

COORDINATED MONITORING PROGRAM FOR GUADALUPE RIVER WATERSHED MERCURY TMDL

AGREEMENT No. A4123A

ANNUAL DATA REPORT 2018-2019 WATER YEAR

Prepared for

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1 INTRODUCTION

As specified in the SFRWQCB 13267 Approval Letter dated October 24, 2018, the project team is to “Submit interim monitoring reports that describe monitoring attempted and accomplished, field conditions, samples collected, and provide data tables. Interim monitoring reports are due by January 31 after the year in which monitoring occurs.” This report covers the period from October 2018 through October 2019. Storm sampling was conducted between 1 October 2018 and 31 March 2019. Fish tissue sampling was conducted between August and October 2019. Sampling locations are shown in Figure 1.

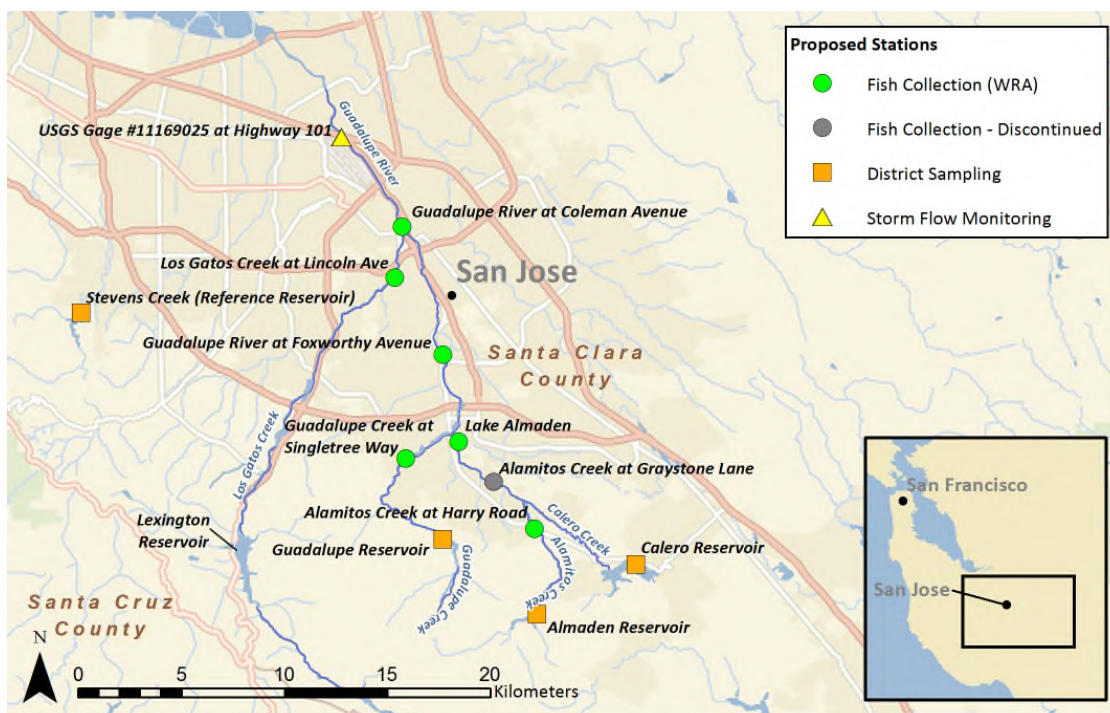


Figure 1 Sampling locations within the Guadalupe River watershed. Fish sampling in streams and Lake Almaden was conducted by Wetlands Research Associates (WRA).

2 METHODS

2.1 MOBILIZATION CRITERIA

Upon approval of the Monitoring Plan, Tetra Tech initiated tracking of monitoring triggers including rainfall to date, reservoir status, predicted rainfall from storms in the upper watershed, and predicted flow at the Highway 101 bridge.

Season-to-date rainfall reached 7-inches in the rainfall gages in the upper watershed between 29 November 2018 and 16 January 2019 (Table 1).

Table 1
Date 7-inch Year-To-Date Rainfall Criterion Met

Rainfall gage (AlertID)	Date
Mt. Umunhum (2081)	29 November 2018
Guadalupe (1526)	5 January 2019
Almaden (2080)	5 January 2019
Vasona Pump (1527)	15 January 2019
Alamitos (2065)	16 January 2019

On the afternoon of 16 January, a storm was predicted to peak at approximately 1,600 cfs that evening. However, at 21:00, the storm intensity increased rapidly and reached a peak flow of 4,720 cfs at 01:30 on 17 January, declining to less than 1,800 cfs by 06:30 the next morning. Immediately after the storm base flows in the Guadalupe River returned to dry season conditions (~55 cfs). As a result of this storm, the reservoirs filled substantially, with Almaden Reservoir reaching nearly full capacity (Table 2 and Figure 2).

Table 2
Percent Reservoir Capacity

Reservoir	% Capacity on 15 January	% Capacity on 18 January
Almaden	50.8%	98.2%
Calero	36.2%	43.4%
Guadalupe	17.1%	36.0%
Lexington	32.7%	45.1%

As a result of the January 16-17 storm, conditions in the watershed had achieved the minimum mobilization criteria of 7-inches of rainfall and filling reservoirs. Therefore, after January 18, the field team was prepared to mobilize for a major storm that was predicted to achieve peak flows of at least 1800 cfs.

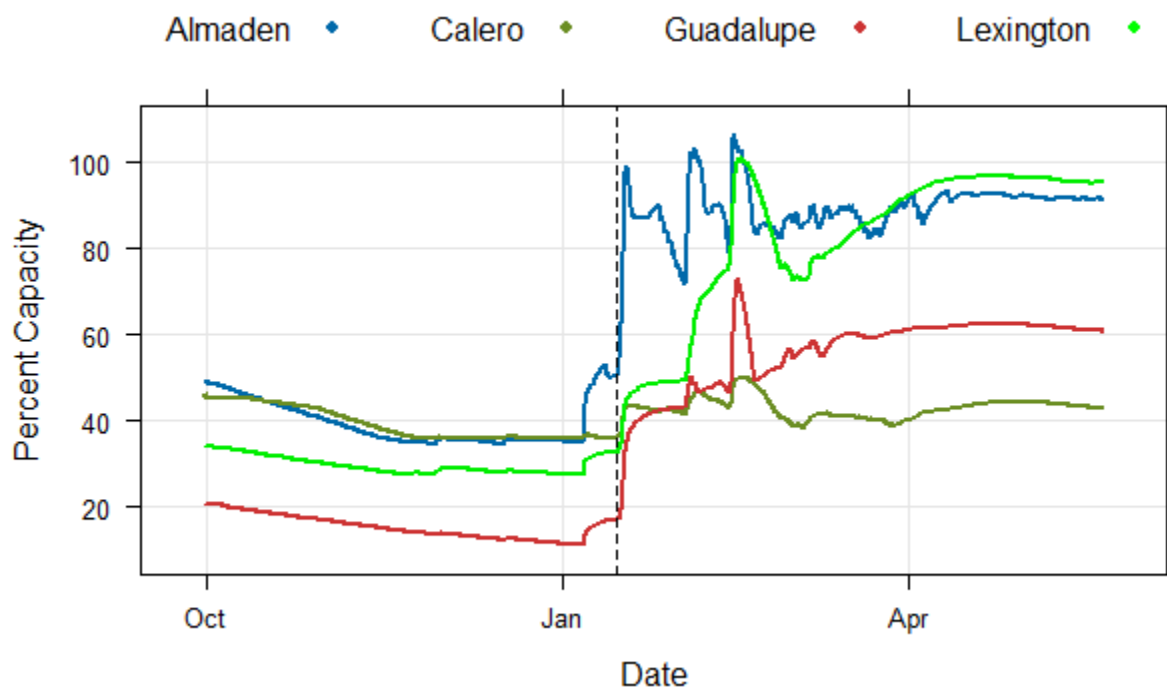


Figure 2 *Reservoir percent capacity during the 2018-2019 water year. The dashed line indicates 15 January 2019.*

2.2 STORM SAMPLING METHODS

During each sampled storm, the D-95 sampler and crane system was set up adjacent to the USGS monitoring gage along the thalweg of the Guadalupe River on the downstream side of the access road to the Mineta-San Jose Airport (Figure 3 and Figure 4). The D-95 sampler (without the sample bottle) was lowered slowly until it contacted the stream bed, and the length of cable deployed was recorded. This allowed the field team to control the descent of the sampler to prevent hitting the streambed.



Figure 3 *D-95 crane set-up adjacent to USGS monitoring gage above Highway 101.*



Figure 4 *View of D-95 sampler looking upstream.*

Because of the volume of water required for the proposed analyses, a fluorinated HDPE carboy was used to composite samples prior to transfer into sample bottles. The sample collection container in the D-95 sampler was a 1-liter Teflon jar fitted with an adaptor and 1/4 -inch nozzle. The carboy, sample collection container, adaptor and nozzle were pre-cleaned by the analytical laboratory and double bagged in zip-lock bags for storage. Equipment was returned to the bags between samples.

Prior to the start of sampling for each storm, the survey team collected equipment blanks using laboratory-provided mercury-free water. Two liters of laboratory water was passed through the D-95 sampling bottle and emptied into the compositing carboy. Samples for analysis of total mercury and methylmercury were then collected from the compositing carboy. The results from the equipment blanks were used to assess whether the sampling chain contributed to mercury contamination of the field samples.

At least three liters of water were collected using the D-95 sampler and emptied in the compositing carboy to ensure sufficient water was available for all sample analyses. When sufficient water was collected, the water in the carboy was thoroughly mixed and subsamples collected for total mercury, dissolved total mercury, methylmercury and total suspended solids. Upon receipt of the analytical data from the laboratory, the data were validated, and appropriate qualifiers applied.

2.3 FISH COLLECTION METHODS

Fish sampling was conducted under a California Department of Fish and Wildlife Scientific Collecting Permit (SCP #S-183100007-18311-001), in accordance with a National Marine Fisheries Service (NMFS) 4(d) permit (#22546) to allow for incidental take of steelhead. Sampling occurred in the Guadalupe Watershed within four different subwatersheds: Alamitos Creek, Guadalupe Creek, Guadalupe River and Los Gatos Creek. Lake Almaden, an in-channel lake on Alamitos Creek was also sampled. Los Gatos Creek was selected as a reference system as it does not have the historic mercury mining operations that have occurred in Alamitos and Guadalupe Creek.

Fish sampling was conducted across four sampling dates, August 22, October 16, 17, and 29, 2019. At all sampling sites, water quality parameters were collected, including temperature, salinity, conductivity, dissolved oxygen, and pH. Sampling was generally conducted starting soon after sunrise and continued as long as conditions stayed within the limits of associated project permits.

On each sampling date, a crew of 2-3 biologists utilized primarily seine nets to capture target fish at each sample location. Dip nets and minnow traps were also utilized as a method of fish collection. While electrofishing was an anticipated and permitted method of capturing target fish, it was not utilized due to unforeseen temperature constraints.

2.3.1 TEMPERATURE CONSTRAINTS

Permit conditions limited electrofishing to water temperatures at or below 18 °C and precluded all sampling methods when water temperatures exceeded 21 °C due to the potential for stress to steelhead. On the first day of sampling (August 22), biologists encountered water temperatures of approximately 20 °C early in the morning, thereby preventing sampling with an electrofisher. Instead, seine nets were used until temperature conditions exceeded the 21 °C threshold, at which time all further sampling ceased. Due to a prolonged period of elevated water temperatures, the fish collection permits were amended to extend the sampling window to November 1, 2019 to allow temperatures to drop below thermal thresholds for steelhead. The need for an extension of the sampling period was discussed with the Regional Board, and permission was granted.

2.3.2 STEELHEAD AVOIDANCE AND CONSTRAINTS

Sampling dates were selected based on the CDFW and NMFS environmental work window for federally threatened central California coast steelhead (*Oncorhynchus mykiss*; June 1 through November 30) period when steelhead are least likely to be present. Furthermore, the selected sampling dates correspond to a period that favored the presence of target species (i.e. California roach [*Hesperoleucus symmetricus*]) which are more tolerant of warm water and reduced the chance of steelhead bycatch.

Biologists encountered 7 steelhead at Guadalupe Creek at Singletree Way on August 22 and stopped sampling as to avoid exceeding permitted incidental take limits. One steelhead was encountered at this location on October 16. An additional amendment was required to both permits to re-allocate steelhead take to seining, after temperatures exceeded the allowable limits for electrofishing.

2.3.3 TARGET SPECIES CONSTRAINTS

The goal of this effort was to secure 20 individuals of the target species within a particular size class at each sampling location. California roach were the target species at all sites except for Lake Almaden, where largemouth bass (*Micropterus salmoides*) were targeted. Due to the restricted use of the electrofisher because of thermal constraints, seining proved to require higher sampling effort to fulfill sampling quotas.

Sampling quotas were not met at all sites due to restrictions on sampling methods, timing and miscellaneous site conditions including refuse and obstacles, low water levels, and general scarcity of target species.

Initial sampling performed at Lake Almaden yielded no catch of target species (largemouth bass). However, the related smallmouth bass (*Micropterus dolomieu*) of appropriate size was present in the initial catch. Based on discussions with the client and regulatory agency, the team obtained permission to collect smallmouth bass if largemouth bass were not found during subsequent sampling events. However, the subsequent visit yielded nearly the entire quota of largemouth bass and was subsidized with two

individuals of bluegill (*Lepomis macrochirus*), a previously approved alternate. Therefore, collection of smallmouth bass was not required.

Collected fish were measured (fork length) and weighed (blotted wet weight) in the field and individually placed in labeled zip-lock bags. Samples were kept on ice in the field until they could be frozen. At the conclusion of the fish sampling effort, the samples were shipped on dry ice to the analytical laboratory for analysis of total mercury concentration following EPA Method 1631B. Since the objective of the fish tissue monitoring is to assess potential impacts to predators of the fish, whole body mercury measurements were made.

2.3.4 DATA ANALYSIS

The fish tissue data were analyzed using a combination of graphical analyses (scatter plots) and analysis of variance (ANOVA) to assess differences in fish tissue concentrations between sampling locations. When statistical differences between locations were identified in an ANOVA, the differences between locations were identified using the Tukey honest significant difference test.

3 RESULTS

3.1 STORMS

Two storms met the mobilization criteria of 1,800 cfs after 15 January. The full hydrograph for the 2018-2019 water year at the Highway 101 gage on the Guadalupe River is provided in Figure 5.

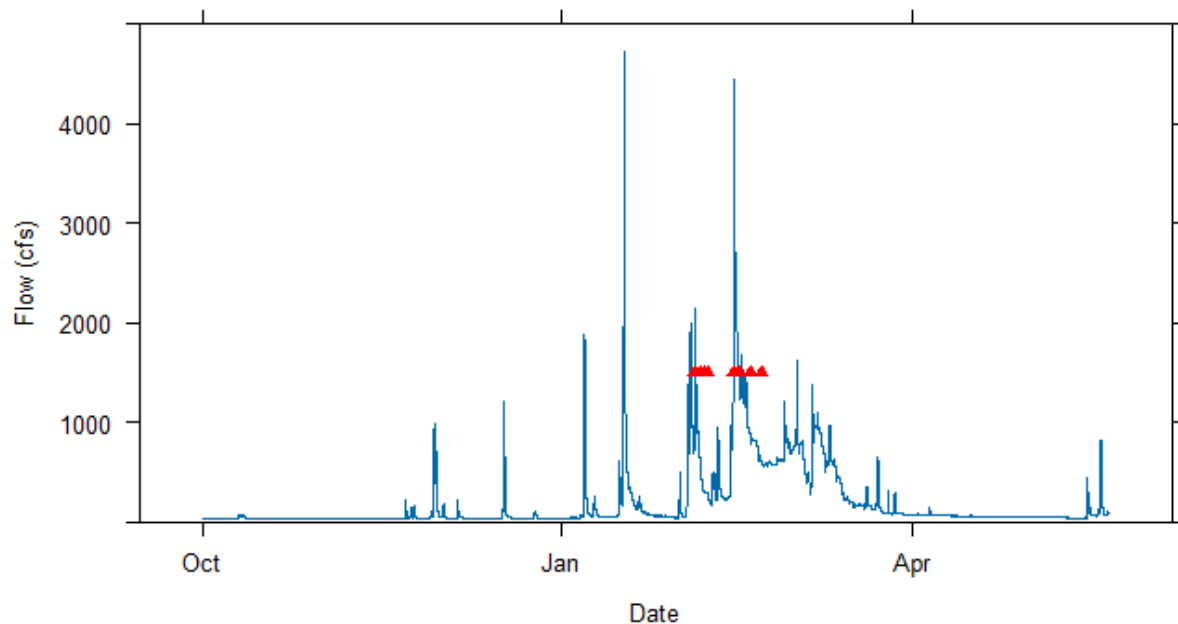


Figure 5 Flow at USGS gage 11169025 on Guadalupe River above Highway 101 during water year 2018-2019. Red triangles indicate times of sample collections during the two storms.

3.1.1 STORM A

Tetra Tech mobilized and sampled a storm between 01:45 on 4 February and 10:00 on 7 February. Mobilization triggers for Storm A are provided in Table 3 (Tetra Tech 2018). Predicted storm flows at the Highway 101 gage on February 1 and February 2 indicated that this storm would not meet the mobilization criteria. However, the CNRFC predictions on the morning and afternoon of February 3 indicated that flows would likely meet mobilization criteria. Therefore, the team was mobilized. Proposed sample collection times were estimated based on the CNRFC predicted flows. The survey team mobilized to arrive at the survey site 1 hour before the first sample was to be collected. Rainfall during the storm is summarized in Table 4.

Table 3
Mobilization Triggers for Storm A

Criterion	Tier	Threshold
1. Predicted Streamflow at USGS Highway 101 gage	1	>1,800 cfs
3. 6-hour rainfall forecast at Quicksilver Park	1	>0.5 inches

Table 4
Summary of Rainfall During Storm A

Period Start	2/3/2019 00:00	
Period End	2/7/2019 23:45	
Maximum Discharge	2,140 cfs	
Rainfall Summary		
Gage	Total Rainfall (inches)	Peak 6-hour Rainfall
Mt. Umunhum	4.02	1.72
Guadalupe	3.06	1.51
Almaden	3.02	1.65
Vasona Pump	1.27	1.04
Alamitos	1.00	0.60

Flows peaked at 2,140 cfs at 06:30 on February 4 (Figure 6). Eight samples, plus one duplicate, were collected over the duration of the storm. Three samples were collected during the rising leg of the storm and five samples during the falling leg.

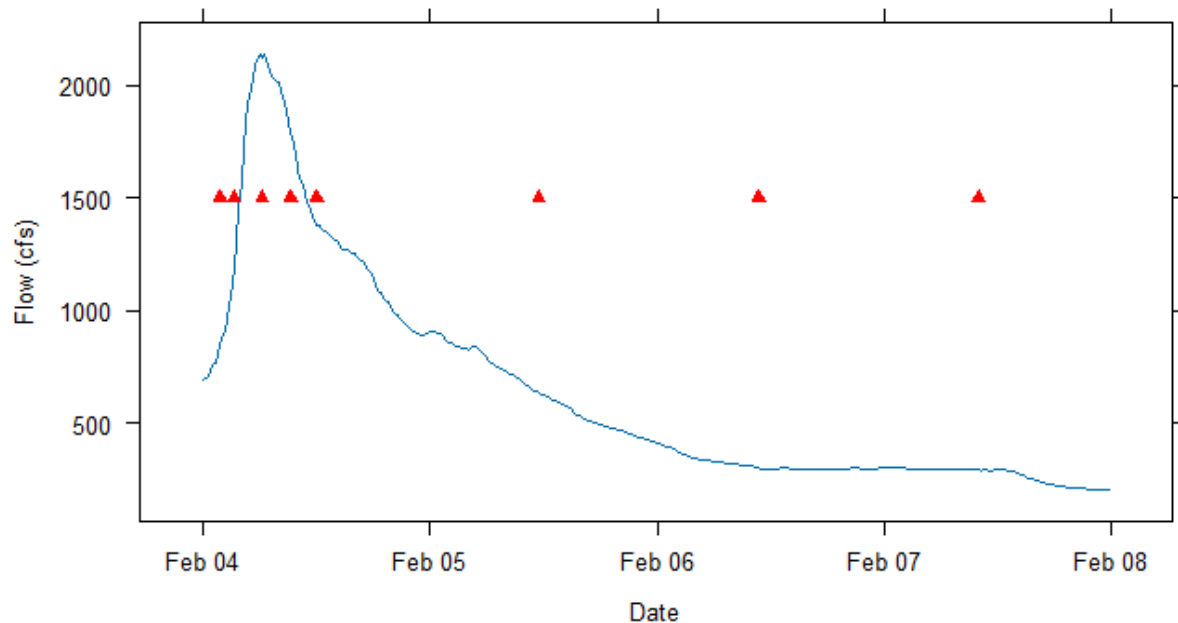


Figure 6 Hydrograph for the first storm (Storm A). Red triangles indicate times when water samples were collected.

3.1.2 STORM B

Tetra Tech sampled a second storm between 03:45 on February 14 and 07:45 on February 21. Mobilization triggers for Storm B are provided in Table 5 (Tetra Tech 2018). This storm peaked at 4,450 cfs on 07:00 on February 14 (Figure 7). Rainfall during the storm is summarized in Table 6. Post-storm releases from the reservoirs extended the duration of the declining flows. Eight samples, plus one duplicate, were collected over the duration of the storm. Three samples during the rising leg and five samples during the falling leg.

Table 5
Mobilization Triggers for Storm B

Criterion	Tier	Threshold
1. Predicted Streamflow at USGS Highway 101 gage	2	>1,920 cfs
2. Storm forecast for upper watershed	2	>6 inches
3. 6-hour rainfall forecast at Quicksilver Park	2	>2 inches
4. Almaden Reservoir near capacity	2	>10% full

Table 6
Summary of Rainfall During Storm B

Period Start	2/13/2019 00:00	
Period End	2/21/2019 23:45	
Maximum Discharge	4,450 cfs	
Rainfall Summary		
Gage	Total Rainfall (inches)	Peak 6-hour Rainfall
Mt. Umunhum	9.55	2.48
Guadalupe	11.18	2.75
Almaden	7.12	1.65
Vasona Pump	4.19	1.35
Alamitos	3.50	1.34

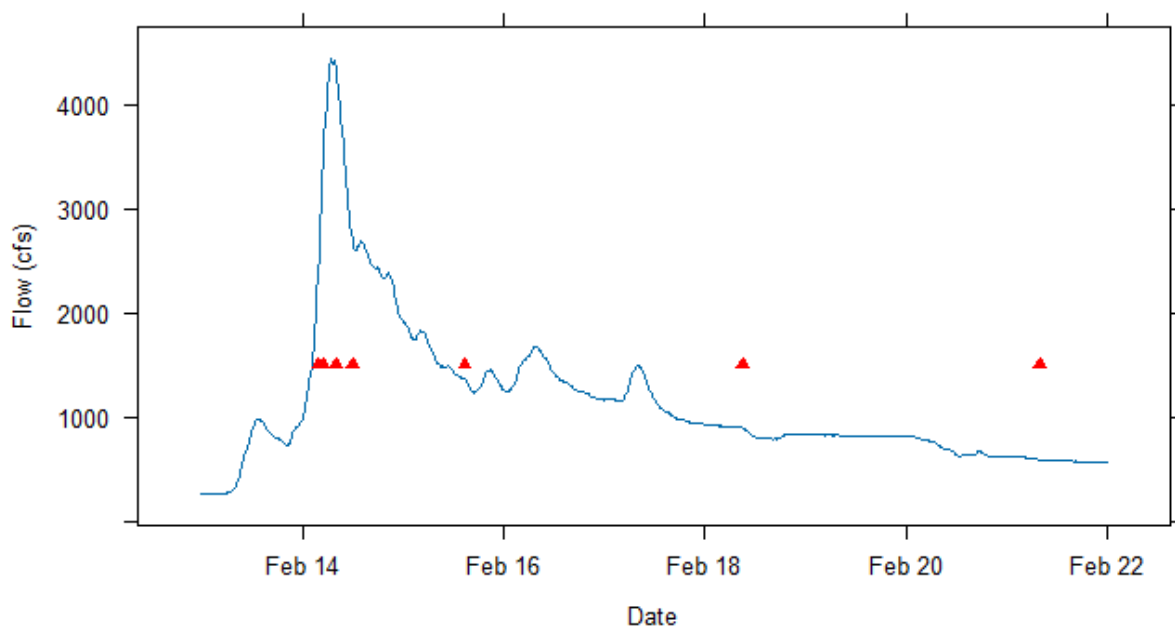


Figure 7 Hydrograph for Storm B. Red triangles indicate times when water samples were collected.

Analytical results from the sampled storms are provided in Table 7. Full analytical results are provided in Appendix A. The total mercury results were not qualified. However, the methylmercury results were qualified as estimated, biased low (J-) due to low matrix spike recoveries. Three TSS results were qualified as estimated (J) due to holding time exceedances resulting from delays in shipment to the subcontracted laboratory due to a significant snowstorm (Storm A), or to delay in shipment of the last three samples from Storm B. The concentration of mercury on suspended particulates was calculated based on the total mercury and TSS results. Data qualifiers are provided to indicate increased uncertainty in the data. However, the values reported are the best available estimates of the true concentrations and are therefore used as reported.

Table 7
Analytical Results from Water Year 2018-2019 Storms

Storm	Sample ID	DateTime	Flow (cfs)	Total mercury (ng/L)	Dissolved mercury (ng/L)	Percent dissolved mercury	Methyl-mercury (ng/L)	TSS (mg/L)	Hg (mg)/TSS (kg)
A	GR-19-SA-T1	2/4/2019 1:45	845	559	23	4.11	0.899 J-	65	8.6
A	GR-19-SA-T2	2/4/2019 3:15	1220	582	15.9	2.73	1.13 J-	114	5.11
A	GR-19-SA-T3	2/4/2019 6:15	2220	685	11.9	1.74	0.713 J-	182	3.76
A	GR-19-SA-T4	2/4/2019 9:15	1870	989	16.7	1.69	0.865 J-	143	6.92
A	GR-19-SA-T5	2/4/2019 12:00	1430	891	22.4	2.51	0.775 J-	101	8.82
A	GR-19-SA-T6	2/5/2019 11:30	631	491	23.3	4.75	0.732 J-	53	9.26
A	GR-19-SA-T7	2/5/2019 11:30	631	555	22.7	4.09	0.771 J-	52	10.67
A	GR-19-SA-T8	2/6/2019 10:45	303	323	20.5	6.35	0.587 J-	33 J	9.79
A	GR-19-SA-T9	2/7/2019 10:00	293	253	22.9	9.05	0.404 J-	24 J	10.54
B	GR-19-SB-T2	2/14/2019 3:45	2360	1150	8.28	0.72	1.28 J-	215	5.35
B	GR-19-SB-T3	2/14/2019 5:00	3470	1260	8.27	0.66	1.11 J-	339	3.72
B	GR-19-SB-T4	2/14/2019 8:00	4330	1830	12	0.66	1.06 J-	450	4.07
B	GR-19-SB-T5	2/14/2019 12:00	2700	1740	18.9	1.09	0.885 J-	406	4.29
B	GR-19-SB-T6	2/14/2019 12:00	2700	1870	19.1	1.02	0.31 J-	392	4.77
B	GR-19-SB-T7	2/15/2019 14:45	1370	731	18.9	2.59	0.735 J-	175 J	4.18
B	GR-19-SB-T8	2/18/2019 9:00	893	208	7.97	3.83	0.31 J-	58	3.59
B	GR-19-SB-T9	2/21/2019 7:45	590	71.2	3.96	5.56	0.178 J-	44	1.62

J and J- qualifiers indicate increased uncertainty in the reported result.

The relationships between all pairs of parameters measured during both storms are provided in Figure 8. The diagonal cells identify the parameter. Scatter plots of each pair of parameters are provided in the above-diagonal cells, along with a smoothed curve. Correlations are provided in the below-diagonal cells. Significant correlations exist between total mercury, total suspended solids, and instantaneous flow. The correlation between methylmercury and flow (0.49) slightly exceeded the minimum significant correlation coefficient (0.468). No other correlations were significant.

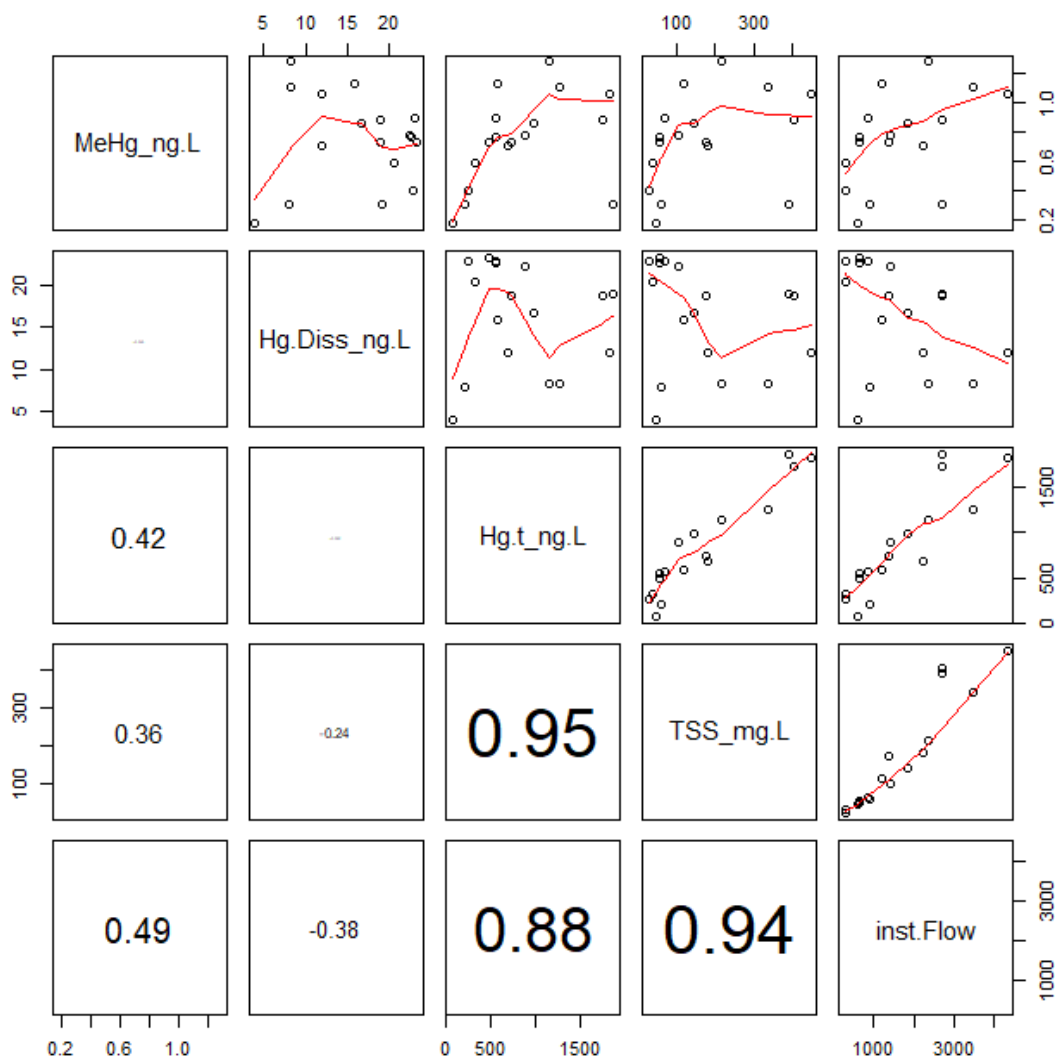


Figure 8 Pair plot showing relationships between measured parameters in Storms A and B in 2019. Diagonal cells indicate parameters for plot axes. Above diagonal cells provide scatter plots for each pair of variables. Below diagonal cells provide the correlations between each pair of variables. Font size is proportional to the magnitude of the correlation. The minimum significant correlation coefficient is 0.468 at $\alpha = 0.05$.

To assess the form of the relationship between pairs of variables, both linear and log-log relationships were considered and the relationship that explained a greater portion of the variance (i.e. higher r^2) was selected. Based on the shape of the relationships between the variables (Figure 8), linear relationships were deemed appropriate. These relationships did not differ between storms. Therefore, data from both storms were combined to develop the following relationships.

$$\begin{aligned}\text{Hg (ng/L)} &= 0.428 * \text{Flow (cfs)} + 133.60, & p << 0.001 \\ \text{Hg (ng/L)} &= 3.75 * \text{TSS (mg/L)} + 207.37, & p < 0.01 \\ \text{TSS (mg/L)} &= 0.1154 * \text{Flow (cfs)} - 21.64, & p << 0.01.\end{aligned}$$

3.1.3 PRELIMINARY LOAD CALCULATIONS

Total mercury concentrations are calculated using the flow observed at 15-minute intervals at the USGS gage and the equation relating total mercury concentration to flow. These concentrations (ng/L) are then multiplied by the flow (cfs) to yield ng/s for each 15-minute interval. The instantaneous masses are then converted to kg/(15 minutes), and summed over the duration of the storm to yield an estimated load. The following loads were calculated for each storm:

$$\text{Storm A Load} = 3.52 \text{ kg Hg}$$

$$\text{Storm B Load} = 19.89 \text{ kg Hg}$$

Due to the longer duration of elevated flows during Storm B, the calculated loads are greater.

3.1.4 COMPARISON TO PREVIOUS SURVEYS

The relationship between total mercury concentrations and flow from the present study and the San Francisco Estuary Institute (SFEI; McKee et al. 2017) and AECOM (2017) reports are shown in Figure 9. Mercury concentrations from the present study show a positive relationship with flow. McKee et al. sampled a single large storm in January 2017. Flows peaked three times (4090 cfs, 3970 cfs, and 5490 cfs) during that storm. The McKee et al. data appear to fall into two groups; nine samples are similar to the results from the present study, and six samples have higher mercury concentrations relative to flow.

AECOM (2017) sampled four storms: December 11, 2014 (peak flow ~ 5,380 cfs); February 6, 2015 (~2,100 cfs); February 8, 2015 (~1,000 cfs); and April 7, 2015 (~2,000 cfs). These storms were generally similar in size to those sampled by Tetra Tech in 2019. The AECOM results have a zero to negative slope indicating that total mercury concentration is independent of flow suggesting that there was no relationship between mercury concentration and flow.

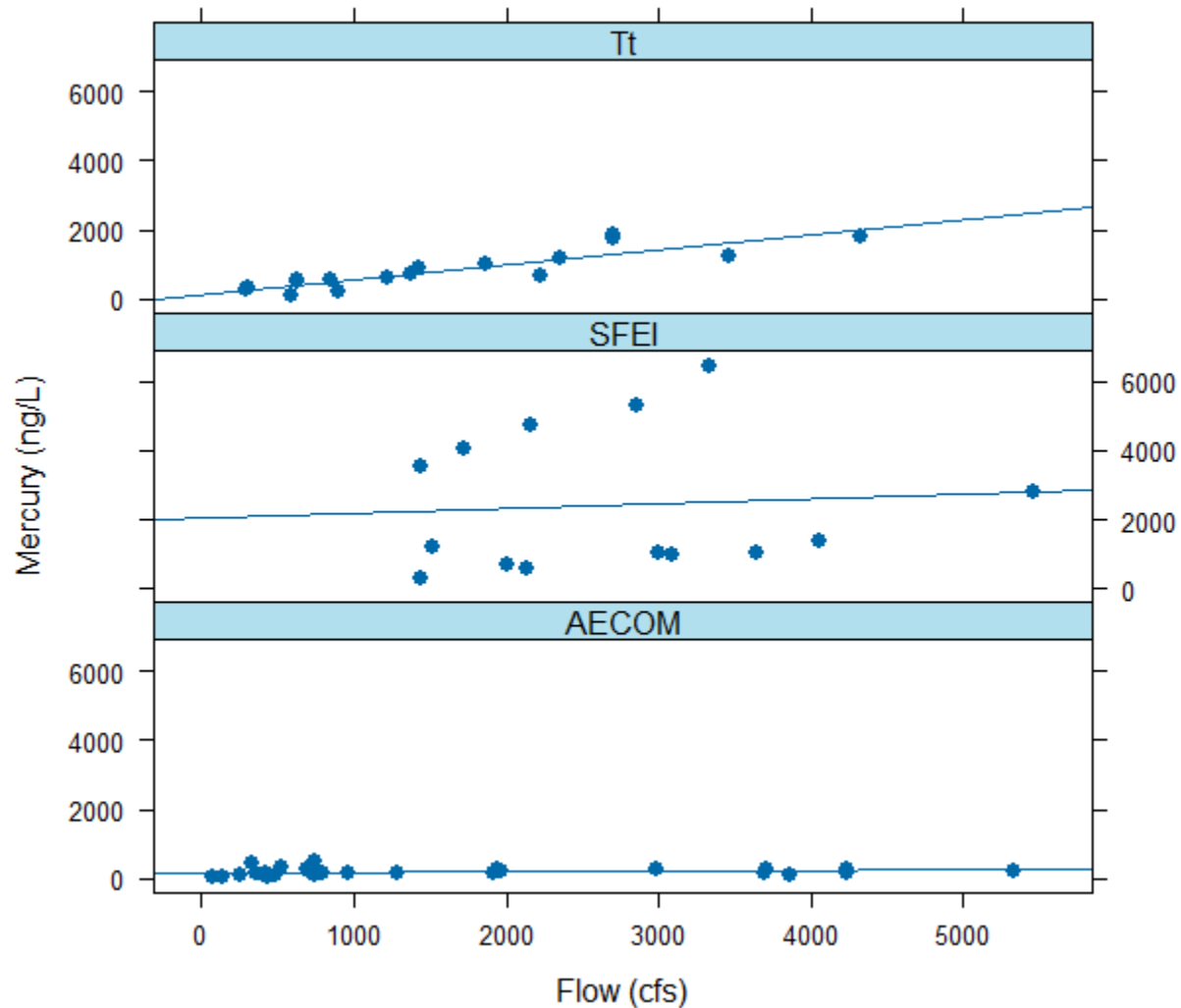


Figure 9 Relationships of mercury concentration to flow from the present study. Data from McKee et al. (2017), and AECOM (2017) are also shown.

TSS concentration relative to flow, shows a similar pattern. The data from the present study and that of McKee et al. (2017) study result in parallel lines. As was noted for total mercury the McKee et al. data fell into two groups. The AECOM data show a substantially flatter slope for the relationship between TSS and flow.

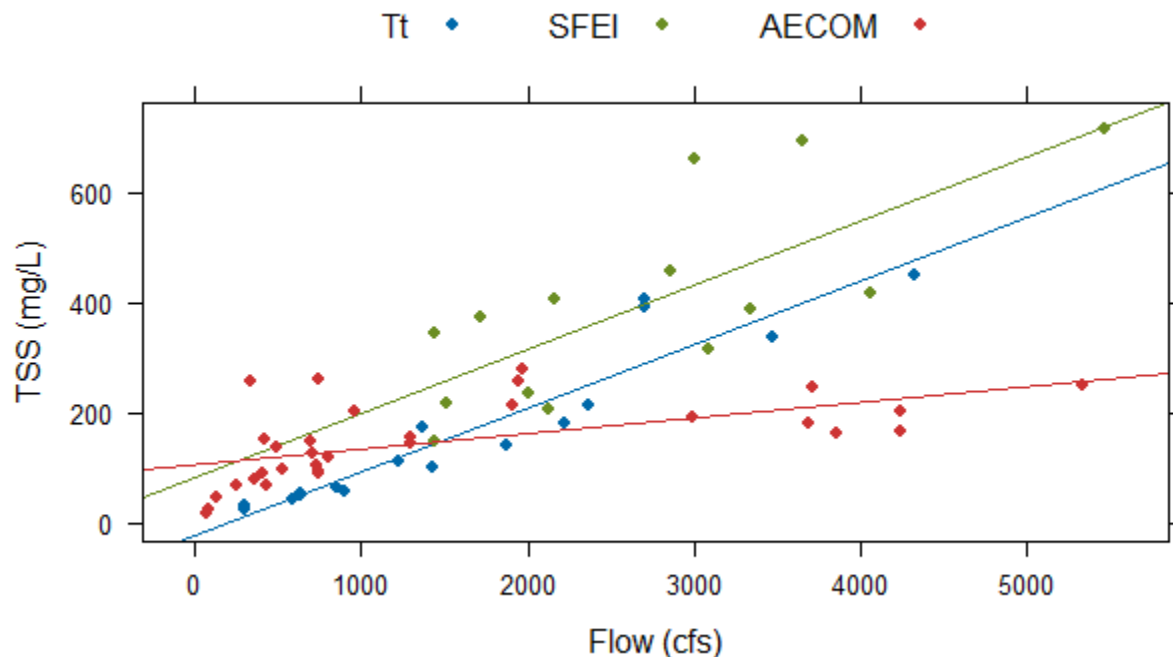


Figure 10 Relationships of total suspended solids (TSS) concentration to flow from the present study, McKee et al. (2017), and AECOM (2017).

It is assumed that the mercury is transported attached to sediment particles and that the mercury concentration on the particles [mg(Hg)/kg(TSS)] is relatively constant. Data reported in Figure 3-13 of Tetra Tech (2005) from the mining areas and along the main stem of the Guadalupe River are similar to the concentrations measured in the present study. The results of an analysis of variance (ANOVA) indicate that there are significant differences between the concentration of mercury on sediment particles among studies (Table 8 and Figure 11). A Tukey honest significant different test indicated that the AECOM concentrations are significantly lower than either the present study or McKee et al. results, and that the present study and McKee et al. are similar.

Table 8
Analysis of Variance of Mercury Concentration on Particles between Studies

Source	df	Sum of Squares	Mean Square	F	Significance
Study	2	357	178.3	23	<<0.001
Error	59	458	7.8		

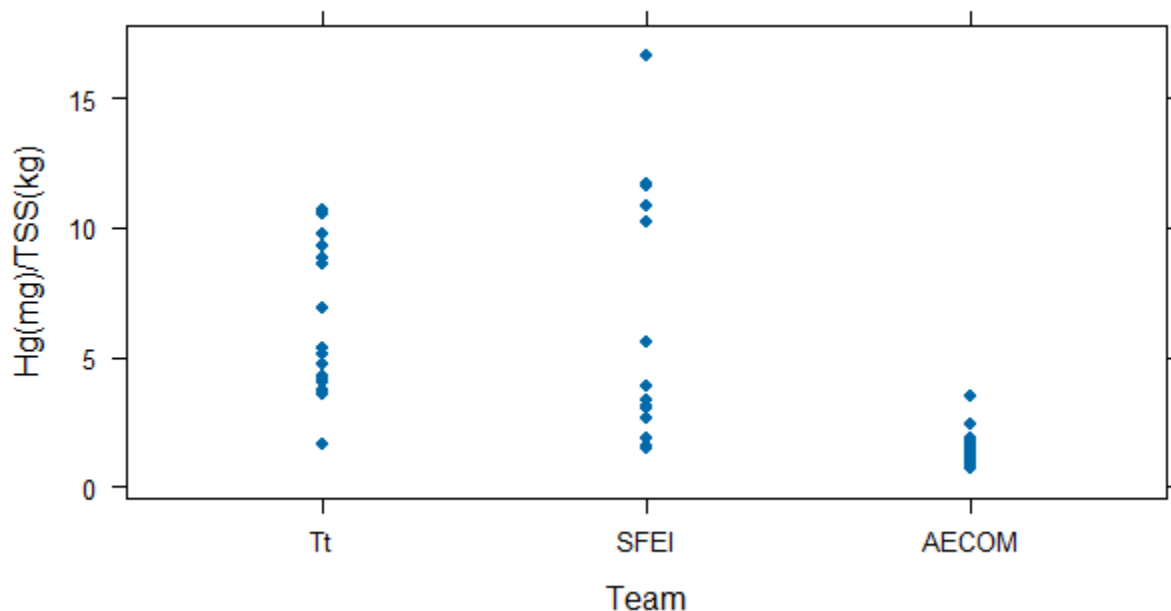


Figure 11 Comparison of mercury concentrations on sediment particles among studies.

The differences in sediment mercury concentration between studies may be due to a variety of factors including the size of the sediment particles transported (surface area to volume ratio), flow rates (higher flows can transport larger particles), degree of soil saturation, rainfall intensity (ability to mobilize sediments), and location of the sediment source.

Peak water levels during Storm B significantly exceeded the height of the walking path under the access road bridge. As a result, sediments were deposited on the walking path as the storm flows receded. The survey team decided to collect three haphazardly selected sediment samples from the path. The measured concentrations were 2.14 mg/kg, 2.01 mg/kg, and 0.81 mg/kg, averaging 1.65 mg/kg. These measured concentrations are lower than concentrations calculated from the measured water concentrations (see Table 7 and Figure 11). The sediment particles deposited on the footpath are likely to be larger (heavier) than the typical particle transported in the storm flows. As noted above, this may affect the measured concentration.

3.1.5 FUTURE STORM MONITORING

The SFRWQCB's California Water Code Section 13267 letter of 29 June 2017 specifies the required monitoring for the second cycle of monitoring in the Guadalupe River watershed. Two storms are to be monitored in each of two water years for a total of four storms over the five-year period of water years 2019 through 2023 (i.e. October 1, 2018 through September 30, 2023). Mobilization criteria for Storms A and B are summarized in Table 3 and Table 5, respectively. Mobilization criteria for Storms C and D are summarized in Table 9.

Table 9
Mobilization Criteria for Storms C and D

Storm	Criterion	Tier	Threshold
C	1. Predicted Streamflow at USGS Highway 101 gage	2	>1,920 cfs
C	2. Storm forecast for upper watershed	2	>6 inches
C	3. 6-hour rainfall forecast at Quicksilver Park	2	>2 inches
C	4. Almaden Reservoir near capacity	2	>10% full
D	1. Predicted Streamflow at USGS Highway 101 gage	3	>3,610 cfs
D	2. Storm forecast for upper watershed	3	>12 inches
D	3. 6-hour rainfall forecast at Quicksilver Park	3	>2 inches
D	4. Almaden Reservoir near capacity	3	>10% full

3.2 FISH TISSUE RESULTS

3.2.1 SAMPLING CONDITIONS

The Guadalupe River watershed is a dynamic aquatic system, and challenges were encountered during the 2019 efforts. Exceedances of temperature limits for the protection of steelhead specified in the permits were the primary constraint to sampling. Additionally, limitations on bycatch of protected steelhead (*Oncorhynchus mykiss*) represented a constraint on sampling in some locations. Lastly, general scarcity of target species and sizes necessitated a higher-level effort than anticipated.

General conditions and water quality information collected during sampling efforts are summarized in Table 10 to Table 13. Sample sites included Alamitos Creek at Harry Road (ACR), Guadalupe Creek at Singletree Way (GCR), Lake Almaden (LAL), Guadalupe River at Foxworthy Avenue (GRF), Guadalupe River at Coleman Avenue (GRC), and Los Gatos Creek at Lincoln Avenue (GCL).

If sampling wasn't conducted at a sample site on a given day, it is noted in the tables. Where thermal conditions prevented sampling, temperatures were still collected and provided in the tables. Once the required number and species of fish were collected at a site, no further visits to the site were conducted.

Table 10
Water Quality on 22 August 2019

Site	Temperature (C)	Salinity (PPT)	Conductivity (uS)	Dissolved Oxygen (mg/L)	pH
Alamitos Crk at Harry Rd	20.3	0.2	408.8	11.4	8.47
Guadalupe Crk at Singletree Way	20.3	0.2	338.9	11.7	8.4
Lake Almaden	23.8	no sampling occurred			
Guadalupe R. at Foxworthy Ave.	25.4	no sampling occurred			
Guadalupe R. at Coleman Ave.	24.9	no sampling occurred			
Los Gatos Crk at Lincoln Ave.	25.4	no sampling occurred			

Table 11
Water Quality on 16 October 2019

Site	Temperature (C)	Salinity (PPT)	Conductivity (uS)	Dissolved Oxygen (mg/L)	pH
Alamitos Crk at Harry Rd	no sampling occurred				
Guadalupe Crk at Singletree Way	14.2	0.2	433.7	9.48	8.55
Lake Almaden	18.3	0.3	472	7.9	8.85
Guadalupe R. at Foxworthy Ave.	17.7	0.3	444	8.55	9.42
Guadalupe R. at Coleman Ave.	no sampling occurred				
Los Gatos Crk at Lincoln Ave.	16.6	0.2	285.1	10.57	9.1

Table 12
Water Quality on 17 October 2019

Site	Temperature (C)	Salinity (PPT)	Conductivity (uS)	Dissolved Oxygen (mg/L)	pH
Alamitos Crk at Harry Rd	no sampling occurred				
Guadalupe Crk at Singletree Way	no sampling occurred				
Lake Almaden	no sampling occurred				
Guadalupe R. at Foxworthy Ave.	no sampling occurred				
Guadalupe R. at Coleman Ave.	17.0	0.6	1040	12.7	8
Los Gatos Crk at Lincoln Ave.	17.3	0.2	1000	12.2	8

Table 13
Water Quality on 29 October 2019

Site	Temperature (C)	Salinity (PPT)	Conductivity (uS)	Dissolved Oxygen (mg/L)	pH
Alamitos Crk at Harry Rd	no sampling occurred				
Guadalupe Crk at Singletree Way	no sampling occurred				
Lake Almaden	16.6	0.2	425	not collected	8.9
Guadalupe R. at Foxworthy Ave.	12.97	0.3	526	6.44	8.28
Guadalupe R. at Coleman Ave.	no sampling occurred				
Los Gatos Crk at Lincoln Ave.	16.1	0.3	334	not collected	8.2

3.2.2 SAMPLING RESULTS

A summary of collected samples from the 2019 sampling efforts is provided in Table 14. The majority of the sites were fully sampled. However, in some instances, the full number of target species was not obtained.

Table 14
Summary of Fish Species Collected

Site	Target size California roach	Outside target size California roach	Target size Largemouth bass	Alternative species retained	Total samples
Alamitos Crk at Harry Rd	20	-	-	-	20
Guadalupe Crk at Singletree Way	20	-	--	-	20
Lake Almaden	-	-	18	2 (bluegill)	20
Guadalupe R. at Foxworthy Ave.	-	6	-	1 (bluegill)	7
Guadalupe R. at Coleman Ave.	20	-	-	-	20
Los Gatos Crk at Lincoln Ave.	2	12	-	1 (bluegill)	15

Summary statistics for total mercury concentrations in fish tissue at each site are provided in Table 15. The analytical results from the fish tissue analyses are provided in Appendix B. Photographs of field sampling activities are provided in Appendix C.

Table 15
Fish Tissue Mercury Summary Statistics by Sampling Location

Site	Dominant Species	Total Fish	Average Hg concentration (ng/g, wet weight)	Standard deviation
Alamitos Crk at Harry Rd	California roach/Bluegill	15	55.5	15.2
Guadalupe Crk at Singletree Way	California roach	20	566.5	234.2
Lake Almaden	California roach	20	359.6	99.2
Guadalupe R. at Foxworthy Ave.	California roach/Bluegill	7	173.2	58.4
Guadalupe R. at Coleman Ave.	California roach	20	54.4	13.8
Los Gatos Crk at Lincoln Ave.	Largemouth bass/Bluegill	20	959.9	308.4

Distribution of total mercury concentrations in fish at the five sampling sites are shown in Figure 12. As noted above, largemouth bass were collected exclusively from Lake Almaden (LAL) whereas California roach were the primary species collected at the stream sites. Two bluegill were collected at Lake Almaden, one bluegill at the reference stream, Los Gatos Creek at Lincoln Avenue, and one bluegill at Guadalupe River at Foxworthy Avenue.

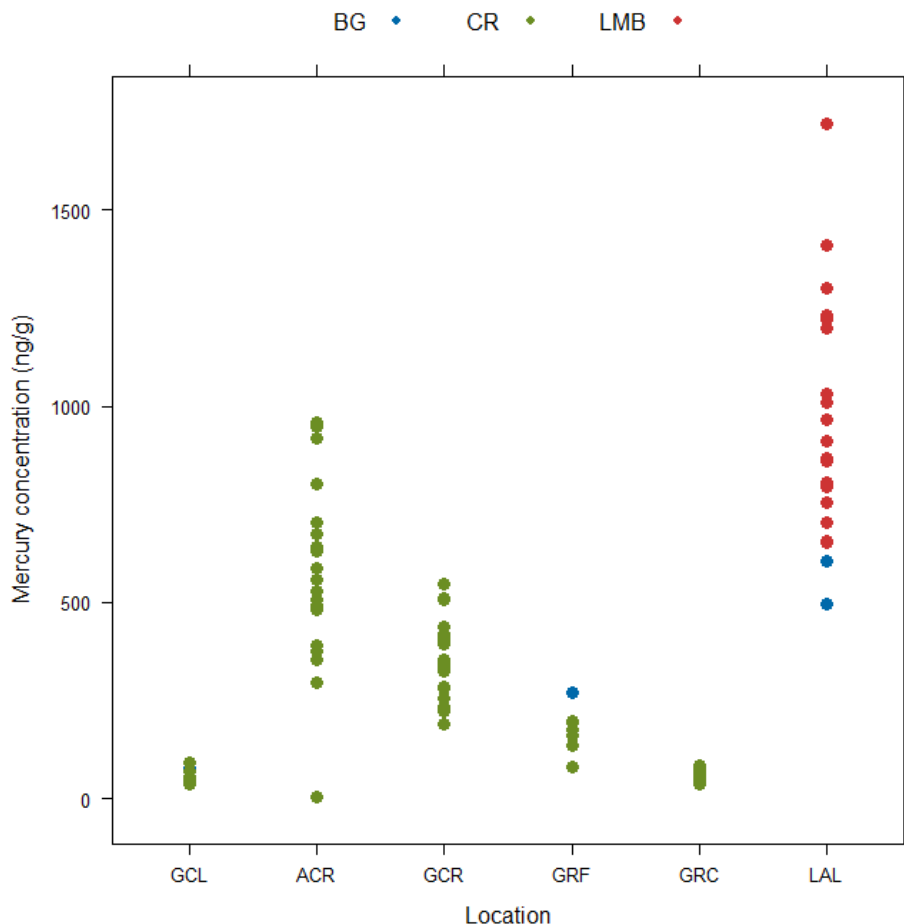


Figure 12 *Distribution of mercury concentrations in fish tissue at each sampling site. GCL = Los Gatos Creek at Lincoln Ave (reference stream); ACR = Alamos Creek at Harry Road; GCR = Guadalupe Creek at Singletree Way; GRF = Guadalupe River at Foxworthy Avenue; GRC = Guadalupe River at Coleman Avenue; LAL = Lake Almaden. California roach (CR) was the dominant species collected at stream sites. Largemouth bass (LMB) were collected exclusively at Lake Almaden.*

Whole body tissue concentrations at the stream sites were compared using analysis of variance, followed by the Tukey honest significant difference test to identify differences. Data from Lake Almaden were not included in the analysis because largemouth bass were collected from the lake, whereas California roach were the primary species collected in the stream sites.

An ANOVA of tissue mercury concentrations indicated significant differences among the stream sites (Table 15, Table 16, and Figure 12). Fish from Alamos Creek at Harry Road (ACR) and Guadalupe Creek at Singletree Way (GCR) had significantly higher tissue mercury concentrations than the other three stream sites. These two sites are located in the upper watershed, above Lake Almaden (Figure 1). In contrast, fish from the lower watershed at Guadalupe River at Foxworthy (GRF) and Guadalupe River at Coleman Ave (GRC) did not have significantly different mercury concentrations than the reference stream (Los Gatos Creek, GCL).

Table 16
Analysis of Variance of Fish Tissue Concentration between Streams

Source	df	Sum of Squares	Mean Square	F	Significance
Stream	4	3601581	900395	55.2	<<0.001
Error	77	1256198	16314		

3.2.3 FUTURE FISH SAMPLING

The SFRWQCB's California Water Code Section 13267 letter of 29 June 2017 specifies the required monitoring for the second cycle of monitoring in the Guadalupe River watershed. Each location is required to be sampled twice over the five-year period of water years 2019 through 2023 (i.e. October 1, 2018 through September 30, 2023). The first year of fish sampling occurred in 2019 and is described in this report. Sampling is anticipated to take place again in 2021.

4 SUMMARY

During the storm season, the predicted rainfall and flows in the Guadalupe River at Highway 101 on the CNRFC website were routinely monitored. Flow predictions normally were issued twice daily by the CNRFC at around 08:00 and again at 15:00. However, additional forecasts may be made during storms. While in the field, the study team periodically monitored both the CNRFC and USGS sites to make any adjustments to sampling timing.

The team mobilized for two storms during the 2018-2019 water year. The first storm lasted approximately 4 days, while the second storm was sampled over 8 days due to continued elevated flow. These continued flows appear to have been related to continued releases from the reservoirs. Calculated loads of mercury from the storms were 3.52 kg during the first storm and 19.89 kg during the second storm.

Fish tissue collection was delayed beyond the original sampling window due to elevated stream temperature. However, the field team successfully obtained the required number of fish at 4 of the 6 sites. Only one site (GRF, Guadalupe River at Foxworthy) had limited number of fish. The target species in streams was the California roach which was obtained at all stream locations. One bluegill was also collected at Los Gatos Creek at Lincoln Avenue (the reference stream), and one bluegill at Guadalupe River at Foxworthy Avenue. The target species at Lake Almaden was the largemouth bass, which was successfully obtained. Two bluegill were also sampled from Lake Almaden.

Fish from Alamitos Creek at Harry Road (ACR) and Guadalupe River at Singletree Way (GCR) in the upper watershed had significantly higher tissue mercury concentrations than the other three stream sites. The fish from GRF (Guadalupe River at Foxworthy) and GRC (Guadalupe River at Coleman Ave.), in the lower watershed had total mercury concentrations similar to the reference location.

5 REFERENCES

AECOM. 2017. *Guadalupe River Coordinated Monitoring Program 5-Year Report*. Submitted to: Santa Clara County Department of Parks and Recreation. Los Gatos, CA.

McKee, L. A. Gilbreath, S. Pearce, and I. Shimabuku. 2017. *Guadalupe River mercury concentrations and loads during the large rare January 2017 storm* (Draft). Prepared for: Regional Monitoring Program for Water Quality in San Francisco Bay (RMP). September 2017

Tetra Tech. 2005. *Guadalupe River Watershed Mercury TMDL Report: Final conceptual Model Report*. Prepared for San Francisco Bay Regional Water Quality Control Board. Oakland, CA.

Tetra Tech. 2018. *Coordinated Monitoring Program For Guadalupe River Watershed Mercury TMDL. Agreement No. A4123A. Monitoring Plan (2018 To 2023)*. Prepared for: Santa Clara Valley Water District (Valley Water)

APPENDIX A

STORMWATER ANALYTICAL LABORATORY

REPORTS

APPENDIX B FISH TISSUE ANALYTICAL LABORATORY REPORTS

APPENDIX C

FISH SAMPLING PHOTOS



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Project Number: Guadalupe R Project
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Reported:
28-Feb-19 14:30

GR-19-SA-EQ

9B00206-02

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	0.10	0.08	0.50	ng/L	1	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	ND	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	U
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Project Number: Guadalupe R Project
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Reported:
28-Feb-19 14:30

GR-19-SA-T1

9B00206-03

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	559	4.17	25.0	ng/L	50	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.899	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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Reported:
28-Feb-19 14:30

GR-19-SA-T1 Dissolved
9B00206-04

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	23.0	0.08	0.50	ng/L	1	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	

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GR-19-SA-T2

9B00206-05

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	582	4.17	25.0	ng/L	50	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	1.13	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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GR-19-SA-T2 Dissolved
9B00206-06

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	15.9	0.08	0.50	ng/L	1	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	

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GR-19-SA-T3

9B00206-07

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	685	4.17	25.0	ng/L	50	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.713	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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GR-19-SA-T3 Dissolved
9B00206-08

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	11.9	0.08	0.50	ng/L	1	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	

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GR-19-SA-T4

9B00206-09

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	989	4.17	25.0	ng/L	50	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.865	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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GR-19-SA-T4 Dissolved
9B00206-10

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	16.7	0.08	0.50	ng/L	1	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	

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GR-19-SA-T5

9B00206-11

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	891	4.17	25.0	ng/L	50	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.775	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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GR-19-SA-T5 Dissolved
9B00206-12

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	22.4	0.08	0.50	ng/L	1	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	

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GR-19-SA-T6

9B00206-13

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	491	4.17	25.0	ng/L	50	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.732	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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Project Number: Guadalupe R Project
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GR-19-SA-T6 Dissolved
9B00206-14

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	23.3	0.08	0.50	ng/L	1	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	

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Reported:
28-Feb-19 14:30

GR-19-SA-T7

9B00206-15

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	555	4.17	25.0	ng/L	50	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.771	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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28-Feb-19 14:30

GR-19-SA-T7 Dissolved
9B00206-16

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	22.7	0.08	0.50	ng/L	1	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	

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11720 Northcreek Pkwy N, Suite 400
Bothell, WA 98011
425.686.1996 Phone
425.686.3096 Fax

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

Laboratory Filter Blank

9B00206-17

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	0.13	0.08	0.50	ng/L	1	F902285	06-Feb-19	9B20007	20-Feb-19	EPA 1631E	FB
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Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

GR-19-SA-T8

9B00206-18

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	323	4.17	25.0	ng/L	50	F902285	20-Feb-19	9B20007	20-Feb-19	EPA 1631E	
---------	-----	------	------	------	----	---------	-----------	---------	-----------	-----------	--

Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.587	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

GR-19-SA-T8 Dissolved
9B00206-19

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	20.5	0.08	0.50	ng/L	1	F902285	20-Feb-19	9B20007	20-Feb-19	EPA 1631E	

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28 of 62



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Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

GR-19-SA-T9

9B00206-20

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	253	4.17	25.0	ng/L	50	F902285	20-Feb-19	9B20007	20-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.404	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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Amy Goodall, Project Manager



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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

GR-19-SA-T9

9B00206-21

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	22.9	0.83	5.00	ng/L	10	F902297	21-Feb-19	9B21010	21-Feb-19	EPA 1631E	

Eurofins Frontier Global Sciences, LLC

Amy Goodall

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Amy Goodall, Project Manager



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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

Laboratory Filter Blank

9B00206-22

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	ND	0.08	0.50	ng/L	1	F902297	21-Feb-19	9B21010	21-Feb-19	EPA 1631E	FB, U

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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch F902266 - EFGS SOP2797 Methyl Hg Distillation for Water											
Blank (F902266-BLK1)					Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	ND	0.026	0.050	ng/L							U
Blank (F902266-BLK2)					Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	0.032	0.026	0.050	ng/L							
Blank (F902266-BLK3)					Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	ND	0.026	0.050	ng/L							U
LCS (F902266-BS1)					Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	0.951	0.026	0.050	ng/L	1.0000		95.1	70-130			
LCS Dup (F902266-BSD1)					Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	0.941	0.026	0.050	ng/L	1.0000		94.1	70-130	0.969	35	
Duplicate (F902266-DUP1)					Source: 9B00206-05 Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	0.755	0.026	0.050	ng/L		1.130			39.8	35	QR-07
Matrix Spike (F902266-MS1)					Source: 9B00206-03 Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	0.999	0.026	0.050	ng/L	1.0000	0.899	9.97	65-130			QM-07
Matrix Spike (F902266-MS2)					Source: 9B00505-03 Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	1.762	0.026	0.050	ng/L	1.0000	1.283	47.9	65-130			QM-02
Matrix Spike Dup (F902266-MSD1)					Source: 9B00206-03 Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	1.758	0.026	0.050	ng/L	1.0000	0.899	85.9	65-130	55.1	35	QR-08
Matrix Spike Dup (F902266-MSD2)					Source: 9B00505-03 Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	2.271	0.026	0.050	ng/L	1.0000	1.283	98.8	65-130	25.2	35	

Eurofins Frontier Global Sciences, LLC

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Amy Goodall, Project Manager



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Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch F902285 - EFGS SOP2796 EPA 1631 Oxidation											
Blank (F902285-BLK1)					Prepared & Analyzed: 20-Feb-19						
Mercury	ND	0.08	0.50	ng/L							U
Blank (F902285-BLK2)					Prepared & Analyzed: 20-Feb-19						
Mercury	ND	0.08	0.50	ng/L							U
Blank (F902285-BLK3)					Prepared & Analyzed: 20-Feb-19						
Mercury	ND	0.08	0.50	ng/L							U
LCS (F902285-BS1)					Prepared & Analyzed: 20-Feb-19						
Mercury	15.26	0.08	0.50	ng/L	14.688		104	80-120			
LCS Dup (F902285-BSD1)					Prepared & Analyzed: 20-Feb-19						
Mercury	15.32	0.08	0.50	ng/L	14.688		104	80-120	0.339	24	
Duplicate (F902285-DUP1)					Source: 9B00206-03RE1		Prepared & Analyzed: 20-Feb-19				
Mercury	563.5	4.17	25.0	ng/L		559.2			0.759	24	AD
Matrix Spike (F902285-MS1)					Source: 9B00206-03RE1		Prepared & Analyzed: 20-Feb-19				
Mercury	2571	8.34	50.0	ng/L	2020.0	559.2	99.6	71-125			AS
Matrix Spike (F902285-MS2)					Source: 9B00206-04		Prepared & Analyzed: 20-Feb-19				
Mercury	127.4	0.42	2.50	ng/L	101.00	22.99	103	71-125			AS
Matrix Spike Dup (F902285-MSD1)					Source: 9B00206-03RE1		Prepared & Analyzed: 20-Feb-19				
Mercury	2614	8.34	50.0	ng/L	2020.0	559.2	102	71-125	1.63	24	AS
Matrix Spike Dup (F902285-MSD2)					Source: 9B00206-04		Prepared & Analyzed: 20-Feb-19				
Mercury	126.4	0.42	2.50	ng/L	101.00	22.99	102	71-125	0.769	24	AS

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Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch F902297 - EFGS SOP2796 EPA 1631 Oxidation											
Blank (F902297-BLK1)					Prepared & Analyzed: 21-Feb-19						
Mercury	0.10	0.08	0.50	ng/L							
Blank (F902297-BLK2)					Prepared & Analyzed: 21-Feb-19						
Mercury	ND	0.08	0.50	ng/L							U
Blank (F902297-BLK3)					Prepared & Analyzed: 21-Feb-19						
Mercury	ND	0.08	0.50	ng/L							U
Blank (F902297-BLK4)					Prepared & Analyzed: 21-Feb-19						
Mercury	ND	0.09	0.52	ng/L							QB-06, U
LCS (F902297-BS1)					Prepared & Analyzed: 21-Feb-19						
Mercury	15.06	0.08	0.50	ng/L	14.688		103	80-120			
LCS Dup (F902297-BSD1)					Prepared & Analyzed: 21-Feb-19						
Mercury	15.52	0.08	0.50	ng/L	14.688		106	80-120	3.04	24	
Duplicate (F902297-DUP1)					Source: 9B00206-21RE1 Prepared & Analyzed: 21-Feb-19						
Mercury	22.38	0.83	5.00	ng/L		22.86			2.10	24	AD
Matrix Spike (F902297-MS1)					Source: 9B00206-21RE1 Prepared & Analyzed: 21-Feb-19						
Mercury	124.7	0.83	5.00	ng/L	101.00	22.86	101	71-125			AS
Matrix Spike (F902297-MS2)					Source: 9B00257-01 Prepared & Analyzed: 21-Feb-19						
Mercury	134.9	0.87	5.20	ng/L	105.00	31.41	98.5	71-125			AS
Matrix Spike Dup (F902297-MSD1)					Source: 9B00206-21RE1 Prepared & Analyzed: 21-Feb-19						
Mercury	125.8	0.83	5.00	ng/L	101.00	22.86	102	71-125	0.855	24	AS

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Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch F902297 - EFGS SOP2796 EPA 1631 Oxidation

Matrix Spike Dup (F902297-MSD2)

Source: 9B00257-01

Prepared & Analyzed: 21-Feb-19

Mercury	136.6	0.87	5.20	ng/L	105.00	31.41	100	71-125	1.24	24	AS
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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
28-Feb-19 14:30

Notes and Definitions

U	Analyte was not detected and is reported as less than the LOD or as defined by the client. The LOD has been adjusted for any dilution or concentration of the sample.
QR-08	The RPD value for the MS/MSD was outside of acceptance limits. Batch QC acceptable based on matrix duplicate and/or LCS/LCSD RPD values within control limits.
QR-07	The RPD/RSD value for the matrix duplicate/triplicate was outside of acceptance limits. Batch QC acceptable based on MS/MSD and/or LCS/LCSD RPD values within control limits.
QM-07	The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QM-02	The MS and/or MSD recoveries outside acceptance limits, due to spike concentration less than 1 times the sample concentration. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QB-06	The blank was preserved to 5% BrCl rather than 1%. The control limit for blanks preserved to greater than 1% BrCl is the preservation percentage multiplied by the MRL.
FB	This blank is a filtration blank. Data is reported for informational purposes only.
AS	This MS and/or MSD is an analytical spike and/or an analytical spike duplicate.
AD	This matrix duplicate is an analytical duplicate.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the method detection limit if reported to the MDL or above the reporting limit if reported to the MRL.
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference



Analytical Resources, Incorporated
Analytical Chemists and Consultants

22 February 2019

Amy Goodall
Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell, WA 98011

RE: 9B00206

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
19B0067

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

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SUBCONTRACT ORDER
Eurofins Frontier Global Sciences, Inc.

9B00206

19B00067

SENDING LABORATORY:

Eurofins Frontier Global Sciences, LLC
11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Phone: (425) 686-1996
Fax: (425) 686-3096
Project Manager: Amy Goodall

RECEIVING LABORATORY:

Analytical Resources, Inc.
4611 S. 134th Place, STE 100
Tukwila, WA 98168
Phone : (206) 621-6490
Fax: (206) 695-6201

Analysis

Comments

Sample ID: GR-19-SA-T1

EFGS Lab ID: 9B00206-03

Matrix: Water

Sampled: 04-Feb-19 01:45 (GMT-08:00) Pacific Time (US &

Due: 07-Mar-19 19:00

MS/MSD

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

57_1000 mL PETG (C)

Sample ID: GR-19-SA-T2

EFGS Lab ID: 9B00206-05

Matrix: Water

Sampled: 04-Feb-19 03:15 (GMT-08:00) Pacific Time (US &

Due: 07-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

57_1000 mL PETG (C)

Sample ID: GR-19-SA-T3

EFGS Lab ID: 9B00206-07

Matrix: Water

Sampled: 04-Feb-19 06:15 (GMT-08:00) Pacific Time (US &

Due: 07-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

57_1000 mL PETG (C)

Released By

Date

Received By

Date

Released By

Date

Received By

Date

SUBCONTRACT ORDER
Eurofins Frontier Global Sciences, Inc.

9B00206

19B00067

Analysis

Comments

Sample ID: GR-19-SA-T4

EFGS Lab ID: 9B00206-09

Matrix: Water

Sampled: 04-Feb-19 09:15 (GMT-08:00) Pacific Time (US &

Due: 07-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

57_1000 mL PETG (C)

Sample ID: GR-19-SA-T5

EFGS Lab ID: 9B00206-11

Matrix: Water

Sampled: 04-Feb-19 12:00 (GMT-08:00) Pacific Time (US &

Due: 07-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

57_1000 mL PETG (C)

Sample ID: GR-19-SA-T6

EFGS Lab ID: 9B00206-13

Matrix: Water

Sampled: 04-Feb-19 11:30 (GMT-08:00) Pacific Time (US &

Due: 07-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

57_1000 mL PETG (C)

Sample ID: GR-19-SA-T7

EFGS Lab ID: 9B00206-15

Matrix: Water

Sampled: 04-Feb-19 13:30 (GMT-08:00) Pacific Time (US &

Due: 07-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

57_1000 mL PETG (C)

Released By

Date

Received By

Date

Released By

Date

Received By

Date



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GR-19-SA-T1	19B0067-01	Water	04-Feb-2019 01:45	07-Feb-2019 10:21
GR-19-SA-T2	19B0067-02	Water	04-Feb-2019 03:15	07-Feb-2019 10:21
GR-19-SA-T3	19B0067-03	Water	04-Feb-2019 06:15	07-Feb-2019 10:21
GR-19-SA-T4	19B0067-04	Water	04-Feb-2019 09:15	07-Feb-2019 10:21
GR-19-SA-T5	19B0067-05	Water	04-Feb-2019 12:00	07-Feb-2019 10:21
GR-19-SA-T6	19B0067-06	Water	04-Feb-2019 11:30	07-Feb-2019 10:21
GR-19-SA-T7	19B0067-07	Water	04-Feb-2019 13:30	07-Feb-2019 10:21



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

Work Order Case Narrative

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.



Cooler Receipt Form

ARI Client: Eurofins Frontier

Project Name: 40300206

COC No(s): 19B0067 NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 19B0067

Tracking No: 128640500151585444 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1021

2.6°C

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D005206

Cooler Accepted by: SSW

Date: 02/07/19

Time: 1021

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: SSW Date: 2-7-19 Time: 1053 Labels checked by: SSW

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions: 2 labels on all bottles.
Bottle label for GR-19-SA-T6 and GR-19-SA-T7 have
Sample date as 2-5-19, 2-4-19 on COC.

By: SSW Date: 2-7-19



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

GR-19-SA-T1
19B0067-01 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/04/2019 01:45

Instrument: BAL2 Analyst: UW

Analyzed: 02/08/2019 08:55

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0067-01

Preparation Batch: BHB0192

Sample Size: 280 mL

Prepared: 08-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	4	4	65	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

GR-19-SA-T2
19B0067-02 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/04/2019 03:15

Instrument: BAL2 Analyst: UW

Analyzed: 02/08/2019 08:55

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0067-02

Preparation Batch: BHB0192

Sample Size: 250 mL

Prepared: 08-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	4	4	114	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

GR-19-SA-T3
19B0067-03 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/04/2019 06:15

Instrument: BAL2 Analyst: UW

Analyzed: 02/08/2019 08:55

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0067-03

Preparation Batch: BHB0192

Sample Size: 120 mL

Prepared: 08-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	8	8	182	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

GR-19-SA-T4
19B0067-04 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/04/2019 09:15

Instrument: BAL2 Analyst: UW

Analyzed: 02/08/2019 08:55

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0067-04

Preparation Batch: BHB0192

Sample Size: 120 mL

Prepared: 08-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	8	8	143	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

GR-19-SA-T5
19B0067-05 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/04/2019 12:00

Instrument: BAL2 Analyst: UW

Analyzed: 02/08/2019 08:55

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0067-05

Preparation Batch: BHB0192

Sample Size: 150 mL

Prepared: 08-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	7	7	101	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

GR-19-SA-T6
19B0067-06 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/04/2019 11:30

Instrument: BAL2 Analyst: UW

Analyzed: 02/08/2019 08:55

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0067-06

Preparation Batch: BHB0192

Sample Size: 270 mL

Prepared: 08-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	4	4	53	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

GR-19-SA-T7
19B0067-07 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/04/2019 13:30

Instrument: BAL2 Analyst: UW

Analyzed: 02/08/2019 08:55

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0067-07

Preparation Batch: BHB0192

Sample Size: 270 mL

Prepared: 08-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	4	4	52	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

Wet Chemistry - Quality Control

Batch BHB0192 - No Prep Wet Chem

Instrument: BAL2 Analyst: UW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BHB0192-BLK1)										
					Prepared: 08-Feb-2019 Analyzed: 08-Feb-2019 08:55					
Suspended Solids	ND	1	1	mg/L						U
LCS (BHB0192-BS1)										
					Prepared: 08-Feb-2019 Analyzed: 08-Feb-2019 08:55					
Suspended Solids	48	1	1	mg/L	50.00		96.0 90-110			
Duplicate (BHB0192-DUP1)										
					Source: 19B0067-01 Prepared: 08-Feb-2019 Analyzed: 08-Feb-2019 08:55					
Suspended Solids	67	4	4	mg/L		65		2.12	20	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

Certified Analyses included in this Report

Analyte	Certifications		
SM 2540 D-97 in Water			
Suspended Solids		DoD-ELAP,WADOE,NELAP	
Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	02/07/2019
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:54

Notes and Definitions

U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

22 February 2019

Amy Goodall
Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell, WA 98011

RE: 9B00206

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
19B0164

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

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.



SUBCONTRACT ORDER
Eurofins Frontier Global Sciences, Inc.

9B00206

19B0164

Analysis

Comments

Sample ID: GR-19-SA-T8

EFGS Lab ID: 9B00206-18

Matrix: Water

Sampled: 06-Feb-19 10:45 (GMT-08:00) Pacific Time (US &

Due: 07-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

57_1000 mL PETG (C)

Sample ID: GR-19-SA-T9

EFGS Lab ID: 9B00206-20

Matrix: Water

Sampled: 07-Feb-19 10:00 (GMT-08:00) Pacific Time (US &

Due: 07-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

57_1000 mL PETG (C)

Released By

Date

Received By

Date

Released By

Date

Received By

Date



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GR-19-SA-T8	19B0164-01	Water	06-Feb-2019 10:45	15-Feb-2019 11:57
GR-19-SA-T9	19B0164-02	Water	07-Feb-2019 10:00	15-Feb-2019 11:57



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:58

Work Order Case Narrative

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.



Cooler Receipt Form

ARI Client: EFG-S

Project Name: 9B00206

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 1980164

Tracking No: 1286W050014955-7596 (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1157

0.3°C

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 0005206

Cooler Accepted by: JSW Date: 02/15/19 Time: 1157

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JSW Date: 02/15/19 Time: 1402 Labels checked by: JSW

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____

Date: _____



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:58

GR-19-SA-T8
19B0164-01 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/06/2019 10:45

Instrument: BAL2 Analyst: UW

Analyzed: 02/15/2019 14:54

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0164-01

Preparation Batch: BHB0329

Sample Size: 500 mL

Prepared: 15-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	2	2	33	mg/L	H



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:58

GR-19-SA-T9
19B0164-02 (Water)

Wet Chemistry

Method: SM 2540 D-97
Instrument: BAL2 Analyst: UW

Sampled: 02/07/2019 10:00

Analyzed: 02/15/2019 14:54

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BHB0329 Sample Size: 600 mL
Prepared: 15-Feb-2019 Final Volume: 1000 mL

Extract ID: 19B0164-02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	2	2	24	mg/L	H



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:58

Wet Chemistry - Quality Control

Batch BHB0329 - No Prep Wet Chem

Instrument: BAL2 Analyst: UW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BHB0329-BLK1)										
Prepared: 15-Feb-2019 Analyzed: 15-Feb-2019 14:54										
Suspended Solids	ND	1	1	mg/L						U
LCS (BHB0329-BS1)										
Prepared: 15-Feb-2019 Analyzed: 15-Feb-2019 14:54										
Suspended Solids	49	1	1	mg/L	50.00		97.4 90-110			



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:58

Certified Analyses included in this Report

Analyte	Certifications		
SM 2540 D-97 in Water			
Suspended Solids		DoD-ELAP,WADOE,NELAP	
Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	02/07/2019
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00206
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 08:58

Notes and Definitions

H	Hold time violation - Hold time was exceeded.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

STORM B

VALIDATION SUMMARY

LABORATORY: E-FGS

WORK ORDER: Freshwater (Laboratory WO: 9B00505 – Storm B)

ISSUES:

1) CHAIN OF CUSTODY

- No issues found.

2) SAMPLE TEMPERATURES

- Sample temperatures upon arrival at the laboratory were reported as ranging from 1.0 °C to 5.8 °C.

3) COMPLETENESS

- Samples were received and analyzed as expected.

4) QA/QC

- The water and equipment blanks associated with this sampling event had reported total mercury concentrations of:
 - o Water Blank (WB) = 0.17 ng/L
 - o Equipment Blank (EQ) = 0.14 ng/L.This level of contamination was significantly lower (approximately 3 orders of magnitude) than the lowest detected field concentration.
- Low MS % recoveries were reported for methyl-mercury in batch number F902266.
- Low MS % recoveries for total mercury in batch F902364
- Elevated MS/MSD RPD values for total mercury in batch number F902364
- Elevated laboratory duplicate RPD value for methyl-mercury in batch F903237
- Low MS % recoveries for methyl-mercury in batch F903237
- Standard holding times were exceeded for the following TSS sample:
 - o GR-19-SB-T7
- No other issues were found.

5) VALIDATION QUALIFIER(S)

- No total mercury data were qualified because of water or equipment blank contamination as the level of contamination was significantly lower than the lowest detected field concentration.
- All methyl-mercury data in batch number F902266 were qualified as estimated, biased low (J-) due to low MS % recovery results.
- All total mercury in batch number F902364 were qualified estimated, biased low (J-) due to low MS % recovery values. This qualifier supersedes the estimated (J) qualifier that the data would have received due to the elevated MS/MSD RPD results.

- All methyl-mercury in batch number F903237 were qualified estimated, biased low (J-) due to low MS % recovery values. This qualifier supersedes the estimated (J) qualifier that the data would have received due to the elevated laboratory duplicate RPD results.
- TSS data for GR-19-SB-T7 were qualified as estimated (J) due to holding time exceedances.

6) SIGNIFICANCE OF VALIDATION QUALIFIERS

Laboratory Duplicate and Matrix Spike Duplicate RPDs – Laboratory and matrix spike duplicates are included as tests of analytical precision; one in clean water and the other in sample water. The relative percent difference (RPD) between two identical samples should be as close to zero as possible. Elevated RPDs could be indicative of analytical procedures or techniques that are not identical. These data are qualified as estimated.

Matrix Spike/Duplicate (MS/MSD) % Recoveries – Spikes of known concentrations of analyte into a field sample are commonly used to assess the accuracy and precision of the instrumentation as well as its ability to quantify the analyte in a complex matrix. Elevated or depressed MS/MSD % recoveries indicate the presence of interfering compounds that could possibly result in data that are biased high or biased low, respectively. Data that are qualified as biased (high or low) as a result of MS/MSD % recoveries should be given a greater level of scrutiny and used judiciously.

Hold-time Exceedances – Hold-times are the length of time a sample can be stored after collection and prior to analysis without significantly affecting the analytical results. Exceeding a standard hold-time can result in a reduction in the analyte of concern (e.g., volatilization or bacterial degradation), thereby resulting in data that are biased-low or, in some cases, increase due to contamination (e.g., aerial deposition or handling).

No other QAQC issues were observed for this Work Order.



Frontier Global Sciences

11720 Northcreek Pkwy N, Suite 400
Bothell, WA 98011
425.686.1996 Phone
425.686.3096 Fax

15 March 2019

Theodore E. Donn, Jr, PhD
Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette, CA 94549

RE: WSRCD

Enclosed are the analytical results for samples received by Eurofins Frontier Global Sciences. All quality control measurements are within established control limits and there were no analytical difficulties encountered with the exception of those listed in the case narrative section of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Amy Goodall". The signature is written in a cursive, flowing style.

Amy Goodall
Project Manager



Frontier Global Sciences

11720 Northcreek Pkwy N, Suite 400
Bothell, WA 98011
425.686.1996 Phone
425.686.3096 Fax

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GR-19-SB-WB	9B00505-01	Water	13-Feb-19 08:27	15-Feb-19 10:10
GR-19-SB-EQ	9B00505-02	Water	13-Feb-19 08:27	15-Feb-19 10:10
GR-19-SB-T2	9B00505-03	Water	14-Feb-19 03:45	15-Feb-19 10:10
GR-19-SB-T2 Dissolved	9B00505-04	Water	14-Feb-19 03:45	15-Feb-19 10:10
GR-19-SB-T3	9B00505-05	Water	14-Feb-19 05:00	15-Feb-19 10:10
GR-19-SB-T3 Dissolved	9B00505-06	Water	14-Feb-19 05:00	15-Feb-19 10:10
GR-19-SB-T4	9B00505-07	Water	14-Feb-19 08:00	15-Feb-19 10:10
GR-19-SB-T4 Dissolved	9B00505-08	Water	14-Feb-19 08:00	15-Feb-19 10:10
GR-19-SB-T5	9B00505-09	Water	14-Feb-19 12:00	15-Feb-19 10:10
GR-19-SB-T5 Dissolved	9B00505-10	Water	14-Feb-19 12:00	15-Feb-19 10:10
GR-19-SB-T6	9B00505-11	Water	14-Feb-19 14:00	15-Feb-19 10:10
GR-19-SB-T6 Dissolved	9B00505-12	Water	14-Feb-19 14:00	15-Feb-19 10:10
Laboratory Filter Blank	9B00505-13	Water	15-Feb-19 00:00	15-Feb-19 10:10
GR-19-SB-SED1	9B00505-14	Soil/Sediment	15-Feb-19 14:15	15-Feb-19 10:10
GR-19-SB-SED2	9B00505-15	Soil/Sediment	15-Feb-19 14:16	15-Feb-19 10:10
GR-19-SB-SED3	9B00505-16	Soil/Sediment	15-Feb-19 14:17	15-Feb-19 10:10
GR-19-SB-T7	9B00505-17	Water	15-Feb-19 14:45	15-Feb-19 10:10
GR-19-SB-T7 Dissolved	9B00505-18	Water	15-Feb-19 14:45	15-Feb-19 10:10
GR-19-SB-T8	9B00505-19	Water	18-Feb-19 09:00	15-Feb-19 10:10
GR-19-SB-T8 Dissolved	9B00505-20	Water	18-Feb-19 09:00	15-Feb-19 10:10
GR-19-SB-T9	9B00505-21	Water	21-Feb-19 07:45	15-Feb-19 10:10
GR-19-SB-T9 Dissolved	9B00505-22	Water	21-Feb-19 07:45	15-Feb-19 10:10
Laboratory Filter Blank	9B00505-23	Water	22-Feb-19 00:00	15-Feb-19 10:10

Eurofins Frontier Global Sciences, LLC

The results in this report only apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amy Goodall, Project Manager



Frontier Global Sciences

11720 Northcreek Pkwy N, Suite 400
Bothell, WA 98011
425.686.1996 Phone
425.686.3096 Fax

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

SAMPLE RECEIPT

Samples were received at Eurofins Frontier Global Sciences (EFGS) on 15-Feb-19 10:10 and on 22-Feb-19 9:55. The samples were received intact, on-ice within a sealed cooler at

<u>Cooler</u>	<u>Temp C°</u>
2/15/19 Shipment	1.0
2/22/19 Shipment	5.8

Samples were sent to Analytical Resources, Inc. located in Tukwila, WA for Total Organic Carbon – Plumb Method and Total Suspended Solids by SM2540D-97 per the project set up. The final report can be found at the end of this report after the Notes and Definitions section. Please note that there are two reports from ARI, one for each shipment.

Dissolved samples were filtered on the days of receipt.

SAMPLE PREPARATION AND ANALYSIS

Water samples were prepared and analyzed for total mercury by flow injection atomic fluorescence spectrometry (FI-AFS) in accordance with EPA 1631E.

Water samples were prepared and analyzed for methyl mercury by cold vapor gas chromatography atomic fluorescence spectrometry (CV-GC-AFS) in accordance with EPA 1630 (EFGS-070).

Total solids analysis was performed in accordance with method SM2540B. Total solids are prepared at the same time as the preparation for the analyte(s) of interest in order to provide the most accurate dry mass correction which may be outside of the method recommended holding time of 7 days from sample collection.

Sediment samples were prepared and analyzed for total mercury by flow injection atomic fluorescence spectrometry (FI-AFS) in accordance with EPA 1631B.

ANALYTICAL AND QUALITY CONTROL ISSUES

Method blanks were prepared for every preparation to assess possible blank contribution from the sample preparation procedure. The method blanks were carried through the entire analytical procedure. All blanks fell within the established acceptance criteria with the

Eurofins Frontier Global Sciences, LLC

The results in this report only apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amy Goodall, Project Manager



Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

exception of any items narrated above or flagged and described in the notes and definitions section of the report.

Liquid spikes, certified reference material (CRM) or a quality control samples (QCS) were prepared for every preparation as a measure of accuracy. All liquid spikes, CRMs and/or QCS samples fell within the established acceptance criteria with the exception of any items narrated above or flagged and described in the notes and definitions section of the report.

As an additional measure of the accuracy of the methods used and to check for matrix interference, matrix spikes (MS) and matrix spike duplicates (MSD) were digested and analyzed. All of the matrix spike recoveries fell within the established acceptance criteria with the exception of any items flagged and described in the notes and definitions section of the report.

A reasonable measure of the precision of the analytical methods is the relative percent difference (RPD) between a matrix spike recovery and a matrix spike duplicate recovery and between laboratory control sample recovery and laboratory control sample duplicate recoveries. All of the relative percent differences fell within established acceptance criteria with the exception of any items flagged and described in the notes and definitions section of the report.

Sample Receipt Checklist

Client: Tetra Tech

Date & Time Received: 2/15/19 1010

Date Labeled: 2/15/19 Labeled By: BC

Project: _____

Received By: EKH

Label Verified By: EKH

of Coolers Received: 1 Samples Arrived By: ☒ Shipping Service _____ Courier _____ Hand _____ Other (Specify: _____)

Coolant: ☐ None/Ambient ☒ Loose Ice ☐ Gel Ice ☐ Dry Ice Coolant Required: Y / N Temp Blank Used: Y/N for Cooler(s): _____

Notify Project Manager if packages/coolers are received without coolant or with thawed coolant and at a temperature in excess of 6°C. PM notified: Y/N

Cooler Information:	Y/N/NA	Comments
The coolers do not appear to be tampered with:	<u>Y</u>	
Custody Seals are present and intact:	<u>N</u>	
Custody seals signed:	<u>N</u>	

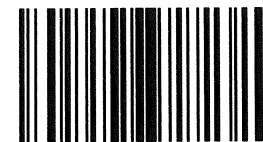
TID: <u>18139804</u> CF: <u>+0.8 °C</u>	Date/time: <u>2/15/19 1010</u>	By: <u>EKH</u>
Cooler 1: <u>02</u> °C w/ CF: <u>1.0</u> °C	Cooler 4: °C w/ CF: °C	
Cooler 2: °C w/ CF: °C	Cooler 5: °C w/ CF: °C	
Cooler 3: °C w/ CF: °C	Cooler 6: °C w/ CF: °C	

Chain of Custody:	Y/N/NA	Comments
Sample ID/Description:	<u>Y</u>	
Date and time of collection:	<u>Y</u>	
Sampled by:	<u>N</u>	
Preservation type:	<u>Y</u>	
Requested analyses:	<u>Y</u>	
Required signatures:	<u>Y</u>	
Internal COC required:	<u>NA</u>	

Sample Condition/Integrity:	Y/N/NA	Comments
Sample containers intact/present:	<u>Y</u>	
Sample labels are present and legible:	<u>Y</u>	
Sample ID on container/bag matches COC:	<u>Y</u>	
Correct sample containers used:	<u>Y</u>	
Samples received within holding times:	<u>Y</u>	
Sample volume sufficient for requested analyses:	<u>Y</u>	
Correct preservative used for requested analyses:	<u>Y</u>	

Anomalies/Non-conformances (attach additional pages if needed):

9B00505



Ship To:
Amy Goodall
eurofins-Frontier Global Sciences
11720 North Creek Parkway North, Suite 400
Bothel, WA

CHAIN OF CUSTODY

960505

Report to:
Dr. Ted Donn
Tetra Tech
3746 Mt. Diablo Blvd.
Lafayette, CA
ted.donn@tetratech.com

5 of 67

General Notes:

This is the first set of samples from this storm. A second set will be sent later.
Perform QA analyses on these samples.
Please report all results to the MDL, J-flag results between MDL and RL
Please report results in pdf format with Excel ECD deliverable

Project	SampleID	Medium	Date	Time	Preservation	Hg-total (EPA 1631E)	Hg-dissolved (EPA-1631E)	Laboratory filtration	MeHg (EPA 1630/FGS-70)	Total Suspended Solids (EPA 160.2 or SM2540d)	Comments
Storm B	GR-19-SB-WB	Water	13-Feb-2019	8:27	cold	X					
Storm B	GR-19-SB-EQ	Water	13-Feb-2019	8:27	cold	X					
Storm B	GR-19-SB-T2	Water	14-Feb-2019	3:45	COLD	X					
Storm B	GR-19-SB-T2	Water	14-Feb-2019	3:45	COLD		X	X			
Storm B	GR-19-SB-T2	Water	14-Feb-2019	3:45	H ₂ SO ₄				X		
Storm B	GR-19-SB-T2	Water	14-Feb-2019	3:45	COLD					X	Subcontracted
Storm B	GR-19-SB-T3	Water	14-Feb-2019	5:00	COLD	X					
Storm B	GR-19-SB-T3	Water	14-Feb-2019	5:00	COLD		X	X			
Storm B	GR-19-SB-T3	Water	14-Feb-2019	5:00	H ₂ SO ₄				X		
Storm B	GR-19-SB-T3	Water	14-Feb-2019	5:00	COLD					X	Subcontracted
Storm B	GR-19-SB-T4	Water	14-Feb-2019	8:00	COLD	X					
Storm B	GR-19-SB-T4	Water	14-Feb-2019	8:00	COLD		X	X			
Storm B	GR-19-SB-T4	Water	14-Feb-2019	8:00	H ₂ SO ₄				X		
Storm B	GR-19-SB-T4	Water	14-Feb-2019	8:00	COLD					X	Subcontracted
Storm B	GR-19-SB-T5	Water	14-Feb-2019	12:00	COLD	X					
Storm B	GR-19-SB-T5	Water	14-Feb-2019	12:00	COLD		X	X			
Storm B	GR-19-SB-T5	Water	14-Feb-2019	12:00	H ₂ SO ₄				X		
Storm B	GR-19-SB-T5	Water	14-Feb-2019	12:00	COLD					X	Subcontracted
Storm B	GR-19-SB-T6	Water	14-Feb-2019	14:00	COLD	X					
Storm B	GR-19-SB-T6	Water	14-Feb-2019	14:00	COLD		X	X			
Storm B	GR-19-SB-T6	Water	14-Feb-2019	14:00	H ₂ SO ₄				X		
Storm B	GR-19-SB-T6	Water	14-Feb-2019	14:00	COLD					X	Subcontracted

Relinquished by:

2/14/2019

Received by:

2/15/19

Relinquished by:

Received by:

ZKH zahra Henani
EFGS 2/15/19 1010 1.6°C
FedEx 7744 7660 3160

SUBCONTRACT ORDER
Eurofins Frontier Global Sciences, Inc.
9B00505

SENDING LABORATORY:

Eurofins Frontier Global Sciences, LLC
11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Phone: (425) 686-1996
Fax: (425) 686-3096
Project Manager: Amy Goodall

RECEIVING LABORATORY:

Analytical Resources, Inc.
4611 S. 134th Place, STE 100
Tukwila, WA 98168
Phone : (206) 621-6490
Fax: (206) 695-6201

Analysis	Comments
----------	----------

Sample ID: GR-19-SB-T2	
EFGS Lab ID: 9B00505-03	Matrix: Water
Sampled: 14-Feb-19 03:45 (GMT-08:00) Pacific Time (US &	Due: 18-Mar-19 19:00

Misc. Subcontract 2	TSS Analysis
---------------------	--------------

Containers Supplied:

23_Client Specific Bottle (

Sample ID: GR-19-SB-T3	
EFGS Lab ID: 9B00505-05	Matrix: Water
Sampled: 14-Feb-19 05:00 (GMT-08:00) Pacific Time (US &	Due: 18-Mar-19 19:00

Misc. Subcontract 2	TSS Analysis
---------------------	--------------

Containers Supplied:


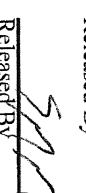
23_Client Specific Bottle (

Sample ID: GR-19-SB-T4	
EFGS Lab ID: 9B00505-07	Matrix: Water
Sampled: 14-Feb-19 08:00 (GMT-08:00) Pacific Time (US &	Due: 18-Mar-19 19:00

Misc. Subcontract 2	TSS Analysis
---------------------	--------------

Containers Supplied:

23_Client Specific Bottle (

Released By: 	Date: 2/15/19
Released By: 	Date: 2-15-19


86W060 FEB 15, 2019 BL WT ACT WT 38.8 LBS #PK 1
SVC TDA
TRACKING# 1286W0604449880694 ALL CURRENCY USD
DEPT NO.: OVERHEAD
REF 2: SUBCONTRACT

HC 0.00	CNS 0.00	FRT: SHP
SHIPMENT NR RATE CHARGES:		SVC 14.80 USD
DV 0.00	COD 0.00	RS 0.00
DC 0.00	DGD 0.00	SAT 0.00
AH 0.00	PR 0.00	ROD 0.00
TOT NR CHG 14.80		NR+HC14.80

THIS DOCUMENT IS NOT AN INVOICE.

SUBCONTRACT ORDER
Eurofins Frontier Global Sciences, Inc.
9B00505

Analysis	Comments	
Sample ID: GR-19-SB-T5		
EFGS Lab ID: 9B00505-09	Matrix: Water	
Sampled: 14-Feb-19 12:00 (GMT-08:00) Pacific Time (US &		Due: 18-Mar-19 19:00
Misc. Subcontract 2		
	TSS Analysis	
Containers Supplied:		
23_Client Specific Bottle 1		
Sample ID: GR-19-SB-T6		
EFGS Lab ID: 9B00505-11	Matrix: Water	
Sampled: 14-Feb-19 14:00 (GMT-08:00) Pacific Time (US &		Due: 18-Mar-19 19:00
Misc. Subcontract 2		
	TSS Analysis	
Containers Supplied:		
23_Client Specific Bottle 1		

	2/15/19		
Released By	Date	Received By	Date
SM	2-15-19		
Released By	Date	Received By	Date

Sample Receipt Checklist

Client: Tetra Tech

Date & Time Received: 2/22/19 955 Date Labeled: 2/22/19 Labeled By: u

Project: _____

Received By: Ben Label Verified By: Ben

of Coolers Received: 1 Samples Arrived By: ✓ Shipping Service _____ Courier _____ Hand _____ Other (Specify: _____)

Coolant: ☐ None/Ambient ☒ Loose Ice ☐ Gel Ice ☐ Dry Ice Coolant Required: (Y)/N Temp Blank Used: (Y/N) for Cooler(s): _____

Notify Project Manager if packages/coolers are received without coolant or with thawed coolant and at a temperature in excess of 6°C. PM notified: Y/N

Cooler Information:	Y/N/NA	Comments
The coolers do not appear to be tampered with:	<u>Y</u>	
Custody Seals are present and intact:	<u>N</u>	
Custody seals signed:	<u>N</u>	

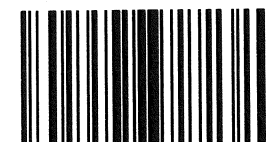
TID: <u>9804</u>	CF: <u>+0.8 °C</u>	Date/time: <u>2/22/19 955</u>	By: <u>Ben</u>
Cooler 1: <u>5-0 °C</u>	w/ CF: <u>5.8 °C</u>	Cooler 4: _____ °C	w/ CF: _____ °C
Cooler 2: _____ °C	w/ CF: _____ °C	Cooler 5: _____ °C	w/ CF: _____ °C
Cooler 3: _____ °C	w/ CF: _____ °C	Cooler 6: _____ °C	w/ CF: _____ °C

Chain of Custody:	Y/N/NA	Comments
Sample ID/Description:	<u>Y</u>	
Date and time of collection:	<u>Y</u>	
Sampled by:	<u>Y</u>	
Preservation type:	<u>Y</u>	
Requested analyses:	<u>Y</u>	
Required signatures:	<u>Y</u>	
Internal COC required:	<u>NA</u>	

Sample Condition/Integrity:	Y/N/NA	Comments
Sample containers intact/present:	<u>Y</u>	
Sample labels are present and legible:	<u>Y</u>	
Sample ID on container/bag matches COC:	<u>Y</u>	
Correct sample containers used:	<u>Y</u>	
Samples received within holding times:	<u>Y</u>	
Sample volume sufficient for requested analyses:	<u>Y</u>	
Correct preservative used for requested analyses:	<u>Y</u>	

Anomalies/Non-conformances (attach additional pages if needed):

9B00505



CHAIN OF CUSTODY

9B00505

General Notes:

This is the first set of samples from this storm. A second set will be sent later.

Perform QA analyses on these samples.

Please report all results to the MDL, J-flag results between MDL and RL

Please report results in pdf format with Excel EDD deliverable

Project	SampleID	Medium	Date	Time	Preservation	Hg-total (EPA 1631E)	Dry Weight	Hg-dissolved (EPA-1631E)	Laboratory filtration	MeHg (EPA 1630/FGS-70)	Total Suspended Solids (EPA 160.2 or SM2540d)	Comments
Storm B	GR-19-SB-SED1	Sediment	15-Feb-2019	14:15	COLD	X	X					
Storm B	GR-19-SB-SED2	Sediment	15-Feb-2019	14:16	COLD	X	X					
Storm B	GR-19-SB-SED3	Sediment	15-Feb-2019	14:17	COLD	X	X					
Storm B	GR-19-SB-T7	Water	15-Feb-2019	14:45	COLD	X						
Storm B	GR-19-SB-T7	Water	15-Feb-2019	14:45	COLD			X	X			
Storm B	GR-19-SB-T7	Water	15-Feb-2019	14:45	H ₂ SO ₄					X		
Storm B	GR-19-SB-T7	Water	15-Feb-2019	14:45	COLD						X	Subcontracted
Storm B	GR-19-SB-T8	Water	18-Feb-2019	9:00	COLD	X						
Storm B	GR-19-SB-T8	Water	18-Feb-2019	9:00	COLD			X	X			
Storm B	GR-19-SB-T8	Water	18-Feb-2019	9:00	H ₂ SO ₄					X		
Storm B	GR-19-SB-T8	Water	18-Feb-2019	9:00	COLD						X	Subcontracted
Storm B	GR-19-SB-T9	Water	21-Feb-2019	7:45	COLD	X						
Storm B	GR-19-SB-T9	Water	21-Feb-2019	7:45	COLD			X	X			
Storm B	GR-19-SB-T9	Water	21-Feb-2019	7:45	H ₂ SO ₄					X		
Storm B	GR-19-SB-T9	Water	21-Feb-2019	7:45	COLD						X	Subcontracted

CS-MT FGS

5-8⁰⁰

FedEx


2/22/19

7744 8793 2883

Relinquished by:  2/21/2019

Relinquished by:

Received by:

 / Brian Wobbe
FGS

Received by:

Eurofins Frontier Global Sciences, Inc.

Comments

Analysis

~~Sample ID: CP-19-SB-T5~~

EFGS Lab ID: 9B00505-09

Matrix: Water

Sampled: 14-Feb-19 12:00 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23 Client Specific Bottle (

Sample ID: GR-19-SB-T6

EFGS Lab ID: 9B00505-11

Matrix: Water

~~Sampled: 14-Feb-19 14:00 (GMT-08:00) Pacific Time (US &~~

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

~~Containers Supplied:~~

~~Client Specific Bottle~~

Sample ID: GR-19-SB-T7

Matrix: Water

Sampled: 15-Feb-19 14:45 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23 Client Specific Bottle

Sample ID: GR-19-SB-T8

Matrix: Water

Sampled: 18-Feb-19 09:00 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23 Client Specific Bottle (

Released By

Date _____

Received By

Date

Released By

Date _____

Received By

Date _____

SUBCONTRACT ORDER
Eurofins Frontier Global Sciences, Inc.
9B00505

Analysis	Comments
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Sample ID: GR-19-SB-T9

EFGS Lab ID: 9B00505-21

Matrix: Water

Sampled: 21-Feb-19 07:45 (GMT-08:00) Pacific Time (US &


Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23_Client Specific Bottle 1

Released By 

Released By

Date

Received By

Date

2/22/19

Released By

Date

Received By

Date



Frontier Global Sciences

11720 Northcreek Pkwy N, Suite 400
Bothell, WA 98011
425.686.1996 Phone
425.686.3096 Fax

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-WB

9B00505-01

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	0.17	0.08	0.50	ng/L	1	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	
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Eurofins Frontier Global Sciences, LLC

Amy Goodall

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Amy Goodall, Project Manager



Frontier Global Sciences

11720 Northcreek Pkwy N, Suite 400
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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-EQ

9B00505-02

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	0.14	0.08	0.50	ng/L	1	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	

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Amy Goodall

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Amy Goodall, Project Manager

13 of 67



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11720 Northcreek Pkwy N, Suite 400
Bothell, WA 98011
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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T2

9B00505-03

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	1150	4.17	25.0	ng/L	50	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	1.28	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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Eurofins Frontier Global Sciences, LLC

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Amy Goodall, Project Manager



Frontier Global Sciences

11720 Northcreek Pkwy N, Suite 400
Bothell, WA 98011
425.686.1996 Phone
425.686.3096 Fax

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T2 Dissolved
9B00505-04

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	8.28	0.08	0.50	ng/L	1	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	

Eurofins Frontier Global Sciences, LLC

Amy Goodall

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Amy Goodall, Project Manager



Frontier Global Sciences

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Bothell, WA 98011
425.686.1996 Phone
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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T3

9B00505-05

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	1260	4.17	25.0	ng/L	50	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	
---------	------	------	------	------	----	---------	-----------	---------	-----------	-----------	--

Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	1.11	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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Eurofins Frontier Global Sciences, LLC

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Amy Goodall, Project Manager



Frontier Global Sciences

11720 Northcreek Pkwy N, Suite 400
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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T3 Dissolved
9B00505-06

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	8.27	0.08	0.50	ng/L	1	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	

Eurofins Frontier Global Sciences, LLC

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Amy Goodall, Project Manager



Frontier Global Sciences

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Bothell, WA 98011
425.686.1996 Phone
425.686.3096 Fax

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T4

9B00505-07

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
---------	--------	--------------------	--------------------	-------	----------	-------	----------	----------	----------	--------	-------

Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	1830	4.17	25.0	ng/L	50	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	
---------	------	------	------	------	----	---------	-----------	---------	-----------	-----------	--

Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	1.06	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	19-Feb-19	EPA 1630	
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Amy Goodall, Project Manager

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Frontier Global Sciences

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Tetra Tech, Inc. Lafayette
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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T4 Dissolved
9B00505-08

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	12.0	0.08	0.50	ng/L	1	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	

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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T5

9B00505-09

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	1740	4.17	25.0	ng/L	50	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.885	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	20-Feb-19	EPA 1630	
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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T5 Dissolved
9B00505-10

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	18.9	0.08	0.50	ng/L	1	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	

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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T6

9B00505-11

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	1870	4.17	25.0	ng/L	50	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	1.31	0.026	0.050	ng/L	1.25	F902266	19-Feb-19	9B20005	20-Feb-19	EPA 1630	
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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T6 Dissolved
9B00505-12

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	19.1	0.08	0.50	ng/L	1	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	

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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

Laboratory Filter Blank

9B00505-13

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	0.19	0.08	0.50	ng/L	1	F902297	15-Feb-19	9B21010	21-Feb-19	EPA 1631E	FB

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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-SED1

9B00505-14

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2807 Cold Aqua Regia Digestion for Hg

Mercury	2140	7.63	69.4	ng/g dry	1000	F902364	27-Feb-19	9B28009	28-Feb-19	EPA 1631B	
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Sample Preparation: EFGS SOP5133 Solids Analysis

% Solids	66.8	-	0.1	% by Weight	1	F902365	27-Feb-19		28-Feb-19	SM 2540B	O-04, O-09
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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-SED2

9B00505-15

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2807 Cold Aqua Regia Digestion for Hg

Mercury	2010	7.56	68.8	ng/g dry	1000	F902364	27-Feb-19	9B28009	28-Feb-19	EPA 1631B	
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Sample Preparation: EFGS SOP5133 Solids Analysis

% Solids	67.9	-	0.1	% by Weight	1	F902365	27-Feb-19		28-Feb-19	SM 2540B	O-04, O-09
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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-SED3

9B00505-16

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2807 Cold Aqua Regia Digestion for Hg

Mercury	808	1.62	14.8	ng/g dry	250	F902364	27-Feb-19	9B28009	28-Feb-19	EPA 1631B	
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Sample Preparation: EFGS SOP5133 Solids Analysis

% Solids	72.5	-	0.1	% by Weight	1	F902365	27-Feb-19		28-Feb-19	SM 2540B	O-04, O-09
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Reported:
15-Mar-19 16:00

GR-19-SB-T7

9B00505-17

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	731	4.17	25.0	ng/L	50	F903313	22-Feb-19	9C08014	08-Mar-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.735	0.026	0.050	ng/L	1.25	F903237	01-Mar-19	9C02006	01-Mar-19	EPA 1630	
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Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T7 Dissolved
9B00505-18

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	18.9	0.08	0.50	ng/L	1	F903313	22-Feb-19	9C08014	08-Mar-19	EPA 1631E	

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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T8

9B00505-19

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	208	4.17	25.0	ng/L	50	F903313	22-Feb-19	9C08014	08-Mar-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.310	0.026	0.050	ng/L	1.25	F903237	01-Mar-19	9C02006	01-Mar-19	EPA 1630	
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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T8 Dissolved
9B00505-20

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	7.97	0.08	0.50	ng/L	1	F903313	22-Feb-19	9C08014	08-Mar-19	EPA 1631E	

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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T9

9B00505-21

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
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Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation

Mercury	71.2	4.17	25.0	ng/L	50	F903313	22-Feb-19	9C08014	08-Mar-19	EPA 1631E	
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Sample Preparation: EFGS SOP2797 Methyl Hg Distillation for Water

Methyl Mercury (as Mercury)	0.178	0.026	0.050	ng/L	1.25	F903237	01-Mar-19	9C02006	01-Mar-19	EPA 1630	
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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

GR-19-SB-T9 Dissolved
9B00505-22

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	3.96	0.08	0.50	ng/L	1	F903313	22-Feb-19	9C08014	08-Mar-19	EPA 1631E	

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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

Laboratory Filter Blank
9B00505-23

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2796 EPA 1631 Oxidation											
Mercury	ND	0.08	0.50	ng/L	1	F903313	22-Feb-19	9C08014	08-Mar-19	EPA 1631E	U, FB

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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch F902266 - EFGS SOP2797 Methyl Hg Distillation for Water

Blank (F902266-BLK1)					Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	ND	0.026	0.050	ng/L							U
Blank (F902266-BLK2)					Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	0.032	0.026	0.050	ng/L							
Blank (F902266-BLK3)					Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	ND	0.026	0.050	ng/L							U
LCS (F902266-BS1)					Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	0.951	0.026	0.050	ng/L	1.0000		95.1	70-130			
LCS Dup (F902266-BSD1)					Prepared & Analyzed: 19-Feb-19						
Methyl Mercury (as Mercury)	0.941	0.026	0.050	ng/L	1.0000		94.1	70-130	0.969	35	
Duplicate (F902266-DUP1)					Source: 9B00206-05		Prepared & Analyzed: 19-Feb-19				
Methyl Mercury (as Mercury)	0.755	0.026	0.050	ng/L		1.130			39.8	35	QR-07
Matrix Spike (F902266-MS1)					Source: 9B00206-03		Prepared & Analyzed: 19-Feb-19				
Methyl Mercury (as Mercury)	0.999	0.026	0.050	ng/L	1.0000	0.899	9.97	65-130			QM-07
Matrix Spike (F902266-MS2)					Source: 9B00505-03		Prepared & Analyzed: 19-Feb-19				
Methyl Mercury (as Mercury)	1.762	0.026	0.050	ng/L	1.0000	1.283	47.9	65-130			QM-02
Matrix Spike Dup (F902266-MSD1)					Source: 9B00206-03		Prepared & Analyzed: 19-Feb-19				
Methyl Mercury (as Mercury)	1.758	0.026	0.050	ng/L	1.0000	0.899	85.9	65-130	55.1	35	QR-08
Matrix Spike Dup (F902266-MSD2)					Source: 9B00505-03		Prepared & Analyzed: 19-Feb-19				
Methyl Mercury (as Mercury)	2.271	0.026	0.050	ng/L	1.0000	1.283	98.8	65-130	25.2	35	

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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch F902297 - EFGS SOP2796 EPA 1631 Oxidation											
Blank (F902297-BLK1)					Prepared & Analyzed: 21-Feb-19						
Mercury	0.10	0.08	0.50	ng/L							
Blank (F902297-BLK2)					Prepared & Analyzed: 21-Feb-19						
Mercury	ND	0.08	0.50	ng/L							U
Blank (F902297-BLK3)					Prepared & Analyzed: 21-Feb-19						
Mercury	ND	0.08	0.50	ng/L							U
Blank (F902297-BLK4)					Prepared & Analyzed: 21-Feb-19						
Mercury	ND	0.09	0.52	ng/L							QB-06, U
LCS (F902297-BS1)					Prepared & Analyzed: 21-Feb-19						
Mercury	15.06	0.08	0.50	ng/L	14.688		103	80-120			
LCS Dup (F902297-BSD1)					Prepared & Analyzed: 21-Feb-19						
Mercury	15.52	0.08	0.50	ng/L	14.688		106	80-120	3.04	24	
Duplicate (F902297-DUP1)					Source: 9B00206-21RE1		Prepared & Analyzed: 21-Feb-19				
Mercury	22.38	0.83	5.00	ng/L		22.86			2.10	24	AD
Matrix Spike (F902297-MS1)					Source: 9B00206-21RE1		Prepared & Analyzed: 21-Feb-19				
Mercury	124.7	0.83	5.00	ng/L	101.00	22.86	101	71-125			AS
Matrix Spike (F902297-MS2)					Source: 9B00257-01		Prepared & Analyzed: 21-Feb-19				
Mercury	134.9	0.87	5.20	ng/L	105.00	31.41	98.5	71-125			AS
Matrix Spike Dup (F902297-MSD1)					Source: 9B00206-21RE1		Prepared & Analyzed: 21-Feb-19				
Mercury	125.8	0.83	5.00	ng/L	101.00	22.86	102	71-125	0.855	24	AS

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Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch F902297 - EFGS SOP2796 EPA 1631 Oxidation

Matrix Spike Dup (F902297-MSD2)

Source: 9B00257-01

Prepared & Analyzed: 21-Feb-19

Mercury	136.6	0.87	5.20	ng/L	105.00	31.41	100	71-125	1.24	24	AS
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Batch F902364 - EFGS SOP2807 Cold Aqua Regia Digestion for Hg

Blank (F902364-BLK1)

Prepared: 27-Feb-19 Analyzed: 28-Feb-19

Mercury	ND	0.11	1.00	ng/g wet							U
---------	----	------	------	----------	--	--	--	--	--	--	---

Blank (F902364-BLK2)

Prepared: 27-Feb-19 Analyzed: 28-Feb-19

Mercury	ND	0.11	1.00	ng/g wet							U
---------	----	------	------	----------	--	--	--	--	--	--	---

Blank (F902364-BLK3)

Prepared: 27-Feb-19 Analyzed: 28-Feb-19

Mercury	ND	0.11	1.00	ng/g wet							U
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LCS (F902364-BS1)

Prepared: 27-Feb-19 Analyzed: 28-Feb-19

Mercury	7.95	0.11	1.00	ng/g wet	8.0000		99.4	75-125			
---------	------	------	------	----------	--------	--	------	--------	--	--	--

LCS Dup (F902364-BSD1)

Prepared: 27-Feb-19 Analyzed: 28-Feb-19

Mercury	7.88	0.11	1.00	ng/g wet	8.0000		98.5	75-125	0.906	24	
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Duplicate (F902364-DUP1)

Source: 9B00505-14RE1

Prepared: 27-Feb-19 Analyzed: 28-Feb-19

Mercury	2468	7.21	65.7	ng/g dry		2144			14.1	24	
---------	------	------	------	----------	--	------	--	--	------	----	--

Matrix Spike (F902364-MS1)

Source: 9B00505-14RE1

Prepared: 27-Feb-19 Analyzed: 28-Feb-19

Mercury	2212	7.24	65.9	ng/g dry	530.28	2144	12.9	71-125			QM-14
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Matrix Spike Dup (F902364-MSD1)

Source: 9B00505-14RE1

Prepared: 27-Feb-19 Analyzed: 28-Feb-19

Mercury	2570	7.11	64.7	ng/g dry	521.10	2144	81.9	71-125	146	24	QM-14, QR-08
---------	------	------	------	----------	--------	------	------	--------	-----	----	-----------------

Eurofins Frontier Global Sciences, LLC

The results in this report only apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amy Goodall, Project Manager



Frontier Global Sciences

11720 Northcreek Pkwy N, Suite 400
Bothell, WA 98011
425.686.1996 Phone
425.686.3096 Fax

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch F903237 - EFGS SOP2797 Methyl Hg Distillation for Water

Blank (F903237-BLK1)					Prepared & Analyzed: 01-Mar-19						
Methyl Mercury (as Mercury)	ND	0.026	0.050	ng/L							U
Blank (F903237-BLK2)					Prepared & Analyzed: 01-Mar-19						
Methyl Mercury (as Mercury)	ND	0.026	0.050	ng/L							U
Blank (F903237-BLK3)					Prepared & Analyzed: 01-Mar-19						
Methyl Mercury (as Mercury)	ND	0.026	0.050	ng/L							U
LCS (F903237-BS1)					Prepared & Analyzed: 01-Mar-19						
Methyl Mercury (as Mercury)	1.038	0.026	0.050	ng/L	1.0000		104	70-130			
LCS Dup (F903237-BSD1)					Prepared & Analyzed: 01-Mar-19						
Methyl Mercury (as Mercury)	0.989	0.026	0.050	ng/L	1.0000		98.9	70-130	4.84	35	
Duplicate (F903237-DUP1)					Source: 9B00505-17 Prepared & Analyzed: 01-Mar-19						
Methyl Mercury (as Mercury)	0.372	0.026	0.050	ng/L		0.735			65.7	35	QR-07
Matrix Spike (F903237-MS1)					Source: 9B00505-19 Prepared & Analyzed: 01-Mar-19						
Methyl Mercury (as Mercury)	0.955	0.026	0.050	ng/L	1.0000	0.310	64.6	65-130			QM-07
Matrix Spike Dup (F903237-MSD1)					Source: 9B00505-19 Prepared & Analyzed: 01-Mar-19						
Methyl Mercury (as Mercury)	1.253	0.026	0.050	ng/L	1.0000	0.310	94.4	65-130	27.0	35	

Batch F903313 - EFGS SOP2796 EPA 1631 Oxidation

Blank (F903313-BLK1)					Prepared & Analyzed: 08-Mar-19						
Mercury	ND	0.08	0.50	ng/L							U

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Amy Goodall, Project Manager

38 of 67



Frontier Global Sciences

11720 Northcreek Pkwy N, Suite 400
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425.686.1996 Phone
425.686.3096 Fax

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch F903313 - EFGS SOP2796 EPA 1631 Oxidation											
Blank (F903313-BLK2)					Prepared & Analyzed: 08-Mar-19						
Mercury	ND	0.08	0.50	ng/L							U
Blank (F903313-BLK3)					Prepared & Analyzed: 08-Mar-19						
Mercury	ND	0.08	0.50	ng/L							U
Blank (F903313-BLK4)					Prepared & Analyzed: 08-Mar-19						
Mercury	ND	0.09	0.52	ng/L							U
LCS (F903313-BS1)					Prepared & Analyzed: 08-Mar-19						
Mercury	14.89	0.08	0.50	ng/L	14.688		101	80-120			
LCS Dup (F903313-BSD1)					Prepared & Analyzed: 08-Mar-19						
Mercury	15.10	0.08	0.50	ng/L	14.688		103	80-120	1.42	24	
Duplicate (F903313-DUP1)					Source: 9B00505-17 Prepared & Analyzed: 08-Mar-19						
Mercury	721.8	8.34	50.0	ng/L		730.6			1.21	24	AD
Matrix Spike (F903313-MS1)					Source: 9B00505-17 Prepared & Analyzed: 08-Mar-19						
Mercury	2693	8.34	50.0	ng/L	2020.0	730.6	97.2	71-125			AS
Matrix Spike (F903313-MS2)					Source: 9B00505-19 Prepared & Analyzed: 08-Mar-19						
Mercury	1206	4.17	25.0	ng/L	1010.0	207.8	98.9	71-125			AS
Matrix Spike Dup (F903313-MSD1)					Source: 9B00505-17 Prepared & Analyzed: 08-Mar-19						
Mercury	2692	8.34	50.0	ng/L	2020.0	730.6	97.1	71-125	0.0433	24	AS
Matrix Spike Dup (F903313-MSD2)					Source: 9B00505-19 Prepared & Analyzed: 08-Mar-19						
Mercury	1188	4.17	25.0	ng/L	1010.0	207.8	97.1	71-125	1.48	24	AS

Eurofins Frontier Global Sciences, LLC

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Amy Goodall, Project Manager



Frontier Global Sciences

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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch F902365 - EFGS SOP5133 Solids Analysis

Duplicate (F902365-DUP1)		Source: 9B00505-14			Prepared: 27-Feb-19 Analyzed: 28-Feb-19						
% Solids	67.1	-	0.1	% by Weight	66.8				0.448	10	O-04, O-09

Eurofins Frontier Global Sciences, LLC

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Amy Goodall, Project Manager

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: WSRCD
Project Number: Guadalupe R Project
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
15-Mar-19 16:00

Notes and Definitions

U	Analyte was not detected and is reported as less than the LOD or as defined by the client. The LOD has been adjusted for any dilution or concentration of the sample.
QR-08	The RPD value for the MS/MSD was outside of acceptance limits. Batch QC acceptable based on matrix duplicate and/or LCS/LCSD RPD values within control limits.
QR-07	The RPD/RSD value for the matrix duplicate/triplicate was outside of acceptance limits. Batch QC acceptable based on MS/MSD and/or LCS/LCSD RPD values within control limits.
QM-14	The MS and/or MSD recoveries outside acceptance limits, due to spike concentration less than 2 times the sample concentration. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QM-07	The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QM-02	The MS and/or MSD recoveries outside acceptance limits, due to spike concentration less than 1 times the sample concentration. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QB-06	The blank was preserved to 5% BrCl rather than 1%. The control limit for blanks preserved to greater than 1% BrCl is the preservation percentage multiplied by the MRL.
O-09	Total Solids are prepared at the same time as the preparation for the analyte(s) of interest in order to provide the most accurate dry mass correction.
O-04	This sample was analyzed outside of the recommended holding time.
FB	This blank is a filtration blank. Data is reported for informational purposes only.
AS	This MS and/or MSD is an analytical spike and/or an analytical spike duplicate.
AD	This matrix duplicate is an analytical duplicate.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the method detection limit if reported to the MDL or above the reporting limit if reported to the MRL.
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference



Analytical Resources, Incorporated
Analytical Chemists and Consultants

22 February 2019

Amy Goodall
Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell, WA 98011

RE: 9B00505

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
19B0184

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

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.



SUBCONTRACT ORDER
Eurofins Frontier Global Sciences, Inc.

9B00505

19B0184

SENDING LABORATORY:

Eurofins Frontier Global Sciences, LLC
11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Phone: (425) 686-1996
Fax: (425) 686-3096
Project Manager: Amy Goodall

RECEIVING LABORATORY:

Analytical Resources, Inc.
4611 S. 134th Place, STE 100
Tukwila, WA 98168
Phone : (206) 621-6490
Fax: (206) 695-6201

Analysis

Comments

Sample ID: GR-19-SB-T2

EFGS Lab ID: 9B00505-03

Matrix: Water

Sampled: 14-Feb-19 03:45 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23 Client Specific Bottle

Sample ID: GR-19-SB-T3

EFGS Lab ID: 9B00505-05

Matrix: Water

Sampled: 14-Feb-19 05:00 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23 Client Specific Bottle

Sample ID: GR-19-SB-T4

EFGS Lab ID: 9B00505-07

Matrix: Water

Sampled: 14-Feb-19 08:00 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23 Client Specific Bottle

Released By

Date

Received By

Date

Released By

Date

Received By

Date

SUBCONTRACT ORDER
Eurofins Frontier Global Sciences, Inc.
9B00505

19B0184

Analysis	Comments
----------	----------

Sample ID: GR-19-SB-T5

EFGS Lab ID: 9B00505-09

Matrix: Water

Sampled: 14-Feb-19 12:00 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23_Client Specific Bottle (

Sample ID: GR-19-SB-T6

EFGS Lab ID: 9B00505-11

Matrix: Water

Sampled: 14-Feb-19 14:00 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23_Client Specific Bottle (

Released By

Date

Received By

Date

Released By

Date

Received By

Date



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 09:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GR-19-SB-T2	19B0184-01	Water	14-Feb-2019 03:45	18-Feb-2019 10:12
GR-19-SB-T3	19B0184-02	Water	14-Feb-2019 05:00	18-Feb-2019 10:12
GR-19-SB-T4	19B0184-03	Water	14-Feb-2019 08:00	18-Feb-2019 10:12
GR-19-SB-T5	19B0184-04	Water	14-Feb-2019 12:00	18-Feb-2019 10:12
GR-19-SB-T6	19B0184-05	Water	14-Feb-2019 14:00	18-Feb-2019 10:12



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 09:00

Work Order Case Narrative

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.



Cooler Receipt Form

ARI Client: Eurofins
COC No(s): _____ (NA)
Assigned ARI Job No: 19B0184

Project Name: 9B00505
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Tracking No: 1Z86W0504449680691 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO
Were custody papers included with the cooler? YES NO
Were custody papers properly filled out (ink, signed, etc.) YES NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1012 0.3
If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 1202561
Cooler Accepted by: SE Date: 2-18-19 Time: 1012

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____
Was sufficient ice used (if appropriate)? NA YES NO
Were all bottles sealed in individual plastic bags? YES NO
Did all bottles arrive in good condition (unbroken)? YES NO
Were all bottle labels complete and legible? YES NO
Did the number of containers listed on COC match with the number of containers received? YES NO
Did all bottle labels and tags agree with custody papers? YES NO
Were all bottles used correct for the requested analyses? YES NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO
Were all VOC vials free of air bubbles? NA YES NO
Was sufficient amount of sample sent in each bottle? YES NO
Date VOC Trip Blank was made at ARI: NA
Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____
Samples Logged by: JSW Date: 02/18/19 Time: 1243 Labels checked by: SE

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 09:00

GR-19-SB-T2
19B0184-01 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/14/2019 03:45

Instrument: BAL2 Analyst: KLE

Analyzed: 02/19/2019 04:28

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0184-01

Preparation Batch: BHB0383

Sample Size: 150 mL

Prepared: 19-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	7	7	215	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 09:00

GR-19-SB-T3
19B0184-02 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/14/2019 05:00

Instrument: BAL2 Analyst: KLE

Analyzed: 02/19/2019 04:28

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0184-02

Preparation Batch: BHB0383

Sample Size: 100 mL

Prepared: 19-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	10	10	339	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 09:00

GR-19-SB-T4
19B0184-03 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/14/2019 08:00

Instrument: BAL2 Analyst: KLE

Analyzed: 02/19/2019 04:28

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0184-03

Preparation Batch: BHB0383

Sample Size: 50 mL

Prepared: 19-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	20	20	450	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 09:00

GR-19-SB-T5
19B0184-04 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/14/2019 12:00

Instrument: BAL2 Analyst: KLE

Analyzed: 02/19/2019 04:28

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0184-04

Preparation Batch: BHB0383

Sample Size: 50 mL

Prepared: 19-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	20	20	406	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 09:00

GR-19-SB-T6
19B0184-05 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/14/2019 14:00

Instrument: BAL2 Analyst: KLE

Analyzed: 02/19/2019 04:28

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0184-05

Preparation Batch: BHB0383

Sample Size: 50 mL

Prepared: 19-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	20	20	392	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 09:00

Wet Chemistry - Quality Control

Batch BHB0383 - No Prep Wet Chem

Instrument: BAL2 Analyst: KLE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BHB0383-BLK1)										
Prepared: 19-Feb-2019 Analyzed: 19-Feb-2019 04:28										
Suspended Solids	ND	1	1	mg/L						U
LCS (BHB0383-BS1)										
Prepared: 19-Feb-2019 Analyzed: 19-Feb-2019 04:28										
Suspended Solids	50	1	1	mg/L	50.00		99.2 90-110			



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 09:00

Certified Analyses included in this Report

Analyte	Certifications		
SM 2540 D-97 in Water			
Suspended Solids		DoD-ELAP,WADOE,NELAP	
Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	02/07/2019
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
22-Feb-2019 09:00

Notes and Definitions

U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

11 March 2019

Amy Goodall
Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell, WA 98011

RE: 9B00505

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
19B0268

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

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.



SUBCONTRACT ORDER
Eurofins Frontier Global Sciences, Inc.

9B00505

19B0268

Analysis

Comments

Sample ID: GR-19-SB-T5

EFGS Lab ID: 9B00505-09

Matrix: Water

Sampled: 14-Feb-19 12:00 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23_Client Specific Bottle

Sample ID: GR-19-SB-T6

EFGS Lab ID: 9B00505-11

Matrix: Water

Sampled: 14-Feb-19 14:00 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

BW 2/22/19

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23_Client Specific Bottle

Sample ID: GR-19-SB-T7

EFGS Lab ID: 9B00505-17

Matrix: Water

Sampled: 15-Feb-19 14:45 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23_Client Specific Bottle

Sample ID: GR-19-SB-T8

EFGS Lab ID: 9B00505-19

Matrix: Water

Sampled: 18-Feb-19 09:00 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23_Client Specific Bottle

Released By

Date

Received By

Date

Released By

Date

Received By

Date

SUBCONTRACT ORDER
Eurofins Frontier Global Sciences, Inc.

9B00505

19B0268

Analysis	Comments
----------	----------

Sample ID: GR-19-SB-T9

EFGS Lab ID: 9B00505-21

Matrix: Water

Sampled: 21-Feb-19 07:45 (GMT-08:00) Pacific Time (US &

Due: 18-Mar-19 19:00

Misc. Subcontract 2

TSS Analysis

Containers Supplied:

23_Client Specific Bottle

Released By

Date

Received By

Date

Released By

Date

Received By

Date



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
11-Mar-2019 13:45

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GR-19-SB-T7	19B0268-01	Water	15-Feb-2019 14:45	23-Feb-2019 11:36
GR-19-SB-T8	19B0268-02	Water	18-Feb-2019 09:00	23-Feb-2019 11:36
GR-19-SB-T9	19B0268-03	Water	21-Feb-2019 07:45	23-Feb-2019 11:36



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
11-Mar-2019 13:45

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received February 23, 2019 under ARI work order 19B0268. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Total Suspended Solids-SM2540D-97

Sample GR-19-SB-T7 was received outside of the 7 day recommended holding time, and has been flagged with an "H" qualifier.

The method blank was clean at the reporting limits.

The LCS percent recoveries were within control limits.



Cooler Receipt Form

ARI Client: Eurofins

Project Name: 9B00505

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 19B0268

Tracking No: 1Z86W050444980404 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1136 4.4°C

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D005206

Cooler Accepted by: JSW Date: 02/23/19 Time: 1136

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JSW Date: 02/23/19 Time: 1145 Labels checked by: JSW

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
11-Mar-2019 13:45

GR-19-SB-T7
19B0268-01 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/15/2019 14:45

Instrument: BAL2 Analyst: KLE

Analyzed: 02/25/2019 06:32

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0268-01

Preparation Batch: BHB0529

Sample Size: 100 mL

Prepared: 25-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	10	10	175	mg/L	H



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
11-Mar-2019 13:45

GR-19-SB-T8
19B0268-02 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/18/2019 09:00

Instrument: BAL2 Analyst: KLE

Analyzed: 02/25/2019 06:32

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0268-02

Preparation Batch: BHB0529

Sample Size: 300 mL

Prepared: 25-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	3	3	58	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
11-Mar-2019 13:45

GR-19-SB-T9
19B0268-03 (Water)

Wet Chemistry

Method: SM 2540 D-97

Sampled: 02/21/2019 07:45

Instrument: BAL2 Analyst: KLE

Analyzed: 02/25/2019 06:32

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 19B0268-03

Preparation Batch: BHB0529

Sample Size: 440 mL

Prepared: 25-Feb-2019

Final Volume: 1000 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Suspended Solids		1	2	2	44	mg/L	



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
11-Mar-2019 13:45

Wet Chemistry - Quality Control

Batch BHB0529 - No Prep Wet Chem

Instrument: BAL2 Analyst: KLE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD Limit	Notes
Blank (BHB0529-BLK1)									
Prepared: 25-Feb-2019 Analyzed: 25-Feb-2019 06:32									
Suspended Solids	ND	1	1	mg/L					U
LCS (BHB0529-BS1)									
Prepared: 25-Feb-2019 Analyzed: 25-Feb-2019 06:32									
Suspended Solids	50	1	1	mg/L	50.00		99.0 90-110		



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
11-Mar-2019 13:45

Certified Analyses included in this Report

Analyte	Certifications		
SM 2540 D-97 in Water			
Suspended Solids		DoD-ELAP,WADOE,NELAP	
Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



Eurofins Frontier Global Sciences
11720 Northcreek Parkway North, Suite 400
Bothell WA, 98011

Project: 9B00505
Project Number: [none]
Project Manager: Amy Goodall

Reported:
11-Mar-2019 13:45

Notes and Definitions

H	Hold time violation - Hold time was exceeded.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

APPENDIX B FISH TISSUE ANALYTICAL LABORATORY REPORTS

VALIDATION SUMMARY

LABORATORY: E-FGS

WORK ORDER: Fish Tissue (Laboratory WO: 9K00070)

ISSUES:

- 1) **CHAIN OF CUSTODY**
 - No issues found.
- 2) **SAMPLE TEMPERATURES**
 - Sample temperatures upon arrival at the laboratory were reported as -19.0 °C.
- 3) **COMPLETENESS**
 - Samples were received and analyzed as expected.
- 4) **QA/QC**
 - Laboratory duplicate RPD value was elevated for mercury in batch number F911233
 - MS/MSD % recoveries were elevated for mercury in batch numbers F911246 and F912199
 - MS/MSD RPD values were elevated for mercury in batch numbers F911246 and F912199
 - No other issues were found.
- 5) **VALIDATION QUALIFIER(S)**
 - All mercury data in batch number F911233 were qualified as estimated (J)
 - All mercury data in batch numbers F911246 and F912199 were qualified as estimated, biased high (J+)
 - Mercury data in batch numbers F911246 and F912199 retained the more conservative (J+) qualifier rather than a simple (J), which would have been assigned had there not been associated MS/MSD % recovery issues.
 - No other qualifiers were assigned.
- 6) **SIGNIFICANCE OF VALIDATION QUALIFIERS**

Matrix Spike/Duplicate (MS/MSD) % Recoveries – Spikes of known concentrations of analyte into a field sample are commonly used to assess the accuracy and precision of the instrumentation as well as its ability to quantify the analyte in a complex matrix. Elevated or depressed MS/MSD % recoveries indicate the presence of interfering compounds that could possibly result in data that are biased high or biased low, respectively. Data that are qualified as biased (high or low) as a result of MS/MSD % recoveries should be given a greater level of scrutiny and used judiciously.

Laboratory Duplicate and Matrix Spike Duplicate RPDs – Laboratory and matrix spike duplicates are included as tests of analytical precision; one in clean water and the other in sample water. The relative percent difference

(RPD) between two identical samples should be as close to zero as possible. Elevated RPDs could be indicative of analytical procedures or techniques that are not identical. These data are qualified as estimated.

No other QAQC issues were observed for this Work Order.

29 January 2020

Theodore E. Donn, Jr, PhD
Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette, CA 94549
RE: Guadalupe River

Enclosed are the analytical results for samples received by Eurofins Frontier Global Sciences. All quality control measurements are within established control limits and there were no analytical difficulties encountered with the exception of those listed in the case narrative section of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Patrick Garcia-Strickland
Business Unit Manager

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD


Reported:
29-Jan-20 10:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
19-GCR-06	9K00070-01	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-07	9K00070-02	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-08	9K00070-03	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-09	9K00070-04	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-10	9K00070-05	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-11	9K00070-06	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-12	9K00070-07	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-13	9K00070-08	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-14	9K00070-09	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-15	9K00070-10	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-16	9K00070-11	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-17	9K00070-12	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-18	9K00070-13	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-19	9K00070-14	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GCR-20	9K00070-15	Tissue	16-Oct-19 09:00	07-Nov-19 17:30
19-GRC-01	9K00070-16	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-02	9K00070-17	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-03	9K00070-18	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-04	9K00070-19	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-05	9K00070-20	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-06	9K00070-21	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-07	9K00070-22	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-08	9K00070-23	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-09	9K00070-24	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-10	9K00070-25	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-11	9K00070-26	Tissue	17-Oct-19 12:00	07-Nov-19 17:30

Eurofins Frontier Global Sciences, LLC

The results in this report only apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Patrick Garcia-Strickland, Business Unit Manager

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
19-GRC-12	9K00070-27	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-13	9K00070-28	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-14	9K00070-29	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-15	9K00070-30	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-16	9K00070-31	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-17	9K00070-32	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-18	9K00070-33	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-19	9K00070-34	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GRC-20	9K00070-35	Tissue	17-Oct-19 12:00	07-Nov-19 17:30
19-GCL-01	9K00070-36	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-02	9K00070-37	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-03	9K00070-38	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-04	9K00070-39	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-05	9K00070-40	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-06	9K00070-41	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-07	9K00070-42	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-08	9K00070-43	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-09	9K00070-44	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-10	9K00070-45	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-11	9K00070-46	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-12	9K00070-47	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-13	9K00070-48	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-14	9K00070-49	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-GCL-15	9K00070-50	Tissue	29-Oct-19 01:00	07-Nov-19 17:30
19-LAL-01	9K00070-51	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-02	9K00070-52	Tissue	29-Oct-19 03:00	07-Nov-19 17:30

Eurofins Frontier Global Sciences, LLC

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Patrick Garcia-Strickland, Business Unit Manager

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
19-LAL-03	9K00070-53	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-04	9K00070-54	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-05	9K00070-55	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-06	9K00070-56	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-07	9K00070-57	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-08	9K00070-58	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-09	9K00070-59	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-10	9K00070-60	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-11	9K00070-61	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-12	9K00070-62	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-13	9K00070-63	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-14	9K00070-64	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-15	9K00070-65	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-16	9K00070-66	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-17	9K00070-67	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-18	9K00070-68	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-19	9K00070-69	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-LAL-20	9K00070-70	Tissue	29-Oct-19 03:00	07-Nov-19 17:30
19-GRF-01	9K00070-71	Tissue	29-Oct-19 08:00	07-Nov-19 17:30
19-GRF-02	9K00070-72	Tissue	29-Oct-19 08:00	07-Nov-19 17:30
19-GRF-03	9K00070-73	Tissue	29-Oct-19 08:00	07-Nov-19 17:30
19-GRF-04	9K00070-74	Tissue	29-Oct-19 08:00	07-Nov-19 17:30
19-GRF-05	9K00070-75	Tissue	29-Oct-19 08:00	07-Nov-19 17:30
19-GRF-06	9K00070-76	Tissue	29-Oct-19 08:00	07-Nov-19 17:30
19-GRF-07	9K00070-77	Tissue	29-Oct-19 08:00	07-Nov-19 17:30
19-GCR-01	9K00070-78	Tissue	22-Aug-19 11:00	07-Nov-19 17:30

Eurofins Frontier Global Sciences, LLC

The results in this report only apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Patrick Garcia-Strickland, Business Unit Manager

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
19-GCR-02	9K00070-79	Tissue	22-Aug-19 11:00	07-Nov-19 17:30
19-GCR-03	9K00070-80	Tissue	22-Aug-19 11:00	07-Nov-19 17:30
19-GCR-04	9K00070-81	Tissue	22-Aug-19 11:00	07-Nov-19 17:30
19-GCR-05	9K00070-82	Tissue	22-Aug-19 11:00	07-Nov-19 17:30
19-ACR-01	9K00070-83	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-02	9K00070-84	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-03	9K00070-85	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-04	9K00070-86	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-05	9K00070-87	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-06	9K00070-88	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-07	9K00070-89	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-08	9K00070-90	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-09	9K00070-91	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-10	9K00070-92	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-11	9K00070-93	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-12	9K00070-94	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-13	9K00070-95	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-14	9K00070-96	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-15	9K00070-97	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-16	9K00070-98	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-17	9K00070-99	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-18	9K00070-AA	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-19	9K00070-AB	Tissue	22-Aug-19 08:00	07-Nov-19 17:30
19-ACR-20	9K00070-AC	Tissue	22-Aug-19 08:00	07-Nov-19 17:30

Eurofins Frontier Global Sciences, LLC

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Patrick Garcia-Strickland, Business Unit Manager

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

SAMPLE RECEIPT

Samples were received at Eurofins Frontier Global Sciences (EFGS) on 07-Nov-19 17:30. The samples were received intact, on-ice within a sealed cooler at

<u>Cooler</u>	<u>Temp C°</u>
Default Cooler	-19.0

SAMPLE PREPARATION AND ANALYSIS

Total mercury preparation and analysis was performed by flow injection atomic fluorescence spectrometry (FI-AFS) in accordance with EPA 1631B.

ANALYTICAL AND QUALITY CONTROL ISSUES

Method blanks were prepared for every preparation to assess possible blank contribution from the sample preparation procedure. The method blanks were carried through the entire analytical procedure. All blanks fell within the established acceptance criteria with the exception of any items narrated above or flagged and described in the notes and definitions section of the report.

Liquid spikes, certified reference material (CRM) or a quality control samples (QCS) were prepared for every preparation as a measure of accuracy. All liquid spikes, CRMs and/or QCS samples fell within the established acceptance criteria with the exception of any items narrated above or flagged and described in the notes and definitions section of the report.

As an additional measure of the accuracy of the methods used and to check for matrix interference, matrix spikes (MS) and matrix spike duplicates (MSD) were digested and analyzed. All of the matrix spike recoveries fell within the established acceptance criteria with the exception of any items flagged and described in the notes and definitions section of the report.

A reasonable measure of the precision of the analytical methods is the relative percent difference (RPD) between a matrix spike recovery and a matrix spike duplicate recovery and between laboratory control sample recovery and laboratory control sample duplicate recoveries. All of the relative percent differences fell within established acceptance criteria with the exception of any items flagged and described in the notes and definitions section of the report.

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Patrick Garcia-Strickland, Business Unit Manager

Sample Receipt Checklist

Client: Tetra Tech

Date & Time Received: 11/7/19 11:30

Date Labeled: 11/11/19 Labeled By: [Signature]

Matrix: Tissue

Received By: MFS

Label Verified By: UR

of Coolers Received: 1

Samples Arrived By: ☒ Shipping Service _____ Courier _____ Hand _____ Other (Specify: _____)

Coolant: ☐ None/Ambient ☐ Loose Ice ☐ Gel Ice ☒ Dry Ice Coolant Required: (Y/N) Temp Blank Used: (Y/N) for Cooler(s): _____

Notify Project Manager if packages/coolers are received without coolant or with thawed coolant and at a temperature in excess of 6°C. PM notified: Y/N

Samples from Wisconsin have special requirements. Shipment received includes samples from Wisconsin: (Y/N)

Cooler Information:	Y/N/NA	Comments
The coolers do not appear to be tampered with:	<u>Y</u>	
Custody Seals are present and intact:	<u>N</u>	
Custody seals signed:	<u>N</u>	

TID: <u>1130804</u> CF: <u>108</u> °C	Date/time: <u>11/7/19 1200</u>	By: <u>MFS</u>
Cooler 1: <u>-19.8</u> °C w/ CF: <u>-19</u> °C	Cooler 4: _____ °C w/ CF: _____ °C	
Cooler 2: _____ °C w/ CF: _____ °C	Cooler 5: _____ °C w/ CF: _____ °C	
Cooler 3: _____ °C w/ CF: _____ °C	Cooler 6: _____ °C w/ CF: _____ °C	

Chain of Custody:	Y/N/NA	Comments
Sample ID/Description:	<u>Y</u>	
Date and time of collection:	<u>Y</u>	
Sampled by:	<u>N</u>	
Preservation type:	<u>Y</u>	
Requested analyses:	<u>Y</u>	
Required signatures:	<u>Y</u>	
Internal COC required:	<u>N</u>	

Sample Condition/Integrity:	Y/N/NA	Comments
Sample containers intact/present:	<u>Y</u>	
Sample labels are present and legible:	<u>Y</u>	
Sample ID on container/bag matches COC:	<u>Y</u>	
Correct sample containers used:	<u>Y</u>	
Samples received within holding times:	<u>Y</u>	
Sample volume sufficient for requested analyses:	<u>Y</u>	
Correct preservative used for requested analyses:	<u>NA</u>	

Anomalies/Non-conformances (attach additional pages if needed):

9K00070



Ship To:
Amy Goodall
eurofins-Frontier Global Sciences
5755 8th Street E
Tacoma, WA 98424
USA

CHAIN OF CUSTODY

Report to:
Dr. Ted Donn
Tetra Tech
3746 Mt. Diablo Blvd.
Lafayette, CA
ted.donn@tetratech.com

9K0070

General Notes:
Please report all results to the MDL, J-flag results between MDL and RL
Please report results and invoice separately for each Project ID
Please report results in pdf format with Excel EDD deliverable

General Notes:					Method1	Method2		
Please report all results to the MDL, J-flag results between MDL and RL								
Please report results and invoice separately for each Project ID								
Please report results in pdf format with Excel EDD deliverable								
Project	SampleID	Medium	Date	Time	Preservation	Hg-CVAFS-T-7030	Homogenize-T	Comments
T38272	19-ACR-01	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-02	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-03	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-04	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-05	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-06	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-07	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-08	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-09	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-10	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-11	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-12	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-13	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-14	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-15	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-16	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-17	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-18	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-19	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-ACR-20	Tissue	22-Aug-2019	8:45	Freeze	1	1	
T38272	19-GCR-01	Tissue	22-Aug-2019	11:55	Freeze	1	1	
T38272	19-GCR-02	Tissue	22-Aug-2019	11:55	Freeze	1	1	
T38272	19-GCR-03	Tissue	22-Aug-2019	11:55	Freeze	1	1	
T38272	19-GCR-04	Tissue	22-Aug-2019	11:55	Freeze	1	1	
T38272	19-GCR-05	Tissue	22-Aug-2019	11:55	Freeze	1	1	
T38272	19-GCR-06	Tissue	16-Oct-2019	9:03	Freeze	1	1	
T38272	19-GCR-07	Tissue	16-Oct-2019	9:03	Freeze	1	1	
T38272	19-GCR-08	Tissue	16-Oct-2019	9:03	Freeze	1	1	
T38272	19-GCR-09	Tissue	16-Oct-2019	9:03	Freeze	1	1	
T38272	19-GCR-10	Tissue	16-Oct-2019	9:03	Freeze	1	1	
T38272	19-GCR-11	Tissue	16-Oct-2019	9:03	Freeze	1	1	

Relinquished by: Stewart DesMeules Shipped
WRA, Inc, 2169-G 11/06/19
Francisco Blvd E.
San Rafael, CA 94901
MSD J. Remy
EFGS 11/19 1130
-19°C MFS

Relinquished by:

Received by:

FedEx 7807 8235 2550
Page 1 of 5

Ship To:
Amy Goodall
eurofins-Frontier Global Sciences
5755 8th Street E
Tacoma, WA 98424
USA

CHAIN OF CUSTODY

Report to:
Dr. Ted Donn
Tetra Tech
3746 Mt. Diablo Blvd.
Lafayette, CA
ted.donn@tetratech.com

Project	SampleID	Medium	Date	Time	Preservation	Hg-CVAFS-T-7030	Homogenize-T	Comments
T38272	19-GCL-01	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-02	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-03	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-04	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-05	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-06	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-07	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-08	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-09	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-10	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-11	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-12	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-13	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-14	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-GCL-15	Tissue	29-Oct-2019	13:45	Freeze	1	1	
T38272	19-LAL-01	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-02	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-03	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-04	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-05	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-06	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-07	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-08	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-09	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-10	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-11	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-12	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-13	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-14	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-15	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-16	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-17	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-18	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-19	Tissue	29-Oct-2019	15:00	Freeze	1	1	
T38272	19-LAL-20	Tissue	29-Oct-2019	15:00	Freeze	1	1	



Relinquished by:

Relinquished by:

Received by:

Received by:



Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-06

9K00070-01

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	352	4.10	36.6	ng/g	1000	F912275	27-Dec-19	0A28012	24-Jan-20	EPA 1631B	



Frontier Global Sciences

5755 8th Street East
Tacoma, WA 98424
Phone: (253) 922-2310

Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-07

9K00070-02

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	336	3.18	28.4	ng/g	1000	F912275	27-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-08

9K00070-03

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	408	4.28	38.2	ng/g	1000	F912275	27-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-09

9K00070-04

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	348	4.44	39.6	ng/g	1000	F912275	27-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-10

9K00070-05

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	403	4.09	36.5	ng/g	1000	F912275	27-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-11

9K00070-06

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	546	3.83	34.2	ng/g	1000	F912275	27-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-12

9K00070-07

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	232	5.20	46.4	ng/g	1000	F912275	27-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-13

9K00070-08

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	408	3.75	33.4	ng/g	1000	F912275	27-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Patrick Garcia-Strickland, Business Unit Manager

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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-14

9K00070-09

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	419	4.21	37.6	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-15

9K00070-10

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	512	3.55	31.7	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-16

9K00070-11

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	221	4.27	38.2	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-17

9K00070-12

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	326	4.12	36.8	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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5755 8th Street East
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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-18

9K00070-13

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	436	3.51	31.3	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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Patrick Garcia-Strickland, Business Unit Manager

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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-19

9K00070-14

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	395	4.06	36.2	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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Patrick Garcia-Strickland, Business Unit Manager

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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-20

9K00070-15

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	284	3.84	34.3	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-01

9K00070-16

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	44.1	4.11	36.7	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-02

9K00070-17

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	50.9	0.325	2.91	ng/g	100	F912265	26-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-03

9K00070-18

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	51.5	0.369	3.30	ng/g	100	F912265	26-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-04

9K00070-19

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	45.9	0.424	3.79	ng/g	100	F912265	26-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-05

9K00070-20

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	82.4	3.91	131	ng/g	1000	F912275	27-Dec-19	0A28009	27-Jan-20	EPA 1631B	J

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-06

9K00070-21

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	48.9	0.411	3.67	ng/g	100	F912265	26-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-07

9K00070-22

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	47.0	0.364	3.25	ng/g	100	F912265	26-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-08

9K00070-23

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	52.8	0.367	3.28	ng/g	100	F912265	26-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-09

9K00070-24

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	60.3	0.435	3.89	ng/g	100	F912265	26-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-10

9K00070-25

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	83.0	4.25	38.0	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-11

9K00070-26

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	75.8	0.328	2.93	ng/g	100	F912265	26-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-12

9K00070-27

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	35.6	4.24	37.8	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-13

9K00070-28

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	42.3	0.443	3.95	ng/g	100	F912265	26-Dec-19	0A28012	24-Jan-20	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-14

9K00070-29

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	41.9	4.14	37.0	ng/g	1000	F912265	26-Dec-19	0A23002	22-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-15

9K00070-30

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	41.1	3.89	34.7	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-16

9K00070-31

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	52.7	3.36	30.0	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-17

9K00070-32

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	44.0	4.06	36.3	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-18

9K00070-33

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	67.1	3.71	33.2	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-19

9K00070-34

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	65.7	3.70	33.1	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRC-20

9K00070-35

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	54.0	3.93	35.1	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-01

9K00070-36

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	70.7	4.32	38.6	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Reported:
29-Jan-20 10:41

19-GCL-02

9K00070-37

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	50.0	3.70	33.0	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Reported:
29-Jan-20 10:41

19-GCL-03

9K00070-38

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	68.0	3.95	35.2	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project Number: T38272
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Reported:
29-Jan-20 10:41

19-GCL-04

9K00070-39

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	55.0	3.24	28.9	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-05

9K00070-40

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	51.3	4.03	35.9	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-06

9K00070-41

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	43.5	3.83	34.2	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-07

9K00070-42

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	52.6	3.75	33.5	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-08

9K00070-43

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	41.5	4.40	39.2	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-09

9K00070-44

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	53.4	4.11	36.7	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-10

9K00070-45

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	54.1	3.32	29.6	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-11

9K00070-46

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	46.5	3.77	33.6	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	



Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-12

9K00070-47

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	92.5	3.16	28.2	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-13

9K00070-48

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	37.0	3.53	31.5	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-14

9K00070-49

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	40.2	4.19	37.4	ng/g	1000	F912252	23-Dec-19	0A28011	23-Jan-20	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCL-15

9K00070-50

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	76.3	4.28	38.2	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-01

9K00070-51

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	1030	3.94	35.2	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-02

9K00070-52

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	869	3.32	29.6	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-03

9K00070-53

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	1200	3.17	28.3	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-04

9K00070-54

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	653	4.16	37.1	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-05

9K00070-55

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	795	3.68	32.9	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-06

9K00070-56

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	1300	4.14	36.9	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	



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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-07

9K00070-57

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	1220	4.05	36.2	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-08

9K00070-58

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	1410	3.90	34.9	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-09

9K00070-59

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	910	4.01	35.8	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-10

9K00070-60

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	655	3.24	29.0	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-11

9K00070-61

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	705	3.54	31.6	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-12

9K00070-62

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	967	3.19	28.5	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-13

9K00070-63

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	1720	3.83	34.2	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-14

9K00070-64

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	805	2.96	26.4	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-15

9K00070-65

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	1230	4.40	39.3	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-16

9K00070-66

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	1010	4.22	37.6	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-17

9K00070-67

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	861	3.16	28.2	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-18

9K00070-68

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	755	3.09	27.6	ng/g	1000	F912199	12-Dec-19	9L13005	13-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-19

9K00070-69

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	497	3.26	29.1	ng/g	1000	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-LAL-20

9K00070-70

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	606	4.39	39.2	ng/g	1000	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRF-01

9K00070-71

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	81.2	0.444	3.96	ng/g	100	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRF-02

9K00070-72

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	194	0.434	3.87	ng/g	100	F911246	27-Nov-19	9L05005	04-Dec-19	EPA 1631B	

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3746 Mt. Diablo Blvd., Suite 300
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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRF-03

9K00070-73

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	162	0.430	3.84	ng/g	100	F911246	27-Nov-19	9L05005	04-Dec-19	EPA 1631B	

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Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRF-04

9K00070-74

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	197	0.448	4.00	ng/g	100	F911246	27-Nov-19	9L05005	04-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRF-05

9K00070-75

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	134	0.437	3.90	ng/g	100	F911246	27-Nov-19	9L05005	04-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRF-06

9K00070-76

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	174	0.317	2.83	ng/g	100	F911246	27-Nov-19	9L05005	04-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GRF-07

9K00070-77

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	270	0.416	3.71	ng/g	100	F911246	27-Nov-19	9L05005	04-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-01

9K00070-78

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	188	2.01	17.9	ng/g	100	F911246	27-Nov-19	9L05005	04-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-02

9K00070-79

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	256	0.580	5.18	ng/g	100	F911246	27-Nov-19	9L05005	04-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-03

9K00070-80

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	281	0.427	3.82	ng/g	100	F911246	27-Nov-19	9L05005	04-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-04

9K00070-81

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	507	4.37	39.0	ng/g	1000	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-GCR-05

9K00070-82

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	335	4.05	36.1	ng/g	1000	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-01

9K00070-83

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	353	3.67	32.8	ng/g	1000	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-02

9K00070-84

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	ND	4.38	39.1	ng/g	1000	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	U

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-03

9K00070-85

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	377	4.80	42.8	ng/g	1000	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	



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29-Jan-20 10:41

19-ACR-04

9K00070-86

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	917	3.62	32.4	ng/g	1000	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-05

9K00070-87

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	957	3.94	35.2	ng/g	1000	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

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29-Jan-20 10:41

19-ACR-06

9K00070-88

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	297	0.461	4.12	ng/g	100	F911246	27-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-07

9K00070-89

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	674	6.35	56.7	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-08

9K00070-90

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	803	6.14	54.8	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-09

9K00070-91

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	704	4.27	38.1	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-10

9K00070-92

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	559	4.39	39.2	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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19-ACR-11

9K00070-93

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	389	4.90	43.7	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project Manager: Theodore E. Donn, Jr, PhD

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29-Jan-20 10:41

19-ACR-12

9K00070-94

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	641	4.43	39.6	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-13

9K00070-95

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	505	1.24	11.0	ng/g	100	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Reported:
29-Jan-20 10:41

19-ACR-14

9K00070-96

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	527	1.44	12.9	ng/g	100	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-15

9K00070-97

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	481	3.80	33.9	ng/g	100	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-16

9K00070-98

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	487	4.29	38.3	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-17

9K00070-99

Analyte	Result	Detection	Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
		Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	946	4.47	39.9	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-18

9K00070-AA

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	586	5.40	48.2	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-19

9K00070-AB

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	492	5.36	47.9	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Patrick Garcia-Strickland, Business Unit Manager



Frontier Global Sciences

5755 8th Street East
Tacoma, WA 98424
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Tetra Tech, Inc. Lafayette
3746 Mt. Diablo Blvd., Suite 300
Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

19-ACR-20

9K00070-AC

Analyte	Detection		Reporting	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
	Result	Limit	Limit								
Sample Preparation: EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Mercury	630	5.92	52.9	ng/g	1000	F911233	22-Nov-19	9L10009	09-Dec-19	EPA 1631B	

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Tetra Tech, Inc. Lafayette
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Lafayette CA, 94549


Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch F911233 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion											
Blank (F911233-BLK1)					Prepared: 22-Nov-19 Analyzed: 03-Dec-19						
Mercury	ND	0.090	0.800	ng/g							U
Blank (F911233-BLK2)					Prepared: 22-Nov-19 Analyzed: 03-Dec-19						
Mercury	ND	0.090	0.800	ng/g							U
Blank (F911233-BLK3)					Prepared: 22-Nov-19 Analyzed: 03-Dec-19						
Mercury	ND	0.090	0.800	ng/g							U
Blank (F911233-BLK4)					Prepared: 22-Nov-19 Analyzed: 03-Dec-19						
Mercury	ND	0.089	0.793	ng/g							U
Blank (F911233-BLK5)					Prepared: 22-Nov-19 Analyzed: 03-Dec-19						
Mercury	ND	0.089	0.796	ng/g							U
Blank (F911233-BLK6)					Prepared: 22-Nov-19 Analyzed: 03-Dec-19						
Mercury	ND	0.089	0.798	ng/g							U
LCS (F911233-BS1)					Prepared: 22-Nov-19 Analyzed: 03-Dec-19						
Mercury	7.832	0.085	0.760	ng/g	7.6046		103	75-125			
LCS Dup (F911233-BSD1)					Prepared: 22-Nov-19 Analyzed: 03-Dec-19						
Mercury	8.623	0.085	0.760	ng/g	7.6017		113	75-125	9.66	24	
Duplicate (F911233-DUP1)					Prepared: 22-Nov-19 Analyzed: 03-Dec-19						
Mercury	6.706	0.065	0.577	ng/g		3.997			50.6	24	QR-07
Matrix Spike (F911233-MS6)					Prepared: 22-Nov-19 Analyzed: 09-Dec-19						
Mercury	306.5	1.40	12.5	ng/g	313.38	11.58	94.1	71-125			

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29-Jan-20 10:41

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch F911233 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion

Matrix Spike Dup (F911233-MSD6)

Source: 9I00267-01RE2 Prepared: 22-Nov-19 Analyzed: 09-Dec-19

Mercury	331.5	1.46	13.0	ng/g	325.20	11.58	98.4	71-125	4.46	24	
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Batch F911246 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion

Blank (F911246-BLK1)

Prepared: 27-Nov-19 Analyzed: 04-Dec-19

Mercury	0.114	0.090	0.800	ng/g							J
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Blank (F911246-BLK2)

Prepared: 27-Nov-19 Analyzed: 04-Dec-19

Mercury	0.099	0.090	0.800	ng/g							J
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Blank (F911246-BLK3)

Prepared: 27-Nov-19 Analyzed: 04-Dec-19

Mercury	0.151	0.090	0.800	ng/g							J
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LCS (F911246-BS1)

Prepared: 27-Nov-19 Analyzed: 04-Dec-19

Mercury	8.170	0.090	0.800	ng/g	8.0000		102	75-125			
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LCS Dup (F911246-BSD1)

Prepared: 27-Nov-19 Analyzed: 04-Dec-19

Mercury	8.008	0.090	0.800	ng/g	8.0000		100	75-125	2.00	24	
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Duplicate (F911246-DUP1)

Source: 9K00070-76 Prepared: 27-Nov-19 Analyzed: 04-Dec-19

Mercury	154.8	0.383	3.42	ng/g		174.3			11.9	24	
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Matrix Spike (F911246-MS3)

Source: 9K00070-76 Prepared: 27-Nov-19 Analyzed: 09-Dec-19

Mercury	583.1	4.36	39.0	ng/g	389.71	174.3	105	71-125			QR-08
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Matrix Spike (F911246-MS4)

Source: 9K00070-75 Prepared: 27-Nov-19 Analyzed: 09-Dec-19

Mercury	417.6	4.28	38.2	ng/g	382.12	133.7	74.3	71-125			QR-08
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Lafayette CA, 94549

Project: Guadalupe River
Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch F911246 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion

Matrix Spike Dup (F911246-MSD3)		Source: 9K00070-76		Prepared: 27-Nov-19 Analyzed: 09-Dec-19							
Mercury	683.8	4.17	37.2	ng/g	372.16	174.3	137	71-125	26.5	24	QM-07, QR-08

Matrix Spike Dup (F911246-MSD4)		Source: 9K00070-75		Prepared: 27-Nov-19 Analyzed: 09-Dec-19							
Mercury	524.8	4.30	38.4	ng/g	384.02	133.7	102	71-125	31.3	24	QR-08

Batch F912199 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion

Blank (F912199-BLK1)		Prepared & Analyzed: 12-Dec-19									
Mercury	0.223	0.090	0.800	ng/g							J

Blank (F912199-BLK2)		Prepared & Analyzed: 12-Dec-19									
Mercury	1.340	0.090	0.800	ng/g							QB-01

Blank (F912199-BLK3)		Prepared & Analyzed: 12-Dec-19									
Mercury	0.163	0.090	0.800	ng/g							J

LCS (F912199-BS1)		Prepared & Analyzed: 12-Dec-19									
Mercury	7.810	0.090	0.800	ng/g	8.0000		97.6	75-125			

LCS Dup (F912199-BSD1)		Prepared & Analyzed: 12-Dec-19									
Mercury	8.244	0.090	0.800	ng/g	8.0000		103	75-125	5.40	24	

Duplicate (F912199-DUP2)		Source: 9K00070-57RE1		Prepared: 12-Dec-19 Analyzed: 13-Dec-19							
Mercury	1228	4.51	40.3	ng/g		1220			0.633	24	

Matrix Spike (F912199-MS3)		Source: 9K00070-57RE1		Prepared: 12-Dec-19 Analyzed: 13-Dec-19							
Mercury	1744	8.73	77.9	ng/g	313.80	1220	167	71-125			QM-05

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

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Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch F912199 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion

Matrix Spike (F912199-MS4)		Source: 9K00070-63RE1		Prepared: 12-Dec-19 Analyzed: 13-Dec-19							
Mercury	2216	10.2	90.9	ng/g	366.18	1722	135	71-125			QM-05
Matrix Spike Dup (F912199-MSD3)		Source: 9K00070-57RE1		Prepared: 12-Dec-19 Analyzed: 13-Dec-19							
Mercury	1800	9.49	84.8	ng/g	341.47	1220	170	71-125	1.81	24	QM-05
Matrix Spike Dup (F912199-MSD4)		Source: 9K00070-63RE1		Prepared: 12-Dec-19 Analyzed: 13-Dec-19							
Mercury	1755	8.23	73.5	ng/g	295.92	1722	11.2	71-125	169	24	QM-05

Batch F912252 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion

Blank (F912252-BLK1)		Prepared: 23-Dec-19 Analyzed: 23-Jan-20									
Mercury	0.261	0.090	0.800	ng/g							J
Blank (F912252-BLK2)		Prepared: 23-Dec-19 Analyzed: 23-Jan-20									
Mercury	0.212	0.090	0.800	ng/g							J
Blank (F912252-BLK3)		Prepared: 23-Dec-19 Analyzed: 23-Jan-20									
Mercury	0.177	0.090	0.800	ng/g							J
LCS (F912252-BS1)		Prepared: 23-Dec-19 Analyzed: 23-Jan-20									
Mercury	9.024	0.090	0.800	ng/g	8.0000		113	75-125			
LCS Dup (F912252-BSD1)		Prepared: 23-Dec-19 Analyzed: 23-Jan-20									
Mercury	9.176	0.090	0.800	ng/g	8.0000		115	75-125	1.67	24	
Duplicate (F912252-DUP1)		Source: 9K00070-37		Prepared: 23-Dec-19 Analyzed: 23-Jan-20							
Mercury	44.41	3.28	29.3	ng/g		50.00			11.8	24	

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29-Jan-20 10:41

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch F912252 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion

Matrix Spike (F912252-MS1)		Source: 9K00070-37			Prepared: 23-Dec-19 Analyzed: 23-Jan-20						
Mercury	363.9	3.61	32.2	ng/g	321.96	50.00	97.5	71-125			
Matrix Spike (F912252-MS2)		Source: 9K00070-40			Prepared: 23-Dec-19 Analyzed: 23-Jan-20						
Mercury	386.1	3.84	34.3	ng/g	342.94	51.25	97.6	71-125			
Matrix Spike Dup (F912252-MSD1)		Source: 9K00070-37			Prepared: 23-Dec-19 Analyzed: 23-Jan-20						
Mercury	388.5	3.77	33.7	ng/g	336.93	50.00	100	71-125	3.02	24	
Matrix Spike Dup (F912252-MSD2)		Source: 9K00070-40			Prepared: 23-Dec-19 Analyzed: 23-Jan-20						
Mercury	440.0	4.42	39.5	ng/g	394.94	51.25	98.4	71-125	0.823	24	

Batch F912265 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion

Blank (F912265-BLK1)					Prepared: 27-Dec-19 Analyzed: 22-Jan-20						
Mercury	0.541	0.090	0.800	ng/g							J
Blank (F912265-BLK2)					Prepared: 27-Dec-19 Analyzed: 22-Jan-20						
Mercury	0.412	0.090	0.800	ng/g							J
Blank (F912265-BLK3)					Prepared: 27-Dec-19 Analyzed: 22-Jan-20						
Mercury	0.288	0.090	0.800	ng/g							J
LCS (F912265-BS1)					Prepared: 27-Dec-19 Analyzed: 22-Jan-20						
Mercury	8.942	0.090	0.800	ng/g	8.0000		112	75-125			
LCS Dup (F912265-BSD1)					Prepared: 27-Dec-19 Analyzed: 22-Jan-20						
Mercury	8.781	0.090	0.800	ng/g	8.0000		110	75-125	1.82	24	

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Reported:
29-Jan-20 10:41

Quality Control Data

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch F912265 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion

Duplicate (F912265-DUP1)		Source: 9K00070-25			Prepared: 27-Dec-19 Analyzed: 22-Jan-20						
Mercury	82.53	4.22	37.7	ng/g		82.97			0.540	24	
Matrix Spike (F912265-MS1)		Source: 9K00070-25			Prepared: 27-Dec-19 Analyzed: 22-Jan-20						
Mercury	421.0	4.34	38.7	ng/g	387.30	82.97	87.3	71-125			
Matrix Spike (F912265-MS2)		Source: 9K00070-27			Prepared: 27-Dec-19 Analyzed: 22-Jan-20						
Mercury	369.5	3.92	35.0	ng/g	350.39	35.59	95.3	71-125			
Matrix Spike Dup (F912265-MSD1)		Source: 9K00070-25			Prepared: 27-Dec-19 Analyzed: 22-Jan-20						
Mercury	369.9	3.66	32.7	ng/g	326.58	82.97	87.9	71-125	0.687	24	
Matrix Spike Dup (F912265-MSD2)		Source: 9K00070-27			Prepared: 27-Dec-19 Analyzed: 22-Jan-20						
Mercury	388.8	3.97	35.4	ng/g	354.36	35.59	99.7	71-125	4.48	24	

Batch F912275 - EFGS SOP2795 Nitric/Sulfuric Hg Digestion

Blank (F912275-BLK4)					Prepared: 27-Dec-19 Analyzed: 24-Jan-20						
Mercury	0.323	0.090	0.800	ng/g							J
Blank (F912275-BLK5)					Prepared: 27-Dec-19 Analyzed: 24-Jan-20						
Mercury	0.324	0.090	0.800	ng/g							J
LCS (F912275-BS2)					Prepared: 27-Dec-19 Analyzed: 24-Jan-20						
Mercury	9.082	0.090	0.800	ng/g	8.0000		114	75-125			
LCS Dup (F912275-BSD2)					Prepared: 27-Dec-19 Analyzed: 24-Jan-20						
Mercury	9.246	0.090	0.800	ng/g	8.0000		116	75-125	1.80	24	

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Project Number: T38272
Project Manager: Theodore E. Donn, Jr, PhD

Reported:
29-Jan-20 10:41

Notes and Definitions

U	Analyte was not detected and is reported as less than the LOD or as defined by the client. The LOD has been adjusted for any dilution or concentration of the sample.
QR-08	The RPD value for the MS/MSD was outside of acceptance limits. Batch QC acceptable based on matrix duplicate and/or LCS/LCSD RPD values within control limits.
QR-07	The RPD/RSD value for the matrix duplicate/triplicate was outside of acceptance limits. Batch QC acceptable based on MS/MSD and/or LCS/LCSD RPD values within control limits.
QM-07	The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QM-05	The spike recovery was outside acceptance limits for the MS/MSD and or AS/ASD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QB-01	The method blank and/or initial/continuing calibration blank contains analyte at a concentration above the MRL. However, the blank concentration(s) are less than 10% of the sample result.
J	The result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the method detection limit if reported to the MDL or above the reporting limit if reported to the MRL.
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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APPENDIX C

FISH SAMPLING PHOTOS



Overview of the Guadalupe River at Coleman Avenue sampling site.



Overview of the Los Gatos (reference) sampling site.



Overview of the Lake Almaden sampling site.



Overview of the Guadalupe River at Foxworthy Avenue sampling site.



WRA biologists collecting water quality data at the Guadalupe Creek at Singletree Way sampling site.



WRA biologists conducting seining.



Guadalupe River at Foxworthy Avenue sampling site.



Overview of the Alamitos Creek at Harry Road sampling site.



Overview of the Guadalupe Creek at Singletree Way sampling site.



Steelhead encountered during sampling.



California roach encountered during sampling.



Sacramento sucker encountered during sampling.