

For species identified as sensitive or special status, but that are not listed or candidates for listing, the potential to harm an individual during a critical life stage or remove habitat necessary for that life stage (e.g., breeding, colonial nesting, rearing young, foraging, migrating) is considered potentially significant and adverse.

5 Evaluation and Recommendations

The following evaluates the potential of species status plant and animal species identified in local, state and federal species lists and using professional judgement to occur on site (**Table 3**). In addition, the analysis evaluates potential impacts to common wildlife species, wetlands, oak woodlands and winter range for the Yosemite Deer Herd.

5.1 Species

The potential for special status species identified in CDFW, USFWS and CNPS lists to occur on or within the project boundaries is evaluated in the following table.

Table 3: Evaluation: Special Status Species Potential to Occur Terra Vi

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
Plants			
Yosemite onion *Allium yosemitense*	Rare CNPS 1B.3 USFS-S	Broad-leafed upland forest, chaparral, cismontane woodland and lower montane coniferous forest. In pockets of wet soil or in wet cracks of metamorphic rock; also, on slopes and walls. 1750 – 7200± feet. Blooms April – July.	**U –** The nearest CNDDB record is 2.4± miles south of the project site above 5,000 feet in elevation. Marginal suitable habitat exists on site in the rocky knoll portions of the site. However, rock on site is dissimilar to normal gravelly metamorphic rock preferred by the species. Given low competition from other plant species post-fire, the species had a high likelihood of occurrence if present. The species was not identified during surveys conducted during the blooming period for this species. Therefore, the species is considered unlikely to occur.
Big-scale balsamroot *Balsamorhiza macrolepis*	CNPS 1B.2 BLM-S USFS-S	Chaparral, Valley and foothill grassland, cismontane woodland, sometimes on serpentine. 295 - 5,100± foot elevation range. Blooms March to June.	**U** - The nearest CNDDB record is 2.3± miles west of the project site. The site lacks serpentine and the sandy loam preferred by the species. Given the distinctive leaves of the species, it would be located during surveys during the blooming season if present, even without blooms. The species was not identified during surveys conducted during the blooming period for this species. Therefore, the species is considered unlikely to occur.
Sierra bolandra *Bolandra californica*	CNPS 4.3	Occurs usually in wetlands, montane coniferous forests. Prefers mesic and rocky habitat. 2450 - 8040± foot elevation range . Blooms June to July	The CNDDB identifies an unmapped occurrence of this species in the Ascension USGS Quadrangle. This species does not meet the threshold for consideration as special status species for this study. The species was not found during surveys conducted during the species' blooming season**.**
Fresno ceanothus *Ceanothus fresnensis*	CNPS 4.3	Cismontane woodland (openings), Lower montane coniferous forest 2103 – 6,900± foot elevation range. Blooms May to July	The CNDDB identifies an unmapped occurrence of this species in the Ascension USGS Quadrangle. This species does not meet the threshold for consideration as special status species for this study.

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
			The species was not found during surveys conducted during the species' blooming season**.**
Small's southern clarkia *Clarkia australis*	CNPS 1B.2 BLM-S USFS-S	Cismontane woodlands, lower montane coniferous forest. Open rocky sites in conifer forests or oak woodlands 2600-6800± feet. Blooms May – August.	**P/F –** The nearest CNDDB record is shown within 0.2 mile of the site but was mapped as a "best guess" by CNDDB. Due to the proximity of the record to the site, and presence of suitable habitat on-site, targeted surveys for the species were conducted on multiple occasions during the blooming season. *Clarkia rhomboidea,* a species visually similar to *C. australis* was found throughout the project site. Multiple individuals were keyed using the Jepson manual and all were confirmed to be *C. rhomboidea.* Therefore, the species is considered absent from the site at present. However, given the changing post-fire landscape, the potential for future occupation of the site by this species cannot be rejected. Therefore, a minimization and avoidance measure requiring re-confirmation of absence during the blooming season prior to issuance of grading permits for project construction, is included.
Mariposa clarkia *Clarkia biloba* ssp. *australis*	CNPS 1B.2 BLM-S USFS-S	Chaparral, cismontane woodland 1000-3,100± feet. Blooms May – July.	**U -** The nearest CNDDB record is 2.6 miles west of the project site. Records for *C. biloba* ssp. *biloba* occur adjacent to the project site (CalFlora, Dean Taylor, 1982). Due to the presence of suitable habitat on-site, targeted surveys for the species were conducted on multiple occasions during the blooming season. A population of approximately three *Clarkia biloba* plants was identified on site in July (near the northern parcel boundary half-way up the knoll) and keyed to *Clarkia biloba* ssp. *biloba* using the Jepson manual. Given the site elevation (above the usual range of *C. biloba* ssp. *australis*) and the presence of *C. biloba* ssp. *biloba* on site, the species is not expected to occur.
Sierra clarkia *Clarkia virgata*	CNPS 4.3	Cismontane woodland, lower montane coniferous forest. Elevations ranging from 1,615 – 5,300± feet. Blooms May -	The CNDDB identifies an unmapped occurrence of this species in the Ascension USGS Quadrangle. This species does not meet the threshold for

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
		August	consideration as special status species for this study. The species was not found during surveys conducted during the species' blooming season.
Mountain Lady's-slipper *Cypripedium montanum*	CNPS 4.2	Broad-leafed upland forest, Cismontane woodland, Lower montane coniferous forest. Elevations ranging from 2,225 – 7,300± feet. Blooms March - August	The CNDDB identifies an unmapped occurrence of this species in the Ascension USGS Quadrangle. This species does not meet the threshold for consideration as special status species for this study. The species was not found during surveys conducted during the species' blooming season.
Yellow-lip pansy monkeyflower *Diplacus pulchellus*	CNPS 1B.2 BLM-S USFS-S	Lower montane coniferous forest, meadows and seeps; sandy decomposed granite soils and moist meadows, vernally wet sites. Soils can be clay, volcanic, or granitic. 2000-6,500± foot elevation. Blooms April to July.	**U** – The nearest CNDDB record is 1.8± mile north of the project site. All moist areas of the site were surveyed on multiple occasions during the blooming period for this plant. The species was absent and is not anticipated to occur.
Yosemite woolly sunflower *Eriophyllum nubigenum*	CNPS 1B.3 USFS-S	Chaparral, lower montane coniferous forest, upper montane coniferous forest. South facing slopes on granitic slabs and domes, gravelly soils. 5000-9,000± feet. Blooms May to August.	**U** - The nearest CNDDB record is 2.5 miles south of the project site. The site lacks the south facing granitic slabs and gravelly soils preferred by the species. The species was absent during surveys conducted during the blooming period for the species. The species is not anticipated to occur.
Slender-stemmed monkeyflower *Erythranthe filicaulis*	CNPS 1B.2 BLM-S USFS-S	Cismontane woodland, lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. Within the transition zone off the Sierra Nevada, moist granitic sand and meadow edges, vernally mesic sites. 2,900- 9,000± feet. Blooms April – August.	**P/F** - The nearest CNDDB record is shown less than 1/2 mile from the site in a similar area also burned in the Rim Fire. Due to the proximity of the and presence of suitable habitat on-site, targeted surveys for the species were conducted on multiple occasions during the blooming season. *Diplacus torreyi,* a species visually similar to *E. filicaulis* was found on moist, south facing slopes on the project site. Multiple individuals were keyed using the Jepson manual and all were confirmed to be *D. torreyi.* No *E. filicaulis* were found. However, given the changing post-fire landscape, the potential for future occupation of the site by this species cannot be rejected. Therefore, a minimization and avoidance measure requiring re-confirmation of absence during the

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
			blooming season prior to issuance of grading permits for project construction, is included.
Small-flowered monkeyflower *Erythranthe inconspicua*	CNPS 4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest. Elevations ranging from 760 – 2,495± feet. Blooms May - June	The CNDDB identifies an unmapped occurrence of this species in the Ascension USGS Quadrangle. This species does not meet the threshold for consideration as special status species for this study. The species was not found during surveys conducted during the species' blooming season and the species range generally is at lower elevations than those found on the project site.
Pilot Ridge fawn lily *Erythronium taylorii*	CNPA 1B.2 USFS-S	Lower montane coniferous forest. Steep, metamorphic rock outcrops in Douglas-fir/mixed conifer/black oak forest. 4,400-4,600 feet. Blooms April – May.	**U -** The nearest CNDDB record is shown less than 2 miles south of the site. The project site lacks the preferred metamorphic rock outcrops favored by the species. The species was absent during surveys conducted during the blooming period for the species. The species is not anticipated to occur.
Mi-Wuk (Gowan's) navarretia *Navarretia miwukensis* Formerly *Navarretia crystallina*	CNPS 1B.2	Open, sparsely vegetated pyroclastic flows, often gently sloping terrain. 800-1500 m. Blooms May to August.	**U** - The nearest CNDDB record is shown less than 2 miles north of the site. The site lacks the characteristic sparsely vegetated volcanic flow terrain present in other locations characteristic for this species. The species was absent during surveys conducted during the blooming period for the species. The species is not anticipated to occur
California beaked rush *Rhynchospora californica*	CNPS 1B.1	Inhabits bogs and fens, lower montane coniferous forests, meadows and seeps, marshes and swamps (freshwater). 150 – 3,300 feet. Blooms May to July	**U –** There are no CNDDB records for the species in the Ascension USGS quadrangle. The site lacks the species' preferred wetland habitat and is somewhat above the plant's normal elevation range. The species was not present during surveys.
Hall's wyethia *Wyethia elata*	CNPS 4.3	Cismontane woodlands and lower montane coniferous forest from 3,000± - 4,600± feet. Blooms May-Aug	The CNDDB identifies an unmapped occurrence of this species in the Ascension USGS Quadrangle. This species does not meet the threshold for consideration as special status species for this study.

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
Insects			
Wawona riffle beetle *Atractelmis wawona*	None – former USFWS species of concern	Limited distribution in the main stem and south fork of the Merced River. Habitat needs not well known.	U -The CNDDB identifies an unmapped occurrence of this species in the Ascension USGS Quadrangle. This species does not meet the threshold for consideration as special status species for this study. There are no rivers within the BSA providing suitable habitat.
Crotch bumble bee *Bombus crotchii/c/*	Candidate Endangered (state)	Inhabits open grassland and scrub habitats. This species occurs primarily in California, including the Mediterranean region, Pacific Coast, Western Desert, Great Valley, and adjacent foothills through most of southwestern California. This species was historically common in the Central Valley of California, but now appears to be absent from most of it, especially in the center of its historic range. Primarily nests underground./c/ Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum* (CNDDB).	**P** - The nearest CNDDB record is shown less than 2 miles west of the site and dates to an uncertain record from 1927. The site is not characteristic of open grassland but has some limited scrub habitat and supports at least one preferred plant genera (e.g., *Clarkia*). No evidence of underground nesting was identified on site during biological surveys. Despite absence during surveys, the species could locate on site prior to project construction. Therefore, minimization and avoidance measures are included to re-verify species absence prior to issuance of grading permits.
Mollusks			
Western pearlshell *Margaritafera falcata*	None	Aquatic. Prefers lower velocity waters.	**U** – No flowing streams occur on site. The species was absent during surveys and is unlikely to occur.
Fish			
Delta smelt *Hypomesus transpacificus*	FT	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait & San Pablo Bay. Aquatic, Estuary; Seldom found at salinities > 10 ppt. Most often at salinities < 2ppt.	**U –** No rivers exist on site. Suitable habitat for this species does not exist on site.
Amphibians			
California red-legged frog *Rana draytonii*	FT CDFW-SSC	The species prefers quiet pools of streams, marshes, and occasionally ponds. Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or	**U** – The nearest CNDDB record is more than 5 miles north of the project site near the Tuolumne River and dates to 1922. The site lacks the suitable habitat combination of quiet, relatively deep pools with permanent water for 11-20 weeks with dense or

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
		emergent riparian vegetation. CNDDB records for the species in Tuolumne County place its range here between 1,500± and 5,030± feet in elevation. The species requires 11-20 weeks of permanent water and access to estivation habitat.	shrubby riparian vegetation. The species was not found during site surveys. The species is not expected to occur on site.
Foothill yellow-legged frog *Rana boylii/c/*	C-T (CESA) BLM-S CDFW-SSC USFS-S	In or near rocky streams in valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, mixed chaparral, and wet meadow types.	**U** – The nearest CNDDB record is less than one mile from the project site dating to 1948 with a second less than two miles from the project site dating to 1962. Marginal rocky substrate in valley-foothill riparian habitat exists in a steep drainage primarily off-site and touching the corner of the Project site through the existing Open Space Zoning District. The creek was surveyed from the highway extending approximately 2,000 feet upstream west of the project site and no foothill yellow-legged frogs were identified. The species does not tend to wander more than a few meters from its home stream and, therefore, is unlikely, if present, to leave any of the creeks present in the Biological Study Area and enter the project site.
Birds			
Golden eagle *Aquila chrysaetos*	BGEPA BLM:S CDF:S CDFW:FP CDFW:WL USFWS:BCC	Habitat typically rolling foothills, mountain areas. Tuolumne County is within the year-round range for the species at most elevations.	**U** – The CNDDB does not include records for this species within 10 miles of the Project site. The site lacks extensive open foothill grasslands typically occupied by the species. None were observed during site surveys. It is not anticipated on site.
Cassin's Finch *Carpodacus cassinii* aka *Haemorhous cassinii*	USFWS BCC	Common montane resident; breeds in most higher mountain ranges in California. Prefers tall, open coniferous forests, in lodgepole pine, red fir, and subalpine conifer habitats, particularly in breeding season. Most numerous near wet meadows and grassy openings; also	U - The CNDDB does not include records for this species. The site lacks the species preferred high elevation conifers and lacks meadow and grassing openings. The species was not present during surveys and is not likely to occur.

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
		frequents semi-arid forests, unlike purple finch. Occurs regularly in Sierra Nevada.	
Olive-sided flycatcher *Contopus cooperi*	USFWS BCC CDFW SSC	Uncommon to common, summer resident in a wide variety of forest and woodland habitats below 9000± feet throughout California exclusive of the deserts, the Central Valley, and other lowland valleys and basins. Preferred nesting habitats include mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir, and lodgepole pine .	P - There are no CNDDB records for the species in Tuolumne or Mariposa Counties. Preferred nesting habitat for the species was largely destroyed by the Rim Fire. Therefore, the species is not likely to occur except for potentially in the marginal habitat along the western and eastern-most edges of the site. The species was not identified on site. Pre-construction surveys are required to minimize the potential disturbance of this species either on site or in the vicinity of the site in the unlikely event that the species might nest off-site nearby or along the edges of the project boundaries.
Willow flycatcher *Empidonax traillii*	CE USFS:S USFWS BCC	Rare to locally uncommon, summer resident in wet meadow and montane riparian habitats 2000-8000± ft in the Sierra Nevada. Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows.	U - The nearest CNDDB record occurs more than four miles from the project site. The site lacks the lush growth of willows and lacks meadow habitat preferred by the species. It was not present during surveys and is not likely to occur.
American peregrine falcon *Falco peregrinus anatum*	CDF-S CDFW-FP USFWS BCC	Very uncommon breeding resident, and uncommon as a migrant. Active nesting sites are known in the Sierra Nevada and in other mountains of northern California. Migrants occur in the western Sierra Nevada in spring and fall. Breeds mostly in woodland, forest, and coastal habitats. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons.	P – The nearest CNDDB record occurs within two miles of the project site in association with rocky, north-facing cliffs in a Mixed Conifer-Hardwood Forest in a steep canyon. This type of habitat does not occur on site; however, suitable habitat may occur north and east of the project area or along parcel boundary edges where some tree stands survived the fire. Given the range of the species, it could occasionally roost temporarily on site. Pre-construction surveys are required to minimize the potential disturbance of this species either on site or in the vicinity of the site.
Bald eagle *Haliaeetus leucocephalus*	CE BLM:S CDF:S	Requires large bodies of water, or free flowing rivers with abundant fish, and adjacent snags or other perches. Year-	**U** – The nearest CNDDB record is more than 10 miles from the project site which lacks large bodies of water and rivers. While the species could

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
	CDFW:FP USFS:S USFWS:BCC BGEPA	round range extends into the western half of Tuolumne County with wintering including the eastern (higher elevation) portion of the county.	temporarily roost during its movements throughout the county; however, given the species' mobility impacts to the species are not anticipated. It was not present during surveys.
Rufous hummingbird *Selasphorus rufus*	USFWS BCC	Post-breeders may migrate south through the Sierra Nevada in summer, although spring migration mostly is through the lowlands and foothills (Grinnell and Miller 1944). Breeds elsewhere. Uses riparian areas, open woodlands, chaparral, mountain meadows, and other habitats rich in nectar-producing flowers, including gardens and orchards. Uses valley foothill hardwood, valley foothill hardwood-conifer, riparian, and various chaparral habitats in both northward and southward migration; montane riparian, aspen, and high mountain meadows (to tree-line and above) used in southward migration. (Garrett and Dunn 1981). Arrives in February and migrates north through lowlands and foothills until mid-April (south) and early May (north); a few remain in the state. Post-breeder males begin to migrate back through California in late June and early July. This early appearance of males in the Sierra Nevada has led some observers to suspect breeding.	U - The CNDDB does not have records for this species. The site lacks the species' preferred riparian habitat and lacks gardens or orchards rich in nectar producing flowers. The species was not identified on site during surveys. Therefore, it is not expected to occur.
Williamson's sapsucker *Sphyrapicus thyroideus*	USFWS BCC	Uncommon to common, summer resident in coniferous forests at 5500-9500± feet. Preferred nesting habitat is	U - There are no CNDDB records for this species. The project site is below the normal elevation range for the species and lacks the high elevation confers

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
		lodgepole pine, but also nests in aspens adjacent to stands of red fir, Jeffrey pine, and eastside pine habitats Winter status unclear. Some individuals resident in breeding habitat, but many (most?) descend into ponderosa pine and other coniferous habitats at lower elevations.	preferred by the species. Therefore, the species is unlikely to occur except as a short-term visitor during downhill movements should studies discover that the species undertakes down-elevation migrations in winter.
Great gray owl *Strix nebulosa*	SE CDF:S USFS:S	Rarely seen resident at 4500-7500 feet in the Sierra Nevada south to the Yosemite region. Most recent records are from the Merced and Tuolumne River drainages of Yosemite National Park. Breeds in old-growth red fir, mixed conifer, or lodgepole pine habitats, always in the vicinity of wet meadows. Uses trees in dense forest stands for roosting cover. Small trees and snags in, or on edge of, meadows used for hunting perches. Reproduction: Nests in large, broken-topped snags, usually greater than 60 cm (24 in) dbh; builds no nest (Winter 1980).	U - The CNDDB identifies an unmapped occurrence of this species in the Ascension USGS Quadrangle. The project site lacks old-growth trees in proximity to a wet meadow favored by the species. The species was not present during surveys and is not likely to occur.
California spotted owl *Strix occidentalis*	USFWS BCC BLM:S CDFW:SSC USFS:S	Uncommon, permanent resident in suitable habitat. In northern California, resides in dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats, from sea level up to 7600 feet. May move downslope in winter along the eastern and western slopes of the Sierra Nevada, and in other areas.	P – CNDDB records for the species occur within one mile of the Project site and include nesting habitat. No nesting sites have been identified on site. Potential nest trees were destroyed in the Rim Fire. Species movements documented for owls do not intersect with the Project site. Give the proximity of the species, it could occasionally roost temporarily on site. Pre-construction surveys are required to minimize the potential disturbance of this species either on site or in the vicinity of the site.
Mammals			
Pallid bat *Antrozous pallidus*	BLM-S CDFW-SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in	U – The nearest CNDDB record occurs within one mile of the project site in association with a bridge.

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
	USFS-S WBWG-H	open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites. The species eats a wide variety of insects and arachnids, including beetles, orthopterans, homopterans, moths, spiders, scorpions, solpugids, and Jerusalem crickets. It forages over open ground, usually 1.6-8 feet above ground level.	The project site lacks appropriate roosts that would protect bats from high temperatures. Therefore, the species is not anticipated to roost on site. Open ground for foraging also is not optimal for foraging due to the emerging shrub and saplings, therefore, it is unlikely to forage on site. The species was not identified during surveys. Based on the preceding, the species is not expected to occur on site. were completed and site construction begins.
Spotted bat *Euderma maculatum*	BLM-S CDFW-SSC WBWG-H	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting	P - The nearest CNDDB record occurs within approximately one mile south of the project site. The site lacks rock crevices and cliffs preferred for roosting; however, "washes" occur on site and water is present at the stream to the southeast, and could attract foraging species which could roost off-site in Sawmill Mountain rock outcroppings. Conformance with construction hours as prescribed in the project minimization and avoidance measures (i.e., day work hours) will ensure that work does not occur during foraging hours for the species.
Western mastiff bat *Eumops perotis californicus*	BLM-S CDFW-SSC WBWG-H	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, chaparral, and urban. Cover: Crevices in cliff faces, high buildings, trees, and tunnels are required for roosting. When roosting in rock crevices, needs vertical faces to drop off to take flight. Nursery roosts described as tight rock crevices at least 35 inches deep and 2 inches wide, or crevices in buildings.	P - The nearest CNDDB record occurs within approximately one mile south of the project site. The Project site lacks roosting structures high enough to accommodate the vertical drops necessary for the species to take flight. Therefore, the species is not expected to roost on site. Extensive rock outcroppings off site in association with Sawmill Mountain could provide appropriate roosting habitat. Therefore, the species is expected to roost well off site and, therefore, may forage on site. Conformance with construction hours as prescribed

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
		Records in Tuolumne County vary from 250 to 9,613 feet in elevation.	in the project minimization and avoidance measures (i.e., day work hours) will ensure that work does not occur during foraging hours for the species.
Silver-haired bat *Lasionycteris noctivagans*	WBWG-M	Exists along the Sierra Nevada. Summer habitats include montane coniferous forests. Summer range is generally below 9000 feet. Feeds mainly on moths and other soft-bodied insects. Also eats beetles and hard-shelled insects. Feeds less than 20 feet above forest streams, ponds, and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	P - The nearest CNDDB record occurs within approximately one mile south of the project site. The site has suitable roosting habitat in the form of trees with exfoliating bark and abandoned woodpecker holes. Therefore, potential roost sites, while not present during biological surveys, could be occupied prior to commencing site work. Suitable foraging habitat is present in the form of open, brushy areas and the stream to the southeast. Conformance with construction hours as prescribed in the project minimization and avoidance measures (i.e., day work hours) will ensure that work does not occur during foraging hours for the species. In addition, preconstruction bat surveys will be required to ensure that no bat roosts have become established since project surveys were completed and site construction begins.
Hoary bat *Lasiurus cinereus*	WBWG-M	The most widespread North American bat. Breeding habitat includes all woodlands and forests with medium to large- size trees and dense foliage. The species requires water. Occurs between 850 and 9,613 feet in elevation in Tuolumne County.	P – The nearest CNDDB record occurs within approximately one mile south of the project site. The Project site has suitable breeding and roosting habitat where post-fire woodlands and forest remain (in particular along the project edges). None were observed during site surveys. Marginal foraging habitat occurs along the stream to the southeast. Conformance with construction hours as prescribed in the project minimization and avoidance measures (i.e., day work hours) will ensure that work does not occur during foraging hours for the species. In addition, preconstruction bat surveys will be required to ensure that bat roosts do not near the proposed work area.

Species	Status	Preferred habitat(s)/a/	Likelihood to Occur on Site O= Present on Site (Occupied) U = Unlikely to Occur P = Potential to Occur P/F= Potential to Occur in the future
			Therefore, no impacts to the species are anticipated.
Long eared myotis *Myotis evotis*	BLM-S WBWG-M	Widespread in California, but generally believed to be uncommon in most of its range. Occurs in the Sierra Nevada and in nearly all brush, woodland, and forest habitats, from sea level to at least 9000 ft., but coniferous woodlands and forests seem to be preferred. Feeds on beetles, moths, flies, and spiders Forages among trees, over water, and over shrubs. Usually less than 40 ft. above the ground. Species roosts in buildings, crevices, spaces under bark, and snags. Caves are used primarily as night roosts. Roosts singly or in small groups.	P - The nearest CNDDB record occurs within approximately one mile south of the project site. The site has suitable habitat in the form of trees with exfoliating bark and snags. Therefore, potential roost sites, while not present during biological surveys, could become occupied prior to commencing site work. Foraging habitat is present on site. Conformance with construction hours as prescribed in the project minimization and avoidance measures (i.e., day work hours) will ensure that work does not occur during foraging hours for the species. In addition, preconstruction bat surveys will be required to ensure that no bat roosts have become established since project surveys were completed and site construction begins.
Fisher *Pekania pennanti*	CT/d/ BLM:S CDFW:SSC USFS:S	Uncommon permanent resident of the Sierra Nevada. Occurs in intermediate to large-tree stages of coniferous forests and deciduous-riparian habitats with a high percent canopy closure. Use cavities in large trees, snags, logs, rock areas, or shelters provided by slash or brush piles for cover. Dense, mature stands of trees also provide cover, especially in winter. Suitable habitat for fishers consists of large areas of mature, dense forest stands with snags and greater than 50% canopy closure. Fishers are largely carnivorous. Active yearlong. Mostly active at night and dawn/dusk.	P - The nearest CNDDB record is approximately 4.5 miles from the project site. Most records of this species date from 1916-1974. The site, post-Rim Fire no longer supports the large-tree stages of coniferous forest with high canopy closure preferred by the species. It is anticipated that Sawmill Mountain rock outcroppings off-site to the west could provide some shelter for the species. Neither the species nor species indicators (scat or footprints) were observed during surveys. It is not expected to occur except as an accidental visitor. Mitigation measures are included to ensure that construction activities do not inadvertently injure the species should it pass through the site during construction activities and minimize the potential that it would be attracted to the site as a result of construction activities.

/a/ All information for non-plant species from CDFW, CNDDB Rarefind 5 and CDFW Wildlife habitat relationship system unless otherwise specified

/b/ Plant species information from California Native Plant Society (CNPS)

/c/ The Xerces Society, including: Rich Hatfield, Sarina Jepsen, Sarah Foltz Jordan, Michele Blackburn, Aimée Code. 16 October 2018. *A Petition to the State of California Fish and Game Commission* https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=161902&inline

/d/ Fisher - West Coast DPS 1) The subspecies *M. p. pacifica* is no longer considered a valid subspecies. The west coast population of the fisher is now considered to be a distinct population segment (DPS) by the USFWS. 2) The West Coast DPS of fisher was proposed threatened by the USFWS in 2014, then withdrawn in 2016. 3) The Fish and Game Commission Notice of Findings from 4/20/2016 notes that the Southern Sierra Nevada ESU (defined as south of the Merced River) is recognized as Threatened, while the Northern California ESU was not warranted.

KEY:

State of California

CT: California endangered species act listed threatened
CE: California endangered species act listed endangered
C-T: California endangered species act Candidate for listing as threatened
FPS: Fully protected species – California Fish and Game Code
CDFW-SSC: CA Dpt. Fish and Wildlife Species of Special Concern
S1: Critically Imperiled. Critically imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.
S2: Imperiled. Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.
Rare: Rare (plants)

United States

FE: Federal endangered species act listed endangered
FT: Federal endangered species act listed threatened
E: Federal endangered species act petitioned for listing endangered
BLM-S: U.S. Bureau of Land Management Sensitive Species
USFWS BCC: United States Fish and Wildlife Service Bird of Conservation Concern
USFS-S: United States Forest Service Sensitive Species
BGEPA: Bald and Golden Eagle Protection Act

Other Organizations

WBWG: Western bat working group
-H: High Priority
-M: Moderate Priority
IUCN–V: International Union for the Conservation of Nature - Vulnerable

CNPS: California Native Plant Society
List 1B: Rare, threatened, or endangered in California and elsewhere
List 1B.1 - Seriously endangered in California
List 1B.2 – Fairly/Moderately endangered in California
List 1B.3 - Not very endangered in California

List 4.2 - Plants of limited distribution - Watch list - Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)
List 4.3 – Plants of limited distribution - Watch list – Not very threatened in California

AFS: American Fisheries Society
TH - Threatened
EN - Endangered

5.2 State and/or Federally Listed and Candidate Species

5.2.1 Yosemite onion (*Allium yosemitense*)

No Impact.

The species is state listed as rare and is a US Forest Service sensitive species and a California Native Plant Society list 1B.3 species (i.e., Not very endangered in California).

The species occupies broad-leafed upland forest, chaparral, cismontane woodland and lower montane coniferous forests. It generally occurs in pockets of wet soil or in wet cracks of metamorphic rock and on slopes and walls. It occurs between 1750 feet and 7200± feet in elevation and blooms generally from April to July.

The nearest CNDDB record is 2.4± miles south of the project site above 5,000 feet in elevation. Marginal suitable habitat exists on site in the rocky knoll portions of the site. However, rock on site is dissimilar to normal gravelly metamorphic rock preferred by the species. Given low competition from other plant species post-fire, the species had a high likelihood of occurrence if present. The species was not identified during surveys conducted during the blooming period for this species. Therefore, the species is considered unlikely to occur.

5.2.2 Crotch bumble bee (*Bombus crotchii*)

The species is a state candidate for listing as endangered. It inhabits open grassland and scrub habitats. This species occurs primarily in California, including the foothills. This species was historically common in the Central Valley of California, but now appears to be absent from most of it, especially in the center of its historic range. It primarily nests underground. Food plant genera include *Antirrhinum* (snapdragon), *Phacelia*, *Clarkia*, *Dendromecon* (bush poppy), *Eschscholzia* (poppy), and *Eriogonum* (buckwheat).

The nearest CNDDB is of uncertain location dating to 1927 less than 2 miles west of the site. The site is not characteristic of open grassland but has some limited scrub habitat and supports at least one preferred plant genera (e.g., *Clarkia*). No evidence of underground nesting was identified on site during biological surveys. Like most bumble bees, the species typically nests underground in abandoned rodent burrows or other cavities such as old squirrel or other animal nests. Nests tend to occur in open west-southwest slopes bordered by trees, although they are occasionally found above-ground in logs or among railroad ties. Bumble bees require plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle (generally early February to late November).

Despite absence during surveys, the species could locate on site prior to project construction. Destruction of an active nest for the species could result in the death of individuals of the species -- a potentially significant adverse impact on the species. Therefore, the following is proposed to re-verify species absence prior to ground disturbance:

> **POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the Crotch bumble bee --a species identified as a candidate for listing as endangered under the California Endangered Species Act.**
>
> **Minimization Measure BIO-1: Preconstruction Bee Surveys**
> Prior to issuance of grading permits for any staging, construction, or ground disturbing activities between February 1 and November 30th of the construction year, a qualified biologist will survey the project boundaries for active Crotch bumble bee nests. If identified, CDFW shall be

consulted for guidance on buffer distances to avoid colony disturbance (e.g., buffer surrounding the nest itself, entry/exits, and avoiding direct disturbance). If full avoidance cannot be achieved through buffers, no construction shall occur until the nest is no longer occupied. No pesticides or herbicides shall be used so long as the species occupies the site.

Mitigation Monitoring BIO-1: The required mitigation measure will be incorporated into the project bid package and contract. The measure is the responsibility of the qualified biologist under contract to either the County or construction contractor.

Avoidance and Minimization Measure BIO-2: Environmental Awareness Training
All contractors involved in site development, applicable County department staff, and environmental specialists (e.g., biologist) will attend a mandatory Environmental Awareness Training prior to any site disturbances. The program will address proper implementation of minimization and avoidance measures contained herein.

Mitigation Monitoring BIO-2: The required mitigation measure will be incorporated into the project bid package and contract and implemented throughout project construction. The Project biologist shall have the authority to stop work or remove any construction worker on site that has not completed training. The measure is the responsibility of the qualified biologist under contract to either the County or construction contractor.

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant.

5.2.3 Delta smelt

No Impact.

Delta smelt are federally listed as threatened pursuant to the federal endangered species act. They occupy rivers and tributaries of the Sacramento-San Joaquin Delta. They occur seasonally in Suisun Bay, the Carquinez Strait and San Pablo Bay. The project site is outside the range of Delta smelt (i.e., Don Pedro Dam forms a barrier to species passage) and no suitable habitat for the species exists on or adjacent to the site.

5.2.4 California red-legged frog (*Rana draytonii*)

No Impact.

The species is federally listed as threatened and is a California Department of Fish and Wildlife Species of Special Concern.

The species prefers quiet pools of streams, marshes, and occasionally ponds. Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. CNDDB records for the species in Tuolumne County place its range here between 1,500± and 5,030± feet in elevation. The species requires 11-20 weeks of permanent water and access to estivation habitat. The species was not present during surveys.

The nearest CNDDB record is more than 5 miles north of the project site near the Tuolumne River and dates to 1922. The site lacks the suitable habitat combination of quiet, relatively deep pools with permanent water for 11-20 weeks with dense or shrubby riparian vegetation. The species was not found during site surveys. A review of the *History and Status of the California Red-Legged Frog (Rana draytonii) in the Sierra Nevada California, USA* (Barry and Fellers 2013) confirms that the BSA is not historically or currently known to support CRLF. Therefore, the species is not expected to occur on site.

5.2.5 **Foothill yellow-legged frog (FYLF)**

No Impact.

The FYLF is a Candidate for listing as threatened pursuant to the California endangered species act (CESA). The species is also a US Bureau of Land Management and U.S. Forest Service sensitive species and a California Department of Fish and Wildlife Species of Special Concern.

FYLF occur in or near rocky streams in valley-foothill hardwood, valley-foothill hardwood- conifer, valley-foothill riparian, ponderosa pine, mixed conifer, mixed chaparral, and wet meadow types. Per the CDFW, unlike most other ranid frogs in California, FYLFs are rarely encountered (even on rainy nights) far from permanent water—not even seasonally or to and from breeding areas. Normal ranges are believed to be less than 33 feet with only occasional "long" distance movements up to 165 feet during periods of high water. In California, breeding and egg laying may commence any time from mid-March to May depending on local water conditions.

The nearest CNDDB record for the species is less than one mile from the project site dating to 1948 with a second less than two miles from the project site dating to 1962. Marginal rocky substrate in valley-foothill riparian habitat exists in a steep drainage primarily off-site and touching the corner of the Project site through the Open Space Zoning District (i.e., land designated for preservation on site). The creek was surveyed from the highway extending approximately 2,000 feet upstream west of the project site and no foothill yellow-legged frogs were identified. The species does not tend to wander more than a few meters from its home stream and, therefore, is unlikely, if present, to leave the drainage and enter the project site. Therefore, no impacts to the species, unlikely to be present, are anticipated.

5.2.6 **Willow flycatcher (*Empidonax traillii*)**

No Impact.

The species is state-listed endangered, a US Forest Service Sensitive Species and a US Fish and Wildlife Service Bird Species of Conservation Concern.

It is a rare to locally uncommon, summer resident in wet meadow and montane riparian habitats ranging in elevation from 2000± to 8000± feet in the Sierra Nevada. It most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows.

The nearest CNDDB record occurs more than four miles from the project site. The site lacks the lush growth of willows and lacks meadow habitat preferred by the species. It was not present during surveys and is not likely to occur.

5.2.7 **Bald eagle (*Haliaeetus leucocephalus*)**

No Impact.

The bald eagle is state-listed endangered species, a US Bureau of Land Management and U.S. Forest Service Sensitive Species, California Department of Forestry Sensitive Species, a California Department of Fish and Wildlife Fully Protected Species, a US Fish and Wildlife Service Bird of Conservation Concern and is protected pursuant to the Bald and Golden Eagle Protection Act [16 U.S.C. 668(a); 50 CFR 22 and16 U.S.C. 668c; 50 CFR 22.3].

It requires large bodies of water, or free flowing rivers with abundant fish, and adjacent snags or other perches. Its year-round range extends into the western half of Tuolumne County with wintering including the eastern (higher elevation) portion of the County. The nearest CNDDB record is more than 10 miles from the project site. The Project site lacks large bodies of water and rivers. While the species could temporarily roost during its movements throughout the County; given the species' mobility, it can readily relocate and impacts to the species are not anticipated. It was not present during surveys and is unlikely to occur.

5.2.8 **Fisher (*Pekania pennant*)**

The species is state listed as threatened. However, the Fish and Game Commission Notice of Findings from 4/20/2016 notes that the Southern Sierra Nevada ESU (defined as south of the Merced River) is recognized as Threatened, while the Northern California ESU was not warranted. The project site is located north of the Merced River and, therefore, not within the area where the species is listed as threatened. For consistency, the species is addressed here. The species also is a California Department of Fish and Wildlife Service Species of Special Concern and a US Bureau of Land Management and US Forest Service sensitive species.

It is an uncommon permanent resident of the Sierra Nevada and occurs in intermediate to large-tree stages of coniferous forests and deciduous-riparian habitats with a high percent canopy closure. The fisher uses cavities in large trees, snags, logs, rock areas, or shelters provided by slash or brush piles for cover. Dense, mature stands of trees also provide cover, especially in winter. Suitable habitat for the species consists of large areas of mature, dense forest stands with snags and greater than 50% canopy closure. Fishers are largely carnivorous and active yearlong mostly at night and at dawn/dusk.

The nearest CNDDB record is approximately 4.5 miles from the project site. Most records of this species date from 1916-1974. The site, post-Rim Fire, no longer supports the large-tree stages of coniferous forest with high canopy closure preferred by the species. It is anticipated that Sawmill Mountain rock outcroppings off-site to the east could provide some shelter for the species. Neither the species nor species indicators (scat or footprints) were observed during surveys. It is not expected to occur except as an accidental visitor.

During construction activities, should the species wander through the site, the potential exists for the species to become trapped in excavations or construction materials --a potentially significant adverse impact should it result in injury or harm to one or more individuals. Therefore, the following measures are proposed:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the Fisher--a species state-listed as threatened under the California Endangered Species Act.

Avoidance and Minimization Measure BIO-2: Environmental Awareness Training

Avoidance and Minimization Measure BIO-3: Avoid Inadvertent Animal Trapping During Construction

To avoid inadvertently trapping special status or common animal species during construction, all excavated steep-walled holes or trenches more than two feet deep shall be covered at the end of each working day with plywood or similar material, or provided with one or more escape ramps constructed of earth fill or wooden planks, or equivalent, at each end of the trench. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a tapped animal is discovered, the contractor shall place an escape ramp or other appropriate structure to allow the animal to escape. Alternatively, the contractor shall contact the project biologist or California Department of Fish and Wildlife for assistance. Similarly, stored pipes or other materials providing potential cover for animals will be inspected prior to installation or use to ensure that they are unoccupied.

Mitigation Monitoring BIO-3:

The required mitigation measure will be implemented throughout project construction. The

measure is the responsibility of the construction contractor.

Avoidance and Minimization Measure BIO-4: Food and Trash Disposal During Construction
All food and food-related trash will be enclosed in sealed trash containers at the end of each workday and removed completely from the construction site every day to avoid attracting wildlife.

Mitigation Monitoring BIO-4:
The required mitigation measure will be implemented throughout project construction. The measure is the responsibility of the construction contractor.

Avoidance and Minimization Measure BIO -5: Construction Hours
Project construction shall be limited to 7:00 a.m. to 7:00 p.m. unless an emergency exists.

Mitigation Monitoring BIO-5:
The required mitigation measure will be implemented throughout project construction. The measure is the responsibility of the construction contractor.

Proper implementation of the preceding measures is expected to reduce the potential impact to this species and other special status and common species relative to inadvertent trapping or injury on the construction site to a level of less-than-significant.

5.3 Special Status Species (Non-Listed) Potentially Present

5.3.1 Small's southern clarkia (*Clarkia australis*)

The species is a California Native Plant Society List 1B.2 plant (Fairly/Moderately endangered in California) and a US Bureau of Land Management and US Forest Service sensitive species.

The species occurs in cismontane woodlands and lower montane coniferous forests on open rocky sites in conifer forests or oak woodlands at elevations ranging from 2600± to 6800± feet. It blooms May through August.

The nearest CNDDB record is shown within 0.2 mile of the site but was mapped as a "best guess" by CNDDB. Due to the proximity of the record to the site, and presence of suitable habitat on-site, targeted surveys for the species were conducted on multiple occasions during the blooming season. *Clarkia rhomboidea*, a species visually similar to *C. australis* was found throughout the project site. Multiple individuals were keyed using the Jepson manual and all were confirmed to be *C. rhomboidea*. Therefore, the species is considered absent from the site at present. However, given the changing post-fire landscape, the potential for future occupation of the site by this species cannot be entirely rejected. Elimination of a population of this species could result in a significant adverse impact on the status of the population. Therefore, a minimization and avoidance measure requiring re-confirmation of absence during the blooming season prior to ground disturbance for project construction, is included.

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the special status Small's southern clarkia (*Clarkia australis*).

Avoidance and Minimization Measure BIO-6: Pre-Construction Botanical Survey

Surveys will occur during the bloom season prior to issuance of grading permits for project construction for *Clarkia australis* (May through August) and *Erythranthe filicaulis* (April through August).

If found, the location of special status plant populations will be clearly identified in the field by staking, flagging, or fencing prior to the commencement of activities that may cause disturbance. A buffer surrounding the populations will be established by a qualified botanist based on the plant species, its habitat, and the nature of the proposed project activity. No activity will occur within the buffer area.

If sensitive plant species cannot be avoided, transplanting (perennial species), seed collection and dispersal (annual species) may be undertaken by a qualified botanist. If transplanting or seed collection/dispersal is employed, ongoing monitoring for 5 years shall be conducted to assess the effectiveness of mitigation. The performance standard for mitigation is no net reduction in the size or viability of the local plant population. Prior to salvaging plants, written permission will be obtained from the landowner and CDFW will be notified 10 days prior to salvage activities or, for emergency situations, CDFW will be notified within 14 days following salvage activities consistent with the provisions of the California Native Plant Protection Act (California Fish and Game Code Sections 1912 and 1913) and California Penal Code Section 384a. Salvage shall be in accordance with California Fish and Game Code Sections 1912 and 1913(c) including CDFW notification. The performance standard for this mitigation measure is no net reduction in the size or viability of local sensitive plant populations

Mitigation Monitoring BIO-6:
The required mitigation measure will be incorporated into the project bid package and contract. Surveys will occur during the bloom season prior to issuance of grading permits for project construction for *Clarkia australis* (May through August) and *Erythranthe filicaulis* (April through August). The measure is the responsibility of the construction contractor and Project biologist.

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant.

5.3.2 Slender-stemmed monkeyflower (*Erythranthe filicaulis*)

The species is a California Native Plant Society List 1B.2 plant (Fairly/Moderately endangered in California) and a US Bureau of Land Management and US Forest Service sensitive species.

It occupies cismontane woodlands, lower montane coniferous forests, meadows and seeps, and upper montane coniferous forests and within the transition zone of the Sierra Nevada. It prefers moist granitic sand and meadow edges and vernally mesic sites at elevations ranging from 2,900± to 9,000± feet. The monkeyflower blooms April through August.

The nearest CNDDB record is shown less than 1/2 mile from the site in a similar area also burned in the Rim Fire. Due to the proximity of the and presence of suitable habitat on-site, targeted surveys for the species were conducted on multiple occasions during the blooming season. *Diplacus torreyi*, a species visually similar to *E. filicaulis* was found on moist, south facing slopes on the project site. Multiple individuals were keyed using the Jepson manual and all were confirmed to be *D. torreyi*. No *E. filicaulis* were found. However, given the changing post-fire landscape, the potential for future occupation of the site by this species cannot be entirely rejected. Elimination of a population of this species could result in a significant adverse impact on the status of the population. Therefore , a minimization and avoidance measure requiring re-confirmation of

absence during the blooming season prior to ground disturbance for project construction, is included:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the special status Slender-stemmed monkeyflower (*Erythranthe filicaulis*).

Avoidance and Minimization Measure BIO-6: Pre-Construction Botanical Survey

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant.

5.3.3 Olive-sided flycatcher (*Contopus cooperi*)

The species is a US Fish and Wildlife Service Bird species of Conservation Concern and a California Department of Fish and Wildlife Species of Special Concern.

Uncommon to common, summer resident in a wide variety of forest and woodland habitats below 9000± feet throughout California exclusive of the deserts, the Central Valley, and other lowland valleys and basins. Preferred nesting habitats include mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir, and lodgepole pine

There are no CNDDB records for the species in Tuolumne or Mariposa Counties. Preferred nesting habitat for the species was largely destroyed by the Rim Fire. Therefore, the species is not likely to occur except for potentially in the marginal habitat along the western and eastern-most edges of the site. The species was not identified on site. However, due to the changing nature of on-site vegetation and that project construction could commence several years in the future, habitat could evolve that attracts the species prior to commencing project construction. Construction could adversely impact nesting species through noise and vibrations-a potentially significant impact the species' population. The following mitigation measure is proposed:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the special status olive-sided flycatcher (*Contopus cooperi*).

Avoidance and Minimization Measure BIO-7: Pre-Construction Bird/Raptor Survey

Prior to issuance of grading permits for construction occurring between February 1st and August 30th (e.g., excavation, ground disturbance, or vegetation removal) a preconstruction survey for nesting birds will be conducted in accordance with the CDFW guidelines and a no-disturbance buffer will be established, if necessary.

If equipment staging, site preparation, vegetation removal, grading, excavation or other project-related construction activities are scheduled during the avian nesting season (generally February 1 through August 30), a focused survey for active nests would be conducted by a qualified biologist within 15 days prior to the beginning of project-related activities.

Following initial pre-construction surveys in year one of project construction, bird surveys shall be repeated annually so long as outside construction continues. Surveys should be repeated within 15 days prior to resuming outdoor construction activities for the first time

between February 1st and August 30th whenever outdoor construction activities have ceased for more than one month (e.g., if outdoor construction shuts down for the season due to winter rains in late November, preconstruction bird surveys would occur again within 15 days prior to recommencing outdoor site work between February 1st and August 30th. If work recommences in January and continues without interruption through August 30th, then no additional preconstruction survey is required).

Surveys shall be conducted in all suitable habitat in the BSA.

If an active nest is found, the bird shall be identified to species and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are more than the following distances from the nearest work site: (a) 300± feet for raptors; or (b) 75± feet for other non-special-status bird species. Disturbance of active nests shall be avoided to the extent possible until it is determined that nesting is complete and the young have fledged. For species protected under the California Fish and Game Code (CFGC), if active nests are closer than those distances to the nearest work site and there is the potential for bird disturbance, CDFW will be contacted for approval to work within 300± feet of raptors, or 75± feet of other non-special-status bird species.

Mitigation Monitoring BIO-7:
The required mitigation measure will be incorporated into the project bid package and contract. Surveys will occur within 15 days of commencing construction that occurs between February 1st and August 30th. The measure is the responsibility of the construction contractor and Project biologist.

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant.

5.3.4 American peregrine falcon (*Falco peregrinus anatum*)

The species is a California Department of Forestry and Fire Protection Sensitive Species, a California Department of Fish and Wildlife Fully Protected Species and a US Fish and Wildlife Service Bird species of Conservation Concern.

Very uncommon breeding resident, and uncommon as a migrant. Active nesting sites are known in the Sierra Nevada and in other mountains of northern California. Migrants occur in the western Sierra Nevada in spring and fall. Breeds mostly in woodland, forest, and coastal habitats. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons

The nearest CNDDB record occurs within two miles of the project site in association with rocky, north-facing cliffs in a Mixed Conifer-Hardwood Forest in a steep canyon. This type of habitat does not occur on site; however, suitable habitat may occur north and east of the project area or along parcel boundary edges where some tree stands survived the fire. Give the range of the species, it could occasionally roost temporarily on site. Disturbance to the species during nesting season could adversely impact its nesting success—a potentially significant adverse impact. Pre-construction surveys are required to minimize the potential disturbance of this species either on site or in the vicinity of the site

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the special status American peregrine falcon

(***Falco peregrinus anatum***).

Avoidance and Minimization Measure BIO-7: Pre-Construction Bird/Raptor Survey

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant.

5.3.5 Great Gray owl (*Strix nebulosa*)

The species is state-listed endangered and is a California Department of Forestry and US Forest Service sensitive species. It is a rarely seen resident at 4500-7500 feet in the Sierra Nevada south to the Yosemite region. Most recent records are from the Merced and Tuolumne River drainages of Yosemite National Park. The owl breeds in old-growth red fir, mixed conifer, or lodgepole pine habitats, always in the vicinity of wet meadows. It uses trees in dense forest stands for roosting cover. Small trees and snags in, or on the edge of, meadows are used for hunting perches. The owl nests in large, broken-topped snags, usually greater than 60 cm (24 in) dbh; builds no nest (Winter 1980). The CNDDB identifies an unmapped occurrence of this species in the Ascension USGS Quadrangle. The project site lacks old-growth trees in proximity to a wet meadow favored by the species. The species was not present during surveys and is not likely to occur.

5.3.6 California spotted owl (*Strix occidentalis occidentalis*)

The species is a US Fish and Wildlife Service Bird Species of Conservation Concern, a US Bureau of Land Management and US Forest Service Sensitive species and a California Department of Fish and Wildlife Species of Special Concern.

Uncommon, permanent resident in suitable habitat. In northern California, resides in dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats, from sea level up to 7600 feet. May move downslope in winter along the eastern and western slopes of the Sierra Nevada, and in other areas

CNDDB records for the species occur within one mile of the Project site and include nesting habitat. No nesting sites have been identified on site. Potential nest trees were destroyed in the Rim Fire. Species movements documented for owls do not intersect with the Project site. Give the proximity of the species, it could occasionally roost temporarily on site. Disturbance to the species during nesting season could adversely impact its nesting success—a potentially significant adverse impact. Pre-construction surveys are required to minimize the potential disturbance of this species either on site or in the vicinity of the site.

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the special status California spotted owl (*Strix occidentalis occidentalis*)

Avoidance and Minimization Measure BIO-7: Pre-Construction Bird/Raptor Survey

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant.

5.4 Other Birds

Common bird species protected pursuant to the provisions identified in Section 4 within the BSA

during surveys are included in **Appendix A** and cannot be disturbed during nesting. Disturbances to a protected bird species during nesting season could adversely impact its nesting success—a potentially significant adverse impact. Therefore, the following is proposed:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect protected bird species .

Avoidance and Minimization Measure BIO-7: Pre-Construction Bird/Raptor Survey

Proper implementation of the preceding is expected to minimize or avoid impacts to protected bird species.

5.5 Bats

The following bat species have the potential to occur within the BSA (**Table 3**):

5.5.1 Spotted bat (*Euderma maculatum*)

The spotted bat is a U.S. Bureau of Land Management sensitive species and California Department of Fish and Wildlife Species of Special Concern. It is also at high risk as identified by the Western Bat Working Group. The species occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. It feeds over water and along washes almost entirely on moths and requires rock crevices in cliffs or caves for roosting.

The nearest CNDDB record occurs within approximately one mile south of the project site. The site lacks rock crevices and cliffs preferred for roosting. However, "washes" occur on site and water is present at the stream to the southeast and could attract foraging species roosting off-site in Sawmill Mountain rock outcroppings.

Conformance with construction hours as prescribed in the project minimization and avoidance measures (i.e., day work hours) will ensure that work does not occur during foraging hours for the species. Therefore, the following mitigation is proposed:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the spotted bat (*Euderma maculatum*)

Avoidance and Minimization Measure BIO -5: Construction Hours
Project construction shall be limited to 7:00 a.m. to 7:00 p.m. unless an emergency exists.

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant.

5.5.2 Western mastiff bat (*Eumops perotis californicus*)

The bat is a U.S. Bureau of Land Management sensitive species and CDFW species of special concern. It is also at high risk as identified by the Western bat working group.

It occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, annual and perennial grasslands, chaparral, and urban areas. The species requires crevices in cliff faces, high buildings, trees, and tunnels for roosting. When roosting in rock crevices, it needs vertical faces to drop off to take flight. Nursery roosts are described as tight rock crevices at least 35 inches deep and 2 inches wide, or crevices in buildings. Records in Tuolumne County vary from elevations ranging from 250± to 9,613± feet. The species catches and feeds on insects in flight

probably feeding from ground to tree-level. However, over rugged terrain these bats typically forage at much greater heights (195 ft) above the ground.

The nearest CNDDB record occurs within approximately one mile south of the project site.

The site itself generally lacks man-made structures or rock crevices high enough to accommodate roosting. However, extensive rock outcroppings off site in association with Sawmill Mountain granite outcrops provide potential appropriate roosting habitat and, therefore, the species could forage on site. . Therefore, the following mitigation is proposed:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the Western mastiff bat (*Eumops perotis californicus*)

Avoidance and Minimization Measure BIO -5: Construction Hours

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant

5.5.3 Silver-haired bat (*Lasionycteris noctivagans)*

The bat is at high risk as identified by the Western Bat Working Group.

It exists along the Sierra Nevada. Summer habitats include montane coniferous forests and range generally below 9000 feet. The bat feeds mainly on moths and other soft-bodied insects, but also eats beetles and hard-shelled insects. It generally feeds less than 20 feet above forest streams, ponds, and open brushy areas and roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. The species needs drinking water nearby for survival.

The nearest CNDDB record occurs within approximately one mile of the project site. The site includes brushy habitat and the stream to the southeast could provide foraging habitat.. In addition, the site has suitable habitat in the form of trees with exfoliating bark and abandoned woodpecker holes along the western and eastern-most edges for roosting. Therefore, while the species was not present during biological surveys, potential roost sites could be occupied prior to commencing site work.

Disturbing roosting (or nursery) and foraging habitat for the species could result in a significant adverse impact to the species. Therefore, the following mitigation is proposed:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the Silver-haired bat (*Lasionycteris noctivagans*)

Avoidance and Minimization Measure BIO -5: Construction Hours

Avoidance and Minimization Measure BIO-8: Preconstruction Surveys Suitable Bat Roosting (or Nursery) Areas & Provisions for Protection, if Identified

- 15 days or less before commencing ground-disturbing activities between April and September of the construction year, a qualified biologist will survey snags, trees, rock crevices and other suitable cavities and structures in the BSA for roosting bats or bat nurseries.

- If bats are not found and there is no evidence of bat use, construction may proceed.

If bats are found or evidence of use by bats is present, CDFW shall be consulted for guidance on measures to avoid or minimize disturbance to the colony or nursery. Subject to CDFW approval, measures may include excluding bats from roosts before construction begins. If nurseries are discovered, no work will occur within buffer areas as established by CDFW until all young are self-sufficient and have left the nursery.

Mitigation Monitoring BIO-8:
The required mitigation measure will be incorporated into the project bid package and contract. Surveys will occur within 15 days of commencing construction that occurs between April and September. The measure is the responsibility of the construction contractor and Project biologist.

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant.

5.5.4 Hoary bat (*Lasiurus cinereus*)

The hoary bat is a moderate risk species as identified by the Western Bat Working Group. It is the most widespread North American bat.

Breeding habitat includes all woodlands and forests with medium to large-size trees and dense foliage. The species requires water, feeds primarily on moths, and occurs between 850± and 9,613± feet in elevation in Tuolumne County.

The nearest CNDDB record occurs within approximately one mile south of the project site. The stream to the southeast provides potential foraging habitat. The Project site has suitable roosting or breeding habitat where post-fire woodlands and forest remain (e.g., the project's eastern and western-most edges).

The species was not identified during surveys; however, the species could roost or breed along the project margins prior to commencement of project construction. Disturbing roosting (or nursery) and foraging habitat for the species could result in a significant adverse impact to the species. Therefore, the following mitigation is proposed:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the *Hoary bat (Lasiurus cinereus)*

Avoidance and Minimization Measure BIO-5: Construction Hours

Avoidance and Minimization Measure BIO-8: Preconstruction Surveys Suitable Bat Roosting (or Nursery) Areas & Provisions for Protection, if Identified

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant

5.5.5 Long eared myotis (*Myotis evotis*)

The bat is a moderate risk species as identified by the Western Bat Working Group and is a US

Bureau of Land Management Sensitive Species.

It is widespread in California, but generally believed to be uncommon in most of its range. The bat occurs in the Sierra Nevada and in nearly all brush, woodland, and forest habitats, from sea level to at least 9000 ft., but coniferous woodlands and forests seem to be preferred. The bat feeds on beetles, moths, flies, and spiders and forages among trees, over water, and over shrubs usually less than 40 feet. above the ground. The species roosts in buildings, crevices, spaces under bark, and snags. Caves are used primarily as night roosts. The bat roosts singly or in small groups.

The nearest CNDDB record occurs within approximately one mile of the project site. The site has suitable habitat in the form of trees with exfoliating bark and snags for roosting and potentially breeding near the project's eastern and western-most edges. The site, with its current shrub stage vegetation and stream to the southeast, also could provide foraging habitat. The species was not identified during surveys; however, the potential exists for the species to occupy the site prior to construction commencing. Disturbing roosting (or nursery) habitat for the species and its associated foraging habitat could result in a significant adverse impact to the species. Therefore, the following mitigation is proposed:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect the Long eared myotis (*Myotis evotis*)

Avoidance and Minimization Measure BIO-5: Construction Hours

Avoidance and Minimization Measure BIO-8: Preconstruction Surveys Suitable Bat Roosting (or Nursery) Areas & Provisions for Protection, if Identified

Proper implementation of the preceding is expected to minimize or avoid impacts to these and other bird species to a level of less than significant.

5.6 Species – General

The proposed project is expected to involve construction materials including pipes and open trenching. Common and special status wildlife species may be attracted to the site by food or use construction materials as cover. Smaller species may fall into trenches and become trapped. This potential impact is anticipated primarily during the construction phase of the project. The following provisions are included to avoid species injuries related to inadvertent wildlife trapping:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential to interfere substantially with the movement of native resident wildlife species

Avoidance and Minimization Measure BIO-3: Avoid Inadvertent Animal Trapping During Construction

Avoidance and Minimization Measure BIO-4: Food and Trash Disposal

Avoidance and Minimization Measure BIO-5: Construction Hours

Proper implementation of the preceding is expected to minimize or avoid impacts to common and special status species to a level of less than significant.

5.7 Mule Deer Winter Range and Corridors

The project site is within the range of mule deer (*Odocoileus hemionus californicus*) belonging to the Yosemite Deer Herd. In general, elevations below 4,500 feet amsl are considered winter range for the species. The site's elevations ranging between 3,800± feet and 4,100± feet are, therefore, within deer winter range (**Figure 9**). Unlike year-round resident deer populations at lower elevations, members of native deer herds are less tolerant of humans and more easily disturbed by them.

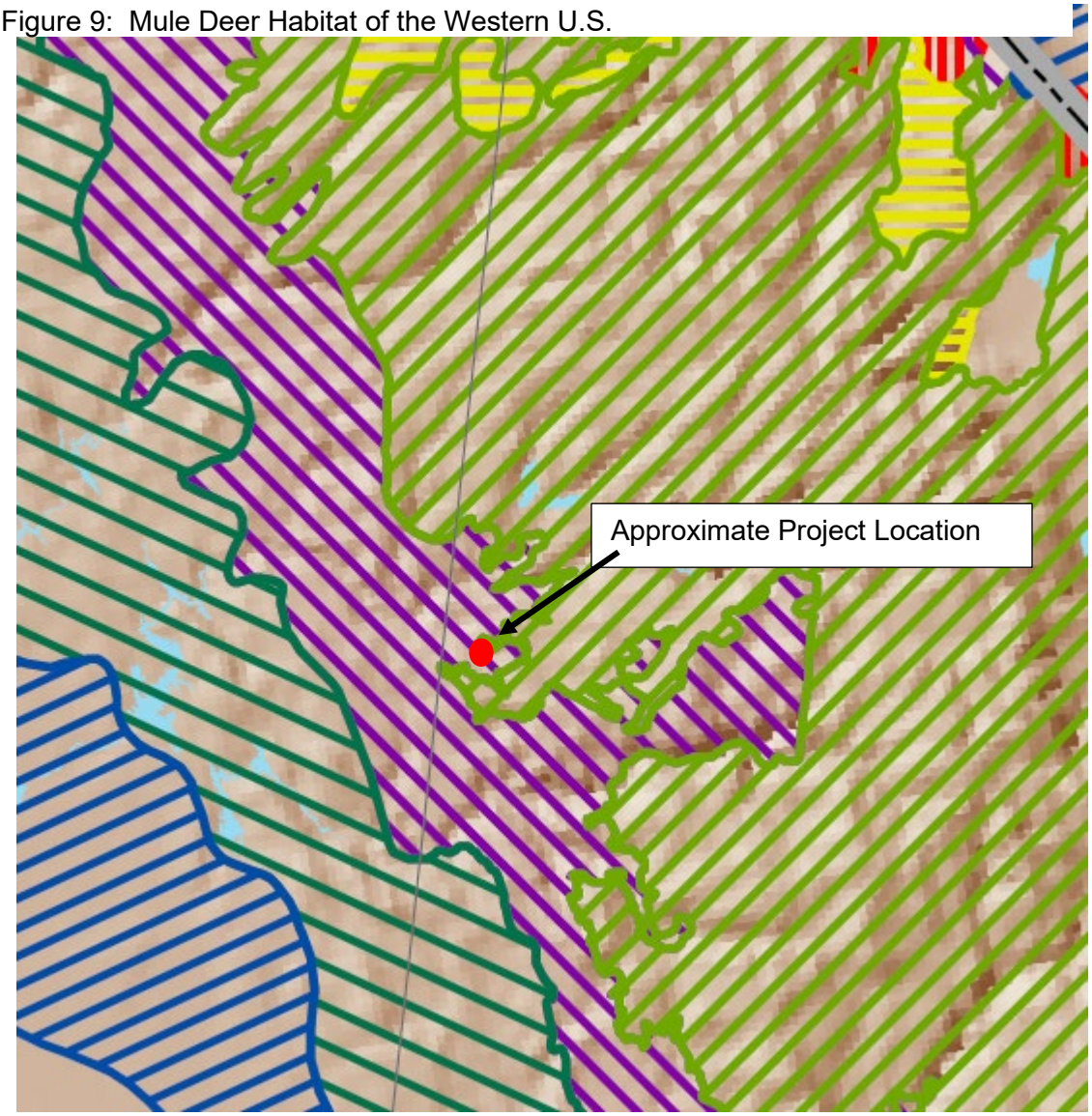
Within five miles of the general project vicinity are areas of known importance to the Yosemite Deer Herd for wintering including: Sawmill Mountain; Spinning Wheel area; Gravel Range, Big Creek Basin, Packard Canyon; and Pilot Ridge[7]. **Figure 10** illustrates the location of the Project site in proximity to the nearest known wintering deer concentration areas for the Yosemite Deer Herd: Sawmill Mountain, Pilot Ridge and the Gravel Range.

Figure 11 identifies known population centers of the Yosemite Deer Herd (non-wintering). Commencing near mid-October, deer may begin moving to lower elevations from summer to winter ranges following historic corridors. The *Management Plan for the Yosemite Deer Herd* (1981) tracked deer movements and identified migration routes and holding areas for the herd as they move from summer to winter ranges. These deer corridors are shown in **Figure 12**.

Based on the preceding, the Project Site has the potential to be wintering grounds and/or provide a movement corridor for the Yosemite Deer Herd as they migrate between known population centers and wintering grounds. The following evaluates the site's importance as both wintering habitat and as a corridor.

[7] CDFW Deer Management Program, Zone D-6 2014 and 2019 Deer Hunting Information

Figure 9: Mule Deer Habitat of the Western U.S.



Limited Range: Includes habitat which are occasionally inhabitated and/or contain small population of scattered mule deer.

Year-round Population: An area that provides year-round range for a population of mule deer. The resident mule deer use all of the area all year; it cannot be subdivided into seasonal ranges although it may be included within the overall range of the larger population.

Summer Range: That part of the overall range where 90% of the individuals are located between spring green-up and the first heavy snowfall.

Winter Range: That part of the overall range where 90 percent of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site-specific period of winter. A subset of this definition would include a "severe winter range" definition to include areas within the winter range where 90% of the individuals are located when annual snow pack is at its maximum and/or temperatures are at a minimum in the two worst winters our of ten.

Source: Remote Sensing and GIS Laboratory, Mule Deer of the Western United States. 2005. Utah State University, Logan, Utah. http://www.gis.usu.edu

Figure 10: Mule Deer Winter Concentration Areas Surrounding the Project Site

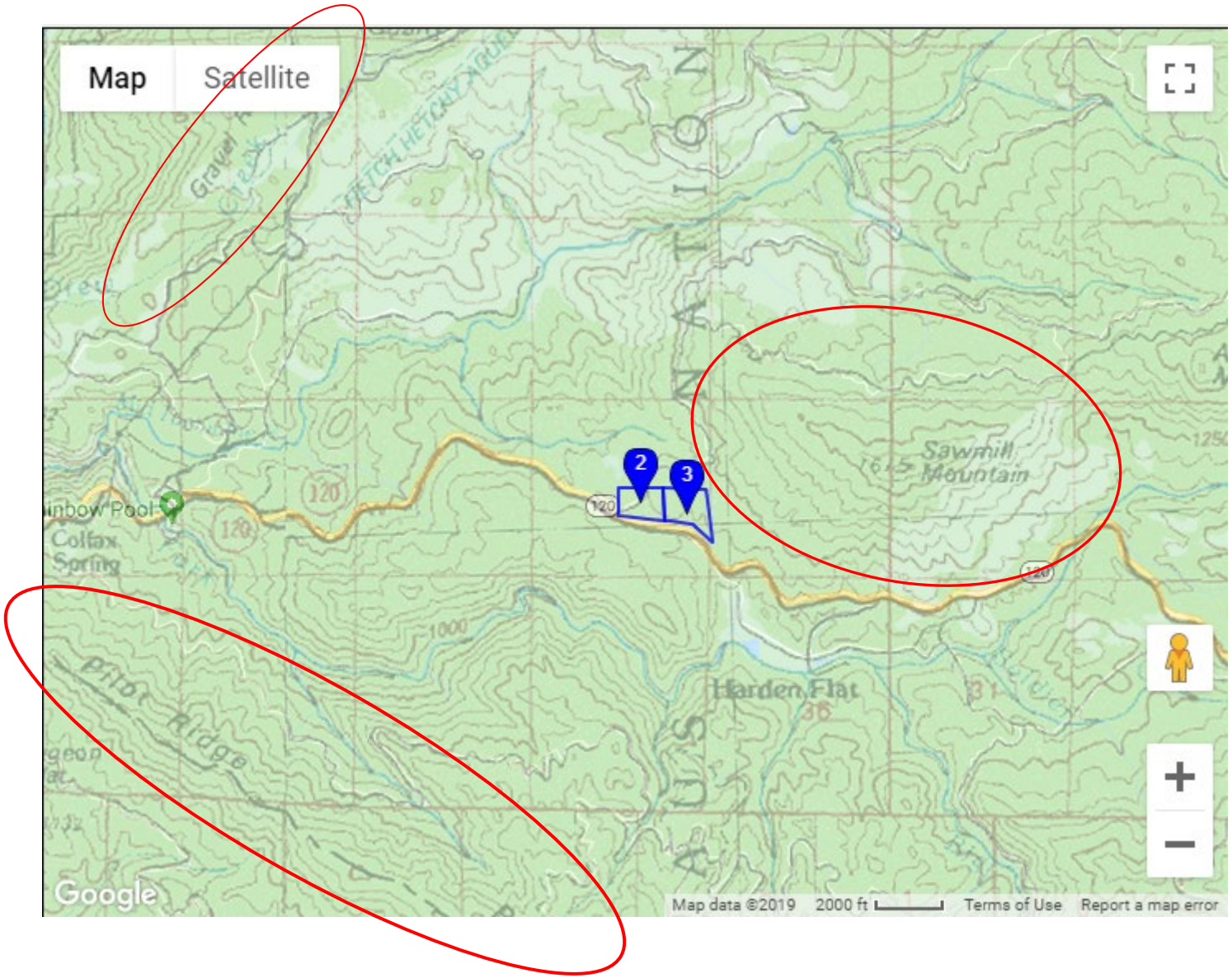


Figure 11: Yosemite Deer Herd Concentration Areas (Non-Winter) - 1981

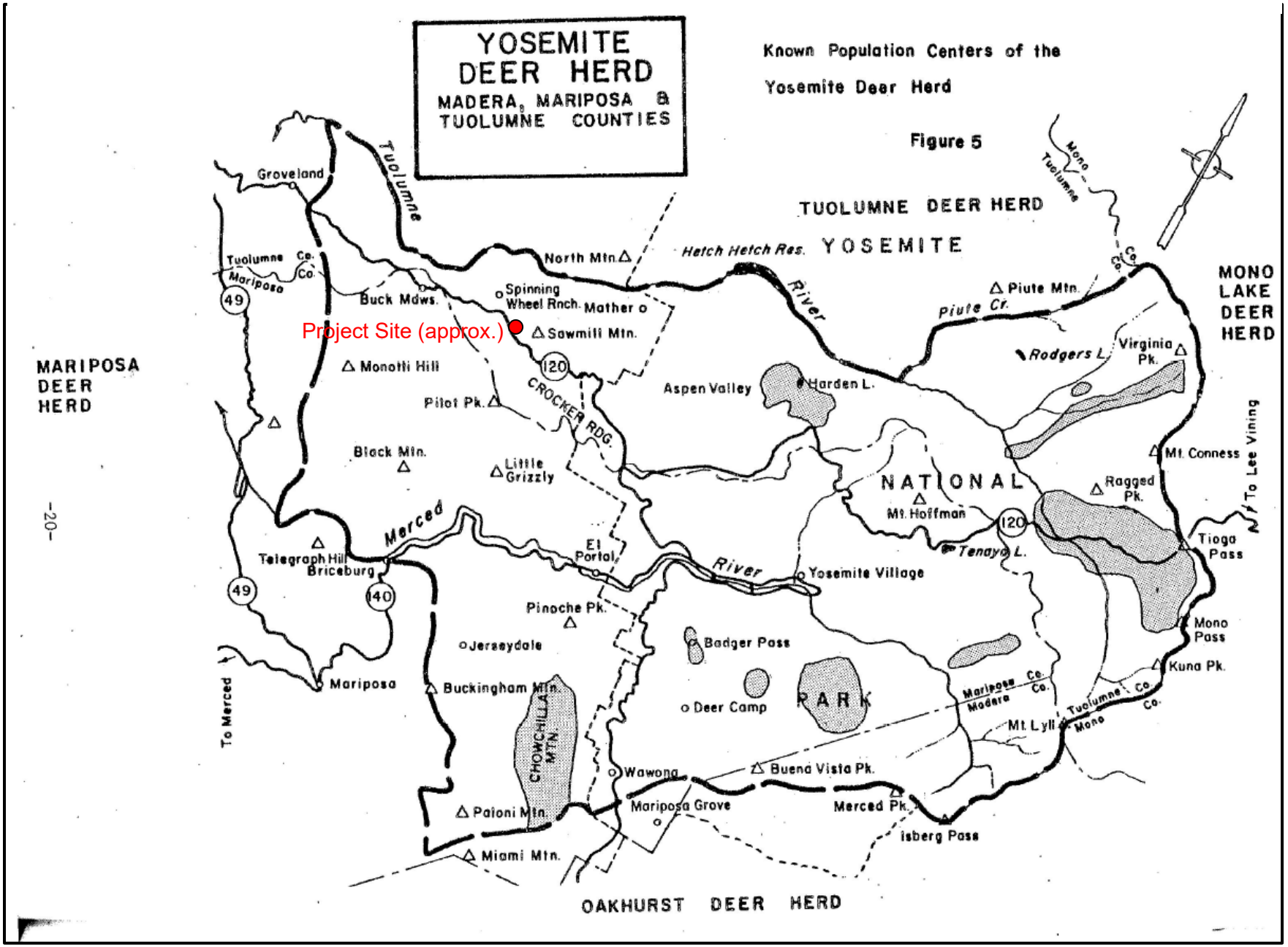


Figure 12: Migration Routes (Summer to Winter Range) and Holding Areas Yosemite Deer Herd (1981)

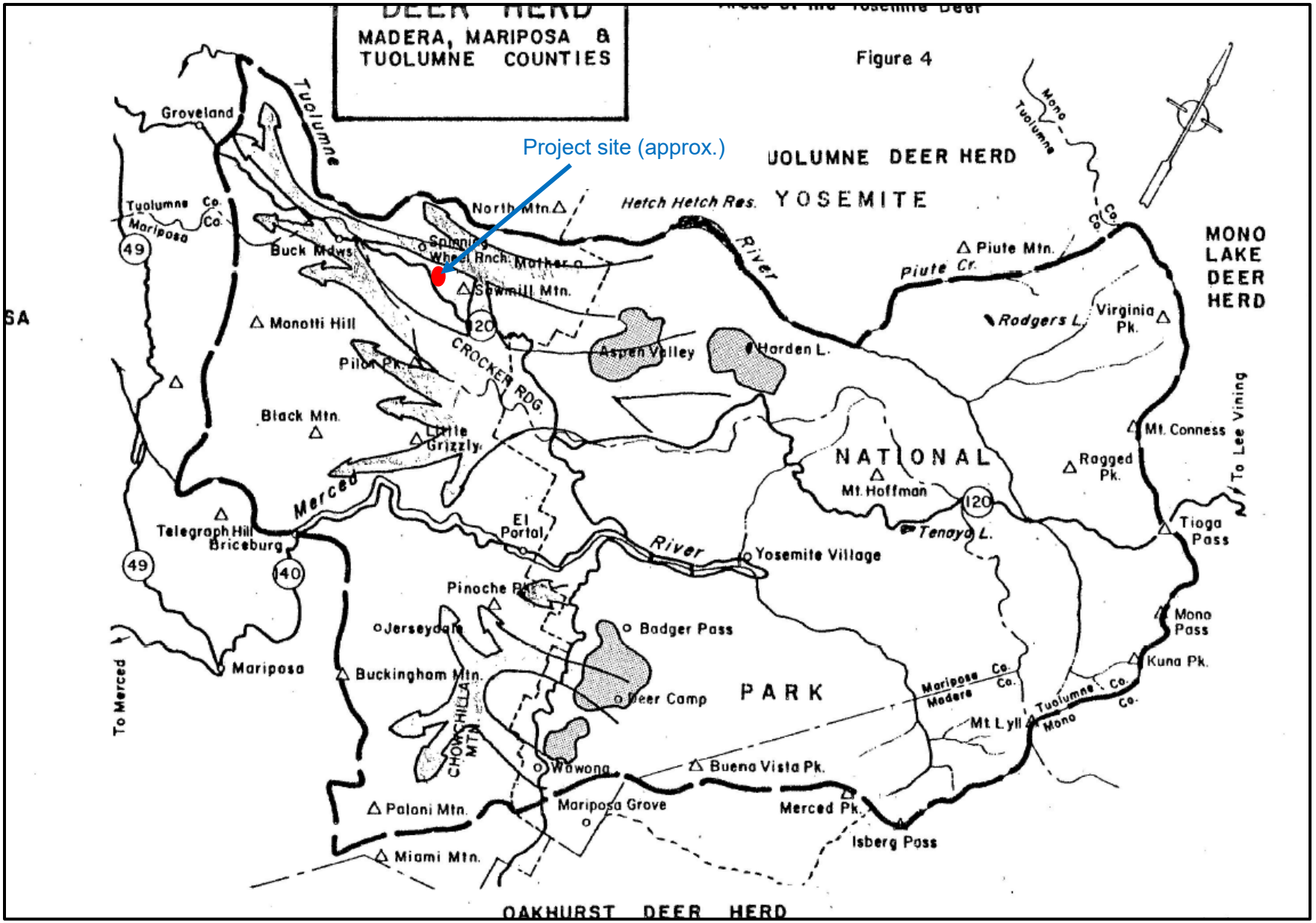


Figure 13: Mule Deer Predicted Habitat

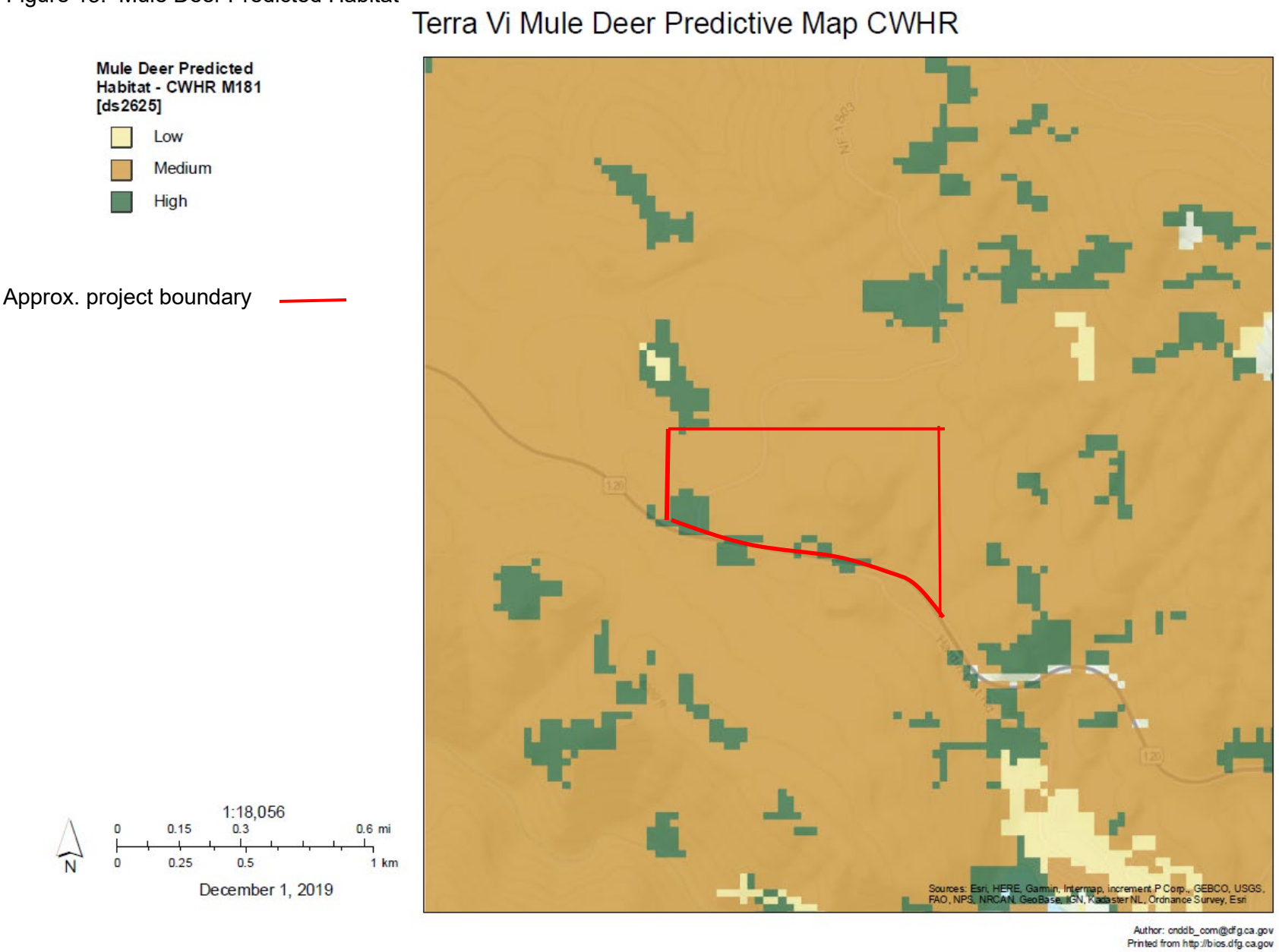
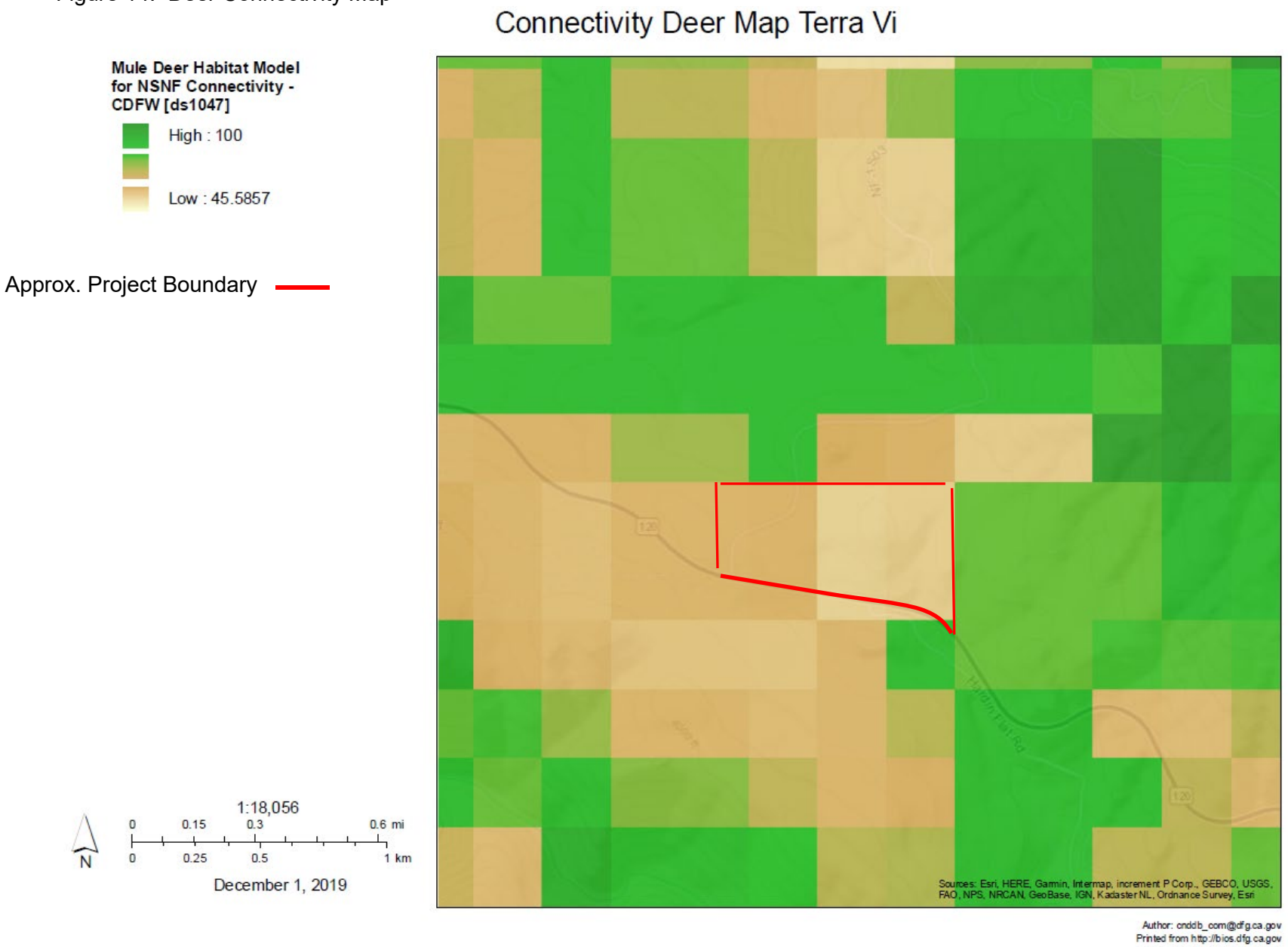


Figure 14: Deer Connectivity Map



5.7.1 **Wintering Habitat**

Elements of deer winter range suited to winter survival may be characterized by warm southern openings (including lava cap areas), stands of mature oak, stands of brush (particularly areas vegetated with different age classes and species of brush), stands of large conifers (to escape from storms and cold wind), and available water. In general, the more diverse the habitat composition, the better the winter range. The most critical survival period for wintering mule deer is approximately November 30 through April 30.

The California Department of Fish and Wildlife provides a model of Mule Deer Habitat suitability. available on BIOS using the California Wildlife Habitat Relationships (CWHR 2016) and statewide best-available vegetation (FVEG2015, FRAP 2015). Suitability is based on the mean expert opinion suitability value for each habitat type for breeding, foraging, and cover. Per the CDFW model, the site has moderate habitat suitability for mule deer (**Figure 13**). Based on the dates of vegetative layers used, the values were assigned post Rim Fire.

Post-Rim Fire, the Project site no longer contains stands of mature oaks or large conifers. The site also lacks available water. The current post-fire vegetative stage does include some brush, but of a uniform age class. Based on the desirable habitat components of deer winter range and the results of the CWHR model, the site has moderate value to the deer herd, but does not provide high value/critical winter habitat for mule deer.

The habitat value is further reduced to the south by SR 120 which presents a barrier to dispersal for the species. North of the project site, except for some scattered private inholdings developed with residences, there are minimal dispersal barriers.

However, post Rim-Fire, the removal of even moderate value winter habitat for mule deer may have an incremental indirect impact on the species given the combination of the impacts of the Rim Fire, Project-associated increases in traffic, the addition of people and pets and additional developments proposed in the area (See Cumulative Impacts Analysis). Numerous groups exist that are undertaking Rim Fire restoration activities, including deer habitat enhancement activities (e.g., Yosemite Stanislaus Solutions) while others are seeking funding to improve data on deer movements, holding areas, and ranges. Project support for these wildlife-focused activities could directly contribute to improving the management of mule deer and assist in off-setting impacts associated with the Project.

Project specific impacts are associated with the Project may be estimated at 43.4± acres that will no longer be left to regenerate naturally due to the proposed development (the Project acreage of 63.4± acres minus acreage within the existing Open Space Zoned area to be retained in its natural state and estimated at 21± acres). Plantings made as part of the Granite Planting for Rim Fire reforestation were estimated at approximately $2,000/acre[8]. It is assumed that reforestation efforts aim to achieve high value habitat rather than moderate value habitat. Therefore, to offset impacts of moderate value habitat, it is estimated that restoration (planting) costs would be approximately half ($1,000/acre) that cost plus a 10% inflator for planning and environmental for a total per acre cost of approximately $1,100. Alternatively, using such funding to update data on deer movements and land use patterns in the area could significantly improve deer herd management strategies.

Based on the preceding, the following is proposed to reduce Project impacts by supporting winter range habitat restoration in areas away from SR 120. In addition, mitigation is proposed to minimize mule deer disturbances that may be associated with increased visitors, pets and traffic to

[8] YSS General Membership Meeting for January 18, 2019 Meeting Minutes, page 2

the area:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential, through habitat modification, to adversely affect moderate value deer winter range.

POTENTIALLY SIGNIFICANT ADVERSE IMPACT:
The project has the potential to indirectly interfere with the movement of native resident mule deer traveling to and from winter range through the introduction of additional people, pets and traffic.

Avoidance and Minimization Measure BIO-9: Enhance Rim Fire Burned Deer Winter Range and/or Data
Prior to issuance of a certificate of occupancy, the Project proponents shall contribute $1,100/acre for 45.4± acres to a non-profit (e.g., Yosemite Stanislaus Solutions) to be used for activities associated with either enhancing deer winter range or providing updated research data to support herd management within the footprint of the Rim Fire.

Mitigation Monitoring BIO-9
The required mitigation measure will be implemented prior to issuance of a final certificate of occupancy.

Avoidance and Minimization Measure BIO-10: Keep Dogs Leashed
Dogs shall be kept on leash or otherwise prohibited from running free outdoors. Signs shall be posted along all Project trails stating that dogs shall be kept on leash.

Mitigation Monitoring BIO-10:
The Project website, booking site, and/or brochures shall advise visitors of this requirement. A Notice of Action shall be filed with the County Clerk on the Project Parcels including the project conditions specifying that this measure shall be continued throughout the life of the project.

Avoidance and Minimization Measure BIO-11: Stay on Trails/Education
Visitors shall stay on designated trails at the Project site when hiking within the Project boundaries to minimize wintering deer/human interactions. Signs shall be posted along all Project trails stating that visitors shall stay on trails and shall not approach deer (in particular between November 30 and April 30 when deer are expected to be migrating to and from their wintering grounds). In consultation with the Project biologist, the Project proponents shall prepare an interpretive trail sign/plaque or signs/plaques describing the life history of the Yosemite Deer Herd, the area's importance as wintering deer habitat and as a migratory corridor, and the necessity to avoid approaching non-resident deer during their winter migrations.

Mitigation Monitoring BIO-11:
The Project website, booking site, and/or brochures shall advise visitors of the requirement to avoid approaching non-resident deer during winter migrations.

Proper implementation of the preceding is expected to minimize or avoid impacts to the species to a level of less than significant.

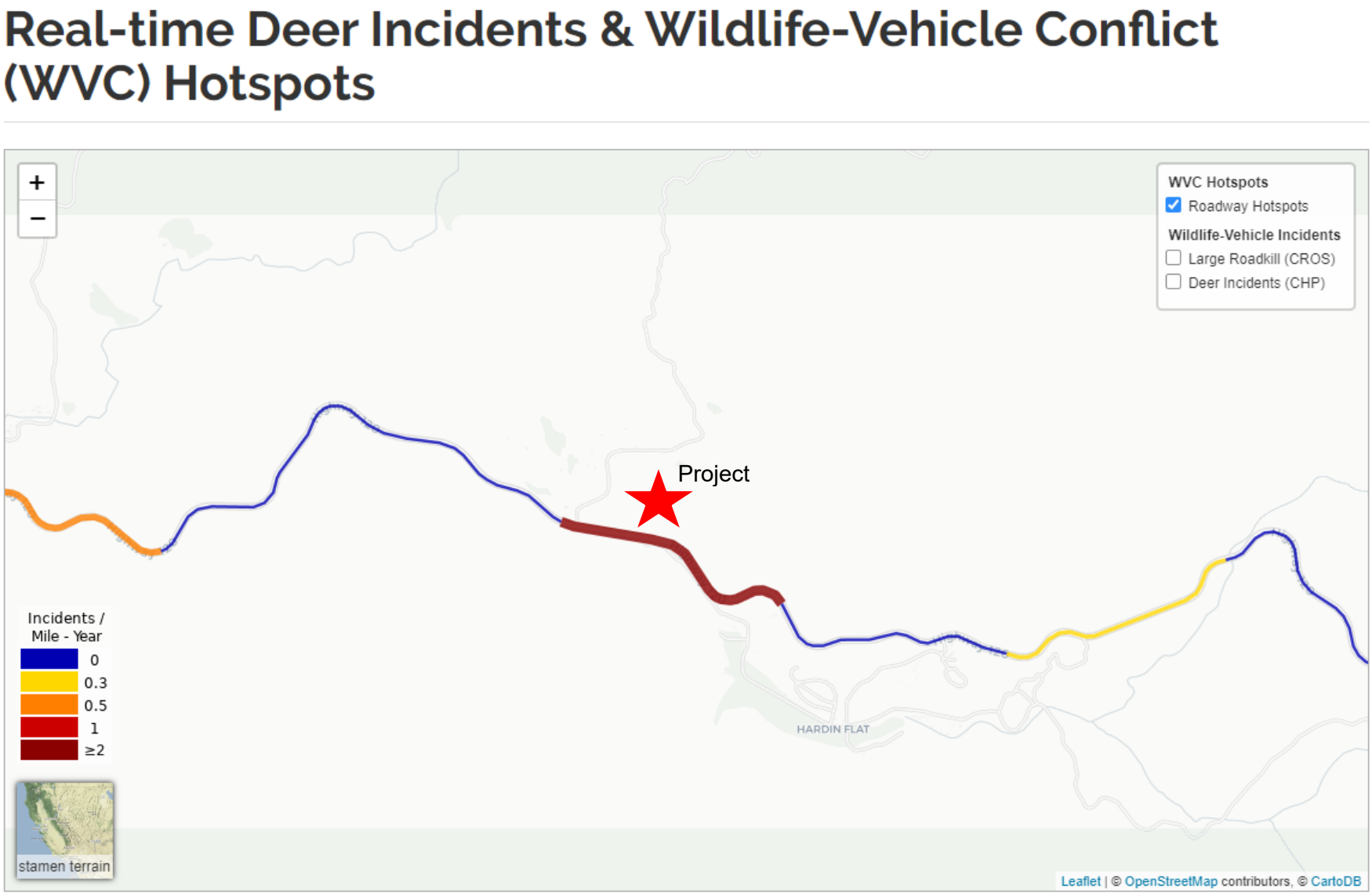
5.7.2 Mule Deer Habitat Connectivity

The California Department of Fish and Wildlife provides a model of Mule Deer Habitat suitability for connectivity. The 2014 model results are available on BIOS for use in the northern Sierra Nevada

foothills. The model evaluates vegetation, distance to water, and elevation to predict habitat suitability. The vegetation layer used was defined by 15 vegetation classes. The results of the model for connectivity suitability surrounding the Project site are shown in **Figure 14**. As illustrated, the project site has a low-to-moderate suitability as a deer movement corridor. High value connectivity corridors are located on National Forest and privately held lands north and east of the project site.

Based on the preceding, although the site is not located within a high value deer migration corridor, it may be used by deer passing from summer to winter range. As illustrated in the following figure from UC Davis Wildlife-Vehicle Conflict Hotspots (https://roadecology.ucdavis.edu/hotspots/map), the area is located along a stretch of highway with a high deer versus car collision rate. Increased traffic from the proposed project could increase car versus deer collusions—a potentially significant safety hazard for people as well as deer. This potential impact is addressed in the Health and Safety section of this study.

Figure 15: Deer Collisions, SR 120



Source: UC Davis, https://roadecology.ucdavis.edu/hotspots/map

Fencing associated with the Project could also trap, injure or impede deer movements, resulting in deer injuries or fatalities, a potentially significant adverse impact. To mitigate this impact, the following is proposed:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT:
The project has the potential to interfere with the movement of native resident mule deer traveling to and from winter range.

Avoidance and Minimization Measure BIO-12: Deer-Friendly Fencing
If fencing is associated with the project, prior to issuance of a final Certificate of Occupancy, the project contractor will implement the following: To prevent trapping, injuring, or impeding deer movement; barbed wire fencing is prohibited. Non barb-wired fencing immediately surrounding structures (e.g., storage facilities, swimming pools) where deer are less likely to travel is permitted. Additional fencing design shall be subject to review and approval by the Project biologist following one of the recommended designs found in a *Landowner's Guide to Wildlife Friendly Fences: How to Build a Fence with Wildlife in Mind*. 2nd edition, 2012 (or as may be updated) by the Montana Dpt. of Fish Wildlife and Parks. Alternative fencing designs shall be approved by CDFW prior to installation.

Mitigation Monitoring BIO-12:
The required mitigation measure will be implemented prior to issuance of a final certificate of occupancy. The measure is the responsibility of the construction contractor with approval of the Project biologist. A Notice of Action shall be filed with the County Clerk on the Project Parcels including the project conditions specifying that this measure shall be continued throughout the life of the project.

Avoidance and Minimization Measure BIO-10: Keep Dogs Leashed

Avoidance and Minimization Measure BIO-11: Stay on Trails/Education

Proper implementation of the preceding measures is expected to minimize the potential impacts to wintering deer to a level of less-than-significant.

5.8 Oak woodlands

As repeatedly noted, the mixed hardwood conifer habitat on site was largely destroyed by the Rim Fire. Few oaks remain, although new oaks are sprouting on site. Oaks present on site include primarily black oaks and live oaks.

Public Resources Code 21083.4 addresses the conversion of oak woodlands statewide. and is used as the applicable threshold of significance herein. Impacts to oak woodlands protected pursuant to PRC 21083.4 shall be considered potentially significant. PRC 21083.4 requires counties, as part of the CEQA process to determine whether a project within its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment and, if a county determines that there may be a significant effect to oak woodlands, to mitigate pursuant to the guidelines in that section. Tuolumne County currently does not have a formally adopted program for implementing PRC Section 21083.4; however, Tuolumne County General Plan (2018) *Implementation Program 16.B.j. Establish thresholds of significance under the California Environmental Quality Act (CEQA) for the conversion of oak woodlands in Tuolumne County* provides guidelines for implementation

Pursuant to PRC 21083.4 an "oak" is a native tree species in the genus *Quercus*, not designated as Group A or Group B commercial species pursuant to regulations adopted by the State Board of Forestry and Fire Protection pursuant to Section 4526, and that is 5 inches or more in diameter at breast height. For Tuolumne County, that includes all native species of Quercus occurring in the county, excepting California black oak (*Quercus kelloggii*)—a designated commercial species.

Therefore, oak woodlands composed of the following in pure or mixed stands are subject to PRC 21083.4: Canyon live oak (*Quercus chrysolepis*), live oak (*Quercus wislizeni*), scrub oak (*Quercus berberidifolia*), Oregon oak (*Quercus garryana*), blue oak (*Quercus douglasii*), Valley oak (*Quercus lobata*) and other native oaks. An oak woodland is a group of these trees with a canopy cover of at least 10% encompassing at least two acres.[19]

Because of destruction resulting from the Rim Fire, the original oak species make-up of the mixed hardwood conifer canopy is unknown. Based on sprouting oaks, the species were primarily black oak (exempt from PRC 21083.4), live oak (*Q. wislizeni)* and Canyon live oak (*Q. chrysolepis*). Today, scattered black oaks in excess of 5" dbh exist on site. A limited number of live and Canyon live oak in excess of 5" dbh remain; however, a majority of these are located within the existing Open Space Zoned area (i.e., will remain protected) and in the northwestern portion of the project site where no development is proposed. Therefore, remaining oak canopy does not meet the standards requiring mitigation pursuant to PRC 21083.4. Given the destruction of native oaks on the site due to the Rim Fire, it is recommended, but not required, that landscaping plans for the project incorporate native plants including native oaks. Because acorns are a food source for deer, native oaks should be planted along the northern parcel boundary rather than adjacent to SR 120 to avoid attracting deer to the highway.

Damage to individual native oaks being retained on site may occur as a result of storing construction materials, spoils, or heavy equipment within the driplines of individual oaks. To reduce these potential impacts to the long-term survival of remaining native oaks, the following measures are included:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT:
The Project has the potential to conflict with Public Resources Code 21083.4 related to oak tree protection.

Avoidance and Minimization Measure BIO-2: Environmental Awareness Training

Avoidance and Minimization Measure BIO-13: Native Oak Tree Protection
Throughout project construction, for native oak trees greater than 5" diameter at breast height (DBH), to be retained, to the maximum extent feasible:

- Limit ground-disturbing activities to outside the dripline of native oaks and preferably outside 1-1/2 times the dripline;
- No storage equipment, supplies, vehicles, debris, construction wastewater, paint, stucco, concrete or any other clean-up waste, and temporary or permanent structures shall be placed within the driplines;
- Avoid cutting oak roots;
- Use boring, rather than trenching, within driplines

- Avoid equipment damage to limbs, trunks, and roots of oaks trees
- Do not attach signs, ropes, cables or other items to trees

Mitigation Monitoring BIO-13:
The required mitigation measure will be implemented throughout project construction. The measure is the responsibility of the construction contractor.

Proper implementation of the preceding is expected to minimize or avoid impacts to oak woodlands to a level of less than significant.

5.9 Waters of the U.S. and State

Wetlands, where jurisdictional under the Clean Water Act, are a subset of waters of the U.S. Wetlands, as defined by the Corps for regulatory purposes, are identified using a three-parameter test that considers whether hydrophytic vegetation, hydric soils, and wetland hydrology are present (Corps 1987, 2010).

An ephemeral tributary has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral tributary beds are located above the water table year-round. Groundwater is not a source of water for the tributary. Runoff from rainfall is the primary source of water for tributary flow. An intermittent tributary has flowing water during certain times of the year, when groundwater provides water for tributary flow. During dry periods, intermittent tributaries may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. A perennial tributary has flowing water year-round during a typical year (66 FR 42099).

An aquatic resources evaluation was conducted for the Project and the findings of that investigation are hereby incorporated by reference as follows:

Sycamore Environmental Consultants, Inc. October 2019. *Aquatic Resource Delineation Report for the Terra Vi Lodge Project County of Tuolumne, CA*

The aquatic study area is identified in **Figure 16** and excludes established Open Space zoned areas (i.e., protection areas) already incorporated in the Project. Therefore, the potential perennial drainage located in the southeastern-most tip of the project is not included in the delineation.

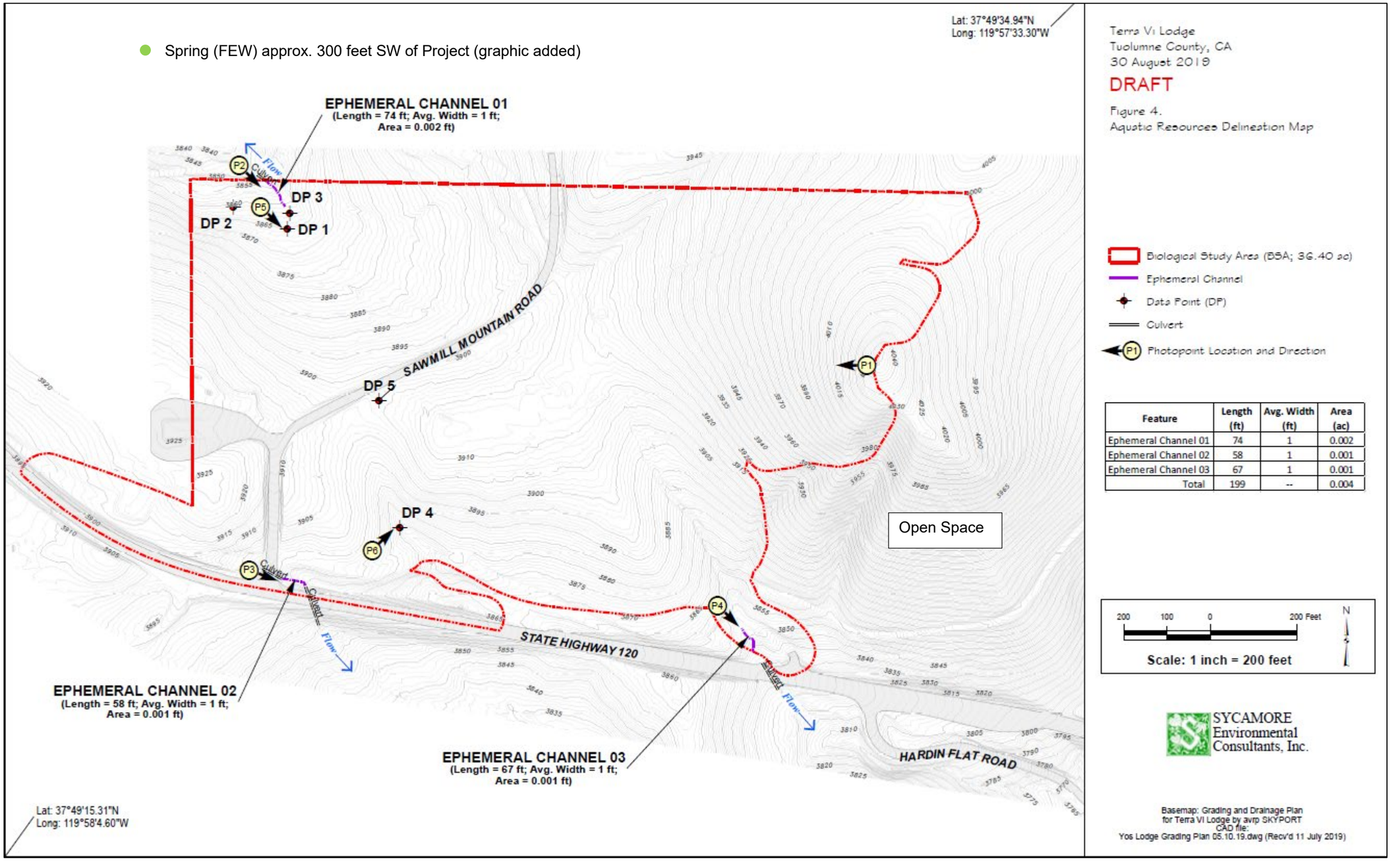
Prior to commencing the study, the National Wetlands Inventory (NWI) online map (USFWS 2019) was consulted and identified no aquatic features within the Project boundaries. The nearest NWI mapped aquatic feature is a Freshwater Emergent Wetland (FEW) located outside of the Project boundaries, approximately 300 feet to the northwest.

Based on site visits three ephemeral channels totaling .004 acre were identified within the Project boundaries. Federal regulations pertaining to ephemeral drainages are currently changing. For the purposes of this document, the three drainages will be considered potential Waters of the U.S. Appropriate mitigation shall comply with federal Clean Water Act regulations in effect at the time of site disturbance. No wetlands were identified on the Project site.

A detailed evaluation of waters pursuant to the current definition of waters of the U.S. and their

potential jurisdiction under Section 404 of the Clean Water Act (33 U.S.C. 1344) is found in the Aquatic Resources Delineation Report.

Figure 16: Potential Waters of the U.S.



Feature	Length (ft)	Avg. Width (ft)	Area (ac)
Ephemeral Channel 01	74	1	0.002
Ephemeral Channel 02	58	1	0.001
Ephemeral Channel 03	67	1	0.001
Total	199	--	0.004

Waters

Ephemeral Channel 1 (EC-01): EC-01 begins in the northwest corner of the Project site. Flow in the channel is ephemeral. The source of hydrology is precipitation runoff from surrounding uplands. During storms, water in EC-01 flows to the northwest through a culvert beneath a gravel road as it leaves the Project boundaries. The USGS Ascension Mountain quad map (photo-inspected 1992) shows a spring located outside the Project boundaries, 300± feet to the north (the same off-site aquatic feature shown in the NWI map). On the quad map, the spring flows into an unnamed perennial channel that flows northwest into the Middle Tuolumne River. Based on topography, EC-01 also would be expected to flow into the same off-site perennial channel 300± feet north of the Project boundaries then to the Middle Fork Tuolumne River.

Ephemeral Channel 2: EC-02 occurs immediately east of the intersection of Sawmill Mountain Road and State Highway 120 along the southern edge of the Project site. Flow in the channel is ephemeral. The source of hydrology is precipitation runoff from surrounding uplands and paved roads. Runoff concentrates as it enters the culvert beneath Sawmill Mountain Road, resulting in a defined channel at the culvert outlet. During storms, water travels 58± feet east before exiting the Project to the south through a culvert beneath State Highway 120. The USGS Ascension Mountain quad map shows a spring or seep located off-site, 500± feet south and downslope of the Project site. Water in EC-02 flows to the southeast near or through this seep then into the South Fork Tuolumne River via ponds and interconnected drainages at Hardin Flat.

Ephemeral Channel 3: EC-03 occurs near the southeast corner of the Project site. Flow in the channel is ephemeral. The source of hydrology is precipitation runoff from surrounding uplands and dirt roads. During storms, water flows 67± feet south before exiting the Project site to the south through a culvert beneath State Highway 120. Water then flows southeast along the south side of Hardin Flat Road into a series of ponds and interconnected drainages at Hardin Flat before entering the South Fork Tuolumne River.

In summary, there is 0.004 acre of potential waters of the U.S. in the Project boundaries with no wetlands. All waters of the U.S. originate as surface runoff and, therefore, do not rely on groundwater and would not be impacted by well-drilling on site.

Table 4: Summary of Waters

Feature	Hydrology	Cowardin Code[1]	Length (ft)	Avg. Width (ft)	Area[2] (ac)
WATERS					
Ephemeral Channel 01	Ephemeral	R6	74	1	0.002
Ephemeral Channel 02	Ephemeral	R6	58	1	0.001
Ephemeral Channel 03	Ephemeral	R6	67	1	0.001
		Total Waters:	**199**	**--**	**0.004**

[1] Codes are from the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin 1979).

[2] Dimensions and acreages were calculated with ESRI ArcMap functions and pertain only to portions of features in the BSA.

Pursuant to the 2015 Clean Water Rule (33 CFR 328.3), the aquatic features are:

Table 5. Regulatory Summary

Feature	33 CFR 328.3 Classification	Significant Nexus [1]	Waters of the U.S. (ac)	Non-Jurisdictional Waters (ac)
Ephemeral Channel 01	(a)(5) - Tributary	--	0.002	--
Ephemeral Channel 02		--	0.001	--
Ephemeral Channel 03		--	0.001	--
Total:		**--**	**0.004**	**0**

[1] A "significant nexus" analysis only applies to 33 CFR 328.3(a)(7) or (8) waters, none of which occur in the BSA.

Ephemeral Channel-1 is in the extreme northwestern corner of the site where no site alterations are planned. However, should site preparation work or staging occur in the vicinity, the potential exists to inadvertently alter the channel, a potentially significant adverse impact. The following mitigation measure is proposed to address this impact:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The Project has the potential to degrade waters of the U.S. indirectly by degrading water quality through construction activities

Avoidance and Minimization Measure BIO-14: Install Temporary Environmentally Sensitive Area (ESA) Fencing to Protect Sensitive Drainages During Construction Activities that Disturb Soils.
Prior to issuance of grading permits, the project contractor shall implement the following:

Install high-visibility/ESA fencing (e.g., orange construction/safety fencing) a minimum of 50 feet from the centerline of both sides of Ephemeral Channel-1 (Northwest corner of the project site) during any time when disturbing soils within 50 feet of the drainage channel (fencing is not required when soil disturbances are not occurring so long as erosion control from any prior soil disturbances within 50 feet has been installed). Fencing shall be of flexible material that allows deer passage. Install silt fencing, fiber rolls, or equivalent erosion and sediment control devices on the Project side of the ESA fencing to prevent disturbances and erosion into the adjacent drainage. Silt fencing or other materials, as required, will be installed consistent with the applicable water quality requirements specified in the Project's Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP). Fencing or other erosion control materials or devices shall be shown on the final construction documents.

No construction-related materials, equipment, trash or other related debris shall be allowed, stored or staged within the fenced area. Fencing shall remain in place until soil disturbances within 50 feet have been completed and erosion control measures have been installed in accordance with approved plans. Fallen fencing shall immediately be repaired as necessary to remain visible during all construction activities.

Fenced areas will be avoided throughout Project construction (i.e., active soil disturbing activities) and shall be monitored by the project manager throughout construction.

Mitigation Monitoring BIO-14:
The required mitigation measure will be incorporated into the project bid package and contract. The measure is the responsibility of the construction contractor.

Proper implementation of the preceding is expected to minimize or avoid impacts to a level of less than significant.

Improvements to the intersection of SR 120 and Sawmill Mountain Road could require enlargement of the encroachment and require fill of Ephemeral Channel 2, a potentially significant adverse impact. The following mitigation measure is proposed:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The Project has the potential to fill waters of the U.S. totaling 0.001 acre

Avoidance and Minimization Measure BIO-15: Comply with Section 404 Clean Water Act
If Ephemeral Channel-2 is within the Caltrans right-of-way, the applicant shall secure an encroachment permit from Caltrans and comply with all conditions of the Caltrans encroachment permit including the following as it applies to Ephemeral Channel-2. Prior to issuance of grading permits, comply with Section 404 and Section 401of the Clean Water Act and comply with all current regulations(i.e., at the time of disturbance) pertaining to fill of Ephemeral Channel-2 (0.001 acre).

If regulations in place at the time of site disturbance require permits from the USACE for filling an ephemeral drainage: the acreage, location, and method(s) for compensation for fill will be determined during the permitting process in accordance with USACE standards. The Project will adhere to a "no net loss" standard for waters of the U.S. and waters of the State. Suitable habitat will be restored, enhanced, and/or replaced at an acreage and location and by methods approved by the USACE and Central Valley Regional Water Quality Control Board, as jurisdictionally appropriate. The replacement of waters will be equivalent to the nature of the habitat lost and will be provided at a suitable ratio to ensure that, at a minimum, there is no net loss of habitat acreage or value. The replacement habitat will be set aside in perpetuity for habitat use.

Compensation may also include purchasing credits from a Corps and/or state or federally approved mitigation bank at a ratio prescribed in the applicable Section 404 Permit as necessary to achieve no net loss of waters of the U.S. For waters of the state, compensation may be through the National Fish and Wildlife Foundation Sacramento District California In-Lieu Fee Program.

Alternatively, if final Project plans allow for full avoidance and no fill of Ephemeral Channel 2 pursuant to the determination of the Project's wetlands biologist; **Mitigation Measures BIO-15** and **BIO-1** may be substituted to ensure avoidance.

Mitigation Monitoring BIO-15:
The required mitigation measure shall occur prior to issuance of grading permits. All permit provisions shall be implemented and maintained in accordance with the applicable permits. The measure is the responsibility of the construction contractor.

Proper implementation of the preceding is expected to minimize or avoid impacts to a level of less than significant.

For all drainages and on-site open space, the introduction of machinery and construction materials to the site has the potential to introduce non-native invasive species. Construction has the potential to generate silt-laden runoff that could enter off-site drainages and open space indirectly impacting water quality—a potentially significant adverse impact. The following measure is proposed to minimize that impact:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The Project has the potential to adversely impact waters of the U.S. indirectly by degrading water quality through construction activities

Avoidance and Minimization Measure BIO-16: Best Management Practices (BMPs) to Protect Water Quality (Including NOI/NPDES/SWPPP)

- The Contractor shall prepare an Erosion Control Plan for implementation for any construction to take place between October 15 and May 15 of any year. In the absence of such an approved plan, all construction shall cease on or before October 15, except that necessary to implement erosion control measures. If necessary, the plan shall be submitted to the County Public Works Department for review and approval.

- Submit to the State Water Resources Control Board Storm Water Permitting Unit, a Notice of Intent (NOI) to obtain coverage under the General Construction Activity Storm Water Permit - California's National Pollution Discharge Elimination System (NPDES) general permit for construction related storm water discharges for the disturbance of one acre or more. Disturbances of less than one acre may also require an NOI for coverage under the NPDES General Permit for construction-related storm water discharge and the State Water Resources Control Board Permitting Unit shall be contacted for determination of permit requirements. Commercial and Industrial developments may require an NOI even if less than one acre is to be disturbed. Obtain coverage or an exemption from these requirements. [Federal Water Pollution Control Act, Section 401, California Clean Water Act]. The permit may include preparation of a Stormwater Pollution Prevention Plan (SWPPP).

Mitigation Monitoring BIO-17:
The required mitigation measure will be incorporated into the project bid package and contract. Erosion control plan to be completed prior to October 15th. NOI/NPDES to be secured prior to ground disturbance. Implemented and maintained throughout project construction. The measure is the responsibility of the construction contractor.

Avoidance and Minimization Measure BIO-17: Minimize the Spread of Invasive Plant Species
Throughout project construction:

- All hay, straw, hay bales, straw bales, seed, mulch or other material used for erosion control on the project site shall be free of noxious weed[9] seeds and propagules (Food and Agriculture Code Sections 6305, 6341 and 6461).

[9] Noxious weeds are as defined in Title 3, Division 4, Chapter 6, Section 4500 of the California Code of Regulations and the California Quarantine Policy – Weeds (Food and Agriculture Code, Sections 6305, 6341, and 6461).

- All equipment brought to the project site shall be thoroughly cleaned of all dirt and vegetation prior to entering the site to prevent importing noxious weeds and shall be cleaned of all dirt and vegetation prior to exiting the site to prevent exporting noxious weeds. (Food and Agriculture Code Section 5401).

All material brought to the site, including rock, gravel, road base, sand, and topsoil, shall be free of noxious weeds[10] and propagules. (Food and Agriculture Code Sections 6305, 6341 and 6461).

Mitigation Monitoring BIO-17:
The required mitigation measure will be implemented throughout Project construction. The measure is the responsibility of the construction contractor.

Proper implementation of the preceding is expected to minimize or avoid impacts to open space, on-site drainages, off-site drainages and water quality to a level of less-than-significant.

5.10 Indirect Impacts

5.10.1 **Project lighting**

Lighting introduced by the proposed Project could alter the activities of nocturnal species that rely on darkness. Project lighting will be designed to minimize light spillage following Dark-Sky influenced design (i.e., aimed downward, fully shielded) and following the California Title 24 Building Energy Efficiency Standards (i.e., high efficiency LED lighting).

As noted previously and due, in part, to the Rim Fire, only marginal habitat remains for many of the nocturnal species that might use the site around the project edges. Therefore, nocturnal species are more likely to limit their movements to the extreme eastern and western portions of the Project site where vegetative cover exists, human activities are limited, and minimal or no lighting is proposed.

Owls and birds are more likely to avoid establish nests near Project structures due to human habitation rather than the presence of light at night. Similarly, many nocturnal species are more unlikely to forego nesting, denning, or roosting in proximity to SR 120 due to noise and a lack of appropriate habitat rather than lighting.

The most likely species to be affected by the addition of Project lighting are bats. Insects are attracted to ultraviolet wavelengths in lights. Insects attract bats. However, recent studies indicate that some insects attracted to conventional lighting are not attracted to LED lighting which do not emit UV light. Similarly, some bats are not attracted to LED lighting because their favored food source is not attracted to the lighting. Conversely, some bats thought to be light sensitive *are* attracted to LED lighting and benefit[11]. In short, the addition of lighting in association with the Project in this particular case and based on the types of species expected to inhabit the site, lighting is not expected to create a significant adverse impact on special status or common species in and around the project site. It could, however, benefit some bat species.

5.10.2 **Food and Trash Enclosures**

Unlike the addition of lighting, the presence of food and trash associated with the proposed development may attract nocturnal animals and result in human/animal interactions that could harm

10 Ibid.

11 Lewanzik (2016)

either or both and result in the destruction of nuisance animals. This is a potentially significant adverse impact. The following mitigation is proposed to address this potential impact:

POTENTIALLY SIGNIFICANT ADVERSE IMPACT: The project has the potential to interfere substantially with the movement of native resident wildlife species

Avoidance and Minimization Measure BIO-18: Permanent Food and Trash Enclosures
Trash shall be stored in an animal-resistant enclosure, or bear shed throughout the life of the Project. Trash enclosure design shall be approved by the Project biologist prior to installation. The Project Proponents are encouraged to visit **http://www.waste101.com/bear-aware/** or contact the Placer County Department of Health and Human Services, Tahoe Truckee Sierra Disposal or similar entity for appropriate designs.

Mitigation Monitoring BIO-18:
The required mitigation measure will be implemented prior to issuance of a final occupancy permit. The measure is the responsibility of the construction contractor. A Notice of Action shall be filed with the County Clerk on the Project Parcels including the project conditions specifying that this measure shall be continued throughout the life of the project.

Proper implementation of the preceding is expected to minimize impacts to a level of less-than-significant.

5.10.3 Emergency Helipad

The proposed emergency helipad would allow for the introduction of helicopters to the project site, which would be new sources of noise and lighting. As the helipad would be used only for emergency response, and its use would therefore be sporadic and infrequent, this is not considered to be a significant impact to wildlife. Per the project description, this emergency use restriction will be enforced through a notice of action filed for the project.

5.11 Consistency with Other Plans

No Impact.
It is noted that Tuolumne County does not have an adopted Habitat Conservation or Natural Community Conservation Plan. Therefore, the proposed project is not inconsistent with these plans and no impact is anticipated.

Tuolumne County has, in the past, used the Tuolumne County Wildlife Handbook (TCWH, 1987) to guide mitigation for biological resources. The newly adopted Tuolumne county General Plan (December 2018) includes the following applicable Polices and Implementation Programs related to the TCWH:

Policy 16.B.6*: Allow property owners to utilize the Tuolumne County Wildlife Handbook, which may be updated periodically, to assist in designing mitigation for impacts to biological resources resulting from new development.*

Implementation Program 16.B.k *– Periodically update the Tuolumne County Wildlife Handbook in accordance with changes in State and Federal laws and environmental review standards, recognizing that state and federal laws may require mitigation beyond what is adopted in the Wildlife Handbook.*

Policy 16.B.5*: Evaluate and mitigate impacts to biological resources in accordance with the requirements of State and Federal law.*

Implementation Program 16.B.g *- Maintain the Tuolumne County Wildlife Maps to assist in evaluating the effects of land development projects.*

Open Space zoning was established pursuant to the guidelines provided in the Tuolumne County Wildlife Handbook previously applied to the project as illustrated in **Figure 3**. It offsets potentially significant cumulative impacts to common habitat (i.e., montane hardwood conifer) as discussed in **Section 5.12**.

Other relevant Tuolumne County general plan goals, policies and programs addressing biological resources pertinent to the subject project are discussed as follows:

Implementation Program 16.B.i - Require development that is subject to a discretionary entitlement from the County and to environmental review under the California Environmental Quality Act (CEQA) to evaluate potential impacts to biological resources and mitigate significant impacts for the following or as otherwise required by State or Federal law*: • species listed or proposed for listing as threatened, rare, or endangered under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA); • species considered as candidates for listing under the ESA or CESA; • wildlife species designated by CDFW as Species of Special Concern; • animals fully protected under the California Fish and Game Code; and • plants considered by CDFW to be "rare, threatened, or endangered in California" (California Rare Plant Ranks [CRPR] of 1A, presumed extinct in California and not known to occur elsewhere; 1B, considered rare or endangered in California and elsewhere; 2A, presumed extinct in California, but more common elsewhere and 2B, considered rare or endangered in California but more common elsewhere). Section D – The Tuolumne County Natural Environment Chapter 16 –Natural Resources Element 16-6 • Sensitive natural communities, including wetlands under Federal or State jurisdiction, other aquatic resources, riparian habitats, and valley oak (Quercus lobata) woodland. • Important wildlife movement corridors and breeding sites. • Oak woodlands, as provided in Implementation Program 16.B.j.*

Implementation Program 16.B.j. Establish thresholds of significance under the California Environmental Quality Act (CEQA) for the conversion of oak woodlands in Tuolumne County. *The following provides the County's recommended standard guidelines for determining whether a project may result in a significant impact to oak woodlands, for purposes of review under the California Environmental Quality Act and Public Resources Code Section 21083.4. • An oak woodland is defined in the General Plan as a woodland stand with 10% or greater native oak canopy cover. Tree removal from parcels with less than 10% native oak canopy cover is not considered a significant conversion or loss of oak woodland. • For parcels with 10% or greater native oak canopy cover (i.e., parcels with oak woodland, as defined in the General Plan), a significant impact to oak woodland includes tree removal that reduces the total oak canopy cover onsite to below 10% (i.e., conversion to non-oak woodland), or a loss of 10% or greater of oak canopy woodland stand on the parcel, if the conversion or loss is determined by trained professional (ADDED FROM EIR) to be substantial in consideration of, but not limited to, the following: o Total acres and amount of woodland stand removed or disturbed, and amount retained onsite. o Pattern of development or habitat loss onsite (e.g., clustered vs. dispersed). o Existing habitat functions and quality (e.g., intact/high-quality, moderately degraded, or severely degraded). o Stand age- or size-class structure. o Rarity. o Landscape*

position in relation to larger wildlife corridors, stream systems, or other important natural features. o Loss of valley oak (Quercus lobata) woodland, which is a sensitive habitat. o Proximity to other oak woodland patches and connectivity to large blocks of intact habitat. o Contribution to a cumulative loss, degradation, or fragmentation of oak woodland across the County.

As discussed in **Section 5.8**, California black oaks scattered on site are a designated commercial species in Tuolumne County and are not subject to PRC 21083.4. Live oaks sprouting on site fail to meet the threshold size of 5" diameter at breast height. Further, due largely to the Rim Fire, remaining oaks on site fail to meet the definition of an oak woodland due to destruction of the oak canopy.[19] Therefore, the site's remaining oak canopy outside of existing designated open space (to be preserved) does not meet the standards requiring mitigation pursuant to PRC 21083.4.

Open Space Zoning

Tuolumne County has, in the past, used the 1987 Tuolumne County Wildlife Handbook to guide mitigation for biological resources.[12] The Wildlife Handbook indicates that open space zoning shall be used on sites that are of value to wildlife. Typically, the Wildlife Handbook recommends that up to 20 percent of a site be preserved as open space; the exact amount varies based on habitat quality and mitigation measures. Approximately 21 acres of the eastern project site parcel (APN 068-120-061) are within the O (Open Space) Zoning District; the area within the Open Space Zoning District represents approximately one third of the total project site.

The proposed project would not require a rezoning or place any new development within the area of the site within the Open Space Zoning District. The only project activities that would occur within the Open Space Zone are vegetation management for the purpose of wildfire hazard reduction and maintenance of the existing trail that runs through this area. In addition, a small circle of open space is being added to surround a cultural resource near the highest point on the site. There are no biological restrictions on the use of that Open-Space zoned area. Although the proposed project does not include development within the Open Space Zoning District, mitigation is recommended to ensure that project construction does not adversely affect the land within the Open Space Zoning District. Therefore, this impact is potentially significant. The following measure is proposed to minimize and avoid this impact:

Avoidance and Minimization Measure BIO-19: Install ESA Fencing along Portions of Existing Open Space Zoning District Boundaries

Install ESA Fencing along existing Open Space Zoning District boundaries where active construction will occur within 50 feet of the boundaries. The project contractor shall install ESA fencing along Existing Open Space Zoning District boundaries where active construction will occur within 50 feet of existing Open Space. Fencing shall be shown on final construction documents.

Mitigation Monitoring BIO-19:

The required mitigation measure will be incorporated into the project bid package and contract and implemented prior to issuance of grading permits. The measure will be implemented and maintained throughout project construction. The measure is the responsibility of the construction contractor.

Proper implementation of the proposed mitigation measure is expected to reduce the impact to a level of less-than-significant.

[12] Tuolumne County Wildlife Project, 1987, Wildlife Handbook, https://www.tuolumnecounty.ca.gov/DocumentCenter/View/206/Wildlife-Handbook?bidId=, accessed February 28, 2020.

Wildfire

As mentioned above, vegetation management for fire fuel reduction in the Open Space Zoning District is permitted. A review of **Mitigation Measure WF-2** related to fuel modification was reviewed as part of this biological resources analysis and found to be consistent with biological resources present in the Open Space Zoning District.

5.12 Cumulative Impacts

Other projects in the vicinity with potential to impact biological resources are shown in **Figure 17**. These projects are detailed in the Draft EIR and analyzed for potentially cumulative adverse impacts on biological resources as follows:

Figure 17: Proposed Development (New, Rehabilitation & Expansion) in the Vicinity

Figure 18: Mountain Sage and Terra Vi - Approximately 15 Aerial Miles Apart

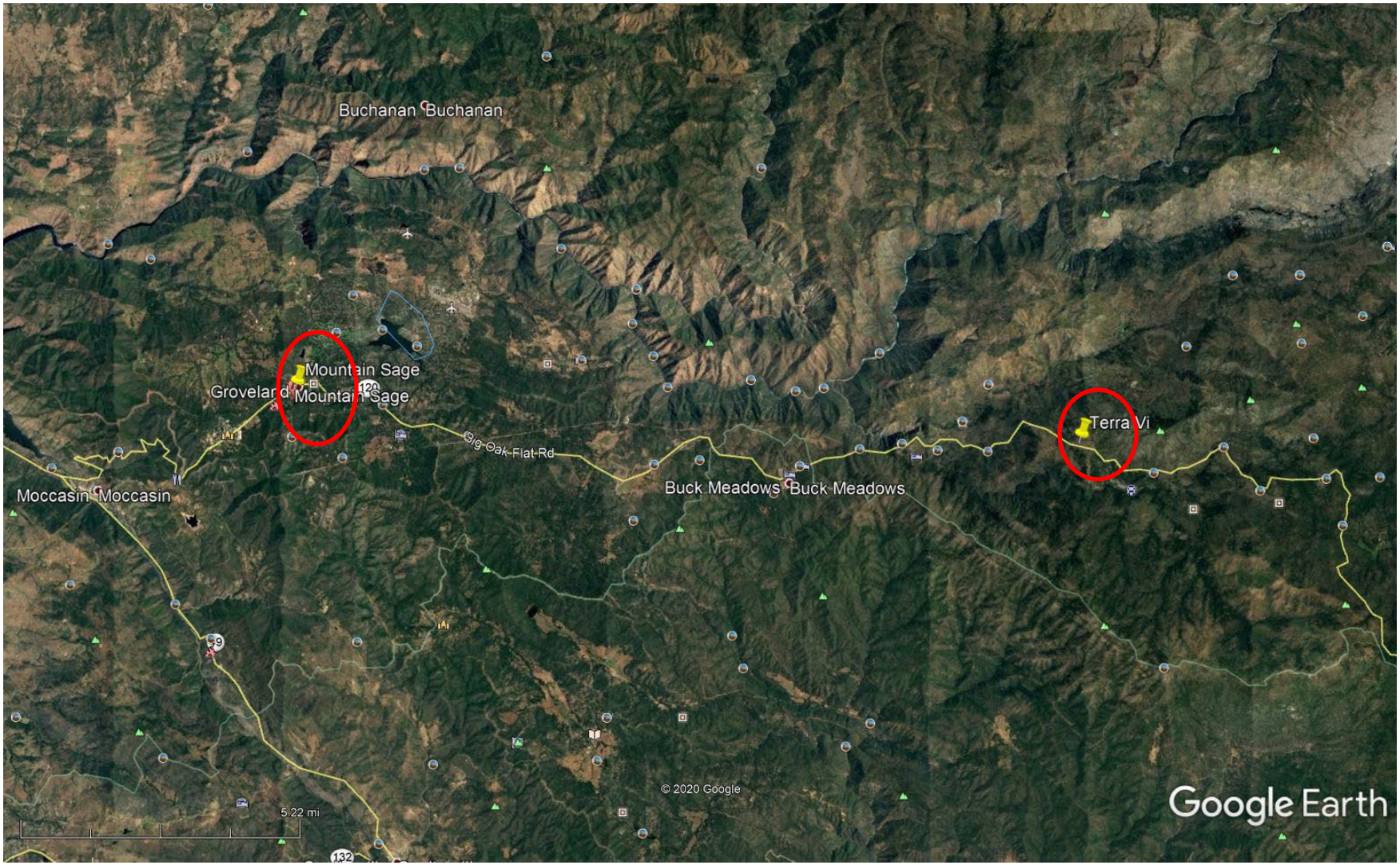
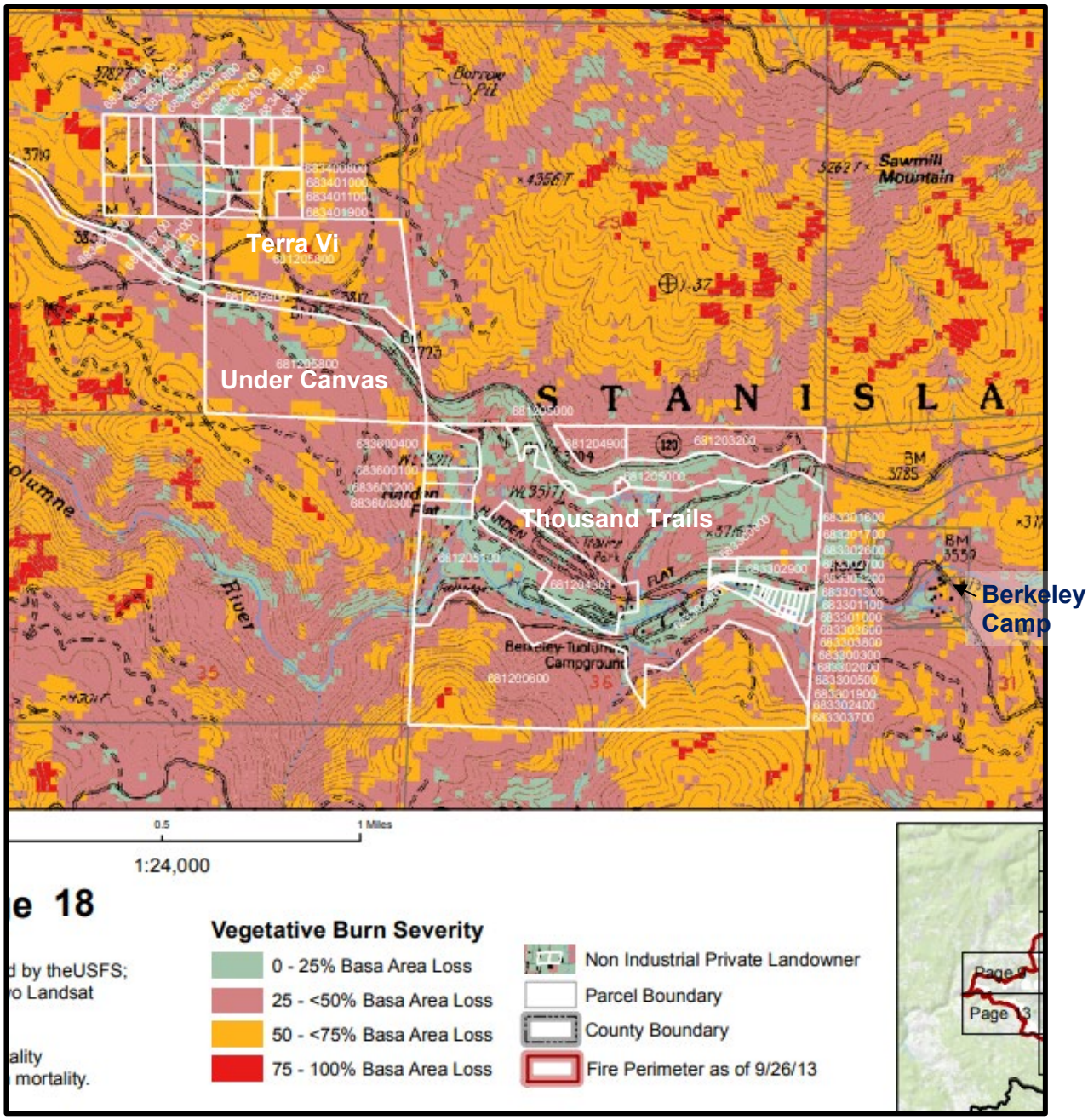


Figure 19: Burn Severity of Nearby Developments



Source: https://ucanr.edu/sites/forestry/files/176459.pdf Vegetative Burn Severity - Rim Fire Reference for Private Non-industrial Landowners; CalFire Forest Practice GIS October 13, 2013

Table 6: Biological Impacts Comparison of Similar and Nearby Projects

Project	Description Location	Size (Estimates)	Habitat Types (excluding wetlands)	Rim Fire Impacts	Species Impacts Similar to Terra Vi	Wetland Impacts	Wintering Mule Deer Habitat	Comparison to Terra Vi Other
Terra Vi	Section 1 this report.	63.4 acres 43.4 (new conversion)	Mixed hardwood conifer (Ponderosa pine, black and live oaks)	Approximately 2/3rds burned 50-75% severity; burned trees salvaged and removed post-fire 90% site vegetation altered	Tables 2 and 3, this report	Ephemeral drainage (0.001 acre) subject to fill	**Deer habitat:** Moderate **Connectivity:** Medium Introduces more people, pets, and traffic	N/A
Yosemite Under Canvas Glamping	99 tent structures with associated amenities immediately south of the proposed Project site.	80 acres (estimate 45 acres disturbance)	Mostly ponderosa pine/incense cedar	Approximately 30% site burned—with some portions burned less severely than Terra Vi. Retains more tree cover and habitat for some species that are less likely to occupy the Terra Vi site	California spotted owl Bat species Special status birds Deer winter range	Ephemeral drainage (0.62 acre) – unknown alteration anticipated	**Deer habitat**: Moderate **Connectivity**: Medium with high value in northeast corner Introduces people, pets, and traffic	Significantly fewer structures proposed
Mountain Sage Expansion; Groveland	Expansion of existing site use to include up to 14 events annually (weddings, concerts) APN 007-010-022	21 acres of the site – already largely urbanized	Primarily ponderosa pine (19 acres) and 2 acres urbanized	Not impacted	May have some bat species in common Spotted owl – more than 3 miles to nearest record Outside deer winter range CNDDB overlap species: *Clarkia biloba australis*, foothill yellow-legged frog – neither determined present on the Mountain Sage site nor at Terra Vi.	Garotte Creek is not expected to be impacted	The site is outside wintering deer habitat range	Biological species does not closely compare to Terra Vi due largely to lower elevation range, extreme die off due to bark beetle kills for existing pines; and some areas with very dense vegetation growth inhibiting some species movements.
Berkeley Tuolumne Camp Restoration Project/a/	Established 1920s. 14 acres existing. Proposes expansion to 30 acres with addition of 8± acres additional parking, camp sites, archery range/trail and 8 ± acres leach field or open space	14 (existing) 16 (new) 30 acres total	Mostly ponderosa pine/incense cedar	Heart of camp and most structures, except for outlying buildings and vegetation destroyed by fire	California spotted owl (nesting nearby) Bat species Special status birds Deer winter range	Could be avoided with minimal to no impact through design, or impact short stretch of river	**Deer habitat:** High **Connectivity**: High Introduces more people, pets, and traffic	Wildlife species likely adapted to the presence of 14 acres of existing camp after 100± years of co-existence pre-fire
SUMMARY/CONCLUSIONS		Estimate: 104.4± acres of new development footprint for all projects (direct impact)	Primarily ponderosa pine/incense cedar with some oak (hardwoods)	All moderately to severely burned by Rim Fire with both vegetation and buildings destroyed. Under Canvas and Thousand Trails appear to retain some patches of moderate tree cover with Terra Vi and Berkeley retaining minimal vegetative cover.	California spotted owl Bat species Special status birds Deer winter range	Relatively minor impacts – most avoidable through design	Generally moderate connectivity and habitat at Terra Vi and Under Canvas Higher connectivity at Berkeley and Thousand Tails with some higher habitat at both – especially Berkeley	Generally, introduces new development at Terra Vi and Under Canvas versus expansion of existing at Berkeley and Thousand Trails.

/a/ See 2018 Final Mitigated Negative Declaration prepared for the project.

In addition to the preceding projects, the Thousand Trails RV Yosemite Project[13] potential expansion was considered but rejected for consideration. The site may contain suitable habitat based on CNDDB records; however, an application has not been received for this project and, therefore, potential site-specific impacts to species cannot be determined without undue levels of speculation.

b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Based on the preceding table, the projects, together, could cumulatively result in:

- Approximately 104.4 acres of direct habitat conversion from montane hardwood conifer and montane conifer habitats—some already destroyed by the Rim Fire (excepting Mountain Sage),
- Impacts to nesting birds
- Impacts to spotted owl habitat (direct impacts to potential nesting habitat may occur at Berkeley Tuolumne Camp and Thousand Trails based on CNDDB records)
- Impacts to roosting habitat for special status bat species
- Potential cumulative impacts to winter deer corridors and winter habitat (excepting Mountain Sage)

<u>General habitat/Montane hardwood conifer/Montane conifer</u>
The Rim Fire destroyed approximately 50% of montane hardwood conifer habitat and montane conifer habitat within the footprint of the existing and proposed developments. Cumulatively, this destruction plus proposed new development is expected to convert approximately 125 acres of montane hardwood conifer and montane conifer habitats. The Tuolumne County Wildlife Handbook (1987) considers both montane hardwood conifer and montane conifer habitats to be third priority (common habitats) and recommends that 20% of these habitats be preserved as Open Space zoned area to avoid potentially cumulative adverse impacts to these common habitats. Terra Vi already has established Open Space zoning on more than 20% of the proposed project development area and, therefore, is not expected to contribute to a potentially significant cumulative adverse impact to montane hardwood conifer habitat in the region.

Special Status Species

<u>Birds, including Spotted owl</u>
Impacts to protected bird species will be avoided by each project through mitigation measures requiring pre-construction surveys for birds. Therefore, proper implementation of individual project mitigation measures is expected to reduce the potential cumulative impact to birds to a level of less-than-significant.

[13] The site is 400± acres with 90± acres developed. Habitat is primarily ponderosa pine/incense cedar and urbanized through much of the developed campsite. CNDDB records for California spotted owl (nesting w/in ½ mile), bat species, special status birds and deer winter range. Deer habitat is evaluated at low, medium, and high at various locations throughout the site, with deer habitat connectivity rated as high

Bats

Impacts to special status bat species will be avoided by each project through mitigation measures requiring pre-construction surveys for bats. Therefore, proper implementation of individual project mitigation measures is expected to reduce the potential cumulative impact to bats to a level of less-than-significant.

Deer

The Rim Fire destruction of winter habitat for mule deer, together with the proposed 63.4± acre Terra Vi project and the proposed 80-acre Yosemite Under Canvas Project could create a cumulatively significant adverse impact to mule deer wintering habitat and migration corridors estimated at approximately 104.4 acres of new development footprint – individually the projects may be less than significant, but together, have the potential to result in a significant adverse direct impact on habitat and indirect impact on deer corridors due to the introduction of people and pets (See previous Table).

Potentially Significant Adverse Impact: Cumulative Impact on mule deer winter habitat and connectivity.

Mitigation for the Terra Vi Project addressing the Terra Vi project's incremental contribution to the potential cumulatively significant impact is:

Avoidance and Minimization Measure BIO-9: Enhance Rim Fire Burned Deer Winter Range

Avoidance and Minimization Measure BIO-10: Keep Dogs Leashed

Avoidance and Minimization Measure BIO-12: Deer-Friendly Fencing

Proper implementation of these measures is expected to reduce the Project's incremental contribution to a potentially significant cumulative impact to a level of less-than-significant.

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7 Appendices

7.1 Appendix A: Species Identified During Biological Surveys

Attachment A
Terra Vi Species List

Species	Family	Comments
PLANTS		
Trees		
Incense cedar *Calocedrus decurrens*	Cupressaceae	
White fir *Abies concolor*	Pinaceae	
Sugar pine *Pinus lambertiana*	Pinaceae	
Ponderosa pine *Pinus ponderosa*	Pinaceae	
Douglas fir *Pseudotsuga menziesii*	Pinaceae	
Black oak *Quercus kelloggii*	Fagaceae	
Live oak *Quercus wislizenii*	Fagaceae	
Willow *Salix* sp.	Salicaceae	
Shrubs		
Yerba santa *Eriodictyon californicum*	Boraginaceae	
Manzanita *Arctostaphylos viscida*	Ericaceae	
Sierra gooseberry *Ribes roezlii*	Grossulariaceae	
Deer brush *Ceanothus integerrimus*	Rhamnaceae	
Pinemat *Ceanothus diversifolius*	Rhamnaceae	
California coffeeberry *Frangula californica*	Rhamnaceae	BSA - Off-site east
Sierran Mountain Misery *Chamaebatia foliolosa*	Rosaceae	
Eudicots		
Bur chervil *Anthriscus caucalis*	Apiaceae	
Lomatium sp.	Apiaceae	BSA - Off-site east, rocky outcrop, seeds only, basal leaves, long stem, large umbel
Red sanicle *Sanicula bipinnatifida*	Apiaceae	
Sierra sanicle *Sanicula graveolens*	Apiaceae	
Field hedge parsley	Apiaceae	Non-native

Torilis arvensis		
Purple milkweed *Asclepias cordifolia*	Apocynaceae	
Spreading dogbane *Apocynum androsaemifolium*	Apocynaceae	
Common yarrow *Achillea millefolium*	Asteraceae	
Mountain dandelion *Agoseris grandiflora*	Asteraceae	
Annual mountain dandelion *Agoseris heterophylla*	Asteraceae	
Pearly everlasting *Anaphalis margaritacea*	Asteraceae	
Soft calycadenia *Calycadenia mollis*	Asteraceae	BSA - Off-site east
Anderson's thistle *Cirsium andersonii*	Asteraceae	
Golden fleece *Ericameria arborescens*	Asteraceae	
Rabbit brush *Ericameria nauseosa*	Asteraceae	
Wooly sunflower Eriophyllum lanatum	Asteraceae	
Opposite-leaved tarweed *Hemizonella minima*	Asteraceae	
White hawkweed *Hieracium albiflorum*	Asteraceae	
Smooth cat's ear Hypochaeris glabra	Asteraceae	Non-native
Small tarweed *Madia exigua*	Asteraceae	
California cudweed *Pseudognaphalium californicum*	Asteraceae	
Common groundsel *Senecio vulgaris*	Asteraceae	Non-native
Wire lettuce *Stephanomeria lactucina*	Asteraceae	
Common dandelion *Taraxacum officionale*	Asteraceae	Non-native
Salsify, Goat's beard *Tragopogon dubius*	Asteraceae	
Silver puffs *Uropappus lindleyi*	Asteraceae	
Common cryptantha *Cryptantha affinis*	Boraginaceae	
Phacelia heterophylla -egena - *imbricata – mutabilis complex*	Boraginaceae	
Lemmon's catchfly *Silene lemmonii*	Caryophyllaceae	
Cardinal catchfly	Caryophyllaceae	

Silene laciniata		
Bastard toadflax *Comandra umbellata*	Comandraceae	
American Bird's foot trefoil *Acmispon americanus*	Fabaceae	
Sierra lotus *Acmipson nevadensis*	Fabaceae	
Hill lotus Acmispon *parviflorus*	Fabaceae	
Hosackia pinnata or *oblongifolia* var *oblongifolia*	Fabaceae	BSA - Off-site east, drainage
Sulphur pea *Lathyrus sulphureus*	Fabaceae	
Bicolor lupine *Lupinus bicolor*	Fabaceae	
Valley sky lupine Lupinus nanus	Fabaceae	
Bearded clover *Trifolium barbigerum*	Fabaceae	
Rose clover *Trifolium hirtum*	Fabaceae	Non-native, invasive
Creek clover *Trifolium obtusiflorum*	Fabaceae	BSA - Off-site east, drainage
Variegated clover *Trifolium variegatum*	Fabaceae	BSA - Off-site east, drainage
American vetch *Vicia americana*	Fabaceae	
Charming centaury *Zeltnera venusta*	Gentianaceae	
Red-stemmed filaree, stork's bill *Erodium cicutarium*	Geraniaceae	Non-native
Creeping St. John's wort *Hypericum anagalloides*	Hypericaceae	BSA - Off-site east
Hypericum *Hypericum androsaemum*	Hypericaceae	Non-native
Mint Monardella odoratissima	Lamiaceae	BSA - Off-site east, drainage
Selfheal *Prunella vulgaris*	Lamiaceae	BSA - Off-site east
Mountain bluecurls *Trichostema oblongum*	Lamiaceae	BSA - Off-site east
Checker mallow *Sidalcea reptens*	Malvaceae	
Narrow-leaved miner's lettuce *Clatyonia parviflora* var. *parviflora*	Montiaceae	
Scarlet pimpernel *Lysimachia arvensis*	Myrsinaceae	
Two-lobed clarkia *Clarkia biloba* ssp. *biloba*	Onagraceae	
Dudley's Fairyfan *Clarkia dudleyana*	Onagraceae	BSA - Off-site east

Tongue clarkia *Clarkia rhomboidea*	Onagraceae	
Little willowherb *Epilobium minutum*	Onagraceae	
Dense flower owl's clover *Castilleja densiflora*	Orobanchaceae	
Purple owl's clover *Castilleja exserta*	Orobanchaceae	
Tufted poppy *Eschscholzia caespitosa*	Papaveraceae	
Torrey's monkeyflower *Diplacus torreyi*	Phrymaceae	
Cardinal monkeyflower *Erythranthe cardinalis*	Phrymaceae	BSA - Off-site east, drainage
Yellow monkeyflower *Erythranthe guttata*	Phrymaceae	BSA - Off-site east, drainage
Musk monkeyflower *Erythranthe moschata*	Phrymaceae	BSA - Off-site east, drainage
Tincture plant *Collinsia tinctoria*	Plantaginaceae	BSA - Off-site east, drainage
Blue penstemon *Penstemon azureus*	Plantaginaceae	
English plantain *Plantago lanceolata*	Plantaginaceae	
Speedwell *Veronica arvensis*	Plantaginaceae	Non-native
Purple false gilia *Allophyllum divaricatum*	Polemoniaceae	
Varied leaf collomia *Collomia heterophylla*	Polemoniaceae	
Foothill gilia *Gila capitata*	Polemoniaceae	BSA - Off-site east
Bluehead gilia *Gilia capitata* ssp. *unknown*	Polemoniaceae	Within Open Space south facing slope of knoll
True baby stars *Leptosiphon bicolor*	Polemoniaceae	BSA - Off-site east
Whisker brush *Leptosiphon ciliates*	Polemoniaceae	
Mustang clover *Leptosiphon montanus*	Polemoniaceae	
Mountain navarretia *Navarrettia divaricata*	Polemoniaceae	
Sheep sorrel *Rumex acetosella*	Polygonaceae	Non-native
Columbine *Aquilegia formosa*	Ranunculaceae	BSA - Off-site east, drainage
Chamise *Adenostoma fasciculatum*	Rosaceae	
Sticky cinquefoil	Rosaceae	

Drymocallis glandulosa		
Cleavers, bedstraw *Galium aparine*	Rubiaceae	
Tiny bedstraw *Galium murale*	Rubiaceae	Non-native
Common mullein *Verbascum thapsus*	Scrophulariaceae (non-native)	
Nightshade *Solanum xanti*	Solanaceae	
Goosefoot/mountain violet *Viola purpurea*	Violaceae	
Monocots		
Soap root *Chlorogalum pomeridianum*	Agavaceae	
Spikerush *Eleocharis sp.*	Cyperaceae	BSA - Off-site east, drainage
Hartweg's iris *Iris hartwegii* var. *hartwegii*	Iridaceae	
Western blue flag *Iris missouriensis*	Iridaceae	
Juncus sp. Likely *J. longistylus*	Juncaceae	
Irisleaf Rush *Juncus xiphioides*	Juncaceae	BSA - Off-site east, drainage
Mariposa tulip *Calochortus superbus*	Liliaceae	
Hairgrass, shivergrass *Aira caryophyllea*	Poaceae	
Soft chess *Bromus hordeaceus*	Poaceae	
Cheatgrass *Bromus tectorum*	Poaceae	Non-native, invasive
Blue wild rye *Elymus glaucus*	Poaceae	
Brome fescue *Festuca bromoides*	Poaceae	
Foxtail *Hordeum murinum*	Poaceae	Non-native
Kentucky bluegrass *Poa pratensis*	Poaceae	Non-native
Lemmon's needle grass *Stipa lemmonii*	Poaceae	
Harvest brodiaea *Brodiaea elegans*	Themidaceae	
Blue dicks *Dichelostemma capitatum*	Themidaceae	
Many-flowered brodiaea *Dichlostemma multiflorum*	Themidaceae	
Pretty face *Triteleia ixioides*	Themidaceae	

Ferns		
Western brackenfern *Pteridium aquilnum*	Dennstaedtiaceae	

Northern checkerspot

ANIMALS	Comments
Insects	
Northern checkerspot *Chlosyne palla*	Butterfly
Birds	
American crow *Corvus brachyrhynchos*	MBTA Protected
California quail *Callipepla californica*	Not MBTA protected
Mountain quail *Oreortyx pictus*	Not MBTA protected
Steller's jay *Cyanocitta stelleri*	MBTA Protected
Dark-eyed junco *Junco hyemalis*	MBTA Protected
Turkey vulture *Cathartes aura*	MBTA Protected
Mammals	
Fox *Vulpes* sp.	"Screams" heard off-site to northeast of project boundaries
Mule deer *Odocoileus hemionus*	

7.2 Appendix B: Species Lists (CDFW, USFWS, NWI, CNPS)

7.2.1 **CDFW Species List**

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Ascension Mtn. (3711978))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Allium yosemitense Yosemite onion	G3 S3	None Rare	Rare Plant Rank - 1B.3 USFS_S-Sensitive	5,200 5,200	14 S:1	0	0	0	0	0	1	1	0	1	0	0
Antrozous pallidus pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	3,500 3,500	420 S:1	0	0	0	0	0	1	1	0	1	0	0
Balsamorhiza macrolepis big-scale balsamroot	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	4,700 4,700	51 S:1	0	0	0	0	0	1	0	1	1	0	0
Bombus crotchii Crotch bumble bee	G3G4 S1S2	None Candidate Endangered		3,000 3,000	234 S:1	0	0	0	0	0	1	1	0	1	0	0
Clarkia australis Small's southern clarkia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	3,400 4,950	41 S:17	0	2	1	0	1	13	16	1	16	1	0
Clarkia biloba ssp. australis Mariposa clarkia	G4G5T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive	2,340 2,340	119 S:1	0	1	0	0	0	0	0	1	1	0	0
Diplacus pulchellus yellow-lip pansy monkeyflower	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	3,800 3,800	69 S:1	0	0	0	0	0	1	1	0	1	0	0
Eriophyllum nubigenum Yosemite woolly sunflower	G2 S2	None None	Rare Plant Rank - 1B.3 USFS_S-Sensitive	5,000 5,800	14 S:3	0	0	0	0	0	3	3	0	3	0	0
Erythranthe filicaulis slender-stemmed monkeyflower	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	3,000 5,280	49 S:12	0	3	1	0	0	8	7	5	12	0	0
Erythronium taylorii Pilot Ridge fawn lily	G1 S1	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	4,400 4,400	1 S:1	0	0	0	0	0	1	1	0	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Euderma maculatum spotted bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_H-High Priority	4,430 4,430	68 S:1	0	0	0	0	0	1	1	0	1	0	0
Eumops perotis californicus western mastiff bat	G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	4,430 4,430	296 S:1	0	0	0	0	0	1	1	0	1	0	0
Falco peregrinus anatum American peregrine falcon	G4T4 S3S4	Delisted Delisted	CDF_S-Sensitive CDFW_FP-Fully Protected USFWS_BCC-Birds of Conservation Concern	2,926 2,926	56 S:1	0	0	0	0	0	1	0	1	1	0	0
Lasionycteris noctivagans silver-haired bat	G5 S3S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority	4,430 4,430	139 S:1	0	0	0	0	0	1	1	0	1	0	0
Lasiurus cinereus hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority	4,430 4,430	238 S:1	0	0	0	0	0	1	1	0	1	0	0
Margaritifera falcata western pearlshell	G4G5 S1S2	None None		2,850 3,100	78 S:2	0	0	0	0	0	2	0	2	2	0	0
Myotis evotis long-eared myotis	G5 S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern WBWG_M-Medium Priority	4,430 4,430	139 S:1	0	0	0	0	0	1	1	0	1	0	0
Navarretia miwukensis Mi-Wuk navarretia	G1G2 S1S2	None None	Rare Plant Rank - 1B.2	4,190 4,370	12 S:3	0	0	0	0	0	3	0	3	3	0	0
Rana boylii foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	3,100 3,500	2468 S:3	0	0	0	0	0	3	2	1	3	0	0

CNDDB Update December 23, 2019 (includes unmapped)

Scientific_Name	Common_Name	Federal_S	State_Stat	CDFW_Sta	CA_Rare_	Data_Status
Rana boylii	foothill yellow-legged frog	None	Candidate	SSC	-	Mapped an
Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	FP	-	Mapped
Strix nebulosa	great gray owl	None	Endangere	-	-	Unprocesse
Strix occidentalis occidentalis	California Spotted Owl	None	None	SSC	-	Mapped
Bombus crotchii	Crotch bumble bee	None	Candidate	-	-	Mapped
Atractelmis wawona	Wawona riffle beetle	None	None	-	-	Unprocesse
Eumops perotis californicus	western mastiff bat	None	None	SSC	-	Mapped
Antrozous pallidus	pallid bat	None	None	SSC	-	Mapped
Euderma maculatum	spotted bat	None	None	SSC	-	Mapped
Lasionycteris noctivagans	silver-haired bat	None	None	-	-	Mapped
Lasiurus cinereus	hoary bat	None	None	-	-	Mapped
Myotis evotis	long-eared myotis	None	None	-	-	Mapped
Margaritifera falcata	western pearlshell	None	None	-	-	Mapped
Allium yosemitense	Yosemite onion	None	Rare	-	1B.3	Mapped
Balsamorhiza macrolepis	big-scale balsamroot	None	None	-	1B.2	Mapped
Eriophyllum nubigenum	Yosemite woolly sunflower	None	None	-	1B.3	Mapped
Wyethia elata	Hall's wyethia	None	None	-	4.3	Unprocesse
Erythronium taylorii	Pilot Ridge fawn lily	None	None	-	1B.2	Mapped
Clarkia australis	Small's southern clarkia	None	None	-	1B.2	Mapped
Clarkia biloba ssp. australis	Mariposa clarkia	None	None	-	1B.2	Mapped
Clarkia virgata	Sierra clarkia	None	None	-	4.3	Unprocesse
Cypripedium montanum	mountain lady's-slipper	None	None	-	4.2	Unprocesse
Diplacus pulchellus	yellow-lip pansy monkeyflower	None	None	-	1B.2	Mapped
Erythranthe filicaulis	slender-stemmed monkeyflowe	None	None	-	1B.2	Mapped
Erythranthe inconspicua	small-flowered monkeyflower	None	None	-	4.3	Unprocesse
Navarretia miwukensis	Mi-Wuk navarretia	None	None	-	1B.2	Mapped
Ceanothus fresnensis	Fresno ceanothus	None	None	-	4.3	Unprocesse
Bolandra californica	Sierra bolandra	None	None	-	4.3	Unprocesse

7.2.2 **USFWS Species List**

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Consultation Code: 08ESMF00-2020-SLI-0468
Event Code: 08ESMF00-2020-E-01361
Project Name: Terra Vi

November 30, 2019

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2020-SLI-0468

Event Code: 08ESMF00-2020-E-01361

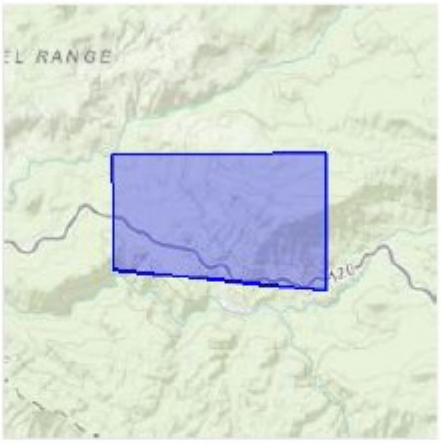
Project Name: Terra Vi

Project Type: DEVELOPMENT

Project Description: Lodge

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.826547205326975N119.95288781165337W



Counties: Tuolumne, CA

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Fisher *Pekania pennanti* Population: West coast DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3651	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

7.2.3 **Bird Species of Conservation Concern - USFWS**

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Project information

NAME

Curtis Creek Algerine Slum Dam

LOCATION

Tuolumne County, California

DESCRIPTION

TUD Slum Dam Leak Repair

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Lawrence's Goldfinch *Carduelis lawrencei* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30

NOT FOR CONSULTATION

Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Rufous Hummingbird selasphorus rufus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Song Sparrow Melospiza melodia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee Pipilo maculatus clementae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For

7.2.4 USFWS National Wetlands Inventory

U.S. Fish and Wildlife Service

National Wetlands Inventory

Sawmill Mt.

May 26, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Approx. Project boundaries

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

7.2.5 **CNPS Plant List**

Found in Quad **3711978**

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Allium yosemitense	Yosemite onion	Alliaceae	perennial bulbiferous herb	Apr-Jul	1B.3	S3	G3
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Bolandra californica	Sierra bolandra	Saxifragaceae	perennial herb	Jun-Jul	4.3	S4	G4
Ceanothus fresnensis	Fresno ceanothus	Rhamnaceae	perennial evergreen shrub	May-Jul	4.3	S4	G4
Clarkia australis	Small's southern clarkia	Onagraceae	annual herb	May-Aug	1B.2	S2	G2
Clarkia biloba ssp. australis	Mariposa clarkia	Onagraceae	annual herb	Apr-Jul	1B.2	S3	G4G5T3
Clarkia virgata	Sierra clarkia	Onagraceae	annual herb	May-Aug	4.3	S3	G3
Cypripedium montanum	mountain lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	4.2	S4	G4
Diplacus pulchellus	yellow-lip pansy monkeyflower	Phrymaceae	annual herb	Apr-Jul	1B.2	S2	G2
Eriophyllum nubigenum	Yosemite woolly sunflower	Asteraceae	annual herb	May-Aug	1B.3	S2	G2
Erythranthe filicaulis	slender-stemmed monkeyflower	Phrymaceae	annual herb	Apr-Aug	1B.2	S2	G2
Erythranthe inconspicua	small-flowered monkeyflower	Phrymaceae	annual herb	May-Jun	4.3	S4	G4
Erythronium taylorii	Pilot Ridge fawn lily	Liliaceae	perennial bulbiferous herb	Apr-May	1B.2	S1	G1
Rhynchospora californica	California beaked-rush	Cyperaceae	perennial rhizomatous herb	May-Jul	1B.1	S1	G1
Wyethia elata	Hall's wyethia	Asteraceae	perennial herb	May-Aug	4.3	S4	G4

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 23 December 2019].

APPENDIX E

WETLAND DELINEATION

Aquatic Resource Delineation Report
for the
Terra Vi Lodge Project

County of Tuolumne, CA

Prepared by:

Sycamore Environmental Consultants, Inc.
6355 Riverside Blvd., Suite C
Sacramento, CA 95831
Phone: 916/ 427-0703
Contact: Mike Bower, M.S., PWS #2230

Prepared for:

Placeworks
1625 Shattuck Avenue, Suite 300
Berkeley, CA 94709
Phone: 510-848-3815
Contact: Steve Noack

October 2019

Aquatic Resource Delineation Report
for the
Terra Vi Lodge Project

County of Tuolumne, CA

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I. INTRODUCTION

A. Purpose

Sycamore Environmental Consultants, Inc., conducted an aquatic resource delineation of the Terra Vi Lodge Project Biological Study Area (BSA) in unincorporated Tuolumne County, CA. The purpose of the delineation was to identify and map wetlands and waters in the BSA. Final Clean Water Act (CWA) jurisdictional determinations are made by the U.S. Army Corps of Engineers (Corps). This report does not quantify impacts or propose mitigation.

B. Project Location & Biological Study Area

The 36.40-acre BSA is located in southern Tuolumne County along State Highway 120 at its intersection with Sawmill Mountain Road (Figures 1 and 2). The BSA encompasses all proposed development shown on the 1 May 2019 plan set, including the proposed leach field area at northwest corner, vehicular circulation, and tanks located at the northeast corner of the proposed development. The BSA is on the Ascension Mountain United States Geographical Survey (USGS) topographic quadrangle (quad) (T1S, R18E, Section 26, Mt. Diablo Base and Meridian) and is in the Upper Tuolumne Hydrologic Unit (Hydrologic Unit Code 18040009). The centroid of the BSA is at 37.823651° North, 119.965069° West (WGS84), and its UTM coordinates (Zone 11S, WGS84) are 239,023 m East, 4,190,392 m North. Figure 2 is a 9 July 2017 aerial photo of the BSA and surrounding area.

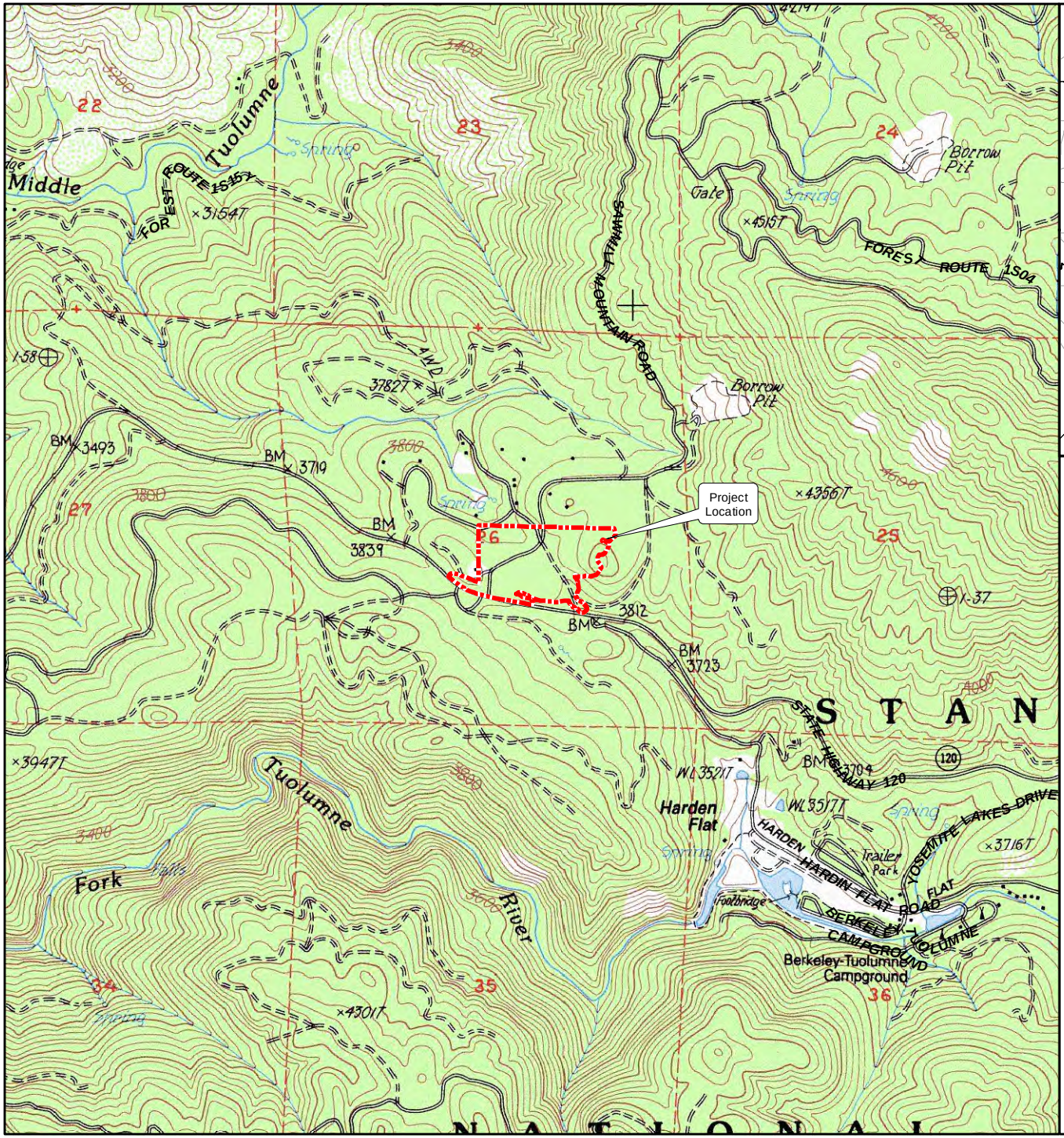
To access the BSA from Sacramento, take I-5 south to CA-4 east in Stockton. Take CA-4 east for 12.8 miles to Copperopolis. Turn right onto Main Street for 1 mile and continue onto O'Byrnes Ferry Road for 7.2 miles. O'Byrnes Ferry Road turns slight right and becomes O'Byrnes Ferry Road; continue for 4.7 miles. Turn left onto CA-108 east/ CA-120 east for 0.7 mile and right again onto CA-120 east for 3.4 miles. Continue on CA-120 east/ Montezuma Road for 33.5 miles. Turn left on to Forest Route 1S03/ Sawmill Mountain Road to enter the BSA.

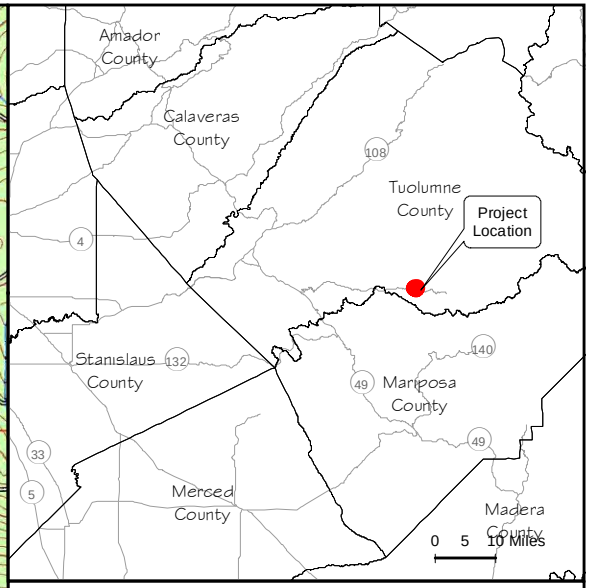
C. Applicant

Hansji Corp.
631 W. Katella Ave.
Anaheim, CA 92802
(714) 399-0152
info@hansji.com

D. Project Description

The Terra Vi Lodge Project is a lodging development comprised of various single, two- and three-story buildings and structures. The proposed lodge would contain hotel rooms, a public market, meeting space, and guest facilities. The Project includes cabins for guests, employee housing, outdoor amenities, on-site roadways and walkways, and surface parking.





Terra Vi Lodge
Tuolumne County, CA
18 July 2019

Figure 1. Project Location

Project Location

2,000 1,000 0 2,000 Feet

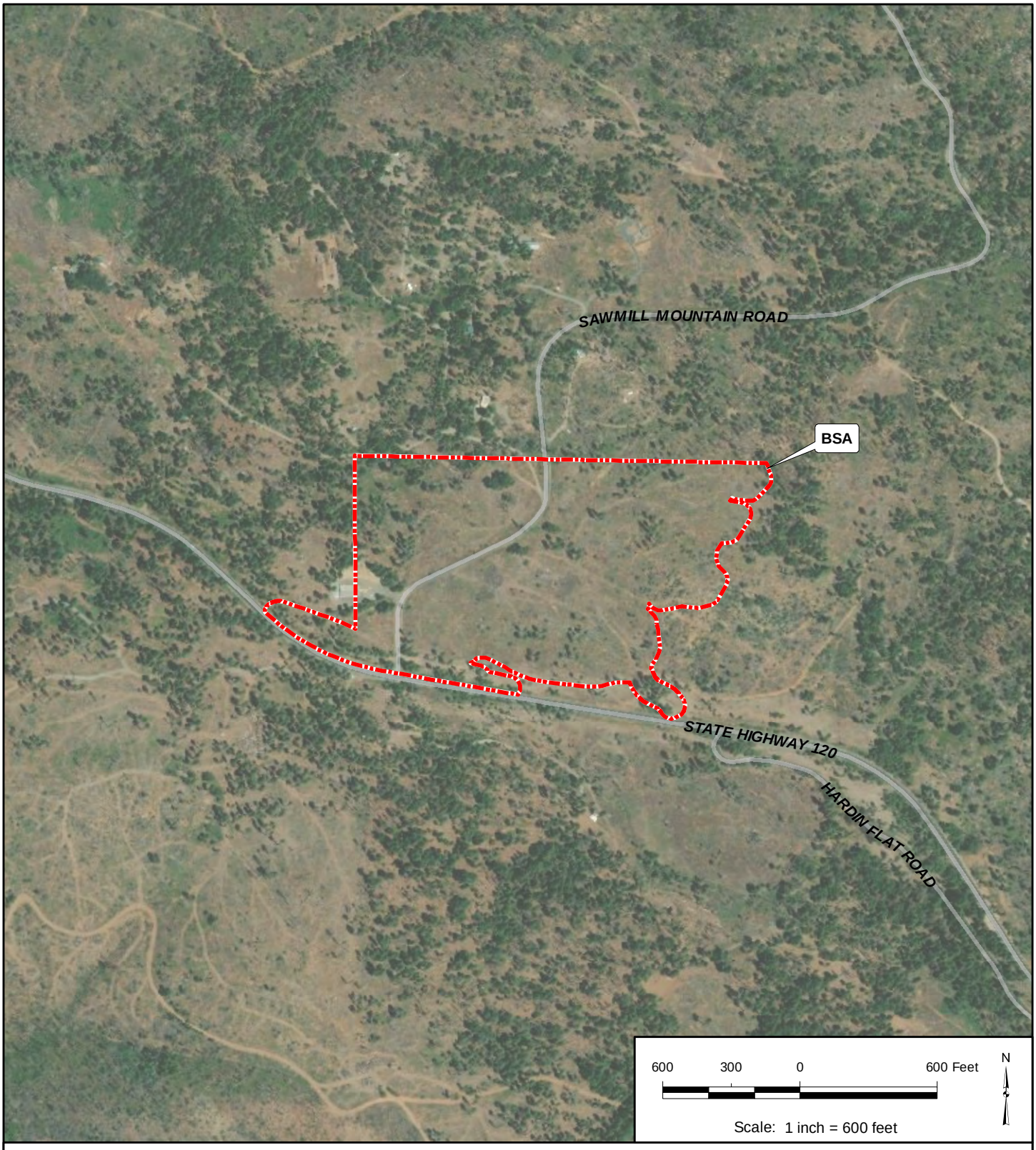
Scale: 1 inch = 2,000 feet

N

SYCAMORE Environmental Consultants, Inc.

Ascension Mtn., CA (Photoinspected 1992)
USGS 7.5' Quadrangle Topographic DRG
7.5 Minute (C) Series, Albers Nad83 Mosaics (MrSID)
CA Spatial Library (CASIL)
o_se0101.sid

19050TerraViLodge_Fig1LocationMap.mxd



Terra Vi Lodge
Tuolumne County, CA
18 July 2019

Biological Study Area (BSA)

SYCAMORE Environmental Consultants, Inc.

Aerial Photograph: 9 July 2017
WV02 Vivid DigitalGlobe Imagery
ArcGIS World Imagery Basemap Layer

Figure 2.
Aerial Photograph

19050TerraViLodge_Fig2AerialPhoto.mxd

II. STUDY METHODS

A. Data Sources

Table 1 is a list of data sources used in the preparation of this report. Table 1 is based on an itemized list of data sources for jurisdictional determinations published by the Corps and EPA (2007).

Table 1. Data Sources

Data Requested	Source
Maps, plans, plots or plat submitted by or on behalf of the applicant	Figures 1-4
Data sheets prepared/submitted by or on behalf of the applicant	Appendix A
Corps navigable waters study	Corps (August 2016)
U.S. Geological Survey Hydrologic Atlas. 1. USGS NHD data 2. USGS 8- and 12-digit HUC maps	Upper Tuolumne (18040009) Lower Middle Tuolumne River (180400090602) Lower South Fork Tuolumne River (180400091004)
U.S. Geological Survey map(s)	Ascension Mountain USGS quad (See Figure 1)
USDA Natural Resources Conservation Service Soil Survey	NRCS (2019b); see Figure 3
National Wetlands Inventory map(s)	NWI map for the Ascension Mountain USGS quad (USFWS 2019)
State/Local wetland inventory map(s)	None known
FEMA/FIRM maps	See Appendix D; effective 16 April 2009
100-year Floodplain Elevation is: (e.g., North American Vertical Datum of 1988).	Zone D: Areas in which flood hazards are undetermined, but possible.
Photographs: 1. Aerial (Name & Date) 2. Other (Name & Date)	Aerial: Figure 2, aerial photograph 9 July 2017 Other: Appendix B, Photographs of BSA, 16 July 2019.
Previous determination(s). File no. and date of response letter	None known

B. Survey Dates and Personnel

Fieldwork for the aquatic resource delineation was conducted by biologists Mike Bower, M.S., PWS #2230, and Elliot Maldonado, B.S., on 16 July 2019. The survey covered the entire BSA.

C. Survey Methods

This aquatic resource delineation report has been prepared in accordance with the Sacramento District minimum standards (Corps January 2016), the U.S. Army Corps of Engineers Wetland Delineation Manual (Corps 1987), the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Corps 2010), and the Ordinary High Water Mark (OHWM) delineation field guide for the Western Mountains, Valleys, and Coast Region (Corps 2014). Regional supplements are intended to bring the 1987 Wetland Delineation Manual up to date with current knowledge and practice in specific regions. The Western Mountains, Valleys, and Coast Supplement is applicable to the BSA because it is located in Western Mountains,

Valleys, and Coast sub region (MLRA 22A – Sierra Nevada Mountains). Vegetation is dominated by conifers. All wetland and water features were identified and mapped. Hydrophytic classifications of plants were determined from the current National Wetland Plant List (Lichvar et al. 2016). Plant nomenclature follows Baldwin et al., eds. (2012).

D. Jurisdictional Data

The delineation was conducted using the Routine On-Site Determination Method (Corps 1987). Jurisdictional data were recorded using the Wetland Determination Data Form for the Western Mountains, Valleys, and Coast Region (Corps 2010). Soil, vegetation, and hydrology data were recorded at the data points. Plant species were identified by Mr. Bower. The OHWMs were identified in the field based on applicable indicators described in the OHWM field guide (August 2014). Wetland data sheets are in Appendix A. Photographs are in Appendix B. Appendix C is a list of plant species recorded at the data points.

E. Mapping and Calculation of Acreages

Features observed in the BSA were mapped using a Trimble Nomad5 global positioning system (GPS) unit with a sub-meter accurate Empower Module. The GPS data were exported to ArcMap and Google Earth, where feature boundaries were completed. Acreages and feature dimensions were calculated using ESRI ArcMap functions.

F. Definitions

The Corps and EPA regulate the discharge of dredge and fill material into "waters of the United States" under Section 404 of the Clean Water Act (CWA; 33 U.S.C. 1344). New regulations defining waters of the U.S. became effective on 28 August 2015 (Clean Water Rule; 80 FR 37054), and as of a 16 August 2018 district court ruling, are currently in effect in 23 states including California. The definitions below are current as of the date of this report (2015 Clean Water Rule definitions). *Note: On 6 March 2017, the EPA and Corps stated their intention to review and rescind or revise the 2015 Clean Water Rule (82 FR 12532). A revision target date of 6 February 2020 has been announced (83 FR 5200). On 22 October 2019, the EPA and Corps published a final rule to repeal the 2015 Clean Water Rule and re-codify the regulatory text that existed prior to the 2015 Rule (33 FR 56626). This final rule will become effective on 23 December 2019.*

The term "waters of the United States" is defined at 33 CFR 328.3(a) as follows:

§ 328.3(a) For purposes of the Clean Water Act, 33 U.S.C. 1251 *et seq*. and its implementing regulations, subject to the exclusions in paragraph (b) of this section, the term "waters of the United States" means:

(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters, including interstate wetlands;

(3) The territorial seas;

(4) All impoundments of waters otherwise identified as waters of the United States under this section;

(5) All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;

(6) All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;

(7) All waters in paragraphs (a)(7)(i) through (v) of this section where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. The waters identified in each of paragraphs (a)(7)(i) through (v) of this section are similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in

paragraphs (a)(1) through (3) of this section. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

(i) *Prairie potholes.* Prairie potholes are a complex of glacially formed wetlands, usually occurring in depressions that lack permanent natural outlets, located in the upper Midwest.

(ii) *Carolina bays and Delmarva bays.* Carolina bays and Delmarva bays are ponded, depressional wetlands that occur along the Atlantic coastal plain.

(iii) *Pocosins.* Pocosins are evergreen shrub and tree dominated wetlands found predominantly along the Central Atlantic coastal plain.

(iv) *Western vernal pools.* Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters and hot, dry summers.

(v) *Texas coastal prairie wetlands.* Texas coastal prairie wetlands are freshwater wetlands that occur as a mosaic of depressions, ridges, intermound flats, and mima mound wetlands located along the Texas Gulf Coast.

(8) All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (a)(1) through (5) of this section where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section or within 4,000 feet of the high tide line or ordinary high water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

Certain features are defined as "not waters of the United States" under 33 CFR 328.3(b) as follows:

§ 328.3(b) The following are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

(3) The following ditches:

(i) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.

(ii) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.

(iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.

(4) The following features:

(i) Artificially irrigated areas that would revert to dry land should application of water to that area cease;

(ii) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

(iii) Artificial reflecting pools or swimming pools created in dry land;

(iv) Small ornamental waters created in dry land;

(v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;

(vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and

(vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

(6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(7) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

Terms critical to the definition of "waters of the U.S." are defined at 33 CFR 328.3(c) as:

(1) *Adjacent.* The term *adjacent* means bordering, contiguous, or neighboring a water identified in paragraphs (a)(1) through (5) of this section, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like. For purposes of adjacency, an open water such as a pond or lake includes any wetlands within or abutting its ordinary high water mark. Adjacency is not limited to waters located laterally to a water identified in paragraphs (a)(1) through (5) of this section. Adjacent waters also include all waters that connect segments of a water identified in paragraphs (a)(1) through (5) or are located at the head of a water identified in paragraphs (a)(1) through (5) of this section and are bordering, contiguous, or neighboring such water. Waters being used for established normal farming, ranching, and silviculture activities (33 U.S.C. 1344(f)) are not adjacent.

(2) *Neighboring.* The term *neighboring* means:

(i) All waters located within 100 feet of the ordinary high water mark of a water identified in paragraphs (a)(1) through (5) of this section. The entire water is neighboring if a portion is located within 100 feet of the ordinary high water mark;

(ii) All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (5) of this section and not more than 1,500 feet from the ordinary high water mark of such water. The entire water is neighboring if a portion is located within 1,500 feet of the ordinary high water mark and within the 100-year floodplain;

(iii) All waters located within 1,500 feet of the high tide line of a water identified in paragraphs (a)(1) or (a)(3) of this section, and all waters within 1,500 feet of the ordinary high water mark of the Great Lakes. The entire water is neighboring if a portion is located within 1,500 feet of the high tide line or within 1,500 feet of the ordinary high water mark of the Great Lakes.

(3) *Tributary* and *tributaries.* The terms *tributary* and *tributaries* each mean a water that contributes flow, either directly or through another water (including an impoundment identified in paragraph (a)(4) of this section), to a water identified in paragraphs (a)(1) through (3) of this section that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark. These physical indicators demonstrate there is volume, frequency, and duration of flow sufficient to create a bed and banks and an ordinary high water mark, and thus to qualify as a tributary. A tributary can be a natural, man-altered, or man-made water and includes waters such as rivers, streams, canals, and ditches not excluded under paragraph (b) of this section. A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if, for any length, there are one or more constructed breaks (such as bridges, culverts, pipes, or dams), or one or more natural breaks (such as wetlands along the run of a stream, debris piles, boulder fields, or a stream that flows underground) so long as a bed and banks and an ordinary high water mark can be identified upstream of the break. A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if it contributes flow through a water of the United States that does not meet the definition of tributary or through a non-jurisdictional water to a water identified in paragraphs (a)(1) through (3) of this section.

(4) *Wetlands.* The term *wetlands* means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

(5) *Significant nexus.* The term *significant nexus* means that a water, including wetlands, either alone or in combination with other similarly situated waters in the region, significantly affects the chemical, physical, or biological integrity of a water identified in paragraphs (a)(1) through (3) of this section. The term ''in the region'' means the watershed that drains to the nearest water identified in paragraphs (a)(1) through (3) of this section. For an effect to be significant, it must be more than speculative or insubstantial. Waters are similarly situated when they function alike and are sufficiently close to function together in affecting downstream waters. For purposes of determining whether or not a water has a significant nexus, the water's effect on downstream paragraph (a)(1) through (3) waters shall be assessed by evaluating the aquatic functions identified in paragraphs (c)(5)(i) through (ix) of this section. A water has a significant nexus when any single function or combination of functions performed by the water, alone or together with similarly situated waters in the region, contributes significantly to the chemical, physical, or biological integrity of the nearest water identified in paragraphs (a)(1) through (3) of this section. Functions relevant to the significant nexus evaluation are the following:

(i) Sediment trapping, (ii) Nutrient recycling, (iii) Pollutant trapping, transformation, filtering, and transport, (iv) Retention and attenuation of flood waters, (v) Runoff storage, (vi) Contribution of flow, (vii) Export of organic matter, (viii) Export of food resources, and (ix) Provision of life cycle dependent aquatic habitat (such as foraging, feeding, nesting, breeding, spawning, or use as a nursery area) for species located in a water identified in paragraphs (a)(1) through (3) of this section.

(6) *Ordinary high water mark.* The term *ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank,

shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

(7) *High tide line.* The term *high tide line* means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

The limits of CWA jurisdiction are identified in 33 CFR 328.4 as:

(a) *Territorial Seas*. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) *Tidal Waters of the United States*. The landward limits of jurisdiction in tidal waters:
  (1) Extends to the high tide line, or
  (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) *Non-Tidal Waters of the United States*. The limits of jurisdiction in non-tidal waters:
  (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
  (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
  (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

Wetlands, where jurisdictional under the CWA, are a subset of waters of the U.S. Wetlands, as defined by the Corps for regulatory purposes, are identified using a three-parameter test that considers whether hydrophytic vegetation, hydric soils, and wetland hydrology are present (Corps 1987, 2010).

An ephemeral tributary has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral tributary beds are located above the water table year-round. Groundwater is not a source of water for the tributary. Runoff from rainfall is the primary source of water for tributary flow. An intermittent tributary has flowing water during certain times of the year, when groundwater provides water for tributary flow. During dry periods, intermittent tributaries may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. A perennial tributary has flowing water year-round during a typical year (66 FR 42099).

III. SETTING

The BSA is located north of and adjacent to State Highway 120, at its intersection with Sawmill Mountain Road in rural Tuolumne County near Groveland, CA. The BSA is in a rural, forested setting in the Sierra Nevada Mountain Range, just west of Yosemite National Park. The BSA is bordered on all sides by Ponderosa pine forest, much of which burned in the 2013 Rim Fire. One structure occurs on the western border of the BSA. A few rural residences occur north of the BSA.

A. Topography

Elevation in the BSA ranges from approximately 3,830 to 4,040 feet. The terrain is variously flat to moderately sloped. Areas in the southern half of the BSA generally drain to the southeast. Areas in the northern half of the BSA generally drain to the northwest.

B. Existing Field Conditions

Field work for the aquatic resource delineation was conducted on 16 July 2019. The nearby Groveland Ranger Station (GVL) gauge recorded above average precipitation from 1 October 2018 through 16 July 2019 (131% of normal precipitation for this period; CDEC August 2019). The GVL gauge is located approximately 7 miles west of the BSA at 3,200 feet elevation. The BSA would be expected to receive similar above-normal precipitation. Just prior to fieldwork, the GVL gauge reported 0.04 inches of precipitation in June 2019 and 0.01 in July 2019. Conditions on the date of fieldwork were dry, as is typical for July in this part of California.

C. Vegetation

Vegetation communities in the BSA consist of Ponderosa pine (*Pinus ponderosa*) forest. The forest in the BSA burned during the 2013 Rim Fire. Most of the trees in the BSA perished and were subsequently removed. The forest is regenerating. Remnant mature Ponderosa pines occur in a few areas, with occasional incense cedar (*Calocedrus decurrens*) and Douglas fir (*Pseudotsuga menziesii*), and black oak (*Quercus kelloggii*). The shrub layer is generally dominated by Ponderosa pine saplings, black oak saplings, mountain misery (*Chamaebatia foliolosa*), and whiteleaf manzanita (*Arctostaphylos viscida*). The herb layer is dominated by a mixture of native and nonnative grasses and forbs including blue wild rye (*Elymus glaucus*), soft chess (*Bromus hordeaceus*), brome fescue (*Festuca bromoides*), tarweed (*Madia* sp.), knotweed (*Persicaria aviculare* ssp. *depressum*), agoseris (*Agoseris grandiflora*), deer vetch (*Acmispon americanus* var *americanus*).

D. Existing Level of Disturbance

The majority of the BSA burned in the 2013 Rim Fire. Several large slash piles can be seen on aerial photographs in 2014 (Google Earth 2019). A Caltrans structure and staging area occurs at the western edge of the BSA. Sawmill Mountain Road is a paved road in the BSA. Several dirt roads occur in the BSA.

E. Soils

Figure 3 is a soils map. Soil mapping units in the BSA are Holland Family, Deep-moderately Deep Complex, 5 to 35 Percent Slopes and Holland Family, Deep-moderately Deep, Dark Surface Association, 10 to 35 Percent Slopes (NRCS 2019b). There are no hydric soils or hydric soil

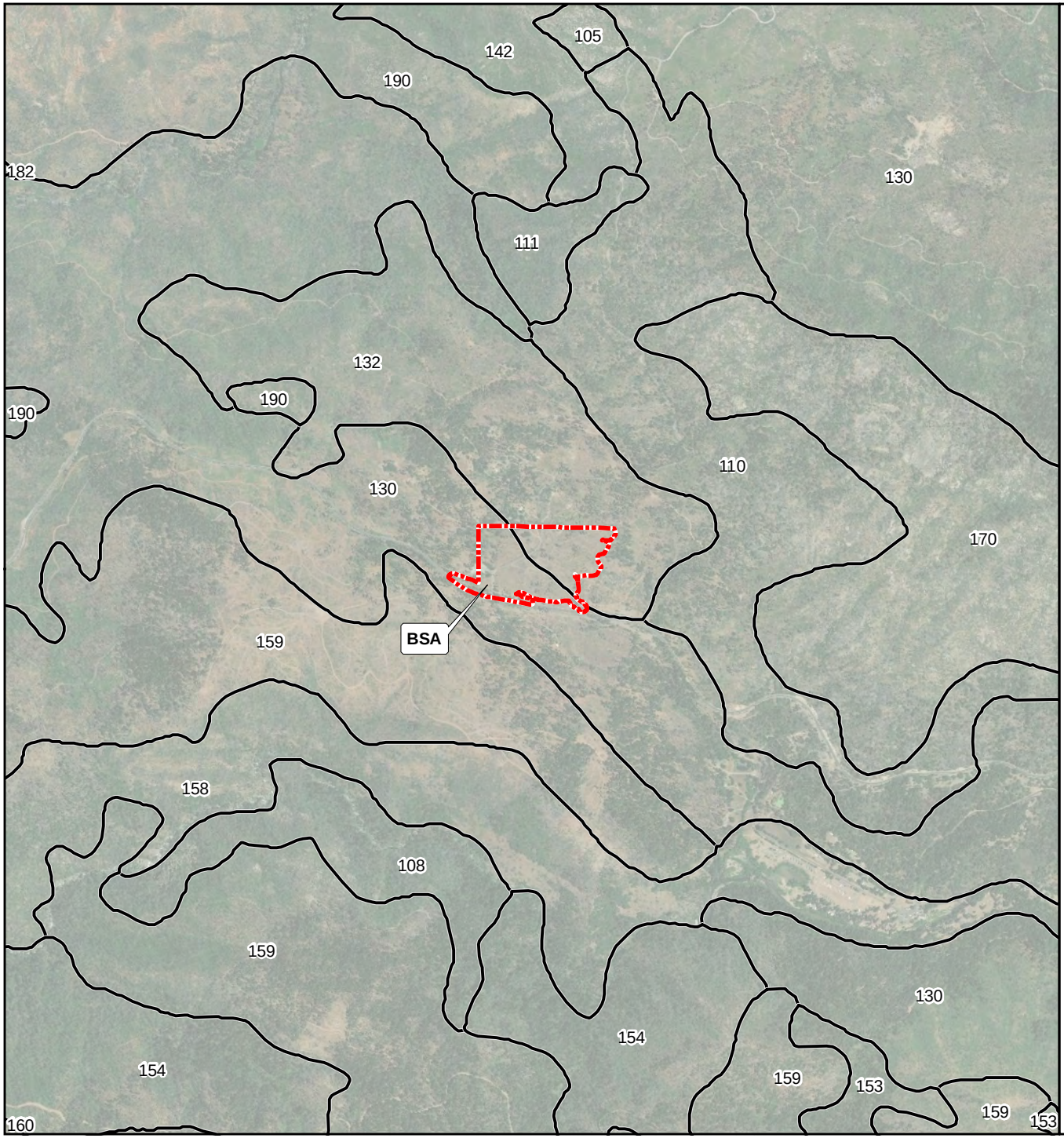
inclusions in the BSA (NRCS 2019c). The following soil description is summarized from NRCS (2019a). Reported colors are for moist soil.

Holland Series: The Holland series consists of very deep, well drained soils that formed in material weathered from granitic rock. Holland soils are on foothills and low mountains. A typical Holland profile (Holland sandy loam on east facing 25 percent slope) is moderately acidic throughout the profile with the following soil horizon characteristics:

- 0 to 2 inches – fresh and decomposing pine needle and leaf litter.
- 2 to 5 inches – very dark grayish brown (10YR 3/2), sandy loam.
- 5 to 9 inches – dark brown (7.5YR 3/2), sandy loam.
- 9 to 27 inches – dark reddish brown (5YR 3/4), sandy clay loam.
- 27 to 36 inches – reddish brown (5YR 4/4), clay loam.
- 36 to 43 inches – reddish brown (5YR 4/4), sandy clay loam.
- 43 to 62 inches – brown (7.5YR 5/4), sandy clay loam.
- 62 to 68 inches – yellowish brown (10YR 5/4), sandy loam.

F. National Wetlands Inventory Map

No aquatic features are shown within the BSA on the National Wetlands Inventory (NWI) online map (USFWS 2019). The nearest NWI aquatic feature is a Freshwater Emergent Wetland (PEM1B) located outside of the BSA, approximately 300 feet to the northwest.



Terra Vi Lodge
Tuolumne County, CA
18 July 2019

Figure 3. Soils Map

Biological Study Area
Soil Boundary

Soil Mapping Units (In the BSA):

130 Holland family, deep-Moderately deep complex, 5 to 35 p ercent slopes

132 Holland family, deep-Moderately deep, dark surface asso ciation, 10 to 35 percent slopes

2,000 0 2,000 Feet
Scale: 1 inch = 2,000 feet
N

SYCAMORE Environmental Consultants, Inc.

Soil Survey Geographic (SSURGO) database for Stanislaus National Forest Area (15 Dec. 2006)
U.S. Department of Agriculture, Natural Resources Conservation Service
URL:http://SoilDataMart.nrcs.usda.gov/

Aerial Photograph: 9 July 2017
WV02 Vivid DigitalGlobe Imagery
ArcGIS World Imagery Basemap Layer

19050TerraViLodge_Fig3SoilsMap(8x11).mxd

IV. WATERS AND WETLANDS

Waters are shown on the Aquatic Resource Delineation Map (Figure 4). A summary of acreages by feature is in Table 2 below. An evaluation of waters pursuant to the current definition of waters of the U.S. and their potential jurisdiction under Section 404 of the Clean Water Act (33 U.S.C. 1344) is in Section V. There are no wetlands in the BSA.

Table 2. Summary of Waters

Feature	Hydrology	Cowardin Code[1]	Length (ft)	Avg. Width (ft)	Area[2] (ac)
WATERS					
Ephemeral Channel 01	Ephemeral	R6	74	1	0.002
Ephemeral Channel 02	Ephemeral	R6	58	1	0.001
Ephemeral Channel 03	Ephemeral	R6	67	1	0.001
		Total Waters:	**199**	**--**	**0.004**

[1] Codes are from the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin 1979).

[2] Dimensions and acreages were calculated with ESRI ArcMap functions and pertain only to portions of features in the BSA.

A. Waters

Ephemeral Channel 1 (EC-01): EC-01 begins in the northwest corner of the BSA near the upper limits of a small watershed (Figure 4; Appendix B, Photo 2). Flow in the channel is ephemeral. The source of hydrology is precipitation runoff from surrounding uplands. The channel was dry during the survey. During storms, water in EC-01 flows to the northwest through a culvert beneath a gravel road as it leaves the BSA. The USGS Ascension Mountain quad map (photo-inspected 1992) shows a spring located outside the BSA, approximately 300 feet to the north. On the quad map, the spring flows into an unnamed perennial channel that flows northwest into the Middle Tuolumne River. The NWI map shows the same off-site aquatic features. Based on topography, EC-01 would be expected to flow into the off-site perennial channel approximately 300 feet north of the BSA, and then into the Middle Fork Tuolumne River. The Middle Fork Tuolumne River ultimately drains to navigable water in the Tuolumne River, the San Joaquin River, and the Pacific Ocean. The bed and banks of EC-01 are earthen and sparsely vegetated with nonnative upland grasses and forbs such as soft chess, brome fescue, and tall sock destroyer (*Torilis arvensis*). A few incense cedar saplings occur in the channel bed. There are no wetlands or riparian corridors associated with EC-01. The OHWM determination for EC-01 was based on the following indicators: bed and banks; break in slope; leaf litter disturbed; and vegetation matted bent or absent.

EC-02: EC-02 occurs immediately east of the intersection of Sawmill Mountain Road and State Highway 120 along the southern edge of the BSA (Figure 4; Appendix B, Photo 3). Flow in the channel is ephemeral. The channel was dry during the survey. The source of hydrology is precipitation runoff from surrounding uplands and paved roads. Runoff concentrates as it enters the culvert beneath Sawmill Mountain Road, resulting in a defined channel at the culvert outlet. During storms, water in EC-02 travels 58 feet to the east before exiting the BSA to the south through a culvert beneath State Highway 120. The USGS Ascension Mountain quad map shows a spring or seep

located outside the BSA, approximately 500 feet to the south and downslope of the BSA. Water in EC-02 flows to the southeast near or through this seep, and then into the South Fork Tuolumne River via ponds and interconnected drainages at Harden Flat. The South Fork Tuolumne River ultimately drains to navigable water in the Tuolumne River, the San Joaquin River, and the Pacific Ocean. The bed and banks of EC-02 are earthen and unvegetated. Within the BSA, the south bank of EC-02 occurs along the base of the road prism supporting State Highway 120. There are no wetlands or riparian corridors associated with EC-02. The OHWM determination for EC-02 was based on the following indicators: bed and banks; break in slope; leaf litter disturbed; sediment sorting; and vegetation matted bent or absent.

EC-03: EC-03 occurs along the southern edge of the BSA near the southeast corner (Figure 4; Appendix B, Photo 4). Flow in the channel is ephemeral. The channel was dry during the survey. The source of hydrology is precipitation runoff from surrounding uplands and dirt roads. During storms, water in EC-03 travels 67 feet to the south before exiting the BSA to the south through a culvert beneath State Highway 120. Water in EC-03 flows southeast along the south side of Hardin Flat Road into a series of ponds and interconnected drainages at Harden Flat before entering the South Fork Tuolumne River. The South Fork Tuolumne River ultimately drains to navigable water in the Tuolumne River, the San Joaquin River, and the Pacific Ocean. The bed and banks of EC-03 are earthen and sparsely vegetated with upland grasses such as soft chess, brome fescue, and blue wild rye with occasional mountain misery. There are no wetlands or riparian corridors associated with EC-03. The OHWM determination for EC-03 was based on the following indicators: bed and banks; leaf litter disturbed; vegetation matted bent or absent.

B. Wetlands

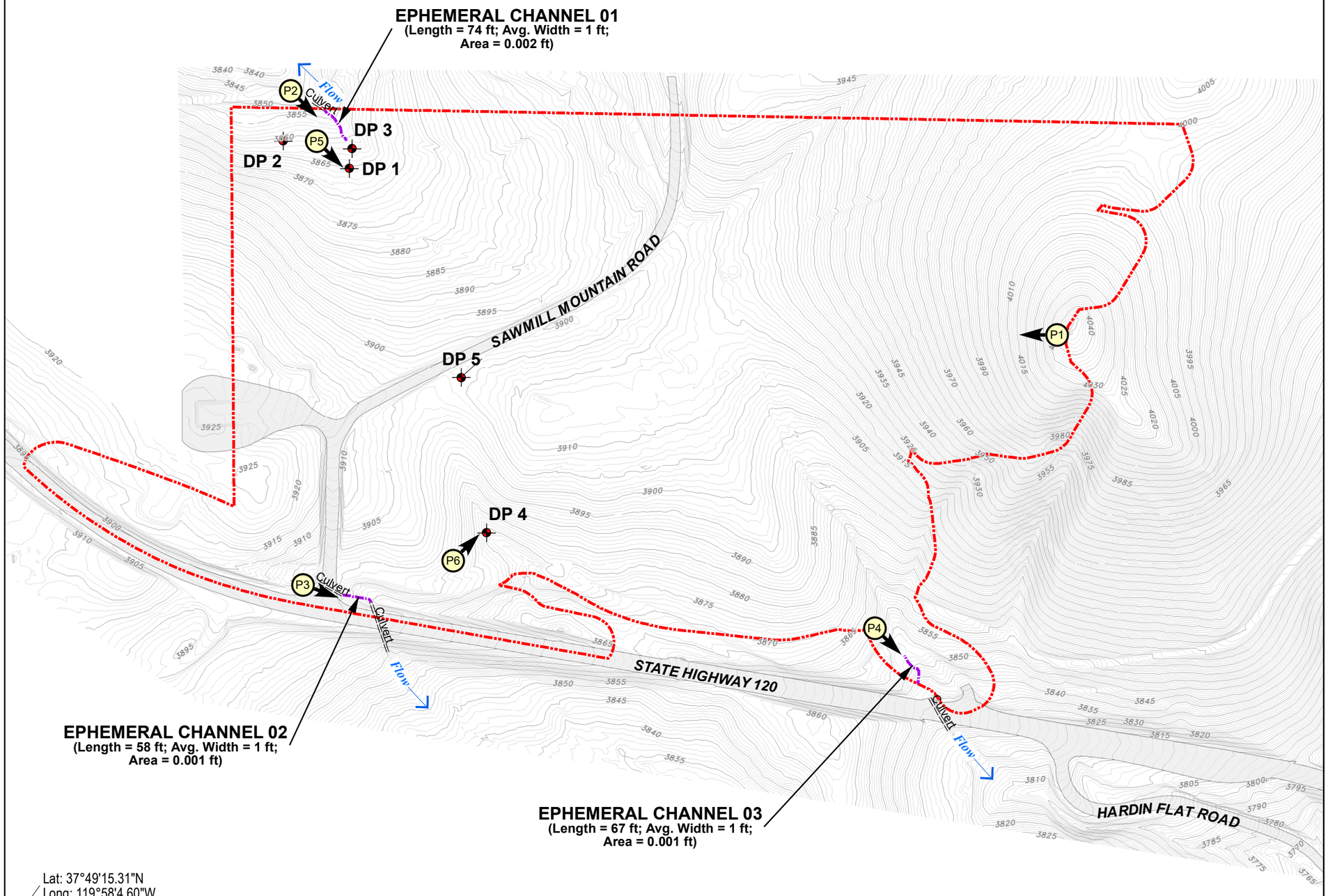
There are no wetlands in the BSA. Data points are shown on Figure 4. Datasheets are Appendix A.

Lat: 37°49'34.94"N
Long: 119°57'33.30"W

Terra Vi Lodge
Tuolumne County, CA
30 August 2019

DRAFT

Figure 4.
Aquatic Resources Delineation Map



Lat: 37°49'15.31"N
Long: 119°58'4.60"W

- Biological Study Area (BSA; 36.40 ac)
- Ephemeral Channel
- Data Point (DP)
- ==== Culvert
- P1 Photopoint Location and Direction

Feature	Length (ft)	Avg. Width (ft)	Area (ac)
Ephemeral Channel 01	74	1	0.002
Ephemeral Channel 02	58	1	0.001
Ephemeral Channel 03	67	1	0.001
Total	199	--	0.004

200 100 0 200 Feet

N

Scale: 1 inch = 200 feet

SYCAMORE
Environmental
Consultants, Inc.

Basemap: Grading and Drainage Plan
for Terra Vi Lodge by avrp SKYPORT
CAD file:
Yos Lodge Grading Plan 05.10.19.dwg (Recv'd 11 July 2019)

19050TerraViLodge_Fig4DelinMap(11x17).mxd

V. REGULATORY ANALYSIS AND DISCUSSION

This section addresses waters of the U.S., including wetlands, pursuant to Section 404 of the Clean Water Act (CWA). Current regulatory definitions and the limits of CWA jurisdiction are presented in Section II.F. Wetland or water features not subject to the Corps' jurisdiction under CWA Section 404 may come under the jurisdiction of the California Department of Fish and Wildlife and/or State Water Quality Control Board. For example, wetlands that are not adjacent to the tributary network and do not have significant nexus to downstream 33 CFR 328.3(a)–(c) waters may still be subject to regulation under State law.

A. Waters of the U.S.

This section includes waters that meet one of the criteria in 33 CFR 328.3(a), or that require a significant nexus analysis under 33 CFR 328.3(a)(7) or (8).

1. Waters Used in Commerce, Interstate Waters, and the Territorial Seas [33 CFR 328.3(a)(1)–(3)]

No waters used or potentially used in interstate or foreign commerce, interstate waters, or territorial seas occur in the BSA. The nearest downstream waters in this category is the Tuolumne River, a 33 CFR 328.3(a)(1) water considered navigable from its mouth upstream to the Highway 132 Basso Bridge Crossing near La Grange (Corps 2019).

2. Impoundments [33 CFR 328.3(a)(4)]

There are no impoundments in the BSA.

3. Tributaries [33 CFR 328.3(a)(5)]

Ephemeral Channels EC-01, EC-02, and EC-03 are tributaries. Each of these features possesses a bed, bank, and OHWM, and ultimately contribute flow to a navigable portion of the Tuolumne River (a 33 CFR 328.3(a)(1) water). The Tuolumne River is considered navigable from its mouth upstream to the Highway 132 Basso Bridge Crossing near La Grange (Corps 2019).

4. Adjacent Waters, Including Adjacent Wetlands[33 CFR 328.3(a)(6)]

There are no adjacent waters in the BSA. There are no wetlands in the BSA.

5. Non-adjacent Vernal Pools [33 CFR 328.3(a)(7)]

There are no vernal pools in the BSA.

6. Significant Nexus [33 CFR 328.3(a)(8)]

All aquatic features in the BSA have been identified as waters of the U.S. under 328.3(a)(1) through (6). A significant nexus analysis is not required.

B. Features that are not Waters of the U.S.

All aquatic features in the BSA have been identified as potential waters of the U.S. There are no aquatic features in the BSA that meet the definitions described under 33 CFR 328.3(b).

C. Summary

There is 0.004 acre of potential waters of the U.S. in the BSA. No wetlands occur in the BSA. Table 3 summarizes aquatic features according the 2015 Clean Water Rule (33 CFR 328.3).

Table 3. Regulatory Summary

Feature	33 CFR 328.3 Classification	Significant Nexus [1]	Waters of the U.S. (ac)	Non-Jurisdictional Waters (ac)
Ephemeral Channel 01	(a)(5) - Tributary	--	0.002	--
Ephemeral Channel 02		--	0.001	--
Ephemeral Channel 03		--	0.001	--
Total:		**--**	**0.004**	**0**

[1] A "significant nexus" analysis only applies to 33 CFR 328.3(a)(7) or (8) waters, none of which occur in the BSA.

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VII. REPORT PREPARERS

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Responsibilities: Fieldwork

Juan Mejia, B.S., Environmental Science and Management (emphasis Ecology, Conservation and Biodiversity), University of California, Davis, CA. Over 5 years of experience as a biologist. Mr. Mejia serves as both field biologist and technical report writer. He conducts plant and wildlife surveys, preconstruction and construction monitoring, and prepares biological resource evaluations, permit applications.
Responsibilities: Report preparation

Aramis Respall, GIS Analyst/ CAD Operator. Over 20 years experience in drafting and spatial analysis using AutoCAD map and ArcGIS for public and private projects. He prepares figures for biological and permitting documents such as project location maps, aerial photograph exhibits, biological resource maps, wetlands/waters delineation maps, project impact maps, and other supporting graphics. He provides geospatial analysis and support for projects involving geodesy, hydrology, watershed studies, project impact and mitigation analyses, listed species, and designated critical habitat.
Responsibilities: Figure preparation and spatial analysis

Cynthia Little, Principal, Sycamore Environmental.
Responsibilities: Senior editor, quality control

Appendix A.

Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – **Western Mountains, Valleys, and Coast Region**

Project/Site: Terra Vi Lodge City/County: Tuolumne Co. Sampling Date: 7/16/19
Applicant/Owner: Placeworks State: CA Sampling Point: **1**
Investigator(s): Mike Bower, M.S., Elliot Maldonado, B.S. Section, Township, Range: See report
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR): MLRA 22A SN Mtns Lat: See report Long: See report Datum: See report
Soil Map Unit Name: See report NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Yes ☒ No ☐ (If no, explain in remarks.)
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒			
Hydric Soil Present?	Yes ☐	No ☒	Is the sampled area		
Wetland Hydrology Present?	Yes ☐	No ☒	within a Wetland?	Yes ☐	No ☒

Remarks: Data point located in northwest corner of the site, on terrain gently sloping to the northwest.

VEGETATION - Use Scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum: (Plot size:___5m radius___)			
1. *Arctostaphylos viscida*	3%		UPL
2. *Quercus kelloggii*	3%		UPL
3. *Pinus ponderosa*	1%		FACU
4. *Chamaebatia foliolosa*	60%	D	UPL
5.			
	67% = Total Cover		
Herb Stratum: (Plot size:___5 m radius___)			
1. *Elymus glaucus*	3%	D	FACU
2. *Iris* sp.	1%		FACU
3. *Collomia* sp.	2%		FACU
4. *Aira caryophyllea*	1%		FACU
5. *Bromus hordeaceus*	1%		FACU
6. *Festuca bromoides*	3%	D	FAC
7.			
8.			
	11% = Total Cover		
Woody Vine Stratum: (Plot size:_____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL Species:	x 1 =	
FACW Species	x 2 =	
FAC Species	x 3 =	
FACU Species	x 4 =	
UPL Species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of Hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:
Vegetation burned in 2013 Rim Fire. Many tree saplings are resprouting. Indicators for plants that could not be identified to species were assigned based on their most likely identity.

SOIL Sampling Point: **1**

Profile Description: (Describe the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth	Matrix		Redox Features					
Inches	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	--	--					--	Coarse organic matter
1-3	5 YR 3/3	100%					Silt loam	
3-12	5 YR 3/4	100%					Silt loam	

[1]Type : C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface water (A1)
- ☐ High water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible-Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections, if available:

Remarks:

WETLAND DETERMINATION DATA FORM – **Western Mountains, Valleys, and Coast Region**

Project/Site: Terra Vi Lodge City/County: Tuolumne Co. Sampling Date: 7/16/19
Applicant/Owner: Placeworks State: CA Sampling Point: **2**
Investigator(s): Mike Bower, M.S., Elliot Maldonado, B.S. Section, Township, Range: See report
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Concave Slope (%): 4
Subregion (LRR): MLRA 22A SN Mtns Lat: See report Long: See report Datum: See report
Soil Map Unit Name: See report NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Yes ☒ No ☐ (If no, explain in remarks.)
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒			
Hydric Soil Present?	Yes ☐	No ☒	Is the sampled area		
Wetland Hydrology Present?	Yes ☐	No ☒	within a Wetland?	Yes ☐	No ☒

Remarks:

VEGETATION - Use Scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum: (Plot size:___5 m radius___)			
1. *Calocedrus decurrens*	1%		UPL
2. *Pinus ponderosa*	5%	D	FACU
3. *Pseudotsuga menziesii* var. *menziesii*	1%		FACU
4. *Chamaebatia foliolosa*	2%	D	UPL
5.			
	9% = Total Cover		
Herb Stratum: (Plot size:_____5 m radius___)			
1. *Bromus hordeaceus*	15%		FACU
2. *Festuca bromoides*	30%	D	FAC
3. *Aira caryophyllea*	20%	D	FACU
4. *Lactuca serriola*	15%		FACU
5. *Madia* sp.	3%		FACU
6. *Epilobium* sp.	2%		FAC
7. *Agoseris grandiflora* var. *grandiflora*	1%		UPL
8. *Tragopogon porrifolius*	1%		UPL
9. *Acmispon americanus* var. *americanus*	3%		FACU
	90% = Total Cover		
Woody Vine Stratum: (Plot size:_____)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum 10%			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL Species:	x 1 =	
FACW Species	x 2 =	
FAC Species	x 3 =	
FACU Species	x 4 =	
UPL Species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of Hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: Vegetation burned in 2013 Rim Fire. Many tree saplings are resprouting. Indicators for plants that could not be identified to species were assigned based on their most likely identity.

SOIL

Sampling Point: **2**

Profile Description: (Describe the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth	Matrix		Redox Features					
Inches	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100%					Silt loam	
3-12	5 YR 3/3	100%					Silt loam	

[1]Type : C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface water (A1)
- ☐ High water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible-Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections, if available:

Remarks:

WETLAND DETERMINATION DATA FORM – **Western Mountains, Valleys, and Coast Region**

Project/Site: Terra Vi Lodge City/County: Tuolumne Co. Sampling Date: 7/16/19
Applicant/Owner: Placeworks State: CA Sampling Point: **3**
Investigator(s): Mike Bower, M.S., Elliot Maldonado, B.S. Section, Township, Range: See report
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2%
Subregion (LRR): MLRA 22A SN Mtns Lat: See report Long: See report Datum: See report
Soil Map Unit Name: See report NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Yes ☒ No ☐ (If no, explain in remarks.)
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐			
Hydric Soil Present?	Yes ☐	No ☒	Is the sampled area		
Wetland Hydrology Present?	Yes ☐	No ☒	within a Wetland?	Yes ☐	No ☒

Remarks:

VEGETATION - Use Scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum: (Plot size:___5 m radius___)			
1. *Arctostaphylos viscida*	4%		UPL
2. *Chamaebatia foliolosa*	30%	D	UPL
3. *Calocedrus decurrens*	3%		UPL
4. *Ribes roezlii* var. *roezlii*	1%		UPL
5. *Pinus ponderosa*	1%		FACU
	39% = Total Cover		
Herb Stratum: (Plot size:____5 m radius____)			
1. *Galium porrigens*	3%		UPL
2. *Elymus glaucus*	3%		FACU
3. *Drymocallis* sp.	4%	D	FAC
4. *Collomia* sp.	1%		FACU
5. *Festuca bromoides*	15%	D	FAC
6. *Torilis arvensis*	3%		UPL
7. *Aira caryophyllea*	2%		UPL
8.			
	31% = Total Cover		
Woody Vine Stratum: (Plot size:_____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL Species:	x 1 =	
FACW Species	x 2 =	
FAC Species	x 3 =	
FACU Species	x 4 =	
UPL Species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of Hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:
Vegetation burned in 2013 Rim Fire. Many tree saplings are resprouting. Indicators for plants that could not be identified to species were assigned based on their most likely identity.

SOIL

Sampling Point: **3**

Profile Description: (Describe the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth	Matrix		Redox Features					
Inches	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	--	--					--	Duff / Coarse organic matter
1-7	5 YR 3/3	100					Silt loam	
7+	5 YR 3/4	100					Cemented silt-clay	

[1]Type : C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Cemented layer

Depth (inches): 7+

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Cemented layer at 7+ inches prevents further excavation by hand.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface water (A1)
- ☐ High water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible-Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☒ Shallow Aquitard (D3)
- ☐ FAC-Neutral test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections, if available:

Remarks:

WETLAND DETERMINATION DATA FORM – **Western Mountains, Valleys, and Coast Region**

Project/Site: Terra Vi Lodge City/County: Tuolumne Co. Sampling Date: 7/16/19
Applicant/Owner: Placeworks State: CA Sampling Point: **4**
Investigator(s): Mike Bower, M.S., Elliot Maldonado, B.S. Section, Township, Range: See report
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave-linear Slope (%): 24
Subregion (LRR): MLRA 22A SN Mtns Lat: See report Long: See report Datum: See report
Soil Map Unit Name: See report NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Yes ☒ No ☐ (If no, explain in remarks.)
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒			
Hydric Soil Present?	Yes ☐	No ☒	Is the sampled area		
Wetland Hydrology Present?	Yes ☐	No ☐	within a Wetland?	Yes ☐	No ☒

Remarks:
Data point located in vegetated swale.

VEGETATION - Use Scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		

Sapling/Shrub Stratum: (Plot size: 5m X 2m)			
1. *Pinus ponderosa*	7%	D	FACU
2. *Chamaebatia foliolosa*	8%	D	UPL
3.			
4.			
5.			
	15% = Total Cover		

Herb Stratum: (Plot size: 5m X 2m)			
1. *Convolvulus arvensis*	20%	D	UPL
2. *Madia* sp.	17%	D	FACU
3. *Festuca bromoides*	10%		FAC
4. *Lactuca serriola*	2%		FACU
5. *Bromus hordeaceus*	4%		FACU
6. *Aira caryophyllea*	4%		FACU
7. *Agoseris grandiflora*	1%		UPL
8. *Tragopogon porrifolius*	1%		UPL
9.			
	59% = Total Cover		

Woody Vine Stratum: (Plot size:_____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL Species:	x 1 =	
FACW Species	x 2 =	
FAC Species	x 3 =	
FACU Species	x 4 =	
UPL Species	x 5 =	
Column Totals: (A)	(B)	

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of Hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:
Vegetation burned in 2013 Rim Fire. Many tree saplings are resprouting. Indicators for plants that could not be identified to species were assigned based on their most likely identity.

SOIL Sampling Point: **4**

Profile Description: (Describe the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth	Matrix		Redox Features					
Inches	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 2.5/2	100					Sandy loam	
3-14	7.5 YR 2.5/3	100					Silt loam	

[1]Type : C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface water (A1)
- ☐ High water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible-Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____
Water Table Present? Yes ☐ No ☒ Depth (inches): _____
Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections, if available:

Remarks:
Swale has a few patches of exposed soil due to post-fire erosion. No channel with OHWM observed.

WETLAND DETERMINATION DATA FORM – **Western Mountains, Valleys, and Coast Region**

Project/Site: Terra Vi Lodge City/County: Tuolumne Co. Sampling Date: 7/16/19
Applicant/Owner: Placeworks State: CA Sampling Point: **5**
Investigator(s): Mike Bower, M.S., Elliot Maldonado, B.S. Section, Township, Range: See report
Landform (hillslope, terrace, etc.): Hill top Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR): MLRA 22A SN Mtns Lat: See report Long: See report Datum: See report
Soil Map Unit Name: See report NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Yes ☒ No ☐ (If no, explain in remarks.)
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒			
Hydric Soil Present?	Yes ☐	No ☒	Is the sampled area		
Wetland Hydrology Present?	Yes ☒	No ☐	within a Wetland?	Yes ☐	No ☒

Remarks:
Data point located in small local depression 10 ft south of Sawmill Mountain Road.

VEGETATION - Use Scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum: (Plot size:_____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum: (Plot size:3 m radius)			
1. *Polygonum aviculare* ssp. *depressum*	22%	D	FAC
2. *Madia* sp.	8%	D	FACU
3. *Bromus tectorum*	1%		UPL
4. *Stipa* sp.	4%		UPL
5. *Centaurea solstitialis*	3%		UPL
6. *Lactuca serriola*	2%		FACU
7. *Bromus hordeaceus*	4%		FACU
8. *Festuca bromoides*	4%		FAC
9. *Epilobium* sp.	1%		FAC
10. *Cirsium vulgare*	1%		FACU
	50% = Total Cover		
Woody Vine Stratum: (Plot size:_____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species:	0	x 1 =	
FACW Species	0	x 2 =	
FAC Species	27	x 3 =	81
FACU Species	15	x 4 =	60
UPL Species	8	x 5 =	40
Column Totals:	50 (A)		181 (B)

Prevalence Index = B/A = 181/50 = 3.6

Hydrophytic Vegetation Indicators:
- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of Hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:
Area burned during 2013 Rim Fire and was also disturbed during burned log clearing immediately following the fire. Indicators for plants that could not be identified to species were assigned based on their most likely identity.

SOIL

Sampling Point: **5**

Profile Description: (Describe the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth	Matrix		Redox Features					
Inches	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 3/2	100					Silt loam	See remarks
2-12	7.5 YR 3/3	100					Silt loam	See remarks

[1]Type : C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Twigs and other coarse organic present throughout soil profile. Soil was likely disturbed/ mixed during the clearing of burned logs following the 2013 Rim Fire. No redoximorphic features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface water (A1)
- ☐ High water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible-Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections, if available:

Remarks:

Appendix B.

Photographs

Photo 1. View looking west overlooking the BSA from atop the hill at eastern edge of BSA. Ponderosa pine and black oak are resprouting following the Rim Fire in 2013. State Highway 120 is visible on top left. 16 July 2019.

Photo 2. View looking southeast toward Ephemeral Channel 01 (EC-01; at dashed white line) from the northern edge of the BSA. The low-growing green vegetation in distance is mountain misery, an upland plant. 16 July 2019.

Photo 3. View looking east toward EC-02 (at dashed white line) from Sawmill Mountain Road near State Highway 120 (visible on top right). 16 July 2019.

Photo 4. View looking southeast toward EC-03 (at dashed white line). EC-03 flows into a culvert beneath State Highway 120 (visible in distance). 16 July 2019.

Photo 5. View looking southeast toward Data Point 1 (DP 1; at shovel) in the northwest corner of the BSA. The bright green vegetation is mountain misery, an upland plant. 16 July 2019.

Photo 6. View looking northeast toward DP 4 (at shovel) in an upland swale near the center of the site. Dominant vegetation includes Ponderosa pine (FACU), mountain misery (UPL), field bindweed (UPL), and tarweed (FACU), 16 July 2019.

Appendix C.

Plant Species Recorded at Data Points

Family	Scientific Name	Common Name	Stratum[1]	Indicator[2]
CONIFERS				
Cupressaceae	*Calocedrus decurrens*	Incense cedar	S/T	UPL
Pinaceae	*Pinus ponderosa*	Ponderosa pine	S/T	FACU
	Pseudotsuga menziesii var. menziesii	Douglas-fir	S/T	FACU
EUDICOTS				
Asteraceae	*Agoseris grandiflora* var. *grandiflora*	Agoseris	H	UPL
	Centaurea solstitialis	Yellow star-thistle	H	UPL
	Cirsium vulgare	Bull thistle	H	FACU
	Erigeron (=*Conyza*) sp.	Horseweed	H	FACU
	Lactuca serriola	Prickly lettuce	H	FACU
	Madia sp.	Tarweed	H	FACU
	Tragopogon porrifolius	Salsify	H	UPL
Boraginaceae	*Torilis arvensis*	Tall sock-destroyer	H	UPL
Convolvulaceae	*Convolvulus arvensis*	Field bindweed	H	UPL
Ericaceae	*Arctostaphylos viscida*	Manzanita	S	UPL
Fabaceae	*Acmispon americanus* var. *americanus*	Deervetch, deerweed	H	UPL
Fagaceae	*Quercus kelloggii*	Black oak	S/T	UPL
Grossulariaceae	*Ribes roezlii* var. *roezlii*	Sierran gooseberry	S	UPL
Onagraceae	*Epilobium* sp.	Willow-herb	H	FAC
Polemoniaceae	*Collomia* sp.	Trumpet flower	H	FACU
Polygonaceae	*Persicaria aviculare* ssp. *depressum*	Knotweed	H	FAC
Rosaceae	*Chamaebatia foliolosa*	Mountain misery	S	UPL
	Drymocallis sp.	Drymocallis	H	FAC
Rubiaceae	*Galium porrigens*	Climbing bedstraw	H	UPL
MONOCOTS				
Iridaceae	*Iris* sp.	Iris	H	FACU
Poaceae	*Aira caryophyllea*	Silver hairgrass	H	FACU
	Bromus hordeaceus	Soft chess	H	FACU
	Bromus tectorum	Cheatgrass	H	UPL
	Elymus glaucus	Blue wild rye	H	FACU
	Festuca bromoides	Brome fescue	H	FAC
	Stipa sp.	Needlegrass	H	UPL

[1] H=herb; S=sapling/shrub; T=tree, WV=woody vine.

[2] Indicators from current version of the National Wetland Plant List (Lichvar et al. 2016) for the Arid West Region. Plant species not on the 2016 list are treated as UPL. Indicators for plants that could not be identified to species were assigned based on their most likely identity.

Appendix D.

FEMA FIRM Maps

National Flood Hazard Layer FIRMette

FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/21/2019 at 4:40:09 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix E.

Aquatic Resources Table (Excel spreadsheet to be sent via email)

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway	Similarly_Situated	Sim_Situated_Aggregated_SPOE	Adjcent_Waters_Sbjct_33USC1344	OHWM_Chg_In_Plant_Community	OHWM_Bed_And_Banks	OHWM_Break_In_Slope	OHWM_Chg_In_Character_Of_Soil	OHWM_Chg_In_Veg_Density_Maturity	OHWM_Chg_In_Sediment_Texture	OHWM_Line_Impressed_On_Bank	OHWM_Destr_Of_Terrestrial_Veg	OHWM_Leaf_Litter_Disturbed	OHWM_Multiple_Flow_Events	OHWM_Scour	OHWM_Sediment_Deposition	OHWM_Sediment_Sorting	OHWM_Shelving	OHWM_Litter_and_Debris_Present	OHWM_Wrack_Line_Present	OHWM_Veg_Matted_Bent_Or_Absent	OHWM_Water_Staining	OHWM_Other	OHWM_Other_Text	Func_I_Sediment_Trapping	Func_II_Nutrient_Recycling	Func_III_Pollutant_Management	Func_IV_Retntn_Attenu_Fld_Wtrs	Func_V_Runoff_Storage	Func_VI_Contribution_of_Flow	Func_VII_Export_Organic_Matter	Func_VIII_Export_Food_Resources	Func_IX_Prov_Life_Cycle_Depe
Ephemeral Channel 01	CALIFORNIA	R6		Area	0.002	FOOT	A5	37.82513297	-119.96573083					YES	YES						YES							YES												
Ephemeral Channel 02	CALIFORNIA	R6		Area	0.001	ACRE	A5	37.82266530	-119.96561944					YES	YES						YES							YES												
Ephemeral Channel 03	CALIFORNIA	R6		Area	0.001	ACRE	A5	37.82227618	-119.96195160					YES							YES							YES												

APPENDIX F

GEOLOGY AND SOILS

Appendix F1:
Soil and Site Field Evaluation

SOIL AND SITE FIELD EVALUATION

Tuolumne County Environmental Health
12801 Cabezut Road
(209) 533-5990

- NOTE: THIS IS NOT A PERMIT -

APN#/TPM: 68-120-06 OWNER: Carol Manly CONTRACTOR: Darr

SITE ADDRESS/LOCATION:

Soil Data

Trench or Lot # 1

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	Silt Loam	loose	2.5YR 3/4	Q	.45
2-3	silt loam	moderate	2.5YR 3/6	Q	.45
4-5	Si lt Loam	Granular	10R 5/8	Q	.45
6-9					
10-16					

Percent Slope:

Circle One: Slope Ridge Top Swale

Vegetation: Bear clover, Rim Fire Burned area

Trench or Lot # 2

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-3	Si lt loam	loose well drained Roots	5YR 4/4	Q	.45
5-7	Silty loam		10YR 5/8	Q	.45
9-16					

Percent Slope:

Circle One: Slope Ridge Top Swale

Vegetation:

Site Constraints:

Soil and Site Recommendations

☑ **Soil and site evaluation demonstrates that the parcel meets the minimum requirements for a standard system in accordance with TCOC 13.08.230 with an application rate of .45 gal/sqft/day.**

☑ **Location of septic system approved. Qualifies to apply for a building permit.**
Requires septic permit prior to applying for building permit.

☐ **Does not meet the minimum requirements for a standard system in accordance with TCOC 13.08.230.**

☐ Soil and site evaluation indicates that the parcel meets the minimum requirements for a special design or alternative system. Retain the services of a consultant to design a system. (TCOC13.08.270)

☐ Soil and site evaluation indicates that the area tested on this parcel does not meet the minimum requirements for a special design or alternative system. Recommend retaining a consultant to explore other areas on the parcel to meet the minimum criteria of (TCOC 13.08.270).

Environmental Health Specialist

Received By

4-23-18
Date

1/4

☐ Existing Lot
☐ Proposed Lot
☐ Repair
☐ For R. E. Purposes

SOIL AND SITE EVALUATION

Tuolumne County Environmental Health
2 South Green Street, Sonora, CA 95370
(209) 533-5990

- NOTE: THIS IS NOT A PERMIT -

APN#/TPM: _____ **OWNER:** _____ **CONTRACTOR:** _____

SITE ADDRESS/LOCATION: Sawmill Mountain Rd., Groveland

Soil Data

Trench or Lot # 3

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	LOAM	S.A.	5YR 3/3	Ø	0.45
2-7	Loam/ Silt Loam	S.A.- Gran.	5YR 3/4 / 5YR 5/8	Ø	0.45
8-16					

Percent Slope: 10-15%

Circle One: (Slope) Ridge Top Swale

Vegetation: grasses + pines

Trench or Lot # 4

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	Loam	S.A.	5YR 3/3	Ø	0.45
2-7	Loam/ Silt Loam	S.A.- Gran.	5YR 3/4 / 5YR 5/8	Ø	0.45
8-16					

Percent Slope: 10-15%

Circle One: (Slope) Ridge Top Swale

Vegetation: GRASSES + PINES

Site Constraints: _____

Needed Plot Plan Corrections: _____

Approved Proposal Minimums:

Septic Tank: _____ Gallons. Leach Lines: _____ Feet. No of Bedrooms: _____

Gravel Depth: _____ Trench Width: _____ Trench Depth: _____

Recommendation: ☐ Issue Permit ☐ Plan Denial * ☐ See LW8 Letter (for R.E. Purposes)

*See Site Constraints/Needed Plot Plan Corrections

J. Bardenhuer
Environmental Health Specialist

_____
Received By

4/23/18
Date

White - Environmental Health Department Yellow - Contractor/Applicant

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SOIL AND SITE FIELD EVALUATION

Tuolumne County Environmental Health
12801 Cabezut Road
(209) 533-5990

- NOTE: THIS IS NOT A PERMIT -

APN#/TPM: 68-120-06 **OWNER:** Carol Manly **CONTRACTOR:** Darr

SITE ADDRESS/LOCATION:

Soil Data

Trench or Lot # 5

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0–4	Loam	mod Roots	2.5YR 2.5/3	Ø	.6
5–9	Silt Loam			Ø	.45
10–16					

Percent Slope:

Circle One: Slope Ridge Top Swale

Vegetation: Bear clover, Rim Fire scar

Trench or Lot # 6

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0–1	Silt Loam	Loose organic	2.5YR 3/3	Ø	.45
2–4	Silt loam	Roots well drained	↓	Ø	.45
5–9	Silt loam	loose well drained	↓	Ø	.45
10–16					

Percent Slope:

Circle One: Slope Ridge Top Swale

Vegetation:

Site Constraints: Commercial System

swale

Soil and Site Recommendations

☐ **Soil and site evaluation demonstrates that the parcel meets the minimum requirements for a standard system in accordance with TCOC 13.08.230 with an application rate of .45 gal/sqft/day.**

☐ **Location of septic system approved. Qualifies to apply for a building permit.**
Requires septic permit prior to applying for building permit.

☐ **Does not meet the minimum requirements for a standard system in accordance with TCOC 13.08.230.**

☐ Soil and site evaluation indicates that the parcel meets the minimum requirements for a special design or alternative system. Retain the services of a consultant to design a system. (TCOC13.08.270)

☐ Soil and site evaluation indicates that the area tested on this parcel does not meet the minimum requirements for a special design or alternative system. Recommend retaining a consultant to explore other areas on the parcel to meet the minimum criteria of (TCOC 13.08.270).

Environmental Health Specialist

Received By

4-23-18
Date

2/4

☐ Existing Lot
☐ Proposed Lot
☐ Repair
☐ For R. E. Purposes

SOIL AND SITE EVALUATION

Tuolumne County Environmental Health
2 South Green Street, Sonora, CA 95370
(209) 533-5990

- NOTE: THIS IS NOT A PERMIT -

APN#/TPM: _____ **OWNER:** _____ **CONTRACTOR:** _____

SITE ADDRESS/LOCATION: Sawmill Mountain Rd., Groveland

Soil Data

Trench or Lot # 7

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0	LOAM	S.A.	5YR 3/3	Ø	0.45
1					
2	SILT LOAM	S.A. Granular	5YR 3/4	Ø	0.45
3					
4					
5					
6			5YR 5/8		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Percent Slope: 10-15%

Circle One: (Slope) Ridge Top Swale

Vegetation: GRASSES + PINES

Trench or Lot # 8

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0	LOAM	S.A.	5YR 3/3	Ø	0.45
1					
2					
3	LOAM/ SILT LOAM	S.A. - Granular	5YR 3/4	Ø	0.45
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Percent Slope: 10-15%

Circle One: (Slope) Ridge Top Swale

Vegetation: GRASSES + PINES

Site Constraints: _____

Needed Plot Plan Corrections: _____

Approved Proposal Minimums:

Septic Tank: _____ Gallons. Leach Lines: _____ Feet. No of Bedrooms: _____

Gravel Depth: _____ Trench Width: _____ Trench Depth: _____

Recommendation: ☐ Issue Permit ☐ Plan Denial * ☐ See LW8 Letter (for R.E. Purposes)

*See Site Constraints/Needed Plot Plan Corrections

D. Barickman
Environmental Health Specialist

_____
Received By

4/23/18
Date

White - Environmental Health Department Yellow - Contractor/Applicant

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SOIL AND SITE FIELD EVALUATION

Tuolumne County Environmental Health
12801 Cabezut Road
(209) 533-5990

- NOTE: THIS IS NOT A PERMIT -

APN#/TPM: 68-120-06 OWNER: Carol Manly CONTRACTOR: Darr

SITE ADDRESS/LOCATION:

Soil Data

Trench or Lot # 9

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	Silty loam	moderate burned	10 YR 3/3	Ø	.45 Ø
2-4	loam	loose well drained	10 YR 4/6	Ø	.6
5-9	Silt Loam	loose Talus Boulder	10 YR 4/3	Ø	
10-16					

Percent Slope:

Circle One: Slope Ridge Top Swale

Vegetation: Bear clover, Pines, Burned area

Trench or Lot # 10

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	Silt loam	mod Burnt	10 YR 3/3	Ø	.45 Ø
2-4	loam	loose	10 YR 4/4	Ø	.6
5-6	Silty loam	mod blocky	10 YR 4/4	Ø	.45
7-9	Silt loam	mod	10 YR 4/6	Ø	.45
10-16					

Percent Slope:

Circle One: Slope Ridge Top Swale

Vegetation:

Site Constraints: Commercial System
Swale

Soil and Site Recommendations

☑ **Soil and site evaluation demonstrates that the parcel meets the minimum requirements for a standard system in accordance with TCOC 13.08.230 with an application rate of .45 gal/sqft/day.**

☐ **Location of septic system approved. Qualifies to apply for a building permit. Requires septic permit prior to applying for building permit.**

☐ **Does not meet the minimum requirements for a standard system in accordance with TCOC 13.08.230.**

☐ Soil and site evaluation indicates that the parcel meets the minimum requirements for a special design or alternative system. Retain the services of a consultant to design a system. (TCOC13.08.270)

☐ Soil and site evaluation indicates that the area tested on this parcel does not meet the minimum requirements for a special design or alternative system. Recommend retaining a consultant to explore other areas on the parcel to meet the minimum criteria of (TCOC 13.08.270).

Robert Kerley
Environmental Health Specialist

Received By

4/23/15
Date

3/4

SOIL AND SITE EVALUATION

Tuolumne County Environmental Health
2 South Green Street, Sonora, CA 95370
(209) 533-5990

- NOTE: THIS IS NOT A PERMIT -

☐ **Existing Lot**
☐ **Proposed Lot**
☐ **Repair**
☐ **For R. E. Purposes**

APN#/TPM: _____ **OWNER:** _____ **CONTRACTOR:** _____

SITE ADDRESS/LOCATION: SAWMILL Mountain Rd., GRANLAND

Soil Data

Trench or Lot # 11

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	LOAM	S.A.	5YR 3/4	Ø	0.45
2-4	SILTY LOAM	S.A. GRAN.	5YR 4/6	Ø	0.45
5-7	SANDY LOAM	GRANULAR	5YR 5/8		
8-16					

Percent Slope: 10-15%

Circle One: (Slope) Ridge Top Swale

Vegetation: GRASSES + PINES

Trench or Lot # 12

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	LOAM	S.A.	5YR 3/4	Ø	0.45
2-4	SILT LOAM	S.A.	5YR 4/6	Ø	0.45
5-7			5YR 5/8		
8-16					

Percent Slope: 10-15%

Circle One: (Slope) Ridge Top Swale

Vegetation: GRASSES + PINES

Site Constraints: _____

Needed Plot Plan Corrections: _____

Approved Proposal Minimums:

Septic Tank: _____ Gallons. Leach Lines: _____ Feet. No of Bedrooms: _____

Gravel Depth: _____ Trench Width: _____ Trench Depth: _____

Recommendation: ☐ Issue Permit ☐ Plan Denial * ☐ See LW8 Letter (for R.E. Purposes)

*See Site Constraints/Needed Plot Plan Corrections

J. Bardenhauer
Environmental Health Specialist

_____
Received By

4/23/18
Date

White - Environmental Health Department Yellow - Contractor/Applicant

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SOIL AND SITE FIELD EVALUATION

Tuolumne County Environmental Health
12801 Cabezut Road
(209) 533-5990

- NOTE: THIS IS NOT A PERMIT -

APN#/TPM: 68-120-06 OWNER: Carol Manly CONTRACTOR: _____

SITE ADDRESS/LOCATION: _____

Soil Data

Trench or Lot # 13

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	Silt Loam	Compacted	2.5YR 4/4	ϕ	.45
2-5	Silty clay loam	Compacted	2.5YR 4/3	ϕ	.2
6-9	Silty loam	Loose	10R 3/6	ϕ	
10-16					

Percent Slope: _____

Circle One: Slope Ridge Top Swale

Vegetation: Bear clover, Rim Fire burn area

Trench or Lot # 14

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	Silty loam	Loose	2.5YR 2.5/4	ϕ	.45
2-6	Silty clay loam	Blocky	10R 3/6	ϕ	.2
7-9	Silty loam	Smearing	10R 3/6	ϕ	.45
10-16					

Percent Slope: _____

Circle One: Slope Ridge Top Swale

Vegetation: _____

Site Constraints: _____

Soil and Site Recommendations

.2 gpd²

☑ **Soil and site evaluation demonstrates that the parcel meets the minimum requirements for a standard system in accordance with TCOC 13.08.230 with an application rate of .45 gal/sqft/day.**

☐ **Location of septic system approved. Qualifies to apply for a building permit.**
☐ **Requires septic permit prior to applying for building permit.**

☐ **Does not meet the minimum requirements for a standard system in accordance with TCOC 13.08.230.**

☐ Soil and site evaluation indicates that the parcel meets the minimum requirements for a special design or alternative system. Retain the services of a consultant to design a system. (TCOC13.08.270)

☐ Soil and site evaluation indicates that the area tested on this parcel does not meet the minimum requirements for a special design or alternative system. Recommend retaining a consultant to explore other areas on the parcel to meet the minimum criteria of (TCOC 13.08.270).

Environmental Health Specialist _____ Received By _____ Date 4-23-18

SOIL AND SITE FIELD EVALUATION

Tuolumne County Environmental Health
12801 Cabezut Road
(209) 533-5990

- NOTE: THIS IS NOT A PERMIT -

APN#/TPM: 68-120-06 OWNER: Carol Manly CONTRACTOR: _____

SITE ADDRESS/LOCATION: _____

Soil Data

Trench or Lot # 15

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	loam	Compacted	10R 4/4	Ø	.6
2-9	loam	loose	10R 4/3	Ø	.6
10-16					

Percent Slope: _____

Circle One: Slope Ridge Top Swale

Vegetation: Bear clover, Rim Fire Burned area

Trench or Lot # 16

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0-1	Loam	Burnt Compacted	5YR 4/4	Ø	.6
2-5	Silt loam	loose	5/4YR 5/4	Ø	.45
6-9	Silt loam	Roots loose well drained	10R 4/4	Ø	.45
10-16					

Percent Slope: _____

Circle One: Slope Ridge Top Swale

Vegetation: _____

Site Constraints: _____

Soil and Site Recommendations

☒ **Soil and site evaluation demonstrates that the parcel meets the minimum requirements for a standard system in accordance with TCOC 13.08.230 with an application rate of .5 gal/sqft/day.**

☐ **Location of septic system approved. Qualifies to apply for a building permit.**
☐ **Requires septic permit prior to applying for building permit.**

☐ **Does not meet the minimum requirements for a standard system in accordance with TCOC 13.08.230.**

☐ Soil and site evaluation indicates that the parcel meets the minimum requirements for a special design or alternative system. Retain the services of a consultant to design a system. (TCOC13.08.270)

☐ Soil and site evaluation indicates that the area tested on this parcel does not meet the minimum requirements for a special design or alternative system. Recommend retaining a consultant to explore other areas on the parcel to meet the minimum criteria of (TCOC 13.08.270).

Environmental Health Specialist _____ Received By _____ Date 4-23-18

SOIL AND SITE EVALUATION

Tuolumne County Environmental Health
2 South Green Street, Sonora, CA 95370
(209) 533-5990

- NOTE: THIS IS NOT A PERMIT -

☐ **Existing Lot**
☐ **Proposed Lot**
☐ **Repair**
☐ **For R. E. Purposes**

APN#/TPM: _____ **OWNER:** _____ **CONTRACTOR:** _____

SITE ADDRESS/LOCATION: Sawmill Mountain Rd., Groveland

Soil Data

Trench or Lot # 17

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0–1	SILT LOAM	Granular	7.5YR 2.5/3	Ø	0.45
1–2			5YR 5/6		
2–3					
3–4	SILT CLAY LOAM	S.A.	5YR 5/6	Ø	0.3
4–5					
5–6					
6–7					
7–8					
8–9					
9–10					
10–11					
11–12					
12–13					
13–14					
14–15					
15–16					

Percent Slope: 10-15%

Circle One: (Slope) Ridge Top Swale

Vegetation: Grasses + pines

Trench or Lot # 18

Depth (ft)	Texture	Structure	Color	GW Evid	Appl Rate
0–1	SILT Loam	S.A.	7.5YR 2.5/3	Ø	0.45
1–2	Loam /	S.A.	5YR 5/6	Ø	0.45
2–3					
3–4	SILT		5YR 5/8		
4–5	Loam				
5–6					
6–7					
7–8					
8–9					
9–10					
10–11					
11–12					
12–13					
13–14					
14–15					
15–16					

Percent Slope: 10-15%

Circle One: (Slope) Ridge Top Swale

Vegetation: Grasses + pines

Site Constraints: _____

Needed Plot Plan Corrections: _____

Approved Proposal Minimums:

Septic Tank: _____ Gallons. Leach Lines: _____ Feet. No of Bedrooms: _____

Gravel Depth: _____ Trench Width: _____ Trench Depth: _____

Recommendation: ☐ Issue Permit ☐ Plan Denial * ☐ See LW8 Letter (for R.E. Purposes)

*See Site Constraints/Needed Plot Plan Corrections

J. Bardenhewer
Environmental Health Specialist

_____
Received By

4/23/18
Date

White - Environmental Health Department Yellow - Contractor/Applicant

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Appendix F2:
Highway 120 Corridor Soils Report

Don Myers, REHS
Registered Environmental Health Specialist

14801 Twist Road
Jamestown, CA 95327
(209)743-9493

Qualified Wastewater System Design and Consultation
"#1 Consultant in the #2 Business"

April 30, 2018

Highway 120 Corridor Soils Report

Current Property Owner(s): Carol Manly
Site: Sawmill Mountain Road X State Highway 120, Groveland
APN: 068-120-060

A soils inspection was conducted at the above listed site with Tuolumne County Environmental Health staff on 04/20/2018. A total of (18) soil profile pits were randomly excavated in the northwest corner (+/-6 acres) of the 27.78 acre parcel. Specifically the area tested was between the Caltrans easement on the south side of the area, the property boundary to the north, the property boundary to the west, and Sawmill Mountain Road to the east. Soil texture found in the excavation consisted of mostly a loam to silt-loam to at least 8' deep. Excavation refusal was not encountered in any of the soil profile pits. Groundwater was not encountered in any of the soil profile pits. The ground slope in the soil test area was +/-8% to +/-20%.

The section of the property tested for on-site wastewater system development will have an area 100' wide along the utility lines between Sawmill Mountain Road and the western property boundary that will have to remain as an "open space"/utility easement. This area is a low lying saddle that has the potential to accumulate excess moisture from winter storm events. Otherwise there is only the 50' sanitary setback along the northern and western property boundaries that would have to be clear of any wastewater system development.

Soil conditionals encountered are good to very good for on-site sewage dispersal systems. Pre-treatment for moderate to low strength commercial wastewater would be minimal to moderate under these conditions. High strength commercial wastewater from food facilities will (as always) require an intensive, and more elaborate pre-treatment system. The exact amount of area needed for the commercial development wastewater system can only be determined during the wastewater system design process. As long as the area described above remains dedicated to the on-site wastewater system, and is not encumbered by any of the commercial development, it should provide a more than adequate area for the wastewater system.

Tuolumne County Environmental Health will soon be generating a separate site and soils report.
Please feel free to contact me if there are any questions regarding this wastewater system soils evaluation.

Sincerely,

Don Myers, REHS

REGISTERED ENVIRONMENTAL HEALTH SPECIALIST
DONALD H. MYERS
04/30/2018
No. 6587
STATE OF CALIFORNIA

APPENDIX G

HYDROGEOLOGY STUDY

Technical Memorandum

GEOSCIENCE
The First Name in Groundwater

To:	John K. Bissell Hansji Corporation 631 West Katella Ave. Fifth Floor Anaheim, CA 92802	
From:	Brian Villalobos, PG, CHG Principal Hydrogeologist GEOSCIENCE Support Services, Inc. 	Christofer Coppinger, PG, CHG Senior Hydrogeologist GEOSCIENCE Support Services, Inc.
Date:	March 30, 2020	
Subject:	Revised Assessment of Source Water Capacity and Groundwater Pumping Influence for Two Supply Wells, Terra Vi Yosemite, Located near Groveland, Tuolumne County	

EXECUTIVE SUMMARY

Terra Vi Yosemite lodge is a proposed hotel project outside Groveland California that will require up to 16,636.4 gallons per day (gpd) of water for potable use. Two fractured bedrock aquifer wells were tested for capacity in October 2019. These wells were pumped concurrently and produced an average combined flow of 53 gallons per minute (gpm) for 10 days. During testing, water levels were measured in the pumping wells, two monitoring wells on the property, and three nearby domestic wells.

Water levels in the pumping wells recovered in less than eight days after the pump shut off. Water level responses in the wells indicate they produce from the same fracture set. Terra Vi intends to operate the wells in an alternating use pattern, with one well idle as the other pumps. We determine a capacity of 26.5 gpm for each well, or 38,160 gpd.

Water quality samples were taken from the pumping wells and the nearby domestic wells. Arsenic and Iron were detected above MCL in samples from the pumping wells, but concentrations were not consistent before and after the pumping test. Additional samples must be collected to confirm these results.

This technical memorandum (TM) was originally issued February 13, 2020. It has been revised to include analysis of water supply during dry years and multiple dry years (issued March 19, 2020) and updated to reflect revisions to the calculated demand flows (this version, issued March 30, 2020).

1.0 INTRODUCTION

The purpose of this technical memorandum (TM) is to present our assessment of the groundwater supply and water quality for the proposed Terra Vi Yosemite Lodge located outside Groveland, California. Geoscience conducted a 10-day pumping test of two water supply wells in October and November of 2019. The wells were drilled into bedrock and produce water from fractures. The wells were pumped concurrently at an average rate of 25 and 27 gallons per minute, with a total combined average pumping rate of 53 gpm. Water level changes in the wells indicated the two wells are producing water from the same set of fractures. Water levels in the wells initially stabilized after approximately two days of pumping but remained responsive to increases in flow rate and changes in pumping at nearby wells. Samples were collected for water quality analysis before and after the pumping test.

2.0 PROJECT DESCRIPTION

Development plans for the Terra Vi Lodge consist of a main lodge with 100 units of guest lodging and two manager suites with an average occupancy of 290 guests and a maximum occupancy of 400 guests. 26 additional rooms are proposed as part of 7 detached cabins, with an average occupancy of 104 guests and a maximum of 156 guests. Five employee apartments are planned housing 20 employees. A food market/hotel gift shop is also planned. Shamim Engineering Consultants, Inc., of Tarzana, CA, has calculated a water demand of 16,636.4 gpd (approximately 11.6 gpm) using table A, Chapter 4 of the Los Angeles Plumbing code with standard CALGreen reductions based on minimum efficiency fixtures. Non-potable needs will be met using captured and stored precipitation and treated grey water. The project has a planned capacity for 10,000 gpd greywater collection and storage. A 25,000 gallon surface and stormwater capture and storage system is planned.

To meet the potable water needs, two groundwater supply wells were constructed. Additional wells were drilled to monitor groundwater levels. Department of Water Resources Driller's Logs for Terra Vi wells are

included in Attachment A. Geoscience collected water quality samples from the Tera Vi and nearby domestic wells, equipped the wells with pressure transducers to measure water level, and conducted pumping test of the wells and aquifer. Laboratory reports of water quality analysis are included in Attachment B. Hydrology data including precipitation records and watershed boundaries were considered in addition to the field data collected. The location of the site is shown on Figure 1. The proposed project lay-out is shown on Figure 2.

3.0 PROJECT SETTING

The project site is in the foothills of the Sierra Nevada Mountains approximately 10 miles west of Yosemite National Park's Big Oak Flat entrance along Highway 120 (also called Big Oak Flat Road), near the intersection of Sawmill Mountain Road (Forest Route 1S03) and Highway 120.

With a half mile radius of the site there are several vacation cabins off Sawmill Mountain Road. At this time, it is believed that there are not full-time residents near the project area. Water for these cabins is supplied by wells. Figure 3 shows the locations of the adjacent properties and the wells associated with each parcel.

For the purposes of this study, the nearby wells are named according to the state assigned numbers. All participating nearby wells are in the same tract and are distinguished by ending in a, b, c from west to east respectively. Nearby wells 01S/18E-26G(C), 01S/18E-26G(B), and 01S/18E-26G(A) are located approximately 1,494 ft, 1,418 ft, and 1,650 ft, respectively, from the closest Terra Vi pumping well. Table 1 below shows the well names and reference used in this TM.

Table 1: Well Names and References

Well Name	Well Reference
Terra Vi Production Well 1	TV-PW-1
Terra Vi Production Well 2	TV-PW-2
Terra Vi Monitoring Well 1	TV-MW-1
Terra Vi Monitoring Well 2	TV-MW-2
Terra Vi Monitoring Well 3	TV-MW-3
01S/18E-26G(A)	26G(A)
01S/18E-26G(B)	26G(B)
01S/18E-26G(C)	26G(C)

Another hotel project, called Under Canvas, is proposed on the south side of Highway 120. Two water supply wells and a monitoring well were constructed for the Under Canvas project.

4.0 SCOPE OF WORK

The scope of work for this project was to conduct a hydrogeologic investigation to meet permitting requirements for new developments set by Tuolumne County. The County uses procedures set by the State Water Resources Control Board. Therefore, the primary focus of the scope of work was developed to generate the data necessary to meet the requirements as outlined in Attachment C "Procedure To Determine Source Capacity" from the State Water Resources Control Board's Requirements for New Wells (July 2016 version).

In addition, Terra Vi included work tasks to evaluate the potential impacts of proposed project pumping on the groundwater levels and groundwater quality to neighboring wells located immediately north of the project site across Sawmill Mountain Road (Forest Service Road 1S03). Another proposed project "Under Canvas" is planned in an area south of Highway 120 and approximately one-half mile southeast of the project area. Terra Vi chose to conduct testing of the wells during the period when the Under Canvas wells were also being testing to ensure that the source capacity assessment would include the potential long-term influences of nearby offsite wells operating at the same time.

4.1 Source Capacity Testing

California Water Resources Control Board requires capacity testing of a new water source (22 CA ADC § 64554). The capacity for a well producing from secondary porosity can be determined by a California certified hydrogeologist and documented in a report to the State Board or tested using procedures laid out in the code. The testing procedures are included with this TM as Attachment C.

Geoscience adapted the test procedures for a 10-day pumping test reproduced in the italicized portions below. The 10-day test was selected to better stress the bedrock aquifer and allow conservative determination of the available capacity. Bedrock aquifers can have storage in fractures. Once these cracks are dewatered, hydraulic conductivity can change. More than three times the volume of water is pumped in the 10-day test, making it more likely than the 72-hour test to represent long term pumping conditions.

> *(B) Procedures for a 10 day well capacity test:*
>
> 1. *For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection (2) for no more than two hours, then discontinue pumping;*
> 2. *Measure and record the static water level and then pump the well continuously for a minimum of 10 days starting at the pump discharge rate proposed in (2);*
> 3. *Measure and record water drawdown levels and pumping rate:*
>   a. *Every thirty minutes during the first four hours of pumping,*
>   b. *Every hour for the next four hours,*
>   c. *Every eight hours for the remainder of the first four days,*

d. Every 24 hours for the next five days, and
e. Every four hours thereafter until the water drawdown level is constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

(C) To complete either the 72-hour or 10-day well capacity test the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the well capacity test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent. If the well recovery does not meet these criteria, the well capacity cannot be determined pursuant to subsection (g)(2) using the proposed pump rate. To demonstrate meeting the recovery criteria, the following water level data in the well shall be measured, recorded, and compared with the criteria:

1. *Every 30 minutes during the first four hours after pumping stops,*
2. *Hourly for the next eight hours, and*
3. *Every 12 hours until either the water level in the well recovers to within two feet of the static water level measured at the beginning of the well capacity test or to a at least ninety-five percent of the total drawdown measured during the test, whichever occurs first.*

(D) Following completion of a 72-hour or 10-day well capacity test, the well shall be assigned a capacity no more than:

1. *For a 72-hour test, 25 percent of the pumping rate at the end of a completed test's pumping.*
2. *For a 10-day test, 50 percent of the pumping rate at the end of a completed test's pumping.*

The sections below provide geologic information for the project site, descriptions of the test methods used, results of the pumping test, water quality information, and assessment of project impacts on and from offsite wells.

5.0 GEOLOGY

5.1 Geologic Setting

The site occupies a portion of Section 26, T1S, R18E, Mt. Diablo Baseline and Meridian. The site is located with the United States Geological Survey's Ascension Mountain 7.5 Minute Quadrangle map. A regional geologic map has been prepared by the United States Geological Survey and is entitled "Geologic Map of the Lake Eleanor Quadrangle, Central Sierra Nevada, California," dated 1987.

5.2 Bedrock

Regional mapping indicates that the project site is underlain by Jurassic granitic rock (Jgcm) identified as a medium-grained hornblende-biotite gabbro. The regional mapping shows Paleozoic metamorphic rock consisting of schist and marble-quartz schist (Pzps) immediately south of Highway 120 and Cretaceous granodiorite of Sawmill Mountain (Ksm) located beneath the Sawmill Mountain massif. A portion of the regional geologic map modified is provided as Figure 4. The contact between the Pzps and the Jgcm was modified based on field mapping conducted at the site.

5.3 Weathered Bedrock

Weathered bedrock and decomposed granite is present to depths ranging from approximately 80-100 feet below ground surface based on the descriptions provided in driller's logs of project wells and monitoring wells as well as nearby residential wells. Department of Water Resources Well Driller's Completion Reports for the Terra Vi wells are provided in Attachment A. Below the weathered bedrock is competent fractured bedrock of the types described above. Generally, surface water in the form of rainfall, run-off, or snow melt will move through the weathered bedrock and provide groundwater recharge to the bedrock fractures. As noted on the driller's logs, fracture sets can produce varying amounts of water depending on the density and volume of the fractures. Short-term airlifting during the drilling of the project well (Terra Vi Well No. 1 and Terra Vi Well No. 2) boreholes showed well discharge rates from fractures ranging from 2 gallons per minute (gpm) to 25 gpm in Terra Vi Well No. 1 and from 2 gpm to 63 gpm in Terra Vi Well No. 2.

5.4 Alluvial Soils

Alluvium is present as a thin veneer underlying the shallow drainages on site. The alluvium consists primarily of sand and gravel with some silt. The alluvium is not a source of water supply on site.

5.5 Joint and Fracture Mapping

Groundwater in bedrock terrane flows through secondary porosity such as the spaces that occur between the faces of joints and fractures. Closely spaced joint and fractures can transmit more water since they

provide more volume for water to flow through. In bedrock, groundwater will flow by gravity downgradient along the joint and fractures. To evaluate the potential for connection between the project wells and offsite wells, limited joint and fracture mapping was conducted at the site. Mapping consisted of both assessing lineaments expressed on a topographic map as well as on-site measurement of joint and fracture surfaces exposed on the project site

A portion of the United States Geologic Survey Ascension Mountain 7.5 Minute Topographic map in the vicinity of the site was reviewed to evaluate whether lineament patterns are present. Lineaments typically develop along weaknesses in the rock such as along faults or developed joint and fracture sets. Lineaments observed on the topographic map on the project site and in close vicinity are plotted on Figure 5. Figure 5 shows a predominant pattern of the northeast-southwest trending lineaments and a set of northwest-southeast trending lineaments. Springs are shown on the 1992 version (See Figure 5) of the topographic map both northwest and southeast of the project site appear to have occurred at the intersection of prominent joint sets at approximate elevations of 3,820 feet and 3,814 feet, respectively. There is no current evidence of the springs, and the most recent version of the USGS topographic map for Ascension Mountain no longer shows the springs. This is likely because wells in the area have drawn the groundwater surface below the surface elevation of the former springs.

Figure 6 provides mapping of joint and fractures from very limited exposures available on the project site. Exposures of plutonic rock present in the western portion of the site may likely not be in place but may rather represent large bedrock masses within a weathered rock matrix. However, joint surfaces were mapped from the exposures present. Exposures of meta-sediments on the prominent topographic high located in the center of the site provided exposures to map joint and fracture surfaces. Figure 6 shows measured joint and fracture surfaces on site. Joint spacing in the meta-sediments range from 1-inch to 10-inches in spacing, depending on the joint set orientation. In general, the northeast trending joint sets in the meta-sediments are more closely spaced (1-2 inches and up to 6-inches) with the northwest sets showing wider spacing (up to 10-inch spacing).

6.0 HYDROLOGY

A southwest, northeast trending watershed boundary divides the hydrogeological study area in two (See Figure 4). Located in the north is the Middle Tuolumne River (1804000906) and in the south is South Fork Tuolumne River (1804000907). Terra Vi monitoring and residential wells are located in the northern hydrologic area. The South hosts the Terra Vi production wells and Under Canvas wells. In a fractured rock environment, groundwater flow is not controlled by surface water boundaries. Fractures can extend across watershed boundaries.

Precipitation stations near the project site are not available. Modeled precipitation was downloaded from PRISM climate group for the 4km square area surrounding latitude 37.8304 North longitude 119.9523 West. Figure 7 shows monthly precipitation from January 2014 to November 2019. The most recent significant precipitation before testing was 5.36 inches in May 2019. Minor precipitation events occurred in June (0.20 in) and September (0.27 in). Testing was completed during the summer dry period to maximize stress on the aquifer and provide conservative estimates of available production capacity.

Figure 8 shows the 100-year time series for annual precipitation and the cumulative departure from mean curve for the period. The 100-year average for the period 1919 to 2019 is 36.3 inches. Cumulative departure from mean shows an increasing trend since water year 2015. Long term water level data are not available from the surrounding wells, but the springs shown on previous USGS topographic maps are no longer flowing, which suggests groundwater levels are currently lower than they have been historically.

7.0 TESTING METHODS

7.1 Groundwater Sampling

Groundwater samples were collected by GEOSCIENCE personnel before and after the pumping test. The samples were submitted to BSK Analytical Laboratories in Fresno for analysis of constituents required by the State of California Code of Regulations Title 22 Rule. Water quality analytical data for the Terra Vi wells and participating nearby wells are summarized in the attached Tables 3 through 6. Laboratory reports of water quality analysis are provided in Attachment B.

7.2 Equipping Wells with Transducers

To record groundwater levels Geoscience installed transducers in neighboring wells and Terra Vi production and monitoring wells. The transducers record pressure of the water over the instrument. This submergence pressure can be converted to a groundwater elevation to compare levels between wells with different ground surface or top of casing elevations.

Pressure transducer readings were converted to groundwater elevation values (expressed as ft NAV88) using the depth of the pressure transducer and the ground surface elevation at the well site. After initially installing a pressure transducer in the well the depth to water, measured in feet below the top of the well casing (ft btoc), is determined using an electrical wire line sounder. The transducer elevation is then calculated as follows:

$$Transducer\ Elevation = Ground\ Surface\ Elevation - Water\ Level - Inital\ Transducer\ Submergence$$

Once the transducer elevation has been established, groundwater elevations in ft NAVD88 are calculated from transducer submergence readings (psi converted to ft) and depth to water measurements as follows:

$$Groundwater\ Elevation = Transducer\ Elevation + Transducer\ Submergence$$

Table 2 below shows transducer installation data:

Table 2: Transducer Installation Data

Well Name	Water Level (ft btoc)	Initial Transducer Submergence (ft)	Transducer Depth (ft)	Transducer Elevation (ft NAVD88)
TV-PW-1	66.75	581.14	647.89	3,245.71
TV-PW-2	44.06	519.01	563.07	3,324.85
TM-MW-1	85.69	612.21	697.90	3,236.18
TVW-MW-2	25.91	775.51	801.42	3,062.81
TV-MW-2 - Replacement	25.90	263.66	289.56	3,574.67
TV-MW-3	61.22	432.97	494.19	3,402.10
26G(A)	65.13	172.35	237.48	3,658.82
26G(B)	227.13	114.45	341.76	3,586.48
26G(C)	85.67	572.59	658.26	3,238.03

Notes: Terra Vi Well No. 3 was not instrumented.
The first transducer installed in TV-MW-2 failed and was replaced with a new transducer at a different depth.

7.3 Equipping Wells with Totalizing Flow Meters

Terra Vi pumping wells and neighbor wells were equipped with water meters to measure pumping rate and total volumes pumped during the 10-day test.

7.4 Pumping Test

The SWRCB 10-day constant rate pumping test method outlined in Section 4.1 above was used as a basis to evaluate the source capacity of the wells. To be conservative, TV-PW-1 and TV-PW-2 were pumped simultaneously to account for potential reduced production as a result of well interference in the case that both wells were required to be pumped at the same time in the future. The pumping portion of the

test was followed by three days of water level recovery while the transducers continued to record. During the constant rate test, water level and discharge rates were closely monitored.

7.4.1 Pumping Test Data Analysis Method

Calculation of aquifer parameters from pumping test data is based on analytical solutions of the basic differential equation of ground water flow derived from the fundamental laws of physics. One of the most widely used solutions of the equation for non-steady radial flow to wells is the Theis Equation. According to Jacob (1950), for small values of "u" ($u < 0.05$), the Theis Equation may be approximated by Jacob's Equation. Jacob's Equation is valid to use for most hydrogeologic problems of practical interest, is easier to use than the Theis equation, and involves a simple graphical procedure to calculate transmissivity and storativity. This method (D 4105) is summarized by ASTM (1994).

8.0 SUMMARY OF FIELD INVESTIGATION RESULTS

8.1 Groundwater Quality

Geoscience personnel collected groundwater samples from TV-PW-1 and TV-PW-2 on Oct. 16, 2019 before the 10-day pumping test. Following the test and recovery period, the multiple borehole volumes were purged and the wells were sampled again Nov. 12, 2019.

Nearby wells 26G(A) and 26G(C) were sampled by GEOSCIENCE on Oct. 16, 2019 and on Nov. 11, 2019. Nearby well 26G(B) was sampled Oct. 21, 2019 and Nov. 11, 2019. Wells were pumped for several hours before sampling to purge stagnant water from the boreholes.

Confirmation samples were collected from wells 26G(B) and 26G(C) on Dec. 5, 2019. Additional samples were collected downstream of a pressure tank at well 26G(B) on Dec. 5, 2019 for confirmation of water quality results. Laboratory reports are included in Appendix B and are summarized in Tables 3 through 6.

A piper diagram showing major ion chemistry from Terra Vi pumping and nearby wells is shown in Figure 9. All the sampled wells have water chemistry classified as magnesium bicarbonate type, except for 26G(C) which is sodium bicarbonate type. Ion chemistry water type did not change from pre-test to post-test samples in any of the wells. This suggests the source of the water remained consistent during the pumping.

8.1.1 Groundwater Quality – Terra Vi Wells

Laboratory reported concentration levels were evaluated using the current State of California State Water Resources Control Board Division of Drinking Water (DDW) and United States Environmental Protection Agency (USEPA) standard drinking water-related regulations for maximum contaminant levels (MCLs) and

notification levels. BSK reported some constituents at levels exceeding drinking water standards. Table 3 below shows results for constituents that were reported at or above drinking water levels.

Table 3: Water Quality Results for Terra Vi Wells – Constituents of Concern

			TV-PW-1		TV-PW-2	
Analyte	[Unit]	Drinking Water Standard	Pretesting 10/16/19	Post testing 11/12/19	Pretesting 10/16/19	Post testing 11/12/19
Arsenic	**[µg/L]**	10[1]	**12**	6.1	3.5	**11**
Color	**[Color Units]**	15[2]	7.3	**35**	**15**	ND
Iron	**[mg/L]**	0.3[2]	0.19	**1.5**	0.22	0.18
Turbidity	**[NTU]**	5[2]	0.56	**16**	0.99	1.1

Variability in reported concentrations pre and post testing may be the result of changing water quality due to pumping large volumes of water, however both wells are recently equipped and may not have been sufficiently developed at the time of construction. Further pumping development will likely reduce turbidity and color.

Additional samples should be collected in three additional quarters to confirm the concentrations. Treatment may be required if confirmation samples have similar exceedances.

High turbidity in TV-PW-1 sample collected after pump testing may be biasing the reported iron and arsenic concentration. The impact of turbidity on analysis for metals is well documented (Puls and Barcelona 1996).

8.1.2 Groundwater Quality – Nearby Wells

The laboratory analysis indicates constituents of concern were detected above the current drinking water standards before and after the constant rate test for the nearby wells. The attached Table 5 summarizes detection of constituents of concern. Table 6 provides a summary of water quality results. Complete laboratory reports are included as Attachment B.

Several semi volatile organic compounds were detected in nearby wells at increased concentrations following the pumping test. These detections are likely an artifact of the installation of PVC tubing in the wells to allow installation of the transducers, are not related to the construction or pumping of the Terra Vi wells.

PVC sounding tubes were installed in all nearby and Terra Vi wells before the pumping test to allow measurement of groundwater levels. The elevated concentrations of volatile organic compounds is likely the result of the installation of the PVC sounding tubes. According to USEPA (2002), permeation of volatile organic compounds is typically most severe for small diameter, low flow pipes.

According to USEPA (1991), past studies show a correlation between certain organic compounds found in groundwater samples and the use of PVC solvent cement (Boettner et al., 1981; Pettyjohn et al., 1981; Sosebee et al., 1983; Curran and Tomson, 1983). USEPA (2002) indicate toluene is used as a solvent in adhesives. Increases in toluene concentrations can occur following installation of submersible pumps if tape is used to secure electrical cables to pump column.

USEPA identifies acetone and 2-Butanone as likely laboratory contaminants (USEPA 1988, USEPA 1992).

Chloroform was reported in 26G(B). This sample was collected shortly after the well was chlorinated following removal of the pumping equipment. Chloroform is a disinfection byproduct formed when chlorine and carbon are present in water. Chloroform was not detected in confirmation sampling.

8.2 Constant Rate Test

The SWRCB test methodology was used as a basis for the 10-day pumping test procedure. However, the water level data collection using transducers was conducted at 5-minute intervals both for pumping and recovery periods which was a more frequent interval than those described in Section 3.1. Transducer measurements were validated with hand measurements using an electric sounder. The location of all wells used during the pumping test are shown on Figure 3. Wells equipped with transducers are indicated on the same figure.

8.3 Water Level Data Collection

The 10-day constant rate pumping test was conducted from October 23 to November 2, 2019. Transducers were installed in the two Terra Vi pumping wells, the three Terra Vi monitoring wells, and three nearby wells located across Sawmill Mountain Road. The non-pumping wells were used as observation wells while the two Terra Vi wells were pumped simultaneously. The static water level at the start of the test was approximately 66.75 ft bgs at Terra Vi Well No. 1 and the average discharge rate was 27 gpm. The static water at Terra Vi Well No. 2 was 41.63 ft bgs and the average discharge rate was 25 gpm. The combined discharge rate from the Terra Vi wells was 53 gpm. Water levels stabilized on day seven (7) of the test, even with the increased pumping rate on day six (6). Transducers remained in the wells for approximately a month after the pump test was concluded. The data shows water levels recovered to within 2 ft of the pre pumping levels by early morning November 6, within the time period required under SWRCB

procedures. Pumping in the nearby wells caused interference after the Terra Vi well pumps were shut off, delaying full recovery.

Field data collected during the pumping test, along with the hand level measurements used to validate the transducer data, is provided in Appendix D. Plots of time drawdown data on semi-log axes from these wells are presented in Figures 10-13. Figure 14 shows groundwater elevations over time for the entire duration of the study for the Terra Vi pumping wells, monitoring wells, nearby residential wells, and the Under Canvas wells.

8.4 Analysis of Pumping Test Data

8.4.1 Calculation of Aquifer Parameters

Figure 10 shows drawdown in TV-PW-1 versus time since the start of the pumping test plotted on a log time scale. To better illustrate the later portion of the test, Figure 11 shows drawdown from 1,000 minutes to the end of the test. Figures 12 and 13 show the time drawdown data for well TV-PW-2.

A review of the semi-log plots of drawdown in Figures 10-13 show that transmissivity cannot be accurately estimated for the fractured rock aquifer due to the interference from nearby wells pumping during the Terra Vi pumping test. However, the calculation of transmissivity is not a requirement to determine source capacity.

8.4.2 Terra Vi Influence in Nearby Wells

Figure 14 shows groundwater elevations in the Terra Vi wells and nearby wells from October 22 through December 5, 2019. Transducers were left in the wells for approximately one month following the completion of the testing to allow for collection of non pumping water level data.

Data collected during the pumping test suggest that TV-PW-1, TV-PW-2, 26G(B), and 26G(C) produce from interconnected fractures. Water levels in 26G(B) and 26G(C) change at the same time pumping rates in the Terra Vi wells are changed, and water levels in the Terra Vi wells correlate to pumping in 26G(B)

Figure 15 shows groundwater elevations during the period of the 10-day pumping test. TV-MW-3 (see Figure 4 for location) water levels appear to respond directly to pumping from the source wells. TV-MW-1 shows a muted response to pumping while TV-MW-2 shows little effect from pumping. 26G(B) and 26G(C) wells also show response to Terra Vi pumping, but drawdown in the wells, as anticipated, is greatest when the wells are themselves being pumped.

Figure 16 shows the water level plots for 26G(B), 26G(C), and TV-MW-1. The 26G(B) well influences 26G(C) well and Terra Vi Well No. 1 water levels. Prior to the Terra Vi pumping test, the 26G(B) well was purged

for groundwater sampling. The recovery of the two nearby wells is apparent at the time the Terra Vi pump tests starts. However, later in the day on October 23 after the Terra Vi pump test commenced, the 26G(B) well pump was turned on causing drawdown in the 26G(C) well. In addition, the 26G(B) pumping causes drawdown in TV-MW-1 located to the south, but at the northern boundary of the project area.

Figure 17 shows groundwater elevations in Terra Vi pumping wells and 26G(B) during the pumping test and recovery. Wells recover at the end of the pumping test. Drawdown in 26G(B) from purging the well and during normal usage of both 26G(B) and 26G(C) can be seen in the water level trends. At the highest combined pumping rate of the Terra Vi wells, there was an additional 54 ft of drawdown in the 26G(B) well.

Figure 18 shows groundwater elevations in Terra Vi pumping wells and 26G(C) during the pumping test and recovery. Wells recover at the end of the pumping test. 26G(C) shows drawdown from purging 26G(B) and normal operation of both wells. At the highest combined pumping rate of the Terra Vi wells, there was an additional 24 ft of drawdown in the 26G(C) well.

Figure 19 shows groundwater elevations in Terra Vi pumping wells and 26G(A) during the pumping test and recovery. 26G(A) does not appear to be influenced by the Terra-Vi pumping.

A review of the water levels of the two nearby wells after recovery of the Terra Vi wells suggest that additional drawdown in the 26G(B) well and 26G(C) well may be approximately 54 feet and 24 feet, respectively. According to water level data, 26G(C) and 26G(B) wells recover at the end of Terra Vi pumping.

Figures 20, 21 and 22 show groundwater elevation in the Terra Vi Monitoring wells during the pumping tests and recovery.

Recovery within 2 feet of initial static water levels happened within six (6) days for TV-PW-1 and seven and a half (7.5) days for TV-PW-2 after shutting the pumps off, which is within the source capacity assessment threshold set forth by the SWRCB guidelines. Water levels in all the monitoring wells recovered when the Terra Vi and the nearby wells were not pumping.

8.4.3 Influence of "Under Canvas" Wells on Terra Vi Water Levels

Pumping of Test Hole No. 2 for the proposed "Under Canvas" project located southeast of the project site commenced on October 28, 2019 while the Terra Vi pump test was in progress. To be conservative, Terra Vi elected to complete testing while Under Canvas was pumping to provide an additional stress on the bedrock aquifer, thus providing test conditions that may better represent normal water supply conditions in the future.

The water level data from the Under Canvas wells were provided by the project proponent. Likewise, Terra Vi provided water level data collected during the test to the Under Canvas hydrogeologist. When the Under Canvas well, Test Hole No. 2, pump was started on October 28, water levels in the Terra Vi wells showed no impacts. Likewise, when Under Canvas Test Hole No. 1 commenced pumping on November 7 (after the Terra Vi testing was complete), the Terra Vi wells showed no response.

8.4.4 Calculation of Source Capacity (Terra Vi Wells No.1 and No. 2)

The SWRCB guidelines state for a 10-day test, a well can be assigned a capacity no more than 50 percent of the pumping rate at the end of a completed test's pumping. Therefore, the source capacity for the Terra Vi wells is 26.5 gallons per minute, calculated as 50% of the 53 gpm average 10-day combined pumping rate for both wells. Based on the drawdown plots it is very likely that the wells could sustain a higher pumping rate.

8.4.5 Water Supply During Dry Years and Multiple Dry Years

Capacity testing for the new wells was conducted following a modified version of the State of California State Water Resources Control Board Division of Drinking Water (DDW) capacity testing (22 CA ADC § 64554). This method requires a 10-day pumping test conducted in August, September, or October (e.g. when seasonal water levels are lowest) followed by monitoring water levels until recovery reaches two feet from the initial static water level. The well capacity is considered to be half of the 10-day tested rate. The two wells were tested simultaneously to provide a maximum stress on the fractured rock aquifer. Drawdown and recovery in the wells is shown on Figure 15.

The DDW method for determining well capacity includes a significant safety factor. The well capacity is determined to be half of the rate of the pumping test. Per personal communication with DDW staff, this safety factor was intended to account for sustainable production during dry periods. (pers com 2020).

Anticipated peak demand for the Terra Vi hotel is 11.6 gpm, or approximately 16,640 gpd. Water levels in the aquifer system stabilized while the wells were producing 53 gpm, 76,320 gpd, more than four times the peak demand. During the pumping test, water level stabilized in TV-PW-1 approximately 188 ft above the factures that tested the most productive during drilling. Water level stabilized in TV-PW-2 approximately 354 ft above the most productive factures. This suggests that the wells had an even greater capacity for production than was tested. However, since the determined capacity is more than twice the anticipated demand, determining the highest yield of the wells was not deemed necessary.

During the initial purging of disinfectant from well 26G(B), water levels drew down to approximately 2 ft above the highest fracture in 26G(B) well. Water level was approximately 80 ft above the most productive

fracture. We assume the period between October 26th and November 2nd represents a more typical pattern of use of 26G(B). In that time, the Terra Vi wells were pumping more than four times the anticipated peak demand from the fractured rock aquifer system. While TV-PW-1, TV-PW-2, 26G(B) and 26G(C) wells were pumping, water levels in 26G(B) were approximately 67 ft above the highest fracture and 147 ft above the fracture that was most productive during drilling.

The assigned capacity for the wells using the required DDW protocol is 26.5 gpm (or 38,160 gpd) for either well when pumped individually. This capacity determination is 2.3 times the calculated peak demand and includes safety factors to account for dry years. The capacity determination does not include recharge from return flow from the planned graywater irrigation and from septic systems. Both sources of recharge will return water to the groundwater basin in addition to natural recharge.

9.0 CONCLUSIONS

- Bedrock fractures are pervasive and provide groundwater to the wells on site. As reported above, groundwater flow to the wells over the 10-day pumping test averaged to a combined discharge rate of 53 gpm.
- The SWRCB guidelines state for a 10-day test, a well can be assigned a capacity no more than 50 percent of the pumping rate at the end of a completed test's pumping. Therefore, the source capacity for the Terra Vi wells is calculated as 50% of 53 gpm, or 26.5 gpm (38,160 gpd).
- Groundwater quality showed no significant changes between the pre-test and the post-test samples.
- Pumping Terra Vi production wells results in some additional drawdown in two of the nearby wells but not in the third (26G(A)). However, drawdowns in the nearby wells are influenced to a greater extent by pumping between residential wells.
- Pumping of the Under Canvas well located southeast of the site showed no affect in the Terra Vi wells.
- Volatile organic compounds detected at low levels in the groundwater sampling is most likely the result of the installation of sounding tubes by the drilling contractor using PVC glue. The concentrations decreased from the pre-test to post test samples and will likely decrease to non-detect with additional use of the wells.

10.0 REFERENCES

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11.0 FIGURES, TABLES, AND ATTACHMENTS

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Table 3 Water Quality Results for Terra Vi Wells – Constituents of Concern *(in text)*
Table 4 Water Quality Results for Terra Vi Wells
Table 5 Water Quality Results for Nearby Wells - Constituents of Concern
Table 6 Water Quality Results for Nearby Wells

11.3 Attachments

Attachment A: Driller's Logs
Attachment B: Water Quality Laboratory Reports
Attachment C: State Water Resources Control Board (July 2016 Version) - Procedure To Determine Source Capacity
Attachment D: Aquifer Pumping Test Data
Attachment E: CalGreen Baseline Water Use – Revised Calculation Sheet

FIGURES

GEOSCIENCE

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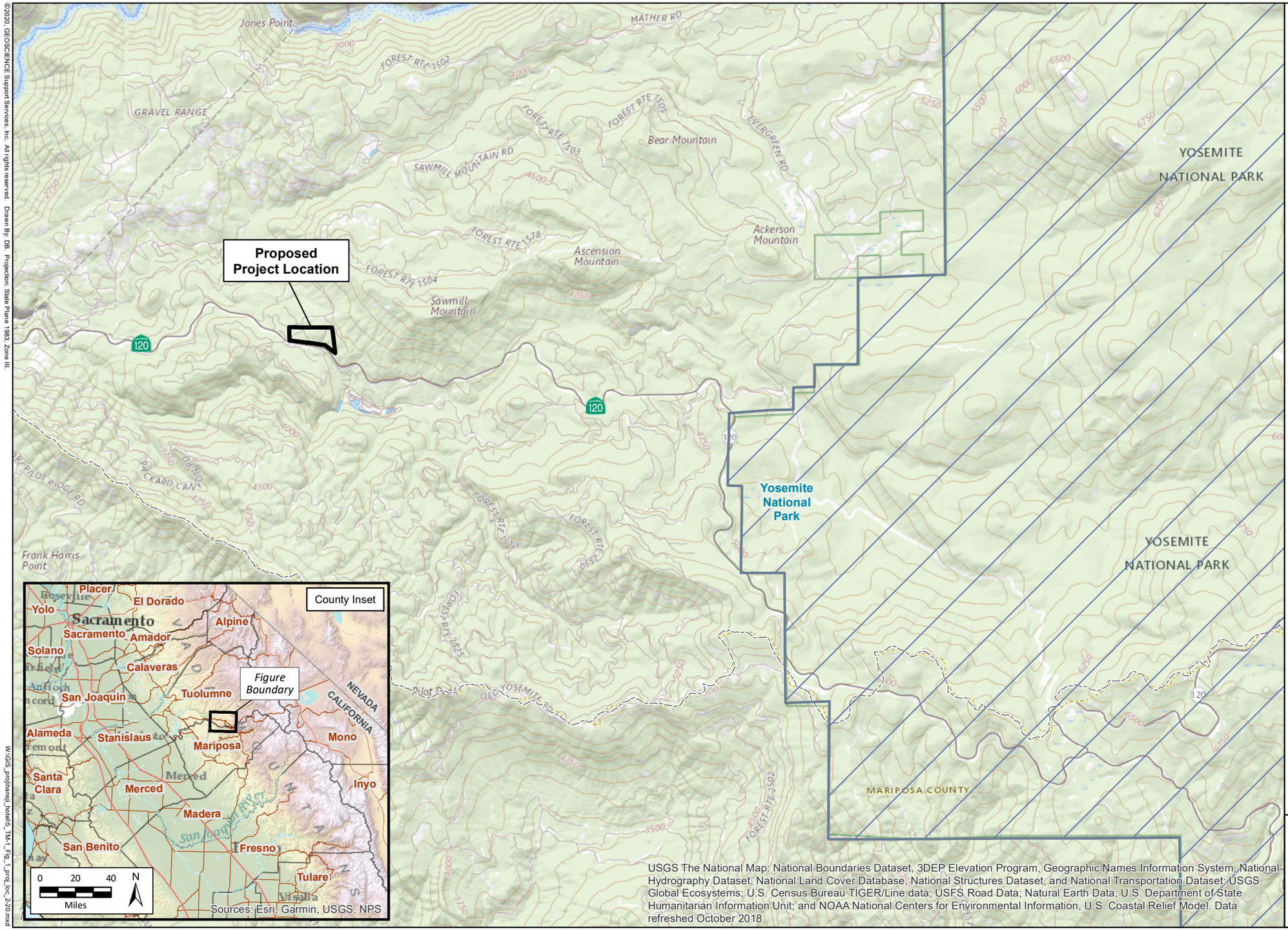

EXPLANATION

Proposed Project Location
11262 Sawmill Mountain Road
Groveland, CA 95321

Yosemite National Park

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed October 2018.

PROPOSED PROJECT LOCATION

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13-Feb-20

HANSJI CORPORATION

ASSESSMENT OF GROUNDWATER SUPPLY AND WATER QUALITY FOR TERRA VI YOSEMITE

FINAL

FIGURE 1

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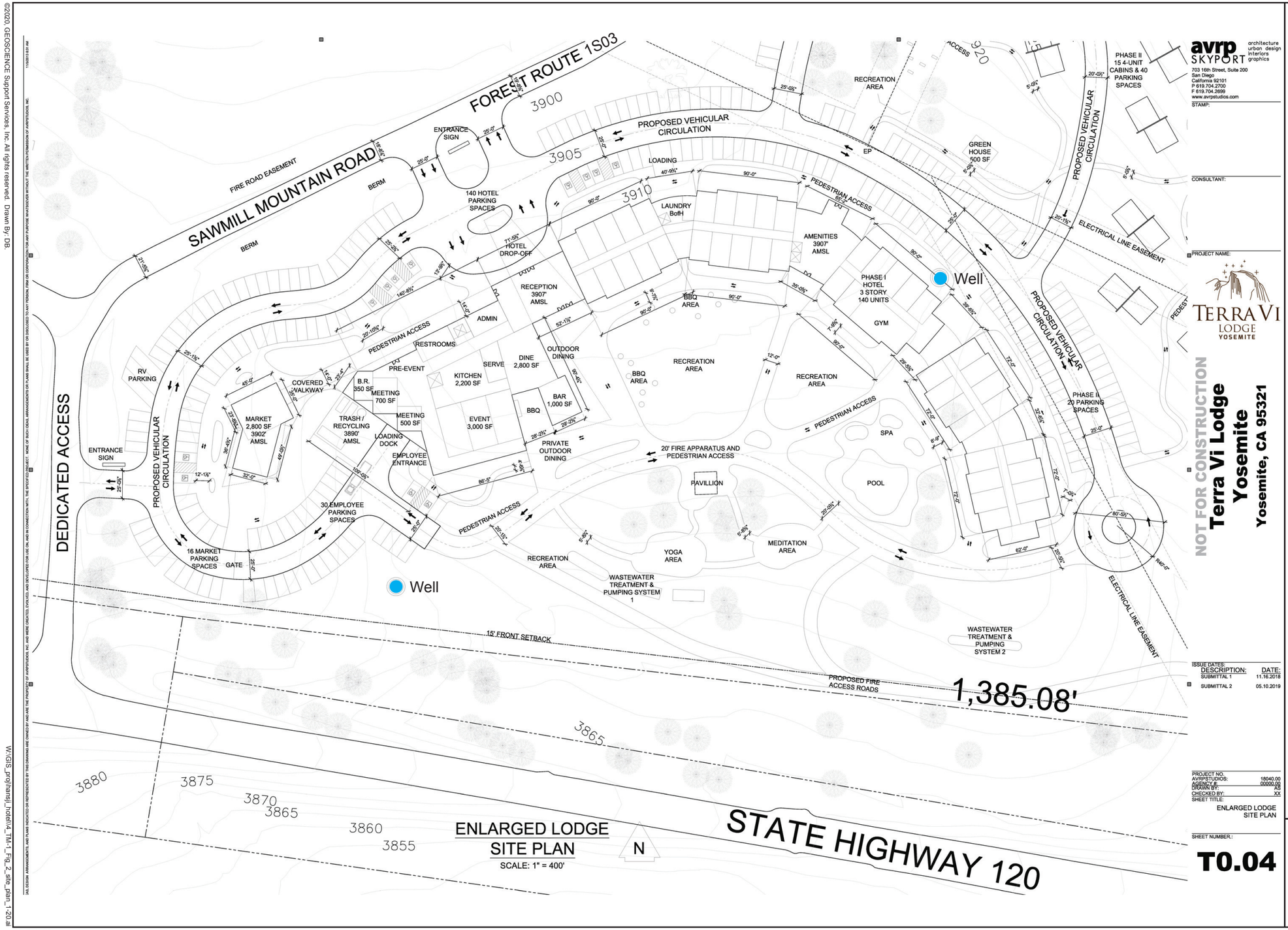

ENLARGED LODGE SITE PLAN

SCALE: 1" = 400'

EXPLANATION

Figure from Sheet No. T0.04
Terra Vi Lodge
Architectural Sheets
Enlarged Lodge Site Plan

avrp SKYPORT architecture urban design interiors graphics
703 16th Street, Suite 200
San Diego
California 92101
P 619.704.2700
F 619.704.2699
www.avrpstudios.com

STAMP:

CONSULTANT:

PROJECT NAME:

TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION

Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DATE:
SUBMITTAL 1	11.16.2018
SUBMITTAL 2	05.10.2019

PROJECT NO.	
AVRPSTUDIOS:	18040.00
AGENCY #:	00000.00
DRAWN BY:	AS
CHECKED BY:	XX

SHEET TITLE: ENLARGED LODGE SITE PLAN

SHEET NUMBER:

T0.04

SITE PLAN

W:\GIS_proj\hansji_hotel\4_TM-1_Fig_2_site_plan_1-20.ai

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EXPLANATION

Well Category
(Note: Well Locations Based on Hand-Held GPS Coordinates)

- Monitoring Well
- Pumping Well
- Pumping Well (Not Tested)
- Residential Well
- Under Canvas Well
- Transducer Location

N

0 400 800

Feet

WELL LOCATIONS

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13-Feb-20

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HANSJI CORPORATION

ASSESSMENT OF GROUNDWATER SUPPLY AND WATER QUALITY FOR TERRA VI YOSEMITE

FIGURE 3

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01S/18E-26G (A)
01S/18E-26G (C)
01S/18E-26G (B)
Forest Route 1S03B
Forest Route 1S03
Jgc
Monitoring Well #3
Monitoring Well #2
Monitoring Well #1
120
Jgcm
Sawmill Mountain Rd
Well #3
Well #1
Ksm
Well #2
Hwy 120
068-120-060
068-120-061
Middle Tuolumne River 1804000906
South Fork Tuolumne River 1804000907
Site #1
Hardin Flat Rd
Pzpq
Site #3
Site #2
120
bing
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EXPLANATION

Well Category
(Note: Well Locations Based on Hand-Held GPS Coordinates)

- Monitoring Well
- Pumping Well
- Pumping Well (Not Tested)
- Residential Well
- Under Canvas Well

068-120-060 — Parcel Number and Boundary (Tuolumne County, 2019)

Geology modified from Lake Eleanor 15-minute Quadrangle. (USGS GQ-1639, 1987)

- no color — Ksm - Granodiorite of Sawmill Mountain (Cretaceous)
- Jgc - Tonalite of Granite Creek (Jurassic)
- Jgcm - Tonalite of Granite Creek (Jurassic) - Mafic marginal facies-Medium-grained hornblende-biotite gabbro
- Pzpq - Quartzite

Watershed Boundary (*Name and Code*) (USGS Watershed Boundary Dataset, 2020)

N

0 400 800
Feet

GEOLOGIC SETTING

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HANSJI CORPORATION

ASSESSMENT OF GROUNDWATER SUPPLY AND WATER QUALITY FOR TERRA VI YOSEMITE

FINAL

FIGURE 4

GEOSCIENCE

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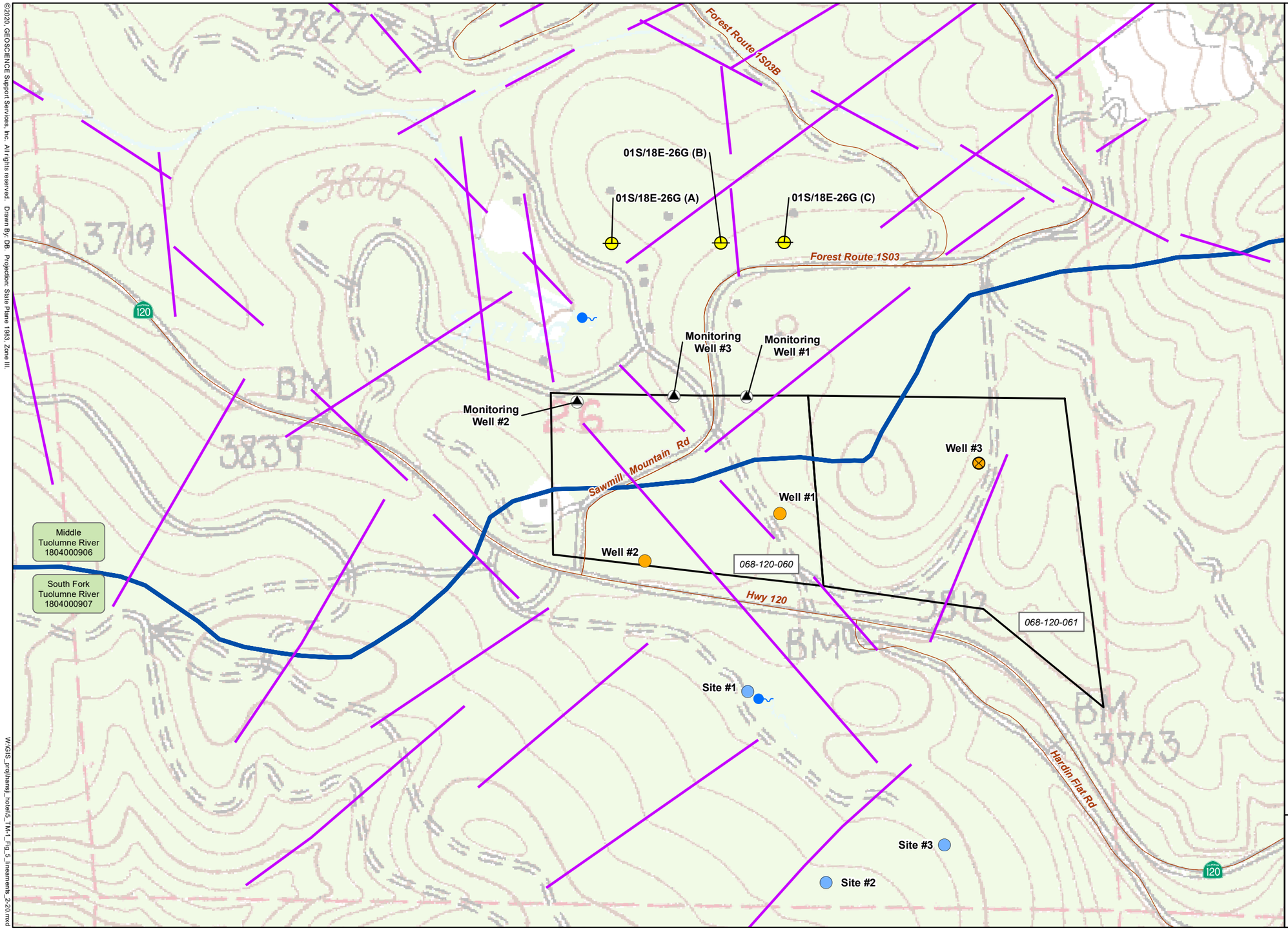

EXPLANATION

Lineament Location

Well Category
(Note: Well Locations Based on Hand-Held GPS Coordinates)

- Monitoring Well
- Pumping Well
- Pumping Well (Not Tested)
- Residential Well
- Under Canvas Well

Spring Location (from USGS Quadrangle, NHD)

Watershed Boundary (*Name and Code*) (USGS Watershed Boundary Dataset, 2020)

068-120-060 Parcel Number and Boundary (Tuolumne County, 2019)

Basemap from 1992 USGS Ascension Mountain 7 1/2 minute Quadrangle.

N

0 500 1,000
Feet

LINEAMENT LOCATIONS

W:\GIS_proj\hansji_hotel\5_TM-1_Fig_5_lineaments_2-20.mxd

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ASSESSMENT OF GROUNDWATER SUPPLY AND WATER QUALITY FOR TERRA VI YOSEMITE

FINAL

FIGURE 5

GEOSCIENCE

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Monitoring Well #3
Monitoring Well #1
Monitoring Well #2
068-120-060
068-120-061
Jgc
Forest Route 1S03
Sawmill Mountain Rd
Jgcm
Well #1
Well #3
Well #2
Pzpq
Site #1
120
78
42
43
34
38
54
71
60
83
85
75
35
78
85
75

EXPLANATION

Well Category
(Note: Well Locations Based on Hand-Held GPS Coordinates)

- Monitoring Well
- Pumping Well
- Pumping Well (Not Tested)
- Under Canvas Well

Spring Location (from USGS Quadrangle, NHD)

068-120-060 Parcel Number and Boundary (Tuolumne County, 2019)

Geology modified from Lake Eleanor 15-minute Quadrangle. (USGS GQ-1639, 1987)

- Jgc - Tonalite of Granite Creek (Jurassic)
- Jgcm - Tonalite of Granite Creek (Jurassic) - Mafic marginal facies-Medium-grained homblende-biotite gabbro
- Pzpq - Quartzite

43 Strike and Dip of Joint

Strike and Dip of Vertical Joint

NOTE: Brown Strike and Dips are Questionable

N

0 200 400
Feet

DETAILED GEOLOGY

W:\GIS_pro\hansji_hotel\5_TM-1_Fig_6_detailed_geologic_view_2-20.mxd

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HANSJI CORPORATION

ASSESSMENT OF GROUNDWATER SUPPLY AND WATER QUALITY FOR TERRA VI YOSEMITE

FINAL

FIGURE 6

GEOSCIENCE

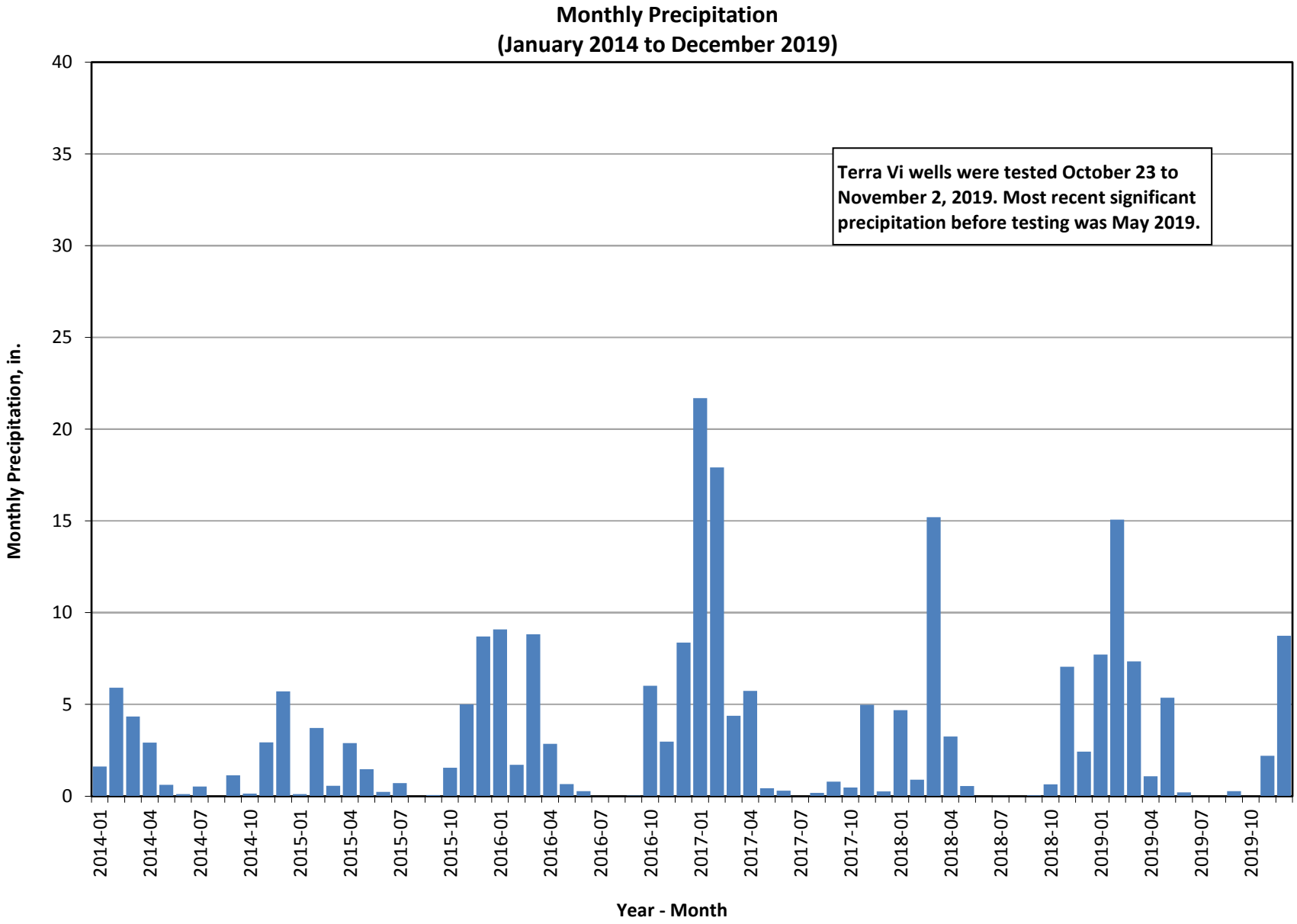

Monthly Precipitation
(January 2014 to December 2019)
Terra Vi wells were tested October 23 to November 2, 2019. Most recent significant precipitation before testing was May 2019.
Monthly Precipitation, in.
0
5
10
15
20
25
30
35
40
2014-01
2014-04
2014-07
2014-10
2015-01
2015-04
2015-07
2015-10
2016-01
2016-04
2016-07
2016-10
2017-01
2017-04
2017-07
2017-10
2018-01
2018-04
2018-07
2018-10
2019-01
2019-04
2019-07
2019-10
Year - Month

Figure 7

Cumulative Departure from Mean Annual Precipitation (Year 1919-2019)

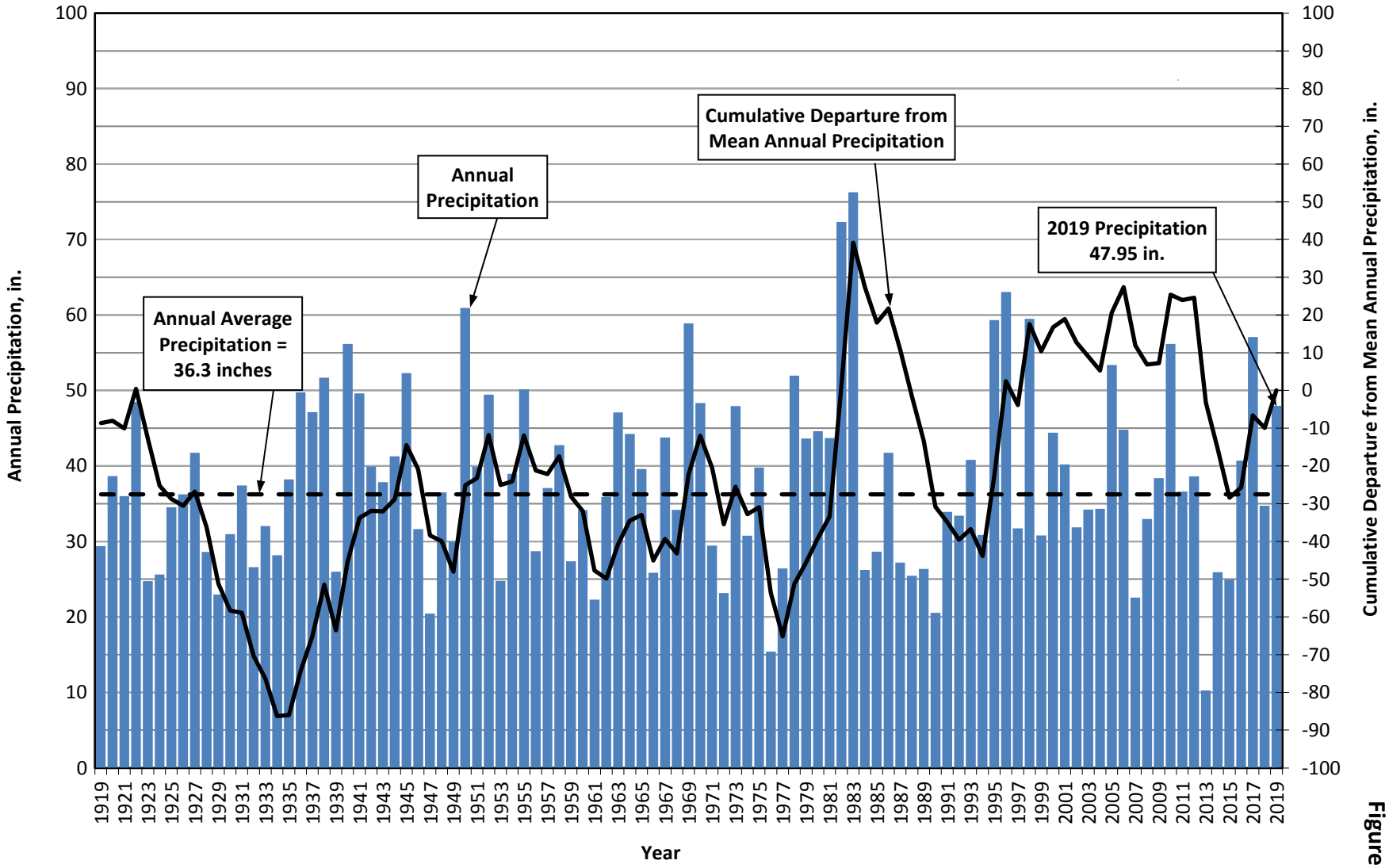
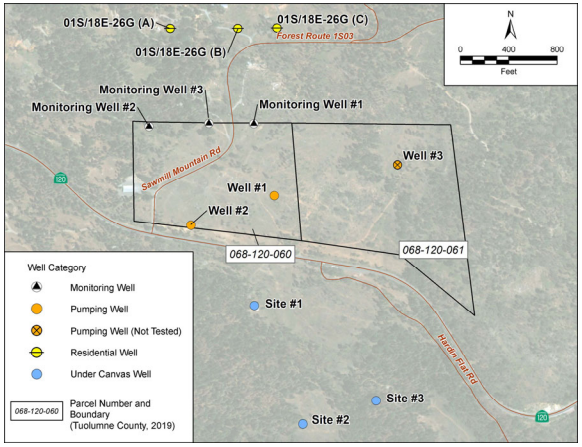
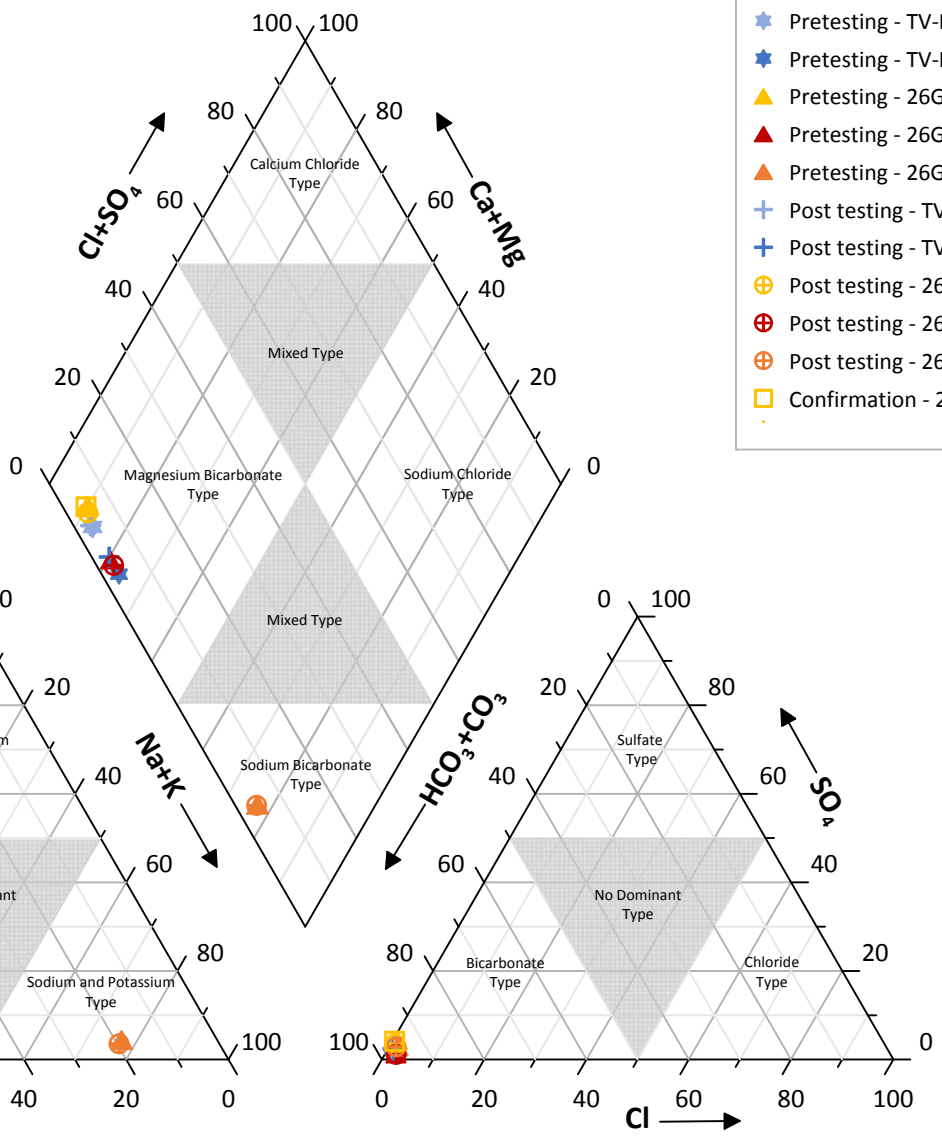


Figure 8

Water Quality Trilinear Diagram





- Pretesting - TV-PW-1
- Pretesting - TV-PW-2
- Pretesting - 26G(B)
- Pretesting - 26G(A)
- Pretesting - 26G(C)
- Post testing - TV-PW-1
- Post testing - TV-PW-2
- Post testing - 26G(B)
- Post testing - 26G(A)
- Post testing - 26G(C)
- Confirmation - 26G(B)

Figure 9

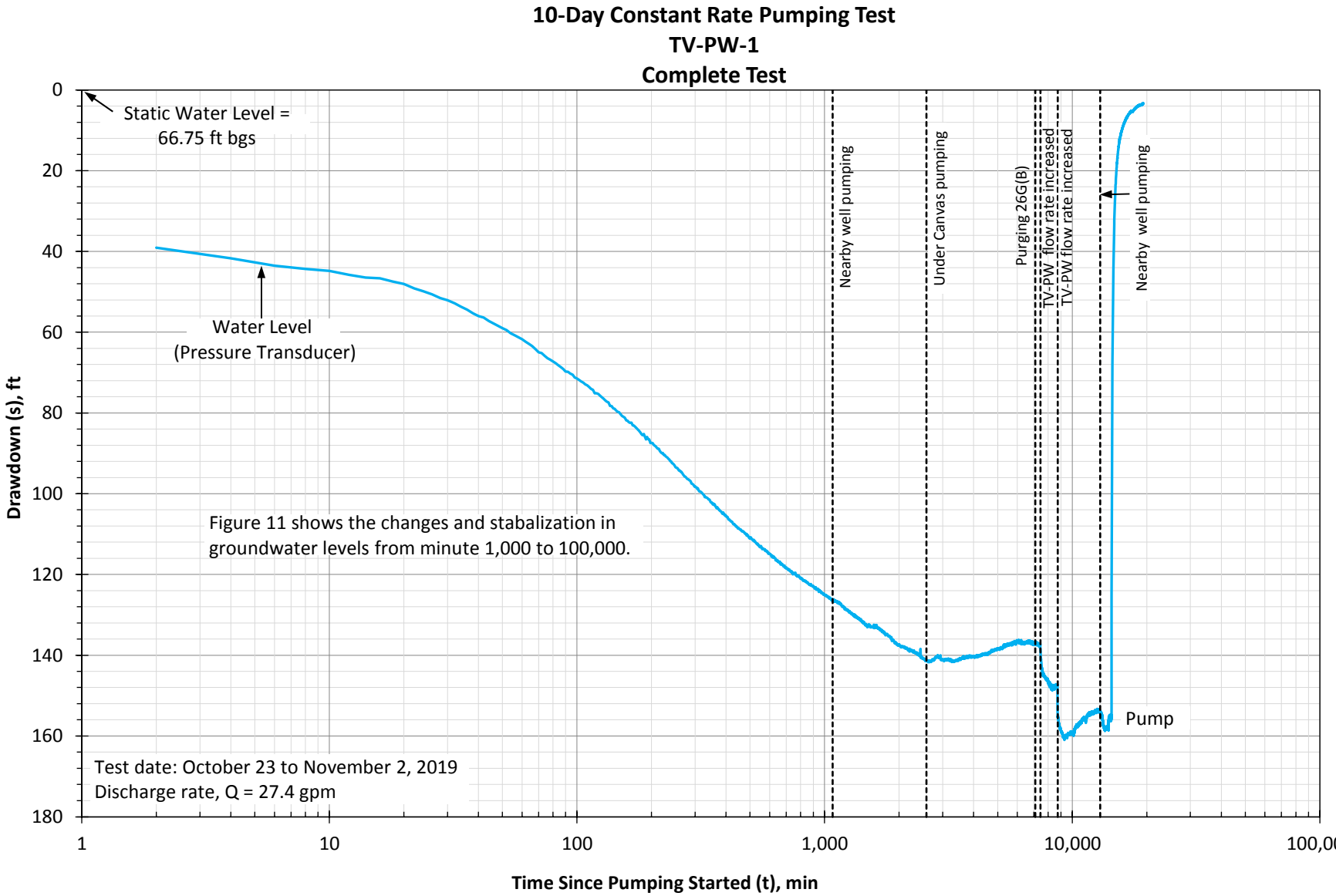

10-Day Constant Rate Pumping Test
TV-PW-1
Complete Test
Static Water Level = 66.75 ft bgs
Water Level (Pressure Transducer)
Nearby well pumping
Under Canvas pumping
Purging 26G(B)
TV-PW flow rate increased
TV-PW flow rate increased
Nearby well pumping
Pump
Figure 11 shows the changes and stabalization in groundwater levels from minute 1,000 to 100,000.
Test date: October 23 to November 2, 2019
Discharge rate, Q = 27.4 gpm
Drawdown (s), ft
Time Since Pumping Started (t), min
0
20
40
60
80
100
120
140
160
180
1
10
100
1,000
10,000
100,000

Figure 10

10-Day Constant Rate Pumping Test
TV-PW-1
From 1,000 minutes to End of Test

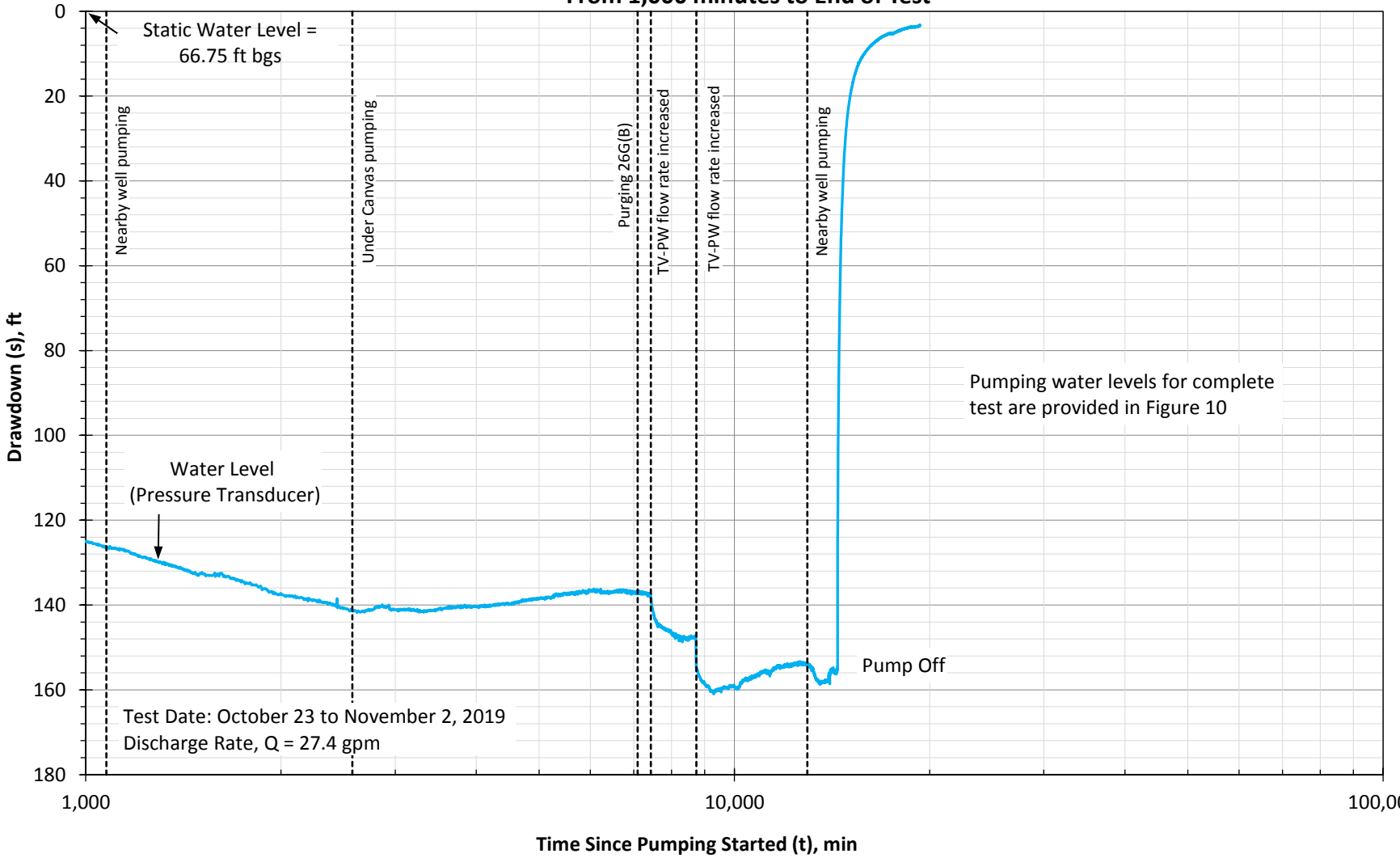


Figure 11

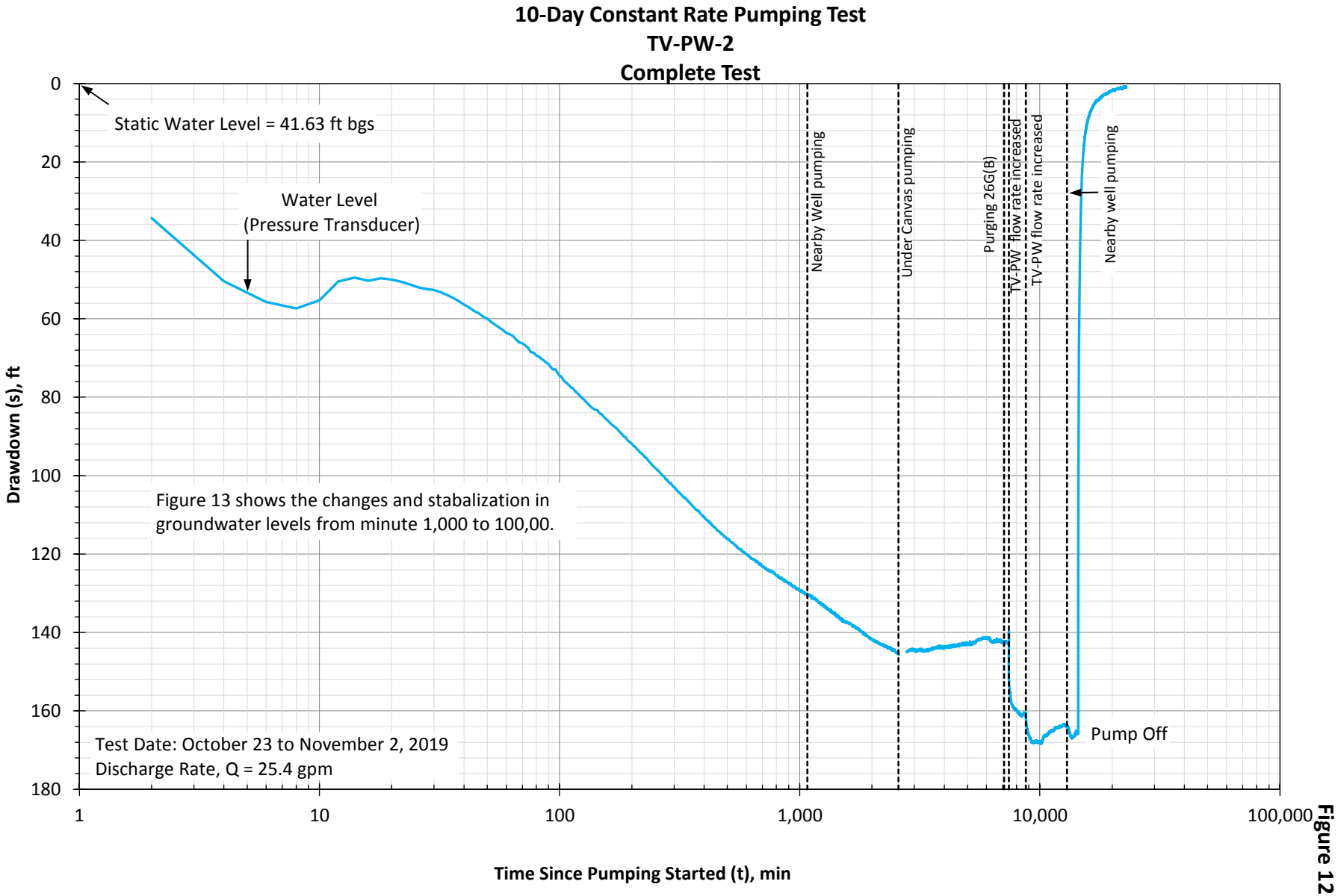

10-Day Constant Rate Pumping Test
TV-PW-2
Complete Test
Static Water Level = 41.63 ft bgs
Water Level
(Pressure Transducer)
Figure 13 shows the changes and stabalization in groundwater levels from minute 1,000 to 100,00.
Test Date: October 23 to November 2, 2019
Discharge Rate, Q = 25.4 gpm
Nearby Well pumping
Under Canvas pumping
Purging 26G(B)
TV-PW flow rate increased
TV-PW flow rate increased
Nearby well pumping
Pump Off
Drawdown (s), ft
Time Since Pumping Started (t), min
0
20
40
60
80
100
120
140
160
180
1
10
100
1,000
10,000
100,000

Figure 12

10-Day Constant Rate Pumping Test
TV-PW-2
From 1,000 Minutes to End of Test

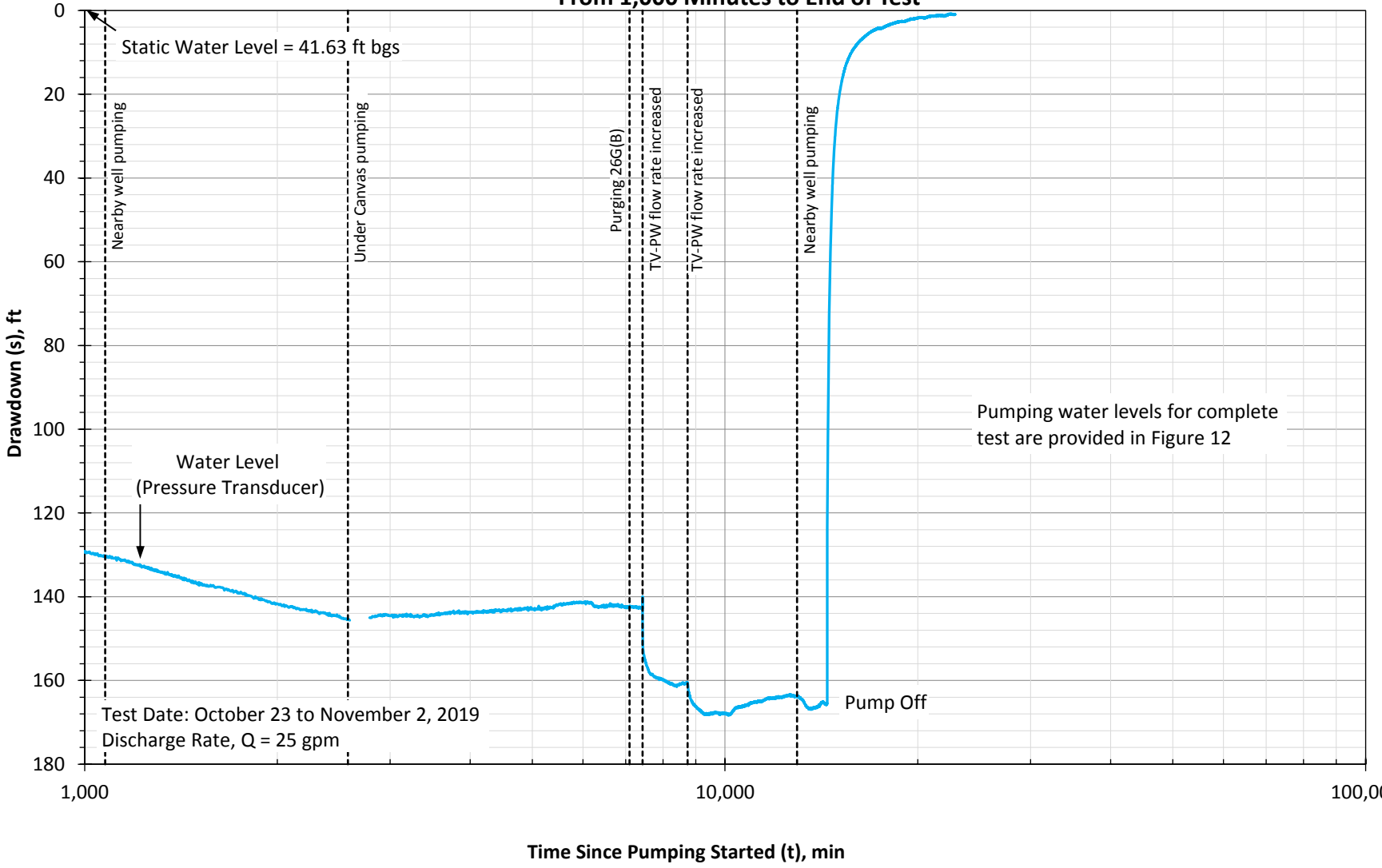


Figure 13

Hansji Corporation
Assesment of Groundwater Supply and Water Quality for Terra Vi Yosemite

Groundwater Elevations - October 22 to Decemeber 5, 2019

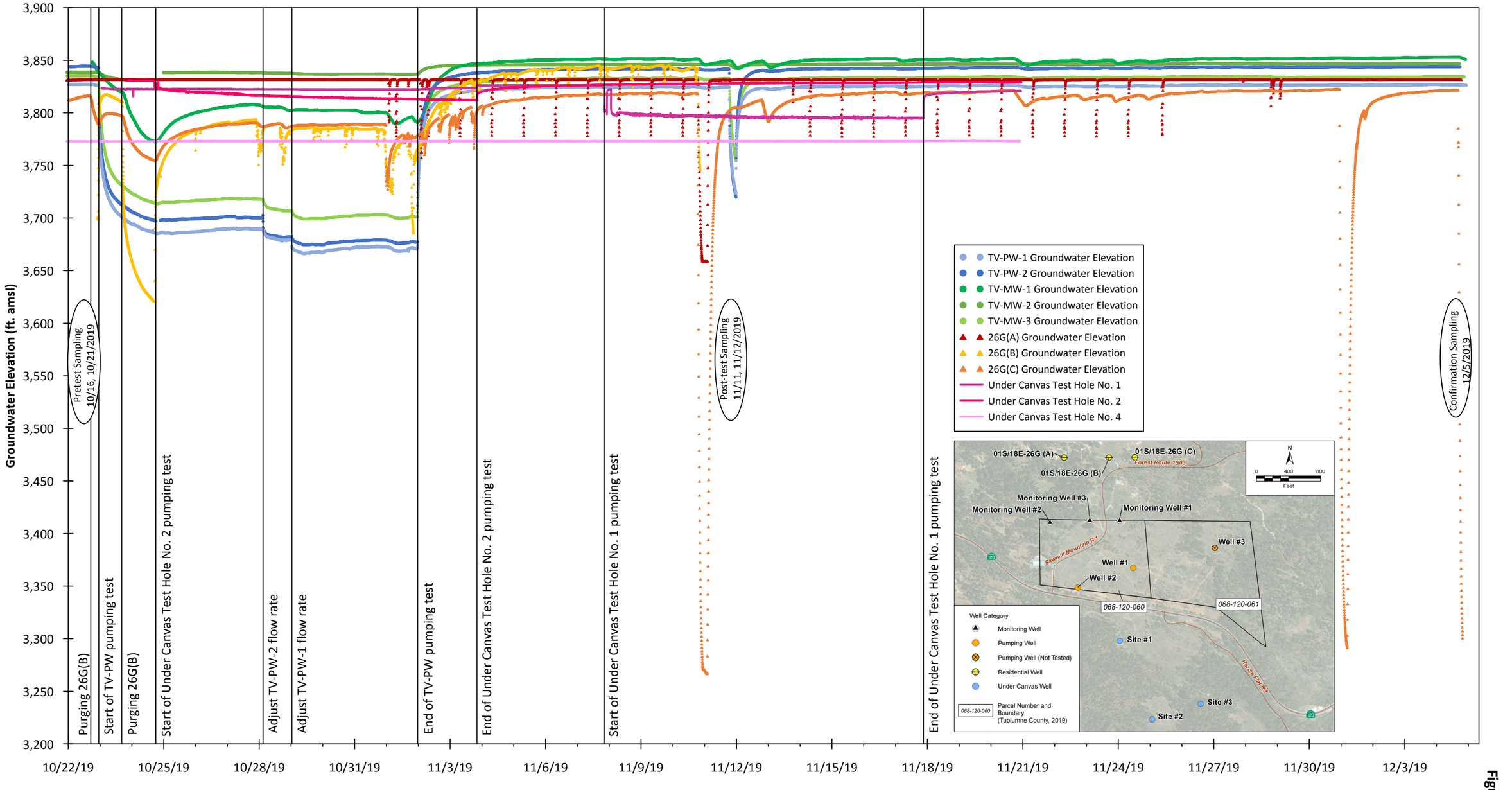
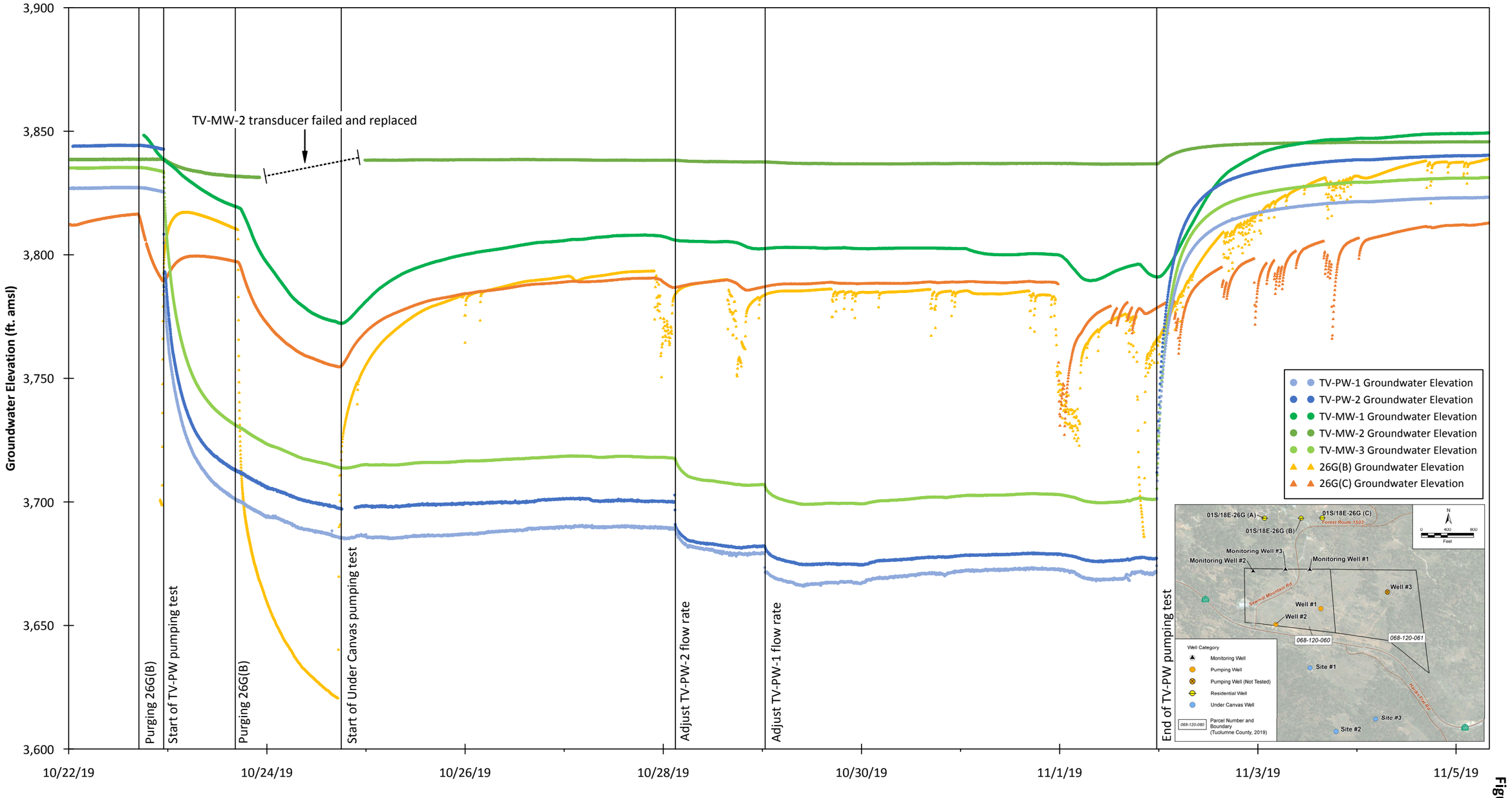


Figure 14

13-Feb-20

GEOSCIENCE Support Services, Inc.

Groundwater Elevation During 10 Day Pumping Test and Recovery Terra Vi and Nearby Wells



13-Feb-20

Figure 15

GEOSCIENCE Support Services, Inc.

Groundwater Elevation Showing 26G(B) Pumping Impacts

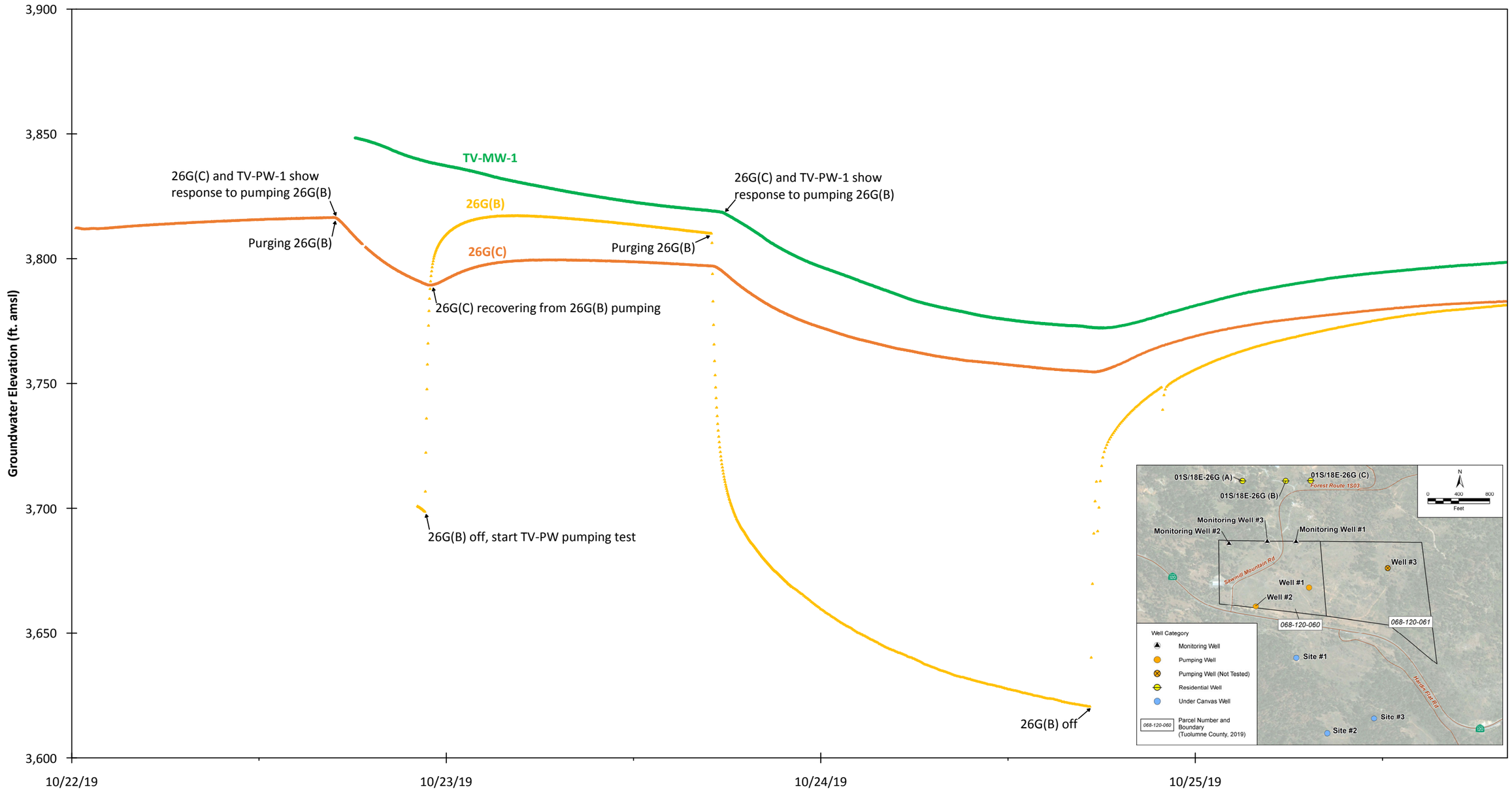
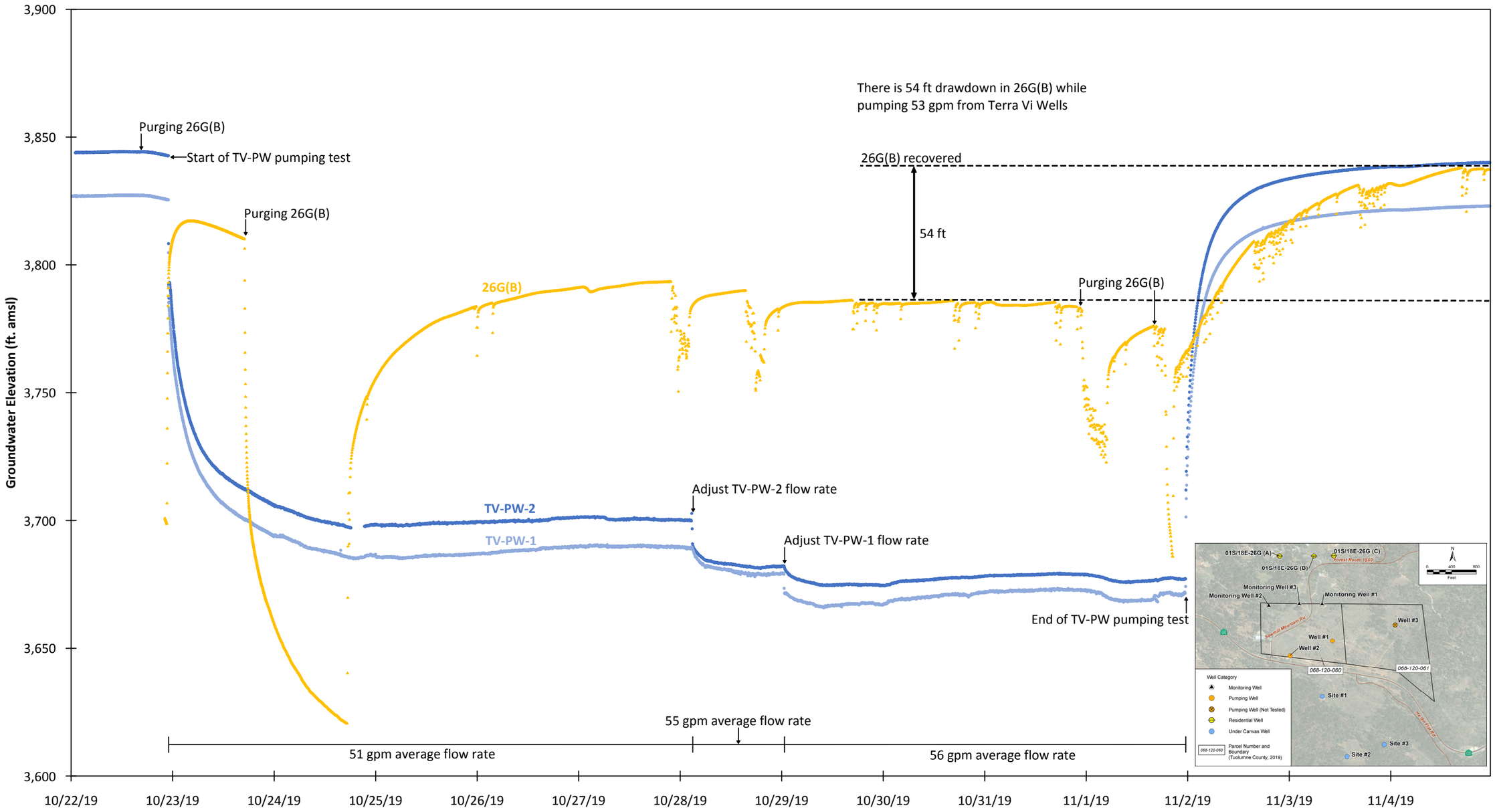


Figure 16

13-Feb-20

GEOSCIENCE Support Services, Inc.

Groundwater Elevation Showing Terra Vi Pumping Impacts in 26G(B)

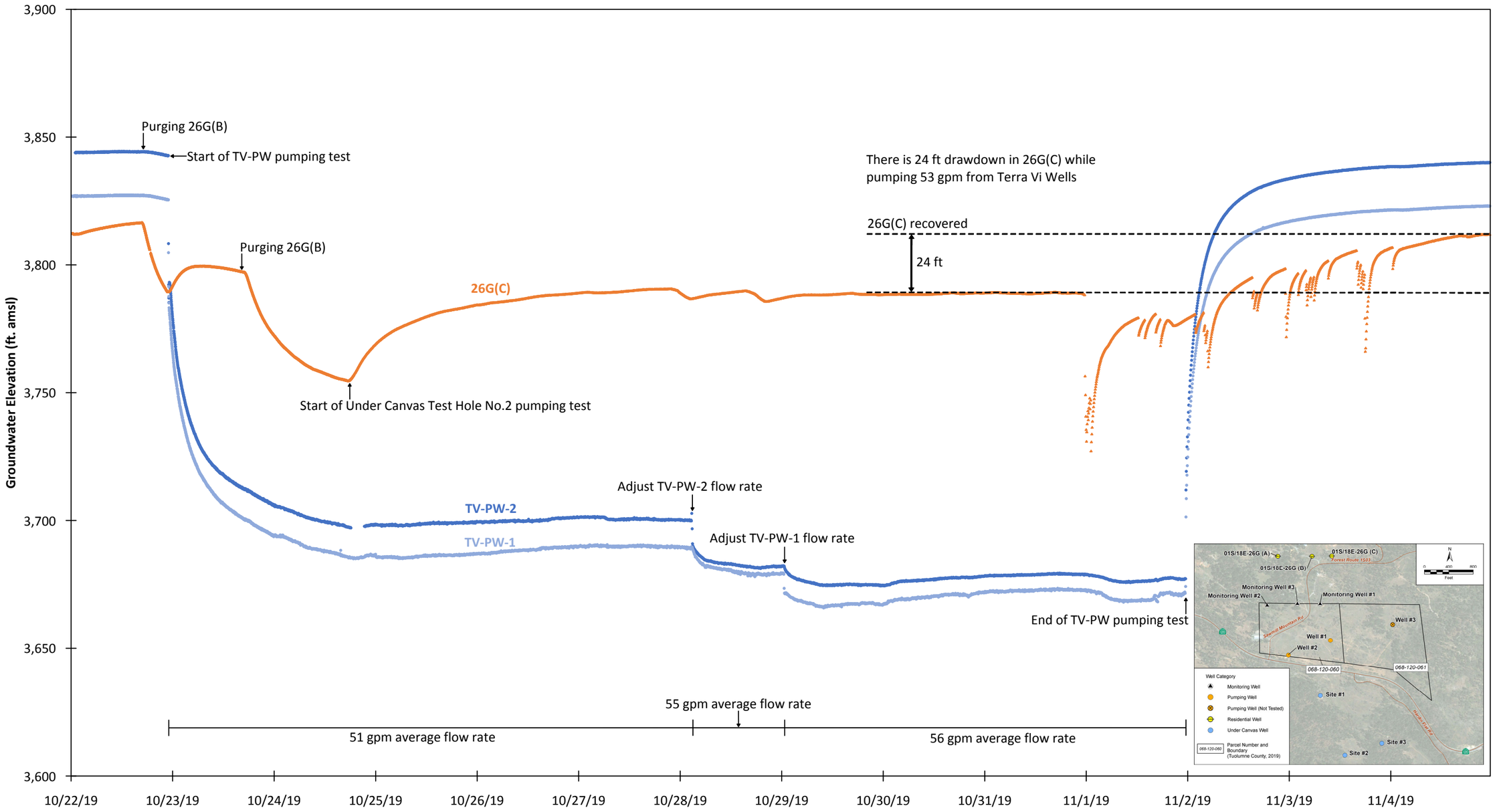


13-Feb-20

Figure 17

GEOSCIENCE Support Services, Inc.

Groundwater Elevation Showing Terra Vi Pumping Impacts in 26G(C)

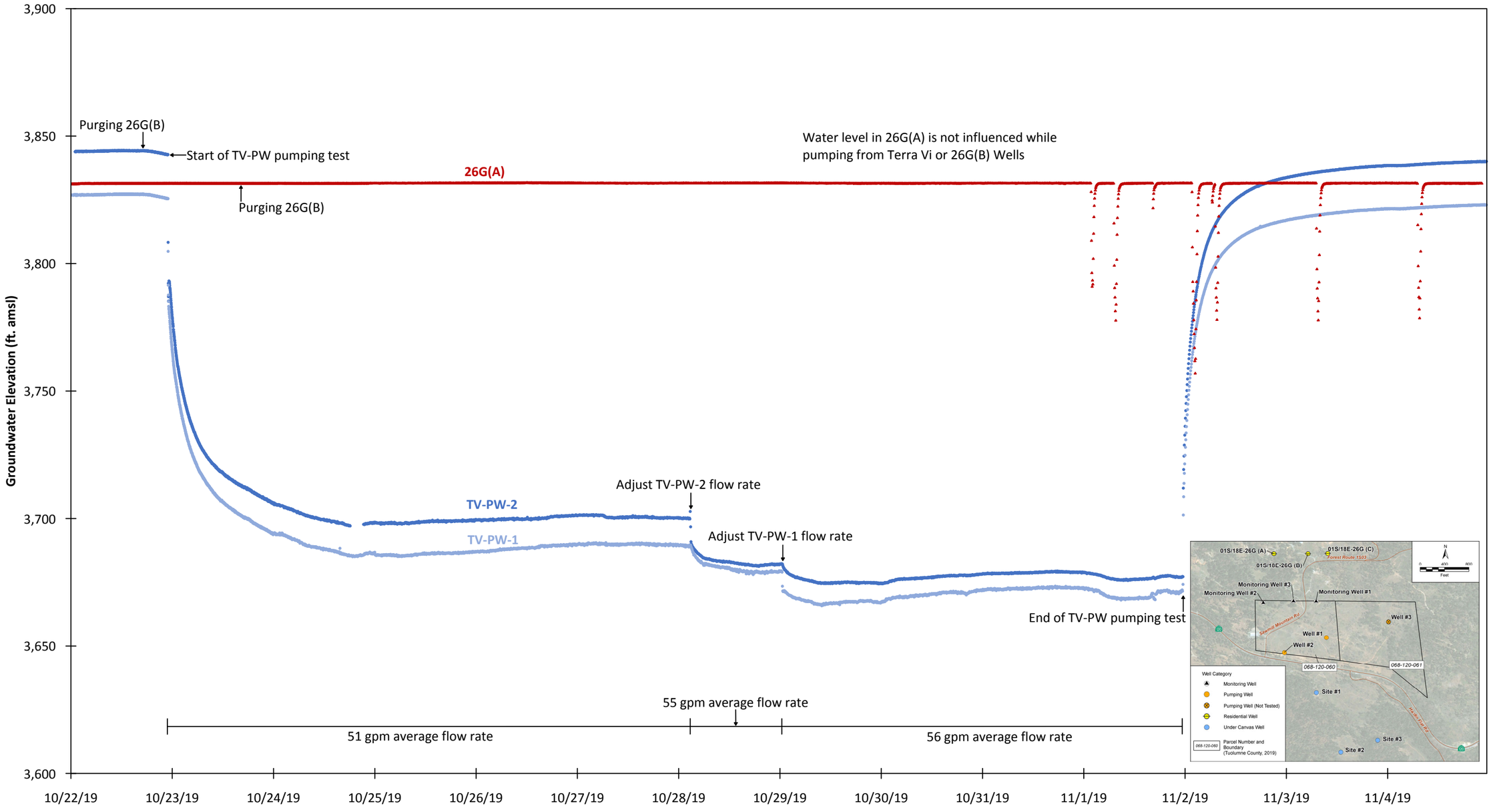


13-Feb-20

Figure 18

GEOSCIENCE Support Services, Inc.

Groundwater Elevation Showing Terra Vi Pumping Impacts in 26G(A)

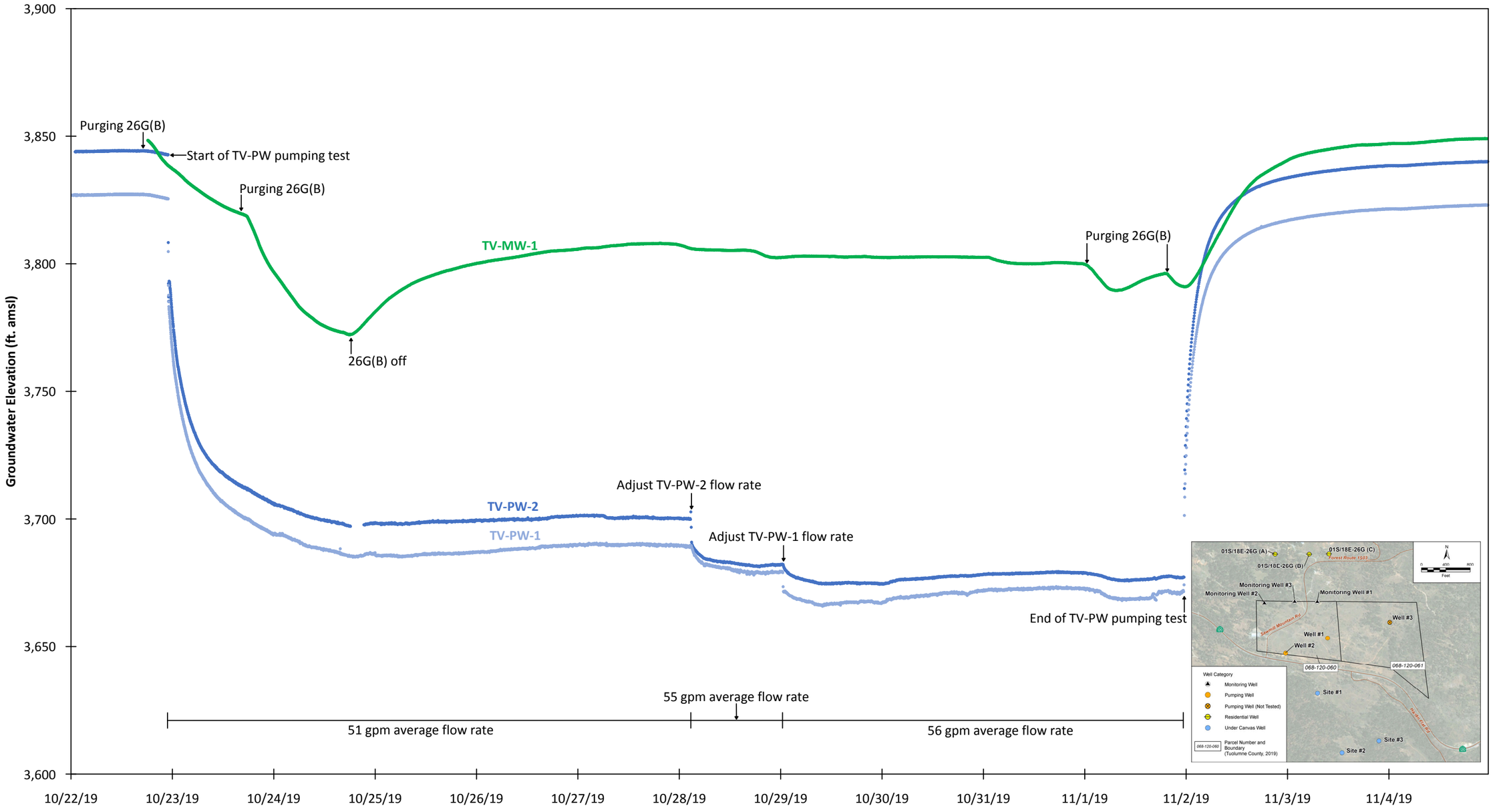


13-Feb-20

Figure 19

GEOSCIENCE Support Services, Inc.

Groundwater Elevation Showing Terra Vi Pumping Impacts in TV-MW-1

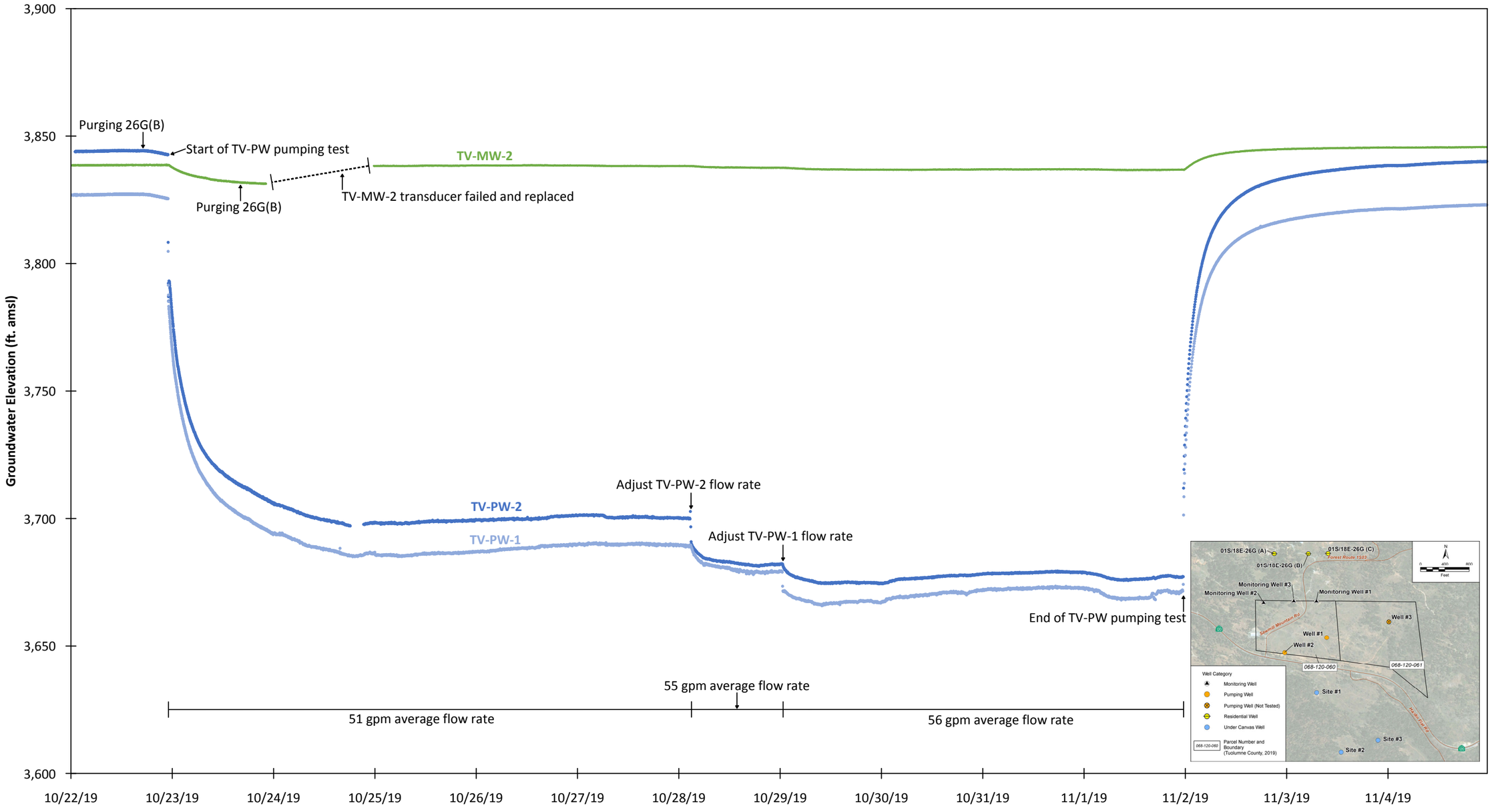


13-Feb-20

Figure 20

GEOSCIENCE Support Services, Inc.

Groundwater Elevation Showing Terra Vi Pumping Impacts in TV-MW-2

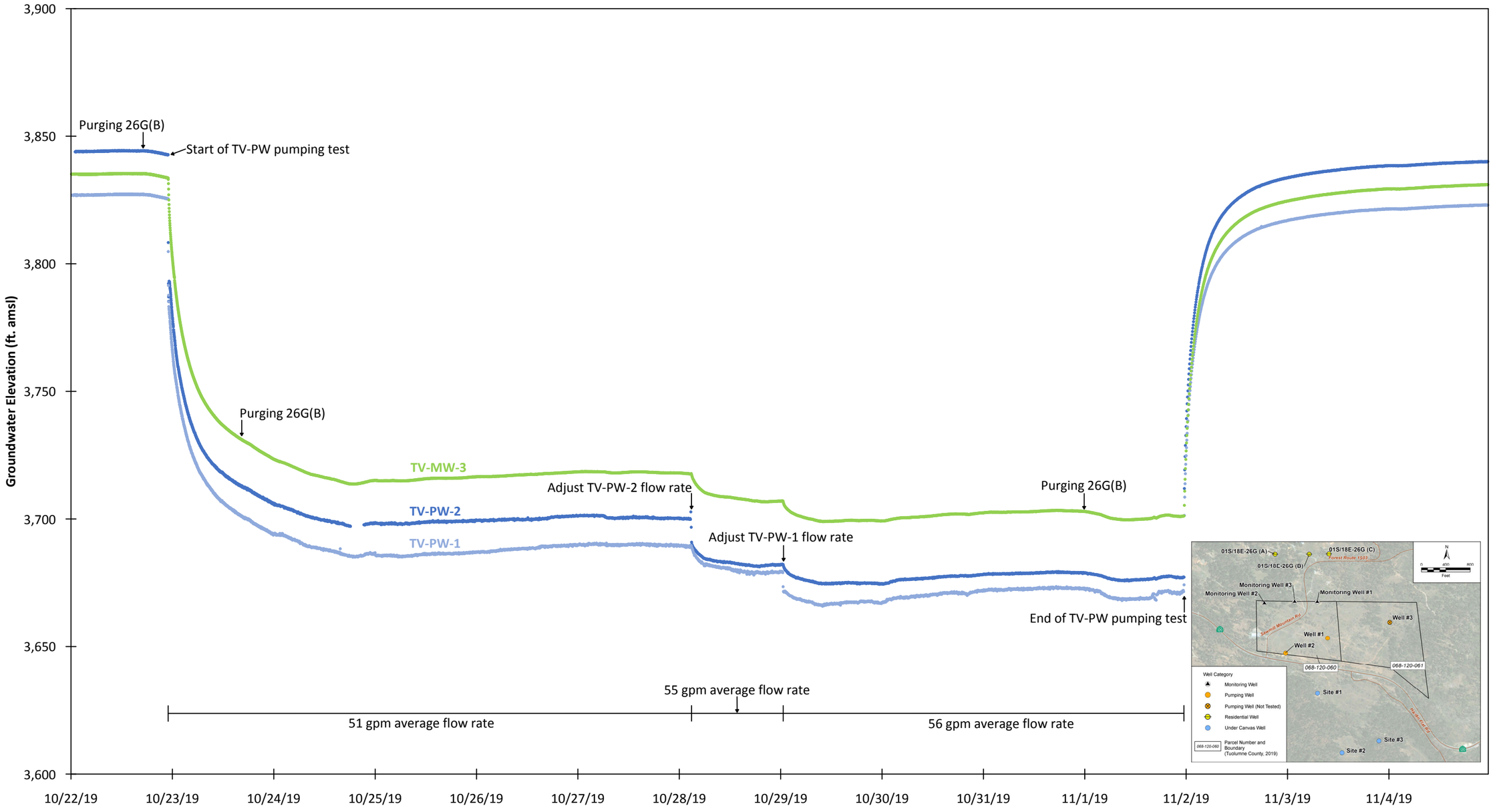


13-Feb-20

Figure 21

GEOSCIENCE Support Services, Inc.

Groundwater Elevation Showing Terra Vi Pumping Impacts in TV-MW-3



13-Feb-20

Figure 22

GEOSCIENCE Support Services, Inc.

TABLES

Table 3: Water Quality Results for Terra Vi Wells

Analyte	Title 22 [UNITS]	Drinking Water Standards Sample Date:	Pretesting-Terra Vi No. 1 10/16/19	Post testing-Terra Vi No. 1 11/12/19	Pretesting-Terra Vi No. 2 10/16/19	Post testing-Terra Vi No. 2 11/12/19
Arsenic	**[µg/L]**	10[1]	**12**	6.1	3.5	**11**
Color	**[Color Units]**	15[2]	7.3	**35**	**15**	ND
Iron	**[mg/L]**	0.3[2]	0.19	**1.5**	0.22	0.18
Turbidity	**[NTU]**	5[2]	0.56	**16**	0.99	1.1
Volatile Organic Compounds (EPA Method 524.2)	**[µg/L]**	Varies with Chemical[1]	ND	ND	ND	ND
Toluene	**[µg/L]**	150[1]	ND	ND	19	4.7

1 Division of Drinking Water (DDW) primary maximum contaminant level (MCL).
2 DDW secondary MCL.
3 DDW notification level for unregulated chemicals.
4 United States Environmental Protection Agency (USEPA) secondary standard for pH.
5 Not Applicable – no current MCL.
< Not detected above laboratory detection limits.
BOLD Equal to or above current CDPH MCLs or notification levels.

Table 4: Water Quality Results for Terra Vi Wells

Analyte	Title 22 [UNITS]	Drinking Water Standards Sample Date:	Pretesting-Terra Vi No. 1 10/16/19	Post testing-Terra Vi No. 1 11/12/19	Pretesting-Terra Vi No. 2 10/16/19	Post testing-Terra Vi No. 2 11/12/19
Alkalinity (as $CaCO_3$)	**[mg/L]**	NA[5]	180	180	150	180
Arsenic	**[µg/L]**	10[1]	**12**	6.1	3.5	**11**
Bicarbonate (as $CaCO_3$)	**[mg/L]**	NA[5]	180	180	150	180
Calcium	**[mg/L]**	NA[5]	58	61	45	56
Carbonate (as $CaCO_3$)	**[mg/L]**	NA[5]	ND	ND	ND	ND
Chloride	**[mg/L]**	250-500[2]	1.2	0.94	0.99	1.4
Chromium, Hexavalent	**[µg/L]**	10[1]	0.049	0.14	ND	ND
Chromium, Total	**[µg/L]**	50[1]	ND	ND	ND	ND
Color	**[Color Units]**	15[2]	7.3	**35**	**15**	ND
Copper	**[µg/L]**	1,000[2]	ND	ND	ND	ND
Fluoride	**[mg/L]**	2.0[1]	0.056	0.045	0.12	0.080
Iron	**[mg/L]**	0.3[2]	0.19	**1.5**	0.22	0.18
Manganese	**[µg/L]**	50[2]	16	39	18	14
Nitrate (as N)	**[mg/L]**	10[1]	ND	ND	ND	ND
Odor	**[TON]**	3[2]	ND	ND	ND	ND
Perchlorate	**[µg/L]**	6.0[1]	ND	ND	ND	ND
pH	**[pH Units]**	6.5-8.5[4]	7.9	7.8	8.1	8.1
Sodium	**[mg/L]**	NA[5]	11	11	18	18
Sulfate (as SO_4)	**[mg/L]**	250-500[2]	3.6	3.6	2.8	3.1
Total Dissolved Solids, TDS	**[mg/L]**	500-1,000[2]	220	230	180	210
Total Hardness	**[mg/L]**	NA[5]	170	180	130	160
Turbidity	**[NTU]**	5[2]	0.56	**16**	0.99	1.1
1, 2, 3-Trichloropropane	**[µg/L]**	0.005[1]	ND	ND	ND	ND
Volatile Organic Compounds (EPA Method 524.2)	**[µg/L]**	Varies with Chemical[1]	ND	ND	ND	ND
Toluene	**[µg/L]**	150[1]	ND	ND	19	4.7
Bis(2-ethylhexyl) phthalate	**[µg/L]**	4[1]	0.13	0.19	0.13	0.20
Gross Alpha Radioactivity	**[pCi/L]**	15[1]	NA	11.4 ± 1.93	NA	6.3 ± 1.52
Uranium	**[pCi/L]**	20[1]	7.0	5.1	2.1	2.9
Radon	**[pCi/L]**	NA[5]	NA	1,770 ± 54.9	NA	1,830 ± 52.4
Zinc	**[mg/L]**	5[2]	ND	2.9	ND	0.74
PFAS	**[ppm]**	NA[5]	ND	NA	ND	NA

1 Division of Drinking Water (DDW) primary maximum contaminant level (MCL).
2 DDW secondary MCL.
3 DDW notification level for unregulated chemicals.
4 United States Environmental Protection Agency (USEPA) secondary standard for pH.
5 Not Applicable – no current MCL.
< Not detected above laboratory detection limits.
BOLD Equal to or above current CDPH MCLs or notification levels.

Table 5: Water Quality Results for Nearby Wells

Analyte	Title 22 [UNITS]	Drinking Water Standards Sample Date:	Pretesting-26G(A) 10/16/19	Post testing-26G(A) 11/11/19	Pretesting-26G(C) 10/16/19	Post testing-26G(C) 11/11/19	Pretesting-26G(B) 10/21/19	Post testing-26G(B) 11/11/19	Confirmation-26G(B) 12/5/19
Color	**[Color Units]**	15[2]	**20**	ND	**15**	ND	ND	ND	10
Iron	**[mg/L]**	0.3[2]	**1.4**	**0.93**	**1.4**	**0.39**	ND	ND	ND
Volatile Organic Compounds (EPA Method 524.2)	**[µg/L]**	Varies with Chemical[1]	ND	ND	ND	ND	ND	ND	ND
Acetone	**[µg/L]**	NA[5]	ND	ND	ND	5.5	ND	ND	ND
Chloroform	**[µg/L]**	70[6]	ND	ND	ND	ND	ND	ND	0.48
Methyl-t-butyl ether	**[µg/L]**	13[2]	ND	ND	ND	ND	ND	0.19	ND
Toluene	**[µg/L]**	150[1]	ND	1.8	ND	54	ND	3.0	20
2-Butanone	**[µg/L]**	NA[5]	ND	ND	ND	1.8	ND	ND	0.91
Bis(2-ethylhexyl) phthalate	**[µg/L]**	4[1]	0.12	0.35	0.94	**9.2/5.6**	0.32	0.18	0.28

1 Division of Drinking Water (DDW) primary maximum contaminant level (MCL).
2 DDW secondary MCL.
3 DDW notification level for unregulated chemicals.
4 United States Environmental Protection Agency (USEPA) secondary standard for pH.
5 Not Applicable – no current MCL.
6 Maximum contaminant level (MCLG).
< Not detected above laboratory detection limits.
BOLD Equal to or above current CDPH MCLs or notification levels.

Table 6: Water Quality Results for Nearby Wells

Analyte	Title 22 [UNITS]	Drinking Water Standards Sample Date:	Pretesting-26G(A) 10/16/19	Post testing-26G(A) 11/11/19	Pretesting-26G(C) 10/16/19	Post testing-26G(C) 11/11/19	Pretesting-26G(B) 10/21/19	Post testing-26G(B) 11/11/19	Confirmation-26G(B) 12/5/19
Alkalinity (as $CaCO_3$)	**[mg/L]**	NA[5]	91	90	110	120	230	230	230
Arsenic	**[µg/L]**	10[1]	ND	ND	ND	ND	ND	1.5	ND
Bicarbonate (as $CaCO_3$)	**[mg/L]**	NA[5]	91	90	110	120	230	230	230
Calcium	**[mg/L]**	NA[5]	20	20	9.1	10	78	78	80
Carbonate (as $CaCO_3$)	**[mg/L]**	NA[5]	ND	ND	5.6	ND	ND	ND	ND
Chloride	**[mg/L]**	250-500[2]	1.2	1.2	1.0	1.0	1.0	1.1	0.62
Chromium, Hexavalent	**[µg/L]**	10[1]	0.061	0.066	0.019	0.054	0.023	ND	ND
Chromium, Total	**[µg/L]**	50[1]	ND	ND	6.7	ND	ND	ND	ND
Color	**[Color Units]**	15[2]	**20**	ND	**15**	ND	ND	ND	10
Copper	**[µg/L]**	1000[2]	2.9	3.8	3.2	ND	ND	ND	ND
Fluoride	**[mg/L]**	2.0[1]	0.063	0.051	0.16	0.14	ND	0.045	0.052
Iron	**[mg/L]**	0.3[2]	**1.4**	**0.93**	**1.4**	**0.39**	ND	ND	ND
Manganese	**[µg/L]**	50[2]	15	28	20	9.4	10	12	12
Nitrate (as N)	**[mg/L]**	10[1]	ND	ND	ND	ND	ND	ND	ND
Odor	**[TON]**	3[2]	ND	ND	ND	1.0	ND	ND	ND
Perchlorate	**[µg/L]**	6.0[1]	ND	ND	ND	ND	ND	ND	ND
pH	**[pH Units]**	6.5-8.5[4]	7.0	7.1	8.4	8.2	7.8	8.0	7.7
Sodium	**[mg/L]**	NA[5]	8.1	8.8	43	45	11	12	11
Sulfate (as SO_4)	**[mg/L]**	250-500[2]	0.88	0.84	2.7	2.8	8.3	6.5	7.8
Total Dissolved Solids, TDS	**[mg/L]**	500-1,000[2]	130	130	140	150	270	270	280
Total Hardness	**[mg/L]**	NA[5]	74	76	28	30	230	230	230
Turbidity	**[NTU]**	5[2]	2.3	3.1	2.3	1.9	0.17	0.12	0.15
1, 2, 3-Trichloropropane	**[µg/L]**	0.005[1]	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (EPA Method 524.2)	**[µg/L]**	Varies with Chemical[1]	ND	ND	ND	ND	ND	ND	ND
Acetone	**[µg/L]**	NA[5]	ND	ND	ND	5.5	ND	ND	ND
Chloroform	**[µg/L]**	70[6]	ND	ND	ND	ND	ND	ND	0.48
Methyl-t-butyl ether	**[µg/L]**	13[2]	ND	ND	ND	ND	ND	0.19	ND

Analyte	Title 22 [UNITS]	Drinking Water Standards Sample Date:	Pretesting-26G(A) 10/16/19	Post testing-26G(A) 11/11/19	Pretesting-26G(C) 10/16/19	Post testing-26G(C) 11/11/19	Pretesting-26G(B) 10/21/19	Post testing-26G(B) 11/11/19	Confirmation-26G(B) 12/5/19
Toluene	**[µg/L]**	150[1]	ND	1.8	ND	54	ND	3.0	20
2-Butanone	**[µg/L]**	NA[5]	ND	ND	ND	1.8	ND	ND	0.91
Bis(2-ethylhexyl) phthalate	**[µg/L]**	4[1]	0.12	0.35	0.94	**9.2/5.6**	0.32	0.18	.28
Gross Alpha Radioactivity	**[pCi/L]**	15[1]	NA	3.64 ± 1.04	NA	2.70 ± 1.02	NA	8.06 ± 1.20	8.32 ± 1.72
Uranium	**[pCi/L]**	20[1]	< 0.67	< 0.67	< 0.67	< 0.67	3.4	3.3	2.6
Zinc	**[mg/L]**	5[2]	ND	ND	0.035	ND	ND	ND	ND
PFAS	**[ppm]**	NA[5]	ND	NA	ND	NA	ND	NA	NA

1 Division of Drinking Water (DDW) primary maximum contaminant level (MCL).
2 DDW secondary MCL.
3 DDW notification level for unregulated chemicals.
4 United States Environmental Protection Agency (USEPA) secondary standard for pH.
5 Not Applicable – no current MCL.
6 Maximum contaminant level goal (MCLG).
< Not detected above laboratory detection limits.
BOLD Equal to or above current CDPH MCLs or notification levels.

Attachment A

Driller's Logs

GEOSCIENCE

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

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State of California

Well Completion Report

Refer to Instruction Pamphlet

No. xxxxxxx

Page 1 of 1

Owner's Well Number WELL #1

Date Work Began 07/10/2018 Date Work Ended 7/17/2018

Local Permit Agency Tuolumne County Environmental Health Division

Permit Number EH2018-00170 Permit Date 6/18/18

DWR Use Only – Do Not Fill In

State Well Number/Site Number

N Latitude W Longitude

APN/TRS/Other

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify

Drilling Method AIR ROTARY Drilling Fluid WATER

Depth from Surface Feet	to Feet	Description: Describe material, grain size, color, etc	
0	50	REDDISH DECOMPOSED	
50	75	DECOMPOSED GRANITE	
75	85	WEATHERED GRANITE	
85	157	WHITE GRANITE	
157	159	FRACTURED	5 GPM
159	176	BLACK/WHITE GRANITE	
176	179	FRACTURED	3 GPM
179	265	GRANITE	
265	267	FRACTURED	2 GPM
267	415	GRANITE	
415	420	FRACTURED	25 GPM
420	645	GRANITE	
645	647	FRACTURED	10 GPM
647	1,000	BLACK GRANITE	

Total Depth of Boring 1000 Feet

Total Depth of Completed Well 1000 Feet

Well Owner

Name MANLY, CAROL

Mailing Address PO BOX 130

City MOCCASIN State CA Zip 95347

Well Location

Address SAWMILL MOUNTAIN ROAD

City GROVELAND County Tuolumne

Latitude ___ Deg. ___ Min. ___ Sec. N Longitude ___ Deg. ___ Min. ___ Sec. W

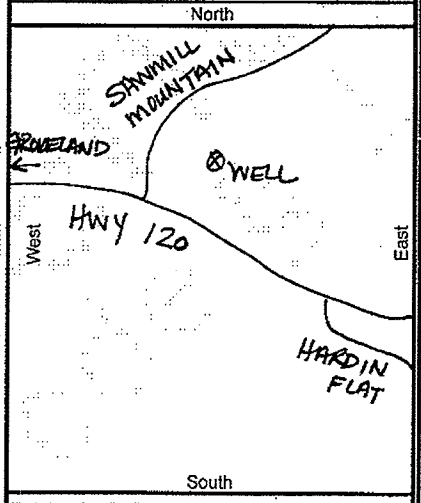
Datum ___ Dec. Lat. ___ Dec. Long. ___

APN Book 68 Page 120 Parcel 060

Township ___ Range ___ Section ___

Location Sketch

(Sketch must be drawn by hand after form is printed.)



Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

◉ New Well
○ Modification/Repair
○ Deepen
○ Other ___
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply
☐ Domestic ☐ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
◉ Other COMMERCIAL

Water Level and Yield of Completed Well

Depth to first water 157 (Feet below surface)

Depth to Static Water Level ___ (Feet) Date Measured 07/17/2018

Estimated Yield * 45 (GPM) Test Type Air Lift

Test Length 6.0 (Hours) Total Drawdown 0 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	107	12	BLANK	STEEL	.250	6	NONE	

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	107	CEMENT	PUMPED

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other ___

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name CANEPA AND SONS, INC.
Person, Firm or Corporation

14384 CUESTA COURT Address SONORA City CA State 95370 Zip

Signed Richard Canepa C-57 Licensed Water Well Contractor 7/26/2018 Date Signed 425749 C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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Well Completion Report

Refer to Instruction Pamphlet

No. xxxxxxx

Page 1 of 1

Owner's Well Number WELL #2

Date Work Began 07/18/2018 Date Work Ended 7/25/2018

Local Permit Agency Tuolumne County Environmental Health Division

Permit Number EH2018-00171 Permit Date 6/18/18

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify

Drilling Method AIR ROTARY Drilling Fluid WATER

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc	
0	40	DECOMPOSED GRANITE	
40	78	WEATHERED GRANITE	
78	85	FRACTURED GRANITE	
85	270	BLACK/WHITE GRANITE	
270	275	FRACTURED GRANITE	2 GPM
275	412	GRANITE	
412	416	FRACTURED	10 GPM
416	560	GRANITE	
560	565	FRACTURED	63 GPM
565	640	GRANITE	

Total Depth of Boring 640 Feet

Total Depth of Completed Well 640 Feet

Well Owner

Name MANLY, CAROL

Mailing Address PO BOX 130

City MOCCASIN State CA Zip 95347

Well Location

Address SAWMILL MOUNTAIN ROAD

City GROVELAND County Tuolumne

Latitude ___ ___ ___ N Longitude ___ ___ ___ W (Deg. Min. Sec.)

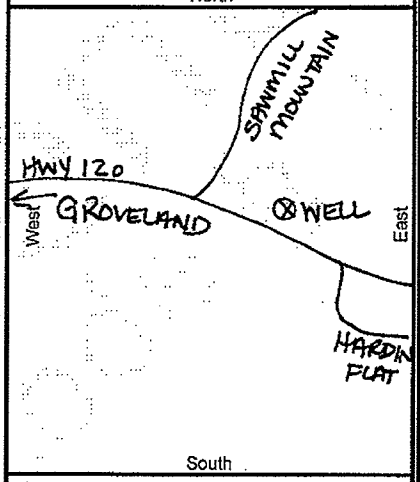
Datum ___ Dec. Lat. ___ Dec. Long. ___

APN Book 68 Page 120 Parcel 060

Township ___ Range ___ Section ___

Location Sketch

(Sketch must be drawn by hand after form is printed.)



Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

◉ New Well
○ Modification/Repair
○ Deepen
○ Other ___
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply
☐ Domestic ☐ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
◉ Other COMMERCIAL

Water Level and Yield of Completed Well

Depth to first water 270 (Feet below surface)

Depth to Static Water Level ___ (Feet) Date Measured 07/25/2018

Estimated Yield * 75 (GPM) Test Type Air Lift

Test Length 6.0 (Hours) Total Drawdown 0 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	105	12	BLANK	STEEL	.250	6	NONE	

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	105	CEMENT	PUMPED

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other ___

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name CANEPA AND SONS, INC. (Person, Firm or Corporation)

14384 CUESTA COURT (Address) SONORA (City) CA (State) 95370 (Zip)

Signed [signature] (C-57 Licensed Water Well Contractor) 7/26/2018 (Date Signed) 425749 (C-57 License Number)

DWR 188 REV. 1/2006

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Page 1 of 1

Owner's Well Number WELL #3

Date Work Began _____ Date Work Ended _____

Local Permit Agency Tuolumne County Environmental Health Department

Permit Number EH2019-00169 Permit Date 7/17/19

DWR Use Only – Do Not Fill In

State Well Number/Site Number

N W

Latitude Longitude

APN/TRS/Other

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify _____

Drilling Method AIR/ROTARY Drilling Fluid WATER

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc
0	83	DECOMPOSED GRANITE
83	220	GRANITE
220	225	FRACTURE 1 GPM
225	600	GRANITE
600	605	FRACTURED 3 GPM
605	1,100	GRANITE
1100	1,108	FRACTURE 3 GPM
1108	1,220	GRANITE

Total Depth of Boring 1220 Feet

Total Depth of Completed Well 1220 Feet

Well Owner

Name Manly, Carol

Mailing Address PO Box 130

City Moccasin State CA Zip 95347

Well Location

Address No Address; Sawmill Mountain Road

City Groveland County Tuolumne

Latitude 37 Deg. 49 Min. 27 Sec. N Longitude 119 Deg. 57 Min. 32 Sec. W

Datum _____ Dec. Lat. _____ Dec. Long. _____

APN Book 068 Page 120 Parcel 061

Township _____ Range _____ Section _____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. **Please be accurate and complete.**

Activity

◉ New Well
○ Modification/Repair
○ Deepen
○ Other _____
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply
☐ Domestic ☐ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
◉ Other Commercial

Water Level and Yield of Completed Well

Depth to first water 220 (Feet below surface)

Depth to Static Water Level _____ (Feet) Date Measured _____

Estimated Yield * 7 (GPM) Test Type Air Lift

Test Length 6.0 (Hours) Total Drawdown 0 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	110	16	BLANK	STEEL	.188	8	NONE	

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	110	CONCRETE	PUMPED

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other _____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name CANEPA AND SONS, INC.
Person, Firm or Corporation

14384 CUESTA COURT Address SONORA City CA State 95370 Zip

Signed _____ C-57 Licensed Water Well Contractor Date Signed _____ 425749 C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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Well Completion Report

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No. xxxxxxx

Page 1 of 1

Owner's Well Number MONITORING WELL #1

Date Work Began _____ Date Work Ended _____

Local Permit Agency Tuolumne County Environmental Health Department

Permit Number EH2019-00139 Permit Date 7/15/19

DWR Use Only – Do Not Fill In

State Well Number/Site Number

N W

Latitude Longitude

APN/TRS/Other

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify _____

Drilling Method AIR/ROTARY Drilling Fluid WATER

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc
0	50	DECOMPOSED
50	54	BOULDER
54	190	GRANITE
190	193	FRACTURE .5 GPM
193	590	GRANITE
590	600	FRACTURE .5 GPM
600	700	GRANITE

Total Depth of Boring 700 Feet

Total Depth of Completed Well 700 Feet

Well Owner

Name Manly, Carol

Mailing Address PO Box 130

City Moccassin State CA Zip 95347

Well Location

Address No Address; Sawmill Mountain Road

City Groveland County Tuolumne

Latitude 37 Deg. 49 Min. 30 Sec. N Longitude 119 Deg. 57 Min. 46 Sec. W

Datum _____ Dec. Lat. _____ Dec. Long. _____

APN Book 068 Page 120 Parcel 060

Township _____ Range _____ Section _____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. **Please be accurate and complete.**

Activity

◉ New Well
○ Modification/Repair
○ Deepen
○ Other _____
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply
☐ Domestic ☐ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
◉ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other _____

Water Level and Yield of Completed Well

Depth to first water 190 (Feet below surface)

Depth to Static Water Level _____ (Feet) Date Measured _____

Estimated Yield * 1 (GPM) Test Type Air Lift

Test Length 4.0 (Hours) Total Drawdown 0 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	90	10	BLANK	PVC	SDR26	6	NONE	

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	25	CONCRETE	POURED
25	93	BENTONITE	PUMPED

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other _____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name CANEPA AND SONS, INC.
Person, Firm or Corporation

14384 CUESTA COURT Address | SONORA City | CA State | 95370 Zip

Signed _____ C-57 Licensed Water Well Contractor | Date Signed _____ | 425749 C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Confidential per Water Code 13752

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File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. xxxxxxx

Page 1 of 1

Owner's Well Number MONITORING WELL #2

Date Work Began _____ Date Work Ended _____

Local Permit Agency Tuolumne County Environmental Health Department

Permit Number EH2019-00139 Permit Date 7/15/19

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify _____

Drilling Method AIR/ROTARY Drilling Fluid WATER

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc
0	20	OVERBURDEN/DIRT
20	100	DECOMPOSED GRANITE
100	104	WEATHERED GRANITE
104	135	GRANITE
135	136	FRACTURE
136	145	GRANITE
145	146	FRACTURE
146	175	GRANITE
175	176	FRACTURE
176	187	GRANITE
187	188	FRACTURE 15 GPM
188	298	GRANITE
298	299	FRACTURE 1 GPM
299	376	GRANITE
376	377	FRACTURE
377	539	GRANITE
539	540	FRACTURE 5 GPM
540	610	GRANITE
610	611	FRACTURE 20 GPM
611	808	GRANITE
808	809	FRACTURE 1 GPM
809	1,000	GRANITE

Total Depth of Boring 1000 Feet

Total Depth of Completed Well 1000 Feet

Well Owner

Name Manly, Carol

Mailing Address PO Box 130

City Moccassin State CA Zip 95347

Well Location

Address No Address; Sawmill Mountain Road

City Groveland County Tuolumne

Latitude 37 Deg. 49 Min. 30 Sec. N Longitude 119 Deg. 57 Min. 57 Sec. W

Datum _____ Dec. Lat. _____ Dec. Long. _____

APN Book 068 Page 120 Parcel 060

Township _____ Range _____ Section _____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. **Please be accurate and complete.**

Activity

◉ New Well
○ Modification/Repair
○ Deepen
○ Other _____
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply
☐ Domestic ☐ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
◉ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other _____

Water Level and Yield of Completed Well

Depth to first water 187 (Feet below surface)

Depth to Static Water Level _____ (Feet) Date Measured _____

Estimated Yield * 42 (GPM) Test Type Air Lift

Test Length 4.0 (Hours) Total Drawdown 0 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	106	14	BLANK	STEEL	.250	8	NONE	

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	105	CONCRETE	PUMPED

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other _____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name CANEPA AND SONS, INC.
Person, Firm or Corporation

14384 CUESTA COURT Address | SONORA City | CA State | 95370 Zip

Signed _____ C-57 Licensed Water Well Contractor | Date Signed _____ | 425749 C-57 License Number

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Certified Copy per Water Code § 13752

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. xxxxxxx

Page 1 of 1

Owner's Well Number MONITORING WELL #3

Date Work Began _____ Date Work Ended 8/21/2019

Local Permit Agency Tuolumne County Environmental Health Department

Permit Number EH2019-00139 Permit Date 7/15/19

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify _____

Drilling Method AIR/ROTARY Drilling Fluid WATER

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc	
0	54	DECOMPOSED GRANITE	
54	60	BOULDER	
60	95	DECOMPOSED/WEATHERED GRANITE	
95	320	GRANITE	
320	325	FRACTURED	5 GPM
325	480	GRANITE	
480	490	FRACTURED	70 GPM
490	520	GRANITE	
520	525	FRACTURED	15 GPM
525	780	GRANITE	

Total Depth of Boring 780 Feet

Total Depth of Completed Well 780 Feet

Well Owner

Name Manly, Carol

Mailing Address PO Box 130

City Moccassin State CA Zip 95347

Well Location

Address No Address; Sawmill Mountain Road

City Groveland County Tuolumne

Latitude 37 Deg. 49 Min. 31 Sec. N Longitude 119 Deg. 57 Min. 51 Sec. W

Datum _____ Dec. Lat. _____ Dec. Long. _____

APN Book 068 Page 120 Parcel 060

Township _____ Range _____ Section _____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

◉ New Well
○ Modification/Repair
○ Deepen
○ Other _____
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply
☐ Domestic ☐ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
◉ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other _____

Water Level and Yield of Completed Well

Depth to first water 320 (Feet below surface)

Depth to Static Water Level 250 (Feet) Date Measured 08/21/2019

Estimated Yield * 90 (GPM) Test Type Air Lift

Test Length 4.0 (Hours) Total Drawdown 0 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	105	14	BLANK	STEEL	.250	8	NONE	

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	105	CONCRETE	PUMPED

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other _____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name CANEPA AND SONS, INC. (Person, Firm or Corporation)

14384 CUESTA COURT (Address) SONORA (City) CA (State) 95370 (Zip)

Signed _____ (C-57 Licensed Water Well Contractor) Date Signed _____ 425749 (C-57 License Number)

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Confidential per Water Code §13752

R. 10/19/15

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File Original with DWR

State of California
Well Completion Report

Refer to Instruction Pamphlet

No. e0284800

Page 1 of 1

Owner's Well Number

Date Work Began 09/21/2015 Date Work Ended 9/22/2015

Local Permit Agency Tuolumne County Environmental Health Department

Permit Number EH2015-00177 Permit Date 6/10/15

DWR Use Only – Do Not Fill In

State Well Number/Site Number: 01S18E24D

Latitude: 37 50 39 N Longitude: 119 57 14 W

APN/TRS/Other: 068 340 15

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify

Drilling Method AIR/ROTARY Drilling Fluid WATER

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)	
0	3	FILL	
3	85	DECOMPOSED GRANITE	
85	310	GRANITE	
310	311	FRACTURE	1/2 GPM
311	365	GRANITE	
365	366	FRACTURE	1/2 GPM
366	390	GRANITE	
390	391	FRACTURE	4 GPM
391	460	GRANITE	

Total Depth of Boring 460 Feet

Total Depth of Completed Well 460 Feet

Well Owner

Well Location

Address 11360 SAWMILL MOUNTAIN ROAD

City GROVELAND County Tuolumne

Latitude ___ ___ ___ N Longitude ___ ___ ___ W (Deg. Min Sec)

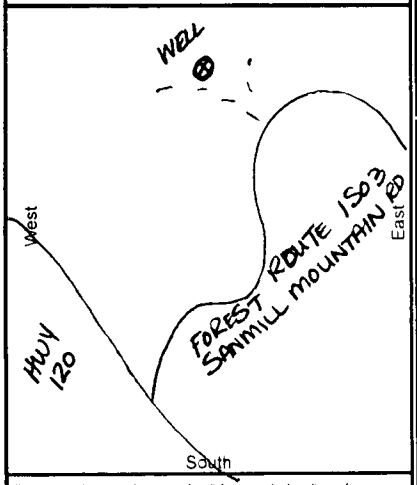
Datum Dec. Lat. Dec. Long.

APN Book 68 Page 340 Parcel 15

Township Range Section

Location Sketch

(Sketch must be drawn by hand after form is printed.)



Illustrate or describe distance of well from roads, buildings, fences rivers, etc and attach a map. Use additional paper if necessary. **Please be accurate and complete**

Activity

◉ New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy
Describe procedures and materials under GEOLOGIC LOG

Planned Uses

◉ Water Supply
☑ Domestic ☐ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other

Water Level and Yield of Completed Well

Depth to first water 310 (Feet below surface)

Depth to Static Water Level (Feet) Date Measured 09/22/2015

Estimated Yield * 5 (GPM) Test Type Air Lift

Test Length 6.0 (Hours) Total Drawdown 0 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	100	8 3/4	BLANK	PVC	SDR26	6		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	100	BENTONITE	PUMPED

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

Attach additional information, if it exists

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Canepa and Sons, Inc. (Person, Firm or Corporation)

14384 Cuesta Court (Address) Sonora (City) CA (State) 95370 (Zip)

Signed [signature] (C-57 Licensed Water Well Contractor) 9/24/15 (Date Signed) 425749 (C-57 License Number)

DWR 188 REV 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ATTACHMENT B

Water Quality Laboratory Reports

GEOSCIENCE

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

A9L1688
1/27/2020
Invoice: AD01416

Geralyn Skapik
Claremont Land Group
5861 Pine Ave, Suite A-1
Chino Hills, CA 91709

RE: Report for A9L1688 Yosemite Title 22 Testing

Dear Geralyn Skapik,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/17/2019. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an “as received” basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Elaine M. Phillips , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Elaine M. Phillips, Project Coordinator

Accredited in Accordance with NELAP
ORELAP #4021-009

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Claremont Land Group	**Invoice To:**	Hansji Corporation
Report To:	Geralyn Skapik	**Invoice Attn:**	John Bissel
Project #:	[redacted] 26G(A)	**Project PO#:**	-
Received:	10/17/2019 - 11:30		
Report Due:	10/31/2019		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 5.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Received On Blue Ice
Packing Material - Other
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Chain of Custody Notes

Date: 1/27/2020
Initials: EMP
26G(A)
Note: Moved data from A9J1707-04 for [redacted] to Work Order A9L1688, as per client request.

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

BS	Blank spike recoveries did not meet acceptance limits.
BS1.0	Blank spike recovery for this analyte was biased high; no material impact on reported result as sample is ND for this parameter.
BS1.3	Blank Spike recovery meets the wider acceptance criteria of 50-150% when the spike level is at or below the reporting limit (RL).
BS4.0	BS/BSD RPD exceeded the method acceptance limit as one of the blank spikes recovered outside limits.
CV0.0	CCV recovery was above method acceptance limits; no material impact on reported result as sample detection is below the reporting limit for this parameter.
J	Estimated value
MS1.0	Matrix spike recoveries exceed control limits.

Report Distribution

Recipient(s)	Report Format	CC:
Geralyn Skapik	MCL.RPT	
Christofer Coppinger	MCL.RPT	
John Bissel	MCL.RPT	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1688-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(A)

Sample Date - Time: 10/16/2019 - 14:53
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.37 Temp=13.2 ºC Cond.=172 umho Turb. =7.33 ntu

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aggressive Index		**11**						A916115	10/24/19	10/24/19	
Alkalinity as CaCO3	SM 2320B	**91**		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Bicarbonate as CaCO3	SM 2320B	**91**		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Carbonate as CaCO3	SM 2320B	ND		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Hydroxide as CaCO3	SM 2320B	ND		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Chloride	EPA 300.0	**1.2**	0.51	1.0	mg/L	1		A915762	10/17/19	10/17/19	
Color, Apparent	SM 2120B	**20**		5.0	CU	1		A915547	10/17/19 18:47	10/17/19	
Color pH (1)	SM 4500-H+ B	**6.7**			pH Units	1		A915547	10/17/19	10/17/19	
Cyanide (total)	SM 4500-CN E	ND	0.0022	0.0050	mg/L	1	0.15	A915897	10/21/19	10/28/19	
Conductivity @ 25C	SM 2510B	**180**		1.0	umhos/cm	1		A915739	10/17/19	10/17/19	
Fluoride	EPA 300.0	**0.063**	0.042	0.10	mg/L	1	2	A916233	10/26/19	10/26/19	J
Hexavalent Chromium	EPA 218.7	**0.061**	0.011	0.050	ug/L	1	50	A915798	10/18/19	10/18/19	
Langelier Index	SM 2330B	**-1.2**						A916357	10/29/19	10/29/19	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.021	0.050	mg/L	1		A915795	10/18/19 12:30	10/18/19	
Nitrate + Nitrite as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A915762	10/17/19 20:06	10/17/19	
Nitrate as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A915762	10/17/19 20:06	10/17/19	
Nitrite as N	EPA 300.0	ND	0.020	0.050	mg/L	1	1	A915762	10/17/19 20:06	10/17/19	
Threshold Odor	SM 2150B	ND		1.0	T.O.N.	1		A915537	10/17/19 13:58	10/17/19	
Perchlorate	EPA 314.0	ND	0.61	2.0	ug/L	1	6	A915832	10/18/19	10/18/19	
pH (1)	SM 4500-H+ B	**7.0**			pH Units	1		A915739	10/17/19	10/17/19	
pH Temperature in °C		**22.8**									
Sulfate as SO4	EPA 300.0	**0.88**	0.40	1.0	mg/L	1		A915762	10/17/19	10/17/19	J
Total Dissolved Solids	SM 2540C	**130**		5.0	mg/L	1		A915961	10/22/19	10/25/19	
Turbidity	SM 2130B	**2.3**		0.10	NTU	1		A915547	10/17/19 19:04	10/17/19	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	**0.026**	0.023	0.050	mg/L	1	1	A915802	10/21/19	10/22/19	J
Antimony	EPA 200.8	ND	0.91	2.0	ug/L	1	6	A915802	10/21/19	10/24/19	
Arsenic	EPA 200.8	ND	1.2	2.0	ug/L	1	10	A915802	10/21/19	10/24/19	
Barium	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A915802	10/21/19	10/22/19	
Beryllium	EPA 200.8	ND	0.45	1.0	ug/L	1	4	A915802	10/21/19	10/24/19	
Cadmium	EPA 200.8	ND	0.45	1.0	ug/L	1	5	A915802	10/21/19	10/24/19	
Calcium	EPA 200.7	**20**	0.046	0.10	mg/L	1		A915802	10/21/19	10/22/19	
Chromium	EPA 200.8	ND	4.5	10	ug/L	1	50	A915802	10/21/19	10/24/19	
Copper	EPA 200.8	**2.9**	2.3	5.0	ug/L	1		A915802	10/21/19	10/24/19	J
Iron	EPA 200.7	**1.4**	0.014	0.030	mg/L	1		A915802	10/21/19	10/22/19	
Lead	EPA 200.8	ND	0.45	1.0	ug/L	1		A915802	10/21/19	10/24/19	
Magnesium	EPA 200.7	**5.8**	0.046	0.10	mg/L	1		A915802	10/21/19	10/22/19	
Manganese	EPA 200.7	**0.015**	0.0045	0.010	mg/L	1		A915802	10/21/19	10/22/19	

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Certificate of Analysis

Sample ID: A9L1688-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(A)

Sample Date - Time: 10/16/2019 - 14:53
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.37 Temp=13.2 ºC Cond.=172 umho Turb. =7.33 ntu

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Mercury	EPA 200.8	ND	0.091	0.20	ug/L	1	2	A915802	10/21/19	10/24/19	
Nickel	EPA 200.8	ND	4.5	10	ug/L	1	100	A915802	10/21/19	10/24/19	
Potassium	EPA 200.7	**1.2**	0.91	2.0	mg/L	1		A915802	10/21/19	10/22/19	J
Selenium	EPA 200.8	ND	0.91	2.0	ug/L	1	50	A915802	10/21/19	10/24/19	
Silver	EPA 200.8	ND	4.5	10	ug/L	1		A915802	10/21/19	10/24/19	
Sodium	EPA 200.7	**8.1**	0.45	1.0	mg/L	1		A915802	10/21/19	10/22/19	
Thallium	EPA 200.8	ND	0.45	1.0	ug/L	1	2	A915802	10/21/19	10/24/19	
Hardness as CaCO3	SM 2340B	**74**		0.41	mg/L						
Uranium	EPA 200.8	ND	0.45	1.0	ug/L	1	30	A915802	10/21/19	10/24/19	
Uranium, Radiological		**< 0.67**		0.67	pCi/L		20				
Zinc	EPA 200.7	ND	0.023	0.050	mg/L	1		A915802	10/21/19	10/22/19	

Microbiology

Analyte	Method	Result	RL	Units	Batch	Prepared	Analyzed	Qual
Coliform, Total and E.Coli by Quanti-Tray 51 Wells								
E. Coli	SM 9223B	**<1**	1	MPN/100 mL	A915751	10/17/19 14:27	10/18/19 10:16	
Total Coliform	SM 9223B	**<1**	1	MPN/100 mL	A915751	10/17/19 14:27	10/18/19 10:16	

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
EDB and DBCP by GC-ECD											
Dibromochloropropane (DBCP)	EPA 504.1	ND	0.0060	0.010	ug/L	1	0.2	A915965	10/22/19	10/23/19	
Ethylene Dibromide (EDB)	EPA 504.1	ND	0.0050	0.020	ug/L	1	0.05	A915965	10/22/19	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 504.1	98 %		*Acceptable range: 70-130 %*							
Organohalide Pesticides and PCBs by GC-ECD											
Aldrin	EPA 505	ND	0.022	0.075	ug/L	1		A915965	10/22/19	10/23/19	
Chlordane (Technical)	EPA 505	ND	0.091	0.10	ug/L	1	0.1	A915965	10/22/19	10/23/19	
Dieldrin	EPA 505	ND	0.0042	0.020	ug/L	1		A915965	10/22/19	10/23/19	
Endrin	EPA 505	ND	0.0037	0.10	ug/L	1	2	A915965	10/22/19	10/23/19	
Heptachlor	EPA 505	ND	0.0052	0.010	ug/L	1	0.01	A915965	10/22/19	10/23/19	
Heptachlor Epoxide	EPA 505	ND	0.0048	0.010	ug/L	1	0.01	A915965	10/22/19	10/23/19	
Hexachlorobenzene	EPA 505	ND	0.032	0.50	ug/L	1	1	A915965	10/22/19	10/23/19	
Hexachlorocyclopentadiene	EPA 505	ND	0.041	1.0	ug/L	1	50	A915965	10/22/19	10/23/19	
Lindane	EPA 505	ND	0.0059	0.20	ug/L	1	0.2	A915965	10/22/19	10/23/19	
Methoxychlor	EPA 505	ND	0.031	10	ug/L	1	30	A915965	10/22/19	10/23/19	
PCB Aroclor Screen	EPA 505	ND	0.078	0.50	ug/L	1	0.5	A915965	10/22/19	10/23/19	
Toxaphene	EPA 505	ND	0.33	1.0	ug/L	1	3	A915965	10/22/19	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 505	98 %		*Acceptable range: 70-130 %*							
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-T	EPA 515.4	ND	0.13	1.0	ug/L	1		A915871	10/21/19	10/21/19	

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Certificate of Analysis

Sample ID: A9L1688-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(A)

Sample Date - Time: 10/16/2019 - 14:53
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.37 Temp=13.2 ºC Cond.=172 umho Turb. =7.33 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-TP (Silvex)	EPA 515.4	ND	0.016	1.0	ug/L	1	50	A915871	10/21/19	10/21/19	
2,4-D	EPA 515.4	ND	0.074	10	ug/L	1	70	A915871	10/21/19	10/21/19	
Bentazon	EPA 515.4	ND	1.3	2.0	ug/L	1	18	A915871	10/21/19	10/21/19	
Dalapon	EPA 515.4	ND	0.58	10	ug/L	1	200	A915871	10/21/19	10/21/19	
Dicamba	EPA 515.4	ND	0.13	1.5	ug/L	1		A915871	10/21/19	10/21/19	
Dinoseb	EPA 515.4	ND	0.032	2.0	ug/L	1	7	A915871	10/21/19	10/21/19	
Pentachlorophenol	EPA 515.4	ND	0.011	0.20	ug/L	1	1	A915871	10/21/19	10/21/19	
Picloram	EPA 515.4	ND	0.084	1.0	ug/L	1	500	A915871	10/21/19	10/21/19	
Surrogate: DCPAA	EPA 515.4	120 %		*Acceptable range: 70-130 %*							
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A915770	10/17/19	10/18/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A915770	10/17/19	10/18/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A915770	10/17/19	10/18/19	BS1.0, CV0.0
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A915770	10/17/19	10/18/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A915770	10/17/19	10/18/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A915770	10/17/19	10/18/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A915770	10/17/19	10/18/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A915770	10/17/19	10/18/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A915770	10/17/19	10/18/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A915770	10/17/19	10/18/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A915770	10/17/19	10/18/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A915770	10/17/19	10/18/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A915770	10/17/19	10/18/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1688-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(A)

Sample Date - Time: 10/16/2019 - 14:53
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.37 Temp=13.2 ºC Cond.=172 umho Turb. =7.33 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A915770	10/17/19	10/18/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A915770	10/17/19	10/18/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A915770	10/17/19	10/18/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A915770	10/17/19	10/18/19	
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A915770	10/17/19	10/18/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A915770	10/17/19	10/18/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Methyl-t-butyl ether	EPA 524.2	ND	0.083	0.50	ug/L	1	13	A915770	10/17/19	10/18/19	
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A915770	10/17/19	10/18/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A915770	10/17/19	10/18/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A915770	10/17/19	10/18/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A915770	10/17/19	10/18/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A915770	10/17/19	10/18/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A915770	10/17/19	10/18/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A915770	10/17/19	10/18/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A915770	10/17/19	10/18/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A915770	10/17/19	10/18/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	92 %			*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	93 %			*Acceptable range: 70-130 %*						
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				
Semi-Volatile Organics by GC-MS											
Alachlor	EPA 525.3	ND	0.022	1.0	ug/L	1	2	A915805	10/18/19	10/22/19	
Atrazine	EPA 525.3	ND	0.0076	0.50	ug/L	1	1	A915805	10/18/19	10/22/19	

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Certificate of Analysis

Sample ID: A9L1688-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(A)

Sample Date - Time: 10/16/2019 - 14:53
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.37 Temp=13.2 ºC Cond.=172 umho Turb. =7.33 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Semi-Volatile Organics by GC-MS											
Benzo(a)pyrene	EPA 525.3	ND	0.0019	0.10	ug/L	1	0.2	A915805	10/18/19	10/22/19	
Bis(2-ethylhexyl) adipate	EPA 525.3	ND	0.067	3.0	ug/L	1	400	A915805	10/18/19	10/22/19	BS1.0
Bis(2-ethylhexyl) phthalate	EPA 525.3	**0.12**	0.11	3.0	ug/L	1	4	A915805	10/18/19	10/22/19	J
Bromacil	EPA 525.3	ND	0.028	10	ug/L	1		A915805	10/18/19	10/22/19	BS1.0
Butachlor	EPA 525.3	ND	0.018	0.38	ug/L	1		A915805	10/18/19	10/22/19	BS1.0
Diazinon	EPA 525.3	ND	0.0022	0.25	ug/L	1		A915805	10/18/19	10/22/19	
Dimethoate	EPA 525.3	ND	0.082	10	ug/L	1		A915805	10/18/19	10/22/19	
Metolachlor	EPA 525.3	ND	0.011	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Metribuzin	EPA 525.3	ND	0.0061	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Molinate	EPA 525.3	ND	0.0061	2.0	ug/L	1	20	A915805	10/18/19	10/22/19	
Propachlor	EPA 525.3	ND	0.0056	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Simazine	EPA 525.3	ND	0.0049	1.0	ug/L	1	4	A915805	10/18/19	10/22/19	
Thiobencarb	EPA 525.3	ND	0.0083	1.0	ug/L	1	70	A915805	10/18/19	10/22/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	EPA 525.3	99 %			*Acceptable range: 70-130 %*						
Surrogate: Benzo(a)pyrene-d12	EPA 525.3	96 %			*Acceptable range: 70-130 %*						
Surrogate: Triphenyl Phosphate	EPA 525.3	118 %			*Acceptable range: 70-130 %*						
Carbamates by HPLC											
3-Hydroxycarbofuran	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb Sulfone	EPA 531.1	ND	0.12	2.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb Sulfoxide	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Carbaryl	EPA 531.1	ND	0.22	5.0	ug/L	1		A916157	10/25/19	10/26/19	
Carbofuran	EPA 531.1	ND	0.27	5.0	ug/L	1	18	A916157	10/25/19	10/26/19	
Methomyl	EPA 531.1	ND	0.19	2.0	ug/L	1		A916157	10/25/19	10/26/19	
Oxamyl	EPA 531.1	ND	0.090	20	ug/L	1	50	A916157	10/25/19	10/26/19	
Glyphosate by HPLC											
Glyphosate	EPA 547	ND	2.1	25	ug/L	1	700	A915865	10/19/19	10/20/19	
Surrogate: AMPA	EPA 547	104 %			*Acceptable range: 70-130 %*						
Endothall by GC-MS											
Endothall	EPA 548.1	ND	1.6	45	ug/L	1	100	A916102	10/23/19	10/25/19	
Diquat by HPLC											
Diquat	EPA 549.2	ND	0.071	4.0	ug/L	1	20	A915875	10/21/19	10/26/19	
1,2,3-Trichloropropane by GC-MS SIM											
1,2,3-Trichloropropane	SRL 524M-TCP	ND	0.0014	0.0050	ug/L	1	0.005	A915968	10/22/19	10/22/19	

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Certificate of Analysis

Sample ID: A9L1688-02
Sampled By: BSK
Sample Description: Trip Blank 524 Raw 1019007

Sample Date - Time: 10/16/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS										**Analysis Qualifier(s): BS**	
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A916097	10/23/19	10/24/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A916097	10/23/19	10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A916097	10/23/19	10/24/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A916097	10/23/19	10/24/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A916097	10/23/19	10/24/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A916097	10/23/19	10/24/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A916097	10/23/19	10/24/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A916097	10/23/19	10/24/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A916097	10/23/19	10/24/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A916097	10/23/19	10/24/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A916097	10/23/19	10/24/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A916097	10/23/19	10/24/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A916097	10/23/19	10/24/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A916097	10/23/19	10/24/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A916097	10/23/19	10/24/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A916097	10/23/19	10/24/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A916097	10/23/19	10/24/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1688-02
Sampled By: BSK
Sample Description: Trip Blank 524 Raw 1019007

Sample Date - Time: 10/16/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS										**Analysis Qualifier(s): BS**	
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A916097	10/23/19	10/24/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A916097	10/23/19	10/24/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Methyl-t-butyl ether	EPA 524.2	ND	0.083	0.50	ug/L	1	13	A916097	10/23/19	10/24/19	
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A916097	10/23/19	10/24/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A916097	10/23/19	10/24/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A916097	10/23/19	10/24/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A916097	10/23/19	10/24/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A916097	10/23/19	10/24/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A916097	10/23/19	10/24/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A916097	10/23/19	10/24/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A916097	10/23/19	10/24/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A916097	10/23/19	10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	110 %		*Acceptable range: 70-130 %*							
Surrogate: Bromofluorobenzene	EPA 524.2	111 %		*Acceptable range: 70-130 %*							
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 218.7 - Quality Control												
Batch: A915798											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A915798-BLK1)												
Hexavalent Chromium	ND	0.011	0.050	ug/L							10/18/19	
Blank Spike (A915798-BS1)												
Hexavalent Chromium	0.060	0.011	0.050	ug/L	0.050		120	50-150			10/18/19	
Matrix Spike (A915798-MS1), Source: S9J0271-01												
Hexavalent Chromium	3.9	0.011	0.050	ug/L	2.0	1.8	102	85-115			10/18/19	
Matrix Spike Dup (A915798-MSD1), Source: S9J0271-01												
Hexavalent Chromium	3.8	0.011	0.050	ug/L	2.0	1.8	98	85-115	2	15	10/18/19	
EPA 300.0 - Quality Control												
Batch: A915762											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A915762-BLK1)												
Chloride	ND	0.51	1.0	mg/L							10/17/19	
Nitrate + Nitrite as N	ND	0.099	0.23	mg/L							10/17/19	
Nitrate as N	ND	0.099	0.23	mg/L							10/17/19	
Nitrite as N	ND	0.020	0.050	mg/L							10/17/19	
Sulfate as SO4	ND	0.40	1.0	mg/L							10/17/19	
Blank Spike (A915762-BS1)												
Chloride	95	0.51	1.0	mg/L	100		95	90-110			10/17/19	
Nitrate as N	21	0.099	0.23	mg/L	23		94	90-110			10/17/19	
Nitrite as N	0.93	0.020	0.050	mg/L	1.0		93	90-110			10/17/19	
Sulfate as SO4	95	0.40	1.0	mg/L	100		95	90-110			10/17/19	
Matrix Spike (A915762-MS1), Source: A9J1707-01												
Chloride	48	0.51	1.0	mg/L	50	1.2	94	80-120			10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	90	80-120			10/17/19	
Nitrite as N	0.40	0.020	0.050	mg/L	0.50	0.028	74	50-110			10/17/19	
Sulfate as SO4	50	0.40	1.0	mg/L	50	3.6	93	80-120			10/17/19	
Matrix Spike (A915762-MS2), Source: A9J1707-02												
Chloride	48	0.51	1.0	mg/L	50	0.99	95	80-120			10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	90	80-120			10/17/19	
Nitrite as N	0.40	0.020	0.050	mg/L	0.50	ND	80	50-110			10/17/19	
Sulfate as SO4	50	0.40	1.0	mg/L	50	2.8	94	80-120			10/17/19	
Matrix Spike Dup (A915762-MSD1), Source: A9J1707-01												
Chloride	49	0.51	1.0	mg/L	50	1.2	96	80-120	2	20	10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	92	80-120	2	20	10/17/19	
Nitrite as N	0.41	0.020	0.050	mg/L	0.50	0.028	77	50-110	3	20	10/17/19	
Sulfate as SO4	51	0.40	1.0	mg/L	50	3.6	95	80-120	2	20	10/17/19	

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control												
Batch: A915762											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Matrix Spike Dup (A915762-MSD2), Source: A9J1707-02												
Chloride	50	0.51	1.0	mg/L	50	0.99	97	80-120	2	20	10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	92	80-120	2	20	10/17/19	
Nitrite as N	0.42	0.020	0.050	mg/L	0.50	ND	83	50-110	3	20	10/17/19	
Sulfate as SO4	51	0.40	1.0	mg/L	50	2.8	96	80-120	2	20	10/17/19	
EPA 300.0 - Quality Control												
Batch: A916233											Prepared: 10/25/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A916233-BLK1)												
Fluoride	ND	0.042	0.10	mg/L							10/25/19	
Blank Spike (A916233-BS1)												
Fluoride	0.99	0.042	0.10	mg/L	1.0		99	90-110			10/25/19	
Matrix Spike (A916233-MS1), Source: A9J2907-01												
Fluoride	0.62	0.042	0.10	mg/L	0.50	0.14	96	80-120			10/25/19	
Matrix Spike (A916233-MS2), Source: A9J2911-01												
Fluoride	0.74	0.042	0.10	mg/L	0.50	0.25	97	80-120			10/26/19	
Matrix Spike Dup (A916233-MSD1), Source: A9J2907-01												
Fluoride	0.62	0.042	0.10	mg/L	0.50	0.14	95	80-120	1	10	10/25/19	
Matrix Spike Dup (A916233-MSD2), Source: A9J2911-01												
Fluoride	0.75	0.042	0.10	mg/L	0.50	0.25	100	80-120	1	10	10/26/19	
EPA 314.0 - Quality Control												
Batch: A915832											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: RES	
Blank (A915832-BLK1)												
Perchlorate	ND	0.61	2.0	ug/L							10/18/19	
Blank Spike (A915832-BS1)												
Perchlorate	15	0.61	2.0	ug/L	15		101	85-115			10/18/19	
Matrix Spike (A915832-MS1), Source: A9L1710-01												
Perchlorate	4.3	0.61	2.0	ug/L	5.0	ND	86	80-120			10/18/19	
Matrix Spike Dup (A915832-MSD1), Source: A9L1710-01												
Perchlorate	4.0	0.61	2.0	ug/L	5.0	ND	79	80-120	8	15	10/18/19	MS1.0 ***Low***

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2120B - Quality Control												
Batch: A915547											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Blank (A915547-BLK1)												
Color, Apparent	ND		5.0	CU							10/17/19	
Duplicate (A915547-DUP1), Source: A9J2008-01												
Color, Apparent	45		5.0	CU		45			0	20	10/17/19	
Duplicate (A915547-DUP2), Source: A9J2076-01												
Color, Apparent	ND		5.0	CU		ND				20	10/17/19	
SM 2130B - Quality Control												
Batch: A915547											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Blank (A915547-BLK1)												
Turbidity	ND		0.10	NTU							10/17/19	
Duplicate (A915547-DUP1), Source: A9J2008-01												
Turbidity	2.2		0.10	NTU		2.2			1	20	10/17/19	
SM 2150B - Quality Control												
Batch: A915537											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Blank (A915537-BLK1)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
Blank (A915537-BLK2)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
Blank (A915537-BLK3)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
Blank (A915537-BLK4)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
SM 2320B - Quality Control												
Batch: A915739											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A915739-BLK1)												
Alkalinity as CaCO3	ND		3.0	mg/L							10/17/19	
Bicarbonate as CaCO3	ND		3.0	mg/L							10/17/19	
Carbonate as CaCO3	ND		3.0	mg/L							10/17/19	
Hydroxide as CaCO3	ND		3.0	mg/L							10/17/19	
Blank Spike (A915739-BS1)												

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2320B - Quality Control												
Batch: A915739											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike (A915739-BS1)												
Alkalinity as CaCO3	96		3.0	mg/L	100	ND	96	80-120			10/17/19	
Blank Spike Dup (A915739-BSD1)												
Alkalinity as CaCO3	96		3.0	mg/L	100	ND	96	80-120	0	20	10/17/19	
Duplicate (A915739-DUP1), Source: A9J2024-01												
Alkalinity as CaCO3	24		3.0	mg/L		24			1	10	10/17/19	
Bicarbonate as CaCO3	24		3.0	mg/L		24			1	10	10/17/19	
Carbonate as CaCO3	ND		3.0	mg/L		ND				10	10/17/19	
Hydroxide as CaCO3	ND		3.0	mg/L		ND				10	10/17/19	
SM 2510B - Quality Control												
Batch: A915739											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike (A915739-BS1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110			10/17/19	
Blank Spike Dup (A915739-BSD1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110	0	5	10/17/19	
Duplicate (A915739-DUP1), Source: A9J2024-01												
Conductivity @ 25C	85		1.0	umhos/cm		85			0	5	10/17/19	
SM 2540C - Quality Control												
Batch: A915961											Prepared: 10/22/2019	
Prep Method: Method Specific Preparation											Analyst: DEH	
Blank (A915961-BLK1)												
Total Dissolved Solids	ND		5.0	mg/L							10/25/19	
Blank Spike (A915961-BS1)												
Total Dissolved Solids	990		5.0	mg/L	1000	ND	99	70-130			10/25/19	
Duplicate (A915961-DUP1), Source: A9J1793-01												
Total Dissolved Solids	78		5.0	mg/L		76			3	10	10/25/19	
Duplicate (A915961-DUP2), Source: A9J2179-01												
Total Dissolved Solids	1100		5.0	mg/L		1100			4	10	10/25/19	
SM 4500-CN E - Quality Control												
Batch: A915897											Prepared: 10/21/2019	
Prep Method: Total Cyanide Distillation											Analyst: CEG	
Blank (A915897-BLK1)												
Cyanide (total)	ND	0.0022	0.0050	mg/L							10/28/19	

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 4500-CN E - Quality Control												
Batch: A915897											Prepared: 10/21/2019	
Prep Method: Total Cyanide Distillation											Analyst: CEG	
Blank (A915897-BLK1)												
Blank Spike (A915897-BS1)												
Cyanide (total)	0.24	0.0022	0.0050	mg/L	0.25		98	80-120			10/28/19	
Blank Spike Dup (A915897-BSD1)												
Cyanide (total)	0.24	0.0022	0.0050	mg/L	0.25		98	80-120	0	20	10/28/19	
Matrix Spike (A915897-MS1), Source: V9J0296-02												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25	0.0029	102	80-120			10/28/19	
Matrix Spike Dup (A915897-MSD1), Source: V9J0296-02												
Cyanide (total)	0.25	0.0022	0.0050	mg/L	0.25	0.0029	98	80-120	4	20	10/28/19	
SM 4500-H+ B - Quality Control												
Batch: A915547											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Duplicate (A915547-DUP1), Source: A9J2008-01												
Color pH (1)	4.50			pH Units		4.50			0		10/17/19	
Duplicate (A915547-DUP2), Source: A9J2076-01												
Color pH (1)	7.70			pH Units		7.70			0		10/17/19	
SM 4500-H+ B - Quality Control												
Batch: A915739											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Duplicate (A915739-DUP1), Source: A9J2024-01												
pH (1)	7.20			pH Units		7.19			0		10/17/19	
SM 5540C - Quality Control												
Batch: A915795											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: SYY	
Blank (A915795-BLK1)												
MBAS, Calculated as LAS, mol wt 340	ND	0.021	0.050	mg/L							10/18/19	
Blank Spike (A915795-BS1)												
MBAS, Calculated as LAS, mol wt 340	0.98	0.021	0.050	mg/L	1.0		98	82-112			10/18/19	
Blank Spike Dup (A915795-BSD1)												
MBAS, Calculated as LAS, mol wt 340	0.98	0.021	0.050	mg/L	1.0		98	82-112	0	20	10/18/19	
Matrix Spike (A915795-MS1), Source: A9J1707-01												
MBAS, Calculated as LAS, mol wt 340	0.98	0.021	0.050	mg/L	1.0	ND	98	80-112			10/18/19	

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 5540C - Quality Control												
Batch: A915795											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: SYY	
Matrix Spike Dup (A915795-MSD1), Source: A9J1707-01												
MBAS, Calculated as LAS, mol wt 340	0.97	0.021	0.050	mg/L	1.0	ND	97	80-112	1	20	10/18/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: mds	
Blank (A915802-BLK2)												
Aluminum	ND	0.023	0.050	mg/L							10/22/19	
Barium	ND	0.023	0.050	mg/L							10/22/19	
Calcium	ND	0.046	0.10	mg/L							10/22/19	
Iron	ND	0.014	0.030	mg/L							10/22/19	
Magnesium	ND	0.046	0.10	mg/L							10/22/19	
Manganese	ND	0.0045	0.010	mg/L							10/22/19	
Potassium	ND	0.91	2.0	mg/L							10/22/19	
Sodium	ND	0.45	1.0	mg/L							10/22/19	
Zinc	ND	0.023	0.050	mg/L							10/22/19	
Blank Spike (A915802-BS2)												
Aluminum	0.20	0.023	0.050	mg/L	0.20		99	85-115			10/22/19	
Barium	0.19	0.023	0.050	mg/L	0.20		95	85-115			10/22/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		96	85-115			10/22/19	
Iron	0.21	0.014	0.030	mg/L	0.20		103	85-115			10/22/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0		100	85-115			10/22/19	
Manganese	0.19	0.0045	0.010	mg/L	0.20		97	85-115			10/22/19	
Potassium	3.8	0.91	2.0	mg/L	4.0		95	85-115			10/22/19	
Sodium	4.0	0.45	1.0	mg/L	4.0		99	85-115			10/22/19	
Zinc	0.21	0.023	0.050	mg/L	0.20		103	85-115			10/22/19	
Blank Spike Dup (A915802-BSD2)												
Aluminum	0.20	0.023	0.050	mg/L	0.20		99	85-115	0	20	10/22/19	
Barium	0.19	0.023	0.050	mg/L	0.20		95	85-115	0	20	10/22/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		96	85-115	0	20	10/22/19	
Iron	0.20	0.014	0.030	mg/L	0.20		101	85-115	2	20	10/22/19	
Magnesium	3.9	0.046	0.10	mg/L	4.0		99	85-115	2	20	10/22/19	
Manganese	0.19	0.0045	0.010	mg/L	0.20		96	85-115	1	20	10/22/19	
Potassium	3.8	0.91	2.0	mg/L	4.0		94	85-115	1	20	10/22/19	
Sodium	3.9	0.45	1.0	mg/L	4.0		98	85-115	1	20	10/22/19	
Zinc	0.20	0.023	0.050	mg/L	0.20		99	85-115	3	20	10/22/19	
Matrix Spike (A915802-MS3), Source: A9J1707-01												
Aluminum	0.23	0.023	0.050	mg/L	0.20	ND	116	70-130			10/22/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130			10/22/19	
Calcium	63	0.046	0.10	mg/L	4.0	58	137	70-130			10/22/19	MS1.0 ***High***
Iron	0.40	0.014	0.030	mg/L	0.20	0.19	105	70-130			10/22/19	
Magnesium	9.5	0.046	0.10	mg/L	4.0	5.4	103	70-130			10/22/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20	0.016	97	70-130			10/22/19	
Potassium	5.4	0.91	2.0	mg/L	4.0	1.4	99	70-130			10/22/19	
Sodium	15	0.45	1.0	mg/L	4.0	11	108	70-130			10/22/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	101	70-130			10/22/19	
Matrix Spike (A915802-MS4), Source: A9J2009-01												
Aluminum	2.3	0.023	0.050	mg/L	0.20	1.4	437	70-130			10/22/19	MS1.0 ***High***
Barium	0.21	0.023	0.050	mg/L	0.20	ND	107	70-130			10/22/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: mds	
Matrix Spike (A915802-MS4), Source: A9J2009-01												
Calcium	20	0.046	0.10	mg/L	4.0	16	95	70-130			10/22/19	
Iron	1.9	0.014	0.030	mg/L	0.20	1.4	220	70-130			10/22/19	MS1.0 ***High***
Magnesium	17	0.046	0.10	mg/L	4.0	13	94	70-130			10/22/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.031	96	70-130			10/22/19	
Potassium	5.3	0.91	2.0	mg/L	4.0	1.6	94	70-130			10/22/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	87	70-130			10/22/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	105	70-130			10/22/19	
Matrix Spike Dup (A915802-MSD3), Source: A9J1707-01												
Aluminum	0.21	0.023	0.050	mg/L	0.20	ND	104	70-130	11	20	10/22/19	
Barium	0.19	0.023	0.050	mg/L	0.20	ND	97	70-130	1	20	10/22/19	
Calcium	63	0.046	0.10	mg/L	4.0	58	125	70-130	1	20	10/22/19	
Iron	0.39	0.014	0.030	mg/L	0.20	0.19	100	70-130	3	20	10/22/19	
Magnesium	9.3	0.046	0.10	mg/L	4.0	5.4	96	70-130	3	20	10/22/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20	0.016	96	70-130	1	20	10/22/19	
Potassium	5.1	0.91	2.0	mg/L	4.0	1.4	93	70-130	5	20	10/22/19	
Sodium	15	0.45	1.0	mg/L	4.0	11	105	70-130	1	20	10/22/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130	3	20	10/22/19	
Matrix Spike Dup (A915802-MSD4), Source: A9J2009-01												
Aluminum	2.3	0.023	0.050	mg/L	0.20	1.4	463	70-130	2	20	10/22/19	MS1.0 ***High***
Barium	0.22	0.023	0.050	mg/L	0.20	ND	108	70-130	1	20	10/22/19	
Calcium	21	0.046	0.10	mg/L	4.0	16	111	70-130	3	20	10/22/19	
Iron	1.9	0.014	0.030	mg/L	0.20	1.4	235	70-130	2	20	10/22/19	MS1.0 ***High***
Magnesium	17	0.046	0.10	mg/L	4.0	13	107	70-130	3	20	10/22/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.031	97	70-130	1	20	10/22/19	
Potassium	5.4	0.91	2.0	mg/L	4.0	1.6	95	70-130	1	20	10/22/19	
Sodium	53	0.45	1.0	mg/L	4.0	46	151	70-130	5	20	10/22/19	MS1.0 ***High***
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	104	70-130	1	20	10/22/19	
EPA 200.8 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A915802-BLK1)												
Antimony	ND	0.91	2.0	ug/L							10/24/19	
Arsenic	ND	1.2	2.0	ug/L							10/24/19	
Beryllium	ND	0.45	1.0	ug/L							10/24/19	
Cadmium	ND	0.45	1.0	ug/L							10/24/19	
Chromium	ND	4.5	10	ug/L							10/24/19	
Copper	ND	2.3	5.0	ug/L							10/24/19	
Lead	ND	0.45	1.0	ug/L							10/24/19	
Mercury	ND	0.091	0.20	ug/L							10/24/19	
Nickel	ND	4.5	10	ug/L							10/24/19	
Selenium	ND	0.91	2.0	ug/L							10/24/19	
Silver	ND	4.5	10	ug/L							10/24/19	

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BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A915802-BLK1)												
Thallium	ND	0.45	1.0	ug/L							10/24/19	
Uranium	ND	0.45	1.0	ug/L							10/24/19	
Blank Spike (A915802-BS1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115			10/24/19	
Arsenic	190	1.2	2.0	ug/L	200		96	85-115			10/24/19	
Beryllium	190	0.45	1.0	ug/L	200		94	85-115			10/24/19	
Cadmium	190	0.45	1.0	ug/L	200		95	85-115			10/24/19	
Chromium	190	4.5	10	ug/L	200		96	85-115			10/24/19	
Copper	190	2.3	5.0	ug/L	200		94	85-115			10/24/19	
Lead	190	0.45	1.0	ug/L	200		94	85-115			10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0		94	85-115			10/24/19	
Nickel	190	4.5	10	ug/L	200		97	85-115			10/24/19	
Selenium	190	0.91	2.0	ug/L	200		93	85-115			10/24/19	
Silver	92	4.5	10	ug/L	100		92	75-125			10/24/19	
Thallium	190	0.45	1.0	ug/L	200		93	85-115			10/24/19	
Uranium	200	0.45	1.0	ug/L	200		102	85-115			10/24/19	
Blank Spike Dup (A915802-BSD1)												
Antimony	210	0.91	2.0	ug/L	200		103	85-115	1	20	10/24/19	
Arsenic	190	1.2	2.0	ug/L	200		95	85-115	1	20	10/24/19	
Beryllium	190	0.45	1.0	ug/L	200		95	85-115	1	20	10/24/19	
Cadmium	190	0.45	1.0	ug/L	200		96	85-115	1	20	10/24/19	
Chromium	190	4.5	10	ug/L	200		95	85-115	1	20	10/24/19	
Copper	180	2.3	5.0	ug/L	200		92	85-115	2	20	10/24/19	
Lead	190	0.45	1.0	ug/L	200		95	85-115	1	20	10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0		94	85-115	0	20	10/24/19	
Nickel	190	4.5	10	ug/L	200		94	85-115	3	20	10/24/19	
Selenium	190	0.91	2.0	ug/L	200		93	85-115	0	20	10/24/19	
Silver	92	4.5	10	ug/L	100		92	75-125	0	20	10/24/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115	1	20	10/24/19	
Uranium	210	0.45	1.0	ug/L	200		105	85-115	3	20	10/24/19	
Matrix Spike (A915802-MS1), Source: A9J1707-01												
Antimony	210	0.91	2.0	ug/L	200	ND	104	70-130			10/24/19	
Arsenic	210	1.2	2.0	ug/L	200	12	97	70-130			10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130			10/24/19	
Cadmium	190	0.45	1.0	ug/L	200	ND	96	70-130			10/24/19	
Chromium	190	4.5	10	ug/L	200	ND	95	70-130			10/24/19	
Copper	180	2.3	5.0	ug/L	200	ND	92	70-130			10/24/19	
Lead	180	0.45	1.0	ug/L	200	ND	92	70-130			10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0	ND	94	70-130			10/24/19	
Nickel	190	4.5	10	ug/L	200	ND	96	70-130			10/24/19	
Selenium	190	0.91	2.0	ug/L	200	ND	94	70-130			10/24/19	
Silver	91	4.5	10	ug/L	100	ND	91	70-130			10/24/19	
Thallium	190	0.45	1.0	ug/L	200	ND	93	70-130			10/24/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Matrix Spike (A915802-MS1), Source: A9J1707-01												
Uranium	220	0.45	1.0	ug/L	200	10	103	70-130			10/24/19	
Matrix Spike (A915802-MS2), Source: A9J2009-01												
Antimony	200	0.91	2.0	ug/L	200	ND	102	70-130			10/24/19	
Arsenic	200	1.2	2.0	ug/L	200	1.2	97	70-130			10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130			10/24/19	
Cadmium	200	0.45	1.0	ug/L	200	ND	98	70-130			10/24/19	
Chromium	210	4.5	10	ug/L	200	11	98	70-130			10/24/19	
Copper	190	2.3	5.0	ug/L	200	7.0	92	70-130			10/24/19	
Lead	180	0.45	1.0	ug/L	200	0.92	92	70-130			10/24/19	
Mercury	4.6	0.091	0.20	ug/L	5.0	ND	93	70-130			10/24/19	
Nickel	200	4.5	10	ug/L	200	6.4	98	70-130			10/24/19	
Selenium	190	0.91	2.0	ug/L	200	1.3	93	70-130			10/24/19	
Silver	91	4.5	10	ug/L	100	ND	91	70-130			10/24/19	
Thallium	180	0.45	1.0	ug/L	200	ND	91	70-130			10/24/19	
Uranium	210	0.45	1.0	ug/L	200	ND	103	70-130			10/24/19	
Matrix Spike Dup (A915802-MSD1), Source: A9J1707-01												
Antimony	210	0.91	2.0	ug/L	200	ND	106	70-130	2	20	10/24/19	
Arsenic	200	1.2	2.0	ug/L	200	12	96	70-130	1	20	10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	97	70-130	1	20	10/24/19	
Cadmium	190	0.45	1.0	ug/L	200	ND	97	70-130	1	20	10/24/19	
Chromium	200	4.5	10	ug/L	200	ND	99	70-130	4	20	10/24/19	
Copper	180	2.3	5.0	ug/L	200	ND	91	70-130	1	20	10/24/19	
Lead	190	0.45	1.0	ug/L	200	ND	93	70-130	1	20	10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0	ND	93	70-130	1	20	10/24/19	
Nickel	180	4.5	10	ug/L	200	ND	92	70-130	4	20	10/24/19	
Selenium	180	0.91	2.0	ug/L	200	ND	91	70-130	2	20	10/24/19	
Silver	92	4.5	10	ug/L	100	ND	92	70-130	1	20	10/24/19	
Thallium	190	0.45	1.0	ug/L	200	ND	93	70-130	0	20	10/24/19	
Uranium	220	0.45	1.0	ug/L	200	10	105	70-130	1	20	10/24/19	
Matrix Spike Dup (A915802-MSD2), Source: A9J2009-01												
Antimony	200	0.91	2.0	ug/L	200	ND	101	70-130	0	20	10/24/19	
Arsenic	190	1.2	2.0	ug/L	200	1.2	97	70-130	1	20	10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130	1	20	10/24/19	
Cadmium	200	0.45	1.0	ug/L	200	ND	98	70-130	0	20	10/24/19	
Chromium	210	4.5	10	ug/L	200	11	98	70-130	0	20	10/24/19	
Copper	190	2.3	5.0	ug/L	200	7.0	93	70-130	1	20	10/24/19	
Lead	190	0.45	1.0	ug/L	200	0.92	92	70-130	0	20	10/24/19	
Mercury	4.6	0.091	0.20	ug/L	5.0	ND	93	70-130	0	20	10/24/19	
Nickel	200	4.5	10	ug/L	200	6.4	96	70-130	2	20	10/24/19	
Selenium	190	0.91	2.0	ug/L	200	1.3	92	70-130	1	20	10/24/19	
Silver	92	4.5	10	ug/L	100	ND	92	70-130	1	20	10/24/19	
Thallium	180	0.45	1.0	ug/L	200	ND	90	70-130	0	20	10/24/19	
Uranium	210	0.45	1.0	ug/L	200	ND	104	70-130	2	20	10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 504.1 - Quality Control												
Batch: A915965											Prepared: 10/22/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A915965-BLK1)												
Dibromochloropropane (DBCP)	ND	0.0060	0.010	ug/L							10/22/19	
Ethylene Dibromide (EDB)	ND	0.0050	0.020	ug/L							10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.46*		*102*	*70-130*			10/22/19	
Blank Spike (A915965-BS1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		100	70-130			10/22/19	
Ethylene Dibromide (EDB)	0.096	0.0050	0.020	ug/L	0.10		96	70-130			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.47*				*0.46*		*103*	*70-130*			10/22/19	
Blank Spike Dup (A915965-BSD1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		102	70-130	2	20	10/23/19	
Ethylene Dibromide (EDB)	0.096	0.0050	0.020	ug/L	0.10		96	70-130	0	20	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*99*	*70-130*			10/23/19	
Matrix Spike (A915965-MS1), Source: A9J1860-01												
Dibromochloropropane (DBCP)	0.098	0.0060	0.010	ug/L	0.099	ND	99	65-135			10/22/19	
Ethylene Dibromide (EDB)	0.095	0.0050	0.020	ug/L	0.099	ND	96	65-135			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.45*		*102*	*70-130*			10/22/19	
Matrix Spike Dup (A915965-MSD1), Source: A9J1860-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10	ND	103	65-135	5	20	10/22/19	
Ethylene Dibromide (EDB)	0.098	0.0050	0.020	ug/L	0.10	ND	98	65-135	3	20	10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*98*	*70-130*			10/22/19	
EPA 505 - Quality Control												
Batch: A915965											Prepared: 10/22/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A915965-BLK1)												
Aldrin	ND	0.022	0.075	ug/L							10/22/19	
Chlordane (Technical)	ND	0.091	0.10	ug/L							10/22/19	
Dieldrin	ND	0.0042	0.020	ug/L							10/22/19	
Endrin	ND	0.0037	0.10	ug/L							10/22/19	
Heptachlor	ND	0.0052	0.010	ug/L							10/22/19	
Heptachlor Epoxide	ND	0.0048	0.010	ug/L							10/22/19	
Hexachlorobenzene	ND	0.032	0.50	ug/L							10/22/19	
Hexachlorocyclopentadiene	ND	0.041	1.0	ug/L							10/22/19	
Lindane	ND	0.0059	0.20	ug/L							10/22/19	
Methoxychlor	ND	0.031	0.20	ug/L							10/22/19	
PCB Aroclor Screen	ND	0.078	0.50	ug/L							10/22/19	
Toxaphene	ND	0.33	1.0	ug/L							10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.46*		*102*	*70-130*			10/22/19	
Blank Spike (A915965-BS1)												
Aldrin	0.74	0.022	0.075	ug/L	0.74		99	70-130			10/22/19	
Dieldrin	0.19	0.0042	0.020	ug/L	0.20		97	70-130			10/22/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 505 - Quality Control												
Batch: A915965											Prepared: 10/22/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank Spike (A915965-BS1)												
Endrin	0.098	0.0037	0.10	ug/L	0.10		98	70-130			10/22/19	J
Heptachlor	0.097	0.0052	0.010	ug/L	0.10		97	70-130			10/22/19	
Heptachlor Epoxide	0.098	0.0048	0.010	ug/L	0.10		98	70-130			10/22/19	
Hexachlorobenzene	0.97	0.032	0.50	ug/L	1.0		97	70-130			10/22/19	
Hexachlorocyclopentadiene	0.95	0.041	1.0	ug/L	1.0		95	70-130			10/22/19	J
Lindane	0.20	0.0059	0.20	ug/L	0.20		99	70-130			10/22/19	J
Methoxychlor	1.1	0.031	0.20	ug/L	1.0		107	70-130			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.47*				*0.46*		*103*	*70-130*			10/22/19	
Blank Spike Dup (A915965-BSD1)												
Aldrin	0.73	0.022	0.075	ug/L	0.74		99	70-130	0	20	10/23/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		100	70-130	3	20	10/23/19	
Endrin	0.10	0.0037	0.10	ug/L	0.10		100	70-130	2	20	10/23/19	J
Heptachlor	0.099	0.0052	0.010	ug/L	0.10		99	70-130	2	20	10/23/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		100	70-130	3	20	10/23/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	1.0		102	70-130	4	20	10/23/19	
Hexachlorocyclopentadiene	1.0	0.041	1.0	ug/L	1.0		100	70-130	5	20	10/23/19	J
Lindane	0.20	0.0059	0.20	ug/L	0.20		99	70-130	0	20	10/23/19	J
Methoxychlor	1.1	0.031	0.20	ug/L	1.0		110	70-130	2	20	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*99*	*70-130*			10/23/19	
Matrix Spike (A915965-MS1), Source: A9J1860-01												
Aldrin	0.71	0.022	0.075	ug/L	0.74	0.022	93	65-135			10/22/19	
Dieldrin	0.25	0.0042	0.020	ug/L	0.20	ND	123	65-135			10/22/19	
Endrin	0.098	0.0037	0.10	ug/L	0.099	ND	98	65-135			10/22/19	J
Heptachlor	0.097	0.0052	0.010	ug/L	0.099	ND	97	65-135			10/22/19	
Heptachlor Epoxide	0.11	0.0048	0.010	ug/L	0.099	ND	114	65-135			10/22/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	0.99	ND	100	65-135			10/22/19	
Hexachlorocyclopentadiene	0.97	0.041	1.0	ug/L	0.99	ND	98	65-135			10/22/19	J
Lindane	0.19	0.0059	0.20	ug/L	0.20	ND	97	65-135			10/22/19	J
Methoxychlor	1.0	0.031	0.20	ug/L	0.99	ND	103	65-135			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.45*		*102*	*70-130*			10/22/19	
Matrix Spike Dup (A915965-MSD1), Source: A9J1860-01												
Aldrin	0.74	0.022	0.075	ug/L	0.74	0.022	97	65-135	5	20	10/22/19	
Dieldrin	0.24	0.0042	0.020	ug/L	0.20	ND	122	65-135	1	20	10/22/19	
Endrin	0.096	0.0037	0.10	ug/L	0.10	ND	96	65-135	2	20	10/22/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10	ND	101	65-135	4	20	10/22/19	
Heptachlor Epoxide	0.11	0.0048	0.010	ug/L	0.10	ND	113	65-135	0	20	10/22/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	1.0	ND	100	65-135	1	20	10/22/19	
Hexachlorocyclopentadiene	1.0	0.041	1.0	ug/L	1.0	ND	105	65-135	7	20	10/22/19	
Lindane	0.19	0.0059	0.20	ug/L	0.20	ND	97	65-135	1	20	10/22/19	J
Methoxychlor	1.1	0.031	0.20	ug/L	1.0	ND	107	65-135	5	20	10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*98*	*70-130*			10/22/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A915871											Prepared: 10/21/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Blank (A915871-BLK1)												
2,4,5-T	ND	0.13	1.0	ug/L							10/21/19	
2,4,5-TP (Silvex)	ND	0.016	1.0	ug/L							10/21/19	
2,4-D	ND	0.074	10	ug/L							10/21/19	
Bentazon	ND	1.3	2.0	ug/L							10/21/19	
Dalapon	ND	0.58	10	ug/L							10/21/19	
Dicamba	ND	0.13	1.5	ug/L							10/21/19	
Dinoseb	ND	0.032	2.0	ug/L							10/21/19	
Pentachlorophenol	ND	0.011	0.20	ug/L							10/21/19	
Picloram	ND	0.084	1.0	ug/L							10/21/19	
Surrogate: DCPAA	*41*				*36*		*114*	*70-130*			10/21/19	
Blank Spike (A915871-BS1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		97	70-130			10/21/19	
2,4,5-TP (Silvex)	0.82	0.016	1.0	ug/L	0.80		103	70-130			10/21/19	J
2,4-D	0.39	0.074	10	ug/L	0.40		98	70-130			10/21/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		99	70-130			10/21/19	J
Dalapon	4.0	0.58	10	ug/L	4.0		99	70-130			10/21/19	J
Dicamba	0.80	0.13	1.5	ug/L	0.80		100	70-130			10/21/19	J
Dinoseb	0.80	0.032	2.0	ug/L	0.80		101	70-130			10/21/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		101	70-130			10/21/19	J
Picloram	0.40	0.084	1.0	ug/L	0.40		101	70-130			10/21/19	J
Surrogate: DCPAA	*38*				*36*		*106*	*70-130*			10/21/19	
Blank Spike Dup (A915871-BSD1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		99	70-130	2	20	10/21/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130	2	20	10/21/19	J
2,4-D	0.41	0.074	10	ug/L	0.40		103	70-130	5	20	10/21/19	J
Bentazon	1.9	1.3	2.0	ug/L	2.0		97	70-130	2	20	10/21/19	J
Dalapon	4.0	0.58	10	ug/L	4.0		99	70-130	0	20	10/21/19	J
Dicamba	0.80	0.13	1.5	ug/L	0.80		100	70-130	0	20	10/21/19	J
Dinoseb	0.80	0.032	2.0	ug/L	0.80		100	70-130	0	20	10/21/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		101	70-130	0	20	10/21/19	J
Picloram	0.40	0.084	1.0	ug/L	0.40		100	70-130	1	20	10/21/19	J
Surrogate: DCPAA	*38*				*36*		*107*	*70-130*			10/21/19	
Matrix Spike (A915871-MS1), Source: A9J1738-01												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6	ND	102	70-130			10/21/19	
2,4,5-TP (Silvex)	0.83	0.016	1.0	ug/L	0.80	ND	103	70-130			10/21/19	J
2,4-D	0.39	0.074	10	ug/L	0.40	ND	97	70-130			10/21/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	100	70-130			10/21/19	
Dalapon	3.9	0.58	10	ug/L	4.0	ND	99	70-130			10/21/19	J
Dicamba	0.82	0.13	1.5	ug/L	0.80	ND	103	70-130			10/21/19	J
Dinoseb	0.83	0.032	2.0	ug/L	0.80	ND	103	70-130			10/21/19	J
Pentachlorophenol	0.17	0.011	0.20	ug/L	0.16	ND	104	70-130			10/21/19	J
Picloram	0.41	0.084	1.0	ug/L	0.40	ND	102	70-130			10/21/19	J
Surrogate: DCPAA	*38*				*36*		*106*	*70-130*			10/21/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A915871											Prepared: 10/21/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Matrix Spike Dup (A915871-MSD1), Source: A9J1738-01												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6	ND	102	70-130	0	30	10/21/19	
2,4,5-TP (Silvex)	0.82	0.016	1.0	ug/L	0.80	ND	102	70-130	1	30	10/21/19	J
2,4-D	0.39	0.074	10	ug/L	0.40	ND	98	70-130	1	30	10/21/19	J
Bentazon	1.9	1.3	2.0	ug/L	2.0	ND	96	70-130	4	30	10/21/19	J
Dalapon	4.0	0.58	10	ug/L	4.0	ND	100	70-130	1	30	10/21/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	101	70-130	2	30	10/21/19	J
Dinoseb	0.82	0.032	2.0	ug/L	0.80	ND	102	70-130	1	30	10/21/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16	ND	101	70-130	2	30	10/21/19	J
Picloram	0.41	0.084	1.0	ug/L	0.40	ND	102	70-130	1	30	10/21/19	J
Surrogate: DCPAA	*38*				*36*		*105*	*70-130*			10/21/19	
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A915770-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							10/18/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							10/18/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							10/18/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							10/18/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							10/18/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							10/18/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							10/18/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							10/18/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							10/18/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							10/18/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							10/18/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							10/18/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							10/18/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							10/18/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							10/18/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							10/18/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							10/18/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							10/18/19	
2,2-Dichloropropane	ND	0.32	0.50	ug/L							10/18/19	
2-Butanone	ND	0.42	5.0	ug/L							10/18/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							10/18/19	
2-Hexanone	ND	0.48	10	ug/L							10/18/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							10/18/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							10/18/19	
Acetone	ND	3.4	10	ug/L							10/18/19	
Benzene	ND	0.34	0.50	ug/L							10/18/19	
Bromobenzene	ND	0.27	0.50	ug/L							10/18/19	
Bromochloromethane	ND	0.27	0.50	ug/L							10/18/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							10/18/19	
Bromoform	ND	0.28	0.50	ug/L							10/18/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A915770-BLK1)												
Bromomethane	ND	0.43	0.50	ug/L							10/18/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							10/18/19	
Chlorobenzene	ND	0.31	0.50	ug/L							10/18/19	
Chloroethane	ND	0.32	0.50	ug/L							10/18/19	
Chloroform	ND	0.083	0.50	ug/L							10/18/19	
Chloromethane	ND	0.25	0.50	ug/L							10/18/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							10/18/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/18/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							10/18/19	
Dibromomethane	ND	0.29	0.50	ug/L							10/18/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							10/18/19	
Dichloromethane	ND	0.29	0.50	ug/L							10/18/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							10/18/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							10/18/19	
Ethylbenzene	ND	0.31	0.50	ug/L							10/18/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							10/18/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							10/18/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							10/18/19	
Methyl-t-butyl ether	ND	0.083	0.50	ug/L							10/18/19	
Naphthalene	ND	0.27	0.50	ug/L							10/18/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							10/18/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							10/18/19	
o-Xylene	ND	0.30	0.50	ug/L							10/18/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							10/18/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							10/18/19	
Styrene	ND	0.30	0.50	ug/L							10/18/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							10/18/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							10/18/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							10/18/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							10/18/19	
Toluene	ND	0.32	0.50	ug/L							10/18/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							10/18/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/18/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							10/18/19	
Trichlorofluoromethane	ND	0.23	5.0	ug/L							10/18/19	
Vinyl Chloride	ND	0.27	0.50	ug/L							10/18/19	
Surrogate: 1,2-Dichlorobenzene-d4	*46*				*50*		*92*	*70-130*			10/18/19	
Surrogate: Bromofluorobenzene	*47*				*50*		*94*	*70-130*			10/18/19	
Blank Spike (A915770-BS1)												
1,1,1,2-Tetrachloroethane	9.8	0.26	0.50	ug/L	10		98	70-130			10/18/19	
1,1,1-Trichloroethane	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
1,1,2,2-Tetrachloroethane	9.6	0.25	0.50	ug/L	10		96	70-130			10/18/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	15	0.27	10	ug/L	10		151	70-130			10/18/19	BS ***High***
1,1,2-Trichloroethane	9.9	0.26	0.50	ug/L	10		99	70-130			10/18/19	
1,1-Dichloroethane	10	0.34	0.50	ug/L	10		100	70-130			10/18/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A915770-BS1)												
1,1-Dichloroethene	10	0.21	0.50	ug/L	10		102	70-130			10/18/19	
1,1-Dichloropropene	9.9	0.30	0.50	ug/L	10		99	70-130			10/18/19	
1,2,3-Trichlorobenzene	9.5	0.26	0.50	ug/L	10		95	70-130			10/18/19	
1,2,4-Trichlorobenzene	9.6	0.29	0.50	ug/L	10		96	70-130			10/18/19	
1,2,4-Trimethylbenzene	9.8	0.27	0.50	ug/L	10		98	70-130			10/18/19	
1,2-Dichlorobenzene	9.6	0.28	0.50	ug/L	10		96	70-130			10/18/19	
1,2-Dichloroethane	9.6	0.29	0.50	ug/L	10		96	70-130			10/18/19	
1,2-Dichloropropane	9.9	0.30	0.50	ug/L	10		99	70-130			10/18/19	
1,3,5-Trimethylbenzene	9.8	0.36	0.50	ug/L	10		98	70-130			10/18/19	
1,3-Dichlorobenzene	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		100	70-130			10/18/19	
1,4-Dichlorobenzene	9.8	0.29	0.50	ug/L	10		98	70-130			10/18/19	
2,2-Dichloropropane	9.2	0.32	0.50	ug/L	10		92	70-130			10/18/19	
2-Butanone	10	0.42	5.0	ug/L	10		102	70-130			10/18/19	
2-Chlorotoluene	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
2-Hexanone	10	0.48	10	ug/L	10		101	70-130			10/18/19	
4-Chlorotoluene	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
4-Methyl-2-pentanone	9.7	0.37	5.0	ug/L	10		97	70-130			10/18/19	
Acetone	9.5	3.4	10	ug/L	10		95	70-130			10/18/19	J
Benzene	9.9	0.34	0.50	ug/L	10		99	70-130			10/18/19	
Bromobenzene	11	0.27	0.50	ug/L	10		113	70-130			10/18/19	
Bromochloromethane	9.8	0.27	0.50	ug/L	10		98	70-130			10/18/19	
Bromodichloromethane	9.8	0.29	0.50	ug/L	10		98	70-130			10/18/19	
Bromoform	9.7	0.28	0.50	ug/L	10		97	70-130			10/18/19	
Bromomethane	12	0.43	0.50	ug/L	10		118	70-130			10/18/19	
Carbon disulfide	10	0.49	10	ug/L	10		102	70-130			10/18/19	
Carbon Tetrachloride	10	0.29	0.50	ug/L	10		101	70-130			10/18/19	
Chlorobenzene	9.9	0.31	0.50	ug/L	10		99	70-130			10/18/19	
Chloroethane	9.9	0.32	0.50	ug/L	10		99	70-130			10/18/19	
Chloroform	10	0.083	0.50	ug/L	10		100	70-130			10/18/19	
Chloromethane	9.9	0.25	0.50	ug/L	10		99	70-130			10/18/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		100	70-130			10/18/19	
cis-1,3-Dichloropropene	9.6	0.27	0.50	ug/L	10		96	70-130			10/18/19	
Dibromochloromethane	9.7	0.28	0.50	ug/L	10		97	70-130			10/18/19	
Dibromomethane	9.7	0.29	0.50	ug/L	10		97	70-130			10/18/19	
Dichlorodifluoromethane	10	0.28	0.50	ug/L	10		103	70-130			10/18/19	
Dichloromethane	9.6	0.29	0.50	ug/L	10		96	70-130			10/18/19	
Di-isopropyl ether (DIPE)	9.4	0.31	3.0	ug/L	10		94	70-130			10/18/19	
Ethyl tert-Butyl Ether (ETBE)	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		100	70-130			10/18/19	
Hexachlorobutadiene	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
Isopropylbenzene	9.9	0.31	0.50	ug/L	10		99	70-130			10/18/19	
m,p-Xylenes	20	0.23	0.50	ug/L	20		101	70-130			10/18/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20		101	70-130			10/18/19	
Naphthalene	9.4	0.27	0.50	ug/L	10		94	70-130			10/18/19	
n-Butylbenzene	9.7	0.25	0.50	ug/L	10		97	70-130			10/18/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 524.2 - Quality Control													
Batch: A915770											Prepared: 10/17/2019		
Prep Method: EPA 524.2											Analyst: ANM		
Blank Spike (A915770-BS1)													
n-Propylbenzene	9.8	0.31	0.50	ug/L	10		98	70-130			10/18/19		
o-Xylene	10	0.30	0.50	ug/L	10		100	70-130			10/18/19		
p-Isopropyltoluene	9.8	0.26	0.50	ug/L	10		98	70-130			10/18/19		
sec-Butylbenzene	9.8	0.27	0.50	ug/L	10		98	70-130			10/18/19		
Styrene	9.3	0.30	0.50	ug/L	10		93	70-130			10/18/19		
tert-Amyl Methyl Ether (TAME)	9.9	0.31	3.0	ug/L	10		99	70-130			10/18/19		
tert-Butyl alcohol (TBA)	9.2	0.97	2.0	ug/L	10		92	70-130			10/18/19		
tert-Butylbenzene	9.8	0.28	0.50	ug/L	10		98	70-130			10/18/19		
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10		101	70-130			10/18/19		
Toluene	9.9	0.32	0.50	ug/L	10		99	70-130			10/18/19		
trans-1,2-Dichloroethene	10	0.35	0.50	ug/L	10		100	70-130			10/18/19		
trans-1,3-Dichloropropene	9.7	0.27	0.50	ug/L	10		97	70-130			10/18/19		
Trichloroethene (TCE)	9.9	0.32	0.50	ug/L	10		99	70-130			10/18/19		
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		103	70-130			10/18/19		
Vinyl Chloride	10	0.27	0.50	ug/L	10		101	70-130			10/18/19		
Surrogate: 1,2-Dichlorobenzene-d4	*47*				*50*		*94*	*70-130*			10/18/19		
Surrogate: Bromofluorobenzene	*48*				*50*		*96*	*70-130*			10/18/19		
Blank Spike Dup (A915770-BSD1)													
1,1,1,2-Tetrachloroethane	9.4	0.26	0.50	ug/L	10		94	70-130	4	30	10/18/19		
1,1,1-Trichloroethane	9.7	0.30	0.50	ug/L	10		97	70-130	1	30	10/18/19		
1,1,2,2-Tetrachloroethane	9.2	0.25	0.50	ug/L	10		92	70-130	4	30	10/18/19		
1,1,2-Trichloro-1,2,2-trifluoroethane	14	0.27	10	ug/L	10		144	70-130	5	30	10/18/19	BS	***High***
1,1,2-Trichloroethane	9.4	0.26	0.50	ug/L	10		94	70-130	6	30	10/18/19		
1,1-Dichloroethane	9.5	0.34	0.50	ug/L	10		95	70-130	5	30	10/18/19		
1,1-Dichloroethene	9.7	0.21	0.50	ug/L	10		97	70-130	5	30	10/18/19		
1,1-Dichloropropene	9.5	0.30	0.50	ug/L	10		95	70-130	4	30	10/18/19		
1,2,3-Trichlorobenzene	9.0	0.26	0.50	ug/L	10		90	70-130	5	30	10/18/19		
1,2,4-Trichlorobenzene	9.1	0.29	0.50	ug/L	10		91	70-130	5	30	10/18/19		
1,2,4-Trimethylbenzene	9.4	0.27	0.50	ug/L	10		94	70-130	4	30	10/18/19		
1,2-Dichlorobenzene	9.3	0.28	0.50	ug/L	10		93	70-130	4	30	10/18/19		
1,2-Dichloroethane	9.1	0.29	0.50	ug/L	10		91	70-130	5	30	10/18/19		
1,2-Dichloropropane	9.4	0.30	0.50	ug/L	10		94	70-130	5	30	10/18/19		
1,3,5-Trimethylbenzene	9.4	0.36	0.50	ug/L	10		94	70-130	4	30	10/18/19		
1,3-Dichlorobenzene	9.3	0.30	0.50	ug/L	10		93	70-130	5	30	10/18/19		
1,3-Dichloropropane	9.6	0.26	0.50	ug/L	10		96	70-130	5	30	10/18/19		
1,4-Dichlorobenzene	9.3	0.29	0.50	ug/L	10		93	70-130	5	30	10/18/19		
2,2-Dichloropropane	8.7	0.32	0.50	ug/L	10		87	70-130	6	30	10/18/19		
2-Butanone	9.9	0.42	5.0	ug/L	10		99	70-130	3	30	10/18/19		
2-Chlorotoluene	9.5	0.30	0.50	ug/L	10		95	70-130	4	30	10/18/19		
2-Hexanone	9.8	0.48	10	ug/L	10		98	70-130	2	30	10/18/19	J	
4-Chlorotoluene	9.4	0.30	0.50	ug/L	10		94	70-130	4	30	10/18/19		
4-Methyl-2-pentanone	9.4	0.37	5.0	ug/L	10		94	70-130	4	30	10/18/19		
Acetone	9.4	3.4	10	ug/L	10		94	70-130	1	30	10/18/19	J	
Benzene	9.4	0.34	0.50	ug/L	10		94	70-130	5	30	10/18/19		
Bromobenzene	9.3	0.27	0.50	ug/L	10		93	70-130	20	30	10/18/19		

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A915770-BSD1)												
Bromochloromethane	9.4	0.27	0.50	ug/L	10		94	70-130	4	30	10/18/19	
Bromodichloromethane	9.4	0.29	0.50	ug/L	10		94	70-130	4	30	10/18/19	
Bromoform	9.2	0.28	0.50	ug/L	10		92	70-130	5	30	10/18/19	
Bromomethane	11	0.43	0.50	ug/L	10		110	70-130	7	30	10/18/19	
Carbon disulfide	9.8	0.49	10	ug/L	10		98	70-130	4	30	10/18/19	J
Carbon Tetrachloride	9.7	0.29	0.50	ug/L	10		97	70-130	4	30	10/18/19	
Chlorobenzene	9.5	0.31	0.50	ug/L	10		95	70-130	4	30	10/18/19	
Chloroethane	9.5	0.32	0.50	ug/L	10		95	70-130	5	30	10/18/19	
Chloroform	9.4	0.083	0.50	ug/L	10		94	70-130	5	30	10/18/19	
Chloromethane	9.4	0.25	0.50	ug/L	10		94	70-130	5	30	10/18/19	
cis-1,2-Dichloroethene	9.5	0.32	0.50	ug/L	10		95	70-130	4	30	10/18/19	
cis-1,3-Dichloropropene	9.2	0.27	0.50	ug/L	10		92	70-130	5	30	10/18/19	
Dibromochloromethane	9.3	0.28	0.50	ug/L	10		93	70-130	5	30	10/18/19	
Dibromomethane	9.2	0.29	0.50	ug/L	10		92	70-130	5	30	10/18/19	
Dichlorodifluoromethane	9.8	0.28	0.50	ug/L	10		98	70-130	4	30	10/18/19	
Dichloromethane	9.2	0.29	0.50	ug/L	10		92	70-130	4	30	10/18/19	
Di-isopropyl ether (DIPE)	9.1	0.31	3.0	ug/L	10		91	70-130	4	30	10/18/19	
Ethyl tert-Butyl Ether (ETBE)	9.3	0.30	0.50	ug/L	10		93	70-130	5	30	10/18/19	
Ethylbenzene	9.5	0.31	0.50	ug/L	10		95	70-130	5	30	10/18/19	
Hexachlorobutadiene	9.3	0.30	0.50	ug/L	10		93	70-130	5	30	10/18/19	
Isopropylbenzene	9.5	0.31	0.50	ug/L	10		95	70-130	4	30	10/18/19	
m,p-Xylenes	19	0.23	0.50	ug/L	20		97	70-130	4	30	10/18/19	
Methyl-t-butyl ether	19	0.083	0.50	ug/L	20		96	70-130	5	30	10/18/19	
Naphthalene	9.0	0.27	0.50	ug/L	10		90	70-130	4	30	10/18/19	
n-Butylbenzene	9.3	0.25	0.50	ug/L	10		93	70-130	4	30	10/18/19	
n-Propylbenzene	9.4	0.31	0.50	ug/L	10		94	70-130	4	30	10/18/19	
o-Xylene	9.5	0.30	0.50	ug/L	10		95	70-130	5	30	10/18/19	
p-Isopropyltoluene	9.3	0.26	0.50	ug/L	10		93	70-130	4	30	10/18/19	
sec-Butylbenzene	9.4	0.27	0.50	ug/L	10		94	70-130	4	30	10/18/19	
Styrene	8.9	0.30	0.50	ug/L	10		89	70-130	4	30	10/18/19	
tert-Amyl Methyl Ether (TAME)	9.4	0.31	3.0	ug/L	10		94	70-130	5	30	10/18/19	
tert-Butyl alcohol (TBA)	9.5	0.97	2.0	ug/L	10		95	70-130	3	30	10/18/19	
tert-Butylbenzene	9.5	0.28	0.50	ug/L	10		95	70-130	4	30	10/18/19	
Tetrachloroethene (PCE)	9.7	0.33	0.50	ug/L	10		97	70-130	4	30	10/18/19	
Toluene	9.5	0.32	0.50	ug/L	10		95	70-130	5	30	10/18/19	
trans-1,2-Dichloroethene	9.5	0.35	0.50	ug/L	10		95	70-130	5	30	10/18/19	
trans-1,3-Dichloropropene	9.1	0.27	0.50	ug/L	10		91	70-130	7	30	10/18/19	
Trichloroethene (TCE)	9.4	0.32	0.50	ug/L	10		94	70-130	5	30	10/18/19	
Trichlorofluoromethane	9.7	0.23	5.0	ug/L	10		97	70-130	5	30	10/18/19	
Vinyl Chloride	9.7	0.27	0.50	ug/L	10		97	70-130	4	30	10/18/19	
Surrogate: 1,2-Dichlorobenzene-d4	*46*				*50*		*92*	*70-130*			10/18/19	
Surrogate: Bromofluorobenzene	*46*				*50*		*93*	*70-130*			10/18/19	
Matrix Spike (A915770-MS1), Source: A9J1707-04												
1,1,1,2-Tetrachloroethane	9.2	0.26	0.50	ug/L	10	ND	92	41-156			10/18/19	
1,1,1-Trichloroethane	9.6	0.30	0.50	ug/L	10	ND	96	48-160			10/18/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A915770-MS1), Source: A9J1707-04												
1,1,2,2-Tetrachloroethane	8.9	0.25	0.50	ug/L	10	ND	89	42-151			10/18/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	8.0	0.27	10	ug/L	10	ND	80	47-164			10/18/19	J
1,1,2-Trichloroethane	9.4	0.26	0.50	ug/L	10	ND	94	45-152			10/18/19	
1,1-Dichloroethane	9.8	0.34	0.50	ug/L	10	ND	98	48-157			10/18/19	
1,1-Dichloroethene	10	0.21	0.50	ug/L	10	ND	101	51-158			10/18/19	
1,1-Dichloropropene	9.2	0.30	0.50	ug/L	10	ND	92	46-162			10/18/19	
1,2,3-Trichlorobenzene	8.6	0.26	0.50	ug/L	10	ND	86	37-145			10/18/19	
1,2,4-Trichlorobenzene	8.6	0.29	0.50	ug/L	10	ND	86	33-149			10/18/19	
1,2,4-Trimethylbenzene	8.8	0.27	0.50	ug/L	10	ND	88	44-146			10/18/19	
1,2-Dichlorobenzene	9.1	0.28	0.50	ug/L	10	ND	91	44-146			10/18/19	
1,2-Dichloroethane	9.1	0.29	0.50	ug/L	10	ND	91	47-151			10/18/19	
1,2-Dichloropropane	9.3	0.30	0.50	ug/L	10	ND	93	47-155			10/18/19	
1,3,5-Trimethylbenzene	8.8	0.36	0.50	ug/L	10	ND	88	45-154			10/18/19	
1,3-Dichlorobenzene	9.0	0.30	0.50	ug/L	10	ND	90	44-146			10/18/19	
1,3-Dichloropropane	9.4	0.26	0.50	ug/L	10	ND	94	45-151			10/18/19	
1,4-Dichlorobenzene	9.0	0.29	0.50	ug/L	10	ND	90	43-146			10/18/19	
2,2-Dichloropropane	7.5	0.32	0.50	ug/L	10	ND	75	24-182			10/18/19	
2-Butanone	8.8	0.42	5.0	ug/L	10	ND	88	55-144			10/18/19	
2-Chlorotoluene	8.9	0.30	0.50	ug/L	10	ND	89	48-150			10/18/19	
2-Hexanone	8.2	0.48	10	ug/L	10	ND	82	40-159			10/18/19	J
4-Chlorotoluene	8.9	0.30	0.50	ug/L	10	ND	89	43-150			10/18/19	
4-Methyl-2-pentanone	8.3	0.37	5.0	ug/L	10	ND	83	30-171			10/18/19	
Acetone	9.1	3.4	10	ug/L	10	ND	91	27-181			10/18/19	J
Benzene	11	0.34	0.50	ug/L	10	ND	106	48-155			10/18/19	
Bromobenzene	10	0.27	0.50	ug/L	10	ND	103	43-151			10/18/19	
Bromochloromethane	9.3	0.27	0.50	ug/L	10	ND	93	48-161			10/18/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10	ND	105	47-151			10/18/19	
Bromoform	10	0.28	0.50	ug/L	10	ND	102	29-162			10/18/19	
Bromomethane	12	0.43	0.50	ug/L	10	ND	115	10-200			10/18/19	
Carbon disulfide	10	0.49	10	ug/L	10	ND	100	57-161			10/18/19	J
Carbon Tetrachloride	9.6	0.29	0.50	ug/L	10	ND	96	47-163			10/18/19	
Chlorobenzene	9.2	0.31	0.50	ug/L	10	ND	92	46-152			10/18/19	
Chloroethane	10	0.32	0.50	ug/L	10	ND	102	28-189			10/18/19	
Chloroform	11	0.083	0.50	ug/L	10	ND	108	52-148			10/18/19	
Chloromethane	10	0.25	0.50	ug/L	10	ND	104	53-159			10/18/19	
cis-1,2-Dichloroethene	9.6	0.32	0.50	ug/L	10	ND	96	50-152			10/18/19	
cis-1,3-Dichloropropene	8.7	0.27	0.50	ug/L	10	ND	87	34-156			10/18/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10	ND	102	44-149			10/18/19	
Dibromomethane	9.3	0.29	0.50	ug/L	10	ND	93	46-150			10/18/19	
Dichlorodifluoromethane	9.5	0.28	0.50	ug/L	10	ND	95	33-170			10/18/19	
Dichloromethane	10	0.29	0.50	ug/L	10	ND	101	47-156			10/18/19	
Di-isopropyl ether (DIPE)	9.2	0.31	3.0	ug/L	10	ND	92	41-159			10/18/19	
Ethyl tert-Butyl Ether (ETBE)	8.9	0.30	0.50	ug/L	10	ND	89	32-160			10/18/19	
Ethylbenzene	9.0	0.31	0.50	ug/L	10	ND	90	40-157			10/18/19	
Hexachlorobutadiene	8.3	0.30	0.50	ug/L	10	ND	83	38-151			10/18/19	
Isopropylbenzene	8.7	0.31	0.50	ug/L	10	ND	87	41-156			10/18/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A915770-MS1), Source: A9J1707-04												
m,p-Xylenes	18	0.23	0.50	ug/L	20	ND	91	49-154			10/18/19	
Methyl-t-butyl ether	19	0.083	0.50	ug/L	20	ND	97	41-156			10/18/19	
Naphthalene	8.3	0.27	0.50	ug/L	10	ND	83	35-154			10/18/19	
n-Butylbenzene	8.4	0.25	0.50	ug/L	10	ND	84	31-153			10/18/19	
n-Propylbenzene	8.6	0.31	0.50	ug/L	10	ND	86	39-156			10/18/19	
o-Xylene	9.1	0.30	0.50	ug/L	10	ND	91	27-164			10/18/19	
p-Isopropyltoluene	8.5	0.26	0.50	ug/L	10	ND	85	26-161			10/18/19	
sec-Butylbenzene	8.4	0.27	0.50	ug/L	10	ND	84	39-154			10/18/19	
Styrene	9.8	0.30	0.50	ug/L	10	ND	98	10-200			10/18/19	
tert-Amyl Methyl Ether (TAME)	8.8	0.31	3.0	ug/L	10	ND	88	24-161			10/18/19	
tert-Butyl alcohol (TBA)	8.0	0.97	2.0	ug/L	10	ND	80	22-174			10/18/19	
tert-Butylbenzene	8.7	0.28	0.50	ug/L	10	ND	87	40-153			10/18/19	
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10	ND	102	48-155			10/18/19	
Toluene	9.3	0.32	0.50	ug/L	10	ND	93	40-159			10/18/19	
trans-1,2-Dichloroethene	9.7	0.35	0.50	ug/L	10	ND	97	52-157			10/18/19	
trans-1,3-Dichloropropene	8.6	0.27	0.50	ug/L	10	ND	86	28-160			10/18/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	105	49-155			10/18/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10	ND	101	47-169			10/18/19	
Vinyl Chloride	10	0.27	0.50	ug/L	10	ND	104	21-183			10/18/19	
Surrogate: 1,2-Dichlorobenzene-d4	*46*				*50*		*92*	*70-130*			10/18/19	
Surrogate: Bromofluorobenzene	*46*				*50*		*92*	*70-130*			10/18/19	
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A916097-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							10/24/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							10/24/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							10/24/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							10/24/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							10/24/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							10/24/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							10/24/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							10/24/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							10/24/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							10/24/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							10/24/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							10/24/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							10/24/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							10/24/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							10/24/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							10/24/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							10/24/19	
2,2-Dichloropropane	ND	0.32	0.50	ug/L							10/24/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A916097-BLK1)												
2-Butanone	ND	0.42	5.0	ug/L							10/24/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							10/24/19	
2-Hexanone	ND	0.48	10	ug/L							10/24/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							10/24/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							10/24/19	
Acetone	ND	3.4	10	ug/L							10/24/19	
Benzene	ND	0.34	0.50	ug/L							10/24/19	
Bromobenzene	ND	0.27	0.50	ug/L							10/24/19	
Bromochloromethane	ND	0.27	0.50	ug/L							10/24/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							10/24/19	
Bromoform	ND	0.28	0.50	ug/L							10/24/19	
Bromomethane	ND	0.43	0.50	ug/L							10/24/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							10/24/19	
Chlorobenzene	ND	0.31	0.50	ug/L							10/24/19	
Chloroethane	ND	0.32	0.50	ug/L							10/24/19	
Chloroform	ND	0.083	0.50	ug/L							10/24/19	
Chloromethane	ND	0.25	0.50	ug/L							10/24/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							10/24/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/24/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							10/24/19	
Dibromomethane	ND	0.29	0.50	ug/L							10/24/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							10/24/19	
Dichloromethane	ND	0.29	0.50	ug/L							10/24/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							10/24/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							10/24/19	
Ethylbenzene	ND	0.31	0.50	ug/L							10/24/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							10/24/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							10/24/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							10/24/19	
Methyl-t-butyl ether	ND	0.083	0.50	ug/L							10/24/19	
Naphthalene	ND	0.27	0.50	ug/L							10/24/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							10/24/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							10/24/19	
o-Xylene	ND	0.30	0.50	ug/L							10/24/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							10/24/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							10/24/19	
Styrene	ND	0.30	0.50	ug/L							10/24/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							10/24/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							10/24/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							10/24/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							10/24/19	
Toluene	ND	0.32	0.50	ug/L							10/24/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							10/24/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/24/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							10/24/19	
Trichlorofluoromethane	ND	0.23	5.0	ug/L							10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A916097-BLK1)												
Vinyl Chloride	ND	0.27	0.50	ug/L							10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*55*				*50*		*109*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*55*				*50*		*110*	*70-130*			10/24/19	
Blank Spike (A916097-BS1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		101	70-130			10/24/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		109	70-130			10/24/19	
1,1,2,2-Tetrachloroethane	9.9	0.25	0.50	ug/L	10		99	70-130			10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		115	70-130			10/24/19	
1,1,2-Trichloroethane	10	0.26	0.50	ug/L	10		100	70-130			10/24/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		107	70-130			10/24/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		116	70-130			10/24/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		106	70-130			10/24/19	
1,2,3-Trichlorobenzene	9.7	0.26	0.50	ug/L	10		97	70-130			10/24/19	
1,2,4-Trichlorobenzene	9.8	0.29	0.50	ug/L	10		98	70-130			10/24/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		102	70-130			10/24/19	
1,2-Dichlorobenzene	9.9	0.28	0.50	ug/L	10		99	70-130			10/24/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		100	70-130			10/24/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		103	70-130			10/24/19	
1,3,5-Trimethylbenzene	10	0.36	0.50	ug/L	10		104	70-130			10/24/19	
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10		101	70-130			10/24/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		101	70-130			10/24/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		100	70-130			10/24/19	
2,2-Dichloropropane	9.7	0.32	0.50	ug/L	10		97	70-130			10/24/19	
2-Butanone	10	0.42	5.0	ug/L	10		101	70-130			10/24/19	
2-Chlorotoluene	10	0.30	0.50	ug/L	10		104	70-130			10/24/19	
2-Hexanone	10	0.48	10	ug/L	10		103	70-130			10/24/19	
4-Chlorotoluene	10	0.30	0.50	ug/L	10		103	70-130			10/24/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10		104	70-130			10/24/19	
Acetone	10	3.4	10	ug/L	10		104	70-130			10/24/19	
Benzene	10	0.34	0.50	ug/L	10		104	70-130			10/24/19	
Bromobenzene	9.8	0.27	0.50	ug/L	10		98	70-130			10/24/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		108	70-130			10/24/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		102	70-130			10/24/19	
Bromoform	9.8	0.28	0.50	ug/L	10		98	70-130			10/24/19	
Bromomethane	12	0.43	0.50	ug/L	10		119	70-130			10/24/19	
Carbon disulfide	11	0.49	10	ug/L	10		113	70-130			10/24/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		109	70-130			10/24/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		101	70-130			10/24/19	
Chloroethane	11	0.32	0.50	ug/L	10		109	70-130			10/24/19	
Chloroform	10	0.083	0.50	ug/L	10		105	70-130			10/24/19	
Chloromethane	11	0.25	0.50	ug/L	10		112	70-130			10/24/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		104	70-130			10/24/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130			10/24/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		100	70-130			10/24/19	
Dibromomethane	9.9	0.29	0.50	ug/L	10		99	70-130			10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A916097-BS1)												
Dichlorodifluoromethane	12	0.28	0.50	ug/L	10		121	70-130			10/24/19	
Dichloromethane	9.7	0.29	0.50	ug/L	10		97	70-130			10/24/19	
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10		101	70-130			10/24/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		103	70-130			10/24/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		104	70-130			10/24/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		102	70-130			10/24/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		105	70-130			10/24/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20		110	70-130			10/24/19	
Methyl-t-butyl ether	21	0.083	0.50	ug/L	20		104	70-130			10/24/19	
Naphthalene	9.7	0.27	0.50	ug/L	10		97	70-130			10/24/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10		102	70-130			10/24/19	
n-Propylbenzene	10	0.31	0.50	ug/L	10		104	70-130			10/24/19	
o-Xylene	10	0.30	0.50	ug/L	10		104	70-130			10/24/19	
p-Isopropyltoluene	10	0.26	0.50	ug/L	10		103	70-130			10/24/19	
sec-Butylbenzene	10	0.27	0.50	ug/L	10		105	70-130			10/24/19	
Styrene	10	0.30	0.50	ug/L	10		102	70-130			10/24/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		101	70-130			10/24/19	
tert-Butyl alcohol (TBA)	10	0.97	2.0	ug/L	10		104	70-130			10/24/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		104	70-130			10/24/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130			10/24/19	
Toluene	10	0.32	0.50	ug/L	10		104	70-130			10/24/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		108	70-130			10/24/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130			10/24/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10		105	70-130			10/24/19	
Trichlorofluoromethane	11	0.23	5.0	ug/L	10		110	70-130			10/24/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		113	70-130			10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*51*				*50*		*102*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*51*				*50*		*102*	*70-130*			10/24/19	
Blank Spike Dup (A916097-BSD1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		101	70-130	1	30	10/24/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		113	70-130	3	30	10/24/19	
1,1,2,2-Tetrachloroethane	10	0.25	0.50	ug/L	10		101	70-130	2	30	10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10		116	70-130	1	30	10/24/19	
1,1,2-Trichloroethane	10	0.26	0.50	ug/L	10		101	70-130	0	30	10/24/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		108	70-130	1	30	10/24/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		119	70-130	2	30	10/24/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		107	70-130	1	30	10/24/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		100	70-130	3	30	10/24/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130	4	30	10/24/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		106	70-130	4	30	10/24/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		102	70-130	3	30	10/24/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		102	70-130	1	30	10/24/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		103	70-130	1	30	10/24/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		108	70-130	4	30	10/24/19	
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10		103	70-130	3	30	10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A916097-BSD1)												
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		102	70-130	1	30	10/24/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		103	70-130	3	30	10/24/19	
2,2-Dichloropropane	9.5	0.32	0.50	ug/L	10		95	70-130	2	30	10/24/19	
2-Butanone	10	0.42	5.0	ug/L	10		102	70-130	1	30	10/24/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130	2	30	10/24/19	
2-Hexanone	10	0.48	10	ug/L	10		104	70-130	1	30	10/24/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		105	70-130	3	30	10/24/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10		102	70-130	2	30	10/24/19	
Acetone	11	3.4	10	ug/L	10		111	70-130	7	30	10/24/19	
Benzene	10	0.34	0.50	ug/L	10		104	70-130	0	30	10/24/19	
Bromobenzene	10	0.27	0.50	ug/L	10		101	70-130	3	30	10/24/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		110	70-130	1	30	10/24/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		103	70-130	0	30	10/24/19	
Bromoform	10	0.28	0.50	ug/L	10		100	70-130	2	30	10/24/19	
Bromomethane	12	0.43	0.50	ug/L	10		115	70-130	4	30	10/24/19	
Carbon disulfide	11	0.49	10	ug/L	10		115	70-130	2	30	10/24/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		110	70-130	1	30	10/24/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		104	70-130	2	30	10/24/19	
Chloroethane	11	0.32	0.50	ug/L	10		111	70-130	2	30	10/24/19	
Chloroform	11	0.083	0.50	ug/L	10		108	70-130	3	30	10/24/19	
Chloromethane	11	0.25	0.50	ug/L	10		114	70-130	3	30	10/24/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		109	70-130	5	30	10/24/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130	1	30	10/24/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		101	70-130	1	30	10/24/19	
Dibromomethane	11	0.29	0.50	ug/L	10		106	70-130	7	30	10/24/19	
Dichlorodifluoromethane	12	0.28	0.50	ug/L	10		123	70-130	2	30	10/24/19	
Dichloromethane	10	0.29	0.50	ug/L	10		103	70-130	6	30	10/24/19	
Di-isopropyl ether (DIPE)	9.8	0.31	3.0	ug/L	10		98	70-130	3	30	10/24/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		100	70-130	3	30	10/24/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		106	70-130	2	30	10/24/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		106	70-130	4	30	10/24/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		108	70-130	3	30	10/24/19	
m,p-Xylenes	23	0.23	0.50	ug/L	20		113	70-130	2	30	10/24/19	
Methyl-t-butyl ether	21	0.083	0.50	ug/L	20		103	70-130	1	30	10/24/19	
Naphthalene	9.9	0.27	0.50	ug/L	10		99	70-130	2	30	10/24/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10		104	70-130	3	30	10/24/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		107	70-130	4	30	10/24/19	
o-Xylene	11	0.30	0.50	ug/L	10		106	70-130	2	30	10/24/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		107	70-130	4	30	10/24/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		109	70-130	4	30	10/24/19	
Styrene	10	0.30	0.50	ug/L	10		105	70-130	3	30	10/24/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		100	70-130	1	30	10/24/19	
tert-Butyl alcohol (TBA)	10	0.97	2.0	ug/L	10		102	70-130	2	30	10/24/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		107	70-130	3	30	10/24/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		108	70-130	1	30	10/24/19	
Toluene	11	0.32	0.50	ug/L	10		106	70-130	1	30	10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A916097-BSD1)												
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		111	70-130	3	30	10/24/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130	0	30	10/24/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		105	70-130	1	30	10/24/19	
Trichlorofluoromethane	11	0.23	5.0	ug/L	10		114	70-130	4	30	10/24/19	
Vinyl Chloride	12	0.27	0.50	ug/L	10		116	70-130	2	30	10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*105*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*53*				*50*		*105*	*70-130*			10/24/19	
Matrix Spike (A916097-MS1), Source: A9J2671-01												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10	ND	101	41-156			10/24/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10	ND	114	48-160			10/24/19	
1,1,2,2-Tetrachloroethane	9.6	0.25	0.50	ug/L	10	ND	96	42-151			10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10	ND	123	47-164			10/24/19	
1,1,2-Trichloroethane	9.9	0.26	0.50	ug/L	10	ND	99	45-152			10/24/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10	ND	110	48-157			10/24/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10	ND	121	51-158			10/24/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	112	46-162			10/24/19	
1,2,3-Trichlorobenzene	9.5	0.26	0.50	ug/L	10	ND	95	37-145			10/24/19	
1,2,4-Trichlorobenzene	9.7	0.29	0.50	ug/L	10	ND	97	33-149			10/24/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10	ND	103	44-146			10/24/19	
1,2-Dichlorobenzene	9.7	0.28	0.50	ug/L	10	ND	97	44-146			10/24/19	
1,2-Dichloroethane	9.9	0.29	0.50	ug/L	10	ND	99	47-151			10/24/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10	ND	103	47-155			10/24/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	106	45-154			10/24/19	
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10	ND	101	44-146			10/24/19	
1,3-Dichloropropane	9.9	0.26	0.50	ug/L	10	ND	99	45-151			10/24/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10	ND	100	43-146			10/24/19	
2,2-Dichloropropane	10	0.32	0.50	ug/L	10	ND	103	24-182			10/24/19	
2-Butanone	9.6	0.42	5.0	ug/L	10	ND	96	55-144			10/24/19	
2-Chlorotoluene	10	0.30	0.50	ug/L	10	ND	105	48-150			10/24/19	
2-Hexanone	9.7	0.48	10	ug/L	10	ND	97	40-159			10/24/19	J
4-Chlorotoluene	10	0.30	0.50	ug/L	10	ND	103	43-150			10/24/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10	ND	100	30-171			10/24/19	
Acetone	9.4	3.4	10	ug/L	10	ND	94	27-181			10/24/19	J
Benzene	11	0.34	0.50	ug/L	10	ND	106	48-155			10/24/19	
Bromobenzene	9.8	0.27	0.50	ug/L	10	ND	98	43-151			10/24/19	
Bromochloromethane	10	0.27	0.50	ug/L	10	ND	105	48-161			10/24/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10	ND	101	47-151			10/24/19	
Bromoform	9.5	0.28	0.50	ug/L	10	ND	95	29-162			10/24/19	
Bromomethane	11	0.43	0.50	ug/L	10	ND	112	10-200			10/24/19	
Carbon disulfide	11	0.49	10	ug/L	10	ND	115	57-161			10/24/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10	ND	114	47-163			10/24/19	
Chlorobenzene	10	0.31	0.50	ug/L	10	ND	103	46-152			10/24/19	
Chloroethane	11	0.32	0.50	ug/L	10	ND	111	28-189			10/24/19	
Chloroform	11	0.083	0.50	ug/L	10	ND	105	52-148			10/24/19	
Chloromethane	12	0.25	0.50	ug/L	10	ND	117	53-159			10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A916097-MS1), Source: A9J2671-01												
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10	ND	106	50-152			10/24/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	100	34-156			10/24/19	
Dibromochloromethane	9.8	0.28	0.50	ug/L	10	ND	98	44-149			10/24/19	
Dibromomethane	9.8	0.29	0.50	ug/L	10	ND	98	46-150			10/24/19	
Dichlorodifluoromethane	13	0.28	0.50	ug/L	10	ND	132	33-170			10/24/19	
Dichloromethane	10	0.29	0.50	ug/L	10	ND	101	47-156			10/24/19	
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10	ND	104	41-159			10/24/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10	ND	102	32-160			10/24/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	106	40-157			10/24/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10	ND	103	38-151			10/24/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10	ND	108	41-156			10/24/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20	ND	112	49-154			10/24/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20	ND	102	41-156			10/24/19	
Naphthalene	9.3	0.27	0.50	ug/L	10	ND	93	35-154			10/24/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10	ND	105	31-153			10/24/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10	ND	107	39-156			10/24/19	
o-Xylene	10	0.30	0.50	ug/L	10	ND	104	27-164			10/24/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	106	26-161			10/24/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10	ND	108	39-154			10/24/19	
Styrene	10	0.30	0.50	ug/L	10	ND	101	10-200			10/24/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10	ND	101	24-161			10/24/19	
tert-Butyl alcohol (TBA)	9.8	0.97	2.0	ug/L	10	ND	98	22-174			10/24/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10	ND	106	40-153			10/24/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10	ND	112	48-155			10/24/19	
Toluene	11	0.32	0.50	ug/L	10	ND	107	40-159			10/24/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10	ND	110	52-157			10/24/19	
trans-1,3-Dichloropropene	9.9	0.27	0.50	ug/L	10	ND	99	28-160			10/24/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	109	49-155			10/24/19	
Trichlorofluoromethane	12	0.23	5.0	ug/L	10	ND	119	47-169			10/24/19	
Vinyl Chloride	12	0.27	0.50	ug/L	10	ND	119	21-183			10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*51*				*50*		*102*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*51*				*50*		*103*	*70-130*			10/24/19	
EPA 525.3 - Quality Control												
Batch: A915805											Prepared: 10/18/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank (A915805-BLK1)												
Alachlor	ND	0.022	0.20	ug/L							10/21/19	
Atrazine	ND	0.0076	0.10	ug/L							10/21/19	
Benzo(a)pyrene	ND	0.0019	0.020	ug/L							10/21/19	
Bis(2-ethylhexyl) adipate	ND	0.067	0.60	ug/L							10/21/19	
Bis(2-ethylhexyl) phthalate	ND	0.11	0.60	ug/L							10/21/19	
Bromacil	ND	0.028	0.80	ug/L							10/21/19	
Butachlor	ND	0.018	0.25	ug/L							10/21/19	
Diazinon	ND	0.0022	0.020	ug/L							10/21/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 525.3 - Quality Control													
Batch: A915805											Prepared: 10/18/2019		
Prep Method: EPA 525.3											Analyst: JKH		
Blank (A915805-BLK1)													
Dimethoate	ND	0.082	1.0	ug/L							10/21/19		
Metolachlor	ND	0.011	0.50	ug/L							10/21/19		
Metribuzin	ND	0.0061	0.50	ug/L							10/21/19		
Molinate	ND	0.0061	0.50	ug/L							10/21/19		
Propachlor	ND	0.0056	0.50	ug/L							10/21/19		
Simazine	ND	0.0049	0.070	ug/L							10/21/19		
Thiobencarb	ND	0.0083	0.10	ug/L							10/21/19		
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.94*				*1.0*		*94*	*70-130*			10/21/19		
Surrogate: Benzo(a)pyrene-d12	*0.87*				*1.0*		*87*	*70-130*			10/21/19		
Surrogate: Triphenyl Phosphate	*0.99*				*1.0*		*99*	*70-130*			10/21/19		
Blank Spike (A915805-BS1)													
Alachlor	0.11	0.022	0.20	ug/L	0.10		109	70-130			10/21/19	J	
Atrazine	0.053	0.0076	0.10	ug/L	0.050		105	70-130			10/21/19	J	
Benzo(a)pyrene	0.0076	0.0019	0.020	ug/L	0.010		76	70-130			10/21/19	J	
Bis(2-ethylhexyl) adipate	0.37	0.067	0.60	ug/L	0.20		183	70-130			10/21/19	BS, J	***High***
Bis(2-ethylhexyl) phthalate	0.76	0.11	0.60	ug/L	0.60		127	70-130			10/21/19		
Bromacil	0.12	0.028	0.80	ug/L	0.050		242	70-130			10/21/19	BS, J	***High***
Butachlor	0.085	0.018	0.25	ug/L	0.050		170	70-130			10/21/19	BS, J	***High***
Diazinon	0.012	0.0022	0.020	ug/L	0.010		122	70-130			10/21/19	J	
Dimethoate	0.52	0.082	1.0	ug/L	0.40		130	70-130			10/21/19	J	
Metolachlor	0.067	0.011	0.50	ug/L	0.050		134	70-130			10/21/19	BS1.3, J	***High***
Metribuzin	0.056	0.0061	0.50	ug/L	0.050		112	70-130			10/21/19	J	
Molinate	0.059	0.0061	0.50	ug/L	0.050		119	70-130			10/21/19	J	
Propachlor	0.054	0.0056	0.50	ug/L	0.050		107	70-130			10/21/19	J	
Simazine	0.035	0.0049	0.070	ug/L	0.035		101	70-130			10/21/19	J	
Thiobencarb	0.061	0.0083	0.10	ug/L	0.050		121	70-130			10/21/19	J	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.96*				*1.0*		*96*	*70-130*			10/21/19		
Surrogate: Benzo(a)pyrene-d12	*0.94*				*1.0*		*94*	*70-130*			10/21/19		
Surrogate: Triphenyl Phosphate	*1.2*				*1.0*		*117*	*70-130*			10/21/19		
Blank Spike Dup (A915805-BSD1)													
Alachlor	0.11	0.022	0.20	ug/L	0.10		106	70-130	3	30	10/21/19	J	
Atrazine	0.051	0.0076	0.10	ug/L	0.050		102	70-130	4	30	10/21/19	J	
Benzo(a)pyrene	0.0074	0.0019	0.020	ug/L	0.010		74	70-130	2	30	10/21/19	J	
Bis(2-ethylhexyl) adipate	0.33	0.067	0.60	ug/L	0.20		164	70-130	11	30	10/21/19	BS, J	***High***
Bis(2-ethylhexyl) phthalate	0.69	0.11	0.60	ug/L	0.60		115	70-130	9	30	10/21/19		
Bromacil	0.079	0.028	0.80	ug/L	0.050		158	70-130	42	30	10/21/19	BS, BS4.0, J	***High***
Butachlor	0.070	0.018	0.25	ug/L	0.050		140	70-130	20	30	10/21/19	BS1.3, J	***High***
Diazinon	0.014	0.0022	0.020	ug/L	0.010		135	70-130	10	30	10/21/19	BS1.3, J	***High***
Dimethoate	0.49	0.082	1.0	ug/L	0.40		122	70-130	6	30	10/21/19	J	
Metolachlor	0.060	0.011	0.50	ug/L	0.050		119	70-130	12	30	10/21/19	J	
Metribuzin	0.052	0.0061	0.50	ug/L	0.050		104	70-130	8	30	10/21/19	J	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 525.3 - Quality Control												
Batch: A915805											Prepared: 10/18/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank Spike Dup (A915805-BSD1)												
Molinate	0.059	0.0061	0.50	ug/L	0.050		117	70-130	1	30	10/21/19	J
Propachlor	0.054	0.0056	0.50	ug/L	0.050		108	70-130	1	30	10/21/19	J
Simazine	0.035	0.0049	0.070	ug/L	0.035		101	70-130	1	30	10/21/19	J
Thiobencarb	0.051	0.0083	0.10	ug/L	0.050		103	70-130	17	30	10/21/19	J
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.97*				*1.0*		*97*	*70-130*			10/21/19	
Surrogate: Benzo(a)pyrene-d12	*0.93*				*1.0*		*93*	*70-130*			10/21/19	
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*109*	*70-130*			10/21/19	
Matrix Spike (A915805-MS1), Source: S9J0261-01												
Alachlor	0.94	0.022	0.20	ug/L	0.75	ND	125	70-130			10/22/19	
Atrazine	0.43	0.0076	0.10	ug/L	0.37	ND	114	70-130			10/22/19	
Benzo(a)pyrene	0.071	0.0019	0.020	ug/L	0.075	ND	95	70-130			10/22/19	
Bis(2-ethylhexyl) adipate	2.2	0.067	0.60	ug/L	1.5	ND	146	70-130			10/22/19	MS1.0 ***High***
Bis(2-ethylhexyl) phthalate	6.0	0.11	0.60	ug/L	4.5	0.14	131	70-130			10/22/19	MS1.0 ***High***
Bromacil	0.67	0.028	0.80	ug/L	0.37	ND	180	70-130			10/22/19	MS1.0 ***High*** , J
Butachlor	0.56	0.018	0.25	ug/L	0.37	ND	149	70-130			10/22/19	MS1.0 ***High***
Diazinon	0.086	0.0022	0.020	ug/L	0.075	0.012	99	70-130			10/22/19	
Dimethoate	4.1	0.082	1.0	ug/L	3.0	ND	136	70-130			10/22/19	MS1.0 ***High***
Metolachlor	0.46	0.011	0.50	ug/L	0.37	ND	124	70-130			10/22/19	J
Metribuzin	0.50	0.0061	0.50	ug/L	0.37	ND	134	70-130			10/22/19	MS1.0 ***High***
Molinate	0.41	0.0061	0.50	ug/L	0.37	ND	110	70-130			10/22/19	J
Propachlor	0.42	0.0056	0.50	ug/L	0.37	ND	112	70-130			10/22/19	J
Simazine	0.29	0.0049	0.070	ug/L	0.26	ND	112	70-130			10/22/19	
Thiobencarb	0.42	0.0083	0.10	ug/L	0.37	ND	112	70-130			10/22/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.91*				*0.94*		*98*	*70-130*			10/22/19	
Surrogate: Benzo(a)pyrene-d12	*0.91*				*0.94*		*97*	*70-130*			10/22/19	
Surrogate: Triphenyl Phosphate	*1.2*				*0.94*		*129*	*70-130*			10/22/19	
EPA 531.1 - Quality Control												
Batch: A916157											Prepared: 10/25/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank (A916157-BLK1)												
3-Hydroxycarbofuran	ND	0.12	3.0	ug/L							10/26/19	
Aldicarb	ND	0.12	3.0	ug/L							10/26/19	
Aldicarb Sulfone	ND	0.12	2.0	ug/L							10/26/19	
Aldicarb Sulfoxide	ND	0.12	3.0	ug/L							10/26/19	
Carbaryl	ND	0.22	5.0	ug/L							10/26/19	
Carbofuran	ND	0.27	5.0	ug/L							10/26/19	
Methomyl	ND	0.19	2.0	ug/L							10/26/19	
Oxamyl	ND	0.090	20	ug/L							10/26/19	
Blank Spike (A916157-BS1)												
3-Hydroxycarbofuran	4.1	0.12	3.0	ug/L	4.0		104	80-120			10/26/19	
Aldicarb	1.9	0.12	3.0	ug/L	2.0		97	80-120			10/26/19	J

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 531.1 - Quality Control												
Batch: A916157											Prepared: 10/25/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank Spike (A916157-BS1)												
Aldicarb Sulfone	3.3	0.12	2.0	ug/L	3.2		104	80-120			10/26/19	
Aldicarb Sulfoxide	2.1	0.12	3.0	ug/L	2.0		104	80-120			10/26/19	J
Carbaryl	4.0	0.22	5.0	ug/L	4.0		99	80-120			10/26/19	J
Carbofuran	3.8	0.27	5.0	ug/L	3.6		105	80-120			10/26/19	J
Methomyl	4.2	0.19	2.0	ug/L	4.0		104	80-120			10/26/19	
Oxamyl	4.0	0.090	20	ug/L	4.0		100	80-120			10/26/19	J
Blank Spike Dup (A916157-BSD1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120	2	20	10/26/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0		106	80-120	9	20	10/26/19	J
Aldicarb Sulfone	3.2	0.12	2.0	ug/L	3.2		100	80-120	4	20	10/26/19	
Aldicarb Sulfoxide	2.0	0.12	3.0	ug/L	2.0		101	80-120	3	20	10/26/19	J
Carbaryl	4.0	0.22	5.0	ug/L	4.0		100	80-120	0	20	10/26/19	J
Carbofuran	3.7	0.27	5.0	ug/L	3.6		103	80-120	2	20	10/26/19	J
Methomyl	4.1	0.19	2.0	ug/L	4.0		102	80-120	2	20	10/26/19	
Oxamyl	3.9	0.090	20	ug/L	4.0		97	80-120	3	20	10/26/19	J
Matrix Spike (A916157-MS1), Source: A9J1860-01												
3-Hydroxycarbofuran	4.4	0.12	3.0	ug/L	4.0	ND	110	65-135			10/26/19	
Aldicarb	2.0	0.12	3.0	ug/L	2.0	ND	100	65-135			10/26/19	J
Aldicarb Sulfone	3.4	0.12	2.0	ug/L	3.2	ND	105	65-135			10/26/19	
Aldicarb Sulfoxide	2.1	0.12	3.0	ug/L	2.0	ND	105	65-135			10/26/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0	ND	104	65-135			10/26/19	J
Carbofuran	3.9	0.27	5.0	ug/L	3.6	ND	108	65-135			10/26/19	J
Methomyl	4.1	0.19	2.0	ug/L	4.0	ND	103	65-135			10/26/19	
Oxamyl	4.1	0.090	20	ug/L	4.0	ND	103	65-135			10/26/19	J
EPA 547 - Quality Control												
Batch: A915865											Prepared: 10/19/2019	
Prep Method: EPA 547											Analyst: JNG	
Blank (A915865-BLK1)												
Glyphosate	ND	2.1	25	ug/L							10/20/19	
Surrogate: AMPA	*200*				*200*		*101*	*70-130*			10/20/19	
Blank Spike (A915865-BS1)												
Glyphosate	98	2.1	25	ug/L	100		98	70-130			10/20/19	
Surrogate: AMPA	*200*				*200*		*100*	*70-130*			10/20/19	
Blank Spike Dup (A915865-BSD1)												
Glyphosate	100	2.1	25	ug/L	100		100	70-130	1	30	10/20/19	
Surrogate: AMPA	*200*				*200*		*100*	*70-130*			10/20/19	
Matrix Spike (A915865-MS1), Source: A9J1691-01												
Glyphosate	100	2.1	25	ug/L	100	ND	102	70-130			10/20/19	
Surrogate: AMPA	*200*				*200*		*101*	*70-130*			10/20/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 547 - Quality Control												
Batch: A915865											Prepared: 10/19/2019	
Prep Method: EPA 547											Analyst: JNG	
EPA 548.1 - Quality Control												
Batch: A916102											Prepared: 10/23/2019	
Prep Method: EPA 548.1											Analyst: YNV	
Blank (A916102-BLK1)												
Endothall	ND	1.6	45	ug/L							10/25/19	
Blank Spike (A916102-BS1)												
Endothall	14	1.6	45	ug/L	20		69	46-116			10/25/19	J
Blank Spike Dup (A916102-BSD1)												
Endothall	14	1.6	45	ug/L	20		69	46-116	0	30	10/25/19	J
Matrix Spike (A916102-MS1), Source: A9J1707-01												
Endothall	14	1.6	45	ug/L	20	ND	69	46-116			10/25/19	J
Matrix Spike (A916102-MS2), Source: A9J2464-01												
Endothall	14	1.6	45	ug/L	20	ND	69	46-116			10/25/19	J
EPA 549.2 - Quality Control												
Batch: A915875											Prepared: 10/21/2019	
Prep Method: EPA 549.2											Analyst: ANM	
Blank (A915875-BLK1)												
Diquat	ND	0.071	0.40	ug/L							10/26/19	
Blank Spike (A915875-BS1)												
Diquat	5.0	0.071	0.40	ug/L	4.0		126	70-130			10/26/19	
Blank Spike Dup (A915875-BSD1)												
Diquat	4.7	0.071	0.40	ug/L	4.0		117	70-130	7	30	10/26/19	
Matrix Spike (A915875-MS1), Source: A9J1707-01												
Diquat	4.8	0.071	0.40	ug/L	4.0	ND	120	70-130			10/26/19	
SRL 524M-TCP - Quality Control												
Batch: A915968											Prepared: 10/22/2019	
Prep Method: no prep-volatiles											Analyst: JNG	
Blank (A915968-BLK1)												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L							10/22/19	
Blank Spike (A915968-BS1)												
1,2,3-Trichloropropane	0.0052	0.0014	0.0050	ug/L	0.0050		104	80-120			10/22/19	
Blank Spike Dup (A915968-BSD1)												

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SRL 524M-TCP - Quality Control												
Batch: A915968											Prepared: 10/22/2019	
Prep Method: no prep-volatiles											Analyst: JNG	
Blank Spike Dup (A915968-BSD1)												
1,2,3-Trichloropropane	0.0051	0.0014	0.0050	ug/L	0.0050		102	80-120	2	30	10/22/19	
Duplicate (A915968-DUP1), Source: A9J2163-01												
1,2,3-Trichloropropane	0.022	0.0014	0.0050	ug/L		0.021			6	20	10/23/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

Aggressive Index	Chlorothalonil	Trifluralin
Langelier Index	Threshold Odor	1,2,3-Trichloropropane

Certificate of Analysis

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

	2435		
Fresno			
State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-012
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-012
EPA - UCMR4	CA00079	State of Washington	C997-19d
San Bernardino			
State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-004	State of Oregon - NELAP	4119-004
Vancouver			
NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-012
State of Washington	C824-19		

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
- [x] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
Date needed:

A9L1688 clare4404 10/17/2019

10

*Required Fields Temp: Thermometer ID:

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Claremont Land Group	Geralyn Skapik Additional cc's: Christofer Coppinger, John Bissel	John Bissel - Hansji PO#:	(909) 398-4404	
			E-mail*: gskapik@skapiklaw.com	

Address*:	City*:	State*:	Zip*:
5861 Pine Ave, Suite A-1	Chino Hills	CA	91709

Project:

Project #: A9L1688

Reporting Options:
- [x] Trace (J-Flag)
- [ ] Swamp
- [ ] EDD Type: _____

Sampler Name (Printed/Signature)*: Edween Hernandez/Alexander Arita

Regulatory Carbon Copies
- [ ] SWRCB (Drinking Water)
- [ ] Merced Co
- [ ] Fresno Co
- [ ] Madera Co
- [ ] Tulare Co
- [ ] Other: _____

Regulatory Compliance
- [ ] EDT to California SWRCB (Drinking Water)
System Number*: _____
- [ ] Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

	#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Gross Alpha		EXT-Rad 226, 228
26G(A)	1	[redacted]	10/16/19	14:52	DW		X	X	X	X		X	X		
	2	Trip Blank - 524 - Raw - Lot# 1019007	10/16/19		TB	Reported from: A9J1707-08					X				
26G(A)	3	[redacted]	10/22/19	12:15	DW	Additional volume for A9L1688-01									X
		Revised COC created by EMP													

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: PIA#:	Check / Cash Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____ **Custody Seal:** Y / N

Cooling Method: Wet Blue None **Chilling Process Begun:** Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

A9L1688 clare4404 10/17/2019

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ASSOCIATES

1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
- [X] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
Date needed

*Required Fields

Temp: 5.8 Thermometer ID: 458

Company/Client Name*: Hansji Corporation
Report Attention*: John Bissel
Additional cc's: Christofer Coppinger, Geralyn Skapik
Invoice To*: Arun Malhotra
Phone*: (714) 399-0152
Fax:
E-mail*: johnb@hansji.com
Address*: 631 W. Katella Ave., 5th Floor
City*: Anaheim
State*: CA
Zip*: 92802
Project #: A9J 1707

- [X] Tank ... Swamp ... Type

Regulatory Carbon Copies: SWRCB (Drinking Water), Merced Co., Fresno Co., Madera Co., Tulare Co., Other

Regulatory Compliance: EDT to California SWRCB (Drinking Water), System Number*, Geotracker #

Sampler Name (Printed/Signature)*: Edween Hernandez

Matrix Types: SW-Surface Water, BW-Bottled Water, GW-Ground Water, WW-Waste Water, STW-Storm Water, DW-Drinking Water, SO-Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WWRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
1	Terra V Well No. 1	10/16/19	1555	DW		X	X	X	X	X			X	X
2	Terra V Well No. 2	10/16/19	1326	DW		X	X	X	X	X			X	X
~~3~~	[redacted]			DW		X	X	X	X	X			X	X
26G(A) ~~4~~ 3	[redacted]	10/16/19	1433	DW	Noticed trace metals in samples	X	X	X	X	X			X	X
26G(C) ~~5~~ 4	[redacted]	10/16/19	1655	DW		X	X	X	X	X			X	X
~~6~~ 5	Trip Blank - TCP - Lot# RAW 101903	10/16/19								X				
~~7~~ 6	Trip Blank - 504 - Lot# 1019036	10/16/19									X			
~~8~~ 7	Trip Blank - 524 - Lot# RAW 1019007	10/16/19										X		

See Revised COC 01/27/2020 ER

Prelogged as A9J1707

Relinquished by (Signature and Printed Name): Edween Hernandez | Company: Geoscience | Date: 10/17/19 | Time: 1130 | Received by (Signature and Printed Name): | Company:

Relinquished by (Signature and Printed Name): | Company: | Date: | Time: | Received by (Signature and Printed Name): | Company:

Received for Lab by (Signature and Printed Name): | Date: 10/17 | Time: 1130 | Payment Received at Delivery: Date | Amount | Check # | Cash

Shipping Method: ONTRAC, UPS, GSO, WALK-IN (circled), FEDEX, Courier

Cooling Method: Wet, Blue (circled), None

Custody Seal: Y/N
Chilling Process Begun: (Y)/N

Please cc results to:
ccoppinger@geoscience-water.com

Pre-sample water quality parameters:

1) Terra V. well No. 1
3.51 NTU - Turb.
326 µS - Spec. Cond.
7.48 pH @ 13.5°C

2) Terra V. well No. 2
1.19 NTU - Turb.
299 µS - Spec. Cond.
7.79 pH @ 14.3°C

3) [redacted]

4) [redacted] 26G(A)
1.33 NTU - Turb.
172 µS - Spec. Cond.
1.37 pH @ 13.2°C

5) [redacted] 26G(C)
5.66 NTU, Turb.
214 µS - Spec. Cond.
8.54 pH @ 14.8°C

A9L1688 clare4404 10/17/2019

BSK Associates SR-FL-0002-20

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Sample Integrity

BSK Bottles: (Yes) No Page 1 of 1

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) (NA) Yes No (NA)
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	(Yes) No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes No (NA)

Bottles Received — "_" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	1-4	5	6	7	
Bacti $Na_2S_2O_3$	—	—	1				
None (P) White Cap	—	—	2C				
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	(P) F	1A				10/17/19 E
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	4C, 1B				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	2C, 1B				
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	3V	2V			
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	2C				
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	1A				
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	1C				
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—	1A				
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	7V		2V		
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	(P) F	1V				
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V			2V	
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	1C				
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Initial & Time Labeled by: VCH 13:48 paper VCH 13:48

Labels Checked by: SMA 10-17-19 1354

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned: SMA

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 - Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
Date needed:

A9L1688 clare4404 10/17/2019 10

3.1 Temp: 5.2 Thermometer ID: #53

*Required Fields

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*: / Fax:
Hansji Corporation	John Bissel Additional cc's: Christofer Coppinger, Geralyn Skapik	Arun Malhotra PO#:	(714) 399-0152 E-mail*: johnb@hansji.com

Address*:	City*:	State*:	Zip*:
631 W. Katella Ave., 5th Floor	Anaheim	CA	92802

Project:
Project #: A9J1707

Reporting Options: ☑ Trace (J-Flag) ☐ Swamp ☐ EDD Type: _____
Sampler Name (Printed/Signature)*: Alexander Arita (AA), [signature]

Regulatory Carbon Copies: ☐ SWRCB (Drinking Water) ☐ Merced Co ☐ Fresno Co ☐ Madera Co ☐ Tulare Co ☐ Other:
Regulatory Compliance: ☐ EDT to California SWRCB (Drinking Water) System Number*: _____ ☐ Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

26G(C) #	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
1	[redacted]	10/21/19	17:50	DW		X	X	X	X	X			X	X
26G(A) * 2	[redacted]	10/22/19	12:15	DW		[illegible]							X	X
10/23/19				DW		X	X	X	X	X			X	X
	Trip Blank - TCP - Lot#									X				
	Trip Blank - 504 - Lot#										X			
	Trip Blank - 524 - Lot#											X		

See Revised COC 01/27/2020

*Additional volume for A9J1707-04. Logged as A9J1707-09

YCH

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Alexander Arita	Geoscience	10/22/19	16:56		
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery:	
[signature]		10/22/19	16:56	Date: Amount: PIA#: Check / Cash Int.	

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____
Cooling Method: Wet Blue None
Custody Seal: Y / N
Chilling Process Begun: Y / N By: Person

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

Presampling water quality:

26G(C) [redacted] Turbidity 0.63 NTU, 7.52 pH @ 12.3 °C, Cond - 474 µS @ 12.6 °C
26G(A) [redacted] 4.71 am, 8.46 am @ 12.9 °C, 475 µS @ 11.6 °C

SR-FL-0012-08

Sample Integrity

BSK Bottles: Yes No Page 2 of 2

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Are correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes No NA Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Is sufficient amount of sample received?	Yes No
Do all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No NA	Has PM been notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received

"_" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?
Bacti $Na_2S_2O_3$	—	—
None (P) White Cap	—	—
Cr6 (P) Lt. Green Label/Blue Cap **$NH_4OH(NH_4)_2SO_4$ DW**	Cl, pH > 8	P F
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F
Cr6 (P) Black Label/Blue Cap **$NH_4OH(NH_4)_2SO_4$ 7199** ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F
NaOH (P) Green Cap	Cl, pH >10	P F
NaOH + ZnAc (P)	pH > 9	P F
Dissolved Oxygen 300ml (g)	—	—
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—
Ascorbic, EDTA, KH_2Ct (AG) Pink Label **525**	—	—
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F
NH_4Cl (AG) Purple Label 552	—	—
EDA (AG) Brown Label DBPs	—	—
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—
Buffer pH 4 (CG)	—	—
H_3PO_4 (CG) Salmon Label	—	—
Trizma – EPA 537.1		
Other:		
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—
Bottled Water	—	—
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—
Solids: Brass / Steel / Plastic Bag	—	—

9

QC

10/23/19 18

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

✓ **Indicates Blanks Received**

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned: _____

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

December 17, 2019 Ceres ID: 13216

BSK Associates
1414 Stanislaus St.
Fresno, CA 93706

The following report contains the results for the one drinking water sample received on October 18, 2019. This sample was analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under your Subcontract Order # A9L1688.

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID		Date Received	Collection Date	&Time
13216-001	[redacted]	26G(A)	10/18/2019	10/16/2019	14:53
	A9L1688-01				

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Method Blank**	**QC Batch #:** 2073	**Date Received:** NA
	Matrix: Drinking Water	**Date Extracted:** 10/23/2019
Project ID: A9L1688	**Sample Size:** 1.000 L	**ZB-5MS Analysis:** 10/24/2019

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.16	1.49	5.00		13C-2378-TCDD	77.9	31-137	
					CRS			
					37Cl4-2378-TCDD	60.7	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Ongoing Precision and Recovery**		**Date Received:** NA
	QC Batch #: 2073	**Date Extracted:** 10/23/2019
	Matrix: Drinking Water	**ZB-5MS Analysis:** 10/24/2019
Project ID: A9L1688	**Sample Size:** 1.000 L	

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	8.03	7.3-14.6	13C-2378-TCDD	80.2	25-141
			CRS		
			37Cl4-2378-TCDD	68.5	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

26G(A)

Client Sample ID: [redacted] A9L1688-01			
Project ID: A9L1688	**Ceres Sample ID:** 13216-001		**Date Received:** 10/18/2019
	QC Batch #: 2073		**Date Extracted:** 10/23/2019
Date Collected: 10/16/2019	**Matrix:** Drinking Water		**ZB-5MS Analysis:** 10/24/2019
Time Collected: 14:53	**Sample Size:** 1.010 L		

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 4.25	1.49	4.95		13C-2378-TCDD	89.3	31-137	
					CRS			
					37Cl4-2378-TCDD	70.8	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

A9L1688

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

Ceres Analytical Laboratory, Inc
4919 Windplay Drive, Suite 1
El Dorado Hills, CA 95762
Phone :(916) 932-5011
Fax: -
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9L1688-01	[redacted] 26G(A)	**Client Matrix** Drinking Water	**10/16/2019 14:53**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Report from original data for A9J1707-04	

Released By	Date	Received By	Date
Released By	Date	Received By	Date

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322000385
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Elaine M. Phillips
BSK Analytical Laboratories
1414 Stanislaus Street
Fresno, CA 93706

Phone: (559) 497-2888
Fax:
Received: 10/18/2019
Analyzed: 10/24/2019

Proj: A9L1688

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
								MFL (million fibers per liter)	
A9L1688-01 322000385-0001	10/21/2019 03:05 PM	5	1288	0.2600	None Detected	ND	0.99	<0.99	0.00 - 3.70

Collection Date/Time: 10/16/2020 14:53 PM

Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached. UV ozonated.

Sample A9J1707-04 separated from Order #321922564 is reported as A9L1688-01 on this new report as per client request.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Report amended: 01/10/2020 11:57:32 Replaces initial report from:01/10/2020 13:28:55 Reason Code: Client-Other (see report comment)

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested. This report may not be reproduced, except in full, without written permission by LA Testing. Samples received in good condition unless otherwise noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

BSK ASSOCIATES

SUBCONTRACT ORDER

A9L1688 #322000385

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

L A Testing
520 Mission St.
South Pasadena, CA 91030
Phone :(800) 303-0047
Fax: (323) 254-9982
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9L1688-01	[redacted]26G(A)	**Client Matrix** Drinking Water	10/16/2019 14:53
Lab Matrix:	Water		
	Analysis: EXT-Asbestos, Drinking Water by EPA 100.2	Report from original data for A9J1707-04	

Released By	Date	Received By	Date
		Dmouradian	12/17/19 1452 (emailed)
Released By	Date	Received By	Date

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917170
Customer : 2-22939

Laboratory Report

Introduction: This report package contains total of 3 pages divided into 3 sections:

Case Narrative	(1 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
[redacted]26G(A)	10/16/2019	10/18/2019	SP 1917170-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	11/06/2019:217373 All analysis quality controls are within established criteria
	10/25/2019:212371 All preparation quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Reviewed and Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S. Title: Laboratory Director Date: 2019-12-18

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853 Corporation Street
Santa Paula, CA 93060
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TEL: (559)734-9473
FAX
CA ELAP Certification No. 2810

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917170-001
Customer ID : 2-22939

Sampled On : October 16, 2019-14:53
Sampled By : Not Available
Received On : October 18, 2019-10:55
Matrix : Water

Description : [redacted] 26G(A)
Project : A9J1707-04

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	0.820 ± 0.357	0.451	pCi/L	15/5	900.0	10/25/19-10:00 2P1912371	900.0	11/06/19-14:44 2A1917373

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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FAX: [illegible]
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917170
BSK Associates Engineers & Laboratories Customer : 2-22939

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	11/06/19:217373JCA	CCV	cpm	8133	39.3 %	35-47	
			CCB	cpm		0.060	0.2	
Gross Alpha	900.0	10/25/19:212371jca	Blank	pCi/L		0.77	3	
			LCS	pCi/L	155.2	95.5 %	75-125	
			MS	pCi/L	155.2	135 %	60-140	
		(SP 1913830-001)	MSD	pCi/L	155.2	140 %	60-140	
			MSRPD	pCi/L	155.2	3.7%	≤30	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

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CA ELAP Certification No. 2810

Chain of Custody

Map Re

Client: **BSK Associates**

Address: BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Phone: (559)497-2888 Xt116 Fax: (559)485-69356132442

Contact Person: Adam Trevarrow

Project Name: **A9J1707-04**

Purchase Order Number:

Sampler(s) Not Available

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **SP 1917170** 2-22939

Method of Sampling: Composite(C) Grab(G) 8

Type of Sample **SEE REVERSE SIDE** Water(AgW) Waste(W)

Potable(P) Non-Potable(NP) Ag Water(AgW)

Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)

Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling	Type of Sample	Potable(P)	Bacti Type	Bacti Reason	Radio Chemistry-Gross Alpha 32oz(P)	Radio Chemistry-Total Radium 226,Ra 228 32oz(P)-HNO3 , 32oz(P)-HNO3								
1	[redacted] 26G(A)	10/16/19	14:53	G	W				1	1,2								

Remarks:
Original COC #1914207

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
OnTrac								
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:
Inez Covarrubias	10/18/19	10:55						

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917172
Customer : 2-22939

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
[redacted] 26G(A)	10/22/2019	10/18/2019	SP 1917172-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

903.0	11/06/2019:217406 All analysis quality controls are within established criteria
	10/28/2019:212449 All preparation quality controls are within established criteria
Ra - 05	11/03/2019:217161 All analysis quality controls are within established criteria
	10/28/2019:212442 All preparation quality controls are within established criteria

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FAX: (559)734-8435
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917172
BSK Associates Engineers & Laboratories Customer : 2-22939

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2019-12-18

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917172-001
Customer ID : 2-22939

Sampled On : October 22, 2019-12:15
Sampled By : Not Available
Received On : October 18, 2019-10:55
Matrix : Water

Description : [redacted] 26G(A)
Project : A9J1707-09

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.021 ± 0.093	0.418	pCi/L	3	903.0	10/28/19-18:30 2P1912449	903.0	11/06/19-15:54 2A1917406
Ra 228	0.000 ± 0.633	0.409	pCi/L	2	Ra - 05	10/28/19-18:20 2P1912442	Ra - 05	11/03/19-10:10 2A1917161

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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Santa Paula, CA 93060
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December 17, 2019 Lab ID : SP 1917172
BSK Associates Engineers & Laboratories Customer : 2-22939

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	903.0	11/06/19:217406JCA	CCV	cpm	8133	39.4 %	37-46	
			CCB	cpm		0.1200	0.16	
Total Alpha Radium (226)	903.0	10/28/19:212449emv	RgBlk	pCi/L		0.009	2	
			LCS	pCi/L	23.33	58.3 %	52-107	
			MS	pCi/L	23.33	54.5 %	43-111	
		(SP 1913892-001)	MSD	pCi/L	23.33	51.7 %	43-111	
			MSRPD	pCi/L	23.33	5.3%	≤35.5	
Beta	Ra - 05	11/03/19:217161emv	CCV	cpm	8136	88.7 %	84-94	
			CCB	cpm		0.4400	0.51	
Ra 228	Ra - 05	10/28/19:212442emv	RgBlk	pCi/L		-0.03	3	
			LRS	pCi/L	14.21	67.9 %	65-108	
			BS	pCi/L	14.21	84.2 %	75-125	
			BSD	pCi/L	14.21	88.8 %	75-125	
			BSRPD	pCi/L	14.21	0.64	≤3	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

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Chain of Custody

Map Re

Client: **BSK Associates**

Address: BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Phone: (559)497-2888 Xt116 Fax: (559)485-69356132442

Contact Person: Adam Trevarrow

Project Name: **A9J1707-09**

Purchase Order Number:

Sampler(s) Not Available

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **SP 1917172** **2-22939**

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G) 8	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Radio Chemistry-Total Radium 226,Ra 228 32oz(P)-HNO3 , 32oz(P)-HNO3									
1	[redacted]26G(A)	10/22/19	12:15	G	W				2,1									

Remarks:
Original COC #1914207

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
OnTrac								
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:
Inez Covarrubias	10/18/19	10:55						

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Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

Amended Report

A9J1707
1/29/2020
Invoice: AD01414

Geralyn Skapik
Claremont Land Group
5861 Pine Ave, Suite A-1
Chino Hills, CA 91709

RE: Report for A9J1707 Yosemite Title 22 Testing

Dear Geralyn Skapik,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/17/2019. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Elaine M. Phillips , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Joseph Boatwright, Quality Assurance Specialist

Accredited in Accordance with NELAP
ORELAP #4021-009

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Claremont Land Group	**Invoice To:**	Hansji Corporation
Report To:	Geralyn Skapik	**Invoice Attn:**	John Bissel
Project #:	Terra Vi	**Project PO#:**	-
Received:	10/17/2019 - 11:30		
Report Due:	10/31/2019		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 5.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Received On Blue Ice
Packing Material - Other
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Report Amendments

Date: **1/27/2020**

Initials: **EMP**

This amended report supersedes any previous reports issued by the laboratory. Amendments to this report are as follows: Changed the client from Hansji Corporation to Claremont Land Group, removed all data not pertaining to Terra Vi Well No. 1 and 2 and reported on separate reports, as per client request.

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

BS	Blank spike recoveries did not meet acceptance limits.
BS1.0	Blank spike recovery for this analyte was biased high; no material impact on reported result as sample is ND for this parameter.
BS1.3	Blank Spike recovery meets the wider acceptance criteria of 50-150% when the spike level is at or below the reporting limit (RL).
BS4.0	BS/BSD RPD exceeded the method acceptance limit as one of the blank spikes recovered outside limits.
CV0.0	CCV recovery was above method acceptance limits; no material impact on reported result as sample detection is below the reporting limit for this parameter.
HT2.1	Holding time exceeded. Sample was received at the lab with inadequate time remaining to meet the recommended holding time.
J	Estimated value
MC Notify	Positive Notification: Chris Coppinger10/18/19 1542
MS1.0	Matrix spike recoveries exceed control limits.
MS1.4	Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).

Report Distribution

Recipient(s)	Report Format	CC:
Geralyn Skapik	MCL.RPT	
Christofer Coppinger	MCL.RPT	
John Bissel	MCL.RPT	

Certificate of Analysis

Sample ID: A9J1707-01
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 1

Sample Date - Time: 10/16/2019 - 15:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.48 Temp=13.5 ºC Cond.=320 umho Turb. =3.51 ntu

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aggressive Index		**12**						A916115	10/24/19	10/24/19	
Alkalinity as CaCO3	SM 2320B	**180**		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Bicarbonate as CaCO3	SM 2320B	**180**		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Carbonate as CaCO3	SM 2320B	ND		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Hydroxide as CaCO3	SM 2320B	ND		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Chloride	EPA 300.0	**1.2**	0.51	1.0	mg/L	1		A915762	10/17/19	10/17/19	
Color, Apparent	SM 2120B	ND		5.0	CU	1		A915547	10/17/19 18:45	10/17/19	
Color pH (1)	SM 4500-H+ B	**7.3**			pH Units	1		A915547	10/17/19	10/17/19	
Cyanide (total)	SM 4500-CN E	ND	0.0022	0.0050	mg/L	1	0.15	A915897	10/21/19	10/28/19	
Conductivity @ 25C	SM 2510B	**370**		1.0	umhos/cm	1		A915739	10/17/19	10/17/19	
Fluoride	EPA 300.0	**0.056**	0.042	0.10	mg/L	1	2	A916233	10/26/19	10/26/19	J
Hexavalent Chromium	EPA 218.7	**0.049**	0.011	0.050	ug/L	1	50	A915798	10/18/19	10/18/19	J
Langelier Index	SM 2330B	**0.36**						A916357	10/29/19	10/29/19	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.021	0.050	mg/L	1		A915795	10/18/19 12:30	10/18/19	
Nitrate + Nitrite as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A915762	10/17/19 18:14	10/17/19	
Nitrate as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A915762	10/17/19 18:14	10/17/19	
Nitrite as N	EPA 300.0	**0.028**	0.020	0.050	mg/L	1	1	A915762	10/17/19 18:14	10/17/19	J
Threshold Odor	SM 2150B	ND		1.0	T.O.N.	1		A915537	10/17/19 13:58	10/17/19	
Perchlorate	EPA 314.0	ND	0.61	2.0	ug/L	1	6	A915832	10/18/19	10/18/19	
pH (1)	SM 4500-H+ B	**7.9**			pH Units	1		A915739	10/17/19	10/17/19	
pH Temperature in °C		**23.1**									
Sulfate as SO4	EPA 300.0	**3.6**	0.40	1.0	mg/L	1		A915762	10/17/19	10/17/19	
Total Dissolved Solids	SM 2540C	**220**		5.0	mg/L	1		A915961	10/22/19	10/25/19	
Turbidity	SM 2130B	**0.56**		0.10	NTU	1		A915547	10/17/19 19:02	10/17/19	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A915802	10/21/19	10/22/19	
Antimony	EPA 200.8	ND	0.91	2.0	ug/L	1	6	A915802	10/21/19	10/24/19	
Arsenic	EPA 200.8	**12**	1.2	2.0	ug/L	1	10	A915802	10/21/19	10/24/19	
Barium	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A915802	10/21/19	10/22/19	
Beryllium	EPA 200.8	ND	0.45	1.0	ug/L	1	4	A915802	10/21/19	10/24/19	
Cadmium	EPA 200.8	ND	0.45	1.0	ug/L	1	5	A915802	10/21/19	10/24/19	
Calcium	EPA 200.7	**58**	0.046	0.10	mg/L	1		A915802	10/21/19	10/22/19	MS1.4
Chromium	EPA 200.8	ND	4.5	10	ug/L	1	50	A915802	10/21/19	10/24/19	
Copper	EPA 200.8	ND	2.3	5.0	ug/L	1		A915802	10/21/19	10/24/19	
Iron	EPA 200.7	**0.19**	0.014	0.030	mg/L	1		A915802	10/21/19	10/22/19	
Lead	EPA 200.8	ND	0.45	1.0	ug/L	1		A915802	10/21/19	10/24/19	
Magnesium	EPA 200.7	**5.4**	0.046	0.10	mg/L	1		A915802	10/21/19	10/22/19	
Manganese	EPA 200.7	**0.016**	0.0045	0.010	mg/L	1		A915802	10/21/19	10/22/19	

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A9J1707 MCL FINAL 01 29 2020 1127 01292020 1127

**** Amended Report ****

Certificate of Analysis

Sample ID: A9J1707-01
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 1

Sample Date - Time: 10/16/2019 - 15:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.48 Temp=13.5 ºC Cond.=320 umho Turb. =3.51 ntu

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Mercury	EPA 200.8	ND	0.091	0.20	ug/L	1	2	A915802	10/21/19	10/24/19	
Nickel	EPA 200.8	ND	4.5	10	ug/L	1	100	A915802	10/21/19	10/24/19	
Potassium	EPA 200.7	**1.4**	0.91	2.0	mg/L	1		A915802	10/21/19	10/22/19	J
Selenium	EPA 200.8	ND	0.91	2.0	ug/L	1	50	A915802	10/21/19	10/24/19	
Silver	EPA 200.8	ND	4.5	10	ug/L	1		A915802	10/21/19	10/24/19	
Sodium	EPA 200.7	**11**	0.45	1.0	mg/L	1		A915802	10/21/19	10/22/19	
Thallium	EPA 200.8	ND	0.45	1.0	ug/L	1	2	A915802	10/21/19	10/24/19	
Hardness as CaCO3	SM 2340B	**170**		0.41	mg/L						
Uranium	EPA 200.8	**10**	0.45	1.0	ug/L	1	30	A915802	10/21/19	10/24/19	
Uranium, Radiological		**7.0**		0.67	pCi/L		20				
Zinc	EPA 200.7	ND	0.023	0.050	mg/L	1		A915802	10/21/19	10/22/19	

Microbiology

Analyte	Method	Result	RL	Units	Batch	Prepared	Analyzed	Qual
Coliform, Total and E.Coli by Quanti-Tray 51 Wells								
E. Coli	SM 9223B	**<1**	1	MPN/100 mL	A915751	10/17/19 14:27	10/18/19 10:16	
Total Coliform	SM 9223B	**<1**	1	MPN/100 mL	A915751	10/17/19 14:27	10/18/19 10:16	

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
EDB and DBCP by GC-ECD											
Dibromochloropropane (DBCP)	EPA 504.1	ND	0.0060	0.010	ug/L	1	0.2	A915965	10/22/19	10/23/19	
Ethylene Dibromide (EDB)	EPA 504.1	ND	0.0050	0.020	ug/L	1	0.05	A915965	10/22/19	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 504.1	99 %		*Acceptable range: 70-130 %*							
Organohalide Pesticides and PCBs by GC-ECD											
Aldrin	EPA 505	ND	0.022	0.075	ug/L	1		A915965	10/22/19	10/23/19	
Chlordane (Technical)	EPA 505	ND	0.091	0.10	ug/L	1	0.1	A915965	10/22/19	10/23/19	
Dieldrin	EPA 505	ND	0.0042	0.020	ug/L	1		A915965	10/22/19	10/23/19	
Endrin	EPA 505	ND	0.0037	0.10	ug/L	1	2	A915965	10/22/19	10/23/19	
Heptachlor	EPA 505	ND	0.0052	0.010	ug/L	1	0.01	A915965	10/22/19	10/23/19	
Heptachlor Epoxide	EPA 505	ND	0.0048	0.010	ug/L	1	0.01	A915965	10/22/19	10/23/19	
Hexachlorobenzene	EPA 505	ND	0.032	0.50	ug/L	1	1	A915965	10/22/19	10/23/19	
Hexachlorocyclopentadiene	EPA 505	ND	0.041	1.0	ug/L	1	50	A915965	10/22/19	10/23/19	
Lindane	EPA 505	ND	0.0059	0.20	ug/L	1	0.2	A915965	10/22/19	10/23/19	
Methoxychlor	EPA 505	ND	0.031	10	ug/L	1	30	A915965	10/22/19	10/23/19	
PCB Aroclor Screen	EPA 505	ND	0.078	0.50	ug/L	1	0.5	A915965	10/22/19	10/23/19	
Toxaphene	EPA 505	ND	0.33	1.0	ug/L	1	3	A915965	10/22/19	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 505	99 %		*Acceptable range: 70-130 %*							
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-T	EPA 515.4	ND	0.13	1.0	ug/L	1		A915871	10/21/19	10/21/19	

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A9J1707 MCL FINAL 01 29 2020 1127 01292020 1127

**** Amended Report ****

Certificate of Analysis

Sample ID: A9J1707-01
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 1

Sample Date - Time: 10/16/2019 - 15:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.48 Temp=13.5 ºC Cond.=320 umho Turb. =3.51 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-TP (Silvex)	EPA 515.4	ND	0.016	1.0	ug/L	1	50	A915871	10/21/19	10/21/19	
2,4-D	EPA 515.4	ND	0.074	10	ug/L	1	70	A915871	10/21/19	10/21/19	
Bentazon	EPA 515.4	ND	1.3	2.0	ug/L	1	18	A915871	10/21/19	10/21/19	
Dalapon	EPA 515.4	ND	0.58	10	ug/L	1	200	A915871	10/21/19	10/21/19	
Dicamba	EPA 515.4	ND	0.13	1.5	ug/L	1		A915871	10/21/19	10/21/19	
Dinoseb	EPA 515.4	ND	0.032	2.0	ug/L	1	7	A915871	10/21/19	10/21/19	
Pentachlorophenol	EPA 515.4	ND	0.011	0.20	ug/L	1	1	A915871	10/21/19	10/21/19	
Picloram	EPA 515.4	ND	0.084	1.0	ug/L	1	500	A915871	10/21/19	10/21/19	
Surrogate: DCPAA	EPA 515.4	127 %			*Acceptable range: 70-130 %*						
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A915770	10/17/19	10/18/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A915770	10/17/19	10/18/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A915770	10/17/19	10/18/19	BS1.0, CV0.0
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A915770	10/17/19	10/18/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A915770	10/17/19	10/18/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A915770	10/17/19	10/18/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A915770	10/17/19	10/18/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A915770	10/17/19	10/18/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A915770	10/17/19	10/18/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A915770	10/17/19	10/18/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A915770	10/17/19	10/18/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A915770	10/17/19	10/18/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A915770	10/17/19	10/18/19	

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Certificate of Analysis

Sample ID: A9J1707-01
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 1

Sample Date - Time: 10/16/2019 - 15:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.48 Temp=13.5 ºC Cond.=320 umho Turb. =3.51 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A915770	10/17/19	10/18/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A915770	10/17/19	10/18/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A915770	10/17/19	10/18/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A915770	10/17/19	10/18/19	
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A915770	10/17/19	10/18/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A915770	10/17/19	10/18/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Methyl-t-butyl ether	EPA 524.2	ND	0.083	0.50	ug/L	1	13	A915770	10/17/19	10/18/19	
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A915770	10/17/19	10/18/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A915770	10/17/19	10/18/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A915770	10/17/19	10/18/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A915770	10/17/19	10/18/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A915770	10/17/19	10/18/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A915770	10/17/19	10/18/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A915770	10/17/19	10/18/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A915770	10/17/19	10/18/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A915770	10/17/19	10/18/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	93 %			*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	93 %			*Acceptable range: 70-130 %*						
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				
Semi-Volatile Organics by GC-MS											
Alachlor	EPA 525.3	ND	0.022	1.0	ug/L	1	2	A915805	10/18/19	10/22/19	
Atrazine	EPA 525.3	ND	0.0076	0.50	ug/L	1	1	A915805	10/18/19	10/22/19	

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Certificate of Analysis

Sample ID: A9J1707-01
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 1

Sample Date - Time: 10/16/2019 - 15:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.48 Temp=13.5 ºC Cond.=320 umho Turb. =3.51 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Semi-Volatile Organics by GC-MS											
Benzo(a)pyrene	EPA 525.3	ND	0.0019	0.10	ug/L	1	0.2	A915805	10/18/19	10/22/19	
Bis(2-ethylhexyl) adipate	EPA 525.3	ND	0.067	3.0	ug/L	1	400	A915805	10/18/19	10/22/19	BS1.0
Bis(2-ethylhexyl) phthalate	EPA 525.3	**0.13**	0.11	3.0	ug/L	1	4	A915805	10/18/19	10/22/19	J
Bromacil	EPA 525.3	ND	0.028	10	ug/L	1		A915805	10/18/19	10/22/19	BS1.0
Butachlor	EPA 525.3	ND	0.018	0.38	ug/L	1		A915805	10/18/19	10/22/19	BS1.0
Diazinon	EPA 525.3	ND	0.0022	0.25	ug/L	1		A915805	10/18/19	10/22/19	
Dimethoate	EPA 525.3	ND	0.082	10	ug/L	1		A915805	10/18/19	10/22/19	
Metolachlor	EPA 525.3	ND	0.011	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Metribuzin	EPA 525.3	ND	0.0061	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Molinate	EPA 525.3	ND	0.0061	2.0	ug/L	1	20	A915805	10/18/19	10/22/19	
Propachlor	EPA 525.3	ND	0.0056	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Simazine	EPA 525.3	ND	0.0049	1.0	ug/L	1	4	A915805	10/18/19	10/22/19	
Thiobencarb	EPA 525.3	ND	0.0083	1.0	ug/L	1	70	A915805	10/18/19	10/22/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	EPA 525.3	99 %			*Acceptable range: 70-130 %*						
Surrogate: Benzo(a)pyrene-d12	EPA 525.3	94 %			*Acceptable range: 70-130 %*						
Surrogate: Triphenyl Phosphate	EPA 525.3	114 %			*Acceptable range: 70-130 %*						
Carbamates by HPLC											
3-Hydroxycarbofuran	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb Sulfone	EPA 531.1	ND	0.12	2.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb Sulfoxide	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Carbaryl	EPA 531.1	ND	0.22	5.0	ug/L	1		A916157	10/25/19	10/26/19	
Carbofuran	EPA 531.1	ND	0.27	5.0	ug/L	1	18	A916157	10/25/19	10/26/19	
Methomyl	EPA 531.1	ND	0.19	2.0	ug/L	1		A916157	10/25/19	10/26/19	
Oxamyl	EPA 531.1	ND	0.090	20	ug/L	1	50	A916157	10/25/19	10/26/19	
Glyphosate by HPLC											
Glyphosate	EPA 547	ND	2.1	25	ug/L	1	700	A915865	10/19/19	10/20/19	
Surrogate: AMPA	EPA 547	103 %			*Acceptable range: 70-130 %*						
Endothall by GC-MS											
Endothall	EPA 548.1	ND	1.6	45	ug/L	1	100	A916102	10/23/19	10/25/19	
Diquat by HPLC											
Diquat	EPA 549.2	ND	0.071	4.0	ug/L	1	20	A915875	10/21/19	10/26/19	
1,2,3-Trichloropropane by GC-MS SIM											
1,2,3-Trichloropropane	SRL 524M-TCP	ND	0.0014	0.0050	ug/L	1	0.005	A915968	10/22/19	10/22/19	

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A9J1707 MCL FINAL 01 29 2020 1127 01292020 1127

**** Amended Report ****

Certificate of Analysis

Sample ID: A9J1707-02
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 2

Sample Date - Time: 10/16/2019 - 13:26
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.79 Temp=14.3 ºC Cond.=299 umho Turb. =1.19 ntu

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aggressive Index		**12**						A916115	10/24/19	10/24/19	
Alkalinity as CaCO3	SM 2320B	**150**		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Bicarbonate as CaCO3	SM 2320B	**150**		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Carbonate as CaCO3	SM 2320B	ND		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Hydroxide as CaCO3	SM 2320B	ND		3.0	mg/L	1		A915739	10/17/19	10/17/19	
Chloride	EPA 300.0	**0.99**	0.51	1.0	mg/L	1		A915762	10/17/19	10/17/19	J
Color, Apparent	SM 2120B	**15**		5.0	CU	1		A915547	10/17/19 18:46	10/17/19	
Color pH (1)	SM 4500-H+ B	**7.8**			pH Units	1		A915547	10/17/19	10/17/19	
Cyanide (total)	SM 4500-CN E	ND	0.0022	0.0050	mg/L	1	0.15	A915897	10/21/19	10/28/19	
Conductivity @ 25C	SM 2510B	**300**		1.0	umhos/cm	1		A915739	10/17/19	10/17/19	
Fluoride	EPA 300.0	**0.12**	0.042	0.10	mg/L	1	2	A916233	10/26/19	10/26/19	
Hexavalent Chromium	EPA 218.7	ND	0.011	0.050	ug/L	1	50	A915798	10/18/19	10/18/19	
Langelier Index	SM 2330B	**0.43**						A916357	10/29/19	10/29/19	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.021	0.050	mg/L	1		A915795	10/18/19 12:30	10/18/19	
Nitrate + Nitrite as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A915762	10/17/19 19:24	10/17/19	
Nitrate as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A915762	10/17/19 19:24	10/17/19	
Nitrite as N	EPA 300.0	ND	0.020	0.050	mg/L	1	1	A915762	10/17/19 19:24	10/17/19	
Threshold Odor	SM 2150B	ND		1.0	T.O.N.	1		A915537	10/17/19 13:58	10/17/19	HT2.1
Perchlorate	EPA 314.0	ND	0.61	2.0	ug/L	1	6	A915832	10/18/19	10/18/19	
pH (1)	SM 4500-H+ B	**8.1**			pH Units	1		A915739	10/17/19	10/17/19	
pH Temperature in °C		**22.8**									
Sulfate as SO4	EPA 300.0	**2.8**	0.40	1.0	mg/L	1		A915762	10/17/19	10/17/19	
Total Dissolved Solids	SM 2540C	**180**		5.0	mg/L	1		A915961	10/22/19	10/25/19	
Turbidity	SM 2130B	**0.99**		0.10	NTU	1		A915547	10/17/19 19:03	10/17/19	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	**0.036**	0.023	0.050	mg/L	1	1	A915802	10/21/19	10/22/19	J
Antimony	EPA 200.8	ND	0.91	2.0	ug/L	1	6	A915802	10/21/19	10/24/19	
Arsenic	EPA 200.8	**3.5**	1.2	2.0	ug/L	1	10	A915802	10/21/19	10/24/19	
Barium	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A915802	10/21/19	10/22/19	
Beryllium	EPA 200.8	ND	0.45	1.0	ug/L	1	4	A915802	10/21/19	10/24/19	
Cadmium	EPA 200.8	ND	0.45	1.0	ug/L	1	5	A915802	10/21/19	10/24/19	
Calcium	EPA 200.7	**45**	0.046	0.10	mg/L	1		A915802	10/21/19	10/22/19	
Chromium	EPA 200.8	ND	4.5	10	ug/L	1	50	A915802	10/21/19	10/24/19	
Copper	EPA 200.8	ND	2.3	5.0	ug/L	1		A915802	10/21/19	10/24/19	
Iron	EPA 200.7	**0.22**	0.014	0.030	mg/L	1		A915802	10/21/19	10/22/19	
Lead	EPA 200.8	ND	0.45	1.0	ug/L	1		A915802	10/21/19	10/24/19	
Magnesium	EPA 200.7	**3.1**	0.046	0.10	mg/L	1		A915802	10/21/19	10/22/19	
Manganese	EPA 200.7	**0.018**	0.0045	0.010	mg/L	1		A915802	10/21/19	10/22/19	

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A9J1707 MCL FINAL 01 29 2020 1127 01292020 1127

**** Amended Report ****

Certificate of Analysis

Sample ID: A9J1707-02
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 2

Sample Date - Time: 10/16/2019 - 13:26
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.79 Temp=14.3 ºC Cond.=299 umho Turb. =1.19 ntu

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Mercury	EPA 200.8	ND	0.091	0.20	ug/L	1	2	A915802	10/21/19	10/24/19	
Nickel	EPA 200.8	ND	4.5	10	ug/L	1	100	A915802	10/21/19	10/24/19	
Potassium	EPA 200.7	ND	0.91	2.0	mg/L	1		A915802	10/21/19	10/22/19	
Selenium	EPA 200.8	ND	0.91	2.0	ug/L	1	50	A915802	10/21/19	10/24/19	
Silver	EPA 200.8	ND	4.5	10	ug/L	1		A915802	10/21/19	10/24/19	
Sodium	EPA 200.7	**18**	0.45	1.0	mg/L	1		A915802	10/21/19	10/22/19	
Thallium	EPA 200.8	ND	0.45	1.0	ug/L	1	2	A915802	10/21/19	10/24/19	
Hardness as CaCO3	SM 2340B	**130**		0.41	mg/L						
Uranium	EPA 200.8	**3.1**	0.45	1.0	ug/L	1	30	A915802	10/21/19	10/24/19	
Uranium, Radiological		**2.1**		0.67	pCi/L		20				
Zinc	EPA 200.7	ND	0.023	0.050	mg/L	1		A915802	10/21/19	10/22/19	

Microbiology

Analyte	Method	Result	RL	Units	Batch	Prepared	Analyzed	Qual
Coliform, Total and E.Coli by Quanti-Tray 51 Wells								
E. Coli	SM 9223B	**<1**	1	MPN/100 mL	A915751	10/17/19 14:27	10/18/19 10:16	
Total Coliform	SM 9223B	**17.8**	1	MPN/100 mL	A915751	10/17/19 14:27	10/18/19 10:16	MC Notify

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
EDB and DBCP by GC-ECD											
Dibromochloropropane (DBCP)	EPA 504.1	ND	0.0060	0.010	ug/L	1	0.2	A915965	10/22/19	10/23/19	
Ethylene Dibromide (EDB)	EPA 504.1	ND	0.0050	0.020	ug/L	1	0.05	A915965	10/22/19	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 504.1	100 %		*Acceptable range: 70-130 %*							
Organohalide Pesticides and PCBs by GC-ECD											
Aldrin	EPA 505	ND	0.022	0.075	ug/L	1		A915965	10/22/19	10/23/19	
Chlordane (Technical)	EPA 505	ND	0.091	0.10	ug/L	1	0.1	A915965	10/22/19	10/23/19	
Dieldrin	EPA 505	ND	0.0042	0.020	ug/L	1		A915965	10/22/19	10/23/19	
Endrin	EPA 505	ND	0.0037	0.10	ug/L	1	2	A915965	10/22/19	10/23/19	
Heptachlor	EPA 505	ND	0.0052	0.010	ug/L	1	0.01	A915965	10/22/19	10/23/19	
Heptachlor Epoxide	EPA 505	ND	0.0048	0.010	ug/L	1	0.01	A915965	10/22/19	10/23/19	
Hexachlorobenzene	EPA 505	ND	0.032	0.50	ug/L	1	1	A915965	10/22/19	10/23/19	
Hexachlorocyclopentadiene	EPA 505	ND	0.041	1.0	ug/L	1	50	A915965	10/22/19	10/23/19	
Lindane	EPA 505	ND	0.0059	0.20	ug/L	1	0.2	A915965	10/22/19	10/23/19	
Methoxychlor	EPA 505	ND	0.031	10	ug/L	1	30	A915965	10/22/19	10/23/19	
PCB Aroclor Screen	EPA 505	ND	0.078	0.50	ug/L	1	0.5	A915965	10/22/19	10/23/19	
Toxaphene	EPA 505	ND	0.33	1.0	ug/L	1	3	A915965	10/22/19	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 505	100 %		*Acceptable range: 70-130 %*							
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-T	EPA 515.4	ND	0.13	1.0	ug/L	1		A915871	10/21/19	10/21/19	

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A9J1707 MCL FINAL 01 29 2020 1127 01292020 1127

**** Amended Report ****

Certificate of Analysis

Sample ID: A9J1707-02
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 2

Sample Date - Time: 10/16/2019 - 13:26
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.79 Temp=14.3 ºC Cond.=299 umho Turb. =1.19 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-TP (Silvex)	EPA 515.4	ND	0.016	1.0	ug/L	1	50	A915871	10/21/19	10/21/19	
2,4-D	EPA 515.4	ND	0.074	10	ug/L	1	70	A915871	10/21/19	10/21/19	
Bentazon	EPA 515.4	ND	1.3	2.0	ug/L	1	18	A915871	10/21/19	10/21/19	
Dalapon	EPA 515.4	ND	0.58	10	ug/L	1	200	A915871	10/21/19	10/21/19	
Dicamba	EPA 515.4	ND	0.13	1.5	ug/L	1		A915871	10/21/19	10/21/19	
Dinoseb	EPA 515.4	ND	0.032	2.0	ug/L	1	7	A915871	10/21/19	10/21/19	
Pentachlorophenol	EPA 515.4	ND	0.011	0.20	ug/L	1	1	A915871	10/21/19	10/21/19	
Picloram	EPA 515.4	ND	0.084	1.0	ug/L	1	500	A915871	10/21/19	10/21/19	
Surrogate: DCPAA	EPA 515.4	120 %		*Acceptable range: 70-130 %*							
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A915770	10/17/19	10/18/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A915770	10/17/19	10/18/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A915770	10/17/19	10/18/19	BS1.0, CV0.0
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A915770	10/17/19	10/18/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A915770	10/17/19	10/18/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A915770	10/17/19	10/18/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A915770	10/17/19	10/18/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A915770	10/17/19	10/18/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A915770	10/17/19	10/18/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A915770	10/17/19	10/18/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A915770	10/17/19	10/18/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A915770	10/17/19	10/18/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A915770	10/17/19	10/18/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9J1707-02
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 2

Sample Date - Time: 10/16/2019 - 13:26
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.79 Temp=14.3 ºC Cond.=299 umho Turb. =1.19 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A915770	10/17/19	10/18/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A915770	10/17/19	10/18/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A915770	10/17/19	10/18/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A915770	10/17/19	10/18/19	
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A915770	10/17/19	10/18/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A915770	10/17/19	10/18/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Methyl-t-butyl ether	EPA 524.2	ND	0.083	0.50	ug/L	1	13	A915770	10/17/19	10/18/19	
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A915770	10/17/19	10/18/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A915770	10/17/19	10/18/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915770	10/17/19	10/18/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A915770	10/17/19	10/18/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A915770	10/17/19	10/18/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A915770	10/17/19	10/18/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A915770	10/17/19	10/18/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
Toluene	EPA 524.2	**19**	0.32	0.50	ug/L	1	150	A915770	10/17/19	10/18/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A915770	10/17/19	10/18/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915770	10/17/19	10/18/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A915770	10/17/19	10/18/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A915770	10/17/19	10/18/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A915770	10/17/19	10/18/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	92 %		*Acceptable range: 70-130 %*							
Surrogate: Bromofluorobenzene	EPA 524.2	91 %		*Acceptable range: 70-130 %*							
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				
Semi-Volatile Organics by GC-MS											
Alachlor	EPA 525.3	ND	0.022	1.0	ug/L	1	2	A915805	10/18/19	10/22/19	
Atrazine	EPA 525.3	ND	0.0076	0.50	ug/L	1	1	A915805	10/18/19	10/22/19	

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Certificate of Analysis

Sample ID: A9J1707-02
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 2

Sample Date - Time: 10/16/2019 - 13:26
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.79 Temp=14.3 ºC Cond.=299 umho Turb. =1.19 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Semi-Volatile Organics by GC-MS											
Benzo(a)pyrene	EPA 525.3	ND	0.0019	0.10	ug/L	1	0.2	A915805	10/18/19	10/22/19	
Bis(2-ethylhexyl) adipate	EPA 525.3	ND	0.067	3.0	ug/L	1	400	A915805	10/18/19	10/22/19	BS1.0
Bis(2-ethylhexyl) phthalate	EPA 525.3	**0.13**	0.11	3.0	ug/L	1	4	A915805	10/18/19	10/22/19	J
Bromacil	EPA 525.3	ND	0.028	10	ug/L	1		A915805	10/18/19	10/22/19	BS1.0
Butachlor	EPA 525.3	ND	0.018	0.38	ug/L	1		A915805	10/18/19	10/22/19	BS1.0
Diazinon	EPA 525.3	ND	0.0022	0.25	ug/L	1		A915805	10/18/19	10/22/19	
Dimethoate	EPA 525.3	ND	0.082	10	ug/L	1		A915805	10/18/19	10/22/19	
Metolachlor	EPA 525.3	ND	0.011	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Metribuzin	EPA 525.3	ND	0.0061	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Molinate	EPA 525.3	ND	0.0061	2.0	ug/L	1	20	A915805	10/18/19	10/22/19	
Propachlor	EPA 525.3	ND	0.0056	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Simazine	EPA 525.3	ND	0.0049	1.0	ug/L	1	4	A915805	10/18/19	10/22/19	
Thiobencarb	EPA 525.3	ND	0.0083	1.0	ug/L	1	70	A915805	10/18/19	10/22/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	EPA 525.3	100 %			*Acceptable range: 70-130 %*						
Surrogate: Benzo(a)pyrene-d12	EPA 525.3	93 %			*Acceptable range: 70-130 %*						
Surrogate: Triphenyl Phosphate	EPA 525.3	113 %			*Acceptable range: 70-130 %*						
Carbamates by HPLC											
3-Hydroxycarbofuran	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb Sulfone	EPA 531.1	ND	0.12	2.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb Sulfoxide	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Carbaryl	EPA 531.1	ND	0.22	5.0	ug/L	1		A916157	10/25/19	10/26/19	
Carbofuran	EPA 531.1	ND	0.27	5.0	ug/L	1	18	A916157	10/25/19	10/26/19	
Methomyl	EPA 531.1	ND	0.19	2.0	ug/L	1		A916157	10/25/19	10/26/19	
Oxamyl	EPA 531.1	ND	0.090	20	ug/L	1	50	A916157	10/25/19	10/26/19	
Glyphosate by HPLC											
Glyphosate	EPA 547	ND	2.1	25	ug/L	1	700	A915865	10/19/19	10/20/19	
Surrogate: AMPA	EPA 547	103 %			*Acceptable range: 70-130 %*						
Endothall by GC-MS											
Endothall	EPA 548.1	ND	1.6	45	ug/L	1	100	A916102	10/23/19	10/25/19	
Diquat by HPLC											
Diquat	EPA 549.2	ND	0.071	4.0	ug/L	1	20	A915875	10/21/19	10/26/19	
1,2,3-Trichloropropane by GC-MS SIM											
1,2,3-Trichloropropane	SRL 524M-TCP	ND	0.0014	0.0050	ug/L	1	0.005	A915968	10/22/19	10/22/19	

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**** Amended Report ****

Certificate of Analysis

Sample ID: A9J1707-08
Sampled By: BSK
Sample Description: Trip Blank 524 Raw 1019007

Sample Date - Time: 10/16/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A916097	10/23/19	10/24/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A916097	10/23/19	10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A916097	10/23/19	10/24/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A916097	10/23/19	10/24/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A916097	10/23/19	10/24/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A916097	10/23/19	10/24/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A916097	10/23/19	10/24/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A916097	10/23/19	10/24/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A916097	10/23/19	10/24/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A916097	10/23/19	10/24/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A916097	10/23/19	10/24/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A916097	10/23/19	10/24/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A916097	10/23/19	10/24/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A916097	10/23/19	10/24/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A916097	10/23/19	10/24/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A916097	10/23/19	10/24/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A916097	10/23/19	10/24/19	

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Certificate of Analysis

Sample ID: A9J1707-08
Sampled By: BSK
Sample Description: Trip Blank 524 Raw 1019007

Sample Date - Time: 10/16/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A916097	10/23/19	10/24/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A916097	10/23/19	10/24/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Methyl-t-butyl ether	EPA 524.2	ND	0.083	0.50	ug/L	1	13	A916097	10/23/19	10/24/19	
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A916097	10/23/19	10/24/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A916097	10/23/19	10/24/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A916097	10/23/19	10/24/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A916097	10/23/19	10/24/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A916097	10/23/19	10/24/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A916097	10/23/19	10/24/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A916097	10/23/19	10/24/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A916097	10/23/19	10/24/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A916097	10/23/19	10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	110 %		*Acceptable range: 70-130 %*							
Surrogate: Bromofluorobenzene	EPA 524.2	111 %		*Acceptable range: 70-130 %*							
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

**** Amended Report ****

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 218.7 - Quality Control												
Batch: A915798											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A915798-BLK1)												
Hexavalent Chromium	ND	0.011	0.050	ug/L							10/18/19	
Blank Spike (A915798-BS1)												
Hexavalent Chromium	0.060	0.011	0.050	ug/L	0.050		120	50-150			10/18/19	
Matrix Spike (A915798-MS1), Source: S9J0271-01												
Hexavalent Chromium	3.9	0.011	0.050	ug/L	2.0	1.8	102	85-115			10/18/19	
Matrix Spike Dup (A915798-MSD1), Source: S9J0271-01												
Hexavalent Chromium	3.8	0.011	0.050	ug/L	2.0	1.8	98	85-115	2	15	10/18/19	
EPA 300.0 - Quality Control												
Batch: A915762											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A915762-BLK1)												
Chloride	ND	0.51	1.0	mg/L							10/17/19	
Nitrate + Nitrite as N	ND	0.099	0.23	mg/L							10/17/19	
Nitrate as N	ND	0.099	0.23	mg/L							10/17/19	
Nitrite as N	ND	0.020	0.050	mg/L							10/17/19	
Sulfate as SO4	ND	0.40	1.0	mg/L							10/17/19	
Blank Spike (A915762-BS1)												
Chloride	95	0.51	1.0	mg/L	100		95	90-110			10/17/19	
Nitrate as N	21	0.099	0.23	mg/L	23		94	90-110			10/17/19	
Nitrite as N	0.93	0.020	0.050	mg/L	1.0		93	90-110			10/17/19	
Sulfate as SO4	95	0.40	1.0	mg/L	100		95	90-110			10/17/19	
Matrix Spike (A915762-MS1), Source: A9J1707-01												
Chloride	48	0.51	1.0	mg/L	50	1.2	94	80-120			10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	90	80-120			10/17/19	
Nitrite as N	0.40	0.020	0.050	mg/L	0.50	0.028	74	50-110			10/17/19	
Sulfate as SO4	50	0.40	1.0	mg/L	50	3.6	93	80-120			10/17/19	
Matrix Spike (A915762-MS2), Source: A9J1707-02												
Chloride	48	0.51	1.0	mg/L	50	0.99	95	80-120			10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	90	80-120			10/17/19	
Nitrite as N	0.40	0.020	0.050	mg/L	0.50	ND	80	50-110			10/17/19	
Sulfate as SO4	50	0.40	1.0	mg/L	50	2.8	94	80-120			10/17/19	
Matrix Spike Dup (A915762-MSD1), Source: A9J1707-01												
Chloride	49	0.51	1.0	mg/L	50	1.2	96	80-120	2	20	10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	92	80-120	2	20	10/17/19	
Nitrite as N	0.41	0.020	0.050	mg/L	0.50	0.028	77	50-110	3	20	10/17/19	
Sulfate as SO4	51	0.40	1.0	mg/L	50	3.6	95	80-120	2	20	10/17/19	

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control												
Batch: A915762											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Matrix Spike Dup (A915762-MSD2), Source: A9J1707-02												
Chloride	50	0.51	1.0	mg/L	50	0.99	97	80-120	2	20	10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	92	80-120	2	20	10/17/19	
Nitrite as N	0.42	0.020	0.050	mg/L	0.50	ND	83	50-110	3	20	10/17/19	
Sulfate as SO4	51	0.40	1.0	mg/L	50	2.8	96	80-120	2	20	10/17/19	
EPA 300.0 - Quality Control												
Batch: A916233											Prepared: 10/25/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A916233-BLK1)												
Fluoride	ND	0.042	0.10	mg/L							10/25/19	
Blank Spike (A916233-BS1)												
Fluoride	0.99	0.042	0.10	mg/L	1.0		99	90-110			10/25/19	
Matrix Spike (A916233-MS1), Source: A9J2907-01												
Fluoride	0.62	0.042	0.10	mg/L	0.50	0.14	96	80-120			10/25/19	
Matrix Spike (A916233-MS2), Source: A9J2911-01												
Fluoride	0.74	0.042	0.10	mg/L	0.50	0.25	97	80-120			10/26/19	
Matrix Spike Dup (A916233-MSD1), Source: A9J2907-01												
Fluoride	0.62	0.042	0.10	mg/L	0.50	0.14	95	80-120	1	10	10/25/19	
Matrix Spike Dup (A916233-MSD2), Source: A9J2911-01												
Fluoride	0.75	0.042	0.10	mg/L	0.50	0.25	100	80-120	1	10	10/26/19	
EPA 314.0 - Quality Control												
Batch: A915832											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: RES	
Blank (A915832-BLK1)												
Perchlorate	ND	0.61	2.0	ug/L							10/18/19	
Blank Spike (A915832-BS1)												
Perchlorate	15	0.61	2.0	ug/L	15		101	85-115			10/18/19	
Matrix Spike (A915832-MS1), Source: A9L1710-01												
Perchlorate	4.3	0.61	2.0	ug/L	5.0	ND	86	80-120			10/18/19	
Matrix Spike Dup (A915832-MSD1), Source: A9L1710-01												
Perchlorate	4.0	0.61	2.0	ug/L	5.0	ND	79	80-120	8	15	10/18/19	MS1.0 ***Low***

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2120B - Quality Control												
Batch: A915547											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Blank (A915547-BLK1)												
Color, Apparent	ND		5.0	CU							10/17/19	
Duplicate (A915547-DUP1), Source: A9J2008-01												
Color, Apparent	45		5.0	CU		45			0	20	10/17/19	
Duplicate (A915547-DUP2), Source: A9J2076-01												
Color, Apparent	ND		5.0	CU		ND				20	10/17/19	
SM 2130B - Quality Control												
Batch: A915547											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Blank (A915547-BLK1)												
Turbidity	ND		0.10	NTU							10/17/19	
Duplicate (A915547-DUP1), Source: A9J2008-01												
Turbidity	2.2		0.10	NTU		2.2			1	20	10/17/19	
SM 2150B - Quality Control												
Batch: A915537											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Blank (A915537-BLK1)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
Blank (A915537-BLK2)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
Blank (A915537-BLK3)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
Blank (A915537-BLK4)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
SM 2320B - Quality Control												
Batch: A915739											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A915739-BLK1)												
Alkalinity as CaCO3	ND		3.0	mg/L							10/17/19	
Bicarbonate as CaCO3	ND		3.0	mg/L							10/17/19	
Carbonate as CaCO3	ND		3.0	mg/L							10/17/19	
Hydroxide as CaCO3	ND		3.0	mg/L							10/17/19	
Blank Spike (A915739-BS1)												

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2320B - Quality Control												
Batch: A915739											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike (A915739-BS1)												
Alkalinity as CaCO3	96		3.0	mg/L	100	ND	96	80-120			10/17/19	
Blank Spike Dup (A915739-BSD1)												
Alkalinity as CaCO3	96		3.0	mg/L	100	ND	96	80-120	0	20	10/17/19	
Duplicate (A915739-DUP1), Source: A9J2024-01												
Alkalinity as CaCO3	24		3.0	mg/L		24			1	10	10/17/19	
Bicarbonate as CaCO3	24		3.0	mg/L		24			1	10	10/17/19	
Carbonate as CaCO3	ND		3.0	mg/L		ND				10	10/17/19	
Hydroxide as CaCO3	ND		3.0	mg/L		ND				10	10/17/19	
SM 2510B - Quality Control												
Batch: A915739											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike (A915739-BS1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110			10/17/19	
Blank Spike Dup (A915739-BSD1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110	0	5	10/17/19	
Duplicate (A915739-DUP1), Source: A9J2024-01												
Conductivity @ 25C	85		1.0	umhos/cm		85			0	5	10/17/19	
SM 2540C - Quality Control												
Batch: A915961											Prepared: 10/22/2019	
Prep Method: Method Specific Preparation											Analyst: DEH	
Blank (A915961-BLK1)												
Total Dissolved Solids	ND		5.0	mg/L							10/25/19	
Blank Spike (A915961-BS1)												
Total Dissolved Solids	990		5.0	mg/L	1000	ND	99	70-130			10/25/19	
Duplicate (A915961-DUP1), Source: A9J1793-01												
Total Dissolved Solids	78		5.0	mg/L		76			3	10	10/25/19	
Duplicate (A915961-DUP2), Source: A9J2179-01												
Total Dissolved Solids	1100		5.0	mg/L		1100			4	10	10/25/19	
SM 4500-CN E - Quality Control												
Batch: A915897											Prepared: 10/21/2019	
Prep Method: Total Cyanide Distillation											Analyst: CEG	
Blank (A915897-BLK1)												
Cyanide (total)	ND	0.0022	0.0050	mg/L							10/28/19	

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 4500-CN E - Quality Control												
Batch: A915897											Prepared: 10/21/2019	
Prep Method: Total Cyanide Distillation											Analyst: CEG	
Blank (A915897-BLK1)												
Blank Spike (A915897-BS1)												
Cyanide (total)	0.24	0.0022	0.0050	mg/L	0.25		98	80-120			10/28/19	
Blank Spike Dup (A915897-BSD1)												
Cyanide (total)	0.24	0.0022	0.0050	mg/L	0.25		98	80-120	0	20	10/28/19	
Matrix Spike (A915897-MS1), Source: V9J0296-02												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25	0.0029	102	80-120			10/28/19	
Matrix Spike Dup (A915897-MSD1), Source: V9J0296-02												
Cyanide (total)	0.25	0.0022	0.0050	mg/L	0.25	0.0029	98	80-120	4	20	10/28/19	
SM 4500-H+ B - Quality Control												
Batch: A915547											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Duplicate (A915547-DUP1), Source: A9J2008-01												
Color pH (1)	4.50			pH Units		4.50			0		10/17/19	
Duplicate (A915547-DUP2), Source: A9J2076-01												
Color pH (1)	7.70			pH Units		7.70			0		10/17/19	
SM 4500-H+ B - Quality Control												
Batch: A915739											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Duplicate (A915739-DUP1), Source: A9J2024-01												
pH (1)	7.20			pH Units		7.19			0		10/17/19	
SM 5540C - Quality Control												
Batch: A915795											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: SYY	
Blank (A915795-BLK1)												
MBAS, Calculated as LAS, mol wt 340	ND	0.021	0.050	mg/L							10/18/19	
Blank Spike (A915795-BS1)												
MBAS, Calculated as LAS, mol wt 340	0.98	0.021	0.050	mg/L	1.0		98	82-112			10/18/19	
Blank Spike Dup (A915795-BSD1)												
MBAS, Calculated as LAS, mol wt 340	0.98	0.021	0.050	mg/L	1.0		98	82-112	0	20	10/18/19	
Matrix Spike (A915795-MS1), Source: A9J1707-01												
MBAS, Calculated as LAS, mol wt 340	0.98	0.021	0.050	mg/L	1.0	ND	98	80-112			10/18/19	

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 5540C - Quality Control												
Batch: A915795											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: SYY	
Matrix Spike Dup (A915795-MSD1), Source: A9J1707-01												
MBAS, Calculated as LAS, mol wt 340	0.97	0.021	0.050	mg/L	1.0	ND	97	80-112	1	20	10/18/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: mds	
Blank (A915802-BLK2)												
Aluminum	ND	0.023	0.050	mg/L							10/22/19	
Barium	ND	0.023	0.050	mg/L							10/22/19	
Calcium	ND	0.046	0.10	mg/L							10/22/19	
Iron	ND	0.014	0.030	mg/L							10/22/19	
Magnesium	ND	0.046	0.10	mg/L							10/22/19	
Manganese	ND	0.0045	0.010	mg/L							10/22/19	
Potassium	ND	0.91	2.0	mg/L							10/22/19	
Sodium	ND	0.45	1.0	mg/L							10/22/19	
Zinc	ND	0.023	0.050	mg/L							10/22/19	
Blank Spike (A915802-BS2)												
Aluminum	0.20	0.023	0.050	mg/L	0.20		99	85-115			10/22/19	
Barium	0.19	0.023	0.050	mg/L	0.20		95	85-115			10/22/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		96	85-115			10/22/19	
Iron	0.21	0.014	0.030	mg/L	0.20		103	85-115			10/22/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0		100	85-115			10/22/19	
Manganese	0.19	0.0045	0.010	mg/L	0.20		97	85-115			10/22/19	
Potassium	3.8	0.91	2.0	mg/L	4.0		95	85-115			10/22/19	
Sodium	4.0	0.45	1.0	mg/L	4.0		99	85-115			10/22/19	
Zinc	0.21	0.023	0.050	mg/L	0.20		103	85-115			10/22/19	
Blank Spike Dup (A915802-BSD2)												
Aluminum	0.20	0.023	0.050	mg/L	0.20		99	85-115	0	20	10/22/19	
Barium	0.19	0.023	0.050	mg/L	0.20		95	85-115	0	20	10/22/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		96	85-115	0	20	10/22/19	
Iron	0.20	0.014	0.030	mg/L	0.20		101	85-115	2	20	10/22/19	
Magnesium	3.9	0.046	0.10	mg/L	4.0		99	85-115	2	20	10/22/19	
Manganese	0.19	0.0045	0.010	mg/L	0.20		96	85-115	1	20	10/22/19	
Potassium	3.8	0.91	2.0	mg/L	4.0		94	85-115	1	20	10/22/19	
Sodium	3.9	0.45	1.0	mg/L	4.0		98	85-115	1	20	10/22/19	
Zinc	0.20	0.023	0.050	mg/L	0.20		99	85-115	3	20	10/22/19	
Matrix Spike (A915802-MS3), Source: A9J1707-01												
Aluminum	0.23	0.023	0.050	mg/L	0.20	ND	116	70-130			10/22/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130			10/22/19	
Calcium	63	0.046	0.10	mg/L	4.0	58	137	70-130			10/22/19	MS1.0 ***High***
Iron	0.40	0.014	0.030	mg/L	0.20	0.19	105	70-130			10/22/19	
Magnesium	9.5	0.046	0.10	mg/L	4.0	5.4	103	70-130			10/22/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20	0.016	97	70-130			10/22/19	
Potassium	5.4	0.91	2.0	mg/L	4.0	1.4	99	70-130			10/22/19	
Sodium	15	0.45	1.0	mg/L	4.0	11	108	70-130			10/22/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	101	70-130			10/22/19	
Matrix Spike (A915802-MS4), Source: A9J2009-01												
Aluminum	2.3	0.023	0.050	mg/L	0.20	1.4	437	70-130			10/22/19	MS1.0 ***High***
Barium	0.21	0.023	0.050	mg/L	0.20	ND	107	70-130			10/22/19	

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A9J1707 MCL FINAL 01 29 2020 1127 01292020 1127

**** Amended Report ****

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: mds	
Matrix Spike (A915802-MS4), Source: A9J2009-01												
Calcium	20	0.046	0.10	mg/L	4.0	16	95	70-130			10/22/19	
Iron	1.9	0.014	0.030	mg/L	0.20	1.4	220	70-130			10/22/19	MS1.0 ***High***
Magnesium	17	0.046	0.10	mg/L	4.0	13	94	70-130			10/22/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.031	96	70-130			10/22/19	
Potassium	5.3	0.91	2.0	mg/L	4.0	1.6	94	70-130			10/22/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	87	70-130			10/22/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	105	70-130			10/22/19	
Matrix Spike Dup (A915802-MSD3), Source: A9J1707-01												
Aluminum	0.21	0.023	0.050	mg/L	0.20	ND	104	70-130	11	20	10/22/19	
Barium	0.19	0.023	0.050	mg/L	0.20	ND	97	70-130	1	20	10/22/19	
Calcium	63	0.046	0.10	mg/L	4.0	58	125	70-130	1	20	10/22/19	
Iron	0.39	0.014	0.030	mg/L	0.20	0.19	100	70-130	3	20	10/22/19	
Magnesium	9.3	0.046	0.10	mg/L	4.0	5.4	96	70-130	3	20	10/22/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20	0.016	96	70-130	1	20	10/22/19	
Potassium	5.1	0.91	2.0	mg/L	4.0	1.4	93	70-130	5	20	10/22/19	
Sodium	15	0.45	1.0	mg/L	4.0	11	105	70-130	1	20	10/22/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130	3	20	10/22/19	
Matrix Spike Dup (A915802-MSD4), Source: A9J2009-01												
Aluminum	2.3	0.023	0.050	mg/L	0.20	1.4	463	70-130	2	20	10/22/19	MS1.0 ***High***
Barium	0.22	0.023	0.050	mg/L	0.20	ND	108	70-130	1	20	10/22/19	
Calcium	21	0.046	0.10	mg/L	4.0	16	111	70-130	3	20	10/22/19	
Iron	1.9	0.014	0.030	mg/L	0.20	1.4	235	70-130	2	20	10/22/19	MS1.0 ***High***
Magnesium	17	0.046	0.10	mg/L	4.0	13	107	70-130	3	20	10/22/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.031	97	70-130	1	20	10/22/19	
Potassium	5.4	0.91	2.0	mg/L	4.0	1.6	95	70-130	1	20	10/22/19	
Sodium	53	0.45	1.0	mg/L	4.0	46	151	70-130	5	20	10/22/19	MS1.0 ***High***
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	104	70-130	1	20	10/22/19	
EPA 200.8 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A915802-BLK1)												
Antimony	ND	0.91	2.0	ug/L							10/24/19	
Arsenic	ND	1.2	2.0	ug/L							10/24/19	
Beryllium	ND	0.45	1.0	ug/L							10/24/19	
Cadmium	ND	0.45	1.0	ug/L							10/24/19	
Chromium	ND	4.5	10	ug/L							10/24/19	
Copper	ND	2.3	5.0	ug/L							10/24/19	
Lead	ND	0.45	1.0	ug/L							10/24/19	
Mercury	ND	0.091	0.20	ug/L							10/24/19	
Nickel	ND	4.5	10	ug/L							10/24/19	
Selenium	ND	0.91	2.0	ug/L							10/24/19	
Silver	ND	4.5	10	ug/L							10/24/19	

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BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A915802-BLK1)												
Thallium	ND	0.45	1.0	ug/L							10/24/19	
Uranium	ND	0.45	1.0	ug/L							10/24/19	
Blank Spike (A915802-BS1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115			10/24/19	
Arsenic	190	1.2	2.0	ug/L	200		96	85-115			10/24/19	
Beryllium	190	0.45	1.0	ug/L	200		94	85-115			10/24/19	
Cadmium	190	0.45	1.0	ug/L	200		95	85-115			10/24/19	
Chromium	190	4.5	10	ug/L	200		96	85-115			10/24/19	
Copper	190	2.3	5.0	ug/L	200		94	85-115			10/24/19	
Lead	190	0.45	1.0	ug/L	200		94	85-115			10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0		94	85-115			10/24/19	
Nickel	190	4.5	10	ug/L	200		97	85-115			10/24/19	
Selenium	190	0.91	2.0	ug/L	200		93	85-115			10/24/19	
Silver	92	4.5	10	ug/L	100		92	75-125			10/24/19	
Thallium	190	0.45	1.0	ug/L	200		93	85-115			10/24/19	
Uranium	200	0.45	1.0	ug/L	200		102	85-115			10/24/19	
Blank Spike Dup (A915802-BSD1)												
Antimony	210	0.91	2.0	ug/L	200		103	85-115	1	20	10/24/19	
Arsenic	190	1.2	2.0	ug/L	200		95	85-115	1	20	10/24/19	
Beryllium	190	0.45	1.0	ug/L	200		95	85-115	1	20	10/24/19	
Cadmium	190	0.45	1.0	ug/L	200		96	85-115	1	20	10/24/19	
Chromium	190	4.5	10	ug/L	200		95	85-115	1	20	10/24/19	
Copper	180	2.3	5.0	ug/L	200		92	85-115	2	20	10/24/19	
Lead	190	0.45	1.0	ug/L	200		95	85-115	1	20	10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0		94	85-115	0	20	10/24/19	
Nickel	190	4.5	10	ug/L	200		94	85-115	3	20	10/24/19	
Selenium	190	0.91	2.0	ug/L	200		93	85-115	0	20	10/24/19	
Silver	92	4.5	10	ug/L	100		92	75-125	0	20	10/24/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115	1	20	10/24/19	
Uranium	210	0.45	1.0	ug/L	200		105	85-115	3	20	10/24/19	
Matrix Spike (A915802-MS1), Source: A9J1707-01												
Antimony	210	0.91	2.0	ug/L	200	ND	104	70-130			10/24/19	
Arsenic	210	1.2	2.0	ug/L	200	12	97	70-130			10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130			10/24/19	
Cadmium	190	0.45	1.0	ug/L	200	ND	96	70-130			10/24/19	
Chromium	190	4.5	10	ug/L	200	ND	95	70-130			10/24/19	
Copper	180	2.3	5.0	ug/L	200	ND	92	70-130			10/24/19	
Lead	180	0.45	1.0	ug/L	200	ND	92	70-130			10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0	ND	94	70-130			10/24/19	
Nickel	190	4.5	10	ug/L	200	ND	96	70-130			10/24/19	
Selenium	190	0.91	2.0	ug/L	200	ND	94	70-130			10/24/19	
Silver	91	4.5	10	ug/L	100	ND	91	70-130			10/24/19	
Thallium	190	0.45	1.0	ug/L	200	ND	93	70-130			10/24/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Matrix Spike (A915802-MS1), Source: A9J1707-01												
Uranium	220	0.45	1.0	ug/L	200	10	103	70-130			10/24/19	
Matrix Spike (A915802-MS2), Source: A9J2009-01												
Antimony	200	0.91	2.0	ug/L	200	ND	102	70-130			10/24/19	
Arsenic	200	1.2	2.0	ug/L	200	1.2	97	70-130			10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130			10/24/19	
Cadmium	200	0.45	1.0	ug/L	200	ND	98	70-130			10/24/19	
Chromium	210	4.5	10	ug/L	200	11	98	70-130			10/24/19	
Copper	190	2.3	5.0	ug/L	200	7.0	92	70-130			10/24/19	
Lead	180	0.45	1.0	ug/L	200	0.92	92	70-130			10/24/19	
Mercury	4.6	0.091	0.20	ug/L	5.0	ND	93	70-130			10/24/19	
Nickel	200	4.5	10	ug/L	200	6.4	98	70-130			10/24/19	
Selenium	190	0.91	2.0	ug/L	200	1.3	93	70-130			10/24/19	
Silver	91	4.5	10	ug/L	100	ND	91	70-130			10/24/19	
Thallium	180	0.45	1.0	ug/L	200	ND	91	70-130			10/24/19	
Uranium	210	0.45	1.0	ug/L	200	ND	103	70-130			10/24/19	
Matrix Spike Dup (A915802-MSD1), Source: A9J1707-01												
Antimony	210	0.91	2.0	ug/L	200	ND	106	70-130	2	20	10/24/19	
Arsenic	200	1.2	2.0	ug/L	200	12	96	70-130	1	20	10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	97	70-130	1	20	10/24/19	
Cadmium	190	0.45	1.0	ug/L	200	ND	97	70-130	1	20	10/24/19	
Chromium	200	4.5	10	ug/L	200	ND	99	70-130	4	20	10/24/19	
Copper	180	2.3	5.0	ug/L	200	ND	91	70-130	1	20	10/24/19	
Lead	190	0.45	1.0	ug/L	200	ND	93	70-130	1	20	10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0	ND	93	70-130	1	20	10/24/19	
Nickel	180	4.5	10	ug/L	200	ND	92	70-130	4	20	10/24/19	
Selenium	180	0.91	2.0	ug/L	200	ND	91	70-130	2	20	10/24/19	
Silver	92	4.5	10	ug/L	100	ND	92	70-130	1	20	10/24/19	
Thallium	190	0.45	1.0	ug/L	200	ND	93	70-130	0	20	10/24/19	
Uranium	220	0.45	1.0	ug/L	200	10	105	70-130	1	20	10/24/19	
Matrix Spike Dup (A915802-MSD2), Source: A9J2009-01												
Antimony	200	0.91	2.0	ug/L	200	ND	101	70-130	0	20	10/24/19	
Arsenic	190	1.2	2.0	ug/L	200	1.2	97	70-130	1	20	10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130	1	20	10/24/19	
Cadmium	200	0.45	1.0	ug/L	200	ND	98	70-130	0	20	10/24/19	
Chromium	210	4.5	10	ug/L	200	11	98	70-130	0	20	10/24/19	
Copper	190	2.3	5.0	ug/L	200	7.0	93	70-130	1	20	10/24/19	
Lead	190	0.45	1.0	ug/L	200	0.92	92	70-130	0	20	10/24/19	
Mercury	4.6	0.091	0.20	ug/L	5.0	ND	93	70-130	0	20	10/24/19	
Nickel	200	4.5	10	ug/L	200	6.4	96	70-130	2	20	10/24/19	
Selenium	190	0.91	2.0	ug/L	200	1.3	92	70-130	1	20	10/24/19	
Silver	92	4.5	10	ug/L	100	ND	92	70-130	1	20	10/24/19	
Thallium	180	0.45	1.0	ug/L	200	ND	90	70-130	0	20	10/24/19	
Uranium	210	0.45	1.0	ug/L	200	ND	104	70-130	2	20	10/24/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 504.1 - Quality Control												
Batch: A915965											Prepared: 10/22/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A915965-BLK1)												
Dibromochloropropane (DBCP)	ND	0.0060	0.010	ug/L							10/22/19	
Ethylene Dibromide (EDB)	ND	0.0050	0.020	ug/L							10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.46*		*102*	*70-130*			10/22/19	
Blank Spike (A915965-BS1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		100	70-130			10/22/19	
Ethylene Dibromide (EDB)	0.096	0.0050	0.020	ug/L	0.10		96	70-130			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.47*				*0.46*		*103*	*70-130*			10/22/19	
Blank Spike Dup (A915965-BSD1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		102	70-130	2	20	10/23/19	
Ethylene Dibromide (EDB)	0.096	0.0050	0.020	ug/L	0.10		96	70-130	0	20	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*99*	*70-130*			10/23/19	
Matrix Spike (A915965-MS1), Source: A9J1860-01												
Dibromochloropropane (DBCP)	0.098	0.0060	0.010	ug/L	0.099	ND	99	65-135			10/22/19	
Ethylene Dibromide (EDB)	0.095	0.0050	0.020	ug/L	0.099	ND	96	65-135			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.45*		*102*	*70-130*			10/22/19	
Matrix Spike Dup (A915965-MSD1), Source: A9J1860-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10	ND	103	65-135	5	20	10/22/19	
Ethylene Dibromide (EDB)	0.098	0.0050	0.020	ug/L	0.10	ND	98	65-135	3	20	10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*98*	*70-130*			10/22/19	
EPA 505 - Quality Control												
Batch: A915965											Prepared: 10/22/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A915965-BLK1)												
Aldrin	ND	0.022	0.075	ug/L							10/22/19	
Chlordane (Technical)	ND	0.091	0.10	ug/L							10/22/19	
Dieldrin	ND	0.0042	0.020	ug/L							10/22/19	
Endrin	ND	0.0037	0.10	ug/L							10/22/19	
Heptachlor	ND	0.0052	0.010	ug/L							10/22/19	
Heptachlor Epoxide	ND	0.0048	0.010	ug/L							10/22/19	
Hexachlorobenzene	ND	0.032	0.50	ug/L							10/22/19	
Hexachlorocyclopentadiene	ND	0.041	1.0	ug/L							10/22/19	
Lindane	ND	0.0059	0.20	ug/L							10/22/19	
Methoxychlor	ND	0.031	0.20	ug/L							10/22/19	
PCB Aroclor Screen	ND	0.078	0.50	ug/L							10/22/19	
Toxaphene	ND	0.33	1.0	ug/L							10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.46*		*102*	*70-130*			10/22/19	
Blank Spike (A915965-BS1)												
Aldrin	0.74	0.022	0.075	ug/L	0.74		99	70-130			10/22/19	
Dieldrin	0.19	0.0042	0.020	ug/L	0.20		97	70-130			10/22/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 505 - Quality Control												
Batch: A915965											Prepared: 10/22/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank Spike (A915965-BS1)												
Endrin	0.098	0.0037	0.10	ug/L	0.10		98	70-130			10/22/19	J
Heptachlor	0.097	0.0052	0.010	ug/L	0.10		97	70-130			10/22/19	
Heptachlor Epoxide	0.098	0.0048	0.010	ug/L	0.10		98	70-130			10/22/19	
Hexachlorobenzene	0.97	0.032	0.50	ug/L	1.0		97	70-130			10/22/19	
Hexachlorocyclopentadiene	0.95	0.041	1.0	ug/L	1.0		95	70-130			10/22/19	J
Lindane	0.20	0.0059	0.20	ug/L	0.20		99	70-130			10/22/19	J
Methoxychlor	1.1	0.031	0.20	ug/L	1.0		107	70-130			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.47*				*0.46*		*103*	*70-130*			10/22/19	
Blank Spike Dup (A915965-BSD1)												
Aldrin	0.73	0.022	0.075	ug/L	0.74		99	70-130	0	20	10/23/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		100	70-130	3	20	10/23/19	
Endrin	0.10	0.0037	0.10	ug/L	0.10		100	70-130	2	20	10/23/19	J
Heptachlor	0.099	0.0052	0.010	ug/L	0.10		99	70-130	2	20	10/23/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		100	70-130	3	20	10/23/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	1.0		102	70-130	4	20	10/23/19	
Hexachlorocyclopentadiene	1.0	0.041	1.0	ug/L	1.0		100	70-130	5	20	10/23/19	J
Lindane	0.20	0.0059	0.20	ug/L	0.20		99	70-130	0	20	10/23/19	J
Methoxychlor	1.1	0.031	0.20	ug/L	1.0		110	70-130	2	20	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*99*	*70-130*			10/23/19	
Matrix Spike (A915965-MS1), Source: A9J1860-01												
Aldrin	0.71	0.022	0.075	ug/L	0.74	0.022	93	65-135			10/22/19	
Dieldrin	0.25	0.0042	0.020	ug/L	0.20	ND	123	65-135			10/22/19	
Endrin	0.098	0.0037	0.10	ug/L	0.099	ND	98	65-135			10/22/19	J
Heptachlor	0.097	0.0052	0.010	ug/L	0.099	ND	97	65-135			10/22/19	
Heptachlor Epoxide	0.11	0.0048	0.010	ug/L	0.099	ND	114	65-135			10/22/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	0.99	ND	100	65-135			10/22/19	
Hexachlorocyclopentadiene	0.97	0.041	1.0	ug/L	0.99	ND	98	65-135			10/22/19	J
Lindane	0.19	0.0059	0.20	ug/L	0.20	ND	97	65-135			10/22/19	J
Methoxychlor	1.0	0.031	0.20	ug/L	0.99	ND	103	65-135			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.45*		*102*	*70-130*			10/22/19	
Matrix Spike Dup (A915965-MSD1), Source: A9J1860-01												
Aldrin	0.74	0.022	0.075	ug/L	0.74	0.022	97	65-135	5	20	10/22/19	
Dieldrin	0.24	0.0042	0.020	ug/L	0.20	ND	122	65-135	1	20	10/22/19	
Endrin	0.096	0.0037	0.10	ug/L	0.10	ND	96	65-135	2	20	10/22/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10	ND	101	65-135	4	20	10/22/19	
Heptachlor Epoxide	0.11	0.0048	0.010	ug/L	0.10	ND	113	65-135	0	20	10/22/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	1.0	ND	100	65-135	1	20	10/22/19	
Hexachlorocyclopentadiene	1.0	0.041	1.0	ug/L	1.0	ND	105	65-135	7	20	10/22/19	
Lindane	0.19	0.0059	0.20	ug/L	0.20	ND	97	65-135	1	20	10/22/19	J
Methoxychlor	1.1	0.031	0.20	ug/L	1.0	ND	107	65-135	5	20	10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*98*	*70-130*			10/22/19	

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**** Amended Report ****

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A915871											Prepared: 10/21/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Blank (A915871-BLK1)												
2,4,5-T	ND	0.13	1.0	ug/L							10/21/19	
2,4,5-TP (Silvex)	ND	0.016	1.0	ug/L							10/21/19	
2,4-D	ND	0.074	10	ug/L							10/21/19	
Bentazon	ND	1.3	2.0	ug/L							10/21/19	
Dalapon	ND	0.58	10	ug/L							10/21/19	
Dicamba	ND	0.13	1.5	ug/L							10/21/19	
Dinoseb	ND	0.032	2.0	ug/L							10/21/19	
Pentachlorophenol	ND	0.011	0.20	ug/L							10/21/19	
Picloram	ND	0.084	1.0	ug/L							10/21/19	
Surrogate: DCPAA	*41*				*36*		*114*	*70-130*			10/21/19	
Blank Spike (A915871-BS1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		97	70-130			10/21/19	
2,4,5-TP (Silvex)	0.82	0.016	1.0	ug/L	0.80		103	70-130			10/21/19	J
2,4-D	0.39	0.074	10	ug/L	0.40		98	70-130			10/21/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		99	70-130			10/21/19	J
Dalapon	4.0	0.58	10	ug/L	4.0		99	70-130			10/21/19	J
Dicamba	0.80	0.13	1.5	ug/L	0.80		100	70-130			10/21/19	J
Dinoseb	0.80	0.032	2.0	ug/L	0.80		101	70-130			10/21/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		101	70-130			10/21/19	J
Picloram	0.40	0.084	1.0	ug/L	0.40		101	70-130			10/21/19	J
Surrogate: DCPAA	*38*				*36*		*106*	*70-130*			10/21/19	
Blank Spike Dup (A915871-BSD1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		99	70-130	2	20	10/21/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130	2	20	10/21/19	J
2,4-D	0.41	0.074	10	ug/L	0.40		103	70-130	5	20	10/21/19	J
Bentazon	1.9	1.3	2.0	ug/L	2.0		97	70-130	2	20	10/21/19	J
Dalapon	4.0	0.58	10	ug/L	4.0		99	70-130	0	20	10/21/19	J
Dicamba	0.80	0.13	1.5	ug/L	0.80		100	70-130	0	20	10/21/19	J
Dinoseb	0.80	0.032	2.0	ug/L	0.80		100	70-130	0	20	10/21/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		101	70-130	0	20	10/21/19	J
Picloram	0.40	0.084	1.0	ug/L	0.40		100	70-130	1	20	10/21/19	J
Surrogate: DCPAA	*38*				*36*		*107*	*70-130*			10/21/19	
Matrix Spike (A915871-MS1), Source: A9J1738-01												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6	ND	102	70-130			10/21/19	
2,4,5-TP (Silvex)	0.83	0.016	1.0	ug/L	0.80	ND	103	70-130			10/21/19	J
2,4-D	0.39	0.074	10	ug/L	0.40	ND	97	70-130			10/21/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	100	70-130			10/21/19	
Dalapon	3.9	0.58	10	ug/L	4.0	ND	99	70-130			10/21/19	J
Dicamba	0.82	0.13	1.5	ug/L	0.80	ND	103	70-130			10/21/19	J
Dinoseb	0.83	0.032	2.0	ug/L	0.80	ND	103	70-130			10/21/19	J
Pentachlorophenol	0.17	0.011	0.20	ug/L	0.16	ND	104	70-130			10/21/19	J
Picloram	0.41	0.084	1.0	ug/L	0.40	ND	102	70-130			10/21/19	J
Surrogate: DCPAA	*38*				*36*		*106*	*70-130*			10/21/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A915871											Prepared: 10/21/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Matrix Spike Dup (A915871-MSD1), Source: A9J1738-01												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6	ND	102	70-130	0	30	10/21/19	
2,4,5-TP (Silvex)	0.82	0.016	1.0	ug/L	0.80	ND	102	70-130	1	30	10/21/19	J
2,4-D	0.39	0.074	10	ug/L	0.40	ND	98	70-130	1	30	10/21/19	J
Bentazon	1.9	1.3	2.0	ug/L	2.0	ND	96	70-130	4	30	10/21/19	J
Dalapon	4.0	0.58	10	ug/L	4.0	ND	100	70-130	1	30	10/21/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	101	70-130	2	30	10/21/19	J
Dinoseb	0.82	0.032	2.0	ug/L	0.80	ND	102	70-130	1	30	10/21/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16	ND	101	70-130	2	30	10/21/19	J
Picloram	0.41	0.084	1.0	ug/L	0.40	ND	102	70-130	1	30	10/21/19	J
Surrogate: DCPAA	*38*				*36*		*105*	*70-130*			10/21/19	
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A915770-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							10/18/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							10/18/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							10/18/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							10/18/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							10/18/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							10/18/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							10/18/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							10/18/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							10/18/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							10/18/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							10/18/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							10/18/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							10/18/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							10/18/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							10/18/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							10/18/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							10/18/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							10/18/19	
2,2-Dichloropropane	ND	0.32	0.50	ug/L							10/18/19	
2-Butanone	ND	0.42	5.0	ug/L							10/18/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							10/18/19	
2-Hexanone	ND	0.48	10	ug/L							10/18/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							10/18/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							10/18/19	
Acetone	ND	3.4	10	ug/L							10/18/19	
Benzene	ND	0.34	0.50	ug/L							10/18/19	
Bromobenzene	ND	0.27	0.50	ug/L							10/18/19	
Bromochloromethane	ND	0.27	0.50	ug/L							10/18/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							10/18/19	
Bromoform	ND	0.28	0.50	ug/L							10/18/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 524.2 - Quality Control													
Batch: A915770											Prepared: 10/17/2019		
Prep Method: EPA 524.2											Analyst: ANM		
Blank (A915770-BLK1)													
Bromomethane	ND	0.43	0.50	ug/L							10/18/19		
Carbon Tetrachloride	ND	0.29	0.50	ug/L							10/18/19		
Chlorobenzene	ND	0.31	0.50	ug/L							10/18/19		
Chloroethane	ND	0.32	0.50	ug/L							10/18/19		
Chloroform	ND	0.083	0.50	ug/L							10/18/19		
Chloromethane	ND	0.25	0.50	ug/L							10/18/19		
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							10/18/19		
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/18/19		
Dibromochloromethane	ND	0.28	0.50	ug/L							10/18/19		
Dibromomethane	ND	0.29	0.50	ug/L							10/18/19		
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							10/18/19		
Dichloromethane	ND	0.29	0.50	ug/L							10/18/19		
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							10/18/19		
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							10/18/19		
Ethylbenzene	ND	0.31	0.50	ug/L							10/18/19		
Hexachlorobutadiene	ND	0.30	0.50	ug/L							10/18/19		
Isopropylbenzene	ND	0.31	0.50	ug/L							10/18/19		
m,p-Xylenes	ND	0.23	0.50	ug/L							10/18/19		
Methyl-t-butyl ether	ND	0.083	0.50	ug/L							10/18/19		
Naphthalene	ND	0.27	0.50	ug/L							10/18/19		
n-Butylbenzene	ND	0.25	0.50	ug/L							10/18/19		
n-Propylbenzene	ND	0.31	0.50	ug/L							10/18/19		
o-Xylene	ND	0.30	0.50	ug/L							10/18/19		
p-Isopropyltoluene	ND	0.26	0.50	ug/L							10/18/19		
sec-Butylbenzene	ND	0.27	0.50	ug/L							10/18/19		
Styrene	ND	0.30	0.50	ug/L							10/18/19		
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							10/18/19		
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							10/18/19		
tert-Butylbenzene	ND	0.28	0.50	ug/L							10/18/19		
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							10/18/19		
Toluene	ND	0.32	0.50	ug/L							10/18/19		
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							10/18/19		
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/18/19		
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							10/18/19		
Trichlorofluoromethane	ND	0.23	5.0	ug/L							10/18/19		
Vinyl Chloride	ND	0.27	0.50	ug/L							10/18/19		
Surrogate: 1,2-Dichlorobenzene-d4	*46*				*50*		*92*	*70-130*			10/18/19		
Surrogate: Bromofluorobenzene	*47*				*50*		*94*	*70-130*			10/18/19		
Blank Spike (A915770-BS1)													
1,1,1,2-Tetrachloroethane	9.8	0.26	0.50	ug/L	10		98	70-130			10/18/19		
1,1,1-Trichloroethane	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19		
1,1,2,2-Tetrachloroethane	9.6	0.25	0.50	ug/L	10		96	70-130			10/18/19		
1,1,2-Trichloro-1,2,2-trifluoroethane	15	0.27	10	ug/L	10		151	70-130			10/18/19	BS	***High***
1,1,2-Trichloroethane	9.9	0.26	0.50	ug/L	10		99	70-130			10/18/19		
1,1-Dichloroethane	10	0.34	0.50	ug/L	10		100	70-130			10/18/19		

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A915770-BS1)												
1,1-Dichloroethene	10	0.21	0.50	ug/L	10		102	70-130			10/18/19	
1,1-Dichloropropene	9.9	0.30	0.50	ug/L	10		99	70-130			10/18/19	
1,2,3-Trichlorobenzene	9.5	0.26	0.50	ug/L	10		95	70-130			10/18/19	
1,2,4-Trichlorobenzene	9.6	0.29	0.50	ug/L	10		96	70-130			10/18/19	
1,2,4-Trimethylbenzene	9.8	0.27	0.50	ug/L	10		98	70-130			10/18/19	
1,2-Dichlorobenzene	9.6	0.28	0.50	ug/L	10		96	70-130			10/18/19	
1,2-Dichloroethane	9.6	0.29	0.50	ug/L	10		96	70-130			10/18/19	
1,2-Dichloropropane	9.9	0.30	0.50	ug/L	10		99	70-130			10/18/19	
1,3,5-Trimethylbenzene	9.8	0.36	0.50	ug/L	10		98	70-130			10/18/19	
1,3-Dichlorobenzene	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		100	70-130			10/18/19	
1,4-Dichlorobenzene	9.8	0.29	0.50	ug/L	10		98	70-130			10/18/19	
2,2-Dichloropropane	9.2	0.32	0.50	ug/L	10		92	70-130			10/18/19	
2-Butanone	10	0.42	5.0	ug/L	10		102	70-130			10/18/19	
2-Chlorotoluene	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
2-Hexanone	10	0.48	10	ug/L	10		101	70-130			10/18/19	
4-Chlorotoluene	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
4-Methyl-2-pentanone	9.7	0.37	5.0	ug/L	10		97	70-130			10/18/19	
Acetone	9.5	3.4	10	ug/L	10		95	70-130			10/18/19	J
Benzene	9.9	0.34	0.50	ug/L	10		99	70-130			10/18/19	
Bromobenzene	11	0.27	0.50	ug/L	10		113	70-130			10/18/19	
Bromochloromethane	9.8	0.27	0.50	ug/L	10		98	70-130			10/18/19	
Bromodichloromethane	9.8	0.29	0.50	ug/L	10		98	70-130			10/18/19	
Bromoform	9.7	0.28	0.50	ug/L	10		97	70-130			10/18/19	
Bromomethane	12	0.43	0.50	ug/L	10		118	70-130			10/18/19	
Carbon disulfide	10	0.49	10	ug/L	10		102	70-130			10/18/19	
Carbon Tetrachloride	10	0.29	0.50	ug/L	10		101	70-130			10/18/19	
Chlorobenzene	9.9	0.31	0.50	ug/L	10		99	70-130			10/18/19	
Chloroethane	9.9	0.32	0.50	ug/L	10		99	70-130			10/18/19	
Chloroform	10	0.083	0.50	ug/L	10		100	70-130			10/18/19	
Chloromethane	9.9	0.25	0.50	ug/L	10		99	70-130			10/18/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		100	70-130			10/18/19	
cis-1,3-Dichloropropene	9.6	0.27	0.50	ug/L	10		96	70-130			10/18/19	
Dibromochloromethane	9.7	0.28	0.50	ug/L	10		97	70-130			10/18/19	
Dibromomethane	9.7	0.29	0.50	ug/L	10		97	70-130			10/18/19	
Dichlorodifluoromethane	10	0.28	0.50	ug/L	10		103	70-130			10/18/19	
Dichloromethane	9.6	0.29	0.50	ug/L	10		96	70-130			10/18/19	
Di-isopropyl ether (DIPE)	9.4	0.31	3.0	ug/L	10		94	70-130			10/18/19	
Ethyl tert-Butyl Ether (ETBE)	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		100	70-130			10/18/19	
Hexachlorobutadiene	9.8	0.30	0.50	ug/L	10		98	70-130			10/18/19	
Isopropylbenzene	9.9	0.31	0.50	ug/L	10		99	70-130			10/18/19	
m,p-Xylenes	20	0.23	0.50	ug/L	20		101	70-130			10/18/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20		101	70-130			10/18/19	
Naphthalene	9.4	0.27	0.50	ug/L	10		94	70-130			10/18/19	
n-Butylbenzene	9.7	0.25	0.50	ug/L	10		97	70-130			10/18/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 524.2 - Quality Control													
Batch: A915770											Prepared: 10/17/2019		
Prep Method: EPA 524.2											Analyst: ANM		
Blank Spike (A915770-BS1)													
n-Propylbenzene	9.8	0.31	0.50	ug/L	10		98	70-130			10/18/19		
o-Xylene	10	0.30	0.50	ug/L	10		100	70-130			10/18/19		
p-Isopropyltoluene	9.8	0.26	0.50	ug/L	10		98	70-130			10/18/19		
sec-Butylbenzene	9.8	0.27	0.50	ug/L	10		98	70-130			10/18/19		
Styrene	9.3	0.30	0.50	ug/L	10		93	70-130			10/18/19		
tert-Amyl Methyl Ether (TAME)	9.9	0.31	3.0	ug/L	10		99	70-130			10/18/19		
tert-Butyl alcohol (TBA)	9.2	0.97	2.0	ug/L	10		92	70-130			10/18/19		
tert-Butylbenzene	9.8	0.28	0.50	ug/L	10		98	70-130			10/18/19		
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10		101	70-130			10/18/19		
Toluene	9.9	0.32	0.50	ug/L	10		99	70-130			10/18/19		
trans-1,2-Dichloroethene	10	0.35	0.50	ug/L	10		100	70-130			10/18/19		
trans-1,3-Dichloropropene	9.7	0.27	0.50	ug/L	10		97	70-130			10/18/19		
Trichloroethene (TCE)	9.9	0.32	0.50	ug/L	10		99	70-130			10/18/19		
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		103	70-130			10/18/19		
Vinyl Chloride	10	0.27	0.50	ug/L	10		101	70-130			10/18/19		
Surrogate: 1,2-Dichlorobenzene-d4	*47*				*50*		*94*	*70-130*			10/18/19		
Surrogate: Bromofluorobenzene	*48*				*50*		*96*	*70-130*			10/18/19		
Blank Spike Dup (A915770-BSD1)													
1,1,1,2-Tetrachloroethane	9.4	0.26	0.50	ug/L	10		94	70-130	4	30	10/18/19		
1,1,1-Trichloroethane	9.7	0.30	0.50	ug/L	10		97	70-130	1	30	10/18/19		
1,1,2,2-Tetrachloroethane	9.2	0.25	0.50	ug/L	10		92	70-130	4	30	10/18/19		
1,1,2-Trichloro-1,2,2-trifluoroethane	14	0.27	10	ug/L	10		144	70-130	5	30	10/18/19	BS	***High***
1,1,2-Trichloroethane	9.4	0.26	0.50	ug/L	10		94	70-130	6	30	10/18/19		
1,1-Dichloroethane	9.5	0.34	0.50	ug/L	10		95	70-130	5	30	10/18/19		
1,1-Dichloroethene	9.7	0.21	0.50	ug/L	10		97	70-130	5	30	10/18/19		
1,1-Dichloropropene	9.5	0.30	0.50	ug/L	10		95	70-130	4	30	10/18/19		
1,2,3-Trichlorobenzene	9.0	0.26	0.50	ug/L	10		90	70-130	5	30	10/18/19		
1,2,4-Trichlorobenzene	9.1	0.29	0.50	ug/L	10		91	70-130	5	30	10/18/19		
1,2,4-Trimethylbenzene	9.4	0.27	0.50	ug/L	10		94	70-130	4	30	10/18/19		
1,2-Dichlorobenzene	9.3	0.28	0.50	ug/L	10		93	70-130	4	30	10/18/19		
1,2-Dichloroethane	9.1	0.29	0.50	ug/L	10		91	70-130	5	30	10/18/19		
1,2-Dichloropropane	9.4	0.30	0.50	ug/L	10		94	70-130	5	30	10/18/19		
1,3,5-Trimethylbenzene	9.4	0.36	0.50	ug/L	10		94	70-130	4	30	10/18/19		
1,3-Dichlorobenzene	9.3	0.30	0.50	ug/L	10		93	70-130	5	30	10/18/19		
1,3-Dichloropropane	9.6	0.26	0.50	ug/L	10		96	70-130	5	30	10/18/19		
1,4-Dichlorobenzene	9.3	0.29	0.50	ug/L	10		93	70-130	5	30	10/18/19		
2,2-Dichloropropane	8.7	0.32	0.50	ug/L	10		87	70-130	6	30	10/18/19		
2-Butanone	9.9	0.42	5.0	ug/L	10		99	70-130	3	30	10/18/19		
2-Chlorotoluene	9.5	0.30	0.50	ug/L	10		95	70-130	4	30	10/18/19		
2-Hexanone	9.8	0.48	10	ug/L	10		98	70-130	2	30	10/18/19	J	
4-Chlorotoluene	9.4	0.30	0.50	ug/L	10		94	70-130	4	30	10/18/19		
4-Methyl-2-pentanone	9.4	0.37	5.0	ug/L	10		94	70-130	4	30	10/18/19		
Acetone	9.4	3.4	10	ug/L	10		94	70-130	1	30	10/18/19	J	
Benzene	9.4	0.34	0.50	ug/L	10		94	70-130	5	30	10/18/19		
Bromobenzene	9.3	0.27	0.50	ug/L	10		93	70-130	20	30	10/18/19		

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A915770-BSD1)												
Bromochloromethane	9.4	0.27	0.50	ug/L	10		94	70-130	4	30	10/18/19	
Bromodichloromethane	9.4	0.29	0.50	ug/L	10		94	70-130	4	30	10/18/19	
Bromoform	9.2	0.28	0.50	ug/L	10		92	70-130	5	30	10/18/19	
Bromomethane	11	0.43	0.50	ug/L	10		110	70-130	7	30	10/18/19	
Carbon disulfide	9.8	0.49	10	ug/L	10		98	70-130	4	30	10/18/19	J
Carbon Tetrachloride	9.7	0.29	0.50	ug/L	10		97	70-130	4	30	10/18/19	
Chlorobenzene	9.5	0.31	0.50	ug/L	10		95	70-130	4	30	10/18/19	
Chloroethane	9.5	0.32	0.50	ug/L	10		95	70-130	5	30	10/18/19	
Chloroform	9.4	0.083	0.50	ug/L	10		94	70-130	5	30	10/18/19	
Chloromethane	9.4	0.25	0.50	ug/L	10		94	70-130	5	30	10/18/19	
cis-1,2-Dichloroethene	9.5	0.32	0.50	ug/L	10		95	70-130	4	30	10/18/19	
cis-1,3-Dichloropropene	9.2	0.27	0.50	ug/L	10		92	70-130	5	30	10/18/19	
Dibromochloromethane	9.3	0.28	0.50	ug/L	10		93	70-130	5	30	10/18/19	
Dibromomethane	9.2	0.29	0.50	ug/L	10		92	70-130	5	30	10/18/19	
Dichlorodifluoromethane	9.8	0.28	0.50	ug/L	10		98	70-130	4	30	10/18/19	
Dichloromethane	9.2	0.29	0.50	ug/L	10		92	70-130	4	30	10/18/19	
Di-isopropyl ether (DIPE)	9.1	0.31	3.0	ug/L	10		91	70-130	4	30	10/18/19	
Ethyl tert-Butyl Ether (ETBE)	9.3	0.30	0.50	ug/L	10		93	70-130	5	30	10/18/19	
Ethylbenzene	9.5	0.31	0.50	ug/L	10		95	70-130	5	30	10/18/19	
Hexachlorobutadiene	9.3	0.30	0.50	ug/L	10		93	70-130	5	30	10/18/19	
Isopropylbenzene	9.5	0.31	0.50	ug/L	10		95	70-130	4	30	10/18/19	
m,p-Xylenes	19	0.23	0.50	ug/L	20		97	70-130	4	30	10/18/19	
Methyl-t-butyl ether	19	0.083	0.50	ug/L	20		96	70-130	5	30	10/18/19	
Naphthalene	9.0	0.27	0.50	ug/L	10		90	70-130	4	30	10/18/19	
n-Butylbenzene	9.3	0.25	0.50	ug/L	10		93	70-130	4	30	10/18/19	
n-Propylbenzene	9.4	0.31	0.50	ug/L	10		94	70-130	4	30	10/18/19	
o-Xylene	9.5	0.30	0.50	ug/L	10		95	70-130	5	30	10/18/19	
p-Isopropyltoluene	9.3	0.26	0.50	ug/L	10		93	70-130	4	30	10/18/19	
sec-Butylbenzene	9.4	0.27	0.50	ug/L	10		94	70-130	4	30	10/18/19	
Styrene	8.9	0.30	0.50	ug/L	10		89	70-130	4	30	10/18/19	
tert-Amyl Methyl Ether (TAME)	9.4	0.31	3.0	ug/L	10		94	70-130	5	30	10/18/19	
tert-Butyl alcohol (TBA)	9.5	0.97	2.0	ug/L	10		95	70-130	3	30	10/18/19	
tert-Butylbenzene	9.5	0.28	0.50	ug/L	10		95	70-130	4	30	10/18/19	
Tetrachloroethene (PCE)	9.7	0.33	0.50	ug/L	10		97	70-130	4	30	10/18/19	
Toluene	9.5	0.32	0.50	ug/L	10		95	70-130	5	30	10/18/19	
trans-1,2-Dichloroethene	9.5	0.35	0.50	ug/L	10		95	70-130	5	30	10/18/19	
trans-1,3-Dichloropropene	9.1	0.27	0.50	ug/L	10		91	70-130	7	30	10/18/19	
Trichloroethene (TCE)	9.4	0.32	0.50	ug/L	10		94	70-130	5	30	10/18/19	
Trichlorofluoromethane	9.7	0.23	5.0	ug/L	10		97	70-130	5	30	10/18/19	
Vinyl Chloride	9.7	0.27	0.50	ug/L	10		97	70-130	4	30	10/18/19	
Surrogate: 1,2-Dichlorobenzene-d4	*46*				*50*		*92*	*70-130*			10/18/19	
Surrogate: Bromofluorobenzene	*46*				*50*		*93*	*70-130*			10/18/19	
Matrix Spike (A915770-MS1), Source: A9J1707-04												
1,1,1,2-Tetrachloroethane	9.2	0.26	0.50	ug/L	10	ND	92	41-156			10/18/19	
1,1,1-Trichloroethane	9.6	0.30	0.50	ug/L	10	ND	96	48-160			10/18/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A915770-MS1), Source: A9J1707-04												
1,1,2,2-Tetrachloroethane	8.9	0.25	0.50	ug/L	10	ND	89	42-151			10/18/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	8.0	0.27	10	ug/L	10	ND	80	47-164			10/18/19	J
1,1,2-Trichloroethane	9.4	0.26	0.50	ug/L	10	ND	94	45-152			10/18/19	
1,1-Dichloroethane	9.8	0.34	0.50	ug/L	10	ND	98	48-157			10/18/19	
1,1-Dichloroethene	10	0.21	0.50	ug/L	10	ND	101	51-158			10/18/19	
1,1-Dichloropropene	9.2	0.30	0.50	ug/L	10	ND	92	46-162			10/18/19	
1,2,3-Trichlorobenzene	8.6	0.26	0.50	ug/L	10	ND	86	37-145			10/18/19	
1,2,4-Trichlorobenzene	8.6	0.29	0.50	ug/L	10	ND	86	33-149			10/18/19	
1,2,4-Trimethylbenzene	8.8	0.27	0.50	ug/L	10	ND	88	44-146			10/18/19	
1,2-Dichlorobenzene	9.1	0.28	0.50	ug/L	10	ND	91	44-146			10/18/19	
1,2-Dichloroethane	9.1	0.29	0.50	ug/L	10	ND	91	47-151			10/18/19	
1,2-Dichloropropane	9.3	0.30	0.50	ug/L	10	ND	93	47-155			10/18/19	
1,3,5-Trimethylbenzene	8.8	0.36	0.50	ug/L	10	ND	88	45-154			10/18/19	
1,3-Dichlorobenzene	9.0	0.30	0.50	ug/L	10	ND	90	44-146			10/18/19	
1,3-Dichloropropane	9.4	0.26	0.50	ug/L	10	ND	94	45-151			10/18/19	
1,4-Dichlorobenzene	9.0	0.29	0.50	ug/L	10	ND	90	43-146			10/18/19	
2,2-Dichloropropane	7.5	0.32	0.50	ug/L	10	ND	75	24-182			10/18/19	
2-Butanone	8.8	0.42	5.0	ug/L	10	ND	88	55-144			10/18/19	
2-Chlorotoluene	8.9	0.30	0.50	ug/L	10	ND	89	48-150			10/18/19	
2-Hexanone	8.2	0.48	10	ug/L	10	ND	82	40-159			10/18/19	J
4-Chlorotoluene	8.9	0.30	0.50	ug/L	10	ND	89	43-150			10/18/19	
4-Methyl-2-pentanone	8.3	0.37	5.0	ug/L	10	ND	83	30-171			10/18/19	
Acetone	9.1	3.4	10	ug/L	10	ND	91	27-181			10/18/19	J
Benzene	11	0.34	0.50	ug/L	10	ND	106	48-155			10/18/19	
Bromobenzene	10	0.27	0.50	ug/L	10	ND	103	43-151			10/18/19	
Bromochloromethane	9.3	0.27	0.50	ug/L	10	ND	93	48-161			10/18/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10	ND	105	47-151			10/18/19	
Bromoform	10	0.28	0.50	ug/L	10	ND	102	29-162			10/18/19	
Bromomethane	12	0.43	0.50	ug/L	10	ND	115	10-200			10/18/19	
Carbon disulfide	10	0.49	10	ug/L	10	ND	100	57-161			10/18/19	J
Carbon Tetrachloride	9.6	0.29	0.50	ug/L	10	ND	96	47-163			10/18/19	
Chlorobenzene	9.2	0.31	0.50	ug/L	10	ND	92	46-152			10/18/19	
Chloroethane	10	0.32	0.50	ug/L	10	ND	102	28-189			10/18/19	
Chloroform	11	0.083	0.50	ug/L	10	ND	108	52-148			10/18/19	
Chloromethane	10	0.25	0.50	ug/L	10	ND	104	53-159			10/18/19	
cis-1,2-Dichloroethene	9.6	0.32	0.50	ug/L	10	ND	96	50-152			10/18/19	
cis-1,3-Dichloropropene	8.7	0.27	0.50	ug/L	10	ND	87	34-156			10/18/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10	ND	102	44-149			10/18/19	
Dibromomethane	9.3	0.29	0.50	ug/L	10	ND	93	46-150			10/18/19	
Dichlorodifluoromethane	9.5	0.28	0.50	ug/L	10	ND	95	33-170			10/18/19	
Dichloromethane	10	0.29	0.50	ug/L	10	ND	101	47-156			10/18/19	
Di-isopropyl ether (DIPE)	9.2	0.31	3.0	ug/L	10	ND	92	41-159			10/18/19	
Ethyl tert-Butyl Ether (ETBE)	8.9	0.30	0.50	ug/L	10	ND	89	32-160			10/18/19	
Ethylbenzene	9.0	0.31	0.50	ug/L	10	ND	90	40-157			10/18/19	
Hexachlorobutadiene	8.3	0.30	0.50	ug/L	10	ND	83	38-151			10/18/19	
Isopropylbenzene	8.7	0.31	0.50	ug/L	10	ND	87	41-156			10/18/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915770											Prepared: 10/17/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A915770-MS1), Source: A9J1707-04												
m,p-Xylenes	18	0.23	0.50	ug/L	20	ND	91	49-154			10/18/19	
Methyl-t-butyl ether	19	0.083	0.50	ug/L	20	ND	97	41-156			10/18/19	
Naphthalene	8.3	0.27	0.50	ug/L	10	ND	83	35-154			10/18/19	
n-Butylbenzene	8.4	0.25	0.50	ug/L	10	ND	84	31-153			10/18/19	
n-Propylbenzene	8.6	0.31	0.50	ug/L	10	ND	86	39-156			10/18/19	
o-Xylene	9.1	0.30	0.50	ug/L	10	ND	91	27-164			10/18/19	
p-Isopropyltoluene	8.5	0.26	0.50	ug/L	10	ND	85	26-161			10/18/19	
sec-Butylbenzene	8.4	0.27	0.50	ug/L	10	ND	84	39-154			10/18/19	
Styrene	9.8	0.30	0.50	ug/L	10	ND	98	10-200			10/18/19	
tert-Amyl Methyl Ether (TAME)	8.8	0.31	3.0	ug/L	10	ND	88	24-161			10/18/19	
tert-Butyl alcohol (TBA)	8.0	0.97	2.0	ug/L	10	ND	80	22-174			10/18/19	
tert-Butylbenzene	8.7	0.28	0.50	ug/L	10	ND	87	40-153			10/18/19	
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10	ND	102	48-155			10/18/19	
Toluene	9.3	0.32	0.50	ug/L	10	ND	93	40-159			10/18/19	
trans-1,2-Dichloroethene	9.7	0.35	0.50	ug/L	10	ND	97	52-157			10/18/19	
trans-1,3-Dichloropropene	8.6	0.27	0.50	ug/L	10	ND	86	28-160			10/18/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	105	49-155			10/18/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10	ND	101	47-169			10/18/19	
Vinyl Chloride	10	0.27	0.50	ug/L	10	ND	104	21-183			10/18/19	
Surrogate: 1,2-Dichlorobenzene-d4	*46*				*50*		*92*	*70-130*			10/18/19	
Surrogate: Bromofluorobenzene	*46*				*50*		*92*	*70-130*			10/18/19	
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A916097-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							10/24/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							10/24/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							10/24/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							10/24/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							10/24/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							10/24/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							10/24/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							10/24/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							10/24/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							10/24/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							10/24/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							10/24/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							10/24/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							10/24/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							10/24/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							10/24/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							10/24/19	
2,2-Dichloropropane	ND	0.32	0.50	ug/L							10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 524.2 - Quality Control

Batch: A916097 Prepared: 10/23/2019

Prep Method: EPA 524.2 Analyst: ANM

Blank (A916097-BLK1)

2-Butanone	ND	0.42	5.0	ug/L							10/24/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							10/24/19	
2-Hexanone	ND	0.48	10	ug/L							10/24/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							10/24/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							10/24/19	
Acetone	ND	3.4	10	ug/L							10/24/19	
Benzene	ND	0.34	0.50	ug/L							10/24/19	
Bromobenzene	ND	0.27	0.50	ug/L							10/24/19	
Bromochloromethane	ND	0.27	0.50	ug/L							10/24/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							10/24/19	
Bromoform	ND	0.28	0.50	ug/L							10/24/19	
Bromomethane	ND	0.43	0.50	ug/L							10/24/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							10/24/19	
Chlorobenzene	ND	0.31	0.50	ug/L							10/24/19	
Chloroethane	ND	0.32	0.50	ug/L							10/24/19	
Chloroform	ND	0.083	0.50	ug/L							10/24/19	
Chloromethane	ND	0.25	0.50	ug/L							10/24/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							10/24/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/24/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							10/24/19	
Dibromomethane	ND	0.29	0.50	ug/L							10/24/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							10/24/19	
Dichloromethane	ND	0.29	0.50	ug/L							10/24/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							10/24/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							10/24/19	
Ethylbenzene	ND	0.31	0.50	ug/L							10/24/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							10/24/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							10/24/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							10/24/19	
Methyl-t-butyl ether	ND	0.083	0.50	ug/L							10/24/19	
Naphthalene	ND	0.27	0.50	ug/L							10/24/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							10/24/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							10/24/19	
o-Xylene	ND	0.30	0.50	ug/L							10/24/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							10/24/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							10/24/19	
Styrene	ND	0.30	0.50	ug/L							10/24/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							10/24/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							10/24/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							10/24/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							10/24/19	
Toluene	ND	0.32	0.50	ug/L							10/24/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							10/24/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/24/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							10/24/19	
Trichlorofluoromethane	ND	0.23	5.0	ug/L							10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A916097-BLK1)												
Vinyl Chloride	ND	0.27	0.50	ug/L							10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*55*				*50*		*109*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*55*				*50*		*110*	*70-130*			10/24/19	
Blank Spike (A916097-BS1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		101	70-130			10/24/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		109	70-130			10/24/19	
1,1,2,2-Tetrachloroethane	9.9	0.25	0.50	ug/L	10		99	70-130			10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		115	70-130			10/24/19	
1,1,2-Trichloroethane	10	0.26	0.50	ug/L	10		100	70-130			10/24/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		107	70-130			10/24/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		116	70-130			10/24/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		106	70-130			10/24/19	
1,2,3-Trichlorobenzene	9.7	0.26	0.50	ug/L	10		97	70-130			10/24/19	
1,2,4-Trichlorobenzene	9.8	0.29	0.50	ug/L	10		98	70-130			10/24/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		102	70-130			10/24/19	
1,2-Dichlorobenzene	9.9	0.28	0.50	ug/L	10		99	70-130			10/24/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		100	70-130			10/24/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		103	70-130			10/24/19	
1,3,5-Trimethylbenzene	10	0.36	0.50	ug/L	10		104	70-130			10/24/19	
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10		101	70-130			10/24/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		101	70-130			10/24/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		100	70-130			10/24/19	
2,2-Dichloropropane	9.7	0.32	0.50	ug/L	10		97	70-130			10/24/19	
2-Butanone	10	0.42	5.0	ug/L	10		101	70-130			10/24/19	
2-Chlorotoluene	10	0.30	0.50	ug/L	10		104	70-130			10/24/19	
2-Hexanone	10	0.48	10	ug/L	10		103	70-130			10/24/19	
4-Chlorotoluene	10	0.30	0.50	ug/L	10		103	70-130			10/24/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10		104	70-130			10/24/19	
Acetone	10	3.4	10	ug/L	10		104	70-130			10/24/19	
Benzene	10	0.34	0.50	ug/L	10		104	70-130			10/24/19	
Bromobenzene	9.8	0.27	0.50	ug/L	10		98	70-130			10/24/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		108	70-130			10/24/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		102	70-130			10/24/19	
Bromoform	9.8	0.28	0.50	ug/L	10		98	70-130			10/24/19	
Bromomethane	12	0.43	0.50	ug/L	10		119	70-130			10/24/19	
Carbon disulfide	11	0.49	10	ug/L	10		113	70-130			10/24/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		109	70-130			10/24/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		101	70-130			10/24/19	
Chloroethane	11	0.32	0.50	ug/L	10		109	70-130			10/24/19	
Chloroform	10	0.083	0.50	ug/L	10		105	70-130			10/24/19	
Chloromethane	11	0.25	0.50	ug/L	10		112	70-130			10/24/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		104	70-130			10/24/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130			10/24/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		100	70-130			10/24/19	
Dibromomethane	9.9	0.29	0.50	ug/L	10		99	70-130			10/24/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A916097-BS1)												
Dichlorodifluoromethane	12	0.28	0.50	ug/L	10		121	70-130			10/24/19	
Dichloromethane	9.7	0.29	0.50	ug/L	10		97	70-130			10/24/19	
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10		101	70-130			10/24/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		103	70-130			10/24/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		104	70-130			10/24/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		102	70-130			10/24/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		105	70-130			10/24/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20		110	70-130			10/24/19	
Methyl-t-butyl ether	21	0.083	0.50	ug/L	20		104	70-130			10/24/19	
Naphthalene	9.7	0.27	0.50	ug/L	10		97	70-130			10/24/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10		102	70-130			10/24/19	
n-Propylbenzene	10	0.31	0.50	ug/L	10		104	70-130			10/24/19	
o-Xylene	10	0.30	0.50	ug/L	10		104	70-130			10/24/19	
p-Isopropyltoluene	10	0.26	0.50	ug/L	10		103	70-130			10/24/19	
sec-Butylbenzene	10	0.27	0.50	ug/L	10		105	70-130			10/24/19	
Styrene	10	0.30	0.50	ug/L	10		102	70-130			10/24/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		101	70-130			10/24/19	
tert-Butyl alcohol (TBA)	10	0.97	2.0	ug/L	10		104	70-130			10/24/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		104	70-130			10/24/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130			10/24/19	
Toluene	10	0.32	0.50	ug/L	10		104	70-130			10/24/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		108	70-130			10/24/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130			10/24/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10		105	70-130			10/24/19	
Trichlorofluoromethane	11	0.23	5.0	ug/L	10		110	70-130			10/24/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		113	70-130			10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*51*				*50*		*102*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*51*				*50*		*102*	*70-130*			10/24/19	
Blank Spike Dup (A916097-BSD1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		101	70-130	1	30	10/24/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		113	70-130	3	30	10/24/19	
1,1,2,2-Tetrachloroethane	10	0.25	0.50	ug/L	10		101	70-130	2	30	10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10		116	70-130	1	30	10/24/19	
1,1,2-Trichloroethane	10	0.26	0.50	ug/L	10		101	70-130	0	30	10/24/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		108	70-130	1	30	10/24/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		119	70-130	2	30	10/24/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		107	70-130	1	30	10/24/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		100	70-130	3	30	10/24/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130	4	30	10/24/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		106	70-130	4	30	10/24/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		102	70-130	3	30	10/24/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		102	70-130	1	30	10/24/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		103	70-130	1	30	10/24/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		108	70-130	4	30	10/24/19	
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10		103	70-130	3	30	10/24/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A916097-BSD1)												
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		102	70-130	1	30	10/24/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		103	70-130	3	30	10/24/19	
2,2-Dichloropropane	9.5	0.32	0.50	ug/L	10		95	70-130	2	30	10/24/19	
2-Butanone	10	0.42	5.0	ug/L	10		102	70-130	1	30	10/24/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130	2	30	10/24/19	
2-Hexanone	10	0.48	10	ug/L	10		104	70-130	1	30	10/24/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		105	70-130	3	30	10/24/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10		102	70-130	2	30	10/24/19	
Acetone	11	3.4	10	ug/L	10		111	70-130	7	30	10/24/19	
Benzene	10	0.34	0.50	ug/L	10		104	70-130	0	30	10/24/19	
Bromobenzene	10	0.27	0.50	ug/L	10		101	70-130	3	30	10/24/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		110	70-130	1	30	10/24/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		103	70-130	0	30	10/24/19	
Bromoform	10	0.28	0.50	ug/L	10		100	70-130	2	30	10/24/19	
Bromomethane	12	0.43	0.50	ug/L	10		115	70-130	4	30	10/24/19	
Carbon disulfide	11	0.49	10	ug/L	10		115	70-130	2	30	10/24/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		110	70-130	1	30	10/24/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		104	70-130	2	30	10/24/19	
Chloroethane	11	0.32	0.50	ug/L	10		111	70-130	2	30	10/24/19	
Chloroform	11	0.083	0.50	ug/L	10		108	70-130	3	30	10/24/19	
Chloromethane	11	0.25	0.50	ug/L	10		114	70-130	3	30	10/24/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		109	70-130	5	30	10/24/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130	1	30	10/24/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		101	70-130	1	30	10/24/19	
Dibromomethane	11	0.29	0.50	ug/L	10		106	70-130	7	30	10/24/19	
Dichlorodifluoromethane	12	0.28	0.50	ug/L	10		123	70-130	2	30	10/24/19	
Dichloromethane	10	0.29	0.50	ug/L	10		103	70-130	6	30	10/24/19	
Di-isopropyl ether (DIPE)	9.8	0.31	3.0	ug/L	10		98	70-130	3	30	10/24/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		100	70-130	3	30	10/24/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		106	70-130	2	30	10/24/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		106	70-130	4	30	10/24/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		108	70-130	3	30	10/24/19	
m,p-Xylenes	23	0.23	0.50	ug/L	20		113	70-130	2	30	10/24/19	
Methyl-t-butyl ether	21	0.083	0.50	ug/L	20		103	70-130	1	30	10/24/19	
Naphthalene	9.9	0.27	0.50	ug/L	10		99	70-130	2	30	10/24/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10		104	70-130	3	30	10/24/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		107	70-130	4	30	10/24/19	
o-Xylene	11	0.30	0.50	ug/L	10		106	70-130	2	30	10/24/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		107	70-130	4	30	10/24/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		109	70-130	4	30	10/24/19	
Styrene	10	0.30	0.50	ug/L	10		105	70-130	3	30	10/24/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		100	70-130	1	30	10/24/19	
tert-Butyl alcohol (TBA)	10	0.97	2.0	ug/L	10		102	70-130	2	30	10/24/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		107	70-130	3	30	10/24/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		108	70-130	1	30	10/24/19	
Toluene	11	0.32	0.50	ug/L	10		106	70-130	1	30	10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A916097-BSD1)												
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		111	70-130	3	30	10/24/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130	0	30	10/24/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		105	70-130	1	30	10/24/19	
Trichlorofluoromethane	11	0.23	5.0	ug/L	10		114	70-130	4	30	10/24/19	
Vinyl Chloride	12	0.27	0.50	ug/L	10		116	70-130	2	30	10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*105*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*53*				*50*		*105*	*70-130*			10/24/19	
Matrix Spike (A916097-MS1), Source: A9J2671-01												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10	ND	101	41-156			10/24/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10	ND	114	48-160			10/24/19	
1,1,2,2-Tetrachloroethane	9.6	0.25	0.50	ug/L	10	ND	96	42-151			10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10	ND	123	47-164			10/24/19	
1,1,2-Trichloroethane	9.9	0.26	0.50	ug/L	10	ND	99	45-152			10/24/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10	ND	110	48-157			10/24/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10	ND	121	51-158			10/24/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	112	46-162			10/24/19	
1,2,3-Trichlorobenzene	9.5	0.26	0.50	ug/L	10	ND	95	37-145			10/24/19	
1,2,4-Trichlorobenzene	9.7	0.29	0.50	ug/L	10	ND	97	33-149			10/24/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10	ND	103	44-146			10/24/19	
1,2-Dichlorobenzene	9.7	0.28	0.50	ug/L	10	ND	97	44-146			10/24/19	
1,2-Dichloroethane	9.9	0.29	0.50	ug/L	10	ND	99	47-151			10/24/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10	ND	103	47-155			10/24/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	106	45-154			10/24/19	
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10	ND	101	44-146			10/24/19	
1,3-Dichloropropane	9.9	0.26	0.50	ug/L	10	ND	99	45-151			10/24/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10	ND	100	43-146			10/24/19	
2,2-Dichloropropane	10	0.32	0.50	ug/L	10	ND	103	24-182			10/24/19	
2-Butanone	9.6	0.42	5.0	ug/L	10	ND	96	55-144			10/24/19	
2-Chlorotoluene	10	0.30	0.50	ug/L	10	ND	105	48-150			10/24/19	
2-Hexanone	9.7	0.48	10	ug/L	10	ND	97	40-159			10/24/19	J
4-Chlorotoluene	10	0.30	0.50	ug/L	10	ND	103	43-150			10/24/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10	ND	100	30-171			10/24/19	
Acetone	9.4	3.4	10	ug/L	10	ND	94	27-181			10/24/19	J
Benzene	11	0.34	0.50	ug/L	10	ND	106	48-155			10/24/19	
Bromobenzene	9.8	0.27	0.50	ug/L	10	ND	98	43-151			10/24/19	
Bromochloromethane	10	0.27	0.50	ug/L	10	ND	105	48-161			10/24/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10	ND	101	47-151			10/24/19	
Bromoform	9.5	0.28	0.50	ug/L	10	ND	95	29-162			10/24/19	
Bromomethane	11	0.43	0.50	ug/L	10	ND	112	10-200			10/24/19	
Carbon disulfide	11	0.49	10	ug/L	10	ND	115	57-161			10/24/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10	ND	114	47-163			10/24/19	
Chlorobenzene	10	0.31	0.50	ug/L	10	ND	103	46-152			10/24/19	
Chloroethane	11	0.32	0.50	ug/L	10	ND	111	28-189			10/24/19	
Chloroform	11	0.083	0.50	ug/L	10	ND	105	52-148			10/24/19	
Chloromethane	12	0.25	0.50	ug/L	10	ND	117	53-159			10/24/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A916097-MS1), Source: A9J2671-01												
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10	ND	106	50-152			10/24/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	100	34-156			10/24/19	
Dibromochloromethane	9.8	0.28	0.50	ug/L	10	ND	98	44-149			10/24/19	
Dibromomethane	9.8	0.29	0.50	ug/L	10	ND	98	46-150			10/24/19	
Dichlorodifluoromethane	13	0.28	0.50	ug/L	10	ND	132	33-170			10/24/19	
Dichloromethane	10	0.29	0.50	ug/L	10	ND	101	47-156			10/24/19	
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10	ND	104	41-159			10/24/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10	ND	102	32-160			10/24/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	106	40-157			10/24/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10	ND	103	38-151			10/24/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10	ND	108	41-156			10/24/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20	ND	112	49-154			10/24/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20	ND	102	41-156			10/24/19	
Naphthalene	9.3	0.27	0.50	ug/L	10	ND	93	35-154			10/24/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10	ND	105	31-153			10/24/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10	ND	107	39-156			10/24/19	
o-Xylene	10	0.30	0.50	ug/L	10	ND	104	27-164			10/24/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	106	26-161			10/24/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10	ND	108	39-154			10/24/19	
Styrene	10	0.30	0.50	ug/L	10	ND	101	10-200			10/24/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10	ND	101	24-161			10/24/19	
tert-Butyl alcohol (TBA)	9.8	0.97	2.0	ug/L	10	ND	98	22-174			10/24/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10	ND	106	40-153			10/24/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10	ND	112	48-155			10/24/19	
Toluene	11	0.32	0.50	ug/L	10	ND	107	40-159			10/24/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10	ND	110	52-157			10/24/19	
trans-1,3-Dichloropropene	9.9	0.27	0.50	ug/L	10	ND	99	28-160			10/24/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	109	49-155			10/24/19	
Trichlorofluoromethane	12	0.23	5.0	ug/L	10	ND	119	47-169			10/24/19	
Vinyl Chloride	12	0.27	0.50	ug/L	10	ND	119	21-183			10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*51*				*50*		*102*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*51*				*50*		*103*	*70-130*			10/24/19	
EPA 525.3 - Quality Control												
Batch: A915805											Prepared: 10/18/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank (A915805-BLK1)												
Alachlor	ND	0.022	0.20	ug/L							10/21/19	
Atrazine	ND	0.0076	0.10	ug/L							10/21/19	
Benzo(a)pyrene	ND	0.0019	0.020	ug/L							10/21/19	
Bis(2-ethylhexyl) adipate	ND	0.067	0.60	ug/L							10/21/19	
Bis(2-ethylhexyl) phthalate	ND	0.11	0.60	ug/L							10/21/19	
Bromacil	ND	0.028	0.80	ug/L							10/21/19	
Butachlor	ND	0.018	0.25	ug/L							10/21/19	
Diazinon	ND	0.0022	0.020	ug/L							10/21/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 525.3 - Quality Control												
Batch: A915805											Prepared: 10/18/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank (A915805-BLK1)												
Dimethoate	ND	0.082	1.0	ug/L							10/21/19	
Metolachlor	ND	0.011	0.50	ug/L							10/21/19	
Metribuzin	ND	0.0061	0.50	ug/L							10/21/19	
Molinate	ND	0.0061	0.50	ug/L							10/21/19	
Propachlor	ND	0.0056	0.50	ug/L							10/21/19	
Simazine	ND	0.0049	0.070	ug/L							10/21/19	
Thiobencarb	ND	0.0083	0.10	ug/L							10/21/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.94*				*1.0*		*94*	*70-130*			10/21/19	
Surrogate: Benzo(a)pyrene-d12	*0.87*				*1.0*		*87*	*70-130*			10/21/19	
Surrogate: Triphenyl Phosphate	*0.99*				*1.0*		*99*	*70-130*			10/21/19	
Blank Spike (A915805-BS1)												
Alachlor	0.11	0.022	0.20	ug/L	0.10		109	70-130			10/21/19	J
Atrazine	0.053	0.0076	0.10	ug/L	0.050		105	70-130			10/21/19	J
Benzo(a)pyrene	0.0076	0.0019	0.020	ug/L	0.010		76	70-130			10/21/19	J
Bis(2-ethylhexyl) adipate	0.37	0.067	0.60	ug/L	0.20		183	70-130			10/21/19	BS, J ***High***
Bis(2-ethylhexyl) phthalate	0.76	0.11	0.60	ug/L	0.60		127	70-130			10/21/19	
Bromacil	0.12	0.028	0.80	ug/L	0.050		242	70-130			10/21/19	BS, J ***High***
Butachlor	0.085	0.018	0.25	ug/L	0.050		170	70-130			10/21/19	BS, J ***High***
Diazinon	0.012	0.0022	0.020	ug/L	0.010		122	70-130			10/21/19	J
Dimethoate	0.52	0.082	1.0	ug/L	0.40		130	70-130			10/21/19	J
Metolachlor	0.067	0.011	0.50	ug/L	0.050		134	70-130			10/21/19	BS1.3, J ***High***
Metribuzin	0.056	0.0061	0.50	ug/L	0.050		112	70-130			10/21/19	J
Molinate	0.059	0.0061	0.50	ug/L	0.050		119	70-130			10/21/19	J
Propachlor	0.054	0.0056	0.50	ug/L	0.050		107	70-130			10/21/19	J
Simazine	0.035	0.0049	0.070	ug/L	0.035		101	70-130			10/21/19	J
Thiobencarb	0.061	0.0083	0.10	ug/L	0.050		121	70-130			10/21/19	J
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.96*				*1.0*		*96*	*70-130*			10/21/19	
Surrogate: Benzo(a)pyrene-d12	*0.94*				*1.0*		*94*	*70-130*			10/21/19	
Surrogate: Triphenyl Phosphate	*1.2*				*1.0*		*117*	*70-130*			10/21/19	
Blank Spike Dup (A915805-BSD1)												
Alachlor	0.11	0.022	0.20	ug/L	0.10		106	70-130	3	30	10/21/19	J
Atrazine	0.051	0.0076	0.10	ug/L	0.050		102	70-130	4	30	10/21/19	J
Benzo(a)pyrene	0.0074	0.0019	0.020	ug/L	0.010		74	70-130	2	30	10/21/19	J
Bis(2-ethylhexyl) adipate	0.33	0.067	0.60	ug/L	0.20		164	70-130	11	30	10/21/19	BS, J ***High***
Bis(2-ethylhexyl) phthalate	0.69	0.11	0.60	ug/L	0.60		115	70-130	9	30	10/21/19	
Bromacil	0.079	0.028	0.80	ug/L	0.050		158	70-130	42	30	10/21/19	BS, BS4.0, J ***High***
Butachlor	0.070	0.018	0.25	ug/L	0.050		140	70-130	20	30	10/21/19	BS1.3, J ***High***
Diazinon	0.014	0.0022	0.020	ug/L	0.010		135	70-130	10	30	10/21/19	BS1.3, J ***High***
Dimethoate	0.49	0.082	1.0	ug/L	0.40		122	70-130	6	30	10/21/19	J
Metolachlor	0.060	0.011	0.50	ug/L	0.050		119	70-130	12	30	10/21/19	J
Metribuzin	0.052	0.0061	0.50	ug/L	0.050		104	70-130	8	30	10/21/19	J

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 525.3 - Quality Control												
Batch: A915805											Prepared: 10/18/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank Spike Dup (A915805-BSD1)												
Molinate	0.059	0.0061	0.50	ug/L	0.050		117	70-130	1	30	10/21/19	J
Propachlor	0.054	0.0056	0.50	ug/L	0.050		108	70-130	1	30	10/21/19	J
Simazine	0.035	0.0049	0.070	ug/L	0.035		101	70-130	1	30	10/21/19	J
Thiobencarb	0.051	0.0083	0.10	ug/L	0.050		103	70-130	17	30	10/21/19	J
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.97*				*1.0*		*97*	*70-130*			10/21/19	
Surrogate: Benzo(a)pyrene-d12	*0.93*				*1.0*		*93*	*70-130*			10/21/19	
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*109*	*70-130*			10/21/19	
Matrix Spike (A915805-MS1), Source: S9J0261-01												
Alachlor	0.94	0.022	0.20	ug/L	0.75	ND	125	70-130			10/22/19	
Atrazine	0.43	0.0076	0.10	ug/L	0.37	ND	114	70-130			10/22/19	
Benzo(a)pyrene	0.071	0.0019	0.020	ug/L	0.075	ND	95	70-130			10/22/19	
Bis(2-ethylhexyl) adipate	2.2	0.067	0.60	ug/L	1.5	ND	146	70-130			10/22/19	MS1.0 ***High***
Bis(2-ethylhexyl) phthalate	6.0	0.11	0.60	ug/L	4.5	0.14	131	70-130			10/22/19	MS1.0 ***High***
Bromacil	0.67	0.028	0.80	ug/L	0.37	ND	180	70-130			10/22/19	MS1.0 ***High*** , J
Butachlor	0.56	0.018	0.25	ug/L	0.37	ND	149	70-130			10/22/19	MS1.0 ***High***
Diazinon	0.086	0.0022	0.020	ug/L	0.075	0.012	99	70-130			10/22/19	
Dimethoate	4.1	0.082	1.0	ug/L	3.0	ND	136	70-130			10/22/19	MS1.0 ***High***
Metolachlor	0.46	0.011	0.50	ug/L	0.37	ND	124	70-130			10/22/19	J
Metribuzin	0.50	0.0061	0.50	ug/L	0.37	ND	134	70-130			10/22/19	MS1.0 ***High***
Molinate	0.41	0.0061	0.50	ug/L	0.37	ND	110	70-130			10/22/19	J
Propachlor	0.42	0.0056	0.50	ug/L	0.37	ND	112	70-130			10/22/19	J
Simazine	0.29	0.0049	0.070	ug/L	0.26	ND	112	70-130			10/22/19	
Thiobencarb	0.42	0.0083	0.10	ug/L	0.37	ND	112	70-130			10/22/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.91*				*0.94*		*98*	*70-130*			10/22/19	
Surrogate: Benzo(a)pyrene-d12	*0.91*				*0.94*		*97*	*70-130*			10/22/19	
Surrogate: Triphenyl Phosphate	*1.2*				*0.94*		*129*	*70-130*			10/22/19	
EPA 531.1 - Quality Control												
Batch: A916157											Prepared: 10/25/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank (A916157-BLK1)												
3-Hydroxycarbofuran	ND	0.12	3.0	ug/L							10/26/19	
Aldicarb	ND	0.12	3.0	ug/L							10/26/19	
Aldicarb Sulfone	ND	0.12	2.0	ug/L							10/26/19	
Aldicarb Sulfoxide	ND	0.12	3.0	ug/L							10/26/19	
Carbaryl	ND	0.22	5.0	ug/L							10/26/19	
Carbofuran	ND	0.27	5.0	ug/L							10/26/19	
Methomyl	ND	0.19	2.0	ug/L							10/26/19	
Oxamyl	ND	0.090	20	ug/L							10/26/19	
Blank Spike (A916157-BS1)												
3-Hydroxycarbofuran	4.1	0.12	3.0	ug/L	4.0		104	80-120			10/26/19	
Aldicarb	1.9	0.12	3.0	ug/L	2.0		97	80-120			10/26/19	J

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 531.1 - Quality Control												
Batch: A916157											Prepared: 10/25/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank Spike (A916157-BS1)												
Aldicarb Sulfone	3.3	0.12	2.0	ug/L	3.2		104	80-120			10/26/19	
Aldicarb Sulfoxide	2.1	0.12	3.0	ug/L	2.0		104	80-120			10/26/19	J
Carbaryl	4.0	0.22	5.0	ug/L	4.0		99	80-120			10/26/19	J
Carbofuran	3.8	0.27	5.0	ug/L	3.6		105	80-120			10/26/19	J
Methomyl	4.2	0.19	2.0	ug/L	4.0		104	80-120			10/26/19	
Oxamyl	4.0	0.090	20	ug/L	4.0		100	80-120			10/26/19	J
Blank Spike Dup (A916157-BSD1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120	2	20	10/26/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0		106	80-120	9	20	10/26/19	J
Aldicarb Sulfone	3.2	0.12	2.0	ug/L	3.2		100	80-120	4	20	10/26/19	
Aldicarb Sulfoxide	2.0	0.12	3.0	ug/L	2.0		101	80-120	3	20	10/26/19	J
Carbaryl	4.0	0.22	5.0	ug/L	4.0		100	80-120	0	20	10/26/19	J
Carbofuran	3.7	0.27	5.0	ug/L	3.6		103	80-120	2	20	10/26/19	J
Methomyl	4.1	0.19	2.0	ug/L	4.0		102	80-120	2	20	10/26/19	
Oxamyl	3.9	0.090	20	ug/L	4.0		97	80-120	3	20	10/26/19	J
Matrix Spike (A916157-MS1), Source: A9J1860-01												
3-Hydroxycarbofuran	4.4	0.12	3.0	ug/L	4.0	ND	110	65-135			10/26/19	
Aldicarb	2.0	0.12	3.0	ug/L	2.0	ND	100	65-135			10/26/19	J
Aldicarb Sulfone	3.4	0.12	2.0	ug/L	3.2	ND	105	65-135			10/26/19	
Aldicarb Sulfoxide	2.1	0.12	3.0	ug/L	2.0	ND	105	65-135			10/26/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0	ND	104	65-135			10/26/19	J
Carbofuran	3.9	0.27	5.0	ug/L	3.6	ND	108	65-135			10/26/19	J
Methomyl	4.1	0.19	2.0	ug/L	4.0	ND	103	65-135			10/26/19	
Oxamyl	4.1	0.090	20	ug/L	4.0	ND	103	65-135			10/26/19	J
EPA 547 - Quality Control												
Batch: A915865											Prepared: 10/19/2019	
Prep Method: EPA 547											Analyst: JNG	
Blank (A915865-BLK1)												
Glyphosate	ND	2.1	25	ug/L							10/20/19	
Surrogate: AMPA	*200*				*200*		*101*	*70-130*			10/20/19	
Blank Spike (A915865-BS1)												
Glyphosate	98	2.1	25	ug/L	100		98	70-130			10/20/19	
Surrogate: AMPA	*200*				*200*		*100*	*70-130*			10/20/19	
Blank Spike Dup (A915865-BSD1)												
Glyphosate	100	2.1	25	ug/L	100		100	70-130	1	30	10/20/19	
Surrogate: AMPA	*200*				*200*		*100*	*70-130*			10/20/19	
Matrix Spike (A915865-MS1), Source: A9J1691-01												
Glyphosate	100	2.1	25	ug/L	100	ND	102	70-130			10/20/19	
Surrogate: AMPA	*200*				*200*		*101*	*70-130*			10/20/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 547 - Quality Control												
Batch: A915865											Prepared: 10/19/2019	
Prep Method: EPA 547											Analyst: JNG	
EPA 548.1 - Quality Control												
Batch: A916102											Prepared: 10/23/2019	
Prep Method: EPA 548.1											Analyst: YNV	
Blank (A916102-BLK1)												
Endothall	ND	1.6	45	ug/L							10/25/19	
Blank Spike (A916102-BS1)												
Endothall	14	1.6	45	ug/L	20		69	46-116			10/25/19	J
Blank Spike Dup (A916102-BSD1)												
Endothall	14	1.6	45	ug/L	20		69	46-116	0	30	10/25/19	J
Matrix Spike (A916102-MS1), Source: A9J1707-01												
Endothall	14	1.6	45	ug/L	20	ND	69	46-116			10/25/19	J
Matrix Spike (A916102-MS2), Source: A9J2464-01												
Endothall	14	1.6	45	ug/L	20	ND	69	46-116			10/25/19	J
EPA 549.2 - Quality Control												
Batch: A915875											Prepared: 10/21/2019	
Prep Method: EPA 549.2											Analyst: ANM	
Blank (A915875-BLK1)												
Diquat	ND	0.071	0.40	ug/L							10/26/19	
Blank Spike (A915875-BS1)												
Diquat	5.0	0.071	0.40	ug/L	4.0		126	70-130			10/26/19	
Blank Spike Dup (A915875-BSD1)												
Diquat	4.7	0.071	0.40	ug/L	4.0		117	70-130	7	30	10/26/19	
Matrix Spike (A915875-MS1), Source: A9J1707-01												
Diquat	4.8	0.071	0.40	ug/L	4.0	ND	120	70-130			10/26/19	
SRL 524M-TCP - Quality Control												
Batch: A915968											Prepared: 10/22/2019	
Prep Method: no prep-volatiles											Analyst: JNG	
Blank (A915968-BLK1)												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L							10/22/19	
Blank Spike (A915968-BS1)												
1,2,3-Trichloropropane	0.0052	0.0014	0.0050	ug/L	0.0050		104	80-120			10/22/19	
Blank Spike Dup (A915968-BSD1)												

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SRL 524M-TCP - Quality Control												
Batch: A915968											Prepared: 10/22/2019	
Prep Method: no prep-volatiles											Analyst: JNG	
Blank Spike Dup (A915968-BSD1)												
1,2,3-Trichloropropane	0.0051	0.0014	0.0050	ug/L	0.0050		102	80-120	2	30	10/22/19	
Duplicate (A915968-DUP1), Source: A9J2163-01												
1,2,3-Trichloropropane	0.022	0.0014	0.0050	ug/L		0.021			6	20	10/23/19	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

Aggressive Index	Chlorothalonil	Trifluralin
Langelier Index	Threshold Odor	1,2,3-Trichloropropane

Certificate of Analysis

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

	2435		
Fresno			
State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-013
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-013
EPA - UCMR4	CA00079	State of Washington	C997-19d
San Bernardino			
State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-004	State of Oregon - NELAP	4119-004
Vancouver			
NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-012
State of Washington	C824-19		

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
Date needed:

A9J1707 clare4404 10/17/2019 10

*Required Fields Temp: Thermometer ID:

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Claremont Land Group	Geralyn Skapik Additional cc's: Christofer Coppinger, John Bissel	John Bissel - Hansji PO#:	(909) 398-4404 E-mail*: gskapik@skapiklaw.com	

Address*:	City*:	State*:	Zip*:
5861 Pine Ave, Suite A-1	Chino Hills	CA	91709

Project:

Project #: A9J1707

Reporting Options: ☒ Trace (J-Flag) ☐ Swamp ☐ EDD Type: _____

Sampler Name (Printed/Signature)*: Edween Hernandez

Regulatory Carbon Copies
☐ SWRCB (Drinking Water)
☐ Merced Co ☐ Fresno Co
☐ Madera Co ☐ Tulare Co
☐ Other: _____

Regulatory Compliance
☐ EDT to California SWRCB (Drinking Water)
System Number*: _____
☐ Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
1	Terra Vi Well No. 1	10/16/19	15:55	DW		X	X	X	X	X			X	X
2	Terra Vi Well No. 2	10/16/19	13:26	DW		X	X	X	X	X			X	X
6	Trip Blank - TCP - Raw - Lot# 1019035	10/16/19		TB						X				
7	Trip Blank - 504 - Lot# 1019036	10/16/19		TB							X			
8	Trip Blank - 524 - Raw - Lot# 1019007	10/16/19		TB								X		
	Revised COC created by EMP													

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Check / Cash Date: Amount: PIA#: Init.	

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____
Cooling Method: Wet Blue None
Custody Seal: Y / N
Chilling Process Begun: Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

ASSOCIATES

1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
Date needed:

A9J1707 clare4404 10/17/2019

10

*Required Fields

Temp: 5.8 Thermometer ID: 658

Company/Client Name*	Report Attention*	Invoice To*	Phone*	Fax
Hansji Corporation	John Bissel; Additional cc's: Christofer Coppinger, Geralyn Skapik	Arun Malhotra	(714) 399-0152	
			E-mail: johnb@hansji.com	

Address*	City*	State*	Zip*
631 W. Katella Ave., 5th Floor	Anaheim	CA	92802

Project #: A9J1707

Regulatory Carbon Copies: ☐ SWRCB (Drinking Water) ☐ Merced Co ☐ Fresno Co ☐ Madera Co ☐ Tulare Co ☐ Other

Regulatory Compliance: ☐ PDF to California SWRCB (Drinking Water) System Number: ☐ Geotracker #

Report Type: ☑ ... ☐ Swamp ☐ ... Type

Sampler Name (Printed/Signature)*: Edween Hernandez

Matrix Types: SW=Surface Water, BW=Bottled Water, GW=Ground Water, WW=Waste Water, STW=Storm Water, DW=Drinking Water, SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
1	Terra V: Well No. 1	10/16/19	1555	DW		X	X	X	X	X			X	X
2	Terra V Well No. 2	10/16/19	1326	DW		X	X	X	X	X			X	X
26G(B) ~~3~~	[redacted]			DW		X	X	X	X	X			X	X
26G(A) 3 ~~4~~	[redacted]	10/16/19	14:53	DW	noticed trace metals in samples	X	X	X	X	X			X	X
26G(C) 4 ~~5~~	[redacted]	10/16/19	1655	DW		X	X	X	X	X			X	X
5 ~~6~~	Trip Blank - TCP - Lot# RAW 101903	10/16/19								X				
6 ~~7~~	Trip Blank - 504 - Lot# 1019036	10/16/19									X			
7 ~~8~~	Trip Blank - 524 - Lot# RAW 1019007	10/16/19										X		

See revised COC 01/27/2020 CB

Prelogged as A9J1707

Relinquished by (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Printed Name)	Company
Edween Hernandez	Geoscience	10/17/19	1130		
		10/17	1130	Payment Received at Delivery	

Shipping Method: ONTRAC UPS GSO (WALK-IN) FEDEX Courier

Cooling Method: (Wet) (Blue) None

Custody Seal: Y/N

Chilling Process Begun: (Y)/N

Please cc results to: ccoppinger@geoscience-water.com

Pre-Sample water quality parameters:

1) Terra V: well No. 1
3.51 NTU - Turb.
326 µS - Spec. Cond.
7.48 pH @ 13.5°C

2) Terra V: well No. 2
1.19 NTU - Turb.
299 µS - Spec. Cond.
7.79 pH @ 14.3°C

~~3)~~
[redacted] 26G(B)
1.33 NTU - Turb.
132 µS - Spec. Cond.
7.37 pH @ 13.2°C

[redacted] 26G(C)
5.66 NTU, Turb.
214 µS - Spec. Cond.
8.54 pH @ 14.8°C

A9J1707 clare4404 10/17/2019

BSK Associates SR-FL-0002-20

10

Sample Integrity

BSK Bottles: (Yes) No Page 1 of 1

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) (NA) Yes No (NA)
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	(Yes) No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes No (NA)

Bottles Received ("1" means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	1-4	5	6	7	
Bactl $Na_2S_2O_3$	—	—	1				
None (P) White Cap	—	—	2C				
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	(P) F	1A				10/17/19 E
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	4C, 1B				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	2C, 1B				
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	3V	2V			
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	2C				
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	1A				
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	1C				
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—	1A				
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	7V		2V		
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	(P) F	1V				
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V			2V	
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	1C				
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Initial & Time Labeled by: VLH 13:48 (pagel vlh 13:48)

Labels Checked by: SMA 10-17-19 1354

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned: SRM

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
- [x] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
- Date needed:

A9J1707 clare4404 10/17/2019

3-1 Temp: 5.2 Thermometer ID: #53

*Required Fields

Company/Client Name*	Report Attention*	Invoice To*	Phone* / Fax:
Hansji Corporation	John Bissel Additional cc's: Christofer Coppinger, Geralyn Skapik	Arun Malhotra PO#:	(714) 399-0152 E-mail*: johnb@hansji.com

Address*	City*	State*	Zip*
631 W. Katella Ave., 5th Floor	Anaheim	CA	92802

Project:
Project #: A9J1707

Reporting Options: [x] Trace (J-Flag) [ ] Swamp [ ] EDD Type: _____

Sampler Name (Printed/Signature)*: Alexander Arita (AA)

Regulatory Carbon Copies: [ ] SWRCB (Drinking Water) [ ] Merced Co [ ] Fresno Co [ ] Madera Co [ ] Tulare Co [ ] Other:

Regulatory Compliance: [ ] EDT to California SWRCB (Drinking Water) System Number*: _____ [ ] Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
1	[redacted] 26G(B)	10/21/19	17:50	DW		X	X	X	X	X			X	X
* 2	[redacted] 26G(A)	10/22/19	12:15	DW		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~			X	X
10/28/19 BB				DW		X	X	X	X	X			X	X
	Trip Blank - TCP - Lot#									X				
	Trip Blank - 504 - Lot#										X			
	Trip Blank - 524 - Lot#											X		

See Revised COC 01/27/2020 JK

VdH

*Additional volume for A9J1707-04. Logged as A9J1707-09

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Alexander Arita	Geoscience	10/22/19	16:56		
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery:	Check / Cash
Veronica		10/22/19	16:56	Date: Amount: PIA#:	Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____ Custody Seal: Y/N

Cooling Method: Wet Blue None Chilling Process Begun: Y/N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSK_LabTermsConditions.pdf

Presampling Water quality:

26G(B) [redacted] Turbidity 0.63 NTU, 7.52 pH @ 12.3°C, Cond - 474 µS @ 12.6°C

26G(A) [redacted] 4.71 NTU, 8.46 pH @ 12.9°C, 475 µS @ 11.6°C

SR-FL-0012-08

Sample Integrity

BSK Bottles: Yes No Page 2 of 2

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Are correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes No NA Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Is sufficient amount of sample received?	Yes No
Do all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No NA	Has PM been notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received

"—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?
Bacti $Na_2S_2O_3$	—	—
None (P) White Cap	—	—
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F
NaOH (P) Green Cap	Cl, pH >10	P F
NaOH + ZnAc (P)	pH > 9	P F
Dissolved Oxygen 300ml (g)	—	—
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—
Ascorbic, EDTA, KH_2Cl (AG) Pink Label 525	—	—
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F
NH_4Cl (AG) Purple Label 552	—	—
EDA (AG) Brown Label DBPs	—	—
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—
Buffer pH 4 (CG)	—	—
H_3PO_4 (CG) Salmon Label	—	—
Trizma – EPA 537.1		
Other:		
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—
Bottled Water	—	—
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—
Solids: Brass / Steel / Plastic Bag	—	—

9

9C

10/23/19 8:00

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned: _____

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

January 24, 2020 Ceres ID: 13100-Rev1

BSK Associates
1414 Stanislaus St.
Fresno, CA 93706

The following report contains the results for the two drinking water samples received on October 18, 2019. These samples we analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under your Subcontract Order # A9J1707.

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date	&Time
13100-001	Terra Vi Well No. 1 A9J1707-01	10/18/2019	10/16/2019	15:55
13100-002	Terra Vi Well No. 2 A9J1707-02	10/18/2019	10/16/2019	13:26

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Method Blank**	**QC Batch #:** 2073	**Date Received:** NA
	Matrix: Drinking Water	**Date Extracted:** 10/23/2019
Project ID: A9J1707	**Sample Size:** 1.000 L	**ZB-5MS Analysis:** 10/24/2019

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.16	1.49	5.00		13C-2378-TCDD	77.9	31-137	
					CRS			
					37Cl4-2378-TCDD	60.7	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Ongoing Precision and Recovery**		**Date Received:** NA
	QC Batch #: 2073	**Date Extracted:** 10/23/2019
	Matrix: Drinking Water	**ZB-5MS Analysis:** 10/24/2019
Project ID: A9J1707	**Sample Size:** 1.000 L	

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	8.03	7.3-14.6	13C-2378-TCDD	80.2	25-141
			CRS		
			37Cl4-2378-TCDD	68.5	37-158
			(a) Limits based on method acceptance criteria.		

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: Terra Vi Well No. 1 A9J1707-01		
Project ID: A9J1707	**Ceres Sample ID:** 13100-001	**Date Received:** 10/18/2019
	QC Batch #: 2073	**Date Extracted:** 10/23/2019
Date Collected: 10/16/2019	**Matrix:** Drinking Water	**ZB-5MS Analysis:** 10/24/2019
Time Collected: 15:55	**Sample Size:** 1.023 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.56	1.49	4.89		13C-2378-TCDD	90.1	31-137	
					CRS			
					37Cl4-2378-TCDD	80.8	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: Terra Vi Well No. 2 A9J1707-02		
Project ID: A9J1707	**Ceres Sample ID:** 13100-002	**Date Received:** 10/18/2019
	QC Batch #: 2073	**Date Extracted:** 10/23/2019
Date Collected: 10/16/2019	**Matrix:** Drinking Water	**ZB-5MS Analysis:** 10/24/2019
Time Collected: 13:26	**Sample Size:** 1.018 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.67	1.49	4.91		13C-2378-TCDD	87.8	31-137	
					CRS			
					37Cl4-2378-TCDD	79.0	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

A9J1707

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

Ceres Analytical Laboratory, Inc
4919 Windplay Drive, Suite 1
El Dorado Hills, CA 95762
Phone :(916) 932-5011
Fax: -
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9J1707-01	**Terra Vi Well No. 1**	**Client Matrix** Drinking Water	**10/16/2019 15:55**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Shipped Trace Reporting, No EDT Required	
A9J1707-02	**Terra Vi Well No. 2**	**Client Matrix** Drinking Water	**10/16/2019 13:26**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Shipped Trace Reporting, No EDT Required	

Updated COC

Released By	Date	Received By	Date
Released By	Date	Received By	Date

BSK ASSOCIATES

SUBCONTRACT ORDER

A9J1707

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

Ceres Analytical Laboratory, Inc
4919 Windplay Drive, Suite 1
El Dorado Hills, CA 95762
Phone :(916) 932-5011
Fax: -
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9J1707-01	**Terra Vi Well No. 1**	**Client Matrix** Drinking Water	**10/16/2019 15:55**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Trace Reporting, No EDT Required	
A9J1707-02	**Terra Vi Well No. 2**	**Client Matrix** Drinking Water	**10/16/2019 13:26**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Trace Reporting, No EDT Required	
A9J1707-03	**Pfeiffer - Gene**	**Client Matrix** Drinking Water	**10/15/2019 00:00**
Lab Matrix:	Water No sample		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Trace Reporting, No EDT Required	
A9J1707-04	[redacted] 26G(A)	**Client Matrix** Drinking Water	**10/16/2019 14:53**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Trace Reporting, No EDT Required	
A9J1707-05	[redacted] 26G(C)	**Client Matrix** Drinking Water	**10/16/2019 16:55**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Trace Reporting, No EDT Required	

Released By	Date	Received By	Date
[signature]	10/17/19	[signature]	10/18/19 11:02
Released By	Date	Received By	Date

Sample Receipt Check List Logged by: Q (initials)

Ceres ID: 13109	Date/Time: 10/18/19 11:02
Client Project ID: A95 1707	Received Temp: 4.7 °C Acceptable: (Y) / N
Chain of Custody Relinquished by signed?	(Y) / N
Chain of Custody Received by signed?	(Y) / N
Custody Seals? Present?	Y / N
Intact?	Y / N
NA:	(NA)
Unlabeled / Illegible Samples	Y / (N)
Proper Containers:	(Y) / N
Preservation Acceptable (Chemical or Temperature)?	(Y) / N
Drinking Water, Sodium Thiosulfate present?	Y / (N) / NA
Residual Cl?	Y / (N)
Aqueous sample pH: 7, 7, 7, 7	

List COC discrepancies:

10/18/19

List Damaged Samples:

10/18/19

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 321922564
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Elaine M. Phillips
BSK Analytical Laboratories
1414 Stanislaus Street
Fresno, CA 93706

Phone: (559) 497-2888
Fax:
Received: 10/18/2019
Analyzed: 10/24/2019

Proj: A9J1707

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
								MFL (million fibers per liter)	
A9J1707-01 321922564-0001	10/21/2019 03:05 PM	100	1288	0.0650	None Detected	ND	0.20	<0.20	0.00 - 0.73
Collection Date/Time:	*10/16/2019 15:55 PM*								
Sample ozonated prior to analysis due to lab filtration time exceeding 48hr method hold time.									
A9J1707-02 321922564-0002	10/21/2019 03:05 PM	30	1288	0.2210	None Detected	ND	0.19	<0.19	0.00 - 0.72
Collection Date/Time:	*10/16/2019 13:26 PM*								
Sample ozonated prior to analysis due to lab filtration time exceeding 48hr method hold time.									

Per client request, report revised with samples A9J1707-04 reported on 322000385 and A9J1707-05 reported on 322000368.

Analyst(s)
Sherrie Ahmad (2)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Report amended: 01/10/2020 13:49:34 Replaces initial report from:10/27/2019 09:56:16 Reason Code: Client-Change to Appearance

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested. This report may not be reproduced, except in full, without written permission by LA Testing. Samples received in good condition unless otherwise noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

BSK ASSOCIATES

SUBCONTRACT ORDER

A9J1707

SENDING LABORATORY:

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1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

L A Testing
520 Mission St.
South Pasadena, CA 91030
Phone :(800) 303-0047
Fax: (323) 254-9982
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9J1707-01	**Terra Vi Well No. 1**	**Client Matrix** Drinking Water	**10/16/2019 15:55**
Lab Matrix:	Water		
	Analysis:		
	EXT-Asbestos, Drinking Water by EPA 100.2	Shipped Trace Reporting, No EDT Required	
A9J1707-02	**Terra Vi Well No. 2**	**Client Matrix** Drinking Water	**10/16/2019 13:26**
Lab Matrix:	Water		
	Analysis:		
	EXT-Asbestos, Drinking Water by EPA 100.2	Shipped Trace Reporting, No EDT Required	

Released By	Date	Received By	Date
		Almorissonic	12/17/19 1452 (emailed)
Released By	Date	Received By	Date

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917168
Customer : 2-22939

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
Terra Vi Well No. 1	10/16/2019	10/18/2019	SP 1917168-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	10/30/2019:216992 All analysis quality controls are within established criteria
	10/25/2019:212371 All preparation quality controls are within established criteria
903.0	11/06/2019:217406 All analysis quality controls are within established criteria
	10/28/2019:212449 All preparation quality controls are within established criteria
Ra - 05	11/03/2019:217161 All analysis quality controls are within established criteria
	10/28/2019:212442 All preparation quality controls are within established criteria

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
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9415 W. Goshen Avenue
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TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917168
BSK Associates Engineers & Laboratories Customer : 2-22939

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2019-12-18

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917168-001
Customer ID : 2-22939

Sampled On : October 16, 2019-15:55
Sampled By : Not Available
Received On : October 18, 2019-10:55
Matrix : Water

Description : Terra Vi Well No. 1
Project : A9J1707-01

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	8.37 ± 2.41	1.63	pCi/L	15/5	900.0	10/25/19-10:00 2P1912371	900.0	10/30/19-14:19 2A1916992
Total Alpha Radium (226)	0.106 ± 0.124	0.418	pCi/L	3	903.0	10/28/19-18:30 2P1912449	903.0	11/06/19-15:54 2A1917406
Ra 228	0.000 ± 0.661	0.410	pCi/L	2	Ra - 05	10/28/19-18:20 2P1912442	Ra - 05	11/03/19-09:50 2A1917161

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917168
BSK Associates Engineers & Laboratories Customer : 2-22939

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	10/30/19:216992JCA	CCV	cpm	8138	38.5 %	35-47	
			CCB	cpm		0.100	0.14	
Gross Alpha	900.0	10/25/19:212371jca	Blank	pCi/L		0.77	3	
			LCS	pCi/L	155.2	95.5 %	75-125	
			MS	pCi/L	155.2	135 %	60-140	
		(SP 1913830-001)	MSD	pCi/L	155.2	140 %	60-140	
			MSRPD	pCi/L	155.2	3.7%	≤30	
Alpha	903.0	11/06/19:217406JCA	CCV	cpm	8133	39.4 %	37-46	
			CCB	cpm		0.1200	0.16	
Total Alpha Radium (226)	903.0	10/28/19:212449emv	RgBlk	pCi/L		0.009	2	
			LCS	pCi/L	23.33	58.3 %	52-107	
			MS	pCi/L	23.33	54.5 %	43-111	
		(SP 1913892-001)	MSD	pCi/L	23.33	51.7 %	43-111	
			MSRPD	pCi/L	23.33	5.3%	≤35.5	
Beta	Ra - 05	11/03/19:217161emv	CCV	cpm	8136	88.7 %	84-94	
			CCB	cpm		0.4400	0.51	
Ra 228	Ra - 05	10/28/19:212442emv	RgBlk	pCi/L		-0.03	3	
			LRS	pCi/L	14.21	67.9 %	65-108	
			BS	pCi/L	14.21	84.2 %	75-125	
			BSD	pCi/L	14.21	88.8 %	75-125	
			BSRPD	pCi/L	14.21	0.64	≤3	

Definition

CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS : Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

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853 Corporation Street
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Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX:
CA ELAP Certification No. 2810

Chain of Custody

Map Re

Client: **BSK Associates**

Address: BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Phone: (559)497-2888 Xt116 Fax: (559)485-69356132442

Contact Person: Adam Trevarrow

Project Name: **A9J1707-01**

Purchase Order Number:

Sampler(s) Not Available

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **SP 1917168** 2-22939

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Radio Chemistry-Gross Alpha,Total Radium 226,Ra 228 32oz(P)-HNO3 , 32oz(P)-HNO3									
1	Terra Vi Well No. 1	10/16/19	15:55	G	W				1,2									

Remarks:
Original COC #1914207

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
OnTrac								
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:
Inez Covarrubias	10/18/19	10:55						

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917169
Customer : 2-22939

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
Terra Vi Well No.2	10/16/2019	10/18/2019	SP 1917169-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	10/30/2019:217000 All analysis quality controls are within established criteria
	10/25/2019:212371 All preparation quality controls are within established criteria
903.0	11/06/2019:217406 All analysis quality controls are within established criteria
	10/28/2019:212449 All preparation quality controls are within established criteria
Ra - 05	11/03/2019:217162 All analysis quality controls are within established criteria
	10/28/2019:212442 All preparation quality controls are within established criteria

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FAX: (559)734-8435
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917169
BSK Associates Engineers & Laboratories Customer : 2-22939

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2019-12-18

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917169-001
Customer ID : 2-22939

Sampled On : October 16, 2019-13:26
Sampled By : Not Available
Received On : October 18, 2019-10:55
Matrix : Water

Description : Terra Vi Well No.2
Project : A9J1707-02

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	5.99 ± 2.72	2.35	pCi/L	15/5	900.0	10/25/19-10:00 2P1912371	900.0	10/30/19-14:29 2A1917000
Total Alpha Radium (226)	0.042 ± 0.102	0.418	pCi/L	3	903.0	10/28/19-18:30 2P1912449	903.0	11/06/19-15:54 2A1917406
Ra 228	0.215 ± 0.732	0.400	pCi/L	2	Ra - 05	10/28/19-18:20 2P1912442	Ra - 05	11/03/19-10:10 2A1917162

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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December 17, 2019 Lab ID : SP 1917169
BSK Associates Engineers & Laboratories Customer : 2-22939

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	10/30/19:217000JCA	CCV	cpm	8138	37.9 %	35-47	
			CCB	cpm		0.100	0.13	
Gross Alpha	900.0	10/25/19:212371jca	Blank	pCi/L		0.77	3	
			LCS	pCi/L	155.2	95.5 %	75-125	
			MS	pCi/L	155.2	135 %	60-140	
		(SP 1913830-001)	MSD	pCi/L	155.2	140 %	60-140	
			MSRPD	pCi/L	155.2	3.7%	≤30	
Alpha	903.0	11/06/19:217406JCA	CCV	cpm	8133	39.4 %	37-46	
			CCB	cpm		0.1200	0.16	
Total Alpha Radium (226)	903.0	10/28/19:212449emv	RgBlk	pCi/L		0.009	2	
			LCS	pCi/L	23.33	58.3 %	52-107	
			MS	pCi/L	23.33	54.5 %	43-111	
		(SP 1913892-001)	MSD	pCi/L	23.33	51.7 %	43-111	
			MSRPD	pCi/L	23.33	5.3%	≤35.5	
Beta	Ra - 05	11/03/19:217162emv	CCV	cpm	8136	88.2 %	84-94	
			CCB	cpm		0.4000	0.48	
Ra 228	Ra - 05	10/28/19:212442emv	RgBlk	pCi/L		-0.03	3	
			LRS	pCi/L	14.21	67.9 %	65-108	
			BS	pCi/L	14.21	84.2 %	75-125	
			BSD	pCi/L	14.21	88.8 %	75-125	
			BSRPD	pCi/L	14.21	0.64	≤3	

Definition

CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS : Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA ELAP Certification No. 1573

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

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563 E. Lindo Avenue
Chico, CA 95926
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3442 Empresa Drive, Suite D
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Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX:
CA ELAP Certification No. 2810

Chain of Custody

Map Re

Client: **BSK Associates**

Address: BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Phone: (559)497-2888 Xt116 Fax: (559)485-69356132442 8

Contact Person: Adam Trevarrow

Project Name: **A9J1707-02**

Purchase Order Number:

Sampler(s) Not Available

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **SP 1917169** **2-22939**

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Radio Chemistry-Gross Alpha,Total Radium 226,Ra 228 32oz(P)-HNO3 , 32oz(P)-HNO3									
1	Terra Vi Well No.2	10/16/19	13:26	G	W				2,1									

Remarks:
Original COC #1914207

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
OnTrac								
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:
Inez Covarrubias	10/18/19	10:55						

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

A9L1710
1/27/2020
Invoice: AD01418

Geralyn Skapik
Claremont Land Group
5861 Pine Ave, Suite A-1
Chino Hills, CA 91709

RE: Report for A9L1710 Yosemite Title 22 Testing

Dear Geralyn Skapik,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/17/2019. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an “as received” basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Elaine M. Phillips , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Elaine M. Phillips, Project Coordinator

Accredited in Accordance with NELAP
ORELAP #4021-009

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Claremont Land Group	**Invoice To:**	Hansji Corporation
Report To:	Geralyn Skapik	**Invoice Attn:**	John Bissel
Project #:	[redacted] 26G(C)	**Project PO#:**	-
Received:	10/17/2019 - 11:30		
Report Due:	10/31/2019		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 5.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Received On Blue Ice
Packing Material - Other
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Chain of Custody Notes

Date: 1/27/2020
Initials: EMP
Note: Moved data from A9J1707-05 for [redacted] 26G(C) **to Work Order A9L1710, as per client request.**

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B2.0	Analyte present in the method blank above the method detection limit (MDL). Laboratory does not determine batch acceptance on detections below the reporting limit (RL).
BS	Blank spike recoveries did not meet acceptance limits.
BS1.0	Blank spike recovery for this analyte was biased high; no material impact on reported result as sample is ND for this parameter.
BS1.3	Blank Spike recovery meets the wider acceptance criteria of 50-150% when the spike level is at or below the reporting limit (RL).
BS4.0	BS/BSD RPD exceeded the method acceptance limit as one of the blank spikes recovered outside limits.
CV0.0	CCV recovery was above method acceptance limits; no material impact on reported result as sample detection is below the reporting limit for this parameter.
J	Estimated value
MS1.0	Matrix spike recoveries exceed control limits.
MS1.2	Matrix spike recovery exceeds lower control limit. Reported results for parent matrix should be considered estimated due to matrix interferences.

Report Distribution

Recipient(s)	Report Format	CC:
Geralyn Skapik	MCL.RPT	
Christofer Coppinger	MCL.RPT	
John Bissel	MCL.RPT	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1710-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(C)

Sample Date - Time: 10/16/2019 - 16:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.54 Temp=14.8 ºC Cond.=219 umho Turb. =6.86 ntu

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aggressive Index		**12**						A916115	10/24/19	10/24/19	
Alkalinity as CaCO3	SM 2320B	**110**		3.0	mg/L	1		A915740	10/17/19	10/17/19	
Bicarbonate as CaCO3	SM 2320B	**110**		3.0	mg/L	1		A915740	10/17/19	10/17/19	
Carbonate as CaCO3	SM 2320B	**5.6**		3.0	mg/L	1		A915740	10/17/19	10/17/19	
Hydroxide as CaCO3	SM 2320B	ND		3.0	mg/L	1		A915740	10/17/19	10/17/19	
Chloride	EPA 300.0	**1.0**	0.51	1.0	mg/L	1		A915762	10/17/19	10/17/19	
Color, Apparent	SM 2120B	**15**		5.0	CU	1		A915547	10/17/19 18:48	10/17/19	
Color pH (1)	SM 4500-H+ B	**8.4**			pH Units	1		A915547	10/17/19	10/17/19	
Cyanide (total)	SM 4500-CN E	ND	0.0022	0.0050	mg/L	1	0.15	A915897	10/21/19	10/28/19	
Conductivity @ 25C	SM 2510B	**220**		1.0	umhos/cm	1		A915740	10/17/19	10/17/19	
Fluoride	EPA 300.0	**0.16**	0.042	0.10	mg/L	1	2	A916233	10/26/19	10/26/19	
Hexavalent Chromium	EPA 218.7	**0.019**	0.011	0.050	ug/L	1	50	A915798	10/18/19	10/18/19	J
Langelier Index	SM 2330B	**-0.077**						A916357	10/29/19	10/29/19	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.021	0.050	mg/L	1		A915795	10/18/19 12:30	10/18/19	
Nitrate + Nitrite as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A915762	10/17/19 20:20	10/17/19	
Nitrate as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A915762	10/17/19 20:20	10/17/19	
Nitrite as N	EPA 300.0	ND	0.020	0.050	mg/L	1	1	A915762	10/17/19 20:20	10/17/19	
Threshold Odor	SM 2150B	ND		1.0	T.O.N.	1		A915537	10/17/19 13:58	10/17/19	
Perchlorate	EPA 314.0	ND	0.61	2.0	ug/L	1	6	A915832	10/18/19	10/18/19	MS1.2
pH (1)	SM 4500-H+ B	**8.4**			pH Units	1		A915740	10/17/19	10/17/19	
pH Temperature in °C		**22.6**									
Sulfate as SO4	EPA 300.0	**2.7**	0.40	1.0	mg/L	1		A915762	10/17/19	10/17/19	
Total Dissolved Solids	SM 2540C	**140**		5.0	mg/L	1		A915961	10/22/19	10/25/19	
Turbidity	SM 2130B	**2.3**		0.10	NTU	1		A915547	10/17/19 19:05	10/17/19	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	**0.80**	0.023	0.050	mg/L	1	1	A915802	10/21/19	10/22/19	
Antimony	EPA 200.8	ND	0.91	2.0	ug/L	1	6	A915802	10/21/19	10/24/19	
Arsenic	EPA 200.8	ND	1.2	2.0	ug/L	1	10	A915802	10/21/19	10/24/19	
Barium	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A915802	10/21/19	10/22/19	
Beryllium	EPA 200.8	ND	0.45	1.0	ug/L	1	4	A915802	10/21/19	10/24/19	
Cadmium	EPA 200.8	ND	0.45	1.0	ug/L	1	5	A915802	10/21/19	10/24/19	
Calcium	EPA 200.7	**9.1**	0.046	0.10	mg/L	1		A915802	10/21/19	10/22/19	
Chromium	EPA 200.8	**6.7**	4.5	10	ug/L	1	50	A915802	10/21/19	10/24/19	J
Copper	EPA 200.8	**3.2**	2.3	5.0	ug/L	1		A915802	10/21/19	10/24/19	J
Iron	EPA 200.7	**1.4**	0.014	0.030	mg/L	1		A915802	10/21/19	10/22/19	
Lead	EPA 200.8	ND	0.45	1.0	ug/L	1		A915802	10/21/19	10/24/19	
Magnesium	EPA 200.7	**1.3**	0.046	0.10	mg/L	1		A915802	10/21/19	10/22/19	
Manganese	EPA 200.7	**0.020**	0.0045	0.010	mg/L	1		A915802	10/21/19	10/22/19	

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A9L1710 FINAL 01272020 1553

Certificate of Analysis

Sample ID: A9L1710-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(C)

Sample Date - Time: 10/16/2019 - 16:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.54 Temp=14.8 ºC Cond.=219 umho Turb. =6.86 ntu

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Mercury	EPA 200.8	ND	0.091	0.20	ug/L	1	2	A915802	10/21/19	10/24/19	
Nickel	EPA 200.8	ND	4.5	10	ug/L	1	100	A915802	10/21/19	10/24/19	
Potassium	EPA 200.7	ND	0.91	2.0	mg/L	1		A915802	10/21/19	10/22/19	
Selenium	EPA 200.8	ND	0.91	2.0	ug/L	1	50	A915802	10/21/19	10/24/19	
Silver	EPA 200.8	ND	4.5	10	ug/L	1		A915802	10/21/19	10/24/19	
Sodium	EPA 200.7	**43**	0.45	1.0	mg/L	1		A915802	10/21/19	10/22/19	
Thallium	EPA 200.8	ND	0.45	1.0	ug/L	1	2	A915802	10/21/19	10/24/19	
Hardness as CaCO3	SM 2340B	**28**		0.41	mg/L						
Uranium	EPA 200.8	ND	0.45	1.0	ug/L	1	30	A915802	10/21/19	10/24/19	
Uranium, Radiological		**< 0.67**		0.67	pCi/L		20				
Zinc	EPA 200.7	**0.035**	0.023	0.050	mg/L	1		A915802	10/21/19	10/22/19	J

Microbiology

Analyte	Method	Result	RL	Units	Batch	Prepared	Analyzed	Qual
Coliform, Total and E.Coli by Quanti-Tray 51 Wells								
E. Coli	SM 9223B	**<1**	1	MPN/100 mL	A915751	10/17/19 14:27	10/18/19 10:16	
Total Coliform	SM 9223B	**<1**	1	MPN/100 mL	A915751	10/17/19 14:27	10/18/19 10:16	

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
EDB and DBCP by GC-ECD											
Dibromochloropropane (DBCP)	EPA 504.1	ND	0.0060	0.010	ug/L	1	0.2	A915965	10/22/19	10/23/19	
Ethylene Dibromide (EDB)	EPA 504.1	ND	0.0050	0.020	ug/L	1	0.05	A915965	10/22/19	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 504.1	99 %		*Acceptable range: 70-130 %*							
Organohalide Pesticides and PCBs by GC-ECD											
Aldrin	EPA 505	ND	0.022	0.075	ug/L	1		A915965	10/22/19	10/23/19	
Chlordane (Technical)	EPA 505	ND	0.091	0.10	ug/L	1	0.1	A915965	10/22/19	10/23/19	
Dieldrin	EPA 505	ND	0.0042	0.020	ug/L	1		A915965	10/22/19	10/23/19	
Endrin	EPA 505	ND	0.0037	0.10	ug/L	1	2	A915965	10/22/19	10/23/19	
Heptachlor	EPA 505	ND	0.0052	0.010	ug/L	1	0.01	A915965	10/22/19	10/23/19	
Heptachlor Epoxide	EPA 505	ND	0.0048	0.010	ug/L	1	0.01	A915965	10/22/19	10/23/19	
Hexachlorobenzene	EPA 505	ND	0.032	0.50	ug/L	1	1	A915965	10/22/19	10/23/19	
Hexachlorocyclopentadiene	EPA 505	ND	0.041	1.0	ug/L	1	50	A915965	10/22/19	10/23/19	
Lindane	EPA 505	ND	0.0059	0.20	ug/L	1	0.2	A915965	10/22/19	10/23/19	
Methoxychlor	EPA 505	ND	0.031	10	ug/L	1	30	A915965	10/22/19	10/23/19	
PCB Aroclor Screen	EPA 505	ND	0.078	0.50	ug/L	1	0.5	A915965	10/22/19	10/23/19	
Toxaphene	EPA 505	ND	0.33	1.0	ug/L	1	3	A915965	10/22/19	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 505	99 %		*Acceptable range: 70-130 %*							
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-T	EPA 515.4	ND	0.13	1.0	ug/L	1		A915871	10/21/19	10/21/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1710-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(C)

Sample Date - Time: 10/16/2019 - 16:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.54 Temp=14.8 ºC Cond.=219 umho Turb. =6.86 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-TP (Silvex)	EPA 515.4	ND	0.016	1.0	ug/L	1	50	A915871	10/21/19	10/21/19	
2,4-D	EPA 515.4	ND	0.074	10	ug/L	1	70	A915871	10/21/19	10/21/19	
Bentazon	EPA 515.4	ND	1.3	2.0	ug/L	1	18	A915871	10/21/19	10/21/19	
Dalapon	EPA 515.4	ND	0.58	10	ug/L	1	200	A915871	10/21/19	10/21/19	
Dicamba	EPA 515.4	ND	0.13	1.5	ug/L	1		A915871	10/21/19	10/21/19	
Dinoseb	EPA 515.4	ND	0.032	2.0	ug/L	1	7	A915871	10/21/19	10/21/19	
Pentachlorophenol	EPA 515.4	ND	0.011	0.20	ug/L	1	1	A915871	10/21/19	10/21/19	
Picloram	EPA 515.4	ND	0.084	1.0	ug/L	1	500	A915871	10/21/19	10/21/19	
Surrogate: DCPAA	EPA 515.4	119 %		*Acceptable range: 70-130 %*							
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A915996	10/22/19	10/22/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A915996	10/22/19	10/22/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A915996	10/22/19	10/22/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A915996	10/22/19	10/22/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A915996	10/22/19	10/22/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A915996	10/22/19	10/22/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A915996	10/22/19	10/22/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915996	10/22/19	10/22/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A915996	10/22/19	10/22/19	BS1.0
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915996	10/22/19	10/22/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915996	10/22/19	10/22/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A915996	10/22/19	10/22/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A915996	10/22/19	10/22/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A915996	10/22/19	10/22/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A915996	10/22/19	10/22/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915996	10/22/19	10/22/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A915996	10/22/19	10/22/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915996	10/22/19	10/22/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A915996	10/22/19	10/22/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A915996	10/22/19	10/22/19	BS1.0
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915996	10/22/19	10/22/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A915996	10/22/19	10/22/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915996	10/22/19	10/22/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A915996	10/22/19	10/22/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A915996	10/22/19	10/22/19	BS1.0, CV0.0
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A915996	10/22/19	10/22/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A915996	10/22/19	10/22/19	BS1.0, CV0.0
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A915996	10/22/19	10/22/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1710-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(C)

Sample Date - Time: 10/16/2019 - 16:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.54 Temp=14.8 ºC Cond.=219 umho Turb. =6.86 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A915996	10/22/19	10/22/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A915996	10/22/19	10/22/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A915996	10/22/19	10/22/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A915996	10/22/19	10/22/19	BS1.0, CV0.0
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A915996	10/22/19	10/22/19	
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A915996	10/22/19	10/22/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915996	10/22/19	10/22/19	BS1.0
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A915996	10/22/19	10/22/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Methyl-t-butyl ether	EPA 524.2	ND	0.083	0.50	ug/L	1	13	A915996	10/22/19	10/22/19	
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915996	10/22/19	10/22/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A915996	10/22/19	10/22/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A915996	10/22/19	10/22/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A915996	10/22/19	10/22/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A915996	10/22/19	10/22/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A915996	10/22/19	10/22/19	BS1.0
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A915996	10/22/19	10/22/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A915996	10/22/19	10/22/19	BS1.0
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A915996	10/22/19	10/22/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A915996	10/22/19	10/22/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A915996	10/22/19	10/22/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A915996	10/22/19	10/22/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A915996	10/22/19	10/22/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A915996	10/22/19	10/22/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A915996	10/22/19	10/22/19	BS1.0
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	107 %			*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	104 %			*Acceptable range: 70-130 %*						
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				
Semi-Volatile Organics by GC-MS											
Alachlor	EPA 525.3	ND	0.022	1.0	ug/L	1	2	A915805	10/18/19	10/22/19	
Atrazine	EPA 525.3	ND	0.0076	0.50	ug/L	1	1	A915805	10/18/19	10/22/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1710-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(C)

Sample Date - Time: 10/16/2019 - 16:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.54 Temp=14.8 ºC Cond.=219 umho Turb. =6.86 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Semi-Volatile Organics by GC-MS											
Benzo(a)pyrene	EPA 525.3	ND	0.0019	0.10	ug/L	1	0.2	A915805	10/18/19	10/22/19	
Bis(2-ethylhexyl) adipate	EPA 525.3	ND	0.067	3.0	ug/L	1	400	A915805	10/18/19	10/22/19	BS1.0
Bis(2-ethylhexyl) phthalate	EPA 525.3	**0.98**	0.11	3.0	ug/L	1	4	A915805	10/18/19	10/22/19	J
Bromacil	EPA 525.3	ND	0.028	10	ug/L	1		A915805	10/18/19	10/22/19	BS1.0
Butachlor	EPA 525.3	ND	0.018	0.38	ug/L	1		A915805	10/18/19	10/22/19	BS1.0
Diazinon	EPA 525.3	ND	0.0022	0.25	ug/L	1		A915805	10/18/19	10/22/19	
Dimethoate	EPA 525.3	ND	0.082	10	ug/L	1		A915805	10/18/19	10/22/19	
Metolachlor	EPA 525.3	ND	0.011	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Metribuzin	EPA 525.3	ND	0.0061	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Molinate	EPA 525.3	ND	0.0061	2.0	ug/L	1	20	A915805	10/18/19	10/22/19	
Propachlor	EPA 525.3	ND	0.0056	0.50	ug/L	1		A915805	10/18/19	10/22/19	
Simazine	EPA 525.3	ND	0.0049	1.0	ug/L	1	4	A915805	10/18/19	10/22/19	
Thiobencarb	EPA 525.3	ND	0.0083	1.0	ug/L	1	70	A915805	10/18/19	10/22/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	EPA 525.3	99 %			*Acceptable range: 70-130 %*						
Surrogate: Benzo(a)pyrene-d12	EPA 525.3	93 %			*Acceptable range: 70-130 %*						
Surrogate: Triphenyl Phosphate	EPA 525.3	110 %			*Acceptable range: 70-130 %*						
Carbamates by HPLC											
3-Hydroxycarbofuran	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb Sulfone	EPA 531.1	ND	0.12	2.0	ug/L	1		A916157	10/25/19	10/26/19	
Aldicarb Sulfoxide	EPA 531.1	ND	0.12	3.0	ug/L	1		A916157	10/25/19	10/26/19	
Carbaryl	EPA 531.1	ND	0.22	5.0	ug/L	1		A916157	10/25/19	10/26/19	
Carbofuran	EPA 531.1	ND	0.27	5.0	ug/L	1	18	A916157	10/25/19	10/26/19	
Methomyl	EPA 531.1	ND	0.19	2.0	ug/L	1		A916157	10/25/19	10/26/19	
Oxamyl	EPA 531.1	ND	0.090	20	ug/L	1	50	A916157	10/25/19	10/26/19	
Glyphosate by HPLC											
Glyphosate	EPA 547	ND	2.1	25	ug/L	1	700	A915865	10/19/19	10/20/19	
Surrogate: AMPA	EPA 547	105 %			*Acceptable range: 70-130 %*						
Endothall by GC-MS											
Endothall	EPA 548.1	ND	1.6	45	ug/L	1	100	A916102	10/23/19	10/25/19	
Diquat by HPLC											
Diquat	EPA 549.2	ND	0.071	4.0	ug/L	1	20	A915875	10/21/19	10/26/19	
1,2,3-Trichloropropane by GC-MS SIM											
1,2,3-Trichloropropane	SRL 524M-TCP	ND	0.0014	0.0050	ug/L	1	0.005	A915968	10/22/19	10/23/19	

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Certificate of Analysis

Sample ID: A9L1710-02
Sampled By: BSK
Sample Description: Trip Blank 524 Raw 1019007

Sample Date - Time: 10/16/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A916097	10/23/19	10/24/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A916097	10/23/19	10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A916097	10/23/19	10/24/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A916097	10/23/19	10/24/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A916097	10/23/19	10/24/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A916097	10/23/19	10/24/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A916097	10/23/19	10/24/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A916097	10/23/19	10/24/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A916097	10/23/19	10/24/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A916097	10/23/19	10/24/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A916097	10/23/19	10/24/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A916097	10/23/19	10/24/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A916097	10/23/19	10/24/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A916097	10/23/19	10/24/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A916097	10/23/19	10/24/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A916097	10/23/19	10/24/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A916097	10/23/19	10/24/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1710-02
Sampled By: BSK
Sample Description: Trip Blank 524 Raw 1019007

Sample Date - Time: 10/16/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A916097	10/23/19	10/24/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A916097	10/23/19	10/24/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Methyl-t-butyl ether	EPA 524.2	ND	0.083	0.50	ug/L	1	13	A916097	10/23/19	10/24/19	
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A916097	10/23/19	10/24/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A916097	10/23/19	10/24/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A916097	10/23/19	10/24/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A916097	10/23/19	10/24/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A916097	10/23/19	10/24/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A916097	10/23/19	10/24/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A916097	10/23/19	10/24/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A916097	10/23/19	10/24/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A916097	10/23/19	10/24/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A916097	10/23/19	10/24/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A916097	10/23/19	10/24/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A916097	10/23/19	10/24/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A916097	10/23/19	10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	110 %		*Acceptable range: 70-130 %*							
Surrogate: Bromofluorobenzene	EPA 524.2	111 %		*Acceptable range: 70-130 %*							
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				

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BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 218.7 - Quality Control												
Batch: A915798											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A915798-BLK1)												
Hexavalent Chromium	ND	0.011	0.050	ug/L							10/18/19	
Blank Spike (A915798-BS1)												
Hexavalent Chromium	0.060	0.011	0.050	ug/L	0.050		120	50-150			10/18/19	
Matrix Spike (A915798-MS1), Source: S9J0271-01												
Hexavalent Chromium	3.9	0.011	0.050	ug/L	2.0	1.8	102	85-115			10/18/19	
Matrix Spike Dup (A915798-MSD1), Source: S9J0271-01												
Hexavalent Chromium	3.8	0.011	0.050	ug/L	2.0	1.8	98	85-115	2	15	10/18/19	
EPA 300.0 - Quality Control												
Batch: A915762											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A915762-BLK1)												
Chloride	ND	0.51	1.0	mg/L							10/17/19	
Nitrate + Nitrite as N	ND	0.099	0.23	mg/L							10/17/19	
Nitrate as N	ND	0.099	0.23	mg/L							10/17/19	
Nitrite as N	ND	0.020	0.050	mg/L							10/17/19	
Sulfate as SO4	ND	0.40	1.0	mg/L							10/17/19	
Blank Spike (A915762-BS1)												
Chloride	95	0.51	1.0	mg/L	100		95	90-110			10/17/19	
Nitrate as N	21	0.099	0.23	mg/L	23		94	90-110			10/17/19	
Nitrite as N	0.93	0.020	0.050	mg/L	1.0		93	90-110			10/17/19	
Sulfate as SO4	95	0.40	1.0	mg/L	100		95	90-110			10/17/19	
Matrix Spike (A915762-MS1), Source: A9J1707-01												
Chloride	48	0.51	1.0	mg/L	50	1.2	94	80-120			10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	90	80-120			10/17/19	
Nitrite as N	0.40	0.020	0.050	mg/L	0.50	0.028	74	50-110			10/17/19	
Sulfate as SO4	50	0.40	1.0	mg/L	50	3.6	93	80-120			10/17/19	
Matrix Spike (A915762-MS2), Source: A9J1707-02												
Chloride	48	0.51	1.0	mg/L	50	0.99	95	80-120			10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	90	80-120			10/17/19	
Nitrite as N	0.40	0.020	0.050	mg/L	0.50	ND	80	50-110			10/17/19	
Sulfate as SO4	50	0.40	1.0	mg/L	50	2.8	94	80-120			10/17/19	
Matrix Spike Dup (A915762-MSD1), Source: A9J1707-01												
Chloride	49	0.51	1.0	mg/L	50	1.2	96	80-120	2	20	10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	92	80-120	2	20	10/17/19	
Nitrite as N	0.41	0.020	0.050	mg/L	0.50	0.028	77	50-110	3	20	10/17/19	
Sulfate as SO4	51	0.40	1.0	mg/L	50	3.6	95	80-120	2	20	10/17/19	

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control												
Batch: A915762											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Matrix Spike Dup (A915762-MSD2), Source: A9J1707-02												
Chloride	50	0.51	1.0	mg/L	50	0.99	97	80-120	2	20	10/17/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	92	80-120	2	20	10/17/19	
Nitrite as N	0.42	0.020	0.050	mg/L	0.50	ND	83	50-110	3	20	10/17/19	
Sulfate as SO4	51	0.40	1.0	mg/L	50	2.8	96	80-120	2	20	10/17/19	
EPA 300.0 - Quality Control												
Batch: A916233											Prepared: 10/25/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A916233-BLK1)												
Fluoride	ND	0.042	0.10	mg/L							10/25/19	
Blank Spike (A916233-BS1)												
Fluoride	0.99	0.042	0.10	mg/L	1.0		99	90-110			10/25/19	
Matrix Spike (A916233-MS1), Source: A9J2907-01												
Fluoride	0.62	0.042	0.10	mg/L	0.50	0.14	96	80-120			10/25/19	
Matrix Spike (A916233-MS2), Source: A9J2911-01												
Fluoride	0.74	0.042	0.10	mg/L	0.50	0.25	97	80-120			10/26/19	
Matrix Spike Dup (A916233-MSD1), Source: A9J2907-01												
Fluoride	0.62	0.042	0.10	mg/L	0.50	0.14	95	80-120	1	10	10/25/19	
Matrix Spike Dup (A916233-MSD2), Source: A9J2911-01												
Fluoride	0.75	0.042	0.10	mg/L	0.50	0.25	100	80-120	1	10	10/26/19	
EPA 314.0 - Quality Control												
Batch: A915832											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: RES	
Blank (A915832-BLK1)												
Perchlorate	ND	0.61	2.0	ug/L							10/18/19	
Blank Spike (A915832-BS1)												
Perchlorate	15	0.61	2.0	ug/L	15		101	85-115			10/18/19	
Matrix Spike (A915832-MS1), Source: A9L1710-01												
Perchlorate	4.3	0.61	2.0	ug/L	5.0	ND	86	80-120			10/18/19	
Matrix Spike Dup (A915832-MSD1), Source: A9L1710-01												
Perchlorate	4.0	0.61	2.0	ug/L	5.0	ND	79	80-120	8	15	10/18/19	MS1.0 ***Low***

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2120B - Quality Control												
Batch: A915547											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Blank (A915547-BLK1)												
Color, Apparent	ND		5.0	CU							10/17/19	
Duplicate (A915547-DUP1), Source: A9J2008-01												
Color, Apparent	45		5.0	CU		45			0	20	10/17/19	
Duplicate (A915547-DUP2), Source: A9J2076-01												
Color, Apparent	ND		5.0	CU		ND				20	10/17/19	
SM 2130B - Quality Control												
Batch: A915547											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Blank (A915547-BLK1)												
Turbidity	ND		0.10	NTU							10/17/19	
Duplicate (A915547-DUP1), Source: A9J2008-01												
Turbidity	2.2		0.10	NTU		2.2			1	20	10/17/19	
SM 2150B - Quality Control												
Batch: A915537											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Blank (A915537-BLK1)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
Blank (A915537-BLK2)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
Blank (A915537-BLK3)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
Blank (A915537-BLK4)												
Threshold Odor	ND		1.0	T.O.N.							10/17/19	
SM 2320B - Quality Control												
Batch: A915740											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A915740-BLK1)												
Alkalinity as CaCO3	ND		3.0	mg/L							10/17/19	
Bicarbonate as CaCO3	ND		3.0	mg/L							10/17/19	
Carbonate as CaCO3	ND		3.0	mg/L							10/17/19	
Hydroxide as CaCO3	ND		3.0	mg/L							10/17/19	
Blank Spike (A915740-BS1)												

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2320B - Quality Control												
Batch: A915740											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike (A915740-BS1)												
Alkalinity as CaCO3	96		3.0	mg/L	100	ND	96	80-120			10/17/19	
Blank Spike Dup (A915740-BSD1)												
Alkalinity as CaCO3	96		3.0	mg/L	100	ND	96	80-120	1	20	10/17/19	
Duplicate (A915740-DUP1), Source: A9J2117-01												
Alkalinity as CaCO3	81		3.0	mg/L		81			1	10	10/17/19	
Bicarbonate as CaCO3	81		3.0	mg/L		81			1	10	10/17/19	
Carbonate as CaCO3	ND		3.0	mg/L		ND				10	10/17/19	
Hydroxide as CaCO3	ND		3.0	mg/L		ND				10	10/17/19	
SM 2510B - Quality Control												
Batch: A915740											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike (A915740-BS1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	98	90-110			10/17/19	
Blank Spike Dup (A915740-BSD1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110	1	5	10/17/19	
Duplicate (A915740-DUP1), Source: A9J2117-01												
Conductivity @ 25C	190		1.0	umhos/cm		190			1	5	10/17/19	
SM 2540C - Quality Control												
Batch: A915961											Prepared: 10/22/2019	
Prep Method: Method Specific Preparation											Analyst: DEH	
Blank (A915961-BLK1)												
Total Dissolved Solids	ND		5.0	mg/L							10/25/19	
Blank Spike (A915961-BS1)												
Total Dissolved Solids	990		5.0	mg/L	1000	ND	99	70-130			10/25/19	
Duplicate (A915961-DUP1), Source: A9J1793-01												
Total Dissolved Solids	78		5.0	mg/L		76			3	10	10/25/19	
Duplicate (A915961-DUP2), Source: A9J2179-01												
Total Dissolved Solids	1100		5.0	mg/L		1100			4	10	10/25/19	
SM 4500-CN E - Quality Control												
Batch: A915897											Prepared: 10/21/2019	
Prep Method: Total Cyanide Distillation											Analyst: CEG	
Blank (A915897-BLK1)												
Cyanide (total)	ND	0.0022	0.0050	mg/L							10/28/19	

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 4500-CN E - Quality Control												
Batch: A915897											Prepared: 10/21/2019	
Prep Method: Total Cyanide Distillation											Analyst: CEG	
Blank (A915897-BLK1)												
Blank Spike (A915897-BS1)												
Cyanide (total)	0.24	0.0022	0.0050	mg/L	0.25		98	80-120			10/28/19	
Blank Spike Dup (A915897-BSD1)												
Cyanide (total)	0.24	0.0022	0.0050	mg/L	0.25		98	80-120	0	20	10/28/19	
Matrix Spike (A915897-MS1), Source: V9J0296-02												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25	0.0029	102	80-120			10/28/19	
Matrix Spike Dup (A915897-MSD1), Source: V9J0296-02												
Cyanide (total)	0.25	0.0022	0.0050	mg/L	0.25	0.0029	98	80-120	4	20	10/28/19	
SM 4500-H+ B - Quality Control												
Batch: A915547											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: SNH	
Duplicate (A915547-DUP1), Source: A9J2008-01												
Color pH (1)	4.50			pH Units		4.50			0		10/17/19	
Duplicate (A915547-DUP2), Source: A9J2076-01												
Color pH (1)	7.70			pH Units		7.70			0		10/17/19	
SM 4500-H+ B - Quality Control												
Batch: A915740											Prepared: 10/17/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Duplicate (A915740-DUP1), Source: A9J2117-01												
pH (1)	8.06			pH Units		8.07			0		10/17/19	
SM 5540C - Quality Control												
Batch: A915795											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: SYY	
Blank (A915795-BLK1)												
MBAS, Calculated as LAS, mol wt 340	ND	0.021	0.050	mg/L							10/18/19	
Blank Spike (A915795-BS1)												
MBAS, Calculated as LAS, mol wt 340	0.98	0.021	0.050	mg/L	1.0		98	82-112			10/18/19	
Blank Spike Dup (A915795-BSD1)												
MBAS, Calculated as LAS, mol wt 340	0.98	0.021	0.050	mg/L	1.0		98	82-112	0	20	10/18/19	
Matrix Spike (A915795-MS1), Source: A9J1707-01												
MBAS, Calculated as LAS, mol wt 340	0.98	0.021	0.050	mg/L	1.0	ND	98	80-112			10/18/19	

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 5540C - Quality Control												
Batch: A915795											Prepared: 10/18/2019	
Prep Method: Method Specific Preparation											Analyst: SYY	
Matrix Spike Dup (A915795-MSD1), Source: A9J1707-01												
MBAS, Calculated as LAS, mol wt 340	0.97	0.021	0.050	mg/L	1.0	ND	97	80-112	1	20	10/18/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: mds	
Blank (A915802-BLK2)												
Aluminum	ND	0.023	0.050	mg/L							10/22/19	
Barium	ND	0.023	0.050	mg/L							10/22/19	
Calcium	ND	0.046	0.10	mg/L							10/22/19	
Iron	ND	0.014	0.030	mg/L							10/22/19	
Magnesium	ND	0.046	0.10	mg/L							10/22/19	
Manganese	ND	0.0045	0.010	mg/L							10/22/19	
Potassium	ND	0.91	2.0	mg/L							10/22/19	
Sodium	ND	0.45	1.0	mg/L							10/22/19	
Zinc	ND	0.023	0.050	mg/L							10/22/19	
Blank Spike (A915802-BS2)												
Aluminum	0.20	0.023	0.050	mg/L	0.20		99	85-115			10/22/19	
Barium	0.19	0.023	0.050	mg/L	0.20		95	85-115			10/22/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		96	85-115			10/22/19	
Iron	0.21	0.014	0.030	mg/L	0.20		103	85-115			10/22/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0		100	85-115			10/22/19	
Manganese	0.19	0.0045	0.010	mg/L	0.20		97	85-115			10/22/19	
Potassium	3.8	0.91	2.0	mg/L	4.0		95	85-115			10/22/19	
Sodium	4.0	0.45	1.0	mg/L	4.0		99	85-115			10/22/19	
Zinc	0.21	0.023	0.050	mg/L	0.20		103	85-115			10/22/19	
Blank Spike Dup (A915802-BSD2)												
Aluminum	0.20	0.023	0.050	mg/L	0.20		99	85-115	0	20	10/22/19	
Barium	0.19	0.023	0.050	mg/L	0.20		95	85-115	0	20	10/22/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		96	85-115	0	20	10/22/19	
Iron	0.20	0.014	0.030	mg/L	0.20		101	85-115	2	20	10/22/19	
Magnesium	3.9	0.046	0.10	mg/L	4.0		99	85-115	2	20	10/22/19	
Manganese	0.19	0.0045	0.010	mg/L	0.20		96	85-115	1	20	10/22/19	
Potassium	3.8	0.91	2.0	mg/L	4.0		94	85-115	1	20	10/22/19	
Sodium	3.9	0.45	1.0	mg/L	4.0		98	85-115	1	20	10/22/19	
Zinc	0.20	0.023	0.050	mg/L	0.20		99	85-115	3	20	10/22/19	
Matrix Spike (A915802-MS3), Source: A9J1707-01												
Aluminum	0.23	0.023	0.050	mg/L	0.20	ND	116	70-130			10/22/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130			10/22/19	
Calcium	63	0.046	0.10	mg/L	4.0	58	137	70-130			10/22/19	MS1.0 ***High***
Iron	0.40	0.014	0.030	mg/L	0.20	0.19	105	70-130			10/22/19	
Magnesium	9.5	0.046	0.10	mg/L	4.0	5.4	103	70-130			10/22/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20	0.016	97	70-130			10/22/19	
Potassium	5.4	0.91	2.0	mg/L	4.0	1.4	99	70-130			10/22/19	
Sodium	15	0.45	1.0	mg/L	4.0	11	108	70-130			10/22/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	101	70-130			10/22/19	
Matrix Spike (A915802-MS4), Source: A9J2009-01												
Aluminum	2.3	0.023	0.050	mg/L	0.20	1.4	437	70-130			10/22/19	MS1.0 ***High***
Barium	0.21	0.023	0.050	mg/L	0.20	ND	107	70-130			10/22/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: mds	
Matrix Spike (A915802-MS4), Source: A9J2009-01												
Calcium	20	0.046	0.10	mg/L	4.0	16	95	70-130			10/22/19	
Iron	1.9	0.014	0.030	mg/L	0.20	1.4	220	70-130			10/22/19	MS1.0 ***High***
Magnesium	17	0.046	0.10	mg/L	4.0	13	94	70-130			10/22/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.031	96	70-130			10/22/19	
Potassium	5.3	0.91	2.0	mg/L	4.0	1.6	94	70-130			10/22/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	87	70-130			10/22/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	105	70-130			10/22/19	
Matrix Spike Dup (A915802-MSD3), Source: A9J1707-01												
Aluminum	0.21	0.023	0.050	mg/L	0.20	ND	104	70-130	11	20	10/22/19	
Barium	0.19	0.023	0.050	mg/L	0.20	ND	97	70-130	1	20	10/22/19	
Calcium	63	0.046	0.10	mg/L	4.0	58	125	70-130	1	20	10/22/19	
Iron	0.39	0.014	0.030	mg/L	0.20	0.19	100	70-130	3	20	10/22/19	
Magnesium	9.3	0.046	0.10	mg/L	4.0	5.4	96	70-130	3	20	10/22/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20	0.016	96	70-130	1	20	10/22/19	
Potassium	5.1	0.91	2.0	mg/L	4.0	1.4	93	70-130	5	20	10/22/19	
Sodium	15	0.45	1.0	mg/L	4.0	11	105	70-130	1	20	10/22/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130	3	20	10/22/19	
Matrix Spike Dup (A915802-MSD4), Source: A9J2009-01												
Aluminum	2.3	0.023	0.050	mg/L	0.20	1.4	463	70-130	2	20	10/22/19	MS1.0 ***High***
Barium	0.22	0.023	0.050	mg/L	0.20	ND	108	70-130	1	20	10/22/19	
Calcium	21	0.046	0.10	mg/L	4.0	16	111	70-130	3	20	10/22/19	
Iron	1.9	0.014	0.030	mg/L	0.20	1.4	235	70-130	2	20	10/22/19	MS1.0 ***High***
Magnesium	17	0.046	0.10	mg/L	4.0	13	107	70-130	3	20	10/22/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.031	97	70-130	1	20	10/22/19	
Potassium	5.4	0.91	2.0	mg/L	4.0	1.6	95	70-130	1	20	10/22/19	
Sodium	53	0.45	1.0	mg/L	4.0	46	151	70-130	5	20	10/22/19	MS1.0 ***High***
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	104	70-130	1	20	10/22/19	
EPA 200.8 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A915802-BLK1)												
Antimony	ND	0.91	2.0	ug/L							10/24/19	
Arsenic	ND	1.2	2.0	ug/L							10/24/19	
Beryllium	ND	0.45	1.0	ug/L							10/24/19	
Cadmium	ND	0.45	1.0	ug/L							10/24/19	
Chromium	ND	4.5	10	ug/L							10/24/19	
Copper	ND	2.3	5.0	ug/L							10/24/19	
Lead	ND	0.45	1.0	ug/L							10/24/19	
Mercury	ND	0.091	0.20	ug/L							10/24/19	
Nickel	ND	4.5	10	ug/L							10/24/19	
Selenium	ND	0.91	2.0	ug/L							10/24/19	
Silver	ND	4.5	10	ug/L							10/24/19	

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BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A915802-BLK1)												
Thallium	ND	0.45	1.0	ug/L							10/24/19	
Uranium	ND	0.45	1.0	ug/L							10/24/19	
Blank Spike (A915802-BS1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115			10/24/19	
Arsenic	190	1.2	2.0	ug/L	200		96	85-115			10/24/19	
Beryllium	190	0.45	1.0	ug/L	200		94	85-115			10/24/19	
Cadmium	190	0.45	1.0	ug/L	200		95	85-115			10/24/19	
Chromium	190	4.5	10	ug/L	200		96	85-115			10/24/19	
Copper	190	2.3	5.0	ug/L	200		94	85-115			10/24/19	
Lead	190	0.45	1.0	ug/L	200		94	85-115			10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0		94	85-115			10/24/19	
Nickel	190	4.5	10	ug/L	200		97	85-115			10/24/19	
Selenium	190	0.91	2.0	ug/L	200		93	85-115			10/24/19	
Silver	92	4.5	10	ug/L	100		92	75-125			10/24/19	
Thallium	190	0.45	1.0	ug/L	200		93	85-115			10/24/19	
Uranium	200	0.45	1.0	ug/L	200		102	85-115			10/24/19	
Blank Spike Dup (A915802-BSD1)												
Antimony	210	0.91	2.0	ug/L	200		103	85-115	1	20	10/24/19	
Arsenic	190	1.2	2.0	ug/L	200		95	85-115	1	20	10/24/19	
Beryllium	190	0.45	1.0	ug/L	200		95	85-115	1	20	10/24/19	
Cadmium	190	0.45	1.0	ug/L	200		96	85-115	1	20	10/24/19	
Chromium	190	4.5	10	ug/L	200		95	85-115	1	20	10/24/19	
Copper	180	2.3	5.0	ug/L	200		92	85-115	2	20	10/24/19	
Lead	190	0.45	1.0	ug/L	200		95	85-115	1	20	10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0		94	85-115	0	20	10/24/19	
Nickel	190	4.5	10	ug/L	200		94	85-115	3	20	10/24/19	
Selenium	190	0.91	2.0	ug/L	200		93	85-115	0	20	10/24/19	
Silver	92	4.5	10	ug/L	100		92	75-125	0	20	10/24/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115	1	20	10/24/19	
Uranium	210	0.45	1.0	ug/L	200		105	85-115	3	20	10/24/19	
Matrix Spike (A915802-MS1), Source: A9J1707-01												
Antimony	210	0.91	2.0	ug/L	200	ND	104	70-130			10/24/19	
Arsenic	210	1.2	2.0	ug/L	200	12	97	70-130			10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130			10/24/19	
Cadmium	190	0.45	1.0	ug/L	200	ND	96	70-130			10/24/19	
Chromium	190	4.5	10	ug/L	200	ND	95	70-130			10/24/19	
Copper	180	2.3	5.0	ug/L	200	ND	92	70-130			10/24/19	
Lead	180	0.45	1.0	ug/L	200	ND	92	70-130			10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0	ND	94	70-130			10/24/19	
Nickel	190	4.5	10	ug/L	200	ND	96	70-130			10/24/19	
Selenium	190	0.91	2.0	ug/L	200	ND	94	70-130			10/24/19	
Silver	91	4.5	10	ug/L	100	ND	91	70-130			10/24/19	
Thallium	190	0.45	1.0	ug/L	200	ND	93	70-130			10/24/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A915802											Prepared: 10/21/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Matrix Spike (A915802-MS1), Source: A9J1707-01												
Uranium	220	0.45	1.0	ug/L	200	10	103	70-130			10/24/19	
Matrix Spike (A915802-MS2), Source: A9J2009-01												
Antimony	200	0.91	2.0	ug/L	200	ND	102	70-130			10/24/19	
Arsenic	200	1.2	2.0	ug/L	200	1.2	97	70-130			10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130			10/24/19	
Cadmium	200	0.45	1.0	ug/L	200	ND	98	70-130			10/24/19	
Chromium	210	4.5	10	ug/L	200	11	98	70-130			10/24/19	
Copper	190	2.3	5.0	ug/L	200	7.0	92	70-130			10/24/19	
Lead	180	0.45	1.0	ug/L	200	0.92	92	70-130			10/24/19	
Mercury	4.6	0.091	0.20	ug/L	5.0	ND	93	70-130			10/24/19	
Nickel	200	4.5	10	ug/L	200	6.4	98	70-130			10/24/19	
Selenium	190	0.91	2.0	ug/L	200	1.3	93	70-130			10/24/19	
Silver	91	4.5	10	ug/L	100	ND	91	70-130			10/24/19	
Thallium	180	0.45	1.0	ug/L	200	ND	91	70-130			10/24/19	
Uranium	210	0.45	1.0	ug/L	200	ND	103	70-130			10/24/19	
Matrix Spike Dup (A915802-MSD1), Source: A9J1707-01												
Antimony	210	0.91	2.0	ug/L	200	ND	106	70-130	2	20	10/24/19	
Arsenic	200	1.2	2.0	ug/L	200	12	96	70-130	1	20	10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	97	70-130	1	20	10/24/19	
Cadmium	190	0.45	1.0	ug/L	200	ND	97	70-130	1	20	10/24/19	
Chromium	200	4.5	10	ug/L	200	ND	99	70-130	4	20	10/24/19	
Copper	180	2.3	5.0	ug/L	200	ND	91	70-130	1	20	10/24/19	
Lead	190	0.45	1.0	ug/L	200	ND	93	70-130	1	20	10/24/19	
Mercury	4.7	0.091	0.20	ug/L	5.0	ND	93	70-130	1	20	10/24/19	
Nickel	180	4.5	10	ug/L	200	ND	92	70-130	4	20	10/24/19	
Selenium	180	0.91	2.0	ug/L	200	ND	91	70-130	2	20	10/24/19	
Silver	92	4.5	10	ug/L	100	ND	92	70-130	1	20	10/24/19	
Thallium	190	0.45	1.0	ug/L	200	ND	93	70-130	0	20	10/24/19	
Uranium	220	0.45	1.0	ug/L	200	10	105	70-130	1	20	10/24/19	
Matrix Spike Dup (A915802-MSD2), Source: A9J2009-01												
Antimony	200	0.91	2.0	ug/L	200	ND	101	70-130	0	20	10/24/19	
Arsenic	190	1.2	2.0	ug/L	200	1.2	97	70-130	1	20	10/24/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130	1	20	10/24/19	
Cadmium	200	0.45	1.0	ug/L	200	ND	98	70-130	0	20	10/24/19	
Chromium	210	4.5	10	ug/L	200	11	98	70-130	0	20	10/24/19	
Copper	190	2.3	5.0	ug/L	200	7.0	93	70-130	1	20	10/24/19	
Lead	190	0.45	1.0	ug/L	200	0.92	92	70-130	0	20	10/24/19	
Mercury	4.6	0.091	0.20	ug/L	5.0	ND	93	70-130	0	20	10/24/19	
Nickel	200	4.5	10	ug/L	200	6.4	96	70-130	2	20	10/24/19	
Selenium	190	0.91	2.0	ug/L	200	1.3	92	70-130	1	20	10/24/19	
Silver	92	4.5	10	ug/L	100	ND	92	70-130	1	20	10/24/19	
Thallium	180	0.45	1.0	ug/L	200	ND	90	70-130	0	20	10/24/19	
Uranium	210	0.45	1.0	ug/L	200	ND	104	70-130	2	20	10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 504.1 - Quality Control												
Batch: A915965											Prepared: 10/22/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A915965-BLK1)												
Dibromochloropropane (DBCP)	ND	0.0060	0.010	ug/L							10/22/19	
Ethylene Dibromide (EDB)	ND	0.0050	0.020	ug/L							10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.46*		*102*	*70-130*			10/22/19	
Blank Spike (A915965-BS1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		100	70-130			10/22/19	
Ethylene Dibromide (EDB)	0.096	0.0050	0.020	ug/L	0.10		96	70-130			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.47*				*0.46*		*103*	*70-130*			10/22/19	
Blank Spike Dup (A915965-BSD1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		102	70-130	2	20	10/23/19	
Ethylene Dibromide (EDB)	0.096	0.0050	0.020	ug/L	0.10		96	70-130	0	20	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*99*	*70-130*			10/23/19	
Matrix Spike (A915965-MS1), Source: A9J1860-01												
Dibromochloropropane (DBCP)	0.098	0.0060	0.010	ug/L	0.099	ND	99	65-135			10/22/19	
Ethylene Dibromide (EDB)	0.095	0.0050	0.020	ug/L	0.099	ND	96	65-135			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.45*		*102*	*70-130*			10/22/19	
Matrix Spike Dup (A915965-MSD1), Source: A9J1860-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10	ND	103	65-135	5	20	10/22/19	
Ethylene Dibromide (EDB)	0.098	0.0050	0.020	ug/L	0.10	ND	98	65-135	3	20	10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*98*	*70-130*			10/22/19	
EPA 505 - Quality Control												
Batch: A915965											Prepared: 10/22/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A915965-BLK1)												
Aldrin	ND	0.022	0.075	ug/L							10/22/19	
Chlordane (Technical)	ND	0.091	0.10	ug/L							10/22/19	
Dieldrin	ND	0.0042	0.020	ug/L							10/22/19	
Endrin	ND	0.0037	0.10	ug/L							10/22/19	
Heptachlor	ND	0.0052	0.010	ug/L							10/22/19	
Heptachlor Epoxide	ND	0.0048	0.010	ug/L							10/22/19	
Hexachlorobenzene	ND	0.032	0.50	ug/L							10/22/19	
Hexachlorocyclopentadiene	ND	0.041	1.0	ug/L							10/22/19	
Lindane	ND	0.0059	0.20	ug/L							10/22/19	
Methoxychlor	ND	0.031	0.20	ug/L							10/22/19	
PCB Aroclor Screen	ND	0.078	0.50	ug/L							10/22/19	
Toxaphene	ND	0.33	1.0	ug/L							10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.46*		*102*	*70-130*			10/22/19	
Blank Spike (A915965-BS1)												
Aldrin	0.74	0.022	0.075	ug/L	0.74		99	70-130			10/22/19	
Dieldrin	0.19	0.0042	0.020	ug/L	0.20		97	70-130			10/22/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 505 - Quality Control												
Batch: A915965											Prepared: 10/22/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank Spike (A915965-BS1)												
Endrin	0.098	0.0037	0.10	ug/L	0.10		98	70-130			10/22/19	J
Heptachlor	0.097	0.0052	0.010	ug/L	0.10		97	70-130			10/22/19	
Heptachlor Epoxide	0.098	0.0048	0.010	ug/L	0.10		98	70-130			10/22/19	
Hexachlorobenzene	0.97	0.032	0.50	ug/L	1.0		97	70-130			10/22/19	
Hexachlorocyclopentadiene	0.95	0.041	1.0	ug/L	1.0		95	70-130			10/22/19	J
Lindane	0.20	0.0059	0.20	ug/L	0.20		99	70-130			10/22/19	J
Methoxychlor	1.1	0.031	0.20	ug/L	1.0		107	70-130			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.47*				*0.46*		*103*	*70-130*			10/22/19	
Blank Spike Dup (A915965-BSD1)												
Aldrin	0.73	0.022	0.075	ug/L	0.74		99	70-130	0	20	10/23/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		100	70-130	3	20	10/23/19	
Endrin	0.10	0.0037	0.10	ug/L	0.10		100	70-130	2	20	10/23/19	J
Heptachlor	0.099	0.0052	0.010	ug/L	0.10		99	70-130	2	20	10/23/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		100	70-130	3	20	10/23/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	1.0		102	70-130	4	20	10/23/19	
Hexachlorocyclopentadiene	1.0	0.041	1.0	ug/L	1.0		100	70-130	5	20	10/23/19	J
Lindane	0.20	0.0059	0.20	ug/L	0.20		99	70-130	0	20	10/23/19	J
Methoxychlor	1.1	0.031	0.20	ug/L	1.0		110	70-130	2	20	10/23/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*99*	*70-130*			10/23/19	
Matrix Spike (A915965-MS1), Source: A9J1860-01												
Aldrin	0.71	0.022	0.075	ug/L	0.74	0.022	93	65-135			10/22/19	
Dieldrin	0.25	0.0042	0.020	ug/L	0.20	ND	123	65-135			10/22/19	
Endrin	0.098	0.0037	0.10	ug/L	0.099	ND	98	65-135			10/22/19	J
Heptachlor	0.097	0.0052	0.010	ug/L	0.099	ND	97	65-135			10/22/19	
Heptachlor Epoxide	0.11	0.0048	0.010	ug/L	0.099	ND	114	65-135			10/22/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	0.99	ND	100	65-135			10/22/19	
Hexachlorocyclopentadiene	0.97	0.041	1.0	ug/L	0.99	ND	98	65-135			10/22/19	J
Lindane	0.19	0.0059	0.20	ug/L	0.20	ND	97	65-135			10/22/19	J
Methoxychlor	1.0	0.031	0.20	ug/L	0.99	ND	103	65-135			10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.46*				*0.45*		*102*	*70-130*			10/22/19	
Matrix Spike Dup (A915965-MSD1), Source: A9J1860-01												
Aldrin	0.74	0.022	0.075	ug/L	0.74	0.022	97	65-135	5	20	10/22/19	
Dieldrin	0.24	0.0042	0.020	ug/L	0.20	ND	122	65-135	1	20	10/22/19	
Endrin	0.096	0.0037	0.10	ug/L	0.10	ND	96	65-135	2	20	10/22/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10	ND	101	65-135	4	20	10/22/19	
Heptachlor Epoxide	0.11	0.0048	0.010	ug/L	0.10	ND	113	65-135	0	20	10/22/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	1.0	ND	100	65-135	1	20	10/22/19	
Hexachlorocyclopentadiene	1.0	0.041	1.0	ug/L	1.0	ND	105	65-135	7	20	10/22/19	
Lindane	0.19	0.0059	0.20	ug/L	0.20	ND	97	65-135	1	20	10/22/19	J
Methoxychlor	1.1	0.031	0.20	ug/L	1.0	ND	107	65-135	5	20	10/22/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.45*				*0.46*		*98*	*70-130*			10/22/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A915871											Prepared: 10/21/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Blank (A915871-BLK1)												
2,4,5-T	ND	0.13	1.0	ug/L							10/21/19	
2,4,5-TP (Silvex)	ND	0.016	1.0	ug/L							10/21/19	
2,4-D	ND	0.074	10	ug/L							10/21/19	
Bentazon	ND	1.3	2.0	ug/L							10/21/19	
Dalapon	ND	0.58	10	ug/L							10/21/19	
Dicamba	ND	0.13	1.5	ug/L							10/21/19	
Dinoseb	ND	0.032	2.0	ug/L							10/21/19	
Pentachlorophenol	ND	0.011	0.20	ug/L							10/21/19	
Picloram	ND	0.084	1.0	ug/L							10/21/19	
Surrogate: DCPAA	*41*				*36*		*114*	*70-130*			10/21/19	
Blank Spike (A915871-BS1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		97	70-130			10/21/19	
2,4,5-TP (Silvex)	0.82	0.016	1.0	ug/L	0.80		103	70-130			10/21/19	J
2,4-D	0.39	0.074	10	ug/L	0.40		98	70-130			10/21/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		99	70-130			10/21/19	J
Dalapon	4.0	0.58	10	ug/L	4.0		99	70-130			10/21/19	J
Dicamba	0.80	0.13	1.5	ug/L	0.80		100	70-130			10/21/19	J
Dinoseb	0.80	0.032	2.0	ug/L	0.80		101	70-130			10/21/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		101	70-130			10/21/19	J
Picloram	0.40	0.084	1.0	ug/L	0.40		101	70-130			10/21/19	J
Surrogate: DCPAA	*38*				*36*		*106*	*70-130*			10/21/19	
Blank Spike Dup (A915871-BSD1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		99	70-130	2	20	10/21/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130	2	20	10/21/19	J
2,4-D	0.41	0.074	10	ug/L	0.40		103	70-130	5	20	10/21/19	J
Bentazon	1.9	1.3	2.0	ug/L	2.0		97	70-130	2	20	10/21/19	J
Dalapon	4.0	0.58	10	ug/L	4.0		99	70-130	0	20	10/21/19	J
Dicamba	0.80	0.13	1.5	ug/L	0.80		100	70-130	0	20	10/21/19	J
Dinoseb	0.80	0.032	2.0	ug/L	0.80		100	70-130	0	20	10/21/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		101	70-130	0	20	10/21/19	J
Picloram	0.40	0.084	1.0	ug/L	0.40		100	70-130	1	20	10/21/19	J
Surrogate: DCPAA	*38*				*36*		*107*	*70-130*			10/21/19	
Matrix Spike (A915871-MS1), Source: A9J1738-01												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6	ND	102	70-130			10/21/19	
2,4,5-TP (Silvex)	0.83	0.016	1.0	ug/L	0.80	ND	103	70-130			10/21/19	J
2,4-D	0.39	0.074	10	ug/L	0.40	ND	97	70-130			10/21/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	100	70-130			10/21/19	
Dalapon	3.9	0.58	10	ug/L	4.0	ND	99	70-130			10/21/19	J
Dicamba	0.82	0.13	1.5	ug/L	0.80	ND	103	70-130			10/21/19	J
Dinoseb	0.83	0.032	2.0	ug/L	0.80	ND	103	70-130			10/21/19	J
Pentachlorophenol	0.17	0.011	0.20	ug/L	0.16	ND	104	70-130			10/21/19	J
Picloram	0.41	0.084	1.0	ug/L	0.40	ND	102	70-130			10/21/19	J
Surrogate: DCPAA	*38*				*36*		*106*	*70-130*			10/21/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A915871											Prepared: 10/21/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Matrix Spike Dup (A915871-MSD1), Source: A9J1738-01												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6	ND	102	70-130	0	30	10/21/19	
2,4,5-TP (Silvex)	0.82	0.016	1.0	ug/L	0.80	ND	102	70-130	1	30	10/21/19	J
2,4-D	0.39	0.074	10	ug/L	0.40	ND	98	70-130	1	30	10/21/19	J
Bentazon	1.9	1.3	2.0	ug/L	2.0	ND	96	70-130	4	30	10/21/19	J
Dalapon	4.0	0.58	10	ug/L	4.0	ND	100	70-130	1	30	10/21/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	101	70-130	2	30	10/21/19	J
Dinoseb	0.82	0.032	2.0	ug/L	0.80	ND	102	70-130	1	30	10/21/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16	ND	101	70-130	2	30	10/21/19	J
Picloram	0.41	0.084	1.0	ug/L	0.40	ND	102	70-130	1	30	10/21/19	J
Surrogate: DCPAA	*38*				*36*		*105*	*70-130*			10/21/19	
EPA 524.2 - Quality Control												
Batch: A915996											Prepared: 10/22/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A915996-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							10/22/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							10/22/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							10/22/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							10/22/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							10/22/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							10/22/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							10/22/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							10/22/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							10/22/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							10/22/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							10/22/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							10/22/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							10/22/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							10/22/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							10/22/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							10/22/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							10/22/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							10/22/19	
2,2-Dichloropropane	ND	0.32	0.50	ug/L							10/22/19	
2-Butanone	ND	0.42	5.0	ug/L							10/22/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							10/22/19	
2-Hexanone	ND	0.48	10	ug/L							10/22/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							10/22/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							10/22/19	
Acetone	ND	3.4	10	ug/L							10/22/19	
Benzene	ND	0.34	0.50	ug/L							10/22/19	
Bromobenzene	ND	0.27	0.50	ug/L							10/22/19	
Bromochloromethane	ND	0.27	0.50	ug/L							10/22/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							10/22/19	
Bromoform	ND	0.28	0.50	ug/L							10/22/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915996											Prepared: 10/22/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A915996-BLK1)												
Bromomethane	ND	0.43	0.50	ug/L							10/22/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							10/22/19	
Chlorobenzene	ND	0.31	0.50	ug/L							10/22/19	
Chloroethane	ND	0.32	0.50	ug/L							10/22/19	
Chloroform	ND	0.083	0.50	ug/L							10/22/19	
Chloromethane	ND	0.25	0.50	ug/L							10/22/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							10/22/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/22/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							10/22/19	
Dibromomethane	ND	0.29	0.50	ug/L							10/22/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							10/22/19	
Dichloromethane	ND	0.29	0.50	ug/L							10/22/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							10/22/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							10/22/19	
Ethylbenzene	ND	0.31	0.50	ug/L							10/22/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							10/22/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							10/22/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							10/22/19	
Methyl-t-butyl ether	ND	0.083	0.50	ug/L							10/22/19	
Naphthalene	0.28	0.27	0.50	ug/L							10/22/19	B2.0, J
n-Butylbenzene	ND	0.25	0.50	ug/L							10/22/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							10/22/19	
o-Xylene	ND	0.30	0.50	ug/L							10/22/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							10/22/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							10/22/19	
Styrene	ND	0.30	0.50	ug/L							10/22/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							10/22/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							10/22/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							10/22/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							10/22/19	
Toluene	ND	0.32	0.50	ug/L							10/22/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							10/22/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/22/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							10/22/19	
Trichlorofluoromethane	ND	0.23	5.0	ug/L							10/22/19	
Vinyl Chloride	ND	0.27	0.50	ug/L							10/22/19	
Surrogate: 1,2-Dichlorobenzene-d4	*57*				*50*		*114*	*70-130*			10/22/19	
Surrogate: Bromofluorobenzene	*56*				*50*		*112*	*70-130*			10/22/19	
Blank Spike (A915996-BS1)												
1,1,1,2-Tetrachloroethane	12	0.26	0.50	ug/L	10		117	70-130			10/22/19	
1,1,1-Trichloroethane	12	0.30	0.50	ug/L	10		115	70-130			10/22/19	
1,1,2,2-Tetrachloroethane	12	0.25	0.50	ug/L	10		121	70-130			10/22/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10		119	70-130			10/22/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		111	70-130			10/22/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 524.2 - Quality Control													
Batch: A915996											Prepared: 10/22/2019		
Prep Method: EPA 524.2											Analyst: ANM		
Blank Spike (A915996-BS1)													
1,1-Dichloroethane	12	0.34	0.50	ug/L	10		119	70-130			10/22/19		
1,1-Dichloroethene	13	0.21	0.50	ug/L	10		129	70-130			10/22/19		
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		106	70-130			10/22/19		
1,2,3-Trichlorobenzene	13	0.26	0.50	ug/L	10		131	70-130			10/22/19	BS	***High***
1,2,4-Trichlorobenzene	13	0.29	0.50	ug/L	10		129	70-130			10/22/19		
1,2,4-Trimethylbenzene	13	0.27	0.50	ug/L	10		127	70-130			10/22/19		
1,2-Dichlorobenzene	13	0.28	0.50	ug/L	10		127	70-130			10/22/19		
1,2-Dichloroethane	11	0.29	0.50	ug/L	10		112	70-130			10/22/19		
1,2-Dichloropropane	11	0.30	0.50	ug/L	10		108	70-130			10/22/19		
1,3,5-Trimethylbenzene	13	0.36	0.50	ug/L	10		127	70-130			10/22/19		
1,3-Dichlorobenzene	13	0.30	0.50	ug/L	10		127	70-130			10/22/19		
1,3-Dichloropropane	11	0.26	0.50	ug/L	10		112	70-130			10/22/19		
1,4-Dichlorobenzene	13	0.29	0.50	ug/L	10		127	70-130			10/22/19		
2,2-Dichloropropane	10	0.32	0.50	ug/L	10		103	70-130			10/22/19		
2-Butanone	13	0.42	5.0	ug/L	10		131	70-130			10/22/19	BS	***High***
2-Chlorotoluene	12	0.30	0.50	ug/L	10		124	70-130			10/22/19		
2-Hexanone	12	0.48	10	ug/L	10		118	70-130			10/22/19		
4-Chlorotoluene	13	0.30	0.50	ug/L	10		126	70-130			10/22/19		
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10		100	70-130			10/22/19		
Acetone	18	3.4	10	ug/L	10		175	70-130			10/22/19	BS	***High***
Benzene	11	0.34	0.50	ug/L	10		108	70-130			10/22/19		
Bromobenzene	12	0.27	0.50	ug/L	10		121	70-130			10/22/19		
Bromochloromethane	12	0.27	0.50	ug/L	10		118	70-130			10/22/19		
Bromodichloromethane	11	0.29	0.50	ug/L	10		114	70-130			10/22/19		
Bromoform	13	0.28	0.50	ug/L	10		128	70-130			10/22/19		
Bromomethane	16	0.43	0.50	ug/L	10		163	70-130			10/22/19	BS	***High***
Carbon disulfide	12	0.49	10	ug/L	10		123	70-130			10/22/19		
Carbon Tetrachloride	12	0.29	0.50	ug/L	10		119	70-130			10/22/19		
Chlorobenzene	12	0.31	0.50	ug/L	10		121	70-130			10/22/19		
Chloroethane	13	0.32	0.50	ug/L	10		130	70-130			10/22/19		
Chloroform	12	0.083	0.50	ug/L	10		120	70-130			10/22/19		
Chloromethane	9.8	0.25	0.50	ug/L	10		98	70-130			10/22/19		
cis-1,2-Dichloroethene	12	0.32	0.50	ug/L	10		120	70-130			10/22/19		
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		107	70-130			10/22/19		
Dibromochloromethane	12	0.28	0.50	ug/L	10		120	70-130			10/22/19		
Dibromomethane	11	0.29	0.50	ug/L	10		113	70-130			10/22/19		
Dichlorodifluoromethane	13	0.28	0.50	ug/L	10		126	70-130			10/22/19		
Dichloromethane	14	0.29	0.50	ug/L	10		137	70-130			10/22/19	BS	***High***
Di-isopropyl ether (DIPE)	9.8	0.31	3.0	ug/L	10		98	70-130			10/22/19		
Ethyl tert-Butyl Ether (ETBE)	9.6	0.30	0.50	ug/L	10		96	70-130			10/22/19		
Ethylbenzene	12	0.31	0.50	ug/L	10		120	70-130			10/22/19		
Hexachlorobutadiene	13	0.30	0.50	ug/L	10		133	70-130			10/22/19	BS	***High***
Isopropylbenzene	12	0.31	0.50	ug/L	10		123	70-130			10/22/19		
m,p-Xylenes	25	0.23	0.50	ug/L	20		124	70-130			10/22/19		
Methyl-t-butyl ether	23	0.083	0.50	ug/L	20		113	70-130			10/22/19		
Naphthalene	12	0.27	0.50	ug/L	10		125	70-130			10/22/19		

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 524.2 - Quality Control													
Batch: A915996											Prepared: 10/22/2019		
Prep Method: EPA 524.2											Analyst: ANM		
Blank Spike (A915996-BS1)													
n-Butylbenzene	13	0.25	0.50	ug/L	10		130	70-130			10/22/19		
n-Propylbenzene	12	0.31	0.50	ug/L	10		125	70-130			10/22/19		
o-Xylene	12	0.30	0.50	ug/L	10		122	70-130			10/22/19		
p-Isopropyltoluene	13	0.26	0.50	ug/L	10		127	70-130			10/22/19		
sec-Butylbenzene	13	0.27	0.50	ug/L	10		126	70-130			10/22/19		
Styrene	13	0.30	0.50	ug/L	10		131	70-130			10/22/19	BS	***High***
tert-Amyl Methyl Ether (TAME)	9.4	0.31	3.0	ug/L	10		94	70-130			10/22/19		
tert-Butyl alcohol (TBA)	14	0.97	2.0	ug/L	10		142	70-130			10/22/19	BS	***High***
tert-Butylbenzene	12	0.28	0.50	ug/L	10		125	70-130			10/22/19		
Tetrachloroethene (PCE)	12	0.33	0.50	ug/L	10		117	70-130			10/22/19		
Toluene	11	0.32	0.50	ug/L	10		111	70-130			10/22/19		
trans-1,2-Dichloroethene	12	0.35	0.50	ug/L	10		124	70-130			10/22/19		
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		109	70-130			10/22/19		
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10		109	70-130			10/22/19		
Trichlorofluoromethane	13	0.23	5.0	ug/L	10		129	70-130			10/22/19		
Vinyl Chloride	13	0.27	0.50	ug/L	10		132	70-130			10/22/19	BS	***High***
Surrogate: 1,2-Dichlorobenzene-d4	*58*				*50*		*115*	*70-130*			10/22/19		
Surrogate: Bromofluorobenzene	*56*				*50*		*113*	*70-130*			10/22/19		
Blank Spike Dup (A915996-BSD1)													
1,1,1,2-Tetrachloroethane	12	0.26	0.50	ug/L	10		116	70-130	1	30	10/22/19		
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		113	70-130	1	30	10/22/19		
1,1,2,2-Tetrachloroethane	12	0.25	0.50	ug/L	10		121	70-130	0	30	10/22/19		
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		114	70-130	5	30	10/22/19		
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		111	70-130	0	30	10/22/19		
1,1-Dichloroethane	12	0.34	0.50	ug/L	10		119	70-130	1	30	10/22/19		
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		123	70-130	5	30	10/22/19		
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		105	70-130	1	30	10/22/19		
1,2,3-Trichlorobenzene	13	0.26	0.50	ug/L	10		128	70-130	2	30	10/22/19		
1,2,4-Trichlorobenzene	13	0.29	0.50	ug/L	10		127	70-130	2	30	10/22/19		
1,2,4-Trimethylbenzene	12	0.27	0.50	ug/L	10		123	70-130	3	30	10/22/19		
1,2-Dichlorobenzene	12	0.28	0.50	ug/L	10		123	70-130	3	30	10/22/19		
1,2-Dichloroethane	11	0.29	0.50	ug/L	10		111	70-130	1	30	10/22/19		
1,2-Dichloropropane	11	0.30	0.50	ug/L	10		108	70-130	1	30	10/22/19		
1,3,5-Trimethylbenzene	12	0.36	0.50	ug/L	10		123	70-130	3	30	10/22/19		
1,3-Dichlorobenzene	12	0.30	0.50	ug/L	10		125	70-130	2	30	10/22/19		
1,3-Dichloropropane	11	0.26	0.50	ug/L	10		112	70-130	0	30	10/22/19		
1,4-Dichlorobenzene	12	0.29	0.50	ug/L	10		124	70-130	2	30	10/22/19		
2,2-Dichloropropane	10	0.32	0.50	ug/L	10		101	70-130	2	30	10/22/19		
2-Butanone	14	0.42	5.0	ug/L	10		136	70-130	4	30	10/22/19	BS	***High***
2-Chlorotoluene	12	0.30	0.50	ug/L	10		121	70-130	2	30	10/22/19		
2-Hexanone	12	0.48	10	ug/L	10		118	70-130	0	30	10/22/19		
4-Chlorotoluene	12	0.30	0.50	ug/L	10		122	70-130	3	30	10/22/19		
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10		100	70-130	0	30	10/22/19		
Acetone	18	3.4	10	ug/L	10		175	70-130	0	30	10/22/19	BS	***High***
Benzene	11	0.34	0.50	ug/L	10		107	70-130	1	30	10/22/19		

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 524.2 - Quality Control													
Batch: A915996											Prepared: 10/22/2019		
Prep Method: EPA 524.2											Analyst: ANM		
Blank Spike Dup (A915996-BSD1)													
Bromobenzene	12	0.27	0.50	ug/L	10		117	70-130	3	30	10/22/19		
Bromochloromethane	11	0.27	0.50	ug/L	10		113	70-130	4	30	10/22/19		
Bromodichloromethane	11	0.29	0.50	ug/L	10		114	70-130	1	30	10/22/19		
Bromoform	13	0.28	0.50	ug/L	10		125	70-130	2	30	10/22/19		
Bromomethane	16	0.43	0.50	ug/L	10		157	70-130	4	30	10/22/19	BS	***High***
Carbon disulfide	12	0.49	10	ug/L	10		117	70-130	5	30	10/22/19		
Carbon Tetrachloride	12	0.29	0.50	ug/L	10		116	70-130	3	30	10/22/19		
Chlorobenzene	12	0.31	0.50	ug/L	10		119	70-130	1	30	10/22/19		
Chloroethane	13	0.32	0.50	ug/L	10		127	70-130	3	30	10/22/19		
Chloroform	12	0.083	0.50	ug/L	10		118	70-130	2	30	10/22/19		
Chloromethane	9.3	0.25	0.50	ug/L	10		93	70-130	5	30	10/22/19		
cis-1,2-Dichloroethene	12	0.32	0.50	ug/L	10		118	70-130	2	30	10/22/19		
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		106	70-130	0	30	10/22/19		
Dibromochloromethane	12	0.28	0.50	ug/L	10		120	70-130	0	30	10/22/19		
Dibromomethane	11	0.29	0.50	ug/L	10		110	70-130	3	30	10/22/19		
Dichlorodifluoromethane	12	0.28	0.50	ug/L	10		119	70-130	6	30	10/22/19		
Dichloromethane	13	0.29	0.50	ug/L	10		133	70-130	3	30	10/22/19	BS	***High***
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10		104	70-130	6	30	10/22/19		
Ethyl tert-Butyl Ether (ETBE)	9.8	0.30	0.50	ug/L	10		98	70-130	2	30	10/22/19		
Ethylbenzene	12	0.31	0.50	ug/L	10		117	70-130	2	30	10/22/19		
Hexachlorobutadiene	13	0.30	0.50	ug/L	10		128	70-130	4	30	10/22/19		
Isopropylbenzene	12	0.31	0.50	ug/L	10		120	70-130	3	30	10/22/19		
m,p-Xylenes	24	0.23	0.50	ug/L	20		120	70-130	3	30	10/22/19		
Methyl-t-butyl ether	23	0.083	0.50	ug/L	20		116	70-130	2	30	10/22/19		
Naphthalene	12	0.27	0.50	ug/L	10		123	70-130	1	30	10/22/19		
n-Butylbenzene	13	0.25	0.50	ug/L	10		125	70-130	4	30	10/22/19		
n-Propylbenzene	12	0.31	0.50	ug/L	10		121	70-130	3	30	10/22/19		
o-Xylene	12	0.30	0.50	ug/L	10		120	70-130	2	30	10/22/19		
p-Isopropyltoluene	12	0.26	0.50	ug/L	10		123	70-130	3	30	10/22/19		
sec-Butylbenzene	12	0.27	0.50	ug/L	10		122	70-130	3	30	10/22/19		
Styrene	13	0.30	0.50	ug/L	10		128	70-130	2	30	10/22/19		
tert-Amyl Methyl Ether (TAME)	9.6	0.31	3.0	ug/L	10		96	70-130	1	30	10/22/19		
tert-Butyl alcohol (TBA)	15	0.97	2.0	ug/L	10		153	70-130	7	30	10/22/19	BS	***High***
tert-Butylbenzene	12	0.28	0.50	ug/L	10		121	70-130	3	30	10/22/19		
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		114	70-130	3	30	10/22/19		
Toluene	11	0.32	0.50	ug/L	10		109	70-130	2	30	10/22/19		
trans-1,2-Dichloroethene	12	0.35	0.50	ug/L	10		120	70-130	3	30	10/22/19		
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		109	70-130	0	30	10/22/19		
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10		107	70-130	2	30	10/22/19		
Trichlorofluoromethane	12	0.23	5.0	ug/L	10		124	70-130	4	30	10/22/19		
Vinyl Chloride	13	0.27	0.50	ug/L	10		125	70-130	6	30	10/22/19		
Surrogate: 1,2-Dichlorobenzene-d4	*56*				*50*		*112*	*70-130*			10/22/19		
Surrogate: Bromofluorobenzene	*55*				*50*		*111*	*70-130*			10/22/19		
Matrix Spike (A915996-MS1), Source: A9J2355-01													
1,1,1,2-Tetrachloroethane	12	0.26	0.50	ug/L	10	ND	119	41-156			10/22/19		

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915996											Prepared: 10/22/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A915996-MS1), Source: A9J2355-01												
1,1,1-Trichloroethane	12	0.30	0.50	ug/L	10	ND	120	48-160			10/22/19	
1,1,2,2-Tetrachloroethane	12	0.25	0.50	ug/L	10	ND	122	42-151			10/22/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	13	0.27	10	ug/L	10	ND	127	47-164			10/22/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10	ND	110	45-152			10/22/19	
1,1-Dichloroethane	12	0.34	0.50	ug/L	10	ND	121	48-157			10/22/19	
1,1-Dichloroethene	14	0.21	0.50	ug/L	10	ND	137	51-158			10/22/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	111	46-162			10/22/19	
1,2,3-Trichlorobenzene	13	0.26	0.50	ug/L	10	ND	131	37-145			10/22/19	
1,2,4-Trichlorobenzene	13	0.29	0.50	ug/L	10	ND	130	33-149			10/22/19	
1,2,4-Trimethylbenzene	13	0.27	0.50	ug/L	10	ND	131	44-146			10/22/19	
1,2-Dichlorobenzene	13	0.28	0.50	ug/L	10	ND	128	44-146			10/22/19	
1,2-Dichloroethane	11	0.29	0.50	ug/L	10	ND	114	47-151			10/22/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10	ND	108	47-155			10/22/19	
1,3,5-Trimethylbenzene	13	0.36	0.50	ug/L	10	ND	129	45-154			10/22/19	
1,3-Dichlorobenzene	13	0.30	0.50	ug/L	10	ND	130	44-146			10/22/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10	ND	112	45-151			10/22/19	
1,4-Dichlorobenzene	13	0.29	0.50	ug/L	10	ND	129	43-146			10/22/19	
2,2-Dichloropropane	10	0.32	0.50	ug/L	10	ND	102	24-182			10/22/19	
2-Butanone	13	0.42	5.0	ug/L	10	ND	127	55-144			10/22/19	
2-Chlorotoluene	13	0.30	0.50	ug/L	10	ND	128	48-150			10/22/19	
2-Hexanone	11	0.48	10	ug/L	10	ND	112	40-159			10/22/19	
4-Chlorotoluene	13	0.30	0.50	ug/L	10	ND	128	43-150			10/22/19	
Acetone	18	3.4	10	ug/L	10	ND	185	27-181			10/22/19	MS1.0 ***High***
Benzene	11	0.34	0.50	ug/L	10	ND	110	48-155			10/22/19	
Bromobenzene	14	0.27	0.50	ug/L	10	ND	142	43-151			10/22/19	
Bromochloromethane	12	0.27	0.50	ug/L	10	ND	117	48-161			10/22/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10	ND	115	47-151			10/22/19	
Bromoform	13	0.28	0.50	ug/L	10	ND	126	29-162			10/22/19	
Bromomethane	15	0.43	0.50	ug/L	10	ND	155	10-200			10/22/19	
Carbon disulfide	13	0.49	10	ug/L	10	ND	131	57-161			10/22/19	
Carbon Tetrachloride	12	0.29	0.50	ug/L	10	ND	124	47-163			10/22/19	
Chlorobenzene	13	0.31	0.50	ug/L	10	ND	125	46-152			10/22/19	
Chloroethane	14	0.32	0.50	ug/L	10	ND	139	28-189			10/22/19	
Chloroform	12	0.083	0.50	ug/L	10	ND	124	52-148			10/22/19	
Chloromethane	10	0.25	0.50	ug/L	10	ND	100	53-159			10/22/19	
cis-1,2-Dichloroethene	12	0.32	0.50	ug/L	10	ND	124	50-152			10/22/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	104	34-156			10/22/19	
Dibromochloromethane	12	0.28	0.50	ug/L	10	ND	118	44-149			10/22/19	
Dibromomethane	12	0.29	0.50	ug/L	10	ND	115	46-150			10/22/19	
Dichlorodifluoromethane	13	0.28	0.50	ug/L	10	ND	133	33-170			10/22/19	
Dichloromethane	14	0.29	0.50	ug/L	10	ND	143	47-156			10/22/19	
Di-isopropyl ether (DIPE)	9.9	0.31	3.0	ug/L	10	ND	99	41-159			10/22/19	
Ethyl tert-Butyl Ether (ETBE)	9.3	0.30	0.50	ug/L	10	ND	93	32-160			10/22/19	
Ethylbenzene	37	0.31	0.50	ug/L	10	25	128	40-157			10/22/19	
Hexachlorobutadiene	14	0.30	0.50	ug/L	10	ND	137	38-151			10/22/19	
Isopropylbenzene	13	0.31	0.50	ug/L	10	0.32	127	41-156			10/22/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A915996											Prepared: 10/22/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A915996-MS1), Source: A9J2355-01												
m,p-Xylenes	110	0.23	0.50	ug/L	20	88	123	49-154			10/22/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20	ND	111	41-156			10/22/19	
Naphthalene	12	0.27	0.50	ug/L	10	0.43	120	35-154			10/22/19	
n-Butylbenzene	13	0.25	0.50	ug/L	10	ND	132	31-153			10/22/19	
n-Propylbenzene	13	0.31	0.50	ug/L	10	ND	128	39-156			10/22/19	
o-Xylene	64	0.30	0.50	ug/L	10	52	122	27-164			10/22/19	
p-Isopropyltoluene	13	0.26	0.50	ug/L	10	ND	130	26-161			10/22/19	
sec-Butylbenzene	13	0.27	0.50	ug/L	10	ND	130	39-154			10/22/19	
Styrene	16	0.30	0.50	ug/L	10	ND	156	10-200			10/22/19	
tert-Amyl Methyl Ether (TAME)	9.4	0.31	3.0	ug/L	10	ND	94	24-161			10/22/19	
tert-Butyl alcohol (TBA)	13	0.97	2.0	ug/L	10	1.0	122	22-174			10/22/19	
tert-Butylbenzene	13	0.28	0.50	ug/L	10	ND	128	40-153			10/22/19	
Tetrachloroethene (PCE)	12	0.33	0.50	ug/L	10	ND	125	48-155			10/22/19	
Toluene	12	0.32	0.50	ug/L	10	ND	119	40-159			10/22/19	
trans-1,2-Dichloroethene	13	0.35	0.50	ug/L	10	ND	131	52-157			10/22/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10	ND	107	28-160			10/22/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	111	49-155			10/22/19	
Trichlorofluoromethane	14	0.23	5.0	ug/L	10	ND	137	47-169			10/22/19	
Vinyl Chloride	14	0.27	0.50	ug/L	10	ND	141	21-183			10/22/19	
Surrogate: 1,2-Dichlorobenzene-d4	*59*				*50*		*117*	*70-130*			10/22/19	
Surrogate: Bromofluorobenzene	*58*				*50*		*115*	*70-130*			10/22/19	
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A916097-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							10/24/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							10/24/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							10/24/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							10/24/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							10/24/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							10/24/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							10/24/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							10/24/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							10/24/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							10/24/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							10/24/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							10/24/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							10/24/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							10/24/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							10/24/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							10/24/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							10/24/19	
2,2-Dichloropropane	ND	0.32	0.50	ug/L							10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A916097-BLK1)												
2-Butanone	ND	0.42	5.0	ug/L							10/24/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							10/24/19	
2-Hexanone	ND	0.48	10	ug/L							10/24/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							10/24/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							10/24/19	
Acetone	ND	3.4	10	ug/L							10/24/19	
Benzene	ND	0.34	0.50	ug/L							10/24/19	
Bromobenzene	ND	0.27	0.50	ug/L							10/24/19	
Bromochloromethane	ND	0.27	0.50	ug/L							10/24/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							10/24/19	
Bromoform	ND	0.28	0.50	ug/L							10/24/19	
Bromomethane	ND	0.43	0.50	ug/L							10/24/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							10/24/19	
Chlorobenzene	ND	0.31	0.50	ug/L							10/24/19	
Chloroethane	ND	0.32	0.50	ug/L							10/24/19	
Chloroform	ND	0.083	0.50	ug/L							10/24/19	
Chloromethane	ND	0.25	0.50	ug/L							10/24/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							10/24/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/24/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							10/24/19	
Dibromomethane	ND	0.29	0.50	ug/L							10/24/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							10/24/19	
Dichloromethane	ND	0.29	0.50	ug/L							10/24/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							10/24/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							10/24/19	
Ethylbenzene	ND	0.31	0.50	ug/L							10/24/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							10/24/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							10/24/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							10/24/19	
Methyl-t-butyl ether	ND	0.083	0.50	ug/L							10/24/19	
Naphthalene	ND	0.27	0.50	ug/L							10/24/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							10/24/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							10/24/19	
o-Xylene	ND	0.30	0.50	ug/L							10/24/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							10/24/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							10/24/19	
Styrene	ND	0.30	0.50	ug/L							10/24/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							10/24/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							10/24/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							10/24/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							10/24/19	
Toluene	ND	0.32	0.50	ug/L							10/24/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							10/24/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							10/24/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							10/24/19	
Trichlorofluoromethane	ND	0.23	5.0	ug/L							10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A916097-BLK1)												
Vinyl Chloride	ND	0.27	0.50	ug/L							10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*55*				*50*		*109*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*55*				*50*		*110*	*70-130*			10/24/19	
Blank Spike (A916097-BS1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		101	70-130			10/24/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		109	70-130			10/24/19	
1,1,2,2-Tetrachloroethane	9.9	0.25	0.50	ug/L	10		99	70-130			10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		115	70-130			10/24/19	
1,1,2-Trichloroethane	10	0.26	0.50	ug/L	10		100	70-130			10/24/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		107	70-130			10/24/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		116	70-130			10/24/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		106	70-130			10/24/19	
1,2,3-Trichlorobenzene	9.7	0.26	0.50	ug/L	10		97	70-130			10/24/19	
1,2,4-Trichlorobenzene	9.8	0.29	0.50	ug/L	10		98	70-130			10/24/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		102	70-130			10/24/19	
1,2-Dichlorobenzene	9.9	0.28	0.50	ug/L	10		99	70-130			10/24/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		100	70-130			10/24/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		103	70-130			10/24/19	
1,3,5-Trimethylbenzene	10	0.36	0.50	ug/L	10		104	70-130			10/24/19	
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10		101	70-130			10/24/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		101	70-130			10/24/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		100	70-130			10/24/19	
2,2-Dichloropropane	9.7	0.32	0.50	ug/L	10		97	70-130			10/24/19	
2-Butanone	10	0.42	5.0	ug/L	10		101	70-130			10/24/19	
2-Chlorotoluene	10	0.30	0.50	ug/L	10		104	70-130			10/24/19	
2-Hexanone	10	0.48	10	ug/L	10		103	70-130			10/24/19	
4-Chlorotoluene	10	0.30	0.50	ug/L	10		103	70-130			10/24/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10		104	70-130			10/24/19	
Acetone	10	3.4	10	ug/L	10		104	70-130			10/24/19	
Benzene	10	0.34	0.50	ug/L	10		104	70-130			10/24/19	
Bromobenzene	9.8	0.27	0.50	ug/L	10		98	70-130			10/24/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		108	70-130			10/24/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		102	70-130			10/24/19	
Bromoform	9.8	0.28	0.50	ug/L	10		98	70-130			10/24/19	
Bromomethane	12	0.43	0.50	ug/L	10		119	70-130			10/24/19	
Carbon disulfide	11	0.49	10	ug/L	10		113	70-130			10/24/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		109	70-130			10/24/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		101	70-130			10/24/19	
Chloroethane	11	0.32	0.50	ug/L	10		109	70-130			10/24/19	
Chloroform	10	0.083	0.50	ug/L	10		105	70-130			10/24/19	
Chloromethane	11	0.25	0.50	ug/L	10		112	70-130			10/24/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		104	70-130			10/24/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130			10/24/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		100	70-130			10/24/19	
Dibromomethane	9.9	0.29	0.50	ug/L	10		99	70-130			10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A916097-BS1)												
Dichlorodifluoromethane	12	0.28	0.50	ug/L	10		121	70-130			10/24/19	
Dichloromethane	9.7	0.29	0.50	ug/L	10		97	70-130			10/24/19	
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10		101	70-130			10/24/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		103	70-130			10/24/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		104	70-130			10/24/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		102	70-130			10/24/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		105	70-130			10/24/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20		110	70-130			10/24/19	
Methyl-t-butyl ether	21	0.083	0.50	ug/L	20		104	70-130			10/24/19	
Naphthalene	9.7	0.27	0.50	ug/L	10		97	70-130			10/24/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10		102	70-130			10/24/19	
n-Propylbenzene	10	0.31	0.50	ug/L	10		104	70-130			10/24/19	
o-Xylene	10	0.30	0.50	ug/L	10		104	70-130			10/24/19	
p-Isopropyltoluene	10	0.26	0.50	ug/L	10		103	70-130			10/24/19	
sec-Butylbenzene	10	0.27	0.50	ug/L	10		105	70-130			10/24/19	
Styrene	10	0.30	0.50	ug/L	10		102	70-130			10/24/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		101	70-130			10/24/19	
tert-Butyl alcohol (TBA)	10	0.97	2.0	ug/L	10		104	70-130			10/24/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		104	70-130			10/24/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130			10/24/19	
Toluene	10	0.32	0.50	ug/L	10		104	70-130			10/24/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		108	70-130			10/24/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130			10/24/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10		105	70-130			10/24/19	
Trichlorofluoromethane	11	0.23	5.0	ug/L	10		110	70-130			10/24/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		113	70-130			10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*51*				*50*		*102*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*51*				*50*		*102*	*70-130*			10/24/19	
Blank Spike Dup (A916097-BSD1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		101	70-130	1	30	10/24/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		113	70-130	3	30	10/24/19	
1,1,2,2-Tetrachloroethane	10	0.25	0.50	ug/L	10		101	70-130	2	30	10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10		116	70-130	1	30	10/24/19	
1,1,2-Trichloroethane	10	0.26	0.50	ug/L	10		101	70-130	0	30	10/24/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		108	70-130	1	30	10/24/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		119	70-130	2	30	10/24/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		107	70-130	1	30	10/24/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		100	70-130	3	30	10/24/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130	4	30	10/24/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		106	70-130	4	30	10/24/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		102	70-130	3	30	10/24/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		102	70-130	1	30	10/24/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		103	70-130	1	30	10/24/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		108	70-130	4	30	10/24/19	
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10		103	70-130	3	30	10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A916097-BSD1)												
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		102	70-130	1	30	10/24/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		103	70-130	3	30	10/24/19	
2,2-Dichloropropane	9.5	0.32	0.50	ug/L	10		95	70-130	2	30	10/24/19	
2-Butanone	10	0.42	5.0	ug/L	10		102	70-130	1	30	10/24/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130	2	30	10/24/19	
2-Hexanone	10	0.48	10	ug/L	10		104	70-130	1	30	10/24/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		105	70-130	3	30	10/24/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10		102	70-130	2	30	10/24/19	
Acetone	11	3.4	10	ug/L	10		111	70-130	7	30	10/24/19	
Benzene	10	0.34	0.50	ug/L	10		104	70-130	0	30	10/24/19	
Bromobenzene	10	0.27	0.50	ug/L	10		101	70-130	3	30	10/24/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		110	70-130	1	30	10/24/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		103	70-130	0	30	10/24/19	
Bromoform	10	0.28	0.50	ug/L	10		100	70-130	2	30	10/24/19	
Bromomethane	12	0.43	0.50	ug/L	10		115	70-130	4	30	10/24/19	
Carbon disulfide	11	0.49	10	ug/L	10		115	70-130	2	30	10/24/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		110	70-130	1	30	10/24/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		104	70-130	2	30	10/24/19	
Chloroethane	11	0.32	0.50	ug/L	10		111	70-130	2	30	10/24/19	
Chloroform	11	0.083	0.50	ug/L	10		108	70-130	3	30	10/24/19	
Chloromethane	11	0.25	0.50	ug/L	10		114	70-130	3	30	10/24/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		109	70-130	5	30	10/24/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130	1	30	10/24/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		101	70-130	1	30	10/24/19	
Dibromomethane	11	0.29	0.50	ug/L	10		106	70-130	7	30	10/24/19	
Dichlorodifluoromethane	12	0.28	0.50	ug/L	10		123	70-130	2	30	10/24/19	
Dichloromethane	10	0.29	0.50	ug/L	10		103	70-130	6	30	10/24/19	
Di-isopropyl ether (DIPE)	9.8	0.31	3.0	ug/L	10		98	70-130	3	30	10/24/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		100	70-130	3	30	10/24/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		106	70-130	2	30	10/24/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		106	70-130	4	30	10/24/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		108	70-130	3	30	10/24/19	
m,p-Xylenes	23	0.23	0.50	ug/L	20		113	70-130	2	30	10/24/19	
Methyl-t-butyl ether	21	0.083	0.50	ug/L	20		103	70-130	1	30	10/24/19	
Naphthalene	9.9	0.27	0.50	ug/L	10		99	70-130	2	30	10/24/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10		104	70-130	3	30	10/24/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		107	70-130	4	30	10/24/19	
o-Xylene	11	0.30	0.50	ug/L	10		106	70-130	2	30	10/24/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		107	70-130	4	30	10/24/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		109	70-130	4	30	10/24/19	
Styrene	10	0.30	0.50	ug/L	10		105	70-130	3	30	10/24/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		100	70-130	1	30	10/24/19	
tert-Butyl alcohol (TBA)	10	0.97	2.0	ug/L	10		102	70-130	2	30	10/24/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		107	70-130	3	30	10/24/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		108	70-130	1	30	10/24/19	
Toluene	11	0.32	0.50	ug/L	10		106	70-130	1	30	10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A916097-BSD1)												
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		111	70-130	3	30	10/24/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		100	70-130	0	30	10/24/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		105	70-130	1	30	10/24/19	
Trichlorofluoromethane	11	0.23	5.0	ug/L	10		114	70-130	4	30	10/24/19	
Vinyl Chloride	12	0.27	0.50	ug/L	10		116	70-130	2	30	10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*105*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*53*				*50*		*105*	*70-130*			10/24/19	
Matrix Spike (A916097-MS1), Source: A9J2671-01												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10	ND	101	41-156			10/24/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10	ND	114	48-160			10/24/19	
1,1,2,2-Tetrachloroethane	9.6	0.25	0.50	ug/L	10	ND	96	42-151			10/24/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10	ND	123	47-164			10/24/19	
1,1,2-Trichloroethane	9.9	0.26	0.50	ug/L	10	ND	99	45-152			10/24/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10	ND	110	48-157			10/24/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10	ND	121	51-158			10/24/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	112	46-162			10/24/19	
1,2,3-Trichlorobenzene	9.5	0.26	0.50	ug/L	10	ND	95	37-145			10/24/19	
1,2,4-Trichlorobenzene	9.7	0.29	0.50	ug/L	10	ND	97	33-149			10/24/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10	ND	103	44-146			10/24/19	
1,2-Dichlorobenzene	9.7	0.28	0.50	ug/L	10	ND	97	44-146			10/24/19	
1,2-Dichloroethane	9.9	0.29	0.50	ug/L	10	ND	99	47-151			10/24/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10	ND	103	47-155			10/24/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	106	45-154			10/24/19	
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10	ND	101	44-146			10/24/19	
1,3-Dichloropropane	9.9	0.26	0.50	ug/L	10	ND	99	45-151			10/24/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10	ND	100	43-146			10/24/19	
2,2-Dichloropropane	10	0.32	0.50	ug/L	10	ND	103	24-182			10/24/19	
2-Butanone	9.6	0.42	5.0	ug/L	10	ND	96	55-144			10/24/19	
2-Chlorotoluene	10	0.30	0.50	ug/L	10	ND	105	48-150			10/24/19	
2-Hexanone	9.7	0.48	10	ug/L	10	ND	97	40-159			10/24/19	J
4-Chlorotoluene	10	0.30	0.50	ug/L	10	ND	103	43-150			10/24/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10	ND	100	30-171			10/24/19	
Acetone	9.4	3.4	10	ug/L	10	ND	94	27-181			10/24/19	J
Benzene	11	0.34	0.50	ug/L	10	ND	106	48-155			10/24/19	
Bromobenzene	9.8	0.27	0.50	ug/L	10	ND	98	43-151			10/24/19	
Bromochloromethane	10	0.27	0.50	ug/L	10	ND	105	48-161			10/24/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10	ND	101	47-151			10/24/19	
Bromoform	9.5	0.28	0.50	ug/L	10	ND	95	29-162			10/24/19	
Bromomethane	11	0.43	0.50	ug/L	10	ND	112	10-200			10/24/19	
Carbon disulfide	11	0.49	10	ug/L	10	ND	115	57-161			10/24/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10	ND	114	47-163			10/24/19	
Chlorobenzene	10	0.31	0.50	ug/L	10	ND	103	46-152			10/24/19	
Chloroethane	11	0.32	0.50	ug/L	10	ND	111	28-189			10/24/19	
Chloroform	11	0.083	0.50	ug/L	10	ND	105	52-148			10/24/19	
Chloromethane	12	0.25	0.50	ug/L	10	ND	117	53-159			10/24/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A916097											Prepared: 10/23/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A916097-MS1), Source: A9J2671-01												
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10	ND	106	50-152			10/24/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	100	34-156			10/24/19	
Dibromochloromethane	9.8	0.28	0.50	ug/L	10	ND	98	44-149			10/24/19	
Dibromomethane	9.8	0.29	0.50	ug/L	10	ND	98	46-150			10/24/19	
Dichlorodifluoromethane	13	0.28	0.50	ug/L	10	ND	132	33-170			10/24/19	
Dichloromethane	10	0.29	0.50	ug/L	10	ND	101	47-156			10/24/19	
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10	ND	104	41-159			10/24/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10	ND	102	32-160			10/24/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	106	40-157			10/24/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10	ND	103	38-151			10/24/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10	ND	108	41-156			10/24/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20	ND	112	49-154			10/24/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20	ND	102	41-156			10/24/19	
Naphthalene	9.3	0.27	0.50	ug/L	10	ND	93	35-154			10/24/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10	ND	105	31-153			10/24/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10	ND	107	39-156			10/24/19	
o-Xylene	10	0.30	0.50	ug/L	10	ND	104	27-164			10/24/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	106	26-161			10/24/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10	ND	108	39-154			10/24/19	
Styrene	10	0.30	0.50	ug/L	10	ND	101	10-200			10/24/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10	ND	101	24-161			10/24/19	
tert-Butyl alcohol (TBA)	9.8	0.97	2.0	ug/L	10	ND	98	22-174			10/24/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10	ND	106	40-153			10/24/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10	ND	112	48-155			10/24/19	
Toluene	11	0.32	0.50	ug/L	10	ND	107	40-159			10/24/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10	ND	110	52-157			10/24/19	
trans-1,3-Dichloropropene	9.9	0.27	0.50	ug/L	10	ND	99	28-160			10/24/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	109	49-155			10/24/19	
Trichlorofluoromethane	12	0.23	5.0	ug/L	10	ND	119	47-169			10/24/19	
Vinyl Chloride	12	0.27	0.50	ug/L	10	ND	119	21-183			10/24/19	
Surrogate: 1,2-Dichlorobenzene-d4	*51*				*50*		*102*	*70-130*			10/24/19	
Surrogate: Bromofluorobenzene	*51*				*50*		*103*	*70-130*			10/24/19	
EPA 525.3 - Quality Control												
Batch: A915805											Prepared: 10/18/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank (A915805-BLK1)												
Alachlor	ND	0.022	0.20	ug/L							10/21/19	
Atrazine	ND	0.0076	0.10	ug/L							10/21/19	
Benzo(a)pyrene	ND	0.0019	0.020	ug/L							10/21/19	
Bis(2-ethylhexyl) adipate	ND	0.067	0.60	ug/L							10/21/19	
Bis(2-ethylhexyl) phthalate	ND	0.11	0.60	ug/L							10/21/19	
Bromacil	ND	0.028	0.80	ug/L							10/21/19	
Butachlor	ND	0.018	0.25	ug/L							10/21/19	
Diazinon	ND	0.0022	0.020	ug/L							10/21/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 525.3 - Quality Control													
Batch: A915805											Prepared: 10/18/2019		
Prep Method: EPA 525.3											Analyst: JKH		
Blank (A915805-BLK1)													
Dimethoate	ND	0.082	1.0	ug/L							10/21/19		
Metolachlor	ND	0.011	0.50	ug/L							10/21/19		
Metribuzin	ND	0.0061	0.50	ug/L							10/21/19		
Molinate	ND	0.0061	0.50	ug/L							10/21/19		
Propachlor	ND	0.0056	0.50	ug/L							10/21/19		
Simazine	ND	0.0049	0.070	ug/L							10/21/19		
Thiobencarb	ND	0.0083	0.10	ug/L							10/21/19		
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.94*				*1.0*		*94*	*70-130*			10/21/19		
Surrogate: Benzo(a)pyrene-d12	*0.87*				*1.0*		*87*	*70-130*			10/21/19		
Surrogate: Triphenyl Phosphate	*0.99*				*1.0*		*99*	*70-130*			10/21/19		
Blank Spike (A915805-BS1)													
Alachlor	0.11	0.022	0.20	ug/L	0.10		109	70-130			10/21/19	J	
Atrazine	0.053	0.0076	0.10	ug/L	0.050		105	70-130			10/21/19	J	
Benzo(a)pyrene	0.0076	0.0019	0.020	ug/L	0.010		76	70-130			10/21/19	J	
Bis(2-ethylhexyl) adipate	0.37	0.067	0.60	ug/L	0.20		183	70-130			10/21/19	BS, J	***High***
Bis(2-ethylhexyl) phthalate	0.76	0.11	0.60	ug/L	0.60		127	70-130			10/21/19		
Bromacil	0.12	0.028	0.80	ug/L	0.050		242	70-130			10/21/19	BS, J	***High***
Butachlor	0.085	0.018	0.25	ug/L	0.050		170	70-130			10/21/19	BS, J	***High***
Diazinon	0.012	0.0022	0.020	ug/L	0.010		122	70-130			10/21/19	J	
Dimethoate	0.52	0.082	1.0	ug/L	0.40		130	70-130			10/21/19	J	
Metolachlor	0.067	0.011	0.50	ug/L	0.050		134	70-130			10/21/19	BS1.3, J	***High***
Metribuzin	0.056	0.0061	0.50	ug/L	0.050		112	70-130			10/21/19	J	
Molinate	0.059	0.0061	0.50	ug/L	0.050		119	70-130			10/21/19	J	
Propachlor	0.054	0.0056	0.50	ug/L	0.050		107	70-130			10/21/19	J	
Simazine	0.035	0.0049	0.070	ug/L	0.035		101	70-130			10/21/19	J	
Thiobencarb	0.061	0.0083	0.10	ug/L	0.050		121	70-130			10/21/19	J	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.96*				*1.0*		*96*	*70-130*			10/21/19		
Surrogate: Benzo(a)pyrene-d12	*0.94*				*1.0*		*94*	*70-130*			10/21/19		
Surrogate: Triphenyl Phosphate	*1.2*				*1.0*		*117*	*70-130*			10/21/19		
Blank Spike Dup (A915805-BSD1)													
Alachlor	0.11	0.022	0.20	ug/L	0.10		106	70-130	3	30	10/21/19	J	
Atrazine	0.051	0.0076	0.10	ug/L	0.050		102	70-130	4	30	10/21/19	J	
Benzo(a)pyrene	0.0074	0.0019	0.020	ug/L	0.010		74	70-130	2	30	10/21/19	J	
Bis(2-ethylhexyl) adipate	0.33	0.067	0.60	ug/L	0.20		164	70-130	11	30	10/21/19	BS, J	***High***
Bis(2-ethylhexyl) phthalate	0.69	0.11	0.60	ug/L	0.60		115	70-130	9	30	10/21/19		
Bromacil	0.079	0.028	0.80	ug/L	0.050		158	70-130	42	30	10/21/19	BS, BS4.0, J	***High***
Butachlor	0.070	0.018	0.25	ug/L	0.050		140	70-130	20	30	10/21/19	BS1.3, J	***High***
Diazinon	0.014	0.0022	0.020	ug/L	0.010		135	70-130	10	30	10/21/19	BS1.3, J	***High***
Dimethoate	0.49	0.082	1.0	ug/L	0.40		122	70-130	6	30	10/21/19	J	
Metolachlor	0.060	0.011	0.50	ug/L	0.050		119	70-130	12	30	10/21/19	J	
Metribuzin	0.052	0.0061	0.50	ug/L	0.050		104	70-130	8	30	10/21/19	J	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 525.3 - Quality Control												
Batch: A915805											Prepared: 10/18/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank Spike Dup (A915805-BSD1)												
Molinate	0.059	0.0061	0.50	ug/L	0.050		117	70-130	1	30	10/21/19	J
Propachlor	0.054	0.0056	0.50	ug/L	0.050		108	70-130	1	30	10/21/19	J
Simazine	0.035	0.0049	0.070	ug/L	0.035		101	70-130	1	30	10/21/19	J
Thiobencarb	0.051	0.0083	0.10	ug/L	0.050		103	70-130	17	30	10/21/19	J
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.97*				*1.0*		*97*	*70-130*			10/21/19	
Surrogate: Benzo(a)pyrene-d12	*0.93*				*1.0*		*93*	*70-130*			10/21/19	
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*109*	*70-130*			10/21/19	
Matrix Spike (A915805-MS1), Source: S9J0261-01												
Alachlor	0.94	0.022	0.20	ug/L	0.75	ND	125	70-130			10/22/19	
Atrazine	0.43	0.0076	0.10	ug/L	0.37	ND	114	70-130			10/22/19	
Benzo(a)pyrene	0.071	0.0019	0.020	ug/L	0.075	ND	95	70-130			10/22/19	
Bis(2-ethylhexyl) adipate	2.2	0.067	0.60	ug/L	1.5	ND	146	70-130			10/22/19	MS1.0 ***High***
Bis(2-ethylhexyl) phthalate	6.0	0.11	0.60	ug/L	4.5	0.14	131	70-130			10/22/19	MS1.0 ***High***
Bromacil	0.67	0.028	0.80	ug/L	0.37	ND	180	70-130			10/22/19	MS1.0 ***High*** , J
Butachlor	0.56	0.018	0.25	ug/L	0.37	ND	149	70-130			10/22/19	MS1.0 ***High***
Diazinon	0.086	0.0022	0.020	ug/L	0.075	0.012	99	70-130			10/22/19	
Dimethoate	4.1	0.082	1.0	ug/L	3.0	ND	136	70-130			10/22/19	MS1.0 ***High***
Metolachlor	0.46	0.011	0.50	ug/L	0.37	ND	124	70-130			10/22/19	J
Metribuzin	0.50	0.0061	0.50	ug/L	0.37	ND	134	70-130			10/22/19	MS1.0 ***High***
Molinate	0.41	0.0061	0.50	ug/L	0.37	ND	110	70-130			10/22/19	J
Propachlor	0.42	0.0056	0.50	ug/L	0.37	ND	112	70-130			10/22/19	J
Simazine	0.29	0.0049	0.070	ug/L	0.26	ND	112	70-130			10/22/19	
Thiobencarb	0.42	0.0083	0.10	ug/L	0.37	ND	112	70-130			10/22/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.91*				*0.94*		*98*	*70-130*			10/22/19	
Surrogate: Benzo(a)pyrene-d12	*0.91*				*0.94*		*97*	*70-130*			10/22/19	
Surrogate: Triphenyl Phosphate	*1.2*				*0.94*		*129*	*70-130*			10/22/19	
EPA 531.1 - Quality Control												
Batch: A916157											Prepared: 10/25/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank (A916157-BLK1)												
3-Hydroxycarbofuran	ND	0.12	3.0	ug/L							10/26/19	
Aldicarb	ND	0.12	3.0	ug/L							10/26/19	
Aldicarb Sulfone	ND	0.12	2.0	ug/L							10/26/19	
Aldicarb Sulfoxide	ND	0.12	3.0	ug/L							10/26/19	
Carbaryl	ND	0.22	5.0	ug/L							10/26/19	
Carbofuran	ND	0.27	5.0	ug/L							10/26/19	
Methomyl	ND	0.19	2.0	ug/L							10/26/19	
Oxamyl	ND	0.090	20	ug/L							10/26/19	
Blank Spike (A916157-BS1)												
3-Hydroxycarbofuran	4.1	0.12	3.0	ug/L	4.0		104	80-120			10/26/19	
Aldicarb	1.9	0.12	3.0	ug/L	2.0		97	80-120			10/26/19	J

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 531.1 - Quality Control												
Batch: A916157											Prepared: 10/25/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank Spike (A916157-BS1)												
Aldicarb Sulfone	3.3	0.12	2.0	ug/L	3.2		104	80-120			10/26/19	
Aldicarb Sulfoxide	2.1	0.12	3.0	ug/L	2.0		104	80-120			10/26/19	J
Carbaryl	4.0	0.22	5.0	ug/L	4.0		99	80-120			10/26/19	J
Carbofuran	3.8	0.27	5.0	ug/L	3.6		105	80-120			10/26/19	J
Methomyl	4.2	0.19	2.0	ug/L	4.0		104	80-120			10/26/19	
Oxamyl	4.0	0.090	20	ug/L	4.0		100	80-120			10/26/19	J
Blank Spike Dup (A916157-BSD1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120	2	20	10/26/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0		106	80-120	9	20	10/26/19	J
Aldicarb Sulfone	3.2	0.12	2.0	ug/L	3.2		100	80-120	4	20	10/26/19	
Aldicarb Sulfoxide	2.0	0.12	3.0	ug/L	2.0		101	80-120	3	20	10/26/19	J
Carbaryl	4.0	0.22	5.0	ug/L	4.0		100	80-120	0	20	10/26/19	J
Carbofuran	3.7	0.27	5.0	ug/L	3.6		103	80-120	2	20	10/26/19	J
Methomyl	4.1	0.19	2.0	ug/L	4.0		102	80-120	2	20	10/26/19	
Oxamyl	3.9	0.090	20	ug/L	4.0		97	80-120	3	20	10/26/19	J
Matrix Spike (A916157-MS1), Source: A9J1860-01												
3-Hydroxycarbofuran	4.4	0.12	3.0	ug/L	4.0	ND	110	65-135			10/26/19	
Aldicarb	2.0	0.12	3.0	ug/L	2.0	ND	100	65-135			10/26/19	J
Aldicarb Sulfone	3.4	0.12	2.0	ug/L	3.2	ND	105	65-135			10/26/19	
Aldicarb Sulfoxide	2.1	0.12	3.0	ug/L	2.0	ND	105	65-135			10/26/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0	ND	104	65-135			10/26/19	J
Carbofuran	3.9	0.27	5.0	ug/L	3.6	ND	108	65-135			10/26/19	J
Methomyl	4.1	0.19	2.0	ug/L	4.0	ND	103	65-135			10/26/19	
Oxamyl	4.1	0.090	20	ug/L	4.0	ND	103	65-135			10/26/19	J
EPA 547 - Quality Control												
Batch: A915865											Prepared: 10/19/2019	
Prep Method: EPA 547											Analyst: JNG	
Blank (A915865-BLK1)												
Glyphosate	ND	2.1	25	ug/L							10/20/19	
Surrogate: AMPA	*200*				*200*		*101*	*70-130*			10/20/19	
Blank Spike (A915865-BS1)												
Glyphosate	98	2.1	25	ug/L	100		98	70-130			10/20/19	
Surrogate: AMPA	*200*				*200*		*100*	*70-130*			10/20/19	
Blank Spike Dup (A915865-BSD1)												
Glyphosate	100	2.1	25	ug/L	100		100	70-130	1	30	10/20/19	
Surrogate: AMPA	*200*				*200*		*100*	*70-130*			10/20/19	
Matrix Spike (A915865-MS1), Source: A9J1691-01												
Glyphosate	100	2.1	25	ug/L	100	ND	102	70-130			10/20/19	
Surrogate: AMPA	*200*				*200*		*101*	*70-130*			10/20/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 547 - Quality Control												
Batch: A915865											Prepared: 10/19/2019	
Prep Method: EPA 547											Analyst: JNG	
EPA 548.1 - Quality Control												
Batch: A916102											Prepared: 10/23/2019	
Prep Method: EPA 548.1											Analyst: YNV	
Blank (A916102-BLK1)												
Endothall	ND	1.6	45	ug/L							10/25/19	
Blank Spike (A916102-BS1)												
Endothall	14	1.6	45	ug/L	20		69	46-116			10/25/19	J
Blank Spike Dup (A916102-BSD1)												
Endothall	14	1.6	45	ug/L	20		69	46-116	0	30	10/25/19	J
Matrix Spike (A916102-MS1), Source: A9J1707-01												
Endothall	14	1.6	45	ug/L	20	ND	69	46-116			10/25/19	J
Matrix Spike (A916102-MS2), Source: A9J2464-01												
Endothall	14	1.6	45	ug/L	20	ND	69	46-116			10/25/19	J
EPA 549.2 - Quality Control												
Batch: A915875											Prepared: 10/21/2019	
Prep Method: EPA 549.2											Analyst: ANM	
Blank (A915875-BLK1)												
Diquat	ND	0.071	0.40	ug/L							10/26/19	
Blank Spike (A915875-BS1)												
Diquat	5.0	0.071	0.40	ug/L	4.0		126	70-130			10/26/19	
Blank Spike Dup (A915875-BSD1)												
Diquat	4.7	0.071	0.40	ug/L	4.0		117	70-130	7	30	10/26/19	
Matrix Spike (A915875-MS1), Source: A9J1707-01												
Diquat	4.8	0.071	0.40	ug/L	4.0	ND	120	70-130			10/26/19	
SRL 524M-TCP - Quality Control												
Batch: A915968											Prepared: 10/22/2019	
Prep Method: no prep-volatiles											Analyst: JNG	
Blank (A915968-BLK1)												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L							10/22/19	
Blank Spike (A915968-BS1)												
1,2,3-Trichloropropane	0.0052	0.0014	0.0050	ug/L	0.0050		104	80-120			10/22/19	
Blank Spike Dup (A915968-BSD1)												

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SRL 524M-TCP - Quality Control												
Batch: A915968											Prepared: 10/22/2019	
Prep Method: no prep-volatiles											Analyst: JNG	
Blank Spike Dup (A915968-BSD1)												
1,2,3-Trichloropropane	0.0051	0.0014	0.0050	ug/L	0.0050		102	80-120	2	30	10/22/19	
Duplicate (A915968-DUP1), Source: A9J2163-01												
1,2,3-Trichloropropane	0.022	0.0014	0.0050	ug/L		0.021			6	20	10/23/19	

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Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

Aggressive Index	Chlorothalonil	Trifluralin
Langelier Index	Threshold Odor	1,2,3-Trichloropropane

Certificate of Analysis

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

	2435		
Fresno			
State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-012
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-012
EPA - UCMR4	CA00079	State of Washington	C997-19d
San Bernardino			
State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-004	State of Oregon - NELAP	4119-004
Vancouver			
NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-012
State of Washington	C824-19		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
Date needed:

A9L1710 clare4404 10/17/2019

*Required Fields | Temp: | Thermometer ID:

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Claremont Land Group	Geralyn Skapik Additional cc's: Christofer Coppinger, John Bissel	PO#:	E-mail*:	

Address*:	City*:	State*:	Zip*:
5861 Pine Ave, Suite A-1	Chino Hills	CA	91709

Project:
Project #: A9L1710

Reporting Options: ☒ Trace (J-Flag) ☐ Swamp ☐ EDD Type: _____

Sampler Name (Printed/Signature)*: Edween Hernandez

Regulatory Carbon Copies: ☐ SWRCB (Drinking Water) ☐ Merced Co ☐ Fresno Co ☐ Madera Co ☐ Tulare Co ☐ Other: _____

Regulatory Compliance: ☐ EDT to California SWRCB (Drinking Water) System Number*: _____ ☐ Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Gross Alpha	EXT-Rad 226, 228	
26G(C) 1	[redacted]	10/16/19	16:55	DW		X	X	X	X		X	X	X	
2	Trip Blank - 524 - Raw - Lot# 1019007	10/16/19		TB	Reported from: A9J1707-08					X				
	Revised COC created by EMP													

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: PIA#:	Check / Cash Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____ **Custody Seal:** Y / N
Cooling Method: Wet Blue None **Chilling Process Begun:** Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. This person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

A9L1710 clare4404 10/17/2019

10

1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 Fax (559) 497-2893
www.bsk-associates.com

BSK ASSOCIATES

Turnaround Time Request
- [x] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
Date requested:

Temp: 5.8 Thermometer ID: 4658

*Required Fields

Company/Client Name*: Hansji Corporation
Report Attention*: John Bisset
Invoice To*: Arun Malhotra
Phone*: (714) 399-0152
Fax:
E-mail: johnb@hansji.com
Address*: 631 W. Katella Ave., 5th Floor
City*: Anaheim
State*: CA
Zip*: 92802
Project*: A9J1707
Sampler Name (Printed/Signature)*: Edween Hernandez
Regulatory Compliance: [ ] "Y" to California EDF (Drinking Water) System Number*:
Geotracker #:

Matrix: Types: SW-Surface Water, PW-Process Water, DW-Drinking Water, WW-Waste Water, STW-Storm Water, SO-Soil, O

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WO RAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
1	Terra V. Well No. 1	10/16/19	1555	DW		X	X	X	X	X			X	X
2	Terra V. Well No. 2	10/16/19	1326	DW		X	X	X	X	X			X	X
26G(B)	[redacted]			DW		X	X	X	X	X			X	X
26G(A)	[redacted]	10/16/19	1453	DW	Filtered trace metals in samples	X	X	X	X	X			X	X
26G(C)	[redacted]	10/16/19	1655	DW		X	X	X	X	X			X	X
5	Trip Blank - TCP - Lot# RAW 101903	10/14/19								X				
6	Trip Blank - 504 - Lot# 1019036	10/14/19									X			
7	Trip Blank - 524 - Lot# RAW 101903	10/14/19										X		

See Revised COC 01/27/2020 EE

Prelogged as A9J1707

Relinquished by (Signature and Printed Name): Edween Hernandez
Company: Geoscience
Date: 10/17/19 Time: 1130
Received by (Signature and Printed Name):
Company:
Date: 10/17 Time: 1130
Payment Received at Delivery: Date: Amount: Check #: Cash*
Shipping Method: DHL FAC UPS OSC WA FEDEX Courier:
Custody Seal: Y/N
Cooling Method: Ice Blue None
Chilling Process Begun: Y/N

Please cc results to: ccuppinger@geoscience-water.com

Pre-sample water quality measurements:
1) Terra V. well No. 1: 3.51 mS/cm - Turb. 22.6 NTU - Spec. Cond. 7.48 pH @ 13.5°C
2) Terra V. well No. 2: 1.19 mS/cm - Turb. 299 NTU - Spec. Cond. 7.79 pH @ 14.3°C
3) [redacted] 1.33 mS/cm - Turb. 172 NTU - Spec. Cond. 7.37 pH @ 13.2°C
4) [redacted] 5.66 mS/cm, Turb. 219 NTU - Spec. Cond. 6.54 pH @ 14.8°C

26G(A) 26G(C)

A9L1710 clare4404 10/17/2019

BSK Associates SR-FL-0002-20

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Sample Integrity

BSK Bottles: (Yes) No Page 1 of 1

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) NA / Yes (No) NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	(Yes) No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes No (NA)

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	1-4	5	6	7	
Bacti $Na_2S_2O_3$	—	—	1				
None (P) White Cap	—	—	2C				
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	(P) F	1A				10/17/19
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	4C, 1B				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	2C, 1B				
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	3V	2V			
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	2C				
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	1A				
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	1C				
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—	1A				
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	7V		2V		
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	(P) F	1V				
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V			2V	
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	1C				
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Initial & Time Labeled by: pagel vcH 13:48 VCH 13:48

Labels Checked by: SMA 10-17-19 1354

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned: SRD

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

A9L1710 clare4404 10/17/2019 10

Turnaround Time Request
- [x] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
- Date needed:

3.1

*Required Fields

Temp: 5.2 Thermometer ID: #53

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*: / Fax:
Hansji Corporation	John Bissel Additional cc's: Christofer Coppinger, Geralyn Skapik	Arun Malhotra PO#:	(714) 399-0152 E-mail*: johnb@hansji.com

Address*:	City*:	State*:	Zip*:
631 W. Katella Ave., 5th Floor	Anaheim	CA	92802

Project:

Project #: A9L1707

Reporting Options: [x] Trace (J-Flag) [ ] Swamp [ ] EDD Type: _____

Sampler Name (Printed/Signature)*: Alexander Arita (AA), AA

Regulatory Carbon Copies: [ ] SWRCB (Drinking Water) [ ] Merced Co [ ] Fresno Co [ ] Madera Co [ ] Tulare Co [ ] Other: _____

Regulatory Compliance: [ ] EDT to California SWRCB (Drinking Water) System Number*: _____ [ ] Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
1	[redacted] 26G(B)	10/21/19	17:50	DW		X	X	X	X	X			X	X
* 2	[redacted] 26G(A)	10/22/19	12:15	DW		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~			X	X
10/23/19				DW		X	X	X	X	X			X	X
	Trip Blank - TCP - Lot#									X				
	Trip Blank - 504 - Lot#										X			
	Trip Blank - 524 - Lot#											X		

See Revised COC 01/27/2020 EE

VGH

*Additional volume for A9L1707-04. Logged as A9L1707-09

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Alexander Arita	Geoscience	10/22/19	16:56		
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery:	
Veronica		10-22-19	16:56	Cash: Amount:	Check / Cash PIA#: Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____ Custody Seal: Y/N

Cooling Method: Wet Blue None Chilling Process Begun: Y/N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

SR-FL-0012-08

Presampling water quality:

26G(B) [redacted]	Turbidity 0.03 NTU	7.52 pH @ 12.3°C	Cond - 474 µS @ 12.6°C
26G(A)	4.71 NTU	8.46 pH @ 12.9°C	175 µS @ 11.6°C

Sample Integrity

BSK Bottles: Yes No Page 2 of 2

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) NA Yes (No) NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes No (NA)

Bottles Received ("—" means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	9
Bacti $Na_2S_2O_3$	—	—	
None (P) White Cap	—	—	
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F	
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F	
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F	
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	9C
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	
NaOH (P) Green Cap	Cl, pH >10	P F	
NaOH + ZnAc (P)	pH > 9	P F	
Dissolved Oxygen 300ml (g)	—	—	
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—	
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F	
NH_4Cl (AG) Purple Label 552	—	—	
EDA (AG) Brown Label DBPs	—	—	
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	
Buffer pH 4 (CG)	—	—	
H_3PO_4 (CG) Salmon Label	—	—	
Trizma – EPA 537.1			
Other:			
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	
Bottled Water	—	—	
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—	
Solids: Brass / Steel / Plastic Bag	—	—	

10/23/19 8

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned: _____

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

December 17, 2019 Ceres ID: 13217

BSK Associates
1414 Stanislaus St.
Fresno, CA 93706

The following report contains the results for the one drinking water sample received on October 18, 2019. This sample was analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under your Subcontract Order # A9L1710.

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date	&Time
13217-001	[redacted] 26G(C) A9L1710-01	10/18/2019	10/16/2019	16:55

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Method Blank**	**QC Batch #:** 2073	**Date Received:** NA
	Matrix: Drinking Water	**Date Extracted:** 10/23/2019
Project ID: A9L1710	**Sample Size:** 1.000 L	**ZB-5MS Analysis:** 10/24/2019

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.16	1.49	5.00		13C-2378-TCDD	77.9	31-137	
					CRS			
					37Cl4-2378-TCDD	60.7	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Ongoing Precision and Recovery**		**Date Received:** NA
	QC Batch #: 2073	**Date Extracted:** 10/23/2019
	Matrix: Drinking Water	**ZB-5MS Analysis:** 10/24/2019
Project ID: A9L1710	**Sample Size:** 1.000 L	

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	8.03	7.3-14.6	13C-2378-TCDD	80.2	25-141
			CRS		
			37Cl4-2378-TCDD	68.5	37-158
			(a) Limits based on method acceptance criteria.		

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

26G(C)

Client Sample ID: [redacted] A9L1710-01		
Project ID: A9L1710	**Ceres Sample ID:** 13217-001	**Date Received:** 10/18/2019
	QC Batch #: 2073	**Date Extracted:** 10/23/2019
Date Collected: 10/16/2019	**Matrix:** Drinking Water	**ZB-5MS Analysis:** 10/24/2019
Time Collected: 16:55	**Sample Size:** 1.005 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.65	1.49	4.98		13C-2378-TCDD	89.4	31-137	
					CRS			
					37Cl4-2378-TCDD	76.0	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

A9L1710

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

Ceres Analytical Laboratory, Inc
4919 Windplay Drive, Suite 1
El Dorado Hills, CA 95762
Phone :(916) 932-5011
Fax: -
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9L1710-01	[redacted] 26G(C)	**Client Matrix** Drinking Water	**10/16/2019 16:55**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Report from original data for A9J1707-05	

Released By	Date	Received By	Date
Released By	Date	Received By	Date

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322000368
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Elaine M. Phillips
BSK Analytical Laboratories
1414 Stanislaus Street
Fresno, CA 93706

Phone: (559) 497-2888
Fax:
Received: 10/18/2019
Analyzed: 10/24/2019

Proj: A9L1710

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
							MFL (million fibers per liter)		
A9J1710-01 322000368-0001	10/21/2019 03:05 PM	5	1288	0.2600	None Detected	ND	0.99	<0.99	0.00 - 3.70

Collection Date/Time: 10/16/2020 16:55 PM

Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached. UV ozonated.

Sample A9J1707-05 separated from Order #321922564 is reported as A9J1710-01 on this new report as per client request.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/10/2020 13:30:11

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested. This report may not be reproduced, except in full, without written permission by LA Testing. Samples received in good condition unless otherwise noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

BSK ASSOCIATES

SUBCONTRACT ORDER

A9L1710

#322000368

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

L A Testing
520 Mission St.
South Pasadena, CA 91030
Phone :(800) 303-0047
Fax: (323) 254-9982
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9L1710-01	[redacted] 26G(C)	Client Matrix Drinking Water	10/16/2019 16:55
Lab Matrix:	Water		
	Analysis: EXT-Asbestos, Drinking Water by EPA 100.2	Report from original data for A9J1707-05	

Released By	Date	Received By	Date
		Amarissarok	12/17/19 1452 (emailed)
Released By	Date	Received By	Date

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917171
Customer : 2-22939

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
[redacted] 26G(C)	10/16/2019	10/18/2019	SP 1917171-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	10/30/2019:217016 All analysis quality controls are within established criteria
	10/25/2019:212371 All preparation quality controls are within established criteria
903.0	11/06/2019:217406 All analysis quality controls are within established criteria
	10/28/2019:212449 All preparation quality controls are within established criteria
Ra - 05	11/03/2019:217160 All analysis quality controls are within established criteria
	10/28/2019:212442 All preparation quality controls are within established criteria

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
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2500 Stagecoach Road
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3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
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FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX: [illegible]
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917171
BSK Associates Engineers & Laboratories Customer : 2-22939

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2019-12-18

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917171-001
Customer ID : 2-22939

Sampled On : October 16, 2019-16:55
Sampled By : Not Available
Received On : October 18, 2019-10:55
Matrix : Water

Description : [redacted] 26G(C)
Project : A9J1707-05

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry								
Gross Alpha	1.04 ± 0.497	0.674	pCi/L	15/5	900.0	10/25/19-10:00 2P1912371	900.0	10/30/19-14:52 2A1917016
Total Alpha Radium (226)	0.000 ± 0.072	0.418	pCi/L	3	903.0	10/28/19-18:30 2P1912449	903.0	11/06/19-15:54 2A1917406
Ra 228	0.141 ± 0.701	0.506	pCi/L	2	Ra - 05	10/28/19-18:20 2P1912442	Ra - 05	11/03/19-09:50 2A1917160

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917171
BSK Associates Engineers & Laboratories Customer : 2-22939

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	10/30/19:217016JCA	CCV	cpm	8138	38.9 %	35-47	
			CCB	cpm		0.0800	0.16	
Gross Alpha	900.0	10/25/19:212371jca	Blank	pCi/L		0.77	3	
			LCS	pCi/L	155.2	95.5 %	75-125	
			MS	pCi/L	155.2	135 %	60-140	
		(SP 1913830-001)	MSD	pCi/L	155.2	140 %	60-140	
			MSRPD	pCi/L	155.2	3.7%	≤30	
Alpha	903.0	11/06/19:217406JCA	CCV	cpm	8133	39.4 %	37-46	
			CCB	cpm		0.1200	0.16	
Total Alpha Radium (226)	903.0	10/28/19:212449emv	RgBlk	pCi/L		0.009	2	
			LCS	pCi/L	23.33	58.3 %	52-107	
			MS	pCi/L	23.33	54.5 %	43-111	
		(SP 1913892-001)	MSD	pCi/L	23.33	51.7 %	43-111	
			MSRPD	pCi/L	23.33	5.3%	≤35.5	
Beta	Ra - 05	11/03/19:217160emv	CCV	cpm	8136	89.6 %	84-94	
			CCB	cpm		0.4800	0.58	
Ra 228	Ra - 05	10/28/19:212442emv	RgBlk	pCi/L		-0.03	3	
			LRS	pCi/L	14.21	67.9 %	65-108	
			BS	pCi/L	14.21	84.2 %	75-125	
			BSD	pCi/L	14.21	88.8 %	75-125	
			BSRPD	pCi/L	14.21	0.64	≤3	

Definition

CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS : Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

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Chain of Custody

Map Re

Client: **BSK Associates**

Address: BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Phone: (559)497-2888 Xt116 Fax: (559)485-69356132442

Contact Person: Adam Trevarrow

Project Name: **A9J1707-05**

Purchase Order Number:

Sampler(s) Not Available

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **SP 1917171** 2-22939

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Radio Chemistry-Gross Alpha,Total Radium 226,Ra 228 32oz(P)-HNO3 , 32oz(P)-HNO3									
1	[redacted] 26G(C)	10/16/19	16:55	G	W				2,1									

Remarks:
Original COC #1914207

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
OnTrac								
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:
Inez Covarrubias	10/18/19	10:55						

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

A9L1713
1/27/2020
Invoice: AD01466

Geralyn Skapik
Claremont Land Group
5861 Pine Ave, Suite A-1
Chino Hills, CA 91709

RE: Report for A9L1713 Yosemite Title 22 Testing

Dear Geralyn Skapik,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/17/2019. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Elaine M. Phillips , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Elaine M. Phillips, Project Coordinator

Accredited in Accordance with NELAP
ORELAP #4021-009

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Claremont Land Group	**Invoice To:**	Hansji Corporation
Report To:	Geralyn Skapik	**Invoice Attn:**	John Bissel
Project #:	[redacted] 26G(A)	**Project PO#:**	-
Received:	10/17/2019 - 11:30		
Report Due:	10/31/2019		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 5.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Received On Blue Ice
Packing Material - Other
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Chain of Custody Notes

Date: 1/27/2020
Initials: EMP
Note: Moved data from A9J1720-07 for [redacted] 26G(A) **to Work Order A9L1713, as per client request.**

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B	Analyte exceeds laboratory acceptance limit for blank contamination.
B1.1	Analyte detected in associated method blank. No material impact on reported result as sample is ND for this parameter.
J	Estimated value
MS1.6	Matrix Spike recovery meets the wider acceptance criteria of 50-150% when the spike level is at or below the reporting limit (RL).
SR3.0	Surrogate recovery exceeds control limits. No material impact as all associated spike recoveries are within acceptable limits.

Report Distribution

Recipient(s)	Report Format	CC:
Geralyn Skapik	MCL.RPT	
Christofer Coppinger	MCL.RPT	
John Bissel	MCL.RPT	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1713-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(A)

Sample Date - Time: 10/16/2019 - 14:53
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.35 Temp=13.7 ºC Cond.=175 umho Turb. =7.95 ntu

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Perfluorinated Compounds by LC-MS/MS											
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
NEtFOSAA	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
NMeFOSAA	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-1-butanesulfonic acid (PFBS)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-1-hexanesulfonic acid (PFHxS)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-1-octanesulfonic acid (PFOS)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluorododecanoic acid (PFDoA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-decanoic acid (PFDA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	B1.1
Perfluoro-n-nonanoic acid (PFNA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-octanoic acid (PFOA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluorotridecanoic acid (PFTrDA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoroundecanoic acid (PFUnA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Surrogate: d5-NEtFOSAA	EPA 537.1	124 %			*Acceptable range: 70-130 %*						
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	EPA 537.1	84 %			*Acceptable range: 70-130 %*						
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	EPA 537.1	92 %			*Acceptable range: 70-130 %*						
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA (M3HFPO-DA)	EPA 537.1	88 %			*Acceptable range: 70-130 %*						

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 537.1 - Quality Control												
Batch: A916043											Prepared: 10/24/2019	
Prep Method: EPA 537.1											Analyst: JMM	
Blank (A916043-BLK1)												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	ND	0.0010	0.0030	ug/L							10/25/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.0010	0.0030	ug/L							10/25/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	ND	0.0010	0.0030	ug/L							10/25/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.0010	0.0030	ug/L							10/25/19	
NEtFOSAA	ND	0.0010	0.0030	ug/L							10/25/19	
NMeFOSAA	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-1-butanesulfonic acid (PFBS)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.0014	0.0010	0.0030	ug/L							10/25/19	B, J
Perfluoro-1-octanesulfonic acid (PFOS)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluorododecanoic acid (PFDoA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-n-decanoic acid (PFDA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-n-nonanoic acid (PFNA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-n-octanoic acid (PFOA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluorotridecanoic acid (PFTrDA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoroundecanoic acid (PFUnA)	ND	0.0010	0.0030	ug/L							10/25/19	
Surrogate: d5-NEtFOSAA	*0.19*				*0.16*		*120*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.13*				*0.16*		*84*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.14*				*0.16*		*90*	*70-130*			10/25/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.12*				*0.16*		*74*	*70-130*			10/25/19	
Blank Spike (A916043-BS1)												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	0.026	0.0010	0.0030	ug/L	0.030		86	70-130			10/25/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.030	0.0010	0.0030	ug/L	0.030		100	70-130			10/25/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	0.028	0.0010	0.0030	ug/L	0.030		93	70-130			10/25/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.027	0.0010	0.0030	ug/L	0.030		90	70-130			10/25/19	
NEtFOSAA	0.034	0.0010	0.0030	ug/L	0.030		113	70-130			10/25/19	
NMeFOSAA	0.029	0.0010	0.0030	ug/L	0.030		97	70-130			10/25/19	
Perfluoro-1-butanesulfonic acid (PFBS)	0.026	0.0010	0.0030	ug/L	0.030		87	70-130			10/25/19	
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.025	0.0010	0.0030	ug/L	0.030		84	70-130			10/25/19	
Perfluoro-1-octanesulfonic acid (PFOS)	0.028	0.0010	0.0030	ug/L	0.030		95	70-130			10/25/19	
Perfluorododecanoic acid (PFDoA)	0.029	0.0010	0.0030	ug/L	0.030		98	70-130			10/25/19	
Perfluoro-n-decanoic acid (PFDA)	0.028	0.0010	0.0030	ug/L	0.030		92	70-130			10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	0.031	0.0010	0.0030	ug/L	0.030		103	70-130			10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	0.028	0.0010	0.0030	ug/L	0.030		92	70-130			10/25/19	
Perfluoro-n-nonanoic acid (PFNA)	0.032	0.0010	0.0030	ug/L	0.030		106	70-130			10/25/19	
Perfluoro-n-octanoic acid (PFOA)	0.029	0.0010	0.0030	ug/L	0.030		96	70-130			10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	0.030	0.0010	0.0030	ug/L	0.030		101	70-130			10/25/19	
Perfluorotridecanoic acid (PFTrDA)	0.030	0.0010	0.0030	ug/L	0.030		100	70-130			10/25/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 537.1 - Quality Control												
Batch: A916043											Prepared: 10/24/2019	
Prep Method: EPA 537.1											Analyst: JMM	
Blank Spike (A916043-BS1)												
Perfluoroundecanoic acid (PFUnA)	0.034	0.0010	0.0030	ug/L	0.030		113	70-130			10/25/19	
Surrogate: d5-NEtFOSAA	*0.19*				*0.16*		*117*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.14*				*0.16*		*90*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.15*				*0.16*		*93*	*70-130*			10/25/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.15*				*0.16*		*94*	*70-130*			10/25/19	
Matrix Spike (A916043-MS1), Source: A9J1901-01												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	0.0024	0.00091	0.0027	ug/L	0.0027	ND	90	70-130			10/25/19	J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.0025	0.00091	0.0027	ug/L	0.0027	ND	94	70-130			10/25/19	J
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	0.0024	0.00091	0.0027	ug/L	0.0027	ND	87	70-130			10/25/19	J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.0024	0.00091	0.0027	ug/L	0.0027	ND	89	70-130			10/25/19	J
NEtFOSAA	0.0036	0.00091	0.0027	ug/L	0.0027	ND	133	70-130			10/25/19	MS1.6 ***High***
NMeFOSAA	0.0025	0.00091	0.0027	ug/L	0.0027	ND	92	70-130			10/25/19	J
Perfluoro-1-butanesulfonic acid (PFBS)	0.0024	0.00091	0.0027	ug/L	0.0027	ND	87	70-130			10/25/19	J
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.0019	0.00091	0.0027	ug/L	0.0027	ND	70	70-130			10/25/19	J
Perfluoro-1-octanesulfonic acid (PFOS)	0.0026	0.00091	0.0027	ug/L	0.0027	ND	95	70-130			10/25/19	J
Perfluorododecanoic acid (PFDoA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	111	70-130			10/25/19	
Perfluoro-n-decanoic acid (PFDA)	0.0032	0.00091	0.0027	ug/L	0.0027	ND	118	70-130			10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	0.0028	0.00091	0.0027	ug/L	0.0027	ND	102	70-130			10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	0.0027	0.00091	0.0027	ug/L	0.0027	ND	99	70-130			10/25/19	J
Perfluoro-n-nonanoic acid (PFNA)	0.0033	0.00091	0.0027	ug/L	0.0027	ND	121	70-130			10/25/19	
Perfluoro-n-octanoic acid (PFOA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	109	70-130			10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	0.0027	0.00091	0.0027	ug/L	0.0027	ND	100	70-130			10/25/19	
Perfluorotridecanoic acid (PFTrDA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	109	70-130			10/25/19	
Perfluoroundecanoic acid (PFUnA)	0.0034	0.00091	0.0027	ug/L	0.0027	ND	126	70-130			10/25/19	
Surrogate: d5-NEtFOSAA	*0.19*				*0.14*		*129*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.13*				*0.14*		*86*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.13*				*0.14*		*92*	*70-130*			10/25/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.14*				*0.14*		*94*	*70-130*			10/25/19	
Matrix Spike Dup (A916043-MSD1), Source: A9J1901-01												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	0.0024	0.00091	0.0027	ug/L	0.0027	ND	88	70-130	2	30	10/25/19	J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.0026	0.00091	0.0027	ug/L	0.0027	ND	97	70-130	4	30	10/25/19	J
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	0.0024	0.00091	0.0027	ug/L	0.0027	ND	88	70-130	2	30	10/25/19	J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.0025	0.00091	0.0027	ug/L	0.0027	ND	91	70-130	2	30	10/25/19	J
NEtFOSAA	0.0033	0.00091	0.0027	ug/L	0.0027	ND	121	70-130	10	30	10/25/19	
NMeFOSAA	0.0027	0.00091	0.0027	ug/L	0.0027	ND	100	70-130	9	30	10/25/19	
Perfluoro-1-butanesulfonic acid (PFBS)	0.0024	0.00091	0.0027	ug/L	0.0027	ND	89	70-130	3	30	10/25/19	J
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.0020	0.00091	0.0027	ug/L	0.0027	ND	73	70-130	4	30	10/25/19	J

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 537.1 - Quality Control												
Batch: A916043											Prepared: 10/24/2019	
Prep Method: EPA 537.1											Analyst: JMM	
Matrix Spike Dup (A916043-MSD1), Source: A9J1901-01												
Perfluoro-1-octanesulfonic acid (PFOS)	0.0026	0.00091	0.0027	ug/L	0.0027	ND	96	70-130	1	30	10/25/19	J
Perfluorododecanoic acid (PFDoA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	109	70-130	2	30	10/25/19	
Perfluoro-n-decanoic acid (PFDA)	0.0031	0.00091	0.0027	ug/L	0.0027	ND	112	70-130	5	30	10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	110	70-130	8	30	10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	0.0027	0.00091	0.0027	ug/L	0.0027	ND	99	70-130	1	30	10/25/19	J
Perfluoro-n-nonanoic acid (PFNA)	0.0032	0.00091	0.0027	ug/L	0.0027	ND	118	70-130	2	30	10/25/19	
Perfluoro-n-octanoic acid (PFOA)	0.0029	0.00091	0.0027	ug/L	0.0027	ND	106	70-130	2	30	10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	0.0028	0.00091	0.0027	ug/L	0.0027	ND	104	70-130	4	30	10/25/19	
Perfluorotridecanoic acid (PFTrDA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	109	70-130	0	30	10/25/19	
Perfluoroundecanoic acid (PFUnA)	0.0031	0.00091	0.0027	ug/L	0.0027	ND	113	70-130	11	30	10/25/19	
Surrogate: d5-NEtFOSAA	*0.19*				*0.15*		*133*	*70-130*			10/25/19	*SR3.0*
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.14*				*0.15*		*94*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.13*				*0.15*		*92*	*70-130*			10/25/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.14*				*0.15*		*95*	*70-130*			10/25/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters: **NA**

Certificate of Analysis

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

	2435		
Fresno			
State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-012
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-012
EPA - UCMR4	CA00079	State of Washington	C997-19d
San Bernardino			
State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-004	State of Oregon - NELAP	4119-004
Vancouver			
NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-012
State of Washington	C824-19		

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
- [x] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
  Date needed:

A9L1713 clare4404 10/17/2019 10

*Required Fields Temp: Thermometer ID:

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Claremont Land Group	Geralyn Skapik Additional cc's: Christofer Coppinger, John Bissel	John Bissel - Hansji PO#:	(909) 398-4404 E-mail*: gskapik@skapiklaw.com	

Address*:	City*:	State*:	Zip*:
5861 Pine Ave, Suite A-1	Chino Hills	CA	91709

Project:	Project #:	Phase:	Task:
	A9L1713		

Reporting Options: [ ] Trace (J-Flag) [ ] Swamp [ ] EDD Type: _____

Sampler Name (Printed/Signature)*: Edween Hernandez

Regulatory Carbon Copies
[ ] SWRCB (Drinking Water)
[ ] Merced Co [ ] Fresno Co
[ ] Madera Co [ ] Tulare Co
[ ] Other: _____

Regulatory Compliance
[ ] EDT to California SWRCB (Drinking Water)
System Number*: _____
[ ] Geotracker #: _____

[ ] I acknowledge that I have received and followed the Per- and Polyfluoroalkyl Substances (PFAS) Sampling Instructions provided by BSK Associates.

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

	#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	EPA 537.1	EPA 537.1 Extraction
26G(A)	1	[redacted]			DW		✓	
26G(A)	2				FB			✓
		Revised COC created by EMP						

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Check / Cash Date: Amount: PIA#: Init.	

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____
Cooling Method: Wet Blue None

Custody Seal: Y / N
Chilling Process Begun: Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

A9L1713 clare4404 10/17/2019

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ASSOCIATES

5855

1414 Stanislaus St, Fresno, CA 93706
(559) 497-2888 Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request

- [X] Standard – 10 business days
- [ ] Rush (Surcharge may apply) Date needed:

*Required Fields

Company/Client Name*	Report Attention*	Invoice To*	Phone*	Fax
Hansji Corporation	John Bissel	Arun Malhotra	(714) 399-0152	
	Christofer Coppinger, Geralyn Skapik		Email: johnb@hansji.com	

Address*	City*	State*	Zip*
631 W. Katella Ave., 5th Floor	Anaheim	CA	92802

Project #: A9J1720

Please cc results to: ccoppinger@geoscience-water.com

Sampler Name (Printed/Signature)*: Edween Hernandez

[ ] I acknowledge that I have received and followed the Per- and Polyfluoroalkyl Substances (PFAS) Sampling Instructions provided by BSK Associates

#	Sample Description*	Sampled Date*	Sampled Time	Matrix*	Comments	EPA 537.1	EPA 537.1 Extraction
1	Terra Vi Well No 1	10/16/19	1555	DW		✓	
2	Terra Vi Well No 1 - Field Blank	10/16/19		FB			✓
3	Terra Vi Well No 2	10/16/19	1326	DW	MS/MSD	✓	
4	Terra Vi Well No 2 - Field Blank	10/16/19		FB			✓
26G(A) 5	[redacted] Well No. 2	10/16/19	1326	DW		✓	
26G(A) 6	[redacted] Field Blank			FB			✓
26G(A) 7	[redacted]	10/16/19	1453	DW		✓	
8	[redacted] Field Blank	10/16/19	1455	FB			✓
26G(C) 9	[redacted]	10/16/19		DW		✓	
26G(C) 10	[redacted] - Field Blank	10/16/19		FB			✓

See Revised COC 01/27/2020

Prelogged as A9J1720

Relinquished by: Edween Hernandez — Company: Geoscience — Date/Time: 10/17/19 1130

Received by: — 10/17 1130

Shipping Method: (Walk-in) UPS GSO FedEx Courier

Cooling Method: Wet Ice None

Custody Seal: Y / N

Chilling Process Begun: (Y)

Pre-sampling water quality parameters:

Terra Vi Well No. 1: 1.86 NTU - Turb., 356 µS - Spec. Cond., 7.69 pH @ 14.2 C

Terra Vi Well No. 2: 1.25 NTU - Turb., 246 µS - Spec. Cond., 7.84 pH @ 14.3 C

26G(A) [redacted]: 7.95 NTU - Turb., 175 µS - Spec. Cond., 7.35 pH @ 13.7 C

26G(C) [redacted]: 8.26 NTU - Turb., 214 µS - Spec. Cond., 8.59 pH @ 14.1 C

A9L1713 clare4404 10/17/2019

BSK Associates SR-FL-0002-20

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Sample Integrity

BSK Bottles: (Yes) No Page 1 of 1

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes No (NA) / (Yes) No NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes (No) NA	Has PM been notified of discrepancies? PM: Elaine By/Time: SL 1221	(Yes) No NA

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	1-2	3	4	7-10
Bacti $Na_2S_2O_3$	—	—				
None (P) White Cap	—	—				
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F				
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F				
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F				
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F				
NaOH (P) Green Cap	Cl, pH >10	P F				
NaOH + ZnAc (P)	pH > 9	P F				
Dissolved Oxygen 300ml (g)	—	—				
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—				
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—				
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—				
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—				
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—				
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—				
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—				
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F				
NH_4Cl (AG) Purple Label 552	—	—				
EDA (AG) Brown Label DBPs	—	—				
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—				
Buffer pH 4 (CG)	—	—				
H_3PO_4 (CG) Salmon Label	—	—				
Trizma – EPA 537.1			1A	4A	1A	1A
Other:						
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—				
Bottled Water	—	—				
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—				
Solids: Brass / Steel / Plastic Bag	—	—				

Split

	Container	Preservative	Date/Time/Initials
S P			
S P			

	Container	Preservative	Date/Time/Initials
S P			
S P			

Comments

Rec additional Volume for well #2 SL 10/17/19

Samples #5-6 not received, bottles used for Well #2 additional volume – RB

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 ✓

8260/624 __

Scanned: _____

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

Amended Report

A9J1720
1/29/2020
Invoice: AD01446

Geralyn Skapik
Claremont Land Group
5861 Pine Ave, Suite A-1
Chino Hills, CA 91709

RE: Report for A9J1720 Yosemite Title 22 Testing

Dear Geralyn Skapik,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/17/2019. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Elaine M. Phillips , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Joseph Boatwright, Quality Assurance Specialist

Accredited in Accordance with NELAP
ORELAP #4021-009

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Claremont Land Group	**Invoice To:**	Hansji Corporation
Report To:	Geralyn Skapik	**Invoice Attn:**	John Bissel
Project #:	Terra Vi	**Project PO#:**	-
Received:	10/17/2019 - 11:30		
Report Due:	10/31/2019		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 5.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Received On Blue Ice
Packing Material - Other
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Report Amendments

Date: 1/27/2020

Initials: EMP

This amended report supersedes any previous reports issued by the laboratory. Amendments to this report are as follows: Changed the client from Hansji Corporation to Claremont Land Group, removed all data not pertaining to Terra Vi Well No. 1 and 2 and reported on separate reports, as per client request.

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B	Analyte exceeds laboratory acceptance limit for blank contamination.
B1.1	Analyte detected in associated method blank. No material impact on reported result as sample is ND for this parameter.
J	Estimated value
MS1.6	Matrix Spike recovery meets the wider acceptance criteria of 50-150% when the spike level is at or below the reporting limit (RL).
SR3.0	Surrogate recovery exceeds control limits. No material impact as all associated spike recoveries are within acceptable limits.

Report Distribution

Recipient(s)	Report Format	CC:
Geralyn Skapik	MCL.RPT	
Christofer Coppinger	MCL.RPT	
John Bissel	MCL.RPT	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9J1720-01
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 1

Sample Date - Time: 10/16/2019 - 15:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.69 Temp=14.2 ºC Cond.=356 umho Turb. =1.88 ntu

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Perfluorinated Compounds by LC-MS/MS											
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
NEtFOSAA	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
NMeFOSAA	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-1-butanesulfonic acid (PFBS)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-1-hexanesulfonic acid (PFHxS)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	B1.1
Perfluoro-1-octanesulfonic acid (PFOS)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluorododecanoic acid (PFDoA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-decanoic acid (PFDA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-nonanoic acid (PFNA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-octanoic acid (PFOA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluorotridecanoic acid (PFTrDA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoroundecanoic acid (PFUnA)	EPA 537.1	ND	0.00091	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Surrogate: d5-NEtFOSAA	EPA 537.1	129 %		*Acceptable range: 70-130 %*							
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	EPA 537.1	95 %		*Acceptable range: 70-130 %*							
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	EPA 537.1	98 %		*Acceptable range: 70-130 %*							
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA (M3HFPO-DA)	EPA 537.1	88 %		*Acceptable range: 70-130 %*							

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Certificate of Analysis

Sample ID: A9J1720-03
Sampled By: Edween Hernandez
Sample Description: Terra Vi Well No. 2

Sample Date - Time: 10/16/2019 - 13:26
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.84 Temp=14.3 ºC Cond.=296 umho Turb. =1.25 ntu

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Perfluorinated Compounds by LC-MS/MS											
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
NEtFOSAA	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
NMeFOSAA	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-1-butanesulfonic acid (PFBS)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-1-hexanesulfonic acid (PFHxS)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	B1.1
Perfluoro-1-octanesulfonic acid (PFOS)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluorododecanoic acid (PFDoA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-decanoic acid (PFDA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-nonanoic acid (PFNA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoro-n-octanoic acid (PFOA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluorotridecanoic acid (PFTrDA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Perfluoroundecanoic acid (PFUnA)	EPA 537.1	ND	0.00090	0.0030	ug/L	1		A916043	10/24/19	10/25/19	
Surrogate: d5-NEtFOSAA	EPA 537.1	116 %		*Acceptable range: 70-130 %*							
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	EPA 537.1	90 %		*Acceptable range: 70-130 %*							
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	EPA 537.1	94 %		*Acceptable range: 70-130 %*							
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA (M3HFPO-DA)	EPA 537.1	78 %		*Acceptable range: 70-130 %*							

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 537.1 - Quality Control												
Batch: A916043											Prepared: 10/24/2019	
Prep Method: EPA 537.1											Analyst: JMM	
Blank (A916043-BLK1)												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	ND	0.0010	0.0030	ug/L							10/25/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.0010	0.0030	ug/L							10/25/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	ND	0.0010	0.0030	ug/L							10/25/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.0010	0.0030	ug/L							10/25/19	
NEtFOSAA	ND	0.0010	0.0030	ug/L							10/25/19	
NMeFOSAA	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-1-butanesulfonic acid (PFBS)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.0014	0.0010	0.0030	ug/L							10/25/19	B, J
Perfluoro-1-octanesulfonic acid (PFOS)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluorododecanoic acid (PFDoA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-n-decanoic acid (PFDA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-n-nonanoic acid (PFNA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoro-n-octanoic acid (PFOA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluorotridecanoic acid (PFTrDA)	ND	0.0010	0.0030	ug/L							10/25/19	
Perfluoroundecanoic acid (PFUnA)	ND	0.0010	0.0030	ug/L							10/25/19	
Surrogate: d5-NEtFOSAA	*0.19*				*0.16*		*120*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.13*				*0.16*		*84*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.14*				*0.16*		*90*	*70-130*			10/25/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.12*				*0.16*		*74*	*70-130*			10/25/19	
Blank Spike (A916043-BS1)												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	0.026	0.0010	0.0030	ug/L	0.030		86	70-130			10/25/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.030	0.0010	0.0030	ug/L	0.030		100	70-130			10/25/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	0.028	0.0010	0.0030	ug/L	0.030		93	70-130			10/25/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.027	0.0010	0.0030	ug/L	0.030		90	70-130			10/25/19	
NEtFOSAA	0.034	0.0010	0.0030	ug/L	0.030		113	70-130			10/25/19	
NMeFOSAA	0.029	0.0010	0.0030	ug/L	0.030		97	70-130			10/25/19	
Perfluoro-1-butanesulfonic acid (PFBS)	0.026	0.0010	0.0030	ug/L	0.030		87	70-130			10/25/19	
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.025	0.0010	0.0030	ug/L	0.030		84	70-130			10/25/19	
Perfluoro-1-octanesulfonic acid (PFOS)	0.028	0.0010	0.0030	ug/L	0.030		95	70-130			10/25/19	
Perfluorododecanoic acid (PFDoA)	0.029	0.0010	0.0030	ug/L	0.030		98	70-130			10/25/19	
Perfluoro-n-decanoic acid (PFDA)	0.028	0.0010	0.0030	ug/L	0.030		92	70-130			10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	0.031	0.0010	0.0030	ug/L	0.030		103	70-130			10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	0.028	0.0010	0.0030	ug/L	0.030		92	70-130			10/25/19	
Perfluoro-n-nonanoic acid (PFNA)	0.032	0.0010	0.0030	ug/L	0.030		106	70-130			10/25/19	
Perfluoro-n-octanoic acid (PFOA)	0.029	0.0010	0.0030	ug/L	0.030		96	70-130			10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	0.030	0.0010	0.0030	ug/L	0.030		101	70-130			10/25/19	
Perfluorotridecanoic acid (PFTrDA)	0.030	0.0010	0.0030	ug/L	0.030		100	70-130			10/25/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 537.1 - Quality Control												
Batch: A916043											Prepared: 10/24/2019	
Prep Method: EPA 537.1											Analyst: JMM	
Blank Spike (A916043-BS1)												
Perfluoroundecanoic acid (PFUnA)	0.034	0.0010	0.0030	ug/L	0.030		113	70-130			10/25/19	
Surrogate: d5-NEtFOSAA	*0.19*				*0.16*		*117*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.14*				*0.16*		*90*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.15*				*0.16*		*93*	*70-130*			10/25/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.15*				*0.16*		*94*	*70-130*			10/25/19	
Matrix Spike (A916043-MS1), Source: A9J1901-01												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	0.0024	0.00091	0.0027	ug/L	0.0027	ND	90	70-130			10/25/19	J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.0025	0.00091	0.0027	ug/L	0.0027	ND	94	70-130			10/25/19	J
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	0.0024	0.00091	0.0027	ug/L	0.0027	ND	87	70-130			10/25/19	J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.0024	0.00091	0.0027	ug/L	0.0027	ND	89	70-130			10/25/19	J
NEtFOSAA	0.0036	0.00091	0.0027	ug/L	0.0027	ND	133	70-130			10/25/19	MS1.6 ***High***
NMeFOSAA	0.0025	0.00091	0.0027	ug/L	0.0027	ND	92	70-130			10/25/19	J
Perfluoro-1-butanesulfonic acid (PFBS)	0.0024	0.00091	0.0027	ug/L	0.0027	ND	87	70-130			10/25/19	J
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.0019	0.00091	0.0027	ug/L	0.0027	ND	70	70-130			10/25/19	J
Perfluoro-1-octanesulfonic acid (PFOS)	0.0026	0.00091	0.0027	ug/L	0.0027	ND	95	70-130			10/25/19	J
Perfluorododecanoic acid (PFDoA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	111	70-130			10/25/19	
Perfluoro-n-decanoic acid (PFDA)	0.0032	0.00091	0.0027	ug/L	0.0027	ND	118	70-130			10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	0.0028	0.00091	0.0027	ug/L	0.0027	ND	102	70-130			10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	0.0027	0.00091	0.0027	ug/L	0.0027	ND	99	70-130			10/25/19	J
Perfluoro-n-nonanoic acid (PFNA)	0.0033	0.00091	0.0027	ug/L	0.0027	ND	121	70-130			10/25/19	
Perfluoro-n-octanoic acid (PFOA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	109	70-130			10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	0.0027	0.00091	0.0027	ug/L	0.0027	ND	100	70-130			10/25/19	
Perfluorotridecanoic acid (PFTrDA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	109	70-130			10/25/19	
Perfluoroundecanoic acid (PFUnA)	0.0034	0.00091	0.0027	ug/L	0.0027	ND	126	70-130			10/25/19	
Surrogate: d5-NEtFOSAA	*0.19*				*0.14*		*129*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.13*				*0.14*		*86*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.13*				*0.14*		*92*	*70-130*			10/25/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.14*				*0.14*		*94*	*70-130*			10/25/19	
Matrix Spike Dup (A916043-MSD1), Source: A9J1901-01												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	0.0024	0.00091	0.0027	ug/L	0.0027	ND	88	70-130	2	30	10/25/19	J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.0026	0.00091	0.0027	ug/L	0.0027	ND	97	70-130	4	30	10/25/19	J
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	0.0024	0.00091	0.0027	ug/L	0.0027	ND	88	70-130	2	30	10/25/19	J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.0025	0.00091	0.0027	ug/L	0.0027	ND	91	70-130	2	30	10/25/19	J
NEtFOSAA	0.0033	0.00091	0.0027	ug/L	0.0027	ND	121	70-130	10	30	10/25/19	
NMeFOSAA	0.0027	0.00091	0.0027	ug/L	0.0027	ND	100	70-130	9	30	10/25/19	
Perfluoro-1-butanesulfonic acid (PFBS)	0.0024	0.00091	0.0027	ug/L	0.0027	ND	89	70-130	3	30	10/25/19	J
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.0020	0.00091	0.0027	ug/L	0.0027	ND	73	70-130	4	30	10/25/19	J

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 537.1 - Quality Control												
Batch: A916043											Prepared: 10/24/2019	
Prep Method: EPA 537.1											Analyst: JMM	
Matrix Spike Dup (A916043-MSD1), Source: A9J1901-01												
Perfluoro-1-octanesulfonic acid (PFOS)	0.0026	0.00091	0.0027	ug/L	0.0027	ND	96	70-130	1	30	10/25/19	J
Perfluorododecanoic acid (PFDoA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	109	70-130	2	30	10/25/19	
Perfluoro-n-decanoic acid (PFDA)	0.0031	0.00091	0.0027	ug/L	0.0027	ND	112	70-130	5	30	10/25/19	
Perfluoro-n-heptanoic acid (PFHpA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	110	70-130	8	30	10/25/19	
Perfluoro-n-hexanoic acid (PFHxA)	0.0027	0.00091	0.0027	ug/L	0.0027	ND	99	70-130	1	30	10/25/19	J
Perfluoro-n-nonanoic acid (PFNA)	0.0032	0.00091	0.0027	ug/L	0.0027	ND	118	70-130	2	30	10/25/19	
Perfluoro-n-octanoic acid (PFOA)	0.0029	0.00091	0.0027	ug/L	0.0027	ND	106	70-130	2	30	10/25/19	
Perfluorotetradecanoic acid (PFTeDA)	0.0028	0.00091	0.0027	ug/L	0.0027	ND	104	70-130	4	30	10/25/19	
Perfluorotridecanoic acid (PFTrDA)	0.0030	0.00091	0.0027	ug/L	0.0027	ND	109	70-130	0	30	10/25/19	
Perfluoroundecanoic acid (PFUnA)	0.0031	0.00091	0.0027	ug/L	0.0027	ND	113	70-130	11	30	10/25/19	
Surrogate: d5-NEtFOSAA	*0.19*				*0.15*		*133*	*70-130*			10/25/19	*SR3.0*
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.14*				*0.15*		*94*	*70-130*			10/25/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.13*				*0.15*		*92*	*70-130*			10/25/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.14*				*0.15*		*95*	*70-130*			10/25/19	

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**** Amended Report ****

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

NEtFOSAA	NMeFOSAA	Perfluoro-1-butanesulfonic acid (PFBS)
Perfluoro-n-decanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoro-n-heptanoic acid (PFHpA)
Perfluoro-1-hexanesulfonic acid (PFHxS	Perfluoro-n-hexanoic acid (PFHxA)	Perfluoro-n-nonanoic acid (PFNA)
Perfluoro-1-octanesulfonic acid (PFOS)	Perfluoro-n-octanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)
Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	Hexafluoropropylene oxide dimer acid (H
11-Chloroeicosafluoro-3-oxaundecanesu	4,8-Dioxa-3H-perfluorononanoic acid (A	9-Chlorohexadecafluoro-3-oxanone-1-su

Certificate of Analysis

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

	2435		
Fresno			
State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-013
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-013
EPA - UCMR4	CA00079	State of Washington	C997-19d
San Bernardino			
State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-004	State of Oregon - NELAP	4119-004
Vancouver			
NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-012
State of Washington	C824-19		

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
- [x] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
  Date needed:

A9J1720 clare4404 10/17/2019 10

*Required Fields Temp: Thermometer ID:

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Claremont Land Group	Geralyn Skapik Additional cc's: Christofer Coppinger, John Bissel	John Bissel - Hansji PO#:	(909) 398-4404 E-mail*: gskapik@skapiklaw.com	

Address*:	City*:	State*:	Zip*:
5861 Pine Ave, Suite A-1	Chino Hills	CA	91709

Project:	Project #:	Phase:	Task:
	A9J1720		

Reporting Options: [ ] Trace (J-Flag) [ ] Swamp [ ] EDD Type: _____

Sampler Name (Printed/Signature)*: Edween Hernandez

Regulatory Carbon Copies
- [ ] SWRCB (Drinking Water)
- [ ] Merced Co [ ] Fresno Co
- [ ] Madera Co [ ] Tulare Co
- [ ] Other: _____

Regulatory Compliance
- [ ] EDT to California SWRCB (Drinking Water)
  System Number*: _____
- [ ] Geotracker #: _____

[ ] I acknowledge that I have received and followed the Per- and Polyfluoroalkyl Substances (PFAS) Sampling Instructions provided by BSK Associates.

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	EPA 537.1	EPA 537.1 Extraction
1	Terra Vi Well No. 1			DW		✓	
2	Terra Vi Well No. 1 - Field Blank			FB			✓
3	Terra Vi Well No. 2			DW		✓	
4	Terra Vi Well No. 2 - Field Blank			FB			✓
	Revised COC created by EMP						

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Check / Cash Date: Amount: PIA#: Init.	

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____
Cooling Method: Wet Blue None
Custody Seal: Y / N
Chilling Process Begun: Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

A9J1720 clare4404 10/17/2019

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ASSOCIATES
5855

1414 Stanislaus St. Fresno, CA 93706
(559) 497-2888 Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply) Date needed

*Required Fields

Company/Client Name*: Hansji Corporation
Report Attention*: John Bissel
Additional cc's: Christofer Coppinger, Geralyn Skapik
Invoice To*: Arun Malhotra
Phone*: (714) 399-0152
E-mail: johnb@hansji.com

Please cc results to: ccoppinger@geoscience-water.com

Address*: 631 W. Katella Ave., 5th Floor
City*: Anaheim
State*: CA
Zip*: 92802
Project #: A9J1720

Sampler Name (Printed/Signature): Edween Hernandez

☐ I acknowledge that I have received and followed the Per- and Polyfluoroalkyl Substances (PFAS) Sampling Instructions provided by BSK Associates.

#	Sample Description*	Date Sampled*	Time Sampled*	Matrix*	Comments / Station Code / WTRAX	EPA 537.1	EPA 537.1 Extraction
1	Terra Vi Well No 1	10/16/19	1555	DW		✓	
2	Terra Vi Well No 1 - Field Blank	10/16/19		FB			✓
3	Terra Vi Well No 2	10/16/19	1326	DW	MS/MSD	✓	
4	Terra Vi Well No 2 - Field Blank	10/16/19		FB			✓
5	[redacted] Well No 2	10/16/19	1326	DW		✓	
6	[redacted] Field Blank			FB			✓
26G(A) 7	[redacted]	10/16/19	1453	DW		✓	
26G(A) 8	[redacted] - Field Blank	10/16/19	1655	FB			✓
26G(C) 9	[redacted]	10/16/19		DW		✓	
26G(C) 10	[redacted] - Field Blank	10/16/19		FB			✓

See revised COC 01/27/2020

Prelogged as A9J1720

Relinquished by: Edween Hernandez — Company: Geoscience — Date/Time: 10/17/19 1130

Received by: — Date/Time: 10/17 1130

Shipping Method: Walk-in / UPS / GSO / FedEx / Courier
Cooling Method: Wet / Blue / None
Custody Seals: Y / N
Chilling Process Begun: Y / N

Pre-sampling water quality parameters:

Terra Vi Well No. 1
1.66 NTU - Turb.
356 µs - Spec. Cond
7.64 pH @ 14.2 C

Terra Vi Well No. 2
1.25 NTU - Turb.
246 µs - Spec. Cond.
7.84 pH @ 14.3 C

26G(A) [redacted]
7.95 NTU - Turb.
175 µs - Spec. Cond
7.35 pH @ 13.7 C

26G(C) [redacted]
8.26 NTU - Turb.
219 µs - Spec. Cond
8.54 pH @ 14.1 C

A9J1720 clare4404 10/17/2019

BSK Associates SR-FL-0002-20

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Sample Integrity

BSK Bottles: (Yes) No Page 1 of 1

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes No (NA) / (Yes) No NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes (No) NA	Has PM been notified of discrepancies? PM: Elaine By/Time: SL 1221	(Yes) No NA

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	1-2	3	4	7-10	
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1			1A	4A	1A	1A	
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Rec additional Volume for well #2 SL 10/17/19

Samples #5-6 not received, bottles used for Well #2 additional volume – SL

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 ✓

8260/624 __

Scanned: _____

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

A9L1723
1/27/2020
Invoice: AD01469

Geralyn Skapik
Claremont Land Group
5861 Pine Ave, Suite A-1
Chino Hills, CA 91709

RE: Report for A9L1723 Yosemite Title 22 Testing

Dear Geralyn Skapik,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/17/2019. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an “as received” basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Elaine M. Phillips , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Elaine M. Phillips, Project Coordinator

Accredited in Accordance with NELAP
ORELAP #4021-009

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Claremont Land Group	**Invoice To:**	Hansji Corporation
Report To:	Geralyn Skapik	**Invoice Attn:**	John Bissel
Project #:	[redacted] 26G(C)	**Project PO#:**	-
Received:	10/17/2019 - 11:30		
Report Due:	10/31/2019		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 5.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Received On Blue Ice
Packing Material - Other
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Chain of Custody Notes

Date: 1/27/2020
Initials: EMP
Note: Moved data from A9J1720-09 for [redacted] 26G(C) **to Work Order A9L1723, as per client request.**

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B	Analyte exceeds laboratory acceptance limit for blank contamination.
B1.1	Analyte detected in associated method blank. No material impact on reported result as sample is ND for this parameter.
BS1.3	Blank Spike recovery meets the wider acceptance criteria of 50-150% when the spike level is at or below the reporting limit (RL).
J	Estimated value

Report Distribution

Recipient(s)	Report Format	CC:
Geralyn Skapik	MCL.RPT	
Christofer Coppinger	MCL.RPT	
John Bissel	MCL.RPT	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1723-01
Sampled By: Edween Hernandez
Sample Description: [redacted] 26G(C)

Sample Date - Time: 10/16/2019 - 16:55
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.59 Temp=14.7 ºC Cond.=219 umho Turb. =8.26 ntu

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Perfluorinated Compounds by LC-MS/MS											
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
NEtFOSAA	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
NMeFOSAA	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluoro-1-butanesulfonic acid (PFBS)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluoro-1-hexanesulfonic acid (PFHxS)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	B1.1
Perfluoro-1-octanesulfonic acid (PFOS)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluorododecanoic acid (PFDoA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluoro-n-decanoic acid (PFDA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluoro-n-heptanoic acid (PFHpA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluoro-n-hexanoic acid (PFHxA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluoro-n-nonanoic acid (PFNA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluoro-n-octanoic acid (PFOA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluorotetradecanoic acid (PFTeDA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluorotridecanoic acid (PFTrDA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Perfluoroundecanoic acid (PFUnA)	EPA 537.1	ND	0.0010	0.0030	ug/L	1		A916239	10/26/19	10/30/19	
Surrogate: d5-NEtFOSAA	EPA 537.1	72 %			*Acceptable range: 70-130 %*						
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	EPA 537.1	116 %			*Acceptable range: 70-130 %*						
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	EPA 537.1	94 %			*Acceptable range: 70-130 %*						
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA (M3HFPO-DA)	EPA 537.1	90 %			*Acceptable range: 70-130 %*						

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 537.1 - Quality Control												
Batch: A916239											Prepared: 10/26/2019	
Prep Method: EPA 537.1											Analyst: JMM	
Blank (A916239-BLK1)												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	ND	0.0010	0.0030	ug/L							10/29/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.0010	0.0030	ug/L							10/29/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	ND	0.0010	0.0030	ug/L							10/29/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.0010	0.0030	ug/L							10/29/19	
NEtFOSAA	ND	0.0010	0.0030	ug/L							10/29/19	
NMeFOSAA	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluoro-1-butanesulfonic acid (PFBS)	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.0020	0.0010	0.0030	ug/L							10/29/19	B, J
Perfluoro-1-octanesulfonic acid (PFOS)	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluorododecanoic acid (PFDoA)	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluoro-n-decanoic acid (PFDA)	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluoro-n-heptanoic acid (PFHpA)	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluoro-n-hexanoic acid (PFHxA)	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluoro-n-nonanoic acid (PFNA)	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluoro-n-octanoic acid (PFOA)	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluorotetradecanoic acid (PFTeDA)	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluorotridecanoic acid (PFTrDA)	ND	0.0010	0.0030	ug/L							10/29/19	
Perfluoroundecanoic acid (PFUnA)	ND	0.0010	0.0030	ug/L							10/29/19	
Surrogate: d5-NEtFOSAA	*0.11*				*0.16*		*71*	*70-130*			10/29/19	
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.17*				*0.16*		*104*	*70-130*			10/29/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.14*				*0.16*		*88*	*70-130*			10/29/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.15*				*0.16*		*91*	*70-130*			10/29/19	
Blank Spike (A916239-BS1)												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	0.0024	0.0010	0.0030	ug/L	0.0030		79	70-130			10/29/19	J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.0027	0.0010	0.0030	ug/L	0.0030		90	70-130			10/29/19	J
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	0.0024	0.0010	0.0030	ug/L	0.0030		81	70-130			10/29/19	J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.0027	0.0010	0.0030	ug/L	0.0030		89	70-130			10/29/19	J
NEtFOSAA	0.0020	0.0010	0.0030	ug/L	0.0030		68	70-130			10/29/19	BS1.3 ***Low***, J
NMeFOSAA	0.0029	0.0010	0.0030	ug/L	0.0030		95	70-130			10/29/19	J
Perfluoro-1-butanesulfonic acid (PFBS)	0.0029	0.0010	0.0030	ug/L	0.0030		97	70-130			10/29/19	J
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.0040	0.0010	0.0030	ug/L	0.0030		135	70-130			10/29/19	BS1.3 ***High***
Perfluoro-1-octanesulfonic acid (PFOS)	0.0034	0.0010	0.0030	ug/L	0.0030		114	70-130			10/29/19	
Perfluorododecanoic acid (PFDoA)	0.0024	0.0010	0.0030	ug/L	0.0030		81	70-130			10/29/19	J
Perfluoro-n-decanoic acid (PFDA)	0.0030	0.0010	0.0030	ug/L	0.0030		99	70-130			10/29/19	J
Perfluoro-n-heptanoic acid (PFHpA)	0.0030	0.0010	0.0030	ug/L	0.0030		100	70-130			10/29/19	J
Perfluoro-n-hexanoic acid (PFHxA)	0.0032	0.0010	0.0030	ug/L	0.0030		108	70-130			10/29/19	
Perfluoro-n-nonanoic acid (PFNA)	0.0030	0.0010	0.0030	ug/L	0.0030		100	70-130			10/29/19	
Perfluoro-n-octanoic acid (PFOA)	0.0033	0.0010	0.0030	ug/L	0.0030		109	70-130			10/29/19	
Perfluorotetradecanoic acid (PFTeDA)	0.0025	0.0010	0.0030	ug/L	0.0030		84	70-130			10/29/19	J

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 537.1 - Quality Control												
Batch: A916239											Prepared: 10/26/2019	
Prep Method: EPA 537.1											Analyst: JMM	
Blank Spike (A916239-BS1)												
Perfluorotridecanoic acid (PFTrDA)	0.0025	0.0010	0.0030	ug/L	0.0030		84	70-130			10/29/19	J
Perfluoroundecanoic acid (PFUnA)	0.0026	0.0010	0.0030	ug/L	0.0030		86	70-130			10/29/19	J
Surrogate: d5-NEtFOSAA	*0.13*				*0.16*		*78*	*70-130*			10/29/19	
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.16*				*0.16*		*101*	*70-130*			10/29/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.14*				*0.16*		*88*	*70-130*			10/29/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.15*				*0.16*		*96*	*70-130*			10/29/19	
Matrix Spike (A916239-MS1), Source: S9J0446-01												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	0.0075	0.0010	0.0030	ug/L	0.0092	ND	82	70-130			10/29/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.0085	0.0010	0.0030	ug/L	0.0092	ND	93	70-130			10/29/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	0.0081	0.0010	0.0030	ug/L	0.0092	ND	89	70-130			10/29/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.0087	0.0010	0.0030	ug/L	0.0092	ND	95	70-130			10/29/19	
NEtFOSAA	0.0070	0.0010	0.0030	ug/L	0.0092	ND	76	70-130			10/29/19	
NMeFOSAA	0.0086	0.0010	0.0030	ug/L	0.0092	ND	94	70-130			10/29/19	
Perfluoro-1-butanesulfonic acid (PFBS)	0.0079	0.0010	0.0030	ug/L	0.0092	ND	86	70-130			10/29/19	
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.0081	0.0010	0.0030	ug/L	0.0092	ND	88	70-130			10/29/19	
Perfluoro-1-octanesulfonic acid (PFOS)	0.0088	0.0010	0.0030	ug/L	0.0092	ND	95	70-130			10/29/19	
Perfluorododecanoic acid (PFDoA)	0.0076	0.0010	0.0030	ug/L	0.0092	ND	82	70-130			10/29/19	
Perfluoro-n-decanoic acid (PFDA)	0.0087	0.0010	0.0030	ug/L	0.0092	ND	95	70-130			10/29/19	
Perfluoro-n-heptanoic acid (PFHpA)	0.0076	0.0010	0.0030	ug/L	0.0092	ND	83	70-130			10/29/19	
Perfluoro-n-hexanoic acid (PFHxA)	0.0083	0.0010	0.0030	ug/L	0.0092	ND	90	70-130			10/29/19	
Perfluoro-n-nonanoic acid (PFNA)	0.0085	0.0010	0.0030	ug/L	0.0092	ND	93	70-130			10/29/19	
Perfluoro-n-octanoic acid (PFOA)	0.0090	0.0010	0.0030	ug/L	0.0092	ND	98	70-130			10/29/19	
Perfluorotetradecanoic acid (PFTeDA)	0.0079	0.0010	0.0030	ug/L	0.0092	ND	86	70-130			10/29/19	
Perfluorotridecanoic acid (PFTrDA)	0.0076	0.0010	0.0030	ug/L	0.0092	ND	82	70-130			10/29/19	
Perfluoroundecanoic acid (PFUnA)	0.0081	0.0010	0.0030	ug/L	0.0092	ND	88	70-130			10/29/19	
Surrogate: d5-NEtFOSAA	*0.12*				*0.15*		*81*	*70-130*			10/29/19	
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.14*				*0.15*		*98*	*70-130*			10/29/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.14*				*0.15*		*93*	*70-130*			10/29/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.13*				*0.15*		*90*	*70-130*			10/29/19	
Matrix Spike Dup (A916239-MSD1), Source: S9J0446-01												
11-Chloroeicosafluoro-3-oxaundecanesulfonic acid	0.0075	0.0010	0.0030	ug/L	0.0094	ND	80	70-130	0	30	10/29/19	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.0084	0.0010	0.0030	ug/L	0.0094	ND	89	70-130	2	30	10/29/19	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	0.0080	0.0010	0.0030	ug/L	0.0094	ND	85	70-130	1	30	10/29/19	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.0082	0.0010	0.0030	ug/L	0.0094	ND	88	70-130	6	30	10/29/19	
NEtFOSAA	0.0069	0.0010	0.0030	ug/L	0.0094	ND	73	70-130	2	30	10/29/19	
NMeFOSAA	0.0090	0.0010	0.0030	ug/L	0.0094	ND	96	70-130	5	30	10/29/19	
Perfluoro-1-butanesulfonic acid (PFBS)	0.0076	0.0010	0.0030	ug/L	0.0094	ND	81	70-130	4	30	10/29/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 537.1 - Quality Control												
Batch: A916239											Prepared: 10/26/2019	
Prep Method: EPA 537.1											Analyst: JMM	
Matrix Spike Dup (A916239-MSD1), Source: S9J0446-01												
Perfluoro-1-hexanesulfonic acid (PFHxS)	0.0083	0.0010	0.0030	ug/L	0.0094	ND	89	70-130	4	30	10/29/19	
Perfluoro-1-octanesulfonic acid (PFOS)	0.0088	0.0010	0.0030	ug/L	0.0094	ND	94	70-130	1	30	10/29/19	
Perfluorododecanoic acid (PFDoA)	0.0080	0.0010	0.0030	ug/L	0.0094	ND	85	70-130	6	30	10/29/19	
Perfluoro-n-decanoic acid (PFDA)	0.0088	0.0010	0.0030	ug/L	0.0094	ND	94	70-130	1	30	10/29/19	
Perfluoro-n-heptanoic acid (PFHpA)	0.0076	0.0010	0.0030	ug/L	0.0094	ND	80	70-130	1	30	10/29/19	
Perfluoro-n-hexanoic acid (PFHxA)	0.0083	0.0010	0.0030	ug/L	0.0094	ND	88	70-130	0	30	10/29/19	
Perfluoro-n-nonanoic acid (PFNA)	0.0083	0.0010	0.0030	ug/L	0.0094	ND	89	70-130	2	30	10/29/19	
Perfluoro-n-octanoic acid (PFOA)	0.0092	0.0010	0.0030	ug/L	0.0094	ND	98	70-130	2	30	10/29/19	
Perfluorotetradecanoic acid (PFTeDA)	0.0081	0.0010	0.0030	ug/L	0.0094	ND	86	70-130	2	30	10/29/19	
Perfluorotridecanoic acid (PFTrDA)	0.0079	0.0010	0.0030	ug/L	0.0094	ND	84	70-130	4	30	10/29/19	
Perfluoroundecanoic acid (PFUnA)	0.0081	0.0010	0.0030	ug/L	0.0094	ND	86	70-130	0	30	10/29/19	
Surrogate: d5-NEtFOSAA	*0.12*				*0.15*		*77*	*70-130*			10/29/19	
Surrogate: Perfluoro-n-(1,2-13C2)decanoic acid	*0.15*				*0.15*		*102*	*70-130*			10/29/19	
Surrogate: Perfluoro-n-(1,2-13C2)hexanoic acid	*0.13*				*0.15*		*86*	*70-130*			10/29/19	
Surrogate: Tetrafluoro(heptafluoropropoxy)13C3-PA	*0.13*				*0.15*		*84*	*70-130*			10/29/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters: **NA**

Certificate of Analysis

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

	2435		
Fresno			
State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-012
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-012
EPA - UCMR4	CA00079	State of Washington	C997-19d
San Bernardino			
State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-004	State of Oregon - NELAP	4119-004
Vancouver			
NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-012
State of Washington	C824-19		

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
- [x] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
  Date needed:

A9L1723 clare4404 10/17/2019 10

*Required Fields Temp: Thermometer ID:

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Claremont Land Group	Geralyn Skapik Additional cc's: Christofer Coppinger, John Bissel	John Bissel - Hansji PO#:	(909) 398-4404	
			E-mail*: gskapik@skapiklaw.com	

Address*:	City*:	State*:	Zip*:
5861 Pine Ave, Suite A-1	Chino Hills	CA	91709

Project:	Project #:	Phase:	Task:
	A9L1723		

Reporting Options: [ ] Trace (J-Flag) [ ] Swamp [ ] EDD Type: _____

Sampler Name (Printed/Signature)*: Edween Hernandez

Regulatory Carbon Copies: [ ] SWRCB (Drinking Water) [ ] Merced Co [ ] Fresno Co [ ] Madera Co [ ] Tulare Co [ ] Other: _____

Regulatory Compliance: [ ] EDT to California SWRCB (Drinking Water) System Number*: _____ [ ] Geotracker #: _____

[ ] I acknowledge that I have received and followed the Per- and Polyfluoroalkyl Substances (PFAS) Sampling Instructions provided by BSK Associates.

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	EPA 537.1	EPA 537.1 Extraction
26G(C) 1	[redacted]			DW		✓	
26G(C) 2	[redacted] - Field Blank			FB			✓
	Revised COC created by EMP						

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Check / Cash Date: Amount: PIA#: Init.	

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____
Cooling Method: Wet Blue None
Custody Seal: Y / N
Chilling Process Begun: Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

A9L1723 clare4404 10/17/2019

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ASSOCIATES
1414 Stanislaus St. Fresno, CA 93706
(559) 497-2888 Fax (559) 497-2893
www.bskassociates.com

5855

Turnaround Time Request
- [X] Standard – 10 business days
- [ ] Rush (Surcharge may apply) Date needed

*Required Fields

Company/Client Name*	Report Attention*	Invoice To*	Phone*
Hansji Corporation	John Bissel; Christofer Coppinger, Coralyn Skapik	Arun Malhotra	(714) 399-0152

Email*: johnb@hansji.com — Please cc results to: ccoppinger@geoscience-water.com

Address*	City*	State*	Zip*
631 W. Katella Ave., 5th Floor	Anaheim	CA	92802

Project #: A9J1720

Reporting Options: [✓] Trace / Flags [ ] Swamp [ ] EDD Type

Sampler Name (Printed/Signature)*: Edween Hernandez

[ ] I acknowledge that I have received and followed the Per- and Polyfluoroalkyl Substances (PFAS) Sampling Instructions provided by BSK Associates.

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	EPA 537.1	EPA 537.1 Extraction
1	Terra Vi Well No 1	10/16/19	1555	DW		✓	
2	Terra Vi Well No 1 - Field Blank	10/16/19		FB			✓
3	Terra Vi Well No 2	10/16/19	1526	DW	MS/MSD	✓	
4	Terra Vi Well No 2 - Field Blank	10/16/19		FB			✓
5	[redacted] Well No. 2	10/16/19	1326	DW		✓	
6	[redacted] - Field Blank			FB			✓
7	[redacted]	10/16/19	14:53	DW		✓	
8	[redacted] - Field Blank	10/16/19	16:55	FB			✓
9	[redacted]	10/16/19		DW		✓	
10	[redacted] - Field Blank	10/16/19		FB			✓

Handwritten labels beside rows 7–10: 26G(A), 26G(A), 26G(C), 26G(C). Handwritten beside rows 5–6: -03, 26

See Revised COC 01/27/2020 FB

Prelogged as A9J1720

Relinquished by: Edween Hernandez — Company: Geoscience — Date/Time: 10/17/19 1130

Received for lab by: [signature] — 10/17 1130

Shipping Method: ___ Cooling Method: ___ Custody Seal: ___ Chilling Process Begun: ___

Pre sampling water quality parameters:

Terra V. Well No 1
1.46 NTU – Turb.
556 uS – Spec. Cond.
7.64 pH @ 14.2 C

Terra V. Well No 2
1.25 NTU – Turb.
246 uS – Spec. Cond.
7.84 pH @ 14.3 C

[redacted]
7.95 NTU – Turb.
175 uS – Spec. Cond.
7.35 pH @ 13.7 C
26G(A)

[redacted]
9.26 NTU – Turb.
219 uS – Spec. Cond.
8.59 pH @ 14.1 C
26G(C)

A9L1723 clare4404 10/17/2019

BSK Associates SR-FL-0002-20

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Sample Integrity

BSK Bottles: (Yes) No Page 1 of 1

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes No (NA) / (Yes) No NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes (No) NA	Has PM been notified of discrepancies? PM: Elaine By/Time: SL 1221	(Yes) No NA

Bottles Received — "_" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	1-2	3	4	7-10	
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1			1A	4A	1A	1A	
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Rec additional Volume for well #2. SL 10/17/19

Samples #5-6 not received, bottles used for well #2 additional volume – SL

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 ✓

8260/624 __

Scanned: _____

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

Amended Report

A9K0979
1/29/2020
Invoice: AD01444

Geralyn Skapik
Claremont Land Group
5861 Pine Ave, Suite A-1
Chino Hills, CA 91709

RE: Report for A9K0979 Yosemite Title 22 Testing

Dear Geralyn Skapik,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 11/12/2019. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Elaine M. Phillips , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Joseph Boatwright, Quality Assurance Specialist

Accredited in Accordance with NELAP
ORELAP #4021-009

Case Narrative

Project and Report Details		Invoice Details	
Client:	Claremont Land Group	**Invoice To:**	Hansji Corporation
Report To:	Geralyn Skapik	**Invoice Attn:**	John Bissel
Project #:	[redacted]26G(B)	**Project PO#:**	-
Received:	11/12/2019 - 15:57		
Report Due:	12/12/2019		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 28.0

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Foam
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Report Amendments

Date: 1/27/2020

Initials: EMP

This amended report supersedes any previous reports issued by the laboratory. Amendments to this report are as follows: Changed the client from Hansji Corporation to Claremont Land Group, removed all data not pertaining to

[redacted]
26G(B)

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B2.0	Analyte present in the method blank above the method detection limit (MDL). Laboratory does not determine batch acceptance on detections below the reporting limit (RL).
B2.2	Analyte detected in associated method blank below the reporting limit. Sample result may be attributable to ambient laboratory background.
BS	Blank spike recoveries did not meet acceptance limits.
BS1.0	Blank spike recovery for this analyte was biased high; no material impact on reported result as sample is ND for this parameter.
CV0.0	CCV recovery was above method acceptance limits; no material impact on reported result as sample detection is below the reporting limit for this parameter.
HT2.0	Holding time exceeded. Sample was received at the lab past recommended holding time.
J	Estimated value
MS1.0	Matrix spike recoveries exceed control limits.
MS1.4	Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).
MS1.6	Matrix Spike recovery meets the wider acceptance criteria of 50-150% when the spike level is at or below the reporting limit (RL).

Report Distribution

Recipient(s)	Report Format	CC:
Geralyn Skapik	MCL.RPT	
Christofer Coppinger	MCL.RPT	
John Bissel	MCL.RPT	

Certificate of Analysis

Sample ID: A9K0979-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(B)

Sample Date - Time: 11/11/2019 - 12:00
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.28 Temp=13.2 ºC Cond.=436 umho Turb. =0.53 ntu

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aggressive Index		**13**						A917677	11/22/19	11/22/19	
Alkalinity as CaCO3	SM 2320B	**230**		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Bicarbonate as CaCO3	SM 2320B	**230**		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Carbonate as CaCO3	SM 2320B	ND		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Hydroxide as CaCO3	SM 2320B	ND		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Chloride	EPA 300.0	**1.1**	0.51	1.0	mg/L	1		A917080	11/12/19	11/12/19	
Color, Apparent	SM 2120B	ND		5.0	CU	1		A916681	11/12/19 19:26	11/12/19	
Color pH (1)	SM 4500-H+ B	**7.8**			pH Units	1		A916681	11/12/19	11/12/19	
Cyanide (total)	SM 4500-CN E	**0.0022**	0.0022	0.0050	mg/L	1	0.15	A917193	11/14/19	11/19/19	J
Conductivity @ 25C	SM 2510B	**460**		1.0	umhos/cm	1		A917122	11/13/19	11/13/19	
Fluoride	EPA 300.0	**0.045**	0.042	0.10	mg/L	1	2	A917080	11/12/19	11/12/19	J
Hexavalent Chromium	EPA 218.7	ND	0.011	0.050	ug/L	1	50	A917182	11/14/19	11/14/19	
Langelier Index	SM 2330B	**0.71**						A917686	11/22/19	11/22/19	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	**0.023**	0.021	0.050	mg/L	1		A917050	11/12/19 18:50	11/12/19	J
Nitrate + Nitrite as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A917080	11/12/19 22:17	11/12/19	
Nitrate as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A917080	11/12/19 22:17	11/12/19	
Nitrite as N	EPA 300.0	ND	0.020	0.050	mg/L	1	1	A917080	11/12/19 22:17	11/12/19	
Threshold Odor	SM 2150B	ND		1.0	T.O.N.	1		A916905	11/12/19 18:18	11/12/19	HT2.0
Perchlorate	EPA 314.0	ND	0.61	2.0	ug/L	1	6	A917054	11/13/19	11/13/19	
pH (1)	SM 4500-H+ B	**8.0**			pH Units	1		A917122	11/13/19	11/13/19	
pH Temperature in °C		**23.8**									
Sulfate as SO4	EPA 300.0	**6.5**	0.40	1.0	mg/L	1		A917080	11/12/19	11/12/19	
Total Dissolved Solids	SM 2540C	**270**		5.0	mg/L	1		A917174	11/14/19	11/19/19	
Turbidity	SM 2130B	**0.12**		0.10	NTU	1		A916681	11/12/19 19:42	11/12/19	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A917108	11/13/19	11/20/19	
Antimony	EPA 200.8	ND	0.91	2.0	ug/L	1	6	A917108	11/13/19	11/21/19	
Arsenic	EPA 200.8	**1.5**	1.2	2.0	ug/L	1	10	A917108	11/13/19	11/21/19	J
Barium	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A917108	11/13/19	11/20/19	
Beryllium	EPA 200.8	ND	0.45	1.0	ug/L	1	4	A917108	11/13/19	11/21/19	
Cadmium	EPA 200.8	ND	0.45	1.0	ug/L	1	5	A917108	11/13/19	11/21/19	
Calcium	EPA 200.7	**78**	0.046	0.10	mg/L	1		A917108	11/13/19	11/20/19	MS1.4
Chromium	EPA 200.8	ND	4.5	10	ug/L	1	50	A917108	11/13/19	11/21/19	
Copper	EPA 200.8	ND	2.3	5.0	ug/L	1		A917108	11/13/19	11/21/19	
Iron	EPA 200.7	ND	0.014	0.030	mg/L	1		A917108	11/13/19	11/20/19	
Lead	EPA 200.8	ND	0.45	1.0	ug/L	1		A917108	11/13/19	11/21/19	
Magnesium	EPA 200.7	**7.6**	0.046	0.10	mg/L	1		A917108	11/13/19	11/20/19	
Manganese	EPA 200.7	**0.012**	0.0045	0.010	mg/L	1		A917108	11/13/19	11/20/19	

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A9K0979 MCL FINAL 01 29 2020 1151 01292020 1151

**** Amended Report ****

Certificate of Analysis

Sample ID: A9K0979-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(B)

Sample Date - Time: 11/11/2019 - 12:00
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.28 Temp=13.2 ºC Cond.=436 umho Turb. =0.53 ntu

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Mercury	EPA 200.8	ND	0.091	0.20	ug/L	1	2	A917108	11/13/19	11/21/19	
Nickel	EPA 200.8	ND	4.5	10	ug/L	1	100	A917108	11/13/19	11/21/19	
Potassium	EPA 200.7	**1.0**	0.91	2.0	mg/L	1		A917108	11/13/19	11/20/19	J
Selenium	EPA 200.8	ND	0.91	2.0	ug/L	1	50	A917108	11/13/19	11/21/19	
Silver	EPA 200.8	ND	4.5	10	ug/L	1		A917108	11/13/19	11/21/19	
Sodium	EPA 200.7	**12**	0.45	1.0	mg/L	1		A917108	11/13/19	11/20/19	
Thallium	EPA 200.8	ND	0.45	1.0	ug/L	1	2	A917108	11/13/19	11/21/19	
Hardness as CaCO3	SM 2340B	**230**		0.41	mg/L						
Uranium	EPA 200.8	**5.0**	0.45	1.0	ug/L	1	30	A917108	11/13/19	11/21/19	
Uranium, Radiological		**3.3**		0.67	pCi/L		20				
Zinc	EPA 200.7	ND	0.023	0.050	mg/L	1		A917108	11/13/19	11/20/19	

Microbiology

Analyte	Method	Result	RL	Units	Batch	Prepared	Analyzed	Qual
Coliform, Total and E.Coli by Quanti-Tray 51 Wells								
E. Coli	SM 9223B	**<1**	1	MPN/100 mL	A917073	11/12/19 17:50	11/13/19 13:51	
Total Coliform	SM 9223B	**<1**	1	MPN/100 mL	A917073	11/12/19 17:50	11/13/19 13:51	

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
EDB and DBCP by GC-ECD											
Dibromochloropropane (DBCP)	EPA 504.1	ND	0.0060	0.010	ug/L	1	0.2	A917099	11/13/19	11/14/19	
Ethylene Dibromide (EDB)	EPA 504.1	ND	0.0050	0.020	ug/L	1	0.05	A917099	11/13/19	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 504.1	113 %		*Acceptable range: 70-130 %*							
Organohalide Pesticides and PCBs by GC-ECD											
Aldrin	EPA 505	ND	0.022	0.075	ug/L	1		A917099	11/13/19	11/14/19	
Chlordane (Technical)	EPA 505	ND	0.091	0.10	ug/L	1	0.1	A917099	11/13/19	11/14/19	
Dieldrin	EPA 505	ND	0.0042	0.020	ug/L	1		A917099	11/13/19	11/14/19	
Endrin	EPA 505	ND	0.0037	0.10	ug/L	1	2	A917099	11/13/19	11/14/19	
Heptachlor	EPA 505	ND	0.0052	0.010	ug/L	1	0.01	A917099	11/13/19	11/14/19	
Heptachlor Epoxide	EPA 505	ND	0.0048	0.010	ug/L	1	0.01	A917099	11/13/19	11/14/19	
Hexachlorobenzene	EPA 505	ND	0.032	0.50	ug/L	1	1	A917099	11/13/19	11/14/19	
Hexachlorocyclopentadiene	EPA 505	ND	0.041	1.0	ug/L	1	50	A917099	11/13/19	11/14/19	
Lindane	EPA 505	ND	0.0059	0.20	ug/L	1	0.2	A917099	11/13/19	11/14/19	
Methoxychlor	EPA 505	ND	0.031	10	ug/L	1	30	A917099	11/13/19	11/14/19	
PCB Aroclor Screen	EPA 505	ND	0.078	0.50	ug/L	1	0.5	A917099	11/13/19	11/14/19	
Toxaphene	EPA 505	ND	0.33	1.0	ug/L	1	3	A917099	11/13/19	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 505	113 %		*Acceptable range: 70-130 %*							
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-T	EPA 515.4	ND	0.13	1.0	ug/L	1		A917083	11/12/19	11/14/19	

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A9K0979 MCL FINAL 01 29 2020 1151 01292020 1151

**** Amended Report ****

Certificate of Analysis

Sample ID: A9K0979-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(B)

Sample Date - Time: 11/11/2019 - 12:00
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.28 Temp=13.2 ºC Cond.=436 umho Turb. =0.53 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-TP (Silvex)	EPA 515.4	ND	0.016	1.0	ug/L	1	50	A917083	11/12/19	11/14/19	
2,4-D	EPA 515.4	ND	0.074	10	ug/L	1	70	A917083	11/12/19	11/14/19	
Bentazon	EPA 515.4	ND	1.3	2.0	ug/L	1	18	A917083	11/12/19	11/14/19	
Dalapon	EPA 515.4	ND	0.58	10	ug/L	1	200	A917083	11/12/19	11/14/19	
Dicamba	EPA 515.4	ND	0.13	1.5	ug/L	1		A917083	11/12/19	11/14/19	
Dinoseb	EPA 515.4	ND	0.032	2.0	ug/L	1	7	A917083	11/12/19	11/14/19	
Pentachlorophenol	EPA 515.4	ND	0.011	0.20	ug/L	1	1	A917083	11/12/19	11/14/19	
Picloram	EPA 515.4	ND	0.084	1.0	ug/L	1	500	A917083	11/12/19	11/14/19	
Surrogate: DCPAA	EPA 515.4	112 %		*Acceptable range: 70-130 %*							
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A917163	11/14/19	11/14/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A917163	11/14/19	11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A917163	11/14/19	11/14/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A917163	11/14/19	11/14/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A917163	11/14/19	11/14/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917163	11/14/19	11/14/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A917163	11/14/19	11/14/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A917163	11/14/19	11/14/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A917163	11/14/19	11/14/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A917163	11/14/19	11/14/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A917163	11/14/19	11/14/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A917163	11/14/19	11/14/19	CV0.0
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A917163	11/14/19	11/14/19	

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A9K0979 MCL FINAL 01 29 2020 1151 01292020 1151

**** Amended Report ****

Certificate of Analysis

Sample ID: A9K0979-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(B)

Sample Date - Time: 11/11/2019 - 12:00
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.28 Temp=13.2 ºC Cond.=436 umho Turb. =0.53 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A917163	11/14/19	11/14/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A917163	11/14/19	11/14/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917163	11/14/19	11/14/19	
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A917163	11/14/19	11/14/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917163	11/14/19	11/14/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Methyl-t-butyl ether	EPA 524.2	**0.19**	0.083	0.50	ug/L	1	13	A917163	11/14/19	11/14/19	J, B2.2
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A917163	11/14/19	11/14/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917163	11/14/19	11/14/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A917163	11/14/19	11/14/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917163	11/14/19	11/14/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A917163	11/14/19	11/14/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Toluene	EPA 524.2	**3.0**	0.32	0.50	ug/L	1	150	A917163	11/14/19	11/14/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A917163	11/14/19	11/14/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A917163	11/14/19	11/14/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	107 %		*Acceptable range: 70-130 %*							
Surrogate: Bromofluorobenzene	EPA 524.2	109 %		*Acceptable range: 70-130 %*							
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				
Semi-Volatile Organics by GC-MS											
Alachlor	EPA 525.3	ND	0.022	1.0	ug/L	1	2	A917200	11/14/19	11/20/19	
Atrazine	EPA 525.3	ND	0.0076	0.50	ug/L	1	1	A917200	11/14/19	11/20/19	
Benzo(a)pyrene	EPA 525.3	ND	0.0019	0.10	ug/L	1	0.2	A917200	11/14/19	11/20/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9K0979-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(B)

Sample Date - Time: 11/11/2019 - 12:00
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.28 Temp=13.2 ºC Cond.=436 umho Turb. =0.53 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Semi-Volatile Organics by GC-MS											
Bis(2-ethylhexyl) adipate	EPA 525.3	ND	0.067	3.0	ug/L	1	400	A917200	11/14/19	11/20/19	
Bis(2-ethylhexyl) phthalate	EPA 525.3	**0.18**	0.11	3.0	ug/L	1	4	A917200	11/14/19	11/20/19	J, B2.2
Bromacil	EPA 525.3	ND	0.028	10	ug/L	1		A917200	11/14/19	11/20/19	
Butachlor	EPA 525.3	ND	0.018	0.38	ug/L	1		A917200	11/14/19	11/20/19	
Diazinon	EPA 525.3	ND	0.0022	0.25	ug/L	1		A917200	11/14/19	11/20/19	
Dimethoate	EPA 525.3	ND	0.082	10	ug/L	1		A917200	11/14/19	11/20/19	BS1.0
Metolachlor	EPA 525.3	ND	0.011	0.50	ug/L	1		A917200	11/14/19	11/20/19	
Metribuzin	EPA 525.3	ND	0.0061	0.50	ug/L	1		A917200	11/14/19	11/20/19	
Molinate	EPA 525.3	ND	0.0061	2.0	ug/L	1	20	A917200	11/14/19	11/20/19	
Propachlor	EPA 525.3	ND	0.0056	0.50	ug/L	1		A917200	11/14/19	11/20/19	
Simazine	EPA 525.3	ND	0.0049	1.0	ug/L	1	4	A917200	11/14/19	11/20/19	
Thiobencarb	EPA 525.3	ND	0.0083	1.0	ug/L	1	70	A917200	11/14/19	11/20/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	EPA 525.3	93 %			*Acceptable range: 70-130 %*						
Surrogate: Benzo(a)pyrene-d12	EPA 525.3	90 %			*Acceptable range: 70-130 %*						
Surrogate: Triphenyl Phosphate	EPA 525.3	104 %			*Acceptable range: 70-130 %*						
Carbamates by HPLC											
3-Hydroxycarbofuran	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb Sulfone	EPA 531.1	ND	0.12	2.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb Sulfoxide	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Carbaryl	EPA 531.1	ND	0.22	5.0	ug/L	1		A917289	11/15/19	11/16/19	CV0.0
Carbofuran	EPA 531.1	ND	0.27	5.0	ug/L	1	18	A917289	11/15/19	11/16/19	
Methomyl	EPA 531.1	ND	0.19	2.0	ug/L	1		A917289	11/15/19	11/16/19	
Oxamyl	EPA 531.1	ND	0.090	20	ug/L	1	50	A917289	11/15/19	11/16/19	
Glyphosate by HPLC											
Glyphosate	EPA 547	ND	2.1	25	ug/L	1	700	A917319	11/16/19	11/16/19	
Surrogate: AMPA	EPA 547	102 %			*Acceptable range: 70-130 %*						
Endothall by GC-MS											
Endothall	EPA 548.1	ND	1.6	45	ug/L	1	100	A917162	11/13/19	11/14/19	
Diquat by HPLC											
Diquat	EPA 549.2	ND	0.071	4.0	ug/L	1	20	A917100	11/13/19	11/14/19	
1,2,3-Trichloropropane by GC-MS SIM											
1,2,3-Trichloropropane	SRL 524M-TCP	ND	0.0014	0.0050	ug/L	1	0.005	A917169	11/13/19	11/14/19	

Certificate of Analysis

Sample ID: A9K0979-06
Sampled By: BSK
Sample Description: Trip Blank 524 1119009

Sample Date - Time: 11/11/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A917282	11/15/19	11/15/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A917282	11/15/19	11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A917282	11/15/19	11/15/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A917282	11/15/19	11/15/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A917282	11/15/19	11/15/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917282	11/15/19	11/15/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A917282	11/15/19	11/15/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A917282	11/15/19	11/15/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A917282	11/15/19	11/15/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A917282	11/15/19	11/15/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A917282	11/15/19	11/15/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A917282	11/15/19	11/15/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A917282	11/15/19	11/15/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A917282	11/15/19	11/15/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917282	11/15/19	11/15/19	

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A9K0979 MCL FINAL 01 29 2020 1151 01292020 1151

*** Amended Report ***

Certificate of Analysis

Sample ID: A9K0979-06
Sampled By: BSK
Sample Description: Trip Blank 524 1119009

Sample Date - Time: 11/11/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A917282	11/15/19	11/15/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917282	11/15/19	11/15/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Methyl-t-butyl ether	EPA 524.2	**0.13**	0.083	0.50	ug/L	1	13	A917282	11/15/19	11/15/19	J
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A917282	11/15/19	11/15/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917282	11/15/19	11/15/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A917282	11/15/19	11/15/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917282	11/15/19	11/15/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A917282	11/15/19	11/15/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A917282	11/15/19	11/15/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A917282	11/15/19	11/15/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A917282	11/15/19	11/15/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	116 %			*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	116 %			*Acceptable range: 70-130 %*						
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				

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**** Amended Report ****

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 218.7 - Quality Control												
Batch: A917182											Prepared: 11/14/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A917182-BLK1)												
Hexavalent Chromium	ND	0.011	0.050	ug/L							11/14/19	
Blank Spike (A917182-BS1)												
Hexavalent Chromium	0.053	0.011	0.050	ug/L	0.050		106	50-150			11/14/19	
Matrix Spike (A917182-MS1), Source: A9K1128-01												
Hexavalent Chromium	2.2	0.011	0.050	ug/L	2.0	0.26	97	85-115			11/14/19	
Matrix Spike Dup (A917182-MSD1), Source: A9K1128-01												
Hexavalent Chromium	2.3	0.011	0.050	ug/L	2.0	0.26	100	85-115	3	15	11/14/19	
EPA 300.0 - Quality Control												
Batch: A917080											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A917080-BLK1)												
Chloride	ND	0.51	1.0	mg/L							11/12/19	
Fluoride	ND	0.042	0.10	mg/L							11/12/19	
Nitrate + Nitrite as N	ND	0.099	0.23	mg/L							11/12/19	
Nitrate as N	ND	0.099	0.23	mg/L							11/12/19	
Nitrite as N	ND	0.020	0.050	mg/L							11/12/19	
Sulfate as SO4	ND	0.40	1.0	mg/L							11/12/19	
Blank Spike (A917080-BS1)												
Chloride	96	0.51	1.0	mg/L	100		96	90-110			11/12/19	
Fluoride	0.95	0.042	0.10	mg/L	1.0		95	90-110			11/12/19	
Nitrate as N	21	0.099	0.23	mg/L	23		95	90-110			11/12/19	
Nitrite as N	1.0	0.020	0.050	mg/L	1.0		104	90-110			11/12/19	
Sulfate as SO4	97	0.40	1.0	mg/L	100		97	90-110			11/12/19	
Matrix Spike (A917080-MS1), Source: A9K0979-01												
Chloride	48	0.51	1.0	mg/L	50	1.1	94	80-120			11/12/19	
Fluoride	0.49	0.042	0.10	mg/L	0.50	0.045	89	80-120			11/12/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	90	80-120			11/12/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	95	50-110			11/12/19	
Sulfate as SO4	54	0.40	1.0	mg/L	50	6.5	95	80-120			11/12/19	
Matrix Spike (A917080-MS2), Source: A9K0907-13												
Chloride	55	0.51	1.0	mg/L	50	6.9	96	80-120			11/13/19	
Fluoride	0.55	0.042	0.10	mg/L	0.50	0.097	91	80-120			11/13/19	
Nitrate as N	15	0.099	0.23	mg/L	11	3.8	95	80-120			11/13/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	95	50-110			11/13/19	
Sulfate as SO4	56	0.40	1.0	mg/L	50	7.6	96	80-120			11/13/19	
Matrix Spike Dup (A917080-MSD1), Source: A9K0979-01												
Chloride	49	0.51	1.0	mg/L	50	1.1	95	80-120	1	20	11/12/19	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control												
Batch: A917080											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Matrix Spike Dup (A917080-MSD1), Source: A9K0979-01												
Fluoride	0.50	0.042	0.10	mg/L	0.50	0.045	90	80-120	1	10	11/12/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	92	80-120	1	20	11/12/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	95	50-110	0	20	11/12/19	
Sulfate as SO4	55	0.40	1.0	mg/L	50	6.5	97	80-120	1	20	11/12/19	
Matrix Spike Dup (A917080-MSD2), Source: A9K0907-13												
Chloride	55	0.51	1.0	mg/L	50	6.9	97	80-120	1	20	11/13/19	
Fluoride	0.55	0.042	0.10	mg/L	0.50	0.097	91	80-120	1	10	11/13/19	
Nitrate as N	15	0.099	0.23	mg/L	11	3.8	97	80-120	1	20	11/13/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	97	50-110	1	20	11/13/19	
Sulfate as SO4	56	0.40	1.0	mg/L	50	7.6	98	80-120	1	20	11/13/19	
EPA 314.0 - Quality Control												
Batch: A917054											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: RES	
Blank (A917054-BLK1)												
Perchlorate	ND	0.61	2.0	ug/L							11/13/19	
Blank Spike (A917054-BS1)												
Perchlorate	14	0.61	2.0	ug/L	15		95	85-115			11/13/19	
Matrix Spike (A917054-MS1), Source: A9K0524-01RE1												
Perchlorate	8.9	1.2	4.0	ug/L	10	ND	89	80-120			11/13/19	
Matrix Spike Dup (A917054-MSD1), Source: A9K0524-01RE1												
Perchlorate	8.0	1.2	4.0	ug/L	10	ND	80	80-120	11	15	11/13/19	
SM 2120B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												
Color, Apparent	ND		5.0	CU							11/12/19	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Color, Apparent	20		5.0	CU		20			0	20	11/12/19	
Duplicate (A916681-DUP2), Source: A9K0992-01												
Color, Apparent	ND		5.0	CU		ND				20	11/12/19	
SM 2130B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2130B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												
Turbidity	ND		0.10	NTU							11/12/19	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Turbidity	19		0.10	NTU		19			2	20	11/12/19	
SM 2150B - Quality Control												
Batch: A916905											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A916905-BLK1)												
Threshold Odor	ND		1.0	T.O.N.							11/12/19	
Blank (A916905-BLK2)												
Threshold Odor	ND		1.0	T.O.N.							11/12/19	
SM 2320B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A917122-BLK1)												
Alkalinity as CaCO3	ND		3.0	mg/L							11/13/19	
Bicarbonate as CaCO3	ND		3.0	mg/L							11/13/19	
Carbonate as CaCO3	ND		3.0	mg/L							11/13/19	
Hydroxide as CaCO3	ND		3.0	mg/L							11/13/19	
Blank Spike (A917122-BS1)												
Alkalinity as CaCO3	95		3.0	mg/L	100	ND	95	80-120			11/13/19	
Blank Spike Dup (A917122-BSD1)												
Alkalinity as CaCO3	96		3.0	mg/L	100	ND	96	80-120	1	20	11/13/19	
Duplicate (A917122-DUP1), Source: A9K0992-01												
Alkalinity as CaCO3	82		3.0	mg/L		85			4	10	11/13/19	
Bicarbonate as CaCO3	82		3.0	mg/L		85			4	10	11/13/19	
Carbonate as CaCO3	ND		3.0	mg/L		ND				10	11/13/19	
Hydroxide as CaCO3	ND		3.0	mg/L		ND				10	11/13/19	
SM 2510B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike (A917122-BS1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110			11/13/19	
Blank Spike Dup (A917122-BSD1)												

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2510B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike Dup (A917122-BSD1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110	0	5	11/13/19	
Duplicate (A917122-DUP1), Source: A9K0992-01												
Conductivity @ 25C	410		1.0	umhos/cm		410			0	5	11/13/19	
SM 2540C - Quality Control												
Batch: A917174											Prepared: 11/14/2019	
Prep Method: Method Specific Preparation											Analyst: DEH	
Blank (A917174-BLK1)												
Total Dissolved Solids	ND		5.0	mg/L							11/19/19	
Blank Spike (A917174-BS1)												
Total Dissolved Solids	990		5.0	mg/L	1000	ND	99	70-130			11/19/19	
Duplicate (A917174-DUP1), Source: A9K1039-01												
Total Dissolved Solids	440		5.0	mg/L		440			0	10	11/19/19	
Duplicate (A917174-DUP2), Source: A9K0821-01												
Total Dissolved Solids	260		5.0	mg/L		260			0	10	11/19/19	
SM 4500-CN E - Quality Control												
Batch: A917193											Prepared: 11/14/2019	
Prep Method: Total Cyanide Distillation											Analyst: CEG	
Blank (A917193-BLK1)												
Cyanide (total)	ND	0.0022	0.0050	mg/L							11/19/19	
Blank Spike (A917193-BS1)												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25		106	80-120			11/19/19	
Blank Spike Dup (A917193-BSD1)												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25		105	80-120	1	20	11/19/19	
Matrix Spike (A917193-MS1), Source: A9K1217-01												
Cyanide (total)	0.24	0.0022	0.0050	mg/L	0.25	ND	95	80-120			11/19/19	
Matrix Spike Dup (A917193-MSD1), Source: A9K1217-01												
Cyanide (total)	0.23	0.0022	0.0050	mg/L	0.25	ND	93	80-120	2	20	11/19/19	
SM 4500-H+ B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Duplicate (A916681-DUP1), Source: A9K0821-01												

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 4500-H+ B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Color pH (1)	7.80			pH Units		7.50			4		11/12/19	
Duplicate (A916681-DUP2), Source: A9K0992-01												
Color pH (1)	8.40			pH Units		8.40			0		11/12/19	
SM 4500-H+ B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Duplicate (A917122-DUP1), Source: A9K0992-01												
pH (1)	8.02			pH Units		8.02			0		11/13/19	
SM 5540C - Quality Control												
Batch: A917050											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: SYY	
Blank (A917050-BLK1)												
MBAS, Calculated as LAS, mol wt 340	ND	0.021	0.050	mg/L							11/12/19	
Blank Spike (A917050-BS1)												
MBAS, Calculated as LAS, mol wt 340	1.0	0.021	0.050	mg/L	1.0		103	82-112			11/12/19	
Blank Spike Dup (A917050-BSD1)												
MBAS, Calculated as LAS, mol wt 340	1.0	0.021	0.050	mg/L	1.0		103	82-112	0	20	11/12/19	
Matrix Spike (A917050-MS1), Source: A9K0851-01												
MBAS, Calculated as LAS, mol wt 340	0.65	0.021	0.050	mg/L	1.0	ND	65	80-112			11/12/19	MS1.0 ***Low***
Matrix Spike Dup (A917050-MSD1), Source: A9K0851-01												
MBAS, Calculated as LAS, mol wt 340	0.64	0.021	0.050	mg/L	1.0	ND	64	80-112	1	20	11/12/19	MS1.0 ***Low***

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MDS	
Blank (A917108-BLK2)												
Aluminum	ND	0.023	0.050	mg/L							11/20/19	
Barium	ND	0.023	0.050	mg/L							11/20/19	
Calcium	ND	0.046	0.10	mg/L							11/20/19	
Iron	ND	0.014	0.030	mg/L							11/20/19	
Magnesium	ND	0.046	0.10	mg/L							11/20/19	
Manganese	ND	0.0045	0.010	mg/L							11/20/19	
Potassium	ND	0.91	2.0	mg/L							11/20/19	
Sodium	ND	0.45	1.0	mg/L							11/20/19	
Zinc	ND	0.023	0.050	mg/L							11/20/19	
Blank Spike (A917108-BS2)												
Aluminum	0.22	0.023	0.050	mg/L	0.20		108	85-115			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20		100	85-115			11/20/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		97	85-115			11/20/19	
Iron	0.19	0.014	0.030	mg/L	0.20		96	85-115			11/20/19	
Magnesium	4.1	0.046	0.10	mg/L	4.0		102	85-115			11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20		104	85-115			11/20/19	
Potassium	4.1	0.91	2.0	mg/L	4.0		101	85-115			11/20/19	
Sodium	4.4	0.45	1.0	mg/L	4.0		109	85-115			11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20		98	85-115			11/20/19	
Blank Spike Dup (A917108-BSD2)												
Aluminum	0.21	0.023	0.050	mg/L	0.20		107	85-115	1	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20		100	85-115	0	20	11/20/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		97	85-115	1	20	11/20/19	
Iron	0.19	0.014	0.030	mg/L	0.20		96	85-115	1	20	11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0		101	85-115	1	20	11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20		103	85-115	1	20	11/20/19	
Potassium	4.0	0.91	2.0	mg/L	4.0		100	85-115	2	20	11/20/19	
Sodium	4.3	0.45	1.0	mg/L	4.0		108	85-115	1	20	11/20/19	
Zinc	0.19	0.023	0.050	mg/L	0.20		97	85-115	2	20	11/20/19	
Matrix Spike (A917108-MS3), Source: A9K0979-01												
Aluminum	0.23	0.023	0.050	mg/L	0.20	ND	117	70-130			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	100	70-130			11/20/19	
Calcium	84	0.046	0.10	mg/L	4.0	78	137	70-130			11/20/19	MS1.0 ***High***
Iron	0.20	0.014	0.030	mg/L	0.20	ND	102	70-130			11/20/19	
Magnesium	11	0.046	0.10	mg/L	4.0	7.6	87	70-130			11/20/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.012	103	70-130			11/20/19	
Potassium	5.0	0.91	2.0	mg/L	4.0	1.0	99	70-130			11/20/19	
Sodium	16	0.45	1.0	mg/L	4.0	12	110	70-130			11/20/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	103	70-130			11/20/19	
Matrix Spike (A917108-MS4), Source: A9K0988-01												
Aluminum	0.26	0.023	0.050	mg/L	0.20	0.029	114	70-130			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130			11/20/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MDS	
Matrix Spike (A917108-MS4), Source: A9K0988-01												
Calcium	7.1	0.046	0.10	mg/L	4.0	3.2	97	70-130			11/20/19	
Iron	0.23	0.014	0.030	mg/L	0.20	0.032	98	70-130			11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0	ND	101	70-130			11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20	ND	103	70-130			11/20/19	
Potassium	4.2	0.91	2.0	mg/L	4.0	ND	106	70-130			11/20/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	92	70-130			11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	100	70-130			11/20/19	
Matrix Spike Dup (A917108-MSD3), Source: A9K0979-01												
Aluminum	0.24	0.023	0.050	mg/L	0.20	ND	121	70-130	4	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	99	70-130	1	20	11/20/19	
Calcium	82	0.046	0.10	mg/L	4.0	78	84	70-130	3	20	11/20/19	
Iron	0.21	0.014	0.030	mg/L	0.20	ND	103	70-130	1	20	11/20/19	
Magnesium	11	0.046	0.10	mg/L	4.0	7.6	84	70-130	1	20	11/20/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.012	104	70-130	0	20	11/20/19	
Potassium	5.0	0.91	2.0	mg/L	4.0	1.0	100	70-130	1	20	11/20/19	
Sodium	16	0.45	1.0	mg/L	4.0	12	99	70-130	3	20	11/20/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	103	70-130	0	20	11/20/19	
Matrix Spike Dup (A917108-MSD4), Source: A9K0988-01												
Aluminum	0.24	0.023	0.050	mg/L	0.20	0.029	108	70-130	5	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130	1	20	11/20/19	
Calcium	7.0	0.046	0.10	mg/L	4.0	3.2	96	70-130	1	20	11/20/19	
Iron	0.23	0.014	0.030	mg/L	0.20	0.032	97	70-130	0	20	11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0	ND	100	70-130	1	20	11/20/19	
Manganese	0.20	0.0045	0.010	mg/L	0.20	ND	102	70-130	1	20	11/20/19	
Potassium	4.4	0.91	2.0	mg/L	4.0	ND	110	70-130	4	20	11/20/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	89	70-130	0	20	11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	99	70-130	1	20	11/20/19	
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A917108-BLK1)												
Antimony	ND	0.91	2.0	ug/L							11/21/19	
Arsenic	ND	1.2	2.0	ug/L							11/21/19	
Beryllium	ND	0.45	1.0	ug/L							11/21/19	
Cadmium	ND	0.45	1.0	ug/L							11/21/19	
Chromium	ND	4.5	10	ug/L							11/21/19	
Copper	ND	2.3	5.0	ug/L							11/21/19	
Lead	ND	0.45	1.0	ug/L							11/21/19	
Mercury	ND	0.091	0.20	ug/L							11/21/19	
Nickel	ND	4.5	10	ug/L							11/21/19	
Selenium	ND	0.91	2.0	ug/L							11/21/19	
Silver	ND	4.5	10	ug/L							11/21/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A917108-BLK1)												
Thallium	ND	0.45	1.0	ug/L							11/21/19	
Uranium	ND	0.45	1.0	ug/L							11/21/19	
Blank Spike (A917108-BS1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115			11/21/19	
Arsenic	190	1.2	2.0	ug/L	200		95	85-115			11/21/19	
Beryllium	190	0.45	1.0	ug/L	200		97	85-115			11/21/19	
Cadmium	200	0.45	1.0	ug/L	200		98	85-115			11/21/19	
Chromium	200	4.5	10	ug/L	200		98	85-115			11/21/19	
Copper	190	2.3	5.0	ug/L	200		96	85-115			11/21/19	
Lead	190	0.45	1.0	ug/L	200		94	85-115			11/21/19	
Mercury	5.2	0.091	0.20	ug/L	5.0		104	85-115			11/21/19	
Nickel	200	4.5	10	ug/L	200		98	85-115			11/21/19	
Selenium	180	0.91	2.0	ug/L	200		92	85-115			11/21/19	
Silver	94	4.5	10	ug/L	100		94	75-125			11/21/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115			11/21/19	
Uranium	190	0.45	1.0	ug/L	200		96	85-115			11/21/19	
Blank Spike Dup (A917108-BSD1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115	0	20	11/21/19	
Arsenic	190	1.2	2.0	ug/L	200		96	85-115	0	20	11/21/19	
Beryllium	200	0.45	1.0	ug/L	200		98	85-115	2	20	11/21/19	
Cadmium	190	0.45	1.0	ug/L	200		97	85-115	1	20	11/21/19	
Chromium	200	4.5	10	ug/L	200		100	85-115	1	20	11/21/19	
Copper	190	2.3	5.0	ug/L	200		97	85-115	0	20	11/21/19	
Lead	190	0.45	1.0	ug/L	200		95	85-115	1	20	11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0		103	85-115	1	20	11/21/19	
Nickel	200	4.5	10	ug/L	200		98	85-115	0	20	11/21/19	
Selenium	180	0.91	2.0	ug/L	200		90	85-115	2	20	11/21/19	
Silver	94	4.5	10	ug/L	100		94	75-125	0	20	11/21/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115	0	20	11/21/19	
Uranium	190	0.45	1.0	ug/L	200		95	85-115	1	20	11/21/19	
Matrix Spike (A917108-MS1), Source: A9K0979-01												
Antimony	210	0.91	2.0	ug/L	200	ND	104	70-130			11/21/19	
Arsenic	200	1.2	2.0	ug/L	200	1.5	97	70-130			11/21/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130			11/21/19	
Cadmium	200	0.45	1.0	ug/L	200	ND	99	70-130			11/21/19	
Chromium	200	4.5	10	ug/L	200	ND	100	70-130			11/21/19	
Copper	190	2.3	5.0	ug/L	200	ND	95	70-130			11/21/19	
Lead	180	0.45	1.0	ug/L	200	ND	92	70-130			11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0	ND	101	70-130			11/21/19	
Nickel	200	4.5	10	ug/L	200	ND	98	70-130			11/21/19	
Selenium	180	0.91	2.0	ug/L	200	ND	91	70-130			11/21/19	
Silver	93	4.5	10	ug/L	100	ND	93	70-130			11/21/19	
Thallium	180	0.45	1.0	ug/L	200	ND	92	70-130			11/21/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Matrix Spike (A917108-MS1), Source: A9K0979-01												
Uranium	190	0.45	1.0	ug/L	200	5.0	95	70-130			11/21/19	
Matrix Spike Dup (A917108-MSD1), Source: A9K0979-01												
Antimony	210	0.91	2.0	ug/L	200	ND	103	70-130	1	20	11/21/19	
Arsenic	190	1.2	2.0	ug/L	200	1.5	96	70-130	1	20	11/21/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130	1	20	11/21/19	
Cadmium	190	0.45	1.0	ug/L	200	ND	97	70-130	1	20	11/21/19	
Chromium	200	4.5	10	ug/L	200	ND	99	70-130	1	20	11/21/19	
Copper	190	2.3	5.0	ug/L	200	ND	93	70-130	2	20	11/21/19	
Lead	190	0.45	1.0	ug/L	200	ND	93	70-130	1	20	11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0	ND	101	70-130	0	20	11/21/19	
Nickel	190	4.5	10	ug/L	200	ND	97	70-130	1	20	11/21/19	
Selenium	180	0.91	2.0	ug/L	200	ND	90	70-130	2	20	11/21/19	
Silver	93	4.5	10	ug/L	100	ND	93	70-130	1	20	11/21/19	
Thallium	180	0.45	1.0	ug/L	200	ND	92	70-130	1	20	11/21/19	
Uranium	190	0.45	1.0	ug/L	200	5.0	95	70-130	0	20	11/21/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 504.1 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A917099-BLK1)												
Dibromochloropropane (DBCP)	ND	0.0060	0.010	ug/L							11/13/19	
Ethylene Dibromide (EDB)	ND	0.0050	0.020	ug/L							11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.50*				*0.46*		*110*	*70-130*			11/13/19	
Blank Spike (A917099-BS1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		104	70-130			11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.10		101	70-130			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.54*				*0.46*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917099-BSD1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		103	70-130	1	20	11/14/19	
Ethylene Dibromide (EDB)	0.099	0.0050	0.020	ug/L	0.10		99	70-130	1	20	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.51*				*0.46*		*111*	*70-130*			11/14/19	
Matrix Spike (A917099-MS1), Source: A9K0686-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10	ND	104	65-135			11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.10	ND	101	65-135			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.46*		*114*	*70-130*			11/13/19	
Matrix Spike Dup (A917099-MSD1), Source: A9K0686-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.099	ND	102	65-135	2	20	11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.099	ND	100	65-135	1	20	11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.45*		*114*	*70-130*			11/13/19	
EPA 505 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A917099-BLK1)												
Aldrin	ND	0.022	0.075	ug/L							11/13/19	
Chlordane (Technical)	ND	0.091	0.10	ug/L							11/13/19	
Dieldrin	ND	0.0042	0.020	ug/L							11/13/19	
Endrin	ND	0.0037	0.10	ug/L							11/13/19	
Heptachlor	ND	0.0052	0.010	ug/L							11/13/19	
Heptachlor Epoxide	ND	0.0048	0.010	ug/L							11/13/19	
Hexachlorobenzene	ND	0.032	0.50	ug/L							11/13/19	
Hexachlorocyclopentadiene	ND	0.041	1.0	ug/L							11/13/19	
Lindane	ND	0.0059	0.20	ug/L							11/13/19	
Methoxychlor	ND	0.031	0.20	ug/L							11/13/19	
PCB Aroclor Screen	ND	0.078	0.50	ug/L							11/13/19	
Toxaphene	ND	0.33	1.0	ug/L							11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.50*				*0.46*		*110*	*70-130*			11/13/19	
Blank Spike (A917099-BS1)												
Aldrin	0.83	0.022	0.075	ug/L	0.74		112	70-130			11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		98	70-130			11/13/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 505 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank Spike (A917099-BS1)												
Endrin	0.099	0.0037	0.10	ug/L	0.10		99	70-130			11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10		104	70-130			11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		101	70-130			11/13/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	1.0		105	70-130			11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0		123	70-130			11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20		100	70-130			11/13/19	J
Methoxychlor	1.0	0.031	0.20	ug/L	1.0		103	70-130			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.54*				*0.46*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917099-BSD1)												
Aldrin	0.82	0.022	0.075	ug/L	0.74		110	70-130	2	20	11/14/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		99	70-130	1	20	11/14/19	
Endrin	0.099	0.0037	0.10	ug/L	0.10		99	70-130	1	20	11/14/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10		103	70-130	0	20	11/14/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		100	70-130	1	20	11/14/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	1.0		108	70-130	2	20	11/14/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0		122	70-130	1	20	11/14/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20		100	70-130	0	20	11/14/19	J
Methoxychlor	0.98	0.031	0.20	ug/L	1.0		98	70-130	4	20	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.51*				*0.46*		*111*	*70-130*			11/14/19	
Matrix Spike (A917099-MS1), Source: A9K0686-01												
Aldrin	0.81	0.022	0.075	ug/L	0.74	0.028	105	65-135			11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20	ND	100	65-135			11/13/19	
Endrin	0.099	0.0037	0.10	ug/L	0.10	ND	99	65-135			11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10	ND	104	65-135			11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10	ND	102	65-135			11/13/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	1.0	ND	105	65-135			11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0	ND	121	65-135			11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20	ND	99	65-135			11/13/19	J
Methoxychlor	0.99	0.031	0.20	ug/L	1.0	ND	99	65-135			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.46*		*114*	*70-130*			11/13/19	
Matrix Spike Dup (A917099-MSD1), Source: A9K0686-01												
Aldrin	0.79	0.022	0.075	ug/L	0.74	0.028	104	65-135	2	20	11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20	ND	99	65-135	1	20	11/13/19	
Endrin	0.096	0.0037	0.10	ug/L	0.099	ND	96	65-135	3	20	11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.099	ND	102	65-135	2	20	11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.099	ND	100	65-135	2	20	11/13/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	0.99	ND	108	65-135	2	20	11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	0.99	ND	119	65-135	2	20	11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20	ND	98	65-135	1	20	11/13/19	J
Methoxychlor	0.92	0.031	0.20	ug/L	0.99	ND	92	65-135	7	20	11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.45*		*114*	*70-130*			11/13/19	

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**** Amended Report ****

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A917083											Prepared: 11/12/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Blank (A917083-BLK1)												
2,4,5-T	ND	0.13	1.0	ug/L							11/13/19	
2,4,5-TP (Silvex)	ND	0.016	1.0	ug/L							11/13/19	
2,4-D	ND	0.074	10	ug/L							11/13/19	
Bentazon	ND	1.3	2.0	ug/L							11/13/19	
Dalapon	ND	0.58	10	ug/L							11/13/19	
Dicamba	ND	0.13	1.5	ug/L							11/13/19	
Dinoseb	ND	0.032	2.0	ug/L							11/13/19	
Pentachlorophenol	ND	0.011	0.20	ug/L							11/13/19	
Picloram	ND	0.084	1.0	ug/L							11/13/19	
Surrogate: DCPAA	*43*				*36*		*119*	*70-130*			11/13/19	
Blank Spike (A917083-BS1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		102	70-130			11/13/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130			11/13/19	J
2,4-D	0.37	0.074	10	ug/L	0.40		92	70-130			11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		99	70-130			11/13/19	J
Dalapon	4.1	0.58	10	ug/L	4.0		102	70-130			11/13/19	J
Dicamba	0.79	0.13	1.5	ug/L	0.80		99	70-130			11/13/19	J
Dinoseb	0.77	0.032	2.0	ug/L	0.80		96	70-130			11/13/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		101	70-130			11/13/19	J
Picloram	0.40	0.084	1.0	ug/L	0.40		100	70-130			11/13/19	J
Surrogate: DCPAA	*42*				*36*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917083-BSD1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		102	70-130	0	20	11/14/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130	1	20	11/14/19	J
2,4-D	0.38	0.074	10	ug/L	0.40		96	70-130	4	20	11/14/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		100	70-130	1	20	11/14/19	
Dalapon	4.0	0.58	10	ug/L	4.0		100	70-130	1	20	11/14/19	J
Dicamba	0.80	0.13	1.5	ug/L	0.80		101	70-130	1	20	11/14/19	J
Dinoseb	0.79	0.032	2.0	ug/L	0.80		98	70-130	2	20	11/14/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		99	70-130	2	20	11/14/19	J
Picloram	0.39	0.084	1.0	ug/L	0.40		98	70-130	2	20	11/14/19	J
Surrogate: DCPAA	*42*				*36*		*117*	*70-130*			11/14/19	
Matrix Spike (A917083-MS1), Source: A9K0686-01												
2,4,5-T	1.7	0.13	1.0	ug/L	1.6	ND	106	70-130			11/13/19	
2,4,5-TP (Silvex)	0.80	0.016	1.0	ug/L	0.80	ND	100	70-130			11/13/19	J
2,4-D	0.38	0.074	10	ug/L	0.40	ND	95	70-130			11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	99	70-130			11/13/19	J
Dalapon	4.4	0.58	10	ug/L	4.0	ND	110	70-130			11/13/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	101	70-130			11/13/19	J
Dinoseb	0.83	0.032	2.0	ug/L	0.80	0.10	91	70-130			11/13/19	J
Pentachlorophenol	0.14	0.011	0.20	ug/L	0.16	ND	88	70-130			11/13/19	J
Picloram	0.35	0.084	1.0	ug/L	0.40	ND	88	70-130			11/13/19	J
Surrogate: DCPAA	*46*				*36*		*128*	*70-130*			11/13/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A917083											Prepared: 11/12/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Matrix Spike Dup (A917083-MSD1), Source: A9K0686-01												
2,4,5-T	1.7	0.13	1.0	ug/L	1.6	ND	105	70-130	1	30	11/13/19	
2,4,5-TP (Silvex)	0.84	0.016	1.0	ug/L	0.80	ND	104	70-130	4	30	11/13/19	J
2,4-D	0.38	0.074	10	ug/L	0.40	ND	96	70-130	1	30	11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	101	70-130	2	30	11/13/19	
Dalapon	4.2	0.58	10	ug/L	4.0	ND	105	70-130	5	30	11/13/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	102	70-130	1	30	11/13/19	J
Dinoseb	0.84	0.032	2.0	ug/L	0.80	0.10	92	70-130	1	30	11/13/19	J
Pentachlorophenol	0.15	0.011	0.20	ug/L	0.16	ND	91	70-130	4	30	11/13/19	J
Picloram	0.36	0.084	1.0	ug/L	0.40	ND	91	70-130	3	30	11/13/19	J
Surrogate: DCPAA	*46*				*36*		*128*	*70-130*			11/13/19	
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917163-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							11/14/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							11/14/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							11/14/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							11/14/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							11/14/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							11/14/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							11/14/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							11/14/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							11/14/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							11/14/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							11/14/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							11/14/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							11/14/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							11/14/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							11/14/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							11/14/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							11/14/19	
2,2-Dichloropropane	ND	0.32	0.50	ug/L							11/14/19	
2-Butanone	ND	0.42	5.0	ug/L							11/14/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							11/14/19	
2-Hexanone	ND	0.48	10	ug/L							11/14/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							11/14/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							11/14/19	
Acetone	ND	3.4	10	ug/L							11/14/19	
Benzene	ND	0.34	0.50	ug/L							11/14/19	
Bromobenzene	ND	0.27	0.50	ug/L							11/14/19	
Bromochloromethane	ND	0.27	0.50	ug/L							11/14/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							11/14/19	
Bromoform	ND	0.28	0.50	ug/L							11/14/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917163-BLK1)												
Bromomethane	ND	0.43	0.50	ug/L							11/14/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							11/14/19	
Chlorobenzene	ND	0.31	0.50	ug/L							11/14/19	
Chloroethane	ND	0.32	0.50	ug/L							11/14/19	
Chloroform	ND	0.083	0.50	ug/L							11/14/19	
Chloromethane	ND	0.25	0.50	ug/L							11/14/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							11/14/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/14/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							11/14/19	
Dibromomethane	ND	0.29	0.50	ug/L							11/14/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							11/14/19	
Dichloromethane	ND	0.29	0.50	ug/L							11/14/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							11/14/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							11/14/19	
Ethylbenzene	ND	0.31	0.50	ug/L							11/14/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							11/14/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							11/14/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							11/14/19	
Methyl-t-butyl ether	0.22	0.083	0.50	ug/L							11/14/19	B2.0, J
Naphthalene	ND	0.27	0.50	ug/L							11/14/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							11/14/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							11/14/19	
o-Xylene	ND	0.30	0.50	ug/L							11/14/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							11/14/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							11/14/19	
Styrene	ND	0.30	0.50	ug/L							11/14/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							11/14/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							11/14/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							11/14/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							11/14/19	
Toluene	ND	0.32	0.50	ug/L							11/14/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							11/14/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/14/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							11/14/19	
Trichlorofluoromethane	ND	0.23	5.0	ug/L							11/14/19	
Vinyl Chloride	ND	0.27	0.50	ug/L							11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*56*				*50*		*113*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*57*				*50*		*115*	*70-130*			11/14/19	
Blank Spike (A917163-BS1)												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10		106	70-130			11/14/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		105	70-130			11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		108	70-130			11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		108	70-130			11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917163-BS1)												
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		109	70-130			11/14/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		119	70-130			11/14/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10		106	70-130			11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		106	70-130			11/14/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		104	70-130			11/14/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		102	70-130			11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		106	70-130			11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10		106	70-130			11/14/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		105	70-130			11/14/19	
2,2-Dichloropropane	12	0.32	0.50	ug/L	10		118	70-130			11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10		113	70-130			11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
2-Hexanone	12	0.48	10	ug/L	10		115	70-130			11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
4-Methyl-2-pentanone	11	0.37	5.0	ug/L	10		109	70-130			11/14/19	
Acetone	11	3.4	10	ug/L	10		107	70-130			11/14/19	
Benzene	11	0.34	0.50	ug/L	10		106	70-130			11/14/19	
Bromobenzene	11	0.27	0.50	ug/L	10		111	70-130			11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		110	70-130			11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10		106	70-130			11/14/19	
Bromoform	11	0.28	0.50	ug/L	10		106	70-130			11/14/19	
Bromomethane	12	0.43	0.50	ug/L	10		124	70-130			11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10		109	70-130			11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		107	70-130			11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10		106	70-130			11/14/19	
Chloroethane	10	0.32	0.50	ug/L	10		104	70-130			11/14/19	
Chloroform	11	0.083	0.50	ug/L	10		106	70-130			11/14/19	
Chloromethane	11	0.25	0.50	ug/L	10		107	70-130			11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		106	70-130			11/14/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		107	70-130			11/14/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		105	70-130			11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10		101	70-130			11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10		106	70-130			11/14/19	
Dichloromethane	10	0.29	0.50	ug/L	10		104	70-130			11/14/19	
Di-isopropyl ether (DIPE)	12	0.31	3.0	ug/L	10		121	70-130			11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10		113	70-130			11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		106	70-130			11/14/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		107	70-130			11/14/19	
m,p-Xylenes	21	0.23	0.50	ug/L	20		106	70-130			11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20		110	70-130			11/14/19	
Naphthalene	11	0.27	0.50	ug/L	10		111	70-130			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917163-BS1)												
n-Butylbenzene	11	0.25	0.50	ug/L	10		106	70-130			11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		107	70-130			11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		107	70-130			11/14/19	
Styrene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10		113	70-130			11/14/19	
tert-Butyl alcohol (TBA)	12	0.97	2.0	ug/L	10		123	70-130			11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		107	70-130			11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130			11/14/19	
Toluene	11	0.32	0.50	ug/L	10		107	70-130			11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		107	70-130			11/14/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		108	70-130			11/14/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10		106	70-130			11/14/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		103	70-130			11/14/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		109	70-130			11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*51*				*50*		*103*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*52*				*50*		*103*	*70-130*			11/14/19	
Blank Spike Dup (A917163-BSD1)												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10		106	70-130	0	30	11/14/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		106	70-130	1	30	11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		112	70-130	3	30	11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		106	70-130	2	30	11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		107	70-130	1	30	11/14/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		108	70-130	1	30	11/14/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		120	70-130	1	30	11/14/19	
1,1-Dichloropropene	10	0.30	0.50	ug/L	10		103	70-130	4	30	11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10		112	70-130	5	30	11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10		111	70-130	5	30	11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		109	70-130	3	30	11/14/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10		109	70-130	5	30	11/14/19	
1,2-Dichloroethane	11	0.29	0.50	ug/L	10		105	70-130	3	30	11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10		106	70-130	2	30	11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		109	70-130	3	30	11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		111	70-130	5	30	11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10		108	70-130	2	30	11/14/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10		110	70-130	4	30	11/14/19	
2,2-Dichloropropane	11	0.32	0.50	ug/L	10		110	70-130	7	30	11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10		110	70-130	3	30	11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
2-Hexanone	11	0.48	10	ug/L	10		113	70-130	2	30	11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		110	70-130	3	30	11/14/19	
4-Methyl-2-pentanone	11	0.37	5.0	ug/L	10		110	70-130	1	30	11/14/19	
Acetone	11	3.4	10	ug/L	10		115	70-130	7	30	11/14/19	
Benzene	10	0.34	0.50	ug/L	10		105	70-130	2	30	11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917163-BSD1)												
Bromobenzene	11	0.27	0.50	ug/L	10		114	70-130	2	30	11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		115	70-130	4	30	11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10		105	70-130	0	30	11/14/19	
Bromoform	11	0.28	0.50	ug/L	10		109	70-130	3	30	11/14/19	
Bromomethane	12	0.43	0.50	ug/L	10		121	70-130	3	30	11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10		111	70-130	2	30	11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		105	70-130	2	30	11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10		108	70-130	2	30	11/14/19	
Chloroethane	11	0.32	0.50	ug/L	10		105	70-130	2	30	11/14/19	
Chloroform	11	0.083	0.50	ug/L	10		107	70-130	1	30	11/14/19	
Chloromethane	11	0.25	0.50	ug/L	10		111	70-130	3	30	11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		109	70-130	3	30	11/14/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		107	70-130	0	30	11/14/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10		108	70-130	3	30	11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10		104	70-130	3	30	11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10		107	70-130	2	30	11/14/19	
Dichloromethane	11	0.29	0.50	ug/L	10		111	70-130	6	30	11/14/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		113	70-130	7	30	11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10		108	70-130	4	30	11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		107	70-130	1	30	11/14/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		109	70-130	2	30	11/14/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		109	70-130	2	30	11/14/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20		108	70-130	2	30	11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20		108	70-130	2	30	11/14/19	
Naphthalene	12	0.27	0.50	ug/L	10		116	70-130	4	30	11/14/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10		109	70-130	2	30	11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		110	70-130	3	30	11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		109	70-130	3	30	11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		110	70-130	3	30	11/14/19	
Styrene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10		110	70-130	2	30	11/14/19	
tert-Butyl alcohol (TBA)	12	0.97	2.0	ug/L	10		116	70-130	6	30	11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		109	70-130	2	30	11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130	0	30	11/14/19	
Toluene	11	0.32	0.50	ug/L	10		108	70-130	1	30	11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		108	70-130	1	30	11/14/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		110	70-130	1	30	11/14/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		105	70-130	1	30	11/14/19	
Trichlorofluoromethane	11	0.23	5.0	ug/L	10		108	70-130	5	30	11/14/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		110	70-130	1	30	11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*108*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*54*				*50*		*109*	*70-130*			11/14/19	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10	ND	108	41-156			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10	ND	114	48-160			11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10	ND	108	42-151			11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10	ND	115	47-164			11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10	ND	108	45-152			11/14/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10	ND	112	48-157			11/14/19	
1,1-Dichloroethene	13	0.21	0.50	ug/L	10	ND	128	51-158			11/14/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	114	46-162			11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10	ND	107	37-145			11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10	ND	107	33-149			11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10	ND	109	44-146			11/14/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10	ND	110	44-146			11/14/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10	ND	104	47-151			11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10	ND	110	47-155			11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	110	45-154			11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10	ND	111	44-146			11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10	ND	108	45-151			11/14/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10	ND	110	43-146			11/14/19	
2,2-Dichloropropane	6.8	0.32	0.50	ug/L	10	ND	68	24-182			11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10	ND	106	55-144			11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	110	48-150			11/14/19	
2-Hexanone	11	0.48	10	ug/L	10	ND	108	40-159			11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	109	43-150			11/14/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10	ND	103	30-171			11/14/19	
Acetone	13	3.4	10	ug/L	10	ND	126	27-181			11/14/19	
Benzene	11	0.34	0.50	ug/L	10	ND	111	48-155			11/14/19	
Bromobenzene	11	0.27	0.50	ug/L	10	ND	110	43-151			11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10	ND	113	48-161			11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10	ND	108	47-151			11/14/19	
Bromoform	11	0.28	0.50	ug/L	10	ND	105	29-162			11/14/19	
Bromomethane	11	0.43	0.50	ug/L	10	ND	106	10-200			11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10	ND	113	57-161			11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10	ND	115	47-163			11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10	ND	109	46-152			11/14/19	
Chloroethane	11	0.32	0.50	ug/L	10	ND	112	28-189			11/14/19	
Chloroform	11	0.083	0.50	ug/L	10	ND	111	52-148			11/14/19	
Chloromethane	12	0.25	0.50	ug/L	10	ND	115	53-159			11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10	ND	110	50-152			11/14/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	101	34-156			11/14/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10	ND	106	44-149			11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10	ND	105	46-150			11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10	ND	115	33-170			11/14/19	
Dichloromethane	11	0.29	0.50	ug/L	10	ND	110	47-156			11/14/19	
Di-isopropyl ether (DIPE)	12	0.31	3.0	ug/L	10	ND	116	41-159			11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10	ND	111	32-160			11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	111	40-157			11/14/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10	ND	104	38-151			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
Isopropylbenzene	11	0.31	0.50	ug/L	10	ND	112	41-156			11/14/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20	ND	111	49-154			11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20	0.19	108	41-156			11/14/19	
Naphthalene	11	0.27	0.50	ug/L	10	ND	110	35-154			11/14/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10	ND	107	31-153			11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10	ND	111	39-156			11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10	ND	112	27-164			11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	113	26-161			11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10	ND	115	39-154			11/14/19	
Styrene	11	0.30	0.50	ug/L	10	ND	110	10-200			11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10	ND	111	24-161			11/14/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10	ND	112	22-174			11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10	ND	112	40-153			11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10	ND	109	48-155			11/14/19	
Toluene	15	0.32	0.50	ug/L	10	3.0	116	40-159			11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10	ND	113	52-157			11/14/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	100	28-160			11/14/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	112	49-155			11/14/19	
Trichlorofluoromethane	12	0.23	5.0	ug/L	10	ND	119	47-169			11/14/19	
Vinyl Chloride	12	0.27	0.50	ug/L	10	ND	117	21-183			11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*104*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*51*				*50*		*102*	*70-130*			11/14/19	
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							11/15/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							11/15/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							11/15/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							11/15/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							11/15/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							11/15/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							11/15/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							11/15/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							11/15/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							11/15/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							11/15/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							11/15/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							11/15/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							11/15/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							11/15/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							11/15/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							11/15/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
2,2-Dichloropropane	ND	0.32	0.50	ug/L							11/15/19	
2-Butanone	ND	0.42	5.0	ug/L							11/15/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							11/15/19	
2-Hexanone	ND	0.48	10	ug/L							11/15/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							11/15/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							11/15/19	
Acetone	ND	3.4	10	ug/L							11/15/19	
Benzene	ND	0.34	0.50	ug/L							11/15/19	
Bromobenzene	ND	0.27	0.50	ug/L							11/15/19	
Bromochloromethane	ND	0.27	0.50	ug/L							11/15/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							11/15/19	
Bromoform	ND	0.28	0.50	ug/L							11/15/19	
Bromomethane	ND	0.43	0.50	ug/L							11/15/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							11/15/19	
Chlorobenzene	ND	0.31	0.50	ug/L							11/15/19	
Chloroethane	ND	0.32	0.50	ug/L							11/15/19	
Chloroform	ND	0.083	0.50	ug/L							11/15/19	
Chloromethane	ND	0.25	0.50	ug/L							11/15/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							11/15/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/15/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							11/15/19	
Dibromomethane	ND	0.29	0.50	ug/L							11/15/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							11/15/19	
Dichloromethane	ND	0.29	0.50	ug/L							11/15/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							11/15/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							11/15/19	
Ethylbenzene	ND	0.31	0.50	ug/L							11/15/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							11/15/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							11/15/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							11/15/19	
Methyl-t-butyl ether	0.20	0.083	0.50	ug/L							11/15/19	J
Naphthalene	ND	0.27	0.50	ug/L							11/15/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							11/15/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							11/15/19	
o-Xylene	ND	0.30	0.50	ug/L							11/15/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							11/15/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							11/15/19	
Styrene	ND	0.30	0.50	ug/L							11/15/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							11/15/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							11/15/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							11/15/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							11/15/19	
Toluene	ND	0.32	0.50	ug/L							11/15/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							11/15/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/15/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
Trichlorofluoromethane	ND	0.23	5.0	ug/L							11/15/19	
Vinyl Chloride	ND	0.27	0.50	ug/L							11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*58*				*50*		*116*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*57*				*50*		*114*	*70-130*			11/15/19	
Blank Spike (A917282-BS1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,1,1-Trichloroethane	10	0.30	0.50	ug/L	10		100	70-130			11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		105	70-130			11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	0.27	10	ug/L	10		102	70-130			11/15/19	
1,1,2-Trichloroethane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,1-Dichloroethane	10	0.34	0.50	ug/L	10		103	70-130			11/15/19	
1,1-Dichloroethene	11	0.21	0.50	ug/L	10		114	70-130			11/15/19	
1,1-Dichloropropene	10	0.30	0.50	ug/L	10		100	70-130			11/15/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		102	70-130			11/15/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130			11/15/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		104	70-130			11/15/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10		105	70-130			11/15/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		100	70-130			11/15/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		102	70-130			11/15/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		106	70-130			11/15/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10		107	70-130			11/15/19	
2,2-Dichloropropane	9.9	0.32	0.50	ug/L	10		99	70-130			11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10		102	70-130			11/15/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
2-Hexanone	10	0.48	10	ug/L	10		104	70-130			11/15/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		107	70-130			11/15/19	
4-Methyl-2-pentanone	9.7	0.37	5.0	ug/L	10		97	70-130			11/15/19	
Acetone	10	3.4	10	ug/L	10		103	70-130			11/15/19	
Benzene	10	0.34	0.50	ug/L	10		101	70-130			11/15/19	
Bromobenzene	11	0.27	0.50	ug/L	10		108	70-130			11/15/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		107	70-130			11/15/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Bromoform	10	0.28	0.50	ug/L	10		104	70-130			11/15/19	
Bromomethane	8.9	0.43	0.50	ug/L	10		89	70-130			11/15/19	
Carbon disulfide	10	0.49	10	ug/L	10		104	70-130			11/15/19	
Carbon Tetrachloride	10	0.29	0.50	ug/L	10		101	70-130			11/15/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		105	70-130			11/15/19	
Chloroethane	10	0.32	0.50	ug/L	10		101	70-130			11/15/19	
Chloroform	10	0.083	0.50	ug/L	10		103	70-130			11/15/19	
Chloromethane	9.8	0.25	0.50	ug/L	10		98	70-130			11/15/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		104	70-130			11/15/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130			11/15/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		102	70-130			11/15/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917282-BS1)												
Dibromomethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Dichlorodifluoromethane	9.5	0.28	0.50	ug/L	10		95	70-130			11/15/19	
Dichloromethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		105	70-130			11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		101	70-130			11/15/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		103	70-130			11/15/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		102	70-130			11/15/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		105	70-130			11/15/19	
m,p-Xylenes	21	0.23	0.50	ug/L	20		105	70-130			11/15/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20		101	70-130			11/15/19	
Naphthalene	10	0.27	0.50	ug/L	10		104	70-130			11/15/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10		105	70-130			11/15/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		106	70-130			11/15/19	
o-Xylene	11	0.30	0.50	ug/L	10		105	70-130			11/15/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		106	70-130			11/15/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		107	70-130			11/15/19	
Styrene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		102	70-130			11/15/19	
tert-Butyl alcohol (TBA)	10	0.97	2.0	ug/L	10		103	70-130			11/15/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		104	70-130			11/15/19	
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10		102	70-130			11/15/19	
Toluene	10	0.32	0.50	ug/L	10		103	70-130			11/15/19	
trans-1,2-Dichloroethene	10	0.35	0.50	ug/L	10		103	70-130			11/15/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130			11/15/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		101	70-130			11/15/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		102	70-130			11/15/19	
Vinyl Chloride	10	0.27	0.50	ug/L	10		101	70-130			11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*109*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*53*				*50*		*107*	*70-130*			11/15/19	
Blank Spike Dup (A917282-BSD1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		102	70-130	1	30	11/15/19	
1,1,1-Trichloroethane	9.9	0.30	0.50	ug/L	10		99	70-130	1	30	11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		105	70-130	0	30	11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	0.27	10	ug/L	10		100	70-130	2	30	11/15/19	J
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		106	70-130	3	30	11/15/19	
1,1-Dichloroethane	10	0.34	0.50	ug/L	10		103	70-130	0	30	11/15/19	
1,1-Dichloroethene	11	0.21	0.50	ug/L	10		113	70-130	1	30	11/15/19	
1,1-Dichloropropene	9.8	0.30	0.50	ug/L	10		98	70-130	2	30	11/15/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		104	70-130	2	30	11/15/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		101	70-130	2	30	11/15/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		103	70-130	3	30	11/15/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,3,5-Trimethylbenzene	10	0.36	0.50	ug/L	10		101	70-130	5	30	11/15/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917282-BSD1)												
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10		104	70-130	3	30	11/15/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		104	70-130	1	30	11/15/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		105	70-130	2	30	11/15/19	
2,2-Dichloropropane	9.8	0.32	0.50	ug/L	10		98	70-130	1	30	11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10		100	70-130	2	30	11/15/19	
2-Chlorotoluene	10	0.30	0.50	ug/L	10		102	70-130	5	30	11/15/19	
2-Hexanone	11	0.48	10	ug/L	10		105	70-130	1	30	11/15/19	
4-Chlorotoluene	10	0.30	0.50	ug/L	10		102	70-130	4	30	11/15/19	
4-Methyl-2-pentanone	9.5	0.37	5.0	ug/L	10		95	70-130	2	30	11/15/19	
Acetone	11	3.4	10	ug/L	10		107	70-130	4	30	11/15/19	
Benzene	10	0.34	0.50	ug/L	10		101	70-130	0	30	11/15/19	
Bromobenzene	9.2	0.27	0.50	ug/L	10		92	70-130	16	30	11/15/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		106	70-130	0	30	11/15/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		103	70-130	0	30	11/15/19	
Bromoform	10	0.28	0.50	ug/L	10		104	70-130	0	30	11/15/19	
Bromomethane	8.7	0.43	0.50	ug/L	10		87	70-130	2	30	11/15/19	
Carbon disulfide	10	0.49	10	ug/L	10		104	70-130	1	30	11/15/19	
Carbon Tetrachloride	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		103	70-130	2	30	11/15/19	
Chloroethane	9.9	0.32	0.50	ug/L	10		99	70-130	2	30	11/15/19	
Chloroform	10	0.083	0.50	ug/L	10		103	70-130	0	30	11/15/19	
Chloromethane	10	0.25	0.50	ug/L	10		100	70-130	2	30	11/15/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		103	70-130	0	30	11/15/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130	0	30	11/15/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Dibromomethane	10	0.29	0.50	ug/L	10		102	70-130	0	30	11/15/19	
Dichlorodifluoromethane	9.3	0.28	0.50	ug/L	10		93	70-130	2	30	11/15/19	
Dichloromethane	10	0.29	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		110	70-130	4	30	11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		101	70-130	0	30	11/15/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		102	70-130	1	30	11/15/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		100	70-130	2	30	11/15/19	
Isopropylbenzene	10	0.31	0.50	ug/L	10		102	70-130	4	30	11/15/19	
m,p-Xylenes	20	0.23	0.50	ug/L	20		102	70-130	3	30	11/15/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20		102	70-130	1	30	11/15/19	
Naphthalene	11	0.27	0.50	ug/L	10		107	70-130	3	30	11/15/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10		100	70-130	5	30	11/15/19	
n-Propylbenzene	10	0.31	0.50	ug/L	10		102	70-130	4	30	11/15/19	
o-Xylene	10	0.30	0.50	ug/L	10		102	70-130	3	30	11/15/19	
p-Isopropyltoluene	10	0.26	0.50	ug/L	10		101	70-130	5	30	11/15/19	
sec-Butylbenzene	10	0.27	0.50	ug/L	10		100	70-130	6	30	11/15/19	
Styrene	10	0.30	0.50	ug/L	10		104	70-130	2	30	11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		101	70-130	1	30	11/15/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10		108	70-130	4	30	11/15/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		101	70-130	2	30	11/15/19	
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10		100	70-130	1	30	11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917282-BSD1)												
Toluene	10	0.32	0.50	ug/L	10		103	70-130	0	30	11/15/19	
trans-1,2-Dichloroethene	10	0.35	0.50	ug/L	10		102	70-130	1	30	11/15/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		100	70-130	2	30	11/15/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		104	70-130	1	30	11/15/19	
Vinyl Chloride	10	0.27	0.50	ug/L	10		100	70-130	1	30	11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*105*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*52*				*50*		*104*	*70-130*			11/15/19	
Matrix Spike (A917282-MS1), Source: A9K1356-01												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10	ND	110	41-156			11/15/19	
1,1,1-Trichloroethane	12	0.30	0.50	ug/L	10	ND	115	48-160			11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10	ND	113	42-151			11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10	ND	124	47-164			11/15/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10	ND	110	45-152			11/15/19	
1,1-Dichloroethane	12	0.34	0.50	ug/L	10	ND	116	48-157			11/15/19	
1,1-Dichloroethene	14	0.21	0.50	ug/L	10	ND	138	51-158			11/15/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	114	46-162			11/15/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10	ND	112	37-145			11/15/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10	ND	111	33-149			11/15/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10	ND	113	44-146			11/15/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10	ND	113	44-146			11/15/19	
1,2-Dichloroethane	11	0.29	0.50	ug/L	10	ND	109	47-151			11/15/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10	ND	111	47-155			11/15/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	115	45-154			11/15/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10	ND	115	44-146			11/15/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10	ND	111	45-151			11/15/19	
1,4-Dichlorobenzene	12	0.29	0.50	ug/L	10	ND	116	43-146			11/15/19	
2,2-Dichloropropane	11	0.32	0.50	ug/L	10	ND	112	24-182			11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10	ND	104	55-144			11/15/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	114	48-150			11/15/19	
2-Hexanone	11	0.48	10	ug/L	10	ND	111	40-159			11/15/19	
4-Chlorotoluene	12	0.30	0.50	ug/L	10	ND	115	43-150			11/15/19	
4-Methyl-2-pentanone	9.9	0.37	5.0	ug/L	10	0.38	96	30-171			11/15/19	
Acetone	14	3.4	10	ug/L	10	ND	144	27-181			11/15/19	
Benzene	11	0.34	0.50	ug/L	10	ND	111	48-155			11/15/19	
Bromobenzene	12	0.27	0.50	ug/L	10	ND	120	43-151			11/15/19	
Bromochloromethane	12	0.27	0.50	ug/L	10	ND	120	48-161			11/15/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10	ND	112	47-151			11/15/19	
Bromoform	11	0.28	0.50	ug/L	10	ND	111	29-162			11/15/19	
Bromomethane	10	0.43	0.50	ug/L	10	ND	100	10-200			11/15/19	
Carbon disulfide	13	0.49	10	ug/L	10	ND	127	57-161			11/15/19	
Carbon Tetrachloride	12	0.29	0.50	ug/L	10	ND	117	47-163			11/15/19	
Chlorobenzene	11	0.31	0.50	ug/L	10	ND	114	46-152			11/15/19	
Chloroethane	12	0.32	0.50	ug/L	10	ND	121	28-189			11/15/19	
Chloroform	12	0.083	0.50	ug/L	10	ND	115	52-148			11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917282-MS1), Source: A9K1356-01												
Chloromethane	12	0.25	0.50	ug/L	10	ND	123	53-159			11/15/19	
cis-1,2-Dichloroethene	12	0.32	0.50	ug/L	10	ND	116	50-152			11/15/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10	ND	111	34-156			11/15/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10	ND	111	44-149			11/15/19	
Dibromomethane	11	0.29	0.50	ug/L	10	ND	113	46-150			11/15/19	
Dichlorodifluoromethane	13	0.28	0.50	ug/L	10	ND	128	33-170			11/15/19	
Dichloromethane	12	0.29	0.50	ug/L	10	ND	116	47-156			11/15/19	
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10	ND	105	41-159			11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10	ND	104	32-160			11/15/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	115	40-157			11/15/19	
Hexachlorobutadiene	12	0.30	0.50	ug/L	10	ND	120	38-151			11/15/19	
Isopropylbenzene	12	0.31	0.50	ug/L	10	ND	117	41-156			11/15/19	
m,p-Xylenes	23	0.23	0.50	ug/L	20	ND	115	49-154			11/15/19	
Methyl-t-butyl ether	21	0.083	0.50	ug/L	20	0.22	104	41-156			11/15/19	
Naphthalene	11	0.27	0.50	ug/L	10	ND	114	35-154			11/15/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10	ND	114	31-153			11/15/19	
n-Propylbenzene	12	0.31	0.50	ug/L	10	ND	117	39-156			11/15/19	
o-Xylene	11	0.30	0.50	ug/L	10	ND	115	27-164			11/15/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	115	26-161			11/15/19	
sec-Butylbenzene	12	0.27	0.50	ug/L	10	ND	116	39-154			11/15/19	
Styrene	12	0.30	0.50	ug/L	10	ND	115	10-200			11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10	ND	104	24-161			11/15/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10	ND	107	22-174			11/15/19	
tert-Butylbenzene	12	0.28	0.50	ug/L	10	ND	115	40-153			11/15/19	
Tetrachloroethene (PCE)	12	0.33	0.50	ug/L	10	ND	116	48-155			11/15/19	
Toluene	11	0.32	0.50	ug/L	10	ND	114	40-159			11/15/19	
trans-1,2-Dichloroethene	12	0.35	0.50	ug/L	10	ND	119	52-157			11/15/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10	ND	110	28-160			11/15/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	113	49-155			11/15/19	
Trichlorofluoromethane	13	0.23	5.0	ug/L	10	ND	129	47-169			11/15/19	
Vinyl Chloride	13	0.27	0.50	ug/L	10	ND	127	21-183			11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*108*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*54*				*50*		*108*	*70-130*			11/15/19	
EPA 525.3 - Quality Control												
Batch: A917200											Prepared: 11/14/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank (A917200-BLK1)												
Alachlor	ND	0.022	0.20	ug/L							11/20/19	
Atrazine	ND	0.0076	0.10	ug/L							11/20/19	
Benzo(a)pyrene	ND	0.0019	0.020	ug/L							11/20/19	
Bis(2-ethylhexyl) adipate	ND	0.067	0.60	ug/L							11/20/19	
Bis(2-ethylhexyl) phthalate	0.15	0.11	0.60	ug/L							11/20/19	B2.0, J
Bromacil	ND	0.028	0.80	ug/L							11/20/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 525.3 - Quality Control													
Batch: A917200											Prepared: 11/14/2019		
Prep Method: EPA 525.3											Analyst: JKH		
Blank (A917200-BLK1)													
Butachlor	ND	0.018	0.25	ug/L							11/20/19		
Diazinon	ND	0.0022	0.020	ug/L							11/20/19		
Dimethoate	ND	0.082	1.0	ug/L							11/20/19		
Metolachlor	ND	0.011	0.50	ug/L							11/20/19		
Metribuzin	ND	0.0061	0.50	ug/L							11/20/19		
Molinate	ND	0.0061	0.50	ug/L							11/20/19		
Propachlor	ND	0.0056	0.50	ug/L							11/20/19		
Simazine	ND	0.0049	0.070	ug/L							11/20/19		
Thiobencarb	ND	0.0083	0.10	ug/L							11/20/19		
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.87*				*1.0*		*87*	*70-130*			11/20/19		
Surrogate: Benzo(a)pyrene-d12	*0.88*				*1.0*		*88*	*70-130*			11/20/19		
Surrogate: Triphenyl Phosphate	*0.98*				*1.0*		*98*	*70-130*			11/20/19		
Blank Spike (A917200-BS1)													
Alachlor	0.42	0.022	0.20	ug/L	0.40		106	70-130			11/20/19		
Atrazine	0.24	0.0076	0.10	ug/L	0.20		121	70-130			11/20/19		
Benzo(a)pyrene	0.028	0.0019	0.020	ug/L	0.040		70	70-130			11/20/19		
Bis(2-ethylhexyl) adipate	0.80	0.067	0.60	ug/L	0.80		100	70-130			11/20/19		
Bis(2-ethylhexyl) phthalate	2.3	0.11	0.60	ug/L	2.4		97	70-130			11/20/19		
Bromacil	0.24	0.028	0.80	ug/L	0.20		121	70-130			11/20/19	J	
Butachlor	0.23	0.018	0.25	ug/L	0.20		115	70-130			11/20/19	J	
Diazinon	0.043	0.0022	0.020	ug/L	0.040		107	70-130			11/20/19		
Dimethoate	2.6	0.082	1.0	ug/L	1.6		162	70-130			11/20/19	BS	***High***
Metolachlor	0.22	0.011	0.50	ug/L	0.20		108	70-130			11/20/19	J	
Metribuzin	0.21	0.0061	0.50	ug/L	0.20		105	70-130			11/20/19	J	
Molinate	0.20	0.0061	0.50	ug/L	0.20		100	70-130			11/20/19	J	
Propachlor	0.20	0.0056	0.50	ug/L	0.20		100	70-130			11/20/19	J	
Simazine	0.17	0.0049	0.070	ug/L	0.14		120	70-130			11/20/19		
Thiobencarb	0.22	0.0083	0.10	ug/L	0.20		108	70-130			11/20/19		
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.93*				*1.0*		*93*	*70-130*			11/20/19		
Surrogate: Benzo(a)pyrene-d12	*0.85*				*1.0*		*85*	*70-130*			11/20/19		
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*108*	*70-130*			11/20/19		
Blank Spike Dup (A917200-BSD1)													
Alachlor	0.45	0.022	0.20	ug/L	0.40		112	70-130	6	30	11/20/19		
Atrazine	0.25	0.0076	0.10	ug/L	0.20		127	70-130	5	30	11/20/19		
Benzo(a)pyrene	0.034	0.0019	0.020	ug/L	0.040		85	70-130	20	30	11/20/19		
Bis(2-ethylhexyl) adipate	0.85	0.067	0.60	ug/L	0.80		107	70-130	7	30	11/20/19		
Bis(2-ethylhexyl) phthalate	2.4	0.11	0.60	ug/L	2.4		102	70-130	4	30	11/20/19		
Bromacil	0.23	0.028	0.80	ug/L	0.20		117	70-130	4	30	11/20/19	J	
Butachlor	0.25	0.018	0.25	ug/L	0.20		125	70-130	8	30	11/20/19	J	
Diazinon	0.050	0.0022	0.020	ug/L	0.040		126	70-130	16	30	11/20/19		
Dimethoate	3.1	0.082	1.0	ug/L	1.6		192	70-130	17	30	11/20/19	BS	***High***
Metolachlor	0.23	0.011	0.50	ug/L	0.20		115	70-130	6	30	11/20/19	J	
Metribuzin	0.22	0.0061	0.50	ug/L	0.20		112	70-130	6	30	11/20/19	J	
Molinate	0.21	0.0061	0.50	ug/L	0.20		104	70-130	5	30	11/20/19	J	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 525.3 - Quality Control												
Batch: A917200											Prepared: 11/14/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank Spike Dup (A917200-BSD1)												
Propachlor	0.21	0.0056	0.50	ug/L	0.20		105	70-130	5	30	11/20/19	J
Simazine	0.17	0.0049	0.070	ug/L	0.14		123	70-130	3	30	11/20/19	
Thiobencarb	0.23	0.0083	0.10	ug/L	0.20		113	70-130	4	30	11/20/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.94*				*1.0*		*94*	*70-130*			11/20/19	
Surrogate: Benzo(a)pyrene-d12	*0.91*				*1.0*		*91*	*70-130*			11/20/19	
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*115*	*70-130*			11/20/19	
Matrix Spike (A917200-MS1), Source: S9K0141-02												
Alachlor	0.10	0.022	0.20	ug/L	0.094	ND	108	70-130			11/20/19	J
Atrazine	0.055	0.0076	0.10	ug/L	0.047	0.016	83	70-130			11/20/19	J
Benzo(a)pyrene	0.0080	0.0019	0.020	ug/L	0.0094	ND	85	70-130			11/20/19	J
Bis(2-ethylhexyl) adipate	0.21	0.067	0.60	ug/L	0.19	ND	113	70-130			11/20/19	J
Bis(2-ethylhexyl) phthalate	0.68	0.11	0.60	ug/L	0.57	0.23	78	70-130			11/20/19	
Bromacil	0.054	0.028	0.80	ug/L	0.047	ND	115	70-130			11/20/19	J
Butachlor	0.062	0.018	0.25	ug/L	0.047	ND	131	70-130			11/20/19	MS1.6 ***High***, J
Diazinon	0.012	0.0022	0.020	ug/L	0.0094	ND	128	70-130			11/20/19	J
Dimethoate	0.53	0.082	1.0	ug/L	0.38	ND	141	70-130			11/20/19	MS1.6 ***High***, J
Metolachlor	0.053	0.011	0.50	ug/L	0.047	ND	113	70-130			11/20/19	J
Metribuzin	0.048	0.0061	0.50	ug/L	0.047	ND	101	70-130			11/20/19	J
Molinate	0.051	0.0061	0.50	ug/L	0.047	ND	109	70-130			11/20/19	J
Propachlor	0.047	0.0056	0.50	ug/L	0.047	ND	100	70-130			11/20/19	J
Simazine	0.038	0.0049	0.070	ug/L	0.033	0.0059	97	70-130			11/20/19	J
Thiobencarb	0.055	0.0083	0.10	ug/L	0.047	ND	117	70-130			11/20/19	J
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.88*				*0.94*		*93*	*70-130*			11/20/19	
Surrogate: Benzo(a)pyrene-d12	*0.82*				*0.94*		*87*	*70-130*			11/20/19	
Surrogate: Triphenyl Phosphate	*1.0*				*0.94*		*108*	*70-130*			11/20/19	
EPA 531.1 - Quality Control												
Batch: A917289											Prepared: 11/15/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank (A917289-BLK1)												
3-Hydroxycarbofuran	ND	0.12	3.0	ug/L							11/16/19	
Aldicarb	ND	0.12	3.0	ug/L							11/16/19	
Aldicarb Sulfone	ND	0.12	2.0	ug/L							11/16/19	
Aldicarb Sulfoxide	ND	0.12	3.0	ug/L							11/16/19	
Carbaryl	ND	0.22	5.0	ug/L							11/16/19	
Carbofuran	ND	0.27	5.0	ug/L							11/16/19	
Methomyl	ND	0.19	2.0	ug/L							11/16/19	
Oxamyl	ND	0.090	20	ug/L							11/16/19	
Blank Spike (A917289-BS1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120			11/16/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0		105	80-120			11/16/19	J
Aldicarb Sulfone	3.4	0.12	2.0	ug/L	3.2		105	80-120			11/16/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 531.1 - Quality Control												
Batch: A917289											Prepared: 11/15/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank Spike (A917289-BS1)												
Aldicarb Sulfoxide	2.0	0.12	3.0	ug/L	2.0		102	80-120			11/16/19	J
Carbaryl	4.2	0.22	5.0	ug/L	4.0		106	80-120			11/16/19	J
Carbofuran	3.6	0.27	5.0	ug/L	3.6		99	80-120			11/16/19	J
Methomyl	4.2	0.19	2.0	ug/L	4.0		105	80-120			11/16/19	
Oxamyl	4.2	0.090	20	ug/L	4.0		105	80-120			11/16/19	J
Blank Spike Dup (A917289-BSD1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120	0	20	11/16/19	
Aldicarb	2.2	0.12	3.0	ug/L	2.0		109	80-120	4	20	11/16/19	J
Aldicarb Sulfone	3.3	0.12	2.0	ug/L	3.2		104	80-120	1	20	11/16/19	
Aldicarb Sulfoxide	2.1	0.12	3.0	ug/L	2.0		104	80-120	1	20	11/16/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0		103	80-120	3	20	11/16/19	J
Carbofuran	3.5	0.27	5.0	ug/L	3.6		96	80-120	3	20	11/16/19	J
Methomyl	4.6	0.19	2.0	ug/L	4.0		116	80-120	10	20	11/16/19	
Oxamyl	4.2	0.090	20	ug/L	4.0		106	80-120	1	20	11/16/19	J
Matrix Spike (A917289-MS1), Source: A9K0997-01												
3-Hydroxycarbofuran	4.1	0.12	3.0	ug/L	4.0	ND	103	65-135			11/16/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0	ND	105	65-135			11/16/19	J
Aldicarb Sulfone	3.1	0.12	2.0	ug/L	3.2	ND	96	65-135			11/16/19	
Aldicarb Sulfoxide	1.9	0.12	3.0	ug/L	2.0	ND	96	65-135			11/16/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0	ND	102	65-135			11/16/19	J
Carbofuran	3.2	0.27	5.0	ug/L	3.6	ND	90	65-135			11/16/19	J
Methomyl	4.1	0.19	2.0	ug/L	4.0	ND	103	65-135			11/16/19	
Oxamyl	3.9	0.090	20	ug/L	4.0	ND	97	65-135			11/16/19	J
EPA 547 - Quality Control												
Batch: A917319											Prepared: 11/16/2019	
Prep Method: EPA 547											Analyst: JNG	
Blank (A917319-BLK1)												
Glyphosate	ND	2.1	25	ug/L							11/16/19	
Surrogate: AMPA	*210*				*200*		*105*	*70-130*			11/16/19	
Blank Spike (A917319-BS1)												
Glyphosate	110	2.1	25	ug/L	100		107	70-130			11/16/19	
Surrogate: AMPA	*210*				*200*		*103*	*70-130*			11/16/19	
Blank Spike Dup (A917319-BSD1)												
Glyphosate	100	2.1	25	ug/L	100		104	70-130	3	30	11/16/19	
Surrogate: AMPA	*200*				*200*		*99*	*70-130*			11/16/19	
Matrix Spike (A917319-MS1), Source: A9K0997-01												
Glyphosate	100	2.1	25	ug/L	100	ND	104	70-130			11/16/19	
Surrogate: AMPA	*210*				*200*		*104*	*70-130*			11/16/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 547 - Quality Control												
Batch: A917319											Prepared: 11/16/2019	
Prep Method: EPA 547											Analyst: JNG	
Matrix Spike Dup (A917319-MSD1), Source: A9K0997-01												
Glyphosate	97	2.1	25	ug/L	100	ND	97	70-130	7	30	11/16/19	
Surrogate: AMPA	*200*				*200*		*98*	*70-130*			11/16/19	
EPA 548.1 - Quality Control												
Batch: A917162											Prepared: 11/13/2019	
Prep Method: EPA 548.1											Analyst: YNV	
Blank (A917162-BLK1)												
Endothall	ND	1.6	2.0	ug/L							11/14/19	
Blank Spike (A917162-BS1)												
Endothall	13	1.6	2.0	ug/L	20		64	46-116			11/14/19	
Blank Spike Dup (A917162-BSD1)												
Endothall	12	1.6	2.0	ug/L	20		62	46-116	5	30	11/14/19	
Matrix Spike (A917162-MS1), Source: A9K0686-01												
Endothall	2.0	1.6	2.0	ug/L	20	ND	10	46-116			11/14/19	MS1.0 ***Low***
Matrix Spike (A917162-MS2), Source: S9K0122-03												
Endothall	18	1.6	2.0	ug/L	20	ND	88	46-116			11/14/19	
EPA 549.2 - Quality Control												
Batch: A917100											Prepared: 11/13/2019	
Prep Method: EPA 549.2											Analyst: ANM	
Blank (A917100-BLK1)												
Diquat	ND	0.071	0.40	ug/L							11/14/19	
Blank Spike (A917100-BS1)												
Diquat	3.1	0.071	0.40	ug/L	4.0		77	70-130			11/14/19	
Blank Spike Dup (A917100-BSD1)												
Diquat	3.1	0.071	0.40	ug/L	4.0		77	70-130	0	30	11/14/19	
Matrix Spike (A917100-MS1), Source: A9K0686-01												
Diquat	2.3	0.071	0.40	ug/L	4.0	ND	59	70-130			11/14/19	MS1.0 ***Low***
Matrix Spike (A917100-MS2), Source: A9K0703-01												
Diquat	ND	0.071	0.40	ug/L	4.0	ND	0	70-130			11/14/19	MS1.0 ***Low***
SRL 524M-TCP - Quality Control												
Batch: A917169											Prepared: 11/13/2019	
Prep Method: no prep-volatiles											Analyst: ANM	
Blank (A917169-BLK1)												

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SRL 524M-TCP - Quality Control												
Batch: A917169											Prepared: 11/13/2019	
Prep Method: no prep-volatiles											Analyst: ANM	
Blank (A917169-BLK1)												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L							11/14/19	
Blank Spike (A917169-BS1)												
1,2,3-Trichloropropane	0.0044	0.0014	0.0050	ug/L	0.0050		88	80-120			11/14/19	J
Blank Spike Dup (A917169-BSD1)												
1,2,3-Trichloropropane	0.0050	0.0014	0.0050	ug/L	0.0050		99	80-120	12	30	11/14/19	J
Duplicate (A917169-DUP1), Source: A9K0988-01												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L		ND				20	11/14/19	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

Aggressive Index	Chlorothalonil	Trifluralin
Langelier Index	Threshold Odor	1,2,3-Trichloropropane

Certificate of Analysis

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

	2435		
Fresno			
State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-013
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-013
EPA - UCMR4	CA00079	State of Washington	C997-19d
San Bernardino			
State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-004	State of Oregon - NELAP	4119-004
Vancouver			
NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-012
State of Washington	C824-19		

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
Date needed:

A9K0979 clare4404 11/12/2019

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*Required Fields Temp: Thermometer ID:

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Claremont Land Group	Geralyn Skapik Additional cc's: Christofer Coppinger, John Bissel	John Bissel - Hansji PO#:	(909) 398-4404 E-mail*: gskapik@skapiklaw.com	

Address*:	City*:	State*:	Zip*:
5861 Pine Ave, Suite A-1	Chino Hills	CA	91709

Project:

Project #: A9K0979

Reporting Options: ☒ Trace (J-Flag) ☐ Swamp ☐ EDD Type: _____

Sampler Name (Printed/Signature)*: Alexander Arita

Regulatory Carbon Copies: ☐ SWRCB (Drinking Water) ☐ Merced Co ☐ Fresno Co ☐ Madera Co ☐ Tulare Co ☐ Other: _____

Regulatory Compliance: ☐ EDT to California SWRCB (Drinking Water) System Number*: _____ ☐ Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
26G(B) 1	[redacted]	11/11/19	12:00	DW		X	X	X	X	X			X	X
4	Trip Blank - TCP - Raw - Lot# 1119003			TB						X				
5	Trip Blank - 504 - Lot# 1019068			TB							X			
6	Trip Blank - 524 - Raw - Lot# 1119009			TB								X		
	Revised COC created by EMP													

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: PIA#:	Check / Cash Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____ **Custody Seal:** Y / N

Cooling Method: Wet Blue None **Chilling Process Begun:** Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

@ 4.4

Turnaround Time Request
- [x] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
- Date needed:

A9K0979 clare4404 11/12/2019 20

*Required Fields

Temp: 2.8° Thermometer ID: 54

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Hansji Corporation	John Bissel Additional cc's: Christofer Coppinger, Geralyn Skapik	Arun Malhotra PO#:	(714) 399-0152 E-mail*: johnb@hansji.com	

Address*:	City*:	State*:	Zip*:
631 W. Katella Ave., 5th Floor	Anaheim	CA	92802

Project:

Project #:

Reporting Options:
- [x] Trace (J-Flag)
- [ ] Swamp
- [ ] EDD Type:

Sampler Name (Printed/Signature)*: Alexander Arita (AA)

Regulatory Carbon Copies
- [ ] SWRCB (Drinking Water)
- [ ] Merced Co
- [ ] Fresno Co
- [ ] Madera Co
- [ ] Tulare Co
- [ ] Other:

Regulatory Compliance
- [ ] EDT to California SWRCB (Drinking Water)
- System Number*:
- [ ] Geotracker #:

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
26G(B) 1	[redacted]	11/11/19	12:00	DW		X	X	X	X	X			X	X
26G(A) 2	[redacted]	11/11/19	14:30	DW	High air content in water.	X	X	X	X	X			X	X
26G(C) 3	[redacted]	11/11/19	13:30	DW		X	X	X	X	X			X	X
4	Trip Blank - TCP - Lot# 1119003									X				
5	Trip Blank - 504 - Lot# 1119006										X			
6	Trip Blank - 524 - Lot# 1119009											X		
7	Terra V. Well No. 1	11/12/19	10:40	DW		X	X	X	X	X			X	X
8	Terra V. Well No 2	11/12/19	11:40	DW		X	X	X	X	X			X	X
9	TCP TB 1019035													
10	~~504~~ TB 1019036													
11	~~524~~ TB ~~TB~~ & 1019007													
	* MCL Notified 1855													

See Revised COC 01/27/2020 JR

Radon

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Alexander Arita	Geoscience	11/12/19	15:57		
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: PIA#:	Check / Cash Init.
		11/12/19	1557		

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier:

Cooling Method: Wet Blue None

Foam

Custody Seal: Y / N

Chilling Process Begun: Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually noted otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

SR-FL-0912-08

Field sampling parameters:

26G(B)	26G(A)	26G(C)	Terra VI Well No. 1	Terra VI Well No. 2
[redacted] -	[redacted]	[redacted]		
0.53 NTU	0.62 NTU	3.03 NTU	27.7 NTU	2.67 NTU
@ 26.2 pH @ 13.2 C	173 uS @ 12.5 C	223 uS @ 13.8 C	354 uS @ 13.2 C	346 uS @ 13.8 C
436 uS @ 12.4 C	8.15 pH @ 12.5 C	9.11 pH @ 14.1 C	7.73 pH @ 13.1 C	8.53 pH @ 14.3 C

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Sample Integrity

BSK Bottles: (Yes) No Page 1 of 2

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) NA; Yes No NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes (No) NA

Bottles Received ("_" means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	1-3	4	5	6	7-8
Bacti $Na_2S_2O_3$	—	—	1				1
None (P) White Cap	—	—	2C				2C
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	(P) F	1A				1A
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	4C/1B				4C/1B
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	(P) F	1A				1A
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	2C, 1B				2C/1B
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	3V	2V, TB			3V
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	2C				2C
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	1A				1A
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	1C				1C
$Na_2S_2O_3$ (AG) Blue Label - 548, THM, 524	—	—	1A				1A
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	2V		2V/TB		2V
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	(P) F	1V				1V
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V			2V,TB	3V
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	1C				1C
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					3V
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P		Initial & Time		S P			

Labeled by: VLT 17:30

Labels Checked by: KMH 17:50

Comments

✓ **Indicates Blanks Received**

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned:

Sample Integrity

BSK Bottles: (Yes) No Page 2 of 2

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) NA Yes (No) NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes (No) NA

Bottles Received — "-" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	9	10	11		
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	2VTD				
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—		2VTD			
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—			2VTD		
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Initial & Time Labeled by: VH 17:30

Labels Checked by: KMH 17:50

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned:

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

January 24, 2020 Ceres ID: 13153-Rev1

BSK Associates
1414 Stanislaus St.
Fresno, CA 93706

The following report contains the results for the one drinking water sample received on November 14, 2019. This sample was analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under your Subcontract Order # A9K0979.

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date	&Time
13153-001	[redacted] 26G(B) A9K0979-01	11/14/2019	11/11/2019	12:00

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Method Blank**	**QC Batch #:** 2088	**Date Received:** NA
	Matrix: Drinking Water	**Date Extracted:** 11/26/2019
Project ID: A9K0979	**Sample Size:** 1.000 L	**ZB-5MS Analysis:** 11/26/2019

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 4.35	1.49	5.00		13C-2378-TCDD	88.5	31-137	
					CRS			
					37Cl4-2378-TCDD	64.6	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Ongoing Precision and Recovery**		**Date Received:** NA
	QC Batch #: 2088	**Date Extracted:** 11/26/2019
	Matrix: Drinking Water	**ZB-5MS Analysis:** 11/26/2019
Project ID: A9K0979	**Sample Size:** 1.000 L	

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	7.43	7.3-14.6	13C-2378-TCDD	95.5	25-141
			CRS 37Cl4-2378-TCDD	81.4	37-158
			(a) Limits based on method acceptance criteria.		

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

26G(B)

Client Sample ID: [redacted] A9K0979-01		
Project ID: A9K0979	**Ceres Sample ID:** 13153-001	**Date Received:** 11/14/2019
	QC Batch #: 2088	**Date Extracted:** 11/26/2019
Date Collected: 11/11/2019	**Matrix:** Drinking Water	**ZB-5MS Analysis:** 11/26/2019
Time Collected: 12:00	**Sample Size:** 1.028 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.00	1.49	4.86		13C-2378-TCDD	93.2	31-137	
					CRS			
					37Cl4-2378-TCDD	78.3	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

A9K0979

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

Ceres Analytical Laboratory, Inc
4919 Windplay Drive, Suite 1
El Dorado Hills, CA 95762
Phone :(916) 932-5011
Fax: -
Turnaround (Days): 20
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9K0979-01	[redacted] 26G(B)	**Client Matrix** Drinking Water	**11/11/2019 12:00**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Shipped Trace Reporting, No EDT Required	

Revised COC

Released By	Date	Received By	Date
Released By	Date	Received By	Date

BSK ASSOCIATES

SUBCONTRACT ORDER

A9K0979

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

Ceres Analytical Laboratory, Inc
4919 Windplay Drive, Suite 1
El Dorado Hills, CA 95762
Phone :(916) 932-5011
Fax: -
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9K0979-01	[redacted]26G(B)	**Client Matrix** Drinking Water	**11/11/2019 12:00**
Lab Matrix:	Water		
	Analysis: EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Trace Reporting, No EDT Required	
A9K0979-02	[redacted]26G(A)	**Client Matrix** Drinking Water	**11/11/2019 14:30**
Lab Matrix:	Water		
	Analysis: EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Trace Reporting, No EDT Required	
A9K0979-03	[redacted]26G(C)	**Client Matrix** Drinking Water	**11/11/2019 13:30**
Lab Matrix:	Water		
	Analysis: EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Trace Reporting, No EDT Required	
A9K0979-07	**Terra Vi Well No.1**	**Client Matrix** Drinking Water	**11/12/2019 10:40**
Lab Matrix:	Water		
	Analysis: EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Trace Reporting, No EDT Required	
A9K0979-08	**Terra Vi Well No.2**	**Client Matrix** Drinking Water	**11/12/2019 11:40**
Lab Matrix:	Water		
	Analysis: EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Trace Reporting, No EDT Required	

Released By	Date	Received By	Date
[signature]	11-13-19	[signature]	11/14/19 09:56
Released By	Date	Received By	Date

Sample Receipt Check List Logged by: _____ (initials)

Ceres ID: 13153	Date/Time: 11/14/19 09:56
Client Project ID: A9K0979	Received Temp: 4.7 °C Acceptable: Y / N
Chain of Custody Relinquished by signed?	Y / N
Chain of Custody Received by signed?	Y / N
Custody Seals? Present?	Y / N
Intact?	Y / N
NA:	NA
Unlabeled / Illegible Samples	Y / N
Proper Containers:	Y / N
Preservation Acceptable (Chemical or Temperature)?	Y / N
Drinking Water, Sodium Thiosulfate present?	Y / N / NA
Residual Cl?	Y / N
Aqueous sample pH: 7.6, 7.7, 7	

List COC discrepancies:

List Damaged Samples:

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 321924383
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Elaine M. Phillips
BSK Analytical Laboratories
1414 Stanislaus Street
Fresno, CA 93706

Phone: (559) 497-2888
Fax:
Received: 11/13/2019
Analyzed: 11/24/2019

Proj: A9K0979

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
							MFL (million fibers per liter)		
A9K0979-01 321924383-0001	11/21/2019 12:20 PM	100	1288	0.0650	None Detected	ND	0.20	<0.20	0.00 - 0.73

Collection Date/Time: 11/11/2019 12:00 PM

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Per client request, report revised with samples A9K0979-02 reported on 322000420, A9K0979-03 reported on 322000425, A9K0979-07 and A9K0979-08 report on 322000428.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Report amended: 01/10/2020 13:58:03 Replaces initial report from:11/26/2019 06:40:43 Reason Code: Client-Change to Appearance

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested. This report may not be reproduced, except in full, without written permission by LA Testing. Samples received in good condition unless otherwise noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917173
Customer : 2-22939

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
[redacted] 26G(B)	11/11/2019	11/14/2019	SP 1917173-001	DW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	11/26/2019:218512 All analysis quality controls are within established criteria
	11/19/2019:213335 All preparation quality controls are within established criteria
903.0	11/21/2019:218263 All analysis quality controls are within established criteria
	11/14/2019:213183 All preparation quality controls are within established criteria
Ra - 05	12/02/2019:218826 All analysis quality controls are within established criteria
	11/21/2019:213195 All preparation quality controls are within established criteria

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CA ELAP Certification No. 2775

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9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX: [illegible]
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917173
BSK Associates Engineers & Laboratories Customer : 2-22939

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2019-12-18

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917173-001
Customer ID : 2-22939

Sampled On : November 11, 2019-12:00
Sampled By : Not Available
Received On : November 14, 2019-10:45
Matrix : Drinking Water

Description : [redacted] 26G(B)
Project : A9K0979-01

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry								
Gross Alpha	8.06 ± 1.20	1.06	pCi/L	15/5	900.0	11/19/19-09:01 2P1913335	900.0	11/26/19-15:46 2A1918512
Total Alpha Radium (226)	0.201 ± 0.158	0.362	pCi/L	3	903.0	11/14/19-18:00 2P1913183	903.0	11/21/19-08:27 2A1918263
Ra 228	0.273 ± 0.693	0.505	pCi/L	2	Ra - 05	11/21/19-18:30 2P1913195	Ra - 05	12/02/19-19:10 2A1918826

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

Corporate Offices & Laboratory
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Santa Paula, CA 93060
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CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917173
BSK Associates Engineers & Laboratories Customer : 2-22939

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	11/26/19:218512JCA	CCV	cpm	8120	40.1 %	35-47	
			CCB	cpm		0.1400	0.16	
Gross Alpha	900.0	11/19/19:213335IWC	Blank	pCi/L		0.63	3	
			LCS	pCi/L	155.2	94.8 %	75-125	
			MS	pCi/L	155.2	115 %	60-140	
		(VI 1946767-001)	MSD	pCi/L	155.2	111 %	60-140	
			MSRPD	pCi/L	155.2	3.1%	≤30	
Alpha	903.0	11/21/19:218263JCA	CCV	cpm	8123	39.4 %	37-46	
			CCB	cpm		0.1400	0.16	
Total Alpha Radium (226)	903.0	11/14/19:213183emv	RgBlk	pCi/L		0.03	2	
			LCS	pCi/L	23.33	57.7 %	52-107	
			BS	pCi/L	23.33	58.4 %	43-111	
			BSD	pCi/L	23.33	59.5 %	43-111	
			BSRPD	pCi/L	23.33	1.9%	≤35.5	
Beta	Ra - 05	12/02/19:218826emv	CCV	cpm	8116	89.1 %	84-94	
			CCB	cpm		0.4600	0.58	
Ra 228	Ra - 05	11/21/19:213195emv	RgBlk	pCi/L		-0.03	3	
			LRS	pCi/L	14.13	69.9 %	65-108	
			BS	pCi/L	14.13	93.8 %	75-125	
			BSD	pCi/L	14.13	92.0 %	75-125	
			BSRPD	pCi/L	14.13	0.25	≤3	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

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TEL: (530)343-5818
FAX: (530)343-3807
CA ELAP Certification No. 2670

Office & Laboratory
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
TEL: (805)783-2940
FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX:
CA ELAP Certification No. 2810

Chain of Custody

Map Re

Client: **BSK Associates**

Address: BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Phone: (559)497-2888 Xt116 Fax: (559)485-69356132442

Contact Person: Adam Trevarrow

Project Name: **A9K0979-01**

Purchase Order Number:

Sampler(s) Not Available

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **SP 1917173** 2-22939

Method of Sampling: Composite(C) Grab(G)

Type of Sample **SEE REVERSE SIDE**

Potable(P) Non-Potable(NP) Ag Water(AgW)

Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)

Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling	Type of Sample	Potable(P)	Bacti Type	Bacti Reason	Radio Chemistry-Gross Alpha,Total Radium 226,Ra 228 32oz(P)-HNO3 , 32oz(P)-HNO3									
1	[redacted] 26G(B)	11/11/19	12:00	G	DW				2,1									

Remarks:
Original COC #1915352

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
OnTrac								
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:
Shawn Peck	11/14/19	10:45						

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

A9L1804
1/27/2020
Invoice: AD01461

Geralyn Skapik
Claremont Land Group
5861 Pine Ave, Suite A-1
Chino Hills, CA 91709

RE: Report for A9L1804 Yosemite Title 22 Testing

Dear Geralyn Skapik,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 11/12/2019. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Elaine M. Phillips , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Elaine M. Phillips, Project Coordinator

Accredited in Accordance with NELAP
ORELAP #4021-009

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Claremont Land Group	**Invoice To:**	Hansji Corporation
Report To:	Geralyn Skapik	**Invoice Attn:**	John Bissel
Project #:	[redacted] 26G(C)	**Project PO#:**	-
Received:	11/12/2019 - 15:57		
Report Due:	12/30/2019		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 2.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Foam
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Chain of Custody Notes

Date: 1/27/2020
Initials: EMP
Note: Moved data from A9K0979-03 for [redacted] 26G(C) **to Work Order A9L1804, as per client request.**

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B2.0	Analyte present in the method blank above the method detection limit (MDL). Laboratory does not determine batch acceptance on detections below the reporting limit (RL).
B2.4	Analyte detected in associated method blank below the reporting limit. Sample concentration exceeds 10x the amount present and is not materially impacted by this condition.
BS	Blank spike recoveries did not meet acceptance limits.
BS1.0	Blank spike recovery for this analyte was biased high; no material impact on reported result as sample is ND for this parameter.
CV0.0	CCV recovery was above method acceptance limits; no material impact on reported result as sample detection is below the reporting limit for this parameter.
HT2.0	Holding time exceeded. Sample was received at the lab past recommended holding time.
J	Estimated value
MC Notify	Positive Notification: John Bissel 11/14/19 1043
MS1.0	Matrix spike recoveries exceed control limits.
MS1.6	Matrix Spike recovery meets the wider acceptance criteria of 50-150% when the spike level is at or below the reporting limit (RL).
OD.h	Chemical/Hydrocarbon Miscellaneous

Report Distribution

Recipient(s)	Report Format	CC:
Geralyn Skapik	MCL.RPT	
Christofer Coppinger	MCL.RPT	
John Bissel	MCL.RPT	

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Certificate of Analysis

Sample ID: A9L1804-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(C)

Sample Date - Time: 11/11/2019 - 13:30
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=9.11 Temp=14.1 ºC Cond.=223 umho Turb. =3.03 ntu

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aggressive Index		**12**						A917677	11/22/19	11/22/19	
Alkalinity as CaCO3	SM 2320B	**120**		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Bicarbonate as CaCO3	SM 2320B	**120**		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Carbonate as CaCO3	SM 2320B	ND		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Hydroxide as CaCO3	SM 2320B	ND		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Chloride	EPA 300.0	**1.0**	0.51	1.0	mg/L	1		A917080	11/12/19	11/12/19	
Color, Apparent	SM 2120B	ND		5.0	CU	1		A916681	11/12/19 19:28	11/12/19	
Color pH (1)	SM 4500-H+ B	**8.1**			pH Units	1		A916681	11/12/19	11/12/19	
Cyanide (total)	SM 4500-CN E	ND	0.0022	0.0050	mg/L	1	0.15	A917193	11/14/19	11/19/19	
Conductivity @ 25C	SM 2510B	**230**		1.0	umhos/cm	1		A917122	11/13/19	11/13/19	
Fluoride	EPA 300.0	**0.14**	0.042	0.10	mg/L	1	2	A917080	11/12/19	11/12/19	
Hexavalent Chromium	EPA 218.7	**0.054**	0.011	0.050	ug/L	1	50	A917182	11/14/19	11/14/19	
Langelier Index	SM 2330B	**-0.26**						A917686	11/22/19	11/22/19	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.021	0.050	mg/L	1		A917050	11/12/19 18:50	11/12/19	
Nitrate + Nitrite as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A917080	11/12/19 23:15	11/12/19	
Nitrate as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A917080	11/12/19 23:15	11/12/19	
Nitrite as N	EPA 300.0	ND	0.020	0.050	mg/L	1	1	A917080	11/12/19 23:15	11/12/19	
Threshold Odor	SM 2150B	ND		1.0	T.O.N.	1		A916905	11/12/19 18:18	11/12/19	HT2.0, OD.h
Perchlorate	EPA 314.0	ND	0.61	2.0	ug/L	1	6	A917054	11/13/19	11/13/19	
pH (1)	SM 4500-H+ B	**8.2**			pH Units	1		A917122	11/13/19	11/13/19	
pH Temperature in °C		**23.6**									
Sulfate as SO4	EPA 300.0	**2.8**	0.40	1.0	mg/L	1		A917080	11/12/19	11/12/19	
Total Dissolved Solids	SM 2540C	**150**		5.0	mg/L	1		A917174	11/14/19	11/19/19	
Turbidity	SM 2130B	**1.9**		0.10	NTU	1		A916681	11/12/19 19:44	11/12/19	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	**0.26**	0.023	0.050	mg/L	1	1	A917108	11/13/19	11/20/19	
Antimony	EPA 200.8	ND	0.91	2.0	ug/L	1	6	A917108	11/13/19	11/21/19	
Arsenic	EPA 200.8	ND	1.2	2.0	ug/L	1	10	A917108	11/13/19	11/21/19	
Barium	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A917108	11/13/19	11/20/19	
Beryllium	EPA 200.8	ND	0.45	1.0	ug/L	1	4	A917108	11/13/19	11/21/19	
Cadmium	EPA 200.8	ND	0.45	1.0	ug/L	1	5	A917108	11/13/19	11/21/19	
Calcium	EPA 200.7	**10**	0.046	0.10	mg/L	1		A917108	11/13/19	11/20/19	
Chromium	EPA 200.8	ND	4.5	10	ug/L	1	50	A917108	11/13/19	11/21/19	
Copper	EPA 200.8	ND	2.3	5.0	ug/L	1		A917108	11/13/19	11/21/19	
Iron	EPA 200.7	**0.39**	0.014	0.030	mg/L	1		A917108	11/13/19	11/20/19	
Lead	EPA 200.8	ND	0.45	1.0	ug/L	1		A917108	11/13/19	11/21/19	
Magnesium	EPA 200.7	**1.1**	0.046	0.10	mg/L	1		A917108	11/13/19	11/20/19	

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Certificate of Analysis

Sample ID: A9L1804-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(C)

Sample Date - Time: 11/11/2019 - 13:30
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=9.11 Temp=14.1 ºC Cond.=223 umho Turb. =3.03 ntu

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Manganese	EPA 200.7	**0.0094**	0.0045	0.010	mg/L	1		A917108	11/13/19	11/20/19	J
Mercury	EPA 200.8	ND	0.091	0.20	ug/L	1	2	A917108	11/13/19	11/21/19	
Nickel	EPA 200.8	ND	4.5	10	ug/L	1	100	A917108	11/13/19	11/21/19	
Potassium	EPA 200.7	ND	0.91	2.0	mg/L	1		A917108	11/13/19	11/20/19	
Selenium	EPA 200.8	ND	0.91	2.0	ug/L	1	50	A917108	11/13/19	11/21/19	
Silver	EPA 200.8	ND	4.5	10	ug/L	1		A917108	11/13/19	11/21/19	
Sodium	EPA 200.7	**45**	0.45	1.0	mg/L	1		A917108	11/13/19	11/20/19	
Thallium	EPA 200.8	ND	0.45	1.0	ug/L	1	2	A917108	11/13/19	11/21/19	
Hardness as CaCO3	SM 2340B	**30**		0.41	mg/L						
Uranium	EPA 200.8	**0.77**	0.45	1.0	ug/L	1	30	A917108	11/13/19	11/21/19	J
Uranium, Radiological		**< 0.67**		0.67	pCi/L		20				
Zinc	EPA 200.7	ND	0.023	0.050	mg/L	1		A917108	11/13/19	11/20/19	

Microbiology

Analyte	Method	Result	RL	Units	Batch	Prepared	Analyzed	Qual
Coliform, Total and E.Coli by Quanti-Tray 51 Wells								
E. Coli	SM 9223B	**<1**	1	MPN/100 mL	A917073	11/12/19 17:50	12/13/19 13:51	
Total Coliform	SM 9223B	**53.1**	1	MPN/100 mL	A917073	11/12/19 17:50	12/13/19 13:51	MC Notify

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
EDB and DBCP by GC-ECD											
Dibromochloropropane (DBCP)	EPA 504.1	ND	0.0060	0.010	ug/L	1	0.2	A917099	11/13/19	11/14/19	
Ethylene Dibromide (EDB)	EPA 504.1	ND	0.0050	0.020	ug/L	1	0.05	A917099	11/13/19	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 504.1	110 %		*Acceptable range: 70-130 %*							
Organohalide Pesticides and PCBs by GC-ECD											
Aldrin	EPA 505	ND	0.022	0.075	ug/L	1		A917099	11/13/19	11/14/19	
Chlordane (Technical)	EPA 505	ND	0.091	0.10	ug/L	1	0.1	A917099	11/13/19	11/14/19	
Dieldrin	EPA 505	ND	0.0042	0.020	ug/L	1		A917099	11/13/19	11/14/19	
Endrin	EPA 505	ND	0.0037	0.10	ug/L	1	2	A917099	11/13/19	11/14/19	
Heptachlor	EPA 505	ND	0.0052	0.010	ug/L	1	0.01	A917099	11/13/19	11/14/19	
Heptachlor Epoxide	EPA 505	ND	0.0048	0.010	ug/L	1	0.01	A917099	11/13/19	11/14/19	
Hexachlorobenzene	EPA 505	ND	0.032	0.50	ug/L	1	1	A917099	11/13/19	11/14/19	
Hexachlorocyclopentadiene	EPA 505	ND	0.041	1.0	ug/L	1	50	A917099	11/13/19	11/14/19	
Lindane	EPA 505	ND	0.0059	0.20	ug/L	1	0.2	A917099	11/13/19	11/14/19	
Methoxychlor	EPA 505	ND	0.031	10	ug/L	1	30	A917099	11/13/19	11/14/19	
PCB Aroclor Screen	EPA 505	ND	0.078	0.50	ug/L	1	0.5	A917099	11/13/19	11/14/19	
Toxaphene	EPA 505	ND	0.33	1.0	ug/L	1	3	A917099	11/13/19	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 505	110 %		*Acceptable range: 70-130 %*							
Chlorinated Acid Herbicides by GC-ECD											

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1804-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(C)

Sample Date - Time: 11/11/2019 - 13:30
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=9.11 Temp=14.1 ºC Cond.=223 umho Turb. =3.03 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-T	EPA 515.4	ND	0.13	1.0	ug/L	1		A917083	11/12/19	11/14/19	
2,4,5-TP (Silvex)	EPA 515.4	ND	0.016	1.0	ug/L	1	50	A917083	11/12/19	11/14/19	
2,4-D	EPA 515.4	ND	0.074	10	ug/L	1	70	A917083	11/12/19	11/14/19	
Bentazon	EPA 515.4	ND	1.3	2.0	ug/L	1	18	A917083	11/12/19	11/14/19	
Dalapon	EPA 515.4	ND	0.58	10	ug/L	1	200	A917083	11/12/19	11/14/19	
Dicamba	EPA 515.4	ND	0.13	1.5	ug/L	1		A917083	11/12/19	11/14/19	
Dinoseb	EPA 515.4	ND	0.032	2.0	ug/L	1	7	A917083	11/12/19	11/14/19	
Pentachlorophenol	EPA 515.4	ND	0.011	0.20	ug/L	1	1	A917083	11/12/19	11/14/19	
Picloram	EPA 515.4	ND	0.084	1.0	ug/L	1	500	A917083	11/12/19	11/14/19	
Surrogate: DCPAA	EPA 515.4	126 %			*Acceptable range: 70-130 %*						
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A917163	11/14/19	11/14/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A917163	11/14/19	11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A917163	11/14/19	11/14/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A917163	11/14/19	11/14/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A917163	11/14/19	11/14/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917163	11/14/19	11/14/19	
2-Butanone	EPA 524.2	**1.8**	0.42	5.0	ug/L	1		A917163	11/14/19	11/14/19	J
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A917163	11/14/19	11/14/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A917163	11/14/19	11/14/19	
Acetone	EPA 524.2	**5.5**	3.4	10	ug/L	1		A917163	11/14/19	11/14/19	J
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A917163	11/14/19	11/14/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A917163	11/14/19	11/14/19	CV0.0
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	

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Certificate of Analysis

Sample ID: A9L1804-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(C)

Sample Date - Time: 11/11/2019 - 13:30
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=9.11 Temp=14.1 ºC Cond.=223 umho Turb. =3.03 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A917163	11/14/19	11/14/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A917163	11/14/19	11/14/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A917163	11/14/19	11/14/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917163	11/14/19	11/14/19	
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A917163	11/14/19	11/14/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917163	11/14/19	11/14/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Methyl-t-butyl ether	EPA 524.2	ND	0.083	0.50	ug/L	1	13	A917163	11/14/19	11/14/19	
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A917163	11/14/19	11/14/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917163	11/14/19	11/14/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A917163	11/14/19	11/14/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917163	11/14/19	11/14/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A917163	11/14/19	11/14/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Toluene	EPA 524.2	**54**	0.32	0.50	ug/L	1	150	A917163	11/14/19	11/14/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A917163	11/14/19	11/14/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A917163	11/14/19	11/14/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	110 %			*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	111 %			*Acceptable range: 70-130 %*						
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				
Semi-Volatile Organics by GC-MS											
Alachlor	EPA 525.3	ND	0.022	1.0	ug/L	1	2	A917200	11/14/19	11/21/19	
Atrazine	EPA 525.3	ND	0.0076	0.50	ug/L	1	1	A917200	11/14/19	11/21/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1804-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(C)

Sample Date - Time: 11/11/2019 - 13:30
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=9.11 Temp=14.1 ºC Cond.=223 umho Turb. =3.03 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Semi-Volatile Organics by GC-MS											
Benzo(a)pyrene	EPA 525.3	ND	0.0019	0.10	ug/L	1	0.2	A917200	11/14/19	11/21/19	
Bis(2-ethylhexyl) adipate	EPA 525.3	ND	0.067	3.0	ug/L	1	400	A917200	11/14/19	11/21/19	
Bis(2-ethylhexyl) phthalate	EPA 525.3	9.8	0.11	3.0	ug/L	1	4	A917200	11/14/19	11/21/19	B2.4
Bromacil	EPA 525.3	ND	0.028	10	ug/L	1		A917200	11/14/19	11/21/19	
Butachlor	EPA 525.3	ND	0.018	0.38	ug/L	1		A917200	11/14/19	11/21/19	
Diazinon	EPA 525.3	ND	0.0022	0.25	ug/L	1		A917200	11/14/19	11/21/19	
Dimethoate	EPA 525.3	ND	0.082	10	ug/L	1		A917200	11/14/19	11/21/19	BS1.0
Metolachlor	EPA 525.3	ND	0.011	0.50	ug/L	1		A917200	11/14/19	11/21/19	
Metribuzin	EPA 525.3	ND	0.0061	0.50	ug/L	1		A917200	11/14/19	11/21/19	
Molinate	EPA 525.3	ND	0.0061	2.0	ug/L	1	20	A917200	11/14/19	11/21/19	
Propachlor	EPA 525.3	ND	0.0056	0.50	ug/L	1		A917200	11/14/19	11/21/19	
Simazine	EPA 525.3	ND	0.0049	1.0	ug/L	1	4	A917200	11/14/19	11/21/19	
Thiobencarb	EPA 525.3	ND	0.0083	1.0	ug/L	1	70	A917200	11/14/19	11/21/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	EPA 525.3	92 %			*Acceptable range: 70-130 %*						
Surrogate: Benzo(a)pyrene-d12	EPA 525.3	93 %			*Acceptable range: 70-130 %*						
Surrogate: Triphenyl Phosphate	EPA 525.3	118 %			*Acceptable range: 70-130 %*						
Carbamates by HPLC											
3-Hydroxycarbofuran	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb Sulfone	EPA 531.1	ND	0.12	2.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb Sulfoxide	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Carbaryl	EPA 531.1	ND	0.22	5.0	ug/L	1		A917289	11/15/19	11/16/19	
Carbofuran	EPA 531.1	ND	0.27	5.0	ug/L	1	18	A917289	11/15/19	11/16/19	
Methomyl	EPA 531.1	ND	0.19	2.0	ug/L	1		A917289	11/15/19	11/16/19	
Oxamyl	EPA 531.1	ND	0.090	20	ug/L	1	50	A917289	11/15/19	11/16/19	
Glyphosate by HPLC											
Glyphosate	EPA 547	ND	2.1	25	ug/L	1	700	A917319	11/16/19	11/16/19	
Surrogate: AMPA	EPA 547	106 %			*Acceptable range: 70-130 %*						
Endothall by GC-MS											
Endothall	EPA 548.1	ND	1.6	45	ug/L	1	100	A917162	11/13/19	11/14/19	
Diquat by HPLC											
Diquat	EPA 549.2	ND	0.071	4.0	ug/L	1	20	A917100	11/13/19	11/14/19	
1,2,3-Trichloropropane by GC-MS SIM											
1,2,3-Trichloropropane	SRL 524M-TCP	ND	0.0014	0.0050	ug/L	1	0.005	A917192	11/14/19	11/14/19	

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Certificate of Analysis

Sample ID: A9L1804-02
Sampled By: BSK
Sample Description: Trip Blank 524 1119009

Sample Date - Time: 11/11/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A917282	11/15/19	11/15/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A917282	11/15/19	11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A917282	11/15/19	11/15/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A917282	11/15/19	11/15/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A917282	11/15/19	11/15/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917282	11/15/19	11/15/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A917282	11/15/19	11/15/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A917282	11/15/19	11/15/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A917282	11/15/19	11/15/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A917282	11/15/19	11/15/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A917282	11/15/19	11/15/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A917282	11/15/19	11/15/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A917282	11/15/19	11/15/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A917282	11/15/19	11/15/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917282	11/15/19	11/15/19	

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Certificate of Analysis

Sample ID: A9L1804-02
Sampled By: BSK
Sample Description: Trip Blank 524 1119009

Sample Date - Time: 11/11/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A917282	11/15/19	11/15/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917282	11/15/19	11/15/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Methyl-t-butyl ether	EPA 524.2	**0.13**	0.083	0.50	ug/L	1	13	A917282	11/15/19	11/15/19	J
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A917282	11/15/19	11/15/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917282	11/15/19	11/15/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A917282	11/15/19	11/15/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917282	11/15/19	11/15/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A917282	11/15/19	11/15/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A917282	11/15/19	11/15/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A917282	11/15/19	11/15/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A917282	11/15/19	11/15/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	116 %			*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	116 %			*Acceptable range: 70-130 %*						
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				

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BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 218.7 - Quality Control												
Batch: A917182											Prepared: 11/14/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A917182-BLK1)												
Hexavalent Chromium	ND	0.011	0.050	ug/L							11/14/19	
Blank Spike (A917182-BS1)												
Hexavalent Chromium	0.053	0.011	0.050	ug/L	0.050		106	50-150			11/14/19	
Matrix Spike (A917182-MS1), Source: A9K1128-01												
Hexavalent Chromium	2.2	0.011	0.050	ug/L	2.0	0.26	97	85-115			11/14/19	
Matrix Spike Dup (A917182-MSD1), Source: A9K1128-01												
Hexavalent Chromium	2.3	0.011	0.050	ug/L	2.0	0.26	100	85-115	3	15	11/14/19	
EPA 300.0 - Quality Control												
Batch: A917080											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A917080-BLK1)												
Chloride	ND	0.51	1.0	mg/L							11/12/19	
Fluoride	ND	0.042	0.10	mg/L							11/12/19	
Nitrate + Nitrite as N	ND	0.099	0.23	mg/L							11/12/19	
Nitrate as N	ND	0.099	0.23	mg/L							11/12/19	
Nitrite as N	ND	0.020	0.050	mg/L							11/12/19	
Sulfate as SO4	ND	0.40	1.0	mg/L							11/12/19	
Blank Spike (A917080-BS1)												
Chloride	96	0.51	1.0	mg/L	100		96	90-110			11/12/19	
Fluoride	0.95	0.042	0.10	mg/L	1.0		95	90-110			11/12/19	
Nitrate as N	21	0.099	0.23	mg/L	23		95	90-110			11/12/19	
Nitrite as N	1.0	0.020	0.050	mg/L	1.0		104	90-110			11/12/19	
Sulfate as SO4	97	0.40	1.0	mg/L	100		97	90-110			11/12/19	
Matrix Spike (A917080-MS1), Source: A9K0979-01												
Chloride	48	0.51	1.0	mg/L	50	1.1	94	80-120			11/12/19	
Fluoride	0.49	0.042	0.10	mg/L	0.50	0.045	89	80-120			11/12/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	90	80-120			11/12/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	95	50-110			11/12/19	
Sulfate as SO4	54	0.40	1.0	mg/L	50	6.5	95	80-120			11/12/19	
Matrix Spike (A917080-MS2), Source: A9K0907-13												
Chloride	55	0.51	1.0	mg/L	50	6.9	96	80-120			11/13/19	
Fluoride	0.55	0.042	0.10	mg/L	0.50	0.097	91	80-120			11/13/19	
Nitrate as N	15	0.099	0.23	mg/L	11	3.8	95	80-120			11/13/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	95	50-110			11/13/19	
Sulfate as SO4	56	0.40	1.0	mg/L	50	7.6	96	80-120			11/13/19	
Matrix Spike Dup (A917080-MSD1), Source: A9K0979-01												
Chloride	49	0.51	1.0	mg/L	50	1.1	95	80-120	1	20	11/12/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control												
Batch: A917080											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Matrix Spike Dup (A917080-MSD1), Source: A9K0979-01												
Fluoride	0.50	0.042	0.10	mg/L	0.50	0.045	90	80-120	1	10	11/12/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	92	80-120	1	20	11/12/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	95	50-110	0	20	11/12/19	
Sulfate as SO4	55	0.40	1.0	mg/L	50	6.5	97	80-120	1	20	11/12/19	
Matrix Spike Dup (A917080-MSD2), Source: A9K0907-13												
Chloride	55	0.51	1.0	mg/L	50	6.9	97	80-120	1	20	11/13/19	
Fluoride	0.55	0.042	0.10	mg/L	0.50	0.097	91	80-120	1	10	11/13/19	
Nitrate as N	15	0.099	0.23	mg/L	11	3.8	97	80-120	1	20	11/13/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	97	50-110	1	20	11/13/19	
Sulfate as SO4	56	0.40	1.0	mg/L	50	7.6	98	80-120	1	20	11/13/19	
EPA 314.0 - Quality Control												
Batch: A917054											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: RES	
Blank (A917054-BLK1)												
Perchlorate	ND	0.61	2.0	ug/L							11/13/19	
Blank Spike (A917054-BS1)												
Perchlorate	14	0.61	2.0	ug/L	15		95	85-115			11/13/19	
Matrix Spike (A917054-MS1), Source: A9K0524-01RE1												
Perchlorate	8.9	1.2	4.0	ug/L	10	ND	89	80-120			11/13/19	
Matrix Spike Dup (A917054-MSD1), Source: A9K0524-01RE1												
Perchlorate	8.0	1.2	4.0	ug/L	10	ND	80	80-120	11	15	11/13/19	
SM 2120B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												
Color, Apparent	ND		5.0	CU							11/12/19	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Color, Apparent	20		5.0	CU		20			0	20	11/12/19	
Duplicate (A916681-DUP2), Source: A9K0992-01												
Color, Apparent	ND		5.0	CU		ND				20	11/12/19	
SM 2130B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2130B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												
Turbidity	ND		0.10	NTU							11/12/19	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Turbidity	19		0.10	NTU		19			2	20	11/12/19	
SM 2150B - Quality Control												
Batch: A916905											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A916905-BLK1)												
Threshold Odor	ND		1.0	T.O.N.							11/12/19	
Blank (A916905-BLK2)												
Threshold Odor	ND		1.0	T.O.N.							11/12/19	
SM 2320B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A917122-BLK1)												
Alkalinity as CaCO3	ND		3.0	mg/L							11/13/19	
Bicarbonate as CaCO3	ND		3.0	mg/L							11/13/19	
Carbonate as CaCO3	ND		3.0	mg/L							11/13/19	
Hydroxide as CaCO3	ND		3.0	mg/L							11/13/19	
Blank Spike (A917122-BS1)												
Alkalinity as CaCO3	95		3.0	mg/L	100	ND	95	80-120			11/13/19	
Blank Spike Dup (A917122-BSD1)												
Alkalinity as CaCO3	96		3.0	mg/L	100	ND	96	80-120	1	20	11/13/19	
Duplicate (A917122-DUP1), Source: A9K0992-01												
Alkalinity as CaCO3	82		3.0	mg/L		85			4	10	11/13/19	
Bicarbonate as CaCO3	82		3.0	mg/L		85			4	10	11/13/19	
Carbonate as CaCO3	ND		3.0	mg/L		ND				10	11/13/19	
Hydroxide as CaCO3	ND		3.0	mg/L		ND				10	11/13/19	
SM 2510B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike (A917122-BS1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110			11/13/19	
Blank Spike Dup (A917122-BSD1)												

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2510B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike Dup (A917122-BSD1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110	0	5	11/13/19	
Duplicate (A917122-DUP1), Source: A9K0992-01												
Conductivity @ 25C	410		1.0	umhos/cm		410			0	5	11/13/19	
SM 2540C - Quality Control												
Batch: A917174											Prepared: 11/14/2019	
Prep Method: Method Specific Preparation											Analyst: DEH	
Blank (A917174-BLK1)												
Total Dissolved Solids	ND		5.0	mg/L							11/19/19	
Blank Spike (A917174-BS1)												
Total Dissolved Solids	990		5.0	mg/L	1000	ND	99	70-130			11/19/19	
Duplicate (A917174-DUP1), Source: A9K1039-01												
Total Dissolved Solids	440		5.0	mg/L		440			0	10	11/19/19	
Duplicate (A917174-DUP2), Source: A9K0821-01												
Total Dissolved Solids	260		5.0	mg/L		260			0	10	11/19/19	
SM 4500-CN E - Quality Control												
Batch: A917193											Prepared: 11/14/2019	
Prep Method: Total Cyanide Distillation											Analyst: CEG	
Blank (A917193-BLK1)												
Cyanide (total)	ND	0.0022	0.0050	mg/L							11/19/19	
Blank Spike (A917193-BS1)												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25		106	80-120			11/19/19	
Blank Spike Dup (A917193-BSD1)												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25		105	80-120	1	20	11/19/19	
Matrix Spike (A917193-MS1), Source: A9K1217-01												
Cyanide (total)	0.24	0.0022	0.0050	mg/L	0.25	ND	95	80-120			11/19/19	
Matrix Spike Dup (A917193-MSD1), Source: A9K1217-01												
Cyanide (total)	0.23	0.0022	0.0050	mg/L	0.25	ND	93	80-120	2	20	11/19/19	
SM 4500-H+ B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Duplicate (A916681-DUP1), Source: A9K0821-01												

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 4500-H+ B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Color pH (1)	7.80			pH Units		7.50			4		11/12/19	
Duplicate (A916681-DUP2), Source: A9K0992-01												
Color pH (1)	8.40			pH Units		8.40			0		11/12/19	
SM 4500-H+ B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Duplicate (A917122-DUP1), Source: A9K0992-01												
pH (1)	8.02			pH Units		8.02			0		11/13/19	
SM 5540C - Quality Control												
Batch: A917050											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: SYY	
Blank (A917050-BLK1)												
MBAS, Calculated as LAS, mol wt 340	ND	0.021	0.050	mg/L							11/12/19	
Blank Spike (A917050-BS1)												
MBAS, Calculated as LAS, mol wt 340	1.0	0.021	0.050	mg/L	1.0		103	82-112			11/12/19	
Blank Spike Dup (A917050-BSD1)												
MBAS, Calculated as LAS, mol wt 340	1.0	0.021	0.050	mg/L	1.0		103	82-112	0	20	11/12/19	
Matrix Spike (A917050-MS1), Source: A9K0851-01												
MBAS, Calculated as LAS, mol wt 340	0.65	0.021	0.050	mg/L	1.0	ND	65	80-112			11/12/19	MS1.0 ***Low***
Matrix Spike Dup (A917050-MSD1), Source: A9K0851-01												
MBAS, Calculated as LAS, mol wt 340	0.64	0.021	0.050	mg/L	1.0	ND	64	80-112	1	20	11/12/19	MS1.0 ***Low***

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MDS	
Blank (A917108-BLK2)												
Aluminum	ND	0.023	0.050	mg/L							11/20/19	
Barium	ND	0.023	0.050	mg/L							11/20/19	
Calcium	ND	0.046	0.10	mg/L							11/20/19	
Iron	ND	0.014	0.030	mg/L							11/20/19	
Magnesium	ND	0.046	0.10	mg/L							11/20/19	
Manganese	ND	0.0045	0.010	mg/L							11/20/19	
Potassium	ND	0.91	2.0	mg/L							11/20/19	
Sodium	ND	0.45	1.0	mg/L							11/20/19	
Zinc	ND	0.023	0.050	mg/L							11/20/19	
Blank Spike (A917108-BS2)												
Aluminum	0.22	0.023	0.050	mg/L	0.20		108	85-115			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20		100	85-115			11/20/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		97	85-115			11/20/19	
Iron	0.19	0.014	0.030	mg/L	0.20		96	85-115			11/20/19	
Magnesium	4.1	0.046	0.10	mg/L	4.0		102	85-115			11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20		104	85-115			11/20/19	
Potassium	4.1	0.91	2.0	mg/L	4.0		101	85-115			11/20/19	
Sodium	4.4	0.45	1.0	mg/L	4.0		109	85-115			11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20		98	85-115			11/20/19	
Blank Spike Dup (A917108-BSD2)												
Aluminum	0.21	0.023	0.050	mg/L	0.20		107	85-115	1	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20		100	85-115	0	20	11/20/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		97	85-115	1	20	11/20/19	
Iron	0.19	0.014	0.030	mg/L	0.20		96	85-115	1	20	11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0		101	85-115	1	20	11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20		103	85-115	1	20	11/20/19	
Potassium	4.0	0.91	2.0	mg/L	4.0		100	85-115	2	20	11/20/19	
Sodium	4.3	0.45	1.0	mg/L	4.0		108	85-115	1	20	11/20/19	
Zinc	0.19	0.023	0.050	mg/L	0.20		97	85-115	2	20	11/20/19	
Matrix Spike (A917108-MS3), Source: A9K0979-01												
Aluminum	0.23	0.023	0.050	mg/L	0.20	ND	117	70-130			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	100	70-130			11/20/19	
Calcium	84	0.046	0.10	mg/L	4.0	78	137	70-130			11/20/19	MS1.0 ***High***
Iron	0.20	0.014	0.030	mg/L	0.20	ND	102	70-130			11/20/19	
Magnesium	11	0.046	0.10	mg/L	4.0	7.6	87	70-130			11/20/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.012	103	70-130			11/20/19	
Potassium	5.0	0.91	2.0	mg/L	4.0	1.0	99	70-130			11/20/19	
Sodium	16	0.45	1.0	mg/L	4.0	12	110	70-130			11/20/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	103	70-130			11/20/19	
Matrix Spike (A917108-MS4), Source: A9K0988-01												
Aluminum	0.26	0.023	0.050	mg/L	0.20	0.029	114	70-130			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130			11/20/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MDS	
Matrix Spike (A917108-MS4), Source: A9K0988-01												
Calcium	7.1	0.046	0.10	mg/L	4.0	3.2	97	70-130			11/20/19	
Iron	0.23	0.014	0.030	mg/L	0.20	0.032	98	70-130			11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0	ND	101	70-130			11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20	ND	103	70-130			11/20/19	
Potassium	4.2	0.91	2.0	mg/L	4.0	ND	106	70-130			11/20/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	92	70-130			11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	100	70-130			11/20/19	
Matrix Spike Dup (A917108-MSD3), Source: A9K0979-01												
Aluminum	0.24	0.023	0.050	mg/L	0.20	ND	121	70-130	4	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	99	70-130	1	20	11/20/19	
Calcium	82	0.046	0.10	mg/L	4.0	78	84	70-130	3	20	11/20/19	
Iron	0.21	0.014	0.030	mg/L	0.20	ND	103	70-130	1	20	11/20/19	
Magnesium	11	0.046	0.10	mg/L	4.0	7.6	84	70-130	1	20	11/20/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.012	104	70-130	0	20	11/20/19	
Potassium	5.0	0.91	2.0	mg/L	4.0	1.0	100	70-130	1	20	11/20/19	
Sodium	16	0.45	1.0	mg/L	4.0	12	99	70-130	3	20	11/20/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	103	70-130	0	20	11/20/19	
Matrix Spike Dup (A917108-MSD4), Source: A9K0988-01												
Aluminum	0.24	0.023	0.050	mg/L	0.20	0.029	108	70-130	5	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130	1	20	11/20/19	
Calcium	7.0	0.046	0.10	mg/L	4.0	3.2	96	70-130	1	20	11/20/19	
Iron	0.23	0.014	0.030	mg/L	0.20	0.032	97	70-130	0	20	11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0	ND	100	70-130	1	20	11/20/19	
Manganese	0.20	0.0045	0.010	mg/L	0.20	ND	102	70-130	1	20	11/20/19	
Potassium	4.4	0.91	2.0	mg/L	4.0	ND	110	70-130	4	20	11/20/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	89	70-130	0	20	11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	99	70-130	1	20	11/20/19	
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A917108-BLK1)												
Antimony	ND	0.91	2.0	ug/L							11/21/19	
Arsenic	ND	1.2	2.0	ug/L							11/21/19	
Beryllium	ND	0.45	1.0	ug/L							11/21/19	
Cadmium	ND	0.45	1.0	ug/L							11/21/19	
Chromium	ND	4.5	10	ug/L							11/21/19	
Copper	ND	2.3	5.0	ug/L							11/21/19	
Lead	ND	0.45	1.0	ug/L							11/21/19	
Mercury	ND	0.091	0.20	ug/L							11/21/19	
Nickel	ND	4.5	10	ug/L							11/21/19	
Selenium	ND	0.91	2.0	ug/L							11/21/19	
Silver	ND	4.5	10	ug/L							11/21/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A917108-BLK1)												
Thallium	ND	0.45	1.0	ug/L							11/21/19	
Uranium	ND	0.45	1.0	ug/L							11/21/19	
Blank Spike (A917108-BS1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115			11/21/19	
Arsenic	190	1.2	2.0	ug/L	200		95	85-115			11/21/19	
Beryllium	190	0.45	1.0	ug/L	200		97	85-115			11/21/19	
Cadmium	200	0.45	1.0	ug/L	200		98	85-115			11/21/19	
Chromium	200	4.5	10	ug/L	200		98	85-115			11/21/19	
Copper	190	2.3	5.0	ug/L	200		96	85-115			11/21/19	
Lead	190	0.45	1.0	ug/L	200		94	85-115			11/21/19	
Mercury	5.2	0.091	0.20	ug/L	5.0		104	85-115			11/21/19	
Nickel	200	4.5	10	ug/L	200		98	85-115			11/21/19	
Selenium	180	0.91	2.0	ug/L	200		92	85-115			11/21/19	
Silver	94	4.5	10	ug/L	100		94	75-125			11/21/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115			11/21/19	
Uranium	190	0.45	1.0	ug/L	200		96	85-115			11/21/19	
Blank Spike Dup (A917108-BSD1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115	0	20	11/21/19	
Arsenic	190	1.2	2.0	ug/L	200		96	85-115	0	20	11/21/19	
Beryllium	200	0.45	1.0	ug/L	200		98	85-115	2	20	11/21/19	
Cadmium	190	0.45	1.0	ug/L	200		97	85-115	1	20	11/21/19	
Chromium	200	4.5	10	ug/L	200		100	85-115	1	20	11/21/19	
Copper	190	2.3	5.0	ug/L	200		97	85-115	0	20	11/21/19	
Lead	190	0.45	1.0	ug/L	200		95	85-115	1	20	11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0		103	85-115	1	20	11/21/19	
Nickel	200	4.5	10	ug/L	200		98	85-115	0	20	11/21/19	
Selenium	180	0.91	2.0	ug/L	200		90	85-115	2	20	11/21/19	
Silver	94	4.5	10	ug/L	100		94	75-125	0	20	11/21/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115	0	20	11/21/19	
Uranium	190	0.45	1.0	ug/L	200		95	85-115	1	20	11/21/19	
Matrix Spike (A917108-MS1), Source: A9K0979-01												
Antimony	210	0.91	2.0	ug/L	200	ND	104	70-130			11/21/19	
Arsenic	200	1.2	2.0	ug/L	200	1.5	97	70-130			11/21/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130			11/21/19	
Cadmium	200	0.45	1.0	ug/L	200	ND	99	70-130			11/21/19	
Chromium	200	4.5	10	ug/L	200	ND	100	70-130			11/21/19	
Copper	190	2.3	5.0	ug/L	200	ND	95	70-130			11/21/19	
Lead	180	0.45	1.0	ug/L	200	ND	92	70-130			11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0	ND	101	70-130			11/21/19	
Nickel	200	4.5	10	ug/L	200	ND	98	70-130			11/21/19	
Selenium	180	0.91	2.0	ug/L	200	ND	91	70-130			11/21/19	
Silver	93	4.5	10	ug/L	100	ND	93	70-130			11/21/19	
Thallium	180	0.45	1.0	ug/L	200	ND	92	70-130			11/21/19	

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BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Matrix Spike (A917108-MS1), Source: A9K0979-01												
Uranium	190	0.45	1.0	ug/L	200	5.0	95	70-130			11/21/19	
Matrix Spike Dup (A917108-MSD1), Source: A9K0979-01												
Antimony	210	0.91	2.0	ug/L	200	ND	103	70-130	1	20	11/21/19	
Arsenic	190	1.2	2.0	ug/L	200	1.5	96	70-130	1	20	11/21/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130	1	20	11/21/19	
Cadmium	190	0.45	1.0	ug/L	200	ND	97	70-130	1	20	11/21/19	
Chromium	200	4.5	10	ug/L	200	ND	99	70-130	1	20	11/21/19	
Copper	190	2.3	5.0	ug/L	200	ND	93	70-130	2	20	11/21/19	
Lead	190	0.45	1.0	ug/L	200	ND	93	70-130	1	20	11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0	ND	101	70-130	0	20	11/21/19	
Nickel	190	4.5	10	ug/L	200	ND	97	70-130	1	20	11/21/19	
Selenium	180	0.91	2.0	ug/L	200	ND	90	70-130	2	20	11/21/19	
Silver	93	4.5	10	ug/L	100	ND	93	70-130	1	20	11/21/19	
Thallium	180	0.45	1.0	ug/L	200	ND	92	70-130	1	20	11/21/19	
Uranium	190	0.45	1.0	ug/L	200	5.0	95	70-130	0	20	11/21/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 504.1 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A917099-BLK1)												
Dibromochloropropane (DBCP)	ND	0.0060	0.010	ug/L							11/13/19	
Ethylene Dibromide (EDB)	ND	0.0050	0.020	ug/L							11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.50*				*0.46*		*110*	*70-130*			11/13/19	
Blank Spike (A917099-BS1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		104	70-130			11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.10		101	70-130			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.54*				*0.46*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917099-BSD1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		103	70-130	1	20	11/14/19	
Ethylene Dibromide (EDB)	0.099	0.0050	0.020	ug/L	0.10		99	70-130	1	20	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.51*				*0.46*		*111*	*70-130*			11/14/19	
Matrix Spike (A917099-MS1), Source: A9K0686-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10	ND	104	65-135			11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.10	ND	101	65-135			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.46*		*114*	*70-130*			11/13/19	
Matrix Spike Dup (A917099-MSD1), Source: A9K0686-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.099	ND	102	65-135	2	20	11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.099	ND	100	65-135	1	20	11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.45*		*114*	*70-130*			11/13/19	
EPA 505 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A917099-BLK1)												
Aldrin	ND	0.022	0.075	ug/L							11/13/19	
Chlordane (Technical)	ND	0.091	0.10	ug/L							11/13/19	
Dieldrin	ND	0.0042	0.020	ug/L							11/13/19	
Endrin	ND	0.0037	0.10	ug/L							11/13/19	
Heptachlor	ND	0.0052	0.010	ug/L							11/13/19	
Heptachlor Epoxide	ND	0.0048	0.010	ug/L							11/13/19	
Hexachlorobenzene	ND	0.032	0.50	ug/L							11/13/19	
Hexachlorocyclopentadiene	ND	0.041	1.0	ug/L							11/13/19	
Lindane	ND	0.0059	0.20	ug/L							11/13/19	
Methoxychlor	ND	0.031	0.20	ug/L							11/13/19	
PCB Aroclor Screen	ND	0.078	0.50	ug/L							11/13/19	
Toxaphene	ND	0.33	1.0	ug/L							11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.50*				*0.46*		*110*	*70-130*			11/13/19	
Blank Spike (A917099-BS1)												
Aldrin	0.83	0.022	0.075	ug/L	0.74		112	70-130			11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		98	70-130			11/13/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 505 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank Spike (A917099-BS1)												
Endrin	0.099	0.0037	0.10	ug/L	0.10		99	70-130			11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10		104	70-130			11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		101	70-130			11/13/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	1.0		105	70-130			11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0		123	70-130			11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20		100	70-130			11/13/19	J
Methoxychlor	1.0	0.031	0.20	ug/L	1.0		103	70-130			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.54*				*0.46*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917099-BSD1)												
Aldrin	0.82	0.022	0.075	ug/L	0.74		110	70-130	2	20	11/14/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		99	70-130	1	20	11/14/19	
Endrin	0.099	0.0037	0.10	ug/L	0.10		99	70-130	1	20	11/14/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10		103	70-130	0	20	11/14/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		100	70-130	1	20	11/14/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	1.0		108	70-130	2	20	11/14/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0		122	70-130	1	20	11/14/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20		100	70-130	0	20	11/14/19	J
Methoxychlor	0.98	0.031	0.20	ug/L	1.0		98	70-130	4	20	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.51*				*0.46*		*111*	*70-130*			11/14/19	
Matrix Spike (A917099-MS1), Source: A9K0686-01												
Aldrin	0.81	0.022	0.075	ug/L	0.74	0.028	105	65-135			11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20	ND	100	65-135			11/13/19	
Endrin	0.099	0.0037	0.10	ug/L	0.10	ND	99	65-135			11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10	ND	104	65-135			11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10	ND	102	65-135			11/13/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	1.0	ND	105	65-135			11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0	ND	121	65-135			11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20	ND	99	65-135			11/13/19	J
Methoxychlor	0.99	0.031	0.20	ug/L	1.0	ND	99	65-135			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.46*		*114*	*70-130*			11/13/19	
Matrix Spike Dup (A917099-MSD1), Source: A9K0686-01												
Aldrin	0.79	0.022	0.075	ug/L	0.74	0.028	104	65-135	2	20	11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20	ND	99	65-135	1	20	11/13/19	
Endrin	0.096	0.0037	0.10	ug/L	0.099	ND	96	65-135	3	20	11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.099	ND	102	65-135	2	20	11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.099	ND	100	65-135	2	20	11/13/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	0.99	ND	108	65-135	2	20	11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	0.99	ND	119	65-135	2	20	11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20	ND	98	65-135	1	20	11/13/19	J
Methoxychlor	0.92	0.031	0.20	ug/L	0.99	ND	92	65-135	7	20	11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.45*		*114*	*70-130*			11/13/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A917083											Prepared: 11/12/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Blank (A917083-BLK1)												
2,4,5-T	ND	0.13	1.0	ug/L							11/13/19	
2,4,5-TP (Silvex)	ND	0.016	1.0	ug/L							11/13/19	
2,4-D	ND	0.074	10	ug/L							11/13/19	
Bentazon	ND	1.3	2.0	ug/L							11/13/19	
Dalapon	ND	0.58	10	ug/L							11/13/19	
Dicamba	ND	0.13	1.5	ug/L							11/13/19	
Dinoseb	ND	0.032	2.0	ug/L							11/13/19	
Pentachlorophenol	ND	0.011	0.20	ug/L							11/13/19	
Picloram	ND	0.084	1.0	ug/L							11/13/19	
Surrogate: DCPAA	*43*				*36*		*119*	*70-130*			11/13/19	
Blank Spike (A917083-BS1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		102	70-130			11/13/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130			11/13/19	J
2,4-D	0.37	0.074	10	ug/L	0.40		92	70-130			11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		99	70-130			11/13/19	J
Dalapon	4.1	0.58	10	ug/L	4.0		102	70-130			11/13/19	J
Dicamba	0.79	0.13	1.5	ug/L	0.80		99	70-130			11/13/19	J
Dinoseb	0.77	0.032	2.0	ug/L	0.80		96	70-130			11/13/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		101	70-130			11/13/19	J
Picloram	0.40	0.084	1.0	ug/L	0.40		100	70-130			11/13/19	J
Surrogate: DCPAA	*42*				*36*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917083-BSD1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		102	70-130	0	20	11/14/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130	1	20	11/14/19	J
2,4-D	0.38	0.074	10	ug/L	0.40		96	70-130	4	20	11/14/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		100	70-130	1	20	11/14/19	
Dalapon	4.0	0.58	10	ug/L	4.0		100	70-130	1	20	11/14/19	J
Dicamba	0.80	0.13	1.5	ug/L	0.80		101	70-130	1	20	11/14/19	J
Dinoseb	0.79	0.032	2.0	ug/L	0.80		98	70-130	2	20	11/14/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		99	70-130	2	20	11/14/19	J
Picloram	0.39	0.084	1.0	ug/L	0.40		98	70-130	2	20	11/14/19	J
Surrogate: DCPAA	*42*				*36*		*117*	*70-130*			11/14/19	
Matrix Spike (A917083-MS1), Source: A9K0686-01												
2,4,5-T	1.7	0.13	1.0	ug/L	1.6	ND	106	70-130			11/13/19	
2,4,5-TP (Silvex)	0.80	0.016	1.0	ug/L	0.80	ND	100	70-130			11/13/19	J
2,4-D	0.38	0.074	10	ug/L	0.40	ND	95	70-130			11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	99	70-130			11/13/19	J
Dalapon	4.4	0.58	10	ug/L	4.0	ND	110	70-130			11/13/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	101	70-130			11/13/19	J
Dinoseb	0.83	0.032	2.0	ug/L	0.80	0.10	91	70-130			11/13/19	J
Pentachlorophenol	0.14	0.011	0.20	ug/L	0.16	ND	88	70-130			11/13/19	J
Picloram	0.35	0.084	1.0	ug/L	0.40	ND	88	70-130			11/13/19	J
Surrogate: DCPAA	*46*				*36*		*128*	*70-130*			11/13/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A917083											Prepared: 11/12/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Matrix Spike Dup (A917083-MSD1), Source: A9K0686-01												
2,4,5-T	1.7	0.13	1.0	ug/L	1.6	ND	105	70-130	1	30	11/13/19	
2,4,5-TP (Silvex)	0.84	0.016	1.0	ug/L	0.80	ND	104	70-130	4	30	11/13/19	J
2,4-D	0.38	0.074	10	ug/L	0.40	ND	96	70-130	1	30	11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	101	70-130	2	30	11/13/19	
Dalapon	4.2	0.58	10	ug/L	4.0	ND	105	70-130	5	30	11/13/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	102	70-130	1	30	11/13/19	J
Dinoseb	0.84	0.032	2.0	ug/L	0.80	0.10	92	70-130	1	30	11/13/19	J
Pentachlorophenol	0.15	0.011	0.20	ug/L	0.16	ND	91	70-130	4	30	11/13/19	J
Picloram	0.36	0.084	1.0	ug/L	0.40	ND	91	70-130	3	30	11/13/19	J
Surrogate: DCPAA	*46*				*36*		*128*	*70-130*			11/13/19	
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917163-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							11/14/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							11/14/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							11/14/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							11/14/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							11/14/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							11/14/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							11/14/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							11/14/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							11/14/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							11/14/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							11/14/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							11/14/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							11/14/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							11/14/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							11/14/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							11/14/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							11/14/19	
2,2-Dichloropropane	ND	0.32	0.50	ug/L							11/14/19	
2-Butanone	ND	0.42	5.0	ug/L							11/14/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							11/14/19	
2-Hexanone	ND	0.48	10	ug/L							11/14/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							11/14/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							11/14/19	
Acetone	ND	3.4	10	ug/L							11/14/19	
Benzene	ND	0.34	0.50	ug/L							11/14/19	
Bromobenzene	ND	0.27	0.50	ug/L							11/14/19	
Bromochloromethane	ND	0.27	0.50	ug/L							11/14/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							11/14/19	
Bromoform	ND	0.28	0.50	ug/L							11/14/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917163-BLK1)												
Bromomethane	ND	0.43	0.50	ug/L							11/14/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							11/14/19	
Chlorobenzene	ND	0.31	0.50	ug/L							11/14/19	
Chloroethane	ND	0.32	0.50	ug/L							11/14/19	
Chloroform	ND	0.083	0.50	ug/L							11/14/19	
Chloromethane	ND	0.25	0.50	ug/L							11/14/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							11/14/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/14/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							11/14/19	
Dibromomethane	ND	0.29	0.50	ug/L							11/14/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							11/14/19	
Dichloromethane	ND	0.29	0.50	ug/L							11/14/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							11/14/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							11/14/19	
Ethylbenzene	ND	0.31	0.50	ug/L							11/14/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							11/14/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							11/14/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							11/14/19	
Methyl-t-butyl ether	0.22	0.083	0.50	ug/L							11/14/19	B2.0, J
Naphthalene	ND	0.27	0.50	ug/L							11/14/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							11/14/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							11/14/19	
o-Xylene	ND	0.30	0.50	ug/L							11/14/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							11/14/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							11/14/19	
Styrene	ND	0.30	0.50	ug/L							11/14/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							11/14/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							11/14/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							11/14/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							11/14/19	
Toluene	ND	0.32	0.50	ug/L							11/14/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							11/14/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/14/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							11/14/19	
Trichlorofluoromethane	ND	0.23	5.0	ug/L							11/14/19	
Vinyl Chloride	ND	0.27	0.50	ug/L							11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*56*				*50*		*113*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*57*				*50*		*115*	*70-130*			11/14/19	
Blank Spike (A917163-BS1)												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10		106	70-130			11/14/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		105	70-130			11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		108	70-130			11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		108	70-130			11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917163-BS1)												
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		109	70-130			11/14/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		119	70-130			11/14/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10		106	70-130			11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		106	70-130			11/14/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		104	70-130			11/14/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		102	70-130			11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		106	70-130			11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10		106	70-130			11/14/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		105	70-130			11/14/19	
2,2-Dichloropropane	12	0.32	0.50	ug/L	10		118	70-130			11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10		113	70-130			11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
2-Hexanone	12	0.48	10	ug/L	10		115	70-130			11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
4-Methyl-2-pentanone	11	0.37	5.0	ug/L	10		109	70-130			11/14/19	
Acetone	11	3.4	10	ug/L	10		107	70-130			11/14/19	
Benzene	11	0.34	0.50	ug/L	10		106	70-130			11/14/19	
Bromobenzene	11	0.27	0.50	ug/L	10		111	70-130			11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		110	70-130			11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10		106	70-130			11/14/19	
Bromoform	11	0.28	0.50	ug/L	10		106	70-130			11/14/19	
Bromomethane	12	0.43	0.50	ug/L	10		124	70-130			11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10		109	70-130			11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		107	70-130			11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10		106	70-130			11/14/19	
Chloroethane	10	0.32	0.50	ug/L	10		104	70-130			11/14/19	
Chloroform	11	0.083	0.50	ug/L	10		106	70-130			11/14/19	
Chloromethane	11	0.25	0.50	ug/L	10		107	70-130			11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		106	70-130			11/14/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		107	70-130			11/14/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		105	70-130			11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10		101	70-130			11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10		106	70-130			11/14/19	
Dichloromethane	10	0.29	0.50	ug/L	10		104	70-130			11/14/19	
Di-isopropyl ether (DIPE)	12	0.31	3.0	ug/L	10		121	70-130			11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10		113	70-130			11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		106	70-130			11/14/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		107	70-130			11/14/19	
m,p-Xylenes	21	0.23	0.50	ug/L	20		106	70-130			11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20		110	70-130			11/14/19	
Naphthalene	11	0.27	0.50	ug/L	10		111	70-130			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917163-BS1)												
n-Butylbenzene	11	0.25	0.50	ug/L	10		106	70-130			11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		107	70-130			11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		107	70-130			11/14/19	
Styrene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10		113	70-130			11/14/19	
tert-Butyl alcohol (TBA)	12	0.97	2.0	ug/L	10		123	70-130			11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		107	70-130			11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130			11/14/19	
Toluene	11	0.32	0.50	ug/L	10		107	70-130			11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		107	70-130			11/14/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		108	70-130			11/14/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10		106	70-130			11/14/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		103	70-130			11/14/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		109	70-130			11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*51*				*50*		*103*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*52*				*50*		*103*	*70-130*			11/14/19	
Blank Spike Dup (A917163-BSD1)												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10		106	70-130	0	30	11/14/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		106	70-130	1	30	11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		112	70-130	3	30	11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		106	70-130	2	30	11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		107	70-130	1	30	11/14/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		108	70-130	1	30	11/14/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		120	70-130	1	30	11/14/19	
1,1-Dichloropropene	10	0.30	0.50	ug/L	10		103	70-130	4	30	11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10		112	70-130	5	30	11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10		111	70-130	5	30	11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		109	70-130	3	30	11/14/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10		109	70-130	5	30	11/14/19	
1,2-Dichloroethane	11	0.29	0.50	ug/L	10		105	70-130	3	30	11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10		106	70-130	2	30	11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		109	70-130	3	30	11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		111	70-130	5	30	11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10		108	70-130	2	30	11/14/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10		110	70-130	4	30	11/14/19	
2,2-Dichloropropane	11	0.32	0.50	ug/L	10		110	70-130	7	30	11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10		110	70-130	3	30	11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
2-Hexanone	11	0.48	10	ug/L	10		113	70-130	2	30	11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		110	70-130	3	30	11/14/19	
4-Methyl-2-pentanone	11	0.37	5.0	ug/L	10		110	70-130	1	30	11/14/19	
Acetone	11	3.4	10	ug/L	10		115	70-130	7	30	11/14/19	
Benzene	10	0.34	0.50	ug/L	10		105	70-130	2	30	11/14/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917163-BSD1)												
Bromobenzene	11	0.27	0.50	ug/L	10		114	70-130	2	30	11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		115	70-130	4	30	11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10		105	70-130	0	30	11/14/19	
Bromoform	11	0.28	0.50	ug/L	10		109	70-130	3	30	11/14/19	
Bromomethane	12	0.43	0.50	ug/L	10		121	70-130	3	30	11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10		111	70-130	2	30	11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		105	70-130	2	30	11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10		108	70-130	2	30	11/14/19	
Chloroethane	11	0.32	0.50	ug/L	10		105	70-130	2	30	11/14/19	
Chloroform	11	0.083	0.50	ug/L	10		107	70-130	1	30	11/14/19	
Chloromethane	11	0.25	0.50	ug/L	10		111	70-130	3	30	11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		109	70-130	3	30	11/14/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		107	70-130	0	30	11/14/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10		108	70-130	3	30	11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10		104	70-130	3	30	11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10		107	70-130	2	30	11/14/19	
Dichloromethane	11	0.29	0.50	ug/L	10		111	70-130	6	30	11/14/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		113	70-130	7	30	11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10		108	70-130	4	30	11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		107	70-130	1	30	11/14/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		109	70-130	2	30	11/14/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		109	70-130	2	30	11/14/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20		108	70-130	2	30	11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20		108	70-130	2	30	11/14/19	
Naphthalene	12	0.27	0.50	ug/L	10		116	70-130	4	30	11/14/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10		109	70-130	2	30	11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		110	70-130	3	30	11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		109	70-130	3	30	11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		110	70-130	3	30	11/14/19	
Styrene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10		110	70-130	2	30	11/14/19	
tert-Butyl alcohol (TBA)	12	0.97	2.0	ug/L	10		116	70-130	6	30	11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		109	70-130	2	30	11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130	0	30	11/14/19	
Toluene	11	0.32	0.50	ug/L	10		108	70-130	1	30	11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		108	70-130	1	30	11/14/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		110	70-130	1	30	11/14/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		105	70-130	1	30	11/14/19	
Trichlorofluoromethane	11	0.23	5.0	ug/L	10		108	70-130	5	30	11/14/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		110	70-130	1	30	11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*108*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*54*				*50*		*109*	*70-130*			11/14/19	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10	ND	108	41-156			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10	ND	114	48-160			11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10	ND	108	42-151			11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10	ND	115	47-164			11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10	ND	108	45-152			11/14/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10	ND	112	48-157			11/14/19	
1,1-Dichloroethene	13	0.21	0.50	ug/L	10	ND	128	51-158			11/14/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	114	46-162			11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10	ND	107	37-145			11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10	ND	107	33-149			11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10	ND	109	44-146			11/14/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10	ND	110	44-146			11/14/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10	ND	104	47-151			11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10	ND	110	47-155			11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	110	45-154			11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10	ND	111	44-146			11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10	ND	108	45-151			11/14/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10	ND	110	43-146			11/14/19	
2,2-Dichloropropane	6.8	0.32	0.50	ug/L	10	ND	68	24-182			11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10	ND	106	55-144			11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	110	48-150			11/14/19	
2-Hexanone	11	0.48	10	ug/L	10	ND	108	40-159			11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	109	43-150			11/14/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10	ND	103	30-171			11/14/19	
Acetone	13	3.4	10	ug/L	10	ND	126	27-181			11/14/19	
Benzene	11	0.34	0.50	ug/L	10	ND	111	48-155			11/14/19	
Bromobenzene	11	0.27	0.50	ug/L	10	ND	110	43-151			11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10	ND	113	48-161			11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10	ND	108	47-151			11/14/19	
Bromoform	11	0.28	0.50	ug/L	10	ND	105	29-162			11/14/19	
Bromomethane	11	0.43	0.50	ug/L	10	ND	106	10-200			11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10	ND	113	57-161			11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10	ND	115	47-163			11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10	ND	109	46-152			11/14/19	
Chloroethane	11	0.32	0.50	ug/L	10	ND	112	28-189			11/14/19	
Chloroform	11	0.083	0.50	ug/L	10	ND	111	52-148			11/14/19	
Chloromethane	12	0.25	0.50	ug/L	10	ND	115	53-159			11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10	ND	110	50-152			11/14/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	101	34-156			11/14/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10	ND	106	44-149			11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10	ND	105	46-150			11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10	ND	115	33-170			11/14/19	
Dichloromethane	11	0.29	0.50	ug/L	10	ND	110	47-156			11/14/19	
Di-isopropyl ether (DIPE)	12	0.31	3.0	ug/L	10	ND	116	41-159			11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10	ND	111	32-160			11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	111	40-157			11/14/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10	ND	104	38-151			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
Isopropylbenzene	11	0.31	0.50	ug/L	10	ND	112	41-156			11/14/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20	ND	111	49-154			11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20	0.19	108	41-156			11/14/19	
Naphthalene	11	0.27	0.50	ug/L	10	ND	110	35-154			11/14/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10	ND	107	31-153			11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10	ND	111	39-156			11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10	ND	112	27-164			11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	113	26-161			11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10	ND	115	39-154			11/14/19	
Styrene	11	0.30	0.50	ug/L	10	ND	110	10-200			11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10	ND	111	24-161			11/14/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10	ND	112	22-174			11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10	ND	112	40-153			11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10	ND	109	48-155			11/14/19	
Toluene	15	0.32	0.50	ug/L	10	3.0	116	40-159			11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10	ND	113	52-157			11/14/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	100	28-160			11/14/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	112	49-155			11/14/19	
Trichlorofluoromethane	12	0.23	5.0	ug/L	10	ND	119	47-169			11/14/19	
Vinyl Chloride	12	0.27	0.50	ug/L	10	ND	117	21-183			11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*104*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*51*				*50*		*102*	*70-130*			11/14/19	
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							11/15/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							11/15/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							11/15/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							11/15/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							11/15/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							11/15/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							11/15/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							11/15/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							11/15/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							11/15/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							11/15/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							11/15/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							11/15/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							11/15/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							11/15/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							11/15/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							11/15/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
2,2-Dichloropropane	ND	0.32	0.50	ug/L							11/15/19	
2-Butanone	ND	0.42	5.0	ug/L							11/15/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							11/15/19	
2-Hexanone	ND	0.48	10	ug/L							11/15/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							11/15/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							11/15/19	
Acetone	ND	3.4	10	ug/L							11/15/19	
Benzene	ND	0.34	0.50	ug/L							11/15/19	
Bromobenzene	ND	0.27	0.50	ug/L							11/15/19	
Bromochloromethane	ND	0.27	0.50	ug/L							11/15/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							11/15/19	
Bromoform	ND	0.28	0.50	ug/L							11/15/19	
Bromomethane	ND	0.43	0.50	ug/L							11/15/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							11/15/19	
Chlorobenzene	ND	0.31	0.50	ug/L							11/15/19	
Chloroethane	ND	0.32	0.50	ug/L							11/15/19	
Chloroform	ND	0.083	0.50	ug/L							11/15/19	
Chloromethane	ND	0.25	0.50	ug/L							11/15/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							11/15/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/15/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							11/15/19	
Dibromomethane	ND	0.29	0.50	ug/L							11/15/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							11/15/19	
Dichloromethane	ND	0.29	0.50	ug/L							11/15/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							11/15/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							11/15/19	
Ethylbenzene	ND	0.31	0.50	ug/L							11/15/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							11/15/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							11/15/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							11/15/19	
Methyl-t-butyl ether	0.20	0.083	0.50	ug/L							11/15/19	J
Naphthalene	ND	0.27	0.50	ug/L							11/15/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							11/15/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							11/15/19	
o-Xylene	ND	0.30	0.50	ug/L							11/15/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							11/15/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							11/15/19	
Styrene	ND	0.30	0.50	ug/L							11/15/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							11/15/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							11/15/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							11/15/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							11/15/19	
Toluene	ND	0.32	0.50	ug/L							11/15/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							11/15/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/15/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
Trichlorofluoromethane	ND	0.23	5.0	ug/L							11/15/19	
Vinyl Chloride	ND	0.27	0.50	ug/L							11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*58*				*50*		*116*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*57*				*50*		*114*	*70-130*			11/15/19	
Blank Spike (A917282-BS1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,1,1-Trichloroethane	10	0.30	0.50	ug/L	10		100	70-130			11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		105	70-130			11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	0.27	10	ug/L	10		102	70-130			11/15/19	
1,1,2-Trichloroethane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,1-Dichloroethane	10	0.34	0.50	ug/L	10		103	70-130			11/15/19	
1,1-Dichloroethene	11	0.21	0.50	ug/L	10		114	70-130			11/15/19	
1,1-Dichloropropene	10	0.30	0.50	ug/L	10		100	70-130			11/15/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		102	70-130			11/15/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130			11/15/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		104	70-130			11/15/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10		105	70-130			11/15/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		100	70-130			11/15/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		102	70-130			11/15/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		106	70-130			11/15/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10		107	70-130			11/15/19	
2,2-Dichloropropane	9.9	0.32	0.50	ug/L	10		99	70-130			11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10		102	70-130			11/15/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
2-Hexanone	10	0.48	10	ug/L	10		104	70-130			11/15/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		107	70-130			11/15/19	
4-Methyl-2-pentanone	9.7	0.37	5.0	ug/L	10		97	70-130			11/15/19	
Acetone	10	3.4	10	ug/L	10		103	70-130			11/15/19	
Benzene	10	0.34	0.50	ug/L	10		101	70-130			11/15/19	
Bromobenzene	11	0.27	0.50	ug/L	10		108	70-130			11/15/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		107	70-130			11/15/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Bromoform	10	0.28	0.50	ug/L	10		104	70-130			11/15/19	
Bromomethane	8.9	0.43	0.50	ug/L	10		89	70-130			11/15/19	
Carbon disulfide	10	0.49	10	ug/L	10		104	70-130			11/15/19	
Carbon Tetrachloride	10	0.29	0.50	ug/L	10		101	70-130			11/15/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		105	70-130			11/15/19	
Chloroethane	10	0.32	0.50	ug/L	10		101	70-130			11/15/19	
Chloroform	10	0.083	0.50	ug/L	10		103	70-130			11/15/19	
Chloromethane	9.8	0.25	0.50	ug/L	10		98	70-130			11/15/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		104	70-130			11/15/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130			11/15/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		102	70-130			11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917282-BS1)												
Dibromomethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Dichlorodifluoromethane	9.5	0.28	0.50	ug/L	10		95	70-130			11/15/19	
Dichloromethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		105	70-130			11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		101	70-130			11/15/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		103	70-130			11/15/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		102	70-130			11/15/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		105	70-130			11/15/19	
m,p-Xylenes	21	0.23	0.50	ug/L	20		105	70-130			11/15/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20		101	70-130			11/15/19	
Naphthalene	10	0.27	0.50	ug/L	10		104	70-130			11/15/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10		105	70-130			11/15/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		106	70-130			11/15/19	
o-Xylene	11	0.30	0.50	ug/L	10		105	70-130			11/15/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		106	70-130			11/15/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		107	70-130			11/15/19	
Styrene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		102	70-130			11/15/19	
tert-Butyl alcohol (TBA)	10	0.97	2.0	ug/L	10		103	70-130			11/15/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		104	70-130			11/15/19	
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10		102	70-130			11/15/19	
Toluene	10	0.32	0.50	ug/L	10		103	70-130			11/15/19	
trans-1,2-Dichloroethene	10	0.35	0.50	ug/L	10		103	70-130			11/15/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130			11/15/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		101	70-130			11/15/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		102	70-130			11/15/19	
Vinyl Chloride	10	0.27	0.50	ug/L	10		101	70-130			11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*109*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*53*				*50*		*107*	*70-130*			11/15/19	
Blank Spike Dup (A917282-BSD1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		102	70-130	1	30	11/15/19	
1,1,1-Trichloroethane	9.9	0.30	0.50	ug/L	10		99	70-130	1	30	11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		105	70-130	0	30	11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	0.27	10	ug/L	10		100	70-130	2	30	11/15/19	J
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		106	70-130	3	30	11/15/19	
1,1-Dichloroethane	10	0.34	0.50	ug/L	10		103	70-130	0	30	11/15/19	
1,1-Dichloroethene	11	0.21	0.50	ug/L	10		113	70-130	1	30	11/15/19	
1,1-Dichloropropene	9.8	0.30	0.50	ug/L	10		98	70-130	2	30	11/15/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		104	70-130	2	30	11/15/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		101	70-130	2	30	11/15/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		103	70-130	3	30	11/15/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,3,5-Trimethylbenzene	10	0.36	0.50	ug/L	10		101	70-130	5	30	11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917282-BSD1)												
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10		104	70-130	3	30	11/15/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		104	70-130	1	30	11/15/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		105	70-130	2	30	11/15/19	
2,2-Dichloropropane	9.8	0.32	0.50	ug/L	10		98	70-130	1	30	11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10		100	70-130	2	30	11/15/19	
2-Chlorotoluene	10	0.30	0.50	ug/L	10		102	70-130	5	30	11/15/19	
2-Hexanone	11	0.48	10	ug/L	10		105	70-130	1	30	11/15/19	
4-Chlorotoluene	10	0.30	0.50	ug/L	10		102	70-130	4	30	11/15/19	
4-Methyl-2-pentanone	9.5	0.37	5.0	ug/L	10		95	70-130	2	30	11/15/19	
Acetone	11	3.4	10	ug/L	10		107	70-130	4	30	11/15/19	
Benzene	10	0.34	0.50	ug/L	10		101	70-130	0	30	11/15/19	
Bromobenzene	9.2	0.27	0.50	ug/L	10		92	70-130	16	30	11/15/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		106	70-130	0	30	11/15/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		103	70-130	0	30	11/15/19	
Bromoform	10	0.28	0.50	ug/L	10		104	70-130	0	30	11/15/19	
Bromomethane	8.7	0.43	0.50	ug/L	10		87	70-130	2	30	11/15/19	
Carbon disulfide	10	0.49	10	ug/L	10		104	70-130	1	30	11/15/19	
Carbon Tetrachloride	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		103	70-130	2	30	11/15/19	
Chloroethane	9.9	0.32	0.50	ug/L	10		99	70-130	2	30	11/15/19	
Chloroform	10	0.083	0.50	ug/L	10		103	70-130	0	30	11/15/19	
Chloromethane	10	0.25	0.50	ug/L	10		100	70-130	2	30	11/15/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		103	70-130	0	30	11/15/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130	0	30	11/15/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Dibromomethane	10	0.29	0.50	ug/L	10		102	70-130	0	30	11/15/19	
Dichlorodifluoromethane	9.3	0.28	0.50	ug/L	10		93	70-130	2	30	11/15/19	
Dichloromethane	10	0.29	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		110	70-130	4	30	11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		101	70-130	0	30	11/15/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		102	70-130	1	30	11/15/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		100	70-130	2	30	11/15/19	
Isopropylbenzene	10	0.31	0.50	ug/L	10		102	70-130	4	30	11/15/19	
m,p-Xylenes	20	0.23	0.50	ug/L	20		102	70-130	3	30	11/15/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20		102	70-130	1	30	11/15/19	
Naphthalene	11	0.27	0.50	ug/L	10		107	70-130	3	30	11/15/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10		100	70-130	5	30	11/15/19	
n-Propylbenzene	10	0.31	0.50	ug/L	10		102	70-130	4	30	11/15/19	
o-Xylene	10	0.30	0.50	ug/L	10		102	70-130	3	30	11/15/19	
p-Isopropyltoluene	10	0.26	0.50	ug/L	10		101	70-130	5	30	11/15/19	
sec-Butylbenzene	10	0.27	0.50	ug/L	10		100	70-130	6	30	11/15/19	
Styrene	10	0.30	0.50	ug/L	10		104	70-130	2	30	11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		101	70-130	1	30	11/15/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10		108	70-130	4	30	11/15/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		101	70-130	2	30	11/15/19	
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10		100	70-130	1	30	11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917282-BSD1)												
Toluene	10	0.32	0.50	ug/L	10		103	70-130	0	30	11/15/19	
trans-1,2-Dichloroethene	10	0.35	0.50	ug/L	10		102	70-130	1	30	11/15/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		100	70-130	2	30	11/15/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		104	70-130	1	30	11/15/19	
Vinyl Chloride	10	0.27	0.50	ug/L	10		100	70-130	1	30	11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*105*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*52*				*50*		*104*	*70-130*			11/15/19	
Matrix Spike (A917282-MS1), Source: A9K1356-01												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10	ND	110	41-156			11/15/19	
1,1,1-Trichloroethane	12	0.30	0.50	ug/L	10	ND	115	48-160			11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10	ND	113	42-151			11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10	ND	124	47-164			11/15/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10	ND	110	45-152			11/15/19	
1,1-Dichloroethane	12	0.34	0.50	ug/L	10	ND	116	48-157			11/15/19	
1,1-Dichloroethene	14	0.21	0.50	ug/L	10	ND	138	51-158			11/15/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	114	46-162			11/15/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10	ND	112	37-145			11/15/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10	ND	111	33-149			11/15/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10	ND	113	44-146			11/15/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10	ND	113	44-146			11/15/19	
1,2-Dichloroethane	11	0.29	0.50	ug/L	10	ND	109	47-151			11/15/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10	ND	111	47-155			11/15/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	115	45-154			11/15/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10	ND	115	44-146			11/15/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10	ND	111	45-151			11/15/19	
1,4-Dichlorobenzene	12	0.29	0.50	ug/L	10	ND	116	43-146			11/15/19	
2,2-Dichloropropane	11	0.32	0.50	ug/L	10	ND	112	24-182			11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10	ND	104	55-144			11/15/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	114	48-150			11/15/19	
2-Hexanone	11	0.48	10	ug/L	10	ND	111	40-159			11/15/19	
4-Chlorotoluene	12	0.30	0.50	ug/L	10	ND	115	43-150			11/15/19	
4-Methyl-2-pentanone	9.9	0.37	5.0	ug/L	10	0.38	96	30-171			11/15/19	
Acetone	14	3.4	10	ug/L	10	ND	144	27-181			11/15/19	
Benzene	11	0.34	0.50	ug/L	10	ND	111	48-155			11/15/19	
Bromobenzene	12	0.27	0.50	ug/L	10	ND	120	43-151			11/15/19	
Bromochloromethane	12	0.27	0.50	ug/L	10	ND	120	48-161			11/15/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10	ND	112	47-151			11/15/19	
Bromoform	11	0.28	0.50	ug/L	10	ND	111	29-162			11/15/19	
Bromomethane	10	0.43	0.50	ug/L	10	ND	100	10-200			11/15/19	
Carbon disulfide	13	0.49	10	ug/L	10	ND	127	57-161			11/15/19	
Carbon Tetrachloride	12	0.29	0.50	ug/L	10	ND	117	47-163			11/15/19	
Chlorobenzene	11	0.31	0.50	ug/L	10	ND	114	46-152			11/15/19	
Chloroethane	12	0.32	0.50	ug/L	10	ND	121	28-189			11/15/19	
Chloroform	12	0.083	0.50	ug/L	10	ND	115	52-148			11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917282-MS1), Source: A9K1356-01												
Chloromethane	12	0.25	0.50	ug/L	10	ND	123	53-159			11/15/19	
cis-1,2-Dichloroethene	12	0.32	0.50	ug/L	10	ND	116	50-152			11/15/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10	ND	111	34-156			11/15/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10	ND	111	44-149			11/15/19	
Dibromomethane	11	0.29	0.50	ug/L	10	ND	113	46-150			11/15/19	
Dichlorodifluoromethane	13	0.28	0.50	ug/L	10	ND	128	33-170			11/15/19	
Dichloromethane	12	0.29	0.50	ug/L	10	ND	116	47-156			11/15/19	
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10	ND	105	41-159			11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10	ND	104	32-160			11/15/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	115	40-157			11/15/19	
Hexachlorobutadiene	12	0.30	0.50	ug/L	10	ND	120	38-151			11/15/19	
Isopropylbenzene	12	0.31	0.50	ug/L	10	ND	117	41-156			11/15/19	
m,p-Xylenes	23	0.23	0.50	ug/L	20	ND	115	49-154			11/15/19	
Methyl-t-butyl ether	21	0.083	0.50	ug/L	20	0.22	104	41-156			11/15/19	
Naphthalene	11	0.27	0.50	ug/L	10	ND	114	35-154			11/15/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10	ND	114	31-153			11/15/19	
n-Propylbenzene	12	0.31	0.50	ug/L	10	ND	117	39-156			11/15/19	
o-Xylene	11	0.30	0.50	ug/L	10	ND	115	27-164			11/15/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	115	26-161			11/15/19	
sec-Butylbenzene	12	0.27	0.50	ug/L	10	ND	116	39-154			11/15/19	
Styrene	12	0.30	0.50	ug/L	10	ND	115	10-200			11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10	ND	104	24-161			11/15/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10	ND	107	22-174			11/15/19	
tert-Butylbenzene	12	0.28	0.50	ug/L	10	ND	115	40-153			11/15/19	
Tetrachloroethene (PCE)	12	0.33	0.50	ug/L	10	ND	116	48-155			11/15/19	
Toluene	11	0.32	0.50	ug/L	10	ND	114	40-159			11/15/19	
trans-1,2-Dichloroethene	12	0.35	0.50	ug/L	10	ND	119	52-157			11/15/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10	ND	110	28-160			11/15/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	113	49-155			11/15/19	
Trichlorofluoromethane	13	0.23	5.0	ug/L	10	ND	129	47-169			11/15/19	
Vinyl Chloride	13	0.27	0.50	ug/L	10	ND	127	21-183			11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*108*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*54*				*50*		*108*	*70-130*			11/15/19	
EPA 525.3 - Quality Control												
Batch: A917200											Prepared: 11/14/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank (A917200-BLK1)												
Alachlor	ND	0.022	0.20	ug/L							11/20/19	
Atrazine	ND	0.0076	0.10	ug/L							11/20/19	
Benzo(a)pyrene	ND	0.0019	0.020	ug/L							11/20/19	
Bis(2-ethylhexyl) adipate	ND	0.067	0.60	ug/L							11/20/19	
Bis(2-ethylhexyl) phthalate	0.15	0.11	0.60	ug/L							11/20/19	B2.0, J
Bromacil	ND	0.028	0.80	ug/L							11/20/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 525.3 - Quality Control													
Batch: A917200											Prepared: 11/14/2019		
Prep Method: EPA 525.3											Analyst: JKH		
Blank (A917200-BLK1)													
Butachlor	ND	0.018	0.25	ug/L							11/20/19		
Diazinon	ND	0.0022	0.020	ug/L							11/20/19		
Dimethoate	ND	0.082	1.0	ug/L							11/20/19		
Metolachlor	ND	0.011	0.50	ug/L							11/20/19		
Metribuzin	ND	0.0061	0.50	ug/L							11/20/19		
Molinate	ND	0.0061	0.50	ug/L							11/20/19		
Propachlor	ND	0.0056	0.50	ug/L							11/20/19		
Simazine	ND	0.0049	0.070	ug/L							11/20/19		
Thiobencarb	ND	0.0083	0.10	ug/L							11/20/19		
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.87*				*1.0*		*87*	*70-130*			11/20/19		
Surrogate: Benzo(a)pyrene-d12	*0.88*				*1.0*		*88*	*70-130*			11/20/19		
Surrogate: Triphenyl Phosphate	*0.98*				*1.0*		*98*	*70-130*			11/20/19		
Blank Spike (A917200-BS1)													
Alachlor	0.42	0.022	0.20	ug/L	0.40		106	70-130			11/20/19		
Atrazine	0.24	0.0076	0.10	ug/L	0.20		121	70-130			11/20/19		
Benzo(a)pyrene	0.028	0.0019	0.020	ug/L	0.040		70	70-130			11/20/19		
Bis(2-ethylhexyl) adipate	0.80	0.067	0.60	ug/L	0.80		100	70-130			11/20/19		
Bis(2-ethylhexyl) phthalate	2.3	0.11	0.60	ug/L	2.4		97	70-130			11/20/19		
Bromacil	0.24	0.028	0.80	ug/L	0.20		121	70-130			11/20/19	J	
Butachlor	0.23	0.018	0.25	ug/L	0.20		115	70-130			11/20/19	J	
Diazinon	0.043	0.0022	0.020	ug/L	0.040		107	70-130			11/20/19		
Dimethoate	2.6	0.082	1.0	ug/L	1.6		162	70-130			11/20/19	BS	***High***
Metolachlor	0.22	0.011	0.50	ug/L	0.20		108	70-130			11/20/19	J	
Metribuzin	0.21	0.0061	0.50	ug/L	0.20		105	70-130			11/20/19	J	
Molinate	0.20	0.0061	0.50	ug/L	0.20		100	70-130			11/20/19	J	
Propachlor	0.20	0.0056	0.50	ug/L	0.20		100	70-130			11/20/19	J	
Simazine	0.17	0.0049	0.070	ug/L	0.14		120	70-130			11/20/19		
Thiobencarb	0.22	0.0083	0.10	ug/L	0.20		108	70-130			11/20/19		
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.93*				*1.0*		*93*	*70-130*			11/20/19		
Surrogate: Benzo(a)pyrene-d12	*0.85*				*1.0*		*85*	*70-130*			11/20/19		
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*108*	*70-130*			11/20/19		
Blank Spike Dup (A917200-BSD1)													
Alachlor	0.45	0.022	0.20	ug/L	0.40		112	70-130	6	30	11/20/19		
Atrazine	0.25	0.0076	0.10	ug/L	0.20		127	70-130	5	30	11/20/19		
Benzo(a)pyrene	0.034	0.0019	0.020	ug/L	0.040		85	70-130	20	30	11/20/19		
Bis(2-ethylhexyl) adipate	0.85	0.067	0.60	ug/L	0.80		107	70-130	7	30	11/20/19		
Bis(2-ethylhexyl) phthalate	2.4	0.11	0.60	ug/L	2.4		102	70-130	4	30	11/20/19		
Bromacil	0.23	0.028	0.80	ug/L	0.20		117	70-130	4	30	11/20/19	J	
Butachlor	0.25	0.018	0.25	ug/L	0.20		125	70-130	8	30	11/20/19	J	
Diazinon	0.050	0.0022	0.020	ug/L	0.040		126	70-130	16	30	11/20/19		
Dimethoate	3.1	0.082	1.0	ug/L	1.6		192	70-130	17	30	11/20/19	BS	***High***
Metolachlor	0.23	0.011	0.50	ug/L	0.20		115	70-130	6	30	11/20/19	J	
Metribuzin	0.22	0.0061	0.50	ug/L	0.20		112	70-130	6	30	11/20/19	J	
Molinate	0.21	0.0061	0.50	ug/L	0.20		104	70-130	5	30	11/20/19	J	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 525.3 - Quality Control												
Batch: A917200											Prepared: 11/14/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank Spike Dup (A917200-BSD1)												
Propachlor	0.21	0.0056	0.50	ug/L	0.20		105	70-130	5	30	11/20/19	J
Simazine	0.17	0.0049	0.070	ug/L	0.14		123	70-130	3	30	11/20/19	
Thiobencarb	0.23	0.0083	0.10	ug/L	0.20		113	70-130	4	30	11/20/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.94*				*1.0*		*94*	*70-130*			11/20/19	
Surrogate: Benzo(a)pyrene-d12	*0.91*				*1.0*		*91*	*70-130*			11/20/19	
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*115*	*70-130*			11/20/19	
Matrix Spike (A917200-MS1), Source: S9K0141-02												
Alachlor	0.10	0.022	0.20	ug/L	0.094	ND	108	70-130			11/20/19	J
Atrazine	0.055	0.0076	0.10	ug/L	0.047	0.016	83	70-130			11/20/19	J
Benzo(a)pyrene	0.0080	0.0019	0.020	ug/L	0.0094	ND	85	70-130			11/20/19	J
Bis(2-ethylhexyl) adipate	0.21	0.067	0.60	ug/L	0.19	ND	113	70-130			11/20/19	J
Bis(2-ethylhexyl) phthalate	0.68	0.11	0.60	ug/L	0.57	0.23	78	70-130			11/20/19	
Bromacil	0.054	0.028	0.80	ug/L	0.047	ND	115	70-130			11/20/19	J
Butachlor	0.062	0.018	0.25	ug/L	0.047	ND	131	70-130			11/20/19	MS1.6 ***High***, J
Diazinon	0.012	0.0022	0.020	ug/L	0.0094	ND	128	70-130			11/20/19	J
Dimethoate	0.53	0.082	1.0	ug/L	0.38	ND	141	70-130			11/20/19	MS1.6 ***High***, J
Metolachlor	0.053	0.011	0.50	ug/L	0.047	ND	113	70-130			11/20/19	J
Metribuzin	0.048	0.0061	0.50	ug/L	0.047	ND	101	70-130			11/20/19	J
Molinate	0.051	0.0061	0.50	ug/L	0.047	ND	109	70-130			11/20/19	J
Propachlor	0.047	0.0056	0.50	ug/L	0.047	ND	100	70-130			11/20/19	J
Simazine	0.038	0.0049	0.070	ug/L	0.033	0.0059	97	70-130			11/20/19	J
Thiobencarb	0.055	0.0083	0.10	ug/L	0.047	ND	117	70-130			11/20/19	J
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.88*				*0.94*		*93*	*70-130*			11/20/19	
Surrogate: Benzo(a)pyrene-d12	*0.82*				*0.94*		*87*	*70-130*			11/20/19	
Surrogate: Triphenyl Phosphate	*1.0*				*0.94*		*108*	*70-130*			11/20/19	
EPA 531.1 - Quality Control												
Batch: A917289											Prepared: 11/15/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank (A917289-BLK1)												
3-Hydroxycarbofuran	ND	0.12	3.0	ug/L							11/16/19	
Aldicarb	ND	0.12	3.0	ug/L							11/16/19	
Aldicarb Sulfone	ND	0.12	2.0	ug/L							11/16/19	
Aldicarb Sulfoxide	ND	0.12	3.0	ug/L							11/16/19	
Carbaryl	ND	0.22	5.0	ug/L							11/16/19	
Carbofuran	ND	0.27	5.0	ug/L							11/16/19	
Methomyl	ND	0.19	2.0	ug/L							11/16/19	
Oxamyl	ND	0.090	20	ug/L							11/16/19	
Blank Spike (A917289-BS1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120			11/16/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0		105	80-120			11/16/19	J
Aldicarb Sulfone	3.4	0.12	2.0	ug/L	3.2		105	80-120			11/16/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 531.1 - Quality Control												
Batch: A917289											Prepared: 11/15/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank Spike (A917289-BS1)												
Aldicarb Sulfoxide	2.0	0.12	3.0	ug/L	2.0		102	80-120			11/16/19	J
Carbaryl	4.2	0.22	5.0	ug/L	4.0		106	80-120			11/16/19	J
Carbofuran	3.6	0.27	5.0	ug/L	3.6		99	80-120			11/16/19	J
Methomyl	4.2	0.19	2.0	ug/L	4.0		105	80-120			11/16/19	
Oxamyl	4.2	0.090	20	ug/L	4.0		105	80-120			11/16/19	J
Blank Spike Dup (A917289-BSD1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120	0	20	11/16/19	
Aldicarb	2.2	0.12	3.0	ug/L	2.0		109	80-120	4	20	11/16/19	J
Aldicarb Sulfone	3.3	0.12	2.0	ug/L	3.2		104	80-120	1	20	11/16/19	
Aldicarb Sulfoxide	2.1	0.12	3.0	ug/L	2.0		104	80-120	1	20	11/16/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0		103	80-120	3	20	11/16/19	J
Carbofuran	3.5	0.27	5.0	ug/L	3.6		96	80-120	3	20	11/16/19	J
Methomyl	4.6	0.19	2.0	ug/L	4.0		116	80-120	10	20	11/16/19	
Oxamyl	4.2	0.090	20	ug/L	4.0		106	80-120	1	20	11/16/19	J
Matrix Spike (A917289-MS1), Source: A9K0997-01												
3-Hydroxycarbofuran	4.1	0.12	3.0	ug/L	4.0	ND	103	65-135			11/16/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0	ND	105	65-135			11/16/19	J
Aldicarb Sulfone	3.1	0.12	2.0	ug/L	3.2	ND	96	65-135			11/16/19	
Aldicarb Sulfoxide	1.9	0.12	3.0	ug/L	2.0	ND	96	65-135			11/16/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0	ND	102	65-135			11/16/19	J
Carbofuran	3.2	0.27	5.0	ug/L	3.6	ND	90	65-135			11/16/19	J
Methomyl	4.1	0.19	2.0	ug/L	4.0	ND	103	65-135			11/16/19	
Oxamyl	3.9	0.090	20	ug/L	4.0	ND	97	65-135			11/16/19	J
EPA 547 - Quality Control												
Batch: A917319											Prepared: 11/16/2019	
Prep Method: EPA 547											Analyst: JNG	
Blank (A917319-BLK1)												
Glyphosate	ND	2.1	25	ug/L							11/16/19	
Surrogate: AMPA	*210*				*200*		*105*	*70-130*			11/16/19	
Blank Spike (A917319-BS1)												
Glyphosate	110	2.1	25	ug/L	100		107	70-130			11/16/19	
Surrogate: AMPA	*210*				*200*		*103*	*70-130*			11/16/19	
Blank Spike Dup (A917319-BSD1)												
Glyphosate	100	2.1	25	ug/L	100		104	70-130	3	30	11/16/19	
Surrogate: AMPA	*200*				*200*		*99*	*70-130*			11/16/19	
Matrix Spike (A917319-MS1), Source: A9K0997-01												
Glyphosate	100	2.1	25	ug/L	100	ND	104	70-130			11/16/19	
Surrogate: AMPA	*210*				*200*		*104*	*70-130*			11/16/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 547 - Quality Control												
Batch: A917319											Prepared: 11/16/2019	
Prep Method: EPA 547											Analyst: JNG	
Matrix Spike Dup (A917319-MSD1), Source: A9K0997-01												
Glyphosate	97	2.1	25	ug/L	100	ND	97	70-130	7	30	11/16/19	
Surrogate: AMPA	*200*				*200*		*98*	*70-130*			11/16/19	
EPA 548.1 - Quality Control												
Batch: A917162											Prepared: 11/13/2019	
Prep Method: EPA 548.1											Analyst: YNV	
Blank (A917162-BLK1)												
Endothall	ND	1.6	2.0	ug/L							11/14/19	
Blank Spike (A917162-BS1)												
Endothall	13	1.6	2.0	ug/L	20		64	46-116			11/14/19	
Blank Spike Dup (A917162-BSD1)												
Endothall	12	1.6	2.0	ug/L	20		62	46-116	5	30	11/14/19	
Matrix Spike (A917162-MS1), Source: A9K0686-01												
Endothall	2.0	1.6	2.0	ug/L	20	ND	10	46-116			11/14/19	MS1.0 ***Low***
Matrix Spike (A917162-MS2), Source: S9K0122-03												
Endothall	18	1.6	2.0	ug/L	20	ND	88	46-116			11/14/19	
EPA 549.2 - Quality Control												
Batch: A917100											Prepared: 11/13/2019	
Prep Method: EPA 549.2											Analyst: ANM	
Blank (A917100-BLK1)												
Diquat	ND	0.071	0.40	ug/L							11/14/19	
Blank Spike (A917100-BS1)												
Diquat	3.1	0.071	0.40	ug/L	4.0		77	70-130			11/14/19	
Blank Spike Dup (A917100-BSD1)												
Diquat	3.1	0.071	0.40	ug/L	4.0		77	70-130	0	30	11/14/19	
Matrix Spike (A917100-MS1), Source: A9K0686-01												
Diquat	2.3	0.071	0.40	ug/L	4.0	ND	59	70-130			11/14/19	MS1.0 ***Low***
Matrix Spike (A917100-MS2), Source: A9K0703-01												
Diquat	ND	0.071	0.40	ug/L	4.0	ND	0	70-130			11/14/19	MS1.0 ***Low***
SRL 524M-TCP - Quality Control												
Batch: A917192											Prepared: 11/14/2019	
Prep Method: no prep-volatiles											Analyst: JNG	
Blank (A917192-BLK1)												

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SRL 524M-TCP - Quality Control												
Batch: A917192											Prepared: 11/14/2019	
Prep Method: no prep-volatiles											Analyst: JNG	
Blank (A917192-BLK1)												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L							11/14/19	
Blank Spike (A917192-BS1)												
1,2,3-Trichloropropane	0.0044	0.0014	0.0050	ug/L	0.0050		88	80-120			11/14/19	J
Blank Spike Dup (A917192-BSD1)												
1,2,3-Trichloropropane	0.0042	0.0014	0.0050	ug/L	0.0050		84	80-120	4	30	11/14/19	J

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Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

Aggressive Index	Chlorothalonil	Trifluralin
Langelier Index	Threshold Odor	1,2,3-Trichloropropane

Certificate of Analysis

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

	2435		
Fresno			
State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-012
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-012
EPA - UCMR4	CA00079	State of Washington	C997-19d
San Bernardino			
State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-004	State of Oregon - NELAP	4119-004
Vancouver			
NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-012
State of Washington	C824-19		

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
Date needed:

A9L1804 clare4404 11/12/2019
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*Required Fields | Temp: | Thermometer ID:

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Claremont Land Group	Geralyn Skapik Additional cc's: Christofer Coppinger, John Bissel	PO#:	E-mail*:	

Address*:	City*:	State*:	Zip*:
5861 Pine Ave, Suite A-1	Chino Hills	CA	91709

Project:
Project #: A9L1804

Reporting Options: ☒ Trace (J-Flag) ☐ Swamp ☐ EDD Type: _____

Sampler Name (Printed/Signature)*: Alexander Arita

Regulatory Carbon Copies: ☐ SWRCB (Drinking Water) ☐ Merced Co ☐ Fresno Co ☐ Madera Co ☐ Tulare Co ☐ Other: _____

Regulatory Compliance: ☐ EDT to California SWRCB (Drinking Water) System Number*: _____ ☐ Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Gross Alpha	EXT-Rad 226, 228	
26G(C) 1	[redacted]	11/11/19	13:30	DW		X	X	X	X		X	X	X	
2	Trip Blank - 524 - Raw - Lot# 1119009	11/11/19		TB	Reported from: A9K0979-06					X				
	Revised COC created by EMP													

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: PIA#: Check / Cash Init.	

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____ **Custody Seal:** Y / N
Cooling Method: Wet Blue None **Chilling Process Begun:** Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

A9L1804 clare4404 11/12/2019

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BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

@ 4.4

Turnaround Time Request
- [x] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
- Date needed:

*Required Fields

Temp: 2.8° Thermometer ID: 57

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Hansji Corporation	John Bissel Additional cc's: Christofer Coppinger, Geralyn Skapik	Arun Malhotra PO#:	(714) 399-0152 E-mail*: johnb@hansji.com	

Address*:	City*:	State*:	Zip*:
631 W. Katella Ave., 5th Floor	Anaheim	CA	92802

Project:

Project #:

Reporting Options:
- [x] Trace (J-Flag)
- [ ] Swamp
- [ ] EDD Type:

Sampler Name (Printed/Signature)*: Alexander Arita (AA)

Regulatory Carbon Copies
- [ ] SWRCB (Drinking Water)
- [ ] Merced Co
- [ ] Fresno Co
- [ ] Madera Co
- [ ] Tulare Co
- [ ] Other:

Regulatory Compliance
- [ ] EDT to California SWRCB (Drinking Water)
- System Number*:
- [ ] Geotracker #:

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
26G(B) 1	[redacted]	11/11/19	12:00	DW		X	X	X	X	X			X	X
26G(A) 2	[redacted]	11/11/19	14:30	DW	High air content in water.	X	X	X	X	X			X	X
26G(C) 3	[redacted]	11/11/19	13:30	DW		X	X	X	X	X			X	X
4	Trip Blank - TCP - Lot# 1119003									X				
5	Trip Blank - 504 - Lot# 1019006										X			
6	Trip Blank - 524 - Lot# 1119009				See Revised COC 01/27/2020 AK							X		
7	Terra V. Well No 1	11/12/19	10:40	DW		X	X	X	X	X			X	X
8	Terra V. Well No 2	11/12/19	11:40	DW		X	X	X	X	X			X	X
9	TCP TB 1019035													
10	504 TB 1019036													
11	524 TB 1019007													
	+ MCL Notified 1855 SL													

Radon

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Alexander Arita	Geoscience	11/12/19	1557		
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery:	Check / Cash
		11/12/19	1557	Date: Amount: PIA# Int.	

Shipping Method: CONTRAC UPS GSO WALK-IN FED EX Courier: FCCM
Cooling Method: Wet Blue None
Custody Seal: Y / N
Chilling Process Begun: Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, and that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

Field sampling parameters:

26G(B) [redacted]
0.53 NTU @ 20 pH @ 13.2°C
436 µS @ 12.4°C
8.42 NTU
173 µS @ 12.5°C
8.15 pH @ 12.5°C

26G(A) [redacted]
3.03 NTU
223 µS @ 13.6°C
9.11 pH @ 14.1°C

26G(C) [redacted]
Terra V. Well No. 1
27.7 NTU
354 µS @ 13.2°C
7.73 pH @ 13.1°C

Terra V. Well No. 2
2.67 NTU
346 µS @ 13.8°C
8.53 pH @ 14.3°C

SR-FL-0012-08

A9L1804 clare4404 11/12/2019

BSK Associates SR-FL-0002-20

31

Sample Integrity

BSK Bottles: (Yes) No Page 1 of 2

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) NA (Yes) No NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes (No) NA

Bottles Received

"_" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	1-3	4	5	6	7-8
Bacti $Na_2S_2O_3$	—	—	1				1
None (P) White Cap	—	—	2C				2C
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	(P) F	1A				1A
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	4C/1B				4C/1B
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	(P) F	1A				1A
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	2C, 1B				2C/1B
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	3V	2V, TB			3V
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	2C				2C
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	1A				1A
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	1C				1C
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—	1A				1A
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	2V		2V/TB		2V
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	(P) F	1V				1V
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V			2V, TB	3V
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	1C				1C
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					3V
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P		Initial & Time		S P			

Labeled by: VLH 17:30

Labels Checked by: KMH 17:50

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Comments

Scanned: [signature]

Sample Integrity

BSK Bottles: (Yes) No Page 2 of 2

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) NA Yes (No) NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes (No) NA

Bottles Received — "_" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	9	10	11		
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	2V TB				
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—		2V TB			
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—			2V TB		
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Initial & Time Labeled by: VH 17:30

Labels Checked by: KMH 17:50

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned:

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

December 17, 2019 Ceres ID: 13219

BSK Associates
1414 Stanislaus St.
Fresno, CA 93706

The following report contains the results for the one drinking water sample received on November 14, 2019. This sample was analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under your Subcontract Order # A9L1804.

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date	&Time
13219-001	[redacted] 26G(C) A9L1804-01	11/14/2019	11/11/2019	13:30

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Method Blank**	**QC Batch #:** 2088	**Date Received:** NA
	Matrix: Drinking Water	**Date Extracted:** 11/26/2019
Project ID: A9L1804	**Sample Size:** 1.000 L	**ZB-5MS Analysis:** 11/26/2019

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 4.35	1.49	5.00		13C-2378-TCDD	88.5	31-137	
					CRS			
					37Cl4-2378-TCDD	64.6	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Ongoing Precision and Recovery**		**Date Received:** NA
	QC Batch #: 2088	**Date Extracted:** 11/26/2019
	Matrix: Drinking Water	**ZB-5MS Analysis:** 11/26/2019
Project ID: A9L1804	**Sample Size:** 1.000 L	

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	7.43	7.3-14.6	13C-2378-TCDD	95.5	25-141
			CRS		
			37Cl4-2378-TCDD	81.4	37-158
			(a) Limits based on method acceptance criteria.		

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

26G(C)

Client Sample ID: [redacted] A9L1804-01		
Project ID: A9L1804	**Ceres Sample ID:** 13219-001	**Date Received:** 11/14/2019
	QC Batch #: 2088	**Date Extracted:** 11/26/2019
Date Collected: 11/11/2019	**Matrix:** Drinking Water	**ZB-5MS Analysis:** 11/26/2019
Time Collected: 13:30	**Sample Size:** 1.022 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.06	1.49	4.89		13C-2378-TCDD	93.0	31-137	
					CRS			
					37Cl4-2378-TCDD	75.1	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

A9L1804

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

Ceres Analytical Laboratory, Inc
4919 Windplay Drive, Suite 1
El Dorado Hills, CA 95762
Phone :(916) 932-5011
Fax: -
Turnaround (Days): 20
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9L1804-01	[redacted] 26G(C)	**Client Matrix** Drinking Water	**11/11/2019 13:30**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Report from original data for A9K0979-03	

Released By	Date	Received By	Date
Released By	Date	Received By	Date

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322000425
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Elaine M. Phillips
BSK Analytical Laboratories
1414 Stanislaus Street
Fresno, CA 93706

Phone: (559) 497-2888
Fax:
Received: 11/13/2019
Analyzed: 11/24/2019

Proj: A9L1804

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
								MFL (million fibers per liter)	
A9L1804-01 322000425-0001	11/21/2019 12:20 PM	30	1288	0.2210	Chrysotile	1	0.19	0.19	0.01 - 1.10

Collection Date/Time: 11/11/2019 13:30 PM

Sample ozonated prior to analysis due to lab filtration time exceeding 48hr method hold time.

Sample A9K0979-03 separated from Order #321924383 is reported as A9L1804-01 on this new report as per client request.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/10/2020 13:20:18

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested. This report may not be reproduced, except in full, without written permission by LA Testing. Samples received in good condition unless otherwise noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

BSK ASSOCIATES

SUBCONTRACT ORDER

A9L1804

#322000425

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

L A Testing
520 Mission St.
South Pasadena, CA 91030
Phone :(800) 303-0047
Fax: (323) 254-9982
Turnaround (Days): 20
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9L1804-01	[redacted]26G(C)	**Client Matrix** Drinking Water	11/11/2019 13:30
Lab Matrix:	Water		
	Analysis:		
	EXT-Asbestos, Drinking Water by EPA 100.2	Report from original data for A9K0979-03	

Released By	Date	Received By	Date
		(2) marcisscroc	12/17/19 1452 (emailed)
Released By	Date	Received By	Date

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917175
Customer : 2-22939

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
[redacted] 26G(C)	11/11/2019	11/14/2019	SP 1917175-001	DW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	11/26/2019:218499 All analysis quality controls are within established criteria
	11/19/2019:213335 All preparation quality controls are within established criteria
903.0	11/21/2019:218263 All analysis quality controls are within established criteria
	11/14/2019:213183 All preparation quality controls are within established criteria
Ra - 05	12/02/2019:218829 All analysis quality controls are within established criteria
	11/21/2019:213195 All preparation quality controls are within established criteria

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA ELAP Certification No. 1573

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

Office & Laboratory
563 E. Lindo Avenue
Chico, CA 95926
TEL: (530)343-5818
FAX: (530)343-3807
CA ELAP Certification No. 2670

Office & Laboratory
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
TEL: (805)783-2940
FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX: [illegible]
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917175
BSK Associates Engineers & Laboratories Customer : 2-22939

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2019-12-18

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917175-001
Customer ID : 2-22939

Sampled On : November 11, 2019-13:30
Sampled By : Not Available
Received On : November 14, 2019-10:45
Matrix : Drinking Water

26G(C)
Description : [redacted]
Project : A9K0979-03

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry								
Gross Alpha	2.70 ± 1.02	1.11	pCi/L	15/5	900.0	11/19/19-09:01 2P1913335	900.0	11/26/19-14:38 2A1918499
Total Alpha Radium (226)	0.000 ± 0.079	0.362	pCi/L	3	903.0	11/14/19-18:00 2P1913183	903.0	11/21/19-08:27 2A1918263
Ra 228	0.000 ± 0.788	0.400	pCi/L	2	Ra - 05	11/21/19-18:30 2P1913195	Ra - 05	12/02/19-19:50 2A1918829

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA ELAP Certification No. 1573

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

Office & Laboratory
563 E. Lindo Avenue
Chico, CA 95926
TEL: (530)343-5818
FAX: (530)343-3807
CA ELAP Certification No. 2670

Office & Laboratory
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
TEL: (805)783-2940
FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917175
BSK Associates Engineers & Laboratories Customer : 2-22939

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	11/26/19:218499JCA	CCV	cpm	8120	38.2 %	35-47	
			CCB	cpm		0.0800	0.14	
Gross Alpha	900.0	11/19/19:213335IWC	Blank	pCi/L		0.63	3	
			LCS	pCi/L	155.2	94.8 %	75-125	
			MS	pCi/L	155.2	115 %	60-140	
		(VI 1946767-001)	MSD	pCi/L	155.2	111 %	60-140	
			MSRPD	pCi/L	155.2	3.1%	≤30	
Alpha	903.0	11/21/19:218263JCA	CCV	cpm	8123	39.4 %	37-46	
			CCB	cpm		0.1400	0.16	
Total Alpha Radium (226)	903.0	11/14/19:213183emv	RgBlk	pCi/L		0.03	2	
			LCS	pCi/L	23.33	57.7 %	52-107	
			BS	pCi/L	23.33	58.4 %	43-111	
			BSD	pCi/L	23.33	59.5 %	43-111	
			BSRPD	pCi/L	23.33	1.9%	≤35.5	
Beta	Ra - 05	12/02/19:218829emv	CCV	cpm	8116	88.3 %	84-94	
			CCB	cpm		0.4800	0.48	
Ra 228	Ra - 05	11/21/19:213195emv	RgBlk	pCi/L		-0.03	3	
			LRS	pCi/L	14.13	69.9 %	65-108	
			BS	pCi/L	14.13	93.8 %	75-125	
			BSD	pCi/L	14.13	92.0 %	75-125	
			BSRPD	pCi/L	14.13	0.25	≤3	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA ELAP Certification No. 1573

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

Office & Laboratory
563 E. Lindo Avenue
Chico, CA 95926
TEL: (530)343-5818
FAX: (530)343-3807
CA ELAP Certification No. 2670

Office & Laboratory
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
TEL: (805)783-2940
FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX:
CA ELAP Certification No. 2810

Chain of Custody

Map Re

Client: **BSK Associates**

Address: BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Phone: (559)497-2888 Xt116 Fax: (559)485-69356132442

Contact Person: Adam Trevarrow

Project Name: **A9K0979-03**

Purchase Order Number:

Sampler(s) Not Available

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **SP 1917175** 2-22939

Method of Sampling: Composite(C) Grab(G) 8

Type of Sample **SEE REVERSE SIDE**

Potable(P) Non-Potable(NP) Ag Water(AgW)

Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)

Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling	Type of Sample	Potable(P)	Bacti Type	Bacti Reason	Radio Chemistry-Gross Alpha,Total Radium 226,Ra 228 32oz(P)-HNO3 , 32oz(P)-HNO3
1	[redacted] 26G(C)	11/11/19	13:30	G	DW				2,1

Remarks:
Original COC #1915352

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
OnTrac								
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:
Shawn Peck	11/14/19	10:45						

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

A9L1803
1/27/2020
Invoice: AD01459

Geralyn Skapik
Claremont Land Group
5861 Pine Ave, Suite A-1
Chino Hills, CA 91709

RE: Report for A9L1803 Yosemite Title 22 Testing

Dear Geralyn Skapik,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 11/12/2019. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Elaine M. Phillips , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Elaine M. Phillips, Project Coordinator

Accredited in Accordance with NELAP
ORELAP #4021-009

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Claremont Land Group	**Invoice To:**	Hansji Corporation
Report To:	Geralyn Skapik	**Invoice Attn:**	John Bissel
Project #:	[redacted] 26G(A)	**Project PO#:**	-
Received:	11/12/2019 - 15:57		
Report Due:	12/30/2019		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 2.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Foam
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Chain of Custody Notes

Date: 1/27/2020
Initials: EMP
Note: Moved data from A9K0979-02 for [redacted] 26G(A) **to Work Order A9L1803, as per client request.**

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B2.0	Analyte present in the method blank above the method detection limit (MDL). Laboratory does not determine batch acceptance on detections below the reporting limit (RL).
B2.2	Analyte detected in associated method blank below the reporting limit. Sample result may be attributable to ambient laboratory background.
BS	Blank spike recoveries did not meet acceptance limits.
BS1.0	Blank spike recovery for this analyte was biased high; no material impact on reported result as sample is ND for this parameter.
CV0.0	CCV recovery was above method acceptance limits; no material impact on reported result as sample detection is below the reporting limit for this parameter.
HT2.0	Holding time exceeded. Sample was received at the lab past recommended holding time.
J	Estimated value
MS1.0	Matrix spike recoveries exceed control limits.
MS1.6	Matrix Spike recovery meets the wider acceptance criteria of 50-150% when the spike level is at or below the reporting limit (RL).

Report Distribution

Recipient(s)	Report Format	CC:
Geralyn Skapik	MCL.RPT	
Christofer Coppinger	MCL.RPT	
John Bissel	MCL.RPT	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1803-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(A)

Sample Date - Time: 11/11/2019 - 14:30
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.95 Temp=12.8 ºC Cond.=173 umho Turb. =8.82 ntu

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aggressive Index		**11**						A917677	11/22/19	11/22/19	
Alkalinity as CaCO3	SM 2320B	**90**		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Bicarbonate as CaCO3	SM 2320B	**90**		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Carbonate as CaCO3	SM 2320B	ND		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Hydroxide as CaCO3	SM 2320B	ND		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Chloride	EPA 300.0	**1.2**	0.51	1.0	mg/L	1		A917080	11/12/19	11/12/19	
Color, Apparent	SM 2120B	ND		5.0	CU	1		A916681	11/12/19 19:27	11/12/19	
Color pH (1)	SM 4500-H+ B	**6.6**			pH Units	1		A916681	11/12/19	11/12/19	
Cyanide (total)	SM 4500-CN E	**0.0060**	0.0022	0.0050	mg/L	1	0.15	A917193	11/14/19	11/19/19	
Conductivity @ 25C	SM 2510B	**180**		1.0	umhos/cm	1		A917122	11/13/19	11/13/19	
Fluoride	EPA 300.0	**0.051**	0.042	0.10	mg/L	1	2	A917080	11/12/19	11/12/19	J
Hexavalent Chromium	EPA 218.7	**0.066**	0.011	0.050	ug/L	1	50	A917182	11/14/19	11/14/19	
Langelier Index	SM 2330B	**-1.1**						A917686	11/22/19	11/22/19	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.021	0.050	mg/L	1		A917050	11/12/19 18:50	11/12/19	
Nitrate + Nitrite as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A917080	11/12/19 23:00	11/12/19	
Nitrate as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A917080	11/12/19 23:00	11/12/19	
Nitrite as N	EPA 300.0	ND	0.020	0.050	mg/L	1	1	A917080	11/12/19 23:00	11/12/19	
Threshold Odor	SM 2150B	ND		1.0	T.O.N.	1		A916905	11/12/19 18:18	11/12/19	HT2.0
Perchlorate	EPA 314.0	ND	0.61	2.0	ug/L	1	6	A917054	11/13/19	11/13/19	
pH (1)	SM 4500-H+ B	**7.1**			pH Units	1		A917122	11/13/19	11/13/19	
pH Temperature in °C		**23.7**									
Sulfate as SO4	EPA 300.0	**0.84**	0.40	1.0	mg/L	1		A917080	11/12/19	11/12/19	J
Total Dissolved Solids	SM 2540C	**130**		5.0	mg/L	1		A917174	11/14/19	11/19/19	
Turbidity	SM 2130B	**3.1**		0.10	NTU	1		A916681	11/12/19 19:43	11/12/19	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	**0.041**	0.023	0.050	mg/L	1	1	A917108	11/13/19	11/20/19	J
Antimony	EPA 200.8	ND	0.91	2.0	ug/L	1	6	A917108	11/13/19	11/21/19	
Arsenic	EPA 200.8	ND	1.2	2.0	ug/L	1	10	A917108	11/13/19	11/21/19	
Barium	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A917108	11/13/19	11/20/19	
Beryllium	EPA 200.8	ND	0.45	1.0	ug/L	1	4	A917108	11/13/19	11/21/19	
Cadmium	EPA 200.8	ND	0.45	1.0	ug/L	1	5	A917108	11/13/19	11/21/19	
Calcium	EPA 200.7	**20**	0.046	0.10	mg/L	1		A917108	11/13/19	11/20/19	
Chromium	EPA 200.8	ND	4.5	10	ug/L	1	50	A917108	11/13/19	11/21/19	
Copper	EPA 200.8	**3.8**	2.3	5.0	ug/L	1		A917108	11/13/19	11/21/19	J
Iron	EPA 200.7	**0.93**	0.014	0.030	mg/L	1		A917108	11/13/19	11/20/19	
Lead	EPA 200.8	ND	0.45	1.0	ug/L	1		A917108	11/13/19	11/21/19	
Magnesium	EPA 200.7	**6.1**	0.046	0.10	mg/L	1		A917108	11/13/19	11/20/19	
Manganese	EPA 200.7	**0.028**	0.0045	0.010	mg/L	1		A917108	11/13/19	11/20/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1803-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(A)

Sample Date - Time: 11/11/2019 - 14:30
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.95 Temp=12.8 ºC Cond.=173 umho Turb. =8.82 ntu

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Mercury	EPA 200.8	ND	0.091	0.20	ug/L	1	2	A917108	11/13/19	11/21/19	
Nickel	EPA 200.8	**8.7**	4.5	10	ug/L	1	100	A917108	11/13/19	11/21/19	J
Potassium	EPA 200.7	**1.4**	0.91	2.0	mg/L	1		A917108	11/13/19	11/20/19	J
Selenium	EPA 200.8	ND	0.91	2.0	ug/L	1	50	A917108	11/13/19	11/21/19	
Silver	EPA 200.8	ND	4.5	10	ug/L	1		A917108	11/13/19	11/21/19	
Sodium	EPA 200.7	**8.8**	0.45	1.0	mg/L	1		A917108	11/13/19	11/20/19	
Thallium	EPA 200.8	ND	0.45	1.0	ug/L	1	2	A917108	11/13/19	11/21/19	
Hardness as CaCO3	SM 2340B	**76**		0.41	mg/L						
Uranium	EPA 200.8	ND	0.45	1.0	ug/L	1	30	A917108	11/13/19	11/21/19	
Uranium, Radiological		**< 0.67**		0.67	pCi/L		20				
Zinc	EPA 200.7	ND	0.023	0.050	mg/L	1		A917108	11/13/19	11/20/19	

Microbiology

Analyte	Method	Result	RL	Units	Batch	Prepared	Analyzed	Qual
Coliform, Total and E.Coli by Quanti-Tray 51 Wells								
E. Coli	SM 9223B	**<1**	1	MPN/100 mL	A917073	11/12/19 17:50	12/13/19 13:51	
Total Coliform	SM 9223B	**<1**	1	MPN/100 mL	A917073	11/12/19 17:50	12/13/19 13:51	

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
EDB and DBCP by GC-ECD											
Dibromochloropropane (DBCP)	EPA 504.1	ND	0.0060	0.010	ug/L	1	0.2	A917099	11/13/19	11/14/19	
Ethylene Dibromide (EDB)	EPA 504.1	ND	0.0050	0.020	ug/L	1	0.05	A917099	11/13/19	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 504.1	111 %		*Acceptable range: 70-130 %*							
Organohalide Pesticides and PCBs by GC-ECD											
Aldrin	EPA 505	ND	0.022	0.075	ug/L	1		A917099	11/13/19	11/14/19	
Chlordane (Technical)	EPA 505	ND	0.091	0.10	ug/L	1	0.1	A917099	11/13/19	11/14/19	
Dieldrin	EPA 505	ND	0.0042	0.020	ug/L	1		A917099	11/13/19	11/14/19	
Endrin	EPA 505	ND	0.0037	0.10	ug/L	1	2	A917099	11/13/19	11/14/19	
Heptachlor	EPA 505	ND	0.0052	0.010	ug/L	1	0.01	A917099	11/13/19	11/14/19	
Heptachlor Epoxide	EPA 505	ND	0.0048	0.010	ug/L	1	0.01	A917099	11/13/19	11/14/19	
Hexachlorobenzene	EPA 505	ND	0.032	0.50	ug/L	1	1	A917099	11/13/19	11/14/19	
Hexachlorocyclopentadiene	EPA 505	ND	0.041	1.0	ug/L	1	50	A917099	11/13/19	11/14/19	
Lindane	EPA 505	ND	0.0059	0.20	ug/L	1	0.2	A917099	11/13/19	11/14/19	
Methoxychlor	EPA 505	ND	0.031	10	ug/L	1	30	A917099	11/13/19	11/14/19	
PCB Aroclor Screen	EPA 505	ND	0.078	0.50	ug/L	1	0.5	A917099	11/13/19	11/14/19	
Toxaphene	EPA 505	ND	0.33	1.0	ug/L	1	3	A917099	11/13/19	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 505	111 %		*Acceptable range: 70-130 %*							
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-T	EPA 515.4	ND	0.13	1.0	ug/L	1		A917083	11/12/19	11/14/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1803-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(A)

Sample Date - Time: 11/11/2019 - 14:30
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.95 Temp=12.8 ºC Cond.=173 umho Turb. =8.82 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-TP (Silvex)	EPA 515.4	ND	0.016	1.0	ug/L	1	50	A917083	11/12/19	11/14/19	
2,4-D	EPA 515.4	ND	0.074	10	ug/L	1	70	A917083	11/12/19	11/14/19	
Bentazon	EPA 515.4	ND	1.3	2.0	ug/L	1	18	A917083	11/12/19	11/14/19	
Dalapon	EPA 515.4	ND	0.58	10	ug/L	1	200	A917083	11/12/19	11/14/19	
Dicamba	EPA 515.4	ND	0.13	1.5	ug/L	1		A917083	11/12/19	11/14/19	
Dinoseb	EPA 515.4	ND	0.032	2.0	ug/L	1	7	A917083	11/12/19	11/14/19	
Pentachlorophenol	EPA 515.4	ND	0.011	0.20	ug/L	1	1	A917083	11/12/19	11/14/19	
Picloram	EPA 515.4	ND	0.084	1.0	ug/L	1	500	A917083	11/12/19	11/14/19	
Surrogate: DCPAA	EPA 515.4	125 %			*Acceptable range: 70-130 %*						
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A917163	11/14/19	11/14/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A917163	11/14/19	11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A917163	11/14/19	11/14/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A917163	11/14/19	11/14/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A917163	11/14/19	11/14/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917163	11/14/19	11/14/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A917163	11/14/19	11/14/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A917163	11/14/19	11/14/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A917163	11/14/19	11/14/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A917163	11/14/19	11/14/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A917163	11/14/19	11/14/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A917163	11/14/19	11/14/19	CV0.0
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A917163	11/14/19	11/14/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1803-01
Sampled By: Alexander Arita
Sample Description: [redacted]26G(A)

Sample Date - Time: 11/11/2019 - 14:30
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.95 Temp=12.8 ºC Cond.=173 umho Turb. =8.82 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A917163	11/14/19	11/14/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A917163	11/14/19	11/14/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917163	11/14/19	11/14/19	
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A917163	11/14/19	11/14/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917163	11/14/19	11/14/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Methyl-t-butyl ether	EPA 524.2	ND	0.083	0.50	ug/L	1	13	A917163	11/14/19	11/14/19	
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A917163	11/14/19	11/14/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917163	11/14/19	11/14/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A917163	11/14/19	11/14/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917163	11/14/19	11/14/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A917163	11/14/19	11/14/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Toluene	EPA 524.2	**1.8**	0.32	0.50	ug/L	1	150	A917163	11/14/19	11/14/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A917163	11/14/19	11/14/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A917163	11/14/19	11/14/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	103 %		*Acceptable range: 70-130 %*							
Surrogate: Bromofluorobenzene	EPA 524.2	105 %		*Acceptable range: 70-130 %*							
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				
Semi-Volatile Organics by GC-MS											
Alachlor	EPA 525.3	ND	0.022	1.0	ug/L	1	2	A917200	11/14/19	11/20/19	
Atrazine	EPA 525.3	ND	0.0076	0.50	ug/L	1	1	A917200	11/14/19	11/20/19	
Benzo(a)pyrene	EPA 525.3	ND	0.0019	0.10	ug/L	1	0.2	A917200	11/14/19	11/20/19	

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Certificate of Analysis

Sample ID: A9L1803-01
Sampled By: Alexander Arita
Sample Description: [redacted] 26G(A)

Sample Date - Time: 11/11/2019 - 14:30
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.95 Temp=12.8 ºC Cond.=173 umho Turb. =8.82 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Semi-Volatile Organics by GC-MS											
Bis(2-ethylhexyl) adipate	EPA 525.3	ND	0.067	3.0	ug/L	1	400	A917200	11/14/19	11/20/19	
Bis(2-ethylhexyl) phthalate	EPA 525.3	**0.36**	0.11	3.0	ug/L	1	4	A917200	11/14/19	11/20/19	J, B2.2
Bromacil	EPA 525.3	ND	0.028	10	ug/L	1		A917200	11/14/19	11/20/19	
Butachlor	EPA 525.3	ND	0.018	0.38	ug/L	1		A917200	11/14/19	11/20/19	
Diazinon	EPA 525.3	ND	0.0022	0.25	ug/L	1		A917200	11/14/19	11/20/19	
Dimethoate	EPA 525.3	ND	0.082	10	ug/L	1		A917200	11/14/19	11/20/19	BS1.0
Metolachlor	EPA 525.3	ND	0.011	0.50	ug/L	1		A917200	11/14/19	11/20/19	
Metribuzin	EPA 525.3	ND	0.0061	0.50	ug/L	1		A917200	11/14/19	11/20/19	
Molinate	EPA 525.3	ND	0.0061	2.0	ug/L	1	20	A917200	11/14/19	11/20/19	
Propachlor	EPA 525.3	ND	0.0056	0.50	ug/L	1		A917200	11/14/19	11/20/19	
Simazine	EPA 525.3	ND	0.0049	1.0	ug/L	1	4	A917200	11/14/19	11/20/19	
Thiobencarb	EPA 525.3	ND	0.0083	1.0	ug/L	1	70	A917200	11/14/19	11/20/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	EPA 525.3	91 %			*Acceptable range: 70-130 %*						
Surrogate: Benzo(a)pyrene-d12	EPA 525.3	88 %			*Acceptable range: 70-130 %*						
Surrogate: Triphenyl Phosphate	EPA 525.3	109 %			*Acceptable range: 70-130 %*						
Carbamates by HPLC											
3-Hydroxycarbofuran	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb Sulfone	EPA 531.1	ND	0.12	2.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb Sulfoxide	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Carbaryl	EPA 531.1	ND	0.22	5.0	ug/L	1		A917289	11/15/19	11/16/19	
Carbofuran	EPA 531.1	ND	0.27	5.0	ug/L	1	18	A917289	11/15/19	11/16/19	
Methomyl	EPA 531.1	ND	0.19	2.0	ug/L	1		A917289	11/15/19	11/16/19	
Oxamyl	EPA 531.1	ND	0.090	20	ug/L	1	50	A917289	11/15/19	11/16/19	
Glyphosate by HPLC											
Glyphosate	EPA 547	ND	2.1	25	ug/L	1	700	A917319	11/16/19	11/16/19	
Surrogate: AMPA	EPA 547	103 %			*Acceptable range: 70-130 %*						
Endothall by GC-MS											
Endothall	EPA 548.1	ND	1.6	45	ug/L	1	100	A917162	11/13/19	11/14/19	
Diquat by HPLC											
Diquat	EPA 549.2	ND	0.071	4.0	ug/L	1	20	A917100	11/13/19	11/14/19	
1,2,3-Trichloropropane by GC-MS SIM											
1,2,3-Trichloropropane	SRL 524M-TCP	ND	0.0014	0.0050	ug/L	1	0.005	A917192	11/14/19	11/14/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1803-02
Sampled By: BSK
Sample Description: Trip Blank 524 1119009

Sample Date - Time: 11/11/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A917282	11/15/19	11/15/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A917282	11/15/19	11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A917282	11/15/19	11/15/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A917282	11/15/19	11/15/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A917282	11/15/19	11/15/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917282	11/15/19	11/15/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A917282	11/15/19	11/15/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A917282	11/15/19	11/15/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A917282	11/15/19	11/15/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A917282	11/15/19	11/15/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A917282	11/15/19	11/15/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A917282	11/15/19	11/15/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A917282	11/15/19	11/15/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A917282	11/15/19	11/15/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917282	11/15/19	11/15/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1803-02
Sampled By: BSK
Sample Description: Trip Blank 524 1119009

Sample Date - Time: 11/11/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A917282	11/15/19	11/15/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917282	11/15/19	11/15/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Methyl-t-butyl ether	EPA 524.2	**0.13**	0.083	0.50	ug/L	1	13	A917282	11/15/19	11/15/19	J
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A917282	11/15/19	11/15/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917282	11/15/19	11/15/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A917282	11/15/19	11/15/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917282	11/15/19	11/15/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A917282	11/15/19	11/15/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A917282	11/15/19	11/15/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A917282	11/15/19	11/15/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A917282	11/15/19	11/15/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	116 %			*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	116 %			*Acceptable range: 70-130 %*						
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				

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BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 218.7 - Quality Control												
Batch: A917182											Prepared: 11/14/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A917182-BLK1)												
Hexavalent Chromium	ND	0.011	0.050	ug/L							11/14/19	
Blank Spike (A917182-BS1)												
Hexavalent Chromium	0.053	0.011	0.050	ug/L	0.050		106	50-150			11/14/19	
Matrix Spike (A917182-MS1), Source: A9K1128-01												
Hexavalent Chromium	2.2	0.011	0.050	ug/L	2.0	0.26	97	85-115			11/14/19	
Matrix Spike Dup (A917182-MSD1), Source: A9K1128-01												
Hexavalent Chromium	2.3	0.011	0.050	ug/L	2.0	0.26	100	85-115	3	15	11/14/19	
EPA 300.0 - Quality Control												
Batch: A917080											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A917080-BLK1)												
Chloride	ND	0.51	1.0	mg/L							11/12/19	
Fluoride	ND	0.042	0.10	mg/L							11/12/19	
Nitrate + Nitrite as N	ND	0.099	0.23	mg/L							11/12/19	
Nitrate as N	ND	0.099	0.23	mg/L							11/12/19	
Nitrite as N	ND	0.020	0.050	mg/L							11/12/19	
Sulfate as SO4	ND	0.40	1.0	mg/L							11/12/19	
Blank Spike (A917080-BS1)												
Chloride	96	0.51	1.0	mg/L	100		96	90-110			11/12/19	
Fluoride	0.95	0.042	0.10	mg/L	1.0		95	90-110			11/12/19	
Nitrate as N	21	0.099	0.23	mg/L	23		95	90-110			11/12/19	
Nitrite as N	1.0	0.020	0.050	mg/L	1.0		104	90-110			11/12/19	
Sulfate as SO4	97	0.40	1.0	mg/L	100		97	90-110			11/12/19	
Matrix Spike (A917080-MS1), Source: A9K0979-01												
Chloride	48	0.51	1.0	mg/L	50	1.1	94	80-120			11/12/19	
Fluoride	0.49	0.042	0.10	mg/L	0.50	0.045	89	80-120			11/12/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	90	80-120			11/12/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	95	50-110			11/12/19	
Sulfate as SO4	54	0.40	1.0	mg/L	50	6.5	95	80-120			11/12/19	
Matrix Spike (A917080-MS2), Source: A9K0907-13												
Chloride	55	0.51	1.0	mg/L	50	6.9	96	80-120			11/13/19	
Fluoride	0.55	0.042	0.10	mg/L	0.50	0.097	91	80-120			11/13/19	
Nitrate as N	15	0.099	0.23	mg/L	11	3.8	95	80-120			11/13/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	95	50-110			11/13/19	
Sulfate as SO4	56	0.40	1.0	mg/L	50	7.6	96	80-120			11/13/19	
Matrix Spike Dup (A917080-MSD1), Source: A9K0979-01												
Chloride	49	0.51	1.0	mg/L	50	1.1	95	80-120	1	20	11/12/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control												
Batch: A917080											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Matrix Spike Dup (A917080-MSD1), Source: A9K0979-01												
Fluoride	0.50	0.042	0.10	mg/L	0.50	0.045	90	80-120	1	10	11/12/19	
Nitrate as N	10	0.099	0.23	mg/L	11	ND	92	80-120	1	20	11/12/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	95	50-110	0	20	11/12/19	
Sulfate as SO4	55	0.40	1.0	mg/L	50	6.5	97	80-120	1	20	11/12/19	
Matrix Spike Dup (A917080-MSD2), Source: A9K0907-13												
Chloride	55	0.51	1.0	mg/L	50	6.9	97	80-120	1	20	11/13/19	
Fluoride	0.55	0.042	0.10	mg/L	0.50	0.097	91	80-120	1	10	11/13/19	
Nitrate as N	15	0.099	0.23	mg/L	11	3.8	97	80-120	1	20	11/13/19	
Nitrite as N	0.48	0.020	0.050	mg/L	0.50	ND	97	50-110	1	20	11/13/19	
Sulfate as SO4	56	0.40	1.0	mg/L	50	7.6	98	80-120	1	20	11/13/19	
EPA 314.0 - Quality Control												
Batch: A917054											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: RES	
Blank (A917054-BLK1)												
Perchlorate	ND	0.61	2.0	ug/L							11/13/19	
Blank Spike (A917054-BS1)												
Perchlorate	14	0.61	2.0	ug/L	15		95	85-115			11/13/19	
Matrix Spike (A917054-MS1), Source: A9K0524-01RE1												
Perchlorate	8.9	1.2	4.0	ug/L	10	ND	89	80-120			11/13/19	
Matrix Spike Dup (A917054-MSD1), Source: A9K0524-01RE1												
Perchlorate	8.0	1.2	4.0	ug/L	10	ND	80	80-120	11	15	11/13/19	
SM 2120B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												
Color, Apparent	ND		5.0	CU							11/12/19	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Color, Apparent	20		5.0	CU		20			0	20	11/12/19	
Duplicate (A916681-DUP2), Source: A9K0992-01												
Color, Apparent	ND		5.0	CU		ND				20	11/12/19	
SM 2130B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2130B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												
Turbidity	ND		0.10	NTU							11/12/19	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Turbidity	19		0.10	NTU		19			2	20	11/12/19	
SM 2150B - Quality Control												
Batch: A916905											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A916905-BLK1)												
Threshold Odor	ND		1.0	T.O.N.							11/12/19	
Blank (A916905-BLK2)												
Threshold Odor	ND		1.0	T.O.N.							11/12/19	
SM 2320B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A917122-BLK1)												
Alkalinity as CaCO3	ND		3.0	mg/L							11/13/19	
Bicarbonate as CaCO3	ND		3.0	mg/L							11/13/19	
Carbonate as CaCO3	ND		3.0	mg/L							11/13/19	
Hydroxide as CaCO3	ND		3.0	mg/L							11/13/19	
Blank Spike (A917122-BS1)												
Alkalinity as CaCO3	95		3.0	mg/L	100	ND	95	80-120			11/13/19	
Blank Spike Dup (A917122-BSD1)												
Alkalinity as CaCO3	96		3.0	mg/L	100	ND	96	80-120	1	20	11/13/19	
Duplicate (A917122-DUP1), Source: A9K0992-01												
Alkalinity as CaCO3	82		3.0	mg/L		85			4	10	11/13/19	
Bicarbonate as CaCO3	82		3.0	mg/L		85			4	10	11/13/19	
Carbonate as CaCO3	ND		3.0	mg/L		ND				10	11/13/19	
Hydroxide as CaCO3	ND		3.0	mg/L		ND				10	11/13/19	
SM 2510B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike (A917122-BS1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110			11/13/19	
Blank Spike Dup (A917122-BSD1)												

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2510B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike Dup (A917122-BSD1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110	0	5	11/13/19	
Duplicate (A917122-DUP1), Source: A9K0992-01												
Conductivity @ 25C	410		1.0	umhos/cm		410			0	5	11/13/19	
SM 2540C - Quality Control												
Batch: A917174											Prepared: 11/14/2019	
Prep Method: Method Specific Preparation											Analyst: DEH	
Blank (A917174-BLK1)												
Total Dissolved Solids	ND		5.0	mg/L							11/19/19	
Blank Spike (A917174-BS1)												
Total Dissolved Solids	990		5.0	mg/L	1000	ND	99	70-130			11/19/19	
Duplicate (A917174-DUP1), Source: A9K1039-01												
Total Dissolved Solids	440		5.0	mg/L		440			0	10	11/19/19	
Duplicate (A917174-DUP2), Source: A9K0821-01												
Total Dissolved Solids	260		5.0	mg/L		260			0	10	11/19/19	
SM 4500-CN E - Quality Control												
Batch: A917193											Prepared: 11/14/2019	
Prep Method: Total Cyanide Distillation											Analyst: CEG	
Blank (A917193-BLK1)												
Cyanide (total)	ND	0.0022	0.0050	mg/L							11/19/19	
Blank Spike (A917193-BS1)												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25		106	80-120			11/19/19	
Blank Spike Dup (A917193-BSD1)												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25		105	80-120	1	20	11/19/19	
Matrix Spike (A917193-MS1), Source: A9K1217-01												
Cyanide (total)	0.24	0.0022	0.0050	mg/L	0.25	ND	95	80-120			11/19/19	
Matrix Spike Dup (A917193-MSD1), Source: A9K1217-01												
Cyanide (total)	0.23	0.0022	0.0050	mg/L	0.25	ND	93	80-120	2	20	11/19/19	
SM 4500-H+ B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Duplicate (A916681-DUP1), Source: A9K0821-01												

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 4500-H+ B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Color pH (1)	7.80			pH Units		7.50			4		11/12/19	
Duplicate (A916681-DUP2), Source: A9K0992-01												
Color pH (1)	8.40			pH Units		8.40			0		11/12/19	
SM 4500-H+ B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Duplicate (A917122-DUP1), Source: A9K0992-01												
pH (1)	8.02			pH Units		8.02			0		11/13/19	
SM 5540C - Quality Control												
Batch: A917050											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: SYY	
Blank (A917050-BLK1)												
MBAS, Calculated as LAS, mol wt 340	ND	0.021	0.050	mg/L							11/12/19	
Blank Spike (A917050-BS1)												
MBAS, Calculated as LAS, mol wt 340	1.0	0.021	0.050	mg/L	1.0		103	82-112			11/12/19	
Blank Spike Dup (A917050-BSD1)												
MBAS, Calculated as LAS, mol wt 340	1.0	0.021	0.050	mg/L	1.0		103	82-112	0	20	11/12/19	
Matrix Spike (A917050-MS1), Source: A9K0851-01												
MBAS, Calculated as LAS, mol wt 340	0.65	0.021	0.050	mg/L	1.0	ND	65	80-112			11/12/19	MS1.0 ***Low***
Matrix Spike Dup (A917050-MSD1), Source: A9K0851-01												
MBAS, Calculated as LAS, mol wt 340	0.64	0.021	0.050	mg/L	1.0	ND	64	80-112	1	20	11/12/19	MS1.0 ***Low***

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MDS	
Blank (A917108-BLK2)												
Aluminum	ND	0.023	0.050	mg/L							11/20/19	
Barium	ND	0.023	0.050	mg/L							11/20/19	
Calcium	ND	0.046	0.10	mg/L							11/20/19	
Iron	ND	0.014	0.030	mg/L							11/20/19	
Magnesium	ND	0.046	0.10	mg/L							11/20/19	
Manganese	ND	0.0045	0.010	mg/L							11/20/19	
Potassium	ND	0.91	2.0	mg/L							11/20/19	
Sodium	ND	0.45	1.0	mg/L							11/20/19	
Zinc	ND	0.023	0.050	mg/L							11/20/19	
Blank Spike (A917108-BS2)												
Aluminum	0.22	0.023	0.050	mg/L	0.20		108	85-115			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20		100	85-115			11/20/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		97	85-115			11/20/19	
Iron	0.19	0.014	0.030	mg/L	0.20		96	85-115			11/20/19	
Magnesium	4.1	0.046	0.10	mg/L	4.0		102	85-115			11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20		104	85-115			11/20/19	
Potassium	4.1	0.91	2.0	mg/L	4.0		101	85-115			11/20/19	
Sodium	4.4	0.45	1.0	mg/L	4.0		109	85-115			11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20		98	85-115			11/20/19	
Blank Spike Dup (A917108-BSD2)												
Aluminum	0.21	0.023	0.050	mg/L	0.20		107	85-115	1	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20		100	85-115	0	20	11/20/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		97	85-115	1	20	11/20/19	
Iron	0.19	0.014	0.030	mg/L	0.20		96	85-115	1	20	11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0		101	85-115	1	20	11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20		103	85-115	1	20	11/20/19	
Potassium	4.0	0.91	2.0	mg/L	4.0		100	85-115	2	20	11/20/19	
Sodium	4.3	0.45	1.0	mg/L	4.0		108	85-115	1	20	11/20/19	
Zinc	0.19	0.023	0.050	mg/L	0.20		97	85-115	2	20	11/20/19	
Matrix Spike (A917108-MS3), Source: A9K0979-01												
Aluminum	0.23	0.023	0.050	mg/L	0.20	ND	117	70-130			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	100	70-130			11/20/19	
Calcium	84	0.046	0.10	mg/L	4.0	78	137	70-130			11/20/19	MS1.0 ***High***
Iron	0.20	0.014	0.030	mg/L	0.20	ND	102	70-130			11/20/19	
Magnesium	11	0.046	0.10	mg/L	4.0	7.6	87	70-130			11/20/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.012	103	70-130			11/20/19	
Potassium	5.0	0.91	2.0	mg/L	4.0	1.0	99	70-130			11/20/19	
Sodium	16	0.45	1.0	mg/L	4.0	12	110	70-130			11/20/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	103	70-130			11/20/19	
Matrix Spike (A917108-MS4), Source: A9K0988-01												
Aluminum	0.26	0.023	0.050	mg/L	0.20	0.029	114	70-130			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130			11/20/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MDS	
Matrix Spike (A917108-MS4), Source: A9K0988-01												
Calcium	7.1	0.046	0.10	mg/L	4.0	3.2	97	70-130			11/20/19	
Iron	0.23	0.014	0.030	mg/L	0.20	0.032	98	70-130			11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0	ND	101	70-130			11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20	ND	103	70-130			11/20/19	
Potassium	4.2	0.91	2.0	mg/L	4.0	ND	106	70-130			11/20/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	92	70-130			11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	100	70-130			11/20/19	
Matrix Spike Dup (A917108-MSD3), Source: A9K0979-01												
Aluminum	0.24	0.023	0.050	mg/L	0.20	ND	121	70-130	4	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	99	70-130	1	20	11/20/19	
Calcium	82	0.046	0.10	mg/L	4.0	78	84	70-130	3	20	11/20/19	
Iron	0.21	0.014	0.030	mg/L	0.20	ND	103	70-130	1	20	11/20/19	
Magnesium	11	0.046	0.10	mg/L	4.0	7.6	84	70-130	1	20	11/20/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.012	104	70-130	0	20	11/20/19	
Potassium	5.0	0.91	2.0	mg/L	4.0	1.0	100	70-130	1	20	11/20/19	
Sodium	16	0.45	1.0	mg/L	4.0	12	99	70-130	3	20	11/20/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	103	70-130	0	20	11/20/19	
Matrix Spike Dup (A917108-MSD4), Source: A9K0988-01												
Aluminum	0.24	0.023	0.050	mg/L	0.20	0.029	108	70-130	5	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130	1	20	11/20/19	
Calcium	7.0	0.046	0.10	mg/L	4.0	3.2	96	70-130	1	20	11/20/19	
Iron	0.23	0.014	0.030	mg/L	0.20	0.032	97	70-130	0	20	11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0	ND	100	70-130	1	20	11/20/19	
Manganese	0.20	0.0045	0.010	mg/L	0.20	ND	102	70-130	1	20	11/20/19	
Potassium	4.4	0.91	2.0	mg/L	4.0	ND	110	70-130	4	20	11/20/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	89	70-130	0	20	11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	99	70-130	1	20	11/20/19	
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A917108-BLK1)												
Antimony	ND	0.91	2.0	ug/L							11/21/19	
Arsenic	ND	1.2	2.0	ug/L							11/21/19	
Beryllium	ND	0.45	1.0	ug/L							11/21/19	
Cadmium	ND	0.45	1.0	ug/L							11/21/19	
Chromium	ND	4.5	10	ug/L							11/21/19	
Copper	ND	2.3	5.0	ug/L							11/21/19	
Lead	ND	0.45	1.0	ug/L							11/21/19	
Mercury	ND	0.091	0.20	ug/L							11/21/19	
Nickel	ND	4.5	10	ug/L							11/21/19	
Selenium	ND	0.91	2.0	ug/L							11/21/19	
Silver	ND	4.5	10	ug/L							11/21/19	

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BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A917108-BLK1)												
Thallium	ND	0.45	1.0	ug/L							11/21/19	
Uranium	ND	0.45	1.0	ug/L							11/21/19	
Blank Spike (A917108-BS1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115			11/21/19	
Arsenic	190	1.2	2.0	ug/L	200		95	85-115			11/21/19	
Beryllium	190	0.45	1.0	ug/L	200		97	85-115			11/21/19	
Cadmium	200	0.45	1.0	ug/L	200		98	85-115			11/21/19	
Chromium	200	4.5	10	ug/L	200		98	85-115			11/21/19	
Copper	190	2.3	5.0	ug/L	200		96	85-115			11/21/19	
Lead	190	0.45	1.0	ug/L	200		94	85-115			11/21/19	
Mercury	5.2	0.091	0.20	ug/L	5.0		104	85-115			11/21/19	
Nickel	200	4.5	10	ug/L	200		98	85-115			11/21/19	
Selenium	180	0.91	2.0	ug/L	200		92	85-115			11/21/19	
Silver	94	4.5	10	ug/L	100		94	75-125			11/21/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115			11/21/19	
Uranium	190	0.45	1.0	ug/L	200		96	85-115			11/21/19	
Blank Spike Dup (A917108-BSD1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115	0	20	11/21/19	
Arsenic	190	1.2	2.0	ug/L	200		96	85-115	0	20	11/21/19	
Beryllium	200	0.45	1.0	ug/L	200		98	85-115	2	20	11/21/19	
Cadmium	190	0.45	1.0	ug/L	200		97	85-115	1	20	11/21/19	
Chromium	200	4.5	10	ug/L	200		100	85-115	1	20	11/21/19	
Copper	190	2.3	5.0	ug/L	200		97	85-115	0	20	11/21/19	
Lead	190	0.45	1.0	ug/L	200		95	85-115	1	20	11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0		103	85-115	1	20	11/21/19	
Nickel	200	4.5	10	ug/L	200		98	85-115	0	20	11/21/19	
Selenium	180	0.91	2.0	ug/L	200		90	85-115	2	20	11/21/19	
Silver	94	4.5	10	ug/L	100		94	75-125	0	20	11/21/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115	0	20	11/21/19	
Uranium	190	0.45	1.0	ug/L	200		95	85-115	1	20	11/21/19	
Matrix Spike (A917108-MS1), Source: A9K0979-01												
Antimony	210	0.91	2.0	ug/L	200	ND	104	70-130			11/21/19	
Arsenic	200	1.2	2.0	ug/L	200	1.5	97	70-130			11/21/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130			11/21/19	
Cadmium	200	0.45	1.0	ug/L	200	ND	99	70-130			11/21/19	
Chromium	200	4.5	10	ug/L	200	ND	100	70-130			11/21/19	
Copper	190	2.3	5.0	ug/L	200	ND	95	70-130			11/21/19	
Lead	180	0.45	1.0	ug/L	200	ND	92	70-130			11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0	ND	101	70-130			11/21/19	
Nickel	200	4.5	10	ug/L	200	ND	98	70-130			11/21/19	
Selenium	180	0.91	2.0	ug/L	200	ND	91	70-130			11/21/19	
Silver	93	4.5	10	ug/L	100	ND	93	70-130			11/21/19	
Thallium	180	0.45	1.0	ug/L	200	ND	92	70-130			11/21/19	

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BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Matrix Spike (A917108-MS1), Source: A9K0979-01												
Uranium	190	0.45	1.0	ug/L	200	5.0	95	70-130			11/21/19	
Matrix Spike Dup (A917108-MSD1), Source: A9K0979-01												
Antimony	210	0.91	2.0	ug/L	200	ND	103	70-130	1	20	11/21/19	
Arsenic	190	1.2	2.0	ug/L	200	1.5	96	70-130	1	20	11/21/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130	1	20	11/21/19	
Cadmium	190	0.45	1.0	ug/L	200	ND	97	70-130	1	20	11/21/19	
Chromium	200	4.5	10	ug/L	200	ND	99	70-130	1	20	11/21/19	
Copper	190	2.3	5.0	ug/L	200	ND	93	70-130	2	20	11/21/19	
Lead	190	0.45	1.0	ug/L	200	ND	93	70-130	1	20	11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0	ND	101	70-130	0	20	11/21/19	
Nickel	190	4.5	10	ug/L	200	ND	97	70-130	1	20	11/21/19	
Selenium	180	0.91	2.0	ug/L	200	ND	90	70-130	2	20	11/21/19	
Silver	93	4.5	10	ug/L	100	ND	93	70-130	1	20	11/21/19	
Thallium	180	0.45	1.0	ug/L	200	ND	92	70-130	1	20	11/21/19	
Uranium	190	0.45	1.0	ug/L	200	5.0	95	70-130	0	20	11/21/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 504.1 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A917099-BLK1)												
Dibromochloropropane (DBCP)	ND	0.0060	0.010	ug/L							11/13/19	
Ethylene Dibromide (EDB)	ND	0.0050	0.020	ug/L							11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.50*				*0.46*		*110*	*70-130*			11/13/19	
Blank Spike (A917099-BS1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		104	70-130			11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.10		101	70-130			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.54*				*0.46*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917099-BSD1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		103	70-130	1	20	11/14/19	
Ethylene Dibromide (EDB)	0.099	0.0050	0.020	ug/L	0.10		99	70-130	1	20	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.51*				*0.46*		*111*	*70-130*			11/14/19	
Matrix Spike (A917099-MS1), Source: A9K0686-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10	ND	104	65-135			11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.10	ND	101	65-135			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.46*		*114*	*70-130*			11/13/19	
Matrix Spike Dup (A917099-MSD1), Source: A9K0686-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.099	ND	102	65-135	2	20	11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.099	ND	100	65-135	1	20	11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.45*		*114*	*70-130*			11/13/19	
EPA 505 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A917099-BLK1)												
Aldrin	ND	0.022	0.075	ug/L							11/13/19	
Chlordane (Technical)	ND	0.091	0.10	ug/L							11/13/19	
Dieldrin	ND	0.0042	0.020	ug/L							11/13/19	
Endrin	ND	0.0037	0.10	ug/L							11/13/19	
Heptachlor	ND	0.0052	0.010	ug/L							11/13/19	
Heptachlor Epoxide	ND	0.0048	0.010	ug/L							11/13/19	
Hexachlorobenzene	ND	0.032	0.50	ug/L							11/13/19	
Hexachlorocyclopentadiene	ND	0.041	1.0	ug/L							11/13/19	
Lindane	ND	0.0059	0.20	ug/L							11/13/19	
Methoxychlor	ND	0.031	0.20	ug/L							11/13/19	
PCB Aroclor Screen	ND	0.078	0.50	ug/L							11/13/19	
Toxaphene	ND	0.33	1.0	ug/L							11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.50*				*0.46*		*110*	*70-130*			11/13/19	
Blank Spike (A917099-BS1)												
Aldrin	0.83	0.022	0.075	ug/L	0.74		112	70-130			11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		98	70-130			11/13/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 505 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank Spike (A917099-BS1)												
Endrin	0.099	0.0037	0.10	ug/L	0.10		99	70-130			11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10		104	70-130			11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		101	70-130			11/13/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	1.0		105	70-130			11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0		123	70-130			11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20		100	70-130			11/13/19	J
Methoxychlor	1.0	0.031	0.20	ug/L	1.0		103	70-130			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.54*				*0.46*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917099-BSD1)												
Aldrin	0.82	0.022	0.075	ug/L	0.74		110	70-130	2	20	11/14/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		99	70-130	1	20	11/14/19	
Endrin	0.099	0.0037	0.10	ug/L	0.10		99	70-130	1	20	11/14/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10		103	70-130	0	20	11/14/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		100	70-130	1	20	11/14/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	1.0		108	70-130	2	20	11/14/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0		122	70-130	1	20	11/14/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20		100	70-130	0	20	11/14/19	J
Methoxychlor	0.98	0.031	0.20	ug/L	1.0		98	70-130	4	20	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.51*				*0.46*		*111*	*70-130*			11/14/19	
Matrix Spike (A917099-MS1), Source: A9K0686-01												
Aldrin	0.81	0.022	0.075	ug/L	0.74	0.028	105	65-135			11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20	ND	100	65-135			11/13/19	
Endrin	0.099	0.0037	0.10	ug/L	0.10	ND	99	65-135			11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10	ND	104	65-135			11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10	ND	102	65-135			11/13/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	1.0	ND	105	65-135			11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0	ND	121	65-135			11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20	ND	99	65-135			11/13/19	J
Methoxychlor	0.99	0.031	0.20	ug/L	1.0	ND	99	65-135			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.46*		*114*	*70-130*			11/13/19	
Matrix Spike Dup (A917099-MSD1), Source: A9K0686-01												
Aldrin	0.79	0.022	0.075	ug/L	0.74	0.028	104	65-135	2	20	11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20	ND	99	65-135	1	20	11/13/19	
Endrin	0.096	0.0037	0.10	ug/L	0.099	ND	96	65-135	3	20	11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.099	ND	102	65-135	2	20	11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.099	ND	100	65-135	2	20	11/13/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	0.99	ND	108	65-135	2	20	11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	0.99	ND	119	65-135	2	20	11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20	ND	98	65-135	1	20	11/13/19	J
Methoxychlor	0.92	0.031	0.20	ug/L	0.99	ND	92	65-135	7	20	11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.45*		*114*	*70-130*			11/13/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A917083											Prepared: 11/12/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Blank (A917083-BLK1)												
2,4,5-T	ND	0.13	1.0	ug/L							11/13/19	
2,4,5-TP (Silvex)	ND	0.016	1.0	ug/L							11/13/19	
2,4-D	ND	0.074	10	ug/L							11/13/19	
Bentazon	ND	1.3	2.0	ug/L							11/13/19	
Dalapon	ND	0.58	10	ug/L							11/13/19	
Dicamba	ND	0.13	1.5	ug/L							11/13/19	
Dinoseb	ND	0.032	2.0	ug/L							11/13/19	
Pentachlorophenol	ND	0.011	0.20	ug/L							11/13/19	
Picloram	ND	0.084	1.0	ug/L							11/13/19	
Surrogate: DCPAA	*43*				*36*		*119*	*70-130*			11/13/19	
Blank Spike (A917083-BS1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		102	70-130			11/13/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130			11/13/19	J
2,4-D	0.37	0.074	10	ug/L	0.40		92	70-130			11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		99	70-130			11/13/19	J
Dalapon	4.1	0.58	10	ug/L	4.0		102	70-130			11/13/19	J
Dicamba	0.79	0.13	1.5	ug/L	0.80		99	70-130			11/13/19	J
Dinoseb	0.77	0.032	2.0	ug/L	0.80		96	70-130			11/13/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		101	70-130			11/13/19	J
Picloram	0.40	0.084	1.0	ug/L	0.40		100	70-130			11/13/19	J
Surrogate: DCPAA	*42*				*36*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917083-BSD1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		102	70-130	0	20	11/14/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130	1	20	11/14/19	J
2,4-D	0.38	0.074	10	ug/L	0.40		96	70-130	4	20	11/14/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		100	70-130	1	20	11/14/19	
Dalapon	4.0	0.58	10	ug/L	4.0		100	70-130	1	20	11/14/19	J
Dicamba	0.80	0.13	1.5	ug/L	0.80		101	70-130	1	20	11/14/19	J
Dinoseb	0.79	0.032	2.0	ug/L	0.80		98	70-130	2	20	11/14/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		99	70-130	2	20	11/14/19	J
Picloram	0.39	0.084	1.0	ug/L	0.40		98	70-130	2	20	11/14/19	J
Surrogate: DCPAA	*42*				*36*		*117*	*70-130*			11/14/19	
Matrix Spike (A917083-MS1), Source: A9K0686-01												
2,4,5-T	1.7	0.13	1.0	ug/L	1.6	ND	106	70-130			11/13/19	
2,4,5-TP (Silvex)	0.80	0.016	1.0	ug/L	0.80	ND	100	70-130			11/13/19	J
2,4-D	0.38	0.074	10	ug/L	0.40	ND	95	70-130			11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	99	70-130			11/13/19	J
Dalapon	4.4	0.58	10	ug/L	4.0	ND	110	70-130			11/13/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	101	70-130			11/13/19	J
Dinoseb	0.83	0.032	2.0	ug/L	0.80	0.10	91	70-130			11/13/19	J
Pentachlorophenol	0.14	0.011	0.20	ug/L	0.16	ND	88	70-130			11/13/19	J
Picloram	0.35	0.084	1.0	ug/L	0.40	ND	88	70-130			11/13/19	J
Surrogate: DCPAA	*46*				*36*		*128*	*70-130*			11/13/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A917083											Prepared: 11/12/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Matrix Spike Dup (A917083-MSD1), Source: A9K0686-01												
2,4,5-T	1.7	0.13	1.0	ug/L	1.6	ND	105	70-130	1	30	11/13/19	
2,4,5-TP (Silvex)	0.84	0.016	1.0	ug/L	0.80	ND	104	70-130	4	30	11/13/19	J
2,4-D	0.38	0.074	10	ug/L	0.40	ND	96	70-130	1	30	11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	101	70-130	2	30	11/13/19	
Dalapon	4.2	0.58	10	ug/L	4.0	ND	105	70-130	5	30	11/13/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	102	70-130	1	30	11/13/19	J
Dinoseb	0.84	0.032	2.0	ug/L	0.80	0.10	92	70-130	1	30	11/13/19	J
Pentachlorophenol	0.15	0.011	0.20	ug/L	0.16	ND	91	70-130	4	30	11/13/19	J
Picloram	0.36	0.084	1.0	ug/L	0.40	ND	91	70-130	3	30	11/13/19	J
Surrogate: DCPAA	*46*				*36*		*128*	*70-130*			11/13/19	
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917163-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							11/14/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							11/14/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							11/14/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							11/14/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							11/14/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							11/14/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							11/14/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							11/14/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							11/14/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							11/14/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							11/14/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							11/14/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							11/14/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							11/14/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							11/14/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							11/14/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							11/14/19	
2,2-Dichloropropane	ND	0.32	0.50	ug/L							11/14/19	
2-Butanone	ND	0.42	5.0	ug/L							11/14/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							11/14/19	
2-Hexanone	ND	0.48	10	ug/L							11/14/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							11/14/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							11/14/19	
Acetone	ND	3.4	10	ug/L							11/14/19	
Benzene	ND	0.34	0.50	ug/L							11/14/19	
Bromobenzene	ND	0.27	0.50	ug/L							11/14/19	
Bromochloromethane	ND	0.27	0.50	ug/L							11/14/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							11/14/19	
Bromoform	ND	0.28	0.50	ug/L							11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917163-BLK1)												
Bromomethane	ND	0.43	0.50	ug/L							11/14/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							11/14/19	
Chlorobenzene	ND	0.31	0.50	ug/L							11/14/19	
Chloroethane	ND	0.32	0.50	ug/L							11/14/19	
Chloroform	ND	0.083	0.50	ug/L							11/14/19	
Chloromethane	ND	0.25	0.50	ug/L							11/14/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							11/14/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/14/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							11/14/19	
Dibromomethane	ND	0.29	0.50	ug/L							11/14/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							11/14/19	
Dichloromethane	ND	0.29	0.50	ug/L							11/14/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							11/14/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							11/14/19	
Ethylbenzene	ND	0.31	0.50	ug/L							11/14/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							11/14/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							11/14/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							11/14/19	
Methyl-t-butyl ether	0.22	0.083	0.50	ug/L							11/14/19	B2.0, J
Naphthalene	ND	0.27	0.50	ug/L							11/14/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							11/14/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							11/14/19	
o-Xylene	ND	0.30	0.50	ug/L							11/14/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							11/14/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							11/14/19	
Styrene	ND	0.30	0.50	ug/L							11/14/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							11/14/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							11/14/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							11/14/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							11/14/19	
Toluene	ND	0.32	0.50	ug/L							11/14/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							11/14/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/14/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							11/14/19	
Trichlorofluoromethane	ND	0.23	5.0	ug/L							11/14/19	
Vinyl Chloride	ND	0.27	0.50	ug/L							11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*56*				*50*		*113*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*57*				*50*		*115*	*70-130*			11/14/19	
Blank Spike (A917163-BS1)												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10		106	70-130			11/14/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		105	70-130			11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		108	70-130			11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		108	70-130			11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917163-BS1)												
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		109	70-130			11/14/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		119	70-130			11/14/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10		106	70-130			11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		106	70-130			11/14/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		104	70-130			11/14/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		102	70-130			11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		106	70-130			11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10		106	70-130			11/14/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		105	70-130			11/14/19	
2,2-Dichloropropane	12	0.32	0.50	ug/L	10		118	70-130			11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10		113	70-130			11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
2-Hexanone	12	0.48	10	ug/L	10		115	70-130			11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
4-Methyl-2-pentanone	11	0.37	5.0	ug/L	10		109	70-130			11/14/19	
Acetone	11	3.4	10	ug/L	10		107	70-130			11/14/19	
Benzene	11	0.34	0.50	ug/L	10		106	70-130			11/14/19	
Bromobenzene	11	0.27	0.50	ug/L	10		111	70-130			11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		110	70-130			11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10		106	70-130			11/14/19	
Bromoform	11	0.28	0.50	ug/L	10		106	70-130			11/14/19	
Bromomethane	12	0.43	0.50	ug/L	10		124	70-130			11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10		109	70-130			11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		107	70-130			11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10		106	70-130			11/14/19	
Chloroethane	10	0.32	0.50	ug/L	10		104	70-130			11/14/19	
Chloroform	11	0.083	0.50	ug/L	10		106	70-130			11/14/19	
Chloromethane	11	0.25	0.50	ug/L	10		107	70-130			11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		106	70-130			11/14/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		107	70-130			11/14/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		105	70-130			11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10		101	70-130			11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10		106	70-130			11/14/19	
Dichloromethane	10	0.29	0.50	ug/L	10		104	70-130			11/14/19	
Di-isopropyl ether (DIPE)	12	0.31	3.0	ug/L	10		121	70-130			11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10		113	70-130			11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		106	70-130			11/14/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		107	70-130			11/14/19	
m,p-Xylenes	21	0.23	0.50	ug/L	20		106	70-130			11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20		110	70-130			11/14/19	
Naphthalene	11	0.27	0.50	ug/L	10		111	70-130			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917163-BS1)												
n-Butylbenzene	11	0.25	0.50	ug/L	10		106	70-130			11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		107	70-130			11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		107	70-130			11/14/19	
Styrene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10		113	70-130			11/14/19	
tert-Butyl alcohol (TBA)	12	0.97	2.0	ug/L	10		123	70-130			11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		107	70-130			11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130			11/14/19	
Toluene	11	0.32	0.50	ug/L	10		107	70-130			11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		107	70-130			11/14/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		108	70-130			11/14/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10		106	70-130			11/14/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		103	70-130			11/14/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		109	70-130			11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*51*				*50*		*103*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*52*				*50*		*103*	*70-130*			11/14/19	
Blank Spike Dup (A917163-BSD1)												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10		106	70-130	0	30	11/14/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		106	70-130	1	30	11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		112	70-130	3	30	11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		106	70-130	2	30	11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		107	70-130	1	30	11/14/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		108	70-130	1	30	11/14/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		120	70-130	1	30	11/14/19	
1,1-Dichloropropene	10	0.30	0.50	ug/L	10		103	70-130	4	30	11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10		112	70-130	5	30	11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10		111	70-130	5	30	11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		109	70-130	3	30	11/14/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10		109	70-130	5	30	11/14/19	
1,2-Dichloroethane	11	0.29	0.50	ug/L	10		105	70-130	3	30	11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10		106	70-130	2	30	11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		109	70-130	3	30	11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		111	70-130	5	30	11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10		108	70-130	2	30	11/14/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10		110	70-130	4	30	11/14/19	
2,2-Dichloropropane	11	0.32	0.50	ug/L	10		110	70-130	7	30	11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10		110	70-130	3	30	11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
2-Hexanone	11	0.48	10	ug/L	10		113	70-130	2	30	11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		110	70-130	3	30	11/14/19	
4-Methyl-2-pentanone	11	0.37	5.0	ug/L	10		110	70-130	1	30	11/14/19	
Acetone	11	3.4	10	ug/L	10		115	70-130	7	30	11/14/19	
Benzene	10	0.34	0.50	ug/L	10		105	70-130	2	30	11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917163-BSD1)												
Bromobenzene	11	0.27	0.50	ug/L	10		114	70-130	2	30	11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		115	70-130	4	30	11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10		105	70-130	0	30	11/14/19	
Bromoform	11	0.28	0.50	ug/L	10		109	70-130	3	30	11/14/19	
Bromomethane	12	0.43	0.50	ug/L	10		121	70-130	3	30	11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10		111	70-130	2	30	11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		105	70-130	2	30	11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10		108	70-130	2	30	11/14/19	
Chloroethane	11	0.32	0.50	ug/L	10		105	70-130	2	30	11/14/19	
Chloroform	11	0.083	0.50	ug/L	10		107	70-130	1	30	11/14/19	
Chloromethane	11	0.25	0.50	ug/L	10		111	70-130	3	30	11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		109	70-130	3	30	11/14/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		107	70-130	0	30	11/14/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10		108	70-130	3	30	11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10		104	70-130	3	30	11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10		107	70-130	2	30	11/14/19	
Dichloromethane	11	0.29	0.50	ug/L	10		111	70-130	6	30	11/14/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		113	70-130	7	30	11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10		108	70-130	4	30	11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		107	70-130	1	30	11/14/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		109	70-130	2	30	11/14/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		109	70-130	2	30	11/14/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20		108	70-130	2	30	11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20		108	70-130	2	30	11/14/19	
Naphthalene	12	0.27	0.50	ug/L	10		116	70-130	4	30	11/14/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10		109	70-130	2	30	11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		110	70-130	3	30	11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		109	70-130	3	30	11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		110	70-130	3	30	11/14/19	
Styrene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10		110	70-130	2	30	11/14/19	
tert-Butyl alcohol (TBA)	12	0.97	2.0	ug/L	10		116	70-130	6	30	11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		109	70-130	2	30	11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130	0	30	11/14/19	
Toluene	11	0.32	0.50	ug/L	10		108	70-130	1	30	11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		108	70-130	1	30	11/14/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		110	70-130	1	30	11/14/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		105	70-130	1	30	11/14/19	
Trichlorofluoromethane	11	0.23	5.0	ug/L	10		108	70-130	5	30	11/14/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		110	70-130	1	30	11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*108*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*54*				*50*		*109*	*70-130*			11/14/19	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10	ND	108	41-156			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10	ND	114	48-160			11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10	ND	108	42-151			11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10	ND	115	47-164			11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10	ND	108	45-152			11/14/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10	ND	112	48-157			11/14/19	
1,1-Dichloroethene	13	0.21	0.50	ug/L	10	ND	128	51-158			11/14/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	114	46-162			11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10	ND	107	37-145			11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10	ND	107	33-149			11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10	ND	109	44-146			11/14/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10	ND	110	44-146			11/14/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10	ND	104	47-151			11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10	ND	110	47-155			11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	110	45-154			11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10	ND	111	44-146			11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10	ND	108	45-151			11/14/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10	ND	110	43-146			11/14/19	
2,2-Dichloropropane	6.8	0.32	0.50	ug/L	10	ND	68	24-182			11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10	ND	106	55-144			11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	110	48-150			11/14/19	
2-Hexanone	11	0.48	10	ug/L	10	ND	108	40-159			11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	109	43-150			11/14/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10	ND	103	30-171			11/14/19	
Acetone	13	3.4	10	ug/L	10	ND	126	27-181			11/14/19	
Benzene	11	0.34	0.50	ug/L	10	ND	111	48-155			11/14/19	
Bromobenzene	11	0.27	0.50	ug/L	10	ND	110	43-151			11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10	ND	113	48-161			11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10	ND	108	47-151			11/14/19	
Bromoform	11	0.28	0.50	ug/L	10	ND	105	29-162			11/14/19	
Bromomethane	11	0.43	0.50	ug/L	10	ND	106	10-200			11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10	ND	113	57-161			11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10	ND	115	47-163			11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10	ND	109	46-152			11/14/19	
Chloroethane	11	0.32	0.50	ug/L	10	ND	112	28-189			11/14/19	
Chloroform	11	0.083	0.50	ug/L	10	ND	111	52-148			11/14/19	
Chloromethane	12	0.25	0.50	ug/L	10	ND	115	53-159			11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10	ND	110	50-152			11/14/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	101	34-156			11/14/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10	ND	106	44-149			11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10	ND	105	46-150			11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10	ND	115	33-170			11/14/19	
Dichloromethane	11	0.29	0.50	ug/L	10	ND	110	47-156			11/14/19	
Di-isopropyl ether (DIPE)	12	0.31	3.0	ug/L	10	ND	116	41-159			11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10	ND	111	32-160			11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	111	40-157			11/14/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10	ND	104	38-151			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
Isopropylbenzene	11	0.31	0.50	ug/L	10	ND	112	41-156			11/14/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20	ND	111	49-154			11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20	0.19	108	41-156			11/14/19	
Naphthalene	11	0.27	0.50	ug/L	10	ND	110	35-154			11/14/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10	ND	107	31-153			11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10	ND	111	39-156			11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10	ND	112	27-164			11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	113	26-161			11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10	ND	115	39-154			11/14/19	
Styrene	11	0.30	0.50	ug/L	10	ND	110	10-200			11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10	ND	111	24-161			11/14/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10	ND	112	22-174			11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10	ND	112	40-153			11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10	ND	109	48-155			11/14/19	
Toluene	15	0.32	0.50	ug/L	10	3.0	116	40-159			11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10	ND	113	52-157			11/14/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	100	28-160			11/14/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	112	49-155			11/14/19	
Trichlorofluoromethane	12	0.23	5.0	ug/L	10	ND	119	47-169			11/14/19	
Vinyl Chloride	12	0.27	0.50	ug/L	10	ND	117	21-183			11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*104*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*51*				*50*		*102*	*70-130*			11/14/19	
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							11/15/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							11/15/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							11/15/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							11/15/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							11/15/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							11/15/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							11/15/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							11/15/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							11/15/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							11/15/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							11/15/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							11/15/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							11/15/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							11/15/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							11/15/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							11/15/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
2,2-Dichloropropane	ND	0.32	0.50	ug/L							11/15/19	
2-Butanone	ND	0.42	5.0	ug/L							11/15/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							11/15/19	
2-Hexanone	ND	0.48	10	ug/L							11/15/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							11/15/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							11/15/19	
Acetone	ND	3.4	10	ug/L							11/15/19	
Benzene	ND	0.34	0.50	ug/L							11/15/19	
Bromobenzene	ND	0.27	0.50	ug/L							11/15/19	
Bromochloromethane	ND	0.27	0.50	ug/L							11/15/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							11/15/19	
Bromoform	ND	0.28	0.50	ug/L							11/15/19	
Bromomethane	ND	0.43	0.50	ug/L							11/15/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							11/15/19	
Chlorobenzene	ND	0.31	0.50	ug/L							11/15/19	
Chloroethane	ND	0.32	0.50	ug/L							11/15/19	
Chloroform	ND	0.083	0.50	ug/L							11/15/19	
Chloromethane	ND	0.25	0.50	ug/L							11/15/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							11/15/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/15/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							11/15/19	
Dibromomethane	ND	0.29	0.50	ug/L							11/15/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							11/15/19	
Dichloromethane	ND	0.29	0.50	ug/L							11/15/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							11/15/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							11/15/19	
Ethylbenzene	ND	0.31	0.50	ug/L							11/15/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							11/15/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							11/15/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							11/15/19	
Methyl-t-butyl ether	0.20	0.083	0.50	ug/L							11/15/19	J
Naphthalene	ND	0.27	0.50	ug/L							11/15/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							11/15/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							11/15/19	
o-Xylene	ND	0.30	0.50	ug/L							11/15/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							11/15/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							11/15/19	
Styrene	ND	0.30	0.50	ug/L							11/15/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							11/15/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							11/15/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							11/15/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							11/15/19	
Toluene	ND	0.32	0.50	ug/L							11/15/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							11/15/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/15/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
Trichlorofluoromethane	ND	0.23	5.0	ug/L							11/15/19	
Vinyl Chloride	ND	0.27	0.50	ug/L							11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*58*				*50*		*116*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*57*				*50*		*114*	*70-130*			11/15/19	
Blank Spike (A917282-BS1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,1,1-Trichloroethane	10	0.30	0.50	ug/L	10		100	70-130			11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		105	70-130			11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	0.27	10	ug/L	10		102	70-130			11/15/19	
1,1,2-Trichloroethane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,1-Dichloroethane	10	0.34	0.50	ug/L	10		103	70-130			11/15/19	
1,1-Dichloroethene	11	0.21	0.50	ug/L	10		114	70-130			11/15/19	
1,1-Dichloropropene	10	0.30	0.50	ug/L	10		100	70-130			11/15/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		102	70-130			11/15/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130			11/15/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		104	70-130			11/15/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10		105	70-130			11/15/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		100	70-130			11/15/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		102	70-130			11/15/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		106	70-130			11/15/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10		107	70-130			11/15/19	
2,2-Dichloropropane	9.9	0.32	0.50	ug/L	10		99	70-130			11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10		102	70-130			11/15/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
2-Hexanone	10	0.48	10	ug/L	10		104	70-130			11/15/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		107	70-130			11/15/19	
4-Methyl-2-pentanone	9.7	0.37	5.0	ug/L	10		97	70-130			11/15/19	
Acetone	10	3.4	10	ug/L	10		103	70-130			11/15/19	
Benzene	10	0.34	0.50	ug/L	10		101	70-130			11/15/19	
Bromobenzene	11	0.27	0.50	ug/L	10		108	70-130			11/15/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		107	70-130			11/15/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Bromoform	10	0.28	0.50	ug/L	10		104	70-130			11/15/19	
Bromomethane	8.9	0.43	0.50	ug/L	10		89	70-130			11/15/19	
Carbon disulfide	10	0.49	10	ug/L	10		104	70-130			11/15/19	
Carbon Tetrachloride	10	0.29	0.50	ug/L	10		101	70-130			11/15/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		105	70-130			11/15/19	
Chloroethane	10	0.32	0.50	ug/L	10		101	70-130			11/15/19	
Chloroform	10	0.083	0.50	ug/L	10		103	70-130			11/15/19	
Chloromethane	9.8	0.25	0.50	ug/L	10		98	70-130			11/15/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		104	70-130			11/15/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130			11/15/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		102	70-130			11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917282-BS1)												
Dibromomethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Dichlorodifluoromethane	9.5	0.28	0.50	ug/L	10		95	70-130			11/15/19	
Dichloromethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		105	70-130			11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		101	70-130			11/15/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		103	70-130			11/15/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		102	70-130			11/15/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		105	70-130			11/15/19	
m,p-Xylenes	21	0.23	0.50	ug/L	20		105	70-130			11/15/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20		101	70-130			11/15/19	
Naphthalene	10	0.27	0.50	ug/L	10		104	70-130			11/15/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10		105	70-130			11/15/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		106	70-130			11/15/19	
o-Xylene	11	0.30	0.50	ug/L	10		105	70-130			11/15/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		106	70-130			11/15/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		107	70-130			11/15/19	
Styrene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		102	70-130			11/15/19	
tert-Butyl alcohol (TBA)	10	0.97	2.0	ug/L	10		103	70-130			11/15/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		104	70-130			11/15/19	
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10		102	70-130			11/15/19	
Toluene	10	0.32	0.50	ug/L	10		103	70-130			11/15/19	
trans-1,2-Dichloroethene	10	0.35	0.50	ug/L	10		103	70-130			11/15/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130			11/15/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		101	70-130			11/15/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		102	70-130			11/15/19	
Vinyl Chloride	10	0.27	0.50	ug/L	10		101	70-130			11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*109*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*53*				*50*		*107*	*70-130*			11/15/19	
Blank Spike Dup (A917282-BSD1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		102	70-130	1	30	11/15/19	
1,1,1-Trichloroethane	9.9	0.30	0.50	ug/L	10		99	70-130	1	30	11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		105	70-130	0	30	11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	0.27	10	ug/L	10		100	70-130	2	30	11/15/19	J
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		106	70-130	3	30	11/15/19	
1,1-Dichloroethane	10	0.34	0.50	ug/L	10		103	70-130	0	30	11/15/19	
1,1-Dichloroethene	11	0.21	0.50	ug/L	10		113	70-130	1	30	11/15/19	
1,1-Dichloropropene	9.8	0.30	0.50	ug/L	10		98	70-130	2	30	11/15/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		104	70-130	2	30	11/15/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		101	70-130	2	30	11/15/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		103	70-130	3	30	11/15/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,3,5-Trimethylbenzene	10	0.36	0.50	ug/L	10		101	70-130	5	30	11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917282-BSD1)												
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10		104	70-130	3	30	11/15/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		104	70-130	1	30	11/15/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		105	70-130	2	30	11/15/19	
2,2-Dichloropropane	9.8	0.32	0.50	ug/L	10		98	70-130	1	30	11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10		100	70-130	2	30	11/15/19	
2-Chlorotoluene	10	0.30	0.50	ug/L	10		102	70-130	5	30	11/15/19	
2-Hexanone	11	0.48	10	ug/L	10		105	70-130	1	30	11/15/19	
4-Chlorotoluene	10	0.30	0.50	ug/L	10		102	70-130	4	30	11/15/19	
4-Methyl-2-pentanone	9.5	0.37	5.0	ug/L	10		95	70-130	2	30	11/15/19	
Acetone	11	3.4	10	ug/L	10		107	70-130	4	30	11/15/19	
Benzene	10	0.34	0.50	ug/L	10		101	70-130	0	30	11/15/19	
Bromobenzene	9.2	0.27	0.50	ug/L	10		92	70-130	16	30	11/15/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		106	70-130	0	30	11/15/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		103	70-130	0	30	11/15/19	
Bromoform	10	0.28	0.50	ug/L	10		104	70-130	0	30	11/15/19	
Bromomethane	8.7	0.43	0.50	ug/L	10		87	70-130	2	30	11/15/19	
Carbon disulfide	10	0.49	10	ug/L	10		104	70-130	1	30	11/15/19	
Carbon Tetrachloride	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		103	70-130	2	30	11/15/19	
Chloroethane	9.9	0.32	0.50	ug/L	10		99	70-130	2	30	11/15/19	
Chloroform	10	0.083	0.50	ug/L	10		103	70-130	0	30	11/15/19	
Chloromethane	10	0.25	0.50	ug/L	10		100	70-130	2	30	11/15/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		103	70-130	0	30	11/15/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130	0	30	11/15/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Dibromomethane	10	0.29	0.50	ug/L	10		102	70-130	0	30	11/15/19	
Dichlorodifluoromethane	9.3	0.28	0.50	ug/L	10		93	70-130	2	30	11/15/19	
Dichloromethane	10	0.29	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		110	70-130	4	30	11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		101	70-130	0	30	11/15/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		102	70-130	1	30	11/15/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		100	70-130	2	30	11/15/19	
Isopropylbenzene	10	0.31	0.50	ug/L	10		102	70-130	4	30	11/15/19	
m,p-Xylenes	20	0.23	0.50	ug/L	20		102	70-130	3	30	11/15/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20		102	70-130	1	30	11/15/19	
Naphthalene	11	0.27	0.50	ug/L	10		107	70-130	3	30	11/15/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10		100	70-130	5	30	11/15/19	
n-Propylbenzene	10	0.31	0.50	ug/L	10		102	70-130	4	30	11/15/19	
o-Xylene	10	0.30	0.50	ug/L	10		102	70-130	3	30	11/15/19	
p-Isopropyltoluene	10	0.26	0.50	ug/L	10		101	70-130	5	30	11/15/19	
sec-Butylbenzene	10	0.27	0.50	ug/L	10		100	70-130	6	30	11/15/19	
Styrene	10	0.30	0.50	ug/L	10		104	70-130	2	30	11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		101	70-130	1	30	11/15/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10		108	70-130	4	30	11/15/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		101	70-130	2	30	11/15/19	
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10		100	70-130	1	30	11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917282-BSD1)												
Toluene	10	0.32	0.50	ug/L	10		103	70-130	0	30	11/15/19	
trans-1,2-Dichloroethene	10	0.35	0.50	ug/L	10		102	70-130	1	30	11/15/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		100	70-130	2	30	11/15/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		104	70-130	1	30	11/15/19	
Vinyl Chloride	10	0.27	0.50	ug/L	10		100	70-130	1	30	11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*105*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*52*				*50*		*104*	*70-130*			11/15/19	
Matrix Spike (A917282-MS1), Source: A9K1356-01												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10	ND	110	41-156			11/15/19	
1,1,1-Trichloroethane	12	0.30	0.50	ug/L	10	ND	115	48-160			11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10	ND	113	42-151			11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10	ND	124	47-164			11/15/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10	ND	110	45-152			11/15/19	
1,1-Dichloroethane	12	0.34	0.50	ug/L	10	ND	116	48-157			11/15/19	
1,1-Dichloroethene	14	0.21	0.50	ug/L	10	ND	138	51-158			11/15/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	114	46-162			11/15/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10	ND	112	37-145			11/15/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10	ND	111	33-149			11/15/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10	ND	113	44-146			11/15/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10	ND	113	44-146			11/15/19	
1,2-Dichloroethane	11	0.29	0.50	ug/L	10	ND	109	47-151			11/15/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10	ND	111	47-155			11/15/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	115	45-154			11/15/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10	ND	115	44-146			11/15/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10	ND	111	45-151			11/15/19	
1,4-Dichlorobenzene	12	0.29	0.50	ug/L	10	ND	116	43-146			11/15/19	
2,2-Dichloropropane	11	0.32	0.50	ug/L	10	ND	112	24-182			11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10	ND	104	55-144			11/15/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	114	48-150			11/15/19	
2-Hexanone	11	0.48	10	ug/L	10	ND	111	40-159			11/15/19	
4-Chlorotoluene	12	0.30	0.50	ug/L	10	ND	115	43-150			11/15/19	
4-Methyl-2-pentanone	9.9	0.37	5.0	ug/L	10	0.38	96	30-171			11/15/19	
Acetone	14	3.4	10	ug/L	10	ND	144	27-181			11/15/19	
Benzene	11	0.34	0.50	ug/L	10	ND	111	48-155			11/15/19	
Bromobenzene	12	0.27	0.50	ug/L	10	ND	120	43-151			11/15/19	
Bromochloromethane	12	0.27	0.50	ug/L	10	ND	120	48-161			11/15/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10	ND	112	47-151			11/15/19	
Bromoform	11	0.28	0.50	ug/L	10	ND	111	29-162			11/15/19	
Bromomethane	10	0.43	0.50	ug/L	10	ND	100	10-200			11/15/19	
Carbon disulfide	13	0.49	10	ug/L	10	ND	127	57-161			11/15/19	
Carbon Tetrachloride	12	0.29	0.50	ug/L	10	ND	117	47-163			11/15/19	
Chlorobenzene	11	0.31	0.50	ug/L	10	ND	114	46-152			11/15/19	
Chloroethane	12	0.32	0.50	ug/L	10	ND	121	28-189			11/15/19	
Chloroform	12	0.083	0.50	ug/L	10	ND	115	52-148			11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917282-MS1), Source: A9K1356-01												
Chloromethane	12	0.25	0.50	ug/L	10	ND	123	53-159			11/15/19	
cis-1,2-Dichloroethene	12	0.32	0.50	ug/L	10	ND	116	50-152			11/15/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10	ND	111	34-156			11/15/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10	ND	111	44-149			11/15/19	
Dibromomethane	11	0.29	0.50	ug/L	10	ND	113	46-150			11/15/19	
Dichlorodifluoromethane	13	0.28	0.50	ug/L	10	ND	128	33-170			11/15/19	
Dichloromethane	12	0.29	0.50	ug/L	10	ND	116	47-156			11/15/19	
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10	ND	105	41-159			11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10	ND	104	32-160			11/15/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	115	40-157			11/15/19	
Hexachlorobutadiene	12	0.30	0.50	ug/L	10	ND	120	38-151			11/15/19	
Isopropylbenzene	12	0.31	0.50	ug/L	10	ND	117	41-156			11/15/19	
m,p-Xylenes	23	0.23	0.50	ug/L	20	ND	115	49-154			11/15/19	
Methyl-t-butyl ether	21	0.083	0.50	ug/L	20	0.22	104	41-156			11/15/19	
Naphthalene	11	0.27	0.50	ug/L	10	ND	114	35-154			11/15/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10	ND	114	31-153			11/15/19	
n-Propylbenzene	12	0.31	0.50	ug/L	10	ND	117	39-156			11/15/19	
o-Xylene	11	0.30	0.50	ug/L	10	ND	115	27-164			11/15/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	115	26-161			11/15/19	
sec-Butylbenzene	12	0.27	0.50	ug/L	10	ND	116	39-154			11/15/19	
Styrene	12	0.30	0.50	ug/L	10	ND	115	10-200			11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10	ND	104	24-161			11/15/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10	ND	107	22-174			11/15/19	
tert-Butylbenzene	12	0.28	0.50	ug/L	10	ND	115	40-153			11/15/19	
Tetrachloroethene (PCE)	12	0.33	0.50	ug/L	10	ND	116	48-155			11/15/19	
Toluene	11	0.32	0.50	ug/L	10	ND	114	40-159			11/15/19	
trans-1,2-Dichloroethene	12	0.35	0.50	ug/L	10	ND	119	52-157			11/15/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10	ND	110	28-160			11/15/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	113	49-155			11/15/19	
Trichlorofluoromethane	13	0.23	5.0	ug/L	10	ND	129	47-169			11/15/19	
Vinyl Chloride	13	0.27	0.50	ug/L	10	ND	127	21-183			11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*108*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*54*				*50*		*108*	*70-130*			11/15/19	
EPA 525.3 - Quality Control												
Batch: A917200											Prepared: 11/14/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank (A917200-BLK1)												
Alachlor	ND	0.022	0.20	ug/L							11/20/19	
Atrazine	ND	0.0076	0.10	ug/L							11/20/19	
Benzo(a)pyrene	ND	0.0019	0.020	ug/L							11/20/19	
Bis(2-ethylhexyl) adipate	ND	0.067	0.60	ug/L							11/20/19	
Bis(2-ethylhexyl) phthalate	0.15	0.11	0.60	ug/L							11/20/19	B2.0, J
Bromacil	ND	0.028	0.80	ug/L							11/20/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 525.3 - Quality Control													
Batch: A917200											Prepared: 11/14/2019		
Prep Method: EPA 525.3											Analyst: JKH		
Blank (A917200-BLK1)													
Butachlor	ND	0.018	0.25	ug/L							11/20/19		
Diazinon	ND	0.0022	0.020	ug/L							11/20/19		
Dimethoate	ND	0.082	1.0	ug/L							11/20/19		
Metolachlor	ND	0.011	0.50	ug/L							11/20/19		
Metribuzin	ND	0.0061	0.50	ug/L							11/20/19		
Molinate	ND	0.0061	0.50	ug/L							11/20/19		
Propachlor	ND	0.0056	0.50	ug/L							11/20/19		
Simazine	ND	0.0049	0.070	ug/L							11/20/19		
Thiobencarb	ND	0.0083	0.10	ug/L							11/20/19		
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.87*				*1.0*		*87*	*70-130*			11/20/19		
Surrogate: Benzo(a)pyrene-d12	*0.88*				*1.0*		*88*	*70-130*			11/20/19		
Surrogate: Triphenyl Phosphate	*0.98*				*1.0*		*98*	*70-130*			11/20/19		
Blank Spike (A917200-BS1)													
Alachlor	0.42	0.022	0.20	ug/L	0.40		106	70-130			11/20/19		
Atrazine	0.24	0.0076	0.10	ug/L	0.20		121	70-130			11/20/19		
Benzo(a)pyrene	0.028	0.0019	0.020	ug/L	0.040		70	70-130			11/20/19		
Bis(2-ethylhexyl) adipate	0.80	0.067	0.60	ug/L	0.80		100	70-130			11/20/19		
Bis(2-ethylhexyl) phthalate	2.3	0.11	0.60	ug/L	2.4		97	70-130			11/20/19		
Bromacil	0.24	0.028	0.80	ug/L	0.20		121	70-130			11/20/19	J	
Butachlor	0.23	0.018	0.25	ug/L	0.20		115	70-130			11/20/19	J	
Diazinon	0.043	0.0022	0.020	ug/L	0.040		107	70-130			11/20/19		
Dimethoate	2.6	0.082	1.0	ug/L	1.6		162	70-130			11/20/19	BS	***High***
Metolachlor	0.22	0.011	0.50	ug/L	0.20		108	70-130			11/20/19	J	
Metribuzin	0.21	0.0061	0.50	ug/L	0.20		105	70-130			11/20/19	J	
Molinate	0.20	0.0061	0.50	ug/L	0.20		100	70-130			11/20/19	J	
Propachlor	0.20	0.0056	0.50	ug/L	0.20		100	70-130			11/20/19	J	
Simazine	0.17	0.0049	0.070	ug/L	0.14		120	70-130			11/20/19		
Thiobencarb	0.22	0.0083	0.10	ug/L	0.20		108	70-130			11/20/19		
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.93*				*1.0*		*93*	*70-130*			11/20/19		
Surrogate: Benzo(a)pyrene-d12	*0.85*				*1.0*		*85*	*70-130*			11/20/19		
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*108*	*70-130*			11/20/19		
Blank Spike Dup (A917200-BSD1)													
Alachlor	0.45	0.022	0.20	ug/L	0.40		112	70-130	6	30	11/20/19		
Atrazine	0.25	0.0076	0.10	ug/L	0.20		127	70-130	5	30	11/20/19		
Benzo(a)pyrene	0.034	0.0019	0.020	ug/L	0.040		85	70-130	20	30	11/20/19		
Bis(2-ethylhexyl) adipate	0.85	0.067	0.60	ug/L	0.80		107	70-130	7	30	11/20/19		
Bis(2-ethylhexyl) phthalate	2.4	0.11	0.60	ug/L	2.4		102	70-130	4	30	11/20/19		
Bromacil	0.23	0.028	0.80	ug/L	0.20		117	70-130	4	30	11/20/19	J	
Butachlor	0.25	0.018	0.25	ug/L	0.20		125	70-130	8	30	11/20/19	J	
Diazinon	0.050	0.0022	0.020	ug/L	0.040		126	70-130	16	30	11/20/19		
Dimethoate	3.1	0.082	1.0	ug/L	1.6		192	70-130	17	30	11/20/19	BS	***High***
Metolachlor	0.23	0.011	0.50	ug/L	0.20		115	70-130	6	30	11/20/19	J	
Metribuzin	0.22	0.0061	0.50	ug/L	0.20		112	70-130	6	30	11/20/19	J	
Molinate	0.21	0.0061	0.50	ug/L	0.20		104	70-130	5	30	11/20/19	J	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 525.3 - Quality Control												
Batch: A917200											Prepared: 11/14/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank Spike Dup (A917200-BSD1)												
Propachlor	0.21	0.0056	0.50	ug/L	0.20		105	70-130	5	30	11/20/19	J
Simazine	0.17	0.0049	0.070	ug/L	0.14		123	70-130	3	30	11/20/19	
Thiobencarb	0.23	0.0083	0.10	ug/L	0.20		113	70-130	4	30	11/20/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.94*				*1.0*		*94*	*70-130*			11/20/19	
Surrogate: Benzo(a)pyrene-d12	*0.91*				*1.0*		*91*	*70-130*			11/20/19	
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*115*	*70-130*			11/20/19	
Matrix Spike (A917200-MS1), Source: S9K0141-02												
Alachlor	0.10	0.022	0.20	ug/L	0.094	ND	108	70-130			11/20/19	J
Atrazine	0.055	0.0076	0.10	ug/L	0.047	0.016	83	70-130			11/20/19	J
Benzo(a)pyrene	0.0080	0.0019	0.020	ug/L	0.0094	ND	85	70-130			11/20/19	J
Bis(2-ethylhexyl) adipate	0.21	0.067	0.60	ug/L	0.19	ND	113	70-130			11/20/19	J
Bis(2-ethylhexyl) phthalate	0.68	0.11	0.60	ug/L	0.57	0.23	78	70-130			11/20/19	
Bromacil	0.054	0.028	0.80	ug/L	0.047	ND	115	70-130			11/20/19	J
Butachlor	0.062	0.018	0.25	ug/L	0.047	ND	131	70-130			11/20/19	MS1.6 ***High***, J
Diazinon	0.012	0.0022	0.020	ug/L	0.0094	ND	128	70-130			11/20/19	J
Dimethoate	0.53	0.082	1.0	ug/L	0.38	ND	141	70-130			11/20/19	MS1.6 ***High***, J
Metolachlor	0.053	0.011	0.50	ug/L	0.047	ND	113	70-130			11/20/19	J
Metribuzin	0.048	0.0061	0.50	ug/L	0.047	ND	101	70-130			11/20/19	J
Molinate	0.051	0.0061	0.50	ug/L	0.047	ND	109	70-130			11/20/19	J
Propachlor	0.047	0.0056	0.50	ug/L	0.047	ND	100	70-130			11/20/19	J
Simazine	0.038	0.0049	0.070	ug/L	0.033	0.0059	97	70-130			11/20/19	J
Thiobencarb	0.055	0.0083	0.10	ug/L	0.047	ND	117	70-130			11/20/19	J
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.88*				*0.94*		*93*	*70-130*			11/20/19	
Surrogate: Benzo(a)pyrene-d12	*0.82*				*0.94*		*87*	*70-130*			11/20/19	
Surrogate: Triphenyl Phosphate	*1.0*				*0.94*		*108*	*70-130*			11/20/19	
EPA 531.1 - Quality Control												
Batch: A917289											Prepared: 11/15/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank (A917289-BLK1)												
3-Hydroxycarbofuran	ND	0.12	3.0	ug/L							11/16/19	
Aldicarb	ND	0.12	3.0	ug/L							11/16/19	
Aldicarb Sulfone	ND	0.12	2.0	ug/L							11/16/19	
Aldicarb Sulfoxide	ND	0.12	3.0	ug/L							11/16/19	
Carbaryl	ND	0.22	5.0	ug/L							11/16/19	
Carbofuran	ND	0.27	5.0	ug/L							11/16/19	
Methomyl	ND	0.19	2.0	ug/L							11/16/19	
Oxamyl	ND	0.090	20	ug/L							11/16/19	
Blank Spike (A917289-BS1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120			11/16/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0		105	80-120			11/16/19	J
Aldicarb Sulfone	3.4	0.12	2.0	ug/L	3.2		105	80-120			11/16/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 531.1 - Quality Control												
Batch: A917289											Prepared: 11/15/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank Spike (A917289-BS1)												
Aldicarb Sulfoxide	2.0	0.12	3.0	ug/L	2.0		102	80-120			11/16/19	J
Carbaryl	4.2	0.22	5.0	ug/L	4.0		106	80-120			11/16/19	J
Carbofuran	3.6	0.27	5.0	ug/L	3.6		99	80-120			11/16/19	J
Methomyl	4.2	0.19	2.0	ug/L	4.0		105	80-120			11/16/19	
Oxamyl	4.2	0.090	20	ug/L	4.0		105	80-120			11/16/19	J
Blank Spike Dup (A917289-BSD1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120	0	20	11/16/19	
Aldicarb	2.2	0.12	3.0	ug/L	2.0		109	80-120	4	20	11/16/19	J
Aldicarb Sulfone	3.3	0.12	2.0	ug/L	3.2		104	80-120	1	20	11/16/19	
Aldicarb Sulfoxide	2.1	0.12	3.0	ug/L	2.0		104	80-120	1	20	11/16/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0		103	80-120	3	20	11/16/19	J
Carbofuran	3.5	0.27	5.0	ug/L	3.6		96	80-120	3	20	11/16/19	J
Methomyl	4.6	0.19	2.0	ug/L	4.0		116	80-120	10	20	11/16/19	
Oxamyl	4.2	0.090	20	ug/L	4.0		106	80-120	1	20	11/16/19	J
Matrix Spike (A917289-MS1), Source: A9K0997-01												
3-Hydroxycarbofuran	4.1	0.12	3.0	ug/L	4.0	ND	103	65-135			11/16/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0	ND	105	65-135			11/16/19	J
Aldicarb Sulfone	3.1	0.12	2.0	ug/L	3.2	ND	96	65-135			11/16/19	
Aldicarb Sulfoxide	1.9	0.12	3.0	ug/L	2.0	ND	96	65-135			11/16/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0	ND	102	65-135			11/16/19	J
Carbofuran	3.2	0.27	5.0	ug/L	3.6	ND	90	65-135			11/16/19	J
Methomyl	4.1	0.19	2.0	ug/L	4.0	ND	103	65-135			11/16/19	
Oxamyl	3.9	0.090	20	ug/L	4.0	ND	97	65-135			11/16/19	J
EPA 547 - Quality Control												
Batch: A917319											Prepared: 11/16/2019	
Prep Method: EPA 547											Analyst: JNG	
Blank (A917319-BLK1)												
Glyphosate	ND	2.1	25	ug/L							11/16/19	
Surrogate: AMPA	*210*				*200*		*105*	*70-130*			11/16/19	
Blank Spike (A917319-BS1)												
Glyphosate	110	2.1	25	ug/L	100		107	70-130			11/16/19	
Surrogate: AMPA	*210*				*200*		*103*	*70-130*			11/16/19	
Blank Spike Dup (A917319-BSD1)												
Glyphosate	100	2.1	25	ug/L	100		104	70-130	3	30	11/16/19	
Surrogate: AMPA	*200*				*200*		*99*	*70-130*			11/16/19	
Matrix Spike (A917319-MS1), Source: A9K0997-01												
Glyphosate	100	2.1	25	ug/L	100	ND	104	70-130			11/16/19	
Surrogate: AMPA	*210*				*200*		*104*	*70-130*			11/16/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 547 - Quality Control												
Batch: A917319											Prepared: 11/16/2019	
Prep Method: EPA 547											Analyst: JNG	
Matrix Spike Dup (A917319-MSD1), Source: A9K0997-01												
Glyphosate	97	2.1	25	ug/L	100	ND	97	70-130	7	30	11/16/19	
Surrogate: AMPA	*200*				*200*		*98*	*70-130*			11/16/19	
EPA 548.1 - Quality Control												
Batch: A917162											Prepared: 11/13/2019	
Prep Method: EPA 548.1											Analyst: YNV	
Blank (A917162-BLK1)												
Endothall	ND	1.6	2.0	ug/L							11/14/19	
Blank Spike (A917162-BS1)												
Endothall	13	1.6	2.0	ug/L	20		64	46-116			11/14/19	
Blank Spike Dup (A917162-BSD1)												
Endothall	12	1.6	2.0	ug/L	20		62	46-116	5	30	11/14/19	
Matrix Spike (A917162-MS1), Source: A9K0686-01												
Endothall	2.0	1.6	2.0	ug/L	20	ND	10	46-116			11/14/19	MS1.0 ***Low***
Matrix Spike (A917162-MS2), Source: S9K0122-03												
Endothall	18	1.6	2.0	ug/L	20	ND	88	46-116			11/14/19	
EPA 549.2 - Quality Control												
Batch: A917100											Prepared: 11/13/2019	
Prep Method: EPA 549.2											Analyst: ANM	
Blank (A917100-BLK1)												
Diquat	ND	0.071	0.40	ug/L							11/14/19	
Blank Spike (A917100-BS1)												
Diquat	3.1	0.071	0.40	ug/L	4.0		77	70-130			11/14/19	
Blank Spike Dup (A917100-BSD1)												
Diquat	3.1	0.071	0.40	ug/L	4.0		77	70-130	0	30	11/14/19	
Matrix Spike (A917100-MS1), Source: A9K0686-01												
Diquat	2.3	0.071	0.40	ug/L	4.0	ND	59	70-130			11/14/19	MS1.0 ***Low***
Matrix Spike (A917100-MS2), Source: A9K0703-01												
Diquat	ND	0.071	0.40	ug/L	4.0	ND	0	70-130			11/14/19	MS1.0 ***Low***
SRL 524M-TCP - Quality Control												
Batch: A917192											Prepared: 11/14/2019	
Prep Method: no prep-volatiles											Analyst: JNG	
Blank (A917192-BLK1)												

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SRL 524M-TCP - Quality Control												
Batch: A917192											Prepared: 11/14/2019	
Prep Method: no prep-volatiles											Analyst: JNG	
Blank (A917192-BLK1)												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L							11/14/19	
Blank Spike (A917192-BS1)												
1,2,3-Trichloropropane	0.0044	0.0014	0.0050	ug/L	0.0050		88	80-120			11/14/19	J
Blank Spike Dup (A917192-BSD1)												
1,2,3-Trichloropropane	0.0042	0.0014	0.0050	ug/L	0.0050		84	80-120	4	30	11/14/19	J

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Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

Aggressive Index	Chlorothalonil	Trifluralin
Langelier Index	Threshold Odor	1,2,3-Trichloropropane

Certificate of Analysis

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

	2435		
Fresno			
State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-012
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-012
EPA - UCMR4	CA00079	State of Washington	C997-19d
San Bernardino			
State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-004	State of Oregon - NELAP	4119-004
Vancouver			
NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-012
State of Washington	C824-19		

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
Date needed:

A9L1803 clare4404 11/12/2019 31

*Required Fields Temp: Thermometer ID:

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Claremont Land Group	Geralyn Skapik Additional cc's: Christofer Coppinger, John Bissel	John Bissel - Hansji PO#:	(909) 398-4404 E-mail*: gskapik@skapiklaw.com	

Address*:	City*:	State*:	Zip*:
5861 Pine Ave, Suite A-1	Chino Hills	CA	91709

Project:
Project #: A9L1803

Reporting Options: ☒ Trace (J-Flag) ☐ Swamp ☐ EDD Type: _____

Sampler Name (Printed/Signature)*: Alexander Arita

Regulatory Carbon Copies
☐ SWRCB (Drinking Water)
☐ Merced Co ☐ Fresno Co
☐ Madera Co ☐ Tulare Co
☐ Other: _____

Regulatory Compliance
☐ EDT to California SWRCB (Drinking Water)
System Number*: _____
☐ Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

	#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Gross Alpha	EXT-Rad 226, 228	
26G(A)	1	[redacted]	11/11/19	14:30	DW		X	X	X	X		X	X	X	
	2	Trip Blank - 524 - Raw - Lot# 1119009	11/11/19		TB	Reported from: A9K0979-06					X				
		Revised COC created by EMP													

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: PIA#:	Check / Cash Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____
Cooling Method: Wet Blue None
Custody Seal: Y / N
Chilling Process Begun: Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

A9L1803 clare4404 11/12/2019 31

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

@ 4.4

Turnaround Time Request
- [X] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
- Date needed:

*Required Fields

Temp: 2.8°C Thermometer ID: 54

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Hansji Corporation	John Bissel Additional cc's: Christofer Coppinger, Geralyn Skapik	Arun Malhotra PO#:	(714) 399-0152 E-mail*: johnb@hansji.com	

Address*:	City*:	State*:	Zip*:
631 W. Katella Ave., 5th Floor	Anaheim	CA	92802

Project: | Project #:

Reporting Options: [✓] Trace (J-Flag) [ ] Swamp [ ] EDD Type: _____

Sampler Name (Printed/Signature)*: Alexander Arita (AA)

Regulatory Carbon Copies: [ ] SWRCB (Drinking Water) [ ] Merced Co [ ] Fresno Co [ ] Madera Co [ ] Tulare Co [ ] Other:

Regulatory Compliance: [ ] EDT to California SWRCB (Drinking Water) System Number*: _____ [ ] Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
26G(B) 1	[redacted]	11/11/19	12:08	DW		X	X	X	X	X			X	X
26G(A) 2	[redacted]	11/11/19	14:30	DW	High air content in water.	X	X	X	X	X			X	X
26G(C) 3	[redacted]	11/11/19	13:30	DW		X	X	X	X	X			X	X
4	Trip Blank - TCP - Lot# 1119003									X				
5	Trip Blank - 504 - Lot# 1019008										X			
6	Trip Blank - 524 - Lot# 1119009											X		
7	Terra V. Well No. 1	11/12/19	10:40	DW		X	X	X	X	X			X	X
8	Terra V. Well No 2	11/12/19	11:40	DW		X	X	X	X	X			X	X
9	TCPTB 1019035													
10	504 TB 1019036													
11	524 TB ~~1019006~~ 1019007													
	* MCL Notified 1855													

See Revised COC 01/07/2020 SS

Radon

X f

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Alexander Arita	Geoscience	11/12/19	1557		
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: PIA#:	Check / Cash Init.
		11/12/19	1557		

Shipping Method: CNTRAC UPS GSO WALK-IN FED EX Courier: _____ Foam
Cooling Method: Wet Blue None

Custody Seal: Y / N
Chilling Process Begun: Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on the Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

Field sampling parameters:

26G(B)	26G(A)	26G(C)	Terra V. Well No. 1	Terra V. Well No. 2
[redacted] -	[redacted]	[redacted]		
0.53 NTU	8.62 NTU	3.03 NTU	27.7 NTU	2.67 NTU
8.26 pH @ 13.2°C	173 µS @ 12.5°C	223 µS @ 13.8°C	354 µS @ 13.2°C	346 µS @ 13.8°C
436 µS @ 12.4°C	8.15 pH @ 12.5°C	9.11 pH @ 14.1°C	7.73 pH @ 13.1°C	8.53 pH @ 14.3°C

A9L1803 clare4404 11/12/2019

BSK Associates SR-FL-0002-20

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Sample Integrity

BSK Bottles: (Yes) No Page 1 of 2

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) NA Yes No NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes (No) NA

Bottles Received ("—" means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	1-3	4	5	6	7-8
Bacti $Na_2S_2O_3$	—	—	1				1
None (P) White Cap	—	—	2C				2C
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	(P) F	1A				1A
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	4C/1B				4C/1B
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	(P) F	1A				1A
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	2C, 1B				2C/1B
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	3V	2V, TB			3V
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	2C				2C
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	1A				1A
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	1C				1C
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—	1A				1A
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	7V		2V/TB		7V
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	(P) F	1V				1V
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V			2V, TB	3V
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	1C				1C
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					3V
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P		Initial & Time		S P			

Comments

Labeled by: VLF 17:30

Labels Checked by: KMH 17:50

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned:

BSK Associates SR-FL-0002-20

Sample Integrity

BSK Bottles: (Yes) No Page 2 of 2

COC Info					
Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) NA (Yes) No NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes (No) NA

Bottles Received ("_" means preservation/chlorine checks are either N/A or are performed in the lab)	Checks	Passed?	9	10	11		
250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)							
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) LL Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/LL Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	2V TB				
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—		2V TB			
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—			2V TB		
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Comments

Initial & Time Labeled by: VH 17:30

Labels Checked by: KMH 17.50

Scanned:

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

December 17, 2019 Ceres ID: 13218

BSK Associates
1414 Stanislaus St.
Fresno, CA 93706

The following report contains the results for the one drinking water sample received on November 14, 2019. This sample was analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under your Subcontract Order # A9L1803.

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date	&Time
13218-001	[redacted] 26G(A) A9L1803-01	11/14/2019	11/11/2019	14:30

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Method Blank**	**QC Batch #:** 2088	**Date Received:** NA
	Matrix: Drinking Water	**Date Extracted:** 11/26/2019
Project ID: A9L1803	**Sample Size:** 1.000 L	**ZB-5MS Analysis:** 11/26/2019

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 4.35	1.49	5.00		13C-2378-TCDD	88.5	31-137	
					CRS			
					37Cl4-2378-TCDD	64.6	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Ongoing Precision and Recovery**		**Date Received:** NA
	QC Batch #: 2088	**Date Extracted:** 11/26/2019
	Matrix: Drinking Water	**ZB-5MS Analysis:** 11/26/2019
Project ID: A9L1803	**Sample Size:** 1.000 L	

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	7.43	7.3-14.6	13C-2378-TCDD	95.5	25-141
			CRS		
			37Cl4-2378-TCDD	81.4	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

26G(A)

Client Sample ID: [redacted] A9L1803-01			
Project ID: A9L1803	**Ceres Sample ID:** 13218-001		**Date Received:** 11/14/2019
	QC Batch #: 2088		**Date Extracted:** 11/26/2019
Date Collected: 11/11/2019	**Matrix:** Drinking Water		**ZB-5MS Analysis:** 11/26/2019
Time Collected: 14:30	**Sample Size:** 1.026 L		

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.06	1.49	4.87		13C-2378-TCDD	92.7	31-137	
					CRS			
					37Cl4-2378-TCDD	74.3	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

A9L1803

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

Ceres Analytical Laboratory, Inc
4919 Windplay Drive, Suite 1
El Dorado Hills, CA 95762
Phone :(916) 932-5011
Fax: -
Turnaround (Days): 20
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9L1803-01	[redacted] 26G(A)	**Client Matrix** Drinking Water	**11/11/2019 14:30**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Report form original data for A9K0979-02	

Released By	Date	Received By	Date
Released By	Date	Received By	Date

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322000420
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Elaine M. Phillips
BSK Analytical Laboratories
1414 Stanislaus Street
Fresno, CA 93706

Phone: (559) 497-2888
Fax:
Received: 11/13/2019
Analyzed: 11/24/2019

Proj: A9L1803

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
							MFL (million fibers per liter)		
A9L1803-01 322000420-0001	11/21/2019 12:20 PM	30	1288	0.2210	None Detected	ND	0.19	<0.19	0.00 - 0.72

Collection Date/Time: 11/11/2019 14:30 PM

Sample ozonated prior to analysis due to lab filtration time exceeding 48hr method hold time.

Sample A9K0979-02 separated from Order #321924383 is reported as A9L1803-01 on this new report as per client request.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/10/2020 13:10:25

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested. This report may not be reproduced, except in full, without written permission by LA Testing. Samples received in good condition unless otherwise noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

BSK ASSOCIATES

SUBCONTRACT ORDER

A9L1803

#322000420

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

L A Testing
520 Mission St.
South Pasadena, CA 91030
Phone :(800) 303-0047
Fax: (323) 254-9982
Turnaround (Days): 20
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9L1803-01	[redacted]26G(A)	Client Matrix Drinking Water	11/11/2019 14:30
Lab Matrix:	Water		
	Analysis: EXT-Asbestos, Drinking Water by EPA 100.2	Report form original data for A9K0979-02	

@macissaac 12/17/19 1452 (emailed)

Released By	Date	Received By	Date
Released By	Date	Received By	Date

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917174
Customer : 2-22939

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
[redacted] 26G(A)	11/11/2019	11/14/2019	SP 1917174-001	DW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	11/26/2019:218501 All analysis quality controls are within established criteria
	11/19/2019:213335 All preparation quality controls are within established criteria
903.0	11/21/2019:218263 All analysis quality controls are within established criteria
	11/14/2019:213183 All preparation quality controls are within established criteria
Ra - 05	12/02/2019:218827 All analysis quality controls are within established criteria
	11/21/2019:213195 All preparation quality controls are within established criteria

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA ELAP Certification No. 1573

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

Office & Laboratory
563 E. Lindo Avenue
Chico, CA 95926
TEL: (530)343-5818
FAX: (530)343-3807
CA ELAP Certification No. 2670

Office & Laboratory
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
TEL: (805)783-2940
FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX: [illegible]
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917174
BSK Associates Engineers & Laboratories Customer : 2-22939

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2019-12-18

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917174-001
Customer ID : 2-22939

Sampled On : November 11, 2019-14:30
Sampled By : Not Available
Received On : November 14, 2019-10:45
Matrix : Drinking Water

Description : [redacted] 26G(A)
Project : A9K0979-02

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry								
Gross Alpha	3.64 ± 1.04	0.950	pCi/L	15/5	900.0	11/19/19-09:01 2P1913335	900.0	11/26/19-14:49 2A1918501
Total Alpha Radium (226)	0.000 ± 0.088	0.362	pCi/L	3	903.0	11/14/19-18:00 2P1913183	903.0	11/21/19-08:27 2A1918263
Ra 228	0.000 ± 0.743	0.410	pCi/L	2	Ra - 05	11/21/19-18:30 2P1913195	Ra - 05	12/02/19-19:30 2A1918827

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
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FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917174
BSK Associates Engineers & Laboratories Customer : 2-22939

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	11/26/19:218501JCA	CCV	cpm	8120	38.4 %	35-47	
			CCB	cpm		0.1200	0.13	
Gross Alpha	900.0	11/19/19:213335IWC	Blank	pCi/L		0.63	3	
			LCS	pCi/L	155.2	94.8 %	75-125	
			MS	pCi/L	155.2	115 %	60-140	
		(VI 1946767-001)	MSD	pCi/L	155.2	111 %	60-140	
			MSRPD	pCi/L	155.2	3.1%	≤30	
Alpha	903.0	11/21/19:218263JCA	CCV	cpm	8123	39.4 %	37-46	
			CCB	cpm		0.1400	0.16	
Total Alpha Radium (226)	903.0	11/14/19:213183emv	RgBlk	pCi/L		0.03	2	
			LCS	pCi/L	23.33	57.7 %	52-107	
			BS	pCi/L	23.33	58.4 %	43-111	
			BSD	pCi/L	23.33	59.5 %	43-111	
			BSRPD	pCi/L	23.33	1.9%	≤35.5	
Beta	Ra - 05	12/02/19:218827emv	CCV	cpm	8116	89.7 %	84-94	
			CCB	cpm		0.4400	0.51	
Ra 228	Ra - 05	11/21/19:213195emv	RgBlk	pCi/L		-0.03	3	
			LRS	pCi/L	14.13	69.9 %	65-108	
			BS	pCi/L	14.13	93.8 %	75-125	
			BSD	pCi/L	14.13	92.0 %	75-125	
			BSRPD	pCi/L	14.13	0.25	≤3	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

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Chain of Custody

Map Re

Client: **BSK Associates**

Address: BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Phone: (559)497-2888 Xt116 Fax: (559)485-69356132442 8

Contact Person: Adam Trevarrow

Project Name: **A9K0979-02**

Purchase Order Number:

Sampler(s) Not Available

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **SP 1917174** 2-22939

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Radio Chemistry-Gross Alpha,Total Radium 226,Ra 228 32oz(P)-HNO3 , 32oz(P)-HNO3									
1	[redacted]26G(A)	11/11/19	14:30	G	DW				2,1									

Remarks:
Original COC #1915352

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
OnTrac								
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:
Shawn Peck	11/14/19	10:45						

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

A9L1805
1/27/2020
Invoice: AD01463

Geralyn Skapik
Claremont Land Group
5861 Pine Ave, Suite A-1
Chino Hills, CA 91709

RE: Report for A9L1805 Yosemite Title 22 Testing

Dear Geralyn Skapik,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 11/12/2019. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Elaine M. Phillips , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Elaine M. Phillips, Project Coordinator

Accredited in Accordance with NELAP
ORELAP #4021-009

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Claremont Land Group	**Invoice To:**	Hansji Corporation
Report To:	Geralyn Skapik	**Invoice Attn:**	John Bissel
Project #:	Terra Vi	**Project PO#:**	-
Received:	11/12/2019 - 15:57		
Report Due:	12/30/2019		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 2.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Foam
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Chain of Custody Notes

Date: 1/27/2020
Initials: EMP
Note: Moved data from A9K0979-07 for Terra Vi Well No. 1 and A9K0979-08 for Terra Vi Well No. 2 to Work Order A9L1805, as per client request.

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B2.0	Analyte present in the method blank above the method detection limit (MDL). Laboratory does not determine batch acceptance on detections below the reporting limit (RL).
B2.2	Analyte detected in associated method blank below the reporting limit. Sample result may be attributable to ambient laboratory background.
BS	Blank spike recoveries did not meet acceptance limits.
BS1.0	Blank spike recovery for this analyte was biased high; no material impact on reported result as sample is ND for this parameter.
CV0.0	CCV recovery was above method acceptance limits; no material impact on reported result as sample detection is below the reporting limit for this parameter.
J	Estimated value
MS1.0	Matrix spike recoveries exceed control limits.
MS1.6	Matrix Spike recovery meets the wider acceptance criteria of 50-150% when the spike level is at or below the reporting limit (RL).

Report Distribution

Recipient(s)	Report Format	CC:
Geralyn Skapik	MCL.RPT	
Christofer Coppinger	MCL.RPT	
John Bissel	MCL.RPT	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1805-01
Sampled By: Alexander Arita
Sample Description: Terra Vi Well No.1

Sample Date - Time: 11/12/2019 - 10:40
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.73 Temp=13.1 ºC Cond.=354 umho Turb. =27.7 ntu

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aggressive Index		**12**						A917677	11/22/19	11/22/19	
Alkalinity as CaCO3	SM 2320B	**180**		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Bicarbonate as CaCO3	SM 2320B	**180**		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Carbonate as CaCO3	SM 2320B	ND		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Hydroxide as CaCO3	SM 2320B	ND		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Chloride	EPA 300.0	**0.94**	0.51	1.0	mg/L	1		A917081	11/13/19	11/13/19	J
Color, Apparent	SM 2120B	**35**		5.0	CU	1		A916681	11/12/19 19:29	11/12/19	
Color pH (1)	SM 4500-H+ B	**7.4**			pH Units	1		A916681	11/12/19	11/12/19	
Cyanide (total)	SM 4500-CN E	**0.024**	0.0022	0.0050	mg/L	1	0.15	A917193	11/14/19	11/19/19	
Conductivity @ 25C	SM 2510B	**360**		1.0	umhos/cm	1		A917122	11/13/19	11/13/19	
Fluoride	EPA 300.0	**0.045**	0.042	0.10	mg/L	1	2	A917081	11/13/19	11/13/19	J
Hexavalent Chromium	EPA 218.7	**0.14**	0.011	0.050	ug/L	1	50	A917182	11/14/19	11/14/19	
Langelier Index	SM 2330B	**0.27**						A917686	11/22/19	11/22/19	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	**0.034**	0.021	0.050	mg/L	1		A917050	11/12/19 18:50	11/12/19	J
Nitrate + Nitrite as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A917081	11/13/19 08:02	11/13/19	
Nitrate as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A917081	11/13/19 08:02	11/13/19	
Nitrite as N	EPA 300.0	ND	0.020	0.050	mg/L	1	1	A917081	11/13/19 08:02	11/13/19	
Threshold Odor	SM 2150B	ND		1.0	T.O.N.	1		A916905	11/12/19 18:18	11/12/19	
Perchlorate	EPA 314.0	ND	0.61	2.0	ug/L	1	6	A917054	11/13/19	11/13/19	
pH (1)	SM 4500-H+ B	**7.8**			pH Units	1		A917122	11/13/19	11/13/19	
pH Temperature in °C		**23.5**									
Sulfate as SO4	EPA 300.0	**3.6**	0.40	1.0	mg/L	1		A917081	11/13/19	11/13/19	
Total Dissolved Solids	SM 2540C	**230**		5.0	mg/L	1		A917174	11/14/19	11/19/19	
Turbidity	SM 2130B	**16**		0.10	NTU	1		A916681	11/12/19 19:45	11/12/19	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	**0.050**	0.023	0.050	mg/L	1	1	A917108	11/13/19	11/20/19	J
Antimony	EPA 200.8	**0.99**	0.91	2.0	ug/L	1	6	A917108	11/13/19	11/21/19	J
Arsenic	EPA 200.8	**6.1**	1.2	2.0	ug/L	1	10	A917108	11/13/19	11/21/19	
Barium	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A917108	11/13/19	11/20/19	
Beryllium	EPA 200.8	ND	0.45	1.0	ug/L	1	4	A917108	11/13/19	11/21/19	
Cadmium	EPA 200.8	ND	0.45	1.0	ug/L	1	5	A917108	11/13/19	11/21/19	
Calcium	EPA 200.7	**61**	0.046	0.10	mg/L	1		A917108	11/13/19	11/20/19	
Chromium	EPA 200.8	ND	4.5	10	ug/L	1	50	A917108	11/13/19	11/21/19	
Copper	EPA 200.8	ND	2.3	5.0	ug/L	1		A917108	11/13/19	11/21/19	
Iron	EPA 200.7	**1.5**	0.014	0.030	mg/L	1		A917108	11/13/19	11/20/19	
Lead	EPA 200.8	ND	0.45	1.0	ug/L	1		A917108	11/13/19	11/21/19	
Magnesium	EPA 200.7	**5.7**	0.046	0.10	mg/L	1		A917108	11/13/19	11/20/19	
Manganese	EPA 200.7	**0.039**	0.0045	0.010	mg/L	1		A917108	11/13/19	11/20/19	

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Certificate of Analysis

Sample ID: A9L1805-01
Sampled By: Alexander Arita
Sample Description: Terra Vi Well No.1

Sample Date - Time: 11/12/2019 - 10:40
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.73 Temp=13.1 ºC Cond.=354 umho Turb. =27.7 ntu

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Mercury	EPA 200.8	ND	0.091	0.20	ug/L	1	2	A917108	11/13/19	11/21/19	
Nickel	EPA 200.8	ND	4.5	10	ug/L	1	100	A917108	11/13/19	11/21/19	
Potassium	EPA 200.7	**1.5**	0.91	2.0	mg/L	1		A917108	11/13/19	11/20/19	J
Selenium	EPA 200.8	ND	0.91	2.0	ug/L	1	50	A917108	11/13/19	11/21/19	
Silver	EPA 200.8	ND	4.5	10	ug/L	1		A917108	11/13/19	11/21/19	
Sodium	EPA 200.7	**11**	0.45	1.0	mg/L	1		A917108	11/13/19	11/20/19	
Thallium	EPA 200.8	ND	0.45	1.0	ug/L	1	2	A917108	11/13/19	11/21/19	
Hardness as CaCO3	SM 2340B	**180**		0.41	mg/L						
Uranium	EPA 200.8	**7.6**	0.45	1.0	ug/L	1	30	A917108	11/13/19	11/21/19	
Uranium, Radiological		**5.1**		0.67	pCi/L		20				
Zinc	EPA 200.7	**2.9**	0.023	0.050	mg/L	1		A917108	11/13/19	11/20/19	

Microbiology

Analyte	Method	Result	RL	Units	Batch	Prepared	Analyzed	Qual
Coliform, Total and E.Coli by Quanti-Tray 51 Wells								
E. Coli	SM 9223B	**<1**	1	MPN/100 mL	A917073	11/12/19 17:50	12/13/19 13:51	
Total Coliform	SM 9223B	**<1**	1	MPN/100 mL	A917073	11/12/19 17:50	12/13/19 13:51	

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
EDB and DBCP by GC-ECD											
Dibromochloropropane (DBCP)	EPA 504.1	ND	0.0060	0.010	ug/L	1	0.2	A917099	11/13/19	11/14/19	
Ethylene Dibromide (EDB)	EPA 504.1	ND	0.0050	0.020	ug/L	1	0.05	A917099	11/13/19	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 504.1	116 %		*Acceptable range: 70-130 %*							
Organohalide Pesticides and PCBs by GC-ECD											
Aldrin	EPA 505	ND	0.022	0.075	ug/L	1		A917099	11/13/19	11/14/19	
Chlordane (Technical)	EPA 505	ND	0.091	0.10	ug/L	1	0.1	A917099	11/13/19	11/14/19	
Dieldrin	EPA 505	ND	0.0042	0.020	ug/L	1		A917099	11/13/19	11/14/19	
Endrin	EPA 505	ND	0.0037	0.10	ug/L	1	2	A917099	11/13/19	11/14/19	
Heptachlor	EPA 505	ND	0.0052	0.010	ug/L	1	0.01	A917099	11/13/19	11/14/19	
Heptachlor Epoxide	EPA 505	ND	0.0048	0.010	ug/L	1	0.01	A917099	11/13/19	11/14/19	
Hexachlorobenzene	EPA 505	ND	0.032	0.50	ug/L	1	1	A917099	11/13/19	11/14/19	
Hexachlorocyclopentadiene	EPA 505	ND	0.041	1.0	ug/L	1	50	A917099	11/13/19	11/14/19	
Lindane	EPA 505	ND	0.0059	0.20	ug/L	1	0.2	A917099	11/13/19	11/14/19	
Methoxychlor	EPA 505	ND	0.031	10	ug/L	1	30	A917099	11/13/19	11/14/19	
PCB Aroclor Screen	EPA 505	ND	0.078	0.50	ug/L	1	0.5	A917099	11/13/19	11/14/19	
Toxaphene	EPA 505	ND	0.33	1.0	ug/L	1	3	A917099	11/13/19	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 505	116 %		*Acceptable range: 70-130 %*							
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-T	EPA 515.4	ND	0.13	1.0	ug/L	1		A917083	11/12/19	11/14/19	

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Certificate of Analysis

Sample ID: A9L1805-01
Sampled By: Alexander Arita
Sample Description: Terra Vi Well No.1

Sample Date - Time: 11/12/2019 - 10:40
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.73 Temp=13.1 ºC Cond.=354 umho Turb. =27.7 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-TP (Silvex)	EPA 515.4	ND	0.016	1.0	ug/L	1	50	A917083	11/12/19	11/14/19	
2,4-D	EPA 515.4	ND	0.074	10	ug/L	1	70	A917083	11/12/19	11/14/19	
Bentazon	EPA 515.4	ND	1.3	2.0	ug/L	1	18	A917083	11/12/19	11/14/19	
Dalapon	EPA 515.4	ND	0.58	10	ug/L	1	200	A917083	11/12/19	11/14/19	
Dicamba	EPA 515.4	ND	0.13	1.5	ug/L	1		A917083	11/12/19	11/14/19	
Dinoseb	EPA 515.4	ND	0.032	2.0	ug/L	1	7	A917083	11/12/19	11/14/19	
Pentachlorophenol	EPA 515.4	ND	0.011	0.20	ug/L	1	1	A917083	11/12/19	11/14/19	
Picloram	EPA 515.4	ND	0.084	1.0	ug/L	1	500	A917083	11/12/19	11/14/19	
Surrogate: DCPAA	EPA 515.4	125 %			*Acceptable range: 70-130 %*						
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A917163	11/14/19	11/14/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A917163	11/14/19	11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A917163	11/14/19	11/14/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A917163	11/14/19	11/14/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A917163	11/14/19	11/14/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917163	11/14/19	11/14/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A917163	11/14/19	11/14/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A917163	11/14/19	11/14/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A917163	11/14/19	11/14/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A917163	11/14/19	11/14/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A917163	11/14/19	11/14/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A917163	11/14/19	11/14/19	CV0.0
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A917163	11/14/19	11/14/19	

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Certificate of Analysis

Sample ID: A9L1805-01
Sampled By: Alexander Arita
Sample Description: Terra Vi Well No.1

Sample Date - Time: 11/12/2019 - 10:40
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.73 Temp=13.1 ºC Cond.=354 umho Turb. =27.7 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A917163	11/14/19	11/14/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A917163	11/14/19	11/14/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917163	11/14/19	11/14/19	
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A917163	11/14/19	11/14/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917163	11/14/19	11/14/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Methyl-t-butyl ether	EPA 524.2	ND	0.083	0.50	ug/L	1	13	A917163	11/14/19	11/14/19	
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A917163	11/14/19	11/14/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917163	11/14/19	11/14/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A917163	11/14/19	11/14/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917163	11/14/19	11/14/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A917163	11/14/19	11/14/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A917163	11/14/19	11/14/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A917163	11/14/19	11/14/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A917163	11/14/19	11/14/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	114 %		*Acceptable range: 70-130 %*							
Surrogate: Bromofluorobenzene	EPA 524.2	114 %		*Acceptable range: 70-130 %*							
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				
Semi-Volatile Organics by GC-MS											
Alachlor	EPA 525.3	ND	0.022	1.0	ug/L	1	2	A917200	11/14/19	11/21/19	
Atrazine	EPA 525.3	ND	0.0076	0.50	ug/L	1	1	A917200	11/14/19	11/21/19	
Benzo(a)pyrene	EPA 525.3	ND	0.0019	0.10	ug/L	1	0.2	A917200	11/14/19	11/21/19	

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Certificate of Analysis

Sample ID: A9L1805-01
Sampled By: Alexander Arita
Sample Description: Terra Vi Well No.1

Sample Date - Time: 11/12/2019 - 10:40
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=7.73 Temp=13.1 ºC Cond.=354 umho Turb. =27.7 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Semi-Volatile Organics by GC-MS											
Bis(2-ethylhexyl) adipate	EPA 525.3	ND	0.067	3.0	ug/L	1	400	A917200	11/14/19	11/21/19	
Bis(2-ethylhexyl) phthalate	EPA 525.3	**0.20**	0.11	3.0	ug/L	1	4	A917200	11/14/19	11/21/19	J, B2.2
Bromacil	EPA 525.3	ND	0.028	10	ug/L	1		A917200	11/14/19	11/21/19	
Butachlor	EPA 525.3	ND	0.018	0.38	ug/L	1		A917200	11/14/19	11/21/19	
Diazinon	EPA 525.3	ND	0.0022	0.25	ug/L	1		A917200	11/14/19	11/21/19	
Dimethoate	EPA 525.3	ND	0.082	10	ug/L	1		A917200	11/14/19	11/21/19	BS1.0
Metolachlor	EPA 525.3	ND	0.011	0.50	ug/L	1		A917200	11/14/19	11/21/19	
Metribuzin	EPA 525.3	ND	0.0061	0.50	ug/L	1		A917200	11/14/19	11/21/19	
Molinate	EPA 525.3	ND	0.0061	2.0	ug/L	1	20	A917200	11/14/19	11/21/19	
Propachlor	EPA 525.3	ND	0.0056	0.50	ug/L	1		A917200	11/14/19	11/21/19	
Simazine	EPA 525.3	ND	0.0049	1.0	ug/L	1	4	A917200	11/14/19	11/21/19	
Thiobencarb	EPA 525.3	ND	0.0083	1.0	ug/L	1	70	A917200	11/14/19	11/21/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	EPA 525.3	95 %			*Acceptable range: 70-130 %*						
Surrogate: Benzo(a)pyrene-d12	EPA 525.3	89 %			*Acceptable range: 70-130 %*						
Surrogate: Triphenyl Phosphate	EPA 525.3	113 %			*Acceptable range: 70-130 %*						
Carbamates by HPLC											
3-Hydroxycarbofuran	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb Sulfone	EPA 531.1	ND	0.12	2.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb Sulfoxide	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Carbaryl	EPA 531.1	ND	0.22	5.0	ug/L	1		A917289	11/15/19	11/16/19	
Carbofuran	EPA 531.1	ND	0.27	5.0	ug/L	1	18	A917289	11/15/19	11/16/19	
Methomyl	EPA 531.1	ND	0.19	2.0	ug/L	1		A917289	11/15/19	11/16/19	
Oxamyl	EPA 531.1	ND	0.090	20	ug/L	1	50	A917289	11/15/19	11/16/19	
Glyphosate by HPLC											
Glyphosate	EPA 547	ND	2.1	25	ug/L	1	700	A917319	11/16/19	11/16/19	
Surrogate: AMPA	EPA 547	104 %			*Acceptable range: 70-130 %*						
Endothall by GC-MS											
Endothall	EPA 548.1	ND	1.6	45	ug/L	1	100	A917162	11/13/19	11/14/19	
Diquat by HPLC											
Diquat	EPA 549.2	ND	0.071	4.0	ug/L	1	20	A917100	11/13/19	11/14/19	
1,2,3-Trichloropropane by GC-MS SIM											
1,2,3-Trichloropropane	SRL 524M-TCP	ND	0.0014	0.0050	ug/L	1	0.005	A917169	11/13/19	11/14/19	

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Certificate of Analysis

Sample ID: A9L1805-02
Sampled By: Alexander Arita
Sample Description: Terra Vi Well No.2

Sample Date - Time: 11/12/2019 - 11:40
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.53 Temp=14.3 ºC Cond.=346 umho Turb. =2.67 ntu

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aggressive Index		**12**						A917677	11/22/19	11/22/19	
Alkalinity as CaCO3	SM 2320B	**180**		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Bicarbonate as CaCO3	SM 2320B	**180**		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Carbonate as CaCO3	SM 2320B	ND		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Hydroxide as CaCO3	SM 2320B	ND		3.0	mg/L	1		A917122	11/13/19	11/13/19	
Chloride	EPA 300.0	**1.4**	0.51	1.0	mg/L	1		A917081	11/13/19	11/13/19	
Color, Apparent	SM 2120B	ND		5.0	CU	1		A916681	11/12/19 19:30	11/12/19	
Color pH (1)	SM 4500-H+ B	**7.8**			pH Units	1		A916681	11/12/19	11/12/19	
Cyanide (total)	SM 4500-CN E	**0.034**	0.0022	0.0050	mg/L	1	0.15	A917193	11/14/19	11/19/19	
Conductivity @ 25C	SM 2510B	**350**		1.0	umhos/cm	1		A917122	11/13/19	11/13/19	
Fluoride	EPA 300.0	**0.080**	0.042	0.10	mg/L	1	2	A917081	11/13/19	11/13/19	J
Hexavalent Chromium	EPA 218.7	ND	0.011	0.050	ug/L	1	50	A917182	11/14/19	11/14/19	
Langelier Index	SM 2330B	**0.52**						A917686	11/22/19	11/22/19	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.021	0.050	mg/L	1		A917050	11/12/19 18:50	11/12/19	
Nitrate + Nitrite as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A917081	11/13/19 08:16	11/13/19	
Nitrate as N	EPA 300.0	ND	0.099	0.23	mg/L	1	10	A917081	11/13/19 08:16	11/13/19	
Nitrite as N	EPA 300.0	ND	0.020	0.050	mg/L	1	1	A917081	11/13/19 08:16	11/13/19	
Threshold Odor	SM 2150B	ND		1.0	T.O.N.	1		A916905	11/12/19 18:18	11/12/19	
Perchlorate	EPA 314.0	ND	0.61	2.0	ug/L	1	6	A917054	11/13/19	11/13/19	
pH (1)	SM 4500-H+ B	**8.1**			pH Units	1		A917122	11/13/19	11/13/19	
pH Temperature in °C		**23.7**									
Sulfate as SO4	EPA 300.0	**3.1**	0.40	1.0	mg/L	1		A917081	11/13/19	11/13/19	
Total Dissolved Solids	SM 2540C	**210**		5.0	mg/L	1		A917174	11/14/19	11/19/19	
Turbidity	SM 2130B	**1.1**		0.10	NTU	1		A916681	11/12/19 19:46	11/12/19	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	**0.062**	0.023	0.050	mg/L	1	1	A917108	11/13/19	11/20/19	
Antimony	EPA 200.8	ND	0.91	2.0	ug/L	1	6	A917108	11/13/19	11/21/19	
Arsenic	EPA 200.8	**11**	1.2	2.0	ug/L	1	10	A917108	11/13/19	11/21/19	
Barium	EPA 200.7	ND	0.023	0.050	mg/L	1	1	A917108	11/13/19	11/20/19	
Beryllium	EPA 200.8	ND	0.45	1.0	ug/L	1	4	A917108	11/13/19	11/21/19	
Cadmium	EPA 200.8	ND	0.45	1.0	ug/L	1	5	A917108	11/13/19	11/21/19	
Calcium	EPA 200.7	**56**	0.046	0.10	mg/L	1		A917108	11/13/19	11/20/19	
Chromium	EPA 200.8	ND	4.5	10	ug/L	1	50	A917108	11/13/19	11/21/19	
Copper	EPA 200.8	ND	2.3	5.0	ug/L	1		A917108	11/13/19	11/21/19	
Iron	EPA 200.7	**0.18**	0.014	0.030	mg/L	1		A917108	11/13/19	11/20/19	
Lead	EPA 200.8	ND	0.45	1.0	ug/L	1		A917108	11/13/19	11/21/19	
Magnesium	EPA 200.7	**4.1**	0.046	0.10	mg/L	1		A917108	11/13/19	11/20/19	
Manganese	EPA 200.7	**0.014**	0.0045	0.010	mg/L	1		A917108	11/13/19	11/20/19	

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Certificate of Analysis

Sample ID: A9L1805-02
Sampled By: Alexander Arita
Sample Description: Terra Vi Well No.2

Sample Date - Time: 11/12/2019 - 11:40
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.53 Temp=14.3 ºC Cond.=346 umho Turb. =2.67 ntu

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Mercury	EPA 200.8	ND	0.091	0.20	ug/L	1	2	A917108	11/13/19	11/21/19	
Nickel	EPA 200.8	ND	4.5	10	ug/L	1	100	A917108	11/13/19	11/21/19	
Potassium	EPA 200.7	ND	0.91	2.0	mg/L	1		A917108	11/13/19	11/20/19	
Selenium	EPA 200.8	ND	0.91	2.0	ug/L	1	50	A917108	11/13/19	11/21/19	
Silver	EPA 200.8	ND	4.5	10	ug/L	1		A917108	11/13/19	11/21/19	
Sodium	EPA 200.7	**18**	0.45	1.0	mg/L	1		A917108	11/13/19	11/20/19	
Thallium	EPA 200.8	ND	0.45	1.0	ug/L	1	2	A917108	11/13/19	11/21/19	
Hardness as CaCO3	SM 2340B	**160**		0.41	mg/L						
Uranium	EPA 200.8	**4.4**	0.45	1.0	ug/L	1	30	A917108	11/13/19	11/21/19	
Uranium, Radiological		**2.9**		0.67	pCi/L		20				
Zinc	EPA 200.7	**0.74**	0.023	0.050	mg/L	1		A917108	11/13/19	11/20/19	

Microbiology

Analyte	Method	Result	RL	Units	Batch	Prepared	Analyzed	Qual
Coliform, Total and E.Coli by Quanti-Tray 51 Wells								
E. Coli	SM 9223B	**<1**	1	MPN/100 mL	A917073	11/12/19 17:50	12/13/19 13:51	
Total Coliform	SM 9223B	**<1**	1	MPN/100 mL	A917073	11/12/19 17:50	12/13/19 13:51	

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
EDB and DBCP by GC-ECD											
Dibromochloropropane (DBCP)	EPA 504.1	ND	0.0060	0.010	ug/L	1	0.2	A917099	11/13/19	11/14/19	
Ethylene Dibromide (EDB)	EPA 504.1	ND	0.0050	0.020	ug/L	1	0.05	A917099	11/13/19	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 504.1	116 %		*Acceptable range: 70-130 %*							
Organohalide Pesticides and PCBs by GC-ECD											
Aldrin	EPA 505	ND	0.022	0.075	ug/L	1		A917099	11/13/19	11/14/19	
Chlordane (Technical)	EPA 505	ND	0.091	0.10	ug/L	1	0.1	A917099	11/13/19	11/14/19	
Dieldrin	EPA 505	ND	0.0042	0.020	ug/L	1		A917099	11/13/19	11/14/19	
Endrin	EPA 505	ND	0.0037	0.10	ug/L	1	2	A917099	11/13/19	11/14/19	
Heptachlor	EPA 505	ND	0.0052	0.010	ug/L	1	0.01	A917099	11/13/19	11/14/19	
Heptachlor Epoxide	EPA 505	ND	0.0048	0.010	ug/L	1	0.01	A917099	11/13/19	11/14/19	
Hexachlorobenzene	EPA 505	ND	0.032	0.50	ug/L	1	1	A917099	11/13/19	11/14/19	
Hexachlorocyclopentadiene	EPA 505	ND	0.041	1.0	ug/L	1	50	A917099	11/13/19	11/14/19	
Lindane	EPA 505	ND	0.0059	0.20	ug/L	1	0.2	A917099	11/13/19	11/14/19	
Methoxychlor	EPA 505	ND	0.031	10	ug/L	1	30	A917099	11/13/19	11/14/19	
PCB Aroclor Screen	EPA 505	ND	0.078	0.50	ug/L	1	0.5	A917099	11/13/19	11/14/19	
Toxaphene	EPA 505	ND	0.33	1.0	ug/L	1	3	A917099	11/13/19	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	EPA 505	116 %		*Acceptable range: 70-130 %*							
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-T	EPA 515.4	ND	0.13	1.0	ug/L	1		A917083	11/12/19	11/14/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1805-02
Sampled By: Alexander Arita
Sample Description: Terra Vi Well No.2

Sample Date - Time: 11/12/2019 - 11:40
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.53 Temp=14.3 ºC Cond.=346 umho Turb. =2.67 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Chlorinated Acid Herbicides by GC-ECD											
2,4,5-TP (Silvex)	EPA 515.4	ND	0.016	1.0	ug/L	1	50	A917083	11/12/19	11/14/19	
2,4-D	EPA 515.4	ND	0.074	10	ug/L	1	70	A917083	11/12/19	11/14/19	
Bentazon	EPA 515.4	ND	1.3	2.0	ug/L	1	18	A917083	11/12/19	11/14/19	
Dalapon	EPA 515.4	ND	0.58	10	ug/L	1	200	A917083	11/12/19	11/14/19	
Dicamba	EPA 515.4	ND	0.13	1.5	ug/L	1		A917083	11/12/19	11/14/19	
Dinoseb	EPA 515.4	ND	0.032	2.0	ug/L	1	7	A917083	11/12/19	11/14/19	
Pentachlorophenol	EPA 515.4	ND	0.011	0.20	ug/L	1	1	A917083	11/12/19	11/14/19	
Picloram	EPA 515.4	ND	0.084	1.0	ug/L	1	500	A917083	11/12/19	11/14/19	
Surrogate: DCPAA	EPA 515.4	118 %			*Acceptable range: 70-130 %*						
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A917163	11/14/19	11/14/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A917163	11/14/19	11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A917163	11/14/19	11/14/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A917163	11/14/19	11/14/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A917163	11/14/19	11/14/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917163	11/14/19	11/14/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A917163	11/14/19	11/14/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A917163	11/14/19	11/14/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A917163	11/14/19	11/14/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A917163	11/14/19	11/14/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A917163	11/14/19	11/14/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A917163	11/14/19	11/14/19	CV0.0
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A917163	11/14/19	11/14/19	

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Certificate of Analysis

Sample ID: A9L1805-02
Sampled By: Alexander Arita
Sample Description: Terra Vi Well No.2

Sample Date - Time: 11/12/2019 - 11:40
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.53 Temp=14.3 ºC Cond.=346 umho Turb. =2.67 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A917163	11/14/19	11/14/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A917163	11/14/19	11/14/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917163	11/14/19	11/14/19	
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A917163	11/14/19	11/14/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917163	11/14/19	11/14/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Methyl-t-butyl ether	EPA 524.2	**0.12**	0.083	0.50	ug/L	1	13	A917163	11/14/19	11/14/19	J
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A917163	11/14/19	11/14/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917163	11/14/19	11/14/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917163	11/14/19	11/14/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917163	11/14/19	11/14/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A917163	11/14/19	11/14/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917163	11/14/19	11/14/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A917163	11/14/19	11/14/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Toluene	EPA 524.2	**4.7**	0.32	0.50	ug/L	1	150	A917163	11/14/19	11/14/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A917163	11/14/19	11/14/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917163	11/14/19	11/14/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A917163	11/14/19	11/14/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A917163	11/14/19	11/14/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A917163	11/14/19	11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	114 %		*Acceptable range: 70-130 %*							
Surrogate: Bromofluorobenzene	EPA 524.2	119 %		*Acceptable range: 70-130 %*							
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				
Semi-Volatile Organics by GC-MS											
Alachlor	EPA 525.3	ND	0.022	1.0	ug/L	1	2	A917200	11/14/19	11/21/19	
Atrazine	EPA 525.3	ND	0.0076	0.50	ug/L	1	1	A917200	11/14/19	11/21/19	
Benzo(a)pyrene	EPA 525.3	ND	0.0019	0.10	ug/L	1	0.2	A917200	11/14/19	11/21/19	

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Certificate of Analysis

Sample ID: A9L1805-02
Sampled By: Alexander Arita
Sample Description: Terra Vi Well No.2

Sample Date - Time: 11/12/2019 - 11:40
Matrix: Drinking Water
Sample Type: Grab

Field Data: pH=8.53 Temp=14.3 ºC Cond.=346 umho Turb. =2.67 ntu

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Semi-Volatile Organics by GC-MS											
Bis(2-ethylhexyl) adipate	EPA 525.3	ND	0.067	3.0	ug/L	1	400	A917200	11/14/19	11/21/19	
Bis(2-ethylhexyl) phthalate	EPA 525.3	**0.22**	0.11	3.0	ug/L	1	4	A917200	11/14/19	11/21/19	J, B2.2
Bromacil	EPA 525.3	ND	0.028	10	ug/L	1		A917200	11/14/19	11/21/19	
Butachlor	EPA 525.3	ND	0.018	0.38	ug/L	1		A917200	11/14/19	11/21/19	
Diazinon	EPA 525.3	ND	0.0022	0.25	ug/L	1		A917200	11/14/19	11/21/19	
Dimethoate	EPA 525.3	ND	0.082	10	ug/L	1		A917200	11/14/19	11/21/19	BS1.0
Metolachlor	EPA 525.3	ND	0.011	0.50	ug/L	1		A917200	11/14/19	11/21/19	
Metribuzin	EPA 525.3	ND	0.0061	0.50	ug/L	1		A917200	11/14/19	11/21/19	
Molinate	EPA 525.3	ND	0.0061	2.0	ug/L	1	20	A917200	11/14/19	11/21/19	
Propachlor	EPA 525.3	ND	0.0056	0.50	ug/L	1		A917200	11/14/19	11/21/19	
Simazine	EPA 525.3	ND	0.0049	1.0	ug/L	1	4	A917200	11/14/19	11/21/19	
Thiobencarb	EPA 525.3	ND	0.0083	1.0	ug/L	1	70	A917200	11/14/19	11/21/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	EPA 525.3	94 %			*Acceptable range: 70-130 %*						
Surrogate: Benzo(a)pyrene-d12	EPA 525.3	91 %			*Acceptable range: 70-130 %*						
Surrogate: Triphenyl Phosphate	EPA 525.3	106 %			*Acceptable range: 70-130 %*						
Carbamates by HPLC											
3-Hydroxycarbofuran	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb Sulfone	EPA 531.1	ND	0.12	2.0	ug/L	1		A917289	11/15/19	11/16/19	
Aldicarb Sulfoxide	EPA 531.1	ND	0.12	3.0	ug/L	1		A917289	11/15/19	11/16/19	
Carbaryl	EPA 531.1	ND	0.22	5.0	ug/L	1		A917289	11/15/19	11/16/19	
Carbofuran	EPA 531.1	ND	0.27	5.0	ug/L	1	18	A917289	11/15/19	11/16/19	
Methomyl	EPA 531.1	ND	0.19	2.0	ug/L	1		A917289	11/15/19	11/16/19	
Oxamyl	EPA 531.1	ND	0.090	20	ug/L	1	50	A917289	11/15/19	11/16/19	
Glyphosate by HPLC											
Glyphosate	EPA 547	ND	2.1	25	ug/L	1	700	A917319	11/16/19	11/16/19	
Surrogate: AMPA	EPA 547	99 %			*Acceptable range: 70-130 %*						
Endothall by GC-MS											
Endothall	EPA 548.1	ND	1.6	45	ug/L	1	100	A917162	11/13/19	11/14/19	
Diquat by HPLC											
Diquat	EPA 549.2	ND	0.071	4.0	ug/L	1	20	A917100	11/13/19	11/14/19	
1,2,3-Trichloropropane by GC-MS SIM											
1,2,3-Trichloropropane	SRL 524M-TCP	ND	0.0014	0.0050	ug/L	1	0.005	A917085	11/12/19	11/13/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Sample ID: A9L1805-03
Sampled By: BSK
Sample Description: Trip Blank 524 1019007

Sample Date - Time: 11/12/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
1,1,1,2-Tetrachloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,1,1-Trichloroethane	EPA 524.2	ND	0.30	0.50	ug/L	1	200	A917282	11/15/19	11/15/19	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.25	0.50	ug/L	1	1	A917282	11/15/19	11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	0.27	10	ug/L	1	1200	A917282	11/15/19	11/15/19	
1,1,2-Trichloroethane	EPA 524.2	ND	0.26	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,1-Dichloroethane	EPA 524.2	ND	0.34	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,1-Dichloroethene	EPA 524.2	ND	0.21	0.50	ug/L	1	6	A917282	11/15/19	11/15/19	
1,1-Dichloropropene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2,3-Trichlorobenzene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,2,4-Trimethylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,2-Dichlorobenzene	EPA 524.2	ND	0.28	0.50	ug/L	1	600	A917282	11/15/19	11/15/19	
1,2-Dichloroethane	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
1,2-Dichloropropane	EPA 524.2	ND	0.30	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
1,3,5-Trimethylbenzene	EPA 524.2	ND	0.36	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,3-Dichlorobenzene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,3-Dichloropropane	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
1,4-Dichlorobenzene	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
2,2-Dichloropropane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917282	11/15/19	11/15/19	
2-Butanone	EPA 524.2	ND	0.42	5.0	ug/L	1		A917282	11/15/19	11/15/19	
2-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
2-Hexanone	EPA 524.2	ND	0.48	10	ug/L	1		A917282	11/15/19	11/15/19	
4-Chlorotoluene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
4-Methyl-2-pentanone	EPA 524.2	ND	0.37	5.0	ug/L	1		A917282	11/15/19	11/15/19	
Acetone	EPA 524.2	ND	3.4	10	ug/L	1		A917282	11/15/19	11/15/19	
Benzene	EPA 524.2	ND	0.34	0.50	ug/L	1	1	A917282	11/15/19	11/15/19	
Bromobenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromochloromethane	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromodichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromoform	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Bromomethane	EPA 524.2	ND	0.43	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Carbon Tetrachloride	EPA 524.2	ND	0.29	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
Chlorobenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	70	A917282	11/15/19	11/15/19	
Chloroethane	EPA 524.2	ND	0.32	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Chloroform	EPA 524.2	ND	0.083	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Chloromethane	EPA 524.2	ND	0.25	0.50	ug/L	1		A917282	11/15/19	11/15/19	
cis-1,2-Dichloroethene	EPA 524.2	ND	0.32	0.50	ug/L	1	6	A917282	11/15/19	11/15/19	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dibromochloromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dibromomethane	EPA 524.2	ND	0.29	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dichlorodifluoromethane	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Dichloromethane	EPA 524.2	ND	0.29	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Di-isopropyl ether (DIPE)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917282	11/15/19	11/15/19	

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Certificate of Analysis

Sample ID: A9L1805-03
Sampled By: BSK
Sample Description: Trip Blank 524 1019007

Sample Date - Time: 11/12/2019 - 00:00
Matrix: Water
Sample Type: Trip Blank

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	MCL	Batch	Prepared	Analyzed	Qual
Volatile Organics by GC-MS											
Ethyl tert-Butyl Ether (ETBE)	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Ethylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1	300	A917282	11/15/19	11/15/19	
Hexachlorobutadiene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Isopropylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917282	11/15/19	11/15/19	
m,p-Xylenes	EPA 524.2	ND	0.23	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Methyl-t-butyl ether	EPA 524.2	**0.13**	0.083	0.50	ug/L	1	13	A917282	11/15/19	11/15/19	J
Naphthalene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
n-Butylbenzene	EPA 524.2	ND	0.25	0.50	ug/L	1		A917282	11/15/19	11/15/19	
n-Propylbenzene	EPA 524.2	ND	0.31	0.50	ug/L	1		A917282	11/15/19	11/15/19	
o-Xylene	EPA 524.2	ND	0.30	0.50	ug/L	1		A917282	11/15/19	11/15/19	
p-Isopropyltoluene	EPA 524.2	ND	0.26	0.50	ug/L	1		A917282	11/15/19	11/15/19	
sec-Butylbenzene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Styrene	EPA 524.2	ND	0.30	0.50	ug/L	1	100	A917282	11/15/19	11/15/19	
tert-Amyl Methyl Ether (TAME)	EPA 524.2	ND	0.31	3.0	ug/L	1		A917282	11/15/19	11/15/19	
tert-Butyl alcohol (TBA)	EPA 524.2	ND	0.97	2.0	ug/L	1		A917282	11/15/19	11/15/19	
tert-Butylbenzene	EPA 524.2	ND	0.28	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Tetrachloroethene (PCE)	EPA 524.2	ND	0.33	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Toluene	EPA 524.2	ND	0.32	0.50	ug/L	1	150	A917282	11/15/19	11/15/19	
trans-1,2-Dichloroethene	EPA 524.2	ND	0.35	0.50	ug/L	1	10	A917282	11/15/19	11/15/19	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.27	0.50	ug/L	1		A917282	11/15/19	11/15/19	
Trichloroethene (TCE)	EPA 524.2	ND	0.32	0.50	ug/L	1	5	A917282	11/15/19	11/15/19	
Trichlorofluoromethane	EPA 524.2	ND	0.23	5.0	ug/L	1	150	A917282	11/15/19	11/15/19	
Vinyl Chloride	EPA 524.2	ND	0.27	0.50	ug/L	1	0.5	A917282	11/15/19	11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	113 %			*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	112 %			*Acceptable range: 70-130 %*						
Total 1,3-Dichloropropene		ND		0.50	ug/L		0.5				
Total Trihalomethanes		ND		0.50	ug/L		80				
Total Xylenes, EPA 524.2		ND		0.50	ug/L		1750				

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BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 218.7 - Quality Control												
Batch: A917182											Prepared: 11/14/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A917182-BLK1)												
Hexavalent Chromium	ND	0.011	0.050	ug/L							11/14/19	
Blank Spike (A917182-BS1)												
Hexavalent Chromium	0.053	0.011	0.050	ug/L	0.050		106	50-150			11/14/19	
Matrix Spike (A917182-MS1), Source: A9K1128-01												
Hexavalent Chromium	2.2	0.011	0.050	ug/L	2.0	0.26	97	85-115			11/14/19	
Matrix Spike Dup (A917182-MSD1), Source: A9K1128-01												
Hexavalent Chromium	2.3	0.011	0.050	ug/L	2.0	0.26	100	85-115	3	15	11/14/19	
EPA 300.0 - Quality Control												
Batch: A917081											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A917081-BLK1)												
Chloride	ND	0.51	1.0	mg/L							11/13/19	
Fluoride	ND	0.042	0.10	mg/L							11/13/19	
Nitrate + Nitrite as N	ND	0.099	0.23	mg/L							11/13/19	
Nitrate as N	ND	0.099	0.23	mg/L							11/13/19	
Nitrite as N	ND	0.020	0.050	mg/L							11/13/19	
Sulfate as SO4	ND	0.40	1.0	mg/L							11/13/19	
Blank Spike (A917081-BS1)												
Chloride	96	0.51	1.0	mg/L	100		96	90-110			11/13/19	
Fluoride	0.94	0.042	0.10	mg/L	1.0		94	90-110			11/13/19	
Nitrate as N	21	0.099	0.23	mg/L	23		95	90-110			11/13/19	
Nitrite as N	1.0	0.020	0.050	mg/L	1.0		105	90-110			11/13/19	
Sulfate as SO4	97	0.40	1.0	mg/L	100		97	90-110			11/13/19	
Matrix Spike (A917081-MS1), Source: A9K0913-04												
Chloride	53	0.51	1.0	mg/L	50	4.1	97	80-120			11/13/19	
Fluoride	0.56	0.042	0.10	mg/L	0.50	0.10	93	80-120			11/13/19	
Nitrate as N	15	0.099	0.23	mg/L	11	4.0	97	80-120			11/13/19	
Nitrite as N	0.49	0.020	0.050	mg/L	0.50	ND	97	50-110			11/13/19	
Sulfate as SO4	60	0.40	1.0	mg/L	50	10	99	80-120			11/13/19	
Matrix Spike (A917081-MS2), Source: A9K0913-05												
Chloride	51	0.51	1.0	mg/L	50	2.5	98	80-120			11/13/19	
Fluoride	0.60	0.042	0.10	mg/L	0.50	0.13	93	80-120			11/13/19	
Nitrate as N	11	0.099	0.23	mg/L	11	0.16	97	80-120			11/13/19	
Nitrite as N	0.49	0.020	0.050	mg/L	0.50	ND	98	50-110			11/13/19	
Sulfate as SO4	53	0.40	1.0	mg/L	50	4.6	98	80-120			11/13/19	
Matrix Spike Dup (A917081-MSD1), Source: A9K0913-04												
Chloride	53	0.51	1.0	mg/L	50	4.1	98	80-120	1	20	11/13/19	

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control												
Batch: A917081											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Matrix Spike Dup (A917081-MSD1), Source: A9K0913-04												
Fluoride	0.56	0.042	0.10	mg/L	0.50	0.10	92	80-120	1	10	11/13/19	
Nitrate as N	15	0.099	0.23	mg/L	11	4.0	98	80-120	1	20	11/13/19	
Nitrite as N	0.49	0.020	0.050	mg/L	0.50	ND	98	50-110	1	20	11/13/19	
Sulfate as SO4	60	0.40	1.0	mg/L	50	10	99	80-120	1	20	11/13/19	
Matrix Spike Dup (A917081-MSD2), Source: A9K0913-05												
Chloride	52	0.51	1.0	mg/L	50	2.5	99	80-120	1	20	11/13/19	
Fluoride	0.61	0.042	0.10	mg/L	0.50	0.13	96	80-120	2	10	11/13/19	
Nitrate as N	11	0.099	0.23	mg/L	11	0.16	95	80-120	1	20	11/13/19	
Nitrite as N	0.50	0.020	0.050	mg/L	0.50	ND	101	50-110	3	20	11/13/19	
Sulfate as SO4	54	0.40	1.0	mg/L	50	4.6	99	80-120	1	20	11/13/19	
EPA 314.0 - Quality Control												
Batch: A917054											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: RES	
Blank (A917054-BLK1)												
Perchlorate	ND	0.61	2.0	ug/L							11/13/19	
Blank Spike (A917054-BS1)												
Perchlorate	14	0.61	2.0	ug/L	15		95	85-115			11/13/19	
Matrix Spike (A917054-MS1), Source: A9K0524-01RE1												
Perchlorate	8.9	1.2	4.0	ug/L	10	ND	89	80-120			11/13/19	
Matrix Spike Dup (A917054-MSD1), Source: A9K0524-01RE1												
Perchlorate	8.0	1.2	4.0	ug/L	10	ND	80	80-120	11	15	11/13/19	
SM 2120B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												
Color, Apparent	ND		5.0	CU							11/12/19	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Color, Apparent	20		5.0	CU		20			0	20	11/12/19	
Duplicate (A916681-DUP2), Source: A9K0992-01												
Color, Apparent	ND		5.0	CU		ND				20	11/12/19	
SM 2130B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2130B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Blank (A916681-BLK1)												
Turbidity	ND		0.10	NTU							11/12/19	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Turbidity	19		0.10	NTU		19			2	20	11/12/19	
SM 2150B - Quality Control												
Batch: A916905											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: BCB	
Blank (A916905-BLK1)												
Threshold Odor	ND		1.0	T.O.N.							11/12/19	
Blank (A916905-BLK2)												
Threshold Odor	ND		1.0	T.O.N.							11/12/19	
SM 2320B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank (A917122-BLK1)												
Alkalinity as CaCO3	ND		3.0	mg/L							11/13/19	
Bicarbonate as CaCO3	ND		3.0	mg/L							11/13/19	
Carbonate as CaCO3	ND		3.0	mg/L							11/13/19	
Hydroxide as CaCO3	ND		3.0	mg/L							11/13/19	
Blank Spike (A917122-BS1)												
Alkalinity as CaCO3	95		3.0	mg/L	100	ND	95	80-120			11/13/19	
Blank Spike Dup (A917122-BSD1)												
Alkalinity as CaCO3	96		3.0	mg/L	100	ND	96	80-120	1	20	11/13/19	
Duplicate (A917122-DUP1), Source: A9K0992-01												
Alkalinity as CaCO3	82		3.0	mg/L		85			4	10	11/13/19	
Bicarbonate as CaCO3	82		3.0	mg/L		85			4	10	11/13/19	
Carbonate as CaCO3	ND		3.0	mg/L		ND				10	11/13/19	
Hydroxide as CaCO3	ND		3.0	mg/L		ND				10	11/13/19	
SM 2510B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike (A917122-BS1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110			11/13/19	
Blank Spike Dup (A917122-BSD1)												

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2510B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Blank Spike Dup (A917122-BSD1)												
Conductivity @ 25C	1400		1.0	umhos/cm	1400	ND	99	90-110	0	5	11/13/19	
Duplicate (A917122-DUP1), Source: A9K0992-01												
Conductivity @ 25C	410		1.0	umhos/cm		410			0	5	11/13/19	
SM 2540C - Quality Control												
Batch: A917174											Prepared: 11/14/2019	
Prep Method: Method Specific Preparation											Analyst: DEH	
Blank (A917174-BLK1)												
Total Dissolved Solids	ND		5.0	mg/L							11/19/19	
Blank Spike (A917174-BS1)												
Total Dissolved Solids	990		5.0	mg/L	1000	ND	99	70-130			11/19/19	
Duplicate (A917174-DUP1), Source: A9K1039-01												
Total Dissolved Solids	440		5.0	mg/L		440			0	10	11/19/19	
Duplicate (A917174-DUP2), Source: A9K0821-01												
Total Dissolved Solids	260		5.0	mg/L		260			0	10	11/19/19	
SM 4500-CN E - Quality Control												
Batch: A917193											Prepared: 11/14/2019	
Prep Method: Total Cyanide Distillation											Analyst: CEG	
Blank (A917193-BLK1)												
Cyanide (total)	ND	0.0022	0.0050	mg/L							11/19/19	
Blank Spike (A917193-BS1)												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25		106	80-120			11/19/19	
Blank Spike Dup (A917193-BSD1)												
Cyanide (total)	0.26	0.0022	0.0050	mg/L	0.25		105	80-120	1	20	11/19/19	
Matrix Spike (A917193-MS1), Source: A9K1217-01												
Cyanide (total)	0.24	0.0022	0.0050	mg/L	0.25	ND	95	80-120			11/19/19	
Matrix Spike Dup (A917193-MSD1), Source: A9K1217-01												
Cyanide (total)	0.23	0.0022	0.0050	mg/L	0.25	ND	93	80-120	2	20	11/19/19	
SM 4500-H+ B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Duplicate (A916681-DUP1), Source: A9K0821-01												

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General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 4500-H+ B - Quality Control												
Batch: A916681											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: DEP	
Duplicate (A916681-DUP1), Source: A9K0821-01												
Color pH (1)	7.80			pH Units		7.50			4		11/12/19	
Duplicate (A916681-DUP2), Source: A9K0992-01												
Color pH (1)	8.40			pH Units		8.40			0		11/12/19	
SM 4500-H+ B - Quality Control												
Batch: A917122											Prepared: 11/13/2019	
Prep Method: Method Specific Preparation											Analyst: CEG	
Duplicate (A917122-DUP1), Source: A9K0992-01												
pH (1)	8.02			pH Units		8.02			0		11/13/19	
SM 5540C - Quality Control												
Batch: A917050											Prepared: 11/12/2019	
Prep Method: Method Specific Preparation											Analyst: SYY	
Blank (A917050-BLK1)												
MBAS, Calculated as LAS, mol wt 340	ND	0.021	0.050	mg/L							11/12/19	
Blank Spike (A917050-BS1)												
MBAS, Calculated as LAS, mol wt 340	1.0	0.021	0.050	mg/L	1.0		103	82-112			11/12/19	
Blank Spike Dup (A917050-BSD1)												
MBAS, Calculated as LAS, mol wt 340	1.0	0.021	0.050	mg/L	1.0		103	82-112	0	20	11/12/19	
Matrix Spike (A917050-MS1), Source: A9K0851-01												
MBAS, Calculated as LAS, mol wt 340	0.65	0.021	0.050	mg/L	1.0	ND	65	80-112			11/12/19	MS1.0 ***Low***
Matrix Spike Dup (A917050-MSD1), Source: A9K0851-01												
MBAS, Calculated as LAS, mol wt 340	0.64	0.021	0.050	mg/L	1.0	ND	64	80-112	1	20	11/12/19	MS1.0 ***Low***

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BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MDS	
Blank (A917108-BLK2)												
Aluminum	ND	0.023	0.050	mg/L							11/20/19	
Barium	ND	0.023	0.050	mg/L							11/20/19	
Calcium	ND	0.046	0.10	mg/L							11/20/19	
Iron	ND	0.014	0.030	mg/L							11/20/19	
Magnesium	ND	0.046	0.10	mg/L							11/20/19	
Manganese	ND	0.0045	0.010	mg/L							11/20/19	
Potassium	ND	0.91	2.0	mg/L							11/20/19	
Sodium	ND	0.45	1.0	mg/L							11/20/19	
Zinc	ND	0.023	0.050	mg/L							11/20/19	
Blank Spike (A917108-BS2)												
Aluminum	0.22	0.023	0.050	mg/L	0.20		108	85-115			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20		100	85-115			11/20/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		97	85-115			11/20/19	
Iron	0.19	0.014	0.030	mg/L	0.20		96	85-115			11/20/19	
Magnesium	4.1	0.046	0.10	mg/L	4.0		102	85-115			11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20		104	85-115			11/20/19	
Potassium	4.1	0.91	2.0	mg/L	4.0		101	85-115			11/20/19	
Sodium	4.4	0.45	1.0	mg/L	4.0		109	85-115			11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20		98	85-115			11/20/19	
Blank Spike Dup (A917108-BSD2)												
Aluminum	0.21	0.023	0.050	mg/L	0.20		107	85-115	1	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20		100	85-115	0	20	11/20/19	
Calcium	3.9	0.046	0.10	mg/L	4.0		97	85-115	1	20	11/20/19	
Iron	0.19	0.014	0.030	mg/L	0.20		96	85-115	1	20	11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0		101	85-115	1	20	11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20		103	85-115	1	20	11/20/19	
Potassium	4.0	0.91	2.0	mg/L	4.0		100	85-115	2	20	11/20/19	
Sodium	4.3	0.45	1.0	mg/L	4.0		108	85-115	1	20	11/20/19	
Zinc	0.19	0.023	0.050	mg/L	0.20		97	85-115	2	20	11/20/19	
Matrix Spike (A917108-MS3), Source: A9K0979-01												
Aluminum	0.23	0.023	0.050	mg/L	0.20	ND	117	70-130			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	100	70-130			11/20/19	
Calcium	84	0.046	0.10	mg/L	4.0	78	137	70-130			11/20/19	MS1.0 ***High***
Iron	0.20	0.014	0.030	mg/L	0.20	ND	102	70-130			11/20/19	
Magnesium	11	0.046	0.10	mg/L	4.0	7.6	87	70-130			11/20/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.012	103	70-130			11/20/19	
Potassium	5.0	0.91	2.0	mg/L	4.0	1.0	99	70-130			11/20/19	
Sodium	16	0.45	1.0	mg/L	4.0	12	110	70-130			11/20/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	103	70-130			11/20/19	
Matrix Spike (A917108-MS4), Source: A9K0988-01												
Aluminum	0.26	0.023	0.050	mg/L	0.20	0.029	114	70-130			11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130			11/20/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MDS	
Matrix Spike (A917108-MS4), Source: A9K0988-01												
Calcium	7.1	0.046	0.10	mg/L	4.0	3.2	97	70-130			11/20/19	
Iron	0.23	0.014	0.030	mg/L	0.20	0.032	98	70-130			11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0	ND	101	70-130			11/20/19	
Manganese	0.21	0.0045	0.010	mg/L	0.20	ND	103	70-130			11/20/19	
Potassium	4.2	0.91	2.0	mg/L	4.0	ND	106	70-130			11/20/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	92	70-130			11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	100	70-130			11/20/19	
Matrix Spike Dup (A917108-MSD3), Source: A9K0979-01												
Aluminum	0.24	0.023	0.050	mg/L	0.20	ND	121	70-130	4	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	99	70-130	1	20	11/20/19	
Calcium	82	0.046	0.10	mg/L	4.0	78	84	70-130	3	20	11/20/19	
Iron	0.21	0.014	0.030	mg/L	0.20	ND	103	70-130	1	20	11/20/19	
Magnesium	11	0.046	0.10	mg/L	4.0	7.6	84	70-130	1	20	11/20/19	
Manganese	0.22	0.0045	0.010	mg/L	0.20	0.012	104	70-130	0	20	11/20/19	
Potassium	5.0	0.91	2.0	mg/L	4.0	1.0	100	70-130	1	20	11/20/19	
Sodium	16	0.45	1.0	mg/L	4.0	12	99	70-130	3	20	11/20/19	
Zinc	0.21	0.023	0.050	mg/L	0.20	ND	103	70-130	0	20	11/20/19	
Matrix Spike Dup (A917108-MSD4), Source: A9K0988-01												
Aluminum	0.24	0.023	0.050	mg/L	0.20	0.029	108	70-130	5	20	11/20/19	
Barium	0.20	0.023	0.050	mg/L	0.20	ND	98	70-130	1	20	11/20/19	
Calcium	7.0	0.046	0.10	mg/L	4.0	3.2	96	70-130	1	20	11/20/19	
Iron	0.23	0.014	0.030	mg/L	0.20	0.032	97	70-130	0	20	11/20/19	
Magnesium	4.0	0.046	0.10	mg/L	4.0	ND	100	70-130	1	20	11/20/19	
Manganese	0.20	0.0045	0.010	mg/L	0.20	ND	102	70-130	1	20	11/20/19	
Potassium	4.4	0.91	2.0	mg/L	4.0	ND	110	70-130	4	20	11/20/19	
Sodium	50	0.45	1.0	mg/L	4.0	46	89	70-130	0	20	11/20/19	
Zinc	0.20	0.023	0.050	mg/L	0.20	ND	99	70-130	1	20	11/20/19	
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A917108-BLK1)												
Antimony	ND	0.91	2.0	ug/L							11/21/19	
Arsenic	ND	1.2	2.0	ug/L							11/21/19	
Beryllium	ND	0.45	1.0	ug/L							11/21/19	
Cadmium	ND	0.45	1.0	ug/L							11/21/19	
Chromium	ND	4.5	10	ug/L							11/21/19	
Copper	ND	2.3	5.0	ug/L							11/21/19	
Lead	ND	0.45	1.0	ug/L							11/21/19	
Mercury	ND	0.091	0.20	ug/L							11/21/19	
Nickel	ND	4.5	10	ug/L							11/21/19	
Selenium	ND	0.91	2.0	ug/L							11/21/19	
Silver	ND	4.5	10	ug/L							11/21/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Blank (A917108-BLK1)												
Thallium	ND	0.45	1.0	ug/L							11/21/19	
Uranium	ND	0.45	1.0	ug/L							11/21/19	
Blank Spike (A917108-BS1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115			11/21/19	
Arsenic	190	1.2	2.0	ug/L	200		95	85-115			11/21/19	
Beryllium	190	0.45	1.0	ug/L	200		97	85-115			11/21/19	
Cadmium	200	0.45	1.0	ug/L	200		98	85-115			11/21/19	
Chromium	200	4.5	10	ug/L	200		98	85-115			11/21/19	
Copper	190	2.3	5.0	ug/L	200		96	85-115			11/21/19	
Lead	190	0.45	1.0	ug/L	200		94	85-115			11/21/19	
Mercury	5.2	0.091	0.20	ug/L	5.0		104	85-115			11/21/19	
Nickel	200	4.5	10	ug/L	200		98	85-115			11/21/19	
Selenium	180	0.91	2.0	ug/L	200		92	85-115			11/21/19	
Silver	94	4.5	10	ug/L	100		94	75-125			11/21/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115			11/21/19	
Uranium	190	0.45	1.0	ug/L	200		96	85-115			11/21/19	
Blank Spike Dup (A917108-BSD1)												
Antimony	200	0.91	2.0	ug/L	200		102	85-115	0	20	11/21/19	
Arsenic	190	1.2	2.0	ug/L	200		96	85-115	0	20	11/21/19	
Beryllium	200	0.45	1.0	ug/L	200		98	85-115	2	20	11/21/19	
Cadmium	190	0.45	1.0	ug/L	200		97	85-115	1	20	11/21/19	
Chromium	200	4.5	10	ug/L	200		100	85-115	1	20	11/21/19	
Copper	190	2.3	5.0	ug/L	200		97	85-115	0	20	11/21/19	
Lead	190	0.45	1.0	ug/L	200		95	85-115	1	20	11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0		103	85-115	1	20	11/21/19	
Nickel	200	4.5	10	ug/L	200		98	85-115	0	20	11/21/19	
Selenium	180	0.91	2.0	ug/L	200		90	85-115	2	20	11/21/19	
Silver	94	4.5	10	ug/L	100		94	75-125	0	20	11/21/19	
Thallium	190	0.45	1.0	ug/L	200		94	85-115	0	20	11/21/19	
Uranium	190	0.45	1.0	ug/L	200		95	85-115	1	20	11/21/19	
Matrix Spike (A917108-MS1), Source: A9K0979-01												
Antimony	210	0.91	2.0	ug/L	200	ND	104	70-130			11/21/19	
Arsenic	200	1.2	2.0	ug/L	200	1.5	97	70-130			11/21/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130			11/21/19	
Cadmium	200	0.45	1.0	ug/L	200	ND	99	70-130			11/21/19	
Chromium	200	4.5	10	ug/L	200	ND	100	70-130			11/21/19	
Copper	190	2.3	5.0	ug/L	200	ND	95	70-130			11/21/19	
Lead	180	0.45	1.0	ug/L	200	ND	92	70-130			11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0	ND	101	70-130			11/21/19	
Nickel	200	4.5	10	ug/L	200	ND	98	70-130			11/21/19	
Selenium	180	0.91	2.0	ug/L	200	ND	91	70-130			11/21/19	
Silver	93	4.5	10	ug/L	100	ND	93	70-130			11/21/19	
Thallium	180	0.45	1.0	ug/L	200	ND	92	70-130			11/21/19	

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.8 - Quality Control												
Batch: A917108											Prepared: 11/13/2019	
Prep Method: EPA 200.2											Analyst: MAS	
Matrix Spike (A917108-MS1), Source: A9K0979-01												
Uranium	190	0.45	1.0	ug/L	200	5.0	95	70-130			11/21/19	
Matrix Spike Dup (A917108-MSD1), Source: A9K0979-01												
Antimony	210	0.91	2.0	ug/L	200	ND	103	70-130	1	20	11/21/19	
Arsenic	190	1.2	2.0	ug/L	200	1.5	96	70-130	1	20	11/21/19	
Beryllium	190	0.45	1.0	ug/L	200	ND	96	70-130	1	20	11/21/19	
Cadmium	190	0.45	1.0	ug/L	200	ND	97	70-130	1	20	11/21/19	
Chromium	200	4.5	10	ug/L	200	ND	99	70-130	1	20	11/21/19	
Copper	190	2.3	5.0	ug/L	200	ND	93	70-130	2	20	11/21/19	
Lead	190	0.45	1.0	ug/L	200	ND	93	70-130	1	20	11/21/19	
Mercury	5.1	0.091	0.20	ug/L	5.0	ND	101	70-130	0	20	11/21/19	
Nickel	190	4.5	10	ug/L	200	ND	97	70-130	1	20	11/21/19	
Selenium	180	0.91	2.0	ug/L	200	ND	90	70-130	2	20	11/21/19	
Silver	93	4.5	10	ug/L	100	ND	93	70-130	1	20	11/21/19	
Thallium	180	0.45	1.0	ug/L	200	ND	92	70-130	1	20	11/21/19	
Uranium	190	0.45	1.0	ug/L	200	5.0	95	70-130	0	20	11/21/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 504.1 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A917099-BLK1)												
Dibromochloropropane (DBCP)	ND	0.0060	0.010	ug/L							11/13/19	
Ethylene Dibromide (EDB)	ND	0.0050	0.020	ug/L							11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.50*				*0.46*		*110*	*70-130*			11/13/19	
Blank Spike (A917099-BS1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		104	70-130			11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.10		101	70-130			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.54*				*0.46*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917099-BSD1)												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10		103	70-130	1	20	11/14/19	
Ethylene Dibromide (EDB)	0.099	0.0050	0.020	ug/L	0.10		99	70-130	1	20	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.51*				*0.46*		*111*	*70-130*			11/14/19	
Matrix Spike (A917099-MS1), Source: A9K0686-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.10	ND	104	65-135			11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.10	ND	101	65-135			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.46*		*114*	*70-130*			11/13/19	
Matrix Spike Dup (A917099-MSD1), Source: A9K0686-01												
Dibromochloropropane (DBCP)	0.10	0.0060	0.010	ug/L	0.099	ND	102	65-135	2	20	11/13/19	
Ethylene Dibromide (EDB)	0.10	0.0050	0.020	ug/L	0.099	ND	100	65-135	1	20	11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.45*		*114*	*70-130*			11/13/19	
EPA 505 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank (A917099-BLK1)												
Aldrin	ND	0.022	0.075	ug/L							11/13/19	
Chlordane (Technical)	ND	0.091	0.10	ug/L							11/13/19	
Dieldrin	ND	0.0042	0.020	ug/L							11/13/19	
Endrin	ND	0.0037	0.10	ug/L							11/13/19	
Heptachlor	ND	0.0052	0.010	ug/L							11/13/19	
Heptachlor Epoxide	ND	0.0048	0.010	ug/L							11/13/19	
Hexachlorobenzene	ND	0.032	0.50	ug/L							11/13/19	
Hexachlorocyclopentadiene	ND	0.041	1.0	ug/L							11/13/19	
Lindane	ND	0.0059	0.20	ug/L							11/13/19	
Methoxychlor	ND	0.031	0.20	ug/L							11/13/19	
PCB Aroclor Screen	ND	0.078	0.50	ug/L							11/13/19	
Toxaphene	ND	0.33	1.0	ug/L							11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.50*				*0.46*		*110*	*70-130*			11/13/19	
Blank Spike (A917099-BS1)												
Aldrin	0.83	0.022	0.075	ug/L	0.74		112	70-130			11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		98	70-130			11/13/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 505 - Quality Control												
Batch: A917099											Prepared: 11/13/2019	
Prep Method: EPA 504/505											Analyst: JKH	
Blank Spike (A917099-BS1)												
Endrin	0.099	0.0037	0.10	ug/L	0.10		99	70-130			11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10		104	70-130			11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		101	70-130			11/13/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	1.0		105	70-130			11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0		123	70-130			11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20		100	70-130			11/13/19	J
Methoxychlor	1.0	0.031	0.20	ug/L	1.0		103	70-130			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.54*				*0.46*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917099-BSD1)												
Aldrin	0.82	0.022	0.075	ug/L	0.74		110	70-130	2	20	11/14/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20		99	70-130	1	20	11/14/19	
Endrin	0.099	0.0037	0.10	ug/L	0.10		99	70-130	1	20	11/14/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10		103	70-130	0	20	11/14/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10		100	70-130	1	20	11/14/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	1.0		108	70-130	2	20	11/14/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0		122	70-130	1	20	11/14/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20		100	70-130	0	20	11/14/19	J
Methoxychlor	0.98	0.031	0.20	ug/L	1.0		98	70-130	4	20	11/14/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.51*				*0.46*		*111*	*70-130*			11/14/19	
Matrix Spike (A917099-MS1), Source: A9K0686-01												
Aldrin	0.81	0.022	0.075	ug/L	0.74	0.028	105	65-135			11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20	ND	100	65-135			11/13/19	
Endrin	0.099	0.0037	0.10	ug/L	0.10	ND	99	65-135			11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.10	ND	104	65-135			11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.10	ND	102	65-135			11/13/19	
Hexachlorobenzene	1.0	0.032	0.50	ug/L	1.0	ND	105	65-135			11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	1.0	ND	121	65-135			11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20	ND	99	65-135			11/13/19	J
Methoxychlor	0.99	0.031	0.20	ug/L	1.0	ND	99	65-135			11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.46*		*114*	*70-130*			11/13/19	
Matrix Spike Dup (A917099-MSD1), Source: A9K0686-01												
Aldrin	0.79	0.022	0.075	ug/L	0.74	0.028	104	65-135	2	20	11/13/19	
Dieldrin	0.20	0.0042	0.020	ug/L	0.20	ND	99	65-135	1	20	11/13/19	
Endrin	0.096	0.0037	0.10	ug/L	0.099	ND	96	65-135	3	20	11/13/19	J
Heptachlor	0.10	0.0052	0.010	ug/L	0.099	ND	102	65-135	2	20	11/13/19	
Heptachlor Epoxide	0.10	0.0048	0.010	ug/L	0.099	ND	100	65-135	2	20	11/13/19	
Hexachlorobenzene	1.1	0.032	0.50	ug/L	0.99	ND	108	65-135	2	20	11/13/19	
Hexachlorocyclopentadiene	1.2	0.041	1.0	ug/L	0.99	ND	119	65-135	2	20	11/13/19	
Lindane	0.20	0.0059	0.20	ug/L	0.20	ND	98	65-135	1	20	11/13/19	J
Methoxychlor	0.92	0.031	0.20	ug/L	0.99	ND	92	65-135	7	20	11/13/19	
Surrogate: 1-Br-2-Nitrobenzene	*0.52*				*0.45*		*114*	*70-130*			11/13/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A917083											Prepared: 11/12/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Blank (A917083-BLK1)												
2,4,5-T	ND	0.13	1.0	ug/L							11/13/19	
2,4,5-TP (Silvex)	ND	0.016	1.0	ug/L							11/13/19	
2,4-D	ND	0.074	10	ug/L							11/13/19	
Bentazon	ND	1.3	2.0	ug/L							11/13/19	
Dalapon	ND	0.58	10	ug/L							11/13/19	
Dicamba	ND	0.13	1.5	ug/L							11/13/19	
Dinoseb	ND	0.032	2.0	ug/L							11/13/19	
Pentachlorophenol	ND	0.011	0.20	ug/L							11/13/19	
Picloram	ND	0.084	1.0	ug/L							11/13/19	
Surrogate: DCPAA	*43*				*36*		*119*	*70-130*			11/13/19	
Blank Spike (A917083-BS1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		102	70-130			11/13/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130			11/13/19	J
2,4-D	0.37	0.074	10	ug/L	0.40		92	70-130			11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		99	70-130			11/13/19	J
Dalapon	4.1	0.58	10	ug/L	4.0		102	70-130			11/13/19	J
Dicamba	0.79	0.13	1.5	ug/L	0.80		99	70-130			11/13/19	J
Dinoseb	0.77	0.032	2.0	ug/L	0.80		96	70-130			11/13/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		101	70-130			11/13/19	J
Picloram	0.40	0.084	1.0	ug/L	0.40		100	70-130			11/13/19	J
Surrogate: DCPAA	*42*				*36*		*118*	*70-130*			11/13/19	
Blank Spike Dup (A917083-BSD1)												
2,4,5-T	1.6	0.13	1.0	ug/L	1.6		102	70-130	0	20	11/14/19	
2,4,5-TP (Silvex)	0.81	0.016	1.0	ug/L	0.80		101	70-130	1	20	11/14/19	J
2,4-D	0.38	0.074	10	ug/L	0.40		96	70-130	4	20	11/14/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0		100	70-130	1	20	11/14/19	
Dalapon	4.0	0.58	10	ug/L	4.0		100	70-130	1	20	11/14/19	J
Dicamba	0.80	0.13	1.5	ug/L	0.80		101	70-130	1	20	11/14/19	J
Dinoseb	0.79	0.032	2.0	ug/L	0.80		98	70-130	2	20	11/14/19	J
Pentachlorophenol	0.16	0.011	0.20	ug/L	0.16		99	70-130	2	20	11/14/19	J
Picloram	0.39	0.084	1.0	ug/L	0.40		98	70-130	2	20	11/14/19	J
Surrogate: DCPAA	*42*				*36*		*117*	*70-130*			11/14/19	
Matrix Spike (A917083-MS1), Source: A9K0686-01												
2,4,5-T	1.7	0.13	1.0	ug/L	1.6	ND	106	70-130			11/13/19	
2,4,5-TP (Silvex)	0.80	0.016	1.0	ug/L	0.80	ND	100	70-130			11/13/19	J
2,4-D	0.38	0.074	10	ug/L	0.40	ND	95	70-130			11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	99	70-130			11/13/19	J
Dalapon	4.4	0.58	10	ug/L	4.0	ND	110	70-130			11/13/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	101	70-130			11/13/19	J
Dinoseb	0.83	0.032	2.0	ug/L	0.80	0.10	91	70-130			11/13/19	J
Pentachlorophenol	0.14	0.011	0.20	ug/L	0.16	ND	88	70-130			11/13/19	J
Picloram	0.35	0.084	1.0	ug/L	0.40	ND	88	70-130			11/13/19	J
Surrogate: DCPAA	*46*				*36*		*128*	*70-130*			11/13/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 515.4 - Quality Control												
Batch: A917083											Prepared: 11/12/2019	
Prep Method: EPA 515.4											Analyst: PNN	
Matrix Spike Dup (A917083-MSD1), Source: A9K0686-01												
2,4,5-T	1.7	0.13	1.0	ug/L	1.6	ND	105	70-130	1	30	11/13/19	
2,4,5-TP (Silvex)	0.84	0.016	1.0	ug/L	0.80	ND	104	70-130	4	30	11/13/19	J
2,4-D	0.38	0.074	10	ug/L	0.40	ND	96	70-130	1	30	11/13/19	J
Bentazon	2.0	1.3	2.0	ug/L	2.0	ND	101	70-130	2	30	11/13/19	
Dalapon	4.2	0.58	10	ug/L	4.0	ND	105	70-130	5	30	11/13/19	J
Dicamba	0.81	0.13	1.5	ug/L	0.80	ND	102	70-130	1	30	11/13/19	J
Dinoseb	0.84	0.032	2.0	ug/L	0.80	0.10	92	70-130	1	30	11/13/19	J
Pentachlorophenol	0.15	0.011	0.20	ug/L	0.16	ND	91	70-130	4	30	11/13/19	J
Picloram	0.36	0.084	1.0	ug/L	0.40	ND	91	70-130	3	30	11/13/19	J
Surrogate: DCPAA	*46*				*36*		*128*	*70-130*			11/13/19	
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917163-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							11/14/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							11/14/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							11/14/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							11/14/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							11/14/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							11/14/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							11/14/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							11/14/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							11/14/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							11/14/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							11/14/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							11/14/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							11/14/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							11/14/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							11/14/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							11/14/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							11/14/19	
2,2-Dichloropropane	ND	0.32	0.50	ug/L							11/14/19	
2-Butanone	ND	0.42	5.0	ug/L							11/14/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							11/14/19	
2-Hexanone	ND	0.48	10	ug/L							11/14/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							11/14/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							11/14/19	
Acetone	ND	3.4	10	ug/L							11/14/19	
Benzene	ND	0.34	0.50	ug/L							11/14/19	
Bromobenzene	ND	0.27	0.50	ug/L							11/14/19	
Bromochloromethane	ND	0.27	0.50	ug/L							11/14/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							11/14/19	
Bromoform	ND	0.28	0.50	ug/L							11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917163-BLK1)												
Bromomethane	ND	0.43	0.50	ug/L							11/14/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							11/14/19	
Chlorobenzene	ND	0.31	0.50	ug/L							11/14/19	
Chloroethane	ND	0.32	0.50	ug/L							11/14/19	
Chloroform	ND	0.083	0.50	ug/L							11/14/19	
Chloromethane	ND	0.25	0.50	ug/L							11/14/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							11/14/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/14/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							11/14/19	
Dibromomethane	ND	0.29	0.50	ug/L							11/14/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							11/14/19	
Dichloromethane	ND	0.29	0.50	ug/L							11/14/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							11/14/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							11/14/19	
Ethylbenzene	ND	0.31	0.50	ug/L							11/14/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							11/14/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							11/14/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							11/14/19	
Methyl-t-butyl ether	0.22	0.083	0.50	ug/L							11/14/19	B2.0, J
Naphthalene	ND	0.27	0.50	ug/L							11/14/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							11/14/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							11/14/19	
o-Xylene	ND	0.30	0.50	ug/L							11/14/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							11/14/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							11/14/19	
Styrene	ND	0.30	0.50	ug/L							11/14/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							11/14/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							11/14/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							11/14/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							11/14/19	
Toluene	ND	0.32	0.50	ug/L							11/14/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							11/14/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/14/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							11/14/19	
Trichlorofluoromethane	ND	0.23	5.0	ug/L							11/14/19	
Vinyl Chloride	ND	0.27	0.50	ug/L							11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*56*				*50*		*113*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*57*				*50*		*115*	*70-130*			11/14/19	
Blank Spike (A917163-BS1)												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10		106	70-130			11/14/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		105	70-130			11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		108	70-130			11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		108	70-130			11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	

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BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917163-BS1)												
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		109	70-130			11/14/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		119	70-130			11/14/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10		106	70-130			11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		106	70-130			11/14/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		104	70-130			11/14/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		102	70-130			11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		106	70-130			11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10		106	70-130			11/14/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		105	70-130			11/14/19	
2,2-Dichloropropane	12	0.32	0.50	ug/L	10		118	70-130			11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10		113	70-130			11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
2-Hexanone	12	0.48	10	ug/L	10		115	70-130			11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
4-Methyl-2-pentanone	11	0.37	5.0	ug/L	10		109	70-130			11/14/19	
Acetone	11	3.4	10	ug/L	10		107	70-130			11/14/19	
Benzene	11	0.34	0.50	ug/L	10		106	70-130			11/14/19	
Bromobenzene	11	0.27	0.50	ug/L	10		111	70-130			11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		110	70-130			11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10		106	70-130			11/14/19	
Bromoform	11	0.28	0.50	ug/L	10		106	70-130			11/14/19	
Bromomethane	12	0.43	0.50	ug/L	10		124	70-130			11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10		109	70-130			11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		107	70-130			11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10		106	70-130			11/14/19	
Chloroethane	10	0.32	0.50	ug/L	10		104	70-130			11/14/19	
Chloroform	11	0.083	0.50	ug/L	10		106	70-130			11/14/19	
Chloromethane	11	0.25	0.50	ug/L	10		107	70-130			11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		106	70-130			11/14/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		107	70-130			11/14/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		105	70-130			11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10		101	70-130			11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10		106	70-130			11/14/19	
Dichloromethane	10	0.29	0.50	ug/L	10		104	70-130			11/14/19	
Di-isopropyl ether (DIPE)	12	0.31	3.0	ug/L	10		121	70-130			11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10		113	70-130			11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		106	70-130			11/14/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		107	70-130			11/14/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		107	70-130			11/14/19	
m,p-Xylenes	21	0.23	0.50	ug/L	20		106	70-130			11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20		110	70-130			11/14/19	
Naphthalene	11	0.27	0.50	ug/L	10		111	70-130			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917163-BS1)												
n-Butylbenzene	11	0.25	0.50	ug/L	10		106	70-130			11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		107	70-130			11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		107	70-130			11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		107	70-130			11/14/19	
Styrene	11	0.30	0.50	ug/L	10		106	70-130			11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10		113	70-130			11/14/19	
tert-Butyl alcohol (TBA)	12	0.97	2.0	ug/L	10		123	70-130			11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		107	70-130			11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130			11/14/19	
Toluene	11	0.32	0.50	ug/L	10		107	70-130			11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		107	70-130			11/14/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		108	70-130			11/14/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10		106	70-130			11/14/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		103	70-130			11/14/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		109	70-130			11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*51*				*50*		*103*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*52*				*50*		*103*	*70-130*			11/14/19	
Blank Spike Dup (A917163-BSD1)												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10		106	70-130	0	30	11/14/19	
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10		106	70-130	1	30	11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		112	70-130	3	30	11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10		106	70-130	2	30	11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		107	70-130	1	30	11/14/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10		108	70-130	1	30	11/14/19	
1,1-Dichloroethene	12	0.21	0.50	ug/L	10		120	70-130	1	30	11/14/19	
1,1-Dichloropropene	10	0.30	0.50	ug/L	10		103	70-130	4	30	11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10		112	70-130	5	30	11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10		111	70-130	5	30	11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10		109	70-130	3	30	11/14/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10		109	70-130	5	30	11/14/19	
1,2-Dichloroethane	11	0.29	0.50	ug/L	10		105	70-130	3	30	11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10		106	70-130	2	30	11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		109	70-130	3	30	11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		111	70-130	5	30	11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10		108	70-130	2	30	11/14/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10		110	70-130	4	30	11/14/19	
2,2-Dichloropropane	11	0.32	0.50	ug/L	10		110	70-130	7	30	11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10		110	70-130	3	30	11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
2-Hexanone	11	0.48	10	ug/L	10		113	70-130	2	30	11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		110	70-130	3	30	11/14/19	
4-Methyl-2-pentanone	11	0.37	5.0	ug/L	10		110	70-130	1	30	11/14/19	
Acetone	11	3.4	10	ug/L	10		115	70-130	7	30	11/14/19	
Benzene	10	0.34	0.50	ug/L	10		105	70-130	2	30	11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917163-BSD1)												
Bromobenzene	11	0.27	0.50	ug/L	10		114	70-130	2	30	11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		115	70-130	4	30	11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10		105	70-130	0	30	11/14/19	
Bromoform	11	0.28	0.50	ug/L	10		109	70-130	3	30	11/14/19	
Bromomethane	12	0.43	0.50	ug/L	10		121	70-130	3	30	11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10		111	70-130	2	30	11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10		105	70-130	2	30	11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10		108	70-130	2	30	11/14/19	
Chloroethane	11	0.32	0.50	ug/L	10		105	70-130	2	30	11/14/19	
Chloroform	11	0.083	0.50	ug/L	10		107	70-130	1	30	11/14/19	
Chloromethane	11	0.25	0.50	ug/L	10		111	70-130	3	30	11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10		109	70-130	3	30	11/14/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		107	70-130	0	30	11/14/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10		108	70-130	3	30	11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10		104	70-130	3	30	11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10		107	70-130	2	30	11/14/19	
Dichloromethane	11	0.29	0.50	ug/L	10		111	70-130	6	30	11/14/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		113	70-130	7	30	11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10		108	70-130	4	30	11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10		107	70-130	1	30	11/14/19	
Hexachlorobutadiene	11	0.30	0.50	ug/L	10		109	70-130	2	30	11/14/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		109	70-130	2	30	11/14/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20		108	70-130	2	30	11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20		108	70-130	2	30	11/14/19	
Naphthalene	12	0.27	0.50	ug/L	10		116	70-130	4	30	11/14/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10		109	70-130	2	30	11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		110	70-130	3	30	11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		109	70-130	3	30	11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		110	70-130	3	30	11/14/19	
Styrene	11	0.30	0.50	ug/L	10		109	70-130	3	30	11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10		110	70-130	2	30	11/14/19	
tert-Butyl alcohol (TBA)	12	0.97	2.0	ug/L	10		116	70-130	6	30	11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10		109	70-130	2	30	11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10		106	70-130	0	30	11/14/19	
Toluene	11	0.32	0.50	ug/L	10		108	70-130	1	30	11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10		108	70-130	1	30	11/14/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10		110	70-130	1	30	11/14/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		105	70-130	1	30	11/14/19	
Trichlorofluoromethane	11	0.23	5.0	ug/L	10		108	70-130	5	30	11/14/19	
Vinyl Chloride	11	0.27	0.50	ug/L	10		110	70-130	1	30	11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*108*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*54*				*50*		*109*	*70-130*			11/14/19	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10	ND	108	41-156			11/14/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
1,1,1-Trichloroethane	11	0.30	0.50	ug/L	10	ND	114	48-160			11/14/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10	ND	108	42-151			11/14/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.27	10	ug/L	10	ND	115	47-164			11/14/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10	ND	108	45-152			11/14/19	
1,1-Dichloroethane	11	0.34	0.50	ug/L	10	ND	112	48-157			11/14/19	
1,1-Dichloroethene	13	0.21	0.50	ug/L	10	ND	128	51-158			11/14/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	114	46-162			11/14/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10	ND	107	37-145			11/14/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10	ND	107	33-149			11/14/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10	ND	109	44-146			11/14/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10	ND	110	44-146			11/14/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10	ND	104	47-151			11/14/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10	ND	110	47-155			11/14/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	110	45-154			11/14/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10	ND	111	44-146			11/14/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10	ND	108	45-151			11/14/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10	ND	110	43-146			11/14/19	
2,2-Dichloropropane	6.8	0.32	0.50	ug/L	10	ND	68	24-182			11/14/19	
2-Butanone	11	0.42	5.0	ug/L	10	ND	106	55-144			11/14/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	110	48-150			11/14/19	
2-Hexanone	11	0.48	10	ug/L	10	ND	108	40-159			11/14/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	109	43-150			11/14/19	
4-Methyl-2-pentanone	10	0.37	5.0	ug/L	10	ND	103	30-171			11/14/19	
Acetone	13	3.4	10	ug/L	10	ND	126	27-181			11/14/19	
Benzene	11	0.34	0.50	ug/L	10	ND	111	48-155			11/14/19	
Bromobenzene	11	0.27	0.50	ug/L	10	ND	110	43-151			11/14/19	
Bromochloromethane	11	0.27	0.50	ug/L	10	ND	113	48-161			11/14/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10	ND	108	47-151			11/14/19	
Bromoform	11	0.28	0.50	ug/L	10	ND	105	29-162			11/14/19	
Bromomethane	11	0.43	0.50	ug/L	10	ND	106	10-200			11/14/19	
Carbon disulfide	11	0.49	10	ug/L	10	ND	113	57-161			11/14/19	
Carbon Tetrachloride	11	0.29	0.50	ug/L	10	ND	115	47-163			11/14/19	
Chlorobenzene	11	0.31	0.50	ug/L	10	ND	109	46-152			11/14/19	
Chloroethane	11	0.32	0.50	ug/L	10	ND	112	28-189			11/14/19	
Chloroform	11	0.083	0.50	ug/L	10	ND	111	52-148			11/14/19	
Chloromethane	12	0.25	0.50	ug/L	10	ND	115	53-159			11/14/19	
cis-1,2-Dichloroethene	11	0.32	0.50	ug/L	10	ND	110	50-152			11/14/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	101	34-156			11/14/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10	ND	106	44-149			11/14/19	
Dibromomethane	10	0.29	0.50	ug/L	10	ND	105	46-150			11/14/19	
Dichlorodifluoromethane	11	0.28	0.50	ug/L	10	ND	115	33-170			11/14/19	
Dichloromethane	11	0.29	0.50	ug/L	10	ND	110	47-156			11/14/19	
Di-isopropyl ether (DIPE)	12	0.31	3.0	ug/L	10	ND	116	41-159			11/14/19	
Ethyl tert-Butyl Ether (ETBE)	11	0.30	0.50	ug/L	10	ND	111	32-160			11/14/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	111	40-157			11/14/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10	ND	104	38-151			11/14/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917163											Prepared: 11/14/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917163-MS1), Source: A9K0979-01												
Isopropylbenzene	11	0.31	0.50	ug/L	10	ND	112	41-156			11/14/19	
m,p-Xylenes	22	0.23	0.50	ug/L	20	ND	111	49-154			11/14/19	
Methyl-t-butyl ether	22	0.083	0.50	ug/L	20	0.19	108	41-156			11/14/19	
Naphthalene	11	0.27	0.50	ug/L	10	ND	110	35-154			11/14/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10	ND	107	31-153			11/14/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10	ND	111	39-156			11/14/19	
o-Xylene	11	0.30	0.50	ug/L	10	ND	112	27-164			11/14/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	113	26-161			11/14/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10	ND	115	39-154			11/14/19	
Styrene	11	0.30	0.50	ug/L	10	ND	110	10-200			11/14/19	
tert-Amyl Methyl Ether (TAME)	11	0.31	3.0	ug/L	10	ND	111	24-161			11/14/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10	ND	112	22-174			11/14/19	
tert-Butylbenzene	11	0.28	0.50	ug/L	10	ND	112	40-153			11/14/19	
Tetrachloroethene (PCE)	11	0.33	0.50	ug/L	10	ND	109	48-155			11/14/19	
Toluene	15	0.32	0.50	ug/L	10	3.0	116	40-159			11/14/19	
trans-1,2-Dichloroethene	11	0.35	0.50	ug/L	10	ND	113	52-157			11/14/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10	ND	100	28-160			11/14/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	112	49-155			11/14/19	
Trichlorofluoromethane	12	0.23	5.0	ug/L	10	ND	119	47-169			11/14/19	
Vinyl Chloride	12	0.27	0.50	ug/L	10	ND	117	21-183			11/14/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*104*	*70-130*			11/14/19	
Surrogate: Bromofluorobenzene	*51*				*50*		*102*	*70-130*			11/14/19	
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
1,1,1,2-Tetrachloroethane	ND	0.26	0.50	ug/L							11/15/19	
1,1,1-Trichloroethane	ND	0.30	0.50	ug/L							11/15/19	
1,1,2,2-Tetrachloroethane	ND	0.25	0.50	ug/L							11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.27	10	ug/L							11/15/19	
1,1,2-Trichloroethane	ND	0.26	0.50	ug/L							11/15/19	
1,1-Dichloroethane	ND	0.34	0.50	ug/L							11/15/19	
1,1-Dichloroethene	ND	0.21	0.50	ug/L							11/15/19	
1,1-Dichloropropene	ND	0.30	0.50	ug/L							11/15/19	
1,2,3-Trichlorobenzene	ND	0.26	0.50	ug/L							11/15/19	
1,2,4-Trichlorobenzene	ND	0.29	0.50	ug/L							11/15/19	
1,2,4-Trimethylbenzene	ND	0.27	0.50	ug/L							11/15/19	
1,2-Dichlorobenzene	ND	0.28	0.50	ug/L							11/15/19	
1,2-Dichloroethane	ND	0.29	0.50	ug/L							11/15/19	
1,2-Dichloropropane	ND	0.30	0.50	ug/L							11/15/19	
1,3,5-Trimethylbenzene	ND	0.36	0.50	ug/L							11/15/19	
1,3-Dichlorobenzene	ND	0.30	0.50	ug/L							11/15/19	
1,3-Dichloropropane	ND	0.26	0.50	ug/L							11/15/19	
1,4-Dichlorobenzene	ND	0.29	0.50	ug/L							11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
2,2-Dichloropropane	ND	0.32	0.50	ug/L							11/15/19	
2-Butanone	ND	0.42	5.0	ug/L							11/15/19	
2-Chlorotoluene	ND	0.30	0.50	ug/L							11/15/19	
2-Hexanone	ND	0.48	10	ug/L							11/15/19	
4-Chlorotoluene	ND	0.30	0.50	ug/L							11/15/19	
4-Methyl-2-pentanone	ND	0.37	5.0	ug/L							11/15/19	
Acetone	ND	3.4	10	ug/L							11/15/19	
Benzene	ND	0.34	0.50	ug/L							11/15/19	
Bromobenzene	ND	0.27	0.50	ug/L							11/15/19	
Bromochloromethane	ND	0.27	0.50	ug/L							11/15/19	
Bromodichloromethane	ND	0.29	0.50	ug/L							11/15/19	
Bromoform	ND	0.28	0.50	ug/L							11/15/19	
Bromomethane	ND	0.43	0.50	ug/L							11/15/19	
Carbon Tetrachloride	ND	0.29	0.50	ug/L							11/15/19	
Chlorobenzene	ND	0.31	0.50	ug/L							11/15/19	
Chloroethane	ND	0.32	0.50	ug/L							11/15/19	
Chloroform	ND	0.083	0.50	ug/L							11/15/19	
Chloromethane	ND	0.25	0.50	ug/L							11/15/19	
cis-1,2-Dichloroethene	ND	0.32	0.50	ug/L							11/15/19	
cis-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/15/19	
Dibromochloromethane	ND	0.28	0.50	ug/L							11/15/19	
Dibromomethane	ND	0.29	0.50	ug/L							11/15/19	
Dichlorodifluoromethane	ND	0.28	0.50	ug/L							11/15/19	
Dichloromethane	ND	0.29	0.50	ug/L							11/15/19	
Di-isopropyl ether (DIPE)	ND	0.31	3.0	ug/L							11/15/19	
Ethyl tert-Butyl Ether (ETBE)	ND	0.30	0.50	ug/L							11/15/19	
Ethylbenzene	ND	0.31	0.50	ug/L							11/15/19	
Hexachlorobutadiene	ND	0.30	0.50	ug/L							11/15/19	
Isopropylbenzene	ND	0.31	0.50	ug/L							11/15/19	
m,p-Xylenes	ND	0.23	0.50	ug/L							11/15/19	
Methyl-t-butyl ether	0.20	0.083	0.50	ug/L							11/15/19	J
Naphthalene	ND	0.27	0.50	ug/L							11/15/19	
n-Butylbenzene	ND	0.25	0.50	ug/L							11/15/19	
n-Propylbenzene	ND	0.31	0.50	ug/L							11/15/19	
o-Xylene	ND	0.30	0.50	ug/L							11/15/19	
p-Isopropyltoluene	ND	0.26	0.50	ug/L							11/15/19	
sec-Butylbenzene	ND	0.27	0.50	ug/L							11/15/19	
Styrene	ND	0.30	0.50	ug/L							11/15/19	
tert-Amyl Methyl Ether (TAME)	ND	0.31	3.0	ug/L							11/15/19	
tert-Butyl alcohol (TBA)	ND	0.97	2.0	ug/L							11/15/19	
tert-Butylbenzene	ND	0.28	0.50	ug/L							11/15/19	
Tetrachloroethene (PCE)	ND	0.33	0.50	ug/L							11/15/19	
Toluene	ND	0.32	0.50	ug/L							11/15/19	
trans-1,2-Dichloroethene	ND	0.35	0.50	ug/L							11/15/19	
trans-1,3-Dichloropropene	ND	0.27	0.50	ug/L							11/15/19	
Trichloroethene (TCE)	ND	0.32	0.50	ug/L							11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank (A917282-BLK1)												
Trichlorofluoromethane	ND	0.23	5.0	ug/L							11/15/19	
Vinyl Chloride	ND	0.27	0.50	ug/L							11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*58*				*50*		*116*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*57*				*50*		*114*	*70-130*			11/15/19	
Blank Spike (A917282-BS1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,1,1-Trichloroethane	10	0.30	0.50	ug/L	10		100	70-130			11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		105	70-130			11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	0.27	10	ug/L	10		102	70-130			11/15/19	
1,1,2-Trichloroethane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,1-Dichloroethane	10	0.34	0.50	ug/L	10		103	70-130			11/15/19	
1,1-Dichloroethene	11	0.21	0.50	ug/L	10		114	70-130			11/15/19	
1,1-Dichloropropene	10	0.30	0.50	ug/L	10		100	70-130			11/15/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		102	70-130			11/15/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130			11/15/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		104	70-130			11/15/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10		105	70-130			11/15/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		100	70-130			11/15/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		102	70-130			11/15/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10		106	70-130			11/15/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		103	70-130			11/15/19	
1,4-Dichlorobenzene	11	0.29	0.50	ug/L	10		107	70-130			11/15/19	
2,2-Dichloropropane	9.9	0.32	0.50	ug/L	10		99	70-130			11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10		102	70-130			11/15/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
2-Hexanone	10	0.48	10	ug/L	10		104	70-130			11/15/19	
4-Chlorotoluene	11	0.30	0.50	ug/L	10		107	70-130			11/15/19	
4-Methyl-2-pentanone	9.7	0.37	5.0	ug/L	10		97	70-130			11/15/19	
Acetone	10	3.4	10	ug/L	10		103	70-130			11/15/19	
Benzene	10	0.34	0.50	ug/L	10		101	70-130			11/15/19	
Bromobenzene	11	0.27	0.50	ug/L	10		108	70-130			11/15/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		107	70-130			11/15/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Bromoform	10	0.28	0.50	ug/L	10		104	70-130			11/15/19	
Bromomethane	8.9	0.43	0.50	ug/L	10		89	70-130			11/15/19	
Carbon disulfide	10	0.49	10	ug/L	10		104	70-130			11/15/19	
Carbon Tetrachloride	10	0.29	0.50	ug/L	10		101	70-130			11/15/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		105	70-130			11/15/19	
Chloroethane	10	0.32	0.50	ug/L	10		101	70-130			11/15/19	
Chloroform	10	0.083	0.50	ug/L	10		103	70-130			11/15/19	
Chloromethane	9.8	0.25	0.50	ug/L	10		98	70-130			11/15/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		104	70-130			11/15/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130			11/15/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		102	70-130			11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike (A917282-BS1)												
Dibromomethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Dichlorodifluoromethane	9.5	0.28	0.50	ug/L	10		95	70-130			11/15/19	
Dichloromethane	10	0.29	0.50	ug/L	10		102	70-130			11/15/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		105	70-130			11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		101	70-130			11/15/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		103	70-130			11/15/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		102	70-130			11/15/19	
Isopropylbenzene	11	0.31	0.50	ug/L	10		105	70-130			11/15/19	
m,p-Xylenes	21	0.23	0.50	ug/L	20		105	70-130			11/15/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20		101	70-130			11/15/19	
Naphthalene	10	0.27	0.50	ug/L	10		104	70-130			11/15/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10		105	70-130			11/15/19	
n-Propylbenzene	11	0.31	0.50	ug/L	10		106	70-130			11/15/19	
o-Xylene	11	0.30	0.50	ug/L	10		105	70-130			11/15/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10		106	70-130			11/15/19	
sec-Butylbenzene	11	0.27	0.50	ug/L	10		107	70-130			11/15/19	
Styrene	11	0.30	0.50	ug/L	10		106	70-130			11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		102	70-130			11/15/19	
tert-Butyl alcohol (TBA)	10	0.97	2.0	ug/L	10		103	70-130			11/15/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		104	70-130			11/15/19	
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10		102	70-130			11/15/19	
Toluene	10	0.32	0.50	ug/L	10		103	70-130			11/15/19	
trans-1,2-Dichloroethene	10	0.35	0.50	ug/L	10		103	70-130			11/15/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130			11/15/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		101	70-130			11/15/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		102	70-130			11/15/19	
Vinyl Chloride	10	0.27	0.50	ug/L	10		101	70-130			11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*109*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*53*				*50*		*107*	*70-130*			11/15/19	
Blank Spike Dup (A917282-BSD1)												
1,1,1,2-Tetrachloroethane	10	0.26	0.50	ug/L	10		102	70-130	1	30	11/15/19	
1,1,1-Trichloroethane	9.9	0.30	0.50	ug/L	10		99	70-130	1	30	11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10		105	70-130	0	30	11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	0.27	10	ug/L	10		100	70-130	2	30	11/15/19	J
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10		106	70-130	3	30	11/15/19	
1,1-Dichloroethane	10	0.34	0.50	ug/L	10		103	70-130	0	30	11/15/19	
1,1-Dichloroethene	11	0.21	0.50	ug/L	10		113	70-130	1	30	11/15/19	
1,1-Dichloropropene	9.8	0.30	0.50	ug/L	10		98	70-130	2	30	11/15/19	
1,2,3-Trichlorobenzene	10	0.26	0.50	ug/L	10		104	70-130	2	30	11/15/19	
1,2,4-Trichlorobenzene	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,2,4-Trimethylbenzene	10	0.27	0.50	ug/L	10		101	70-130	2	30	11/15/19	
1,2-Dichlorobenzene	10	0.28	0.50	ug/L	10		103	70-130	3	30	11/15/19	
1,2-Dichloroethane	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,2-Dichloropropane	10	0.30	0.50	ug/L	10		101	70-130	1	30	11/15/19	
1,3,5-Trimethylbenzene	10	0.36	0.50	ug/L	10		101	70-130	5	30	11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917282-BSD1)												
1,3-Dichlorobenzene	10	0.30	0.50	ug/L	10		104	70-130	3	30	11/15/19	
1,3-Dichloropropane	10	0.26	0.50	ug/L	10		104	70-130	1	30	11/15/19	
1,4-Dichlorobenzene	10	0.29	0.50	ug/L	10		105	70-130	2	30	11/15/19	
2,2-Dichloropropane	9.8	0.32	0.50	ug/L	10		98	70-130	1	30	11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10		100	70-130	2	30	11/15/19	
2-Chlorotoluene	10	0.30	0.50	ug/L	10		102	70-130	5	30	11/15/19	
2-Hexanone	11	0.48	10	ug/L	10		105	70-130	1	30	11/15/19	
4-Chlorotoluene	10	0.30	0.50	ug/L	10		102	70-130	4	30	11/15/19	
4-Methyl-2-pentanone	9.5	0.37	5.0	ug/L	10		95	70-130	2	30	11/15/19	
Acetone	11	3.4	10	ug/L	10		107	70-130	4	30	11/15/19	
Benzene	10	0.34	0.50	ug/L	10		101	70-130	0	30	11/15/19	
Bromobenzene	9.2	0.27	0.50	ug/L	10		92	70-130	16	30	11/15/19	
Bromochloromethane	11	0.27	0.50	ug/L	10		106	70-130	0	30	11/15/19	
Bromodichloromethane	10	0.29	0.50	ug/L	10		103	70-130	0	30	11/15/19	
Bromoform	10	0.28	0.50	ug/L	10		104	70-130	0	30	11/15/19	
Bromomethane	8.7	0.43	0.50	ug/L	10		87	70-130	2	30	11/15/19	
Carbon disulfide	10	0.49	10	ug/L	10		104	70-130	1	30	11/15/19	
Carbon Tetrachloride	10	0.29	0.50	ug/L	10		101	70-130	1	30	11/15/19	
Chlorobenzene	10	0.31	0.50	ug/L	10		103	70-130	2	30	11/15/19	
Chloroethane	9.9	0.32	0.50	ug/L	10		99	70-130	2	30	11/15/19	
Chloroform	10	0.083	0.50	ug/L	10		103	70-130	0	30	11/15/19	
Chloromethane	10	0.25	0.50	ug/L	10		100	70-130	2	30	11/15/19	
cis-1,2-Dichloroethene	10	0.32	0.50	ug/L	10		103	70-130	0	30	11/15/19	
cis-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		102	70-130	0	30	11/15/19	
Dibromochloromethane	10	0.28	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Dibromomethane	10	0.29	0.50	ug/L	10		102	70-130	0	30	11/15/19	
Dichlorodifluoromethane	9.3	0.28	0.50	ug/L	10		93	70-130	2	30	11/15/19	
Dichloromethane	10	0.29	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Di-isopropyl ether (DIPE)	11	0.31	3.0	ug/L	10		110	70-130	4	30	11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10		101	70-130	0	30	11/15/19	
Ethylbenzene	10	0.31	0.50	ug/L	10		102	70-130	1	30	11/15/19	
Hexachlorobutadiene	10	0.30	0.50	ug/L	10		100	70-130	2	30	11/15/19	
Isopropylbenzene	10	0.31	0.50	ug/L	10		102	70-130	4	30	11/15/19	
m,p-Xylenes	20	0.23	0.50	ug/L	20		102	70-130	3	30	11/15/19	
Methyl-t-butyl ether	20	0.083	0.50	ug/L	20		102	70-130	1	30	11/15/19	
Naphthalene	11	0.27	0.50	ug/L	10		107	70-130	3	30	11/15/19	
n-Butylbenzene	10	0.25	0.50	ug/L	10		100	70-130	5	30	11/15/19	
n-Propylbenzene	10	0.31	0.50	ug/L	10		102	70-130	4	30	11/15/19	
o-Xylene	10	0.30	0.50	ug/L	10		102	70-130	3	30	11/15/19	
p-Isopropyltoluene	10	0.26	0.50	ug/L	10		101	70-130	5	30	11/15/19	
sec-Butylbenzene	10	0.27	0.50	ug/L	10		100	70-130	6	30	11/15/19	
Styrene	10	0.30	0.50	ug/L	10		104	70-130	2	30	11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10		101	70-130	1	30	11/15/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10		108	70-130	4	30	11/15/19	
tert-Butylbenzene	10	0.28	0.50	ug/L	10		101	70-130	2	30	11/15/19	
Tetrachloroethene (PCE)	10	0.33	0.50	ug/L	10		100	70-130	1	30	11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Blank Spike Dup (A917282-BSD1)												
Toluene	10	0.32	0.50	ug/L	10		103	70-130	0	30	11/15/19	
trans-1,2-Dichloroethene	10	0.35	0.50	ug/L	10		102	70-130	1	30	11/15/19	
trans-1,3-Dichloropropene	10	0.27	0.50	ug/L	10		103	70-130	1	30	11/15/19	
Trichloroethene (TCE)	10	0.32	0.50	ug/L	10		100	70-130	2	30	11/15/19	
Trichlorofluoromethane	10	0.23	5.0	ug/L	10		104	70-130	1	30	11/15/19	
Vinyl Chloride	10	0.27	0.50	ug/L	10		100	70-130	1	30	11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*52*				*50*		*105*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*52*				*50*		*104*	*70-130*			11/15/19	
Matrix Spike (A917282-MS1), Source: A9K1356-01												
1,1,1,2-Tetrachloroethane	11	0.26	0.50	ug/L	10	ND	110	41-156			11/15/19	
1,1,1-Trichloroethane	12	0.30	0.50	ug/L	10	ND	115	48-160			11/15/19	
1,1,2,2-Tetrachloroethane	11	0.25	0.50	ug/L	10	ND	113	42-151			11/15/19	
1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.27	10	ug/L	10	ND	124	47-164			11/15/19	
1,1,2-Trichloroethane	11	0.26	0.50	ug/L	10	ND	110	45-152			11/15/19	
1,1-Dichloroethane	12	0.34	0.50	ug/L	10	ND	116	48-157			11/15/19	
1,1-Dichloroethene	14	0.21	0.50	ug/L	10	ND	138	51-158			11/15/19	
1,1-Dichloropropene	11	0.30	0.50	ug/L	10	ND	114	46-162			11/15/19	
1,2,3-Trichlorobenzene	11	0.26	0.50	ug/L	10	ND	112	37-145			11/15/19	
1,2,4-Trichlorobenzene	11	0.29	0.50	ug/L	10	ND	111	33-149			11/15/19	
1,2,4-Trimethylbenzene	11	0.27	0.50	ug/L	10	ND	113	44-146			11/15/19	
1,2-Dichlorobenzene	11	0.28	0.50	ug/L	10	ND	113	44-146			11/15/19	
1,2-Dichloroethane	11	0.29	0.50	ug/L	10	ND	109	47-151			11/15/19	
1,2-Dichloropropane	11	0.30	0.50	ug/L	10	ND	111	47-155			11/15/19	
1,3,5-Trimethylbenzene	11	0.36	0.50	ug/L	10	ND	115	45-154			11/15/19	
1,3-Dichlorobenzene	11	0.30	0.50	ug/L	10	ND	115	44-146			11/15/19	
1,3-Dichloropropane	11	0.26	0.50	ug/L	10	ND	111	45-151			11/15/19	
1,4-Dichlorobenzene	12	0.29	0.50	ug/L	10	ND	116	43-146			11/15/19	
2,2-Dichloropropane	11	0.32	0.50	ug/L	10	ND	112	24-182			11/15/19	
2-Butanone	10	0.42	5.0	ug/L	10	ND	104	55-144			11/15/19	
2-Chlorotoluene	11	0.30	0.50	ug/L	10	ND	114	48-150			11/15/19	
2-Hexanone	11	0.48	10	ug/L	10	ND	111	40-159			11/15/19	
4-Chlorotoluene	12	0.30	0.50	ug/L	10	ND	115	43-150			11/15/19	
4-Methyl-2-pentanone	9.9	0.37	5.0	ug/L	10	0.38	96	30-171			11/15/19	
Acetone	14	3.4	10	ug/L	10	ND	144	27-181			11/15/19	
Benzene	11	0.34	0.50	ug/L	10	ND	111	48-155			11/15/19	
Bromobenzene	12	0.27	0.50	ug/L	10	ND	120	43-151			11/15/19	
Bromochloromethane	12	0.27	0.50	ug/L	10	ND	120	48-161			11/15/19	
Bromodichloromethane	11	0.29	0.50	ug/L	10	ND	112	47-151			11/15/19	
Bromoform	11	0.28	0.50	ug/L	10	ND	111	29-162			11/15/19	
Bromomethane	10	0.43	0.50	ug/L	10	ND	100	10-200			11/15/19	
Carbon disulfide	13	0.49	10	ug/L	10	ND	127	57-161			11/15/19	
Carbon Tetrachloride	12	0.29	0.50	ug/L	10	ND	117	47-163			11/15/19	
Chlorobenzene	11	0.31	0.50	ug/L	10	ND	114	46-152			11/15/19	
Chloroethane	12	0.32	0.50	ug/L	10	ND	121	28-189			11/15/19	
Chloroform	12	0.083	0.50	ug/L	10	ND	115	52-148			11/15/19	

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Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 524.2 - Quality Control												
Batch: A917282											Prepared: 11/15/2019	
Prep Method: EPA 524.2											Analyst: ANM	
Matrix Spike (A917282-MS1), Source: A9K1356-01												
Chloromethane	12	0.25	0.50	ug/L	10	ND	123	53-159			11/15/19	
cis-1,2-Dichloroethene	12	0.32	0.50	ug/L	10	ND	116	50-152			11/15/19	
cis-1,3-Dichloropropene	11	0.27	0.50	ug/L	10	ND	111	34-156			11/15/19	
Dibromochloromethane	11	0.28	0.50	ug/L	10	ND	111	44-149			11/15/19	
Dibromomethane	11	0.29	0.50	ug/L	10	ND	113	46-150			11/15/19	
Dichlorodifluoromethane	13	0.28	0.50	ug/L	10	ND	128	33-170			11/15/19	
Dichloromethane	12	0.29	0.50	ug/L	10	ND	116	47-156			11/15/19	
Di-isopropyl ether (DIPE)	10	0.31	3.0	ug/L	10	ND	105	41-159			11/15/19	
Ethyl tert-Butyl Ether (ETBE)	10	0.30	0.50	ug/L	10	ND	104	32-160			11/15/19	
Ethylbenzene	11	0.31	0.50	ug/L	10	ND	115	40-157			11/15/19	
Hexachlorobutadiene	12	0.30	0.50	ug/L	10	ND	120	38-151			11/15/19	
Isopropylbenzene	12	0.31	0.50	ug/L	10	ND	117	41-156			11/15/19	
m,p-Xylenes	23	0.23	0.50	ug/L	20	ND	115	49-154			11/15/19	
Methyl-t-butyl ether	21	0.083	0.50	ug/L	20	0.22	104	41-156			11/15/19	
Naphthalene	11	0.27	0.50	ug/L	10	ND	114	35-154			11/15/19	
n-Butylbenzene	11	0.25	0.50	ug/L	10	ND	114	31-153			11/15/19	
n-Propylbenzene	12	0.31	0.50	ug/L	10	ND	117	39-156			11/15/19	
o-Xylene	11	0.30	0.50	ug/L	10	ND	115	27-164			11/15/19	
p-Isopropyltoluene	11	0.26	0.50	ug/L	10	ND	115	26-161			11/15/19	
sec-Butylbenzene	12	0.27	0.50	ug/L	10	ND	116	39-154			11/15/19	
Styrene	12	0.30	0.50	ug/L	10	ND	115	10-200			11/15/19	
tert-Amyl Methyl Ether (TAME)	10	0.31	3.0	ug/L	10	ND	104	24-161			11/15/19	
tert-Butyl alcohol (TBA)	11	0.97	2.0	ug/L	10	ND	107	22-174			11/15/19	
tert-Butylbenzene	12	0.28	0.50	ug/L	10	ND	115	40-153			11/15/19	
Tetrachloroethene (PCE)	12	0.33	0.50	ug/L	10	ND	116	48-155			11/15/19	
Toluene	11	0.32	0.50	ug/L	10	ND	114	40-159			11/15/19	
trans-1,2-Dichloroethene	12	0.35	0.50	ug/L	10	ND	119	52-157			11/15/19	
trans-1,3-Dichloropropene	11	0.27	0.50	ug/L	10	ND	110	28-160			11/15/19	
Trichloroethene (TCE)	11	0.32	0.50	ug/L	10	ND	113	49-155			11/15/19	
Trichlorofluoromethane	13	0.23	5.0	ug/L	10	ND	129	47-169			11/15/19	
Vinyl Chloride	13	0.27	0.50	ug/L	10	ND	127	21-183			11/15/19	
Surrogate: 1,2-Dichlorobenzene-d4	*54*				*50*		*108*	*70-130*			11/15/19	
Surrogate: Bromofluorobenzene	*54*				*50*		*108*	*70-130*			11/15/19	
EPA 525.3 - Quality Control												
Batch: A917200											Prepared: 11/14/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank (A917200-BLK1)												
Alachlor	ND	0.022	0.20	ug/L							11/20/19	
Atrazine	ND	0.0076	0.10	ug/L							11/20/19	
Benzo(a)pyrene	ND	0.0019	0.020	ug/L							11/20/19	
Bis(2-ethylhexyl) adipate	ND	0.067	0.60	ug/L							11/20/19	
Bis(2-ethylhexyl) phthalate	0.15	0.11	0.60	ug/L							11/20/19	B2.0, J
Bromacil	ND	0.028	0.80	ug/L							11/20/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
EPA 525.3 - Quality Control													
Batch: A917200											Prepared: 11/14/2019		
Prep Method: EPA 525.3											Analyst: JKH		
Blank (A917200-BLK1)													
Butachlor	ND	0.018	0.25	ug/L							11/20/19		
Diazinon	ND	0.0022	0.020	ug/L							11/20/19		
Dimethoate	ND	0.082	1.0	ug/L							11/20/19		
Metolachlor	ND	0.011	0.50	ug/L							11/20/19		
Metribuzin	ND	0.0061	0.50	ug/L							11/20/19		
Molinate	ND	0.0061	0.50	ug/L							11/20/19		
Propachlor	ND	0.0056	0.50	ug/L							11/20/19		
Simazine	ND	0.0049	0.070	ug/L							11/20/19		
Thiobencarb	ND	0.0083	0.10	ug/L							11/20/19		
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.87*				*1.0*		*87*	*70-130*			11/20/19		
Surrogate: Benzo(a)pyrene-d12	*0.88*				*1.0*		*88*	*70-130*			11/20/19		
Surrogate: Triphenyl Phosphate	*0.98*				*1.0*		*98*	*70-130*			11/20/19		
Blank Spike (A917200-BS1)													
Alachlor	0.42	0.022	0.20	ug/L	0.40		106	70-130			11/20/19		
Atrazine	0.24	0.0076	0.10	ug/L	0.20		121	70-130			11/20/19		
Benzo(a)pyrene	0.028	0.0019	0.020	ug/L	0.040		70	70-130			11/20/19		
Bis(2-ethylhexyl) adipate	0.80	0.067	0.60	ug/L	0.80		100	70-130			11/20/19		
Bis(2-ethylhexyl) phthalate	2.3	0.11	0.60	ug/L	2.4		97	70-130			11/20/19		
Bromacil	0.24	0.028	0.80	ug/L	0.20		121	70-130			11/20/19	J	
Butachlor	0.23	0.018	0.25	ug/L	0.20		115	70-130			11/20/19	J	
Diazinon	0.043	0.0022	0.020	ug/L	0.040		107	70-130			11/20/19		
Dimethoate	2.6	0.082	1.0	ug/L	1.6		162	70-130			11/20/19	BS	***High***
Metolachlor	0.22	0.011	0.50	ug/L	0.20		108	70-130			11/20/19	J	
Metribuzin	0.21	0.0061	0.50	ug/L	0.20		105	70-130			11/20/19	J	
Molinate	0.20	0.0061	0.50	ug/L	0.20		100	70-130			11/20/19	J	
Propachlor	0.20	0.0056	0.50	ug/L	0.20		100	70-130			11/20/19	J	
Simazine	0.17	0.0049	0.070	ug/L	0.14		120	70-130			11/20/19		
Thiobencarb	0.22	0.0083	0.10	ug/L	0.20		108	70-130			11/20/19		
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.93*				*1.0*		*93*	*70-130*			11/20/19		
Surrogate: Benzo(a)pyrene-d12	*0.85*				*1.0*		*85*	*70-130*			11/20/19		
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*108*	*70-130*			11/20/19		
Blank Spike Dup (A917200-BSD1)													
Alachlor	0.45	0.022	0.20	ug/L	0.40		112	70-130	6	30	11/20/19		
Atrazine	0.25	0.0076	0.10	ug/L	0.20		127	70-130	5	30	11/20/19		
Benzo(a)pyrene	0.034	0.0019	0.020	ug/L	0.040		85	70-130	20	30	11/20/19		
Bis(2-ethylhexyl) adipate	0.85	0.067	0.60	ug/L	0.80		107	70-130	7	30	11/20/19		
Bis(2-ethylhexyl) phthalate	2.4	0.11	0.60	ug/L	2.4		102	70-130	4	30	11/20/19		
Bromacil	0.23	0.028	0.80	ug/L	0.20		117	70-130	4	30	11/20/19	J	
Butachlor	0.25	0.018	0.25	ug/L	0.20		125	70-130	8	30	11/20/19	J	
Diazinon	0.050	0.0022	0.020	ug/L	0.040		126	70-130	16	30	11/20/19		
Dimethoate	3.1	0.082	1.0	ug/L	1.6		192	70-130	17	30	11/20/19	BS	***High***
Metolachlor	0.23	0.011	0.50	ug/L	0.20		115	70-130	6	30	11/20/19	J	
Metribuzin	0.22	0.0061	0.50	ug/L	0.20		112	70-130	6	30	11/20/19	J	
Molinate	0.21	0.0061	0.50	ug/L	0.20		104	70-130	5	30	11/20/19	J	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 525.3 - Quality Control												
Batch: A917200											Prepared: 11/14/2019	
Prep Method: EPA 525.3											Analyst: JKH	
Blank Spike Dup (A917200-BSD1)												
Propachlor	0.21	0.0056	0.50	ug/L	0.20		105	70-130	5	30	11/20/19	J
Simazine	0.17	0.0049	0.070	ug/L	0.14		123	70-130	3	30	11/20/19	
Thiobencarb	0.23	0.0083	0.10	ug/L	0.20		113	70-130	4	30	11/20/19	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.94*				*1.0*		*94*	*70-130*			11/20/19	
Surrogate: Benzo(a)pyrene-d12	*0.91*				*1.0*		*91*	*70-130*			11/20/19	
Surrogate: Triphenyl Phosphate	*1.1*				*1.0*		*115*	*70-130*			11/20/19	
Matrix Spike (A917200-MS1), Source: S9K0141-02												
Alachlor	0.10	0.022	0.20	ug/L	0.094	ND	108	70-130			11/20/19	J
Atrazine	0.055	0.0076	0.10	ug/L	0.047	0.016	83	70-130			11/20/19	J
Benzo(a)pyrene	0.0080	0.0019	0.020	ug/L	0.0094	ND	85	70-130			11/20/19	J
Bis(2-ethylhexyl) adipate	0.21	0.067	0.60	ug/L	0.19	ND	113	70-130			11/20/19	J
Bis(2-ethylhexyl) phthalate	0.68	0.11	0.60	ug/L	0.57	0.23	78	70-130			11/20/19	
Bromacil	0.054	0.028	0.80	ug/L	0.047	ND	115	70-130			11/20/19	J
Butachlor	0.062	0.018	0.25	ug/L	0.047	ND	131	70-130			11/20/19	MS1.6 ***High***, J
Diazinon	0.012	0.0022	0.020	ug/L	0.0094	ND	128	70-130			11/20/19	J
Dimethoate	0.53	0.082	1.0	ug/L	0.38	ND	141	70-130			11/20/19	MS1.6 ***High***, J
Metolachlor	0.053	0.011	0.50	ug/L	0.047	ND	113	70-130			11/20/19	J
Metribuzin	0.048	0.0061	0.50	ug/L	0.047	ND	101	70-130			11/20/19	J
Molinate	0.051	0.0061	0.50	ug/L	0.047	ND	109	70-130			11/20/19	J
Propachlor	0.047	0.0056	0.50	ug/L	0.047	ND	100	70-130			11/20/19	J
Simazine	0.038	0.0049	0.070	ug/L	0.033	0.0059	97	70-130			11/20/19	J
Thiobencarb	0.055	0.0083	0.10	ug/L	0.047	ND	117	70-130			11/20/19	J
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*0.88*				*0.94*		*93*	*70-130*			11/20/19	
Surrogate: Benzo(a)pyrene-d12	*0.82*				*0.94*		*87*	*70-130*			11/20/19	
Surrogate: Triphenyl Phosphate	*1.0*				*0.94*		*108*	*70-130*			11/20/19	
EPA 531.1 - Quality Control												
Batch: A917289											Prepared: 11/15/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank (A917289-BLK1)												
3-Hydroxycarbofuran	ND	0.12	3.0	ug/L							11/16/19	
Aldicarb	ND	0.12	3.0	ug/L							11/16/19	
Aldicarb Sulfone	ND	0.12	2.0	ug/L							11/16/19	
Aldicarb Sulfoxide	ND	0.12	3.0	ug/L							11/16/19	
Carbaryl	ND	0.22	5.0	ug/L							11/16/19	
Carbofuran	ND	0.27	5.0	ug/L							11/16/19	
Methomyl	ND	0.19	2.0	ug/L							11/16/19	
Oxamyl	ND	0.090	20	ug/L							11/16/19	
Blank Spike (A917289-BS1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120			11/16/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0		105	80-120			11/16/19	J
Aldicarb Sulfone	3.4	0.12	2.0	ug/L	3.2		105	80-120			11/16/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 531.1 - Quality Control												
Batch: A917289											Prepared: 11/15/2019	
Prep Method: EPA 531.1											Analyst: JNG	
Blank Spike (A917289-BS1)												
Aldicarb Sulfoxide	2.0	0.12	3.0	ug/L	2.0		102	80-120			11/16/19	J
Carbaryl	4.2	0.22	5.0	ug/L	4.0		106	80-120			11/16/19	J
Carbofuran	3.6	0.27	5.0	ug/L	3.6		99	80-120			11/16/19	J
Methomyl	4.2	0.19	2.0	ug/L	4.0		105	80-120			11/16/19	
Oxamyl	4.2	0.090	20	ug/L	4.0		105	80-120			11/16/19	J
Blank Spike Dup (A917289-BSD1)												
3-Hydroxycarbofuran	4.2	0.12	3.0	ug/L	4.0		105	80-120	0	20	11/16/19	
Aldicarb	2.2	0.12	3.0	ug/L	2.0		109	80-120	4	20	11/16/19	J
Aldicarb Sulfone	3.3	0.12	2.0	ug/L	3.2		104	80-120	1	20	11/16/19	
Aldicarb Sulfoxide	2.1	0.12	3.0	ug/L	2.0		104	80-120	1	20	11/16/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0		103	80-120	3	20	11/16/19	J
Carbofuran	3.5	0.27	5.0	ug/L	3.6		96	80-120	3	20	11/16/19	J
Methomyl	4.6	0.19	2.0	ug/L	4.0		116	80-120	10	20	11/16/19	
Oxamyl	4.2	0.090	20	ug/L	4.0		106	80-120	1	20	11/16/19	J
Matrix Spike (A917289-MS1), Source: A9K0997-01												
3-Hydroxycarbofuran	4.1	0.12	3.0	ug/L	4.0	ND	103	65-135			11/16/19	
Aldicarb	2.1	0.12	3.0	ug/L	2.0	ND	105	65-135			11/16/19	J
Aldicarb Sulfone	3.1	0.12	2.0	ug/L	3.2	ND	96	65-135			11/16/19	
Aldicarb Sulfoxide	1.9	0.12	3.0	ug/L	2.0	ND	96	65-135			11/16/19	J
Carbaryl	4.1	0.22	5.0	ug/L	4.0	ND	102	65-135			11/16/19	J
Carbofuran	3.2	0.27	5.0	ug/L	3.6	ND	90	65-135			11/16/19	J
Methomyl	4.1	0.19	2.0	ug/L	4.0	ND	103	65-135			11/16/19	
Oxamyl	3.9	0.090	20	ug/L	4.0	ND	97	65-135			11/16/19	J
EPA 547 - Quality Control												
Batch: A917319											Prepared: 11/16/2019	
Prep Method: EPA 547											Analyst: JNG	
Blank (A917319-BLK1)												
Glyphosate	ND	2.1	25	ug/L							11/16/19	
Surrogate: AMPA	*210*				*200*		*105*	*70-130*			11/16/19	
Blank Spike (A917319-BS1)												
Glyphosate	110	2.1	25	ug/L	100		107	70-130			11/16/19	
Surrogate: AMPA	*210*				*200*		*103*	*70-130*			11/16/19	
Blank Spike Dup (A917319-BSD1)												
Glyphosate	100	2.1	25	ug/L	100		104	70-130	3	30	11/16/19	
Surrogate: AMPA	*200*				*200*		*99*	*70-130*			11/16/19	
Matrix Spike (A917319-MS1), Source: A9K0997-01												
Glyphosate	100	2.1	25	ug/L	100	ND	104	70-130			11/16/19	
Surrogate: AMPA	*210*				*200*		*104*	*70-130*			11/16/19	

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Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 547 - Quality Control												
Batch: A917319											Prepared: 11/16/2019	
Prep Method: EPA 547											Analyst: JNG	
Matrix Spike Dup (A917319-MSD1), Source: A9K0997-01												
Glyphosate	97	2.1	25	ug/L	100	ND	97	70-130	7	30	11/16/19	
Surrogate: AMPA	*200*				*200*		*98*	*70-130*			11/16/19	
EPA 548.1 - Quality Control												
Batch: A917162											Prepared: 11/13/2019	
Prep Method: EPA 548.1											Analyst: YNV	
Blank (A917162-BLK1)												
Endothall	ND	1.6	2.0	ug/L							11/14/19	
Blank Spike (A917162-BS1)												
Endothall	13	1.6	2.0	ug/L	20		64	46-116			11/14/19	
Blank Spike Dup (A917162-BSD1)												
Endothall	12	1.6	2.0	ug/L	20		62	46-116	5	30	11/14/19	
Matrix Spike (A917162-MS1), Source: A9K0686-01												
Endothall	2.0	1.6	2.0	ug/L	20	ND	10	46-116			11/14/19	MS1.0 ***Low***
Matrix Spike (A917162-MS2), Source: S9K0122-03												
Endothall	18	1.6	2.0	ug/L	20	ND	88	46-116			11/14/19	
EPA 549.2 - Quality Control												
Batch: A917100											Prepared: 11/13/2019	
Prep Method: EPA 549.2											Analyst: ANM	
Blank (A917100-BLK1)												
Diquat	ND	0.071	0.40	ug/L							11/14/19	
Blank Spike (A917100-BS1)												
Diquat	3.1	0.071	0.40	ug/L	4.0		77	70-130			11/14/19	
Blank Spike Dup (A917100-BSD1)												
Diquat	3.1	0.071	0.40	ug/L	4.0		77	70-130	0	30	11/14/19	
Matrix Spike (A917100-MS1), Source: A9K0686-01												
Diquat	2.3	0.071	0.40	ug/L	4.0	ND	59	70-130			11/14/19	MS1.0 ***Low***
Matrix Spike (A917100-MS2), Source: A9K0703-01												
Diquat	ND	0.071	0.40	ug/L	4.0	ND	0	70-130			11/14/19	MS1.0 ***Low***
SRL 524M-TCP - Quality Control												
Batch: A917085											Prepared: 11/12/2019	
Prep Method: no prep-volatiles											Analyst: ANM	
Blank (A917085-BLK1)												

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SRL 524M-TCP - Quality Control												
Batch: A917085											Prepared: 11/12/2019	
Prep Method: no prep-volatiles											Analyst: ANM	
Blank (A917085-BLK1)												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L							11/13/19	
Blank Spike (A917085-BS1)												
1,2,3-Trichloropropane	0.0051	0.0014	0.0050	ug/L	0.0050		101	80-120			11/13/19	
Blank Spike Dup (A917085-BSD1)												
1,2,3-Trichloropropane	0.0051	0.0014	0.0050	ug/L	0.0050		102	80-120	1	30	11/13/19	
Duplicate (A917085-DUP1), Source: A9K0979-08												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L		ND				20	11/13/19	
SRL 524M-TCP - Quality Control												
Batch: A917169											Prepared: 11/13/2019	
Prep Method: no prep-volatiles											Analyst: ANM	
Blank (A917169-BLK1)												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L							11/14/19	
Blank Spike (A917169-BS1)												
1,2,3-Trichloropropane	0.0044	0.0014	0.0050	ug/L	0.0050		88	80-120			11/14/19	J
Blank Spike Dup (A917169-BSD1)												
1,2,3-Trichloropropane	0.0050	0.0014	0.0050	ug/L	0.0050		99	80-120	12	30	11/14/19	J
Duplicate (A917169-DUP1), Source: A9K0988-01												
1,2,3-Trichloropropane	ND	0.0014	0.0050	ug/L		ND				20	11/14/19	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

Aggressive Index	Chlorothalonil	Trifluralin
Langelier Index	Threshold Odor	1,2,3-Trichloropropane

Certificate of Analysis

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

	2435		
Fresno			
State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-012
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-012
EPA - UCMR4	CA00079	State of Washington	C997-19d
San Bernardino			
State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-004	State of Oregon - NELAP	4119-004
Vancouver			
NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-012
State of Washington	C824-19		

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
Date needed:

A9L1805 clare4404 11/12/2019 31

*Required Fields Temp: Thermometer ID:

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
Claremont Land Group	Geralyn Skapik Additional cc's: Christofer Coppinger, John Bissel	John Bissel - Hansji PO#:	(909) 398-4404 E-mail*: gskapik@skapiklaw.com	

Address*:	City*:	State*:	Zip*:
5861 Pine Ave, Suite A-1	Chino Hills	CA	91709

Project:
Project #: A9L1805

Reporting Options: ☒ Trace (J-Flag) ☐ Swamp ☐ EDD Type: _____

Sampler Name (Printed/Signature)*: Alexander Arita

Regulatory Carbon Copies: ☐ SWRCB (Drinking Water) ☐ Merced Co ☐ Fresno Co ☐ Madera Co ☐ Tulare Co ☐ Other: _____

Regulatory Compliance: ☐ EDT to California SWRCB (Drinking Water) System Number*: _____ ☐ Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA	EXT-Radon	
1	Terra Vi Well No. 1	11/12/19	10:40	DW		X	X	X	X		X	X	X	
2	Terra Vi Well No. 2	11/12/19	11:40	DW		X	X	X	X		X	X	X	
3	Trip Blank - 524 - Raw - Lot# 1019007	11/12/19			Reported from: A9K0979-11					X				
	Revised COC created by EMP													

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: PIA#:	Check / Cash Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____ **Custody Seal:** Y / N
Cooling Method: Wet Blue None **Chilling Process Begun:** Y / N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

@ 4/4

Turnaround Time Request
- [X] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
- Date needed:

A9L1805 clare4404 11/12/2019 31

*Required Fields

Temp: 2.8° Thermometer ID: 57

Company/Client Name*	Report Attention*	Invoice To*	Phone* / Fax
Hansji Corporation	John Bissel Additional cc's: Christofer Coppinger, Geralyn Skapik	Arun Malhotra PO#:	(714) 399-0152 E-mail*: johnb@hansji.com

Address*	City*	State*	Zip*
631 W. Katella Ave., 5th Floor	Anaheim	CA	92802

Project: | Project #:

Reporting Options: [✓] Trace (J-Flag) [ ] Swamp [ ] EDD Type: _____

Sampler Name (Printed/Signature)*: Alexander Arita (AA)

Regulatory Carbon Copies: [ ] SWRCB (Drinking Water) [ ] Merced Co [ ] Fresno Co [ ] Madera Co [ ] Tulare Co [ ] Other:

Regulatory Compliance: [ ] EDT to California SWRCB (Drinking Water) System Number*: _____ [ ] Geotracker #: _____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Title 22 GM/IO/GP & Organics	Hex Chrom, Perchlorate	Uranium Radiological	Quantitray 51	TCP	EPA 504	EPA 524	EXT-Asbestos, EXT-Dioxin	EXT-Rad 226, 228, EXT-GA
26G(B) 1	[redacted]	11/11/19	12:00	DW		X	X	X	X	X			X	X
26G(A) 2	[redacted]	11/11/19	14:30	DW	High air content in water.	X	X	X	X	X			X	X
26G(C) 3	[redacted]	11/11/19	13.30	DW		X	X	X	X	X			X	X
4	Trip Blank - TCP - Lot# 1119003									X				
5	Trip Blank - 504 - Lot# 1019068										X			
6	Trip Blank - 524 - Lot# 1119009											X		
7	Terra V. Well No. 1	11/12/19	10:40	DW		X	X	X	X	X			X	X
8	Terra V. Well No. 2	11/12/19	11:40	DW		X	X	X	X	X			X	X
9	TCP TB 1019035													
10	504 TB ~~1019036~~													
11	524 TB ~~1019036~~ 1019007													
	+ micro notified 1855													

See Revised COC 01/29/2020 KR

Radon

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Alexander Arita	Geoscience	11/12/19	1557		
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: PIA#: Check / Cash Int.	
		11/12/19	1557		

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____ Foam
Cooling Method: Wet Blue None
Custody Seal: Y / N
Chilling Process Begun: Y / N

Payment for services rendered as noted hereon are due in full within 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

SR-FL-0912-08

Field sampling parameters:

26G(B) [redacted]	26G(A) [redacted]	26G(C) [redacted]	Terra V. Well No. 1	Terra V. Well No. 2
0.53 NTU	8.82 NTU	3.03 NTU	27.7 NTU	2.67 NTU
6.26 pH @ 13.2 C	173 uS @ 12.5 C	225 uS @ 13.8 C	354 uS @ 13.2 C	324 uS @ 13.8 C
436 uS @ 12.4 C	8.15 pH @ 12.5 C	9.11 pH @ 14.1 C	7.73 pH @ 13.1 C	8.55 pH @ 14.3 C

BSK Associates SR-FL-0002-20

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Sample Integrity

BSK Bottles: (Yes) No Page 1 of 2

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) NA Yes No NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes (No) NA

Bottles Received

"-" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?	1-3	4	5	6	7-8
Bacti $Na_2S_2O_3$	—	—	1				1
None (P) White Cap	—	—	2C				2C
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	(P) F	1A				1A
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	4C/1B				4C/1B
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	(P) F	1A				1A
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	2C 1B				2C/1B
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	3V	2V,TB			3V
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	2C				2C
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	1A				1A
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	1C				1C
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—	1A				1A
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	7V		2V/TB		7V
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	(P) F	1V				1V
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V			2V,TB	3V
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	1C				1C
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					3V
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P		Initial & Time		S P			

Labeled by: VH 17:30

Labels Checked by: KMH 17:50

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Comments

Scanned: [signature]

A9L1805 clare4404 11/12/2019

BSK Associates SR-FL-0002-20

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Sample Integrity

BSK Bottles: (Yes) No Page 2 of 2

COC Info

Is temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Are correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	(Yes) No NA	Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes (No) NA (Yes) No NA
Did all bottles arrive unbroken and intact?	(Yes) No	Is sufficient amount of sample received?	(Yes) No
Do all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Has PM been notified of discrepancies? PM: By/Time:	Yes (No) NA

Bottles Received — "-" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks	Passed?					
			9	10	11		
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	2V TB				
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—		2V TB			
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—			2V TB		
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Initial & Time Labeled by: VH 17:30

Labels Checked by: KMH 17:50

✓ Indicates Blanks Received

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Scanned:

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

December 17, 2019 Ceres ID: 13220

BSK Associates
1414 Stanislaus St.
Fresno, CA 93706

The following report contains the results for the two drinking water samples received on November 14, 2019. These samples were analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under your Subcontract Order # A9L1805.

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date	&Time
13220-001	Terra Vi Well No.1 A9L1805-01	11/14/2019	11/12/2019	10:40
13220-002	Terra Vi Well No.2 A9L1805-02	11/14/2019	11/12/2019	11:40

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Method Blank**	**QC Batch #:** 2088	**Date Received:** NA
	Matrix: Drinking Water	**Date Extracted:** 11/26/2019
Project ID: A9L1805	**Sample Size:** 1.000 L	**ZB-5MS Analysis:** 11/26/2019

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 4.35	1.49	5.00		13C-2378-TCDD	88.5	31-137	
					CRS			
					37Cl4-2378-TCDD	64.6	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Ongoing Precision and Recovery**		**Date Received:** NA
	QC Batch #: 2088	**Date Extracted:** 11/26/2019
	Matrix: Drinking Water	**ZB-5MS Analysis:** 11/26/2019
Project ID: A9L1805	**Sample Size:** 1.000 L	

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	7.43	7.3-14.6	13C-2378-TCDD	95.5	25-141
			CRS		
			37Cl4-2378-TCDD	81.4	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: Terra Vi Well No.1 A9L1805-01		
Project ID: A9L1805	**Ceres Sample ID:** 13220-001	**Date Received:** 11/14/2019
	QC Batch #: 2088	**Date Extracted:** 11/26/2019
Date Collected: 11/12/2019	**Matrix:** Drinking Water	**ZB-5MS Analysis:** 11/26/2019
Time Collected: 10:40	**Sample Size:** 1.023 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.30	1.49	4.89		13C-2378-TCDD	95.1	31-137	
					CRS			
					37Cl4-2378-TCDD	75.4	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr. Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: Terra Vi Well No.2 A9L1805-02		
Project ID: A9L1805	**Ceres Sample ID:** 13220-002	**Date Received:** 11/14/2019
	QC Batch #: 2088	**Date Extracted:** 11/26/2019
Date Collected: 11/12/2019	**Matrix:** Drinking Water	**ZB-5MS Analysis:** 11/26/2019
Time Collected: 11:40	**Sample Size:** 1.019 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.15	1.49	4.91		13C-2378-TCDD	89.9	31-137	
					CRS			
					37Cl4-2378-TCDD	75.8	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

A9L1805

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

Ceres Analytical Laboratory, Inc
4919 Windplay Drive, Suite 1
El Dorado Hills, CA 95762
Phone :(916) 932-5011
Fax: -
Turnaround (Days): 20
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9L1805-01	**Terra Vi Well No.1**	**Client Matrix** Drinking Water	**11/12/2019 10:40**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Report from original data for A9K0979-07	
A9L1805-02	**Terra Vi Well No.2**	**Client Matrix** Drinking Water	**11/12/2019 11:40**
Lab Matrix:	Water		
	Analysis:		
	EXT-Dioxin-DW matrix, EPA 1613 2,3,7,8-TCDD	Report from original data for A9K0979-08	

Released By	Date	Received By	Date
Released By	Date	Received By	Date

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322000428
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Elaine M. Phillips
BSK Analytical Laboratories
1414 Stanislaus Street
Fresno, CA 93706

Phone: (559) 497-2888
Fax:
Received: 11/13/2019
Analyzed: 11/25/2019

Proj: A9L1805

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID / Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS: Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
								MFL (million fibers per liter)	
A9L1805-01 322000428-0001	11/21/2019 12:20 PM	5	1288	0.2600	None Detected	ND	0.99	<0.99	0.00 - 3.70
Collection Date/Time:	*11/12/2019 10:40 AM*								
Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.									
A9L1805-02 322000428-0002	11/21/2019 12:20 PM	30	1288	0.2210	None Detected	ND	0.19	<0.19	0.00 - 0.72
Collection Date/Time:	*11/12/2019 11:40 AM*								

Both samples ozonated prior to analysis due to lab filtration time exceeding 48hr method hold time.

Samples A9K0979-07 and A9K0979-08 separated from Order #321924383 are reported as A9L1805-01 and A9L1805-02 on this new report as per client request.

Analyst(s)
Sherrie Ahmad (2)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/10/2020 13:19:06

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested. This report may not be reproduced, except in full, without written permission by LA Testing. Samples received in good condition unless otherwise noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

BSK ASSOCIATES

SUBCONTRACT ORDER

A9L1805

#322000428

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Elaine M. Phillips
E-mail: ephillips@bskassociates.com

RECEIVING LABORATORY:

L A Testing
520 Mission St.
South Pasadena, CA 91030
Phone :(800) 303-0047
Fax: (323) 254-9982
Turnaround (Days): 20
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments	Sample Date
A9L1805-01	Terra Vi Well No.1	Client Matrix Drinking Water	11/12/2019 10:40
Lab Matrix:	Water		
	Analysis:		
	EXT-Asbestos, Drinking Water by EPA 100.2	Report from original data for A9K0979-07	
A9L1805-02	Terra Vi Well No.2	Client Matrix Drinking Water	11/12/2019 11:40
Lab Matrix:	Water		
	Analysis:		
	EXT-Asbestos, Drinking Water by EPA 100.2	Report from original data for A9K0979-08	

Released By	Date	Received By	Date
		Omaciscruz	12/17/19 1452 (emailed)
Released By	Date	Received By	Date

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917176
Customer : 2-22939

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
Terra Vi Well No. 1	11/11/2019	11/14/2019	SP 1917176-001	DW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	11/26/2019:218512 All analysis quality controls are within established criteria
	11/19/2019:213335 All preparation quality controls are within established criteria
903.0	11/21/2019:218263 All analysis quality controls are within established criteria
	11/14/2019:213183 All preparation quality controls are within established criteria
Ra - 05	12/02/2019:218826 All analysis quality controls are within established criteria
	11/21/2019:213195 All preparation quality controls are within established criteria
SM7500Rn	11/13/2019:217820 All analysis quality controls are within established criteria
	11/13/2019:213125 All preparation quality controls are within established criteria

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853 Corporation Street
Santa Paula, CA 93060
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FAX: (805)783-2912
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9415 W. Goshen Avenue
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TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917176
BSK Associates Engineers & Laboratories Customer : 2-22939

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2019-12-18

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917176-001
Customer ID : 2-22939

Sampled On : November 11, 2019-10:40
Sampled By : Not Available
Received On : November 14, 2019-10:45
Matrix : Drinking Water

Description : Terra Vi Well No. 1
Project : A9K0979-07

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	11.4 ± 1.93	1.49	pCi/L	15/5	900.0	11/19/19-09:01 2P1913335	900.0	11/26/19-15:46 2A1918512
Radon-222	1770 ± 54.9	19.0	pCi/L		SM7500Rn	11/13/19-16:00 2P1913125	SM7500Rn	11/13/19-21:48 2A1917820
Total Alpha Radium (226)	0.081 ± 0.125	0.362	pCi/L	3	903.0	11/14/19-18:00 2P1913183	903.0	11/21/19-08:27 2A1918263
Ra 228	0.041 ± 0.702	0.506	pCi/L	2	Ra - 05	11/21/19-18:30 2P1913195	Ra - 05	12/02/19-19:30 2A1918826

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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CA ELAP Certification No. 2810

December 17, 2019 Lab ID : SP 1917176
BSK Associates Engineers & Laboratories Customer : 2-22939

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	11/26/19:218512JCA	CCV	cpm	8120	40.1 %	35-47	
			CCB	cpm		0.1400	0.16	
Gross Alpha	900.0	11/19/19:213335IWC	Blank	pCi/L		0.63	3	
			LCS	pCi/L	155.2	94.8 %	75-125	
			MS	pCi/L	155.2	115 %	60-140	
		(VI 1946767-001)	MSD	pCi/L	155.2	111 %	60-140	
			MSRPD	pCi/L	155.2	3.1%	≤30	
Alpha	903.0	11/21/19:218263JCA	CCV	cpm	8123	39.4 %	37-46	
			CCB	cpm		0.1400	0.16	
Total Alpha Radium (226)	903.0	11/14/19:213183emv	RgBlk	pCi/L		0.03	2	
			LCS	pCi/L	23.33	57.7 %	52-107	
			BS	pCi/L	23.33	58.4 %	43-111	
			BSD	pCi/L	23.33	59.5 %	43-111	
			BSRPD	pCi/L	23.33	1.9%	≤35.5	
Beta	Ra - 05	12/02/19:218826emv	CCV	cpm	8116	89.1 %	84-94	
			CCB	cpm		0.4600	0.58	
Ra 228	Ra - 05	11/21/19:213195emv	RgBlk	pCi/L		-0.03	3	
			LRS	pCi/L	14.13	69.9 %	65-108	
			BS	pCi/L	14.13	93.8 %	75-125	
			BSD	pCi/L	14.13	92.0 %	75-125	
			BSRPD	pCi/L	14.13	0.25	≤3	
Radon	SM7500Rn	(SP 1917176-001)	Dup	pCi/L		14.2%	25	
	SM7500Rn	11/13/19:217820jca	CCV	pCi/L	2581	95.3 %	90-110	
			CCB	pCi/L		-6.9	20	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

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TEL: (559)734-9473
FAX:
CA ELAP Certification No. 2810

Chain of Custody

Map Re

Client: **BSK Associates**

Address: BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Phone: (559)497-2888 Xt116 Fax: (559)485-69356132442

Contact Person: Adam Trevarrow

Project Name: **A9K0979-07**

Purchase Order Number:

Sampler(s) Not Available

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **SP 1917176** 2-22939

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Radio Chemistry-Gross Alpha,Total Radium 226,Ra 228 32oz(P)-HNO3 , 32oz(P)-HNO3	Radio Chemistry-Radon 32oz(P)								
1	Terra Vi Well No. 1	11/11/19	10:40	G	DW				2,1	1								

Remarks:
Original COC #1915352

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
OnTrac								
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:
Shawn Peck	11/14/19	10:45						

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917177
Customer : 2-22939

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
Terra Vi Well No. 2	11/11/2019	11/14/2019	SP 1917177-001	DW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	11/26/2019:218506 All analysis quality controls are within established criteria
	11/19/2019:213335 All preparation quality controls are within established criteria
903.0	11/21/2019:218263 All analysis quality controls are within established criteria
	11/14/2019:213183 All preparation quality controls are within established criteria
Ra - 05	12/02/2019:218827 All analysis quality controls are within established criteria
	11/21/2019:213195 All preparation quality controls are within established criteria
SM7500Rn	11/13/2019:217820 All analysis quality controls are within established criteria
	11/13/2019:213125 All preparation quality controls are within established criteria

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December 17, 2019 Lab ID : SP 1917177
BSK Associates Engineers & Laboratories Customer : 2-22939

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2019-12-18

December 17, 2019

BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Lab ID : SP 1917177-001
Customer ID : 2-22939

Sampled On : November 11, 2019-11:40
Sampled By : Not Available
Received On : November 14, 2019-10:45
Matrix : Drinking Water

Description : Terra Vi Well No. 2
Project : A9K0979-08

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry								
Gross Alpha	6.30 ± 1.52	1.35	pCi/L	15/5	900.0	11/19/19-09:02 2P1913335	900.0	11/26/19-15:19 2A1918506
Radon-222	1830 ± 52.4	16.9	pCi/L		SM7500Rn	11/13/19-16:00 2P1913125	SM7500Rn	11/13/19-22:40 2A1917820
Total Alpha Radium (226)	0.000 ± 0.079	0.362	pCi/L	3	903.0	11/14/19-18:00 2P1913183	903.0	11/21/19-08:27 2A1918263
Ra 228	0.461 ± 0.832	0.411	pCi/L	2	Ra - 05	11/21/19-18:30 2P1913195	Ra - 05	12/02/19-19:50 2A1918827

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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December 17, 2019 Lab ID : SP 1917177
BSK Associates Engineers & Laboratories Customer : 2-22939

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	11/26/19:218506JCA	CCV	cpm	8120	40.0 %	35-47	
			CCB	cpm		0.0400	0.17	
Gross Alpha	900.0	11/19/19:213335IWC	Blank	pCi/L		0.63	3	
			LCS	pCi/L	155.2	94.8 %	75-125	
			MS	pCi/L	155.2	115 %	60-140	
		(VI 1946767-001)	MSD	pCi/L	155.2	111 %	60-140	
			MSRPD	pCi/L	155.2	3.1%	≤30	
Alpha	903.0	11/21/19:218263JCA	CCV	cpm	8123	39.4 %	37-46	
			CCB	cpm		0.1400	0.16	
Total Alpha Radium (226)	903.0	11/14/19:213183emv	RgBlk	pCi/L		0.03	2	
			LCS	pCi/L	23.33	57.7 %	52-107	
			BS	pCi/L	23.33	58.4 %	43-111	
			BSD	pCi/L	23.33	59.5 %	43-111	
			BSRPD	pCi/L	23.33	1.9%	≤35.5	
Beta	Ra - 05	12/02/19:218827emv	CCV	cpm	8116	89.7 %	84-94	
			CCB	cpm		0.4400	0.51	
Ra 228	Ra - 05	11/21/19:213195emv	RgBlk	pCi/L		-0.03	3	
			LRS	pCi/L	14.13	69.9 %	65-108	
			BS	pCi/L	14.13	93.8 %	75-125	
			BSD	pCi/L	14.13	92.0 %	75-125	
			BSRPD	pCi/L	14.13	0.25	≤3	
Radon	SM7500Rn	(SP 1917176-001)	Dup	pCi/L		14.2%	25	
	SM7500Rn	11/13/19:217820jca	CCV	pCi/L	2581	95.3 %	90-110	
			CCB	pCi/L		-6.9	20	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Corporate Offices & Laboratory
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Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
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Office & Laboratory
2500 Stagecoach Road
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TEL: (209)942-0182
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CA ELAP Certification No. 1563

Office & Laboratory
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TEL: (530)343-5818
FAX: (530)343-3807
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Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX:
CA ELAP Certification No. 2810

Chain of Custody

Map Re

Client: **BSK Associates**

Address: BSK Associates Engineers & Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Phone: (559)497-2888 Xt116 Fax: (559)485-69356132442

Contact Person: Adam Trevarrow

Project Name: **A9K0979-08**

Purchase Order Number:

Sampler(s) Not Available

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **SP 1917177** 2-22939

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Radio Chemistry-Gross Alpha,Total Radium 226,Ra 228 32oz(P)-HNO3 , 32oz(P)-HNO3	Radio Chemistry-Radon 32oz(P)								
1	Terra Vi Well No. 2	11/11/19	11:40	G	DW				2,1	1								

Remarks:
Original COC #1915352

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
OnTrac								
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:
Shawn Peck	11/14/19	10:45						

ATTACHMENT C

State Water Resources Control Board (July 2016 Version) -

Procedure To Determine Source Capacity

GEOSCIENCE

WELLS LOCATED IN ALLUVIAL SOILS

To determine the capacity of a well drilled in alluvial soils when there is no existing data to determine the capacity, a water system shall complete a constant discharge (pumping rate) well capacity test and determine the capacity as follows:

(1) Take an initial water level measurement (static water level) and then pump the well continuously for a minimum of eight hours, maintaining the pump discharge rate proposed in subsection (2);

(2) While pumping the well, take measurements of the water level drawdown and pump discharge rates for a minimum of eight hours at a frequency no less than every hour;

(3) Plot the drawdown data versus the time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithm axis and the drawdown data on the vertical axis;

(4) Steady-state is indicated if the last four hours of drawdown measurements and the elapsed time yield a straight line in the plot developed pursuant to subsection (3). If steady-state is not achieved, the pump discharge rate shall be continued for a longer period of time or adjusted, with paragraphs (2) and (3) above repeated, until steady-state is achieved.

(5) Discontinue pumping and take measurements of the water level drawdown no less frequently than every 15 minutes for the first two hours and every hour thereafter for at least six hours or until the test is complete; and

(6) To complete the test, the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent.

(7) The capacity of the well shall be the pump discharge rate determined by a completed test.

WELLS LOCATED IN FRACTURED ROCK (HARD ROCK WELLS)

The capacity of a well whose primary production is from a bedrock formation, such that the water produced is yielded by secondary permeability features (e.g. fractures or cracks), shall be determined pursuant to either paragraph (1) or (2) below.

(1) The public water system shall submit a report, for Department review and approval, proposing a well capacity based on well tests and the evaluation and management of the aquifer from which the well draws water. The report shall be prepared and signed by a California registered geologist with at least three years of experience with groundwater hydrology, a California licensed engineer with at least five years of experience with groundwater hydrology, or a California certified hydrogeologist. Acceptance of the proposed well capacity by the Department shall, at a minimum, be based on the Department's review and

approval of the following information presented in the report in support of the proposed well capacity:

(A) The rationale for the selected well test method and the results;

(B) The geological environment of the well;

(C) The historical use of the aquifer;

(D) Data from monitoring of other local wells;

(E) A description of the health risks of contaminants identified in a Source Water Assessment, as defined in section 63000.84 of Title 22, and the likelihood of such contaminants being present in the well's discharge;

(F) Impacts on the quantity and quality of the groundwater;

(G) How adjustments were made to the estimated capacity based on drawdown, length of the well test, results of the wells test, discharge options, and seasonal variations and expected use of the well; and

(H) The well test(s) results and capacity analysis.

(2) During the months of August, September, or October, conduct either a 72-hour well capacity test or a 10-day well capacity test, and determine the well capacity using the following procedures:

(A) **Procedures for a 72 hour well capacity test:**

1. For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection (e)(2) for no more than two hours, then discontinue pumping;

2. Measure and record the static water level and then pump the well continuously for a minimum of 72 hours starting at the pump discharge rate proposed in (e)(2);

3. Measure and record water drawdown levels and pump discharge rate:

   a. Every thirty minutes during the first four hours of pumping,

   b. Every hour for the next four hours, and

   c. Every four hours thereafter until the water drawdown level is constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

(B) **Procedures for a 10 day well capacity test:**

1. For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection ((2) for no more than two hours, then discontinue pumping;

2. Measure and record the static water level and then pump the well continuously for a minimum of 10 days starting at the pump discharge rate proposed in (2);

3. Measure and record water drawdown levels and pumping rate:

    a. Every thirty minutes during the first four hours of pumping,

    b. Every hour for the next four hours,

    c. Every eight hours for the remainder of the first four days,

    d. Every 24 hours for the next five days, and

    e. Every four hours thereafter until the water drawdown level is constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

(C) To complete either the 72-hour or 10-day well capacity test the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the well capacity test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent. If the well recovery does not meet these criteria, the well capacity cannot be determined pursuant to subsection (g)(2) using the proposed pump rate. To demonstrate meeting the recovery criteria, the following water level data in the well shall be measured, recorded, and compared with the criteria:

    1. Every 30 minutes during the first four hours after pumping stops,

    2. Hourly for the next eight hours, and

    3. Every 12 hours until either the water level in the well recovers to within two feet of the static water level measured at the beginning of the well capacity test or to a at least ninety-five percent of the total drawdown measured during the test, whichever occurs first.

(D) Following completion of a 72-hour or 10-day well capacity test, the well shall be assigned a capacity no more than:

1. For a 72-hour test, 25 percent of the pumping rate at the end of a completed test's pumping.

2. For a 10-day test, 50 percent of the pumping rate at the end a completed test's pumping.

The public water system shall submit a report to the Department that includes all data and observations associated with a well capacity test conducted pursuant to the procedure(s) described above, as well as the estimated capacity determination methods and calculations. The data collected during pumping and recovery phases of the well capacity tests shall be submitted in an electronic spreadsheet format in both tabular and graphic files.

ATTACHMENT D

Aquifer Pumping Test Data

GEOSCIENCE

GEOSCIENCE

GEOSCIENCE Support Services, Inc.
P.O. Box 220, Claremont, CA 91711
Tel: (909) 451-6650 Fax: (909) 451-6638
www.gssiwater.com

PUMPING TEST DATA

Test Date: October 23, 2019

Well Name: Terra Vi Well No. 1

Circle Well Type: (Pumping) Observation (r = ft)

Circle Test Type: Step Drawdown (Constant Rate) Recovery Development

Static Water Level Depth: 66.75 ft bgs Reference Point Elevation: 2.29 ft ags

Date and Time	Time Total [min]	Transducer Submergence [ft]	Draw-down [ft]	Pumping Rate [gpm]	Totalizer [gal]	Remarks and Other Data
10/23/19 15:04	0	581.06	0.00	0	387	
10/23/19 15:06	2	520.21	60.85	0	387	
10/23/19 15:08	4	543.26	37.80	17	420	
10/23/19 15:10	6	540.57	40.49	13	445	
10/23/19 15:12	8	538.08	42.98	52	549	
10/23/19 15:14	10	536.23	44.83	71	690	
10/23/19 15:19	15	534.25	46.81	35	867	
10/23/19 15:24	20	532.50	48.56	65	1,190	
10/23/19 15:29	25	530.87	50.19	-	-	Incorrect totalizer reading.
10/23/19 15:34	30	529.10	51.96	13	1,320	
10/23/19 15:44	40	525.18	55.88	31	1,628	
10/23/19 15:54	50	522.16	58.90	31	1,938	
10/23/19 16:04	60	519.23	61.83	30	2,242	
10/23/19 16:19	75	514.90	66.16	31	2,700	
10/23/19 16:34	90	511.47	69.59	31	3,163	
10/23/19 16:49	105	508.60	72.46	30	3,611	
10/23/19 17:04	120	505.83	75.23	30	4,060	
10/23/19 17:34	150	500.92	80.14	30	4,950	
10/23/19 18:04	180	496.26	84.80	30	5,838	
10/23/19 18:34	210	492.59	88.47	29	6,720	
10/23/19 19:04	240	488.84	92.22	26	7,504	
10/23/19 20:09	305	482.23	98.83	31	9,546	
10/23/19 21:04	360	477.09	103.97	28	11,114	
10/23/19 22:04	420	474.12	106.94	29	12,884	
10/23/19 23:04	480	471.30	109.76	29	14,617	
10/24/19 7:00	956	456.96	124.10	28	28,161	
10/24/19 8:30	1,046	455.33	125.73	28	30,688	
10/24/19 9:34	1,110	454.37	126.69	28	32,482	
10/24/19 10:30	1,166	453.59	127.47	29	34,110	
10/24/19 12:18	1,274	448.84	132.22	74	42,060	
10/24/19 17:18	1,574	448.02	133.04	11	45,302	
10/24/19 20:18	1,754	446.50	134.56	27	50,155	
10/24/19 22:39	1,895	444.53	136.53	27	53,920	
10/25/19 7:55	2,451	440.56	140.50	27	68,779	
10/25/19 10:05	2,581	439.72	141.34	26	72,201	
10/25/19 11:04	2,640	439.46	141.60	27	73,794	
10/25/19 12:20	2,716	439.74	141.32	27	75,827	
10/25/19 13:09	2,765	439.94	141.12	27	77,142	
10/25/19 15:37	2,913	440.73	140.33	27	81,131	
10/25/19 17:37	3,033	440.01	141.05	28	84,464	
10/25/19 19:37	3,153	440.05	141.01	27	87,698	
10/25/19 21:37	3,273	439.75	141.31	26	90,868	

GEOSCIENCE

GEOSCIENCE Support Services, Inc.
P.O. Box 220, Claremont, CA 91711
Tel: (909) 451-6650 Fax: (909) 451-6638
www.gssiwater.com

PUMPING TEST DATA

Test Date: October 23, 2019

Well Name: Terra Vi Well No. 1

Circle Well Type: (Pumping) Observation (r = ft)

Circle Test Type: Step Drawdown (Constant Rate) Recovery Development

Static Water Level Depth: 66.75 ft bgs Reference Point Elevation: 2.29 ft ags

Date and Time	Time Total [min]	Transducer Submergence [ft]	Draw-down [ft]	Pumping Rate [gpm]	Totalizer [gal]	Remarks and Other Data
10/26/19 5:22	3,738	440.60	140.46	33	106,360	
10/26/19 9:20	3,976	440.80	140.26	17	110,312	
10/26/19 11:20	4,096	440.90	140.16	27	113,519	
10/26/19 13:20	4,216	441.18	139.88	28	116,831	
10/26/19 15:20	4,336	441.27	139.79	27	120,092	
10/26/19 18:05	4,501	441.60	139.46	27	124,600	
10/26/19 21:00	4,676	441.96	139.10	27	129,371	
10/27/19 5:32	5,188	442.88	138.18	27	143,170	
10/27/19 8:34	5,370	443.58	137.48	28	148,181	
10/27/19 10:32	5,488	443.81	137.25	25	151,172	
10/27/19 12:31	5,607	444.17	136.89	26	154,299	
10/27/19 15:36	5,792	444.11	136.95	27	159,227	
10/27/19 17:35	5,911	444.46	136.60	26	162,361	
10/27/19 20:25	6,081	444.53	136.53	26	166,862	
10/28/19 5:30	6,626	444.34	136.72	26	181,182	
10/28/19 7:48	6,764	444.66	136.40	27	184,856	
10/28/19 10:08	6,904	444.35	136.71	26	188,542	
10/28/19 13:05	7,081	444.08	136.98	26	193,195	
10/28/19 16:11	7,267	444.08	136.98	26	198,097	
10/28/19 20:19	7,515	438.64	142.42	26	204,592	Increased flow rate at 18:55.
10/28/19 21:38	7,594	436.69	144.37	26	206,659	
10/28/19 22:18	7,634	436.60	144.46	25	207,658	
10/29/19 7:39	8,195	434.30	146.76	26	222,034	
10/29/19 8:06	8,222	434.10	146.96	27	222,768	
10/29/19 8:33	8,249	433.84	147.22	26	223,467	
10/29/19 9:34	8,310	433.01	148.05	26	225,035	
10/29/19 10:17	8,353	433.56	147.50	26	226,138	
10/29/19 13:50	8,566	433.30	147.76	26	231,597	
10/29/19 16:07	8,703	433.67	147.39	25	235,055	
10/29/19 16:40	8,736	425.83	155.23	27	235,940	Increased flow rate.
10/29/19 16:45	8,741	425.45	155.61	24	236,060	
10/29/19 16:50	8,746	425.42	155.64	32	236,219	
10/29/19 16:55	8,751	425.94	155.12	50	236,468	
10/29/19 17:00	8,756	426.00	155.06	7	236,503	
10/29/19 17:05	8,761	425.78	155.28	31	236,659	
10/29/19 17:10	8,766	425.93	155.13	27	236,792	
10/29/19 17:20	8,776	425.59	155.47	31	237,097	
10/29/19 17:30	8,786	425.35	155.71	38	237,475	
10/29/19 17:40	8,796	424.93	156.13	19	237,667	
10/29/19 17:50	8,806	424.70	156.36	30	237,963	
10/29/19 18:00	8,816	424.75	156.31	28	238,248	
10/29/19 18:15	8,831	424.46	156.6	30	238,703	

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PUMPING TEST DATA

Test Date: October 23, 2019

Well Name: Terra Vi Well No. 1

Circle Well Type: (Pumping) Observation (r = ft)

Circle Test Type: Step Drawdown (Constant Rate) Recovery Development

Static Water Level Depth: 66.75 ft bgs Reference Point Elevation: 2.29 ft ags

Date and Time	Time Total [min]	Transducer Submergence [ft]	Draw-down [ft]	Pumping Rate [gpm]	Totalizer [gal]	Remarks and Other Data
10/29/19 18:30	8,846	424.16	156.9	28	239,121	
10/29/19 18:45	8,861	423.76	157.3	30	239,578	
10/29/19 19:00	8,876	423.58	157.48	27	239,990	
10/29/19 19:30	8,906	423.25	157.81	29	240,864	
10/29/19 20:00	8,936	422.75	158.31	29	241,733	
10/29/19 20:30	8,966	422.80	158.26	30	242,636	
10/30/19 6:31	9,567	421.44	159.62	29	260,000	
10/30/19 7:45	9,641	421.59	159.47	28	262,084	
10/30/19 10:45	9,821	421.87	159.19	29	267,255	
10/30/19 13:06	9,962	422.12	158.94	29	271,295	
10/30/19 15:35	10,111	421.39	159.67	28	275,435	
10/30/19 17:55	10,251	422.91	158.15	29	279,554	
10/30/19 20:24	10,400	423.54	157.52	28	283,742	
10/31/19 6:22	10,998	425.27	155.79	28	300,574	
10/31/19 8:08	11,104	425.41	155.65	28	303,551	
10/31/19 11:20	11,296	425.17	155.89	32	309,747	
10/31/19 14:16	11,472	425.88	155.18	23	313,863	
10/31/19 16:53	11,629	426.58	154.48	28	318,248	
10/31/19 18:33	11,729	426.88	154.18	28	321,093	
10/31/19 20:27	11,843	426.61	154.45	27	324,225	
11/1/19 6:58	12,474	427.29	153.77	28	341,637	
11/2/19 15:30	14,426	425.82	155.24	28	395,678	Pump off.
						Q_{avg} = 27.4 gpm; Q/s = 0.18 gpm/ft

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P.O. Box 220, Claremont, CA 91711
Tel: (909) 451-6650 Fax: (909) 451-6638
www.gssiwater.com

PUMPING TEST DATA

Test Date: October 23, 2019

Well Name: Terra Vi Well No. 2

Circle Well Type: (Pumping) Observation (r = ft)

Circle Test Type: Step Drawdown (Constant Rate) Recovery Development

Static Water Level Depth: 41.63 ft bgs Reference Point Elevation: 2.43 ft ags

Date and Time	Time Total [min]	Transducer Submergence [ft]	Draw-down [ft]	Pumping Rate [gpm]	Totalizer [gal]	Remarks and Other Data
10/23/19 15:00	0	517.85	0.00	0	444	
10/23/19 15:02	2	477.76	40.09	47	539	
10/23/19 15:04	4	465.01	52.84	53	644	
10/23/19 15:06	6	461.08	56.77	38	720	
10/23/19 15:08	8	460.26	57.59	32	784	
10/23/19 15:10	10	464.73	53.12	35	855	
10/23/19 15:15	15	468.08	49.77	47	1,089	
10/23/19 15:20	20	467.81	50.04	-	-	Incorrect totalizer reading.
10/23/19 15:25	25	466.13	51.72	-	-	Incorrect totalizer reading.
10/23/19 15:30	30	465.00	52.85	26	1,370	
10/23/19 15:40	40	461.68	56.17	24	1,614	
10/23/19 15:50	50	457.61	60.24	26	1,878	
10/23/19 16:00	60	454.35	63.50	25	2,125	
10/23/19 16:15	75	449.54	68.31	25	2,493	
10/23/19 16:30	90	446.01	71.84	25	2,863	
10/23/19 16:45	105	441.93	75.92	25	3,232	
10/23/19 17:00	120	438.41	79.44	25	3,604	
10/23/19 17:30	150	433.30	84.55	25	4,346	
10/23/19 18:00	180	428.62	89.23	24	5,075	
10/23/19 18:30	210	424.63	93.22	24	5,809	
10/23/19 19:00	240	-	-	24	6,536	
10/23/19 20:00	300	414.45	103.40	24	8,004	
10/23/19 21:00	360	410.05	107.80	24	9,444	
10/23/19 22:00	420	405.87	111.98	24	10,901	
10/23/19 23:00	480	402.57	115.28	-	-	Incorrect totalizer reading.
10/24/19 17:24	1,584	380.28	137.57	24	38,341	
10/24/19 20:24	1,762	378.52	139.33	24	42,527	
10/24/19 22:44	1,904	376.78	141.07	23	45,848	
10/25/19 8:02	2,462	373.44	144.41	23	58,845	
10/25/19 10:15	2,595	372.36	145.49	23	61,938	
10/25/19 11:00	2,640	372.39	145.46	25	63,042	
10/25/19 12:24	2,724	372.48	145.37	23	64,952	
10/25/19 13:20	2,780	372.77	145.08	24	66,269	
10/25/19 15:42	2,922	373.46	144.39	24	69,613	
10/25/19 17:44	3,044	373.50	144.35	23	72,465	
10/25/19 19:43	3,163	373.49	144.36	23	75,248	
10/25/19 21:38	3,278	373.41	144.44	22	77,813	
10/26/19 5:42	3,762	374.20	143.65	23	89,173	
10/26/19 9:28	3,988	374.36	143.49	23	94,475	
10/26/19 11:28	4,108	374.25	143.60	23	97,196	
10/26/19 13:24	4,224	374.43	143.42	25	100,130	
10/26/19 15:26	4,346	374.61	143.24	22	102,848	

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GEOSCIENCE Support Services, Inc.
P.O. Box 220, Claremont, CA 91711
Tel: (909) 451-6650 Fax: (909) 451-6638
www.gssiwater.com

PUMPING TEST DATA

Test Date: October 23, 2019

Well Name: Terra Vi Well No. 2

Circle Well Type: (Pumping) Observation (r = ft)

Circle Test Type: Step Drawdown (Constant Rate) Recovery Development

Static Water Level Depth: 41.63 ft bgs Reference Point Elevation: 2.43 ft ags

Date and Time	Time Total [min]	Transducer Submergence [ft]	Draw-down [ft]	Pumping Rate [gpm]	Totalizer [gal]	Remarks and Other Data
10/26/19 18:10	4,510	374.74	143.11	23	106,684	
10/26/19 21:04	4,684	374.91	142.94	23	110,773	
10/27/19 5:39	5,199	375.06	142.79	23	122,866	
10/27/19 8:34	5,374	375.17	142.68	24	127,010	
10/27/19 10:39	5,499	375.96	141.89	24	129,968	
10/27/19 12:35	5,615	376.26	141.59	23	132,673	
10/27/19 15:44	5,804	376.50	141.35	23	137,072	
10/27/19 17:40	5,920	376.54	141.31	23	139,795	
10/27/19 20:30	6,090	376.49	141.36	24	143,829	
10/28/19 5:35	6,635	375.87	141.98	-	-	Incorrect totalizer reading.
10/28/19 7:54	6,774	375.80	142.05	-	-	Incorrect totalizer reading.
10/28/19 10:29	6,929	375.70	142.15	24	163,725	
10/28/19 12:52	7,072	375.46	142.39	24	167,095	
10/28/19 16:16	7,276	375.43	142.42	22	171,580	
10/28/19 18:40	7,420	375.02	142.83	26	175,379	
10/28/19 18:55	7,435	366.10	151.75	24	175,732	Increased flow rate.
10/28/19 19:00	7,440	365.27	152.58	31	175,887	
10/28/19 19:05	7,445	364.79	153.06	27	176,023	
10/28/19 19:10	7,450	364.49	153.36	29	176,167	
10/28/19 19:15	7,455	364.15	153.70	29	176,310	
10/28/19 19:20	7,460	364.04	153.81	28	176,452	
10/28/19 19:25	7,465	363.72	154.13	28	176,594	
10/28/19 19:35	7,475	363.39	154.46	28	176,878	
10/28/19 19:45	7,485	363.12	154.73	28	177,163	
10/28/19 19:55	7,495	362.52	155.33	28	177,446	
10/28/19 20:15	7,515	362.07	155.78	33	178,114	
10/28/19 20:30	7,530	361.54	156.31	25	178,486	
10/28/19 20:45	7,545	361.12	156.73	25	178,862	
10/28/19 21:00	7,560	360.83	157.02	28	179,286	
10/28/19 21:30	7,590	360.31	157.54	28	180,136	
10/28/19 22:00	7,620	359.83	158.02	32	181,082	
10/29/19 7:31	8,191	357.35	160.50	28	197,029	
10/29/19 8:16	8,236	357.12	160.73	28	198,276	
10/29/19 9:28	8,308	357.01	160.84	29	200,328	
10/29/19 10:10	8,350	356.66	161.19	27	201,473	
10/29/19 13:46	8,566	357.18	160.67	28	207,495	
10/29/19 16:12	8,712	357.29	160.56	28	211,530	
10/29/19 18:07	8,827	353.41	164.44	28	214,695	
10/29/19 19:21	8,901	352.35	165.50	28	216,765	
10/29/19 20:35	8,975	351.86	165.99	27	218,795	
10/30/19 6:40	9,580	350.01	167.84	28	235,461	
10/30/19 7:58	9,658	350.37	167.48	27	237,581	

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PUMPING TEST DATA

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Well Name: Terra Vi Well No. 2

Circle Well Type: (Pumping) Observation (r = ft)

Circle Test Type: Step Drawdown (Constant Rate) Recovery Development

Static Water Level Depth: 41.63 ft bgs Reference Point Elevation: 2.43 ft ags

Date and Time	Time Total [min]	Transducer Submergence [ft]	Draw-down [ft]	Pumping Rate [gpm]	Totalizer [gal]	Remarks and Other Data
10/30/19 10:58	9,838	350.21	167.64	28	242,574	
10/30/19 13:16	9,976	350.01	167.84	28	246,395	
10/30/19 15:43	10,123	349.84	168.01	27	250,435	
10/30/19 18:13	10,273	350.60	167.25	28	254,561	
10/30/19 20:32	10,412	351.47	166.38	27	258,363	
10/31/19 6:36	11,016	352.56	165.29	27	274,713	
10/31/19 8:15	11,115	352.78	165.07	28	277,528	
10/31/19 11:45	11,325	352.96	164.89	28	283,386	
10/31/19 14:21	11,481	253.23	264.62	26	287,470	
10/31/19 17:00	11,640	353.52	164.33	27	291,774	
10/31/19 18:39	11,739	353.73	164.12	27	294,444	
10/31/19 20:34	11,854	353.67	164.18	27	297,561	
11/1/19 7:02	12,482	354.29	163.56	27	314,600	
11/2/19 15:30	14,430	352.46	165.39	27	366,750	Pump Off.
						Q_{avg} = 25.4 gpm; Q/s = 0.15 gpm/ft

ATTACHMENT E

Cal Green Baseline Water Use – Revised Calculation Sheet

GEOSCIENCE

SHAMIM ENGINEERING CONSULTANTS, INC.

5847 Wilbur Ave., Tarzana, CA 91356
Tel: (818) 788-6778
www.Shamimengineering.com

To: Hansji Corporation 3/30/20
John Bissell

Re: Terra Vi Lodge Yosemite
Yosemite, CA 95321

The Terra Vi Lodge project consist of a mixed-use lodge with 100 studio-type guest rooms, 26 studio-type cabins and five 4-bedroom employee housing structures.

1. Total water fixture units for dwelling units = 1,027.5 Fixture Units (Per Plumbing Code)
2. Total domestic water usage for the dwelling units = 212 GPM (Per Plumbing Code)

4. We have 126 rooms consisting of 100 studio-type guest rooms and 26 studio type cabins with 1-bathroom each. There are also five 4-bedroom employees housing structures with 2-bathrooms and a kitchenette each. We are assuming the dwelling units have a 50/50 mix of female and male occupants.

   (100) Studio-type rooms: 2 occupants per unit = 200 occupants
   (26) Studio-type cabins: 2 occupants per units = 52 occupants
   (5) 4-bedroom employee housing: 4 occupants per structure = 20 occupants

   Total building occupants = 272 (Assume 136 Male and 136 Female occupants)

5. Typically, a hotel occupancy uses 152 GPD usage per dwelling unit:

   131 units x 152 GPD = 19,912 GPD usage for the dwelling units

6. Per the CalGreen Baseline Water Use (WS-1) workbook the water usage of the residential dwelling units is **5,437.12 GPD** (see attached)

7. If you assume standard minimum efficiency code compliant fixtures per the Plumbing Code and CalGreen the water usage will be reduced by 16.45% from the Baseline calculations to **4,542.72 GPD**. The flowrates of the plumbing fixtures are listed below:
   a. Showerhead faucet with flowrate 1.6 GPM
   b. Lavatory faucet with flowrate of 1.2 GPM
   c. Kitchen faucet flowrate of 1.5 GPM
   d. Water closet is 1.28 GPF

   Based on this calculation you can reduce the 19,912 GPD figure by 16.45% to **16,636.4 GPD** total water usage for the dwelling units or **126.9 GPD/DU**
   (see attached WS-2 workbook calculation for percent water reduction)

8. Ownership has water utility data from other facilities they operate that have minimum efficiency code compliant fixtures to show that the water usage is lower than the calculated figure above.

If you have any questions or concerns, please feel free to contact me.

Sincerely yours,

Kevin Shamim

WORKSHEET (WS-1)
BASELINE WATER USE

BASELINE WATER USE CALCULATION TABLE									
FIXTURE TYPE	FLOW RATE		DURATION		DAILY USES		OCCUPANTS		GALLONS PER DAY
Showerheads, residential	2.0 gpm @ 80 psi	x	8 min.	x	1	x	272	=	4,352
Showerheads, nonresidential	2.0 gpm @ 80 psi	x	5 min.	x	1	x		=	
Lavatory faucets, residential	1.2 gpm @ 60 psi	x	0.25 min.	x	3	x	272	=	244.8
Lavatory Faucets nonresidential/ public uses	0.5 gpm @ 60 psi	x	0.25 min	x	3	x		=	
Kitchen faucets	1.8 gpm @ 60psi	x	4 min.	x	1	x	20	=	144
Wash fountains	1.8 gpm/20 [rim space(in) @ 60 psi]	x		x	3	x		=	
Metering faucets, residential	0.25 gallons/cycle	x	0.25 min.	x	3	x		=	
Metering faucets, non-residential	0.20 gallons/cycle	x	0.25 min.	x	3	x		=	
Metering faucets for wash fountains	0.20 gal/cycle/20 [rim space (in.) @ 60 psi]	x	0.25 min.	x	3	x		=	
Water Closets	1.28 gallons/flush	x	1 flush	x	1 male[2] 3 females	x	136M/F	=	696.32
Urinals	0.125 gal/flush	x	1 flush	x	2 males	x		=	
Total daily baseline water use (BWU)								=	5,437.12

1. Refer to Table A, Chapter 4 of the Los Angeles Plumbing Code, for occupant load factors.
   a. Shower use by occupants depends on the type of use of a building or portion of a building, e.g. total occupant load for a health club, but only a fraction of the occupants in an office building as determined by the anticipated number of users.
   b. Kitchen faucet use is determined by occupant load of the area served by the fixture.
2. The daily use number shall be increased to three if urinals are not installed in the room.

Code Minimum Flowrates
16.45% water reduction

WORKSHEET (WS-2)
BASELINE WATER USE

20- PERCENT REDUCTION WATER USE CALCULATION TABLE									
FIXTURE TYPE	FLOW RATE		DURATION		DAILY USES		OCCUPANTS		GALLONS PER DAY
Showerheads, residential	1.6	x	8 min.	x	1	x	272	=	3,481.6
Showerheads, nonresidential		x	5 min.	x	1	x		=	
Lavatory faucets, residential	1.2	x	0.25 min.	x	3	x	272	=	244.8
Lavatory Faucets nonresidential/ public uses		x	0.25 min	x	3	x		=	
Kitchen faucets	1.5	x	4 min.	x	1	x	20	=	120
Wash fountains		x		x	3	x		=	
Metering faucets, residential		x	0.25 min.	x	3	x		=	
Metering faucets, Non-residential		x	0.25 min.	x	3	x		=	
Metering faucets for wash fountains		x	0.25 min.	x	3	x		=	
Water Closets	1.28	x	1 flush	x	1 male[2] 3 females	x	136M/F	=	696.32
Urinals		x	1 flush	x	2 males	x		=	
Urinals Nonwater supplied	0.0 gal/ fllush	x	1 flush	x	2 male	x		=	0
Proposed water use (BWU)								=	4,542.72
20% Reduction _____(BWU from WS-1) x 0.80 = _____ Allowable water use									
16.45 % Reduction 5,437.12 (BWU from WS-1) x 0.8355 = 4,542.72 Allowable water use									

1. For occupancies, refer to Table A, Chapter 4, Los Angeles Plumbing Code, for occupant load factors.
   a. Shower use by occupants depends on the type of use of a building or portion of a building, e.g., total occupant load for a health club, but only a fraction of the occupants in an office building as determined by the anticipated number of users.
   b. Kitchen faucet use is determined by the occupant load of the area served by the fixture.
2. Includes single and dual flush water closets with an effective flush of 1.28 gallons or less.
   Single flush toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.2.
   Dual flush toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.
3. The daily use number shall be increased to three if urinals are not installed in the room.
4. Where complying faucets are unavailable, aerators rated at 35 gpm or other means may be used to achieve reduction.

APPENDIX H

NOISE STUDY

Environmental Noise & Vibration Assessment – EIR

Terra Vi Lodge Yosemite Development

Tuolumne County, California

BAC Job # 2019-050

Prepared For:

Placeworks

Attn: Alexis Mena
1625 Shattuck Avenue, Suite 300
Berkeley, CA 94709

Prepared By:

Bollard Acoustical Consultants, Inc.

Dario Gotchet, Senior Consultant

April 2, 2020

BOLLARD
Acoustical Consultants

Introduction

The proposed Terra Vi Lodge Yosemite Development (project) is a 64-acre mountain resort development located north of State Route 120 (SR 120) and east of Sawmill Mountain Road in Tuolumne County, California. The proposed development is planned to include various single, two- and three-story elements that would include a general store, a lodge containing 140 guestrooms, and 25 cabins containing 100 guestrooms. The project also proposes a landing zone for emergency response helicopter operations to provide services to the site and surrounding community. Existing land uses in the area include residential and public to the north, commercial recreation to the south, and public to east and west. The project area and illustrative landscape plan are shown on Figures 1 and 2, respectively.

The purposes of this analysis are to quantify the existing noise and vibration environments, identify potential noise and vibration impacts resulting from the project, identify appropriate mitigation measures, and provide a quantitative and qualitative analysis of impacts associated with the project. Specifically, impacts are identified if project-related activities would cause a substantial increase in ambient noise or vibration levels at existing sensitive uses in the project vicinity, or if traffic or project generated noise or vibration levels would exceed applicable Tuolumne County standards at existing or proposed sensitive uses within the project vicinity.

Environmental Setting

Noise Fundamentals and Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard, and thus are called sound. Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness. Appendix A contains definitions of Acoustical Terminology. Figure 3 shows common noise levels associated with various sources.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels in decibels.

Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq})

over a given time period (usually one hour). The L_{eq} is the foundation of the Day-Night Average Level noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The Day-Night Average Level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment. L_{dn}-based noise standards are commonly used to assess noise impacts associated with traffic, railroad, and aircraft noise sources.

Vibration

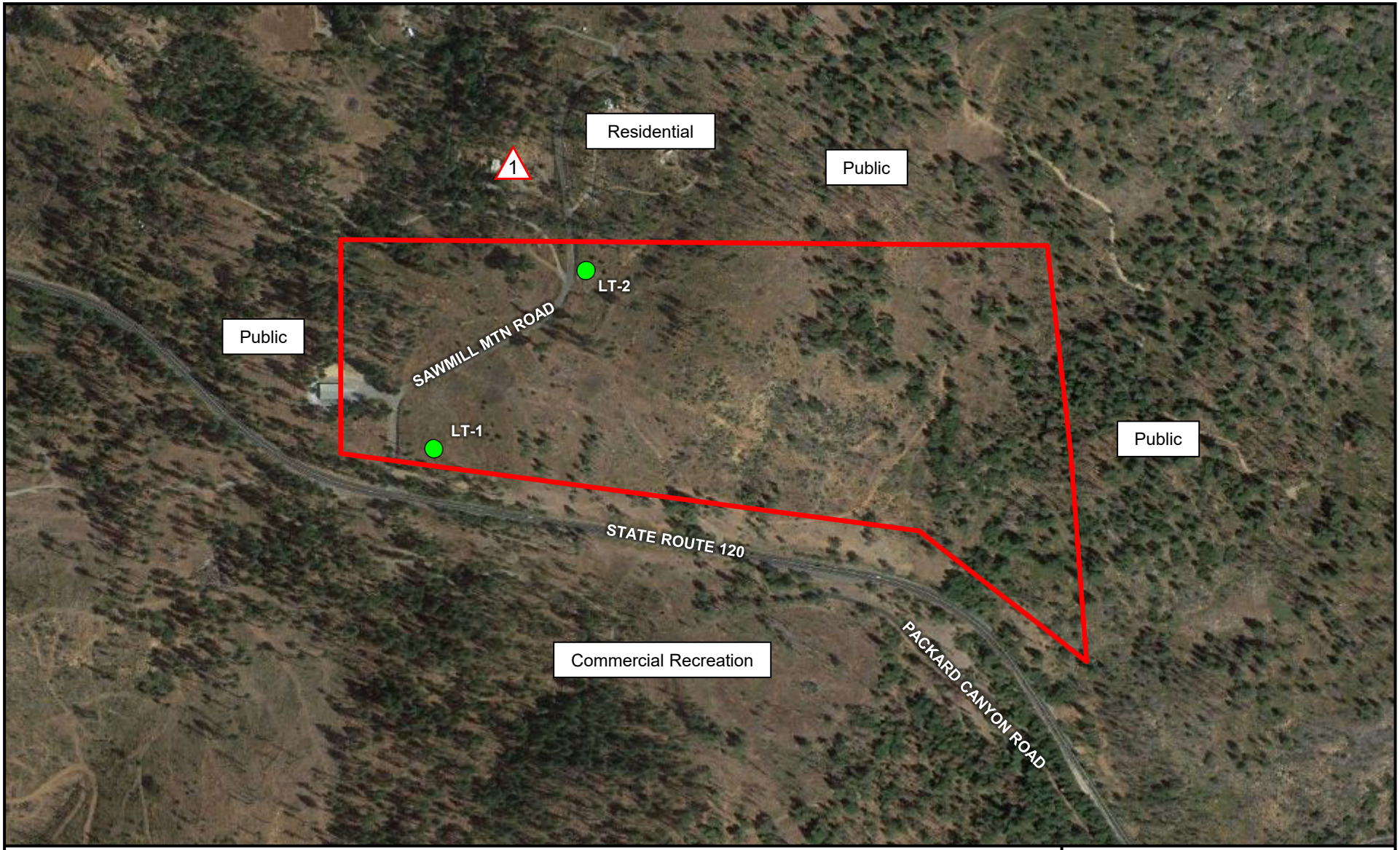
Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, while vibration is usually associated with transmission through the ground or structures. As with noise, vibration consists of an amplitude and frequency. A person's response to vibration will depend on their individual sensitivity as well as the amplitude and frequency of the source.

Vibration can be described in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of velocity in inches per second peak particle velocity (IPS, PPV) or root-mean-square (VdB, RMS). Standards pertaining to perception as well as damage to structures have been developed for vibration in terms of peak particle velocity as well as RMS velocities.

As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes will decrease with increasing distance. The maximum rate, or velocity of particle movement, is the commonly accepted descriptor of the vibration "strength".

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below the levels that produce any damage to structures. The duration of the event has an effect on human response, as does frequency. Generally, as the duration and vibration frequency increase, the potential for adverse human response increases.

According to the Transportation and Construction-Induced Vibration Guidance Manual (Caltrans, June 2004), operation of construction equipment and construction techniques generate ground vibration. Traffic traveling on roadways can also be a source of such vibration. At high enough amplitudes, ground vibration has the potential to damage structures and/or cause cosmetic damage. Ground vibration can also be a source of annoyance to individuals who live or work close to vibration-generating activities. However, traffic rarely generates vibration amplitudes high enough to cause structural or cosmetic damage.



Legend

- Project Border (Approximate)
- Long-Term Noise Survey Locations
- # Nearest Existing Sensitive Receiver (Residence)

N

Scale (Feet)

0 300 600

Terra Vi Lodge
Yosemite Development
Tuolumne County, California

Project Area

Figure 1

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Legend

- Main Lodge
- Cabins
- Restaurant & Event Building
- Market
- Maintenance Yard
- Outdoor Recreation Areas
- Loading Dock Area
- Refuse Storage Area
- Helipad

N

Scale (Feet)

0 100 200

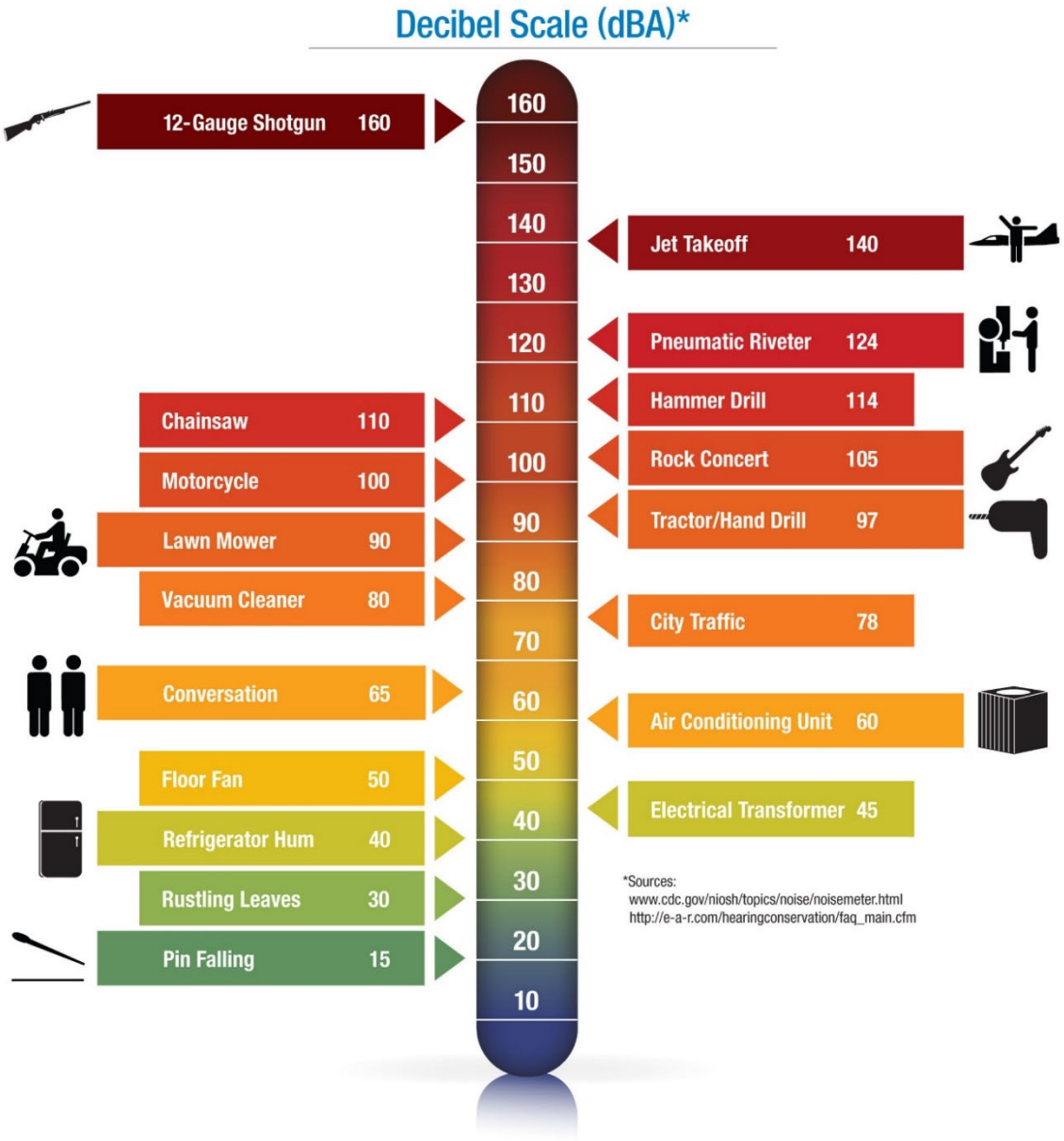
Terra Vi Lodge
Yosemite Development
Tuolumne County, California

Illustrative Landscape Plan

Figure 2

BOLLARD Acoustical Consultants

Figure 3
Noise Levels Associated with Common Noise Sources



Environmental Setting – Existing Ambient Noise and Vibration Environment

Noise-Sensitive Land Uses in the Project Vicinity

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the primary intended use of the land. Places where people live, sleep, recreate, worship, and study are generally considered to be sensitive to noise because intrusive noise can be disruptive to these activities.

The noise-sensitive land uses which would potentially be affected by the project consist of residential uses. Specifically, single-family residential land uses are located to the north of the project site. Existing public forest lands and commercial recreation uses are located to the east, west and south of the project site, which are typically not considered to be noise-sensitive. The project area and surrounding land uses are shown on Figure 1.

Existing Traffic Noise Levels along Project Area Roadway Network

The FHWA Traffic Noise Model (FHWA-RD-77-108) was used to develop existing noise contours expressed in terms of L_{dn} for major roadways within the project study area. The FHWA model predicts hourly L_{eq} values for free-flowing traffic conditions. Estimates of the hourly distribution of traffic for a typical 24-hour period were used to develop L_{dn} values from L_{eq} values.

Traffic data in the form of noon peak hour movements for existing (2019) conditions were obtained from the project traffic impact analysis prepared by KD Anderson & Associates, Inc. (dated January 21, 2020). Average daily traffic volumes were conservatively estimated by applying a factor of 10 to noon peak hour conditions. Using these data and the FHWA Model, traffic noise levels were calculated. The traffic noise level at 100 feet from the roadway centerline and distances from the centerlines of selected roadways to the 60 dB, 65 dB, and 70 dB L_{dn} contours are summarized in Table 1.

In many cases, the actual distances to noise level contours may vary from the distances predicted by the FHWA Model. Factors such as roadway curvature, roadway grade, shielding from local topography or structures, elevated roadways, or elevated receivers may affect actual sound propagation.

It is also recognized that existing sensitive land uses within the project vicinity are located varying distances from the centerlines of the local roadway network. The 100-foot reference distance is utilized in this analysis to provide a reference position at which changes in existing and future traffic noise levels resulting from the project can be evaluated. Appendix B contains the FWHA Model inputs for existing conditions.

Table 1
Existing Traffic Noise Modeling Results

Segment	Intersection	Direction	L_{dn} 100 Feet from Roadway	Distance to Contour (feet) 70 dB L_{dn}	65 dB L_{dn}	60 dB L_{dn}
1	SR 120 / Ferretti Road	North	59	17	37	80
2		South	--	--	--	--
3		East	59	19	40	87
4		West	58	17	36	78
5	SR 120 / Sawmill Mountain Road	North	35	0	1	2
6		South	--	--	--	--
7		East	63	35	74	160
8		West	63	34	74	160
9	SR 120 / Hardin Flat Road	North	--	--	--	--
10		South	39	1	2	4
11		East	63	34	73	158
12		West	63	34	74	160

Note: Blank entries indicate roadway segments for which no traffic data was provided.
Source: FHWA-RD-77-108 and KDA. A complete listing of FHWA Model inputs is provided in Appendix B.

Existing Overall Ambient Noise Environment at the Project Site

The existing ambient noise environment at the project site is defined primarily by noise from traffic on SR 120. To generally quantify existing ambient noise levels in the project vicinity, BAC conducted long-term (120-hour) ambient noise surveys at two locations on the project site from May 10-14, 2019. The noise survey locations are shown on Figure 1, identified as sites LT-1 and LT-2. Photographs of the noise survey locations are provided in Appendix C.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used to complete the noise level measurement surveys. The meters were calibrated immediately before and after use with an LDL Model CA200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all specifications of the American National Standards Institute requirements for Type 1 sound level meters (ANSI S1.4).

The noise level measurement survey results are summarized in Table 2. The detailed results of the ambient noise surveys are contained in Appendix D in tabular format and graphically in Appendix E.

Table 2
Long-Term Noise Level Measurement Results – May 10-14, 2019[1]

				Average Measured Hourly Noise Levels, dBA			
				Daytime[3]		Nighttime[4]	
Site[2]	Description	Date	L_{dn}	L_{eq}	L_{max}	L_{eq}	L_{max}
LT-1	Approximately 175 feet from the centerline of SR 120.	5/10/19	48	46	61	40	58
		5/11/19	48	46	61	40	57
		5/12/19	48	47	63	39	56
		5/13/19	48	47	62	40	55
		5/14/19	48	45	63	40	57
LT-2	Approximately 60 feet from the centerline of Sawmill Mountain Road.	5/10/19	43	39	56	36	48
		5/11/19	41	38	57	33	48
		5/12/19	43	41	59	35	46
		5/13/19	43	40	55	35	47
		5/14/19	44	41	57	36	47

[1] Detailed summaries of the noise monitoring results are provided in Appendices D and E.
[2] Long-term ambient noise monitoring locations are identified on Figure 1.
[3] Daytime hours: 7:00 AM to 10:00 PM
[4] Nighttime hours: 10:00 PM to 7:00 AM
Source: Bollard Acoustical Consultants, Inc. (2019)

As shown in Table 2, measured average noise levels were lowest at site LT-2. This was most likely due to the proximity of the measurement site relative to SR 120. The noise level measurements conducted at sites LT-1 and LT-2 were intended to quantify the existing general ambient noise environment at the project site, including the noise generation of traffic on SR 120.

Existing Ambient Vibration Environment

During a site visit on May 9, 2019, BAC staff noted that vibration levels were below the threshold of perception at the project site and in the immediate project vicinity. Therefore, the existing vibration environment in the immediate project vicinity is considered to be negligible.

Regulatory Setting: Criteria for Acceptable Noise and Vibration Exposure

Federal

There are no federal noise or vibration criteria which would be directly applicable to this project.

State of California

California Environmental Quality Act (CEQA)

The State of California has established regulatory criteria that are applicable to this assessment. Specifically, Appendix G of the State of California Environmental Quality Act (CEQA) Guidelines are used to assess the potential significance of impacts pursuant to local General Plan policies,

Municipal Code standards, or the applicable standards of other agencies. According to Appendix G of the CEQA guidelines, the project would result in a significant noise or vibration impact if the following occur:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or other applicable standards of other agencies?

B. Generation of excessive groundborne vibration or groundborne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

It should be noted that audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered significant according to CEQA. Because every physical process creates noise, the use of audibility alone as significance criteria would be unworkable. CEQA requires a substantial increase in noise levels before noise impacts are identified, not simply an audible change.

California Building Code

The California Building Code (CBC) establishes acceptable noise level criteria for the interior areas of habitable rooms, such as those proposed by the project (lodging). The code section which is applicable to the project is reproduced below.

> **Section 1207.4 Allowable interior noise levels.**
>
> Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the day-night average sound level (Ldn) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan.

California Department of Transportation (Caltrans)

Tuolumne County does not currently have adopted standards for groundborne vibration. As a result, the vibration impact criteria developed by the California Department of Transportation (Caltrans) was applied to the project. The Caltrans criteria applicable to damage and annoyance from transient and continuous vibration typically associated with construction activities are presented in Tables 3 and 4. Equipment or activities typical of continuous vibration include: excavation equipment, static compaction equipment, tracked vehicles, traffic on a highway, vibratory pile drivers, pile-extraction equipment, and vibratory compaction equipment. Equipment or activities typical of single-impact (transient) or low-rate repeated impact vibration include impact pile drivers, blasting, drop balls, “pogo stick” compactors, and crack-and-seat equipment (California Department of Transportation 2013).

Table 3
Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (inches/second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.20	0.10
Historic and some old buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial/commercial buildings	2.00	0.50

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = Peak Particle Velocity

Source: Caltrans, Transportation and Construction Vibration Guidance Manual (2013)

Table 4
Guideline Vibration Annoyance Potential Criteria

Human Response	Maximum PPV (inches/second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.40	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.90	0.10
Severe	2.00	0.40

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = Peak Particle Velocity

Source: Caltrans, Transportation and Construction Vibration Guidance Manual (2013)

Local

2018 Tuolumne County General Plan

The Noise Element of the 2018 Tuolumne County General Plan contains goals, policies and implementation programs to ensure that County residents are not subjected to noise beyond acceptable levels. The General Plan goals, policies and implementation programs which are applicable to the project are reproduced below.

GOAL 5A Protect the economic base of Tuolumne County and preserve the tranquility of residential areas by minimizing potential conflicts between transportation and stationary noise sources and noise-sensitive land uses.

Policy 5.A.1 Evaluate the need of proponents of new development of noise-sensitive land uses proposed adjacent to existing transportation or other noise sources to incorporate noise reduction techniques so that noise levels at the new development are consistent with the exposure threshold standards shown in Tables 5 and 6 (General Plan Tables 5.A and 5.B).

Implementation Programs

5.A.a – Review new public and private development proposals to determine conformance with the policies and programs of this Noise Element. Determine that noise levels from new development will not exceed the noise level standards for specified land uses included in Tables 5 to 8 (General Plan Tables 5.A to 5.D). Determine that new development of noise-sensitive land uses in proximity of existing noise sources or land designated on the General Plan land use diagrams as HI, LI, BP, HC, TPZ or MPZ will not be affected by noise levels exceeding the standards of Table 7 (General Plan Table 5.C.). For modifications or expansions of existing stationary noise sources that already exceed the standards of Table 8 on lands designated as noise-sensitive uses, Tuolumne County will determine that the new development will not increase the noise level received at the noise-sensitive land uses, or require noise reduction measures, so that the cumulative noise generated from the entire development site is equal to or less than the pre-modification or pre-expansion ambient noise level.

5.A.b – Require an acoustical analysis where activities associated with proposed development are likely to produce noise levels exceeding those specified in Tables 8 to 8 (General Plan Tables 5.A to 5.D) of this Element. The acoustical analysis shall be conducted early in the review process so that the possible effects of noise and noise mitigation can be considered in the project design. The requirements of an acoustical analysis are listed in Implementation Program 5.A.c.

Policy 5.A.2 Evaluate if proponents of proposed new transportation noise sources need to submit evidence of noise effects on existing noise-sensitive land uses. Require that new development of transportation noise sources be located and designed so that existing noise-sensitive land uses will not be exposed to noise levels that exceed the standards shown in Tables 5, 6 or 8 (General Plan Tables 5.A, 5.B or 5.D). Potential noise effects on any adjacent sensitive wildlife habitat and associated special-status wildlife species should also be considered and minimized, as needed.

Implementation Program

5.A.c – Institute procedures to enforce noise reduction measures required pursuant to an acoustical analysis during the building permit and construction processes and to monitor compliance with noise reduction measures during operation of the development. Acoustical studies shall meet all requirements detailed below:

- Be the financial responsibility of the applicant.
- Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
- Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and significant noise sources. Where actual field measurements cannot be conducted, all sources of information used for calculation purposes shall be fully described.
- Estimate existing and projected (20 years) noise levels noise levels of the noise generating source and compare those levels to the adopted policies of the Noise Element. Projected future noise levels shall take into account noise from planned streets, highways and road connections.
- Recommended appropriate mitigation to achieve compliance with the adopted policies of the Noise Element, giving preference to proper site planning and design over mitigation measures which require the construction of noise barriers or structural modifications to buildings which contain noise-sensitive land uses.
- Estimate noise exposure after the prescribed mitigation measures have been implemented.

Policy 5.A.3 Require proponents of proposed development of new stationary noise sources or modifications of existing stationary noise sources to evaluate noise effects on existing nearby noise-sensitive land uses. This policy does not apply to noise levels associated with agricultural operations.

Implementation Program

5.A.d – Prepare and adopt a noise ordinance to be used in defining acceptable noise levels received at various land uses and enforcing excessive noise levels have been reported and verified.

Policy 5.A.5 Require that construction activity and temporary construction impacts do not expose existing noise-sensitive land uses to excessive noise levels. Require all new construction activities to implement all feasible noise-reducing measures as necessary to limit construction noise exposure at receiving occupied land uses to within acceptable County noise levels identified in Table 7 (General Plan Table 5.C). Should nighttime construction activities be required (between the hours of 10:00 p.m. and 7:00 a.m.), exterior noise levels shall not exceed 65 dBA L_{max}, based on FICON's 65 dBA SEL level for sleep disturbance (but conservatively using L_{max}, which is more appropriate for construction activities).

Implementation Programs

5.A.e – The County shall ensure that, where residences or other noise sensitive uses are located 1,900 feet of construction sites, appropriate measures shall be

implemented to limit noise exposure from construction. Specific techniques may include, but are not limited to, restrictions on construction timing, use of sound blankets on construction equipment, and the use of temporary wall and noise barriers to block and deflect noise.

5.A.f – Require the use of alternative pile driving techniques, where feasible, if a particular project requires pile driving within 800 feet of sensitive receptors.

5.A.g – Require that equipment and trucks used for project construction utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds).

5.A.h – Require that impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction be hydraulically or electrically powered wherever feasible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatically powered tools is unavoidable, the used of an exhaust muffler on the compressed air exhaust is recommended to lower noise levels from the exhaust by up to about 10 dBA. When feasible, external jackets on the impact equipment should also be incorporated to achieve a further reduction of 5 dBA. Whenever feasible, require the use of quieter procedures, such as drilling rather than impact equipment operation.

5.A.i – Locate stationary noise sources as far from sensitive receptors as possible. Stationary noise sources that must be located near existing receptors shall be adequately designed to minimize noise exposure at sensitive receptors such that County noise standards are met.

Table 5
Maximum Allowable Noise Exposure – Transportation Noise Sources
Excluding Aviation Related Noise[1]

Land Use	Outdoor Activity Areas[2] L_{dn}/CNEL, dB	Interior Spaces[3] L_{dn}/CNEL, dB
Urban Residential	60	45
Transient Lodging[4]	60	45
Hospitals, Nursing Homes[5]	60	45
Churches, Meeting Halls, Office Buildings, Mortuaries	--	45
Schools[5], Libraries, Museums	--	45

[1] This table applies to noise exposure levels that result from a transportation noise source other than aircraft (Table 5.B addresses aircraft noise). For existing receiving land uses, consideration shall be given to the noise exposure from new transportation noise sources during the design and approval of the new transportation project. In the case of existing transportation noise sources, projects or consideration of land use changes involving noise-sensitive land uses shall address the noise exposure environment and use these standards as thresholds.

[2] An outdoor activity area is a location outside of the immediate structure where formal or informal activities are likely to happen. For example, anywhere on an urban residential property could be an outdoor activity area, while the outdoor activity area for a school would be the playground or sporting fields, and for a hospital would be an exterior patio or exercise area. Where the location of the outdoor activity area is unknown, the exterior noise level standard shall be applied to the property line of the receiving land uses.

[3] For typical construction methods, the reduction in the noise level from the outside of the structure to the inside is approximately 15 dB. In a high noise environment, special construction techniques may be necessary to reduce the interior noise level to the standard.

[4] Transient lodging are overnight accommodations usually intended for occupancy by tourists or other short-term paying customers, examples include hotels, motels, or homeless shelters. Transient lodging, as used in this case, does not include bed and breakfast establishments which are located in rural areas, campgrounds, or guest ranches.

[5] These standards only apply to nursing homes or schools that have more than 6 beds or students, respectively.

Source: 2018 Tuolumne County General Plan, Noise Element, Table 5.A

Table 6
Maximum Allowable Noise Exposure – Aircraft Noise Sources[1]

	Outdoor Activity Areas[2]	Interior Spaces[3]		
			L_{max}, dB[4]	
Land Use	**L_{dn}/CNEL, dB**	**L_{dn}/CNEL, dB**	**Day**	**Night**
Residential – Living Areas	55	45	45	45
Residential – Sleeping Areas	55	40	45	40
Transient Lodging[5]	60	45	--	40
Hospitals, Nursing Homes[5]	60	45	--	40
Churches, Meeting Halls, Office Buildings, Mortuaries	60	45	45	45
Schools[5], Libraries, Museums	60	45	55	55

[1] This table applies to noise exposure levels that result from aircraft. For existing receiving land uses, consideration shall be given to the noise exposure from new aviation-related sources during the design and approval of the new aviation-related project. In the case of existing aviation-related noise sources, projects or consideration of land use changes that lie within the jurisdictional area of the Tuolumne County Airport Land Use Commission which involve noise-sensitive land uses shall address the noise exposure environment and use these standards as thresholds.

[2] An outdoor activity area is a location outside of the immediate structure where formal or informal activities are likely to happen. For example, anywhere on an urban residential property could be an outdoor activity area, while the outdoor activity area for a school would be the playground or sporting fields, and for a hospital would be an exterior patio or exercise area. Where the location of the outdoor activity area is unknown, the exterior noise level standard shall be applied to the property line of the receiving land uses.

[3] For typical construction methods, the reduction in the noise level from the outside of the structure to the inside is approximately 15 dB. In a high noise environment, special construction techniques may be necessary to reduce the interior noise level to the standard.

[4] Lmax refers to the maximum interior noise level. The design Lmax value shall be established as the maximum aircraft noise level which is exceeded by 10 percent of the aircraft noise events occurring during a typical 24-hour day of aircraft operations. In other words, the Lmax value used in the evaluation shall be determined by eliminating the loudest 10 percent of the aircraft events measured during the sample period, which should be a typical 24-hour day.

[5] Transient lodging are overnight accommodations usually intended for occupancy by tourists or other short-term paying customers, examples include hotels, motels, or homeless shelters. Transient lodging, as used in this case, does not include bed and breakfast establishments which are located in rural areas, campgrounds, or guest ranches.

[6] These standards only apply to nursing homes or schools that have more than 6 beds or students, respectively.

Source: 2018 Tuolumne County General Plan, Noise Element, Table 5.B

Table 7
Maximum Allowable Noise Exposure – Stationary Noise Sources[1]

Noise Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq}, dB[2]	50	45
Maximum level, dB[3]	70	65

[1] This table applies to noise exposure levels as a result of stationary noise sources. For a development project or land use change involving a noise-sensitive land use, the noise from nearby noise sources will be considered during design and approval of the project, or in determining whether the land use change is appropriate. For development projects which may produce noise, land use changes and project review will consider the effects of noise on possible noise-sensitive uses. When considering modification or expansion at a site that already produces noise levels which exceed these standards at noise-sensitive land uses, the modification or expansion shall be reviewed to consider if the proposed action will further raise the existing noise levels received at the noise-sensitive land use(s).

Noise-sensitive land uses include urban residential land uses, libraries, churches, and hospitals, in addition to nursing homes or schools which have over 6 beds or students, respectively. Transient lodging establishments which are considered noise-sensitive land uses include hotels, motels, or homeless shelters, but not bed and breakfast establishments located in rural areas, campgrounds, or guest ranches.

[2] The sound equivalent level as measured or modeled for a one-hour sample period. The daytime or nighttime value should not be exceeded as determined at the property line of the noise-sensitive land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.

[3] Similar to the hourly Leq, except this level should not be exceeded for any length of time.

Source: 2018 Tuolumne County General Plan, Noise Element, Table 5.C

Table 8
Significance of Changes in Cumulative Noise Exposure[1]

Ambient Noise Level Without Project, (L_{dn} or CNEL)[2]	Significant Impact if Cumulative Level Increases By:
<60 dB	+5.0 dB or more
60 to 65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

[1] These standards shall be applied when considering the noise impacts from projects that could cause a significant increase in the cumulative noise exposure of existing noise-sensitive land uses. If it is likely that existing noise-sensitive land uses could experience these increases in cumulative noise exposure, as measured in CNEL or Ldn, then an acoustical analysis that meets the requirements of Table 5.A shall be accomplished and the results considered in project design.

[2] Ambient noise is defined as the composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Source: 2018 Tuolumne County General Plan, Noise Element, Table 5.D

Impacts and Mitigation Measures

Thresholds of Significance

For the purposes of this report, a noise and vibration impact is considered significant if the project would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or other applicable standards of other agencies?

- Generation of excessive groundborne vibration or groundborne noise levels?

- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project site is not located within the vicinity of a private airstrip, airport land use plan, or within two miles of a public airport; therefore, the last threshold listed above is not discussed further.

The following criteria based on standards established by the California Department of Transportation (Caltrans) and Tuolumne County General Plan were used to evaluate the significance of environmental noise and vibration resulting from the project:

- A significant noise impact would be identified if the project would expose persons to or generate noise levels that would exceed applicable noise standards presented in the Tuolumne County General Plan.

- A significant impact would be identified if off-site traffic or if the cumulative noise exposure from on-site activities generated by the project would substantially increase noise levels at sensitive receptors in the vicinity. A substantial increase would be identified relative to the Tuolumne County General Plan cumulative noise exposure increase significance criteria shown in Table 8.

- A significant impact would be identified if project construction activities or proposed on-site operations would expose persons to excessive vibration levels. Specifically, an impact would be identified if groundborne vibration levels due to these sources would exceed the Caltrans vibration threshold criteria.

Noise Impacts Associated with Project-Generated Increases in Off-Site Traffic

With development of the project site, traffic volumes on the local roadway network will increase. Those increases in daily traffic volumes will result in a corresponding increase in traffic noise levels at existing uses located along those roadways. The FHWA Model was used with traffic input data obtained from the project traffic impact analysis prepared by KD Anderson &

Associates, Inc. (dated January 21, 2020) to predict project traffic noise level increases relative to Existing and Cumulative project and no-project conditions.

Impact 1: Increases in Existing Traffic Noise Levels due to the Project

Traffic data in the form of noon peak hour movements for Existing and Existing Plus Project conditions in the project area roadway network were obtained from the project transportation impact analysis prepared by KD Anderson & Associates, Inc. Average daily traffic (ADT) volumes were conservatively estimated by applying a factor of 10 to noon peak hour conditions.

Existing versus Existing Plus Project traffic noise levels on the local roadway network are shown in Table 9. The following section includes an assessment of predicted traffic noise levels relative to the Tuolumne County General Plan cumulative noise increase significance criteria identified in Table 8. The Table 9 data are provided in terms of L_{dn} at a standard distance of 100 feet from the centerlines of the roadways in the project vicinity. Appendix B contains the FWHA Model inputs.

Table 9
Predicted Project-Related Traffic Noise Levels & Increases – Existing Conditions

Segment	Intersection	Direction	Traffic Noise Level at 100 feet, dB L_{dn}			Substantial Increase?
			E	E+P	Increase	
1	SR 120 / Ferretti Road	North	58.6	58.6	0.0	No
2		South	--	--	--	--
3		East	59.1	59.3	0.2	No
4		West	58.4	58.5	0.1	No
5	SR 120 / Sawmill Mountain Road	North	35.2	49.6	14.4	Yes
6		South	--	--	--	--
7		East	63.1	63.5	0.4	No
8		West	63.1	63.3	0.2	No
9	SR 120 / Hardin Flat Road	North	--	--	--	--
10		South	39.4	40.0	0.6	No
11		East	63.0	63.5	0.5	No
12		West	63.1	63.5	0.4	No

Note: Blank entries indicate roadway segments for which no traffic data was provided.
Source: FHWA-RD-77-108 and KDA. A complete listing of FHWA Model inputs is provided in Appendix B.

The data in Table 9 indicate that the proposed project's contribution to traffic noise level increases is predicted to exceed the Tuolumne County General Plan cumulative noise increase significance criteria along one roadway segment evaluated in the existing conditions analysis. Specifically, the roadway segment on Sawmill Mountain Road north of SR 120 is predicted to have an existing plus project traffic noise level of approximately 50 dB L_{dn} at a distance of 100 feet from the roadway centerline.

Additional analysis of the above-mentioned roadway segment revealed that the first 1,200 feet of this segment is located within the project area and contains the primary access point to the development, which is located approximately 600 feet from SR 120. Thus, it is reasonably

assumed that a significant portion of the project-generated traffic would exit Sawmill Mountain Road onto the project site at the primary access point. In addition, no existing residences or other sensitive uses were identified along the roadway segment within the project area. Finally, the predicted existing plus project traffic noise level of 50 dB L_{dn} at 100 feet along this roadway segment is below the Tuolumne County General Plan exterior noise level standard of 60 dB L_{dn} applicable to traffic noise affecting residential uses.

Based on the above information, off-site traffic noise impacts related to increases in traffic resulting from the implementation of the project (existing vs. existing plus project conditions) are identified as being ***less than significant***.

Impact 2: Increases in Cumulative Traffic Noise Levels due to the Project

Traffic data in the form of noon peak hour movements for Cumulative and Cumulative Plus Project conditions in the project area roadway network were obtained from the project transportation impact analysis prepared by KD Anderson & Associates, Inc. Average daily traffic (ADT) volumes were conservatively estimated by applying a factor of 10 to noon peak hour conditions.

Cumulative versus Cumulative Plus Project traffic noise levels on the local roadway network are shown in Table 10. The following section includes an assessment of predicted traffic noise levels relative to the Tuolumne County General Plan cumulative noise increase significance criteria identified in Table 8. The Table 10 data are provided in terms of L_{dn} at a standard distance of 100 feet from the centerlines of the roadways in the project vicinity. Appendix B contains the FWHA Model inputs.

Table 10
Predicted Project-Related Traffic Noise Levels & Increases – Cumulative Conditions

Segment	Intersection	Direction	Traffic Noise Level at 100 feet, dB L_{dn}			Substantial Increase?
			C	C+P	Increase	
1	SR 120 / Ferretti Road	North	59.3	59.3	0.0	No
2		South	--	--	--	--
3		East	59.9	60.0	0.1	No
4		West	59.1	59.2	0.1	No
5	SR 120 / Sawmill Mountain Road	North	38.2	49.8	11.6	Yes
6		South	--	--	--	--
7		East	64.2	64.6	0.4	No
8		West	64.2	64.4	0.2	No
9	SR 120 / Hardin Flat Road	North	--	--	--	--
10		South	44.3	44.5	0.2	No
11		East	64.2	64.6	0.4	No
12		West	64.2	64.6	0.4	No

Note: Blank entries indicate roadway segments for which no traffic data was provided.
Source: FHWA-RD-77-108 and KDA. A complete listing of FHWA Model inputs is provided in Appendix B.

As shown in Table 10, the proposed project's contribution to traffic noise level increases is predicted to exceed the General Plan cumulative noise increase significance criteria along one

roadway segment evaluated in the existing conditions analysis. Specifically, the roadway segment of Sawmill Mountain Road north of the SR 120 is predicted to have a cumulative plus project traffic noise level of approximately 50 dB L_{dn} at a distance of 100 feet from the roadway centerline.

As indicated in the previous impact discussion, the primary access point to the proposed development is located on Sawmill Mountain Road, approximately 600 feet from the intersection of SR 120 (i.e., along this roadway segment within the project area). It is reasonable to assume that a significant portion of the project-generated traffic would exit Sawmill Mountain Road onto the project site at the primary access point. In addition, no existing residences or other sensitive uses were identified along the roadway segment within the project area. Finally, the predicted existing plus project traffic noise level of 50 dB L_{dn} at 100 feet along this roadway segment is below the Tuolumne County General Plan exterior noise level standard of 60 dB L_{dn} applicable to traffic noise affecting residential uses.

Based on the above information, off-site traffic noise impacts related to increases in traffic resulting from the implementation of the project (cumulative vs. cumulative plus project conditions) are identified as being ***less than significant***.

Noise Impacts Associated with Proposed On-Site Operations

The primary noise-producing components associated with the proposed development have been identified as on-site traffic circulation, parking lot activities (vehicles arriving and departing, doors opening and closing, etc.), on-site delivery truck movements, loading dock activities, mechanical equipment (HVAC), solid waste collection, and emergency helicopter operations at the proposed helipad.

Table 7 of this report contains the Tuolumne County General Plan Noise Element noise level standards applicable to stationary noise sources, such as those indicated in the paragraph above. Footnote 2 of Table 7 states that those noise level limits shall not be exceeded when determined at the property lines of noise-sensitive land uses. Footnote 1 of Table 7 defines noise-sensitive land uses as libraries, churches, hospitals, nursing homes, schools, transient lodging, and *urban* residential uses. Footnote 1 also states that transient lodging establishments which are considered noise-sensitive land uses include hotels, motels, or homeless shelters, but not bed and breakfast establishments located in rural areas, campgrounds, or guest ranches.

According to the Tuolumne County Interactive Web Map, the project parcel and adjacent parcels to the south are zoned Commercial Recreation and Open Space Districts (C-K & O). The adjacent parcels to the east and west of the project parcel are zoned Public District (P). According to Footnote 1 of Table 7, these land uses are not considered to be noise-sensitive. However, the adjacent parcels to the north of the project are zoned Residential Estate 2-Acre Minimum and 5-Acre Minimum Districts (RE-2 & RE-5). In addition, the adjacent residentially zoned parcels are located within a *rural* area of Tuolumne County.

The nearest existing sensitive use has been identified as a residence located on an adjacent residentially zoned parcel to the north of the project. Although rural residential land uses are not specifically identified as being noise-sensitive in Table 7 of the Noise Element, the noise level

standards presented in Table 7 were applied at the nearest existing residential structure to the project, rather than at the property line containing that residence. An assessment of each project-related noise source at the nearest existing sensitive uses (residences) is provided in the following section. The location of the nearest existing residence is shown on Figure 1, identified as receiver 1.

Impact 3: On-Site Traffic Circulation Noise at Existing Sensitive Uses

The FHWA Model (discussed in a previous section of this report) was utilized with trip generation information obtained from the project traffic impact analysis to determine the on-site traffic circulation noise generated by the interior roadway of the proposed development upon existing residential uses.

The nearest existing sensitive use (receiver 1) is located approximately 400 feet from the centerline of the future interior roadway of the development. According to the traffic impact analysis completed for the project by KD Anderson & Associates, Inc., the project is expected to generate a total of 894 daily trips that would be "internal" or would occur on-site. Assuming an on-site vehicle speed of 25 mph, 89 vehicle trips in a worst-case hour (10% of total on-site daily trips – conservative), and a distance of 400 feet from the centerline of the project interior roadway, the FHWA Model predicts a traffic noise level of 34 dB L_{eq}. Predicted maximum noise levels due to on-site circulation are conservatively estimated to be 10 dB higher than predicted hourly average noise levels (44 dB L_{max}). It was assumed for the purposes of this analysis that all of the on-site vehicle trips would occur at one location, when realistically it would likely be more spread out throughout the development. As a result, the above predicted noise levels at the nearest existing sensitive use are considered to be worst-case. Nonetheless, the predicted on-site traffic circulation noise levels of 34 dB L_{eq} and 44 dB L_{max} at the nearest existing sensitive use would satisfy the Tuolumne County General Plan daytime and nighttime hourly average and maximum noise level standards. In addition, the predicted on-site traffic circulation noise levels are at or below ambient daytime and nighttime noise levels measured within the vicinity of the nearest existing sensitive use (site LT-2).

Because worst-case on-site traffic circulation noise levels are predicted to be in compliance with the applicable Tuolumne County General Plan daytime and nighttime noise level standards, and because on-site traffic noise levels are not predicted to significantly increase ambient noise levels at existing sensitive uses, this impact is identified as being ***less than significant***.

Impact 4: Parking Area Activity Noise at Existing Sensitive Uses

As a means of determining the noise levels due to parking lot activities at the proposed apartment complex, BAC utilized noise level data collected at various parking lots over the years. That data indicate that a typical Sound Exposure Level (SEL) due to automobile arrivals/departures, including car doors slamming and people conversing is approximately 70 dB, at a distance of 50 feet. The maximum noise level associated with parking lot activity typically did not exceed 65 dB L_{max} at the same reference distance.

To compute hourly average noise levels generated by parking lot activities, the approximate number of hourly operations in any given area and distance to the effective noise center of those

activities is required. The hourly average noise level generated by parking lot movements is computed using the following formula:

$$Peak\ Hour\ L_{eq} = 70+10*log\ (N) - 35.6$$

Where 70 is the mean Sound Exposure Level (SEL) for an automobile parking lot arrival or departure, N is the number of parking lot operations in a given hour, and 35.6 is 10 times the logarithm of the number of seconds in an hour.

The project proposes the construction of parking stalls that would be distributed throughout the development. The nearest existing sensitive use (receiver 1) is located to the northwest of cabins component of the development. Thus, the worst-case parking area noise exposure at receiver 1 would be generated from the nearest parking area at the cabins component of the project. According to the project site plans, the cabins parking area nearest to receiver 1 could accommodate approximately 50 parking spaces. The effective noise center of cabins parking area is located approximately 500 feet from receiver 1. At that distance, the predicted parking lot noise levels using the formula provided above are 31 dB L_{eq} and 45 dB L_{max}, respectively. The predicted parking lot activity noise levels of 31 dB L_{eq} and 45 dB L_{max} at the nearest existing sensitive use would satisfy the applicable Tuolumne County General Plan hourly average and maximum noise level limits for daytime and nighttime hours. In addition, the predicted parking area noise levels are below ambient daytime and nighttime noise levels measured within the vicinity of the nearest existing sensitive use (site LT-2).

Because parking area noise levels are predicted to be in compliance with the applicable Tuolumne County General Plan daytime and nighttime noise level standards, and because parking area noise levels are not predicted to significantly increase ambient noise levels at existing sensitive uses, this impact is identified as being ***less than significant***.

Impact 5: On-Site Delivery Truck Circulation Noise at Existing Sensitive Uses

The proposed development will contain a general store and lodge that would require deliveries of goods to the site from heavy trucks. According to the project site plans, the project proposes a loading dock for receiving those deliveries located on the southwest end of the lodge adjacent to the general store. Based on the location of the loading dock, it is anticipated that delivery trucks would enter the project site from Sawmill Mountain Road and continue south on the interior roadway adjacent to the general store. The proposed loading dock and truck passby route is shown on Figure 2. The truck passby route is approximately 700 feet from the nearest existing sensitive use (receiver 1).

Because the County's noise standards are provided in terms of both individual maximum noise levels and hourly average noise levels, it is necessary to identify the number of truck movements occurring during a typical busy hour of operations to assess compliance with the L_{eq}-based standards. For the purposes of predicting hourly average noise levels for comparison against the County's noise standards, it was conservatively assumed that two heavy trucks could have deliveries during the same worst-case hour.

Heavy truck arrivals and departures, and on-site truck circulation, will occur at low speeds. According to BAC file data, single-event truck passby noise levels are approximately 74 dB L_{max} and 83 dB SEL at a reference distance of 50 feet. Based on two heavy truck trips per hour, and an SEL of 83 dB SEL per passby, the hourly average noise level generated by on-site circulation computes to 50 dB L_{eq} at a reference distance of 50 feet from the passby route. When projected to a distance of 700 feet (distance from truck passby route to receiver 1), delivery truck circulation noise exposure computes to approximately 28 dB L_{eq} and 51 dB L_{max}. The predicted heavy truck passby noise levels of 28 dB L_{eq} and 51 dB L_{max} at the nearest existing sensitive use would satisfy the applicable Tuolumne County General Plan hourly average and maximum noise level limits for daytime and nighttime hours. In addition, the predicted on-site heavy truck passby noise levels are at or below ambient daytime and nighttime noise levels measured within the vicinity of the nearest existing sensitive use (site LT-2).

Because on-site heavy truck passby noise levels are predicted to be in compliance with the applicable Tuolumne County General Plan daytime and nighttime noise level standards, and because on-site heavy truck passby noise levels are not predicted to significantly increase ambient noise levels at existing sensitive uses, this impact is identified as being ***less than significant***.

Impact 6: Loading Dock Noise at Existing Sensitive Uses

As mentioned previously, the project proposes the construction of a loading dock for deliveries to the site located on the southwestern end of the lodge adjacent to the general store. Figure 2 shows the located of the proposed loading dock area. The primary noise sources associated with loading dock operations are heavy trucks stopping (air brakes), backing into the loading docks (back-up alarms), and pulling out of the loading docks (revving engines). The proposed loading dock is approximately 1,000 feet from the nearest existing sensitive use (receiver 1).

To quantify the noise generated by truck loading dock operations, BAC utilized noise level data obtained from BAC field measurements of a commercial loading dock facility. According to BAC measurement data, loading dock average and maximum noise levels are approximately 63 dB L_{eq} and 75 dB L_{max} at a reference distance of 50 feet.

According to the project site plans, the loading dock area is proposed to be located on the basement level directly below the restaurant/event building (south side of the structure). Based on the above-mentioned noise levels, loading dock noise levels at receiver 1 (1,000 feet away) are predicted to be approximately 20 dB L_{eq} and 32 dB L_{max}. The predicted loading dock noise levels take into consideration standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), an offset for atmospheric absorption of sound (1.5 dB decrease per thousand feet), and an adjustment to account for a significant degree of shielding of the loading dock area that would be provided by the intervening proposed building at the basement level location (estimated to be approximately -15 dB). The predicted loading dock noise levels of 20 dB L_{eq} and 32 dB L_{max} at the nearest existing sensitive use would satisfy the applicable Tuolumne County General Plan hourly average and maximum noise level limits for daytime and nighttime hours. In addition, the predicted loading dock noise levels are below ambient daytime and nighttime noise levels measured within the vicinity of the nearest existing sensitive use (site LT-2).

Because loading dock noise levels are predicted to be in compliance with the applicable Tuolumne County General Plan daytime and nighttime noise level standards, and because loading dock noise levels are not predicted to significantly increase ambient noise levels at existing sensitive uses, this impact is identified as being ***less than significant***.

Impact 7: Mechanical Equipment (HVAC) Noise at Existing Sensitive Uses

The heating, ventilating, and air conditioning (HVAC) requirements for proposed buildings of the development will likely consist of packaged rooftop air conditioning systems. Receiver 1 is located approximately 500 feet from the nearest proposed buildings of the development (cabins in the northern end of the project site). Figure 2 shows the location of the cabins component.

As a means of determining potential noise exposure due to rooftop mechanical equipment, BAC utilized reference file data collected for previous studies. BAC reference file data for HVAC systems indicate that a 12.5-ton packaged unit can be expected to generate an A-weighted sound power level of 85 dB.

Because the on-site mechanical equipment generates steady-state noise levels, the applicable Tuolumne County noise level descriptor for HVAC noise level exposure would be the hourly average noise level metric (L_{eq}). When projected to a distance of 500 feet (distance from nearest proposed cabin to receiver 1), HVAC unit noise exposure computes to approximately 31 dB L_{eq}. In addition to the prediction of HVAC equipment noise exposure from the nearest proposed cabin at receiver 1, the cumulative noise exposure from the nearest cabins at receiver 1 was also estimated. It is expected that HVAC units associated with cabins further away would receiving shielding from intervening cabins that would break line of sight and would not significantly increase the predicted cumulative HVAC unit noise level at receiver 1. Based on the above-mentioned reference noise level, and assuming a total of three HVAC units in operation simultaneously (three nearest cabins), the predicted cumulative HVAC unit noise level was calculated to be 35 dB L_{eq} at receiver 1. The predicted HVAC equipment noise level of 35 dB L_{eq} at the nearest existing sensitive use would satisfy the applicable Tuolumne County General Plan hourly average noise level limits for daytime and nighttime hours. In addition, the predicted HVAC equipment noise levels are at or below ambient daytime and nighttime noise levels measured within the vicinity of the nearest existing sensitive use (site LT-2).

Because HVAC equipment noise levels are predicted to be in compliance with the applicable Tuolumne County General Plan daytime and nighttime noise level standards, and because HVAC equipment noise levels are not predicted to significantly increase ambient noise levels at existing sensitive uses, this impact is identified as being ***less than significant***.

Impact 8: Refuse Collection Noise at Existing Sensitive Uses

According to the project site plans, the development will contain one main garbage and recycling storage area located adjacent to the loading dock. Figure 2 shows the location of the refuse storage area. The proposed refuse storage area is located approximately 1,000 feet from the nearest existing sensitive use (receiver 1).

To quantify noise generated by solid waste pickup activity, BAC utilized file data collected previously for commercial garbage trucks. According to BAC measurement data, commercial garbage truck average and maximum noise levels are approximately 81 dB L_{eq} and 89 dB L_{max} at a reference distance of 50 feet.

According to the project site plans, the refuse storage area is proposed to be located at the basement level adjacent to the loading dock. From this location, receiver 1 would be completely shielded from view of the refuse storage area by the proposed intervening building. Based on the above-mentioned noise levels, refuse collection noise levels at receiver 1 located 1,000 feet away are predicted to be approximately 38 dB L_{eq} and 46 dB L_{max}. The predicted noise levels take into consideration standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), an offset for atmospheric absorption of sound (1.5 dB decrease per thousand feet), and an adjustment for shielding of the refuse area that would be provided by the proposed intervening building at the basement level location (estimated to be approximately -15 dB). The predicted refuse collection noise levels of 38 dB L_{eq} and 46 dB L_{max} at the nearest existing sensitive use would satisfy the applicable Tuolumne County General Plan hourly average and maximum noise level limits for daytime and nighttime hours. In addition, the predicted noise levels are within the range of measured ambient noise levels within the vicinity of the nearest existing sensitive use (site LT-2).

Because refuse collection noise levels are predicted to be in compliance with the applicable Tuolumne County General Plan daytime and nighttime noise level standards, and because refuse collection noise levels are not predicted to significantly increase ambient noise levels at existing sensitive uses, this impact is identified as being ***less than significant***.

Impact 9: Maintenance Yard Noise at Existing Sensitive Uses

The development will contain a maintenance yard that will be located adjacent to an existing Caltrans sand storage building west of Sawmill Mountain Road. Figure 2 shows the location of the proposed maintenance yard area. It is the experience of BAC that primary noise sources associated with maintenance yards include equipment such as circular saws, hammers and nail guns. According to the site plans, the maintenance yard will also include a generator. The proposed maintenance yard is approximately 700 feet from the nearest existing sensitive use (receiver 1).

To quantify noise generated by maintenance yard activities, BAC utilized a combination of file data collected previously for a carpenters training facility and data obtained from literature published by the Federal Highway Administration. Those data are provided in Table 11.

Table 11
Reference Noise Level Data

Equipment	Reference Noise Levels & Distances
Hammer	73 dB L_{eq} / 76 dB L_{max} at 20 feet
Drill (large)	80 dB L_{eq} / 83 L_{max} at 15 feet
Circular Saw	77 dB L_{eq} / 79 dB L_{max} at 20 feet
Nail/Staple Gun	71 dB L_{eq} / 76 dB L_{max} at 20 feet
Generator	82 dB L_{eq}/L_{max} at 50 feet

Source: FHWA Roadway Construction Noise Model User's Guide (2006) and BAC file data.

Based on the reference noise levels indicated in Table 11 above, and assuming standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), maintenance yard operations noise exposure at receiver 1 located 700 feet away was calculated and the results of those calculations are presented in Table 12.

Table 12
Predicted Maintenance Yard Noise Levels at Nearest Existing Sensitive Use

	Predicted Noise Levels at 700 feet (dB)[1]	
Equipment	L_{eq}	L_{max}
Hammer	40	43
Drill (large)	45	48
Circular Saw	44	46
Nail/Staple Gun	38	43
Generator	57	57

[1] Predicted noise levels are based on a -6 dB per doubling of distance and include an offset for atmospheric absorption and intervening ground attenuation.

Source: Bollard Acoustical Consultants, Inc. (2020)

As indicated in Table 12, the predicted maintenance yard equipment noise levels at the nearest existing sensitive use would satisfy the applicable Tuolumne County General Plan daytime and nighttime and maximum noise level standards. However, a portion of the maintenance yard equipment noise levels are predicted to exceed the General Plan daytime and nighttime hourly average noise level standards at the nearest existing sensitive receptor. In addition, it is possible that maintenance yard activities could exceed ambient daytime and nighttime noise levels at the nearest existing sensitive use. As a result, this impact is identified as being **potentially significant**.

Mitigation Impact 9:

In order to satisfy applicable Tuolumne County General Plan daytime and nighttime noise level limits at the nearest existing sensitive use to the project, and subsequently result in maintenance yard noise levels at or below ambient noise conditions at that use, the following noise mitigation measures should be implemented:

MM 9A: The construction of a solid noise barrier measuring 8-feet in height along the north, east and west sides of the maintenance yard boundary. The barrier could be

constructed of either of masonry or precast concrete panels. A noise barrier constructed of wood (or wood composite) fence material with overlapping slat construction would also be sufficient. The purpose of overlapping slats and using screws rather than nails is to ensure that prolonged exposure to the elements does not result in visible gaps through the slats which would result in reduced noise barrier effectiveness.

AND

MM 9B: Ensure that the generator selected for the maintenance yard have a reference noise level not to exceed 70 dB at a distance of 50 feet.

Table 13 shows the predicted maintenance yard equipment noise levels after implementation of mitigation measures MM 9A & 9B, as discussed above.

Table 13
Predicted Maintenance Yard Noise Levels at Nearest Existing Sensitive Use – Mitigated

Equipment	Predicted Noise Levels at 700 feet (dB)[1]	
	L_{eq}	L_{max}
Hammer	33	36
Drill (large)	38	41
Circular Saw	37	39
Nail/Staple Gun	31	36
Generator	38	38

[1] Predicted noise levels take into consideration the screening provided by an 8-foot tall noise barrier as described in MM 9A, and the implementation of a generator with a reference noise level of 70 dB at 50 feet.

Source: Bollard Acoustical Consultants, Inc. (2020)

According to the ambient noise level survey results at site LT-2, average measured hourly daytime noise levels during the 120-hour monitoring period ranged from 38 to 41 dB L_{eq} (mean of 40) and 55 to 59 dB L_{max} (mean of 57), respectively. Average measured hourly nighttime noise levels during the monitoring period ranged from 33 to 36 dB L_{eq} (mean of 35) and 46 to 48 dB L_{max} (mean of 47), respectively. The Tuolumne County General Plan cumulative noise increase significance criteria indicate that a 5 dB increase is the threshold of significance where pre-project ambient noise levels are less than 60 dB (Table 8).

After implementation of the mitigation measures indicated in MM 9A and 9B, the highest maintenance yard equipment hourly average and maximum noise levels are predicted to be approximately 38 dB L_{eq} and 41 dB L_{max} at the nearest sensitive use (Table 13).

The highest predicted equipment noise levels of 38 dB L_{eq} and 41 dB L_{max} are below mean measured daytime ambient noise levels within the vicinity of the nearest sensitive use (site LT-2). In addition, the highest predicted mitigated equipment noise level of 41 dB L_{max} is below the mean measured nighttime maximum noise level at site LT-2. Lastly, the highest predicted mitigated

equipment noise level of 38 dB L_{eq} would exceed the mean measured nighttime ambient noise level at site LT-2 by 3 dB – which would be below the applicable Tuolumne County General Plan cumulative noise level increase criterion of 5 dB.

Significance of Impact 9 after Mitigation: *Less than Significant*

Impact 10: Emergency Helipad Operations Noise at Existing Sensitive Uses

According to the project description and site plans, the project proposes a helicopter landing zone (helipad) for emergency services only. The location of the proposed emergency helipad is shown on Figure 2.

It is the experience of BAC that helicopter noise exposure is highly dependent upon operational information such as aircraft model, number of flights per day, time of day of flights, and flight path. At the time of writing this report, this information is currently unknown. As a result, it is difficult to accurately quantify future noise exposure associated with the proposed helipad at the nearest existing sensitive uses. However, BAC file data indicates that a Bell 407 helicopter, a model commonly used for emergency services, has a calculated combined Sound Exposure Level (SEL) of one approach and one departure of 100 dB SEL at a distance of 100 feet from the nearest point of a helipad approach. The maximum noise level for the combined arrival and departure of that same model is calculated to be 85 dB L_{max} at 100 feet. Based on the combined SEL level indicated above, and assuming two daily arrivals and departures (one trip during daytime hours, one trip during nighttime hours), the day-night average noise level from that helicopter model calculates to be 64 dB L_{dn} at a distance of 100 feet.

According to the project site plans, the proposed helipad is approximately 430 feet from the nearest existing sensitive use (receiver 1). Based on the above-mentioned BAC file data, and assuming two daily helicopter arrivals and departures (one trip during daytime hours, one trip during nighttime hours), day-night average noise level exposure from is calculated to be 55 dB L_{dn} at 430 feet. The maximum noise level for the combined helicopter arrival and departure at that same distance would be 72 dB L_{max}. It is reasonable to assume that noise levels associated with emergency services, such as those proposed at the project helipad, would likely be exempt from Tuolumne County noise level criteria. However, based on the information above, noise levels associated with those emergency operations would likely result in substantial temporary increases in ambient daytime and/or nighttime noise levels at nearby existing sensitive uses. As a result, this impact is identified as being **potentially significant**.

While mitigation measures related to flight path design and helipad location could potentially be effective in reducing noise levels at the existing residences nearest to the project helipad, it is also possible that noise exposure associated with the selected flight path could impact other sensitive uses along the route. In addition, due to the nature of the operations associated with the proposed helipad (emergency situations), mitigation measures such as limitations on aircraft models and frequency of flights per day (i.e., number per day and time of day) are generally considered to be infeasible in application. Because there are no identified feasible mitigation measures that would ensure noise levels generated by emergency flight operations at the project

helipad would not result in substantial increases in ambient noise levels, this impact is considered to be ***significant and unavoidable***.

Impact 11: Combined Noise Levels from Normal On-Site Operations at Existing Sensitive Uses

The calculated unmitigated and mitigated combined noise levels from normal on-site project operations at the nearest existing sensitive use (receiver 1) are presented in Tables 14 and 15, respectively. It should be noted that due to the logarithmic nature of the decibel scale, the sum of two noise values which differ by 10 dB equates to an overall increase in noise levels of 0.4 dB. When the noise sources are equivalent, the sum would result in an overall increase in noise levels of 3 dB.

Table 14
Predicted Combined Noise Levels from Normal On-Site Operations at Nearest Existing Sensitive Uses – Unmitigated

	Predicted Project Operations Noise Levels, (dB)[1]															County Noise Standards			
	Vehicle Circulation		Parking		Truck Circulation		Loading Dock		HVAC	Garbage		Maintenance Yard		Cumulative		Daytime		Nighttime	
Receiver	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
1	34	44	31	45	28	51	20	32	35	38	46	57	57	57	59	50	70	45	65

[1] Predicted noise levels include shielding provided by intervening on-site buildings and topography (where applicable).
Source: Bollard Acoustical Consultants, Inc. (2020)

Table 15
Predicted Combined Noise Levels from Normal On-Site Operations at Nearest Existing Sensitive Uses – Mitigated (MM 9A & 9B)

	Predicted Project Operations Noise Levels, (dB)[1]															County Noise Standards			
	Vehicle Circulation		Parking		Truck Circulation		Loading Dock		HVAC	Garbage		Maintenance Yard		Cumulative		Daytime		Nighttime	
Receiver	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
1	34	44	31	45	28	51	20	32	35	38	46	38	41	41	54	50	70	45	65

[1] Predicted noise levels include the implementation of mitigation measures MM 9A & 9B and shielding provided by intervening on-site buildings and topography (where applicable).
Source: Bollard Acoustical Consultants, Inc. (2020)

The Table 14 data indicate that combined unmitigated noise levels from normal on-site operations are predicted to satisfy the Tuolumne County General Plan daytime and nighttime maximum noise level standards at the nearest existing sensitive use, but exceed the General Plan daytime and nighttime hourly average noise level standards. However, after implementation of mitigation measures MM 9A and 9B, combined mitigated on-site project noise levels are predicted to satisfy the General Plan daytime and nighttime hourly average noise level standards at the nearest existing sensitive use (Table 15).

According to the ambient noise level survey results at site LT-2, average measured hourly daytime noise levels during the 120-hour monitoring period ranged from 38 to 41 dB L_{eq} (mean of 40) and 55 to 59 dB L_{max} (mean of 57), respectively. Average measured hourly nighttime noise levels during the monitoring period ranged from 33 to 36 dB L_{eq} (mean of 35) and 46 to 48 dB L_{max} (mean of 47), respectively. The Tuolumne County General Plan cumulative noise increase significance criteria indicate that a 5 dB increase is the threshold of significance where pre-project ambient noise levels are less than 60 dB (Table 8).

As indicated in Table 15, the combined mitigated hourly average and maximum noise levels from normal on-site operations are predicted to be 41 dB L_{eq} and 54 dB L_{max} (respectively) at the nearest sensitive use. The predicted mitigated combined noise level of 54 dB L_{max} would be below the mean measured ambient daytime noise level within the vicinity of the nearest sensitive use.

However, the predicted mitigated combined noise level of 41 dB L_{eq} would exceed the mean measured ambient daytime noise level at site LT-2 by 1 dB. In addition, the predicted mitigated combined noise levels of 41 dB L_{eq} and 54 dB L_{max} would exceed the mean measured ambient nighttime noise levels at site LT-2 by 6 and 7 dB, respectively. Because the increases in ambient hourly average and maximum nighttime noise levels of 6 and 7 dB (respectively) are predicted to exceed the applicable Tuolumne County General Plan cumulative noise level increase criterion of 5 dB, this impact is identified as being **potentially significant**.

Mitigation Impact 11:

In order to satisfy applicable Tuolumne County General Plan cumulative noise level increase criteria at the nearest existing sensitive use to the project, the following noise mitigation measures should be implemented:

MM 11A: The limitation of on-site truck deliveries to daytime hours only (7:00 a.m. to 10:00 p.m.).

AND

MM 11B: The limitation of refuse collection activities to daytime hours only (7:00 a.m. to 10:00 p.m.)

After implementation of mitigation measures MM 11A & 11B, combined project noise levels from normal on-site operations are predicted to be 38 dB L_{eq} and 49 dB L_{max} at the nearest sensitive use. Although the predicted combined mitigated noise levels of 38 dB L_{eq} and 49 dB L_{max} would

exceed the mean measured ambient nighttime noise levels at site LT-2 by 3 and 2 dB (respectively), the cumulative increase in ambient noise levels would be less than the applicable General Plan cumulative noise level increase criterion of 5 dB.

Significance of Impact 11 after Mitigation: *Less than Significant*

Noise Impacts Associated with Project Construction Activities

Impact 12: Project Construction Noise at Existing Sensitive Uses

During project construction, heavy equipment would be used for grading excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how it is operated, and how well it is maintained. Noise exposure at any single point outside the project work area would also vary depending upon the proximity of equipment activities to that point. The project site is approximately 250 feet from the nearest existing sensitive use (receiver 1).

Table 16 includes the range of maximum noise levels for equipment commonly used in general construction projects at full-power operation at a distance of 50 feet. Not all of these construction activities would be required of this project. The Table 16 data also include predicted maximum equipment noise levels at the nearest existing sensitive use (receiver 1) located approximately 250 feet away, which assume a standard spherical spreading loss of 6 dB per doubling of distance.

Table 16
Construction Equipment Reference Noise Levels and Predicted Levels at 250 Feet

Equipment Description	Maximum Noise Level at 50 Feet, dBA	Predicted Maximum Noise Level at 250 feet, dBA
Air compressor	80	66
Backhoe	80	66
Ballast equalizer	82	68
Ballast tamper	83	69
Compactor	82	68
Concrete mixer	85	71
Concrete pump	82	68
Concrete vibrator	76	62
Crane, mobile	83	69
Dozer	85	71
Generator	82	68
Grader	85	71
Impact wrench	85	71
Jack hammer	88	74
Loader	80	66
Paver	85	71
Pneumatic tool	85	71
Pump	77	63
Rail saw	90	76
Saw	76	62
Scarifier	83	69
Scraper	85	71
Shovel	82	68
Spike driver	77	63
Tie cutter	84	70
Tie handler	80	66
Tie inserter	85	71
Truck	84	70

Source: Federal Transit Administration, Noise and Vibration Impact Assessment Manual, Table 7-1 (2018)

Based on the equipment noise levels provided in Table 16, worst-case on-site project construction equipment noise levels at the nearest existing sensitive use (receiver 1) could range from approximately 62 to 76 dB.

As presented in the Regulatory Setting Section of this report, Policy 5.A.5 of the Tuolumne County General Plan establishes noise criteria applicable to construction activities. Specifically, Policy 5.A.5 requires that all new construction activities implement all feasible noise-reducing measures as necessary to limit construction noise exposure at receiving occupied land uses to within acceptable County noise levels identified in Table 7 (General Plan Table 5.C). Policy 5.A.5 also states that construction-related exterior noise levels shall not exceed 65 dBA L_{max} at the nearest occupied land use. In addition to the above-mentioned criteria, Policy 5.A.5 also establishes the following construction-related implementation measures:

- The County shall ensure that, where residences or other noise sensitive uses are located 1,900 feet of construction sites, appropriate measures shall be implemented to limit noise exposure from construction. Specific techniques may include, but are not limited to, restrictions on construction timing, use of sound blankets on construction equipment, and the use of temporary wall and noise barriers to block and deflect noise. (Implementation Measure 5.A.e)

- Require the use of alternative pile driving techniques, where feasible, if a particular project requires pile driving within 800 feet of sensitive receptors. (Implementation Measure 5.A.f)

- Require that equipment and trucks used for project construction utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds). (Implementation Measure 5.A.g)

- Require that impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction be hydraulically or electrically powered wherever feasible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatically powered tools is unavoidable, the used of an exhaust muffler on the compressed air exhaust is recommended to lower noise levels from the exhaust by up to about 10 dBA. When feasible, external jackets on the impact equipment should also be incorporated to achieve a further reduction of 5 dBA. Whenever feasible, require the use of quieter procedures, such as drilling rather than impact equipment operation. (Implementation Measure 5.A.h)

- Locate stationary noise sources as far from sensitive receptors as possible. Stationary noise sources that must be located near existing receptors shall be adequately designed to minimize noise exposure at sensitive receptors such that County noise standards are met. (Implementation Measure 5.A.i)

- Require, prior to approval of development or construction activities that would include blasting activities, proof of contract with a State licensed contractor if blasting is required for any construction activities. Blasting shall not be allowed during nighttime hours (10:00 p.m. to 7:00 a.m.). In addition, prior to approval of construction/grading permits, Tuolumne County will review all proposed blasting activities and require construction contractors to implement available noise reduction measures, including alternatives to blasting. (Implementation Measure 5.A.***)

Due to the short-term nature of construction noise, the intermittent frequency of construction noise, and the required compliance with the construction-related noise criteria and implementation measures established in Policy 5.A.5 of the Tuolumne County General Plan, construction activities are not anticipated to result in substantial temporary or periodic increases in ambient noise levels in the project vicinity. As a result, the impact of construction noise exposure at existing sensitive uses is considered to be ***less than significant***.

Vibration Impacts Due to Project

Impact 13: Vibration Generated by Project Construction Activities

During project construction heavy equipment would be used for grading excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of the construction. The nearest existing sensitive use to the project area (receiver 1, residence) is located approximately 250 feet from construction activities which would occur on the project site.

Table 17 includes the range of vibration levels for equipment commonly used in general construction projects at a distance of 25 feet. The Table 17 data also include predicted equipment vibration levels at the nearest existing sensitive use to the project area located approximately 250 feet away.

Table 17
Construction Equipment Reference Vibration Levels and Predicted Levels at 250 Feet

	Maximum PPV (inches/second)[1]	
Equipment	**Maximum PPV at 50 feet[2]**	**Predicted PPV at 250 Feet**
Hoe ram	0.032	0.003
Large bulldozer	0.032	0.003
Caisson drilling	0.032	0.003
Loaded trucks	0.027	0.002
Jackhammer	0.012	0.001
Small bulldozer	0.001	<0.001

[1] PPV = Peak Particle Velocity

[2] Reference vibration level obtained from the 2018 Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual, Table 7-4.

As indicated in Table 17, vibration levels generated from on-site construction activities at the nearest existing sensitive use (receiver 1, residence) are predicted to be well below the strictest Caltrans thresholds for damage to residential structures of 0.30 in/sec PPV shown in Table 3. Further, the predicted vibration levels are below the Caltrans thresholds for annoyance presented in Table 4. Therefore, on-site construction within the project area would not result in excessive groundborne vibration levels at nearby existing residential uses.

During a site visit on May 9, 2019, vibration levels were below the threshold of perception at the project site and in the immediate project vicinity (below 0.1 inches per second if converted to peak particle velocity). Therefore, the project would not result in the exposure of persons to excessive groundborne vibration levels at the project site.

The project proposes transient lodging and commercial uses within the development. It is the experience of BAC that transient lodging and commercial operations do not typically have equipment that generates appreciable vibration. In addition, it is our understanding that the proposed lodging and commercial uses do not propose equipment that will produce appreciable vibration.

Because vibration levels due to and upon the proposed project will satisfy the Caltrans groundborne impact vibration criteria, this impact is considered to be ***less than significant***.

Noise Impacts Upon the Terra Vi Lodge Yosemite Development

The California Supreme Court issued an opinion in *California Building Industry Association v. Bay Area Air Quality Management District (2015)* holding that CEQA is primarily concerned with the impacts of a project on the environment and generally does not require agencies to analyze the impact of existing conditions on a project's future users or residents. Nevertheless, Tuolumne

County has policies that address existing/future conditions affecting the proposed project, which are discussed in the following section.

On-Site Traffic Noise Impacts

Traffic Noise Prediction Model Calibration

According to data obtained from the project traffic impact analysis prepared by KD Anderson & Associates, Inc., the segment of SR 120 adjacent to the project site currently experiences an average daily traffic (ADT) of approximately 5,490 vehicles. Assuming vehicle speeds of 55 MPH, medium- and heavy-truck mix of 2%/1%, and an existing volume of 5,490, the FHWA Model predicts a roadway noise level of 59 dB L_{dn} at a distance of 175 feet from the centerline of SR 120. The existing traffic noise level predicted by the FHWA Model is 11 dB higher than the calculated weekday ambient day-night average noise level at site LT-1 (48 dB L_{dn}), which maintained a 175 foot setback from the centerline of SR 120. In order to provide traffic noise level predictions more representative of local conditions, a calibration offset of -6 dB was conservatively applied to the FHWA Model for the prediction of future SR 120 traffic noise levels at the project site.

Impact 14: Future Exterior Traffic Noise Levels at the Project Site

The calibrated FHWA Model was used with future traffic data to predict future exterior traffic noise levels at the proposed noise-sensitive locations at the project site. The future (Cumulative Plus Project) average daily traffic (ADT) volume for SR 120 was calculated using data provided in the project traffic impact analysis prepared by KD Anderson & Associates, Inc. Specifically, the future SR 120 average daily traffic (ADT) volume was conservatively estimated by applying a factor of 10 to noon peak hour conditions. The predicted future traffic noise levels at the noise-sensitive areas proposed nearest to SR 120 are summarized in Table 18. Detailed FHWA Model inputs and results are provided in Appendix F.

Table 18
Predicted Future Exterior Traffic Noise Levels at Project Site[1]

Roadway	Location	Distance from Centerline (feet)[2]	Future Exterior L_{dn} (dB)[3]
SR 120	Nearest outdoor recreation area	230	53
	Lodge building facade – First-floor	280	51
	Lodge building facade – Upper-floor	280	53

[1] A complete listing of FHWA Model inputs and results are provided in Appendix F.
[2] Distances measured from said location to the roadway centerline.
[3] A -6 dB offset was applied at all locations to account for the over-prediction of the FHWA Model.
[4] A +2 dB offset was applied to the upper-floor facade for reduced ground absorption of sound at elevated floor levels.
Source: Bollard Acoustical Consultants, Inc. (2020)

As indicated in Table 18, predicted future SR 120 traffic noise level exposure at the outdoor recreation area proposed nearest to the roadway would satisfy the Tuolumne County General

Plan exterior noise level standard of 60 dB L_{dn} for transient lodging. As a result, this impact is considered to be ***less than significant***.

Impact 15: Future Interior Traffic Noise Levels at the Project Site

As indicated in Table 18, the future SR 120 exterior traffic noise level is predicted to be approximately 51 dB L_{dn} at first-floor facade of the proposed lodge. Due to reduced ground absorption at elevated positions, the future SR 120 traffic noise level at the upper-floor facade of lodge is predicted be 53 dB L_{dn}. In order to satisfy the applicable Tuolumne County General Plan 45 dB L_{dn} interior noise level standard within the first-floor rooms nearest to SR 120, a minimum building facade noise reduction of 6 dB would be required. To satisfy the 45 dB L_{dn} interior standard at the upper-floor rooms nearest to the roadway, a building facade noise reduction of 8 dB would be required.

Standard building construction (stucco siding, STC-27 windows, door weather-stripping, exterior wall insulation, composition plywood roof), typically results in an exterior to interior noise reduction of approximately 25 dB with windows closed and approximately 15 dB with windows open. Therefore, standard building construction would be adequate to ensure compliance with the Tuolumne County General Plan and California Building Code 45 dB L_{dn} interior noise level standard within all levels of the proposed lodge. However, mechanical ventilation (air conditioning) should be provided for all guestrooms/residences within this development to allow the occupants to close doors and windows as desired for additional acoustical isolation. Based on the information above, this impact is considered to be ***less than significant***.

Impact 16: Normal On-Site Operations Noise at Proposed Noise-Sensitive Uses

Analyses of project on-site traffic circulation, parking lot activities (vehicles arriving and departing, doors opening and closing, etc.), on-site delivery truck movements, loading dock activities, mechanical equipment (HVAC), refuse collection, and maintenance yard noise levels at existing sensitive uses were provided in **Impacts 3-9**.

The primary noise-sensitive areas of the development have been identified as the interior areas of the guestrooms proposed within the lodge and cabins. As mentioned previously, standard building construction (stucco siding, STC-27 windows, door weather-stripping, exterior wall insulation, composition plywood roof), typically results in an exterior to interior noise reduction of approximately 25 dB with windows closed and approximately 15 dB with windows open. Based on the reference noise levels and associated operational assumptions utilized in **Impacts 3-9**, and after consideration of the noise level reduction achieved with standard building construction, it is expected that noise levels generated from the on-site sources identified in **Impacts 3-9** would not exceed 45 dB L_{dn} within the interior areas of proposed guestrooms. As a result, this impact is considered to be ***less than significant***.

Impact 17: Emergency Helipad Operations Noise at Proposed Noise-Sensitive Uses

An impact discussion of project emergency helipad operations was presented in **Impact 10**. As indicated in **Impact 10**, helicopter noise exposure is highly dependent upon operational information such as aircraft model, number of flights per day, time of day of flights, and flight path. At the time of writing this report, this information is currently unknown.

The primary noise-sensitive areas of the development have been identified as the interior areas of the guestrooms proposed within the lodge and cabins. The Tuolumne County General Plan establishes noise level standards of 45 dB L_{dn} and 40 dB L_{max} (nighttime) for transient lodging uses affected by aircraft noise sources. The California Building Code identifies an interior noise level standard of 45 dB L_{dn} for habitable rooms. As mentioned previously, standard building construction (stucco siding, STC-27 windows, door weather-stripping, exterior wall insulation, composition plywood roof), typically results in an exterior to interior noise reduction of approximately 25 dB with windows closed and approximately 15 dB with windows open. Therefore, provided that helipad operations noise levels do not exceed 70 dB L_{dn} or 65 dB L_{max} at exterior building facades, standard building construction would be adequate to ensure compliance with the applicable General Plan and California Building Code interior noise level standards.

BAC file data indicates that a Bell 407 helicopter, a model commonly used for emergency services, has a calculated combined Sound Exposure Level (SEL) of one approach and one departure of 100 dB SEL at a distance of 100 feet from the nearest point of a helipad approach. Based on the combined SEL level indicated above, and assuming two daily arrivals and departures (one trip during daytime hours, one trip during nighttime hours), the day-night average noise level from that helicopter model calculates to be 64 dB L_{dn} at a distance of 100 feet. The maximum noise level for the combined arrival and departure of that helicopter model is calculated to be 85 dB L_{max} at 100 feet. Based on the operational assumptions and computed reference noise levels provided above, helicopter operations noise exposure is projected to be 70 dB L_{dn} at 40 feet and 65 dB L_{max} at 1,000 feet.

The project site plans indicate that the helipad will be located approximately 160 feet from the nearest proposed lodging (cabin). This distance would be outside of the projected 70 dB L_{dn} noise contour indicated above. Therefore, based on the noise level data and operational assumptions indicated above, standard building construction would be adequate to reduce emergency helipad operations noise levels to 45 dB L_{dn} or less within all guestrooms of the development, which would satisfy the applicable General Plan/California Building Code day-night average interior noise level criterion. Nonetheless, mechanical ventilation (air conditioning) should be provided for all guestrooms within this development to allow the occupants to close doors and windows as desired for additional acoustical isolation.

However, helicopter operations maximum noise level exposure is projected to be 65 dB L_{max} at 1,000 feet. The site plans indicate that all of the proposed lodging is located within the 1,000 feet noise contour. Therefore, based on the noise level data provided above, building construction upgrades would be required for all proposed guestrooms of the development in order to comply

with the General Plan 40 dB L_{max} interior noise level standard. As a result, this impact is identified as being **potentially significant**.

Mitigation Impact 17:

In order to satisfy the Tuolumne County General Plan 40 dB L_{max} interior noise level standard within the sensitive interior areas of the proposed development, the following noise mitigation measures should be implemented:

MM 17A: Window and door assemblies of all lodging within the development should be upgraded to a minimum STC rating of 32.

AND

MM 17B: Disclosure statements should be provided to inform guests of the potential for elevated interior noise levels during emergency operations at the helipad, especially during nighttime hours.

Significance of Impact 17 after Mitigation: ***Less than Significant***

Impact 18: Cumulative Noise Exposure Impacts

After review of the Tuolumne County General Plan DEIR, and Cumulative Projects Buildout information provided by the client (which included planned projects within the greater project vicinity), it was determined that noise impacts from other projects within the County would be highly localized to the area of that particular project. In addition, it is expected that traffic noise impacts would be the most significant impact associated with these projects. As identified in **Impact 2**, cumulative traffic noise impacts resulting from the project, which includes consideration of other traffic generated from proposed projects in the area, are considered to be ***less than significant*** and no mitigation measures would be required.

Appendix A

Acoustical Terminology

Acoustics The science of sound.

Ambient Noise The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

Attenuation The reduction of an acoustic signal.

A-Weighting A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

Decibel or dB Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

CNEL Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

Frequency The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.

Ldn Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

Leq Equivalent or energy-averaged sound level.

Lmax The highest root-mean-square (RMS) sound level measured over a given period of time.

Loudness A subjective term for the sensation of the magnitude of sound.

Masking The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.

Noise Unwanted sound.

Peak Noise The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.

RT_{60} The time it takes reverberant sound to decay by 60 dB once the source has been removed.

Sabin The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.

SEL A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.

Threshold of Hearing The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.

Threshold of Pain Approximately 120 dB above the threshold of hearing.

Appendix B-1
FHWA Highway Traffic Noise Prediction Model Data Inputs
Terra Vi Lodge Yosemite Development
File Name: 2019-050 01 Existing
Model Run Date: 2/6/2020

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	SR 120 / Ferretti Road	North	5,840	80	20	2	1	35	100
2		South							
3		East	6,600	80	20	2	1	35	100
4		West	10,260	80	20	2	1	25	100
5	SR 120 / Sawmill Mountain Road	North	50	80	20	2	1	25	100
6		South							
7		East	5,490	80	20	2	1	55	100
8		West	5,480	80	20	2	1	55	100
9	SR 120 / Hardin Flat Road	North							
10		South	130	80	20	2	1	25	100
11		East	5,390	80	20	2	1	55	100
12		West	5,480	80	20	2	1	55	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-2
FHWA Highway Traffic Noise Prediction Model Data Inputs
Terra Vi Lodge Yosemite Development
File Name: 2019-050 02 Existing Plus Project
Model Run Date: 2/6/2020

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	SR 120 / Ferretti Road	North	5,880	80	20	2	1	35	100
2		South							
3		East	6,870	80	20	2	1	35	100
4		West	10,490	80	20	2	1	25	100
5	SR 120 / Sawmill Mountain Road	North	1,380	80	20	2	1	25	100
6		South							
7		East	6,120	80	20	2	1	55	100
8		West	5,760	80	20	2	1	55	100
9	SR 120 / Hardin Flat Road	North							
10		South	150	80	20	2	1	25	100
11		East	6,010	80	20	2	1	55	100
12		West	6,120	80	20	2	1	55	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-3
FHWA Highway Traffic Noise Prediction Model Data Inputs
Terra Vi Lodge Yosemite Development
File Name: 2019-050 03 Cumulative
Model Run Date: 2/6/2020

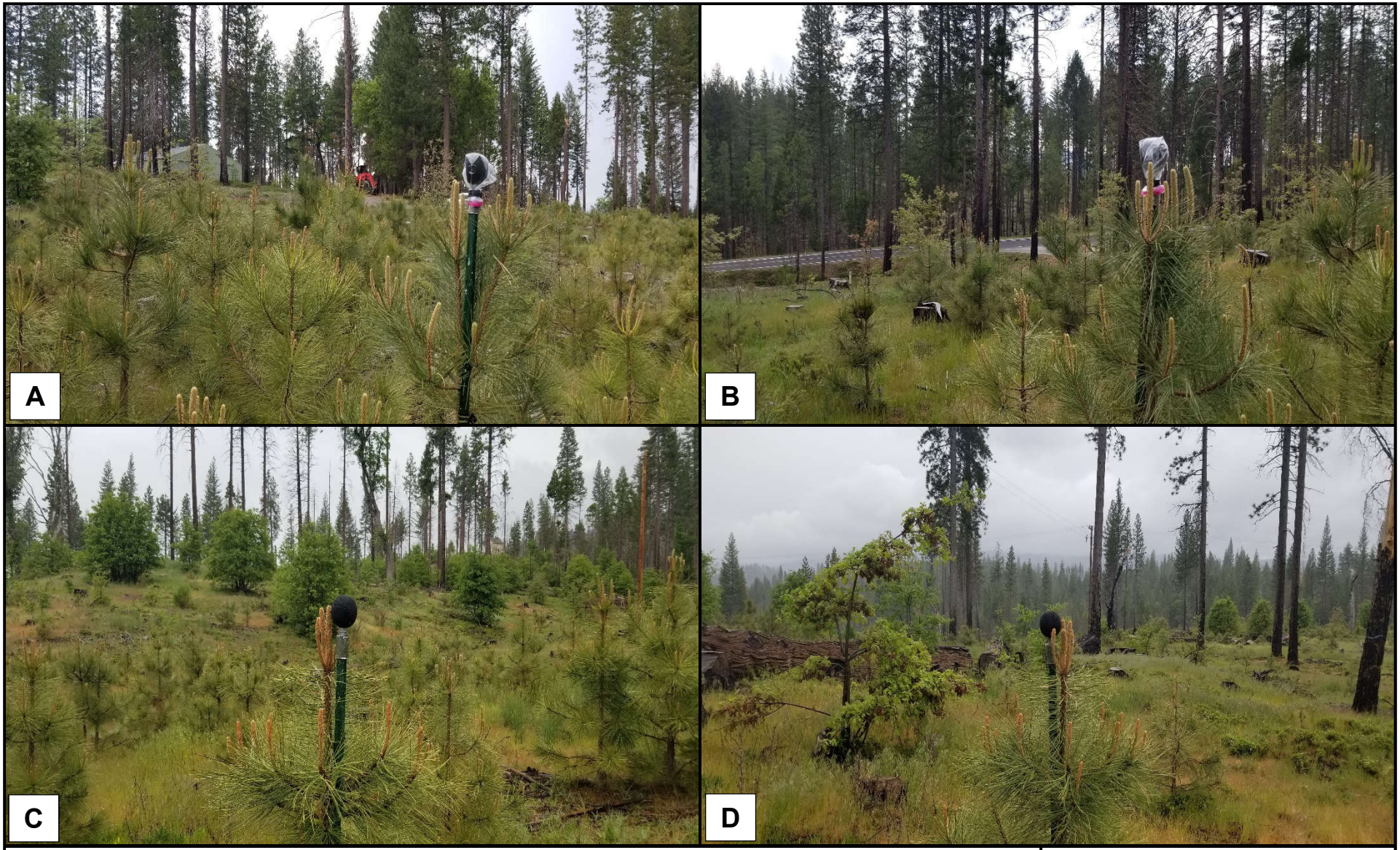
Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	SR 120 / Ferretti Road	North	6,950	80	20	2	1	35	100
2		South							
3		East	7,950	80	20	2	1	35	100
4		West	12,200	80	20	2	1	25	100
5	SR 120 / Sawmill Mountain Road	North	100	80	20	2	1	25	100
6		South							
7		East	7,200	80	20	2	1	55	100
8		West	7,200	80	20	2	1	55	100
9	SR 120 / Hardin Flat Road	North							
10		South	400	80	20	2	1	25	100
11		East	7,200	80	20	2	1	55	100
12		West	7,100	80	20	2	1	55	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-4
FHWA Highway Traffic Noise Prediction Model Data Inputs
Terra Vi Lodge Yosemite Development
File Name: 2019-050 04 Cumulative Plus Project
Model Run Date: 2/6/2020

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	SR 120 / Ferretti Road	North	6,990	80	20	2	1	35	100
2		South							
3		East	8,220	80	20	2	1	35	100
4		West	12,430	80	20	2	1	25	100
5	SR 120 / Sawmill Mountain Road	North	1,430	80	20	2	1	25	100
6		South							
7		East	7,830	80	20	2	1	55	100
8		West	7,480	80	20	2	1	55	100
9	SR 120 / Hardin Flat Road	North							
10		South	420	80	20	2	1	25	100
11		East	7,820	80	20	2	1	55	100
12		West	7,740	80	20	2	1	55	100

Note: Blank cells represent roadways for which no traffic data was provided.



Legend

A: LT-1: Looking west towards maintenance building and FR 1S03 (37°49'22.72" N, 119°57'54.93" W)
B: LT-1: Looking southwest towards intersection of SR 120 and FR 1S03 (37°49'22.72" N, 119°57'54.93" W)
C: LT-2: Looking northeast towards FR 1S03 and residence north of project site (37°49'29.40" N, 119°57'47.89" W)
D: LT-2: Looking south towards SR 120 and center of project area (37°49'29.40" N, 119°57'47.89" W)

Terra Vi Lodge
Yosemite Development
Tuolumne County, California

Photographs of Noise Measurement Sites

Appendix C

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Appendix D-1
Ambient Noise Monitoring Results - Site LT-1
Terra Vi Lodge Yosemite Development
Friday, May 10, 2019

Hour	Leq	Lmax	L50	L90
12:00 AM	36	53	33	31
1:00 AM	34	53	33	30
2:00 AM	35	53	32	29
3:00 AM	37	62	33	31
4:00 AM	36	53	34	32
5:00 AM	43	63	34	31
6:00 AM	45	62	35	31
7:00 AM	44	60	34	27
8:00 AM	46	62	38	28
9:00 AM	45	61	36	27
10:00 AM	45	60	39	31
11:00 AM	45	61	37	31
12:00 PM	45	59	38	31
1:00 PM	45	62	39	33
2:00 PM	47	69	41	33
3:00 PM	46	61	39	30
4:00 PM	46	58	41	32
5:00 PM	45	58	38	29
6:00 PM	46	62	39	29
7:00 PM	46	63	37	25
8:00 PM	45	63	34	23
9:00 PM	45	62	33	23
10:00 PM	42	64	28	23
11:00 PM	41	58	27	24

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	47	44	46	45	34	40
Lmax (Maximum)	69	58	61	64	53	58
L50 (Median)	41	33	38	35	27	32
L90 (Background)	33	23	29	32	23	29

Computed Ldn, dB	48
% Daytime Energy	84%
% Nighttime Energy	16%

GPS Coordinates	37°49'22.72" N
	119°57'54.93" W

Notes	Monitoring site located on the southwest end of the project area, approximately 175 feet from the centerline of SR 120.

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Appendix D-2
Ambient Noise Monitoring Results - Site LT-1
Terra Vi Lodge Yosemite Development
Saturday, May 11, 2019

Hour	Leq	Lmax	L50	L90
12:00 AM	36	55	26	25
1:00 AM	34	56	28	27
2:00 AM	34	54	28	27
3:00 AM	35	57	29	27
4:00 AM	36	57	29	28
5:00 AM	42	59	31	29
6:00 AM	45	60	33	30
7:00 AM	46	61	36	29
8:00 AM	46	64	35	25
9:00 AM	46	60	40	30
10:00 AM	46	59	41	31
11:00 AM	46	58	41	31
12:00 PM	45	60	40	31
1:00 PM	45	58	39	30
2:00 PM	46	70	39	32
3:00 PM	46	65	40	32
4:00 PM	46	60	41	33
5:00 PM	45	56	39	30
6:00 PM	47	62	41	28
7:00 PM	48	60	44	28
8:00 PM	47	59	40	28
9:00 PM	46	65	36	28
10:00 PM	41	58	30	26
11:00 PM	40	59	30	28

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	48	45	46	45	34	40
Lmax (Maximum)	70	56	61	60	54	57
L50 (Median)	44	35	39	33	26	29
L90 (Background)	33	25	30	30	25	28

Computed Ldn, dB	48
% Daytime Energy	87%
% Nighttime Energy	13%

GPS Coordinates	37°49'22.72" N
	119°57'54.93" W

Notes	Monitoring site located on the southwest end of the project area, approximately 175 feet from the centerline of SR 120.

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Appendix D-3
Ambient Noise Monitoring Results - Site LT-1
Terra Vi Lodge Yosemite Development
Sunday, May 12, 2019

Hour	Leq	Lmax	L50	L90
12:00 AM	35	54	31	29
1:00 AM	32	54	30	29
2:00 AM	34	53	31	30
3:00 AM	32	50	31	30
4:00 AM	36	57	33	32
5:00 AM	41	61	33	31
6:00 AM	44	64	34	33
7:00 AM	46	59	38	33
8:00 AM	47	65	39	29
9:00 AM	46	71	38	28
10:00 AM	46	60	40	30
11:00 AM	47	64	44	31
12:00 PM	47	61	42	32
1:00 PM	47	62	43	34
2:00 PM	49	73	43	35
3:00 PM	47	59	42	35
4:00 PM	46	59	42	34
5:00 PM	49	70	43	32
6:00 PM	46	57	40	26
7:00 PM	48	68	40	27
8:00 PM	46	62	35	26
9:00 PM	43	60	32	26
10:00 PM	40	56	30	28
11:00 PM	39	57	30	27

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	49	43	47	44	32	39
Lmax (Maximum)	73	57	63	64	50	56
L50 (Median)	44	32	40	34	30	32
L90 (Background)	35	26	30	33	27	30

Computed Ldn, dB	48
% Daytime Energy	92%
% Nighttime Energy	8%

GPS Coordinates	37°49'22.72" N
	119°57'54.93" W

Notes	Monitoring site located on the southwest end of the project area, approximately 175 feet from the centerline of SR 120.

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Appendix D-4
Ambient Noise Monitoring Results - Site LT-1
Terra Vi Lodge Yosemite Development
Monday, May 13, 2019

Hour	Leq	Lmax	L50	L90
12:00 AM	36	55	31	30
1:00 AM	33	53	28	28
2:00 AM	29	35	29	28
3:00 AM	33	54	30	29
4:00 AM	36	55	32	31
5:00 AM	42	63	32	31
6:00 AM	46	62	34	32
7:00 AM	47	64	36	29
8:00 AM	46	62	35	27
9:00 AM	44	60	36	24
10:00 AM	46	61	41	29
11:00 AM	46	64	40	32
12:00 PM	45	60	40	32
1:00 PM	44	64	40	34
2:00 PM	45	66	40	34
3:00 PM	44	60	38	33
4:00 PM	54	80	44	31
5:00 PM	45	58	37	28
6:00 PM	45	58	35	25
7:00 PM	45	56	35	25
8:00 PM	43	58	31	23
9:00 PM	43	60	30	24
10:00 PM	41	58	30	26
11:00 PM	40	59	33	31

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	54	43	47	46	29	40
Lmax (Maximum)	80	56	62	63	35	55
L50 (Median)	44	30	37	34	28	31
L90 (Background)	34	23	29	32	26	29

Computed Ldn, dB	48
% Daytime Energy	89%
% Nighttime Energy	11%

GPS Coordinates	37°49'22.72" N
	119°57'54.93" W

Notes	Monitoring site located on the southwest end of the project area, approximately 175 feet from the centerline of SR 120.

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Appendix D-5
Ambient Noise Monitoring Results - Site LT-1
Terra Vi Lodge Yosemite Development
Tuesday, May 14, 2019

Hour	Leq	Lmax	L50	L90
12:00 AM	38	57	34	32
1:00 AM	33	53	32	31
2:00 AM	33	51	32	31
3:00 AM	35	54	33	32
4:00 AM	37	59	33	32
5:00 AM	41	62	33	31
6:00 AM	46	61	34	32
7:00 AM	45	62	34	29
8:00 AM	45	60	35	26
9:00 AM	45	65	38	27
10:00 AM	46	63	38	29
11:00 AM	45	62	39	32
12:00 PM	49	69	40	33
1:00 PM	45	59	40	35
2:00 PM	46	61	39	34
3:00 PM	46	65	40	33
4:00 PM	45	58	39	31
5:00 PM	46	65	38	28
6:00 PM	45	60	36	24
7:00 PM	46	65	34	25
8:00 PM	44	66	33	27
9:00 PM	41	59	31	26
10:00 PM	40	60	27	24
11:00 PM	35	56	26	24

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	49	41	45	46	33	40
Lmax (Maximum)	69	58	63	62	51	57
L50 (Median)	40	31	37	34	26	32
L90 (Background)	35	24	29	32	24	30

Computed Ldn, dB	48
% Daytime Energy	86%
% Nighttime Energy	14%

GPS Coordinates	37°49'22.72" N
	119°57'54.93" W

Notes	Monitoring site located on the southwest end of the project area, approximately 175 feet from the centerline of SR 120.

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Appendix D-6
Ambient Noise Monitoring Results - Site LT-2
Terra Vi Lodge Yosemite Development
Friday, May 10, 2019

Hour	Leq	Lmax	L50	L90
12:00 AM	35	43	35	33
1:00 AM	35	49	35	31
2:00 AM	35	50	34	30
3:00 AM	37	49	35	33
4:00 AM	36	42	36	33
5:00 AM	37	50	36	32
6:00 AM	38	52	36	31
7:00 AM	35	45	33	27
8:00 AM	36	51	32	26
9:00 AM	36	64	32	27
10:00 AM	39	58	35	31
11:00 AM	38	54	35	31
12:00 PM	40	60	36	31
1:00 PM	43	62	39	34
2:00 PM	43	60	38	33
3:00 PM	40	60	35	30
4:00 PM	39	56	36	30
5:00 PM	36	49	35	29
6:00 PM	38	54	34	29
7:00 PM	39	61	32	25
8:00 PM	34	48	30	23
9:00 PM	34	51	28	22
10:00 PM	32	52	26	21
11:00 PM	32	47	27	24

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	43	34	39	38	32	36
Lmax (Maximum)	64	45	56	52	42	48
L50 (Median)	39	28	34	36	26	33
L90 (Background)	34	22	29	33	21	30

Computed Ldn, dB	43
% Daytime Energy	77%
% Nighttime Energy	23%

GPS Coordinates	37°49'29.40" N
	119°57'47.89" W

Notes	Monitoring site located at the northwest end of the project area, approximately 60 feet from the centerline of Sawmill Mountain Road.

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Appendix D-7
Ambient Noise Monitoring Results - Site LT-2
Terra Vi Lodge Yosemite Development
Saturday, May 11, 2019

Hour	Leq	Lmax	L50	L90
12:00 AM	29	47	27	25
1:00 AM	30	48	29	27
2:00 AM	31	44	30	27
3:00 AM	31	45	30	28
4:00 AM	32	45	31	29
5:00 AM	36	55	32	30
6:00 AM	37	50	34	31
7:00 AM	35	51	32	29
8:00 AM	32	51	29	22
9:00 AM	37	59	33	27
10:00 AM	37	54	33	29
11:00 AM	38	57	34	30
12:00 PM	40	56	36	31
1:00 PM	40	63	35	30
2:00 PM	40	64	37	33
3:00 PM	41	61	38	34
4:00 PM	41	59	37	33
5:00 PM	37	59	35	30
6:00 PM	38	63	34	29
7:00 PM	35	51	33	26
8:00 PM	36	53	33	26
9:00 PM	37	61	32	26
10:00 PM	33	50	29	27
11:00 PM	33	44	32	30

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	41	32	38	37	29	33
Lmax (Maximum)	64	51	57	55	44	48
L50 (Median)	38	29	34	34	27	30
L90 (Background)	34	22	29	31	25	28

Computed Ldn, dB	41
% Daytime Energy	85%
% Nighttime Energy	15%

GPS Coordinates	37°49'29.40" N
	119°57'47.89" W

Notes	Monitoring site located at the northwest end of the project area, approximately 60 feet from the centerline of Sawmill Mountain Road.

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Appendix D-8
Ambient Noise Monitoring Results - Site LT-2
Terra Vi Lodge Yosemite Development
Sunday, May 12, 2019

Hour	Leq	Lmax	L50	L90
12:00 AM	33	44	33	31
1:00 AM	34	44	34	32
2:00 AM	35	48	34	33
3:00 AM	34	43	34	33
4:00 AM	36	48	36	34
5:00 AM	37	49	36	35
6:00 AM	38	47	37	35
7:00 AM	37	52	36	31
8:00 AM	33	47	31	27
9:00 AM	34	52	30	25
10:00 AM	37	59	34	29
11:00 AM	38	60	34	29
12:00 PM	40	56	37	32
1:00 PM	44	69	39	33
2:00 PM	46	71	39	34
3:00 PM	44	67	39	35
4:00 PM	43	62	39	35
5:00 PM	46	72	36	31
6:00 PM	34	49	32	26
7:00 PM	40	67	32	25
8:00 PM	35	51	31	25
9:00 PM	34	47	31	27
10:00 PM	34	48	31	29
11:00 PM	33	43	32	29

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	46	33	41	38	33	35
Lmax (Maximum)	72	47	59	49	43	46
L50 (Median)	39	30	35	37	31	34
L90 (Background)	35	25	30	35	29	32

Computed Ldn, dB	43
% Daytime Energy	87%
% Nighttime Energy	13%

GPS Coordinates	37°49'29.40" N
	119°57'47.89" W

Notes	Monitoring site located at the northwest end of the project area, approximately 60 feet from the centerline of Sawmill Mountain Road.

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Appendix D-9
Ambient Noise Monitoring Results - Site LT-2
Terra Vi Lodge Yosemite Development
Monday, May 13, 2019

Hour	Leq	Lmax	L50	L90
12:00 AM	35	44	34	33
1:00 AM	31	39	31	30
2:00 AM	32	37	32	31
3:00 AM	34	43	33	32
4:00 AM	35	44	35	33
5:00 AM	37	53	35	33
6:00 AM	38	49	36	34
7:00 AM	36	48	34	29
8:00 AM	33	51	30	25
9:00 AM	32	50	28	23
10:00 AM	40	59	34	27
11:00 AM	40	57	36	31
12:00 PM	42	59	38	31
1:00 PM	43	62	40	36
2:00 PM	44	62	39	36
3:00 PM	43	63	38	34
4:00 PM	43	64	37	32
5:00 PM	37	53	34	29
6:00 PM	32	48	30	25
7:00 PM	34	55	30	24
8:00 PM	33	47	29	24
9:00 PM	33	48	28	24
10:00 PM	36	61	32	28
11:00 PM	36	49	35	33

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	44	32	40	38	31	35
Lmax (Maximum)	64	47	55	61	37	47
L50 (Median)	40	28	34	36	31	34
L90 (Background)	36	23	29	34	28	32

Computed Ldn, dB	43
% Daytime Energy	82%
% Nighttime Energy	18%

GPS Coordinates	37°49'29.40" N
	119°57'47.89" W

Notes	Monitoring site located at the northwest end of the project area, approximately 60 feet from the centerline of Sawmill Mountain Road.

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Appendix D-10
Ambient Noise Monitoring Results - Site LT-2
Terra Vi Lodge Yosemite Development
Tuesday, May 14, 2019

Hour	Leq	Lmax	L50	L90
12:00 AM	37	46	37	34
1:00 AM	36	49	35	34
2:00 AM	36	44	36	35
3:00 AM	37	48	37	35
4:00 AM	37	50	37	35
5:00 AM	38	50	37	35
6:00 AM	38	48	37	35
7:00 AM	36	52	34	30
8:00 AM	34	60	29	24
9:00 AM	35	57	30	25
10:00 AM	41	57	35	27
11:00 AM	43	61	36	30
12:00 PM	48	70	39	32
1:00 PM	44	65	39	35
2:00 PM	42	58	39	34
3:00 PM	40	61	37	33
4:00 PM	38	56	36	31
5:00 PM	37	57	33	28
6:00 PM	32	46	30	25
7:00 PM	35	58	30	23
8:00 PM	34	49	32	27
9:00 PM	33	47	31	26
10:00 PM	30	47	26	24
11:00 PM	28	41	26	23

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	48	32	41	38	28	36
Lmax (Maximum)	70	46	57	50	41	47
L50 (Median)	39	29	34	37	26	34
L90 (Background)	35	23	29	35	23	32

Computed Ldn, dB	44
% Daytime Energy	83%
% Nighttime Energy	17%

GPS Coordinates	37°49'29.40" N
	119°57'47.89" W

Notes	Monitoring site located at the northwest end of the project area, approximately 60 feet from the centerline of Sawmill Mountain Road.

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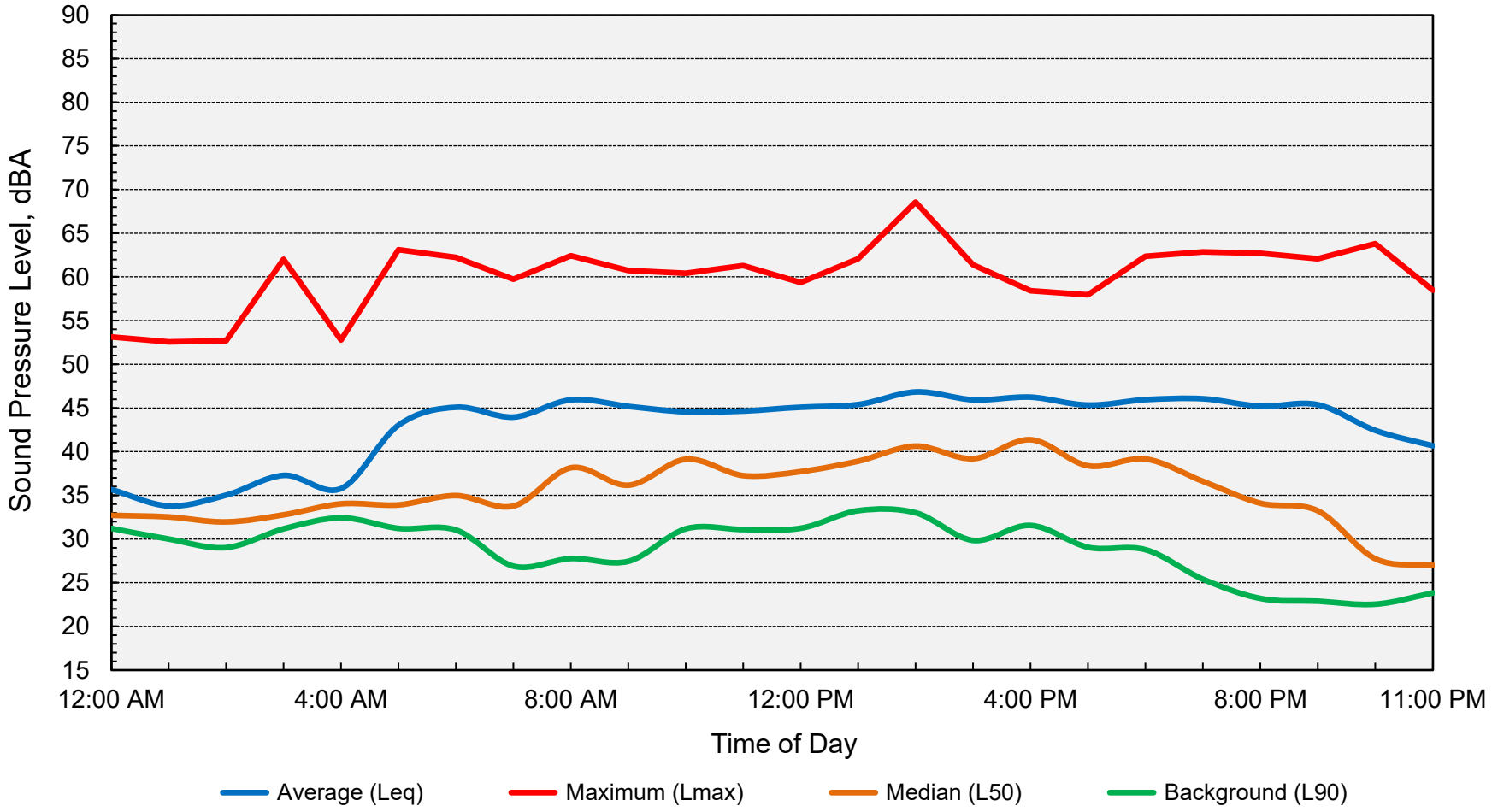
Appendix E-1
Ambient Noise Monitoring Results - Site LT-1
Terra Vi Lodge Yosemite Development
Friday, May 10, 2019



Computed Ldn = 48 dB

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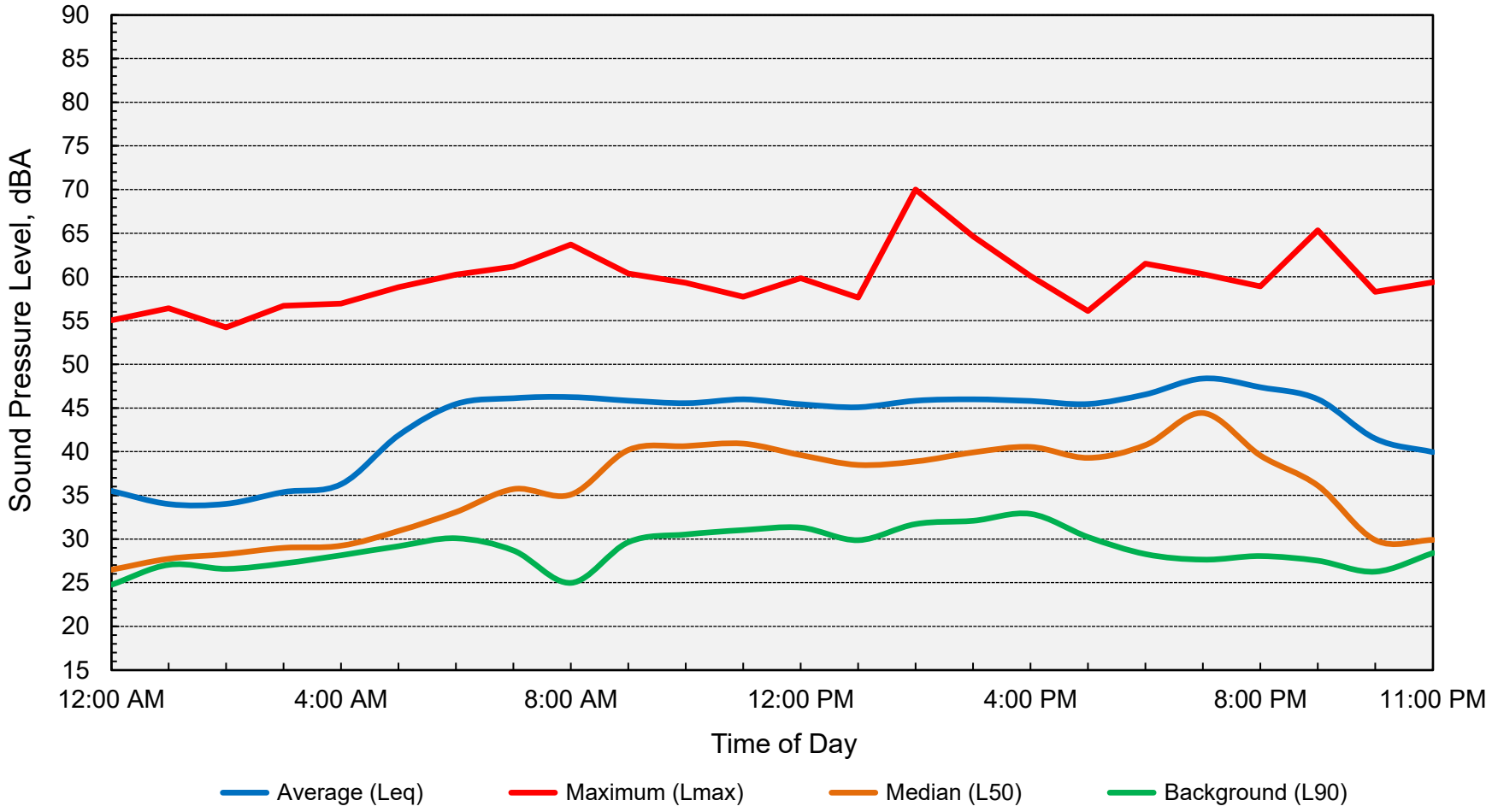
Appendix E-2
Ambient Noise Monitoring Results - Site LT-1
Terra Vi Lodge Yosemite Development
Saturday, May 11, 2019



Computed Ldn = 48 dB

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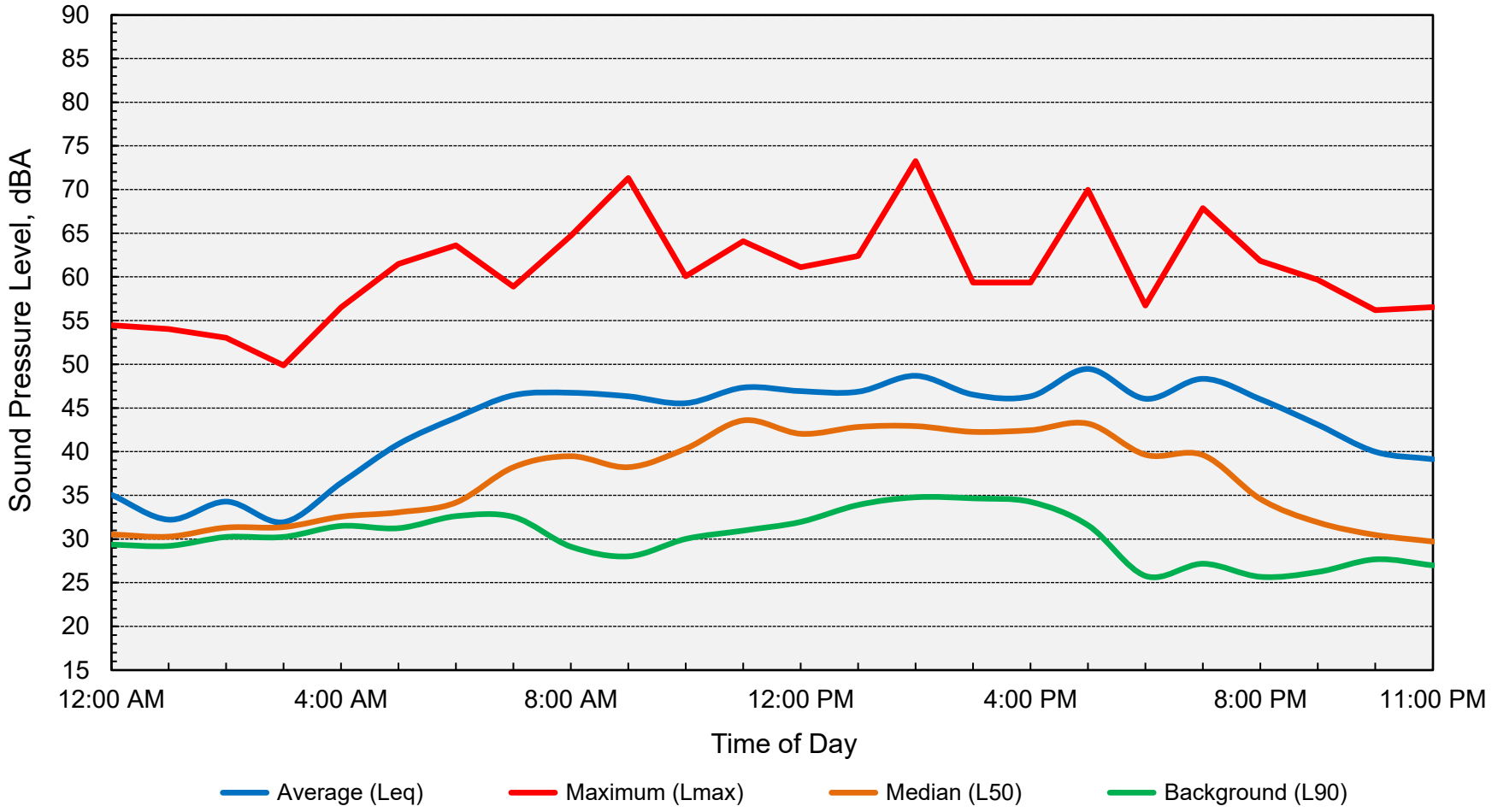
Appendix E-3
Ambient Noise Monitoring Results - Site LT-1
Terra Vi Lodge Yosemite Development
Sunday, May 12, 2019



Computed Ldn = 48 dB

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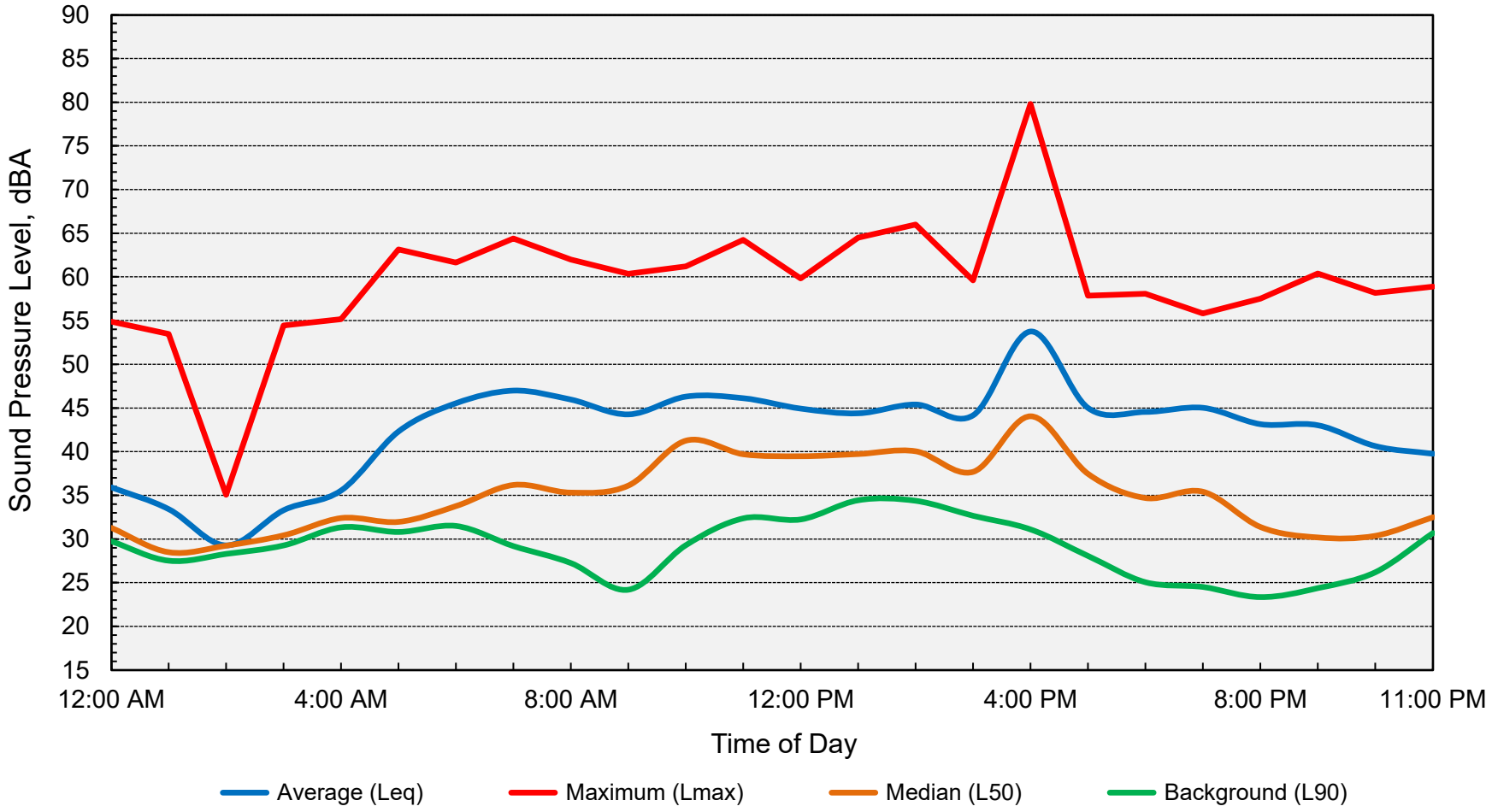
Appendix E-4
Ambient Noise Monitoring Results - Site LT-1
Terra Vi Lodge Yosemite Development
Monday, May 13, 2019



Computed Ldn = 48 dB

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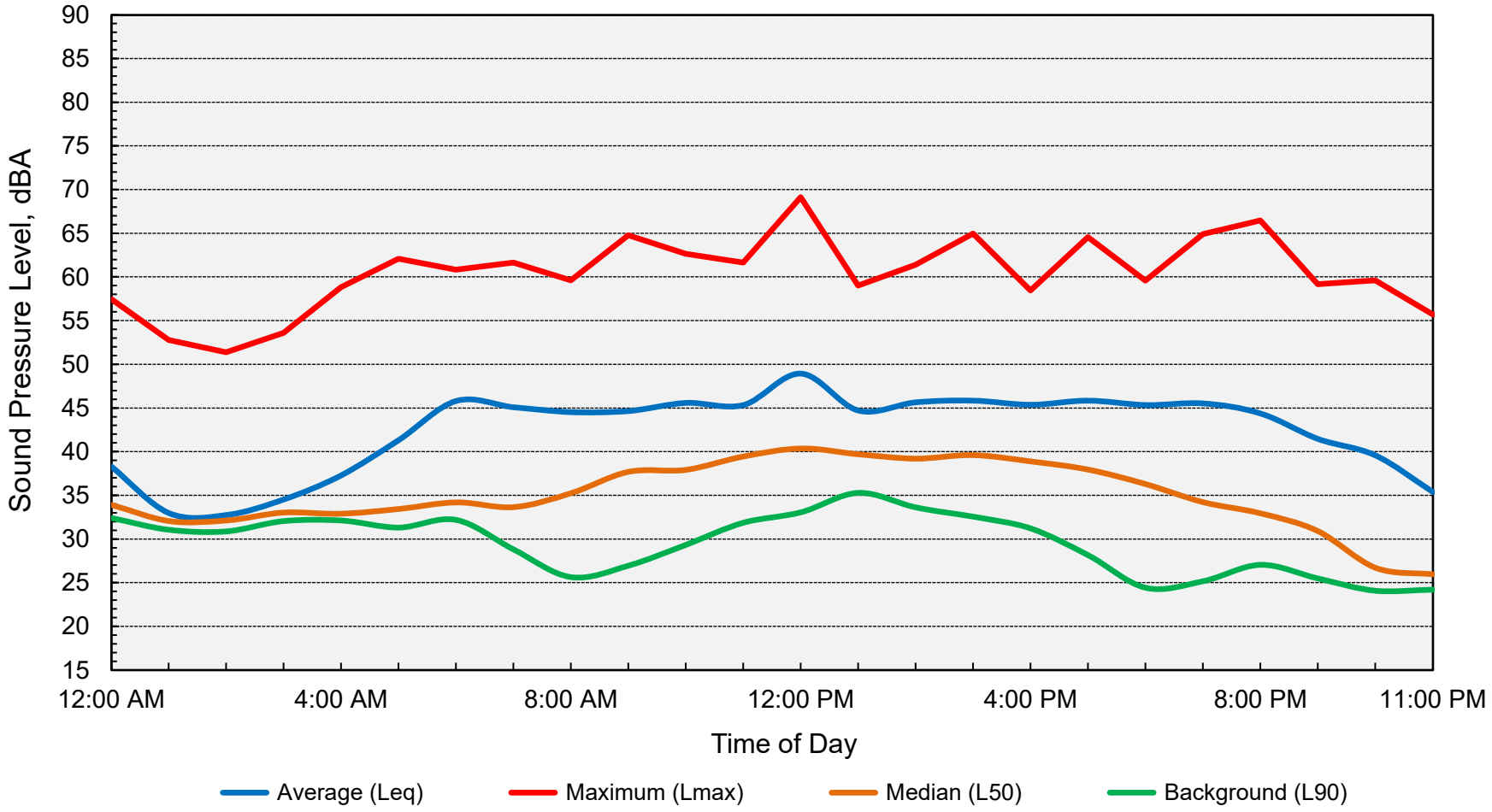
Appendix E-5
Ambient Noise Monitoring Results - Site LT-1
Terra Vi Lodge Yosemite Development
Tuesday, May 14, 2019



Computed Ldn = 48 dB

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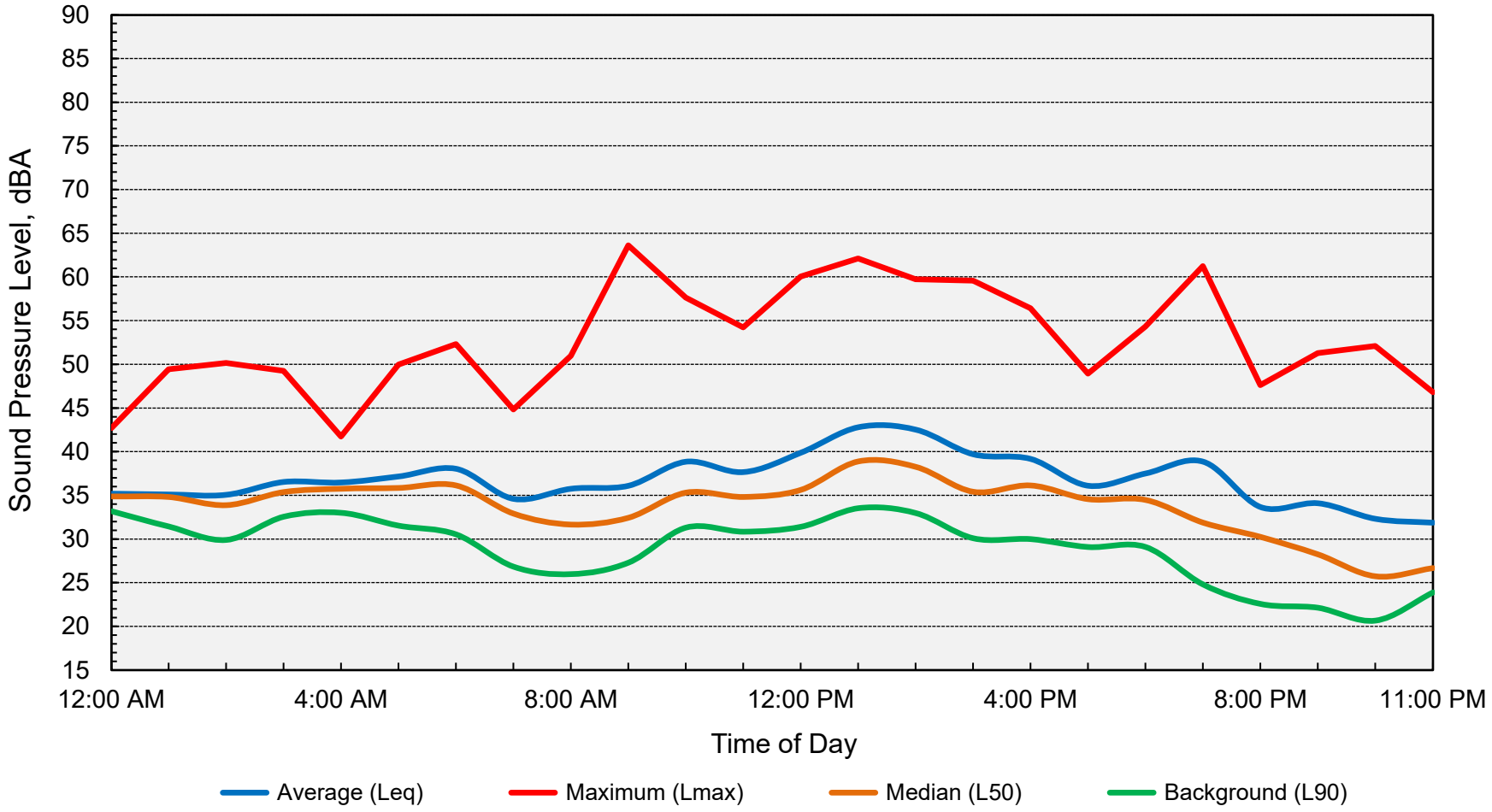
Appendix E-6
Ambient Noise Monitoring Results - Site LT-2
Terra Vi Lodge Yosemite Development
Friday, May 10, 2019



Computed Ldn = 43 dB

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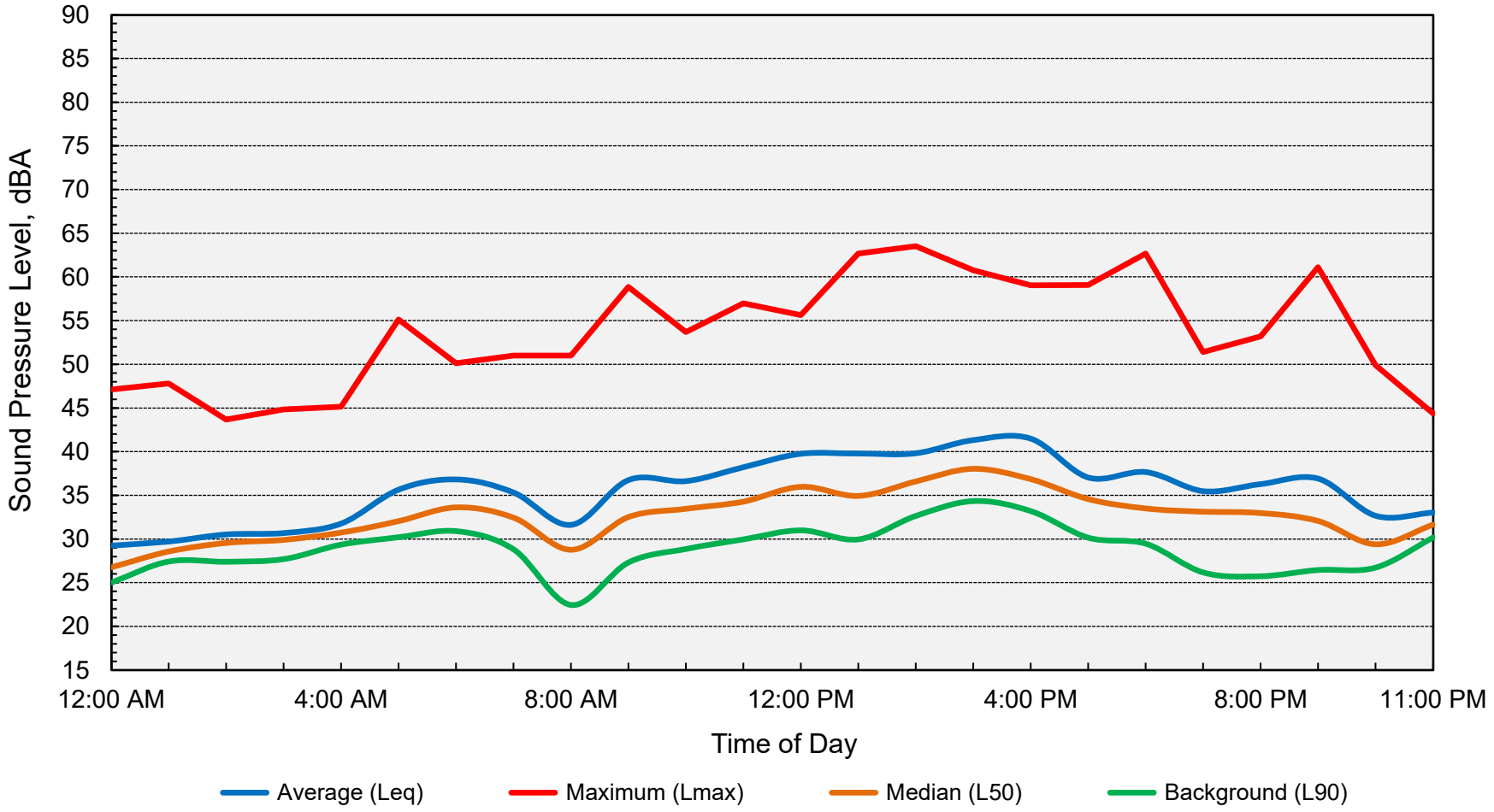
Appendix E-7
Ambient Noise Monitoring Results - Site LT-2
Terra Vi Lodge Yosemite Development
Saturday, May 11, 2019



Computed Ldn = 41 dB

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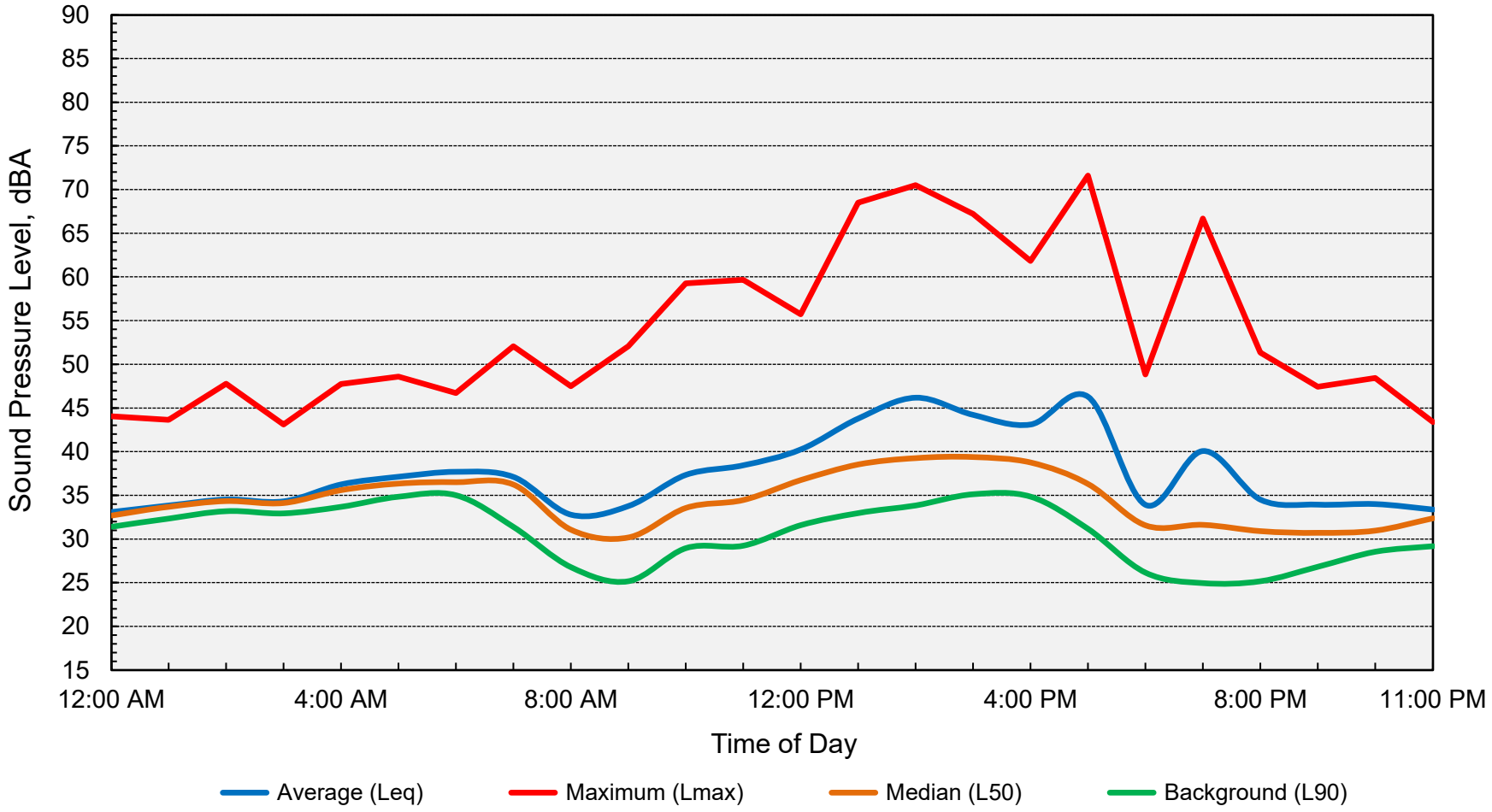
Appendix E-8
Ambient Noise Monitoring Results - Site LT-2
Terra Vi Lodge Yosemite Development
Sunday, May 12, 2019



Computed Ldn = 43 dB

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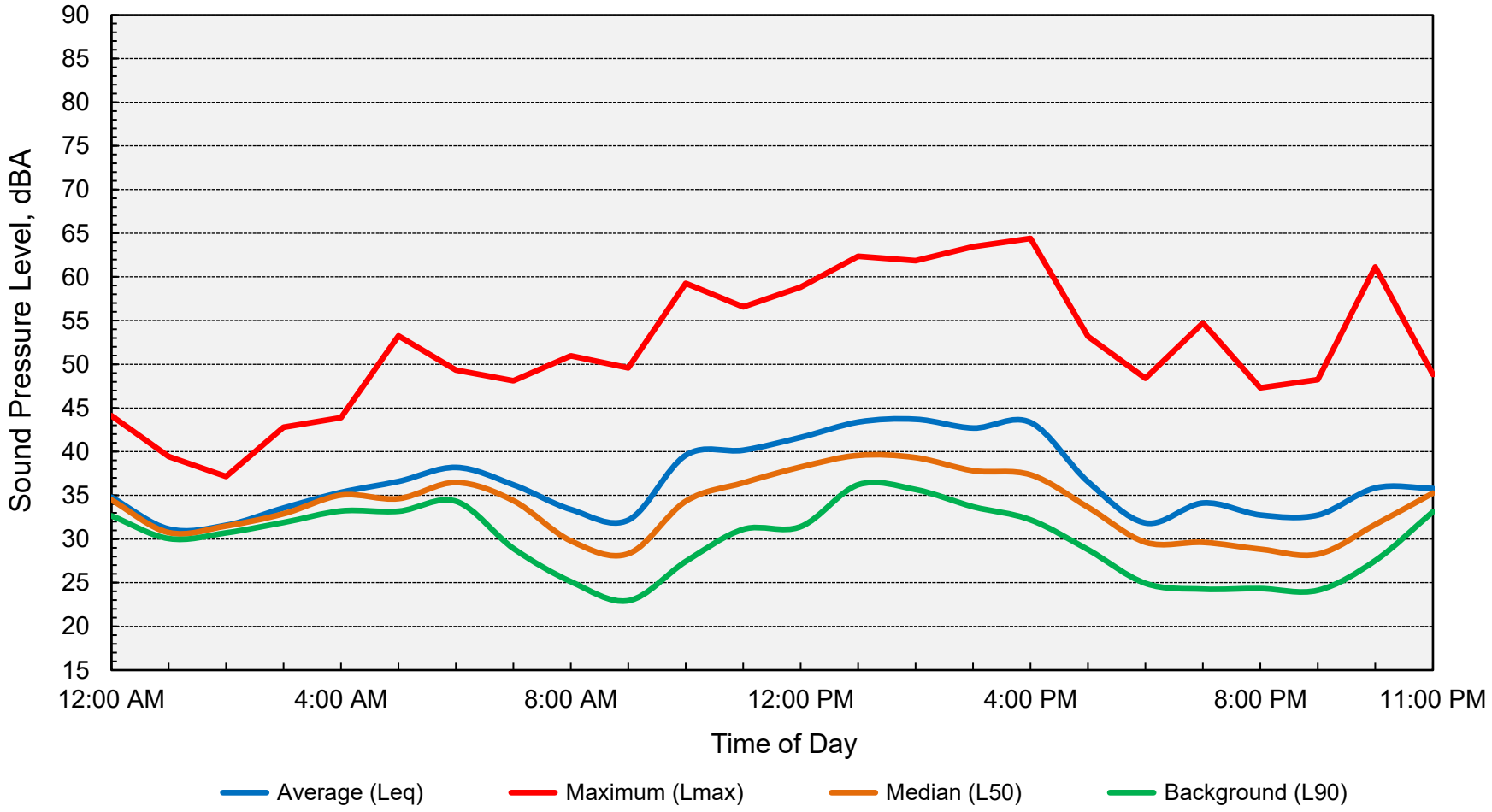
Appendix E-9
Ambient Noise Monitoring Results - Site LT-2
Terra Vi Lodge Yosemite Development
Monday, May 13, 2019



Computed Ldn = 43 dB

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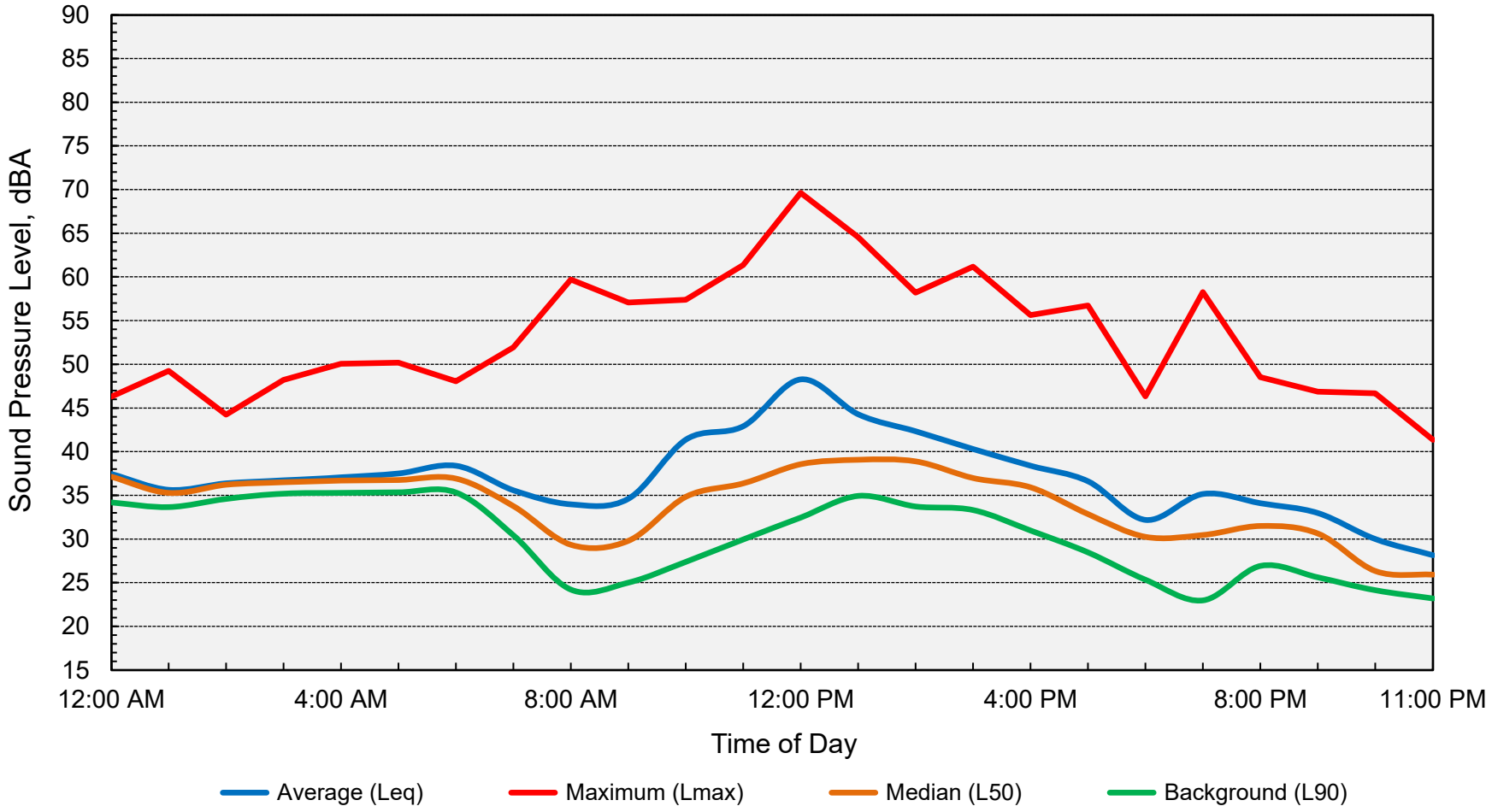
Appendix E-10
Ambient Noise Monitoring Results - Site LT-2
Terra Vi Lodge Yosemite Development
Tuesday, May 14, 2019



Computed Ldn = 44 dB

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Appendix F
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Prediction Worksheet

Project Information:

Job Number: 2019-050
Project Name: Terra Vi Lodge Yosemite Development
Roadway Name: SR 120

Traffic Data:

Year: Future (Cumulative Plus Project)
Average Future Daily Traffic Volume: 7,830
Percent Daytime Traffic: 83
Percent Nighttime Traffic: 17
Percent Medium Trucks (2 axle): 2
Percent Heavy Trucks (3+ axle): 1
Assumed Vehicle Speed (mph): 55
Intervening Ground Type (hard/soft): **Soft**

Traffic Noise Levels:

				----------L_{dn}, dB----------			
Location	**Description**	**Distance**	**Offset (dB)**	**Autos**	**Medium Trucks**	**Heavy Trucks**	**Total**
1	Nearest outdoor recreation area	230	-6	52	42	43	53
2	Lodge building facade - first-floor	280	-6	51	41	42	51
3	Lodge building facade - upper-floor	280	-4	53	43	44	53

Traffic Noise Contours (No Calibration Offset):

L_{dn} Contour, dB	Distance from Centerline, (ft)
75	19
70	41
65	88
60	190

Notes:
1. Future ADT volume (Cumulative Plus Project) for SR 120 was calculated by using peak hour traffic volume data obtained from the project traffic impact analysis (prepared by KD Anderson & Associates, Inc. Future SR 120 traffic volume was conservatively estimated by applying a factor of 10 to noon peak hour conditions.
2. A -6 dB offset was applied at all locations to account for over-prediction of the FHWA Model.
3. A +2 dB offset was applied at upper-level facades to account for reduced ground absorption at elevated locations.

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APPENDIX I

FIRE IMPACT ANALYSIS

Final Memorandum

To: Alexis Mena and Steve Noack, PlaceWorks

From: Matt Kowta, Managing Principal

Date: 5-14-2020

Re: Fire Impact Analysis for Terra Vi Lodging Project

Analysis Overview

Hansji Corporation, in coordination with Tuolumne County and PlaceWorks, retained BAE to prepare a fire services impact analysis for the proposed Terra Vi lodging project in Tuolumne County. Hansji is the project applicant. PlaceWorks is the environmental consulting firm that is preparing the project environmental impact report. The purpose of the study is to compile information relating to the potential impacts of introducing a new lodging development on fire protection services in the upper Highway 120 area of Tuolumne County. The analysis covers a range of information, including:

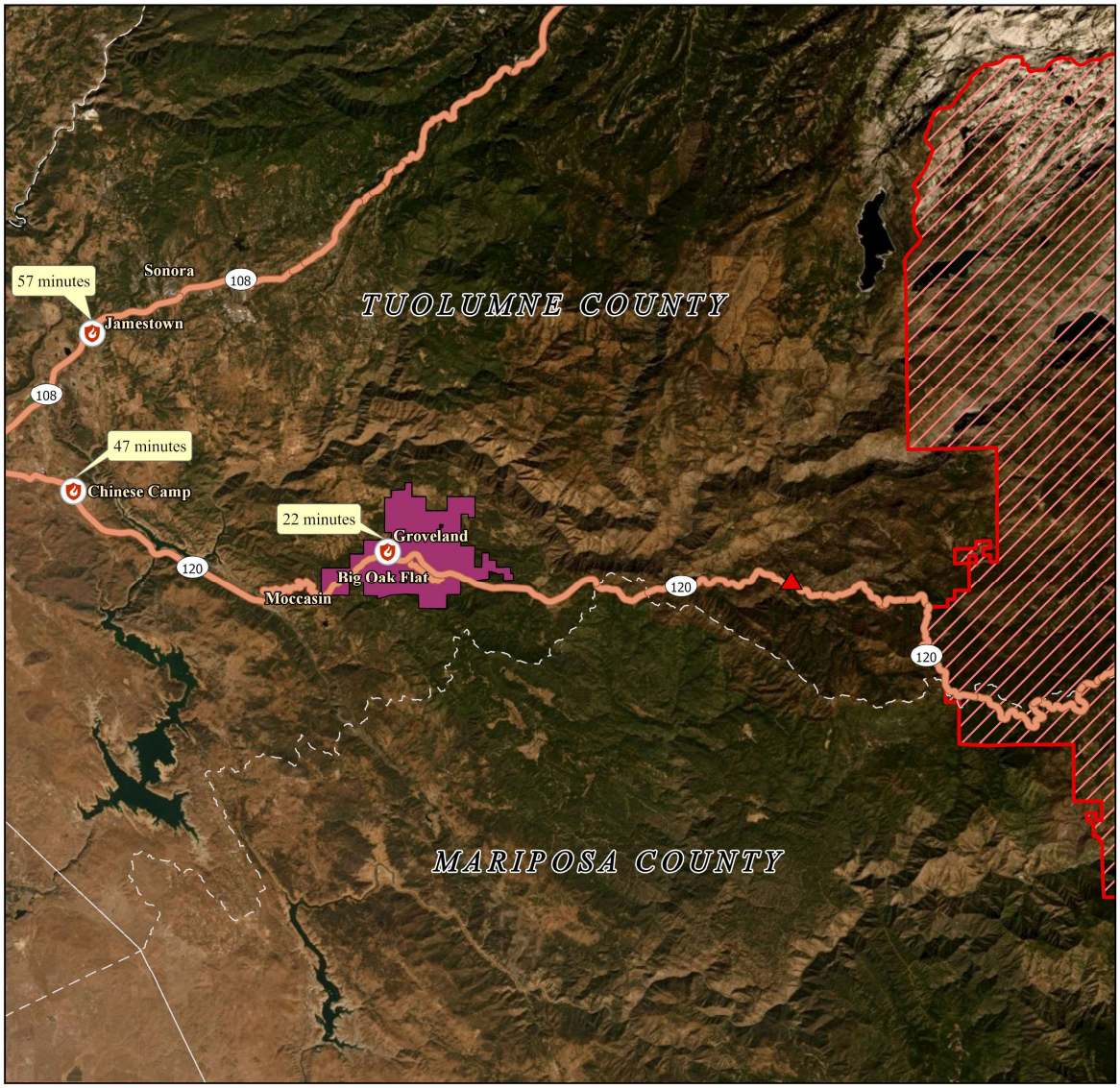
- Service standards targeted by the fire department
- Existing services provided within the area
- Potential generation of calls for service from the proposed project
- Estimated cost allocation for service demand generated by the proposed project
- Potential revenue generation to support fire services

Project Description

According to the project applicant, Terra Vi Lodge Yosemite is a master planned lodging development designed to address the increased demands for eco-sensitive resorts and local recreation tourism. The project site is a 64-acre property that was severely damaged in the 2013 Rim Fire, located near at the intersection of Sawmill Mountain Road and State Highway 120 (SR 120). The project location is shown in Figure 1.

The proposed project would include various single-, two-, and three-story buildings to include a public market, general lodge with multipurpose indoor and outdoor areas, 100 guestrooms, 26 cabin rooms, and five employee housing units.

Figure 1: Proposed Project Location and Regional Context



Fire Service Standards and Existing Conditions

The closest staffed fire station to the proposed project site is the Groveland Community Services District (GCSD) station, located at 18930 Main Street, in Groveland. This station is approximately 17 miles from the proposed project site, which translates to an approximately 22-minute drive time with no traffic[1]. The proposed Terra Vi site is located outside of the GCSD boundaries. The site is technically located within the primary response area of the Tuolumne County Fire Department, whose closest station that is staffed full-time is Station 76 at 18249 4th Street, in Jamestown. There is also a Tuolumne County volunteer fire station at 13785 Highway 120 in Chinese Camp. The former is approximately 40 miles away and an approximately 57-minute drive time while the latter is approximately 34 miles away and an approximately 47-minute drive time. Figure 1 is annotated to show the approximate drive times from these fire stations to the proposed Terra Vi site. Also in the Groveland area, there is a California Department of Forestry and Fire Protection (CalFIRE) station at 11300 Merrell Road in Groveland. In addition to its primary function to respond to fire suppression calls in the State Responsibility Area (SRA), this station is further from the Terra Vi site than the GCSD station, so it is assumed that it would not be the first-in station for most incidents at Terra Vi, which are likely to be EMS calls.

Because GCSD and Tuolumne County Fire operate under a mutual aid agreement, is it assumed that the GCSD will typically provide the first response for most incidents that could occur at the Terra Vi site. According to Josh White, who serves as the Fire Chief for both GCSD and Tuolumne County Fire Department, the service standard goal for the GCSD is to respond to 90 percent of calls for service within seven minutes.[2] Due to the distance between the proposed Terra Vi site and the GCSD station, it will not be possible for the CSD to achieve this service standard for responses to Terra Vi; nor would it be expected to, since Terra Vi lies beyond the district boundary.

The GCSD fire station is staffed 24 hours per day, seven days per week with two professional firefighters. The station is equipped with one Type 1 engine, one reserve Type 1 engine, one Type 3 engine, and one pickup. According to information furnished by Tuolumne County Fire Department, the Groveland station received an average of 514 calls for service annually within the GCSD boundaries from 2016 through 2019. In addition to in-district calls, the Groveland station averages about 50 calls per year outside of the district.[3]

There have been ongoing concerns within Tuolumne County regarding the adequacy of fire and EMS services serving the county. In response to these concerns, the County commissioned a countywide First Responder and EMS Study, to review existing services, evaluate current

[1] Volunteer Station 63 (Smith Station) located at 22360 Elmore Road in Groveland is closest; however, no volunteers and no fire equipment are currently assigned there.
[2] Personal communication, Josh White, Chief, Tuolumne County Fire Department, 8-26-2019.
[3] Personal communication, Andrew Murphy, Assistant Chief, Tuolumne County Fire Department, 12-22-2019 and 1-6-2020.

needs, and provide recommendations for service improvements. The study, completed in February of 2019 identified significant challenges to the ongoing provision of fire/EMS services within the unincorporated areas of Tuolumne County, including declining participation of volunteer emergency response personnel and a commensurate increase in need for paid emergency response personnel, combined with a constrained ability of the funding mechanisms available to pay for the operational and capital costs of fire/EMS services to keep up with the increased costs to provide these services. Further, the study found that "A review of the finances for the Departments and Districts and using only the sustainable revenues, most are lacking proper funding."[4] The study did not recommend changes to the current system for provision of fire/EMS services within the upper Highway 120 area, where the GCSD and the proposed Terra Vi project are both located.

Recognizing that the lack of sufficient funding is creating budgetary challenges for all county operations, including efforts to improve the fire/EMS system, the Tuolumne County Board of Supervisors voted in September 2019 to place a measure on the March 2020 election ballot for an increase in the local sales tax rate from 7.25 percent to 8.25 percent (Measure P) and an increase in the local transient occupancy tax rate from 10 percent to 12 percent (Measure Q). County staff estimated that these potential tax increases could raise up to an additional $6.4 million in revenue per year, if approved by the voters. It was possible that, if approved by the voters, a portion of such revenue increases could have been dedicated to improving fire/EMS services in the upper Highway 120 area, where it would benefit the proposed project, other planned and proposed projects, and existing developments that currently lack adequate fire/EMS response times; however, both measures failed.

Potential Terra Vi Fire/EMS Service Demand

Tuolumne County Fire Department staff estimate that an emergency response from the Groveland station to the proposed Terra Vi site would require approximately 22 minutes, which is beyond the targeted response time service standard for the GCSD. In addition, concerns have been expressed that an increase of out-of-district calls to the Terra Vi project site will create more times that the existing personnel from the Groveland station are not available to respond to in-district calls, resulting in delayed response times within the district.

In recognition of the limited emergency response capability within the vicinity of the proposed Terra Vi project, Hansji Corporation has incorporated a number of features into the project that are intended to help limit the number of incidents at the site that could generate the need for hotel staff or guests to make emergency calls to 911 for service, and to help mitigate the impact of the extended response time from the Groveland station in situations when an emergency call for service is made. These include:

[4] Matrix Consulting, First Responder and EMS Study, February 2019.

- An overall site layout and design that emphasizes fire prevention and defensible space; including increased building separation, low building heights; and complete perimeter firefighting accessibility.
- Buildings with non-combustible exterior finishes
- High performance fire extinguishing and alarm system
- Onsite water storage
- Emergency helicopter landing facility which would be available for property-generated incidents and as well as incidents generated off-site.

According to the Project Description in the project EIR, in addition to the above physical features, the project will also wildfire hazard reduction features, including "a Wildland Fire Protection Plan (WFPP) that would be reviewed and approved by the Tuolumne County Fire Department." Features would include:

> *"Construction. The project proposes wide separations between buildings to prevent structure-to structure ignition, and to provide easy access by emergency responders. All exterior building materials are proposed to be constructed to comply with the most recent wildland-urban interface building code (Chapter 7A of the California Building Code) as ignition-resistant, with non-combustible materials, non-impregnatable vents, and double-paned windows with one pane of tempered glass, while still being consistent with the look and feel of a nature lodge. An underground basement will be designed and constructed to be a place for guests and employees to stay for a short period of time during a time of wildfire or other disasters, when early evacuation is not possible. There would be enough space, an air filtering system and positive ventilation to support the people harbored in the project. This will reduce the traffic on possible evacuation routes.*
>
> *Vegetation Management. A Vegetation Management Plan that integrates the needs for wildland fire safety would be incorporated into the landscaping documents. The landscape would be designed and maintained in compliance with this Vegetation Management Plan, which would be reviewed and approved by the Tuolumne County Fire Prevention Bureau. The landscape would be irrigated using the greywater system, which is an additional defense against wildland fire.*
>
> *Fire Prevention. A suite of prohibitions against risky behaviors would be developed. Smoking would be permitted only in a designated smoking area. Signs prohibiting smoking and littering would be posted throughout the entire project site. Barbecues during times of high fire danger would be prohibited. Guests and personnel would be educated on fire-safe behaviors. Trash cans*

would be provided throughout the property to reduce litter, and the ground would be cleaned by staff frequently.

During construction, a fire prevention plan would be implemented to reduce the chance of ignition. This plan would prescribe the equipment, training and behaviors of the construction team. All equipment with motors would comply with California Public Resources Code (PRC) Section 4442.

Fire pits would be located in public areas and would be operated and maintained by hotel staff only.

Communication and Alerts. *A communication plan would be established to ensure receipt and notification of vital incident information. Equipment necessary to implement the communication plan would be acquired. These are likely to include radios, cell phone towers or boosters, satellite phones, and/or other equipment.*

Weather stations would be installed and monitored. Protocols for alerts would be established so that personnel on-site would be notified when high fire danger exists.

Training. *Appropriate employees would be trained as first-response emergency responders, with trained staff on duty at all times. Key engineering staff would complete certificate programs at the California Regional Fire Academy. The courses would include technical training relating to wildland fires, fire prevention, fire department apparatus, tools and equipment, breathing apparatus, extinguishers, hazardous materials, communication and emergency medical treatment. Periodic regular fire safety drills would be performed. These would encompass evacuation and shelter-in-place options. In a worst-case scenario in which early evacuation is not feasible, the expectation is that the guests and employees would remain on-site in the event that a wildland fire nears the project. Guests would be educated on the need for and use of emergency alerts in the county and on-site.*

Evacuation. *Based on monitoring of both weather conditions and nearby incidents, guests would be notified to evacuate early to minimize peak traffic on Highway 120 in the event of an incident that requires evacuation. Pre-fire evacuation plans would identify triggers for evacuation in terms of proximity of wildfires, and winds. Early response is a function of awareness and communication with fire departments. This implies weather, scanners, and monitoring with agreed-upon set trigger points.*

Access. *The project proposes direct access to Highway 120 for fire service. Two driveways from Sawmill Mountain Road are proposed, each with different destinations and routes; one an ingress and egress to access the public market, and one an ingress and egress to access the reception area and lodging. One looped roadway would provide emergency access around the cabin guestroom buildings and throughout the entire site. All roadways are designed to comply with California PRC 4290 and Tuolumne County Ordinance Code Chapter 11.12 to allow full access for emergency vehicles, with slopes flatter than 12 percent, a radius larger than 40 feet, and a width no less than 20 feet (without parking).*[7]

Wildland Fire Response Support. *Development in the county must comply with fire safety standards outlined in Title 15 of the Code of Ordinances.*[5] *The project proposes construction in compliance with the National Fire Protection Association's fire protection system and would include fire sprinkler and standpipe systems.*[6] *Suppression systems and site hydrants for fire protection would be provided using a combination of reclaimed, treated greywater, and potable water storage. Water supply would be provided by a storage system and augmented with wildland fire hoses.*

A helipad would be located on the western side of Sawmill Mountain Road, within the western project site parcel. The helipad would be used for emergency services only and would be available for use to the entire community."

In addition, the EIR for the project includes Mitigation Measure WF-2 to ensure that the proposed Wildland Fire Prevention Plan and Vegetation Management Plan are submitted to the Tuolumne County Fire Prevention Bureau for review and approval prior to issuance of building permits, and to ensure that project landscaping plans are revised to conform to the Vegetation Management Plan.

Even with the various project features described above, it can be expected that the proposed project will generate some calls for service for the Tuolumne County fire/EMS system. A method widely used by fiscal impact analysis practitioners to estimate the potential fire/EMS calls for service that a proposed project would generate is to use a case study approach that identifies the actual call volume that similar existing projects generate, and then apply that call generation rate to the proposed project, controlling for project size. In the case of the Terra Vi

[5] Tuolumne County, Tuolumne County Code of Ordinances, *Chapter 17.31 Commercial Recreational District, or (C-K) District*, https://www.tuolumnecounty.ca.gov/DocumentCenter/View/436/Chapter-1731---Commercial-Recreation-District-or-CK-District?bidId=, accessed on March 18, 2019.

[6] National Fire Prevention Association (NFPA) 13 Standard for the Installation Sprinkler Systems (2016 Edition); NFPA 22 Standard for Water Tanks for Private Fire Protection (2013 Edition); NFPA 24 Standard for the Installation of Private Service Mains (2016 Edition).

project, the County Fire Department identified two existing lodging operations that are similar to proposed Terra Vi project: Rush Creek Lodge (34001 Highway 120, Groveland, CA) and Evergreen Lodge (33160 Evergreen Road, Groveland, CA). As summarized in Table 1, below, Tuolumne County Fire Department provided historic call data for each property. Together, fire department data indicate these two properties averaged 19.8 calls for service per year. With a total of 252 accommodation units[7] at the two properties, this averages out to 0.079 calls for service per year, per accommodation unit.

Table 1: Estimated Terra Vi Annual Fire/EMS Calls for Service

Existing Lodging Properties

	Accommodations	Average Annual Calls for Service	Avg. Calls Per Accommodation
Evergreen Lodge	109 (a)	7.5 (b)	0.069
Rush Creek Lodge	143 (a)	12.3 (c)	0.086
Total	**252**		
Average		**19.8**	**0.079**

Projected Terra Vi

	Accommodations	Estimated Calls Per Accommodation	Estimated Annual Calls for Service
Terra Vi	**146** (d)	**0.079** (e)	**11**

Notes:
(a) Includes individual cabins, tent sites, rooms, suites, and villas.
(b) Data for Evergreen Lodge cover 2009 through 2019.
(c) Data for Rush Creek Lodge cover 2016 through 2019.
(d) Includes hotel rooms (100), cabin guest rooms (26), and employee bedrooms (20) in five housing units.
(e) Estimated calls per accommodation for Terra Vi is equal to annual average for Evergreen and Rush Creek.

Sources: Tuolumne County Fire Department, 2019; Evergreen Lodge and Rush Creek Lodge w ebsites, 2019; Hansji Corporation, 2019; BAE, 2019.

If the average call generation rate for the Rush Creek and Evergreen Lodge properties is applied to the number of accommodations proposed for the Terra Vi site, including employee housing bedrooms, the estimated annual calls for service would be approximately 11. It should be noted that this estimate may overstate Terra Vi's level of fire/EMS call generation, because it does not account for the previously discussed fire/safety features that are proposed to be built into the project and which have the potential to reduce the number and severity of incidents that would require a fire/EMS response to the site; thus, it should provide a conservative (i.e., erring towards overstating) estimate of the potential impact of the proposed Terra Vi project on fire/EMS services.

[7] An accommodation unit includes an individual hotel room, cabin, tent site, suite, or villa.

Fire/EMS Cost Share Estimates

For purposes of discussion, it is next useful to develop an assessment of the relative order of magnitude of the costs associated with the level of service demand that the project could generate for the existing emergency response system. If the project moves forward, the project will create a marginal increase in demand for the existing fire/EMS system's services. Most of the costs of the existing services are "fixed" costs in that fire/EMS agencies incur most of these costs regardless of slight changes in call volumes. For example, in order to provide the facilities and equipment to respond to emergencies with a fire engine that is staffed 24/7, the GCSD fire department must provide for maintenance and operation of a fire station, equipped with a fire engine and other necessary equipment, and a minimum of two on-duty staff 24 hours per day, seven days per week. The vast majority of the associated costs exist whether the department responds to 100 calls per year or 500 calls per year. As call volumes increase, some costs may increase marginally, for items such as fuel, consumable supplies, and equipment wear; however, these are a relatively small proportion of overall costs when salaries and benefits typically consume 75 percent or more of the budget for a fire department that staffs its stations with full-time personnel. Operating costs will typically only increase dramatically when a fire department adds new staffing, such as if call volumes rise to such a level that an additional engine crew must be staffed because an existing engine crew has reached the limit of the number of calls that it can handle on an annual basis. In cases like that, the cost increase can be very high, because the department typically does not just add incrementally to its staffing, but instead must add a full complement of staff sufficient to cover an additional apparatus 24/7. This is what is sometimes referred to as the "lumpiness" of providing fire services and why the cost of staffing new fire stations and/or adding additional staffed apparatus to existing fire stations must typically be spread over multiple projects in order to be affordable and fiscally sustainable.

If the Terra Vi project is approved and generates calls for emergency services in line with the call generation rate of other similar existing lodging properties (i.e., approximately 11 calls for service per year), it alone will not generate sufficient call volumes to justify establishment of a new fire station in the project vicinity.

Fire/EMS response times for existing development within the vicinity of the proposed project are longer than desirable at present. Even if additional staffing and equipment were provided at an existing station to offset the increased call volume from the Terra Vi project, this would not overcome the distance and the extended response times in the upper Highway 120 corridor. Recognizing this pre-existing need to improve fire/EMS response times in the area, but the lack of existing resources to fund additional fire/EMS response capabilities in the area, it is useful to consider how much the Terra Vi project would contribute to the need for a new fire station in the area, and what the associated cost share would be, given the conservative estimate of 11 annual calls for service estimated on Table 1.

A key consideration in allocating the cost of staffing, operating, and maintaining a fire station is the overall number of calls that the station will serve each year. For the purposes of this discussion, the Groveland fire station provides a reasonable representation of the call activity typical of a full-time staffed fire station located in a rural area. As shown in Table 2, below, Tuolumne County Fire Department provided response data for the Groveland fire station for the last four years. As indicated in the table, annual calls for service, including out-of-district calls, averaged 564 this includes both fire and EMS calls. The estimated Terra Vi call volume of 11 per year would represent approximately two percent of the station's annual call volume. The Tuolumne County Fire Department indicates that the annual cost of staffing, operating, and maintaining a fire station like the GCSD station, with two professional full-time staff on duty at all times, is approximately $1.2 million per year.[8] Applying a two percent share to the $1.2 million annual station staffing, operations, and maintenance cost yields a cost share for Terra Vi of approximately $23,400 per year. This methodology and the resulting estimate assumes that the range and distribution of call types generated from the Terra Vi project would be comparable to the range and distribution of call types to which the GCSD fire station currently responds, which would include a mixture of EMS and fire calls, among others. It is acknowledged that fire incidents typically require more fire department resources for response than EMS calls, particularly a large catastrophic wildfire. However, the vast majority of fire department calls for service are EMS calls, and most fire calls are relatively minor. It would be speculative to attempt to assign a probability for a large fire incident at the Terra Vi site and impossible to assign a cost for such an anomalous potential event with any degree of accuracy.

For discussion purposes, Table 2 further calculates the one-time cost share for a new fire engine, assuming a $600,000 capital cost to acquire and fully equip a Type 1 fire engine and a two percent cost share to Terra Vi, using a pro-rata share derived from the estimated number of Terra Vi incidents divided by the GCSD annual calls for service. The resulting one-time cost share would be approximately $11,700.

[8] *Ibid*, Andrew Murphy, 12-22-19.

Table 2: Terra Vi Fire/EMS Service Cost Estimate

Terra Vi Esimated Annual Calls for Service	**11**	
Groveland CSD Fire Annual Calls for Service		
In-District, 2019	545	
In-District 2018	457	
In-District 2017	477	
In-District 2016	576	
Average In-Disrict	514	
Average Out-of-District	50	
Total Average Existing Calls for Service	**564**	
Terra Vi as Percent of Current District Total	2.0%	
Estimated Annual Fire Station Personnel, Operating Expenses, and Maintenance Cost	$1,200,000	
Terra Vi Fire Station Operation and Maintenance Cost Share	**$23,404**	annual
Cost of New Type I Fire Engine, Fully Equipped	**$600,000**	
Terra Vi Engine Cost Share	**$11,702**	one-time

Sources: Tuolumne County Fire Department, 2019; BAE, 2019.

Potential Revenue Generation

As mentioned previously, the upper Highway 120 area, where Terra Vi is proposed, can be considered to be under-served from a fire/EMS standpoint, because of the extended response times to the area from existing staffed fire stations. The primary constraint to improving fire/EMS services for existing development as well as proposed new development is the availability of funding to support establishment and staffing of a new fire station. Lodging uses in particular can help in this regard, because in addition to property taxes, they are unique in that they generate transient occupancy tax (TOT) revenue for the County. TOT is a discretionary revenue source that the County Board of Supervisors can allocate to support County services as it sees fit. Allocation of any new TOT revenues will be purely at the discretion of the Board of Supervisors, and such a decision would be made in the context of the County's larger budgetary needs and resources. For example, according to County staff, although there is no formal policy, the County provides General Fund support for fire services by paying for dispatching services for all fire districts, including GCSD. In addition, the County typically provides about $450,000 in annual General Fund money to support the County Fire Department operation, which represents about eight to ten percent of the department's budget. This figure fluctuates from year to year, depending on County budget constraints; however, in 2019-2020, the County General Fund contribution is $1,675,923, which included additional funds to support the purchase of a new Type I fire engine due to the need to begin replacing an aging fleet of apparatus.[9]

[9] Personal communication, Maureen Frank, March 16, 2020, via Quincy Yaley, March 16, 2020.

As shown in Table 3 below, even if only a limited portion of new TOT is allocated to support fire/EMS services, a lodging property like Terra Vi will generate disproportionate amounts of new revenue that substantially exceeds the reasonable cost share estimate discussed above for the annual cost of fire/EMS services that the project would typically demand.

Table 3: Terra Vi Potential Transient Occupancy Tax Revenue Generation

Hotel and Cabin Guest Rooms	
Number	126
Average Annual Occupancy	70%
Average Revenue/Night	$200
Total Potential Gross Annual Revenue	**$6,438,600**
Transient Occupancy Tax Rate	10%
Potential Annual Transient Occupancy Tax Revenue	**$643,860**

Sources: Hansji Corporation, 2019; Tuolumne County Auditor-Controller's Office, 2019; BAE, 2019.

Not including the five proposed employee housing units (20 bedrooms), the Terra Vi project proposes 126 guest accommodation units. Assuming a 70 percent average annual occupancy rate (which is the approximate projected occupancy level that is typically needed to achieve feasibility to construct a new lodging property), and an average room rate of $200 per occupied night, the project would generate just under $6.5 million in annual lodging revenue. If subject to the County's current ten percent TOT rate, this would generate approximately $644,000 in annual TOT revenue.

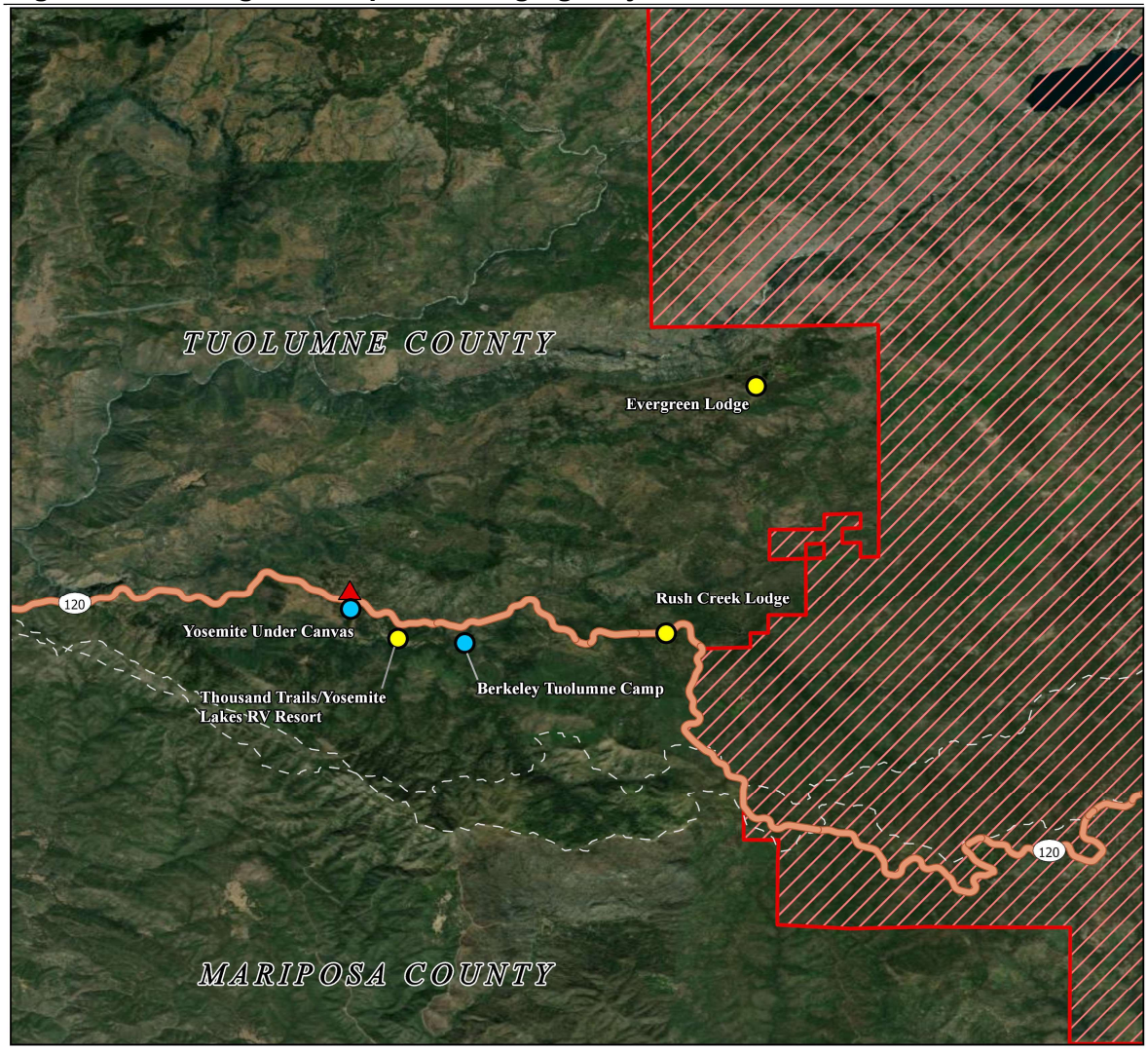
Comparing these TOT estimates to the cost shares estimated on Table 2, the revenue generation of the proposed Terra Vi project has the potential to generate new tax revenues that significantly exceed the project's potential allocation of fire/EMS service costs. The project will also generate property tax revenues and property tax in-lieu of vehicle license fees (ILVLF) from the new assessed valuation the project would create, and sales tax revenues from its market and restaurant operations. Considering these new revenue streams, the Terra Vi project could not only generate revenues to cover its own service cost share, but additional revenues that the County could use to help pay for the cost share of service improvements that would benefit other existing and new development within the area. Put another way, if the project generated approximately $640,000 in annual TOT revenue, and all of this new revenue was allocated to supporting the operation of a new fire station in the upper Highway 120 area, this would potentially cover over one-half of the annual cost of a fire station similar to the GCSD station, far in excess of the 1.8 percent cost share estimated on Table 2. Alternatively, if the County allocated only about $23,000 in General Fund revenues to cover the annual cost share estimated in Table 2, this would leave over $600,000 in new TOT revenues that could

be directed to other County budget priorities. This would be in addition to new property tax, ILVLF, and sales tax revenues the project would generate to support the County General Fund.

This analysis cannot in any way commit the Board of Supervisors to allocating new TOT revenues to support the County Fire Department and/or the GCSD Fire Department; however, the results indicate that the project could generate sufficient revenues to cover reasonably anticipatable annual fire/EMS costs and still leave a substantial amount of additional TOT revenue, as well as new property tax, ILVLF, and sales tax available to support other County services, if the Board of Supervisors allocated TOT revenues from the project to the County and GCSD Fire Departments.

In addition to the proposed Terra Vi project, the proposed Under Canvas "glamping" operation could also potentially generate TOT revenue. Also in the upper Highway 120 area, the proposed Thousand Trails/Yosemite Lakes RV expansion and the City of Berkeley Tuolumne Camp expansion project could also generate new TOT, if the County modifies its TOT regulations to require camping and RV operations such as these to collect TOT. Figure 2, on the following page, shows the locations of these other proposed projects along with the locations of the existing Rush Creek and Evergreen Lodges. Considering these new revenue opportunities, it is possible that in the relatively near future, new TOT revenues being generated in the upper Highway 120 area could support a substantial portion of the cost of operating a new fire station, if the County Board of Supervisors were to choose to use those funds to improve fire services in this area of the county. Establishment and operation of such a station would not only benefit Terra Vi and the other proposed projects just mentioned, but also the existing development in the upper Highway 120 area that currently is subject to longer-than-desired fire/EMS response times.

Figure 2: Existing and Proposed Lodging Projects



APPENDIX J

TRANSPORTATION

Appendix J1:
Transportation Impact Analysis

TRANSPORTATION IMPACT ANALYSIS

FOR

TERRA VI RESORT

Tuolumne County, CA

Prepared For:

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631 West Katella Avenue, Fifth Floor
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June 15, 2020

3577-01

TRANSPORTATION IMPACT ANALYSIS FOR
TERRA VI RESORT
Tuolumne County, CA

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APPENDIX 50

KDA

TRANSPORTATION IMPACT ANALYSIS FOR
TERRA VI RESORT
Tuolumne County, CA

INTRODUCTION

This report summarizes **KD Anderson & Associates, Inc.** analysis of the potential short term and long-term traffic conditions associated with development of the **Terra Vi Resort** in the area near Yosemite National Park (YNP) in Tuolumne County, California. As currently proposed, the project involves development of a resort lodge with 100 guest rooms and 26 guest cabins along with a small market and designated employee housing. The project is located on a site located on the north side of SR 120 roughly 17 miles east of Groveland and 7 miles from YNP's west gate, as noted in Figure 1. Direct site access would be via Sawmill Mtn Road (Forest Service Road 1S03), as noted in Figure 2.

Study Scope

Overview. The purpose of this analysis is to present an assessment of potential project specific and cumulative transportation impacts associated with the project and to suggest feasible measures for mitigating identified impacts. As mandated under the California Environmental Quality Act (CEQA), project impacts have been described based on regional Vehicle Miles Traveled (VMT). Project weekday VMT has been estimated using a "tour-based" approach using the regional modeling tool created for this purpose by Tuolumne County as required by SB 743. The project's impacts to alternative transportation modes, including pedestrian, bicycle and transit, as well as safety, have also been assessed.

The evaluation of traffic operating conditions contained herein based on Level of Service on study area roads is not a part of the CEQA transportation impact analysis and is presented for informational purposes only. Traffic operational analysis may be needed to support an encroachment permit for improvements to the state highway system or to consider consistency with the Tuolumne County General Plan. With the implementation of SB 743, CEQA transportation impact analysis moved from a capacity-based Level of Service metric to analysis based on Vehicle Miles Traveled (VMT).

The traffic operational analysis includes evaluation of existing circulation conditions in the area based on current summer Saturday weekday peak hour traffic conditions. The characteristics of the proposed project have been determined, including the estimated trip generation, the directional distribution, and assignment of the project traffic. By superimposing project trips onto existing traffic volumes, the effects of project traffic on the operating conditions of key roads and intersections in the area of the project have been identified. This report also considers the effects of the project within the context of cumulative traffic conditions based on the forecasts created by the Tuolumne County Transportation Council (TCTC) regional travel demand forecasting model and presented in the 2018 Regional Transportation Plan (RTP).

Study Area. The operational analysis study area includes the local street that may be used to access the site as well as the regional roadways that link the project with the balance of Tuolumne County.

Three (3) intersections have been addressed:

SR 120 / Ferretti Road (west junction)
SR 120 / Forest Road 1S03 (Sawmill Mtn Road)
SR 120 / Hardin Flat Road (west junction)

The study addresses traffic conditions on three (3) roadway segments:

SR 120 from Ferretti Road to Forest Road (Sawmill Mtn Road)
SR 120 from Sawmill Mtn Road to YNP
Sawmill Mtn Road north of SR 120

VICINITY MAP

KD Anderson & Associates, Inc.
Transportation Engineers

3577-01 RA 1/15/2020

figure 1

1,313.8'
N 89°00'32" W
1,313.8'
N 89°00'32" W
OPEN SPACE EASEMENT
S 7°18'25" E
2,719.7'
694.32'
838.26'
DEDICATED ACCESS
SUMMIT MOUNTAIN ROAD
FOREST ROUTE 1S03
1,295.08'
616.46'
STATE HIGHWAY 120
BIG OAK FLAT ROAD
196.75'
Vehicle Circulation
Pedestrian Circulation
Pedestrian Circulation & Fire Access
Fire Access
SITE CIRCULATION PLAN
SCALE: 1" = 1200'
N
avrp SKYPORT
architecture urban design interiors graphics
STAMP:
CONSULTANT:
PROJECT NAME:
TERRA VI LODGE YOSEMITE
NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321
ISSUE DATES:
DESCRIPTION: DATE:
SUBMITTAL 1 11.15.2019
SUBMITTAL 2 03.10.2019
SUBMITTAL 3 10.04.2019
PROJECT NO.
ARCHITECTURE: 18040.00
DRAWN BY: DESIGN AS
CHECKED BY: KK
SHEET TITLE:
SITE CIRCULATION PLAN
SHEET NUMBER:
T0.06

SITE PLAN

EXISTING CONDITIONS

This report section describes existing conditions on the circulation system in the vicinity of the project in terms of facilities for motor vehicles, pedestrians, bicyclists and transit riders. Current traffic volumes have been identified and accompanying traffic operations on the roadways and intersections within the study area have been described in terms of operating Level of Service as described under the Tuolumne County General Plan.

Existing Street System

Regional access to the site will be via SR 120, SR 108 and SR 49. The text that follows describes these facilities as well as the local streets that complete the study area circulation system.

State Route 120. State Route 120 (SR 120) is a state highway that links YNP's west gate with Tuolumne County and with the northern Sacramento Valley area. This route extends from SR 99 in Manteca through Oakdale and then along a common alignment with SR 108 to the Yosemite Junction in Tuolumne County. At the junction SR 120 turns south and joins with SR 49 along a route to Moccasin. At that point SR 120 turns east to Groveland before continuing along the project site to YNP. SR 120 continues beyond the YNP entrance over Tioga Pass to US 395 in Nevada. In the area of the project SR 120 is a two-lane conventional highway with 12-foot travel lanes and paved shoulders. The rural prima facie 55 mph speed limit applies in the area of the project.

The volume of traffic on SR 120 varies along its length. Today the California Department of Transportation (Caltrans) reports that SR 120 carried an *Average Annual Daily Traffic (AADT)* volume of 15,600 vehicles per day west of Yosemite Junction in 2017. That volume drops to 3,900 AADT between Yosemite Junction, and 4,250 AADT is reported east of SR 49. Through Groveland the volume on SR 120 rises to 10,700, and the volume is 4,000 AADT in the area of the project to YNP. Trucks comprise 5% of the daily traffic on SR 120 in the area east of SR 49.

State Route 108. State Route 108 (SR 108) is a state highway and the primary east-west transportation route through the Sonora area of Tuolumne County. This route extends from Modesto, continues across Stanislaus County through Riverbank and Oakdale and extends into Tuolumne County along a common alignment with SR 120. SR 108 leaves that common alignment at Yosemite Junction and extends easterly through Sonora, across the Sierra Nevada's over Sonora Pass to its terminus on US 395. In Tuolumne County SR 108 ranges from a two-lane conventional highway to a four-lane expressway.

Caltrans reports that SR 108 carries 15,000 AADT in the area between Yosemite Junction and the south junction with SR 49. Trucks comprise 8% of the daily traffic in this area.

State Route 49. State Route 49 (SR 49) is a state highway and the primary north-south transportation route through Tuolumne County and the rest of the Motherlode counties. This route extends north from an intersection on SR 41 in Madera County through Mariposa County and into Tuolumne County to the south SR 120 junction in Moccasin. The joint route continues

to Chinese Camp where SR 120 leaves and SR 49 extends to SR 108. SR 49 leaves SR 108 in Sonora and continues northerly before ultimately ending in Sierra County. In Tuolumne County SR 49 is a two-lane conventional highway.

Caltrans reports that SR 49 carried 850 AADT south of Moccasin and 2,500 AADT between Chinese Camp and SR 108. The volume on SR 49 through downtown Sonora is 19,400 AADT north of Dodge Street. Trucks comprise 7 to 8% of the daily traffic on SR 49 south of SR 108.

Sawmill Mtn Road (Forest Route 1S03). Sawmill Mtn Road is a Forest Service road that extends north from SR 120 for a few miles to provide access to a Caltrans maintenance station and several rural residences. In the area of the project immediately north of SR 120 this two-lane road has a paved width of 22 feet and no shoulders.

24-hr traffic counts conducted for this analysis revealed that Sawmill Mtn Road carried 50 vehicles per day north of the SR 120 intersection on a Saturday in August 2019.

Hardin Flat Road. Hardin Flat Road is a Tuolumne County road that intersects SR 120 about ¼ mile east of Sawmill Mtn Road. Hardin Flat Road extends for about seven miles through the area south of SR 120. Hardin Flat Road re-connects to SR 120 via local roads such as Yosemite Lakes Road and Golden Arrow Road. Hardin Flat Road provides access to the Thousand Trails – Yosemite RV Park and to the site of the City of Berkeley's Tuolumne Center.

Ferretti Road. Ferretti Road is a Major Collector Tuolumne County road that extends north from SR 120 in two locations. The western connection provides access to the Pine Mountain Lake community and to the eastern Groveland commercial area, Ferretti Road extends for about 10 miles through Pine Mountain Lake to Tuolumne County's Pine Mountain Lake Airport before reaching its eastern connection to SR 120.

Traffic volume data included in the 2018 Tuolumne County Regional Transportation Plan (RTP) indicated that on a weekday Ferretti Road carried 2,870 vehicles per day south of Pine Mountain Drive.

Study Area Intersections

Based on direction from Caltrans and Tuolumne County this analysis addresses three intersections, and the physical configuration of these intersections is described in the text which follows.

The **SR 120 / Ferretti Road (west) intersection** is a "tee" controlled by a stop sign on the southbound Ferretti Road approach. There are no separate turn lanes at this intersection.

The **SR 120 / Sawmill Mtn Road intersection** is a "tee" controlled by a stop sign on the southbound Sawmill Mtn Road approach. There are no sperate turn lanes at this intersection.

The **SR 120 / Hardin Flat Road intersection** is a "tee" controlled by stop sign on the northbound Hardin Flat Road approach. There are no separate turn lanes at this intersection.

Alternative Transportation Modes

Tuolumne County Transit (TCT). Tuolumne County is served by Tuolumne County Transit, which includes six Monday-Friday fixed routes serving the communities of Sonora, Jamestown, Columbia, Standard, Tuolumne, Twain Harte, Mi-Wuk Village, and Sierra Village, dial-a-ride service Monday-Saturday, and a seasonal SkiBUS service to winter destinations.

Yosemite Transit Service is provided through a collaborative effort between TCTC, Yosemite National Park, **Yosemite Area Regional Transportation Service (YARTS)** and Yosemite Highway 120 Chamber of Commerce, and Tuolumne County Visitors Bureau. Public transit service to Yosemite Valley started in 2012 in Tuolumne County. YARTS service runs from May to September from Sonora to Yosemite. Stops include Sonora, Jamestown, Groveland, Buck Meadows, Yosemite Lakes, Big Oak Flat Gate (Entrance), Crane Flat, and the Visitor Center in Yosemite Valley. Daily Service is offered between Sonora and Yosemite Valley on varying schedules. One round trip per day is available from May 13th through May 26th, and from Sept. 3rd through Sept. 30th, leaving Black Oak Hotel and Resort at 7:40 a.m. Three round trips per day during peak Summer season, May 27th through September 2nd, leaving Black Oak Hotel and Resort at 6:40 a.m., 7:40 a.m. and 8:40 a.m.

The YARTS Short Range Transit Plan (2018) provides information regarding ridership along each of the four YARTS route. In 2017, the most available year, summer period ridership on the Sonora - Groveland SR 120 route totaled 8,185 persons, with another 1,577 riders in the "shoulder" season. Data by boarding locations revealed that in the highest volume month 100 persons boarded at Rush Creek Lodge, a location that might be expected to have utilization characteristics that would be similar to Terra Vi Resort. Additional utilization information is available in terms of the "load factor". Load factor is the percentage of the seats occupied by passengers. In the busiest month (July 2017) overall load factor was 56% on weekdays and 47% on weekends. Transit Agency staff report that runs have and do run at capacity (occasionally), particularly by the time they reach the closest destinations to the YNP.

Pedestrian / Bicycle Facilities. Dedicated facilities for pedestrians are limited in rural Tuolumne County, primarily due to the varying terrain and distances involved between destinations. While facilities are available in portions of the Groveland area, the paved shoulder along SR 120 is available for these modes in the vicinity of the project. The paved shoulder is generally about four feet wide, in many locations the area beyond the shoulder is not available for travel due to roadway cut or fill slopes. This is the case in the area east of Sawmill Mtn Road where the portion of SR 120 towards the Hardin Flat Road intersection was constructed on an embankment (first 500 feet), and in a cut section (subsequent 600 feet).

There are no facilities for pedestrians or bicyclists along Sawmill Mtn Road, but because the volume of traffic is very low any occasional pedestrian or bicycle activity can share the pavement with automobiles.

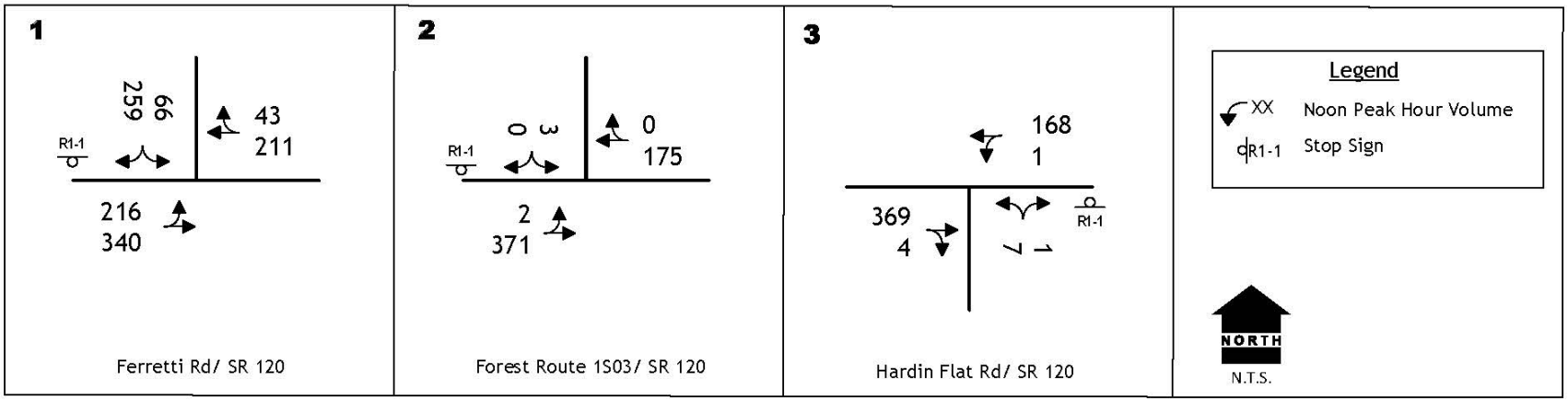
Existing Traffic Volumes

Analysis Time Period. The standard methods for traffic operational analysis in Tuolumne County address weekday peak hour conditions, including work conducted for the 2016 RTP and General Plan. While typical traffic analyses address regular weekday conditions, this analysis focusses on peak summer conditions in order to provide a conservative assessment of background traffic conditions. The applicable analysis time period was determined from review of historic Caltrans traffic volume records in consultation with Tuolumne County and Caltrans District 10 staff. That review indicated that the highest traffic volumes on SR 108 between Groveland and YNP occurred in August. During that month highest daily volumes occurred on Saturday. Traffic volume counts conducted on Saturdays in March 2019 and August 2019 at study intersections confirmed that August volumes were appreciably greater.

For this analysis a 24-hour intersection turning movement count was conducted at the SR 120 / Sawmill Mtn Road intersection on August 3, 2019 using a video camera. That data reveals that the highest hourly traffic volume occurred between 10:30 and 11:30 a.m., and that time period was selected for this analysis of intersection operations. This data is included in the appendix to this report.

Saturday Peak Hour Intersection Turning Movements. Figure 3 presents the Saturday peak hour data employed for this operational analysis. August traffic counts were conducted at the SR 120 intersections with Ferretti Road and Sawmill Mtn Road, while March counts at the Hardin Flat Road intersection were adjusted to August conditions for this analysis. For reference, the Saturday traffic volume data collected at SR 120 / Ferretti Road was compared to corresponding weekday peak hour data from the 2016 RTP. The comparison indicated that Saturday peak hour counts were twice the weekday a.m. peak hour volume and 70% greater than the weekday p.m. peak hour volume. Thus, the time period selected for this analysis yields a very conservative assessment of current conditions.

Daily Traffic Volumes. The volume of traffic on SR 120 and on Sawmill Mtn Road was determined from the 24-hr intersection count in August, and the results are also noted in Figure 3.



EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers
3577-01 RA 1/15/2020

figure 3

Level of Service: Methodology and Standards

To quantitatively evaluate traffic conditions and to provide a basis for comparison of operating conditions with and without project generated traffic, "Levels of Service" were determined at study area intersections and on individual roadway segments.

The evaluation of traffic operating conditions based on Level of Service on study area roads is not a part of the CEQA transportation impact analysis and is presented for informational purposes only as may be needed to support an encroachment permit for improvements to the state highway system or to consider consistency with the Tuolumne County General Plan. With the implementation of SB 743, CEQA transportation impact analysis moves from a capacity-based Level of Service metric to analysis based on Vehicle Miles Traveled (VMT).

Definitions. "Level of Service" (LOS) is a quantitative measure of traffic operating conditions whereby a letter grade "A" through "F" is assigned to an intersection. LOS "A" through "F" represents progressively worsening traffic conditions. The characteristics associated with the various LOS for intersections are presented in Table 1.

The Tuolumne County General Plan Circulation Element establishes the allowable Level of Service standard for each roadway type at various locations. The RTP study indicates that the minimum LOS standard for Minor Collectors, Major Collectors, Rural Arterials and Urban Streets (County facilities) shall be LOS "D", unless an exception is made by the County. The minimum LOS standard for local and residential roads shall be LOS "C". The minimum peak hour LOS standard for all County intersections shall be LOS "D".

The project study area includes a state route. The Caltrans publication *Guide for* the *Preparation of Traffic Impact Studies (dated December 2002)* states the following: *"Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not be always feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS".*

In order to provide additional perspective regarding unsignalized intersection operating conditions, a traffic signal warrant analyses was also completed. The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an unsignalized intersection location. This study generally employs signal warrant criteria presented in the *California Manual on Uniform Traffic Control Devices* (California MUTCD, last updated January 2014). The California MUTCD signal warrant criteria are based upon several factors including volume of vehicular and pedestrian traffic, location of school areas, frequency of accidents, etc. Because data is available for that time period the peak-hour volume Warrant 3 was completed in this study as a representative warrant analysis. However, California MUTCD indicates that "the satisfaction of an individual traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal." Caltrans District 10 typically looks for satisfaction of all relevant warrants before installing a traffic signal.

Levels of Service were calculated for different intersection control types and roadway segments using the applicable methodology contained in the *Highway Capacity Manual, 6th Edition (HCM)*. The procedures used are outlined as follows:

Signalized Intersections. While no traffic signal exists in the study area today, the procedures used for calculating Levels of Service at signalized intersections are as presented in the HCM. In addition to traffic volume, these procedures make use of traffic volume, geometric information and traffic signal timing data to estimate delay by approach and overall delay. For this analysis SYNCHRO simulation software was employed to determine Levels of Service at signalized intersections.

Roundabouts. Similarly, no roundabout exists in the study area, but if one was developed, the Level of Service at a roundabout would be assessed based on HCM criteria using SIDRA software.

Unsignalized Intersections. The procedure for calculating the Level of Service at unsignalized intersections is based on the relative availability of gaps in traffic and the delay experienced for each movement that must yield the right-of-way. The number of gaps is related to delay and is a function of the volume and speed of conflicting traffic, type of control (stop or yield), and qualitative intersection geometrics. Unlike signalized intersections or all-way stop controlled intersections where overall traffic operation is described by one Level of Service grade, a Level of Service is calculated for each movement yielding the right-of-way to others at unsignalized intersections controlled by side street stops.

TABLE 1 LEVEL OF SERVICE DEFINITIONS			
Level of Service	**Signalized Intersection**	**Unsignalized Intersection**	**Roadway (Daily)**
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.
Sources: Highway Capacity Manual, 6th Edition.			

Level of Service based on Roadway Segment Traffic Volume. For planning purposes, it is also possible to suggest the general Level of Service that is likely to occur on roadways based on the observed traffic volumes. The Tuolumne County Transportation Council (TCTC) developed and the General Plan adopted guidelines for identifying Levels of Service based on roadway segment traffic volumes. The applicable threshold guidelines are presented in Table 2. For this analysis SR 120 in the immediate vicinity of the project is classified as a *2-lane Rural Minor Arterial with Rolling Terrain (type 5).* For this analysis Sawmill Mtn Road would be classified as a *Local Road in Rolling Terrain (type 11)*.

TABLE 2 - TCTC GENERALIZED ROADWAY ADT LOS LOOKUP TABLE

FHWA FC#	Roadway Type	Type #	Area Type	Maximum Two-way Average Daily Traffic (ADT) Volume-carrying Capacity for each LOS Designation				
				LOS "A"	LOS "B"	LOS "C"	LOS "D"	LOS "E"
4	Rural Arterial (4-lane) Divided	1	ROLLING	6,240	12,480	18,720	26,520	31,200
4	Rural Arterial (4-lane) Undivided	2		4,820	9,640	14,460	20,485	24,100
4	Rural Minor Arterial (4-lane)	3		6,080	12,160	18,240	25,840	30,400
4	Rural Minor Arterial (with left-turn Lane)	4		4,600	9,200	13,800	19,550	23,000
4	Rural Minor Arterial (2-lane)	5		3,120	6,240	9,360	13,260	15,600
5	Major Collector (34 ft. - 36 ft.)	6		3,420	6,840	10,260	14,535	17,100
5	Major/Minor Collector (23 ft. - 32 ft.)	7		2,900	5,800	8,700	12,325	14,500
5	Major/Minor Collector (20 ft. - 23 ft.)	8		2,590	5,180	7,770	11,008	12,950
5	Major/Minor Collector (18 ft. - 20 ft.)	9		2,300	4,600	6,900	9,775	11,500
5	Major/Minor Collector (Less than 18 ft.)	10		1,920	3,840	5,760	8,160	9,600
6	Local Road	11		1,920	3,840	5,760	8,160	9,600
4	Rural Arterial (4-lane) Divided	101	MOUNTAINOUS	5,810	11,610	17,410	24,670	29,020
4	Rural Arterial (4-lane) Undivided	102		4,490	8,970	13,450	19,060	22,420
4	Rural Minor Arterial (4-lane)	103		5,660	11,310	16,970	24,040	28,280
4	Rural Minor Arterial (with left-turn Lane)	104		4,280	8,560	12,840	18,190	21,390
4	Rural Minor Arterial (2-lane)	105		2,910	5,810	8,710	12,340	14,510
5	Major Collector (34 ft. - 36 ft.)	106		3,190	6,370	9,550	13,520	15,910
5	Major/Minor Collector (23 ft. - 32 ft.)	107		2,700	5,400	8,100	11,470	13,490
5	Major/Minor Collector (20 ft. - 23 ft.)	108		2,410	4,820	7,230	10,240	12,050
5	Major/Minor Collector (18 ft. - 20 ft.)	109		2,140	4,280	6,420	9,100	10,700
5	Major/Minor Collector (Less than 18 ft.)	110		1,790	3,580	5,360	7,590	8,930
6	Local Road	111		1,790	3,580	5,360	7,590	8,930
2	4-Lane Freeway	201	URBAN	28,000	43,200	61,600	74,400	80,000
2	3-Lane Freeway	202		10,100	20,200	30,300	42,925	50,500
2	2-Lane Freeway + Auxiliary Lanes	203		8,392	16,784	25,176	35,666	41,960
2	2-Lane Freeway	204		6,680	13,360	20,040	28,390	33,400
2	4-Lane Expressway	205		24,000	28,000	32,000	36,000	40,000
2	2-Lane Expressway	206		12,000	14,000	16,000	18,000	20,000
3	6-Lane Divided Arterial (with left-turn lane)	207		32,000	38,000	43,000	49,000	54,000
3	4-Lane Divided Arterial (with left-turn lane)	208		22,000	25,000	29,000	32,500	36,000
3	4-Lane Undivided Arterial (no left-turn lane)	209		18,000	21,000	24,000	27,000	30,000
4	2-Lane Principal/Minor Arterial (with left-turn lane)	210		2,900	7,700	14,300	20,100	31,300
4	2-Lane Principal/Minor Arterial (no left-turn lane)	211		2,900	7,200	11,900	16,100	24,200
5	2-Lane Major/Minor Collector (with left-turn lane)	212		3,400	6,900	11,600	15,800	29,400
5	2-Lane Major/Minor Collector (no left-turn lane)	213		2,700	5,600	9,200	12,800	23,500
6	2-Lane Local Street	214		2,300	4,900	8,400	11,400	21,200

Notes:
Values shown corresponding to LOS A through E are roadway ADT traffic volumes
Collector width is measured from the edge of pavement to the edge of pavement
Roadways with continuous grade steeper than 6% or above 4,000 ft. elevation should use mountainous train LOS thresholds
Site Specific LOS maybe necessary
Peak Hour LOS threshold is assumed to be 10% of the daily traffic volume unless site specific analysis shows a different peak hour to daily traffic ratio
Examples LOS A (0.20 of capacity), LOS B (0.21 to 0.40 of capacity), LOS C (0.41 to 0.60 of capacity), LOS D (0.61 to 0.85 of capacity), LOS E (0.86 to 0.92 of capacity)
All volumes thresholds are approximate and assumes average roadway characteristics. Actual threshold volume for each Level of Service listed above may vary depending on a variety of factors including (but not limited to) roadway curvature and grade, intersection or interchange spacing, driveway spacing, percentage of trucks, RVs and other heavy vehicles, travel lane widths, speed limits, signal timing characteristics, on-street parking, volume of cross traffic and pedestrians, etc.

Current Peak Hour Levels of Service

Intersection Levels of Service. Current Saturday peak hour Levels of Service were calculated at the study intersections (Refer to the Appendix for calculation worksheets) and are summarized in Table 3. Current Levels of Service were compared to adopted Tuolumne County standards to determine whether existing conditions are satisfactory. The weekday p.m. peak hour Level of Service reported at the SR 120 / Ferretti Road intersection in the 2016 RTP is also presented for reference.

Traffic Signal Warrants. Current traffic volumes at the SR 120 / Ferretti Ranch Road intersection were compared to MUTCD peak hour warrants. The volume occurring midday on Saturday satisfies the volume warrant, but the weekday am/pm intersection volumes in the 2016 RTP do not.

The extent to which a traffic signal or other form of traffic controls is needed at this location today is linked to the extent to which remaining warrants are satisfied, as well as conditions that occur throughout the week and outside of the peak summer season. Thus, within the context of conditions throughout the year the operation of the SR 120 / Ferretti Road intersection may be considered acceptable without a traffic signal. The 2016 RTP does not suggest the immediate need for a traffic signal, but the document indicates that improvements to the SR 120 / Ferretti Road intersection are a long-term Tier 3 (unfunded) project.

Roadway Levels of Service. Table 4 presents current daily traffic volumes on study area roadway segments observed on a Saturday in August and identifies the accompanying Level of Service. The current roadway segment Level of Service on the study area roads ranges from LOS B on SR 120 to LOS A on Sawmill Mtn Road. The Level of Service on SR 120 satisfies the Tuolumne County LOS D minimum, while conditions on Sawmill Mtn Road meet the LOS C minimum for local roads.

TABLE 3
EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Control	Saturday Peak Hour			Weekday PM Peak Hour		
		Average Delay (veh/sec)	LOS	Peak Hour Warrants Met?	Average Delay (veh/sec)	LOS	Peak Hour Warrant Met?
SR 120 / Ferretti Road							
SB Ferretti Road approach	SB Stop	29.2	D	Yes	12.4	B	No
EB left turn		8.4	A		8.1	A	
SR 120 / Sawmill Mtn Road					Not applicable		
SB Sawmill Mtn Rd approach	SB Stop	12.6	B	No			
EB left turn		7.6	A				
SR 120 / Hardin Flat Road							
NB Hardin Flat Rd approach	NB Stop	12.3	B	No			
WB left turn		8.1	A				

TABLE 4 EXISTING LEVELS OF SERVICE ON ROADWAY SEGMENTS					
				Existing	
Road	Location	Class	Maximum Volume at Acceptable LOS	Saturday Daily Volume	LOS
SR 120	West of Sawmill Mtn Road	5	13,260 (D)	5,570	B
	East of Sawmill Mtn Road	5	13,260 (D)	5,585	B
Sawmill Mtn Road	North of SR 120	11	5,760 (C)	50	A

Minimum Sight Distance

The adequacy of the available sight distance at the SR 120 / Sawmill Mtn Road intersection was determined in comparison to Caltrans standards published in the *Highway Design Manual (HDM*). HDM Table 201.1 identifies the **minimum safe stopping sight distance** required at various speeds. This is the distance required for an approaching motorist to identify an obstacle and come to a stop. This standard is appropriate for motorists entering from a stop and for motorists approaching an intersection on an approach that does not stop. HDM Table 405.1A identifies the **corner sight distance** required at various speeds. Corner sight distance identifies distance needed to detect the gap in traffic that is long enough for an entering motorist to identify a gap and move into either traffic lane without forcing approaching motorists to decelerate to avoid the entering vehicle.

Acceptable sight distances are determined by the speed of vehicles on the uncontrolled approaches to the intersection. Table 5 below compares the sight distance requirements at various speeds for passenger cars with corner sight distance requirements across a single opposing lane. As indicated, for the 55 mph speed limit on SR 120, 500 feet is needed to satisfy the minimum sight distance requirement, and 605 feet is needed for corner sight distance when turning left onto the highway.

The available sight distance at the SR 120 / Sawmill Mtn Road intersection was reviewed in the field. Looking right (west) from Sawmill Mtn Road, the highway curves to the north, and as a result the view is limited by the hillside and trees. Measured from the location mandated by the HCM (i.e., 15 feet from edge of traveled way) roughly 400 feet of sight distance is available to the west, which does not meet the minimum standard for 55 mph. The view to the east, however, is straight towards the Hardin Flat Road intersection, the view is not restricted and both minimum and corner sight distance requirements are met.

TABLE 5 SIGHT DISTANCE STANDARDS			
		Corner Sight Distance (feet) (HDM Table 405.1)	
Design Speed	Minimum Stopping Sight Distance (feet) (HDM Table 201.1)	Left Turn from Stop	Cross or Right Turn from Stop
15 mph	100	-	-
20 mph	100	220	190
25 mph	150	275	240
30 mph	200	330	285
35 mph	250	385	335
40 mph	300	440	385
45 mph	360	495	430
50 mph	430	550	475
55 mph	500	605	525
60 mph	580	660	575
65 mph	660	715	620
70 mph	750	770	670

PROJECT TRAVEL CHARACTERISTICS

The proposed project will create a lodge with 100 guest rooms and 26 rooms in guest cabins. The project will employ up to 33 persons but will provide employee housing capable of lodging 22 persons, including on-site accommodations for the manager and assistant manager. The project will also include a 2,800 sf market that will cater primarily to hotel guests and employees but will also be available to the general public traveling on SR 120.

This report was prepared using an employee count of 33 which was factored into the trip generation projections and resulting model outputs. The number of employees in Chapter 3, Project Description of the EIR is slightly larger, at 40. Because the trips associated with hotel employees who reside off-site are included as a part of the standard trip generation rates for hotels, the presence of 7 additional employees would not change the project's overall trip generation forecasts and would not affect the conclusions set forth in this document

The project is further described herein in terms of the amount of traffic it may generate and the routes that traffic will use, and proposed circulation system improvements included with the project are also described.

The travel characteristics of the project have been identified for use in evaluating the relative effect of the project. Project characteristics are characterized in terms of:

- Trip Generation – the amount of traffic accompanying the project on a daily and peak hour basis
- Trip Distribution – the destinations for project trips on a local and regional basis
- Trip Assignment – the routes that will be used between the site and identified destination based on available alternatives

Trip Generation

Trip Generation Rates. The amount of new traffic associated with development projects is typically forecast using information developed from recognized national sources. The Institute of Transportation Engineers (ITE) publication *Trip Generation, 10th Edition* is a source recognized by Caltrans and other local agencies such as Tuolumne County, and potential trip generation rates for the project drawn from that publication are presented in Table 6.

As shown the trip generation associated with individual aspects of the project has been considered, and applicable rates have been used. As the operational analysis focusses on peak Saturday conditions along SR 120, Saturday trip generation rates were desirable. However, because some uses lack Saturday data, weekday data has been used where needed to complete the data base.

Lodging. While the Manual includes trip generation rates for Resort Hotels (Code 330), no data is available for Saturdays. Alternatively, Saturday data is available for regular hotels (310), although the comparable weekday data reveals that Resort Hotels generate fewer trips. To provide a "worst case" analysis the higher rates for regular Hotels were used, and these rates were also applied to the cottages.

TABLE 6
PROJECT TRIP GENERATION RATES

Code	Description	Unit	Weekday							Saturday			
			Daily	PM Peak Hour of Adjacent Street			PM Peak Hour of Generator			Daily	Peak Hour of Generator		
				In	Out	Total	In	Out	Total		In	Out	Total
Rates Relating to Lodge													
310	Hotel	room	8.36	51%	49%	0.60	58%	42%	0.61	8.19	56%	44%	0.72
330	Resort Hotel	room	-	43%	57%	0.41	50%	50%	0.50	-	-	-	-
Rates Relating to Employee Housing													
210	Single Family Housing	resident	2.65	66%	34%	0.26	66%	34%	0.28	2.48	54%	46%	0.27
		dwelling	9.44	63%	37%	0.99	64%	36%	1.00	9.54	54%	46%	0.93
220	Multifamily Housing – low rise	resident	1.42	-	-	0.13	63%	37%	0.32	-	-	-	-
		dwelling	7.43	63%	37%	0.56	59%	41%	0.67	8.14	50%	50%	0.70
Rates Relating to Market													
814	Variety Store	ksf	63.47	52%	48%	6.84	50%	50%	7.42	(63.47)	52%	48%	(7.42)
850	Supermarket	ksf	106.78	51%	48%	9.24	52%	48%	7.60	177.62	51%	49%	10.34
851	Convenience Store without Gasoline Sales	ksf	762.28	51%	49%	49.11	51%	49%	53.51	1084.17	50%	50%	79.12
	Average of available sources									441.75	51%	49%	32.29
Rates Used for Analysis													

Employee Housing. From the standpoint of land use category, the employee units are most like multi-family dwellings. Because the employee residence will be occupied by multiple employees, trip generation based on the number of residents has been used for those units that are expected by be occupied by individual employees. However, no Saturday information is available on a "per resident" basis. "Per resident" Saturday data is available for Single Family Homes, although the rates for this use are somewhat higher than those for multi-family units. "Per resident" Saturday data for single family homes was used to provide a "worst case" analysis.

Market. The market will offer a limited inventory that is primarily directed to the lodge's guests and employees, and ITE rates for hotels note the presence of some retail offerings in the overall trip generation rates of that use. While the market is somewhat separated from the lodge building, because the lodge lacks a full service restaurant, the market's offerings may be more closely linked to the food service needs of guest (i.e., prepared sandwiches and snacks) rather than the broader range of products offered at a more typical rural market catering to the general public.

ITE rates that are available for a variety of retail uses were considered, and their ITE descriptions are noted below.

- **Code 814 Variety Store.** A variety store is a retail store that sells a broad range of inexpensive items often at a single price. These stores are typically referred to as "dollar stores." Items sold at these stores typically include kitchen supplies, cleaning products, home office supplies, food products, household goods, decorations, and toys. These stores are sometimes stand-alone sites, but they may also be located in small strip shopping centers.

- **Code 850 Supermarket.** A supermarket is a free-standing retail store selling a complete assortment of food, food preparation and wrapping materials, and household cleaning items. Supermarkets may also contain the following products and services: ATMs, automobile supplies, bakeries, books and magazines, dry cleaning, floral arrangements, greeting cards, limited-service banks, photo centers, pharmacies, and video rental areas. Some facilities may be open 24 hours a day.

- **Code 851 Convenience Store.** The convenience markets in this classification are open between 15 and 24 hours per day. These markets sell convenience foods, newspapers, magazines, and often beer and wine; they do not have gasoline pumps.

The averages of the rates for these three uses have been employed.

Internal Trips. Interaction between the uses on-site will keep some potential trips "on-site" and reduce the number of external trips.

Lodging – Employee Housing. The standard trip generation rates for Hotels accounts for and includes typical employee travel. By providing on-site housing a share of the trips associated with the Lodge and cabins will be eliminated. As indicated in Table 7, we have assumed that 20 of the 40 employees will take advantage of the on-site housing. On a daily basis

these employees would have generated 40 daily trips if each drove alone. We assumed that 10% of this activity might occur in the Saturday peak hour (i.e., 4 trips). This reduction would apply to both Lodging estimate and to the employee on-site housing estimate.

Lodging / Employees – Market Interaction. It is likely that guests and employees will visit the market for convenience items, souvenirs, etc. We assumed that each guest room and cabin room will create one visit each day (i.e., 2 trips per unit) and that each employee residing on site or employee family residential unit will visit the market once a week. On Saturday, the market's internal trips associated with the lodging and employees total 407 daily and 35 peak hour trips, and this discount would also be applied to the Lodging and Employee trip estimates.

Under those assumptions an overall total of 894 daily trips would be "internal" or 19% of the project's gross trip generation total.

Market Pass-By Trips. Traffic engineers have found that a share of trips attracted to retail uses is typically drawn from the stream of traffic already passing the site. These "pass-by" trips represented customers who stop at a retail store as part of a trip made for another purpose. In this case a pass-by trip will occur when Yosemite visitors stop at the market on their way to and from the national park. ITE data is available in the Trip Generation Handbook, 3rd Edition, to identify the range of typical "pass-by" rates for various uses. The average pass-by rate for convenience stores is 61%. While it is likely that the actual pass-by rate of the market could be higher due to the absence of other retail opportunities in the area along SR 120 between the national park and Groveland, this rate has been employed to produce a "worst case" assessment.

The reasonableness of the pass-by trip assumptions is linked to the background traffic volumes on SR 120. As indicated in the setting, SR 120 carries about 700 vph by the site on the Saturday peak hour. The inbound pass-by trips drawn to the market (i.e., 61 inbound trips) represent about 9% of the existing hourly volume. This share seems reasonable given the absence of other convenience retail uses in the area between Yosemite Valley and Groveland.

Resulting Trip Generation Estimates. As shown in Table 7, on a peak Saturday the project will result in 598 pass-by trips. A total of 1,127 "new" trips added to the study area circulation system. During the peak hour 41 pass-by trips and 92 "new" trips are expected.

TABLE 7
TRIP GENERATION ESTIMATE

Code	Description	Unit	Saturday			
			Daily	Peak Hour of Generator		
				In	Out	Total
310	Lodge	100 rooms	819	40	32	72
	Cabins	26 units	213	10	9	19
	Subtotal		1,032	50	41	91
	Less effect of Employee Housing	(2%)	40	2	2	4
	Less internal to Market	(24%)	252	11	11	22
	Net External Trips		***740***	***37***	***28***	***65***
210	Individual Employee Housing	20 residents	50	3	3	6
	Less on-site commute match		40	2	2	4
	Less internal to Market	(14%)	5	1	0	1
	Net External Trips		**5**	**0**	**1**	**1**
851	Market	2.8 ksf	1,237	46	44	90
	Less internal to Lodging		252	11	11	22
	Less internal to Employee Residential		5	0	1	1
	Net External		***980***	***35***	***32***	***67***
	Pass-by Trips	61%	598	21	20	41
	Net Primary External		***382***	***14***	***12***	***26***
	Total Gross Trips		2.309	99	88	187
	Total External Trips		1,725	72	61	133
	Total Pass-by Trips		598	21	20	41
	Total Net New Trips		**1,127**	**51**	**41**	**92**

Trip Distribution and Assignment

Trip Distribution. Having determined the number of trips that are expected to be generated by the project, it is necessary to identify the directional distribution of project-generated traffic. The distribution of project trips will reflect factors such as the project's location on a major route to YNP and the distance to Groveland and other attractions.

Guest Travel. On a peak summer Saturday most of the travel by guests will likely be between the site and Yosemite National Park. We expect that most guests will have arrived before Saturday and leave after Saturday, but a few may start or end their stay on Saturday and travel via SR 120 through Oakdale. A share of the guest traffic will be to the west to the Groveland / Big Oak Flat area (20 miles), and those guests staying a longer period of time may occasionally make side trips to more distant locations such as Sonora (45 miles). These assumptions are outlined in Table 8.

This analysis assumes that all of the external trips generated by lodging are "new" to the study area circulation system. However, it is likely that some portion of this guest travel will be comprised of Yosemite visitors who would otherwise find lodging at other more distant locations. Thus, a share of the lodging trips could be "diverted trips" made by travelers who would be on SR 120 anyway. To provide a "worst case" assessment, this analysis assumes that all of the external lodging trips are "new" to the circulation system.

TABLE 8
TRIP DISTRIBUTION ASSUMPTIONS

Direction	Route	Percent of Project External New Trips			
		Guests	Market Customers	Employees	
				Residing On site	Residing Off site[1]
East	SR 120 to Yosemite National Park	85%	40%	5%	0%
North	Ferretti Road (W)	5%	0%	25%	25%
	Sawmill Mtn Rd - Forest Route 1S03	0%	2%	0%	0%
West	Area along SR 120 from project to Ferretti Road	-	48%	5%	0%
	Groveland west of Ferretti Road (W) and Big Oak Flat	2.5%	10%	25%	25%
	SR 120 beyond Big Oak Flat towards Oakdale	5%	0%	10%	10%
	SR 120 beyond Big Oak Flat to SR 108 and Sonora	2.5%	0%	30%	40%
	Total	100.0%	100.0%	100%	100%

[1] trips to Terra Vi only

Market Customers – New Trips. The "new" trips attracted to the project's market would be expected to originate along SR 120 and Hardin Flat Road in the area between Groveland and Yosemite. It is unlikely that a convenience store in this location would attract customers who would drive past the existing retail areas in Groveland and Big Oak Flat to reach the site. In the summer some occupants of residences to the north on Forest Service Road 1S03 may visit the market.

Market Customers – Pass-by Trips. Pass-by trips will likely be drawn to the site in proportion to the background traffic volume in each direction on SR 120. During the Saturday midday peak hour the background traffic is split 60% eastbound and 40% westbound.

Employee (Residing On-Site) Travel. It is likely that employees residing on-site will travel from the site for goods and services, especially on their day off. Regular travel to Groveland / Big Oak Flat will occur and occasionally employees will travel to Oakdale or Sonora.

Employee (Residing Off-Site). This analysis assumes that 20 of the employees will live on-site and the rest will choose to live elsewhere and drive to Terra Vi to work. While these employee commute trips are included in normal hotel trip generation rates, the directionality of these trips will affect the overall distribution pattern of lodging trips somewhat.

The distribution of employee commute trips will depend on assumptions regarding their place of residence. While vacation rentals are common today, relatively little if any full-time rental housing is vacant in the Groveland / Big Oak Flat area. As a result, persons working at Terra Vi who previously resided outside of the Groveland / Big Oak Flat area may have difficulty finding a closer residence. Conversely, persons who already live in the area will now have another employment choice and may drive to Terra Vi from their current residence.

On a daily basis, these 13 employees who reside off-site would create 26 commute trips to and from Terra Vi. We have assumed that half will be made by persons residing in the Groveland / Big Oak Flat area and the other half will reside in the northern Tuolumne County area.

Trip Assignment. Table 9 notes the trips assigned to study area streets based on these assumptions, while Figure 4 illustrates "Project Only" traffic.

TABLE 9
TRIP ASSIGNMENT RESULTS

Direction	Route	Project External New Trips - Saturday (Project External New Trips - Peak Hour)			
				Employees	
		Guests	Market Customers	Residing On site	Residing Off site[1]
East	SR 120 to Yosemite National Park	607 (53)	153 (10)	0 (0)	0 (0)
North	Ferretti Road (W)	36 (3)	0 (0)	1 (0)	7 (1)
	Forest Route S103	0 (0)	7 (1)	0 (0)	0 (0)
West	Area along SR 120 from project to Ferretti Road	0 (0)	183 (12)	1 (0)	0 (0)
	Groveland west of Ferretti Road (W) and Big Oak Flat	18 (2)	38 (3)	1 (0)	7 (1)
	SR 120 beyond Big Oak Flat towards Oakdale	36 (3)	0 (0)	1 (0)	3 (0)
	SR 120 beyond Big Oak Flat to SR 108 and Sonora	18 (1)	0 (0)	1 (1)	9 (1)
	Total	714 (62)	382 (26)	5 (1)	26 (3)

[1] employee trips to Terra Vi only

Circulation System Improvements

The project description notes that improvements will be made to the SR 120 / Sawmill Mtn Road intersection in order to safely accommodate project traffic. These improvements include:

- SR 120 will be widened to create an **eastbound left turn lane** to handle traffic turning onto Sawmill Mtn Road.
- SR 120 will also be widened to create a **"receiving lane area"** east of the intersection to accommodate vehicle turning left from Sawmill Mtn Road.
- The Sawmill Mtn Road intersection will be improved north of SR 120 to provide standard rural approach tapers onto and off of the state highway per the HDM.

Project Transit Features

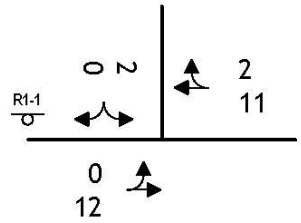
The project includes features to promote the use of transit service and help reduce private automobile traffic and VMT. The Terra Vi Lodge would provide a YARTS stop, with bus access being provided to the site to pick up riders at the lodge. Additionally, the lodge would also include 30 parking stalls available to the public for day use to encourage the use of public transportation and ride sharing.

The project proponents have established initial goals for transit use. Those goals are:

- 10% of trip to Yosemite by guests would be made by transit.
- 10% of the identified park & ride spaces would be used by motorists who would leave their vehicle and take YARTS to Yosemite.

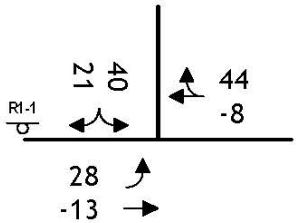
The project proponents anticipate that use of transit could increase over time if overall YARTS system enhancements occur and as guests become more familiar with the system. However, to present a conservative traffic operational analysis, no discount for transit use has been made from the project trip generation estimate.

1



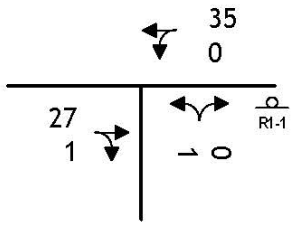
Ferretti Rd/ SR 120

2



Forest Route 1S03/ SR 120

3



Hardin Flat Rd/ SR 120

Legend

XX Noon Peak Hour Volume

R1-1 Stop Sign

NORTH

N.T.S.

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PROJECT ONLY TRAFFIC VOLUMES AND LANE CONFIGURATIONS

figure 4

REGULATORY SETTING

Federal

The United States Forest Service (USFS) has jurisdiction over Forest Service Road 1S03 (Sawmill Mtn Road). Construction on this road is governed by Federal Highway Administration publication (FHWA FP-14) *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects.* The Forest Service Handbook / Manual *Section 7700* provides policy guidance regarding transportation facilities and issues.

State of California

Caltrans has jurisdiction over state highways. As noted earlier, Caltrans Traffic Study Guidelines provide direction for traffic operational analysis.

SR 120 Transportation Concept Report (SR 120 TCR). SR 120 is under the jurisdiction of Caltrans. Caltrans developed a Transportation Concept Report (TCR) for SR 120 in 2014. The TCR identifies existing and cumulative operational deficiencies on state routes and identifies potential improvements. According to the SR 120 TCR, SR 120 from McHenry Avenue to Oakdale Road is designated as part of the IRRS, is subject to the general LOS criteria (LOS C) and is ultimately a four-lane facility. The Concept Level of Service is LOS D east of Oakdale Road.

SB 743. SB 743 requires that as of July 1, 2020 evaluation of transportation impacts under CEQA may no longer be based on consideration of Level of Service and will move to evaluation based on Vehicle Miles Traveled (VMT). Methods for estimating project VMT and for evaluating VMT impacts are outlined in Office of Planning & Research (OPR) directives and are implemented by individual jurisdictions.

Traffic Operations Policy Directive 13-02. Caltrans policy regarding applicable traffic controls has recently been expanded based on Traffic Operations Policy Directive 13-02. This directive requires that Caltrans consider the relative merits of alternative traffic controls when it becomes necessary to stop traffic on state highways. Roundabouts are the default intersection control, but all-way stops and traffic signals are to be considered. The policy directive requires preparation of an *Intersection Control Evaluation (ICE)* to determine the preferred traffic control.

Caltrans Encroachment Permit. Improvements made to the state highway by private parties or local agencies are processed under a permit from Caltrans.

Regional

2018 Tuolumne County General Plan. The General Plan consists of three components - the Countywide General Plan, Community Plans which relate to specific areas of the unincorporated area of the County, and a Technical Background Report with data and information to support the General Plan and Community Plans.

The Countywide General Plan provides an overall framework for development of the County and protection of its natural and cultural resources, rural character, and the rights of its residents and property owners. The goals and policies contained in the General Plan apply throughout the County, except within the boundaries of the incorporated City of Sonora and are supplemented by the policies contained in the Community Plans. The Community Plans provide a more detailed focus on specific geographical areas within the unincorporated County. The goals and policies contained in the community plans supplement and elaborate upon the goals and policies of the Countywide General Plan.

2016 Tuolumne County Regional Transportation Plan (2016 RTP). The Tuolumne County Transportation Council (TCTC), as the federally-designated rural transportation agency and the State-designated regional transportation planning agency (RTPA) for Tuolumne County, is required by both federal and State law to prepare a long-range (at least 20-year) transportation planning document known as a Regional Transportation Plan (RTP). The RTP is an action-oriented document used to achieve a coordinated and balanced regional transportation system. Under both federal and State law, TCTC must update its RTP every five years.

The 2016 RTP demonstrates how TCTC plans to meet the transportation needs of the region for the period from 2016 to 2040, considering existing and projected future land use patterns as well as forecasted population and job growth. The 2016 RTP would identify and prioritize expenditures of anticipated funding for transportation projects that involve all transportation modes. The projects that constitute the 2016 RTP focus on highway, local roadway, aviation, rail, non-motorized transportation, and public transportation. Table 2-1 in Section 2.0, Project Description, provides a list of proposed 2016 RTP projects.

Few of these projects are in the area of the proposed project. Tier 1b State Highway projects include a left turn lane on SR 120 at Old Priest Grade, and guardrails on Old Priest Grade. Long range Tier 1c State Highway projects include climbing lanes on SR 120 (New Priest Grade). Unfunded Tier 3 state highway projects include geometric improvements to SR 120 / Ferretti Road. Tier 1b Bicycle and Pedestrian projects include Complete Streets improvements to SR 120 in Groveland, while Tier 2 projects include Safe Routes to Schools improvements on SR 120 and the Hetch Hetchy Railroad Trail, both in Groveland.

Tuolumne County Traffic Impact Mitigation Fee (TIMF) Program. The local Traffic Impact Mitigation Fee (TIMF) program is a locally administered program that new development pays to help mitigate traffic impacts to the roadway network. The TIMF Program funds are used to improve roadway deficiencies such as intersection improvements or 2016 Final Regional Transportation Plan Local Streets and Roads - 112 road widening projects. The City of Sonora and Tuolumne County administer their own TIMF programs.

PROJECT VEHICLE MILES TRAVELED (VMT) IMPACTS

Background

This analysis quantifies the net effect of the Terra Vi project on regional Vehicle Miles Traveled (VMT). These estimates were developed within the context of the direction contained in the California Governor's Office of Planning and Research (OPR)' December 2018 publication, *Technical Advisory on Evaluating Transportation Impacts in CEQA*. The following information regarding quantification of project VMT is based on analysis conducted by Wood Rodgers[1].

Methods / Assumptions

Tuolumne County Updated Travel Demand Forecasting Model. A "tour-based" approach was taken. The Tuolumne County regional travel demand forecasting model was recently updated and calibrated for VMT analysis and is recognized by Tuolumne County as the best available tool for estimating the VMT associated with various land uses. The model's inventory of land uses included visitor lodging (Hotels) and retail uses (Commercial), which are applicable to the project. However, the regional travel demand forecasting model is calibrated to typical average weekday conditions and does not necessarily reflect weekend travel.

As noted in the Wood Rogers analysis, a project weekday trip generation estimate was created for assessment of project impacts under VMT. The Terra Vi project is forecast to generate 586 net weekday daily trips.

To identify project VMT, model traffic analysis zones were created to represent the Terra Vi project, model runs were completed with and without the project and total regional VMT was identified under model baseline year and future (year 2040) conditions with and without the project. While the model is limited to roadways within Tuolumne County, a post processing routine was created to address the amount of project VMT occurring outside of Tuolumne County. Additional information is included in the Wood Rogers analysis.

Results

Project VMT. The model suggests that the total regional VMT generated by County land uses in and outside of Tuolumne County without the Terra Vi project is 3,375,777 under baseline (year 2015) conditions and 3,802,466 under Year 2040 conditions. The Terra Vi project will result in an increase in total Countywide Weekday VMT of 7,424 to 8,055 vehicle miles, as noted in Table 10.

Separate from the estimate of total regional VMT, the project specific VMT has been isolated for Terra Vi's land uses. The total regional VMT associated with the project is 13,091 VMT under baseline 2015 conditions.

[1] Draft Terra Vi Lodge VMT Analysis, June 6, 2020

TABLE 10 WEEKDAY PROJECT VEHICLE MILES TRAVELED (VMT) ESTIMATES			
	Condition	**2015**	**2040**
Total Weekday VMT caused by land uses in Tuolumne Co	No Project	3,375,777	3,802,466
	With Project	3,383,201	3,810,521
	Net Difference	7,424	8,055
Total Weekday Project VMT		13,091	

Significance Criteria

The CEQA guidelines state that lead agencies, such as Tuolumne County, may establish "thresholds of significance" to assist with the determination of significant impacts of a project. The CEQA guidelines define a threshold of significance as:

An identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.

Tuolumne County is in the process of establishing significance criteria based on VMT thresholds, and alternative criteria are being considered within the context of OPR guidance. Countywide and regional sub-area thresholds are being discussed. Thresholds ranges are being considered from:

- ***OPR technical memorandum recommendation for 15% reduction from exiting per capita and per employee VMT***. This threshold would compare a project's VMT characteristics to the existing baseline condition on a per capita or per employee basis, and the impact of those projects failing to achieve a 15% reduction from that baseline would be significant.

- ***Per capita and per employee VMT reductions based on the characteristic of General Plan future growth in Tuolumne County***. This threshold would consider the project's VMT characteristics against the per capita and per employee VMT reductions forecast with development under the approved Tuolumne County General Plan. The impact of those projects failing to achieve the reduction identified for uses under the approved General Plan would be significant.

- ***Thresholds customized to specific regions of Tuolumne County based on sub-regional VMT forecasts under the General Plan.*** The third approach is to develop custom thresholds specific to the currently planned vision for various regions of the County, taking into account where and when growth is projected to occur. This threshold

recognizes that as a rural county development in some locations inherently generates higher levels of VMT than the countywide average for similar development. This threshold would compare the VMT metrics of the project with the characteristics of similar uses within specific regions of the County.

Proposed Thresholds. Within each alternative threshold per capita and per employee VMT rates are identifiable for typical residential and office/industrial uses. However, hotels are not a use that is likely to be addressed on a per capita or per employee basis. Analysis conducted for Tuolumne County has used the countywide model to consider hotels as an individual land use category and identified typical VMT on a "per room basis" for hotels. Data was developed for various regions of the county, including the East County "rural" sub-area containing the Terra Vi site. This information is noted in Table 11.

TABLE 11
VEHICLE MILES TRAVELED (VMT) SIGNIFICANCE CRITERIA

Land Use	unit	Location	Total VMT	VMT per unit
Hotel	room	East County	-	129.1
Terra Vi Lodge	126 rooms	East County	13,091	103.9
Percent Difference				-19.5%

As indicated in Table 11, the baseline in-County and external VMT per room for hotels in Tuolumne County's East County area is 129.1. The Terra Vi Lodge's VMT projection divided by its 126 rooms yields a rate of 103.9. The project's rate is 19.5% lower than the baseline, primarily due to:

- The project proximity to tourist destinations
- The positive effects of on-site employee housing
- The positive effects of on-site retail uses that are available to both guests and passersby on SR 120.

As the project's VMT per room is less than the baseline average for hotels in this subregion, the project's impact under both Existing Plus Project and Cumulative (year 2040) conditions is less than significant.

Potential Mitigation. While the project impact based on VMT is less than significant, the enhanced use of transit as a goal of the Terra Vi Lodge could reduce VMT. Because the site trip generation forecast does not specifically account for the effects of enhanced transit use by guests or park and ride uses, the VMT forecasts do not account for enhanced ridership.

Based on the share of site trip generation caused by guests, the VMT analysis includes 385 weekday daily automobile trips by hotel guests. Assuming that 85% of these trips are to/from Yosemite, as is anticipated on a weekend in the traffic study, then 327 Yosemite trips could occur. As the distance from Terra Vi to Yosemite Valley is roughly 30 miles, the elimination of 10% of those trips (i.e., 33 trips eliminated) as has been indicated to be the project goal, would reduce total weekday VMT by 990. Similarly, assuming that 10% of the park and ride spaces are used and that 6 trips to and from Yosemite are eliminated, then regional travel could be reduced by another 180 VMT. While not a required mitigation, the total weekday reduction associated with transit use would be 1,170 VMT, or roughly 9% of the projected total project specific in-County and external VMT (i.e., 1,170/13,091).

PROJECT IMPACTS TO ALTERNATIVE TRANSPORTATION MODES & CONSTRUCTION

Transit Impacts

Development of lodging along SR 120 within a few miles of the of YNP's Big Oak Flat gate will result in demand for transit service by guests and employees. YARTS service runs from May to September from Sonora to Yosemite, and the route passes the project site, with other stops at Sonora, Jamestown, Groveland, Buck Meadows, Yosemite Lakes, Big Oak Flat Gate (Entrance), Crane Flat, as well as Rush Creek Lodge and the Visitor Center in Yosemite Valley. One round trip per day is available from May 13th through May 26th, and from Sept. 3rd through Sept. 30th, and three round trips per day are available during peak Summer season, May 27th through September 2nd.

Without promotion of YARTS the project's transit demand could be similar to that observed at Rusk Creek Lodge which averaged 3 "boardings" per day. However, project proponents have established a goal of 10% resort guest using YARTS to reach Yosemite per day during the peak season. It will be appropriate for Terra Vi to include on-site facilities that accommodate YARTS vehicles and to make guests and employees aware of those facilities to help meet that goal.

While decisions regarding any route stop are made by YARTS, adequate access to the Terra Vi Lodge for YARTS will be made available. The project site plan identifies a main Lodge drop-off and loading area with access to Sawmill Mtn Road about 675 feet from SR 120. That entrance is configured as a one-way loop with separated entrances and exits are each 24 feet wide. This configure would accommodate YARTS vehicles. The dedicated loading area of the drop-off zone is about 60 feet long and is preceded and followed by another 40 feet of curb. Within that area a dedicated YARTS zone should be created towards the far end at a location where exiting busses will not be blocked by other vehicles. With these treatments and proposed access improvements to the SR 120 / Sawmill Mtn Road intersection the site will be accessible to YARTS should a decision be made to take the route on-site to a Terra Vi stop.

To facilitate use of transit and reduce regional VMT the project proponents should also make information about YARTS available to guests and employees by:

1. Including YARTS schedule, route and vehicle accessibility information in the resorts on-line presence and in printed materials made available to guests on arrival.
2. Providing an informational kiosk at a prominent location on site where materials provided by YARTS can be displayed to guests and employees.

Transit Demand. The relative impact of the project on YARTS is linked to the number of guests who elect to ride and the number of other persons who park at the site and hop on YARTS at this location. If assuming two persons per guest room and that 10% of the guests elect to use YARTS, then 25 riders or 52 daily boardings would result. Similarly, if 10% of the 30 park & ride spaces are used, with 2.5 persons per automobile, then 7 riders and 14 boardings would result. The total transit demand would be 66 daily boardings. These boardings would be spread

among the three daily round trips now offered by YARTS during the peak season, or on average 11 additional riders on each route.

The relative impact of this additional YARTS ridership is related to the "load factor" on these routes. Load factor is the percentage of the seats occupied by passengers. In the busiest month with available data (July 2017) the overall load factor was 56% on weekdays and 47% on weekends. A YARTS coach can accommodate 52 persons, and on average 27 seats are generally available at a 47% load factor. On average the project's anticipated transit demand can be accommodated. However, accumulated demand on any run is greatest near the YNP entrance, and full runs are reported in the peak season. While three inbound runs to YNP are available in the morning, project demand may be concentrated in the earlier runs. As a result, it is likely that the project may contribute to more "at capacity" runs than occur today and that project guests could occasionally face the prospect of a "full YARTS" bus at the on-site stop. Regular transit demands in excess of available capacity would be significant impact to transit.

Measures to reduce this impact would involve coordinating guest transit use to spread the demand across the three existing routes on peak demand days. Active coordination would require a dedicated on-site transit coordinator.

Cumulative Transit Impact. The demand for transit service by the general public, Terra Vi guests and park & ride users could increase in the future. The extent of that increase would depend on factors such as traffic conditions on SR 120 to and in YNP, comparative travel costs, YNP vehicular access policies, and public perceptions as to the overall desirability of the transit system. It is reasonable to expect that overall YARTS "load factors" will increase in the future and that the project's overall YARTS ridership will increases. "At capacity" runs would become more prevalent and the need for additional service could become more acute. No additional mitigation is recommended

Pedestrians and Bicycle Impacts

Project Impacts. Development of the project could result in pedestrians and bicyclists operating between the site and adjoining residences along Sawmill Mtn Road and the guest accommodations along Hardin Flat Road. Beyond the limits of the project the volume of traffic on Sawmill Mtn Road will remain very low, and use of the Forest Service Road by all modes does not present a safety impact.

Activity may occur between the site and existing and proposed land uses along Hardin Flat Road. The closest RV sites in Thousand Trails are roughly ¾ mile from SR 120 down Hardin Flat Road, or about a mile from the Sawmill Mtn Road intersection. The proposed Under Canvas project (refer to Cumulative Impact Section) would take access to Hardin Flat Road near its intersection with SR 120. It is possible that some guests of Under Canvas or Thousand Trails / Yosemite Lakes may elect to walk or ride a bike to Terra Vi Resort.

The adequacy of that travel has been evaluated with regards to safety, particularly along SR 120. As noted in the existing setting, a four-foot paved shoulder is available along SR 120 in the area

of the project. The Terra Vi site plan includes an emergency vehicular access that links the resort with SR 120 roughly 175 from the Hardin Flat Road intersection. Thus, the distance that pedestrians or bicyclists may have to travel along SR 120 is relatively short.

The safety of a possible pedestrian activity across SR 120 has been considered. Looking east towards YNP from Hardin Flat Road the highway curves to the right but roughly 650 feet of sight distance is available. As noted earlier this satisfies HDM Table 201.1 requirements for travel at more than 60 mph. The view is unobstructed to the left (i.e., towards Groveland). While a formal crosswalk could theoretically be installed, pedestrian activity at this location would be relatively infrequent. The introduction of a marked crosswalk on a high speed road could actually lead to safety conflicts if pedestrians gain a false sense of security from the marking. A marked crosswalk is not recommended.

Based on these considerations access to the site by possible pedestrians and bicyclists will be adequate, and the project's impact on these modes is not significant.

Cumulative Pedestrians and Bicycle Impacts. Development of the project could result in pedestrians and bicyclists operating between the site and foreseeable guest accommodations along Hardin Flat Road. The proposed Under Canvas project would take access to Hardin Flat Road near its intersection with SR 120. It is possible that some guests of Under Canvas as well as some guests of Thousand Trails / Yosemite Lakes may elect to walk or ride a bike to Terra Vi Resort. Within the context of all area attractions, Terra Vi Lodge would be a minor destination for Under Canvas guests. Some may elect to board YARTS at Terra Vi if a more convenient stop is not available. Others might visit the Terra Vi store, although the offers there are fairly limited. Based on these considerations it is estimated that 5% of the Under Canvas guests might walk to Terra Vi, or 10 to 12 persons. This additional activity across SR 120 would not however, change the conclusions regarding pedestrian safety noted earlier in the report. Access to the site by possible pedestrians and bicyclists will be adequate, and the project's impact on these modes is not significant.

Construction Impacts

The project will cause construction traffic by employee and trucks taking materials to and from the site. The number of trips made by these vehicles will vary over the duration of project construction but would not exceed the amount of traffic accessing the site with regular operations. Construction of roadway improvements at the SR 120 / Sawmill Mtn Road intersection will require temporary lane closures of varying duration, but a Construction Traffic Control Plan will be required and approved by Caltrans for work in the state right of way. The project will maintain traffic flow on SR 120 and on Sawmill Mtn Road during construction, but occasional one-way controlled traffic is possible. Construction of the project will also result in truck traffic on Sawmill Mtn Road, and truck traffic may result in deterioration of the existing pavement on that road.

The project will result in construction automobile and truck traffic that accesses the site from SR 120, and in combination with necessary lane closures this activity would temporarily disrupt

background traffic flow. The project's construction truck traffic could result in deterioration of the condition of Sawmill Mtn Road. While not a significant impact under CEQA, the following actions are recommended.

- Prepare to the satisfaction of Caltrans and implement a Construction Traffic Control Plan (CTCP) as part of the Encroachment Permit required for work in the state right of way.

- With Tuolumne County, inventory the condition of Sawmill Mtn Road before construction begins and after the project is completed and restore the roadway to "before project" conditions.

PROJECT EFFECT ON TRAFFIC OPERATIONS

The information which follows is not an evaluation of impacts under CEQA but is presented to facilitate an encroachment permit for improvements to SR 120 and to support assessment of General Plan consistency.

Existing Plus Project Traffic Conditions

Existing Plus Project Volumes. Project trips were superimposed onto the current background traffic. Resulting "Existing Plus Project" traffic volumes are presented in Figure 5.

Intersection Levels of Service. Existing Plus Project traffic volumes were used to determine Levels of Service with development of the proposed project and resulting Levels of Service are shown in Table 12. As indicated, all intersections are projected to operate with a Level of Service that satisfies the minimum LOS D standard on midday peak hour summer Saturday.

Roadway Segments. The daily traffic associated with the project has been superimposed onto the background daily traffic volumes counted on the study area roads. Resulting totals were compared to applicable Level of Service thresholds, and the results are summarized in Table 13. As shown, the addition of the trips generated by this project does not result in Levels of Service in excess of Tuolumne County's minimum standards at any location.

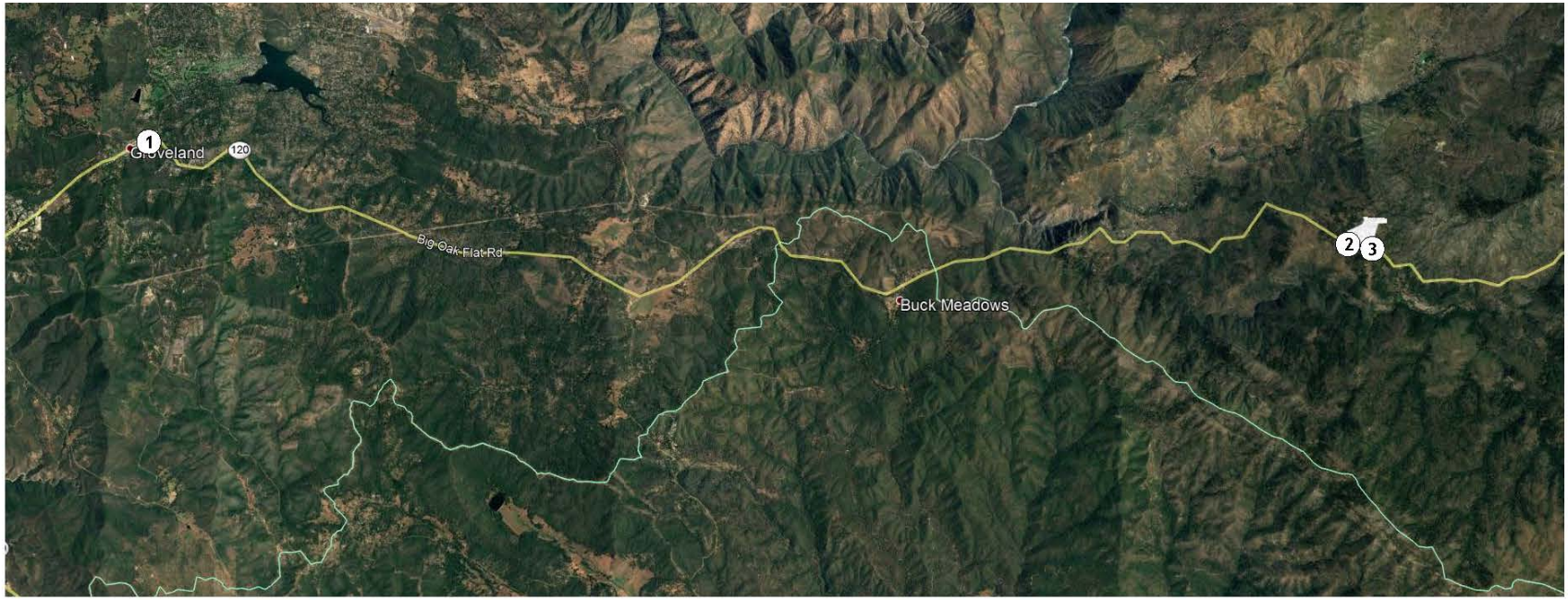
SR 120 Access Design. The adequacy of the project design has been evaluated with regards to applicable Caltrans design standards.

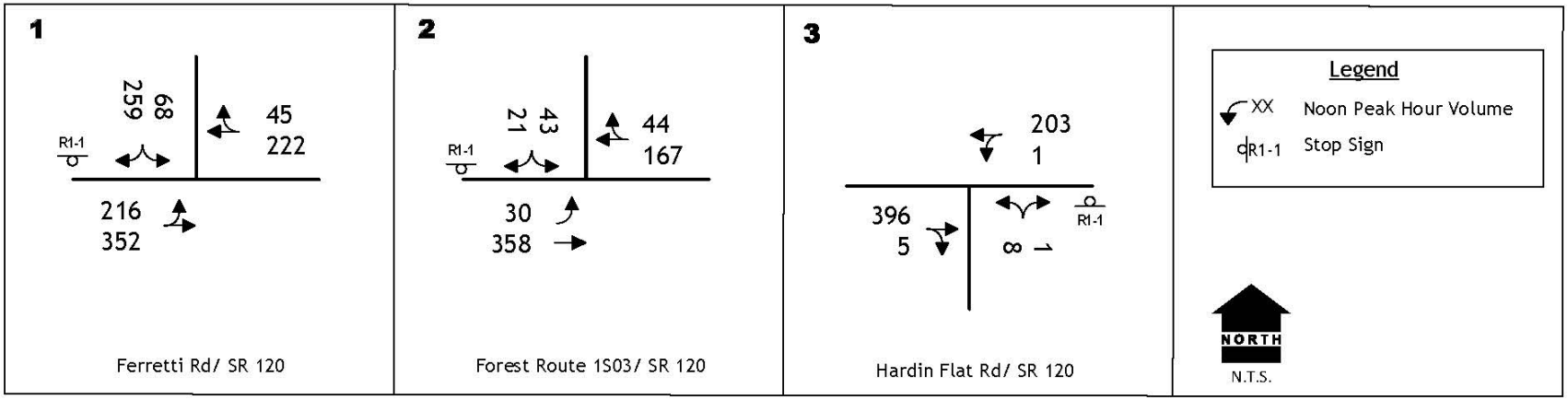
SR 120 left turn lane. The materials accompanying the project application note that a new eastbound left turn lane will be constructed on SR 120 as part of the project. The materials suggest that the new lane will be about 390 feet long and be proceeded by a 50 foot long bay taper. The sum of these dimensions appears to satisfy Caltrans design standards for left turn lane storage (i.e., minimum 50 feet) and deceleration from 55 mph, but the final confirmation of design requirements will be made through the Caltrans encroachment permit process.

SR 120 Receiving Lane. The materials provided indicate that an eastbound receiving lane will be created at the intersection to facilitate left turns from Sawmill Mtn Road onto SR 120. During busy times the lane would permit motorists to make a two-step left turn by first turning into the lane and subsequently merging with through traffic. The lane is shown to be about 150 feet long and followed by a 75 foot bay taper, which would appear adequate for the function. However, full acceleration from a stop to 55 mph by a passenger vehicle would require 1,000 feet on level ground, and full acceleration is not accommodated with the proposed receiving lane. The final determination of the design requirements for this lane would be made during the Caltrans encroachment permit process. It may be that the receiving lane will not be provided if Caltrans requirements exceed the proposed design.

It should be noted that the LOS calculations conducted for this analysis do not assume that the receiving lane is available. Thus, if the receiving lane is not determined feasible, the Levels of Service at the access intersection without the lane are acceptable.

Sight Distance. The project application materials acknowledge that construction of SR 120 / Sawmill Mtn Road intersection improvements will be accompanied by work to improve the sight distance looking right along SR 120. As the roadway is widened to provide a left turn lane on SR 120 the adjoining hillside will be cut back and vegetation that is in the line of site will be removed as needed to satisfy Caltrans standards.





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EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

figure 5

TABLE 12
EXISTING PLUS PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Control	Saturday Peak Hour						Weekday PM Peak Hour		
		Existing			Existing Plus Project			Existing		
		Average Delay (veh/sec)	LOS	Peak Hour Warrants Met?	Average Delay (veh/sec)	LOS	Peak Hour Warrants Met?	Average Delay (sec/veh)	LOS	Peak Hour Warrant Met?
SR 120 / Ferretti Rd										
SB Ferretti Rd approach	SB Stop	29.2	D	Yes	32.5	D	Yes	12.4	B	No
EB left turn		8.4	A		8.4	A			A	
SR 120 / Sawmill Mtn Rd										
SB Sawmill Mtn Rd approach	SB Stop	12.6	B	No	13.1	C	No	Not applicable		
EB left turn		7.6	A		7.7	A				
SR 120 / Hardin Flat Rd										
NB Hardin Flat Rd approach	NB Stop	12.3	B	No	13.0	B	No			
WB left turn		8.1	A		8.2	A				

BOLD conditions exceed minimum LOS D standard.

TABLE 13
EXISTING PLUS PROJECT LEVELS OF SERVICE ON ROADWAY SEGMENTS

Road	Location	Class	Maximum Volume at Acceptable LOS	Saturday Daily Volume				
				Existing		Existing Plus Project		
				Volume (vpd)	LOS	Volume (vpd)		LOS
						Project Only	Total	
SR 120	West of Sawmill Mtn Road	5	13,260 (D)	5,570	B	360	5,930	B
	East of Sawmill Mtn Road	5	13,260 (D)	5,585	B	765	6,350	C
Sawmill Mtn Road	North of SR 120 to main entrance	11	5,760 (C)	50	A	1,720	1,770	B
	North of Project Boundary	11	5,760 (C)	50	A	7	57	A

CUMULATIVE CONDITIONS

Approach / Assumptions for Year 2040 Traffic Forecasts

The cumulative assessment of conditions with the proposed project were assessed within the context of future traffic conditions occurring in the Year 2040. The future traffic volumes presented herein are based on long term traffic volume forecasts derived from the Tuolumne County Transportation Council (TCTC) countywide traffic model that was refined for the RTP traffic study and General Plan EIR.

Land Use Assumptions. The RTP / General Plan traffic study addressed alternatives for long term growth in the County, and the **Distinctive Communities** scenario was employed for this analysis. The RTP study describes that scenario as follows:

> *Within the Distinctive Communities alternative growth scenario, each community contains a well-defined, cohesive, and compact community built around an appropriately-scaled urban core and community gathering places….The existing urban development boundaries may be expanded to allow dense growth to occur near existing community nodes. Infill, redevelopment, and mixed-use are used to take advantage of existing public infrastructure and services. Residential and commercial areas become more compact within new urban development boundaries promoting mixed-use and higher density residential development to supply housing demand…By having compact communities, auto dependency is greatly reduced and walking, bicycling, and transit use becomes an increasing form of transportation.*

Reasonably Foreseeable Projects

In addition to the overall development assumptions made for the RTP / General Plan traffic study, three reasonably foreseeable projects were identified by Tuolumne County staff. These include:

- *Yosemite Under Canvas Glamping:* 99 tent camping sites on 85 acres on Hardin Flat Road east of Terra Vi
- *Berkeley Tuolumne Restoration:* 90 cabins at 31585 Hardin Flat Road
- *Thousand Trails / Yosemite Lakes RV Expansion:* 150 site expansion divided between RV sites, cabins and employee model home sites, although the split is unknown.
- *Mountain Sage Expansion:* Conditional Use permit for events at 18653 Main Street in Groveland.

These projects are further described herein in terms of the amount of traffic it may generate and the routes that traffic will use.

Available Data. Because the amount of vehicle traffic associated with the individual background projects was thought to be relatively small, the traffic impact information available for each project is limited. Available data is summarized below:

Yosemite Under Canvas: The project's draft IS/MND provides this information:

Based on trip generation data for similar Under Canvas facilities that are already operational, the project Applicant estimates that the proposed project would generate approximately 135 round trips per day (including guests, employees, and deliveries) once operational (i.e., 270 daily trip ends). The presence of the YARTS bus stops at the entrance to the Yosemite Under Canvas facility has the potential to reduce daily trip generation. Peak period traffic would typically be between 7:30 and 10:30 a.m. and 5:00 and 10:00 p.m. During these periods there could be up to 25 vehicles per hour leaving in the morning and up to 25 vehicles per hour arriving in the evening.

Berkeley Tuolumne Restoration. This project replaces a similar use lost during the Rim Fire. The project's IS/MND estimates that the project may generate 132 ADT.

Thousand Trails / Yosemite Lakes Expansion. No information regarding this project's trip generation is available. No information was available regarding the number of each type of use, and this analysis assumes 100 RV sites and 50 cabins.

Mountain Sage Expansion. The project's staff report indicated that the total vehicle trips from a concert or other large event would be less than 200 vehicle trips per day, and a traffic study was not required. No information regarding peak hour traffic is available. The project has a General Plan CG and LDR designation, and development could be included in the Countywide traffic model. Based on the project's location, general plan designations and variable event schedule, its potential trips were not added to the cumulative traffic forecast.

Trip Generation Rates. The ITE publication *Trip Generation, 10th Edition* is the source of trip generation rates for the cumulative projects, as noted in Table 14.

Campground / RV Sites. The Trip Generation Manual provides weekday data for a.m. and p.m. commute hours and for the highest weekday hours for campground / RV park traffic (i.e., peak hours of the generator). Daily rates are not available. In addition, the pending review work for the Under Canvas project has included a specific trip generation assessment for that use based observation of a similar use elsewhere.

For this analysis the ITE data for a.m. peak hour of the generator was employed to approximate Saturday peak hour traffic for RV spaces. A daily trip generation rate for this RV use was derived from the Under Canvas traffic assessment. The Under Canvas trip generation forecast has been employed.

Cabins. The Trip Generation Manual includes trip generation rates for Recreational Homes (Code 260), and Saturday data is available for this use. These rates have been applied to the cabins.

TABLE 14 TRIP GENERATION RATES FOR CUMULATIVE PROJECTS						
Code	**Description**	**Unit**	**Saturday**			
			Daily	**Peak Hour of Generator**		
				In	**Out**	**Total**
260	Recreational Homes	Dwelling	2.99	48%	52%	0.38
416	Campground / RV Park	Occupied space	2.60[1]	36%	64%	0.25
	Under Canvas[2]	Occupied space	2.60	29%	71%	0.45
[1] rate from Under Canvas trip generation assessment [2] Yosemite Under Canvas Trip Generation Memorandum, ESA, September 24, 2019						

Resulting Trip Generation Estimates. As shown in Table 15, on a peak Saturday the three projects could result in 813 trips, of which 123 would occur in the peak hour.

TABLE 15 TRIP GENERATION ESTIMATE FOR CUMULATIVE PROJECTS						
Code	**Description**	**Unit**	**Saturday**			
			Daily	**Peak Hour of Generator**		
				In	**Out**	**Total**
416	Yosemite Under Canvas	99 camp sites	257	13	32	45
	Berkeley Tuolumne Restoration	90 cabins	234	16	18	34
	Thousand Trails – Yosemite Lakes Expansion	100 RV sites	172	9	16	25
		50 cabins	150	9	10	19
	Total Trips		***813***	***47***	***76***	***123***

Trip Distribution. As with the project, on a peak summer Saturday most of the travel by guests will likely be between the site and Yosemite National Park. The same distribution assumptions made for Terra Vi guests was assumed for the cumulative projects.

Circulation System Improvements

The cumulative analysis considers long term improvements included in the County-wide traffic impact fee program as well as improvements discussed in the RTP.

County-Wide Fee Program. Currently no study area improvement projects are included in the traffic impact fee program.

RTP. The 2016 RTP classifies identified improvements with regards to potential funding. In the study area "complete streets" improvements in Groveland area identified as a

Tier 2 project, while "improvements to SR 120 / Ferretti Road" are identified as a Tier 3 project. Because funding is not secure, no improvements to study area intersections have been assumed to be constructed in this analysis.

Traffic Volume Projections

The procedures followed to develop Year 2040 Saturday traffic volume projections make use of available data from the RTP traffic study. Because the RTP traffic study deals only with weekday am/pm peak hour conditions, it was necessary to interpolate Year 2040 Saturday data from RTP forecasts. For this analysis current and future weekday peak hour and daily traffic volume forecasts were compared, and the resulting growth factor was identified. This factor was then applied to current Saturday traffic volumes to create Year 2040 conditions. For example, in the area of the project weekday daily traffic on SR 120 is projected to increase by 20%. This factor was applied to the observed Saturday traffic volumes to create initial future volumes.

The trips associated with reasonably foreseeable projects were then considered. Under Canvas and the Thousand Trails / Yosemite Lakes Expansion represent new uses. Review by TCTC staff of the land use changes incorporated into the RTP traffic model revealed that these uses were not assumed for Year 2040 and their trips would need to be added. However, because the Berkeley Tuolumne project is already reflected in the baseline and Year 2040 traffic model land use, its trips are already included in the Year 2040 forecasts and do not need to be added.

Resulting Year 2040 No Project traffic volumes are shown in Figure 6. Terra Vi project trips were then added to create the Year 2040 plus Project volumes shown in Figure 7.

Year 2040 No Project Conditions

Intersections. Table 16 identifies Year 2040 intersection Level of Service with and without the proposed Terra Vi project. As indicated, if the project is not built, then the ***SR 120 / Ferretti Road intersection*** will operate at LOS F in the Saturday peak hour. As a comparison, the RTP indicates that the intersection will operate at LOS B on weekdays in the future.

Roadway Segments. Table 17 identifies Year 2040 roadway segment Levels of Service with and without the project. As shown, if background traffic on a Summer Saturday increases as suggested by the 2016 RTP and identified cumulative projects are completed then SR 120 will operate at LOS C in the area of the proposed project.

Year 2040 Plus Project Conditions

Intersection Levels of Service. Year 2040 Plus Project traffic volumes were used to determine Levels of Service with development of the proposed project and resulting Levels of Service are also shown in Table 16.

As indicated, with the proposed project the ***SR 120 / Ferretti Road intersection*** is projected to continue to operate with a Level of Service that exceeds the minimum LOS D standard on midday peak hour summer Saturday.

Potential Improvements. Intersection improvements would be needed to improve the Level of Service at this location and to deliver LOS D or better conditions in the midday Saturday peak hour. Identified options are listed below and their resulting Levels of Service are also shown in Table 16, including:

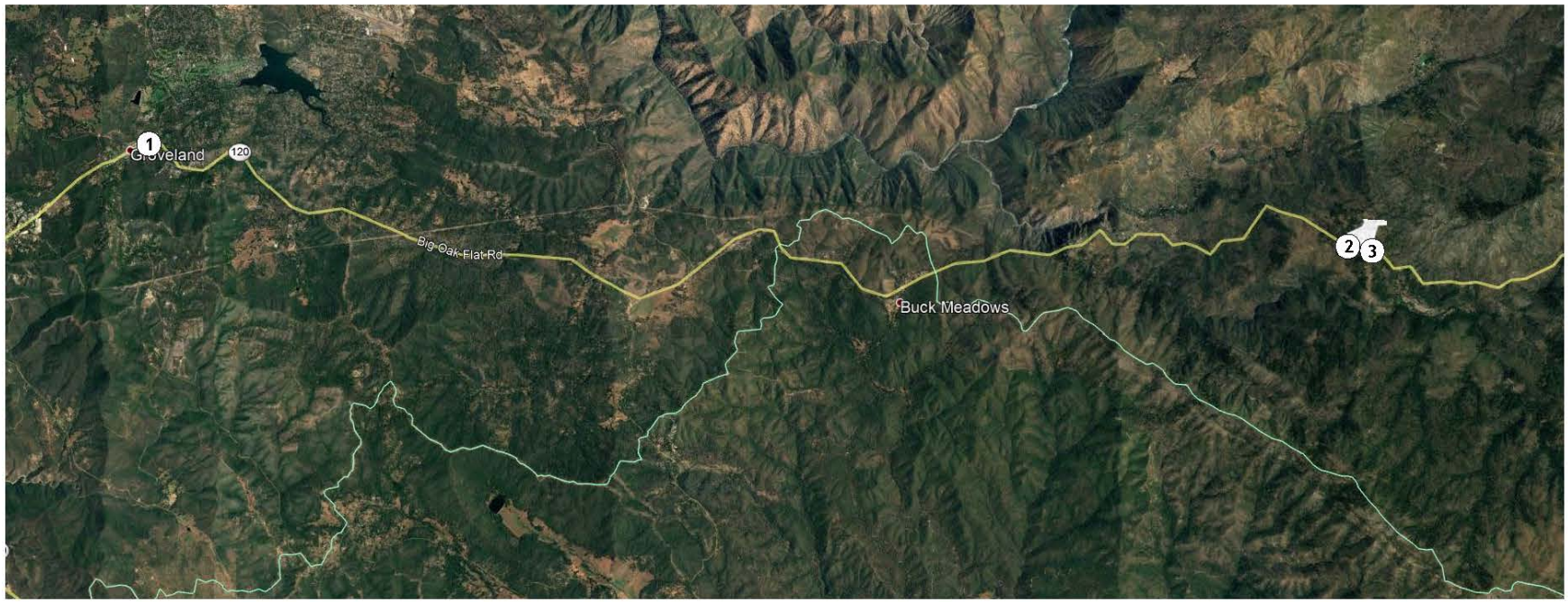
- Widen Ferretti Road to provide separate right turn and left turn lanes: LOS D
- Widen SR 120 to provide a separate left turn lane and a receiving lane for traffic turning left from Ferretti Road: LOS D
- Install a two-phase traffic signal without auxiliary turn lanes: LOS C
- Install a single lane roundabout: LOS A

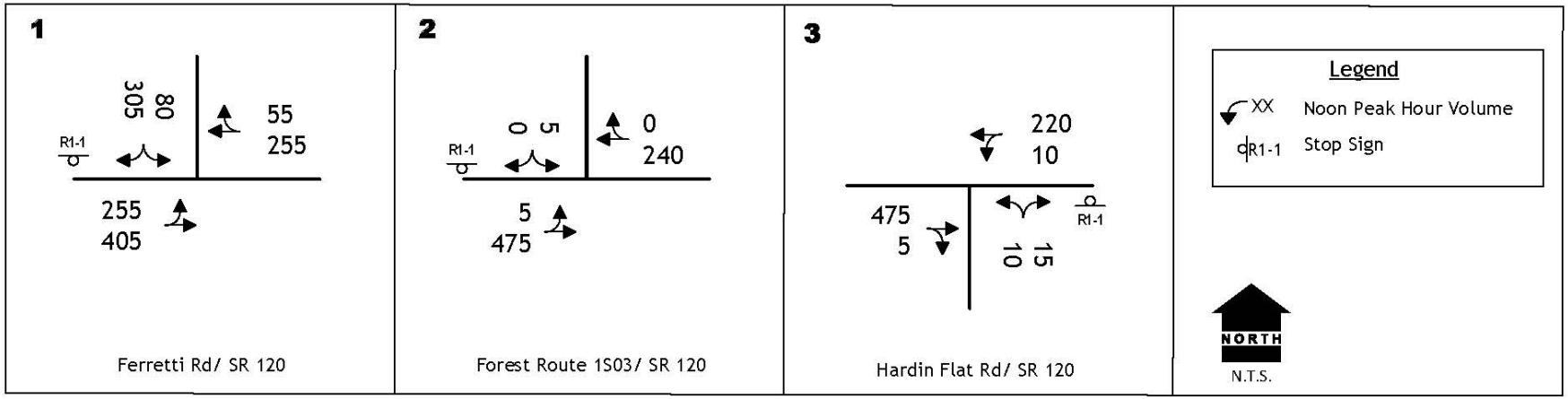
As noted in Table 16, these improvements would result in conditions that satisfy the Tuolumne County minimum LOS D standard. However, each has ramifications that affect their feasibility, as noted below:

- Adding lanes at the intersection will likely require acquiring right of way to provide the prescribed lanes as well as features that would be required by Caltrans as a part of new construction (i.e. shoulders, crosswalks, sidewalks, etc.). The extent of right of way to be acquired and its availability is unknown, and the status of Caltrans approval of this improvement is uncertain.
- Signalizing the intersection with the current intersection configuration without auxiliary lanes could result in delays to mainline SR 120 traffic during off peak hours, and Caltrans may require auxiliary turn lanes a matter of typical design practice. An ICE report will be required, as was noted in the discussion of the all-way stop alternative. The extent of right of way to be acquired and its availability is unknown, and the status of Caltrans approval of this improvement alternative is uncertain.
- A roundabout would also require right of way acquisition. An ICE report will be required, as was noted in the discussion of the all-way stop alternative. The extent of right of way to be acquired and its availability is unknown, and the status of Caltrans approval of this improvement alternative is uncertain.

In any case, it is important to note that because deficient conditions do not occur on a regular basis, as noted in the 2016 RTP, Caltrans District 10 may determine that intersection improvements to address infrequent peak summer conditions are not justified. Additional analysis including a full Traffic Signal Warrants Analysis addressing weekday and summer conditions may be required to determine whether Caltrans may allow improvements to be made. A preliminary ICE report is also required for Caltrans to identify an applicable design alternative if stopping main-line SR 120 traffic is involved.

Roadway Segments. The daily traffic associated with the project has been superimposed onto the Year 2040 background daily traffic volumes. Resulting totals were compared to applicable Level of Service thresholds, and the results are summarized in Table 17. As shown, the addition of the trips generated by this project does not result in Levels of Service in excess of Tuolumne County's minimum standards at any location.





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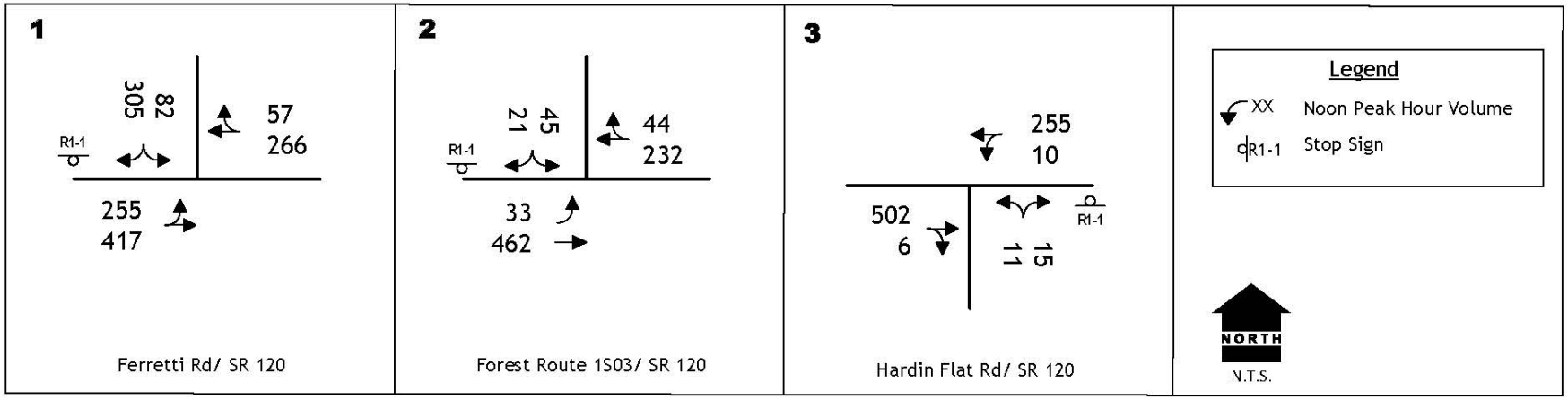
Transportation Engineers
3577-01 RA 1/15/2020

CUMULATIVE BASE YEAR 2040 TRAFFIC VOLUMES AND LANE CONFIGURATIONS

figure 6



CUMULATIVE PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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Transportation Engineers
3577-01 RA 1/15/2020

figure 7

TABLE 16
CUMULATIVE PLUS PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Control	Saturday Peak Hour						Weekday PM Peak Hour		
		Cumulative No Project			Cumulative Plus Project			Cumulative No Project		
		Average Delay (veh/sec)	LOS	Peak Hour Warrants Met?	Average Delay (veh/sec)	LOS	Peak Hour Warrants Met?	Average Delay (sec/veh)	LOS	Peak Hour Warrants Met?
SR 120 / Ferretti Rd										
SB Ferretti Rd approach	SB Stop	**106.1**	**F**	Yes	**126.0**	**F**	Yes	12.4	B	
EB left turn		8.8	A		8.8	A		8.3	A	
SB Ferretti Rd approach EB left turn	SB Stop with separate left and right turn lanes	25.9 8.8	D A	Yes	28.5 8.8	D A	Yes	-	-	No
SB Ferretti Rd approach EB left turn	SB Stop with EB left turn and receiving lanes	31.2 8.8	D A	-	32.1 8.8	D A	-	-	-	
	Traffic Signal	25.5	C	-	27.8	C		-	-	
	Roundabout	8.3	A	-	8.7	A		5.3	A	
SR 120 / Sawmill Mtn Rd								Not applicable		
SB Sawmill Mtn Rd approach	SB Stop	14.9	B	No	15.7	C	-			
EB left turn		7.8	A		7.9	A				
SR 120 / Hardin Flat Rd										
NB Hardin Flat Rd approach	NB Stop	13.1	B	No	13.6	B	No			
WB left turn		8.4	A		8.5	A				

BOLD conditions exceed minimum LOS D standard.

TABLE 17
CUMULATIVE LEVELS OF SERVICE ON ROADWAY SEGMENTS

Road	Location	Class	Maximum Volume at Acceptable LOS	Saturday Daily Volume				
				Cumulative No Project		Cumulative Plus Project		
				Volume (vpd)	LOS	Volume (vpd)		LOS
						Project Only	Total	
SR 120	West of Sawmill Mtn Road	5	13,260 (D)	6,775	C	360	7,560	C
	East of Sawmill Mtn Road	5	13,260 (D)	6,790	C	765	7,840	C
Sawmill Mtn Rd	North of SR 120 to main entrance	11	5,760 (C)	60	A	1,720	1,780	B
	North of Project Boundary	11	5,760 (C)	60	A	7	67	A

BOLD values exceed minimum LOS standard

APPENDIX

TECHNICAL APPENDIX

FOR

TERRA VI RESORT
REVISED DRAFT TRAFFIC IMPACT ANALYSIS

Tuolumne County, CA

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January 21, 2020

3577-01

Prepared by National Data & Surveying Services

W Ferretti Rd & SR 120

Peak Hour Turning Movement Count

ID: 19-07105-001
City: Groveland

Day: Saturday
Date: 03/23/2019

PEAK HOURS

AM	NOON	PM
NONE	12:15 PM - 01:15 PM	NONE

COUNT PERIODS

AM	NOON	PM
NONE	11:30 AM - 02:30 PM	NONE

W Ferretti Rd — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	159	0	17	0	174	NOON
PM	0	0	0	0	0	PM

SR 120 — EASTBOUND

AM	NOON	PM
0	250	0
0	0	0
0	139	0
0	114	0
0	0	0

SR 120 — WESTBOUND

PM	NOON	AM
0	35	0
0	91	0
0	0	0
0	131	0

CONTROL

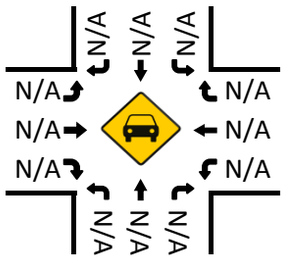
0

	AM	NOON	PM
TEV	0	555	0
PHF		0.94	

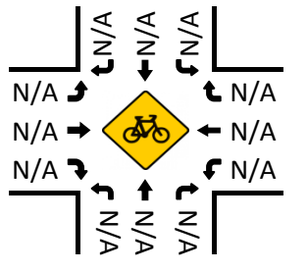
W Ferretti Rd — NORTHBOUND

PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

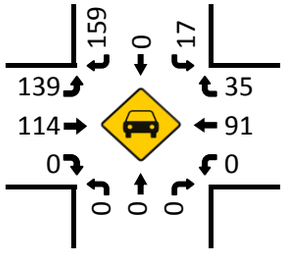
Total Vehicles (AM)



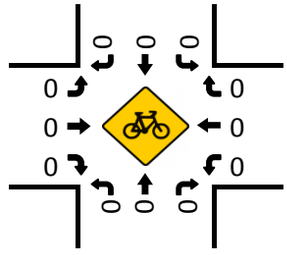
Bikes (AM)



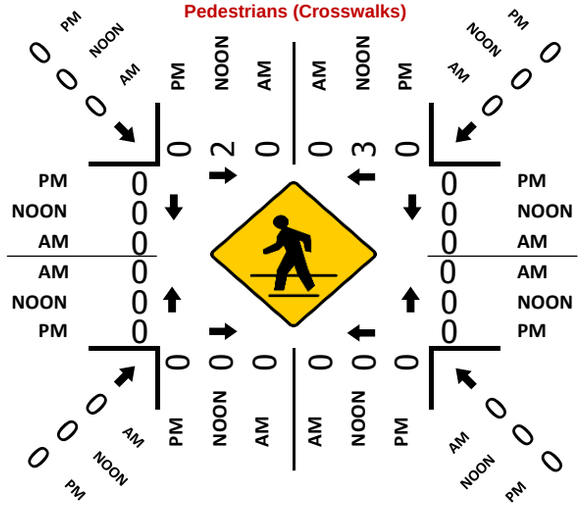
Total Vehicles (Noon)



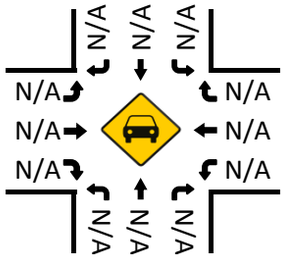
Bikes (NOON)



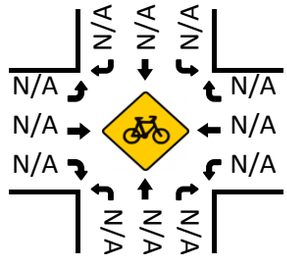
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: W Ferretti Rd & SR 120
City: Groveland
Control:

Project ID: 19-07105-001
Date: 2019-03-23

Total

NS/EW Streets:	W Ferretti Rd				W Ferretti Rd				SR 120				SR 120				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	TOTAL
11:30 AM	0	0	0	0	6	0	37	0	31	31	0	0	0	13	4	0	122
11:45 AM	0	0	0	0	6	0	45	0	18	25	0	0	0	19	8	0	121
12:00 PM	0	0	0	0	3	0	29	0	31	25	0	0	0	22	10	0	120
12:15 PM	0	0	0	0	4	0	37	0	34	36	0	0	0	22	9	0	142
12:30 PM	0	0	0	0	6	0	49	0	38	26	0	0	0	22	7	0	148
12:45 PM	0	0	0	0	2	0	35	0	34	24	0	0	0	25	12	0	132
1:00 PM	0	0	0	0	5	0	38	0	33	28	0	0	0	22	7	0	133
1:15 PM	0	0	0	0	6	0	21	0	32	18	0	0	0	27	6	0	110
1:30 PM	0	0	0	0	8	0	38	0	37	30	0	0	0	20	7	0	140
1:45 PM	0	0	0	0	6	0	32	0	42	31	0	0	0	23	7	0	141
2:00 PM	0	0	0	0	5	0	24	0	37	26	0	0	0	18	2	0	112
2:15 PM	0	0	0	0	6	0	28	0	30	35	0	0	0	18	8	0	125
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	63	0	413	0	397	335	0	0	0	251	87	0	1546
APPROACH %'s :					13.24%	0.00%	86.76%	0.00%	54.23%	45.77%	0.00%	0.00%	0.00%	74.26%	25.74%	0.00%	
PEAK HR :	12:15 PM - 01:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	17	0	159	0	139	114	0	0	0	91	35	0	555
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.708	0.000	0.811	0.000	0.914	0.792	0.000	0.000	0.000	0.910	0.729	0.000	0.938
							0.800				0.904				0.851		

National Data & Surveying Services

Intersection Turning Movement Count

Location: W Ferretti Rd & SR 120
City: Groveland

Project ID: 19-07105-001
Date: 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	W Ferretti Rd		W Ferretti Rd		SR 120		SR 120		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:30 AM	3	1	0	0	0	0	0	0	4
11:45 AM	0	1	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0
12:30 PM	1	1	0	0	0	0	0	0	2
12:45 PM	0	2	0	0	0	0	0	0	2
1:00 PM	1	0	0	0	0	0	0	0	1
1:15 PM	3	0	0	0	0	0	0	0	3
1:30 PM	0	0	0	0	0	0	0	0	0
1:45 PM	1	1	0	0	0	0	0	0	2
2:00 PM	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	9	6	0	0	0	0	0	0	15
APPROACH %'s :	60.00%	40.00%							
PEAK HR :	**12:15 PM - 01:15 PM**								TOTAL
PEAK HR VOL :	2	3	0	0	0	0	0	0	5
PEAK HR FACTOR :	0.500	0.375							0.625
	0.625								

National Data & Surveying Services

Intersection Turning Movement Count

Location: W Ferretti Rd & SR 120
City: Groveland
Control: 0

Project ID: 19-07105-001
Date: 2019-03-23

Bikes

NS/EW Streets:	W Ferretti Rd				W Ferretti Rd				SR 120				SR 120				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	12:15 PM - 01:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

Prepared by National Data & Surveying Services

E Ferretti Rd & SR 120

Peak Hour Turning Movement Count

ID: 19-07105-002
City: Groveland

Day: Saturday
Date: 03/23/2019

PEAK HOURS

AM	NONE
NOON	12:00 PM - 01:00 PM
PM	NONE

COUNT PERIODS

AM	NONE
NOON	11:30 AM - 02:30 PM
PM	NONE

E Ferretti Rd — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	8	0	6	0	21	NOON
PM	0	0	0	0	0	PM

SR 120 — EASTBOUND

AM	NOON	PM	
0	98	0	⇦
0	0	0	↰ 0
0	10	0	↱ 0
0	129	0	→ 0
0	0	0	↱ 0
AM	NOON	PM	

SR 120 — WESTBOUND

PM	NOON	AM	
0	11	0	0 ↱
0	90	0	0 ←
0	0	0	0 ↰
0	0	0	0 ↱
0	135	0	⇨
PM	NOON	AM	

CONTROL

0

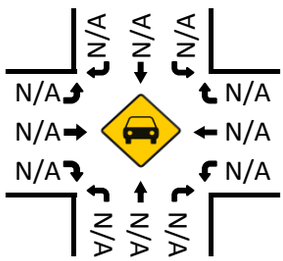
	AM	NOON	PM
TEV	0	254	0
PHF		0.95	

E Ferretti Rd — NORTHBOUND

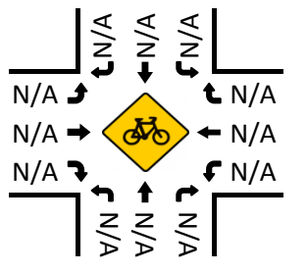
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

0 0 0 0 ↰ ↰ ↑ ↱

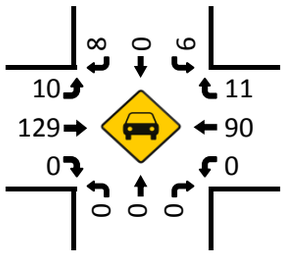
Total Vehicles (AM)



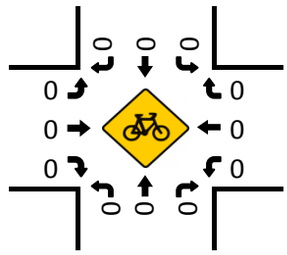
Bikes (AM)



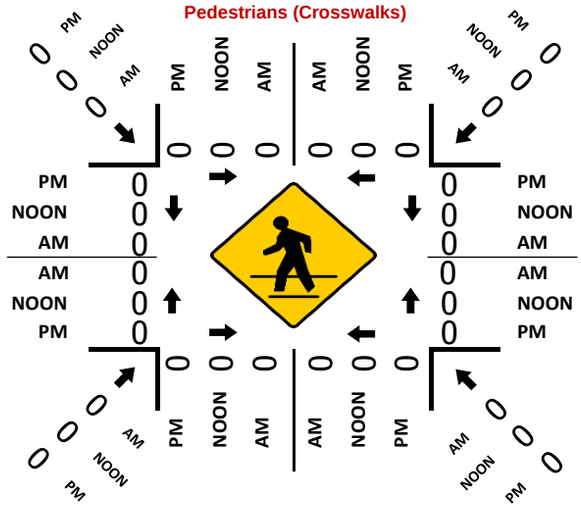
Total Vehicles (Noon)



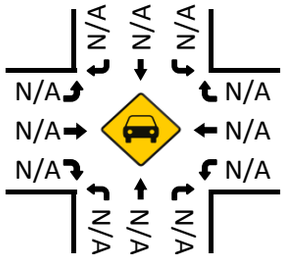
Bikes (NOON)



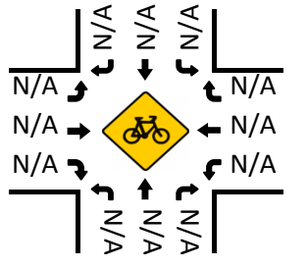
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: E Ferretti Rd & SR 120
City: Groveland
Control:

Project ID: 19-07105-002
Date: 2019-03-23

Total

NS/EW Streets:	E Ferretti Rd				E Ferretti Rd				SR 120				SR 120				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	TOTAL
11:30 AM	0	0	0	0	0	0	2	0	1	41	0	0	0	17	1	0	62
11:45 AM	0	0	0	0	6	0	1	0	5	31	0	0	0	16	1	0	60
12:00 PM	0	0	0	0	1	0	1	0	5	31	0	0	0	26	3	0	67
12:15 PM	0	0	0	0	2	0	1	0	1	32	0	0	0	20	3	0	59
12:30 PM	0	0	0	0	1	0	3	0	2	33	0	0	0	21	3	0	63
12:45 PM	0	0	0	0	2	0	3	0	2	33	0	0	0	23	2	0	65
1:00 PM	0	0	0	0	0	0	2	0	3	33	0	0	0	12	0	0	50
1:15 PM	0	0	0	0	0	0	2	0	0	14	0	0	0	23	0	0	39
1:30 PM	0	0	0	0	0	0	1	0	1	26	0	0	0	20	0	0	48
1:45 PM	0	0	0	0	2	0	1	0	3	26	0	0	0	21	0	0	53
2:00 PM	0	0	0	0	2	0	1	0	0	22	0	0	0	20	1	0	46
2:15 PM	0	0	0	0	2	0	2	0	2	27	0	0	0	20	2	0	55
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	18	0	20	0	25	349	0	0	0	239	16	0	667
APPROACH %'s :					47.37%	0.00%	52.63%	0.00%	6.68%	93.32%	0.00%	0.00%	0.00%	93.73%	6.27%	0.00%	
PEAK HR :	12:00 PM - 01:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	6	0	8	0	10	129	0	0	0	90	11	0	254
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.750	0.000	0.667	0.000	0.500	0.977	0.000	0.000	0.000	0.865	0.917	0.000	0.948
							0.700				0.965				0.871		

National Data & Surveying Services

Intersection Turning Movement Count

Location: E Ferretti Rd & SR 120
City: Groveland

Project ID: 19-07105-002
Date: 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	E Ferretti Rd		E Ferretti Rd		SR 120		SR 120		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:30 AM	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**12:00 PM - 01:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

National Data & Surveying Services

Intersection Turning Movement Count

Location: E Ferretti Rd & SR 120
City: Groveland
Control: 0

Project ID: 19-07105-002
Date: 2019-03-23

Bikes

NS/EW Streets:	E Ferretti Rd				E Ferretti Rd				SR 120				SR 120				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	TOTAL
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	12:00 PM - 01:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

Prepared by National Data & Surveying Services

Sawmill Mountain Rd/forest Rte 1S03 & SR 120

Peak Hour Turning Movement Count

ID: 19-07105-003
City: Groveland

Day: Saturday
Date: 03/23/2019

Sawmill Mountain Rd/forest Rte 1S03

SOUTHBOUND

PEAK HOURS		L	T	R	U	TOTAL		COUNT PERIODS
NONE	AM	0	0	0	0	0	AM	NONE
01:30 PM - 02:30 PM	NOON	2	0	0	0	0	NOON	11:30 AM - 02:30 PM
NONE	PM	0	0	0	0	0	PM	NONE

SR 120 EASTBOUND

AM	NOON	PM	
0	72	0	⇦
0	0	0	↶ 0
0	0	0	↱ 0
0	104	0	→ 0
0	0	0	↷ 0
AM	NOON	PM	

WESTBOUND SR 120

PM	NOON	AM	
0	0	0	0 ↰
0	70	0	0 ←
0	0	0	0 ↰
0	0	0	0 ↷
0	104	0	⇨
PM	NOON	AM	

CONTROL

0

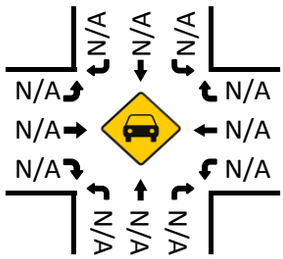
	AM	NOON	PM
TEV	0	176	0
PHF		0.90	

NORTHBOUND

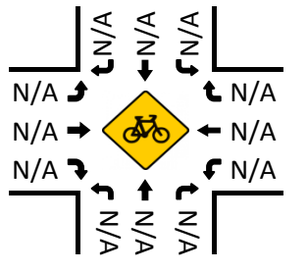
	L	T	R	U	TOTAL	
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

Sawmill Mountain Rd/forest Rte 1S03

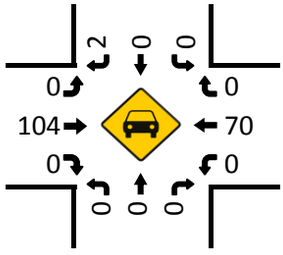
Total Vehicles (AM)



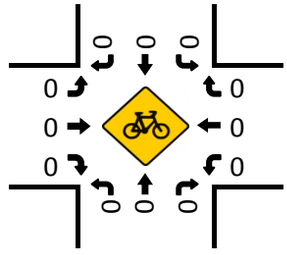
Bikes (AM)



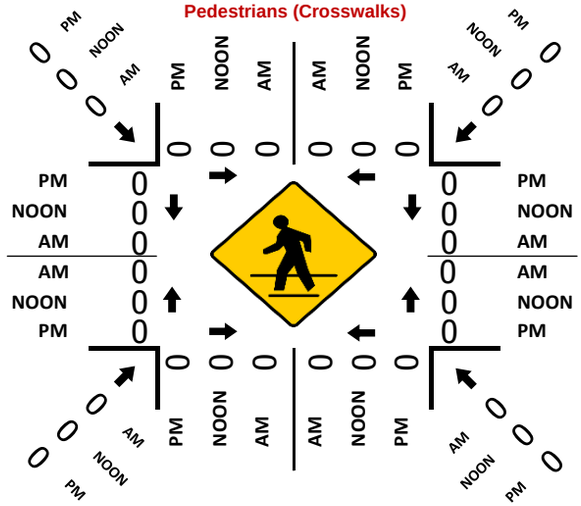
Total Vehicles (Noon)



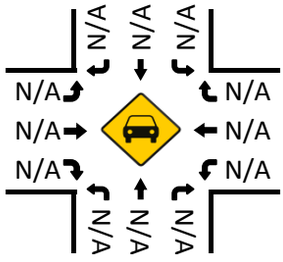
Bikes (NOON)



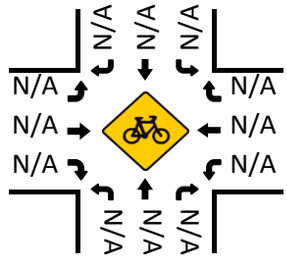
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Sawmill Mountain Rd/forest Rte 1S03 & SR 120
City: Groveland
Control:

Project ID: 19-07105-003
Date: 2019-03-23

Total

NS/EW Streets:	Sawmill Mountain Rd/forest Rte 1S03				Sawmill Mountain Rd/forest Rte 1S03				SR 120				SR 120				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	TOTAL
11:30 AM	0	0	0	0	1	0	1	0	0	24	0	0	0	9	0	0	35
11:45 AM	0	0	0	0	0	0	0	0	0	31	0	0	0	13	0	0	44
12:00 PM	0	0	0	0	0	0	0	0	0	19	0	0	0	15	0	0	34
12:15 PM	0	0	0	0	0	0	0	0	0	24	0	0	0	7	1	0	32
12:30 PM	0	0	0	0	0	0	0	0	0	24	0	0	0	12	0	0	36
12:45 PM	0	0	0	0	0	0	0	0	0	20	0	0	0	10	0	0	30
1:00 PM	0	0	0	0	0	0	0	0	0	28	0	0	0	7	0	0	35
1:15 PM	0	0	0	0	0	0	0	0	0	11	0	0	0	16	0	0	27
1:30 PM	0	0	0	0	0	0	2	0	0	23	0	0	0	14	0	0	39
1:45 PM	0	0	0	0	0	0	0	0	0	31	0	0	0	18	0	0	49
2:00 PM	0	0	0	0	0	0	0	0	0	31	0	0	0	15	0	0	46
2:15 PM	0	0	0	0	0	0	0	0	0	19	0	0	0	23	0	0	42
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	3	0	0	285	0	0	0	159	1	0	449
APPROACH %'s :					25.00%	0.00%	75.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	99.38%	0.63%	0.00%	
PEAK HR :	01:30 PM - 02:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	2	0	0	104	0	0	0	70	0	0	176
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.839	0.000	0.000	0.000	0.761	0.000	0.000	0.898
							0.250			0.839				0.761			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Sawmill Mountain Rd/forest Rte 1S03 & SR 120
City: Groveland

Project ID: 19-07105-003
Date: 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	Sawmill Mountain Rd/forest Rte 1S03		Sawmill Mountain Rd/forest Rte 1S03		SR 120		SR 120		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:30 AM	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**01:30 PM - 02:30 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

National Data & Surveying Services

Intersection Turning Movement Count

Location: Sawmill Mountain Rd/forest Rte 1S03 & SR 120
City: Groveland
Control: 0

Project ID: 19-07105-003
Date: 2019-03-23

Bikes

NS/EW Streets:	Sawmill Mountain Rd/forest Rte 1S03				Sawmill Mountain Rd/forest Rte 1S03				SR 120				SR 120				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	01:30 PM - 02:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

Prepared by National Data & Surveying Services

Hardin Flat Rd/1000' From Sawmill Mountain Rd & SR 120

Peak Hour Turning Movement Count

ID: 19-07105-004
City: Groveland

Day: Saturday
Date: 03/23/2019

Hardin Flat Rd/1000' From Sawmill Mountain Rd

SOUTHBOUND

PEAK HOURS		COUNT PERIODS
AM	NONE	AM
NOON	01:30 PM - 02:30 PM	NOON
PM	NONE	PM

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND (SR 120)

AM	NOON	PM	
0	73	0	⇦
0	0	0	↶ 0
0	0	0	↱ 0
0	104	0	→ 0
0	1	0	↴ 0
AM	NOON	PM	

WESTBOUND (SR 120)

PM	NOON	AM	
0	0	0	0 ↰
0	73	0	0 ←
0	0	0	0 ↙
0	0	0	0 ↲
0	104	0	⇨
PM	NOON	AM	

CONTROL			
0			
TEV	0 AM	178 NOON	0 PM
PHF		0.89	

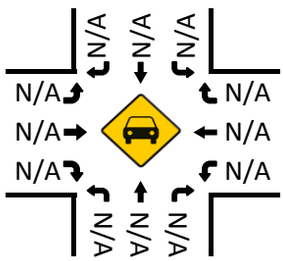
NORTHBOUND

PM	0	0	0	0	0	PM
NOON	1	0	0	0	0	NOON
AM	0	0	0	0	0	AM

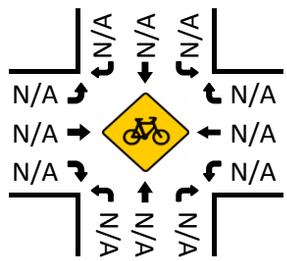
0 0 0 0 ↰ ↖ ↑ ↗

n Flat Rd/1000' From Sawmill Mounta

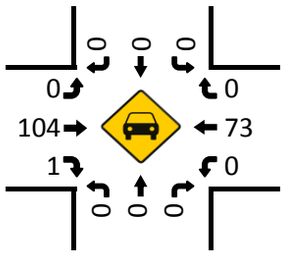
Total Vehicles (AM)



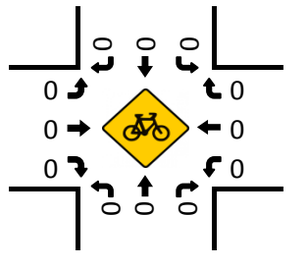
Bikes (AM)



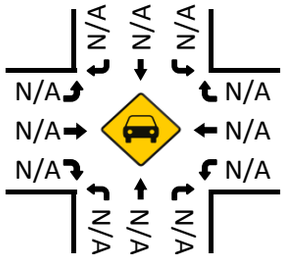
Total Vehicles (Noon)



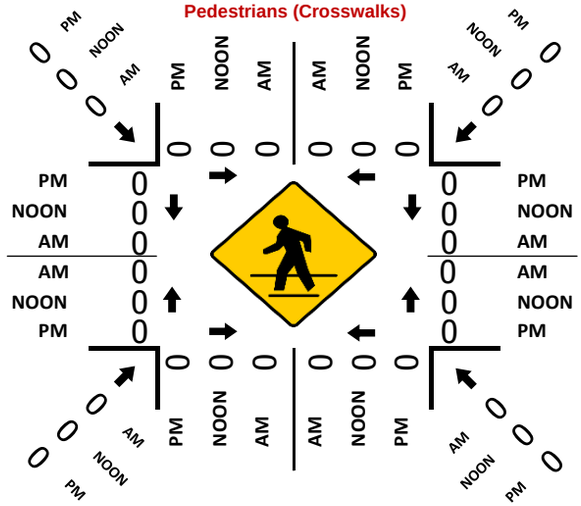
Bikes (NOON)



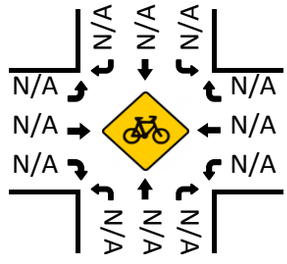
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Hardin Flat Rd/1000' From Sawmill Mountain Rd & SR 120
City: Groveland
Control:

Project ID: 19-07105-004
Date: 2019-03-23

Total

NS/EW Streets:	Hardin Flat Rd/1000' From Sawmill Mountain Rd				Hardin Flat Rd/1000' From Sawmill Mountain Rd				SR 120				SR 120				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	TOTAL
11:30 AM	0	0	0	0	0	0	0	0	0	25	0	0	0	9	0	0	34
11:45 AM	1	0	0	0	0	0	0	0	0	30	1	0	0	12	0	0	44
12:00 PM	1	0	0	0	0	0	0	0	0	19	0	0	0	14	0	0	34
12:15 PM	1	0	0	0	0	0	0	0	0	22	1	0	0	7	0	0	31
12:30 PM	1	0	0	0	0	0	0	0	0	25	0	0	0	11	0	0	37
12:45 PM	0	0	0	0	0	0	0	0	0	20	0	0	0	10	0	0	30
1:00 PM	0	0	1	0	0	0	0	0	0	26	1	0	0	7	0	0	35
1:15 PM	0	0	0	0	0	0	0	0	0	12	0	0	0	16	0	0	28
1:30 PM	0	0	0	0	0	0	0	0	0	22	1	0	0	14	0	0	37
1:45 PM	0	0	0	0	0	0	0	0	0	32	0	0	0	18	0	0	50
2:00 PM	0	0	0	0	0	0	0	0	0	29	0	0	0	15	0	0	44
2:15 PM	0	0	0	0	0	0	0	0	0	21	0	0	0	26	0	0	47
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	0	1	0	0	0	0	0	0	283	4	0	0	159	0	0	451
APPROACH %'s :	80.00%	0.00%	20.00%	0.00%					0.00%	98.61%	1.39%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	01:30 PM - 02:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	104	1	0	0	73	0	0	178
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.813	0.250	0.000	0.000	0.702	0.000	0.000	0.890
										0.820				0.702			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Hardin Flat Rd/1000' From Sawmill Mountain Rd & SR 120
City: Groveland
Control: 0

Project ID: 19-07105-004
Date: 2019-03-23

Bikes

NS/EW Streets:	Hardin Flat Rd/1000' From Sawmill Mountain Rd				Hardin Flat Rd/1000' From Sawmill Mountain Rd				SR 120				SR 120				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	01:30 PM - 02:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Hardin Flat Rd/1000' From Sawmill Mountain Rd & SR 120
City: Groveland

Project ID: 19-07105-004
Date: 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	Hardin Flat Rd/1000' From Sawmill Mountain Rd		Hardin Flat Rd/1000' From Sawmill Mountain Rd		SR 120		SR 120		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:30 AM	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0
PEAK HR :	**01:30 PM - 02:30 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

Sawmill Mountain Rd /forest Rte Rd 1S03 & SR 120/Big Oak Flat Rd

Peak Hour Turning Movement Count

ID: 19-07256-001
City: Groveland

Day: Saturday
Date: 08/03/2019

PEAK HOURS

AM	09:00 AM - 10:00 AM
NOON	10:30 AM - 11:30 AM
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	12:00 AM - 10:00 AM
NOON	10:00 AM - 02:00 PM
PM	02:00 PM - 12:00 AM

SOUTHBOUND — Sawmill Mountain Rd /Forest Rte Rd 1S03

AM	1	0	1	0	0	AM
NOON	0	0	3	0	2	NOON
PM	2	0	0	0	1	PM

EASTBOUND — SR 120/Big Oak Flat Rd

AM	NOON	PM	
82	175	342	⇦
0	0	0	↶ 0
0	2	0	↱ 0
453	371	129	→ 0
0	0	0	↷ 0
AM	NOON	PM	

WESTBOUND — SR 120/Big Oak Flat Rd

PM	NOON	AM	
1	0	0	0 ↶
340	175	81	0 ←
0	0	0	0 ↰
0	0	0	0 ↷
129	374	454	⇨
PM	NOON	AM	

CONTROL

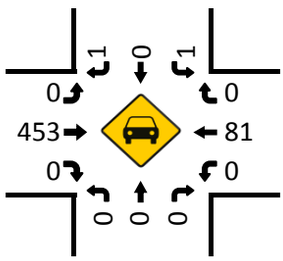
0

	AM	NOON	PM
TEV	536	551	472
PHF	0.79	0.95	0.96

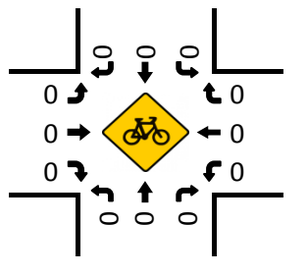
NORTHBOUND — Sawmill Mountain Rd /Forest Rte Rd 1S03

PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

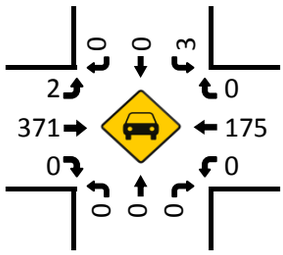
Total Vehicles (AM)



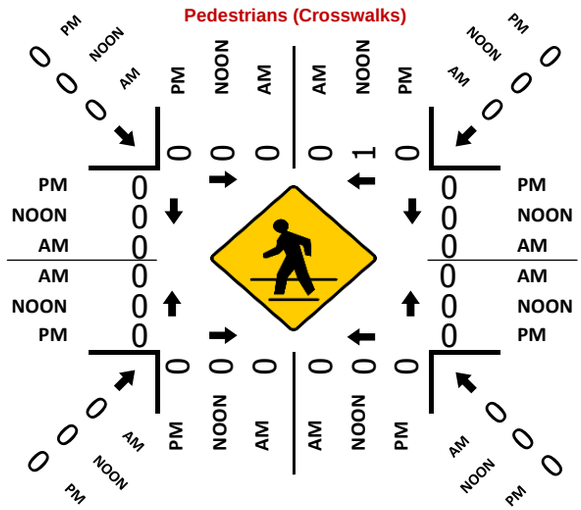
Bikes (AM)



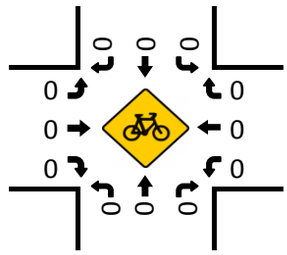
Total Vehicles (Noon)



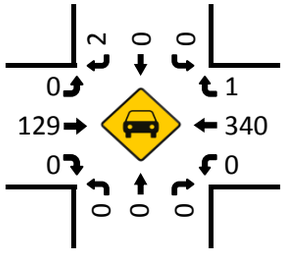
Pedestrians (Crosswalks)



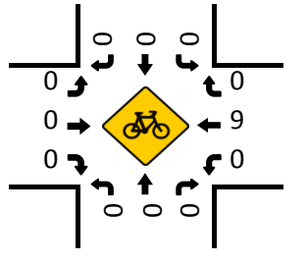
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Sawmill Mountain Rd /forest Rte Rd 1S03 & SR 120/Big Oak Flat Rd
City: Groveland
Control:

Project ID: 19-07256-001
Date: 8/3/2019

Total

NS/EW Streets:	Sawmill Mountain Rd /Forest Rte Rd 1S03				Sawmill Mountain Rd /Forest Rte Rd 1S03				SR 120/Big Oak Flat Rd				SR 120/Big Oak Flat Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
12:00 AM	0	0	0	0	1	0	0	0	0	8	0	0	0	1	0	0	10
12:15 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	0	9
12:30 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	1	0	0	8
12:45 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
1:00 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
1:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
2:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
3:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
3:15 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
3:30 AM	0	0	0	0	1	0	0	0	0	4	0	0	0	0	0	0	5
3:45 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	7
4:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
4:15 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0	0	6
4:30 AM	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	10
4:45 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	2	0	0	9
5:00 AM	0	0	0	0	1	0	0	0	0	4	0	0	0	1	0	0	6
5:15 AM	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0	0	7
5:30 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	3	0	0	16
5:45 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	2	0	0	18
6:00 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	4	0	0	20
6:15 AM	0	0	0	0	0	0	0	0	0	34	0	0	0	1	0	0	35
6:30 AM	0	0	0	0	0	0	0	0	0	33	0	0	0	6	0	0	39
6:45 AM	0	0	0	0	0	0	0	0	0	44	0	0	0	4	0	0	48
7:00 AM	0	0	0	0	0	0	0	0	0	55	0	0	0	8	0	0	63
7:15 AM	0	0	0	0	0	0	0	0	0	69	0	0	0	5	0	0	74
7:30 AM	0	0	0	0	0	0	0	0	0	77	0	0	0	10	0	0	87
7:45 AM	0	0	0	0	0	0	0	0	1	99	0	0	0	12	0	0	112
8:00 AM	0	0	0	0	0	0	0	0	0	85	0	0	0	8	0	0	93
8:15 AM	0	0	0	0	0	0	0	0	0	94	0	0	0	6	0	0	100
8:30 AM	0	0	0	0	1	0	0	0	0	153	0	0	0	17	0	0	171
8:45 AM	0	0	0	0	1	0	1	0	0	99	0	0	0	13	0	0	114
9:00 AM	0	0	0	0	0	0	0	0	0	106	0	0	0	14	0	0	120
9:15 AM	0	0	0	0	0	0	1	0	0	109	0	0	0	16	0	0	126
9:30 AM	0	0	0	0	1	0	0	0	0	152	0	0	0	17	0	0	170
9:45 AM	0	0	0	0	0	0	0	0	0	86	0	0	0	34	0	0	120
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	6	0	2	0	1	1428	0	0	0	198	0	0	1635
APPROACH %'s :					75.00%	0.00%	25.00%	0.00%	0.07%	99.93%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	**09:00 AM - 10:00 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	1	0	0	453	0	0	0	81	0	0	536
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.745	0.000	0.000	0.000	0.596	0.000	0.000	0.788
						0.500				0.745				0.596			

NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	0	0	0	0	1	0	0	0	1	98	0	0	0	29	0	0	129
10:15 AM	0	0	0	0	0	0	0	0	0	93	0	0	0	29	0	0	122
10:30 AM	0	0	0	0	0	0	0	0	0	101	0	0	0	43	0	0	144
10:45 AM	0	0	0	0	0	0	0	0	0	88	0	0	0	34	0	0	122
11:00 AM	0	0	0	0	0	0	0	0	2	93	0	0	0	50	0	0	145
11:15 AM	0	0	0	0	3	0	0	0	0	89	0	0	0	48	0	0	140
11:30 AM	0	0	0	0	0	0	0	0	0	88	0	0	0	34	1	0	123
11:45 AM	0	0	0	0	1	0	0	0	1	77	0	0	0	43	0	0	122
12:00 PM	0	0	0	0	0	0	2	0	1	69	0	0	0	41	2	0	115
12:15 PM	0	0	0	0	1	0	0	0	0	61	0	0	0	53	0	0	115
12:30 PM	0	0	0	0	2	0	0	0	0	57	0	0	0	28	1	0	88
12:45 PM	0	0	0	0	0	0	0	0	0	67	0	0	0	21	0	0	88
1:00 PM	0	0	0	0	0	0	0	0	0	54	0	0	0	49	0	0	103
1:15 PM	0	0	0	0	0	0	0	0	1	56	0	0	0	38	0	0	95
1:30 PM	0	0	0	0	0	0	1	0	0	64	0	0	0	30	1	0	96
1:45 PM	0	0	0	0	0	0	0	0	0	56	0	0	0	45	2	0	103
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	8	0	3	0	6	1211	0	0	0	615	7	0	1850
APPROACH %'s :					72.73%	0.00%	27.27%	0.00%	0.49%	99.51%	0.00%	0.00%	0.00%	98.87%	1.13%	0.00%	
PEAK HR :	**10:30 AM - 11:30 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	3	0	0	0	2	371	0	0	0	175	0	0	551
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.918	0.000	0.000	0.000	0.875	0.000	0.000	0.950
						0.250				0.923				0.875			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
2:00 PM	0	0	0	0	0	0	0	0	0	64	0	0	0	57	0	0	121
2:15 PM	0	0	0	0	0	0	0	0	1	44	0	0	0	54	1	0	100
2:30 PM	0	0	0	0	0	0	0	0	0	43	0	0	0	47	0	0	90
2:45 PM	0	0	0	0	1	0	0	0	0	46	0	0	0	37	1	0	85
3:00 PM	0	0	0	0	1	0	0	0	0	60	0	0	0	45	0	0	106
3:15 PM	0	0	0	0	0	0	0	0	0	56	0	0	0	58	0	0	114
3:30 PM	0	0	0	0	0	0	1	0	0	45	0	0	0	69	0	0	115
3:45 PM	0	0	0	0	0	0	0	0	0	42	0	0	0	58	0	0	100
4:00 PM	0	0	0	0	0	0	0	0	0	41	0	0	0	64	1	0	106
4:15 PM	0	0	0	0	0	0	0	0	0	42	0	0	0	75	0	0	117
4:30 PM	0	0	0	0	0	0	0	0	0	26	0	0	0	80	0	0	106
4:45 PM	0	0	0	0	0	0	0	0	0	41	0	0	0	62	0	0	103
5:00 PM	0	0	0	0	0	0	0	0	0	29	0	0	0	93	0	0	122
5:15 PM	0	0	0	0	0	0	1	0	0	37	0	0	0	85	0	0	123
5:30 PM	0	0	0	0	0	0	0	0	0	36	0	0	0	79	0	0	115
5:45 PM	0	0	0	0	0	0	1	0	0	27	0	0	0	83	1	0	112
6:00 PM	0	0	0	0	0	0	1	0	0	18	0	0	0	89	1	0	109
6:15 PM	0	0	0	0	0	0	0	0	0	21	0	0	0	88	2	0	111
6:30 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	94	0	0	110
6:45 PM	0	0	0	0	0	0	0	0	0	29	0	0	0	88	0	0	117
7:00 PM	0	0	0	0	1	0	2	0	1	29	0	0	0	76	1	0	110
7:15 PM	0	0	0	0	0	0	0	0	0	12	0	0	0	84	0	0	96
7:30 PM	0	0	0	0	0	0	0	0	0	12	0	0	0	78	1	0	91
7:45 PM	0	0	0	0	0	0	0	0	0	11	0	0	0	69	0	0	80
8:00 PM	0	0	0	0	0	0	1	0	0	10	0	0	0	74	0	0	85
8:15 PM	0	0	0	0	1	0	0	0	0	5	0	0	0	67	1	0	74
8:30 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	50	0	0	53
8:45 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	78	0	0	82
9:00 PM	0	0	0	0	0	0	0	0	0	8	0	0	0	77	0	0	85
9:15 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	82	0	0	88
9:30 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	50	0	0	54
9:45 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	45	0	0	52
10:00 PM	0	0	0	0	0	0	0	0	1	6	0	0	0	33	0	0	40
10:15 PM	0	0	0	0	0	0	1	0	0	7	0	0	0	50	1	0	59
10:30 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	29	0	0	36
10:45 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	13	1	0	18
11:00 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	0	10
11:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	13	0	0	16
11:30 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	8	0	0	11
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	4	0	8	0	3	908	0	0	0	2394	12	0	3329
APPROACH %'s :					33.33%	0.00%	66.67%	0.00%	0.33%	99.67%	0.00%	0.00%	0.00%	99.50%	0.50%	0.00%	
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	2	0	0	129	0	0	0	340	1	0	472
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.872	0.000	0.000	0.000	0.914	0.250	0.000	0.959
						0.500				0.872				0.917			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Sawmill Mountain Rd /forest Rte Rd 1S03 & SR 120/Big Oak Flat Rd
City: Groveland
Control: 0

Project ID: 19-07256-001
Date: 8/3/2019

Bikes

NS/EW Streets:	Sawmill Mountain Rd /Forest Rte Rd 1S03				Sawmill Mountain Rd /Forest Rte Rd 1S03				SR 120/Big Oak Flat Rd				SR 120/Big Oak Flat Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	09:00 AM - 10:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	10:30 AM - 11:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	13
APPROACH %'s :													0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375
														0.375			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Sawmill Mountain Rd /forest Rte Rd 1S03 & SR 120/Big Oak Flat Rd **Project ID:** 19-07256-001
City: Groveland **Date:** 8/3/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Sawmill Mountain Rd /Forest Rte Rd 1S03		Sawmill Mountain Rd /Forest Rte Rd 1S03		SR 120/Big Oak Flat Rd		SR 120/Big Oak Flat Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
12:00 AM	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	09:00 AM - 10:00 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
10:00 AM	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0
11:15 AM	0	1	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	0	1
APPROACH %'s :	0.00%	100.00%							
PEAK HR :	10:30 AM - 11:30 AM								TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.250								0.250
	0.250								

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
2:00 PM	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0
7:45 PM	0	1	0	0	0	1	0	0	2
8:00 PM	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	0	0	2
APPROACH %'s :	0.00%	100.00%			0.00%	100.00%			
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

W Ferretti Rd & SR 120/Main St

Peak Hour Turning Movement Count

ID: 19-07256-002
City: Groveland

Day: Saturday
Date: 08/03/2019

PEAK HOURS

AM	NONE
NOON	10:15 AM - 11:15 AM
PM	NONE

COUNT PERIODS

AM	NONE
NOON	10:00 AM - 01:00 PM
PM	NONE

W Ferretti Rd — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	259	0	66	0	259	NOON
PM	0	0	0	0	0	PM

SR 120/Main St — EASTBOUND

AM	NOON	PM	
0	470	0	⇦
0	0	0	↶ 0
0	216	0	↱ 0
0	340	0	→ 0
0	0	0	↷ 0
AM	NOON	PM	

SR 120/Main St — WESTBOUND

PM	NOON	AM	
0	43	0	0 ↶
0	211	0	0 ←
0	0	0	0 ↰
0	0	0	0 ↷
0	406	0	⇨
PM	NOON	AM	

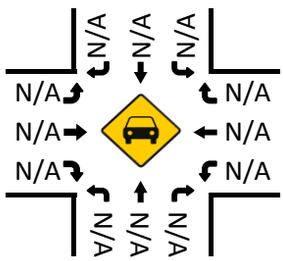
CONTROL

	AM	NOON	PM
TEV	0	1135	0
PHF		0.94	

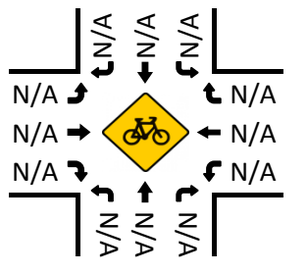
W Ferretti Rd — NORTHBOUND

PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

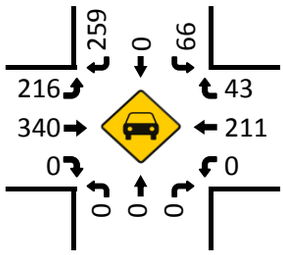
Total Vehicles (AM)



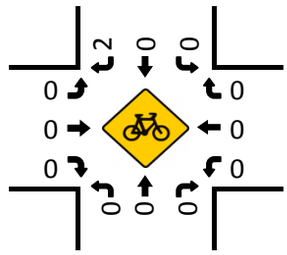
Bikes (AM)



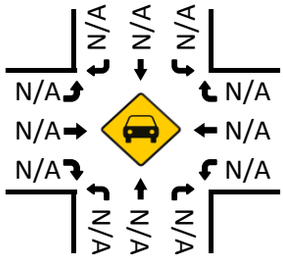
Total Vehicles (Noon)



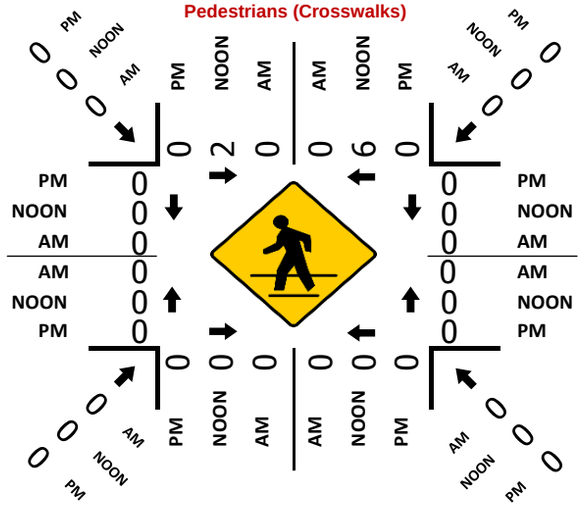
Bikes (NOON)



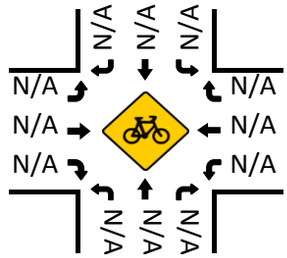
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: W Ferretti Rd & SR 120/Main St
City: Groveland
Control:

Project ID: 19-07256-002
Date: 2019-08-03

Total

NS/EW Streets:	W Ferretti Rd				W Ferretti Rd				SR 120/Main St				SR 120/Main St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	0	0	0	0	8	0	58	0	50	77	0	0	0	46	8	0	247
10:15 AM	0	0	0	0	19	0	58	0	46	82	0	0	0	54	9	0	268
10:30 AM	0	0	0	0	19	0	67	0	56	97	0	0	0	46	16	0	301
10:45 AM	0	0	0	0	20	0	61	0	60	72	0	0	0	51	14	0	278
11:00 AM	0	0	0	0	8	0	73	0	54	89	0	0	0	60	4	0	288
11:15 AM	0	0	0	0	8	0	63	0	53	74	0	0	0	56	8	0	262
11:30 AM	0	0	0	0	11	0	58	0	57	73	0	0	0	42	9	0	250
11:45 AM	0	0	0	0	13	0	54	0	68	69	0	0	0	54	11	0	269
12:00 PM	0	0	0	0	8	0	53	0	56	53	0	0	0	47	9	1	227
12:15 PM	0	0	0	0	13	0	48	0	46	69	0	0	0	45	11	1	233
12:30 PM	0	0	0	0	8	0	43	0	57	68	0	0	0	44	16	0	236
12:45 PM	0	0	0	0	9	0	26	0	46	62	0	0	0	65	12	0	220
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	144	0	662	0	649	885	0	0	0	610	127	2	3079
APPROACH %'s :					17.87%	0.00%	82.13%	0.00%	42.31%	57.69%	0.00%	0.00%	0.00%	82.54%	17.19%	0.27%	
PEAK HR :	**10:15 AM - 11:15 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	66	0	259	0	216	340	0	0	0	211	43	0	1135
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.825	0.000	0.887	0.000	0.900	0.876	0.000	0.000	0.000	0.879	0.672	0.000	0.943
							0.945				0.908				0.977		

National Data & Surveying Services

Intersection Turning Movement Count

Location: W Ferretti Rd & SR 120/Main St
City: Groveland
Control:

Project ID: 19-07256-002
Date: 2019-08-03

Bikes

NS/EW Streets:	W Ferretti Rd				W Ferretti Rd				SR 120/Main St				SR 120/Main St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%									
PEAK HR :	**10:15 AM - 11:15 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
							0.250										

National Data & Surveying Services

Intersection Turning Movement Count

Location: W Ferretti Rd & SR 120/Main St
City: Groveland

Project ID: 19-07256-002
Date: 2019-08-03

Pedestrians (Crosswalks)

NS/EW Streets:	W Ferretti Rd		W Ferretti Rd		SR 120/Main St		SR 120/Main St		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
10:00 AM	1	4	0	0	0	0	0	0	5
10:15 AM	1	0	0	0	0	0	0	0	1
10:30 AM	1	0	0	0	0	0	0	0	1
10:45 AM	0	0	0	0	0	0	0	0	0
11:00 AM	0	6	0	0	0	0	0	0	6
11:15 AM	2	1	0	0	0	0	0	0	3
11:30 AM	0	1	0	0	0	0	0	0	1
11:45 AM	1	6	0	0	0	0	0	0	7
12:00 PM	2	1	0	0	0	0	0	0	3
12:15 PM	3	0	0	0	0	0	0	0	3
12:30 PM	0	0	0	0	0	0	0	0	0
12:45 PM	0	3	0	0	0	0	0	0	3
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	11	22	0	0	0	0	0	0	33
APPROACH %'s :	33.33%	66.67%							
PEAK HR :	**10:15 AM - 11:15 AM**								TOTAL
PEAK HR VOL :	2	6	0	0	0	0	0	0	8
PEAK HR FACTOR :	0.500	0.250							0.333
	0.333								

Prepared by NDS/ATD

VOLUME

Lyons Bald Mountain Rd E/O Greenley Rd

Day: Saturday
Date: 8/3/2019

City: Sonora
Project #: CA19_7257_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	659	672	1,331

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			4		0		4		12:00			11		12		23	
00:15			1		0		1		12:15			13		5		18	
00:30			1		2		3		12:30			15		12		27	
00:45			1	7	0	2	1	9	12:45			15	54	14	43	29	97
01:00			0		0		0		13:00			6		10		16	
01:15			1		0		1		13:15			18		18		36	
01:30			2		0		2		13:30			13		15		28	
01:45			1	4	1	1	2	5	13:45			14	51	6	49	20	100
02:00			1		0		1		14:00			14		14		28	
02:15			0		0		0		14:15			7		13		20	
02:30			0		0		0		14:30			12		6		18	
02:45			0	1	0		0	1	14:45			22	55	9	42	31	97
03:00			0		2		2		15:00			11		21		32	
03:15			2		0		2		15:15			13		13		26	
03:30			0		1		1		15:30			11		18		29	
03:45			0	2	1	4	1	6	15:45			9	44	12	64	21	108
04:00			0		0		0		16:00			13		12		25	
04:15			0		0		0		16:15			14		14		28	
04:30			0		1		1		16:30			15		12		27	
04:45			0		2	3	2	3	16:45			14	56	11	49	25	105
05:00			0		3		3		17:00			11		8		19	
05:15			1		2		3		17:15			15		18		33	
05:30			1		0		1		17:30			6		7		13	
05:45			0	2	2	7	2	9	17:45			10	42	11	44	21	86
06:00			1		2		3		18:00			15		7		22	
06:15			1		4		5		18:15			9		11		20	
06:30			5		3		8		18:30			12		7		19	
06:45			6	13	6	15	12	28	18:45			6	42	5	30	11	72
07:00			7		4		11		19:00			9		5		14	
07:15			3		14		17		19:15			6		6		12	
07:30			4		6		10		19:30			3		10		13	
07:45			5	19	10	34	15	53	19:45			3	21	6	27	9	48
08:00			5		8		13		20:00			5		3		8	
08:15			7		8		15		20:15			7		6		13	
08:30			6		14		20		20:30			9		4		13	
08:45			6	24	10	40	16	64	20:45			12	33	6	19	18	52
09:00			4		14		18		21:00			10		1		11	
09:15			4		17		21		21:15			4		4		8	
09:30			5		18		23		21:30			8		1		9	
09:45			13	26	17	66	30	92	21:45			3	25	7	13	10	38
10:00			12		13		25		22:00			4		2		6	
10:15			13		11		24		22:15			7		3		10	
10:30			13		12		25		22:30			2		1		3	
10:45			20	58	17	53	37	111	22:45			1	14	2	8	3	22
11:00			16		16		32		23:00			1		0		1	
11:15			18		13		31		23:15			2		0		2	
11:30			10		12		22		23:30			4		0		4	
11:45			12	56	18	59	30	115	23:45			3	10	0		3	10
TOTALS				212		284		496	TOTALS				447		388		835
SPLIT %				42.7%		57.3%		37.3%	SPLIT %				53.5%		46.5%		62.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	659	672	1,331

AM Peak Hour				10:30	09:00	10:30		PM Peak Hour				13:15	15:00	14:45
AM Pk Volume				67	66	125		PM Pk Volume				59	64	118
Pk Hr Factor				0.838	0.917	0.845		Pk Hr Factor				0.819	0.762	0.922
7 - 9 Volume	0	0		43	74	117		4 - 6 Volume	0	0		98	93	191
7 - 9 Peak Hour				08:00	07:45	08:00		4 - 6 Peak Hour				16:00	16:00	16:00
7 - 9 Pk Volume	0	0		24	40	64		4 - 6 Pk Volume	0	0		56	49	105
Pk Hr Factor	0.000	0.000		0.857	0.714	0.800		Pk Hr Factor	0.000	0.000		0.933	0.875	0.938

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	58	133	98	56	65	132
Future Vol, veh/h	58	133	98	56	65	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	145	107	61	71	143

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	168	0	-	0	409	138
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	271	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1410	-	-	-	599	910
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1410	-	-	-	570	910
Mov Cap-2 Maneuver	-	-	-	-	570	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	775	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1410	-	-	-	760
HCM Lane V/C Ratio	0.045	-	-	-	0.282
HCM Control Delay (s)	7.7	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	144	147	184	45	30	106
Future Vol, veh/h	144	147	184	45	30	106
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	157	160	200	49	33	115

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	249	0	-	0	699	225
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	474	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1317	-	-	-	406	814
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	626	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1317	-	-	-	353	814
Mov Cap-2 Maneuver	-	-	-	-	353	-
Stage 1	-	-	-	-	706	-
Stage 2	-	-	-	-	626	-

Approach	EB	WB	SB
HCM Control Delay, s	4	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1317	-	-	-	632
HCM Lane V/C Ratio	0.119	-	-	-	0.234
HCM Control Delay (s)	8.1	0	-	-	12.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.9

Intersection	
Int Delay, s/veh	10

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	216	340	211	43	66	259
Future Vol, veh/h	216	340	211	43	66	259
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	230	362	224	46	70	276

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	270	0	-	0	1069	247
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	822	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1293	-	-	-	245	792
Stage 1	-	-	-	-	794	-
Stage 2	-	-	-	-	432	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1293	-	-	-	190	792
Mov Cap-2 Maneuver	-	-	-	-	190	-
Stage 1	-	-	-	-	617	-
Stage 2	-	-	-	-	432	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	29.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1293	-	-	-	482
HCM Lane V/C Ratio	0.178	-	-	-	0.717
HCM Control Delay (s)	8.4	0	-	-	29.2
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.6	-	-	-	5.7

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	371	175	0	3	0
Future Vol, veh/h	2	371	175	0	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	391	184	0	3	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	184	0	-	0	579	184
Stage 1	-	-	-	-	184	-
Stage 2	-	-	-	-	395	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1391	-	-	-	477	858
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	681	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1391	-	-	-	476	858
Mov Cap-2 Maneuver	-	-	-	-	476	-
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	681	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1391	-	-	-	476
HCM Lane V/C Ratio	0.002	-	-	-	0.007
HCM Control Delay (s)	7.6	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	369	4	1	168	7	1
Future Vol, veh/h	369	4	1	168	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	388	4	1	177	7	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	392	0	569	390
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1167	-	484	658
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	852	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1167	-	484	658
Mov Cap-2 Maneuver	-	-	-	-	484	-
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	851	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	501	-	-	1167	-
HCM Lane V/C Ratio	0.017	-	-	0.001	-
HCM Control Delay (s)	12.3	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	10.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	216	352	222	45	68	259
Future Vol, veh/h	216	352	222	45	68	259
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	230	374	236	48	72	276

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	284	0	-	0	1094	260
Stage 1	-	-	-	-	260	-
Stage 2	-	-	-	-	834	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1278	-	-	-	237	779
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	426	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1278	-	-	-	183	779
Mov Cap-2 Maneuver	-	-	-	-	183	-
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	426	-

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	32.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1278	-	-	-	464
HCM Lane V/C Ratio	0.18	-	-	-	0.75
HCM Control Delay (s)	8.4	0	-	-	32.5
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.7	-	-	-	6.3

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	358	167	44	43	21
Future Vol, veh/h	30	358	167	44	43	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	400	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	377	176	46	45	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	222	0	-	0	640	199
Stage 1	-	-	-	-	199	-
Stage 2	-	-	-	-	441	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1347	-	-	-	440	842
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	648	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1347	-	-	-	429	842
Mov Cap-2 Maneuver	-	-	-	-	429	-
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	648	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1347	-	-	-	511
HCM Lane V/C Ratio	0.023	-	-	-	0.132
HCM Control Delay (s)	7.7	-	-	-	13.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	396	5	1	203	8	1
Future Vol, veh/h	396	5	1	203	8	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	417	5	1	214	8	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	422	0	636	420
Stage 1	-	-	-	-	420	-
Stage 2	-	-	-	-	216	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1137	-	442	633
Stage 1	-	-	-	-	663	-
Stage 2	-	-	-	-	820	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1137	-	442	633
Mov Cap-2 Maneuver	-	-	-	-	442	-
Stage 1	-	-	-	-	663	-
Stage 2	-	-	-	-	819	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	457	-	-	1137	-
HCM Lane V/C Ratio	0.021	-	-	0.001	-
HCM Control Delay (s)	13	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	177	181	221	56	36	127
Future Vol, veh/h	177	181	221	56	36	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	188	193	235	60	38	135

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	295	0	-	0	834	265
Stage 1	-	-	-	-	265	-
Stage 2	-	-	-	-	569	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1266	-	-	-	338	774
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	566	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1266	-	-	-	282	774
Mov Cap-2 Maneuver	-	-	-	-	282	-
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	566	-

Approach	EB	WB	SB
HCM Control Delay, s	4.1	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1266	-	-	-	559
HCM Lane V/C Ratio	0.149	-	-	-	0.31
HCM Control Delay (s)	8.3	0	-	-	14.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.5	-	-	-	1.3

Intersection	
Int Delay, s/veh	31.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	255	405	255	55	80	305
Future Vol, veh/h	255	405	255	55	80	305
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	271	431	271	59	85	324

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	330	0	-	0	1274	301
Stage 1	-	-	-	-	301	-
Stage 2	-	-	-	-	973	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1229	-	-	-	184	739
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	366	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1229	-	-	-	131	739
Mov Cap-2 Maneuver	-	-	-	-	131	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	366	-

Approach	EB	WB	SB
HCM Control Delay, s	3.4	0	106.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1229	-	-	-	376
HCM Lane V/C Ratio	0.221	-	-	-	1.089
HCM Control Delay (s)	8.8	0	-	-	106.1
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.8	-	-	-	14.7

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	475	240	0	5	0
Future Vol, veh/h	5	475	240	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	500	253	0	5	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	253	0	-	0	763	253
Stage 1	-	-	-	-	253	-
Stage 2	-	-	-	-	510	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1312	-	-	-	372	786
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	603	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1312	-	-	-	370	786
Mov Cap-2 Maneuver	-	-	-	-	370	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	603	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1312	-	-	-	370
HCM Lane V/C Ratio	0.004	-	-	-	0.014
HCM Control Delay (s)	7.8	0	-	-	14.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	475	5	10	220	10	15
Future Vol, veh/h	475	5	10	220	10	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	500	5	11	232	11	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	505	0	757	503
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	254	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1060	-	375	569
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	788	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1060	-	371	569
Mov Cap-2 Maneuver	-	-	-	-	371	-
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	779	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	469	-	-	1060	-
HCM Lane V/C Ratio	0.056	-	-	0.01	-
HCM Control Delay (s)	13.1	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	255	405	255	55	80	305
Future Vol, veh/h	255	405	255	55	80	305
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	271	431	271	59	85	324

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	330	0	-	0	1274	301
Stage 1	-	-	-	-	301	-
Stage 2	-	-	-	-	973	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1229	-	-	-	184	739
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	366	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1229	-	-	-	131	739
Mov Cap-2 Maneuver	-	-	-	-	131	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	366	-

Approach	EB	WB	SB
HCM Control Delay, s	3.4	0	25.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1229	-	-	-	131	739
HCM Lane V/C Ratio	0.221	-	-	-	0.65	0.439
HCM Control Delay (s)	8.8	0	-	-	73	13.6
HCM Lane LOS	A	A	-	-	F	B
HCM 95th %tile Q(veh)	0.8	-	-	-	3.5	2.2

Intersection	
Int Delay, s/veh	10.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	255	405	255	55	80	305
Future Vol, veh/h	255	405	255	55	80	305
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	271	431	271	59	85	324

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	330	0	-	0	1274	301
Stage 1	-	-	-	-	301	-
Stage 2	-	-	-	-	973	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1229	-	-	-	184	739
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	366	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1229	-	-	-	131	739
Mov Cap-2 Maneuver	-	-	-	-	255	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	366	-

Approach	EB	WB	SB
HCM Control Delay, s	3.4	0	31.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1229	-	-	-	530
HCM Lane V/C Ratio	0.221	-	-	-	0.773
HCM Control Delay (s)	8.8	0	-	-	31.2
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.8	-	-	-	7

Intersection	
Intersection Delay, s/veh	65.9
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	255	405	255	55	80	305
Future Vol, veh/h	255	405	255	55	80	305
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	271	431	271	59	85	324
Number of Lanes	0	1	1	0	1	0

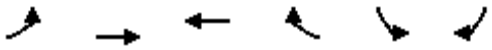
Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	114.1	17.7	22.2
HCM LOS	F	C	C

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	39%	0%	21%
Vol Thru, %	61%	82%	0%
Vol Right, %	0%	18%	79%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	660	310	385
LT Vol	255	0	80
Through Vol	405	255	0
RT Vol	0	55	305
Lane Flow Rate	702	330	410
Geometry Grp	1	1	1
Degree of Util (X)	1.167	0.569	0.684
Departure Headway (Hd)	5.985	6.487	6.426
Convergence, Y/N	Yes	Yes	Yes
Cap	611	561	565
Service Time	4.002	4.487	4.426
HCM Lane V/C Ratio	1.149	0.588	0.726
HCM Control Delay	114.1	17.7	22.2
HCM Lane LOS	F	C	C
HCM 95th-tile Q	23.6	3.5	5.2

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	702	330	409
v/c Ratio	0.86	0.30	0.79
Control Delay	23.1	5.7	26.7
Queue Delay	0.0	0.0	0.0
Total Delay	23.1	5.7	26.7
Queue Length 50th (ft)	200	47	87
Queue Length 95th (ft)	#464	84	#240
Internal Link Dist (ft)	1812	1350	1670
Turn Bay Length (ft)			
Base Capacity (vph)	1064	1451	641
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.66	0.23	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	255	405	255	55	80	305
Future Volume (veh/h)	255	405	255	55	80	305
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	271	431	271	59	85	324
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	357	496	887	193	90	342
Arrive On Green	0.60	0.60	0.60	0.60	0.27	0.27
Sat Flow, veh/h	471	832	1488	324	336	1282
Grp Volume(v), veh/h	702	0	0	330	410	0
Grp Sat Flow(s),veh/h/ln	1303	0	0	1812	1623	0
Q Serve(g_s), s	26.5	0.0	0.0	5.9	16.3	0.0
Cycle Q Clear(g_c), s	32.4	0.0	0.0	5.9	16.3	0.0
Prop In Lane	0.39			0.18	0.21	0.79
Lane Grp Cap(c), veh/h	853	0	0	1081	433	0
V/C Ratio(X)	0.82	0.00	0.00	0.31	0.95	0.00
Avail Cap(c_a), veh/h	1058	0	0	1339	433	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	6.5	23.6	0.0
Incr Delay (d2), s/veh	4.4	0.0	0.0	0.2	30.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	0.0	1.9	9.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.6	0.0	0.0	6.7	53.9	0.0
LnGrp LOS	B	A	A	A	D	A
Approach Vol, veh/h		702	330		410	
Approach Delay, s/veh		17.6	6.7		53.9	
Approach LOS		B	A		D	

Timer - Assigned Phs			4		6	8
Phs Duration (G+Y+Rc), s			43.6		22.0	43.6
Change Period (Y+Rc), s			4.5		4.5	4.5
Max Green Setting (Gmax), s			48.5		17.5	48.5
Max Q Clear Time (g_c+I1), s			34.4		18.3	7.9
Green Ext Time (p_c), s			4.7		0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	36.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	255	417	266	57	82	305
Future Vol, veh/h	255	417	266	57	82	305
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	271	444	283	61	87	324

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	344	0	-	0	1300	314
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	986	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1215	-	-	-	178	726
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	361	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1215	-	-	-	125	726
Mov Cap-2 Maneuver	-	-	-	-	125	-
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	361	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	126
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1215	-	-	-	360
HCM Lane V/C Ratio	0.223	-	-	-	1.144
HCM Control Delay (s)	8.8	0	-	-	126
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.9	-	-	-	16.1

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	462	232	44	45	21
Future Vol, veh/h	33	462	232	44	45	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	400	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	486	244	46	47	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	290	0	-	0	823	267
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	556	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1272	-	-	-	343	772
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1272	-	-	-	333	772
Mov Cap-2 Maneuver	-	-	-	-	333	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	574	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1272	-	-	-	407
HCM Lane V/C Ratio	0.027	-	-	-	0.171
HCM Control Delay (s)	7.9	-	-	-	15.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	502	6	10	255	11	15
Future Vol, veh/h	502	6	10	255	11	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	528	6	11	268	12	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	534	0	821	531
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1034	-	344	548
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1034	-	340	548
Mov Cap-2 Maneuver	-	-	-	-	340	-
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	749	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	435	-	-	1034	-
HCM Lane V/C Ratio	0.063	-	-	0.01	-
HCM Control Delay (s)	13.8	-	-	8.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	9.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	255	417	266	57	82	305
Future Vol, veh/h	255	417	266	57	82	305
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	271	444	283	61	87	324

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	344	0	-	0	1300	314
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	986	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1215	-	-	-	178	726
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	361	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1215	-	-	-	125	726
Mov Cap-2 Maneuver	-	-	-	-	125	-
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	361	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	28.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1215	-	-	-	125	726
HCM Lane V/C Ratio	0.223	-	-	-	0.698	0.447
HCM Control Delay (s)	8.8	0	-	-	82.7	13.9
HCM Lane LOS	A	A	-	-	F	B
HCM 95th %tile Q(veh)	0.9	-	-	-	3.8	2.3

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	462	232	44	45	21
Future Vol, veh/h	33	462	232	44	45	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	400	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	486	244	46	47	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	290	0	-	0	823	267
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	556	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1272	-	-	-	343	772
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1272	-	-	-	333	772
Mov Cap-2 Maneuver	-	-	-	-	333	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	574	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1272	-	-	-	407
HCM Lane V/C Ratio	0.027	-	-	-	0.171
HCM Control Delay (s)	7.9	-	-	-	15.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	502	6	10	255	11	15
Future Vol, veh/h	502	6	10	255	11	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	528	6	11	268	12	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	534	0	821	531
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1034	-	344	548
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1034	-	340	548
Mov Cap-2 Maneuver	-	-	-	-	340	-
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	749	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	435	-	-	1034	-
HCM Lane V/C Ratio	0.063	-	-	0.01	-
HCM Control Delay (s)	13.8	-	-	8.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	10.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	255	417	266	57	82	305
Future Vol, veh/h	255	417	266	57	82	305
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	271	444	283	61	87	324

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	344	0	-	0	1300	314
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	986	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1215	-	-	-	178	726
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	361	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1215	-	-	-	138	726
Mov Cap-2 Maneuver	-	-	-	-	261	-
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	361	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	32.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1215	-	-	-	527
HCM Lane V/C Ratio	0.223	-	-	-	0.781
HCM Control Delay (s)	8.8	-	-	-	32.1
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.9	-	-	-	7.2

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	462	232	44	45	21
Future Vol, veh/h	33	462	232	44	45	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	400	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	486	244	46	47	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	290	0	-	0	823	267
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	556	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1272	-	-	-	343	772
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1272	-	-	-	333	772
Mov Cap-2 Maneuver	-	-	-	-	333	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	574	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1272	-	-	-	407
HCM Lane V/C Ratio	0.027	-	-	-	0.171
HCM Control Delay (s)	7.9	-	-	-	15.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	502	6	10	255	11	15
Future Vol, veh/h	502	6	10	255	11	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	528	6	11	268	12	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	534	0	821	531
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1034	-	344	548
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1034	-	340	548
Mov Cap-2 Maneuver	-	-	-	-	340	-
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	749	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	435	-	-	1034	-
HCM Lane V/C Ratio	0.063	-	-	0.01	-
HCM Control Delay (s)	13.8	-	-	8.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Intersection Delay, s/veh	66.5
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	255	417	266	57	82	305
Future Vol, veh/h	255	417	266	57	82	305
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	271	444	283	61	87	324
Number of Lanes	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	118.3	17.8	17.1
HCM LOS	F	C	C

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	38%	0%	100%	0%
Vol Thru, %	62%	82%	0%	0%
Vol Right, %	0%	18%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	672	323	82	305
LT Vol	255	0	82	0
Through Vol	417	266	0	0
RT Vol	0	57	0	305
Lane Flow Rate	715	344	87	324
Geometry Grp	2	2	7	7
Degree of Util (X)	1.179	0.577	0.185	0.576
Departure Headway (Hd)	5.938	6.433	8.029	6.797
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	615	564	449	535
Service Time	3.938	4.433	5.729	4.497
HCM Lane V/C Ratio	1.163	0.61	0.194	0.606
HCM Control Delay	118.3	17.8	12.5	18.3
HCM Lane LOS	F	C	B	C
HCM 95th-tile Q	24.5	3.6	0.7	3.6

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	462	232	44	45	21
Future Vol, veh/h	33	462	232	44	45	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	400	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	486	244	46	47	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	290	0	-	0	823	267
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	556	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1272	-	-	-	343	772
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1272	-	-	-	333	772
Mov Cap-2 Maneuver	-	-	-	-	333	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	574	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1272	-	-	-	407
HCM Lane V/C Ratio	0.027	-	-	-	0.171
HCM Control Delay (s)	7.9	-	-	-	15.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	502	6	10	255	11	15
Future Vol, veh/h	502	6	10	255	11	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	528	6	11	268	12	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	534	0	821	531
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1034	-	344	548
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1034	-	340	548
Mov Cap-2 Maneuver	-	-	-	-	340	-
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	749	-

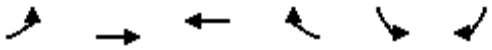
Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	435	-	-	1034	-
HCM Lane V/C Ratio	0.063	-	-	0.01	-
HCM Control Delay (s)	13.8	-	-	8.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	715	344	411
v/c Ratio	0.88	0.30	0.80
Control Delay	24.4	5.8	27.8
Queue Delay	0.0	0.0	0.0
Total Delay	24.4	5.8	27.8
Queue Length 50th (ft)	218	52	94
Queue Length 95th (ft)	#482	89	#243
Internal Link Dist (ft)	1812	1350	1670
Turn Bay Length (ft)			
Base Capacity (vph)	1033	1424	625
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.69	0.24	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	255	417	266	57	82	305
Future Volume (veh/h)	255	417	266	57	82	305
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	271	444	283	61	87	324
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	353	505	903	195	89	333
Arrive On Green	0.61	0.61	0.61	0.61	0.26	0.26
Sat Flow, veh/h	460	835	1491	321	343	1277
Grp Volume(v), veh/h	715	0	0	344	412	0
Grp Sat Flow(s),veh/h/ln	1295	0	0	1813	1623	0
Q Serve(g_s), s	28.0	0.0	0.0	6.2	16.9	0.0
Cycle Q Clear(g_c), s	34.2	0.0	0.0	6.2	16.9	0.0
Prop In Lane	0.38			0.18	0.21	0.79
Lane Grp Cap(c), veh/h	858	0	0	1098	423	0
V/C Ratio(X)	0.83	0.00	0.00	0.31	0.97	0.00
Avail Cap(c_a), veh/h	1025	0	0	1309	423	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.5	0.0	0.0	6.5	24.6	0.0
Incr Delay (d2), s/veh	5.2	0.0	0.0	0.2	36.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	0.0	0.0	1.9	10.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.6	0.0	0.0	6.6	61.5	0.0
LnGrp LOS	B	A	A	A	E	A
Approach Vol, veh/h		715	344		412	
Approach Delay, s/veh		18.6	6.6		61.5	
Approach LOS		B	A		E	

Timer - Assigned Phs		4		6	8
Phs Duration (G+Y+Rc), s		45.2		22.0	45.2
Change Period (Y+Rc), s		4.5		4.5	4.5
Max Green Setting (Gmax), s		48.5		17.5	48.5
Max Q Clear Time (g_c+I1), s		36.2		18.9	8.2
Green Ext Time (p_c), s		4.5		0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	462	232	44	45	21
Future Vol, veh/h	33	462	232	44	45	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	400	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	486	244	46	47	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	290	0	-	0	823	267
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	556	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1272	-	-	-	343	772
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1272	-	-	-	333	772
Mov Cap-2 Maneuver	-	-	-	-	333	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	574	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1272	-	-	-	407
HCM Lane V/C Ratio	0.027	-	-	-	0.171
HCM Control Delay (s)	7.9	-	-	-	15.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	502	6	10	255	11	15
Future Vol, veh/h	502	6	10	255	11	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	528	6	11	268	12	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	534	0	821	531
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1034	-	344	548
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1034	-	340	548
Mov Cap-2 Maneuver	-	-	-	-	340	-
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	749	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	435	-	-	1034	-
HCM Lane V/C Ratio	0.063	-	-	0.01	-
HCM Control Delay (s)	13.8	-	-	8.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

APPENDIX J2:
VEHICLE MILES TRAVELED ANALYSIS

Memorandum

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

To: Mr. Darin Grossi
Tuolumne County Transportation Council
975 Morning Star Drive, Suite A
Sonora, CA 95370

From: Mario Tambellini, PE, TE
Wood Rodgers, Inc.

Date: June 6, 2020

Subject: **Terra Vi Lodge VMT Analysis**

INTRODUCTION

This memorandum has been prepared to present the results of a vehicle miles traveled (VMT) analysis performed for the Terra Vi Lodge project (Project). This memorandum presents VMT data to be used in the Terra Vi Lodge environmental impact report (EIR) traffic study.

PROJECT DESCRIPTION

The Project site is located at the northeast corner of the intersection of Sawmill Mountain Road and State Highway 120 (SR 120) in Tuolumne County, California. The Project proposes to construct a master planned lodging development that includes a 2,800 square foot public market, multi-purpose lodge, 100 guestrooms, 7 cabins with an additional 26 guestrooms, and 5 employee housing units. The Project would gain access to the local roadway network via multiple driveway connections to Sawmill Mountain Road. The Project would develop approximately 18% of the 64-acre Manly Family property. The current Project application and description is included as Attachment A.

PROJECT TRIP GENERATION

The Project trip generation prepared by KD Anderson & Associates, Inc. (KD Anderson) for the EIR traffic study was obtained in order to maintain consistency between the VMT analysis and other Project traffic analyses. The EIR traffic study and trip generation focus on peak Saturday conditions. KD Anderson used *Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition* (ITE, September 2017) trip generation rates to prepare the Project trip generation and accounted for internal and pass-by trips. The Project trip generation is summarized in Table 1. As shown in Table 1, the Project is projected to generate approximately 1,127 net new daily trips during a peak Saturday. A detailed Project trip generation from KD Anderson is included as Attachment B.

The Project peak Saturday trip generation obtained from the EIR traffic study was converted to typical weekday trip generation so that it could be used to verify trip generation rates in the Tuolumne County Regional Travel Demand Model (RTDM). A "typical weekday vs. peak Saturday" factor was developed by obtaining traffic counts for SR 120 near the Project area from the Caltrans PeMS online database. Average daily traffic (ADT) on SR 120 during an average Saturday in June/July 2018 was compared against ADT on SR 120 during a typical weekday in May 2018. A summary of the PeMS traffic counts used to develop the factor are included as Attachment C. The typical weekday Project trip generation is shown in Table 2. As shown in Table 2, the Project is projected to generate approximately 586 net new daily trips during a typical weekday.

Table 1. Terra Vi Lodge Trip Generation – Peak Saturday

Code	Description	Unit	Saturday			
			Daily	Peak Hour of Generator		
				In	Out	Total
310	Lodge	100 rooms	819	40	32	72
	Cabins	26 units	213	10	9	19
	Subtotal		1,032	50	41	91
	Less effect of Employee Housing	(2%)	40	2	2	4
	Less internal to Market	(24%)	252	11	11	22
	Net External Trips		*740*	*37*	*28*	*65*
210	Individual Employee Housing	20 residents	50	3	3	6
	Less on-site commute match		40	2	2	4
	Less internal to Market	(14%)	5	1	0	1
	Net External Trips		5	0	1	1
851	Market	2.8 ksf[1]	1,237	46	44	90
	Less internal to Lodging		252	11	11	22
	Less internal to Employee		5	0	1	1
	Net External		*980*	*35*	*32*	*67*
	Pass-by Trips	61%	598	21	20	41
	Net New External		*382*	*14*	*12*	*26*
	Total Gross Trips		2.309	99	88	187
	Total External Trips		1,725	72	61	133
	Total Pass-by Trips		598	21	20	41
	Total Net New Trips		**1,127**	**51**	**41**	**92**

Source: data from Traffic Impact Study for the Terra Vi Resort Project (prepared by KD Anderson, received 12/10/2019)

Notes: 1. ksf = 1,000 square feet gross floor area

Table 2. Terra Vi Lodge Trip Generation – Annual Average Typical Weekday

Scenario	Land Use	Unit	Net External Daily Trips
Peak Saturday	Lodge and Cabins	126 Rooms	740
	Employee Housing	20 Residents	5
	Market	2.8 KSF	382
		Total:	**1,127**
		Typical Weekday vs. Peak Saturday Factor[1]:	0.52
Typical Weekday	Lodge and Cabins	126 Rooms	385
	Employee Housing	20 Residents	3
	Market	2.8 KSF	199
		Total:	**586**
Notes: 1. Derived from Caltrans PeMS traffic counts.			

As shown in Table 2, the proposed 126 lodge and cabin rooms are estimated to generate approximately 385 annual average typical weekday daily trips. Dividing the 385 daily trips by the 126 rooms results in an annual average daily trip rate of approximately 3.1 trips per room for the Lodge and Cabins land use. The RTDM uses a trip generation rate of approximately 3.2 trips per room for motel/hotel land use types (which is generally representative of the Project lodge and cabins type) located in rural areas of the County, which is where the Project is located. Therefore, it is assumed that the motel/hotel trip generation rates contained in the RTDM would provide a reasonable estimate of Project generated traffic under annual average typical weekday conditions.

PROJECT VMT ANALYSIS

Project VMT was analyzed both within and outside Tuolumne County. All VMT analysis was performed for annual average typical weekday daily conditions. Project VMT was estimated in terms of both VMT per room and net change in VMT in the affected area.

The latest version of the Tuolumne County RTDM and corresponding out-of-county VMT post processing tools, which were recently updated/developed as part of the Tuolumne County SB 743 VMT Study, were used to analyze VMT generated by the Project. Out-of-County VMT post-processing tools utilize a combination of AirSage and California Statewide Travel Demand Model (CSTDM) origin destination trip data to provide a reasonable estimate of out-of-county trip lengths. The RTDM has scenario years of 2015, 2030, and 2040 and models an annual average typical weekday. The following scenarios were analyzed using the RTDM:

- Baseline Year 2015 Without Project
- Baseline Year 2015 With Project
- Cumulative Year 2040 Without Project
- Cumulative Year 2040 With Project

Data for the "Without Project" conditions was prepared by running the RTDM year 2015 and 2040 scenarios with no modifications. The "With Project" conditions RTDM scenarios were prepared by adding two new Project TAZs into the RTDM at the northeast corner of Sawmill Mountain Road and SR 120, with centroid connectors providing access on Sawmill Mountain Road. Land use quantities for the Project were input into the RTDM demographics files under the new Project TAZs. The lodge and cabin land uses were put into one of the new Project TAZs, and the employee housing and market land uses were put into the other. Project land uses were input into two separate TAZs so the VMT from the different land use types could be more easily isolated. The RTDM multi-family housing, minor commercial, and motel land use categories were used to represent the Project. The "With Project" RTDM scenarios were run and output data was extracted.

Efficiency-Based VMT Metric

Each different type of land use within the Project was evaluated separately when analyzing efficiency-based VMT, consistent with recommended methodologies contained in the *Governor's Office of Planning and Research Technical Advisory* (OPR Technical Advisory) (December 2018). An efficiency-based VMT metric, VMT per room, was estimated for the lodge and cabin portion of the Project using data from the Baseline Year 2015 With Project RTDM run. Project VMT per room was estimated by dividing total lodge and cabin Project VMT from the RTDM by the 126 total Project rooms. The Project is estimated to generate approximately 103.9 VMT per room, as shown in Table 3.

Table 3. Project VMT – Efficiency-Based VMT Metric

Annual Average Typical Weekday VMT per Room	
Estimated Project Hotel VMT per Room	103.9 VMT/room
Notes: *All data calculated with the Tuolumne County Regional Travel Demand Model and post-processing tools.*	

The OPR Technical Advisory and the *Draft Tuolumne County SB 743 VMT Thresholds Memorandum* (Tuolumne County VMT Thresholds Memo) (Wood Rodgers, May 27, 2020) both provide recommendations that certain types of land use projects may be screened out from a detailed VMT analysis. The employee housing portion of the Project was screened out because it is projected to generate less than 110 new external daily trips, consistent with recommendations in both the OPR Technical Advisory and the Tuolumne County VMT Thresholds Memo. The Project market was screened out from a detailed VMT analysis because the majority of trips to and from the market are projected to be either pass-by or internal trips and the market would essentially function as a local serving retail project as it would serve hotel guests and people already travelling on SR 120. In other words, it would only serve people already in the area, potentially providing them a new closer option, and would not draw many, if any, dedicated trips from other areas. Screening out the market as local serving retail is consistent with recommendations in both the OPR Technical Advisory and the Tuolumne County VMT Thresholds Memo.

Net Change in Affected Area VMT Metric

All land use types included in the Project were accounted for when analyzing the net change in affected area VMT due to the Project. Total VMT generated by Tuolumne County land uses was calculated for each of the four scenarios analyzed in this memorandum using RTDM data and post-processing methodologies and tools. Net change in affected area VMT due to the Project was then calculated for 2015 and 2040 by subtracting the "Without Project Total VMT Generated by Tuolumne County Land Uses" from the "With Project Total VMT Generated by Tuolumne County Land Uses". The Project is estimated to result in a net increase in affected area VMT of 7,424 in 2015 and 8,055 in 2040, as shown in Table 4.

Table 4. Project VMT – Net Change in Affected Area VMT Metric

Annual Average Typical Weekday Total VMT	
2015 Without Project Total VMT Generated By County Land Uses	3,375,777
2015 With Project Total VMT Generated by County Land Uses	3,383,201
2015 Net Change in VMT Generated by County Land Uses	+7,424
2040 Without Project Total VMT Generated by County Land Uses	3,802,466
2040 With Project Total VMT Generated by County Land Uses	3,810,521
2040 Net Change in VMT Generated by County Land Uses	+8,055
Notes: *All data calculated with the Tuolumne County Regional Travel Demand Model and post-processing tools.*	

Using the VMT data from Table 3 and Table 4, as well as the total number of Project hotel rooms, we can estimate Total Project VMT and the portion of Project VMT that is estimated to be rerouted from existing land uses, as shown in Table 5. The portion of Project VMT estimated to be rerouted form existing land uses represents visitors who would've stayed at other hotels in the County if the Project was not operational.

Table 5. Project VMT – New vs. Rerouted VMT

Baseline Annual Average Typical Weekday Total VMT	
Total Project VMT	13,091
Portion of Project VMT that is New to the Affected Area	7,424
Portion of Project VMT that has Been Rerouted from Existing land Uses	5,667
Notes: *All data calculated with the Tuolumne County Regional Travel Demand Model and post-processing tools.*	

VMT Threshold and Impacts

Tuolumne County has not adopted countywide VMT thresholds at the time of preparation of this memorandum. Therefore, an appropriate Project-specific threshold was identified for this Project consistent with recommendations in the OPR Technical Advisory, the current *California Environmental Quality Act Guidelines* (CEQA Guidelines), and the Tuolumne County VMT Thresholds Memo.

When selecting a threshold for this Project, it should be considered that the number of visitors to Yosemite National Park, and other similar attractions in the area likely to draw Project guests to the region, may generally increase over time regardless of other factors, and those new visitors will be looking for places to stay. If visitors to the region are provided with new places to stay that generate less VMT than existing hotels, the VMT per visitor of the region could potentially be lowered over time. Additionally, hotels in different areas of the County serve different purposes and visitors, which results in very different travel patterns. The differences in characteristics of hotels in different areas of the County should be acknowledged. Therefore, consistent with recommendations and findings in the Tuolumne County VMT Thresholds Memo, a reasonable VMT threshold for this Project is considered to be:

> "less than or equal to the East County subarea baseline hotel VMT per room"

County VMT subareas were developed as part of the Tuolumne County VMT Thresholds Memo and are shown in Attachment D. The East County subarea was used as that is the subarea the Project is located in. Existing average hotel VMT per room in the East County Subarea was calculated as part of the Tuolumne County VMT Thresholds Memo using the same version of the RTDM and same methodologies used to estimate Project VMT in this memorandum. Table 6 shows the proposed threshold and how Project VMT per room compares against it. Refer to the Tuolumne County VMT Thresholds Memo for more details on this threshold.

Table 6. Project VMT – Efficiency-Based VMT Metric

Annual Average Typical Weekday VMT per Room	
Project Hotel VMT per Room	103.9 VMT/room
Existing Average Hotel VMT per Room in the East County Subarea (Threshold)	129.1 VMT / room
Percent Difference	-19.5%
Notes: *All data calculated with the Tuolumne County Regional Travel Demand Model and post-processing tools.*	

As shown in Table 6, the Project VMT per room is projected to be approximately 19.5% below the threshold. The Project is projected to be below the threshold because of its proximity to SR 120, proximity to tourist destinations, and the internal trip match provided by the employee housing and on-site market. Since the Project VMT is below the threshold, and an efficiency-based threshold was used, Project VMT impacts are projected to be "less than significant" under Existing plus Project and Cumulative (i.e. long term future) plus Project conditions, consistent with methodologies in the OPR Technical Advisory.

ATTACHMENT A
Project Description

TGTC

ATTACHMENT A

COMMUNITY DEVELOPMENT DEPARTMENT

Quincy Yaley, AICP
Director

Land Use and Natural Resources – Housing and Community Programs – Environmental Health – Building and Safety – Code Compliance

48 Yaney Avenue, Sonora
Mailing: 2 S. Green Street
Sonora, CA 95370
(209) 533-5633
(209) 533-5616 (Fax)
(209) 533-5909 (Fax – EHD)
www.tuolumnecounty.ca.gov

OCT 09 2019

Date: October 7, 2019

To: Interested Stakeholder

From: Tuolumne County Community Development Department

RE: Hardin Flat LLC/Hansji Corporation Site Development Permit SDP18-003
Assessor's Parcel Numbers: 068-120-060 and 068-120-061

The Community Resources Agency thanks you for your participation in the land development process in Tuolumne County. We value your comments and look forward to your continued participation in our planning process. This process provides information on your requirements and concerns to the applicant early in the review process. Involvement on your part can eliminate or minimize problems that could arise later.

We have received a revised application from Hardin Flat LLC/Hansji Corporation for Site Development Permit SDP18-003 to allow the development of Terra Vi Lodge, a master planned lodging development. Please see the attached information or visit https://www.tuolumnecounty.ca.gov/1158/Terra-Vi-Lodge-Yosemite.

The project site is located at the northeast corner of the intersection of Sawmill Mountain Road and State Highway 120. The property is located on both sides of Sawmill Mountain Road, in a portion of Section 26, Township 1 South, Range 18 East. Supervisorial District 4.

If your agency wishes to provide comments on the updated project, please complete the following and return no later than **October 31, 2019**. This will assist the County in the processing of the application.

Staff Contact: Quincy Yaley, Director, Community Development Department
(209) 533-5633
qyaley@co.tuolumne.ca.us

AGENCY: _____

COMMENTS: _____

_____

_____

_____

_____

TERRA VI LODGE

YOSEMITE LODGE

11262 SAWMILL MT. ROAD

GROVELAND, CA 95321

PROJECT OWNER

HANSJI CORP.
631 W. KATELLA AVE.
ANAHEIM, CA 92802
(714) 399-0152
INFO@HANSJI.COM

ARCHITECT

AVRP SKYPORT STUDIOS
703 16TH ST. SUITE 100
SAN DIEGO, CA 92101
PH: 619-704-2700

LANDSCAPE

SMITH + SMITH
1501 NORTH POINT ST.
SAN FRANCISCO, CA 94123
BILL SMITH: BILL@SMITH2.COM
PH: 415-543-0332
JASON SMITH: JSAON@SMITH2.COM
PH: 415-543-0332

TRAFFIC ENGINEERING

KD ANDERSON & ASSOCIATES, INC.
3853 TAYLOR RD. SUITE G
LOOMIS, CA 95650
KEN ANDERSON KANDERSON@KANDERSON.COM
PH: 916-660-1555

CIVIL ENGINEERING

LAND & STRUCTURE
105 S. STEWART ST.
SONORA,CA 95370
ZAC GARMAN ZAC@LANDSTRUC.COM
PH: 209-768-9220
REUBEN CHIRNSIDE REUBEN@LANDSTRUC.COM
PH: 209-743-3370
RICHARD JAMES RICH@LANDSTRUC.COM
PH: 209-768-9777

ENVIRONMENTAL HEALTH

DON MYERS, REHS
REGISTERED ENVIRONMENTAL HEALTH SPECIALIST
14801 TWIST RD.
JAMESTOWN, CA 95327
209-743-9493

REGULATORY DESCRIPTION

THIS APPLICATION NAMED "TERRA VI LODGE YOSEMITE LODGE" WHICH IS BEING SUBMITTED TO THE COMMUNITY RESOURCES AGENCY, HAS FOLLOWED THE CRITERIA AS OUTLINED IN THE "SITE DEVELOPMENT PERMITS INSTRUCTION TO FOR APPLICANTS."

IN ADDITION, UNDER THE TUOLUMNE COUNTY ORDINANCE CODE CHAPTER 17.31 THE PROJECT RESIDES IN THE C-K DISTRICT AND HAS THE DESIGNATION ALLOWING " HOTELS AND MOTELS." AS INDICATED IN THIS CHAPTER; "THE PURPOSE OF THE COMMERCIAL RECREATIONAL (C-K) DISTRICT IS TO ENCOURAGE WELL-PLANNED AND INTEGRATED RESORT AND VACATION-ORIENTED COMMERCIAL COMPLEXES IN WHICH THE DEVELOPER MAY INCORPORATE INNOVATIVE DESIGN TECHNIQUES."

THE TERRA VI LODGE HAS ALSO ADDRESSED ORDINANCE: 17.31.010, TITLE 15 FIRE SAFETY STANDARDS AS IT PERTAINS TO THIS PROJECT.

ARCHITECTURE SHEETS

T0.00	TITLE SHEET
T0.01	AERIAL PERSPECTIVE 1
T0.02	AERIAL PERSPECTIVE 2
T0.03	SITE PLAN
T0.04	ENLARGED LODGE SITE PLAN
T0.05	ENLARGED CABIN SITE PLAN
A1.01	FLOOR PLAN TYPES
A1.02	MAINTENANCE YARD/BASEMENT LVL
A1.03	FLOOR PLANS RESTAURANT LVL 1
A1.04	FLOOR PLANS LVL 1
A1.05	FLOOR PLANS LVL 2
A1.06	FLOOR PLANS LVL 3
A1.07	FLOOR PLANS CABIN
A2.00	SECTIONS
A2.01	ELEVATIONS
A2.02	ELEVATIONS
A2.03	ELEVATIONS
A2.04	ELEVATIONS
A2.05	ELEVATIONS
A4.01	RENDER 1
A4.02	RENDER 2
A4.03	RENDER 3
A4.04	RENDER 4

CIVIL SHEETS

V1	TITLE SHEET
V2	BOUNDARY AND EASEMENT SURVEY
V3	TOPOGRAPHIC SURVEY
C1	GRADING AND DRAINAGE PLAN
C2	GRADING AND DRAINAGE PLAN
C3	GRADING AND DRAINAGE PLAN
C4	GRADING AND DRAINAGE PLAN

LANDSCAPING SHEETS

L1	PROPERTY CONTEXT PLAN
L2	SITE CONTEXT PLAN
L3	EXISTING CONDITIONS AND TREE DISPOSITION PLAN
L4	OPEN SPACE, FOREST MANAGEMENT AND WATER-USE PLAN
L5A	SITE CROSS - SECTION - ELEVATION A
L5B	SITE CROSS - SECTION - ELEVATION B
L5C	SITE CROSS - SECTION - ELEVATION C
L6	ILLUSTRATIVE LANDSCAPE PLAN
L7	LODGE LANDSCAPE SUB-AREAS PLAN
L8	PLANT PALETTE AND PLANT MATERIAL IMAGES
L9	LODGE LANDSCAPE ELEMENTS AND FEATURES IMAGES

ENVIRONMENTAL SHEETS

EH-01	PRELIMINARY SEPTIC LAYOUT

PROJECT INFORMATION

APN:	068-120-60-00, 068-120-61-00
LOT SIZE:	1,219,819.5 SF. (28 ARCE),
	1,566,507.3 SF. (36 ARCE)
TOTAL	2,786,326.8 SF. (64 ACRE)
ZONE:	C-K, O
OCCUPANCIES:	R-2,S-2,B
CONSTRUCTIONS TYPES:	TYPE I
STORIES:	3
CEILING HEIGHT:	VARIES
FIRE SPRINKLER:	YES
ELECTRICAL:	GRID
GAS:	TANK
SEWER:	SEPTIC
HEIGHT LIMIT:	50'
BASE F.A.R.:	0.5
FRONT SETBACK:	15'
SIDE SETBACK:	6'
REAR SETBACK:	15'

PROPOSED:
(100 GUEST ROOMS, 26 CABIN ROOMS, MARKET & EVENT SPACE, EMPLOYEE HOUSING - 5 UNITS)

TOTAL PROPOSED:	104,107 SQ. FT. (FAR 0.04)

PARKING

HOTEL:	100 SPACES
CABINS:	26 SPACES
MARKET (2,800 Sq. Ft.):	16 SPACES
EMPLOYEE:	30 SPACES
EMPLOYEE HOUSING:	40 SPACES
OVERFLOW:	74 SPACES
TOTAL PARKING:	286 SPACES

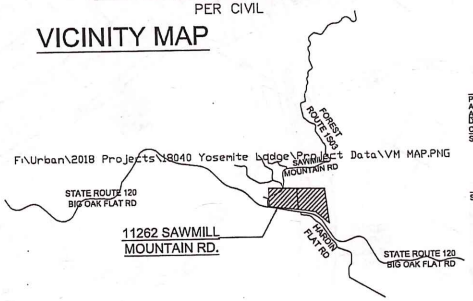
PROJECT DESCRIPTION:

THE HANSJI CORPORATION PROPOSED TO BUILD A 104,107 SQ. FT. MIXED USE LODGE WITH A MARKET LOCATED ON THEIR EXISTING PROPERTY AT 11262 SAWMILL MOUNTAIN ROAD IN GROVELAND, CALIFORNIA 95321. THE PROPOSED BUILD WILL CONSIST OF 100 GUEST ROOMS AND 26 CABIN ROOMS (R-1), WITH A MARKET (B), EVENT SPACE (A), EMPLOYEE HOUSING, AND 286 SPACES OF PARKING THROUGH OUT THE SITE.

LEGAL DESCRIPTION

PER CIVIL

VICINITY MAP



avrp SKYPORT architect urban de interiors graphics
703 16th Street, Suite 200
San Diego
California 92101
P 619.704.2700
F 619.704.2699
www.avrpstudios.com

STAMP:

CONSULTANT:

PROJECT NAME:

TERRA V LODGE YOSEMITE

NOT FOR CONSTRUCTION
Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DA
SUBMITTAL 1	11.16.2
SUBMITTAL 2	05.10.2

PROJECT NO.
AVRPSTUDIOS:
AGENCY #:
DRAWN BY:
CHECKED BY:
SHEET TITLE:

TITLE SHEE

SHEET NUMBER:

T0.0C

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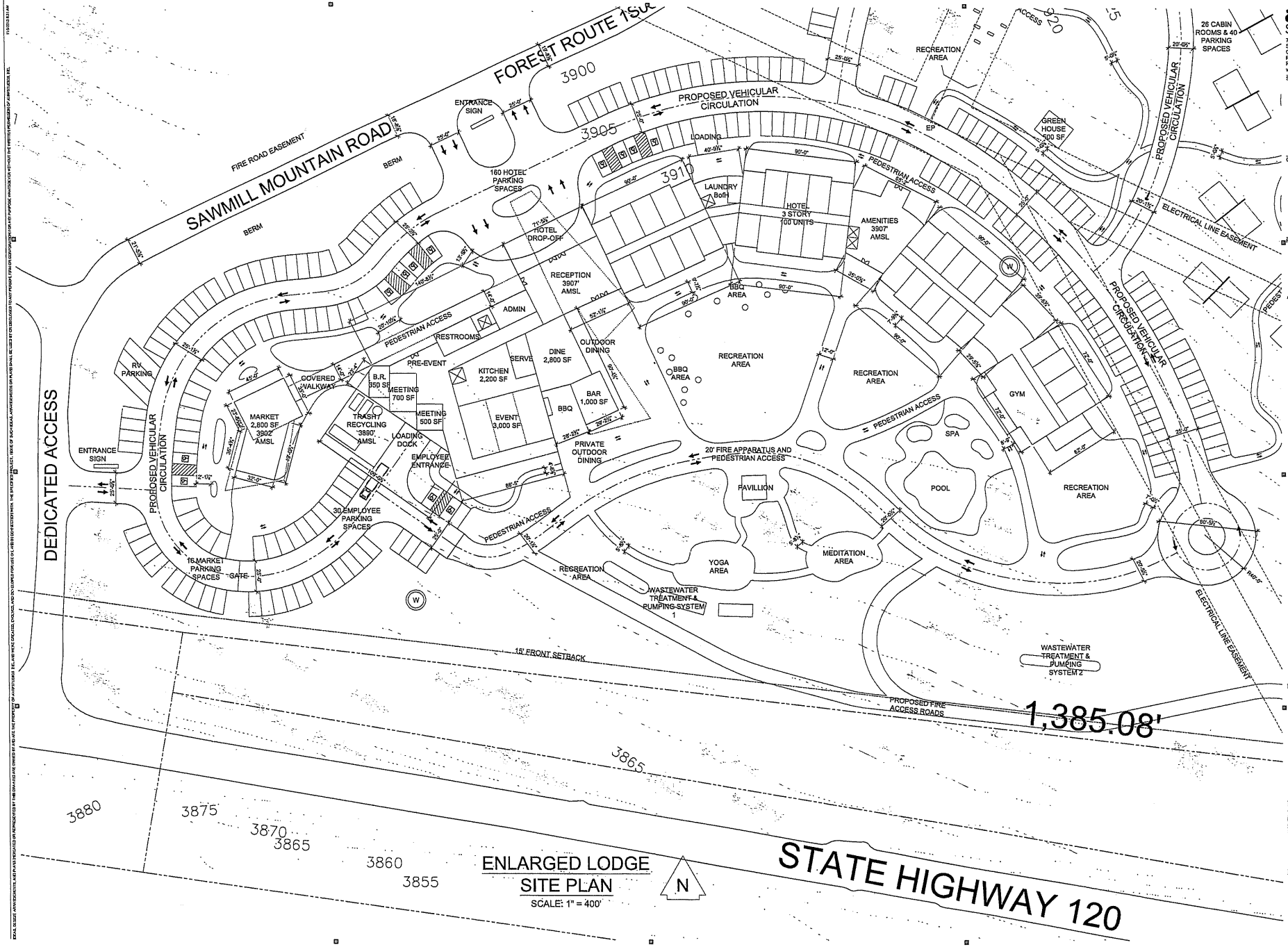

ENLARGED LODGE SITE PLAN

SCALE: 1" = 400'

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STAMP:

CONSULTANT:

PROJECT NAME:

TERRA VI LODGE YOSEMITE

NOT FOR CONSTRUCTION

Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DA
SUBMITTAL 1	11.18.2
SUBMITTAL 2	05.10.2

PROJECT NO.
AVRPSTUDIOS:
AGENCY #:
DRAWN BY:
CHECKED BY:
SHEET TITLE:
ENLARGED LODG
SITE PLA

SHEET NUMBER:

T0.04

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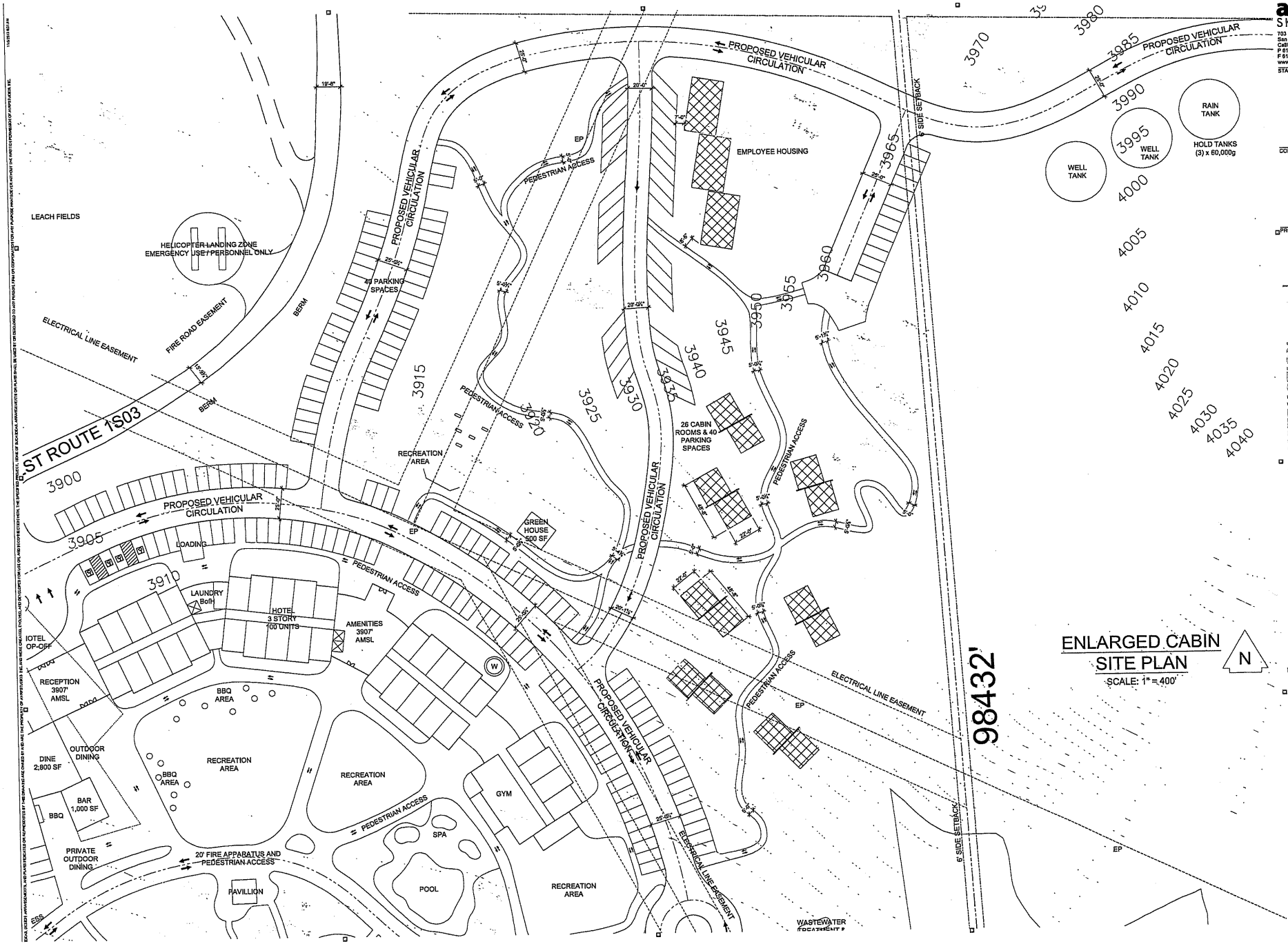

ENLARGED CABIN SITE PLAN

SCALE: 1" = 400'

N

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San Diego
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STAMP:

CONSULTANT:

PROJECT NAME:

TERRA V LODGE YOSEMITE

NOT FOR CONSTRUCTION

Terra Vi Lodge
Yosemite
Yosemite, CA 95321

ISSUE DATES:

DESCRIPTION:	DA
SUBMITTAL 1	11.16
SUBMITTAL 2	05.09

PROJECT NO.
AVRPSTUDIOS: 1804
AGENCY #: 0505
DRAWN BY:
CHECKED BY:
SHEET TITLE:
ENLARGED CAB
SITE PLA

SHEET NUMBER:

T0.05

TERRA VI
LODGE
YOSEMITE

PROJECT SUMMARY

Revised September 25, 2019

The following information is a summary of our preliminary master planning, design, engineering and operation strategies.

Project Description

Terra Vi Lodge Yosemite is a master planned lodging development designed to address the increased demands for eco-sensitive resorts and local recreation tourism. Our team has designed an extraordinary mountain resort on the 64-acre Manly Family property that was severely damaged in the 2013 Rim Forest Fire. This restoration effort will not only repair and preserve a responsible use of this property, but also brings an enormous capital investment to the area, creating sustainable jobs, local commerce, and supporting a greater public awareness for outdoor recreation and nature enjoyment.

The project is comprised of various single, two- and three-story elements beginning at the Northwest entrance of Sawmill Mountain Road and continuing Northeast as it unfolds and curves back towards SR120. This design creates a maximum set-back for vertical structure transition, and then pulls the higher elements back away from the adjacent neighboring properties, in an effort to mitigate both public and private viewshed concerns. These elements will include a public market, general lodge with multi-purpose, indoor and outdoor areas, 100 guestrooms, 7 cabins providing 26 guestrooms and 5 employee housing units. The development utilizes approximately 18% of the total site and preserves the remaining developable areas and designated open space.

The Terra Vi Lodge Yosemite development submittal conforms to the current zoning requirements (C-K, O) as defined by the County of Tuolumne, as well as the applicable design guidelines of the County of Tuolumne and various State of California agencies.

Architecture & Engineering

As part of the gateway to Yosemite National Park, Terra Vi Lodge Yosemite will be a mountain retreat celebrating the dramatic views, scenic beauty and exceptional all-season recreation opportunities of the Sierra Nevada. The Project will invoke a connection to nature and foster a stewardship of the natural and cultural environment.

The proposed Lodge is set within a mixed-conifer forest dominated by ponderosa pines, white firs, and black oaks. The site was heavily impacted by the 2013 Rim Fire which destroyed most of the site's mature trees with a few surviving pine groves remaining within an open mountain meadow. The western portion is an exposed rugged area with little existing shade, while a mixed-conifer forest persists on the slopes of the eastern side, leading into the Open Space and neighboring National Forest.

Terra Vi Lodge will be a one-of-a-kind place where individuals, families and groups can have an unmatched experience in one of nature's most beautiful settings. The indoor – outdoor relationship is encouraged throughout the resort. The public spaces which include lobbies, dining, event and special amenity areas are designed to have open connections to nature both visually and physically.

The architecture is a blend of modern and rustic themes, but also reminiscent of the great lodges found in and around our national parks such as Yosemite. The design integrates natural elements such as open beamed ceilings and rock walls that warm the dramatic spaces.

Sensitive to our surrounding neighbors and public views from SR120, the architectural massing builds from the initial 1-story public market to the 2-story public area and ultimately to the 3-story lodging accommodations. This arrangement helps to minimize the footprint and impact of the buildings on the site.

A cluster of cabins is sited beyond the main resort facility and slowly terraces up the native hillside, minimizing grading and preserving the existing mature trees. These cabins are connected by a series of walking paths to the resort amenities.

The service areas are strategically located behind the main buildings and a full story below the public areas to improve the public view.

Parking is designed to be convenient but planned in such a way so not to dominate the site. This is accomplished by avoiding large expanses of asphalt and incorporating gently curving roads that follow the natural topography of the site. These are in turn screened and broken up with berms and landscape elements.

There will be a variety of unit types for the guest's selection, and a host of areas planned for both indoor and outdoor activities, including nature trails, swimming pools, multifunction rooms and indoor - outdoor dining.

A market will be provided for both guests and the general public.

Fire prevention and defensible space have remained the most important design consideration for this project. Increased building separation, low building heights, high performance fire extinguishing and alarm systems, surplus water storage, complete perimeter fire-fighting accessibility and a community emergency helicopter landing zone have been included in this master-planned lodging complex. This serves to immediately address a property generated incident, but moreover, to defend against the more likely wildland fire event.

Alterations are proposed to be made to Highway 120 at the Sawmill Flat intersection to meet Caltrans requirements for sight distance, left turn lane and right turn pocket. Widening the highway to provide for the left turn lane, right turn pocket and associated tapers will be achieved by adding width to the North side of the highway to minimize the grading impact on existing terrain and minimize tree removal.

Of the 64 acres +/- that make up the site, the area that will be mass graded for the buildings, roads and parking is approximately 11.5 acres (18%). The cut and fill quantities are balanced on this project, avoiding the need for import or export of soil. Retaining walls have been proposed throughout the site to reduce the impact of cut and fill slopes, reduce tree removal and minimize the grading footprint of the project.

A water system will be developed from 4 on-site wells that are in place. The wells as constructed exceed the anticipated water requirements for the development, using State provided guidelines and forecasted drought models. Well-water will be treated and stored in appropriately sized tanks. The water system will be registered with the State of California and managed as a Transient Public Water System.

Fire suppression systems and site hydrants for the buildings will be provided using a combination of reclaimed, treated greywater and potable water storage. The quantity of water storage and pressure of water supply will be designed in accordance with Tuolumne County and NFPA requirements. Water conveyance pipes will be routed under proposed roads to minimize impacts to native ground.

A wastewater system has been developed to serve the development with a 100% redundancy area being preserved. The system will conform to both the State of California and County of Tuolumne County regulations and policies. System reliability has been one of the foremost considerations of the project which will be addressed using sound and proven design principals with special efforts to minimize any adverse impact to the environment. System reliability will be enhanced by additional redundant mechanical system components. The food service wastewater treatment system will include a technologically advanced treatment system and be continuously monitored. Water conservation efforts will be enhanced using single-use plate and utensils, as well as utilizing off-site laundry services. Waste and water detention materials will be separated into black and greywater segments and treated on site. The black water will be disposed of through an approved leach field system. The greywater is proposed to

be treated, stored and re-used for toilets, fire suppression storage and landscape irrigation uses. Surplus greywater would be disposed of in the leach field system.

Electricity will be provided by PG&E and augmented by solar systems located on the roof of the hotel. The existing power lines that run through the area of development would be rerouted and placed underground. Transformers would be located at appropriate places based on future PG&E design requirements. Phone and data service would also be installed underground within the area of improvement.

Propane tanks would be installed in the vicinity of the workshop and Caltrans sand storage building. This location is out of sight and a safe distance from any buildings and property lines. The storage volumes would be based on demand and refueling frequencies but is estimated to include multiple tanks in an area of approximately 30' x 30'. Propane would be piped underground to the various buildings on site.

The preliminary storm water management plan demonstrates that, due to the topography of the surrounding area, there is very little storm water that runs on to this site. The areas of the site that drain towards the South converge at a 24" culvert that passes under the highway. While the increase in impervious surfaces on site will increase storm water runoff, it will be the intention of the drainage design to detain storm water on site during storm events and meter the outflow in order not to exceed the capacity of the existing culvert under the highway. Roof drainage and landscape area drains will direct storm water underground to detention areas. Sheet flow from roads and parking areas will be captured in surface drainage swales which will also be directed to detention areas. Drainage swales and detention areas will be landscaped to incorporate them into the built environment in appropriate ways.

Great care has been taken in the design of this site to preserve as many existing mature trees as possible. As a result of this effort there are only 6 trees impacted on the hotel site, and 4 trees impacted by the maintenance area.

The development includes a landing zone for emergency response helicopters for this site as well as the surrounding community. The proposed location is easily accessible from SR120 and Sawmill Mountain Rd and has an approach and departure that is clear of trees, buildings and overhead wires.

A maintenance area has been located adjacent to the existing Caltrans sand storage building and will utilize the existing paved access. Utilizing this existing encroachment on Sawmill Mountain Road allows the maintenance area to be removed from the guest area thereby reducing additional grading of native terrain and the need of additional structures or paving.

Construction & Lodging Operations

The project will develop and initiate several conservation programs designed to minimize the environmental impacts and conserve precious resources of the site and surrounding areas:

The project will incorporate a LEED equivalent building program which will include Green building materials such as energy efficient windows, skylights, doors, insulation, roofing, lighting, plumbing, heating and cooling equipment, creating a comprehensive energy-efficient building infrastructure and envelope. The mechanical infrastructure will include low-flow plumbing fixtures, high efficiency equipment and SMART systems monitoring and controls.

Electricity will be supplemented with the use of solar collection, battery storage and energy saving lighting controls for all interior and exterior applications, including a dark-sky sensitive site lighting program.

The Lodge will operate a comprehensive fire-life-safety program, including non-combustible exterior finishes, high performance fire suppression and alarm systems, excess fire tank capacity, staff and guest fire prevention and preparedness, and a helicopter landing zone for emergency services. Additionally, the kitchen cooking areas will have quick-response fire extinguishing equipment and enhanced fire separation area components. There will be no cooking allowed within any of the guestrooms.

The project will include a centered program to collect rain, surface and graywater retention, treatment and reuse for toilets, irrigation and fire suppression systems, thereby substantially reducing the overall daily demand from the Public Water System.

The project will include a state-of-the-art sewage pretreatment plant that will include sludge and aerobic biofilm reactors.

Recycled material paving systems will be incorporated for all exterior walking paths and recreation areas.

The property will utilize a number of conservation programs to enhance recycling and reduced services for housekeeping and laundry. Additionally, all housekeeping and laundry consumables shall be bio-sensitive.

The food and beverage program will be limited to lodging guests and incorporate several conservation programs such as single-use flatware and utensils, food waste composting and bio-sensitive cleaning consumables.

The project will incorporate a YART stop to encourage public transportation of our guests to the Yosemite National Park and surrounding areas.

Lastly, the Lodge will stimulate several public and economic benefits, including job creation and substantial TOT/Bed Tax Revenues. The Lodge will incorporate employment training programs, cross-training, career growth opportunities.

Conversely, we understand the additional impact a resort of this nature will have on the already stressed emergency services system. While we have planned infrastructure and preparedness programs to mitigate services and supplement first responder resources, we understand the challenges and look forward to the conversation and actions necessary to address the impact as a vested partner of this community.

ATTACHMENT B
Project Trip Generation

ATTACHMENT B

PROJECT CHARACTERISTICS

The proposed project will create a lodge with 100 guest rooms and 26 rooms in guest cabins. The project will employ up to 33 persons but will provide employee housing capable of lodging 22 persons, including on-site accommodations for the manager and assistant manager. The project will also include a 2,800 sf market that will cater primarily to hotel guests and employees but will also be available to the general public traveling on SR 120.

The project is further described herein in terms of the amount of traffic it may generate and the routes that traffic will use, and proposed circulation system improvements included with the project are also described.

The travel characteristics of the project have been identified for use in evaluating the relative impacts of the project. Project characteristics are characterized in terms of:

- Trip Generation – the amount of traffic accompanying the project on a daily and peak hour basis
- Trip Distribution – the destinations for project trips on a local and regional basis
- Trip Assignment – the routes that will be used between the site and identified destination based on available alternatives

Trip Generation

Trip Generation Rates. The amount of new traffic associated with development projects is typically forecast using information developed from recognized national sources. The Institute of Transportation Engineers (ITE) publication *Trip Generation, 10th Edition* is a source recognized by Caltrans and other local agencies such as Tuolumne County, and potential trip generation rates for the project drawn from that publication are presented in Table 6.

As shown the trip generation associated with individual aspects of the project has been considered, and applicable rates have been used. As the impact analysis focusses on peak Saturday conditions along SR 120, Saturday trip generation rates were desirable. However, because some uses lack Saturday data, weekday data has been used where needed to complete the data base.

Lodging. While the Manual includes trip generation rates for Resort Hotels (Code 330), no data is available for Saturdays. Alternatively, Saturday data is available for regular hotels (310), although the comparable weekday data reveals that Resort Hotels generate fewer trips. To provide a "worst case" analysis the higher rates for regular Hotels were used, and these rates were also applied to the cottages.

ATTACHMENT B

TABLE 6
PROJECT TRIP GENERATION RATES

Code	Description	Unit	Weekday							Saturday			
			Daily	PM Peak Hour of Adjacent Street			PM Peak Hour of Generator			Daily	Peak Hour of Generator		
				In	Out	Total	In	Out	Total		In	Out	Total
Rates Relating to Lodge													
310	Hotel	room	8.36	51%	49%	0.60	58%	42%	0.61	8.19	56%	44%	0.72
330	Resort Hotel	room	-	43%	57%	0.41	50%	50%	0.50	-	-	-	-
Rates Relating to Employee Housing													
210	Single Family Housing	resident	2.65	66%	34%	0.26	66%	34%	0.28	2.48	54%	46%	0.27
		dwelling	9.44	63%	37%	0.99	64%	36%	1.00	9.54	54%	46%	0.93
220	Multifamily Housing – low rise	resident	1.42	-	-	0.13	63%	37%	0.32	-	-	-	-
Rates Relating to Market													
814	Variety Store	ksf	63.47	52%	48%	6.84	50%	50%	7.42	(63.47)	52%	48%	(7.42)
850	Supermarket	ksf	106.78	51%	48%	9.24	52%	48%	7.60	177.62	51%	49%	10.34
851	Convenience Store without Gasoline Sales	ksf	762.28	51%	49%	49.11	51%	49%	53.51	1084.17	50%	50%	79.12
	Average of available sources									441.75	51%	49%	32.29
Rates Used for Analysis													

Employee Housing. From the standpoint of land use category, the employee units are most like multi-family dwellings. Because the employee residence will be occupied by multiple employees, trip generation based on the number of residents has been used for those units that are expected by be occupied by individual employees. However, no Saturday information is available on a "per resident" basis. "Per resident" Saturday data is available for Single Family Homes, although the rates for this use are somewhat higher than those for multi-family units. "Per resident" Saturday data for single family homes was used to provide a "worst case" analysis.

Market. The market will offer a limited inventory that is primarily directed to the lodge's guests and employees, and ITE rates for hotels note the presence of some retail offerings in the overall trip generation rates of that use. While the market is somewhat separated from the lodge building, because the lodge lacks a full service restaurant, the market's offerings may be more closely linked to the food service needs of guest (i.e, prepared sandwiches and snacks) rather that the broader range of products offered at a more typical rural market catering to the general public.

ITE rates that are available for a variety of retail uses were considered, and their ITE descriptions are noted below.

- **Code 814 Variety Store** A variety store is a retail store that sells a broad range of inexpensive items often at a single price. These stores are typically referred to as "dollar stores." Items sold at these stores typically include kitchen supplies, cleaning products, home office supplies, food products, household goods, decorations, and toys. These stores are sometimes stand-alone sites, but they may also be located in small strip shopping centers.
-
- **Code 850 Supermarket.** A supermarket is a free-standing retail store selling a complete assortment of food, food preparation and wrapping materials, and household cleaning items. Supermarkets may also contain the following products and services: ATMs, automobile supplies, bakeries, books and magazines, dry cleaning, floral arrangements, greeting cards, limited-service banks, photo centers, pharmacies, and video rental areas. Some facilities may be open 24 hours a day.
-
- **Code 851 Convenience Store.** The convenience markets in this classification are open between 15 and 24 hours per day. These markets sell convenience foods, newspapers, magazines, and often beer and wine; they do not have gasoline pumps.

The averages of the rates for these three uses have been employed.

Internal Trips. Interaction between the uses on-site will keep some potential trips "on-site" and reduce the number of external trips.

Lodging – Employee Housing. The standard trip generation rates for Hotels accounts for and includes typical employee travel. By providing on-site housing a share of the trips associated with the Lodge and cabins will be eliminated. As indicated in Table 7, we have assumed that 20 of the 33 employees will take advantage of the on-site housing, or 20 employees. On a daily basis these employees would have generated 40 daily trips if each drove

alone. We assumed that 10% of this activity might occur in the Saturday peak hour (i.e., 4 trips). This reduction would apply to both Lodging estimate and to the employee on-site housing estimate.

TABLE 7
TRIP GENERATION ESTIMATE
(12/5/2019)

Code	Description	Unit	Saturday			
				Peak Hour of Generator		
			Daily	In	Out	Total
310	Lodge	100 rooms	819	40	32	72
	Cabins	26 units	213	10	9	19
	Subtotal		1,032	50	41	91
	Less effect of Employee Housing	(2%)	40	2	2	4
	Less internal to Market	(24%)	252	11	11	22
	Net External Trips		***740***	***37***	***28***	***65***
210	Individual Employee Housing	20 residents	50	3	3	6
	Less on-site commute match		40	2	2	4
	Less internal to Market	(14%)	5	1	0	1
	Net External Trips		**5**	**0**	**1**	**1**
851	Market	2.8 ksf	1,237	46	44	90
	Less internal to Lodging		252	11	11	22
	Less internal to Employee Residential		5	0	1	1
	Net External		***980***	***35***	***32***	***67***
	Pass-by Trips	61%	598	21	20	41
	Net Primary External		***382***	***14***	***12***	***26***
	Total Gross Trips		2.309	99	88	187
	Total External Trips		1,725	72	61	133
	Total Pass-by Trips		598	21	20	41
	Total Net New Trips		**1,127**	**51**	**41**	**92**

Lodging / Employees – Market Interaction. It is likely that guests and employees will visit the market for convenience items, souvenirs, etc. We assumed that each guest room and cabin room will create one visit each day (i.e., 2 trips per unit) and that each employee residing on site will visit the market once a week. On Saturday, the market's internal trips associated with the lodging and employees total 257 daily and 23 peak hour trips, and this discount would also be applied to the Lodging and Employee trip estimates.

Under those assumptions an overall total of 594 daily trips would be "internal" or 25% of the

project's gross trip generation total.

Market Pass-By Trips. Traffic engineers have found that a share of trips attracted to retail uses is typically drawn from the stream of traffic already passing the site. These "pass-by" trips represented customers who stop at a retail store as part of a trip made for another purpose. In this case a pass-by trip will occur when Yosemite visitors stop at the market on their way to and from the national park. ITE data is available in the Trip Generation Handbook, 3rd Edition, to identify the range of typical "pass-by" rates for various uses. The average pass-by rate for convenience stores is 61%. While it is likely that the actual pass-by rate of the market could be higher due to the absence of other retail opportunities in the area along SR 120 between the national park and Groveland, this rate has been employed to produce a "worst case" assessment.

The reasonableness of the pass-by trip assumptions is linked to the background traffic volumes on SR 120. As indicated in the setting, SR 120 carries about 700 vph by the site on the Saturday peak hour. The inbound pass-by trips drawn to the market (i.e., 21 inbound trips) represent about 3% of the existing hourly volume. This share seems reasonable given the absence of other convenience retail uses in the area between Yosemite Valley and Groveland.

Resulting Trip Generation Estimates. As shown in Table 7, on a peak Saturday the project will result in 598 pass-by trips. A total of 1,127 "new" trips are added to the study area circulation system. During the peak hour 41 pass-by trips and 92 "new" trips are expected.

ATTACHMENT C
Caltrans PeMS Traffic Counts

Attachment C
Caltrans PeMS Traffic Counts

SR 120 PeMS Counts - Postmile 24.661 East of Lower Priest Grade Road

Spring Weekdays 2018:

	Eastbound				Westbound			
Day	**Flow (Veh/Day)**	**# Lane Points**	**% Observed**		**Day**	**Flow (Veh/Day)**	**# Lane Points**	**% Observed**
5/1/2018 0:00	848	288	99.30		5/1/2018 0:00	940	288	99.30
5/2/2018 0:00	951	288	100.00		5/2/2018 0:00	1,039	288	100.00
5/3/2018 0:00	1,145	288	100.00		5/3/2018 0:00	1,126	288	100.00
5/8/2018 0:00	1,213	288	100.00		5/8/2018 0:00	1,442	288	99.70
5/9/2018 0:00	1,087	288	100.00		5/9/2018 0:00	1,257	288	100.00
5/10/2018 0:00	1,290	288	99.70		5/10/2018 0:00	1,364	288	99.70
5/15/2018 0:00	1,099	288	99.30		5/15/2018 0:00	1,249	288	99.30
5/16/2018 0:00	1,135	288	99.70		5/16/2018 0:00	1,244	288	99.70
Average:	**1,096**				**Average:**	**1,208**		

Average SR 120 Tyipcal Weekday ADT in 2018: **2,304**

Summer Saturdays 2018:

	Eastbound				Westbound			
Day	**Flow (Veh/Day)**	**# Lane Points**	**% Observed**		**Day**	**Flow (Veh/Day)**	**# Lane Points**	**% Observed**
6/16/2018 0:00	2097	288	100.00		6/16/2018 0:00	2085	288	100.00
6/23/2018 0:00	2055	288	100.00		6/23/2018 0:00	2091	288	100.00
6/30/2018 0:00	2348	288	100.00		6/30/2018 0:00	2132	288	100.00
7/7/2018 0:00	2306	288	100.00		7/7/2018 0:00	2526	288	100.00
7/14/2018 0:00	2338	288	100.00		7/14/2018 0:00	2633	288	100.00
7/21/2018 0:00	1863	288	100.00		7/21/2018 0:00	2054	288	100.00
Average:	**2,168**				**Average:**	**2,254**		

Average SR 120 Peak Saturday ADT in 2018: **4,421**

Typical Weekday vs. Peak Saturday Ratio: **0.52**

ATTACHMENT D
Tuolumne County VMT Subareas

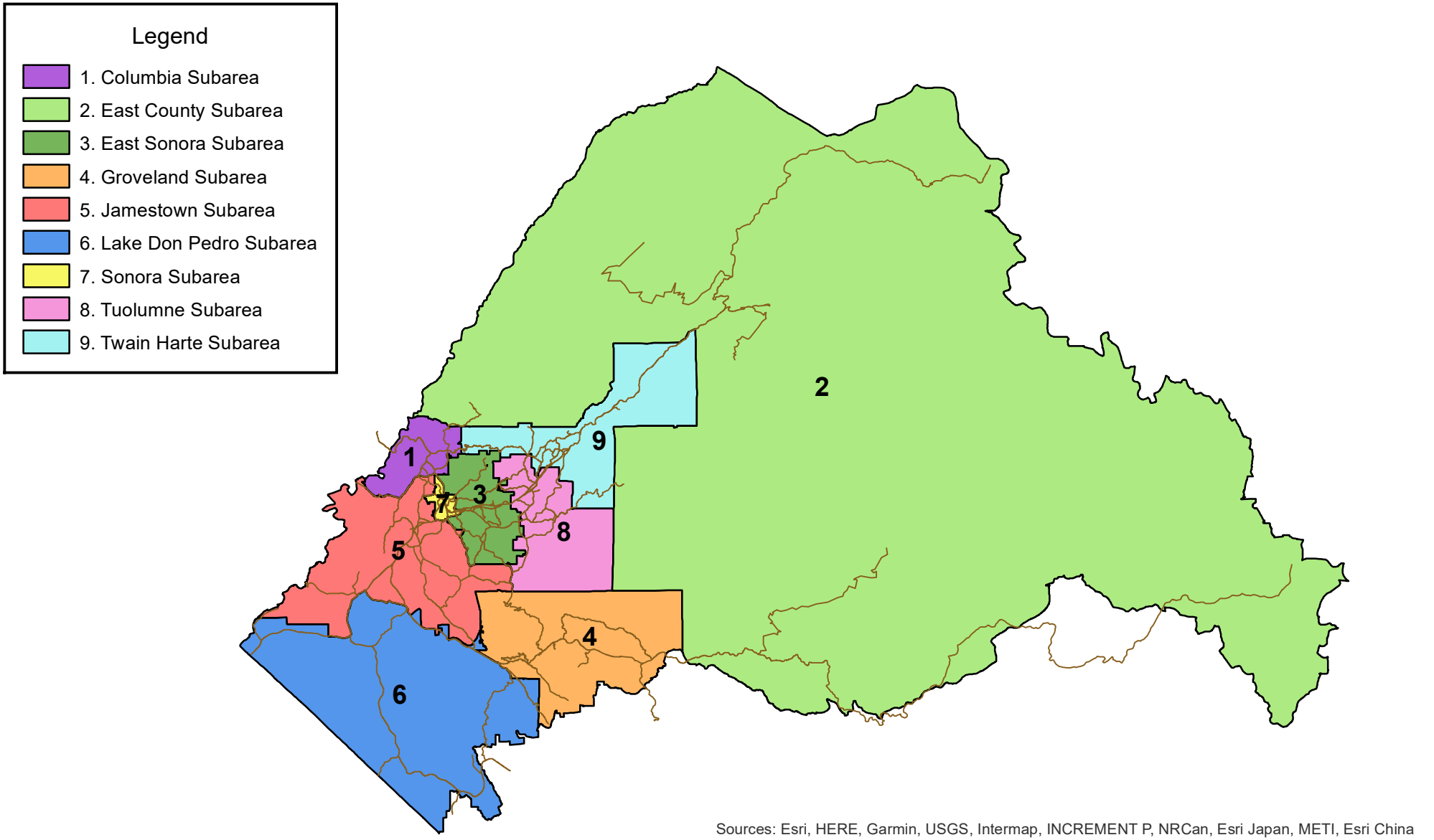

FIGURE 1

TUOLUMNE COUNTY VMT SUBAREAS

SB 743 STUDY PHASE 2

TUOLUMNE COUNTY, CA

MAY 2020

0 2.5 5 10

Miles

NORTH

[redacted]

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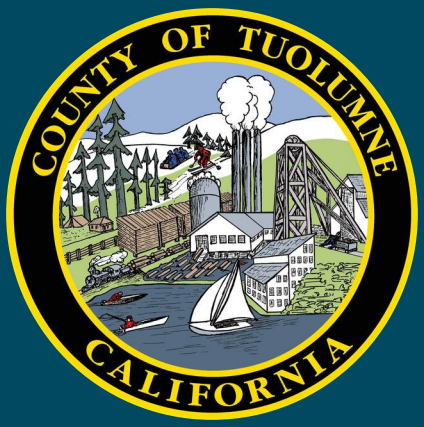

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