City of Morro Bay and
Cayucos Sanitary District

OFFSHORE MONITORING AND REPORTING PROGRAM

SEMI-ANNUAL EFFLUENT SAMPLING

CHEMICAL AND BIOASSAY ANALYSIS RESULTS

JULY 2017

Marine Research Specialists

4744 Telephone Rd Ste 3 PMB 315
Ventura California 93003

Report to

City of Morro Bay and
Cayucos Sanitary District

955 Shasta Avenue
Morro Bay, California 93442
(805) 772-6272

MONITORING AND REPORTING PROGRAM

ANNUAL AND SEMI-ANNUAL EFFLUENT REPORT

CHEMICAL AND BIOASSAY ANALYSIS RESULTS

JULY 2017

Prepared by

Douglas A. Coats

Marine Research Specialists

4744 Telephone Rd Ste 3 PMB 315
Ventura California 93003

Telephone: (805) 644-1180
E-mail: Marine@Rain.org

November 2017

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Mr. John Gunderlock
Wastewater/Collections System Supervisor
City of Morro Bay/Cayucos CSD Wastewater Treatment Plant

Date: 11/6/17

marine research specialists
4744 Telephone Rd., Suite 3 PMB 315 • Ventura, CA 93003 • (805) 644-1180

John Gunderlock
Wastewater & Collection Systems Supervisor
City of Morro Bay
955 Shasta Avenue
Morro Bay, CA 93442

6 November 2017

Reference: Annual Effluent Self-Monitoring Report for 2017
Semiannual Effluent Self-Monitoring Report for July through December 2017

Dear Mr. Gunderlock:

This self-monitoring report documents the chemical and bioassay analysis results for effluent samples collected in July 2017 as required by NPDES discharge permit CA0047881.[1] Analyses of effluent samples collected on 18, 19, and 20 July were conducted in accordance with the monitoring requirements specified in the permit, including:

- Tributyltin and radionuclide analyses conducted on a composite sample collected on 18 July 2017;
- Nutrient compounds measured in a grab sample collected on 18 July 2017;
- Chlorinated dioxins and furans measured in a composite sample collected on 18 July 2017;
- Chronic bioassays conducted on a composite sample collected on 19 July 2017;
- Chemical analyses conducted on a composite sample collected on 20 July 2017; and
- Phenolic compounds measured in a grab sample collected on 20 July 2017.

Three attachments to this report demonstrate that all chemical concentrations, radioactivity, and toxicological endpoints were within the limitations specified in the discharge permit. Attachment A compares the results of the analyses with the limitations established for each of the effluent parameters specified in the permit. The comparisons are based on the minimum-level (ML) reporting requirements of the permit, and all units have been converted to those used in the discharge monitoring forms that were submitted under separate cover to the California State Water Resources Control Board (Attachment B). Attachment C collates the original laboratory reports, including raw data and results, pertinent QA/QC analyses, and chains of custody.

The comprehensive chemical and bioassay analyses of effluent samples collected in July 2017 augment data collected over the past two decades from the MBSCD[2] treatment plant. The general lack of toxicity and chemical contaminants within the effluent samples reflects the absence of heavy industry within the collection area and the high performance of the treatment process.

The concentrations of 78 chemical compounds are limited under the current permit.[3] In July 2017, only 12 of these compounds were detected, and of those, only four had concentrations high enough to be reliably quantified above their respective MLs: copper, lead, zinc, and selenium. The concentrations of these three metals, and the metalloid selenium in the July 2017 samples were typical of wastewater derived from domestic sources, and were considerably below the limits specified in the NPDES discharge permit.

Copper, lead, and zinc are commonly occurring metals that enter the wastewater collection system through erosion of natural mineral deposits along the central California coast. They also enter the system through

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[1] Regional Water Quality Control Board (RWQCB) - Central Coast Region and the Environmental Protection Agency (EPA) – Region IX. 2009. Waste Discharge Requirements (Order No. R3-2008-0065) and National Pollutant Discharge Elimination System (Permit No. CA0047881) for the Morro Bay and Cayucos Wastewater Treatment Plant Discharges to the Pacific Ocean, Morro Bay, San Luis Obispo County. Effective 1 March 2009.

[2] City of Morro Bay and the Cayucos Sanitary District, joint owners of the wastewater treatment and disposal facility

[3] In addition to these 78 chemical compounds, levels of nutrients, radionuclides, and chronic toxicity are also documented as part of the current permit requirements.

corrosion of household plumbing systems. Regardless of their provenance, the concentrations of these compounds in the July 2017 effluent were well below the levels deemed deleterious to marine organisms.

Small but quantifiable concentrations of the metalloid selenium were also detected within the July 2017 effluent sample. Detectable concentrations of selenium within effluent samples arise less often than the three regularly occurring metals described above. Nevertheless, because selenium also occurs naturally within the mineralogy of the central California coast, low but detectable concentrations are occasionally found within effluent samples. As in past occurrences, its concentration in the July 2017 effluent sample was two orders of magnitude below levels deemed deleterious to marine organisms.

Chronic toxicity tests conducted on a July 2017 composite effluent sample measured the effluent's potential to impact the development of larval red abalone (*Haliotis rufescens*) by exposing those organisms to a range of effluent dilutions in the laboratory. Although the larval abalone are highly sensitive to contaminants, adverse effects were not observed in effluent that was seven times more concentrated than that allowed by the discharge permit.

Please contact the undersigned if you have questions regarding these results.

Sincerely,

Douglas A. Coats Vice President MARINE RESEARCH SPECIALISTS 2017.11.06 13:33:26 -08'00'

Douglas A. Coats
Program Manager

ATTACHMENT A

MINIMUM LEVEL REPORTING

ATTACHMENT A
Analytical Results for Effluent Samples Collected during July 2017

Chemical Compound or Parameter	Units	Method	Detection Limit[a]	Practical[b] Quantification Limit	Minimum Level[c]	Permit[d] Limit	Reported Value
Nutrients							
Nitrate (as N)	mg/L	300.0	0.07	1.0	—[e]	—[e]	ND
Urea (as N)	mg/L	Mulvenna & Savid	0.008	0.01	—	—	0.091 as measured
Ortho-Phosphate (as P)	mg/L	300.0	0.08	0.4	—	—	2.8 as measured
Dissolved Silica (Si02)	mg/L	200.7	0.3	0.5	—	—	13. as measured
Objectives for the Protection of Marine Aquatic Life							
Arsenic	mg/L	200.8	0.0007	0.002	0.002	0.67	DNQ 0.0011 Est. Conc.
Cadmium	mg/L	200.7	0.0011	0.01	0.01	0.13	ND
Chromium VI	mg/L	200.7	0.0012	0.01	0.01	0.27	DNQ 0.0014 Est. Conc.
Copper	mg/L	200.7	0.0012	0.01	0.01	0.14	0.021 as measured
Lead	mg/L	200.8	0.0001	0.001	0.0005	0.27	0.0013 as measured
Mercury	µg/L	245.1	0.029	0.2	0.2	5.29	DNQ 0.032 Est. Conc.
Nickel	mg/L	200.7	0.0023	0.01	0.02	0.67	DNQ 0.0054 Est. Conc.
Selenium	mg/L	200.8	0.00019	0.002	0.002	2.01	0.0026 as measured
Silver	mg/L	200.7	0.0013	0.01	0.01	0.07	ND
Zinc	mg/L	200.7	0.0095	0.05	0.02	1.62	0.068 as measured
Cyanide	mg/L	335.4	0.0019	0.005	0.005	0.13	ND
Toxicity-Chronic: *H. Rufescens*	TUc	600/R-95/136	—	—	—	134.	17.9 as measured

[a] The Method Detection Limit (MDL) is the analysis- and instrument-specific minimum concentration at which the presence of a substance can be reported with 99% confidence. It is determined from an analysis of a sample in a matrix containing the analyte.

[b] The Practical Quantification Limit (PQL) is the analysis- and instrument-specific minimum concentration of a substance that can be routinely determined with a high degree of certainty (>99.9% confidence).

[c] The Minimum Level (ML) is the method-specific minimum concentration of a substance that can be quantitatively measured in a sample given the current analytical performance used by most certified laboratories within California, as specified in the 2005 Ocean Plan.

[d] The Permit Limit is the lowest, most-stringent threshold that is associated with the longest-duration averaging period. For limits established to protect marine aquatic life, the six-month median is the most stringent threshold. For other constituents, limits are imposed only on monthly averages.

[e] No minimum levels or permit limits have been established for nutrients.

Analytical Results for Effluent Samples Collected during July 2017

Chemical Compound or Parameter	Units	Method	Detection Limit[a]	Practical[b] Quantification Limit	Minimum Level[c]	Permit[d] Limit	Reported Value
Nonchlorinated Phenolics	mg/L	625	0.0049	0.02	0.05	4.02	ND
Chlorinated Phenolics	mg/L	625	0.0044	0.02	0.05	0.13	ND
Endosulfan (Sum)	µg/L	608	0.0024	0.005	0.01	1.21	ND
Endrin	µg/L	608	0.0036	0.005	0.01	0.27	ND
HCH	µg/L	608	0.0023	0.005	0.02	0.54	ND
Radioactivity Gross α	pCi/L	SM-7110C	0.017[f]	±0.089[f]	—	15.	0.003 as ND[f]
Radioactivity Gross β	pCi/L	900	1.895[f]	±1.458[f]	—	50.	15. as measured
Objectives for the Protection of Human Health: Noncarcinogens							
Acrolein	mg/L	624	0.001	0.02	0.005	29.5	ND
Antimony	mg/L	200.7	0.005	0.1	0.05	160.8	ND
Bis(2-chloroethoxy) methane	mg/L	625	0.0045	0.02	0.05	0.59	ND
Bis(2-chloroisopropyl) ether	mg/L	625	0.0058	0.02	0.02	160.8	ND
Chlorobenzene	mg/L	624	0.00012	0.0005	0.002	76.4	ND
Chromium III[g]	g/L	200.7	0.0000012	0.00001	0.00001	25.5	DNQ 0.0000014 Est. Conc.
Di-n-butyl phthalate	mg/L	625	0.0033	0.02	0.1	469.	ND
Dichlorobenzene	mg/L	624	0.00011	0.0005	0.002	683.	ND
Diethyl phthalate	mg/L	625	0.0035	0.02	0.02	4,420.	ND
Dimethyl phthalate	g/L	625	0.000004	0.00002	0.00002	109.9	ND
2-Methyl-4,6-dinitrophenol	mg/L	625	0.018	0.1	0.05	29.5	ND
2,4-Dinitrophenol	mg/L	625	0.025	0.1	0.05	0.54	ND
Ethylbenzene	mg/L	624	0.00012	0.0005	0.002	549.	ND
Fluoranthene	mg/L	625	0.0061	0.02	0.01	2.	ND
Hexachlorocyclopentadiene	mg/L	625	0.0052	0.02	0.05	7.8	ND
Nitrobenzene	mg/L	625	0.0037	0.02	0.01	0.66	ND

[f] Reporting of radioactivity differs from chemical reporting. Minimum Detectable Activity (MDA) is listed under *Detection Limit* and counting uncertainty is listed under the PQL. No *Minimum Level* is specified for radioactivity in the Ocean Plan, although the USEPA has specified minimum acceptable detection limits on Gross α and β as 3 pCi/L and 4 pCi/L, respectively. Lastly, by convention, raw radioactivity measurements are always reported rather than just the censored values. Consequently, the 0.003-pCi/L Gross α activity, which was below 0.017 pCi/L MDA, is reported here, along with an *ND* qualifier.

[g] Total chromium concentration was reported rather than the concentration of the trivalent oxidation state alone.

Analytical Results for Effluent Samples Collected during July 2017

Chemical Compound or Parameter	Units	Method	Detection Limit[a]	Practical[b] Quantification Limit	Minimum Level[c]	Permit[d] Limit	Reported Value
Thallium	mg/L	200.8	0.0001	0.001	0.001	0.27	ND
Toluene	g/L	624	0.00000013	0.0000005	0.000002	11.4	DNQ 0.0000003 Est. Conc.
Tributyltin	µg/L	GC/MS	0.005	—	0.1	0.188	ND
1,1,1-Trichloroethane	g/L	624	0.00000012	0.0000005	0.000002	72.4	ND
Objectives for the Protection of Human Health: Carcinogens							
Acrylonitrile	µg/L	624	0.56	5.	2.	13.4	ND
Aldrin	ng/L	608	1.9	5.	5.	2.95	ND
Benzene	µg/L	624	0.13	0.5	2.	791.	ND
Benzidine	ng/L	625	27,000.	200,000.	50,000.	9.25	ND
Beryllium	µg/L	200.7	0.77	10.	2.	4.42	ND
Bis (2-chloroethyl) ether	µg/L	625	8.6	20.	10	6.03	ND
Bis(2-ethylhexyl) phthalate	µg/L	625	6.7	50.	50.	469.	ND
Carbon Tetrachloride	µg/L	624	0.15	0.5	2.	121.	ND
Chlordane	ng/L	608	150	500.	100.	3.08	ND
Dibromochloromethane	µg/L	624	0.11	0.5	2.	1,152.	ND
Chloroform	mg/L	624	0.00021	0.0005	0.002	17.4	DNQ 0.0012 Est. Conc.[h]
DDT (Sum)	ng/L	608	1.7	5.	10.	22.8	ND
1,4-Dichlorobenzene	mg/L	624	0.00017	0.0005	0.002	2.41	ND
3,3-Dichlorobenzidine	µg/L	625	6.5	100.	50.	1.09	ND
1,2-Dichloroethane	mg/L	624	0.00014	0.0005	0.002	3.75	ND
1,1-Dichloroethene	mg/L	624	0.00014	0.0005	0.002	0.12	ND
Dichlorobromomethane	mg/L	624	0.000086	0.0005	0.002	0.83	ND
Methylene chloride	mg/L	624	0.000082	0.001	0.002	60.3	ND
1,3-Dichloropropene	mg/L	624	0.000087	0.0005	5.	1.19	ND
Dieldrin	ng/L	608	2.3	5.	10.	5.36	ND
2,4-Dinitrotoluene	µg/L	625	7.5	20.	50.	348.	ND
1,2-Diphenylhydrazine	µg/L	625	4.3	20.	10.	21.4	ND
Halomethanes	mg/L	624	0.000086	0.0005	0.002	17.4	ND

[h] The reported concentration was above the PQL and accordingly, was not flagged "as estimated" by the chemistry laboratory (See Attachment C). However, in accordance with the guidance from the COP, the reported value is listed here as an estimated concentration ("Est. Conc.") because the measured value was below the minimum level (ML).

Analytical Results for Effluent Samples Collected during July 2017

Chemical Compound or Parameter	Units	Method	Detection Limit[a]	Practical[b] Quantification Limit	Minimum Level[c]	Permit[d] Limit	Reported Value
Heptachlor	pg/L	608	2,000.	5,000.	10,000.	6,700. [i]	ND
Heptachlor Epoxide	pg/L	608	4,200.	5,000.	10,000.	2,680. [i]	ND
Hexachlorobenzene	ng/L	625	4,800.	20,000.	10,000.	28.1	ND
Hexachlorobutadiene	mg/L	625	0.0048	0.02	0.01	1.88	ND
Hexachloroethane	µg/L	625	9.0	20.	10.	335.	ND
Isophorone	mg/L	625	0.0031	0.02	0.01	98.	ND
N-Nitrosodimethylamine	µg/L	625	12.	20.	50.	978.	ND
N-Nitrosodi-n-propylamine	µg/L	625	5.8	20.	50.	50.9	ND
N-Nitrosodiphenylamine	µg/L	625	5.7	20.	10.	335.	ND
PAHs	µg/L	625	3.2	20.	100.	1.18	ND
Total PCB's	ng/L	608	51.	200.	500.	2.55	ND
Dioxin (TCDD equivalents)	pg/L	1613B	0.00694	0.0486	—	0.52	DNQ 0.0431 Est. Conc.[j]
1,1,2,2-Tetrachloroethane	mg/L	624	0.00015	0.0005	0.002	0.31	ND
Tetrachloroethene	µg/L	624	0.15	0.5	2.	268.	ND
Toxaphene	ng/L	608	200.	2,000.	500.	28.1	ND
Trichloroethene	mg/L	624	0.00012	0.0005	0.002	3.62	ND
1,1,2-Trichloroethane	mg/L	624	0.00021	0.0005	0.002	1.26	ND
2,4,6-Trichlorophenol	mg/L	625	0.0051	0.05	0.1	0.039	ND
Vinyl chloride	mg/L	624	0.00013	0.0005	0.002	4.82	ND

[i] As stated in *Comment 32* in *Attachment F – Fact Sheet* of the Discharge Permit, the heptachlor and heptachlor epoxide limits are incorrect; the correct limiting concentrations are shown here.

[j] The Toxic Equivalent Quotient (TEQ) reported here was flagged as estimated because it was based on the detection of two of the 17 isomers (*OCDD* and *OCDF*) at concentrations "*below the Reporting Limit*" (See Data Qualifier J in the laboratory report contained in Attachment C). Additionally, the *OCDF* isomer was detected in the method blank at a concentration close to the estimated concentration found in the effluent sample (See Data Qualifier B).

ATTACHMENT B

DISCHARGE MONITORING REPORTS

eSMR PDF
Summary: DMR

NPDES Permit #: CA0047881 **Facility:** MORRO BAY/CAYUCOS WWTP

DMR Parameters

Feature - LS: 001-S **Monitoring Period:** 07/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00620	Nitrogen, nitrate total (as N)					NODI: B Daily Maximum	0	Semiannual	GRAB
1	0	00720	Cyanide, total (as CN)			NODI: B 6 Month Median	NODI: B Daily Maximum	NODI: B Instantaneous Maximum	0	Semiannual	COMP24
1	0	00955	Silica, dissolved (as SiO2)					13.0 mg/L Daily Maximum	0	Semiannual	GRAB
1	0	00978	Arsenic, total recoverable			NODI: Q 6 Month Median	NODI: Q Daily Maximum	NODI: Q Instantaneous Maximum	0	Semiannual	COMP24
1	0	00981	Selenium, total recoverable			0.0026 mg/L 6 Month Median	0.0026 mg/L Daily Maximum	0.0026 mg/L Instantaneous Maximum	0	Semiannual	COMP24
1	0	01032	Chromium, hexavalent (as Cr)			NODI: Q 6 Month Median	NODI: Q Daily Maximum	NODI: Q Instantaneous Maximum	0	Semiannual	COMP24
1	0	01074	Nickel, total recoverable			NODI: Q 6 Month Median	NODI: Q Daily Maximum	NODI: Q Instantaneous Maximum	0	Semiannual	COMP24
1	0	01079	Silver total recoverable			NODI: B 6 Month Median	NODI: B Daily Maximum	NODI: B Instantaneous Maximum	0	Semiannual	COMP24
1	0	01094	Zinc, total recoverable			0.068 mg/L 6 Month Median	0.068 mg/L Daily Maximum	0.068 mg/L Instantaneous Maximum	0	Semiannual	COMP24
1	0	01113	Cadmium, total recoverable			NODI: B 6 Month Median	NODI: B Daily Maximum	NODI: B Instantaneous Maximum	0	Semiannual	COMP24

Feature - LS: 001-S **Monitoring Period:** 07/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01114	Lead, total recoverable			0.0013 mg/L 6 Month Median	0.0013 mg/L Daily Maximum	0.0013 mg/L Instantaneous Maximum	0	Semiannual	COMP24
1	0	01119	Copper, total recoverable			0.021 mg/L 6 Month Median	0.021 mg/L Daily Maximum	0.021 mg/L Instantaneous Maximum	0	Semiannual	COMP24
1	0	04175	Phosphate, ortho (as P)					2.8 mg/L Daily Maximum	0	Semiannual	GRAB
1	0	71800	Urea					0.091 mg/L Daily Maximum	0	Semiannual	GRAB
1	0	71901	Mercury, total recoverable			NODI: Q 6 Month Median	NODI: Q Daily Maximum	NODI: Q Instantaneous Maximum	0	Semiannual	COMP24
1	0	TTK1D	Static 48Hr Chronic Macrocystis Pyrifera					NODI: 9 Daily Maximum	0	Semiannual	COMP24
1	0	TTK3R	Static 48Hr Chronic Haliotis Rufescens					17.9 tox chronic Daily Maximum	0	Semiannual	COMP24

eSMR PDF
Summary: DMR

NPDES Permit #: CA0047881 **Facility:** MORRO BAY/CAYUCOS WWTP

DMR Parameters

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00189	Radioactivity					15.0 pCi/L Daily Maximum	0	Annual	COMP24
1	0	00982	Thallium, total recoverable				NODI: B Monthly Average		0		
1	0	00998	Beryllium, total recoverable (as Be)				NODI: B Monthly Average		0		
1	0	01033	Chromium, trivalent (as Cr)				NODI: Q Monthly Average		0		
1	0	01268	Antimony, total recoverable				NODI: B Monthly Average		0		
1	0	03615	2-Methyl-4,6-dinitrophenol				NODI: B Monthly Average		0		
1	0	03824	Tributyltin				NODI: B Monthly Average		0		
1	0	22456	Polynuclear Aromatic Hydrocarbons (PAHs)				NODI: B Monthly Average		0		
1	0	32101	Dichlorobromo methane				NODI: B Monthly Average		0		
1	0	32102	Carbon tetrachloride				NODI: B Monthly Average		0		

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	32103	1,2-Dichloroethane				NODI: B Monthly Average		0		
1	0	32105	Dibromochloromethane				NODI: B Monthly Average		0		
1	0	32106	Chloroform				NODI: Q Monthly Average		0		
1	0	34010	Toluene				NODI: Q Monthly Average		0		
1	0	34030	Benzene				NODI: B Monthly Average		0		
1	0	34210	Acrolein				NODI: B Monthly Average		0		
1	0	34215	Acrylonitrile				NODI: B Monthly Average		0		
1	0	34273	Bis(2-chloroethyl) ether				NODI: B Monthly Average		0		
1	0	34278	Bis(2-chloroethoxy) methane				NODI: B Monthly Average		0		
1	0	34283	Bis(2-chloroisopropyl) ether				NODI: B Monthly Average		0		
1	0	34301	Chlorobenzene				NODI: B Monthly Average		0		
1	0	34336	Diethyl phthalate				NODI: B Monthly Average		0		
1	0	34341	Dimethyl phthalate				NODI: B Monthly Average		0		

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34346	1,2-Diphenylhydrazine				NODI: B Monthly Average		0		
1	0	34371	Ethylbenzene				NODI: B Monthly Average		0		
1	0	34376	Fluoranthene				NODI: B Monthly Average		0		
1	0	34386	Hexachlorocyclopentadiene				NODI: B Monthly Average		0		
1	0	34391	Hexachlorobutadiene				NODI: B Monthly Average		0		
1	0	34396	Hexachloroethane				NODI: B Monthly Average		0		
1	0	34408	Isophorone				NODI: B Monthly Average		0		
1	0	34423	Methylene chloride				NODI: B Monthly Average		0		
1	0	34428	N-Nitrosodi-N-propylamine				NODI: B Monthly Average		0		
1	0	34433	N-Nitrosodiphenylamine				NODI: B Monthly Average		0		
1	0	34438	N-Nitrosodimethylamine (NDMA)				NODI: B Monthly Average		0		
1	0	34447	Nitrobenzene				NODI: B Monthly Average		0		
1	0	34475	Tetrachloroethylene				NODI: B Monthly Average		0		

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34501	1,1-Dichloroethylene				NODI: B Monthly Average		0		
1	0	34506	1,1,1-Trichloroethane				NODI: B Monthly Average		0		
1	0	34511	1,1,2-Trichloroethane				NODI: B Monthly Average		0		
1	0	34516	1,1,2,2-Tetrachloroethane				NODI: B Monthly Average		0		
1	0	34571	1,4-Dichlorobenzene				NODI: B Monthly Average		0		
1	0	34611	2,4-Dinitrotoluene				NODI: B Monthly Average		0		
1	0	34616	2,4-Dinitrophenol				NODI: B Monthly Average		0		
1	0	34621	2,4,6-Trichlorophenol				NODI: B Monthly Average		0		
1	0	34631	3,3'-Dichlorobenzidine				NODI: B Monthly Average		0		
1	0	39100	Bis(2-ethylhexyl) phthalate				NODI: B Monthly Average		0		
1	0	39110	Di-n-butyl phthalate				NODI: B Monthly Average		0		
1	0	39120	Benzidine				NODI: B Monthly Average		0		
1	0	39175	Vinyl chloride				NODI: B Monthly Average		0		

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39180	Trichloroethylene				NODI: B Monthly Average		0		
1	0	39330	Aldrin				NODI: B Monthly Average		0		
1	0	39350	Chlordane (tech mix. and metabolites)				NODI: B Monthly Average		0		
1	0	39379	DDT/DDD/DDE, sum of p,p' & o, p' isomers				NODI: B Monthly Average		0		
1	0	39380	Dieldrin				NODI: B Monthly Average		0		
1	0	39388	Endosulfan, total			NODI: B 6 Month Median	NODI: B Daily Maximum	NODI: B Instantaneous Maximum	0		
1	0	39390	Endrin			NODI: B 6 Month Median	NODI: B Daily Maximum	NODI: B Instantaneous Maximum	0		
1	0	39400	Toxaphene				NODI: B Monthly Average		0		
1	0	39410	Heptachlor				NODI: B Monthly Average		0		
1	0	39420	Heptachlor epoxide				NODI: B Monthly Average		0		
1	0	39516	Polychlorinated biphenyls (PCBs)				NODI: B Monthly Average		0		
1	0	39700	Hexachlorobenzene				NODI: B Monthly Average		0		
1	0	74015	Phenols, chlorinated			NODI: B 6 Month Median	NODI: B Daily Maximum	NODI: B Instantaneous Maximum	0		

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	77163	1,3-Dichloropropene				NODI: B Monthly Average		0		
1	0	77835	Hexachlorocyclohexane, total			NODI: B 6 Month Median	NODI: B Daily Maximum	NODI: B Instantaneous Maximum	0		
1	0	78218	Phenolic compounds, unchlorinated			NODI: B 6 Month Median	NODI: B Daily Maximum	NODI: B Instantaneous Maximum	0		
1	0	78456	Halomethanes				NODI: B Monthly Average		0		
1	0	81524	Dichlorobenzene				NODI: B Monthly Average		0		
1	0	82698	TCDD equivalents				NODI: Q Monthly Average		0		

ATTACHMENT C
LABORATORY REPORTS

Date of Report: 08/03/2017

Doug Coats

Marine Research Specialists
4744 Telephone Rd
Ste 3-315
Suite A
Ventura, CA 93003-3238

Client Project:	MBCSD H2 2017
BCL Project:	Semi-Annual Eff
BCL Work Order:	1719994
Invoice ID:	B275102

Enclosed are the results of analyses for samples received by the laboratory on 7/20/2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Misty Orton
Client Service Rep

Stuart Buttram
Technical Director

Table of Contents

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949.

Chain of Custody Form

Report To: Client: Marine Research Specialists	Project #:
Attn: Douglas A Coats	Project Name: MBCSD H2 2017
Street Address: 4744 TELEPHONE RD STE 3 PMB 315	Global ID #:
City, State, Zip: Ventura CA 93003-5258	Sampler(s):
Phone: 805.218.3662	
Email Address: Marine@Rain.org	17-19994
Work Order#	

Analysis Requested

Sample #	Description	Date Sampled	Time Sampled	EPA 625 (see comments)	EPA 625 (see comments)	EPA 624 (see attachment)	EPA 608	Cyanide: EPA 335.3	Metals: Ag, Be, Cd, Cr, Cu, Ni, Sb, Zn, As, Pb, Se, Tl, & Hg	Sample Matrix: Soil	Sludge	Drinking Water	Ground water	Waste Water	Other
1	BC1 Grab ARS	7/20/17	1000 hrs.	X										X	
2	BC2 Comp ARS	7/20/17	1000 hrs.	X	X	X	X	X	X					X	

Comments:
Grab 625: Total chlorinated & non-chlorinated phenolic compounds. Report only the phenolic compounds! Composite 625: full list of base neutral and acid-extractable congeners. See next page!

Are there any tests with holding times less than or equal to 48 hours? ☐ Yes ☒ No

Notes
Please see/read page 2 for additional instructions

LAB COPY DISTRIBUTION SUB OUT

Billing ☒ Same as above

Client:
Address:
City: State Zip
Attn:
PO#:

EDF Required? ☐ Yes ☒ No

Send Copy to State of CA? ☐ Yes ☒ No

Sample Disposal ☐ Return to Client ☒ Disposal by lab ☐ Archive Months

Special Reporting ☒ QC ☐ EDF ☐ Raw Data

1. Relinquished By	Date	Time	1. Relinquished By	Date	Time
	7-20-17	1438		7-20-17	1438
2. Relinquished By	Date	Time	2. Relinquished By	Date	Time
	7-20-17	2025		7.20	2025
3. Relinquished By	Date	Time	3. Relinquished By	Date	Time

17-19994

BC Laboratories
Chain of Custody Form
Addendum

Analysis of Effluent Samples collected from the Morro Bay Wastewater Treatment Plant in July 2017

Analysis	Sample	Method
Level IIA QC Report concentrations that are detected above the MDL, but are below the PQL		
Total Chlorinated and Total Non-Chlorinated Phenolic Compounds (Report only the phenolic compounds)	Grab	EPA-625
13 Metals:		
Ag Silver	Composite	EPA 200.7
As Arsenic	Composite	EPA 200.8
Be Beryllium	Composite	EPA 200.7
Cd Cadmium	Composite	EPA 200.7
Cr Chromium	Composite	EPA 200.7
Cu Copper	Composite	EPA 200.7
Hg Mercury	Composite	EPA 245.1
Ni Nickel	Composite	EPA 200.7
Pb Lead	Composite	EPA 200.8
Sb Antimony	Composite	EPA 200.7
Se Selenium	Composite	EPA 200.8
Tl Thallium	Composite	EPA 200.8
Zn Zinc	Composite	EPA 200.7
Volatile Organics - Low Level, Including Acrolein, and Acrylonitrile	Composite	EPA 624/8240
Organochlorine Pesticides and PCBs	Composite	EPA 608/8080
Phenolic Compounds: Full list of base-neutral and acid-extractable congeners	Composite	EPA 625/8270
Cyanide	Composite	EPA 335.3

Invoice and Report to be sent to:
Doug Coats(Marine@Rain.org)
Marine Research Specialists
4744 TELEPHONE RD STE 3 PMB 315
Ventura CA 93003-5258
Telephone: (805) 218-3662

Samples to be collected from:
Morro Bay Wastewater Treatment Plant
160 Atascadero Rd.
Morro Bay, CA 93442
Telephone: (805) 772-6272

Chain of Custody and Cooler Receipt Form for 1719994 Page 3 of 3

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 17-19994

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐	Ice Chest ☒ None ☐ Box ☐	YES ☐ NO ☐
BC Lab Field Service ☒ Other ☐ (Specify)_____	Other ☐ (Specify)_____	W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☒ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.98 Container: Amber Thermometer ID: 208 Date/Time 7/20 2020

Temperature: (A) 0.4 °C / (C) 0.8 °C Analyst Init RNR

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	~~3~~ 1	2	~~1~~ 3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr^{+6}										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / (16oz)		D								
PT CYANIDE		F								
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK	A									
40ml VOA VIAL		ABC								
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/(608)/8080		G								
QT EPA 515.1/8150										
QT EPA 625		HJ	AB							
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:

Sample Numbering Completed By: RNR Date/Time: 7/20/17 2146

A = Actual / C = Corrected

Rev 21 05/23/2016

[S:\WPDoc\WordPerfect\LAB_DOCS\FORMS\SAMRECrev 20]

Marine Research Specialists
4744 Telephone Rd
Ste 3-315
Suite A
Ventura, CA 93003-3238

Reported: 08/03/2017 17:37
Project: Semi-Annual Eff
Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1719994-01	**COC Number:**	---	**Receive Date:**	07/20/2017 20:25
	Project Number:	---	**Sampling Date:**	07/20/2017 10:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	BC1 Grab ARS	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Wastewater
1719994-02	**COC Number:**	---	**Receive Date:**	07/20/2017 20:25
	Project Number:	---	**Sampling Date:**	07/20/2017 10:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	BC2 Comp ARS	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Wastewater
1719994-03	**COC Number:**	---	**Receive Date:**	07/20/2017 20:25
	Project Number:	---	**Sampling Date:**	07/20/2017 00:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Tripblank	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Blank Water

Marine Research Specialists
4744 Telephone Rd
Ste 3-315
Suite A
Ventura, CA 93003-3238

Reported: 08/03/2017 17:37
Project: Semi-Annual Eff
Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

BCL Sample ID: 1719994-01 | **Client Sample Name:** BC1 Grab ARS, 7/20/2017 10:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
4-Chloro-3-methylphenol	ND	ug/L	50	4.8	EPA-625	ND	A01	1
2-Chlorophenol	ND	ug/L	20	4.4	EPA-625	ND	A01	1
2,4-Dichlorophenol	ND	ug/L	20	6.3	EPA-625	ND	A01	1
2,4-Dimethylphenol	ND	ug/L	20	6.0	EPA-625	ND	A01	1
4,6-Dinitro-2-methylphenol	ND	ug/L	100	18	EPA-625	ND	A01	1
2,4-Dinitrophenol	ND	ug/L	100	25	EPA-625	ND	A01	1
2-Methylphenol	ND	ug/L	20	5.5	EPA-625	ND	A01	1
3- & 4-Methylphenol	ND	ug/L	20	7.2	EPA-625	ND	A01	1
2-Nitrophenol	ND	ug/L	20	6.8	EPA-625	ND	A01	1
4-Nitrophenol	ND	ug/L	20	19	EPA-625	ND	A01	1
Pentachlorophenol	ND	ug/L	100	18	EPA-625	ND	A01	1
Phenol	ND	ug/L	20	4.9	EPA-625	ND	A01	1
2,4,5-Trichlorophenol	ND	ug/L	50	6.6	EPA-625	ND	A01	1
2,4,6-Trichlorophenol	ND	ug/L	50	5.1	EPA-625	ND	A01	1
2-Fluorophenol (Surrogate)	24.5	%	30 - 120 (LCL - UCL)		EPA-625		A01,S09	1
Phenol-d5 (Surrogate)	26.0	%	12 - 110 (LCL - UCL)		EPA-625		A01	1
Nitrobenzene-d5 (Surrogate)	51.2	%	50 - 130 (LCL - UCL)		EPA-625		A01	1
2-Fluorobiphenyl (Surrogate)	68.2	%	55 - 125 (LCL - UCL)		EPA-625		A01	1
2,4,6-Tribromophenol (Surrogate)	39.5	%	40 - 150 (LCL - UCL)		EPA-625		A01,S09	1
p-Terphenyl-d14 (Surrogate)	39.0	%	40 - 150 (LCL - UCL)		EPA-625		A01,S09	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-625	07/24/17	07/31/17 14:15	MK1	MS-B2	10	B[G2237

Marine Research Specialists
4744 Telephone Rd
Ste 3-315
Suite A
Ventura, CA 93003-3238

Reported: 08/03/2017 17:37
Project: Semi-Annual Eff
Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Organochlorine Pesticides and PCB's (EPA Method 608)

BCL Sample ID: 1719994-02 | **Client Sample Name:** BC2 Comp ARS, 7/20/2017 10:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.0019	EPA-608	ND		1
alpha-BHC	ND	ug/L	0.0050	0.0023	EPA-608	ND		1
beta-BHC	ND	ug/L	0.0050	0.0025	EPA-608	ND		1
delta-BHC	ND	ug/L	0.0050	0.0024	EPA-608	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.0024	EPA-608	ND		1
Chlordane (Technical)	ND	ug/L	0.50	0.15	EPA-608	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.0025	EPA-608	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0024	EPA-608	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.0017	EPA-608	ND		1
Dieldrin	ND	ug/L	0.0050	0.0023	EPA-608	ND		1
Endosulfan I	ND	ug/L	0.0050	0.0024	EPA-608	ND		1
Endosulfan II	ND	ug/L	0.0050	0.0030	EPA-608	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.0043	EPA-608	ND		1
Endrin	ND	ug/L	0.0050	0.0036	EPA-608	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.0039	EPA-608	ND		1
Heptachlor	ND	ug/L	0.0050	0.0020	EPA-608	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.0042	EPA-608	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0038	EPA-608	ND		1
Toxaphene	ND	ug/L	2.0	0.20	EPA-608	ND		1
PCB-1016	ND	ug/L	0.20	0.061	EPA-608	ND		1
PCB-1221	ND	ug/L	0.20	0.20	EPA-608	ND		1
PCB-1232	ND	ug/L	0.20	0.12	EPA-608	ND		1
PCB-1242	ND	ug/L	0.20	0.15	EPA-608	ND		1
PCB-1248	ND	ug/L	0.20	0.060	EPA-608	ND		1
PCB-1254	ND	ug/L	0.20	0.060	EPA-608	ND		1
PCB-1260	ND	ug/L	0.20	0.051	EPA-608	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-608	ND		1
TCMX (Surrogate)	136	%	40 - 140 (LCL - UCL)		EPA-608			1
Decachlorobiphenyl (Surrogate)	65.2	%	40 - 130 (LCL - UCL)		EPA-608			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-608	07/27/17	07/29/17 02:46	HKS	GC-17	1	B[G2668

Marine Research Specialists
4744 Telephone Rd
Ste 3-315
Suite A
Ventura, CA 93003-3238

Reported: 08/03/2017 17:37
Project: Semi-Annual Eff
Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 1719994-02 | **Client Sample Name:** BC2 Comp ARS, 7/20/2017 10:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.13	EPA-624	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.086	EPA-624	ND		1
Bromoform	ND	ug/L	0.50	0.19	EPA-624	ND		1
Bromomethane	ND	ug/L	1.0	0.15	EPA-624	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.15	EPA-624	ND		1
Chlorobenzene	ND	ug/L	0.50	0.12	EPA-624	ND		1
Chloroethane	ND	ug/L	0.50	0.079	EPA-624	ND		1
Chloroform	**1.2**	**ug/L**	**0.50**	**0.21**	**EPA-624**	ND		1
Chloromethane	ND	ug/L	0.50	0.13	EPA-624	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.11	EPA-624	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.12	EPA-624	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.11	EPA-624	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.17	EPA-624	ND		1
1,1-Dichloroethane	ND	ug/L	0.50	0.11	EPA-624	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.14	EPA-624	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.14	EPA-624	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.085	EPA-624	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.20	EPA-624	ND		1
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.15	EPA-624	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.087	EPA-624	ND		1
Ethylbenzene	ND	ug/L	0.50	0.12	EPA-624	ND		1
Methylene chloride	ND	ug/L	1.0	0.082	EPA-624	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-624	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.15	EPA-624	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.15	EPA-624	ND		1
Toluene	**0.30**	**ug/L**	**0.50**	**0.13**	**EPA-624**	ND	**J**	1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.12	EPA-624	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-624	ND		1
Trichloroethene	ND	ug/L	0.50	0.12	EPA-624	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.15	EPA-624	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.11	EPA-624	ND		1
Vinyl chloride	ND	ug/L	0.50	0.13	EPA-624	ND		1
Total Xylenes	ND	ug/L	0.50	0.28	EPA-624	ND		1

Marine Research Specialists
4744 Telephone Rd
Ste 3-315
Suite A
Ventura, CA 93003-3238

Reported: 08/03/2017 17:37
Project: Semi-Annual Eff
Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 1719994-02 | **Client Sample Name:** BC2 Comp ARS, 7/20/2017 10:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	20	1.0	EPA-624	ND	V11	1
Acrylonitrile	ND	ug/L	5.0	0.56	EPA-624	ND		1
p- & m-Xylenes	ND	ug/L	0.50	0.18	EPA-624	ND		1
o-Xylene	ND	ug/L	0.50	0.095	EPA-624	ND		1
1,2-Dichloroethane-d4 (Surrogate)	98.7	%	75 - 125 (LCL - UCL)		EPA-624			1
Toluene-d8 (Surrogate)	96.4	%	80 - 120 (LCL - UCL)		EPA-624			1
4-Bromofluorobenzene (Surrogate)	97.7	%	80 - 120 (LCL - UCL)		EPA-624			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-624	07/21/17	07/21/17 18:23	MGC	MS-V7	1	B[G1471

Marine Research Specialists
4744 Telephone Rd
Ste 3-315
Suite A
Ventura, CA 93003-3238

Reported: 08/03/2017 17:37
Project: Semi-Annual Eff
Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

BCL Sample ID: 1719994-02 | **Client Sample Name:** BC2 Comp ARS, 7/20/2017 10:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	20	4.0	EPA-625	ND	A01	1
Acenaphthylene	ND	ug/L	20	3.4	EPA-625	ND	A01	1
Aldrin	ND	ug/L	20	4.5	EPA-625	ND	A01	1
Aniline	ND	ug/L	50	7.1	EPA-625	ND	A01	1
Anthracene	ND	ug/L	20	3.2	EPA-625	ND	A01	1
Benzidine	ND	ug/L	200	27	EPA-625	ND	A01	1
Benzo[a]anthracene	ND	ug/L	20	3.7	EPA-625	ND	A01	1
Benzo[b]fluoranthene	ND	ug/L	20	8.8	EPA-625	ND	A01	1
Benzo[k]fluoranthene	ND	ug/L	20	9.6	EPA-625	ND	A01	1
Benzo[a]pyrene	ND	ug/L	20	8.7	EPA-625	ND	A01	1
Benzo[g,h,i]perylene	ND	ug/L	20	12	EPA-625	ND	A01	1
Benzoic acid	ND	ug/L	100	20	EPA-625	ND	A01	1
Benzyl alcohol	**5.5**	**ug/L**	**20**	**4.4**	**EPA-625**	ND	**J,A01**	1
Benzyl butyl phthalate	ND	ug/L	20	7.7	EPA-625	ND	A01	1
alpha-BHC	ND	ug/L	20	18	EPA-625	ND	A01	1
beta-BHC	ND	ug/L	20	14	EPA-625	ND	A01	1
delta-BHC	ND	ug/L	20	18	EPA-625	ND	A01	1
gamma-BHC (Lindane)	ND	ug/L	20	12	EPA-625	ND	A01	1
bis(2-Chloroethoxy)methane	ND	ug/L	20	4.5	EPA-625	ND	A01	1
bis(2-Chloroethyl) ether	ND	ug/L	20	8.6	EPA-625	ND	A01	1
bis(2-Chloroisopropyl)ether	ND	ug/L	20	5.8	EPA-625	ND	A01	1
bis(2-Ethylhexyl)phthalate	ND	ug/L	50	6.7	EPA-625	ND	A01	1
4-Bromophenyl phenyl ether	ND	ug/L	20	4.2	EPA-625	ND	A01	1
4-Chloroaniline	ND	ug/L	20	4.0	EPA-625	ND	A01	1
2-Chloronaphthalene	ND	ug/L	20	3.4	EPA-625	ND	A01	1
4-Chlorophenyl phenyl ether	ND	ug/L	20	4.6	EPA-625	ND	A01	1
Chrysene	ND	ug/L	20	4.2	EPA-625	ND	A01	1
4,4'-DDD	ND	ug/L	20	7.4	EPA-625	ND	A01	1
4,4'-DDE	ND	ug/L	30	12	EPA-625	ND	A01	1
4,4'-DDT	ND	ug/L	20	11	EPA-625	ND	A01	1
Dibenzo[a,h]anthracene	ND	ug/L	30	16	EPA-625	ND	A01	1
Dibenzofuran	ND	ug/L	20	3.2	EPA-625	ND	A01	1
1,2-Dichlorobenzene	ND	ug/L	20	3.9	EPA-625	ND	A01	1

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Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

BCL Sample ID: 1719994-02 | **Client Sample Name:** BC2 Comp ARS, 7/20/2017 10:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	20	5.0	EPA-625	ND	A01	1
1,4-Dichlorobenzene	ND	ug/L	20	5.5	EPA-625	ND	A01	1
3,3-Dichlorobenzidine	ND	ug/L	100	6.5	EPA-625	ND	A01	1
Dieldrin	ND	ug/L	30	6.8	EPA-625	ND	A01	1
Diethyl phthalate	ND	ug/L	20	3.5	EPA-625	ND	A01	1
Dimethyl phthalate	ND	ug/L	20	4.0	EPA-625	ND	A01	1
Di-n-butyl phthalate	ND	ug/L	20	3.3	EPA-625	ND	A01	1
2,4-Dinitrotoluene	ND	ug/L	20	7.5	EPA-625	ND	A01	1
2,6-Dinitrotoluene	ND	ug/L	20	5.6	EPA-625	ND	A01	1
Di-n-octyl phthalate	ND	ug/L	20	6.1	EPA-625	ND	A01	1
1,2-Diphenylhydrazine	ND	ug/L	20	4.3	EPA-625	ND	A01	1
Endosulfan I	ND	ug/L	100	32	EPA-625	ND	A01	1
Endosulfan II	ND	ug/L	100	31	EPA-625	ND	A01	1
Endosulfan sulfate	ND	ug/L	30	25	EPA-625	ND	A01	1
Endrin	ND	ug/L	20	14	EPA-625	ND	A01	1
Endrin aldehyde	ND	ug/L	100	26	EPA-625	ND	A01	1
Fluoranthene	ND	ug/L	20	6.1	EPA-625	ND	A01	1
Fluorene	ND	ug/L	20	5.4	EPA-625	ND	A01	1
Heptachlor	ND	ug/L	20	9.4	EPA-625	ND	A01	1
Heptachlor epoxide	ND	ug/L	20	6.9	EPA-625	ND	A01	1
Hexachlorobenzene	ND	ug/L	20	4.8	EPA-625	ND	A01	1
Hexachlorobutadiene	ND	ug/L	20	4.8	EPA-625	ND	A01	1
Hexachlorocyclopentadiene	ND	ug/L	20	5.2	EPA-625	ND	A01	1
Hexachloroethane	ND	ug/L	20	9.0	EPA-625	ND	A01	1
Indeno[1,2,3-cd]pyrene	ND	ug/L	20	12	EPA-625	ND	A01	1
Isophorone	ND	ug/L	20	3.1	EPA-625	ND	A01	1
2-Methylnaphthalene	ND	ug/L	20	3.8	EPA-625	ND	A01	1
Naphthalene	ND	ug/L	20	2.7	EPA-625	ND	A01	1
2-Naphthylamine	ND	ug/L	200	8.3	EPA-625	ND	A01	1
2-Nitroaniline	ND	ug/L	20	6.0	EPA-625	ND	A01	1
3-Nitroaniline	ND	ug/L	20	9.2	EPA-625	ND	A01	1
4-Nitroaniline	ND	ug/L	50	13	EPA-625	ND	A01	1
Nitrobenzene	ND	ug/L	20	3.7	EPA-625	ND	A01	1

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Project Manager: Doug Coats

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

BCL Sample ID: 1719994-02 | **Client Sample Name:** BC2 Comp ARS, 7/20/2017 10:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	20	12	EPA-625	ND	A01	1
N-Nitrosodi-N-propylamine	ND	ug/L	20	5.8	EPA-625	ND	A01	1
N-Nitrosodiphenylamine	ND	ug/L	20	5.7	EPA-625	ND	A01	1
Phenanthrene	ND	ug/L	20	5.0	EPA-625	ND	A01	1
Pyrene	ND	ug/L	20	4.5	EPA-625	ND	A01	1
1,2,4-Trichlorobenzene	ND	ug/L	20	8.7	EPA-625	ND	A01	1
4-Chloro-3-methylphenol	ND	ug/L	50	4.8	EPA-625	ND	A01	1
2-Chlorophenol	ND	ug/L	20	4.4	EPA-625	ND	A01	1
2,4-Dichlorophenol	ND	ug/L	20	6.3	EPA-625	ND	A01	1
2,4-Dimethylphenol	ND	ug/L	20	6.0	EPA-625	ND	A01	1
4,6-Dinitro-2-methylphenol	ND	ug/L	100	18	EPA-625	ND	A01	1
2,4-Dinitrophenol	ND	ug/L	100	25	EPA-625	ND	A01	1
2-Methylphenol	ND	ug/L	20	5.5	EPA-625	ND	A01	1
3- & 4-Methylphenol	ND	ug/L	20	7.2	EPA-625	ND	A01	1
2-Nitrophenol	ND	ug/L	20	6.8	EPA-625	ND	A01	1
4-Nitrophenol	ND	ug/L	20	19	EPA-625	ND	A01	1
Pentachlorophenol	ND	ug/L	100	18	EPA-625	ND	A01	1
Phenol	ND	ug/L	20	4.9	EPA-625	ND	A01	1
2,4,5-Trichlorophenol	ND	ug/L	50	6.6	EPA-625	ND	A01	1
2,4,6-Trichlorophenol	ND	ug/L	50	5.1	EPA-625	ND	A01	1
2-Fluorophenol (Surrogate)	32.5	%	30 - 120 (LCL - UCL)		EPA-625		A01	1
Phenol-d5 (Surrogate)	26.8	%	12 - 110 (LCL - UCL)		EPA-625		A01	1
Nitrobenzene-d5 (Surrogate)	56.0	%	50 - 130 (LCL - UCL)		EPA-625		A01	1
2-Fluorobiphenyl (Surrogate)	66.2	%	55 - 125 (LCL - UCL)		EPA-625		A01	1
2,4,6-Tribromophenol (Surrogate)	41.2	%	40 - 150 (LCL - UCL)		EPA-625		A01	1
p-Terphenyl-d14 (Surrogate)	39.0	%	40 - 150 (LCL - UCL)		EPA-625		A01,S09	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-625	07/24/17	07/31/17 14:41	MK1	MS-B2	10	B[G2237

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Water Analysis (General Chemistry)

BCL Sample ID: 1719994-02 | **Client Sample Name:** BC2 Comp ARS, 7/20/2017 10:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Cyanide	ND	mg/L	0.0050	0.0019	EPA-335.4	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-335.4	07/25/17	07/25/17 13:33	RCC	KONE-1	1	B[G1973

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Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Metals Analysis

BCL Sample ID: 1719994-02 | **Client Sample Name:** BC2 Comp ARS, 7/20/2017 10:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Mercury	**0.032**	**ug/L**	**0.20**	**0.029**	**EPA-245.1**	ND	**J**	1
Total Recoverable Antimony	ND	ug/L	100	5.0	EPA-200.7	ND		2
Total Recoverable Arsenic	**1.1**	**ug/L**	**2.0**	**0.70**	**EPA-200.8**	ND	**J**	3
Total Recoverable Beryllium	ND	ug/L	10	0.77	EPA-200.7	ND		2
Total Recoverable Cadmium	ND	ug/L	10	1.1	EPA-200.7	ND		2
Total Recoverable Chromium	**1.4**	**ug/L**	**10**	**1.2**	**EPA-200.7**	ND	**J**	2
Total Recoverable Copper	**21**	**ug/L**	**10**	**1.2**	**EPA-200.7**	ND		2
Total Recoverable Lead	**1.3**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND		3
Total Recoverable Nickel	**5.4**	**ug/L**	**10**	**2.3**	**EPA-200.7**	ND	**J**	2
Total Recoverable Selenium	**2.6**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Silver	ND	ug/L	10	1.3	EPA-200.7	ND		2
Total Recoverable Thallium	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Zinc	**68**	**ug/L**	**50**	**9.5**	**EPA-200.7**	ND		2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-245.1	07/25/17	07/26/17 09:19	MEV	CETAC2	1	B[G2012
2	EPA-200.7	07/25/17	07/25/17 14:38	JRG	PE-OP2	1	B[G2017
3	EPA-200.8	07/25/17	07/26/17 05:12	ARD	PE-EL2	1	B[G2023

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Reported: 08/03/2017 17:37
Project: Semi-Annual Eff
Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 1719994-03 | **Client Sample Name:** Tripblank, 7/20/2017 12:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.13	EPA-624	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.086	EPA-624	ND		1
Bromoform	ND	ug/L	0.50	0.19	EPA-624	ND		1
Bromomethane	ND	ug/L	1.0	0.15	EPA-624	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.15	EPA-624	ND		1
Chlorobenzene	ND	ug/L	0.50	0.12	EPA-624	ND		1
Chloroethane	ND	ug/L	0.50	0.079	EPA-624	ND		1
Chloroform	ND	ug/L	0.50	0.21	EPA-624	ND		1
Chloromethane	ND	ug/L	0.50	0.13	EPA-624	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.11	EPA-624	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.12	EPA-624	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.11	EPA-624	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.17	EPA-624	ND		1
1,1-Dichloroethane	ND	ug/L	0.50	0.11	EPA-624	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.14	EPA-624	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.14	EPA-624	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.085	EPA-624	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.20	EPA-624	ND		1
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.15	EPA-624	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.087	EPA-624	ND		1
Ethylbenzene	ND	ug/L	0.50	0.12	EPA-624	ND		1
Methylene chloride	ND	ug/L	1.0	0.082	EPA-624	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-624	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.15	EPA-624	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.15	EPA-624	ND		1
Toluene	ND	ug/L	0.50	0.13	EPA-624	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.12	EPA-624	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-624	ND		1
Trichloroethene	ND	ug/L	0.50	0.12	EPA-624	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.15	EPA-624	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.11	EPA-624	ND		1
Vinyl chloride	ND	ug/L	0.50	0.13	EPA-624	ND		1
Total Xylenes	ND	ug/L	0.50	0.28	EPA-624	ND		1

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Project Manager: Doug Coats

Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 1719994-03 | **Client Sample Name:** Tripblank, 7/20/2017 12:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	20	1.0	EPA-624	ND	V11	1
Acrylonitrile	ND	ug/L	5.0	0.56	EPA-624	ND		1
p- & m-Xylenes	ND	ug/L	0.50	0.18	EPA-624	ND		1
o-Xylene	ND	ug/L	0.50	0.095	EPA-624	ND		1
1,2-Dichloroethane-d4 (Surrogate)	99.4	%	75 - 125 (LCL - UCL)		EPA-624			1
Toluene-d8 (Surrogate)	100	%	80 - 120 (LCL - UCL)		EPA-624			1
4-Bromofluorobenzene (Surrogate)	97.4	%	80 - 120 (LCL - UCL)		EPA-624			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-624	07/21/17	07/21/17 17:59	MGC	MS-V7	1	B[G1471

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Organochlorine Pesticides and PCB's (EPA Method 608)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[G2668						
Aldrin	B[G2668-BLK1	ND	ug/L	0.0050	0.0019	
alpha-BHC	B[G2668-BLK1	ND	ug/L	0.0050	0.0023	
beta-BHC	B[G2668-BLK1	ND	ug/L	0.0050	0.0025	
delta-BHC	B[G2668-BLK1	ND	ug/L	0.0050	0.0024	
gamma-BHC (Lindane)	B[G2668-BLK1	ND	ug/L	0.0050	0.0024	
Chlordane (Technical)	B[G2668-BLK1	ND	ug/L	0.50	0.15	
4,4'-DDD	B[G2668-BLK1	ND	ug/L	0.0050	0.0025	
4,4'-DDE	B[G2668-BLK1	ND	ug/L	0.0050	0.0024	
4,4'-DDT	B[G2668-BLK1	ND	ug/L	0.0050	0.0017	
Dieldrin	B[G2668-BLK1	ND	ug/L	0.0050	0.0023	
Endosulfan I	B[G2668-BLK1	ND	ug/L	0.0050	0.0024	
Endosulfan II	B[G2668-BLK1	ND	ug/L	0.0050	0.0030	
Endosulfan sulfate	B[G2668-BLK1	ND	ug/L	0.0050	0.0043	
Endrin	B[G2668-BLK1	ND	ug/L	0.0050	0.0036	
Endrin aldehyde	B[G2668-BLK1	ND	ug/L	0.010	0.0039	
Heptachlor	B[G2668-BLK1	ND	ug/L	0.0050	0.0020	
Heptachlor epoxide	B[G2668-BLK1	ND	ug/L	0.0050	0.0042	
Methoxychlor	B[G2668-BLK1	ND	ug/L	0.0050	0.0038	
Toxaphene	B[G2668-BLK1	ND	ug/L	2.0	0.20	
PCB-1016	B[G2668-BLK1	ND	ug/L	0.20	0.061	
PCB-1221	B[G2668-BLK1	ND	ug/L	0.20	0.20	
PCB-1232	B[G2668-BLK1	ND	ug/L	0.20	0.12	
PCB-1242	B[G2668-BLK1	ND	ug/L	0.20	0.15	
PCB-1248	B[G2668-BLK1	ND	ug/L	0.20	0.060	
PCB-1254	B[G2668-BLK1	ND	ug/L	0.20	0.060	
PCB-1260	B[G2668-BLK1	ND	ug/L	0.20	0.051	
Total PCB's (Summation)	B[G2668-BLK1	ND	ug/L	0.20	0.10	
TCMX (Surrogate)	**B[G2668-BLK1**	**85.9**	%	**40 - 140 (LCL - UCL)**		
Decachlorobiphenyl (Surrogate)	**B[G2668-BLK1**	**96.0**	%	**40 - 130 (LCL - UCL)**		

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Organochlorine Pesticides and PCB's (EPA Method 608)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B[G2668										
Aldrin	B[G2668-BS1	LCS	0.12271	0.15000	ug/L	81.8		50 - 130		
gamma-BHC (Lindane)	B[G2668-BS1	LCS	0.13726	0.15000	ug/L	91.5		60 - 130		
4,4'-DDT	B[G2668-BS1	LCS	0.092720	0.15000	ug/L	61.8		60 - 130		
Dieldrin	B[G2668-BS1	LCS	0.14254	0.15000	ug/L	95.0		60 - 130		
Endrin	B[G2668-BS1	LCS	0.13307	0.15000	ug/L	88.7		60 - 130		
Heptachlor	B[G2668-BS1	LCS	0.12119	0.15000	ug/L	80.8		60 - 130		
TCMX (Surrogate)	B[G2668-BS1	LCS	0.26735	0.30000	ug/L	89.1		40 - 140		
Decachlorobiphenyl (Surrogate)	B[G2668-BS1	LCS	0.57044	0.60000	ug/L	95.1		40 - 130		

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Organochlorine Pesticides and PCB's (EPA Method 608)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B[G2668	Used client sample: N										
Aldrin	MS	1717894-82	ND	0.11877	0.15000	ug/L		79.2		50 - 130	
	MSD	1717894-82	ND	0.11974	0.15000	ug/L	0.8	79.8	30	50 - 130	
gamma-BHC (Lindane)	MS	1717894-82	ND	0.13685	0.15000	ug/L		91.2		60 - 130	
	MSD	1717894-82	ND	0.13618	0.15000	ug/L	0.5	90.8	30	60 - 130	
4,4'-DDT	MS	**1717894-82**	**ND**	**0.087230**	**0.15000**	**ug/L**		**58.2**		**60 - 130**	**Q03**
	MSD	**1717894-82**	**ND**	**0.097110**	**0.15000**	**ug/L**	**10.7**	**64.7**	**30**	**60 - 130**	
Dieldrin	MS	1717894-82	ND	0.13956	0.15000	ug/L		93.0		60 - 130	
	MSD	1717894-82	ND	0.14290	0.15000	ug/L	2.4	95.3	30	60 - 130	
Endrin	MS	1717894-82	ND	0.12253	0.15000	ug/L		81.7		60 - 130	
	MSD	1717894-82	ND	0.13540	0.15000	ug/L	10.0	90.3	30	60 - 130	
Heptachlor	MS	1717894-82	ND	0.11730	0.15000	ug/L		78.2		50 - 130	
	MSD	1717894-82	ND	0.11930	0.15000	ug/L	1.7	79.5	30	50 - 130	
TCMX (Surrogate)	MS	1717894-82	ND	0.26208	0.30000	ug/L		87.4		40 - 140	
	MSD	1717894-82	ND	0.26229	0.30000	ug/L	0.1	87.4		40 - 140	
Decachlorobiphenyl (Surrogate)	MS	1717894-82	ND	0.53377	0.60000	ug/L		89.0		40 - 130	
	MSD	1717894-82	ND	0.60632	0.60000	ug/L	12.7	101		40 - 130	

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Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[G1471						
Benzene	B[G1471-BLK1	ND	ug/L	0.50	0.13	
Bromodichloromethane	B[G1471-BLK1	ND	ug/L	0.50	0.086	
Bromoform	B[G1471-BLK1	ND	ug/L	0.50	0.19	
Bromomethane	B[G1471-BLK1	ND	ug/L	1.0	0.15	
Carbon tetrachloride	B[G1471-BLK1	ND	ug/L	0.50	0.15	
Chlorobenzene	B[G1471-BLK1	ND	ug/L	0.50	0.12	
Chloroethane	B[G1471-BLK1	ND	ug/L	0.50	0.079	
Chloroform	B[G1471-BLK1	ND	ug/L	0.50	0.21	
Chloromethane	B[G1471-BLK1	ND	ug/L	0.50	0.13	
Dibromochloromethane	B[G1471-BLK1	ND	ug/L	0.50	0.11	
1,2-Dichlorobenzene	B[G1471-BLK1	ND	ug/L	0.50	0.12	
1,3-Dichlorobenzene	B[G1471-BLK1	ND	ug/L	0.50	0.11	
1,4-Dichlorobenzene	B[G1471-BLK1	ND	ug/L	0.50	0.17	
1,1-Dichloroethane	B[G1471-BLK1	ND	ug/L	0.50	0.11	
1,2-Dichloroethane	B[G1471-BLK1	ND	ug/L	0.50	0.14	
1,1-Dichloroethene	B[G1471-BLK1	ND	ug/L	0.50	0.14	
trans-1,2-Dichloroethene	B[G1471-BLK1	ND	ug/L	0.50	0.085	
1,2-Dichloropropane	B[G1471-BLK1	ND	ug/L	0.50	0.20	
cis-1,3-Dichloropropene	B[G1471-BLK1	ND	ug/L	0.50	0.15	
trans-1,3-Dichloropropene	B[G1471-BLK1	ND	ug/L	0.50	0.087	
Ethylbenzene	B[G1471-BLK1	ND	ug/L	0.50	0.12	
Methylene chloride	B[G1471-BLK1	ND	ug/L	1.0	0.082	
Methyl t-butyl ether	B[G1471-BLK1	ND	ug/L	0.50	0.14	
1,1,2,2-Tetrachloroethane	B[G1471-BLK1	ND	ug/L	0.50	0.15	
Tetrachloroethene	B[G1471-BLK1	ND	ug/L	0.50	0.15	
Toluene	B[G1471-BLK1	ND	ug/L	0.50	0.13	
1,1,1-Trichloroethane	B[G1471-BLK1	ND	ug/L	0.50	0.12	
1,1,2-Trichloroethane	B[G1471-BLK1	ND	ug/L	0.50	0.21	
Trichloroethene	B[G1471-BLK1	ND	ug/L	0.50	0.12	
Trichlorofluoromethane	B[G1471-BLK1	ND	ug/L	0.50	0.15	
1,1,2-Trichloro-1,2,2-trifluoroethane	B[G1471-BLK1	ND	ug/L	0.50	0.11	
Vinyl chloride	B[G1471-BLK1	ND	ug/L	0.50	0.13	
Total Xylenes	B[G1471-BLK1	ND	ug/L	0.50	0.28	

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Project Manager: Doug Coats

Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[G1471						
Acrolein	B[G1471-BLK1	ND	ug/L	20	1.0	
Acrylonitrile	B[G1471-BLK1	ND	ug/L	5.0	0.56	
p- & m-Xylenes	B[G1471-BLK1	ND	ug/L	0.50	0.18	
o-Xylene	B[G1471-BLK1	ND	ug/L	0.50	0.095	
1,2-Dichloroethane-d4 (Surrogate)	**B[G1471-BLK1**	**88.0**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**B[G1471-BLK1**	**98.8**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**B[G1471-BLK1**	**96.0**	%	**80 - 120 (LCL - UCL)**		

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Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B[G1471										
Benzene	B[G1471-BS1	LCS	22.300	25.000	ug/L	89.2		79 - 120		
Bromodichloromethane	B[G1471-BS1	LCS	24.260	25.000	ug/L	97.0		79 - 125		
Bromoform	B[G1471-BS1	LCS	26.780	25.000	ug/L	107		66 - 130		
Bromomethane	B[G1471-BS1	LCS	25.380	25.000	ug/L	102		53 - 141		
Carbon tetrachloride	B[G1471-BS1	LCS	24.190	25.000	ug/L	96.8		72 - 136		
Chlorobenzene	B[G1471-BS1	LCS	23.390	25.000	ug/L	93.6		82 - 118		
Chloroethane	B[G1471-BS1	LCS	20.460	25.000	ug/L	81.8		60 - 138		
Chloroform	B[G1471-BS1	LCS	24.820	25.000	ug/L	99.3		79 - 124		
Chloromethane	B[G1471-BS1	LCS	20.520	25.000	ug/L	82.1		50 - 139		
Dibromochloromethane	B[G1471-BS1	LCS	25.000	25.000	ug/L	100		74 - 126		
1,2-Dichlorobenzene	B[G1471-BS1	LCS	24.010	25.000	ug/L	96.0		80 - 119		
1,3-Dichlorobenzene	B[G1471-BS1	LCS	24.050	25.000	ug/L	96.2		80 - 119		
1,4-Dichlorobenzene	B[G1471-BS1	LCS	23.780	25.000	ug/L	95.1		79 - 118		
1,1-Dichloroethane	B[G1471-BS1	LCS	23.120	25.000	ug/L	92.5		77 - 125		
1,2-Dichloroethane	B[G1471-BS1	LCS	23.030	25.000	ug/L	92.1		73 - 128		
1,1-Dichloroethene	B[G1471-BS1	LCS	23.430	25.000	ug/L	93.7		71 - 131		
trans-1,2-Dichloroethene	B[G1471-BS1	LCS	23.310	25.000	ug/L	93.2		75 - 124		
1,2-Dichloropropane	B[G1471-BS1	LCS	22.590	25.000	ug/L	90.4		78 - 122		
cis-1,3-Dichloropropene	B[G1471-BS1	LCS	22.810	25.000	ug/L	91.2		75 - 124		
trans-1,3-Dichloropropene	B[G1471-BS1	LCS	23.320	25.000	ug/L	93.3		73 - 127		
Ethylbenzene	B[G1471-BS1	LCS	24.870	25.000	ug/L	99.5		79 - 121		
Methylene chloride	B[G1471-BS1	LCS	22.700	25.000	ug/L	90.8		74 - 124		
Methyl t-butyl ether	B[G1471-BS1	LCS	21.020	25.000	ug/L	84.1		71 - 124		
1,1,2,2-Tetrachloroethane	B[G1471-BS1	LCS	23.740	25.000	ug/L	95.0		71 - 121		
Tetrachloroethene	B[G1471-BS1	LCS	24.780	25.000	ug/L	99.1		74 - 129		
Toluene	B[G1471-BS1	LCS	23.840	25.000	ug/L	95.4		80 - 121		
1,1,1-Trichloroethane	B[G1471-BS1	LCS	23.510	25.000	ug/L	94.0		74 - 131		
1,1,2-Trichloroethane	B[G1471-BS1	LCS	22.640	25.000	ug/L	90.6		80 - 119		
Trichloroethene	B[G1471-BS1	LCS	22.890	25.000	ug/L	91.6		79 - 123		
Trichlorofluoromethane	B[G1471-BS1	LCS	22.820	25.000	ug/L	91.3		65 - 141		
1,1,2-Trichloro-1,2,2-trifluoroethane	B[G1471-BS1	LCS	23.640	25.000	ug/L	94.6		70 - 136		
Vinyl chloride	B[G1471-BS1	LCS	21.060	25.000	ug/L	84.2		58 - 137		
Total Xylenes	B[G1471-BS1	LCS	73.510	75.000	ug/L	98.0		79 - 121		

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Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B[G1471										
p- & m-Xylenes	B[G1471-BS1	LCS	49.110	50.000	ug/L	98.2		80 - 121		
o-Xylene	B[G1471-BS1	LCS	24.400	25.000	ug/L	97.6		78 - 122		
1,2-Dichloroethane-d4 (Surrogate)	B[G1471-BS1	LCS	9.3300	10.000	ug/L	93.3		75 - 125		
Toluene-d8 (Surrogate)	B[G1471-BS1	LCS	9.8000	10.000	ug/L	98.0		80 - 120		
4-Bromofluorobenzene (Surrogate)	B[G1471-BS1	LCS	9.7500	10.000	ug/L	97.5		80 - 120		

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Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B[G1471	Used client sample: N										
Benzene	MS	1719671-01	0.42000	25.030	25.000	ug/L		98.4		79 - 120	
	MSD	1719671-01	0.42000	24.550	25.000	ug/L	1.9	96.5	30	79 - 120	
Bromodichloromethane	MS	1719671-01	0.92000	26.710	25.000	ug/L		103		79 - 125	
	MSD	1719671-01	0.92000	25.940	25.000	ug/L	2.9	100	30	79 - 125	
Bromoform	MS	1719671-01	ND	27.780	25.000	ug/L		111		66 - 130	
	MSD	1719671-01	ND	27.510	25.000	ug/L	1.0	110	30	66 - 130	
Bromomethane	MS	1719671-01	ND	28.100	25.000	ug/L		112		53 - 141	
	MSD	1719671-01	ND	26.610	25.000	ug/L	5.4	106	30	53 - 141	
Carbon tetrachloride	MS	1719671-01	ND	26.340	25.000	ug/L		105		72 - 136	
	MSD	1719671-01	ND	25.010	25.000	ug/L	5.2	100	30	72 - 136	
Chlorobenzene	MS	1719671-01	ND	23.730	25.000	ug/L		94.9		82 - 118	
	MSD	1719671-01	ND	23.740	25.000	ug/L	0.0	95.0	30	82 - 118	
Chloroethane	MS	1719671-01	ND	22.670	25.000	ug/L		90.7		60 - 138	
	MSD	1719671-01	ND	21.270	25.000	ug/L	6.4	85.1	30	60 - 138	
Chloroform	MS	1719671-01	2.9700	28.710	25.000	ug/L		103		79 - 124	
	MSD	1719671-01	2.9700	27.870	25.000	ug/L	3.0	99.6	30	79 - 124	
Chloromethane	MS	1719671-01	ND	23.610	25.000	ug/L		94.4		50 - 139	
	MSD	1719671-01	ND	21.950	25.000	ug/L	7.3	87.8	30	50 - 139	
Dibromochloromethane	MS	1719671-01	0.33000	26.160	25.000	ug/L		103		74 - 126	
	MSD	1719671-01	0.33000	26.220	25.000	ug/L	0.2	104	30	74 - 126	
1,2-Dichlorobenzene	MS	1719671-01	ND	23.890	25.000	ug/L		95.6		80 - 119	
	MSD	1719671-01	ND	23.190	25.000	ug/L	3.0	92.8	30	80 - 119	
1,3-Dichlorobenzene	MS	1719671-01	ND	24.630	25.000	ug/L		98.5		80 - 119	
	MSD	1719671-01	ND	23.210	25.000	ug/L	5.9	92.8	30	80 - 119	
1,4-Dichlorobenzene	MS	1719671-01	ND	24.120	25.000	ug/L		96.5		79 - 118	
	MSD	1719671-01	ND	23.450	25.000	ug/L	2.8	93.8	30	79 - 118	
1,1-Dichloroethane	MS	1719671-01	ND	25.090	25.000	ug/L		100		77 - 125	
	MSD	1719671-01	ND	24.480	25.000	ug/L	2.5	97.9	30	77 - 125	
1,2-Dichloroethane	MS	1719671-01	ND	23.930	25.000	ug/L		95.7		73 - 128	
	MSD	1719671-01	ND	23.650	25.000	ug/L	1.2	94.6	30	73 - 128	
1,1-Dichloroethene	MS	1719671-01	ND	26.310	25.000	ug/L		105		71 - 131	
	MSD	1719671-01	ND	25.220	25.000	ug/L	4.2	101	30	71 - 131	
trans-1,2-Dichloroethene	MS	1719671-01	ND	26.510	25.000	ug/L		106		75 - 124	
	MSD	1719671-01	ND	25.520	25.000	ug/L	3.8	102	30	75 - 124	
1,2-Dichloropropane	MS	1719671-01	ND	24.340	25.000	ug/L		97.4		78 - 122	
	MSD	1719671-01	ND	23.800	25.000	ug/L	2.2	95.2	30	78 - 122	

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Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B[G1471	Used client sample: N										
cis-1,3-Dichloropropene	MS	1719671-01	ND	24.210	25.000	ug/L		96.8		75 - 124	
	MSD	1719671-01	ND	23.830	25.000	ug/L	1.6	95.3	30	75 - 124	
trans-1,3-Dichloropropene	MS	1719671-01	ND	24.120	25.000	ug/L		96.5		73 - 127	
	MSD	1719671-01	ND	23.920	25.000	ug/L	0.8	95.7	30	73 - 127	
Ethylbenzene	MS	1719671-01	0.30000	26.020	25.000	ug/L		103		79 - 121	
	MSD	1719671-01	0.30000	25.550	25.000	ug/L	1.8	101	30	79 - 121	
Methylene chloride	MS	1719671-01	ND	22.750	25.000	ug/L		91.0		74 - 124	
	MSD	1719671-01	ND	22.160	25.000	ug/L	2.6	88.6	30	74 - 124	
Methyl t-butyl ether	MS	1719671-01	ND	22.800	25.000	ug/L		91.2		71 - 124	
	MSD	1719671-01	ND	22.600	25.000	ug/L	0.9	90.4	30	71 - 124	
1,1,2,2-Tetrachloroethane	MS	1719671-01	ND	23.690	25.000	ug/L		94.8		71 - 121	
	MSD	1719671-01	ND	23.510	25.000	ug/L	0.8	94.0	30	71 - 121	
Tetrachloroethene	MS	1719671-01	ND	26.620	25.000	ug/L		106		74 - 129	
	MSD	1719671-01	ND	25.250	25.000	ug/L	5.3	101	30	74 - 129	
Toluene	MS	1719671-01	0.71000	26.170	25.000	ug/L		102		80 - 121	
	MSD	1719671-01	0.71000	25.580	25.000	ug/L	2.3	99.5	30	80 - 121	
1,1,1-Trichloroethane	MS	1719671-01	ND	25.780	25.000	ug/L		103		74 - 131	
	MSD	1719671-01	ND	24.500	25.000	ug/L	5.1	98.0	30	74 - 131	
1,1,2-Trichloroethane	MS	1719671-01	ND	23.780	25.000	ug/L		95.1		80 - 119	
	MSD	1719671-01	ND	23.460	25.000	ug/L	1.4	93.8	30	80 - 119	
Trichloroethene	MS	1719671-01	ND	24.930	25.000	ug/L		99.7		79 - 123	
	MSD	1719671-01	ND	24.690	25.000	ug/L	1.0	98.8	30	79 - 123	
Trichlorofluoromethane	MS	1719671-01	ND	25.310	25.000	ug/L		101		65 - 141	
	MSD	1719671-01	ND	24.230	25.000	ug/L	4.4	96.9	30	65 - 141	
1,1,2-Trichloro-1,2,2-trifluoroethane	MS	1719671-01	ND	26.140	25.000	ug/L		105		70 - 136	
	MSD	1719671-01	ND	24.790	25.000	ug/L	5.3	99.2	30	70 - 136	
Vinyl chloride	MS	1719671-01	ND	23.770	25.000	ug/L		95.1		58 - 137	
	MSD	1719671-01	ND	22.450	25.000	ug/L	5.7	89.8	30	58 - 137	
Total Xylenes	MS	1719671-01	0.64000	76.140	75.000	ug/L		101		79 - 121	
	MSD	1719671-01	0.64000	74.160	75.000	ug/L	2.6	98.0	30	79 - 121	
p- & m-Xylenes	MS	1719671-01	0.38000	50.750	50.000	ug/L		101		80 - 121	
	MSD	1719671-01	0.38000	49.250	50.000	ug/L	3.0	97.7	30	80 - 121	
o-Xylene	MS	1719671-01	0.26000	25.390	25.000	ug/L		101		78 - 122	
	MSD	1719671-01	0.26000	24.910	25.000	ug/L	1.9	98.6	30	78 - 122	
1,2-Dichloroethane-d4 (Surrogate)	MS	1719671-01	ND	9.4800	10.000	ug/L		94.8		75 - 125	
	MSD	1719671-01	ND	9.7200	10.000	ug/L	2.5	97.2		75 - 125	

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Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B[G1471	Used client sample: N										
Toluene-d8 (Surrogate)	MS	1719671-01	ND	9.6600	10.000	ug/L		96.6		80 - 120	
	MSD	1719671-01	ND	9.9000	10.000	ug/L	2.5	99.0		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	1719671-01	ND	9.4300	10.000	ug/L		94.3		80 - 120	
	MSD	1719671-01	ND	9.6400	10.000	ug/L	2.2	96.4		80 - 120	

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Project: Semi-Annual Eff
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Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[G2237						
Acenaphthene	B[G2237-BLK1	ND	ug/L	2.0	0.40	
Acenaphthylene	B[G2237-BLK1	ND	ug/L	2.0	0.34	
Aldrin	B[G2237-BLK1	ND	ug/L	2.0	0.45	
Aniline	B[G2237-BLK1	ND	ug/L	5.0	0.71	
Anthracene	B[G2237-BLK1	ND	ug/L	2.0	0.32	
Benzidine	B[G2237-BLK1	ND	ug/L	20	2.7	
Benzo[a]anthracene	B[G2237-BLK1	ND	ug/L	2.0	0.37	
Benzo[b]fluoranthene	B[G2237-BLK1	ND	ug/L	2.0	0.88	
Benzo[k]fluoranthene	B[G2237-BLK1	ND	ug/L	2.0	0.96	
Benzo[a]pyrene	B[G2237-BLK1	ND	ug/L	2.0	0.87	
Benzo[g,h,i]perylene	B[G2237-BLK1	ND	ug/L	2.0	1.2	
Benzoic acid	B[G2237-BLK1	ND	ug/L	10	2.0	
Benzyl alcohol	B[G2237-BLK1	ND	ug/L	2.0	0.44	
Benzyl butyl phthalate	B[G2237-BLK1	ND	ug/L	2.0	0.77	
alpha-BHC	B[G2237-BLK1	ND	ug/L	2.0	1.8	
beta-BHC	B[G2237-BLK1	ND	ug/L	2.0	1.4	
delta-BHC	B[G2237-BLK1	ND	ug/L	2.0	1.8	
gamma-BHC (Lindane)	B[G2237-BLK1	ND	ug/L	2.0	1.2	
bis(2-Chloroethoxy)methane	B[G2237-BLK1	ND	ug/L	2.0	0.45	
bis(2-Chloroethyl) ether	B[G2237-BLK1	ND	ug/L	2.0	0.86	
bis(2-Chloroisopropyl)ether	B[G2237-BLK1	ND	ug/L	2.0	0.58	
bis(2-Ethylhexyl)phthalate	B[G2237-BLK1	ND	ug/L	5.0	0.67	
4-Bromophenyl phenyl ether	B[G2237-BLK1	ND	ug/L	2.0	0.42	
4-Chloroaniline	B[G2237-BLK1	ND	ug/L	2.0	0.40	
2-Chloronaphthalene	B[G2237-BLK1	ND	ug/L	2.0	0.34	
4-Chlorophenyl phenyl ether	B[G2237-BLK1	ND	ug/L	2.0	0.46	
Chrysene	B[G2237-BLK1	ND	ug/L	2.0	0.42	
4,4'-DDD	B[G2237-BLK1	ND	ug/L	2.0	0.74	
4,4'-DDE	B[G2237-BLK1	ND	ug/L	3.0	1.2	
4,4'-DDT	B[G2237-BLK1	ND	ug/L	2.0	1.1	
Dibenzo[a,h]anthracene	B[G2237-BLK1	ND	ug/L	3.0	1.6	
Dibenzofuran	B[G2237-BLK1	ND	ug/L	2.0	0.32	
1,2-Dichlorobenzene	B[G2237-BLK1	ND	ug/L	2.0	0.39	

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Ventura, CA 93003-3238

Reported: 08/03/2017 17:37
Project: Semi-Annual Eff
Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[G2237						
1,3-Dichlorobenzene	B[G2237-BLK1	ND	ug/L	2.0	0.50	
1,4-Dichlorobenzene	B[G2237-BLK1	ND	ug/L	2.0	0.55	
3,3-Dichlorobenzidine	B[G2237-BLK1	ND	ug/L	10	0.65	
Dieldrin	B[G2237-BLK1	ND	ug/L	3.0	0.68	
Diethyl phthalate	B[G2237-BLK1	ND	ug/L	2.0	0.35	
Dimethyl phthalate	B[G2237-BLK1	ND	ug/L	2.0	0.40	
Di-n-butyl phthalate	B[G2237-BLK1	ND	ug/L	2.0	0.33	
2,4-Dinitrotoluene	B[G2237-BLK1	ND	ug/L	2.0	0.75	
2,6-Dinitrotoluene	B[G2237-BLK1	ND	ug/L	2.0	0.56	
Di-n-octyl phthalate	B[G2237-BLK1	ND	ug/L	2.0	0.61	
1,2-Diphenylhydrazine	B[G2237-BLK1	ND	ug/L	2.0	0.43	
Endosulfan I	B[G2237-BLK1	ND	ug/L	10	3.2	
Endosulfan II	B[G2237-BLK1	ND	ug/L	10	3.1	
Endosulfan sulfate	B[G2237-BLK1	ND	ug/L	3.0	2.5	
Endrin	B[G2237-BLK1	ND	ug/L	2.0	1.4	
Endrin aldehyde	B[G2237-BLK1	ND	ug/L	10	2.6	
Fluoranthene	B[G2237-BLK1	ND	ug/L	2.0	0.61	
Fluorene	B[G2237-BLK1	ND	ug/L	2.0	0.54	
Heptachlor	B[G2237-BLK1	ND	ug/L	2.0	0.94	
Heptachlor epoxide	B[G2237-BLK1	ND	ug/L	2.0	0.69	
Hexachlorobenzene	B[G2237-BLK1	ND	ug/L	2.0	0.48	
Hexachlorobutadiene	B[G2237-BLK1	ND	ug/L	2.0	0.48	
Hexachlorocyclopentadiene	B[G2237-BLK1	ND	ug/L	2.0	0.52	
Hexachloroethane	B[G2237-BLK1	ND	ug/L	2.0	0.90	
Indeno[1,2,3-cd]pyrene	B[G2237-BLK1	ND	ug/L	2.0	1.2	
Isophorone	B[G2237-BLK1	ND	ug/L	2.0	0.31	
2-Methylnaphthalene	B[G2237-BLK1	ND	ug/L	2.0	0.38	
Naphthalene	B[G2237-BLK1	ND	ug/L	2.0	0.27	
2-Naphthylamine	B[G2237-BLK1	ND	ug/L	20	0.83	
2-Nitroaniline	B[G2237-BLK1	ND	ug/L	2.0	0.60	
3-Nitroaniline	B[G2237-BLK1	ND	ug/L	2.0	0.92	
4-Nitroaniline	B[G2237-BLK1	ND	ug/L	5.0	1.3	
Nitrobenzene	B[G2237-BLK1	ND	ug/L	2.0	0.37	

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Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[G2237						
N-Nitrosodimethylamine	B[G2237-BLK1	ND	ug/L	2.0	1.2	
N-Nitrosodi-N-propylamine	B[G2237-BLK1	ND	ug/L	2.0	0.58	
N-Nitrosodiphenylamine	B[G2237-BLK1	ND	ug/L	2.0	0.57	
Phenanthrene	B[G2237-BLK1	ND	ug/L	2.0	0.50	
Pyrene	B[G2237-BLK1	ND	ug/L	2.0	0.45	
1,2,4-Trichlorobenzene	B[G2237-BLK1	ND	ug/L	2.0	0.87	
4-Chloro-3-methylphenol	B[G2237-BLK1	ND	ug/L	5.0	0.48	
2-Chlorophenol	B[G2237-BLK1	ND	ug/L	2.0	0.44	
2,4-Dichlorophenol	B[G2237-BLK1	ND	ug/L	2.0	0.63	
2,4-Dimethylphenol	B[G2237-BLK1	ND	ug/L	2.0	0.60	
4,6-Dinitro-2-methylphenol	B[G2237-BLK1	ND	ug/L	10	1.8	
2,4-Dinitrophenol	B[G2237-BLK1	ND	ug/L	10	2.5	
2-Methylphenol	B[G2237-BLK1	ND	ug/L	2.0	0.55	
3- & 4-Methylphenol	B[G2237-BLK1	ND	ug/L	2.0	0.72	
2-Nitrophenol	B[G2237-BLK1	ND	ug/L	2.0	0.68	
4-Nitrophenol	B[G2237-BLK1	ND	ug/L	2.0	1.9	
Pentachlorophenol	B[G2237-BLK1	ND	ug/L	10	1.8	
Phenol	B[G2237-BLK1	ND	ug/L	2.0	0.49	
2,4,5-Trichlorophenol	B[G2237-BLK1	ND	ug/L	5.0	0.66	
2,4,6-Trichlorophenol	B[G2237-BLK1	ND	ug/L	5.0	0.51	
2-Fluorophenol (Surrogate)	**B[G2237-BLK1**	**22.2**	%	**30 - 120 (LCL - UCL)**		**S09**
Phenol-d5 (Surrogate)	**B[G2237-BLK1**	**17.7**	%	**12 - 110 (LCL - UCL)**		
Nitrobenzene-d5 (Surrogate)	**B[G2237-BLK1**	**50.5**	%	**50 - 130 (LCL - UCL)**		
2-Fluorobiphenyl (Surrogate)	**B[G2237-BLK1**	**58.1**	%	**55 - 125 (LCL - UCL)**		
2,4,6-Tribromophenol (Surrogate)	**B[G2237-BLK1**	**45.6**	%	**40 - 150 (LCL - UCL)**		
p-Terphenyl-d14 (Surrogate)	**B[G2237-BLK1**	**69.0**	%	**40 - 150 (LCL - UCL)**		

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4744 Telephone Rd
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Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B[G2237										
Acenaphthene	B[G2237-BS1	LCS	35.690	50.000	ug/L	71.4		50 - 120		
1,4-Dichlorobenzene	B[G2237-BS1	LCS	38.220	50.000	ug/L	76.4		50 - 120		
2,4-Dinitrotoluene	B[G2237-BS1	LCS	36.000	50.000	ug/L	72.0		50 - 120		
Hexachlorobenzene	B[G2237-BS1	LCS	40.160	40.000	ug/L	100		60 - 120		
Hexachlorobutadiene	B[G2237-BS1	LCS	28.010	50.000	ug/L	56.0		40 - 110		
Hexachloroethane	B[G2237-BS1	LCS	35.460	50.000	ug/L	70.9		40 - 120		
Nitrobenzene	B[G2237-BS1	LCS	41.670	50.000	ug/L	83.3		50 - 120		
N-Nitrosodi-N-propylamine	B[G2237-BS1	LCS	46.630	50.000	ug/L	93.3		50 - 120		
Pyrene	B[G2237-BS1	LCS	39.370	50.000	ug/L	78.7		40 - 140		
1,2,4-Trichlorobenzene	B[G2237-BS1	LCS	34.030	50.000	ug/L	68.1		45 - 120		
4-Chloro-3-methylphenol	B[G2237-BS1	LCS	24.120	50.000	ug/L	48.2		50 - 120		L01
2-Chlorophenol	B[G2237-BS1	LCS	28.690	50.000	ug/L	57.4		50 - 120		
2-Methylphenol	B[G2237-BS1	LCS	23.480	50.000	ug/L	47.0		40 - 110		
3- & 4-Methylphenol	B[G2237-BS1	LCS	42.150	100.00	ug/L	42.2		40 - 110		
4-Nitrophenol	B[G2237-BS1	LCS	13.300	50.000	ug/L	26.6		10 - 110		
Pentachlorophenol	B[G2237-BS1	LCS	22.050	40.000	ug/L	55.1		30 - 130		
Phenol	B[G2237-BS1	LCS	12.180	50.000	ug/L	24.4		20 - 110		
2,4,6-Trichlorophenol	B[G2237-BS1	LCS	28.230	50.000	ug/L	56.5		54 - 120		
2-Fluorophenol (Surrogate)	B[G2237-BS1	LCS	12.250	40.000	ug/L	30.6		30 - 120		
Phenol-d5 (Surrogate)	B[G2237-BS1	LCS	9.8100	40.000	ug/L	24.5		12 - 110		
Nitrobenzene-d5 (Surrogate)	B[G2237-BS1	LCS	28.910	40.000	ug/L	72.3		50 - 130		
2-Fluorobiphenyl (Surrogate)	B[G2237-BS1	LCS	35.210	40.000	ug/L	88.0		55 - 125		
2,4,6-Tribromophenol (Surrogate)	B[G2237-BS1	LCS	23.920	40.000	ug/L	59.8		40 - 150		
p-Terphenyl-d14 (Surrogate)	B[G2237-BS1	LCS	16.290	20.000	ug/L	81.4		40 - 150		

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4744 Telephone Rd
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Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B[G2237	Used client sample: N										
Acenaphthene	MS	1717894-70	ND	34.294	50.000	ug/L		68.6		50 - 120	
	MSD	1717894-70	ND	37.786	50.000	ug/L	9.7	75.6	30	50 - 120	
1,4-Dichlorobenzene	MS	1717894-70	ND	31.264	50.000	ug/L		62.5		47 - 120	
	MSD	1717894-70	ND	37.747	50.000	ug/L	18.8	75.5	30	47 - 120	
2,4-Dinitrotoluene	MS	1717894-70	ND	37.313	50.000	ug/L		74.6		50 - 130	
	MSD	1717894-70	ND	38.102	50.000	ug/L	2.1	76.2	30	50 - 130	
Hexachlorobenzene	MS	1717894-70	ND	36.244	40.000	ug/L		90.6		50 - 120	
	MSD	1717894-70	ND	41.702	40.000	ug/L	14.0	104	30	50 - 120	
Hexachlorobutadiene	MS	1717894-70	ND	22.810	50.000	ug/L		45.6		40 - 110	
	MSD	1717894-70	ND	28.915	50.000	ug/L	23.6	57.8	30	40 - 110	
Hexachloroethane	MS	1717894-70	ND	27.304	50.000	ug/L		54.6		40 - 120	
	MSD	1717894-70	ND	34.992	50.000	ug/L	24.7	70.0	30	40 - 120	
Nitrobenzene	MS	1717894-70	ND	38.382	50.000	ug/L		76.8		50 - 120	
	MSD	1717894-70	ND	42.490	50.000	ug/L	10.2	85.0	30	50 - 120	
N-Nitrosodi-N-propylamine	MS	1717894-70	ND	38.887	50.000	ug/L		77.8		50 - 120	
	MSD	1717894-70	ND	46.522	50.000	ug/L	17.9	93.0	30	50 - 120	
Pyrene	MS	1717894-70	ND	38.115	50.000	ug/L		76.2		40 - 140	
	MSD	1717894-70	ND	45.245	50.000	ug/L	17.1	90.5	30	40 - 140	
1,2,4-Trichlorobenzene	MS	1717894-70	ND	27.868	50.000	ug/L		55.7		43 - 120	
	MSD	1717894-70	ND	34.291	50.000	ug/L	20.7	68.6	30	43 - 120	
4-Chloro-3-methylphenol	MS	**1717894-70**	**ND**	**24.215**	**50.000**	**ug/L**		**48.4**		**50 - 120**	**Q03**
	MSD	**1717894-70**	**ND**	**31.296**	**50.000**	**ug/L**	**25.5**	**62.6**	**30**	**50 - 120**	
2-Chlorophenol	MS	1717894-70	ND	26.106	50.000	ug/L		52.2		50 - 120	
	MSD	1717894-70	ND	34.790	50.000	ug/L	28.5	69.6	30	50 - 120	
2-Methylphenol	MS	1717894-70	ND	23.908	50.000	ug/L		47.8		40 - 110	
	MSD	1717894-70	ND	27.859	50.000	ug/L	15.3	55.7	30	40 - 110	
3- & 4-Methylphenol	MS	1717894-70	ND	42.728	100.00	ug/L		42.7		40 - 110	
	MSD	1717894-70	ND	52.358	100.00	ug/L	20.3	52.4	30	40 - 110	
4-Nitrophenol	MS	1717894-70	ND	15.098	50.000	ug/L		30.2		10 - 110	
	MSD	1717894-70	ND	16.925	50.000	ug/L	11.4	33.8	30	10 - 110	
Pentachlorophenol	MS	1717894-70	ND	21.424	40.000	ug/L		53.6		30 - 120	
	MSD	1717894-70	ND	27.878	40.000	ug/L	26.2	69.7	30	30 - 120	
Phenol	MS	1717894-70	ND	11.236	50.000	ug/L		22.5		20 - 110	
	MSD	1717894-70	ND	14.419	50.000	ug/L	24.8	28.8	30	20 - 110	
2,4,6-Trichlorophenol	MS	1717894-70	ND	27.928	50.000	ug/L		55.9		50 - 150	
	MSD	1717894-70	ND	34.704	50.000	ug/L	21.6	69.4	30	50 - 150	

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Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B[G2237	Used client sample: N										
2-Fluorophenol (Surrogate)	MS	1717894-70	ND	12.177	40.000	ug/L		30.4		30 - 120	
	MSD	1717894-70	ND	15.888	40.000	ug/L	26.4	39.7		30 - 120	
Phenol-d5 (Surrogate)	MS	1717894-70	ND	8.8704	40.000	ug/L		22.2		12 - 110	
	MSD	1717894-70	ND	12.067	40.000	ug/L	30.5	30.2		12 - 110	
Nitrobenzene-d5 (Surrogate)	MS	1717894-70	ND	25.651	40.000	ug/L		64.1		50 - 130	
	MSD	1717894-70	ND	29.866	40.000	ug/L	15.2	74.7		50 - 130	
2-Fluorobiphenyl (Surrogate)	MS	1717894-70	ND	31.205	40.000	ug/L		78.0		55 - 125	
	MSD	1717894-70	ND	38.592	40.000	ug/L	21.2	96.5		55 - 125	
2,4,6-Tribromophenol (Surrogate)	MS	1717894-70	ND	22.107	40.000	ug/L		55.3		40 - 150	
	MSD	1717894-70	ND	31.363	40.000	ug/L	34.6	78.4		40 - 150	
p-Terphenyl-d14 (Surrogate)	MS	1717894-70	ND	14.117	20.000	ug/L		70.6		40 - 150	
	MSD	1717894-70	ND	16.694	20.000	ug/L	16.7	83.5		40 - 150	

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Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[G1973						
Total Cyanide	B[G1973-BLK1	ND	mg/L	0.0050	0.0019	

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Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B[G1973										
Total Cyanide	B[G1973-BS1	LCS	0.14969	0.15000	mg/L	99.8		90 - 110		

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Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B[G1973	Used client sample: N										
Total Cyanide	DUP	1719984-01	ND	ND		mg/L			10		
	MS	1719984-01	ND	0.099308	0.10000	mg/L		99.3		90 - 110	
	MSD	1719984-01	ND	0.097058	0.10000	mg/L	2.3	97.1	10	90 - 110	

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Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[G2012						
Total Mercury	B[G2012-BLK1	ND	ug/L	0.20	0.029	
QC Batch ID: B[G2017						
Total Recoverable Antimony	B[G2017-BLK1	ND	ug/L	100	5.0	
Total Recoverable Beryllium	B[G2017-BLK1	ND	ug/L	10	0.77	
Total Recoverable Cadmium	B[G2017-BLK1	ND	ug/L	10	1.1	
Total Recoverable Chromium	B[G2017-BLK1	ND	ug/L	10	1.2	
Total Recoverable Copper	B[G2017-BLK1	ND	ug/L	10	1.2	
Total Recoverable Nickel	B[G2017-BLK1	ND	ug/L	10	2.3	
Total Recoverable Silver	B[G2017-BLK1	ND	ug/L	10	1.3	
Total Recoverable Zinc	B[G2017-BLK1	ND	ug/L	50	9.5	
QC Batch ID: B[G2023						
Total Recoverable Arsenic	B[G2023-BLK1	ND	ug/L	2.0	0.70	
Total Recoverable Lead	B[G2023-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Selenium	B[G2023-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Thallium	B[G2023-BLK1	ND	ug/L	1.0	0.10	

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Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B[G2012										
Total Mercury	B[G2012-BS1	LCS	1.0100	1.0000	ug/L	101		85 - 115		
QC Batch ID: B[G2017										
Total Recoverable Antimony	B[G2017-BS1	LCS	406.78	400.00	ug/L	102		85 - 115		
Total Recoverable Beryllium	B[G2017-BS1	LCS	217.73	200.00	ug/L	109		85 - 115		
Total Recoverable Cadmium	B[G2017-BS1	LCS	211.03	200.00	ug/L	106		85 - 115		
Total Recoverable Chromium	B[G2017-BS1	LCS	219.10	200.00	ug/L	110		85 - 115		
Total Recoverable Copper	B[G2017-BS1	LCS	400.67	400.00	ug/L	100		85 - 115		
Total Recoverable Nickel	B[G2017-BS1	LCS	435.08	400.00	ug/L	109		85 - 115		
Total Recoverable Silver	B[G2017-BS1	LCS	103.78	100.00	ug/L	104		85 - 115		
Total Recoverable Zinc	B[G2017-BS1	LCS	558.78	500.00	ug/L	112		85 - 115		
QC Batch ID: B[G2023										
Total Recoverable Arsenic	B[G2023-BS1	LCS	98.956	100.00	ug/L	99.0		85 - 115		
Total Recoverable Lead	B[G2023-BS1	LCS	101.11	100.00	ug/L	101		85 - 115		
Total Recoverable Selenium	B[G2023-BS1	LCS	101.26	100.00	ug/L	101		85 - 115		
Total Recoverable Thallium	B[G2023-BS1	LCS	40.946	40.000	ug/L	102		85 - 115		

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Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B[G2012	Used client sample: N										
Total Mercury	DUP	1719849-05	ND	0.030000		ug/L			20		J
	MS	1719849-05	ND	0.95750	1.0000	ug/L		95.8		70 - 130	
	MSD	1719849-05	ND	0.96000	1.0000	ug/L	0.3	96.0	20	70 - 130	
QC Batch ID: B[G2017	Used client sample: N										
Total Recoverable Antimony	DUP	1720196-01	ND	ND		ug/L			20		
	MS	1720196-01	ND	398.48	400.00	ug/L		99.6		75 - 125	
	MSD	1720196-01	ND	385.60	400.00	ug/L	3.3	96.4	20	75 - 125	
Total Recoverable Beryllium	DUP	1720196-01	ND	ND		ug/L			20		
	MS	1720196-01	ND	213.56	200.00	ug/L		107		75 - 125	
	MSD	1720196-01	ND	210.51	200.00	ug/L	1.4	105	20	75 - 125	
Total Recoverable Cadmium	DUP	1720196-01	ND	ND		ug/L			20		
	MS	1720196-01	ND	204.90	200.00	ug/L		102		75 - 125	
	MSD	1720196-01	ND	199.68	200.00	ug/L	2.6	99.8	20	75 - 125	
Total Recoverable Chromium	DUP	1720196-01	1.6899	2.0036		ug/L	17.0		20		J
	MS	1720196-01	1.6899	208.10	200.00	ug/L		103		75 - 125	
	MSD	1720196-01	1.6899	206.42	200.00	ug/L	0.8	102	20	75 - 125	
Total Recoverable Copper	DUP	1720196-01	1.8570	1.7684		ug/L	4.9		20		J
	MS	1720196-01	1.8570	400.56	400.00	ug/L		99.7		75 - 125	
	MSD	1720196-01	1.8570	394.87	400.00	ug/L	1.4	98.3	20	75 - 125	
Total Recoverable Nickel	DUP	1720196-01	ND	ND		ug/L			20		
	MS	1720196-01	ND	422.36	400.00	ug/L		106		75 - 125	
	MSD	1720196-01	ND	411.80	400.00	ug/L	2.5	103	20	75 - 125	
Total Recoverable Silver	DUP	1720196-01	ND	ND		ug/L			20		
	MS	1720196-01	ND	98.962	100.00	ug/L		99.0		75 - 125	
	MSD	1720196-01	ND	97.757	100.00	ug/L	1.2	97.8	20	75 - 125	
Total Recoverable Zinc	DUP	1720196-01	ND	ND		ug/L			20		
	MS	1720196-01	ND	546.05	500.00	ug/L		109		75 - 125	
	MSD	1720196-01	ND	531.33	500.00	ug/L	2.7	106	20	75 - 125	
QC Batch ID: B[G2023	Used client sample: N										
Total Recoverable Arsenic	DUP	1720044-01	ND	ND		ug/L			20		
	MS	1720044-01	ND	100.71	100.00	ug/L		101		70 - 130	
	MSD	1720044-01	ND	102.09	100.00	ug/L	1.4	102	20	70 - 130	
Total Recoverable Lead	DUP	1720044-01	ND	ND		ug/L			20		
	MS	1720044-01	ND	96.247	100.00	ug/L		96.2		70 - 130	
	MSD	1720044-01	ND	96.582	100.00	ug/L	0.3	96.6	20	70 - 130	
Total Recoverable Selenium	DUP	1720044-01	ND	ND		ug/L			20		
	MS	1720044-01	ND	102.08	100.00	ug/L		102		70 - 130	
	MSD	1720044-01	ND	103.32	100.00	ug/L	1.2	103	20	70 - 130	

Marine Research Specialists
4744 Telephone Rd
Ste 3-315
Suite A
Ventura, CA 93003-3238

Reported: 08/03/2017 17:37
Project: Semi-Annual Eff
Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B[G2023	Used client sample: N										
Total Recoverable Thallium	DUP	1720044-01	ND	ND		ug/L			20		
	MS	1720044-01	ND	39.243	40.000	ug/L		98.1		70 - 130	
	MSD	1720044-01	ND	39.735	40.000	ug/L	1.2	99.3	20	70 - 130	

Marine Research Specialists
4744 Telephone Rd
Ste 3-315
Suite A
Ventura, CA 93003-3238

Reported: 08/03/2017 17:37
Project: Semi-Annual Eff
Project Number: MBCSD H2 2017
Project Manager: Doug Coats

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A01	Detection and quantitation limits are raised due to sample dilution.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
Q03	Matrix spike recovery(s) is(are) not within the control limits.
S09	The surrogate recovery on the sample for this compound was not within the control limits.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Dr. Doug Coats/Bonnie Luke
Marine Research Specialists
3140 Telegraph Road Suite A
Ventura CA, 93003
805.772.6272

Monterey Bay Analytical Services
4 Justin Court Suite D, Monterey, CA 93940
831.375.MBAS
www.MBASinc.com
ELAP Certification Number: 2385

 Monday, July 31, 2017

Lab Number: AB71619

Collection Date/Time: 7/18/2017 8:30 Sample Collector: ASCHENBRENER S Client Sample #:
Submittal Date/Time: 7/19/2017 9:59 Sample ID H2 2017

Sample Description: Morro Bay Semi Annual Effluent, M1 ARS Grab

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Nitrate as NO3	EPA300.0	mg/L	**Not Detected**	1		1	0.07	7/19/2017	8:30:00 PM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	**2.8**	4	CL	0.4	0.08	7/21/2017	5:15:00 PM	HM

Sample Comments: CL: Initial analysis within holding time but required dilution.

Lab Number: AB71620

Collection Date/Time: 7/18/2017 8:30 Sample Collector: ASCHENBRENER S Client Sample #:
Submittal Date/Time: 7/19/2017 9:59 Sample ID H2 2017

Sample Description: Morro Bay Semi Annual Effluent, M2 ARS Grab

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Urea-N	Mulvenna&S	µg/L	**91**	1		10	8	7/21/2017	10:00:00 AM	MP

Sample Comments:

Lab Number: AB71621

Collection Date/Time: 7/18/2017 8:30 Sample Collector: ASCHENBRENER S Client Sample #:
Submittal Date/Time: 7/19/2017 9:59 Sample ID H2 2017

Sample Description: Morro Bay Semi Annual Effluent, M3 ARS Grab

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Silica as SiO2, Dissolved	EPA200.7	mg/L	**13**	1		0.5	0.3	7/27/2017	11:42:00 AM	MW

Sample Comments:

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
H = Analyzed ouside of hold time E = Analysis performed by External Laboratory; See Report attachments.
D = Method deviates from standard method due to insufficient sample for MS/MSD

Monterey Bay Analytical Services Chain Of Custody / Analysis Request

4 Justin Ct. Suite D • Monterey, Ca 93940 • (831) 375-MBAS (6227) • (831) 641-0734 (Fax)

MBAS
Monterey Bay Analytical Services

Client/Company Name: Marine Research Specialists	Attention: Douglas A Coats
Billing Address: 4744 TELEPHONE RD STE 3 PMB 315; Ventura CA 93003	
Project/System Information: Morro Bay WWTP Semi Annual Effluent	E-Mail Address(es): Marine@Rain.org
Contract/P.O. #:	
For Regulatory Complaince? YES ☑ NO ☐	Turn Around Time: STD (7-14 Days) ☑ 48-Hour ☐
For State or Local Health Department reporting:	5-Day ☐ 24-Hour ☐
Electronic Data Transfer (EDT)? YES ☐ NO ☑	Phone # 805.218.3662
System ID Number:	Fax #
Drinking water ☐ Wastewater ☑ Monitoring Well ☐ Soil ☐ Sludge ☐ Other ☐	

MBAS Lab #	Project ID or Source Code #	Sample Site / Description (Well Name, APN#, Address, Stormdrain #)	Sampling Date	Sampling Time	Receiving Temp.	CL2 Residual	Coliform Analysis Routine	Coliform Analysis Other	Coliform Analysis Repeat	Coliform Analysis Special	# Cont.	Container Type	Container Size	Analysis Requested: Nitrate as NO3 [EPA 300.0]	Analysis Requested: O-Phosphate-P [EPA 300.0]	Analysis Requested: Dissolved Silica as SiO2 [EPA 4500-SI-E]	Analysis Requested: Urea [Mulvenna & Savid]	Analysis Requested:	Analysis Requested:
71619	H2 2017	M1 ARS Grab	18 July 17	0830	2.6						1			✓	✓				
71620	H2 2017	M2 ARS Grab*	18 July 17	0830							1						✓		
71621	H2 2017	M3 ARS Grab	18 July 17	0830	↓						1					✓			

	Printed Name	Signature	Date	Time	Comments or Special Instructions:
Sampled by:	Aschenbrener Steven R	Steven R Aschenbrener	18 July 17	0830	*Pour off 50 ml & freeze to hold for Urea test
Relinquished by:	Aschenbrener Steven R.	Steven R Aschenbrener	18 July 17	1400	
Received by:					
Relinquished by:					
Received by:	Monterey Bay Analytical Services		7/19/17	9:54	

☐ Payment received Check # Amount: Receipt # Date:

LLW

7614-71621 Marine Research

Sample Condition Upon Receipt

COC Info

Was temp acceptable? Chemistry ≤6°C Micro ≤10°C (YES) NO NA <2 Hr Is there evidence of chilling? (YES) NO NA

Did bottles arrive intact? (YES) NO NA

Did bottle labels agree with COC? (YES) NO NA

Discrepency Documentation:

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

_____

Resolution _____

_____

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

_____

Resolution _____

_____

Sample Split/Filtration

Lab ID	Cont. Size	Pres	Date/Initials
71621*	250mL	HNO_3	7/14/17 AB

Lab ID	Cont. Size	Pres	Date/Initials

Comments

*71621- Labeled ~~as f~~ by the client as filtered.

LABORATORY REPORT

Aquatic Testing Laboratories
"dedicated to providing quality aquatic toxicity testing"
4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650-0546 FAX (805) 650-0756
CA ELAP Cert. No.: 1775

Date: July 24, 2017

Client: Marine Research Specialists
4744 Telephone Rd
Suite 3-315
Ventura, CA 93003-5258
Attn: Doug Coats

Laboratory No.: A-17072001-001
Sample I.D.: Morro Bay Effluent

Sample Control: The sample was received by ATL within the recommended hold time, in a chilled state, and with the chain of custody record attached.

Date Sampled:	07/19/17 (composite)
Date Received:	07/20/17
Temp. Received:	0.9°C
Chlorine (TRC):	0.0 mg/l
Dates Tested:	07/20/17 to 07/22/17

Sample Analysis: The following analyses were performed on your sample:
Abalone Larval Development Short-Term Toxicity Test (EPA 600/R-95/136).

Attached are the test data generated from the analysis of your sample.

Result Summary:

Test	NOEC	TUc
Abalone Development:	5.6%	17.9

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

ABALONE LARVAL DEVELOPMENT
SHORT-TERM TOXICITY TEST

Lab No.: A-17072001-001
Client/ID: Morro Bay WWTP

Date tested: 07/20/17 - 07/22/17

TEST SUMMARY

Species: *Haliotis rufescens*.
Protocol: EPA/600/R-95/136.
Test type: Static.
Test chamber: glass beakers.
Temperature: 15 +/- 1°C.
Number of embryos per chamber: 1600 (approx.).
QA/QC Batch No.: RT-170720 (ran concurrently)

Source: Cultured Abalone Farms.
Dilution water: Lab seawater.
Endpoints: NOEC.
Test volume: 200 ml.
Aeration: None.
Number of replicates: 5.

RESULTS SUMMARY

Sample Concentration	Percent Normal Development	
Control (Brine)	89.8%	
Control (Dilution)	91.4%	
3.2%	89.3%	
5.6%	90.7%	
10.0%	0%	*
18.0%	0%	*
32.0%	0%	*
* Statistically significantly less than control at P = 0.05 level		

CHRONIC TOXICITY

NOEC	5.6%
TUc	17.9

QA/QC TEST ACCEPTABILITY

Parameter	Result
Average control normality ≥80%	PASSED (89.8%)
%MSD <20% relative to control	PASSED (%MSD = 3.1%)
Please see RT-170720 report for additional test acceptability criteria.	

Abalone Larval Development Test-Proportion Normal

Start Date:	7/20/2017 14:00	Test ID:	17072001ab	Sample ID:	Morro Bay
End Date:	7/22/2017 14:30	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	EFF1-POTW
Sample Date:	7/19/2017 13:38	Protocol:	EPAW 95-EPA/600/R-95/136	Test Species:	HR-Haliotis rufescens

Comments:

Conc-%	1	2	3	4	5
B-Control	0.9400	0.9109	0.8932	0.8774	0.8692
D-Control	0.9216	0.8824	0.9406	0.8835	0.9400
3.2	0.9010	0.8932	0.9000	0.8774	0.8932
5.6	0.8942	0.9307	0.8857	0.9029	0.9200
10	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000

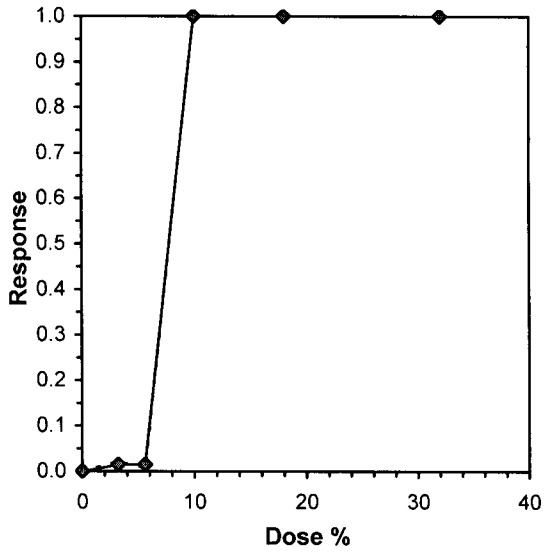
			Transform: Arcsin Square Root					1-Tailed			Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
B-Control	0.8981	0.9831	1.2485	1.2007	1.3233	3.929	5					
D-Control	0.9136	1.0000	1.2756	1.2207	1.3246	4.044	5	*			0.9134	1.0000
3.2	0.8930	0.9774	1.2377	1.2130	1.2507	1.217	5	1.656	2.110	0.0483	0.8996	0.9849
5.6	0.9067	0.9925	1.2616	1.2259	1.3044	2.554	5	0.613	2.110	0.0483	0.8996	0.9849
10	0.0000	0.0000	0.0500	0.0500	0.0500	0.000	5				0.0000	0.0000
18	0.0000	0.0000	0.0500	0.0500	0.0500	0.000	5				0.0000	0.0000
32	0.0000	0.0000	0.0500	0.0500	0.0500	0.000	5				0.0000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.95052	0.881	-0.1444	-0.8074
Bartlett's Test indicates equal variances (p = 0.10)	4.58793	9.21034		
The control means are not significantly different (p = 0.42)	0.8509	2.306		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test Treatments vs D-Control	5.6	10	7.48331	17.8571	0.02877	0.03143	0.00184	0.00131	0.2835	2, 12

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)		Skew
IC05	5.7560	0.0479	5.6388	5.8392	-0.2895
IC10	5.9794	0.0454	5.8683	6.0582	-0.2895
IC15	6.2027	0.0429	6.0979	6.2772	-0.2895
IC20	6.4261	0.0404	6.3274	6.4962	-0.2895
IC25	6.6495	0.0378	6.5569	6.7152	-0.2895
IC40	7.3196	0.0303	7.2456	7.3721	-0.2895
IC50	7.7663	0.0252	7.7046	7.8101	-0.2895



ABALONE CHRONIC BIOASSAY

Aquatic Testing Laboratories

Lab No.: A-17072001-001
Client ID: MRS - Morro Bay Effluent

Start Date: 07/20/2017

WATER QUALITY READINGS

	Initial Readings				24 Hrs		Final Readings			
Sample	Temp (°C)	DO (mg/l)	pH	Salinity (o/oo)	Temp (°C)	pH	Temp (°C)	DO (mg/l)	pH	Salinity (o/oo)
Control (brine)	15.5	7.7	8.2	33	14.2	8.1	14.2	7.9	8.1	33
Control (lab)	15.1	7.7	8.2	33	14.1	8.1	14.2	7.9	8.1	33
3.2%	14.8	7.6	8.2	33	14.2	8.1	14.1	7.9	8.1	33
5.6%	14.7	7.6	8.2	33	14.1	8.1	14.3	8.0	8.1	33
10%	14.7	7.5	8.2	33	14.2	8.1	14.2	7.9	8.1	33
18%	14.8	7.5	8.2	33	14.3	8.1	14.2	7.9	8.1	33
32%	14.7	7.3	8.2	33	14.2	8.1	14.3	7.8	8.1	33

Sample as received: Chlorine: 0 mg/l; pH: 8.2; Salinity: 1 ppt; Temp: 0.9 °C; DO: 3.8 mg/l.

Initial readings: [signature] Date/Time: 7-20-17 1400 Final readings: [signature] Date/Time: 7-22-17 1430

NH_3-N ~ 48 mg/L

MICROSCOPIC EXAMINATION

Beaker No.	Sample Conc.	Number Normal	Number Abnormal	Beaker No.	Sample Conc.	Number Normal	Number Abnormal	Beaker No.	Sample Conc.	Number Normal	Number Abnormal
1	C	94	8	13	CB	93	13	25	5.6	94	7
2	3.2	91	10	14	18	0	100	26	18	0	100
3	3.2	92	11	15	C	91	12	27	18	0	100
4	18	0	100	16	3.2	90	10	28	5.6	93	12
5	CB	94	6	17	3.2	93	13	29	10	0	100
6	C	90	12	18	32	0	100	30	5.6	93	10
7	32	0	100	19	C	94	6	31	18	0	100
8	CB	92	9	20	CB	93	14	32	32	0	100
9	10	0	100	21	3.2	92	11	33	32	0	100
10	32	0	100	22	10	0	100	34	5.6	92	8
11	CB	92	11	23	10	0	100	35	10	0	100
12	C	95	6	24	5.6	93	11				

Microscopic examination: Analyst: [signature] Date: 7-24-17 Time: 1000

Aquatic Testing Laboratories

ABALONE CHRONIC BIOASSAY

Lab No.: A-170720**01**-001
Client ID: MRS - Morro Bay Effluent

Start Date: 07/20/2017

RANDOMIZATION WORKSHEET

Beaker No.	Sample Conc.	Beaker No.	Sample Conc.	Beaker No.	Sample Conc.
1	C	13	CB	25	5.6
2	3.2	14	18	26	18
3	3.2	15	C	27	18
4	18	16	3.2	28	5.6
5	CB	17	3.2	29	10
6	C	18	32	30	5.6
7	32	19	C	31	18
8	CB	20	CB	32	~~18~~ 32 KW
9	10	21	3.2	33	32
10	32	22	10	34	5.6
11	CB	23	10	35	10
12	C	24	5.6		

Notes

CB
C
3.2 %
5.6 %
10 %
18 %
32 %

Add 1600 fertilized eggs per 200 ml test volume.

Analyst: 7-19-17 Date: [signature] Time: 1000

Aquatic
Testing
Laboratories

CHAIN OF CUSTODY

CHAIN OF CUSTODY

Client: City of Morro Bay

Address: Wastewater Treatment Plant
160 Atascadero Road
Morro Bay, CA 93442

Project Manager: Doug Coats - MRS

Phone: (805) 644-1180

Fax: (805) 289-3935

Purchase Order No:

Aquatic Testing Laboratories

4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650-0546 Fax (805) 650-0756

Sample ID	Sample Date	Sample Time	Sample Type *	Chlorine (TRC)**	Number of Containers	Testing Requested
Comp. Eff.	7-19-17	1338	E	2.05	1 (one gallon)	Abalone Chronic

Special Instructions:

**** Note: Total residual chlorine must be taken immediately after sample collection if sample is a chlorinated effluent.**

* **L** - Liquid, **S** - Solid, **SS** - Semi-Solid/sludge, **RW** - Receiving Water, **GW** - Ground Water, **E** - Effluent

CUSTODY TRANSFERS

Relinquished by (signature)	Received by (signature)	Date (mm/dd/yy)	Time (hh:mm)	Sample Intact? (Yes, No)	Temperature Received (°C)
	FedEx	07-19-17	1352	Yes	—
FedEx		7-20-17	0950	Yes	0.9

Aquatic
Testing
Laboratories

REFERENCE TOXICANT DATA

ABALONE LARVAL DEVELOPMENT
SHORT-TERM TOXICITY TEST
* REFERENCE TOXICANT *

Aquatic Testing Laboratories

QA/QC Batch No.: RT-170720

Date tested: 07/20/17 – 07/22/17

TEST SUMMARY

Species: *Haliotis rufescens*.
Protocol: EPA/600/R-95/136.
Test type: Static.
Test chamber: Plastic beakers.
Temperature: 15 +/- 1°C.
Number of embryos per chamber: 1600 (approx.).
Reference Toxicant: $ZnSO_4(7H_2O)$.

Source: Cultured Abalone Farm.
Dilution water: Lab seawater.
Endpoints: NOEC, IC25 at 48 hrs.
Test volume: 200 ml.
Aeration: None.
Number of replicates: 5.
Ref. Tox. source: VWR.
Lot No.: 3357C295.

RESULTS SUMMARY

SAMPLE CONCENTRATION	PERCENT NORMAL DEVELOPMENT
Control	89.9%
10 µg/l	88.8%
18 µg/l	88.9%
32 µg/l	13.9% *
56 µg/l	0% *
100 µg/l	0% *
* Statistically significantly less than control at P = 0.05 level	

CHRONIC TOXICITY

NOEC	18 µg/l
IC25	22.0 µg/l

QA/QC TEST ACCEPTABILITY

Parameter	Result
Average control normality ≥80%	Yes (89.9%)
56 µg/l treatment response significantly less than control response	Yes (NOEC = 18 µg/l)
%MSD <20% relative to control	Yes (%MSD = 5.1%)

Abalone Larval Development Test-Proportion Normal

Start Date:	7/20/2017 14:00	Test ID:	RT170720ab	Sample ID:	REF-Ref Toxicant
End Date:	7/22/2017 14:30	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	ZNSO-Zinc sulfate
Sample Date:	7/20/2017	Protocol:	EPAW 95-EPA/600/R-95/136	Test Species:	HR-Haliotis rufescens
Comments:					

Conc-ug/L	1	2	3	4	5
D-Control	0.9307	0.9020	0.8716	0.8667	0.9223
10	0.9126	0.8627	0.8762	0.8654	0.9216
18	0.8750	0.9223	0.8824	0.8725	0.8942
32	0.1963	0.1262	0.1089	0.0857	0.1765
56	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000

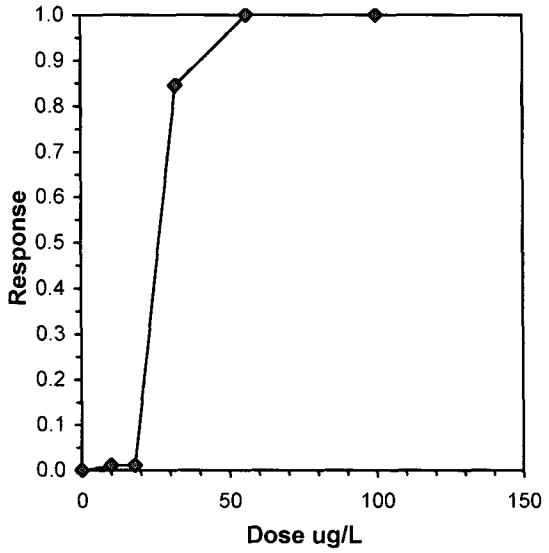
			Transform: Arcsin Square Root					1-Tailed			Isotonic	
Conc-ug/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
D-Control	0.8986	1.0000	1.2493	1.1970	1.3044	3.867	5				0.8981	1.0000
10	0.8877	0.9878	1.2311	1.1913	1.2869	3.624	5	0.576	2.230	0.0705	0.8885	0.9893
18	0.8893	0.9896	1.2328	1.2057	1.2884	2.738	5	0.522	2.230	0.0705	0.8885	0.9893
*32	0.1387	0.1544	0.3778	0.2971	0.4590	17.822	5	27.560	2.230	0.0705	0.1390	0.1548
56	0.0000	0.0000	0.0500	0.0500	0.0500	0.000	5				0.0000	0.0000
100	0.0000	0.0000	0.0500	0.0500	0.0500	0.000	5				0.0000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.93481	0.905	0.21669	-1.1177
Bartlett's Test indicates equal variances (p = 0.62)	1.76127	11.3449		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test Treatments vs D-Control	18	32	24		0.04611	0.05123	0.92455	0.0025	5.5E-15	3, 16

Linear Interpolation (200 Resamples)

Point	ug/L	SD	95% CL(Exp)		Skew
IC05	18.659	0.193	17.959	18.951	-0.3792
IC10	19.498	0.185	18.841	19.811	-0.3200
IC15	20.337	0.180	19.685	20.672	-0.2560
IC20	21.176	0.179	20.533	21.542	-0.1926
IC25	22.014	0.182	21.392	22.417	-0.1342
IC40	24.531	0.209	23.891	25.070	-0.0006
IC50	26.208	0.240	25.529	26.879	0.0636



ABALONE CHRONIC BIOASSAY
Reference Toxicant - Zinc Sulfate

Aquatic Testing Laboratories

QA/QC No.: RT-170720

Start Date: 07/20/2017

WATER QUALITY READINGS

Sample	Initial Readings				24 Hr		Final Readings			
	Temp (°C)	DO (mg/l)	pH	Salinity (o/oo)	Temp (°C)	pH	Temp (°C)	DO (mg/l)	pH	Salinity (o/oo)
Control	14.5	7.6	8.2	33	14.2	8.1	14.2	8.1	8.1	33
10 µg/l Zn	14.4	7.7	8.2	33	14.3	8.1	14.1	8.1	8.1	33
18 µg/l Zn	14.4	7.7	8.2	33	14.2	8.1	14.2	8.2	8.1	33
32 µg/l Zn	14.5	7.8	8.2	33	14.2	8.1	14.1	8.2	8.1	33
56 µg/l Zn	14.4	7.8	8.2	33	14.3	8.1	14.2	8.1	8.1	33
100 µg/l Zn	14.5	7.8	8.2	33	14.2	8.1	14.2	8.1	8.1	33

Control and dilutions made with laboratory reference seawater filtered to 0.2 µm.

Initial readings: [signature] Date/Time: 7-20-17 1400 Final readings: [signature] Date/Time: 7-22-17 1430

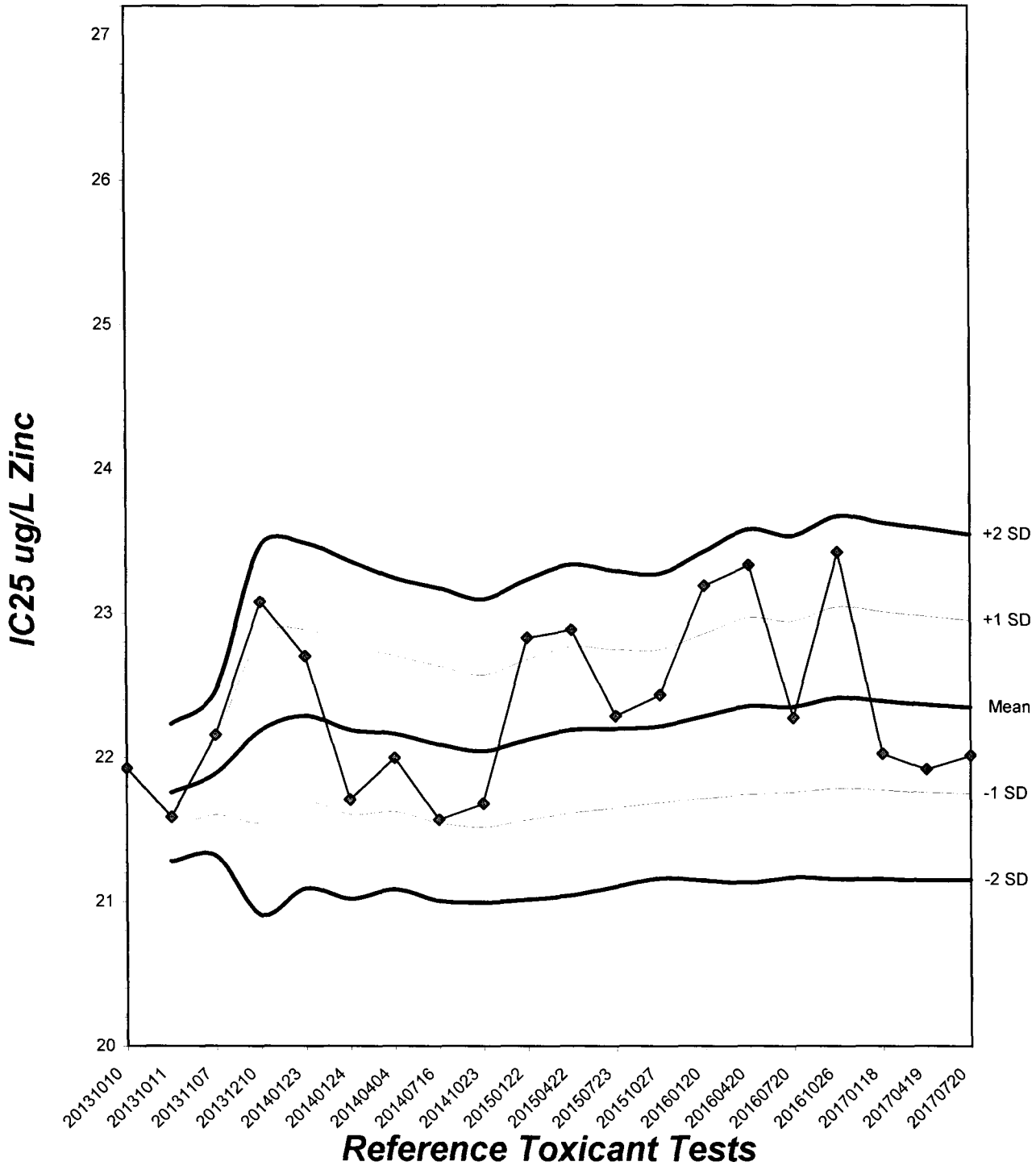
MICROSCOPIC EXAMINATION

Beaker No.	Sample Conc.	Number Normal	Number Abnormal	Beaker No.	Sample Conc.	Number Normal	Number Abnormal	Beaker No.	Sample Conc.	Number Normal	Number Abnormal
1	C	94	7	11	C	95	14	21	10	90	14
2	100	0	100	12	56	0	100	22	32	11	90
3	18	91	13	13	32	21	86	23	100	0	100
4	18	95	8	14	100	0	100	24	C	95	8
5	56	0	100	15	C	91	14	25	32	9	96
6	C	92	10	16	10	92	13	26	100	0	100
7	100	0	100	17	32	13	90	27	10	94	8
8	18	90	12	18	18	89	13	28	56	0	100
9	10	94	9	19	56	0	100	29	32	18	84
10	10	88	14	20	18	93	11	30	56	0	100

Microscopic examination: Analyst: [signature] Date: 7-24-17 Time: 1000

Abalone Larval Development Laboratory Control Chart

CV% = 2.68



ABALONE CHRONIC BIOASSAY
Reference Toxicant - Zinc Sulfate

Aquatic Testing Laboratories

QA/QC No.: RT-170720

Start Date: 07/20/2017

RANDOMIZATION WORKSHEET

Beaker No.	Sample Conc.	Beaker No.	Sample Conc.	Beaker No.	Sample Conc.
1	C	11	C	21	10
2	100	12	56	22	32
3	18	13	32	23	100
4	18	14	100	24	C
5	56	15	C	25	32
6	C	16	10	26	100
7	100	17	32	27	10
8	18	18	18	28	56
9	10	19	56	29	32
10	10	20	18	30	56

Notes

C
10
18
32
56
100

Number Males used: 4

Number females used: 6

Time H_2O_2 added: 1000

Time water changed: 12:30

Time spawned: ♂ 12:45 ♀ 13:15

Time placed in test: 1400

Add 1600 fertilized eggs per 200 ml..

Time glutaraldehyde added: 1430

Analyst: [signature] Date: 7-19-17 Time: 1100

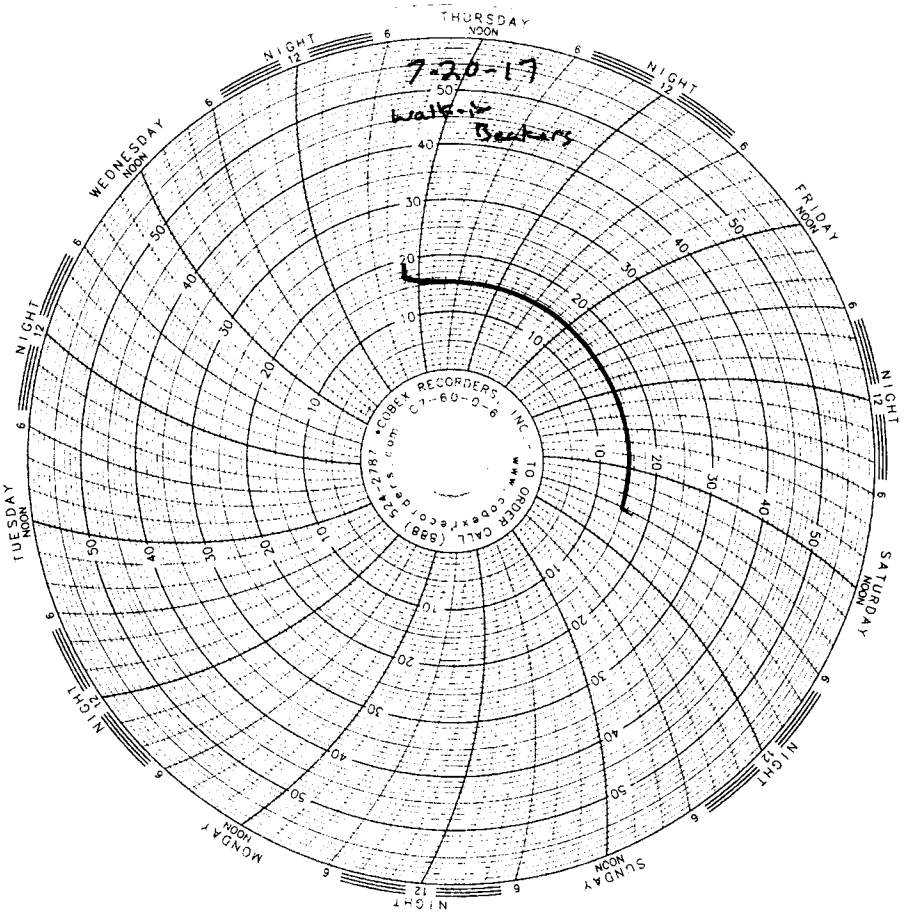
Aquatic Testing Laboratories

Test Temperature Chart

Test No: RT-170720

Date Tested: 07/20/17 to 07/22/17

Acceptable Range: 15 +/- 1°C



WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 7G19039

Project: MBCSD H2 2017

Attn: Doug Coats

Client: Marine Research Specialties
4744 TELEPHONE RD STE 3 PMB 315
Ventura, CA 93003-5258

Report Date: 7/31/2017

Received Date: 7/19/2017

Turnaround Time: Normal

Phones: (805) 218-3662

Fax:

P.O. #:

Billing Code:

DoD-ELAP #L2457 ● ELAP-CA #1132 ● EPA-UCMR #CA00211 ● Guam-EPA #17-008R ● HW-DOH # ● ISO 17025 #L2457.01 ● LACSD #10143 ● NELAP-OR #4047 ● NJ-DEP #CA015 ● SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Dear Doug Coats,

Enclosed are the results of analyses for samples received 7/19/17 with the Chain-of-Custody document. The samples were received in good condition, at 3.5 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Kim G. Tu
Project Manager

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Marine Research Specialties
4744 TELEPHONE RD STE 3 PMB 315
Ventura, CA 93003-5258

Project Number: MBCSD H2 2017

Project Manager: Doug Coats

Reported:
07/31/2017 11:13

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
W1 ARS Comp	SRA	7G19039-01	Water	07/18/17 08:10	
W2 ARS Comp	SRA	7G19039-02	Water	07/18/17 08:10	

Not Certified Analyses Summary

Analyte	CAS #	Not Accredited By
Krone, et al, 1989 in Water		
Tri-n-butyltin	688-73-3	NELAP
Tripentyltin	41784-41-2	NELAP

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Ventura, CA 93003-5258

Project Number: MBCSD H2 2017

Project Manager: Doug Coats

Reported:
07/31/2017 11:13

Sample Results

Sample: W1 ARS Comp
7G19039-01 (Water)

Sampled: 07/18/17 8:10 by SRA

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Organo Tin by GC/MS							
Method: Krone, et al, 1989	**Batch ID:** W7G1251		**Prepared:** 07/21/17 08:13				**Analyst:** EFC
Tri-n-butyltin	ND		0.0050	ug/l	1	07/26/17 15:57	
Surrogate(s)							
Tripentyltin	*137%*	*Conc: 0.273*	*43-179*			*07/26/17 15:57*	

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Marine Research Specialties
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Ventura, CA 93003-5258

Project Number: MBCSD H2 2017

Project Manager: Doug Coats

Reported:
07/31/2017 11:13

Sample Results

(Continued)

Sample: W2 ARS Comp
7G19039-02 (Water)

Sampled: 07/18/17 8:10 by SRA

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Radiological Parameters by APHA/EPA Methods						
Method: EPA 900.0	**Batch ID:** W7G1361	**Prepared:** 07/24/17 10:44				**Analyst:** sap
Gross Beta	**15**		pCi/L	1	07/26/17 16:16	
Uncertainty: 1.458	**MDA:** 1.895					
Method: SM 7110C	**Batch ID:** W7G1250	**Prepared:** 07/21/17 08:00				**Analyst:** sap
Gross Alpha	**0.00300**		pCi/L	1	07/24/17 23:08	
Uncertainty: 0.089	**MDA:** 0.017					

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Marine Research Specialties
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Ventura, CA 93003-5258

Project Number: MBCSD H2 2017

Project Manager: Doug Coats

Reported:
07/31/2017 11:13

Quality Control Results

Organo Tin by GC/MS

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W7G1251 - Krone, et al, 1989										
Blank (W7G1251-BLK1)				**Prepared: 07/21/17**	**Analyzed: 07/26/17**					
Tri-n-butyltin	ND	0.0050	ug/l							
Surrogate(s)										
Tripentyltin		*0.334*	*ug/l*	*0.200*		*167*	*43-179*			
LCS (W7G1251-BS1)				**Prepared: 07/21/17**	**Analyzed: 07/26/17**					
Tri-n-butyltin	0.0702	0.0050	ug/l	0.0500		140	40-181			
Surrogate(s)										
Tripentyltin		*0.327*	*ug/l*	*0.200*		*163*	*43-179*			
Matrix Spike (W7G1251-MS1)	**Source: 7G20020-01**			**Prepared: 07/21/17**	**Analyzed: 07/26/17**					
Tri-n-butyltin	0.0705	0.0050	ug/l	0.0500	0.00123	138	71-149			
Surrogate(s)										
Tripentyltin		*0.283*	*ug/l*	*0.200*		*142*	*43-179*			
Matrix Spike Dup (W7G1251-MSD1)	**Source: 7G20020-01**			**Prepared: 07/21/17**	**Analyzed: 07/26/17**					
Tri-n-butyltin	0.0673	0.0050	ug/l	0.0500	0.00123	132	71-149	5	30	
Surrogate(s)										
Tripentyltin		*0.333*	*ug/l*	*0.200*		*166*	*43-179*			

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Marine Research Specialties
4744 TELEPHONE RD STE 3 PMB 315
Ventura, CA 93003-5258

Project Number: MBCSD H2 2017

Project Manager: Doug Coats

Reported:
07/31/2017 11:13

Quality Control Results

(Continued)

Radiological Parameters by APHA/EPA Methods

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W7G1250 - SM 7110C										
Blank (W7G1250-BLK1)				**Prepared: 07/21/17**	**Analyzed: 07/24/17**					
Gross Alpha	-0.321		pCi/L							
Uncertainty: 0.078	**MDA:** 0.034									
LCS (W7G1250-BS1)				**Prepared: 07/21/17**	**Analyzed: 07/24/17**					
Gross Alpha	3.78		pCi/L	4.80		79	55-149			
Uncertainty: 0.226	**MDA:** 0.034									
LCS Dup (W7G1250-BSD1)				**Prepared: 07/21/17**	**Analyzed: 07/24/17**					
Gross Alpha	4.10		pCi/L	4.80		85	55-149	8	30	
Uncertainty: 0.237	**MDA:** 0.034									
Batch: W7G1361 - EPA 900.0										
Blank (W7G1361-BLK1)				**Prepared: 07/24/17**	**Analyzed: 07/25/17**					
Gross Beta	-0.42		pCi/L							
Uncertainty: 0.439	**MDA:** 0.726									
LCS (W7G1361-BS1)				**Prepared: 07/24/17**	**Analyzed: 07/26/17**					
Gross Beta	14		pCi/L	15.0		93	77-138			
Uncertainty: 0.871	**MDA:** 0.938									
LCS Dup (W7G1361-BSD1)				**Prepared: 07/24/17**	**Analyzed: 07/26/17**					
Gross Beta	13		pCi/L	15.0		88	77-138	5	30	
Uncertainty: 0.803	**MDA:** 0.824									

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Marine Research Specialties
4744 TELEPHONE RD STE 3 PMB 315
Ventura, CA 93003-5258

Project Number: MBCSD H2 2017

Project Manager: Doug Coats

Reported:
07/31/2017 11:13

Notes and Definitions

Item	Definition
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.
An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)
All results are expressed on wet weight basis unless otherwise specified.
All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.

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CHAIN OF CUSTODY RECORD

STANDARD 7G19039

Page 1 Of 1

CLIENT NAME: Marine Research Specialists

PROJECT: MBCSD H2 2017

ADDRESS: 4744 TELEPHONE RD STE 3 PMB 315
Ventura CA 93003-5258

PHONE: 805.218.3662
FAX:
EMAIL: Marine@Rain.org

PROJECT MANAGER: Douglas A Coats

SAMPLER: SLA

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	Tributyltin by GC/MS	SM 7110C & EPA 900.0
	18JUL17	0810	WW	W1 ARS Comp	1	X	
	18JUL17	0810	WW	W2 ARS Comp	1		X

ANALYSES REQUESTED

SPECIAL HANDLING
- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☒ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: Fed Ex

COMMENTS
Tributyltin by GC/MS
Radioactivity: Gross alpha and beta

RELINQUISHED BY	DATE / TIME	RECEIVED BY
Steven Aschenbrener	18JUL17 - 1400	7/19/17 0825
RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY

SAMPLE CONDITION:
Actual Temperature: 3.5°C

Received On Ice	Y / N
Preserved	Y / N
Evidence Seals Present	Y / N
Container Attacked	Y / N
Preserved at Lab	Y / N

SAMPLE TYPE CODE:
AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION

August 09, 2017

Vista Work Order No. 1700909

Dr. Douglas Coats
Marine Research Specialists
3140 Telegraph Rd., Ste A
Ventura, CA 93003-3238

Dear Dr. Coats,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on July 19, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name 'MBCSD H2 2017'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Karen J. Volpendesta for

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1700909
Case Narrative

Sample Condition on Receipt:

Two wastewater samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. As requested, sample "Travel Blank" was placed on hold.

Analytical Notes:

EPA Method 1613B

Sample "V1-ARS Comp" was extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-5MS GC column.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. OCDF was detected in the Method Blank at 6.85 pg/L. No other analytes were detected in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1700909-01	V1 ARS Comp	18-Jul-17 08:20	19-Jul-17 09:15	Amber Glass NM Bottle, 1L
1700909-02	Travel Blank	18-Jul-17 00:00	19-Jul-17 09:15	Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank

EPA Method 1613B

Matrix: Aqueous
Sample Size: 1.00 L

QC Batch: B7G0140
Date Extracted: 04-Aug-2017 7:14

Lab Sample: B7G0140-BLK1
Date Analyzed : 07-Aug-17 19:09 Column: ZB-5MS

Analyte	Conc. (pg/L)	DL	EMPC	MDL	Qualifiers
2,3,7,8-TCDD	ND	0.375		1.08	
1,2,3,7,8-PeCDD	ND	0.854		3.94	
1,2,3,4,7,8-HxCDD	ND	1.06		3.00	
1,2,3,6,7,8-HxCDD	ND	1.10		4.20	
1,2,3,7,8,9-HxCDD	ND	1.19		5.70	
1,2,3,4,6,7,8-HpCDD	ND	0.858		3.51	
OCDD	ND	1.49		6.94	
2,3,7,8-TCDF	ND	0.815		0.902	
1,2,3,7,8-PeCDF	ND	0.929		3.43	
2,3,4,7,8-PeCDF	ND	1.00		2.21	
1,2,3,4,7,8-HxCDF	ND	0.672		2.96	
1,2,3,6,7,8-HxCDF	ND	0.711		4.01	
2,3,4,6,7,8-HxCDF	ND	0.817		2.61	
1,2,3,7,8,9-HxCDF	ND	1.15		2.38	
1,2,3,4,6,7,8-HpCDF	ND	1.27		2.64	
1,2,3,4,7,8,9-HpCDF	ND	1.31		4.82	
OCDF	6.85			7.05	J

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	86.0	25 - 164	
	13C-1,2,3,7,8-PeCDD	111	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	79.1	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	80.8	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	78.0	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	65.3	23 - 140	
	13C-OCDD	54.4	17 - 157	
	13C-2,3,7,8-TCDF	84.8	24 - 169	
	13C-1,2,3,7,8-PeCDF	109	24 - 185	
	13C-2,3,4,7,8-PeCDF	113	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	81.6	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	86.3	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	82.3	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	78.0	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	66.4	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	66.3	26 - 138	
	13C-OCDF	60.7	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	102	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/L)

TEQMinWHO2005Dioxin	0.00206

TOTALS

Total TCDD	ND	0.375
Total PeCDD	ND	0.854
Total HxCDD	ND	1.11
Total HpCDD	ND	0.858
Total TCDF	ND	0.815
Total PeCDF	ND	0.966
Total HxCDF	ND	0.818
Total HpCDF	ND	1.29

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method detection limit
LCL-UCL- Lower control limit - upper control limit
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: OPR **EPA Method 1613B**

Matrix:	Aqueous	QC Batch:	B7G0140	Lab Sample:	B7G0140-BS1
Sample Size:	1.00 L	Date Extracted:	04-Aug-2017 7:14	Date Analyzed:	07-Aug-17 17:34 Column: ZB-5MS

Analyte	Amt Found (pg/L)	Spike Amt	%R	Limits		Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	201	200	101	67 - 158	IS	13C-2,3,7,8-TCDD	89.6	20 - 175
1,2,3,7,8-PeCDD	1040	1000	104	70 - 142		13C-1,2,3,7,8-PeCDD	90.7	21 - 227
1,2,3,4,7,8-HxCDD	1010	1000	101	70 - 164		13C-1,2,3,4,7,8-HxCDD	84.4	21 - 193
1,2,3,6,7,8-HxCDD	1030	1000	103	76 - 134		13C-1,2,3,6,7,8-HxCDD	88.8	25 - 163
1,2,3,7,8,9-HxCDD	1060	1000	106	64 - 162		13C-1,2,3,7,8,9-HxCDD	84.4	21 - 193
1,2,3,4,6,7,8-HpCDD	993	1000	99.3	70 - 140		13C-1,2,3,4,6,7,8-HpCDD	86.9	26 - 166
OCDD	2050	2000	102	78 - 144		13C-OCDD	76.1	13 - 199
2,3,7,8-TCDF	198	200	99.1	75 - 158		13C-2,3,7,8-TCDF	84.9	22 - 152
1,2,3,7,8-PeCDF	1060	1000	106	80 - 134		13C-1,2,3,7,8-PeCDF	89.7	21 - 192
2,3,4,7,8-PeCDF	984	1000	98.4	68 - 160		13C-2,3,4,7,8-PeCDF	91.1	13 - 328
1,2,3,4,7,8-HxCDF	993	1000	99.3	72 - 134		13C-1,2,3,4,7,8-HxCDF	79.0	19 - 202
1,2,3,6,7,8-HxCDF	994	1000	99.4	84 - 130		13C-1,2,3,6,7,8-HxCDF	84.7	21 - 159
2,3,4,6,7,8-HxCDF	990	1000	99.0	70 - 156		13C-2,3,4,6,7,8-HxCDF	87.4	22 - 176
1,2,3,7,8,9-HxCDF	1020	1000	102	78 - 130		13C-1,2,3,7,8,9-HxCDF	83.8	17 - 205
1,2,3,4,6,7,8-HpCDF	989	1000	98.9	82 - 122		13C-1,2,3,4,6,7,8-HpCDF	71.8	21 - 158
1,2,3,4,7,8,9-HpCDF	991	1000	99.1	78 - 138		13C-1,2,3,4,7,8,9-HpCDF	82.7	20 - 186
OCDF	2010	2000	101	63 - 170		13C-OCDF	79.8	13 - 199
					CRS	37Cl-2,3,7,8-TCDD	96.5	31 - 191

LCL-UCL - Lower control limit - upper control limit

Sample ID: V1 ARS Comp

EPA Method 1613B

Client Data
Name: Marine Research Specialists
Project: MBCSD H2 2017
Date Collected: 18-Jul-2017 8:20

Sample Data
Matrix: Wastewater
Sample Size: 1.03 L

Laboratory Data
Lab Sample: 1700909-01 Date Received: 19-Jul-2017 9:15
QC Batch: B7G0140 Date Extracted: 04-Aug-2017 7:14
Date Analyzed : 07-Aug-17 23:08 Column: ZB-5MS

Analyte	Conc. (pg/L)	DL	EMPC	MDL	Qualifiers
2,3,7,8-TCDD	ND	0.647		1.08	
1,2,3,7,8-PeCDD	ND	1.18		3.94	
1,2,3,4,7,8-HxCDD	ND	1.62		3.00	
1,2,3,6,7,8-HxCDD	ND	1.74		4.20	
1,2,3,7,8,9-HxCDD	ND	1.89		5.70	
1,2,3,4,6,7,8-HpCDD	ND	2.41		3.51	
OCDD	34.7			6.94	J
2,3,7,8-TCDF	ND	0.718		0.902	
1,2,3,7,8-PeCDF	ND	1.62		3.43	
2,3,4,7,8-PeCDF	ND	1.47		2.21	
1,2,3,4,7,8-HxCDF	ND	1.42		2.96	
1,2,3,6,7,8-HxCDF	ND	1.37		4.01	
2,3,4,6,7,8-HxCDF	ND	1.33		2.61	
1,2,3,7,8,9-HxCDF	ND	1.87		2.38	
1,2,3,4,6,7,8-HpCDF	ND	2.70		2.64	
1,2,3,4,7,8,9-HpCDF	ND	2.59		4.82	
OCDF	8.43			7.05	J, B

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	61.7	25 - 164	
	13C-1,2,3,7,8-PeCDD	67.7	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	52.6	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	51.2	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	50.0	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	42.1	23 - 140	
	13C-OCDD	41.8	17 - 157	
	13C-2,3,7,8-TCDF	65.8	24 - 169	
	13C-1,2,3,7,8-PeCDF	69.9	24 - 185	
	13C-2,3,4,7,8-PeCDF	75.3	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	45.1	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	46.0	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	53.2	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	51.2	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	38.7	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	41.0	26 - 138	
	13C-OCDF	41.3	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	102	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/L)

TEQMinWHO2005Dioxin	0.0129

TOTALS

Total TCDD	ND		3.77		
Total PeCDD	ND	1.18			
Total HxCDD	ND	1.74			
Total HpCDD	4.88				J
Total TCDF	ND	0.718			
Total PeCDF	ND	1.55			
Total HxCDF	ND	1.48			
Total HpCDF	ND	2.65			

DL - Sample specifc estimated detection limit
MDL - Method detection limit
LCL-UCL- Lower control limit - upper control limit
EMPC - Estimated maximum possible concentration
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The associated compound concentration exceeded the calibration range of the instrument.**
H	**Recovery and/or RPD was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*****	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Submit by Email*

Vista

CHAIN OF COUNTDY RECORD

FOR LABORATORY USE ONLY

Laboratory Project ID: 1700909 Temp 1.2 °C

Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

TAT: (Check One)
Standard ◉ 21 days
Rush (surcharge may apply)
○ 14 days ○ 7 days Specify: ___

Project I.D.: **MBCSD H2 2017** P.O. #: ___ Sampler: SRA (Name)

Invoice to: Name	Company	Address	City	State	Zip	Ph#	Fax #
Douglas A Coats	Marine Research Specialists	Same as below	Ventura	CA	93003	805.218.3662	

Relinquished by: (Printed Name and Signature)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
ASChenbrenner Steven [signature]	18 July 17	1400	[signature] Marissa Sparks	7/19/17	0921

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN: ___

Method of Shipment: **FedEx**

Tracking No.: ___

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCBs	EPA1668 209 CONGENERS	EPA1614 PBDE	CARB429 PAH	WHO-29	
	18 July 17	0820	V1 ARS Comp	1		WW																1613B
			Travel Blank	1																		Hold

Special Instructions/Comments: **Extract and analyze using EPA 1613B for tetra- through- octa chlorinated dioxins and furans.**

SEND DOCUMENTATION AND RESULTS TO:

Name: **Douglas A Coats**
Company: **Marine Research Specialists**
Address: **4744 TELEPHONE RD STE 3 PMB 315**
City: **Ventura** State: **CA** Zip: **93003**
Phone: **805.218.3662** Fax: ___
Email: **Marine@Rain.org**

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other ___

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☐ O = Other ___

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B=Blood/Serum
O = Other ___

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1700909 **TAT** 21

Samples Arrival:	**Date/Time** 7/19/17 0915	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** N/a
Logged In:	**Date/Time** 7/19/17 1510	**Initials:** SR	**Location:** WR-2 **Shelf/Rack:** B2

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		(Blue Ice)		Dry Ice		None
Temp °C: 1.6 (uncorrected)	**Time:** 0920				**Thermometer ID:** IR-2		
Temp °C: 1.2 (corrected)	**Probe used:** Yes☐ No☒						

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 7872 1781 2810	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?	✓		✓ SR 7/19/17
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Preservation Documented:	$Na_2S_2O_3$	Trizma	None	Yes	(No) (NA)
Shipping Container	Vista	(Client)	(Retain)	Return	Dispose

Comments:

COC ID:
V1 ARS Comp

Travel Blank

Sample Container ID: Location:
Comp EFF A.R.S. Comp EFF

No sample container ID from client