

**2019 WATER QUALITY MONITORING
REPORT FOR THE BIG TUJUNGA WASH
MITIGATION AREA**

Prepared for:

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Distribution

Water quality monitoring reports are distributed to the following agencies:

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SECTION 1.0 – EXECUTIVE SUMMARY

As part of a water quality monitoring program on-going since 2000, water quality sampling of the Big Tujunga Ponds and Haines Canyon Creek was conducted on October 30, 2019. Additional water samples were collected on November 14, 2019, to test for organochlorine pesticides. The water quality sampling results are summarized below:

- DO levels at two of the sample stations were below the minimum recommended level (5.0 mg/L) for Basin Plan objectives and EPA's criteria for warmwater fish species.
- pH readings in all three sample stations were below the recommended range of 6.5 to 8.5 identified in the Basin Plan objectives, and were within the recommended range of 5.0 to 9.0 for EPA's criteria for human health.
- Nitrate-Nitrogen was below the drinking water maximum standard of 10 mg/L for both Basin Plan standards and EPA criteria for human health at all sample stations. Nitrate-Nitrogen and Ammonia-Nitrogen were not detected at any of the sample stations.
- Nutrient levels were low at all sample stations. Total Phosphorus-P concentrations were below the lower end of the EPA's recommended maximum range of 0.05 to 0.10 mg/L for the desired goal of preventing plant nuisances in streams.
- No pesticides or residual chlorine were detected at any of the sample stations.
- Turbidity levels were below or within the drinking water maximum range of 0.5 to 1.0 NTU for the EPA's criteria for human health at all sample stations.
- Fecal coliform levels detected were below the standard geometric mean of 126 MPN/100 ml at the inflow to the Tujunga Ponds, but were above the standard geometric mean at the outflow from the Tujunga Ponds and where Haines Canyon Creek exits the site. However, the standards are for *E.coli* and the water quality results are for fecal coliform and total coliform.

SECTION 2.0 – BACKGROUND

Los Angeles County Public Works (Public Works) purchased an approximately 210-acre parcel in Big Tujunga Wash as a mitigation area for Los Angeles County Flood Control District (LACFCD) projects throughout Los Angeles County. In coordination with local agencies, Public Works defined a number of measures to improve habitat quality at the site. A Final Master Mitigation Plan (FMMP) was prepared to guide the implementation of these enhancements. The FMMP also includes a monitoring program to gather data on conditions at the site during implementation of the improvements. The FMMP was prepared and is currently being implemented by Chambers Group, Inc. (Chambers Group). Water quality monitoring was conducted on a quarterly basis from the fourth quarter of 2000 through the fourth quarter of 2005. In 2006, monitoring was conducted on a semi-annual basis. In 2007 through 2009 monitoring was conducted annually, in December. In 2010, monitoring was conducted in November and pesticide sampling was conducted in early December. In 2012, monitoring was conducted in February and November. From 2013 to present, monitoring has been conducted annually in the fall. This report presents the results of the water quality sampling for October 2019.

The Big Tujunga Wash Mitigation Area (Mitigation Area) is located just east of Hansen Dam in the Shadow Hills area of the City of Los Angeles. Both Big Tujunga Wash, an intermittent stream, and Haines Canyon Creek, a perennial stream, traverse the Mitigation Area in an east-to-west direction. The East Tujunga Pond and West Tujunga Pond are located outside of the Mitigation Area, at the far northeastern portion of the site.

2.1 PROJECT SITE ACTIVITIES

A timeline of project-related activities including water quality sampling events is presented in Table 1.

Table 1: Major Activities to Date at the Big Tujunga Wash Mitigation Area

Date	Activity
2000, April	Baseline water quality sampling
2000, November to 2001, November	Arundo, tamarisk, and pepper tree removal Chemical (Rodeo®) application
2000, December to 2000, November	Water hyacinth removal
2000, December	Fish Sampling at Haines Canyon Creek
2000, December	Water quality sampling
2001, January to present	Exotic aquatic wildlife (non-native fish, crayfish, bullfrog, and turtle) removal – conducted quarterly
2001, February	Partial riparian planting
2001, March	Selective clearing at Canyon Trails Golf Club
2001, March	Water quality sampling
2001, June	Water quality sampling
2001, July	Fish Sampling at Haines Canyon Creek
2001, September	Water quality sampling
2001, October to 2001, November	Fish Sampling at Haines Canyon Creek

Date	Activity
2001, December	Water quality sampling
2002, January	Final riparian planting
2002, July	Upland replacement planting
2002, March	Water quality sampling
2002, June	Water quality sampling
2002, July	Fish Sampling at Haines Canyon Creek
2002, September	Water quality sampling
2002, October	Grading at Canyon Trails Golf Club begins
2002, November	Fish Sampling at Haines Canyon Creek
2002, December	Water quality sampling
2003, March	Water quality sampling
2003, April	Meeting with Canyon Trails Golf Club to discuss future use of herbicides and fertilizers
2003, June	Water quality sampling
2003, August	Fish Sampling at Haines Canyon Creek
2003, September	Water quality sampling
2003, fall	Completion of the golf course construction
2003, December	Water quality sampling
2004, January	Fish Sampling at Haines Canyon Creek
2004, April	Water quality sampling
2004, April	Rock Dam Removal Day
2004, June	Angeles National Golf Club (previously named Canyon Trails) opens to the public
2004, July	Water quality sampling
2004, October	Water quality sampling
2004, December	Water quality sampling
2005, April	Water quality sampling
2005, June	Water quality sampling
2005, October	Water quality sampling
2005, December	Water quality sampling
2006, July	Water quality sampling
2006, December	Water quality sampling
2007, December	Water quality sampling
2008, December	Water quality sampling
2009, August to October	The Station Fire was the largest fire in the recorded history of Angeles National Forest and the 10th largest fire in California since 1933. The fire burned a total of 160,577 acres. The fire was fully contained on October 16, 2009. (Source: Angeles National Forest Incident Update available - http://www.inciweb.org/incident/1856/)
2009, December	Water quality sampling
2010, November	Water quality sampling
2010, December	Water quality sampling for pesticides
2011, September to 2012, January	Water lettuce removal
2012, February	Water quality sampling

Date	Activity
2012, November	Water quality sampling
2013, October	Water quality sampling
2014, October	Water quality sampling
2015, November	Water quality sampling
2016, November 7	Water quality sampling
2017, December	The Creek Fire began on December 5, 2017, approximately 4 miles east of Sylmar, California. The Creek Fire burned a total of 15,619 acres. Much of the Mitigation Area burned, and close to 75 percent of the entire site exhibited signs of severe surface burns, including approximately all of the riparian communities found along Haines Canyon Creek, and more than half of the vegetation within the Big Tujunga Wash area. The fire was fully contained on January 9, 2018. (Sources: Angeles National Forest Incident Update available - https://inciweb.nwcg.gov/incident/5669/ ; Chambers Group 2018 Post Fire Assessment Report)
2017, December 21	Water quality sampling
2018, December 17	Water quality sampling
2019, April 23	After April 23, 2019 Chambers Group stopped the use of all herbicides within the Mitigation Area. From April 23 forward, exotic plants were managed with mechanical weed control methods only.
2019, October 30	Water Quality Sampling

2.2 UPSTREAM LAND USES

The monitoring program has been designed to specifically address inputs to the site from upstream land uses such as the Angeles National Golf Club (previously named Canyon Trails Golf Club). The golf course has been operating since June 2004. Potential negative impacts to aquatic species from run-on to the site that contains excessive nutrients or pesticides are of primary concern. Pesticides potentially used at the Angeles National Golf Course include herbicides, insecticides, fungicides, and grass growth inhibitors (Table 2).

Actual use of pesticides is based on golf course maintenance needs. Based on the pesticide use information from the Angeles National Golf Club, analysis of water samples for glyphosate, chlorpyrifos, other organophosphorous pesticides, and organochlorine pesticides is included in the sampling program for the Mitigation Area.

Table 2: Pesticides Potentially Used at the Angeles National Golf Club

Manufacturer and Product Name	Active Ingredient	Use
Syngenta Primo Maxx	trinexapac-ethyl	grass growth inhibitor used for turf management
Syngenta Reward	diquat dibromide	landscape and aquatic herbicide
Syngenta Barricade	prodiamine	pre-emergent herbicide
Bayer Prostar 70 WP	flutolanil	fungicide
Monsanto QuikPRO	ammonium salt of glyphosphate and diquat dibromide	herbicide

Monsanto Rodeo® Verdicon Kleenup® Pro Lesco Prosecutor	glyphosate	emerged aquatic weed and brush herbicide
Valent ProGibb T&O	gibberellic acid	plant growth regulator
BASF Insignia 20 WG	pyraclostrobin	fungicide
BASF Stalker	Isopropylamine salt of Imazapyr	herbicide
Dow Agrosciences Surflan A.S.	oryzalin	herbicide
Dow Agrosciences Dursban Pro	chlorpyrifos	insecticide
Mycogen Scythe	pelargonic acid	herbicide

Source: J. Reidinger, Angeles National Golf Club, pers. comm. to M. Chimienti, LACDPW, March 18, 2004 and Angeles National Golf Club Monthly Summary Pesticide Use Reports (December 2004, February 2005 and April 2007).

SECTION 3.0 – MATERIALS AND METHODS

3.1 SAMPLING STATIONS

Four sampling locations have been identified for the monitoring program for the Mitigation Area (Figure 1). Table 3 summarizes sampling locations and the conditions observed on October 30, 2019.

Figure 1: Mitigation Area Water Quality Sampling Stations



Table 3: Water Quality Sampling Locations and Conditions for October 2019

Date	October 30, 2019		
Air Temperature	Between 15.0 and 19.4 (°Celsius) during sample collection period		
Skies	Clear		
Observations	Water was clear at all locations		
Sampling Locations	Latitude	Longitude	Time of sample
Outflow from Tujunga Ponds	34.26896 N	118.34189 W	0837
Inflow to Tujunga Ponds	34.26834 N	118.33961 W	0925
Haines Canyon Creek, before exit from the site	34.26669 N	118.35714 W	1020
Big Tujunga Wash	34.26989 N	118.35126 W	station dry

3.2 SAMPLING PARAMETERS

Table 4 summarizes the sampling parameters included in the water quality monitoring program. The following meters were used in the field:

- pH and temperature – Milwaukee MW102 PRO+ 2-in-1 Temperature and pH Meter
- Dissolved oxygen - Milwaukee MW600 PRO Dissolved Oxygen Meter
- Turbidity – Hanna Instruments HI98703 Turbidity Portable Meter

Analytical results were performed at Enthalpy Analytical, LLC, located in Orange, California and Test America, located in Savannah, Georgia. Samples were taken at mid-depth, along a transect perpendicular to the stream channel alignment. Quality assurance/quality control (QA/QC) procedures in each laboratory followed the methods described in their respective quality assurance manuals.

Table 4: Water Quality Sampling Parameters

Parameter	Analysis Location	Analytical Method
total Kjeldahl nitrogen (TKN)	laboratory	EPA 351.2
nitrite - nitrogen (NO ₂ -N)	laboratory	EPA 300.0 by IC
Nitrate - nitrogen (NO ₃ -N)	laboratory	EPA 300.0 by IC
ammonia (NH ₄)	laboratory	EPA 350.1
orthophosphate - P	laboratory	Standard Methods 4500PE/EPA 365.1
total phosphorus - P	laboratory	Standard Methods 4500PE/EPA 365.1
total coliform	laboratory	Standard Methods 9221B
fecal coliform	laboratory	Standard Methods 9221C
turbidity	field	EPA 180.1
glyphosate (Roundup/Rodeo) ¹	laboratory	EPA 547
chlorpyrifos and organophosphorus pesticides ²	laboratory	EPA 8141A
organochlorine pesticides ³	laboratory	EPA 608
dissolved oxygen	field	Standard Methods 4500-O G
total residual chlorine	laboratory	Standard Methods 4500-Cl
temperature	field	Standard Methods 2550
pH	field	Standard Methods 4500-H+

Sources for analytical methods:

EPA. Method and Guidance for Analysis of Water.

American Public Health Association, American Waterworks Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater, 20th Edition. Washington D.C.

1 First analysis completed in the first quarter of 2004

2 First analysis completed in the fourth quarter of 2004. This analytical method tests for the following chemicals: azinphos- methyl, bolster, coumaphos, diazinon, chlorpyrifos, demeton, dichlorvos, disulfoton, ethoprop, fensulfothion, fenthion, mevinphos, naled, phorate, runnel, stiropfos, parathion-methyl, tokuthion, and trichloronate.

3 First analysis completed in December 2007. EPA method 608 tests for aldrin, BHC, chlordane, DDD, DDE, DDT, dieldrin, endrin, endosulfan, heptaclor, methoxychlor, toxaphene and PCB.

SECTION 4.0 – RESULTS

4.1 BASELINE WATER QUALITY

Sampling and analysis conducted by Public Works prior to implementation of the FMMP is considered the baseline for water quality conditions at the Mitigation Area. The results of baseline analyses conducted in April 2000 are presented in Table 5. Higher bacteria and turbidity observed in the 4/18/2000 samples are attributable to a rain event. Phosphorus levels were also high in the 4/18/2000 samples, due to release from sediments.

Table 5: Baseline Water Quality (2000)

Parameter	Units	Date (2000)	Haines Canyon Creek, Inflow to Tujunga Ponds	Haines Canyon Creek, Outflow from Tujunga Ponds	Big Tujunga Wash	Haines Canyon Creek, just before exit from site
Total coliform	MPN/100 ml	4/12	3,000	5,000	170	1,700
		4/18	2,200	170,000	2,400	70,000
Fecal coliform	MPN/100 ml	4/12	500	300	40	80
		4/18	500	30,000	2,400	50,000
Ammonia-N	mg/L	4/12	0	0	0	0
		4/18	0	0	0	0
Nitrate-N	mg/L	4/12	8.38	5.19	0	3.73
		4/18	8.2	3.91	0.253	0.438
Nitrite-N	mg/L	4/12	0.061	0	0	0
		4/18	0.055	0	0	0
Kjeldahl-N	mg/L	4/12	0	0.1062	0.163	0
		4/18	0	0.848	0.42	0.428
Dissolved phosphorus	mg/L	4/12	0.078	0.056	0	0.063
		4/18	0.089	0.148	0.111	0.163
Total phosphorus	mg/L	4/12	0.086	0.062	0	0.066
		4/18	0.113	0.153	0.134	0.211
pH	std units	4/12	7.78	7.68	7.96	7.91
		4/18	7.18	7.47	7.45	7.06
Turbidity	NTU	4/12	1.83	0.38	1.75	0.6
		4/18	4.24	323	4070	737

MPN – most probable number **NTU** – nephelometric turbidity units

4.2 OCTOBER 2019 RESULTS

Results of analyses conducted by Enthalpy Analytical and Test America are appended to this report (Appendix A) and summarized in Table 6.

Table 6: Summary of Water Quality Results – October 30, 2019

Parameter	Units	Inflow to Tujunga Ponds	Outflow from Tujunga Ponds	Big Tujunga Wash	Haines Canyon Creek, just before exit from site
Dissolved Oxygen	mg/L	3.6	4.9	NA	9.6
pH	std units	5.06	5.92	NA	5.45
Total residual chlorine	mg/L	ND	ND	NA	ND
Ammonia-Nitrogen	mg/L	ND	ND	NA	ND
Kjeldahl Nitrogen	mg/L	0.635	ND	NA	ND
Nitrite-Nitrogen	mg/L	ND	ND	NA	ND
Nitrate-Nitrogen	mg/L	8.07	5.78	NA	5.17
Orthophosphate-P (dissolved phosphorus)	mg/L	0.0220	ND	NA	0.0220
Total phosphorus-P	mg/L	0.036	0.024	NA	0.028
Glyphosate	µg/L	ND	ND	NA	ND
Chlorpyrifos* (and other Organophosphorus Pesticides)	µg/L	ND	ND	NA	ND
Pesticides (EPA 608)** (Organochlorine Pesticides)	µg/L	ND	ND	NA	ND
Turbidity	NTU	0.22	0.31	NA	0.53
Fecal Coliform Bacteria	(MPN/100 ml)	79	240	NA	130
Total Coliform Bacteria	(MPN/100 ml)	540	1600	NA	240

NA – data not available; station dry on the sample date **NTU** – nephelometric turbidity units

MPN – most probable number

ND – non-detect

* The analytical method used for chlorpyrifos (EPA 8141A) also tests for the following chemicals: azinphos-methyl, bolster, coumaphos, demeton, diazinon, dichlorvos, disulfoton, ethoprop, fensulfothion, fenthion, merphos, methyl parathion, mevinphos, naled, phorate, ronnel, stirophos, tokuthion, and trichloronate.

** EPA method 608 tests for aldrin, BHC, Chlordane, DDD, DDE, DDT, dieldrin, endrin, endosulfan, heptaclor, methoxychlor, and toxaphene. Water samples for these pesticides were collected on November 14, 2019.

4.3 COMPARISON OF RESULTS WITH AQUATIC LIFE CRITERIA

Tables 7 through 12 present objectives established by the United States Environmental Protection Agency (USEPA) and the Los Angeles Regional Water Quality Control Board (Regional Board) for protection of beneficial uses including freshwater aquatic life.

Table 7: National and Local Recommended Water Quality Criteria - Freshwaters

Parameter	Basin Plan Objectives ^a	EPA Criteria		
		CMC	CCC	Human Health
Temperature (°C)	b	See Table 13	See Table 13	--
Dissolved oxygen (mg/L)	>7.0 mean >5.0 min	5.0 ^c (warmwater, early life stages, 1-day minimum)	6.0 ^c (warmwater, early life stages, 7-day mean)	--
pH	6.5 - 8.5	--	6.5-9.0 ^{d,e}	5.0-9.0 ^{d,e}
Total residual chlorine (mg/L)	0.1	0.019 ^{d,e}	0.011 ^{d,e}	4.0 (maximum residual disinfectant level goal)
Fecal coliform (MPN/100 ml)	126 ^f (geometric mean for <i>E. coli</i>) (water contact recreation)	--	--	Swimming standards: 33 ^g (geometric mean for enterococci) 126 ^g (geometric mean for <i>E. coli</i>)
Ammonia-nitrogen (mg/L)	See Tables 11 and 12	See Table 9	See Table 10	--
Nitrite-nitrogen (mg/L)	1	--	--	1 (primary drinking water standard)
Nitrate-nitrogen (mg/L)	10	--	--	10 (primary drinking water standard)
Total phosphorus (mg/L)	--	<0.05 – 0.1 ^e (recommendation for streams, no criterion)		--
Turbidity (NTU)	h	i	i	5 (secondary drinking water standard) 0.5 – 1.0 (standard for systems that filter)

Notes:

MPN most probable number

NTU nephelometric turbidity units

-- No criterion

CMC Criteria Maximum Concentration or acute criterion

CCC Criteria Continuous Concentration or chronic criterion

a Source: California Regional Water Quality Control Board, Los Angeles Region. 1994. Water Quality Control Plan (Basin Plan). As amended.

- b** Narrative criterion: “The natural receiving water temperature of all regional waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.”
- c** Source: USEPA. 1986. Ambient Water Quality Criteria for Dissolved Oxygen. EPA 440-5-86-003. Washington, D.C.
- d** Source: USEPA. 1999. National Recommended Water Quality Criteria – Correction. EPA 822-Z-99-001. Washington, D.C.
- e** Source: USEPA. 1986. Quality Criteria for Water. EPA 440/5-86-001. Washington, D.C.
- f** Single sample limits – E. coli density shall not exceed 235/100 ml.
- g** Source: USEPA. 1986. Ambient Water Quality Criteria for Bacteria – 1986. EPA 440-5-84-002. Washington, D.C.
- h** Narrative criterion: “Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.”
- i** Narrative criterion for freshwater fish and other aquatic life: “Settleable and suspended solids should not reduce the depth of the compensation point for photosynthetic activity by more than 10 percent from the seasonally established norm for aquatic life.”

Table 8: Temperature and pH-Dependent Values of the CMC (Acute Criterion) Mussels Absent

CMC: Mussels Absent, mg N/L										
pH	Temperature (°Celsius)									
	0	14	16	18	20	22	24	26	28	30
6.5	58.0	58.0	58.0	58.0	43.7	37.0	31.4	26.6	22.5	19.1
6.6	55.7	55.7	55.7	55.7	41.9	35.5	30.1	25.5	21.6	18.3
6.7	53.0	53.0	53.0	53.0	39.9	33.8	28.6	24.3	20.6	17.4
6.8	49.9	49.9	49.9	49.9	37.6	31.9	27.0	22.9	19.4	16.4
6.9	46.5	46.5	46.5	46.5	35.1	29.7	25.2	21.3	18.1	15.3
7.0	42.9	42.9	42.9	42.9	32.3	27.4	23.2	19.7	16.7	14.1
7.1	39.1	39.1	39.1	39.1	29.4	24.9	21.1	17.9	15.2	12.8
7.2	35.1	35.1	35.1	35.1	26.4	22.4	19.0	16.1	13.6	11.5
7.3	31.2	31.2	31.2	31.2	23.5	19.9	16.8	14.3	12.1	10.2
7.4	27.3	27.3	27.3	27.3	20.6	17.4	14.8	12.5	10.6	8.98
7.5	23.6	23.6	23.6	23.6	17.8	15.1	12.8	10.8	9.18	7.77
7.6	20.2	20.2	20.2	20.2	15.3	12.9	10.9	9.27	7.86	6.66
7.7	17.2	17.2	17.2	17.2	12.9	11.0	9.28	7.86	6.66	5.64
7.8	14.4	14.4	14.4	14.4	10.9	9.21	7.80	6.61	5.60	4.74
7.9	12.0	12.0	12.0	12.0	9.07	7.69	6.51	5.52	4.67	3.96
8.0	9.99	9.99	9.99	9.99	7.53	6.38	5.40	4.58	3.88	3.29
8.1	8.26	8.26	8.26	8.26	6.22	5.27	4.47	3.78	3.21	2.72
8.2	6.81	6.81	6.81	6.81	5.13	4.34	3.68	3.12	2.64	2.24
8.3	5.60	5.60	5.60	5.60	4.22	3.58	3.03	2.57	2.18	1.84
8.4	4.61	4.61	4.61	4.61	3.48	2.95	2.50	2.11	1.79	1.52
8.5	3.81	3.81	3.81	3.81	2.87	2.43	2.06	1.74	1.48	1.25
8.6	3.15	3.15	3.15	3.15	2.37	2.01	1.70	1.44	1.22	1.04
8.7	2.62	2.62	2.62	2.62	1.97	1.67	1.42	1.20	1.02	0.862

CMC: Mussels Absent, mg N/L										
pH	Temperature (°Celsius)									
	0	14	16	18	20	22	24	26	28	30
8.8	2.19	2.19	2.19	2.19	1.65	1.40	1.19	1.00	0.851	0.721
8.9	1.85	1.85	1.85	1.85	1.39	1.18	1.00	0.847	0.718	0.608
9.0	1.57	1.57	1.57	1.57	1.19	1.00	0.851	0.721	0.611	0.517

Note: Native species of freshwater mussels are not known for Big Tujunga Wash or Haines Canyon Creek. CMC – Criteria Maximum Concentration (ammonia)

Source: USEPA. 2009. Draft 2009 Update Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater. EPA 822-D-09-001. Washington, D.C

Table 9: Temperature and pH-Dependent Values of the CCC (Chronic Criterion) Mussels Absent and Early Fish Life Stages Present

CCC: Mussels Absent and Early Fish Life Stages Present, mg N/L										
pH	Temperature (°Celsius)									
	0	14	16	18	20	22	24	26	28	30
6.5	6.36	6.36	6.36	6.36	6.36	6.11	5.37	4.72	4.15	3.65
6.6	6.26	6.26	6.26	6.26	6.26	6.02	5.29	4.65	4.09	3.60
6.7	6.15	6.15	6.15	6.15	6.15	5.91	5.19	4.57	4.01	3.53
6.8	6.00	6.00	6.00	6.00	6.00	5.77	5.08	4.46	3.92	3.45
6.9	5.84	5.84	5.84	5.84	5.84	5.61	4.93	4.34	3.81	3.35
7.0	5.64	5.64	5.64	5.64	5.64	5.42	4.76	4.19	3.68	3.24
7.1	5.41	5.41	5.41	5.41	5.41	5.20	4.57	4.02	3.53	3.10
7.2	5.14	5.14	5.14	5.14	5.14	4.94	4.35	3.82	3.36	2.95
7.3	4.84	4.84	4.84	4.84	4.84	4.66	4.09	3.60	3.16	2.78
7.4	4.52	4.52	4.52	4.52	4.52	4.34	3.82	3.36	2.95	2.59
7.5	4.16	4.16	4.16	4.16	4.16	4.00	3.52	3.09	2.72	2.39
7.6	3.79	3.79	3.79	3.79	3.79	3.65	3.21	2.82	2.48	2.18
7.7	3.41	3.41	3.41	3.41	3.41	3.28	2.89	2.54	2.23	1.96
7.8	3.04	3.04	3.04	3.04	3.04	2.92	2.57	2.26	1.98	1.74
7.9	2.67	2.67	2.67	2.67	2.67	2.57	2.26	1.98	1.74	1.53
8.0	2.32	2.32	2.32	2.32	2.32	2.23	1.96	1.72	1.52	1.33
8.1	2.00	2.00	2.00	2.00	2.00	1.92	1.69	1.49	1.31	1.15
8.2	1.71	1.71	1.71	1.71	1.71	1.64	1.45	1.27	1.12	0.982
8.3	1.45	1.45	1.45	1.45	1.45	1.40	1.23	1.08	0.949	0.835
8.4	1.23	1.23	1.23	1.23	1.23	1.18	1.04	0.914	0.804	0.706
8.5	1.04	1.04	1.04	1.04	1.04	0.999	0.878	0.772	0.679	0.597
8.6	0.878	0.878	0.878	0.878	0.878	0.844	0.742	0.652	0.573	0.504
8.7	0.742	0.742	0.742	0.742	0.742	0.714	0.628	0.552	0.485	0.426
8.8	0.631	0.631	0.631	0.631	0.631	0.606	0.533	0.469	0.412	0.362
8.9	0.539	0.539	0.539	0.539	0.539	0.518	0.455	0.400	0.352	0.309
9.0	0.464	0.464	0.464	0.464	0.464	0.446	0.392	0.345	0.303	0.266

Note: Native species of freshwater mussels are not known for Big Tujunga Wash or Haines Canyon Creek. CCC – Criteria Continuous Concentration (ammonia)

Source: USEPA. 2009. Draft 2009 Update Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater. EPA 822-D-09-001. Washington, D.C.

Table 10: 30-Day Average Objective for Ammonia-N for Freshwaters Applicable to Waters Subject to the “Early Life Stage Present” Condition (mg N/L)

pH	Temperature (°Celsius)								
	14	16	18	20	22	24	26	28	30
6.5	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

Source: California Regional Water Quality Control Board, Los Angeles Region. 2005. Amendments to the Water Quality Control Plan – Los Angeles Region with Respect to Early Life Stage Implementation Provisions of the Inland Surface Water Ammonia Objectives for Freshwaters. Taken from USEPA. 1999. 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA 822-R-99-014. Washington, D.C.

Table 11: One-Hour Average Objective for Ammonia-N for Freshwaters (mg N/L)

pH	Waters Designated COLD and/or MIGR	Waters Not Designated COLD and/or MIGR
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

COLD – Beneficial use designation of Cold Freshwater Habitat

MIGR – Beneficial use designation of Migration of Aquatic Organisms

Source: California Regional Water Quality Control Board, Los Angeles Region. 2002. Amendments to the Water Quality Control Plan – Los Angeles Region with Respect to Inland Surface Water Ammonia Objectives. Taken from USEPA. 1999. 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA 822-R-99-014. Washington, D.C.

Table 12: Example Calculated Values for Maximum Weekly Average Temperature for Growth and Short-Term Maxima for Survival of Juvenile and Adult Fishes During the Summer

Species	Growth (°Celsius)	Maxima (°Celsius)
Black crappie	27	--
Bluegill	32	35
Channel catfish	32	35
Emerald shiner	30	--
Largemouth bass	32	34
Brook trout	19	24

Source: USEPA. 1986. Quality Criteria for Water. EPA 440/5-86-001. Washington, D.C.

SECTION 5.0 – DISCUSSION

Results from the October 2019 sampling are described by parameter in Table 13.

Table 13: Discussion of October 2019 Water Quality Sampling Results

Parameter	Discussion
Dissolved oxygen	<ul style="list-style-type: none"> DO levels were 3.6 mg/L at the inflow to the Tujunga Ponds, 4.9 mg/L at the outflow from the Tujunga Ponds, and 9.6 mg/L where Haines Canyon Creek exits the site. DO levels at two of the sample stations were below the minimum recommended level (5.0 mg/L) for Basin Plan objectives and EPA’s criteria for warmwater fish species.
pH	<ul style="list-style-type: none"> pH readings were 5.06 at the inflow to the Tujunga Ponds, 5.92 at the outflow from the Tujunga Ponds, and 5.45 where Haines Canyon Creek exits the site. pH readings in all three sample stations were below the recommended range of 6.5 to 8.5 identified in the Basin Plan objectives, and were within the recommended range of 5.0 to 9.0 for EPA’s criteria for human health.
Total residual chlorine	<ul style="list-style-type: none"> No residual chlorine was detected at any sample station.
Nitrogen	<ul style="list-style-type: none"> Nitrate-Nitrogen measurements at all sample stations were below the drinking water maximum standard of 10 mg/L for both Basin Plan standards and EPA criteria for human health. Nitrite-Nitrogen was not detected at any sample station. Ammonia-Nitrogen was not detected at any sample station.
Phosphorus	<ul style="list-style-type: none"> The observed Total Phosphorus-P concentrations were 0.036 mg/L at the inflow to the Tujunga Ponds, 0.024 mg/L at the outflow to the Tujunga Ponds, and 0.028 mg/L where Haines Canyon Creek exits the site. Total Phosphorus-P concentrations were below the lower end of the EPA’s recommended maximum range of 0.05 to 0.10 mg/L for the desired goal of preventing plant nuisances in streams.
Glyphosate	<ul style="list-style-type: none"> Glyphosate was not detected at any sample station.
Chlorpyrifos and other Organophosphorus Pesticides	<ul style="list-style-type: none"> Organophosphorus Pesticides including Chlorpyrifos, that were analyzed by EPA method 8141A were not detected at any sample station.
Organochlorine Pesticides	<ul style="list-style-type: none"> Organochlorine pesticides analyzed by EPA Method 608 were not detected at any sample station.
Turbidity	<ul style="list-style-type: none"> Turbidity readings were 0.31 NTU at the inflow to the Tujunga Ponds, 0.22 NTU at the outflow from the Tujunga Ponds, and 0.53 NTU where Haines

Parameter	Discussion
	<p>Canyon Creek exits the site. Turbidity levels were below or within the drinking water maximum range of 0.5 to 1.0 NTU for the EPA’s criteria for human health at all sample stations.</p>
Coliform Bacteria	<ul style="list-style-type: none"> Per the Basin Plan objectives, the fresh water bacteria standard for water contact recreation is for <i>E. coli</i> (126 MPN/100 ml geometric mean, 235 MPN/100 ml single sample limits). Fecal coliform levels detected were below the standard geometric mean at the inflow to the Tujunga Ponds (79 MPN/100 ml) but were above the geometric mean at the outflow from the Tujunga Ponds (240 MPN/100 ml) and where Haines Canyon Creek exits the site (130 MPN/100ml). Sampling specifically for <i>E. coli</i> was not conducted. Total coliform levels were 540 MPN/100 ml at the inflow to the Tujunga Ponds, 1600 MPN/100 ml at the outflow from the Tujunga Ponds and 240 MPN/100 ml where Haines Canyon Creek exits the site. [Note that recreation standards are for <i>E. coli</i>. Per the Basin Plan, total coliform standards apply to marine waters and waterbodies where shellfish can be harvested for human consumption.]

mg/L – milligrams per liter NTU – nephelometric turbidity units MPN – most probable number

SECTION 6.0 – GLOSSARY

Ammonia-Nitrogen – $\text{NH}_3\text{-N}$ is a gaseous alkaline compound of nitrogen and hydrogen that is highly soluble in water. Un-ionized ammonia (NH_3) is toxic to aquatic organisms. The proportions of NH_3 and ammonium (NH_4^+) and hydroxide (OH^-) ions are dependent on temperature, pH, and salinity.

Chlorine, Residual – The chlorination of water supplies and wastewaters serves to destroy or deactivate disease-producing organisms. Residual chlorine in natural waters is an aquatic toxicant.

Chlorpyrifos - White crystal-like solid insecticide widely used in homes and on farms. Used to control cockroaches, fleas, termites, ticks crop pests.

Coliform Bacteria – Several genera of bacteria belonging to the family Enterobacteriaceae. Based on the method of detection, the coliform group is historically defined as facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas and acid formation within 48 hours at 35 C.

Coliform Bacteria, Fecal – Part of the intestinal flora of warm-blooded animals. Presence in surface waters is considered an indication of pollution.

Dissolved Oxygen - Dissolved oxygen (DO) is the amount of oxygen that is present in water. Water bodies receive oxygen from the atmosphere and from aquatic plants. Running water, such as that of a swift moving stream, dissolves more oxygen than the still water of a pond or lake.

Glyphosate - White compound broad-spectrum herbicide used to kill weeds.

Kjeldahl Nitrogen – Named for the laboratory technique used for detection, Kjeldahl nitrogen includes organic nitrogen and ammonia nitrogen.

Nitrate-Nitrogen – $\text{NO}_3\text{-N}$ is an essential nutrient for many photosynthetic autotrophs.

Nitrite-Nitrogen – $\text{NO}_2\text{-N}$ is an intermediate oxidation state of nitrogen, both in the oxidation of ammonia to nitrate and in the reduction of nitrate.

Organochlorine Pesticides – An older class of pesticides, that are effective against a variety of insects. These chemicals were introduced in the 1940s, and many of their uses have been cancelled or restricted by the U.S. EPA because of their environmental persistence and potential adverse effects on wildlife and human.

Organophosphorus Pesticides – These pesticides are active against a broad spectrum of insects and have accounted for a large share of all insecticides used in the United States. Although organophosphorus insecticides are still used for insect control on many food crops, most residential uses have been phased out in the United States. Certain organophosphorus insecticides are also registered for public health applications (e.g., mosquito control) in the United States.

Orthophosphorus – The reactive form of phosphorus, commonly used as fertilizer.

pH – The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. The pH of “pure” water at 25° C is 7.0 (neutral). Low pH is acidic; high pH is basic or alkaline.

Phosphorus, Total – In natural waters, phosphorus occurs almost solely as orthophosphates, condensed phosphates, and organically bound phosphate. Phosphorus is essential to the growth of organisms.

Turbidity – Attributable to the suspended and colloidal matter in water, including clay, silt, finely divided organic and inorganic matter, soluble colored organic compounds, and plankton and other microscopic organisms. The reduction of clearness in turbid waters diminishes the penetration of light and therefore can adversely affect photosynthesis.

APPENDIX A – 2019 LABORATORY RESULTS





Enthalpy Analytical, LLC

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Client: Chambers Group
Address: 5 Hutton Centre Drive
Suite 750
Santa Ana, CA 92707
Attn: Heather Franklin

Lab Request: 420782
Report Date: 11/08/2019
Date Received: 10/30/2019
Client ID: 14294

Comments: Big Tujunga

See attached for Glyphosate and Organophosphorus Pesticide results.

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

Sample # **Client Sample ID**

420782-001 Ponds Inlet
420782-002 Ponds Outlet
420782-003 Haines Creek Exit

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Report Review performed by: Diane Galvan, Project Manager

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 45 days from date received.

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Matrix: Water	Client: Chambers Group	Collector: Enthalpy Analytical
Sampled: 10/30/2019 09:25	Site:	
Sample #: <u>420782-001</u>	Client Sample #: Ponds Inlet	Sample Type:

Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: ALCH 4025	Prep Method: None					QCBatchID:	
Total Nitrogen	8.70	1	0.5	mg/L		11/07/19	SLL
Method: EPA 300.0	Prep Method: Method					QCBatchID: QC1208289	
Nitrate, as Nitrogen	8.07	1	0.1	mg/L	10/30/19	10/30/19 14:37	JP
Nitrite, as Nitrogen	ND	1	0.1	mg/L	10/30/19	10/30/19 14:37	JP
Method: EPA 350.1	Prep Method: Method					QCBatchID: QC1208472	
Ammonia, as Nitrogen	ND	1	0.1	mg/L	11/06/19	11/06/19	TP
Method: EPA 351.2	Prep Method: Method					QCBatchID: QC1208336	
Total Kjeldahl Nitrogen	0.635	1	0.4	mg/L	11/01/19	11/01/19	TP
Method: EPA 547	Prep Method: Method					QCBatchID:	
See Attached		1					
Method: EPA 8141A <i>NELAC</i>	Prep Method: EPA 3510C					QCBatchID:	
See Attached		1					
Method: SM 4500-Cl	Prep Method: Method					QCBatchID: QC1208294	
Chlorine, Total Residual	ND	1	0.1	mg/L		10/30/19 16:55	WW T2
Method: SM 4500-P-B-5-E	Prep Method: 4500-P-B-5					QCBatchID: QC1208424	
Total Phosphorous as P	0.036	1	0.02	mg/L	11/05/19	11/05/19	TP
Total Phosphorous as PO4	0.110	1	0.06	mg/L	11/05/19	11/05/19	TP
Method: SM 4500-P-E	Prep Method: Method					QCBatchID: QC1208418	
Orthophosphate, as P	0.0220	1	0.02	mg/L	10/30/19 17:00	10/30/19 17:17	TP
Orthophosphate, as PO4	0.067	1	0.06	mg/L	10/30/19 17:00	10/30/19 17:17	TP
Method: SM 9221-B	Prep Method: Method					QCBatchID: QC1208254	
Coliform, Total	540	1		MPN/100ml	10/30/19 14:50	11/03/19 11:35	CO
Method: SM 9221-E	Prep Method: Method					QCBatchID: QC1208254	
Coliform, Fecal	79	1		MPN/100ml	10/30/19 14:50	11/02/19 12:29	LH

Matrix: Water	Client: Chambers Group	Collector: Enthalpy Analytical
Sampled: 10/30/2019 08:37	Site:	
Sample #: <u>420782-002</u>	Client Sample #: Ponds Outlet	Sample Type:

Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: ALCH 4025	Prep Method: None					QCBatchID:	
Total Nitrogen	5.78	1	0.5	mg/L		11/07/19	SLL
Method: EPA 300.0	Prep Method: Method					QCBatchID: QC1208289	
Nitrate, as Nitrogen	5.78	1	0.1	mg/L	10/30/19	10/30/19 14:57	JP
Nitrite, as Nitrogen	ND	1	0.1	mg/L	10/30/19	10/30/19 14:57	JP
Method: EPA 350.1	Prep Method: Method					QCBatchID: QC1208472	
Ammonia, as Nitrogen	ND	1	0.1	mg/L	11/06/19	11/06/19	TP
Method: EPA 351.2	Prep Method: Method					QCBatchID: QC1208336	
Total Kjeldahl Nitrogen	ND	1	0.4	mg/L	11/01/19	11/01/19	TP
Method: EPA 547	Prep Method: Method					QCBatchID:	
See Attached		1					
Method: EPA 8141A <i>NELAC</i>	Prep Method: EPA 3510C					QCBatchID:	
See Attached		1					
Method: SM 4500-Cl	Prep Method: Method					QCBatchID: QC1208294	
Chlorine, Total Residual	ND	1	0.1	mg/L		10/30/19 16:55	WW T2
Method: SM 4500-P-B-5-E	Prep Method: 4500-P-B-5					QCBatchID: QC1208424	
Total Phosphorous as P	0.024	1	0.02	mg/L	11/05/19	11/05/19	TP
Total Phosphorous as PO4	0.074	1	0.06	mg/L	11/05/19	11/05/19	TP
Method: SM 4500-P-E	Prep Method: Method					QCBatchID: QC1208418	
Orthophosphate, as P	ND	1	0.02	mg/L	10/30/19 17:00	10/30/19 17:17	TP
Orthophosphate, as PO4	ND	1	0.06	mg/L	10/30/19 17:00	10/30/19 17:17	TP
Method: SM 9221-B	Prep Method: Method					QCBatchID: QC1208254	
Coliform, Total	1600	1		MPN/100ml	10/30/19 14:50	11/03/19 11:35	CO
Method: SM 9221-E	Prep Method: Method					QCBatchID: QC1208254	
Coliform, Fecal	240	1		MPN/100ml	10/30/19 14:50	11/02/19 12:29	LH

Matrix: Water	Client: Chambers Group	Collector: Enthalpy Analytical
Sampled: 10/30/2019 10:20	Site:	
Sample #: <u>420782-003</u>	Client Sample #: Haines Creek Exit	Sample Type:

Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: ALCH 4025	Prep Method: None		QCBatchID:				
Total Nitrogen	5.17	1	0.5	mg/L		11/07/19	SLL
Method: EPA 300.0	Prep Method: Method		QCBatchID: QC1208289				
Nitrate, as Nitrogen	5.17	1	0.1	mg/L	10/30/19	10/30/19 15:17	JP
Nitrite, as Nitrogen	ND	1	0.1	mg/L	10/30/19	10/30/19 15:17	JP
Method: EPA 350.1	Prep Method: Method		QCBatchID: QC1208472				
Ammonia, as Nitrogen	ND	1	0.1	mg/L	11/06/19	11/06/19	TP
Method: EPA 351.2	Prep Method: Method		QCBatchID: QC1208336				
Total Kjeldahl Nitrogen	ND	1	0.4	mg/L	11/01/19	11/01/19	TP
Method: EPA 547	Prep Method: Method		QCBatchID:				
See Attached		1					
Method: EPA 8141A <i>NELAC</i>	Prep Method: EPA 3510C		QCBatchID:				
See Attached		1					
Method: SM 4500-Cl	Prep Method: Method		QCBatchID: QC1208294				
Chlorine, Total Residual	ND	1	0.1	mg/L		10/30/19 16:55	WW T2
Method: SM 4500-P-B-5-E	Prep Method: 4500-P-B-5		QCBatchID: QC1208424				
Total Phosphorous as P	0.028	1	0.02	mg/L	11/05/19	11/05/19	TP
Total Phosphorous as PO4	0.086	1	0.06	mg/L	11/05/19	11/05/19	TP
Method: SM 4500-P-E	Prep Method: Method		QCBatchID: QC1208418				
Orthophosphate, as P	0.0220	1	0.02	mg/L	10/30/19 17:00	10/30/19 17:17	TP
Orthophosphate, as PO4	0.067	1	0.06	mg/L	10/30/19 17:00	10/30/19 17:17	TP
Method: SM 9221-B	Prep Method: Method		QCBatchID: QC1208254				
Coliform, Total	240	1		MPN/100ml	10/30/19 14:50	11/02/19 12:29	LH
Method: SM 9221-E	Prep Method: Method		QCBatchID: QC1208254				
Coliform, Fecal	130	1		MPN/100ml	10/30/19 14:50	11/02/19 12:29	LH

QCBatchID: QC1208289	Analyst: JParedes	Method: EPA 300.0
Matrix: Water	Analyzed: 10/30/2019	Instrument: AAICP (group)

Blank Summary

Analyte	Blank Result	Units	RDL	Notes
QC1208289MB1				
Bromide	ND	mg/L	0.3	
Chloride	ND	mg/L	1	
Nitrate, as Nitrogen	ND	mg/L	0.1	
Nitrate, as NO3	ND	mg/L	0.44	
Nitrite, as Nitrogen	ND	mg/L	0.1	
Nitrite, as NO2	ND	mg/L	0.33	
Sulfate	ND	mg/L	0.5	

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD	RPD	%Rec	RPD	
QC1208289LCS1											
Bromide	15		15.0		mg/L	100			90-110		
Chloride	100		105		mg/L	105			90-110		
Nitrate, as Nitrogen	9.03		9.49		mg/L	105			90-110		
Nitrate, as NO3	40		42.0		mg/L	105			90-110		
Nitrite, as Nitrogen	9.15		9.46		mg/L	103			90-110		
Nitrite, as NO2	30		31.0		mg/L	103			90-110		
Sulfate	50		52.0		mg/L	104			90-110		

Matrix Spike/Matrix Spike Duplicate Summary

Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
		MS	MSD	MS	MSD		MS	MSD	RPD	%Rec	RPD	
QC1208289MS1, QC1208289MSD1 Source: 420787-001												
Bromide	ND	15	15	15.1	15.2	mg/L	101	101	0.7	80-120	20	
Chloride	81.8	100	100	169	173	mg/L	87	91	2.3	80-120	20	
Nitrate, as Nitrogen	ND	9.03	9.03	9.40	9.52	mg/L	104	105	1.3	80-120	20	
Nitrate, as NO3	ND	40	40	41.6	42.2	mg/L	104	106	1.4	80-120	20	
Nitrite, as Nitrogen	ND	9.15	9.15	8.85	8.86	mg/L	97	97	0.1	80-120	20	
Nitrite, as NO2	ND	30	30	29.0	29.1	mg/L	97	97	0.3	80-120	20	
Sulfate	16.6	50	50	66.8	66.9	mg/L	100	101	0.1	80-120	20	
QC1208289MS2, QC1208289MSD2 Source: 420800-004												
Bromide	ND	15	15	14.6	15.0	mg/L	97	100	2.7	80-120	20	
Chloride	174	100	100	249	247	mg/L	75	73	0.8	80-120	20	M
Nitrate, as Nitrogen	4.88	9.03	9.03	13.8	14.1	mg/L	99	102	2.2	80-120	20	
Nitrate, as NO3	21.6	40	40	61.1	62.4	mg/L	99	102	2.1	80-120	20	
Nitrite, as Nitrogen	ND	9.15	9.15	8.06	8.50	mg/L	88	93	5.3	80-120	20	
Nitrite, as NO2	ND	30	30	26.4	27.9	mg/L	88	93	5.5	80-120	20	
Sulfate	6.23	50	50	56.0	57.3	mg/L	100	102	2.3	80-120	20	

QCBatchID: <u>QC1208294</u>	Analyst: wei	Method: SM 4500-Cl
Matrix: Water	Analyzed: 10/30/2019	Instrument: CHEM (group)

Blank Summary

Analyte	Blank Result	Units	RDL	Notes
QC1208294MB1				
Chlorine, Total Residual	ND	mg/L	0.1	

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD	RPD	%Rec	RPD	
QC1208294LCS1											
Chlorine, Total Residual	1		1.04		mg/L	104			80-120		

Duplicate Summary

Analyte	Sample Amount	Duplicate Amount	Units	RPD	Limits RPD	Notes
QC1208294DUP1						
Chlorine, Total Residual	1.16	1.16	mg/L	0.0	20	Source: 420789-002

QCBatchID: QC1208336	Analyst: trinh	Method: EPA 351.2
Matrix: Water	Analyzed: 11/01/2019	Instrument: CHEM (group)

Blank Summary

Analyte	Blank Result	Units	RDL	Notes
QC1208336MB1				
Total Kjeldahl Nitrogen	ND	mg/L	0.4	

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD	RPD	%Rec	RPD	
QC1208336LCS1											
Total Kjeldahl Nitrogen	2.5		2.6		mg/L	104			80-120		

Matrix Spike/Matrix Spike Duplicate Summary

Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
		MS	MSD	MS	MSD		MS	MSD	RPD	%Rec	RPD	
QC1208336MS1, QC1208336MSD1												
Total Kjeldahl Nitrogen	0.635	12.5	12.5	11	8.4	mg/L	83	62	26.8	80-120	20	M,D

QCBatchID: QC1208418	Analyst: trinh	Method: SM 4500-P-E
Matrix: Water	Analyzed: 10/30/2019	Instrument: CHEM (group)

Blank Summary

Analyte	Blank Result	Units	RDL	Notes
QC1208418MB1				
Orthophosphate, as P	ND	mg/L	0.02	
Orthophosphate, as PO4	ND	mg/L	0.06	

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD	RPD	%Rec	RPD	
QC1208418LCS1											
Orthophosphate, as P	0.4		0.3900		mg/L	98			80-120		
Orthophosphate, as PO4	1.2264		1.19		mg/L	97			80-120		

Matrix Spike/Matrix Spike Duplicate Summary

Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
		MS	MSD	MS	MSD		MS	MSD	RPD	%Rec	RPD	
QC1208418MS1, QC1208418MSD1												
Orthophosphate, as P	0.4220	0.8	0.8	1.17	1.17	mg/L	94	94	0.0	75-125	25	
Orthophosphate, as PO4	1.29	2.46	2.46	3.57	3.57	mg/L	93	93	0.0	75-125	25	

Source: 420762-002

QCBatchID: QC1208424	Analyst: trinh	Method: SM 4500-P-B-5-E
Matrix: Water	Analyzed: 11/05/2019	Instrument: CHEM (group)

Blank Summary

Analyte	Blank Result	Units	RDL	Notes
QC1208424MB1				
Total Phosphorous as P	ND	mg/L	0.02	
Total Phosphorous as PO4	ND	mg/L	0.06	

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD	RPD	%Rec	RPD	
QC1208424LCS1											
Total Phosphorous as P	0.4		0.386		mg/L	97			80-120		
Total Phosphorous as PO4	1.3		1.18		mg/L	91			80-120		

Matrix Spike/Matrix Spike Duplicate Summary

Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
		MS	MSD	MS	MSD		MS	MSD	RPD	%Rec	RPD	
QC1208424MS1, QC1208424MSD1 Source: 420756-001												
Total Phosphorous as P	0.143	0.4	0.4	0.562	0.562	mg/L	105	105	0.0	75-125	20	
Total Phosphorous as PO4	0.438	1.3	1.3	1.72	1.72	mg/L	99	99	0.0	75-125	20	

QCBatchID: <u>QC1208472</u>	Analyst: Echavez	Method: EPA 350.1
Matrix: Water	Analyzed: 11/06/2019	Instrument: CHEM (group)

Blank Summary

Analyte	Blank Result	Units	RDL	Notes
QC1208472MB1				
Ammonia, as Nitrogen	ND	mg/L	0.1	

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD	RPD	%Rec	RPD	
QC1208472LCS1											
Ammonia, as Nitrogen	2.5		2.56		mg/L	102			80-120		

Matrix Spike/Matrix Spike Duplicate Summary

Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
		MS	MSD	MS	MSD		MS	MSD	RPD	%Rec	RPD	
QC1208472MS1, QC1208472MSD1 Source: 420782-001												
Ammonia, as Nitrogen	ND	2.5	2.5	2.57	2.54	mg/L	103	102	1.2	80-120	20	

Data Qualifiers and Definitions

Qualifiers

A	See Report Comments.
B	Analyte was present in an associated method blank.
B1	Analyte was present in a sample and associated method blank greater than MDL but less than RDL.
BQ1	No valid test replicates. Sample Toxicity is possible. Best result was reported.
BQ2	No valid test replicates.
BQ3	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
BQ4	Minor Dissolved Oxygen loss was observed in the blank water check, however, the LCS was within criteria, validating the batch.
BQ5	Minor Dissolved Oxygen loss was observed in the blank water check.
C	Possible laboratory contamination.
D	RPD was not within control limits. The sample data was reported without further clarification.
D1	Lesser amount of sample was used due to insufficient amount of sample supplied.
D2	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
D3	Insufficient sample was supplied for TCLP. Client was notified. TCLP was performed per the Client's instructions.
DW	Sample result is calculated on a dry weigh basis.
E	Concentration is estimated because it exceeds the quantification limits of the method.
I	The sample was read outside of the method required incubation period.
IR	Inconclusive Result. Legionella is present, however, there is possible non-specific agglutination preventing specific identification.
J	Reported value is estimated
L	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
L2	LCS did not meet recovery criteria, however, the MS and/or MSD met LCS recovery criteria, validating the batch.
M	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
M1	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
M2	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
N1	Sample chromatography does not match the specified TPH standard pattern.
NC	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
P	Sample was received without proper preservation according to EPA guidelines.
P1	Temperature of sample storage refrigerator was out of acceptance limits.
P2	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
P3	Per Client request, sample was composited for volatile analysis. Sample compositing for volatile analysis is not recommended due to potential loss of target analytes. Results may be biased low.
Q1	Analyte Calibration Verification exceeds criteria. The result is estimated.
Q2	Analyte calibration was not verified and the result was estimated.
Q3	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
S	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
S1	The associated surrogate recovery was out of control limits; result is estimated.
S2	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
S3	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
T	Sample was extracted/analyzed past the holding time.
T1	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
T2	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
T3	Sample received and analyzed out of hold time per client's request.
T4	Sample was analyzed out of hold time per client's request.
T5	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
T6	Hold time is indeterminable due to unspecified sampling time.
T7	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.

Definitions

DF	Dilution Factor
MDL	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
ND	Analyte was not detected or was less than the detection limit.
NR	Not Reported. See Report Comments.
RDL	Reporting Detection Limit
TIC	Tentatively Identified Compounds



Enthalpy Analytical - Orange
 931 W. Barkley Avenue, Orange, CA 92868
 Phone 714-771-6900

Chain of Custody Record
 Lab No: 420782
 Page: of

Turn Around Time (rush by advanced notice only)
 Standard: 5 Day: 3 Day:
 2 Day: 1 Day: Custom TAT:

Matrix: A = Air S = Soil/Solid
 Water DW = Drinking Water SD = Sediment
 PP = Pure Product SEA = Sea Water
 SW = Swab T = Tissue WP = Wipe O = Other

Preservatives:
 Na₂S₂O₃ 2 = HCl 3 = HNO₃
 4 = H₂SO₄ 5 = NaOH 6 = Other
 1 = Sample Receipt Temp:
 18.2 (lab use only)

CUSTOMER INFORMATION				PROJECT INFORMATION				Analysis Request		Test Instructions / Comments	
Company:	Chambers Group Inc.	Quote #:		Proj. Name:	Big Tuja	Container No. / Size	Pres.				
Report To:	Mauricio Gomez	Proj. #:		Address:		Matrix					
Email:	mgoomez@chambersgroupinc.com	P.O. #:		Global ID:		Sampling Time					
Address:		Sampled By:									
Phone:	323-702-2626										
Fax:											
1	Ponds Inlet	10/30/19	0925					total phosphorus	ammonia	nitrite - nitrogen	total Kjeldahl Nitrogen
2	Ponds Outlet	10/30/19	0837					total phosphorus	ammonia	nitrite - nitrogen	total Kjeldahl Nitrogen
3	Haines Creek Exit	10/30/19	10:20					total phosphorus	ammonia	nitrite - nitrogen	total Kjeldahl Nitrogen
4											
5											
6											
7											
8											
9											
10											

Okay to run w/out ice

Signature	Print Name	Company / Title	Date / Time
	James Novales	Chambers Group/Collections Manager	10/30/19 / 12:15 pm
	G. Kim	GA	10/30/19 / 12:15



ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Chambers GroupProject: Big TujungaDate Received: 10/30/19Sampler's Name Present: Yes No

Section 2

Sample(s) received in a cooler? Yes, How many? _____ No (skip section 2)Sample Temp (°C)
(No Cooler) : 18.2

Sample Temp (°C), One from each cooler: #1: _____ #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: Ice Ice Packs Bubble Wrap Styrofoam
 Paper None Other _____

Cooler Temp (°C): #1: _____ #2: _____ #3: _____ #4: _____

Section 4

	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			✓
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?	✓		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? Verbal PM Initials: _____ Date/Time _____ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By:  Date: 10/30/19

ANALYTICAL REPORT

Eurofins TestAmerica, Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

Laboratory Job ID: 680-176222-1
Client Project/Site: 420782

For:

Enthalpy Analytical LLC
931 W. Barkley Ave
Orange, California 92868

Attn: Diane Galvan



Authorized for release by:
11/8/2019 12:54:16 PM

Kathryn Smith, Manager of Project Management
(912)250-0275
kathy.smith@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Definitions/Glossary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 680-176222-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 680-176222-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
680-176222-1	Ponds Inlet (420782-001)	Water	10/30/19 09:25	10/31/19 09:45	
680-176222-2	Ponds Outlet (420782-002)	Water	10/30/19 08:37	10/31/19 09:45	
680-176222-3	Haines Creek Exit (420782-003)	Water	10/30/19 10:20	10/31/19 09:45	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Case Narrative

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 680-176222-1

Job ID: 680-176222-1

Laboratory: Eurofins TestAmerica, Savannah

Narrative

**Job Narrative
680-176222-1**

Comments

No additional comments.

Receipt

The samples were received on 10/31/2019 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9° C.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Client Sample Results

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 680-176222-1

Client Sample ID: Ponds Inlet (420782-001)

Lab Sample ID: 680-176222-1

Date Collected: 10/30/19 09:25

Matrix: Water

Date Received: 10/31/19 09:45

Method: 547 LL - Glyphosate (DAI HPLC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Glyphosate	ND		6.0		ug/L			11/07/19 23:51	1

Client Sample ID: Ponds Outlet (420782-002)

Lab Sample ID: 680-176222-2

Date Collected: 10/30/19 08:37

Matrix: Water

Date Received: 10/31/19 09:45

Method: 547 LL - Glyphosate (DAI HPLC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Glyphosate	ND		6.0		ug/L			11/08/19 00:48	1

Client Sample ID: Haines Creek Exit (420782-003)

Lab Sample ID: 680-176222-3

Date Collected: 10/30/19 10:20

Matrix: Water

Date Received: 10/31/19 09:45

Method: 547 LL - Glyphosate (DAI HPLC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Glyphosate	ND		6.0		ug/L			11/08/19 01:07	1

QC Sample Results

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 680-176222-1

Method: 547 LL - Glyphosate (DAI HPLC)

Lab Sample ID: MB 680-595184/2
Matrix: Water
Analysis Batch: 595184

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Glyphosate	ND		6.0		ug/L			11/07/19 18:06	1

Lab Sample ID: LCS 680-595184/3
Matrix: Water
Analysis Batch: 595184

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Glyphosate	200	201		ug/L		101	80 - 120

Lab Sample ID: LCSD 680-595184/4
Matrix: Water
Analysis Batch: 595184

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Glyphosate	200	192		ug/L		96	80 - 120	4	20

Lab Sample ID: 680-176222-1 MS
Matrix: Water
Analysis Batch: 595184

Client Sample ID: Ponds Inlet (420782-001)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Glyphosate	ND		200	199		ug/L		100	80 - 120

Lab Sample ID: 680-176222-1 MSD
Matrix: Water
Analysis Batch: 595184

Client Sample ID: Ponds Inlet (420782-001)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Glyphosate	ND		200	195		ug/L		98	80 - 120	2	20

QC Association Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 680-176222-1

HPLC/IC

Analysis Batch: 595184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-176222-1	Ponds Inlet (420782-001)	Total/NA	Water	547 LL	
680-176222-2	Ponds Outlet (420782-002)	Total/NA	Water	547 LL	
680-176222-3	Haines Creek Exit (420782-003)	Total/NA	Water	547 LL	
MB 680-595184/2	Method Blank	Total/NA	Water	547 LL	
LCS 680-595184/3	Lab Control Sample	Total/NA	Water	547 LL	
LCSD 680-595184/4	Lab Control Sample Dup	Total/NA	Water	547 LL	
680-176222-1 MS	Ponds Inlet (420782-001)	Total/NA	Water	547 LL	
680-176222-1 MSD	Ponds Inlet (420782-001)	Total/NA	Water	547 LL	

Lab Chronicle

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 680-176222-1

Client Sample ID: Ponds Inlet (420782-001)

Lab Sample ID: 680-176222-1

Date Collected: 10/30/19 09:25

Matrix: Water

Date Received: 10/31/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	547 LL		1	1 mL	1 mL	595184	11/07/19 23:51	EKB	TAL SAV
Instrument ID: CLCR										

Client Sample ID: Ponds Outlet (420782-002)

Lab Sample ID: 680-176222-2

Date Collected: 10/30/19 08:37

Matrix: Water

Date Received: 10/31/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	547 LL		1	1 mL	1 mL	595184	11/08/19 00:48	EKB	TAL SAV
Instrument ID: CLCR										

Client Sample ID: Haines Creek Exit (420782-003)

Lab Sample ID: 680-176222-3

Date Collected: 10/30/19 10:20

Matrix: Water

Date Received: 10/31/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	547 LL		1	1 mL	1 mL	595184	11/08/19 01:07	EKB	TAL SAV
Instrument ID: CLCR										

Laboratory References:

TAL SAV = Eurofins TestAmerica, Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 680-176222-1

Laboratory: Eurofins TestAmerica, Savannah

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
Alabama	State	41450	06-30-20
Alaska	State	GA00006	06-30-20
Alaska (UST)	State	17-016	09-30-20
ANAB	Dept. of Defense ELAP	L2463	09-22-22
ANAB	DoD	L2463	09-22-22
ANAB	ISO/IEC 17025	L2463.01	09-22-22
ANAB	ISO/IEC 17025	L2463.01	09-22-22
Arizona	State	AZ0808	12-14-19
Arkansas DEQ	State	19-015-0	02-01-20
Arkansas DEQ	State Program	88-0692	02-01-20
California	State	2939	06-30-20
Colorado	State	GA00006	12-31-19
Connecticut	State	PH-0161	03-31-21
Florida	NELAP	E87052	06-30-20
GA Dept. of Agriculture	State Program	N/A	06-12-20
Georgia	State	E87052	06-30-20
Georgia	State Program	N/A	06-30-20
Georgia (DW)	State	803	06-30-20
Guam	State	19-007R	04-17-20
Hawaii	State	<cert No.>	06-30-20
Indiana	State	C-GA-02	06-30-20
Iowa	State	353	09-22-20
Kansas	NELAP	E-10322	10-15-20
Kentucky (DW)	State	KY90084	12-31-19
Kentucky (UST)	State	<cert No.>	06-30-20
Kentucky (UST)	State Program	18	06-30-20
Kentucky (WW)	State	KY90084	12-31-19
Kentucky (WW)	State Program	90084	12-31-19
Louisiana	NELAP	02011	06-30-20
Louisiana (DW)	State	LA009	12-31-19
Maine	State	GA00006	09-26-20
Maryland	State	250	12-31-19
Massachusetts	State	M-GA006	06-30-20
Massachusetts	State Program	M-GA006	06-30-20
Michigan	State	9925	06-30-20
Mississippi	State	<cert No.>	06-30-20
Mississippi	State Program	N/A	06-30-20
Nebraska	State	NE-OS-7-04	06-30-20
Nebraska	State Program	TestAmerica-Savannah	06-30-20
New Hampshire	NELAP	2096	05-29-20
New Hampshire	NELAP	2096	05-29-20
New Jersey	NELAP	GA769	06-30-20
New Mexico	State	GA00006	06-30-20
New York	NELAP	10842	04-01-20
North Carolina (DW)	State	13701	07-31-20
North Carolina (DW)	State Program	13701	07-31-20
North Carolina (WW/SW)	State	269	12-31-19
North Carolina (WW/SW)	State Program	269	12-31-19
Oklahoma	State	9984	08-31-20

Accreditation/Certification Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 680-176222-1

Laboratory: Eurofins TestAmerica, Savannah (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Pennsylvania	NELAP	68-00474	06-30-20
Puerto Rico	State	GA00006	01-01-20
South Carolina	State	98001	06-30-20
Tennessee	State	02961	06-30-20
Texas	NELAP	T104704185-19-13	11-30-19 *
Texas	NELAP	T1047004185-19-3	11-30-19
Texas	TCEQ Water Supply	T104704185	09-23-20
US Fish & Wildlife	US Federal Programs	LE058448-0	07-31-20
USDA	US Federal Programs	P330-18-00313	10-29-21
Virginia	NELAP	10509	06-14-20
Washington	State	C805	06-10-20
West Virginia (DW)	State	9950C	12-31-19
West Virginia (DW)	State Program	9950C	12-31-19
West Virginia DEP	State	094	11-30-19
Wisconsin	State	999819810	08-31-20
Wyoming	State	8TMS-L	06-30-20 *
Wyoming	State Program	8TMS-L	06-30-16 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Method Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 680-176222-1

Method	Method Description	Protocol	Laboratory
547 LL	Glyphosate (DAI HPLC)	EPA	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAV = Eurofins TestAmerica, Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858





Enthalpy Analytical
 Formerly Associated Labs
 1 Park Plaza, Suite 1000
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 Tel: 714.771.6900 Fax: 714.538.1209
 info-sc@enthalpy.com



Subcontract Laboratory:

Test America - Savannah
 5102 LaRoche Avenue
 Savannah, GA 31404
 912-354-7858
 ATTN: Kathy Smith
 PO#

Project: 420782 **Due:**

PM: Diane Galvan

Email: diane.galvan@enthalpy.com

CC: incomingreports@enthalpy.com

Require: EDD EDF EDT

Report To: MDL

Note:

Matrix	Sampled	Sample ID	Analysis	Comment
Water	10/30/19 09:25	Ponds Inlet (420782-001)	547 Out	Glyphosate
Water	10/30/19 08:37	Ponds Outlet (420782-002)	547 Out	Glyphosate
Water	10/30/19 10:20	Haines Creek Exit (420782-003)	547 Out	Glyphosate

Note:

Standard TAT.

Relinquished By

George
 Date/Time 10/30/19 1500

Received By:

Paul J...
 Date/Time 10/31/19 0945

Date/Time

Date/Time

2.8/29

680-176222 Chain of Custody



ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-11454-1
Client Project/Site: 420782

For:

Enthalpy Analytical LLC
931 W Barkley Ave
Orange, California 92868

Attn: Incoming Reports



Authorized for release by:
11/6/2019 7:40:35 PM

Xuan Dang, Project Manager I
(714)895-5494
xuandang@eurofinsus.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
E	Result exceeded calibration range.
me	LCS Recovery is within Marginal Exceedance (ME) control limit range (± 4 SD from the mean).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Job ID: 570-11454-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative 570-11454-1

Comments

No additional comments.

Receipt

The samples were received on 10/30/2019 4:01 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0° C.

GC Semi VOA

Method 8141A: The continuing calibration verification (CCV) associated with batch 570-30510 recovered above the upper control limit for Merphos. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: Ponds Inlet (420782-001) (570-11454-1), Ponds Outlet (420782-002) (570-11454-2), Haines Creek Exit (420782-003) (570-11454-3) and (CCV 570-30510/18)

Method 8141A: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-30026 and analytical batch 570-30510 recovered outside control limits for the following analytes: Azinphos-methyl, Fensulfothion and Merphos. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8141A: The closing continuing calibration verification (CCV) associated with batch 570-30510 recovered above the upper control limit for Azinphos-methyl, Chlorpyrifos, Coumaphos and Merphos. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: Ponds Inlet (420782-001) (570-11454-1), Ponds Outlet (420782-002) (570-11454-2), Haines Creek Exit (420782-003) (570-11454-3) and (CCV 570-30510/19).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-30026. LCS/LCSD performed to meet QC requirements.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Client Sample ID: Ponds Inlet (420782-001)

Lab Sample ID: 570-11454-1

No Detections.

Client Sample ID: Ponds Outlet (420782-002)

Lab Sample ID: 570-11454-2

No Detections.

Client Sample ID: Haines Creek Exit (420782-003)

Lab Sample ID: 570-11454-3

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

This Detection Summary does not include radiochemical test results.

Eurofins Calscience LLC

Client Sample Results

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Method: 8141A - Organophosphorous Pesticides (GC)

Client Sample ID: Ponds Inlet (420782-001)

Date Collected: 10/30/19 09:25

Date Received: 10/30/19 16:01

Lab Sample ID: 570-11454-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Azinphos-methyl	ND	*	0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Bolstar	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Chlorpyrifos	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Coumaphos	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Demeton-o/s	ND		0.0096	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Diazinon	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Dichlorvos	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Disulfoton	ND		0.0096	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Ethoprop	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Fensulfothion	ND	*	0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Fenthion	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Merphos	ND	*	0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Methyl parathion	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Mevinphos	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Naled	ND		0.038	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Phorate	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Ronnel	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Stirophos	ND		0.019	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Tokuthion	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Trichloronate	ND		0.0048	mg/L	-	10/31/19 20:29	11/04/19 22:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
<i>Tributyl phosphate</i>	104		30 - 130			10/31/19 20:29	11/04/19 22:34	1

Client Sample ID: Ponds Outlet (420782-002)

Date Collected: 10/30/19 08:37

Date Received: 10/30/19 16:01

Lab Sample ID: 570-11454-2

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Azinphos-methyl	ND	*	0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Bolstar	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Chlorpyrifos	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Coumaphos	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Demeton-o/s	ND		0.0097	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Diazinon	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Dichlorvos	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Disulfoton	ND		0.0097	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Ethoprop	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Fensulfothion	ND	*	0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Fenthion	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Merphos	ND	*	0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Methyl parathion	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Mevinphos	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Naled	ND		0.039	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Phorate	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Ronnel	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Stirophos	ND		0.019	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Tokuthion	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1
Trichloronate	ND		0.0049	mg/L	-	10/31/19 20:29	11/04/19 23:22	1

Client Sample Results

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Method: 8141A - Organophosphorous Pesticides (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tributyl phosphate	99		30 - 130	10/31/19 20:29	11/04/19 23:22	1

Client Sample ID: Haines Creek Exit (420782-003)

Date Collected: 10/30/19 10:20

Date Received: 10/30/19 16:01

Lab Sample ID: 570-11454-3

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Azinphos-methyl	ND	*	0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Bolstar	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Chlorpyrifos	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Coumaphos	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Demeton-o/s	ND		0.0097	mg/L		10/31/19 20:29	11/05/19 00:09	1
Diazinon	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Dichlorvos	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Disulfoton	ND		0.0097	mg/L		10/31/19 20:29	11/05/19 00:09	1
Ethoprop	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Fensulfothion	ND	*	0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Fenthion	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Merphos	ND	*	0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Methyl parathion	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Mevinphos	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Naled	ND		0.039	mg/L		10/31/19 20:29	11/05/19 00:09	1
Phorate	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Ronnel	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Stirophos	ND		0.019	mg/L		10/31/19 20:29	11/05/19 00:09	1
Tokuthion	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1
Trichloronate	ND		0.0048	mg/L		10/31/19 20:29	11/05/19 00:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tributyl phosphate	101		30 - 130	10/31/19 20:29	11/05/19 00:09	1

Surrogate Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Method: 8141A - Organophosphorous Pesticides (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TBPH1 (30-130)
570-11454-1	Ponds Inlet (420782-001)	104
570-11454-2	Ponds Outlet (420782-002)	99
570-11454-3	Haines Creek Exit (420782-003)	101
LCS 570-30026/2-A	Lab Control Sample	114
LCSD 570-30026/3-A	Lab Control Sample Dup	109
MB 570-30026/1-A	Method Blank	106

Surrogate Legend

TBPH = Tributyl phosphate

QC Sample Results

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Method: 8141A - Organophosphorous Pesticides (GC)

Lab Sample ID: MB 570-30026/1-A
Matrix: Water
Analysis Batch: 30510

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 30026

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Azinphos-methyl	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Bolstar	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Chlorpyrifos	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Coumaphos	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Demeton-o/s	ND		0.010	mg/L		10/31/19 20:29	11/04/19 20:12	1
Diazinon	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Dichlorvos	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Disulfoton	ND		0.010	mg/L		10/31/19 20:29	11/04/19 20:12	1
Ethoprop	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Fensulfothion	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Fenthion	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Merphos	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Methyl parathion	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Mevinphos	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Naled	ND		0.040	mg/L		10/31/19 20:29	11/04/19 20:12	1
Phorate	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Ronnel	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Stirophos	ND		0.020	mg/L		10/31/19 20:29	11/04/19 20:12	1
Tokuthion	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1
Trichloronate	ND		0.0050	mg/L		10/31/19 20:29	11/04/19 20:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tributyl phosphate	106		30 - 130	10/31/19 20:29	11/04/19 20:12	1

Lab Sample ID: LCS 570-30026/2-A
Matrix: Water
Analysis Batch: 30510

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30026

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Azinphos-methyl	0.0400	0.05520	* me	mg/L		138	30 - 130
Bolstar	0.0400	0.04481		mg/L		112	30 - 130
Chlorpyrifos	0.0400	0.04605		mg/L		115	30 - 130
Coumaphos	0.0400	0.05014		mg/L		125	30 - 130
Diazinon	0.0400	0.05102		mg/L		128	30 - 130
Disulfoton	0.0400	0.04951		mg/L		124	30 - 130
Ethoprop	0.0400	0.05104		mg/L		128	30 - 130
Fensulfothion	0.0400	0.05415	* me	mg/L		135	30 - 130
Fenthion	0.0400	0.04922		mg/L		123	30 - 130
Merphos	0.0400	0.1021	E *	mg/L		255	30 - 130
Methyl parathion	0.0400	0.04713		mg/L		118	30 - 130
Phorate	0.0400	0.04723		mg/L		118	30 - 130
Ronnel	0.0400	0.04364		mg/L		109	30 - 130
Stirophos	0.0400	0.04702		mg/L		118	30 - 130
Tokuthion	0.0400	0.04541		mg/L		114	30 - 130
Trichloronate	0.0400	0.04881		mg/L		122	30 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tributyl phosphate	114		30 - 130

Eurofins Calscience LLC

QC Sample Results

Client: Enthalpy Analytical LLC
 Project/Site: 420782

Job ID: 570-11454-1

Method: 8141A - Organophosphorous Pesticides (GC)

Lab Sample ID: LCSD 570-30026/3-A
Matrix: Water
Analysis Batch: 30510

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 30026

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	
								RPD	Limit
Azinphos-methyl	0.0400	0.05449	* me	mg/L		136	30 - 130	1	30
Bolstar	0.0400	0.04435		mg/L		111	30 - 130	1	30
Chlorpyrifos	0.0400	0.03996		mg/L		100	30 - 130	14	30
Coumaphos	0.0400	0.04676		mg/L		117	30 - 130	7	30
Diazinon	0.0400	0.04830		mg/L		121	30 - 130	5	30
Disulfoton	0.0400	0.04874		mg/L		122	30 - 130	2	30
Ethoprop	0.0400	0.04958		mg/L		124	30 - 130	3	30
Fensulfothion	0.0400	0.05310	* me	mg/L		133	30 - 130	2	30
Fenthion	0.0400	0.04821		mg/L		121	30 - 130	2	30
Merphos	0.0400	0.09537	E *	mg/L		238	30 - 130	7	30
Methyl parathion	0.0400	0.04235		mg/L		106	30 - 130	11	30
Phorate	0.0400	0.04636		mg/L		116	30 - 130	2	30
Ronnel	0.0400	0.04397		mg/L		110	30 - 130	1	30
Stirophos	0.0400	0.04629		mg/L		116	30 - 130	2	30
Tokuthion	0.0400	0.04430		mg/L		111	30 - 130	2	30
Trichloronate	0.0400	0.04511		mg/L		113	30 - 130	8	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tributyl phosphate	109		30 - 130

Marginal Exceedance (ME) Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Method: 8141A - Organophosphorous Pesticides (GC)

Lab Sample ID: LCS 570-30026/2-A
Matrix: Water

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance
								Status
Azinphos-methyl	0.0400	0.05520	* me	mg/L	138	30 - 130	13 - 147	ME ¹
Bolstar	0.0400	0.04481		mg/L	112	30 - 130	13 - 147	
Chlorpyrifos	0.0400	0.04605		mg/L	115	30 - 130	13 - 147	
Coumaphos	0.0400	0.05014		mg/L	125	30 - 130	13 - 147	
Diazinon	0.0400	0.05102		mg/L	128	30 - 130	13 - 147	
Disulfoton	0.0400	0.04951		mg/L	124	30 - 130	13 - 147	
Ethoprop	0.0400	0.05104		mg/L	128	30 - 130	13 - 147	
Fensulfothion	0.0400	0.05415	* me	mg/L	135	30 - 130	13 - 147	ME ¹
Fenthion	0.0400	0.04922		mg/L	123	30 - 130	13 - 147	
Merphos	0.0400	0.1021	E *	mg/L	255	30 - 130	13 - 147	X
Methyl parathion	0.0400	0.04713		mg/L	118	30 - 130	13 - 147	
Phorate	0.0400	0.04723		mg/L	118	30 - 130	13 - 147	
Ronnel	0.0400	0.04364		mg/L	109	30 - 130	13 - 147	
Stirophos	0.0400	0.04702		mg/L	118	30 - 130	13 - 147	
Tokuthion	0.0400	0.04541		mg/L	114	30 - 130	13 - 147	
Trichloronate	0.0400	0.04881		mg/L	122	30 - 130	13 - 147	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
16	1	2

ME¹ = Marginal Exceedance and number of ME's found greater than allowed

X = % Recovery is greater than widest possible limit

Lab Sample ID: LCSD 570-30026/3-A
Matrix: Water

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance
								Status
Azinphos-methyl	0.0400	0.05449	* me	mg/L	136	30 - 130	13 - 147	ME ¹
Bolstar	0.0400	0.04435		mg/L	111	30 - 130	13 - 147	
Chlorpyrifos	0.0400	0.03996		mg/L	100	30 - 130	13 - 147	
Coumaphos	0.0400	0.04676		mg/L	117	30 - 130	13 - 147	
Diazinon	0.0400	0.04830		mg/L	121	30 - 130	13 - 147	
Disulfoton	0.0400	0.04874		mg/L	122	30 - 130	13 - 147	
Ethoprop	0.0400	0.04958		mg/L	124	30 - 130	13 - 147	
Fensulfothion	0.0400	0.05310	* me	mg/L	133	30 - 130	13 - 147	ME ¹
Fenthion	0.0400	0.04821		mg/L	121	30 - 130	13 - 147	
Merphos	0.0400	0.09537	E *	mg/L	238	30 - 130	13 - 147	X
Methyl parathion	0.0400	0.04235		mg/L	106	30 - 130	13 - 147	
Phorate	0.0400	0.04636		mg/L	116	30 - 130	13 - 147	
Ronnel	0.0400	0.04397		mg/L	110	30 - 130	13 - 147	
Stirophos	0.0400	0.04629		mg/L	116	30 - 130	13 - 147	
Tokuthion	0.0400	0.04430		mg/L	111	30 - 130	13 - 147	
Trichloronate	0.0400	0.04511		mg/L	113	30 - 130	13 - 147	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
16	1	2

Marginal Exceedance (ME) Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

ME¹ = Marginal Exceedance and number of ME's found greater than allowed
X = % Recovery is greater than widest possible limit

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QC Association Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

GC Semi VOA

Prep Batch: 30026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-11454-1	Ponds Inlet (420782-001)	Total/NA	Water	3510C	
570-11454-2	Ponds Outlet (420782-002)	Total/NA	Water	3510C	
570-11454-3	Haines Creek Exit (420782-003)	Total/NA	Water	3510C	
MB 570-30026/1-A	Method Blank	Total/NA	Water	3510C	
LCS 570-30026/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 570-30026/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 30510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-11454-1	Ponds Inlet (420782-001)	Total/NA	Water	8141A	30026
570-11454-2	Ponds Outlet (420782-002)	Total/NA	Water	8141A	30026
570-11454-3	Haines Creek Exit (420782-003)	Total/NA	Water	8141A	30026
MB 570-30026/1-A	Method Blank	Total/NA	Water	8141A	30026
LCS 570-30026/2-A	Lab Control Sample	Total/NA	Water	8141A	30026
LCSD 570-30026/3-A	Lab Control Sample Dup	Total/NA	Water	8141A	30026

Lab Chronicle

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Client Sample ID: Ponds Inlet (420782-001)

Lab Sample ID: 570-11454-1

Date Collected: 10/30/19 09:25

Matrix: Water

Date Received: 10/30/19 16:01

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1040.1 mL	10 mL	30026	10/31/19 20:29	SP7J	ECL 1
Total/NA	Analysis	8141A		1			30510	11/04/19 22:34	UJ3K	ECL 1
Instrument ID: GC69										

Client Sample ID: Ponds Outlet (420782-002)

Lab Sample ID: 570-11454-2

Date Collected: 10/30/19 08:37

Matrix: Water

Date Received: 10/30/19 16:01

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1030.8 mL	10 mL	30026	10/31/19 20:29	SP7J	ECL 1
Total/NA	Analysis	8141A		1			30510	11/04/19 23:22	UJ3K	ECL 1
Instrument ID: GC69										

Client Sample ID: Haines Creek Exit (420782-003)

Lab Sample ID: 570-11454-3

Date Collected: 10/30/19 10:20

Matrix: Water

Date Received: 10/30/19 16:01

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1034.9 mL	10 mL	30026	10/31/19 20:29	SP7J	ECL 1
Total/NA	Analysis	8141A		1			30510	11/05/19 00:09	UJ3K	ECL 1
Instrument ID: GC69										

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0781	03-13-20
California	SCAQMD LAP	17LA0919	11-30-19
California	State	2944	09-29-20
Hawaii	State	<cert No.>	07-02-20
Nevada	State	CA00111	07-31-20
Oregon	NELAP	CA300001	01-29-20

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Method Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Method	Method Description	Protocol	Laboratory
8141A	Organophosphorous Pesticides (GC)	SW846	ECL 1
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ECL 1

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494



Sample Summary

Client: Enthalpy Analytical LLC
Project/Site: 420782

Job ID: 570-11454-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-11454-1	Ponds Inlet (420782-001)	Water	10/30/19 09:25	10/30/19 16:01	
570-11454-2	Ponds Outlet (420782-002)	Water	10/30/19 08:37	10/30/19 16:01	
570-11454-3	Haines Creek Exit (420782-003)	Water	10/30/19 10:20	10/30/19 16:01	

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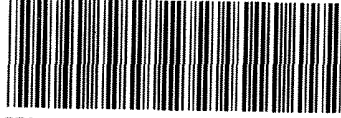
Enthalpy Analytical
Formerly Associated Labs
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Tel: 714.771.6900 Fax: 714.538.1209
info-sc@enthalpy.com



Subcontract Laboratory:

Eurofins CalScience - Sub
7440 Lincoln Way
Garden Grove, CA 92841

ATTN: Xuan Dang
PO# 1041647



570-11454 Chain of Custody

Project: 420782 **Due:**

PM: Diane Galvan

Email: diane.galvan@enthalpy.com

CC: incomingreports@enthalpy.com

Require: EDD EDF EDT

Report To: MDL

Note:

Matrix	Sampled	Sample ID	Analysis	Comment
Water	10/30/19 09:25	Ponds Inlet (420782-001)	8141_Out	Organophosphorus Pesticides
Water	10/30/19 08:37	Ponds Outlet (420782-002)	8141_Out	Organophosphorus Pesticides
Water	10/30/19 10:20	Haines Creek Exit (420782-003)	8141_Out	Organophosphorus Pesticides

Note:

Standard TAT.

Relinquished By:

[Signature]

Date/Time

10/30/19 / 16:01

Date/Time

Received By:

[Signature]

Date/Time

10/30/19 16:01

Date/Time

2.5/3.0 scf

Login Sample Receipt Checklist

Client: Enthalpy Analytical LLC

Job Number: 570-11454-1

Login Number: 11454

List Source: Eurofins Calscience

List Number: 1

Creator: Ramos, Maribel

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Enthalpy Analytical, LLC

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Tel: (714)771-6900 Fax: (714)538-1209
www.enthalpy.com
info-sc@enthalpy.com



Client: Chambers Group
Address: 5 Hutton Centre Drive
Suite 750
Santa Ana, CA 92707
Attn: Heather Franklin

Lab Request: 421379
Report Date: 11/26/2019
Date Received: 11/14/2019
Client ID: 14294

Comments: Big Tujunga

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

Sample # **Client Sample ID**

421379-001 Ponds Inlet
421379-002 Ponds Outlet
421379-003 Haines Creek Exit

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Diane M. Galvan

Report Review performed by: Diane Galvan, Project Manager

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 45 days from date received.

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Matrix: Water	Client: Chambers Group	Collector: client
Sampled: 11/14/2019 08:57	Site:	
Sample #: <u>421379-001</u>	Client Sample #: Ponds Inlet	Sample Type:

Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: EPA 608	Prep Method: 3510C					QCBatchID: QC1208963	
4,4'-DDD	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
4,4'-DDE	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
4,4'-DDT	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
a-BHC	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Aldrin	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
b-BHC	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Chlordane (technical)	ND	1	1	ug/L	11/19/19	11/20/19	CBR
d-BHC	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Dieldrin	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endosulfan I	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endosulfan II	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endosulfan sulfate	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endrin	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endrin aldehyde	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endrin Ketone	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Heptachlor	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Heptachlor epoxide	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Lindane (Gamma-BHC)	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Methoxychlor	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
PCB-1016	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR L
PCB-1221	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1232	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1242	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1248	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1254	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1260	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
Toxaphene	ND	1	2	ug/L	11/19/19	11/20/19	CBR
<u>Surrogate</u>		<u>% Recovery</u>	<u>Limits</u>	<u>Notes</u>			
Decachlorobiphenyl DCB (SUR)		62	31-150				
Tetrachloro-m-xylene TCMX (SUR)		51	30-145				

Matrix: Water	Client: Chambers Group	Collector: client
Sampled: 11/14/2019 08:48	Site:	
Sample #: 421379-002	Client Sample #: Ponds Outlet	Sample Type:

Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: EPA 608	Prep Method: 3510C					QCBatchID: QC1208963	
4,4'-DDD	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
4,4'-DDE	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
4,4'-DDT	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
a-BHC	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Aldrin	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
b-BHC	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Chlordane (technical)	ND	1	1	ug/L	11/19/19	11/20/19	CBR
d-BHC	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Dieldrin	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endosulfan I	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endosulfan II	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endosulfan sulfate	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endrin	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endrin aldehyde	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endrin Ketone	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Heptachlor	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Heptachlor epoxide	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Lindane (Gamma-BHC)	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Methoxychlor	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
PCB-1016	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR L
PCB-1221	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1232	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1242	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1248	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1254	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1260	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
Toxaphene	ND	1	2	ug/L	11/19/19	11/20/19	CBR
<u>Surrogate</u>		<u>% Recovery</u>		<u>Limits</u>		<u>Notes</u>	
Decachlorobiphenyl DCB (SUR)		67		31-150			
Tetrachloro-m-xylene TCMX (SUR)		52		30-145			

Matrix: Water	Client: Chambers Group	Collector: client
Sampled: 11/14/2019 08:09	Site:	
Sample #: <u>421379-003</u>	Client Sample #: Haines Creek Exit	Sample Type:

Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: EPA 608	Prep Method: 3510C					QCBatchID: QC1208963	
4,4'-DDD	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
4,4'-DDE	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
4,4'-DDT	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
a-BHC	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Aldrin	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
b-BHC	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Chlordane (technical)	ND	1	1	ug/L	11/19/19	11/20/19	CBR
d-BHC	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Dieldrin	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endosulfan I	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endosulfan II	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endosulfan sulfate	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endrin	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endrin aldehyde	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Endrin Ketone	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Heptachlor	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Heptachlor epoxide	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Lindane (Gamma-BHC)	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
Methoxychlor	ND	1	0.1	ug/L	11/19/19	11/20/19	CBR
PCB-1016	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR L
PCB-1221	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1232	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1242	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1248	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1254	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
PCB-1260	ND	1	0.5	ug/L	11/19/19	11/20/19	CBR
Toxaphene	ND	1	2	ug/L	11/19/19	11/20/19	CBR
<u>Surrogate</u>		<u>% Recovery</u>		<u>Limits</u>		<u>Notes</u>	
Decachlorobiphenyl DCB (SUR)		64		31-150			
Tetrachloro-m-xylene TCMX (SUR)		45		30-145			

QCBatchID: **QC1208963**

Analyst: Abanh

Method: EPA 608

Matrix: Water

Analyzed: 11/19/2019

Instrument: SVOA-GC (group)

Blank Summary

Analyte	Blank Result	Units	RDL	Notes
QC1208963MB1				
4,4'-DDD	ND	ug/L	0.1	
4,4'-DDE	ND	ug/L	0.1	
4,4'-DDT	ND	ug/L	0.1	
a-BHC	ND	ug/L	0.1	
Aldrin	ND	ug/L	0.1	
b-BHC	ND	ug/L	0.1	
Chlordane (technical)	ND	ug/L	1	
d-BHC	ND	ug/L	0.1	
Dieldrin	ND	ug/L	0.1	
Endosulfan I	ND	ug/L	0.1	
Endosulfan II	ND	ug/L	0.1	
Endosulfan sulfate	ND	ug/L	0.1	
Endrin	ND	ug/L	0.1	
Endrin aldehyde	ND	ug/L	0.1	
Endrin Ketone	ND	ug/L	0.1	
Heptachlor	ND	ug/L	0.1	
Heptachlor epoxide	ND	ug/L	0.1	
Lindane (Gamma-BHC)	ND	ug/L	0.1	
Methoxychlor	ND	ug/L	0.1	
PCB-1016	ND	ug/L	0.5	
PCB-1221	ND	ug/L	0.5	
PCB-1232	ND	ug/L	0.5	
PCB-1242	ND	ug/L	0.5	
PCB-1248	ND	ug/L	0.5	
PCB-1254	ND	ug/L	0.5	
PCB-1260	ND	ug/L	0.5	
Toxaphene	ND	ug/L	2	

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount		Spike Result		Units	Recoveries			Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD	RPD	%Rec	RPD	
QC1208963LCS1, QC1208963LCSD1											
4,4'-DDD	0.5	0.5	0.37	0.36	ug/L	74	72	3	51-119	20	
4,4'-DDE	0.5	0.5	0.35	0.34	ug/L	70	68	3	44-123	20	
4,4'-DDT	0.5	0.5	0.33	0.34	ug/L	66	68	3	58-118	20	
a-BHC	0.5	0.5	0.33	0.34	ug/L	66	68	3	36-127	20	
Aldrin	0.5	0.5	0.28	0.28	ug/L	56	56	0	39-118	20	
b-BHC	0.5	0.5	0.31	0.31	ug/L	62	62	0	54-119	20	
d-BHC	0.5	0.5	0.31	0.31	ug/L	62	62	0	47-121	20	
Dieldrin	0.5	0.5	0.34	0.34	ug/L	68	68	0	53-112	20	
Endosulfan I	0.5	0.5	0.35	0.35	ug/L	70	70	0	48-117	20	
Endosulfan II	0.5	0.5	0.35	0.35	ug/L	70	70	0	53-113	20	
Endosulfan sulfate	0.5	0.5	0.35	0.35	ug/L	70	70	0	58-111	20	
Endrin	0.5	0.5	0.33	0.33	ug/L	66	66	0	54-144	20	
Endrin aldehyde	0.5	0.5	0.32	0.32	ug/L	64	64	0	53-108	20	
Endrin Ketone	0.5	0.5	0.38	0.38	ug/L	76	76	0	50-116	20	
Heptachlor	0.5	0.5	0.30	0.30	ug/L	60	60	0	41-123	20	
Heptachlor epoxide	0.5	0.5	0.33	0.33	ug/L	66	66	0	44-113	20	
Lindane (Gamma-BHC)	0.5	0.5	0.33	0.33	ug/L	66	66	0	41-124	20	
Methoxychlor	0.5	0.5	0.39	0.39	ug/L	78	78	0	52-174	20	
PCB-1016	5	5	3.4	3.2	ug/L	68	64	6	70-130	20	L
PCB-1260	5	5	3.5	3.5	ug/L	70	70	0	70-130	20	

QCBatchID: QC1208963

Analyst: Abanh

Method: EPA 608

Matrix: Water

Analyzed: 11/19/2019

Instrument: SVOA-GC (group)

Data Qualifiers and Definitions

Qualifiers

A	See Report Comments.
B	Analyte was present in an associated method blank.
B1	Analyte was present in a sample and associated method blank greater than MDL but less than RDL.
BQ1	No valid test replicates. Sample Toxicity is possible. Best result was reported.
BQ2	No valid test replicates.
BQ3	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
BQ4	Minor Dissolved Oxygen loss was observed in the blank water check, however, the LCS was within criteria, validating the batch.
BQ5	Minor Dissolved Oxygen loss was observed in the blank water check.
C	Possible laboratory contamination.
D	RPD was not within control limits. The sample data was reported without further clarification.
D1	Lesser amount of sample was used due to insufficient amount of sample supplied.
D2	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
D3	Insufficient sample was supplied for TCLP. Client was notified. TCLP was performed per the Client's instructions.
DW	Sample result is calculated on a dry weigh basis.
E	Concentration is estimated because it exceeds the quantification limits of the method.
I	The sample was read outside of the method required incubation period.
IR	Inconclusive Result. Legionella is present, however, there is possible non-specific agglutination preventing specific identification.
J	Reported value is estimated
L	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
L2	LCS did not meet recovery criteria, however, the MS and/or MSD met LCS recovery criteria, validating the batch.
M	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
M1	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
M2	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
N1	Sample chromatography does not match the specified TPH standard pattern.
NC	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
P	Sample was received without proper preservation according to EPA guidelines.
P1	Temperature of sample storage refrigerator was out of acceptance limits.
P2	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
P3	Per Client request, sample was composited for volatile analysis. Sample compositing for volatile analysis is not recommended due to potential loss of target analytes. Results may be biased low.
Q1	Analyte Calibration Verification exceeds criteria. The result is estimated.
Q2	Analyte calibration was not verified and the result was estimated.
Q3	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
S	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
S1	The associated surrogate recovery was out of control limits; result is estimated.
S2	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
S3	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
T	Sample was extracted/analyzed past the holding time.
T1	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
T2	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
T3	Sample received and analyzed out of hold time per client's request.
T4	Sample was analyzed out of hold time per client's request.
T5	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
T6	Hold time is indeterminable due to unspecified sampling time.
T7	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.

Definitions

DF	Dilution Factor
MDL	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
ND	Analyte was not detected or was less than the detection limit.
NR	Not Reported. See Report Comments.
RDL	Reporting Detection Limit
TIC	Tentatively Identified Compounds



Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868
Phone 714-771-6900

Chain of Custody Record

Lab No: **421379**
Page: **1** of **1**

Turn Around Time (rush by advanced notice only)

Standard: 5 Day: 3 Day:
2 Day: 1 Day: Custom TAT:

Matrix: A = Air S = Soil/Solid
Water DW = Drinking Water SD = Sediment
PP = Pure Product SEA = Sea Water
SW = Swab T = Tissue WP = Wipe O = Other

Preservatives:
Na₂S₂O₃ 2 = HCl 3 = HNO₃
4 = H₂SO₄ 5 = NaOH 6 = Other

1 = Sample Receipt Temp:
4.2 / 0.6
(lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION				Analysis Request				Test Instructions / Comments			
Company:	Chambers Group Inc.	Quote #:	[Redacted]										
Report To:	Heathley Franklin	Proj. Name:	Big Tjunga										
Email:	hfranklin@chambersgroupinc.com	Proj. #:											
Address:		P.O. #:											
Phone:	970-420-0816	Address:											
Fax:		Global ID:											
		Sampled By:											
Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.								
1 Ponds Inlet	11/14/19	0857 am	W		X								
2 Ponds Outlet	11/14/19	0848 am	W		X								
3 Haines Creek Exit	11/14/19	0809 am	W		X								
4													
5													
6													
7													
8													
9													
10													

Signature	Print Name	Company / Title	Date / Time
	Mauricio Gonzalez	Chambers Group / Biologist	11/14/19 / 04:53 pm
	Elizabeth Ramirez	EA	11/14/19 / 4:53 pm



ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1
 Client: Chambers Group Inc. Project: Big Tujunga
 Date Received: 11/14/19 Sampler's Name Present: Yes No

Section 2
 Sample(s) received in a cooler? Yes, How many? 1 No (skip section 2) Sample Temp (°C) (No Cooler) : _____
 Sample Temp (°C), One from each cooler: #1: 4.2 #2: _____ #3: _____ #4: _____
(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)
 Shipping Information: _____

Section 3
 Was the cooler packed with: Ice Ice Packs Bubble Wrap Styrofoam
 Paper None Other _____
 Cooler Temp (°C): #1: 0.6 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			✓
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?			✓
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6
 For discrepancies, how was the Project Manager notified? Verbal PM Initials: _____ Date/Time _____
 Email (email sent to/on): _____ / _____
 Project Manager's response:

Completed By: Date: 11/14/2019