City of Morro Bay and
Cayucos Sanitary District

OFFSHORE MONITORING AND REPORTING PROGRAM

SEMI-ANNUAL EFFLUENT SAMPLING

CHEMICAL AND BIOASSAY ANALYSIS RESULTS

JANUARY 2016

Marine Research Specialists

3140 Telegraph Rd., Suite A
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

SEMI-ANNUAL EFFLUENT REPORT

CHEMICAL AND BIOASSAY ANALYSIS RESULTS

JANUARY 2016

Prepared by

Douglas A. Coats

Marine Research Specialists

3140 Telegraph Rd., Suite A
Ventura, California 93003

Telephone: (805) 644-1180
Telefax: (805) 289-3935
E-mail: Marine@Rain.org

February 2016

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. Bruce Keogh
Wastewater Division Manager
City of Morro Bay

Date February 8, 2016

marine research specialists
3140 Telegraph Road, Suite A · Ventura, CA 93003 · (805) 644-1180

Bruce Keogh
Wastewater Division Manager
City of Morro Bay
955 Shasta Avenue
Morro Bay, CA 93442

8 February 2016

Reference: Semiannual Effluent Self-Monitoring Report for January through June 2016

Dear Mr. Keogh:

This self-monitoring report documents the chemical and bioassay analysis results for effluent samples collected in January 2016 as required by NPDES discharge permit CA0047881.[1] Analyses of effluent samples collected on 12 and 19 January were conducted in accordance with the monitoring requirements specified in the permit, including:

- Chemical analyses conducted on a composite sample collected on 12 January;
- Nutrient compounds measured in a grab sample collected on 12 January; and
- Chronic bioassays conducted on a composite sample collected on 19 January.

Three attachments to this report demonstrate that all chemical concentrations 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 report (DMR) that was submitted electronically within the California Integrated Water Quality System (Attachment B). Attachment C collates the original laboratory reports, including raw data and results, pertinent QA/QC analyses, and chains of custody.

The chemical and bioassay analyses of effluent samples collected in January 2016 augment a comprehensive dataset encompassing more than two decades. Together, these measurements demonstrate the consistently benign character of the discharge 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 the few chemical compounds detected in the January 2016 samples were typical of wastewater derived from domestic sources, and all concentrations were considerably below the limits specified in the NPDES discharge permit.

Seven of the eleven chemicals that are monitored on a semiannual basis were detected in the January 2016 composite sample. Of those, five had concentrations high enough to be quantified above their respective MLs: arsenic, copper, lead, selenium, and zinc. 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 may also enter the system through corrosion of household plumbing systems. Nevertheless, the concentrations of these compounds that were detected in the January 2016 effluent were well below the levels deemed deleterious to marine organisms.

Small but quantifiable concentrations of arsenic and selenium were also detected within the January 2016 effluent sample. Arsenic and selenium are similar to the commonly occurring metals because they occur

[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

naturally in the mineralogy of the central California coast. Their concentrations in the January effluent sample were more than two orders of magnitude below levels deemed deleterious to marine organisms.

The low overall toxicity found in the chronic bioassay affirmed the effluent's low contaminant load. The chronic toxicity test conducted on a January 2016 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
Program Manager

ATTACHMENT A

MINIMUM LEVEL REPORTING

ATTACHMENT A

Analytical Results for Effluent Samples Collected during January 2016

Chemical Compound or Parameter	Units	Method	Detection Limit [a]	Practical Quantification Limit [b]	Minimum Level [c]	Permit Limit [d]	Reported Value
Nutrients							
Nitrate (as N)	mg/L	300.0	—	0.1	—	—[e]	0.2 as measured
Urea (as N)	mg/L	Mulvenna & Savid	—	0.01	—	—	0.158 as measured
Ortho-Phosphate (as P)	mg/L	300.0	—	0.1	—	—	2.1 as measured
Dissolved Silica (Si02)	mg/L	200.7	—	0.5	—	—	10. as measured
Objectives for the Protection of Marine Aquatic Life							
Arsenic	mg/L	200.8	0.0007	0.002	0.002	0.67	0.002 as measured
Cadmium	mg/L	200.7	0.0011	0.01	0.01	0.13	ND
Chromium VI[f]	mg/L	200.7	0.0012	0.01	0.01	0.27	ND
Copper	mg/L	200.7	0.0012	0.01	0.01	0.14	0.02 as measured
Lead	mg/L	200.8	0.0001	0.001	0.0005	0.27	0.00089 as measured[g]
Mercury	µg/L	245.1	0.033	0.2	0.2	5.29	DNQ 0.072 Est. Conc.
Nickel	mg/L	200.7	0.0023	0.01	0.02	0.67	DNQ 0.0048 Est. Conc.
Selenium	mg/L	200.8	0.00019	0.002	0.002	2.01	0.0042 as measured
Silver	mg/L	200.7	0.0013	0.01	0.01	0.07	ND
Zinc	mg/L	200.7	0.0013	0.05	0.02	1.62	0.061 as measured
Cyanide	mg/L	335.4	0.0031	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 permit limits have been established for nutrients.

[f] Total chromium concentration was reported rather than the concentration of the hexavalent oxidation state alone.

[g] The reported concentration was below the PQL and was flagged “as estimated” by the chemistry laboratory (See Attachment C). However, in accordance with the guidance from the COP, the reported value is listed “as measured” herein, because the measured value exceeded the ML.

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:** 01/01/2016 - 06/30/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00620	Nitrogen, nitrate total (as N)					0.2 mg/L 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			
1	0	00955	Silica, dissolved (as SiO2)					10.0 mg/L Daily Maximum	0	Semiannual	GRAB
1	0	00978	Arsenic, total recoverable			0.0020 mg/L 6 Month Median	0.0020 mg/L Daily Maximum	0.0020 mg/L Instantaneous Maximum	0	Semiannual	COMP24
1	0	00981	Selenium, total recoverable			0.0042 mg/L 6 Month Median	0.0042 mg/L Daily Maximum	0.0042 mg/L Instantaneous Maximum	0	Semiannual	COMP24
1	0	01032	Chromium, hexavalent (as Cr)			NODI: B 6 Month Median	NODI: B Daily Maximum	NODI: B Instantaneous Maximum			
1	0	01074	Nickel, total recoverable			NODI: Q 6 Month Median	NODI: Q Daily Maximum	NODI: Q Instantaneous Maximum			
1	0	01079	Silver total recoverable			NODI: B 6 Month Median	NODI: B Daily Maximum	NODI: B Instantaneous Maximum			
1	0	01094	Zinc, total recoverable			0.061 mg/L 6 Month Median	0.061 mg/L Daily Maximum	0.061 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			

Feature - LS: 001-S **Monitoring Period:** 01/01/2016 - 06/30/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01114	Lead, total recoverable			8.9E-4 mg/L 6 Month Median	8.9E-4 mg/L Daily Maximum	8.9E-4 mg/L Instantaneous Maximum	0	Semiannual	COMP24
1	0	01119	Copper, total recoverable			0.02 mg/L 6 Month Median	0.02 mg/L Daily Maximum	0.02 mg/L Instantaneous Maximum	0	Semiannual	COMP24
1	0	04175	Phosphate, ortho (as P)					2.1 mg/L Daily Maximum	0	Semiannual	GRAB
1	0	71800	Urea					0.158 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			
1	0	TTK1D	Static 48Hr Chronic Macrocystis Pyrifera					NODI: 9 Daily Maximum			
1	0	TTK3R	Static 48Hr Chronic Haliotis Rufescens					17.9 tox chronic Daily Maximum	0	Semiannual	COMP24

ATTACHMENT C
LABORATORY REPORTS

Date of Report: 01/26/2016

Doug Coats

Marine Research Specialists
3140 Telegraph Road, Suite A
Suite A
Ventura, CA 93003-3238

Client Project:	[none]
BCL Project:	Semi-Annual Eff
BCL Work Order:	1601349
Invoice ID:	B225009

Enclosed are the results of analyses for samples received by the laboratory on 1/13/2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Tina Green
Client Services Manager

Authorized Signature

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 H1 2016
Street Address: 3140 Telegraph Rd Ste A	Global ID #:
City, State, Zip: Ventura, CA 93003	Sampler(s):
Phone: 805.218.3662	
Email Address: Marine@Rain.org	
Work Order# 16-01349	

Analysis Requested

Sample #	Description	Date Sampled	Time Sampled	Cyanide: EPA 335.3	Metals: Ag, Cd, Cr, Cu, Ni, Zn, As, Pb, Se, & Hg	Sample Matrix: Soil	Sludge	Drinking Water	Ground water	Waste Water	Other
1	BC1 Comp ARS	12 Jan 16	0920	X	X	X					X

Comments:
Metals: Silver, Arsenic, Cadmium, Chromium (Total), Copper, Mercury, Nickel, Lead, Selenium, and Zinc (EPA 200.7, 200.8, and 245.1)
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

CHK BY DISTRIBUTION
MMT
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	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
	Stan R. Dalle	13 Jan 16	1920		1-13-16	1420			
		1-13-16	1925		1-13-16	1925			

16-01349

Analysis Effluent Samples to be collected from the Morro Bay Wastewater Treatment Plant in January 2016

Analysis	Sample	Method
Level IIA QC Report concentrations that are detected above the MDL, but are below the PQL		
10 Metals:		
Ag Silver	Composite	EPA 200.7
As Arsenic	Composite	EPA 200.8
Cd Cadmium	Composite	EPA 200.7
Cr Chromium (Total)	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
Se Selenium	Composite	EPA 200.8
Zn Zinc	Composite	EPA 200.7
Cyanide	Composite	EPA 335.3

Invoice and Report to be sent to: Dr. Douglas A. Coats (Doug.Coats@mrsenv.com)
Marine Research Specialists
3140 Telegraph Rd., Suite A
Ventura, CA 93003
Telephone: (805) 644-1180

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 1601349 Page 3 of 3

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 16-01349

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

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: 0.95 Container: Amber Thermometer ID: 208 Date/Time 1.13.16 1941

Temperature: (A) 0.5 °C / (C) 0.5 °C Analyst Init M

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	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	A									
PT CYANIDE 108	B									
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
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: DDP Date/Time: 1/13/16 2149

A = Actual / C = Corrected

Rev 20 07/24/2015

[S:\WPDoc\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 20]

Marine Research Specialists
3140 Telegraph Road, Suite A
Suite A
Ventura, CA 93003-3238

Reported: 01/26/2016 16:10
Project: Semi-Annual Eff
Project Number: [none]
Project Manager: Doug Coats

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1601349-01	**COC Number:**	---	**Receive Date:**	01/13/2016 19:25
	Project Number:	---	**Sampling Date:**	01/12/2016 09:20
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	BC1 Comp ARS	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Wastewater

Marine Research Specialists
3140 Telegraph Road, Suite A
Suite A
Ventura, CA 93003-3238

Reported: 01/26/2016 16:10
Project: Semi-Annual Eff
Project Number: [none]
Project Manager: Doug Coats

Water Analysis (General Chemistry)

BCL Sample ID: 1601349-01 | **Client Sample Name:** BC1 Comp ARS, 1/12/2016 9:20:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Cyanide	ND	mg/L	0.0050	0.0031	EPA-335.4	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-335.4	01/18/16	01/18/16 14:12	TDC	KONE-1	1	BZA1339

Marine Research Specialists
3140 Telegraph Road, Suite A
Suite A
Ventura, CA 93003-3238

Reported: 01/26/2016 16:10
Project: Semi-Annual Eff
Project Number: [none]
Project Manager: Doug Coats

Metals Analysis

BCL Sample ID: 1601349-01 | **Client Sample Name:** BC1 Comp ARS, 1/12/2016 9:20:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Mercury	**0.072**	**ug/L**	**0.20**	**0.033**	**EPA-245.1**	0.038	**J**	1
Total Recoverable Arsenic	**2.0**	**ug/L**	**2.0**	**0.70**	**EPA-200.8**	ND		2
Total Recoverable Cadmium	ND	ug/L	10	1.1	EPA-200.7	ND		3
Total Recoverable Chromium	ND	ug/L	10	1.2	EPA-200.7	ND		3
Total Recoverable Copper	**20**	**ug/L**	**10**	**1.2**	**EPA-200.7**	ND		3
Total Recoverable Lead	**0.89**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND	**J**	2
Total Recoverable Nickel	**4.8**	**ug/L**	**10**	**2.3**	**EPA-200.7**	ND	**J**	3
Total Recoverable Selenium	**4.2**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		2
Total Recoverable Silver	ND	ug/L	10	1.3	EPA-200.7	ND		3
Total Recoverable Zinc	**61**	**ug/L**	**50**	**1.3**	**EPA-200.7**	ND		3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-245.1	01/18/16	01/19/16 10:44	MEV	CETAC1	1	BZA1402
2	EPA-200.8	01/20/16	01/21/16 12:40	GPD	PE-EL2	1	BZA1613
3	EPA-200.7	01/22/16	01/25/16 14:22	JRG	PE-OP2	1	BZA1839

Marine Research Specialists
3140 Telegraph Road, Suite A
Suite A
Ventura, CA 93003-3238

Reported: 01/26/2016 16:10
Project: Semi-Annual Eff
Project Number: [none]
Project Manager: Doug Coats

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BZA1339						
Total Cyanide	BZA1339-BLK1	ND	mg/L	0.0050	0.0031	

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3140 Telegraph Road, Suite A
Suite A
Ventura, CA 93003-3238

Reported: 01/26/2016 16:10
Project: Semi-Annual Eff
Project Number: [none]
Project Manager: Doug Coats

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: BZA1339										
Total Cyanide	BZA1339-BS1	LCS	0.15029	0.15000	mg/L	100		90 - 110		

Marine Research Specialists
3140 Telegraph Road, Suite A
Suite A
Ventura, CA 93003-3238

Reported: 01/26/2016 16:10
Project: Semi-Annual Eff
Project Number: [none]
Project Manager: Doug Coats

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: BZA1339	Used client sample: N										
Total Cyanide	DUP	**1601479-01**	**0.0043440**	**0.0042630**		**mg/L**	**1.9**		**10**		**J**
	MS	**1601479-01**	**0.0043440**	**0.11894**	**0.10000**	**mg/L**		**115**		**90 - 110**	**Q03**
	MSD	**1601479-01**	**0.0043440**	**0.12731**	**0.10000**	**mg/L**	**6.8**	**123**	**10**	**90 - 110**	**Q03**

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Suite A
Ventura, CA 93003-3238

Reported: 01/26/2016 16:10
Project: Semi-Annual Eff
Project Number: [none]
Project Manager: Doug Coats

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BZA1402						
Total Mercury	**BZA1402-BLK1**	**0.037500**	**ug/L**	**0.20**	**0.033**	**J**
QC Batch ID: BZA1613						
Total Recoverable Arsenic	BZA1613-BLK1	ND	ug/L	2.0	0.70	
Total Recoverable Lead	BZA1613-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Selenium	BZA1613-BLK1	ND	ug/L	2.0	0.19	
QC Batch ID: BZA1839						
Total Recoverable Cadmium	BZA1839-BLK1	ND	ug/L	10	1.1	
Total Recoverable Chromium	BZA1839-BLK1	ND	ug/L	10	1.2	
Total Recoverable Copper	BZA1839-BLK1	ND	ug/L	10	1.2	
Total Recoverable Nickel	BZA1839-BLK1	ND	ug/L	10	2.3	
Total Recoverable Silver	BZA1839-BLK1	ND	ug/L	10	1.3	
Total Recoverable Zinc	BZA1839-BLK1	ND	ug/L	50	1.3	

Marine Research Specialists
3140 Telegraph Road, Suite A
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Ventura, CA 93003-3238

Reported: 01/26/2016 16:10
Project: Semi-Annual Eff
Project Number: [none]
Project Manager: Doug Coats

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: BZA1402										
Total Mercury	BZA1402-BS1	LCS	0.95250	1.0000	ug/L	95.2		85 - 115		
QC Batch ID: BZA1613										
Total Recoverable Arsenic	BZA1613-BS1	LCS	97.221	100.00	ug/L	97.2		85 - 115		
Total Recoverable Lead	BZA1613-BS1	LCS	102.05	100.00	ug/L	102		85 - 115		
Total Recoverable Selenium	BZA1613-BS1	LCS	100.72	100.00	ug/L	101		85 - 115		
QC Batch ID: BZA1839										
Total Recoverable Cadmium	BZA1839-BS1	LCS	190.68	200.00	ug/L	95.3		85 - 115		
Total Recoverable Chromium	BZA1839-BS1	LCS	194.57	200.00	ug/L	97.3		85 - 115		
Total Recoverable Copper	BZA1839-BS1	LCS	361.26	400.00	ug/L	90.3		85 - 115		
Total Recoverable Nickel	BZA1839-BS1	LCS	399.43	400.00	ug/L	99.9		85 - 115		
Total Recoverable Silver	BZA1839-BS1	LCS	94.018	100.00	ug/L	94.0		85 - 115		
Total Recoverable Zinc	BZA1839-BS1	LCS	511.65	500.00	ug/L	102		85 - 115		

Marine Research Specialists
3140 Telegraph Road, Suite A
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Ventura, CA 93003-3238

Reported: 01/26/2016 16:10
Project: Semi-Annual Eff
Project Number: [none]
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: BZA1402	Used client sample: Y - Description: BC1 Comp ARS, 01/12/2016 09:20										
Total Mercury	DUP	**1601349-01**	**0.072500**	**0.050000**		**ug/L**	**36.7**		**20**		**J,A02**
	MS	**1601349-01**	**0.072500**	**1.0475**	**1.0000**	**ug/L**		**97.5**		**70 - 130**	
	MSD	**1601349-01**	**0.072500**	**1.0475**	**1.0000**	**ug/L**	**0**	**97.5**	**20**	**70 - 130**	
QC Batch ID: BZA1613	Used client sample: N										
Total Recoverable Arsenic	DUP	1601351-01	1.3890	ND		ug/L			20		
	MS	1601351-01	1.3890	109.58	100.00	ug/L		108		70 - 130	
	MSD	1601351-01	1.3890	105.11	100.00	ug/L	4.2	104	20	70 - 130	
Total Recoverable Lead	DUP	1601351-01	0.15700	0.16900		ug/L	7.4		20		J
	MS	1601351-01	0.15700	94.072	100.00	ug/L		93.9		70 - 130	
	MSD	1601351-01	0.15700	94.366	100.00	ug/L	0.3	94.2	20	70 - 130	
Total Recoverable Selenium	DUP	1601351-01	13.730	14.744		ug/L	7.1		20		
	MS	1601351-01	13.730	128.01	100.00	ug/L		114		70 - 130	
	MSD	1601351-01	13.730	124.23	100.00	ug/L	3.0	110	20	70 - 130	
QC Batch ID: BZA1839	Used client sample: N										
Total Recoverable Cadmium	DUP	1601357-01	ND	ND		ug/L			20		
	MS	1601357-01	ND	191.31	200.00	ug/L		95.7		75 - 125	
	MSD	1601357-01	ND	189.47	200.00	ug/L	1.0	94.7	20	75 - 125	
Total Recoverable Chromium	DUP	1601357-01	ND	ND		ug/L			20		
	MS	1601357-01	ND	190.26	200.00	ug/L		95.1		75 - 125	
	MSD	1601357-01	ND	188.83	200.00	ug/L	0.8	94.4	20	75 - 125	
Total Recoverable Copper	DUP	1601357-01	ND	ND		ug/L			20		
	MS	1601357-01	ND	366.62	400.00	ug/L		91.7		75 - 125	
	MSD	1601357-01	ND	364.32	400.00	ug/L	0.6	91.1	20	75 - 125	
Total Recoverable Nickel	DUP	1601357-01	ND	ND		ug/L			20		
	MS	1601357-01	ND	398.50	400.00	ug/L		99.6		75 - 125	
	MSD	1601357-01	ND	394.82	400.00	ug/L	0.9	98.7	20	75 - 125	
Total Recoverable Silver	DUP	1601357-01	ND	ND		ug/L			20		
	MS	1601357-01	ND	92.472	100.00	ug/L		92.5		75 - 125	
	MSD	1601357-01	ND	91.761	100.00	ug/L	0.8	91.8	20	75 - 125	
Total Recoverable Zinc	DUP	**1601357-01**	**5.8839**	**7.2686**		**ug/L**	**21.1**		**20**		**J,A02**
	MS	**1601357-01**	**5.8839**	**508.34**	**500.00**	**ug/L**		**100**		**75 - 125**	
	MSD	**1601357-01**	**5.8839**	**507.30**	**500.00**	**ug/L**	**0.2**	**100**	**20**	**75 - 125**	

Marine Research Specialists
3140 Telegraph Road, Suite A
Suite A
Ventura, CA 93003-3238

Reported: 01/26/2016 16:10
Project: Semi-Annual Eff
Project Number: [none]
Project Manager: Doug Coats

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A02	The difference between duplicate readings is less than the quantitation limit.
Q03	Matrix spike recovery(s) is(are) not within the control limits.

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: January 23, 2016

Client: Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura, CA 93003
Attn: Doug Coats

Laboratory No.: A-16012001-001
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:	01/19/16 (composite)
Date Received:	01/20/16
Temp. Received:	1.3°C
Chlorine (TRC):	0.0 mg/l
Dates Tested:	01/20/16 to 01/22/16

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-16012001-001
Client/ID: Morro Bay WWTP

Date tested: 01/20/16 - 01/22/16

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-160120 (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)	96.0%	
Control (Dilution)	96.6%	
3.2%	97.0%	
5.6%	96.7%	
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 (96.6%)
%MSD <20% relative to control	PASSED (%MSD = 3.7%)
Please see RT-160120 report for additional test acceptability criteria.	

Abalone Larval Development Test-Proportion Normal

Start Date:	1/20/2016 14:00	Test ID:	16012001ab	Sample ID:	Morro Bay
End Date:	1/22/2016 14:00	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	EFF1-POTW
Sample Date:	1/19/2016 08:40	Protocol:	EPAW 95-EPA/600/R-95/136	Test Species:	HR-Haliotis rufescens
Comments:					

Conc-%	1	2	3	4	5
B-Control	0.9358	0.9811	0.9450	0.9630	0.9727
D-Control	0.9811	0.9352	0.9906	0.9533	0.9725
3.2	0.9626	0.9815	0.9358	0.9811	0.9904
5.6	0.9902	0.9720	0.9286	0.9640	0.9813
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

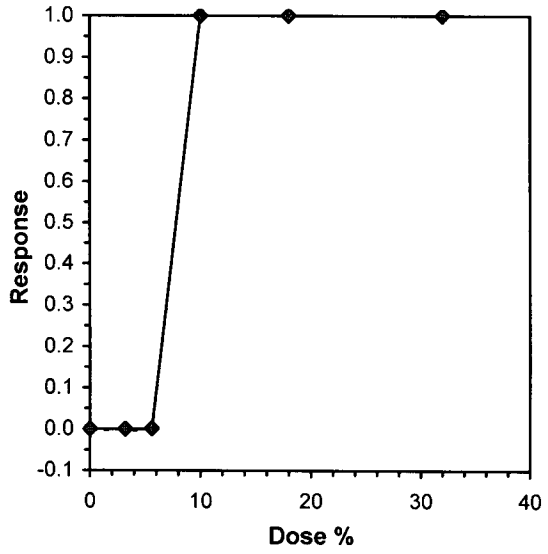
			Transform: Arcsin Square Root					1-Tailed			Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
B-Control	0.9595	0.9927	1.3727	1.3146	1.4330	3.563	5					
D-Control	0.9665	1.0000	1.3954	1.3134	1.4735	4.550	5	*			0.9682	1.0000
3.2	0.9703	1.0039	1.4061	1.3146	1.4726	4.385	5	-0.269	2.110	0.0843	0.9682	1.0000
5.6	0.9672	1.0007	1.3976	1.3002	1.4716	4.609	5	-0.055	2.110	0.0843	0.9666	0.9983
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)	0.92983	0.881	-0.4242	-0.9466
Bartlett's Test indicates equal variances (p = 1.00)	0.00714	9.21034		
The control means are not significantly different (p = 0.54)	0.6324	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	0.03551	0.03663	0.00016	0.00399	0.96053	2, 12

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)		Skew
IC05	5.8130	0.0351	5.6724	5.8221	-1.3829
IC10	6.0334	0.0333	5.9001	6.0420	-1.3829
IC15	6.2537	0.0314	6.1279	6.2619	-1.3829
IC20	6.4741	0.0296	6.3557	6.4818	-1.3829
IC25	6.6945	0.0277	6.5834	6.7017	-1.3829
IC40	7.3556	0.0222	7.2668	7.3613	-1.3829
IC50	7.7963	0.0185	7.7223	7.8011	-1.3829



Reviewed by:

ABALONE CHRONIC BIOASSAY

Aquatic Testing Laboratories

Lab No.: A-16012001-001
Client ID: MRS - Morro Bay Effluent

Start Date: 01/20/2016

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)	14.9	8.2	8.1	34	14.4	8.0	14.7	8.3	8.0	34
Control (lab)	14.8	8.1	8.1	34	14.4	8.0	14.6	8.3	8.0	34
3.2%	14.8	8.1	8.1	34	14.4	8.0	14.6	8.1	8.0	34
5.6%	14.7	8.1	8.1	34	14.5	8.0	14.5	8.3	8.0	34
10%	14.7	8.1	8.1	34	14.3	8.0	14.5	8.1	8.0	34
18%	14.7	8.0	8.1	34	14.4	8.1	14.4	7.4	8.1	34
32%	14.7	7.9	8.1	34	14.4	8.1	14.6	6.8	8.1	34

Sample as received: Chlorine: 0 mg/l; pH: 8.1 ; Salinity: 1 ppt; Temp: 13 °C; DO: 4.5 mg/l.

Initial readings: [signature] Date/Time: 1-20-16 1400 Final readings: [signature] Date/Time: 1-22-16 1400

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	10	0	100	13	3.2	0	100	25	3.2	0	100
2	3.2	103	4	14	10	0	100	26	5.6	107	4
3	3.2	0	100	15	C	105	1	27	C	102	5
4	C	104	2	16	18	0	100	28	18	0	100
5	5.6	101	1	17	5.6	104	8	29	3.2	103	1
6	BC	102	7	18	BC	103	6	30	BC	107	3
7	18	0	100	19	10	0	100	31	18	0	100
8	C	101	7	20	3.2	102	7	32	C	106	3
9	5.6	104	3	21	3.2	0	100	33	3.2	0	100
10	18	0	100	22	3.2	104	2	34	10	0	100
11	3.2	106	2	23	10	0	100	35	5.6	105	2
12	BC	104	2	24	BC	104	4				

Microscopic examination: Analyst: [signature] Date: 1-20-16 Time: 1100

Aquatic Testing Laboratories

ABALONE CHRONIC BIOASSAY

Lab No.: A-16012001-001
Client ID: MRS - Morro Bay Effluent

Start Date: 01/20/2016

RANDOMIZATION WORKSHEET

Beaker No.	Sample Conc.	Beaker No.	Sample Conc.	Beaker No.	Sample Conc.	Notes
1	10	13	32	25	32	[redacted]
2	3.2	14	10	26	5.6	
3	32	15	C	27	C	
4	C	16	18	28	18	
5	5.6	17	5.6	29	3.2	
6	BC	18	BC	30	BC	Add 1600 fertilized eggs per 200 ml test volume.
7	18	19	10	31	18	
8	C	20	3.2	32	C	
9	5.6	21	32	33	32	
10	18	22	3.2	34	10	
11	3.2	23	10	35	5.6	
12	BC	24	BC			

Analyst: [redacted] Date: 1-20-16 Time: 1100

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.	19Jan16	0840	E	.03 mg/L	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)
Steven [signature]	Fed Ex	19Jan16	12:40	Yes	—
Fed Ex	[signature]	1-20-16	0530	Yes	1.3

Aquatic
Testing
Laboratories

REFERENCE TOXICANT DATA

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

Aquatic Testing Laboratories

QA/QC Batch No.: RT-160120

Date tested: 01/20/16 – 01/22/16

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: Mallinckrodt.
Lot No.: 8872 KCXG

RESULTS SUMMARY

SAMPLE CONCENTRATION	PERCENT NORMAL DEVELOPMENT
Control	96.3%
10 μg/l	95.9%
18 μg/l	95.2%
32 μg/l	33.4% *
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	23.2 μg/l

QA/QC TEST ACCEPTABILITY

Parameter	Result
Average control normality ≥80%	Yes (96.3%)
56 μg/l treatment response significantly less than control response	Yes (NOEC = 18 μg/l)
%MSD <20% relative to control	Yes (%MSD = 6.2%)

Abalone Larval Development Test-Proportion Normal

Start Date:	1/20/2016 14:00	Test ID:	RT160120ab	Sample ID:	REF-Ref Toxicant
End Date:	1/22/2016 14:00	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	ZNSO-Zinc sulfate
Sample Date:	1/20/2016	Protocol:	EPAW 95-EPA/600/R-95/136	Test Species:	HR-Haliotis rufescens
Comments:					

Conc-ug/L	1	2	3	4	5
D-Control	0.9630	0.9815	0.9537	0.9907	0.9266
10	0.9528	0.9615	0.9364	0.9633	0.9810
18	0.9806	0.9196	0.9554	0.9381	0.9636
32	0.4095	0.3137	0.2430	0.1731	0.5283
56	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000

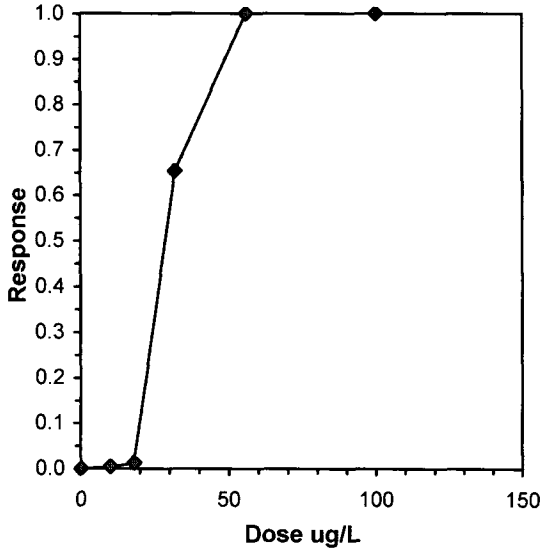
			Transform: Arcsin Square Root					1-Tailed			Isotonic	
Conc-ug/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
D-Control	0.9631	1.0000	1.3872	1.2965	1.4740	4.993	5				0.9630	1.0000
10	0.9590	0.9958	1.3703	1.3158	1.4323	3.103	5	0.296	2.230	0.1270	0.9588	0.9957
18	0.9515	0.9879	1.3541	1.2834	1.4310	4.171	5	0.581	2.230	0.1270	0.9509	0.9875
*32	0.3335	0.3463	0.6094	0.4291	0.8137	24.686	5	13.657	2.230	0.1270	0.3340	0.3468
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)	0.97311	0.905	0.26514	1.33687
Bartlett's Test indicates equal variances (p = 0.07)	6.99718	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		0.06008	0.06215	0.72495	0.00811	3.3E-10	3, 16

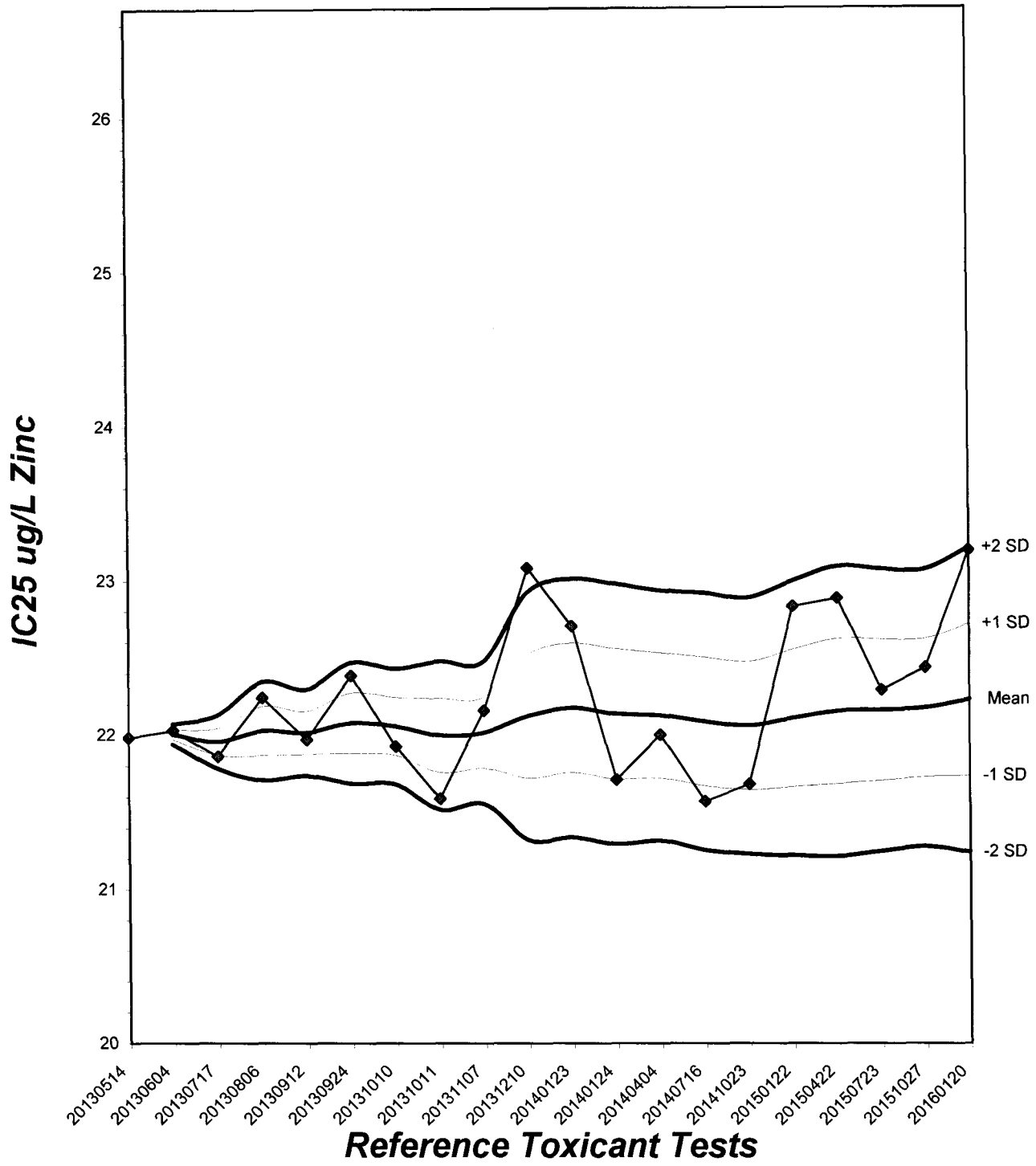
Linear Interpolation (200 Resamples)

Point	ug/L	SD	95% CL(Exp)		Skew
IC05	18.819	0.248	17.929	19.328	-0.4659
IC10	19.912	0.273	19.060	20.624	-0.0191
IC15	21.004	0.327	20.071	21.904	0.3847
IC20	22.097	0.400	21.024	23.269	0.6038
IC25	23.190	0.482	21.989	24.641	0.7042
IC40	26.467	0.754	24.609	29.035	0.7711
IC50	28.653	0.946	26.389	31.963	0.7846



Abalone Larval Development Laboratory Control Chart

CV% = 2.21



ABALONE CHRONIC BIOASSAY
Reference Toxicant - Zinc Sulfate

Aquatic Testing Laboratories

QA/QC No.: RT-160120

Start Date: 01/20/2016

WATER QUALITY READINGS

	Initial Readings				24 Hr		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	15.4	8.0	8.1	34	14.6	8.0	14.6	8.3	8.0	34
10 µg/l Zn	15.2	8.1	8.1	34	14.5	8.0	14.5	8.3	8.0	34
18 µg/l Zn	14.9	8.1	8.1	34	14.5	8.0	14.5	8.2	8.0	34
32 µg/l Zn	14.9	8.0	8.1	34	14.5	8.0	14.6	8.3	8.0	34
56 µg/l Zn	15.0	8.0	8.1	34	14.4	8.0	14.5	8.3	8.1	34
100 µg/l Zn	14.8	8.1	8.1	34	14.4	8.0	14.6	8.2	8.1	34

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

Initial readings: [signature] Date/Time: 1-20-16 1400 Final readings: [signature] Date/Time: 1-22-16 1400

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	32	43	62	11	10	100	4	21	C	106	1
2	18	101	2	12	56	0	100	22	100	0	100
3	56	0	100	13	32	26	81	23	10	105	4
4	10	101	5	14	C	103	5	24	32	18	86
5	100	0	100	15	56	0	100	25	10	103	2
6	C	104	4	16	10	103	7	26	100	0	100
7	32	32	70	17	100	0	100	27	C	101	8
8	C	106	2	18	18	107	5	28	56	0	100
9	18	103	9	19	56	0	100	29	18	106	4
10	100	0	100	20	18	106	7	30	32	56	50

Microscopic examination: Analyst: [signature] Date: 1-23-16 Time: 0800

ABALONE CHRONIC BIOASSAY
Reference Toxicant - Zinc Sulfate

Aquatic Testing Laboratories

QA/QC No.: RT-160120

Start Date: 01/20/2016

RANDOMIZATION WORKSHEET

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

Notes

Number Males used: 4

Number females used: 5

Time H_2O_2 added: 1000

Time water changed: 12:30

Time spawned: 12:50 @ 1315

Time placed in test: 1400

Add 1600 fertilized eggs per 200 ml..

Time glutaraldehyde added: 1400

Analyst: JL Date: 1-20-16 Time: 1100

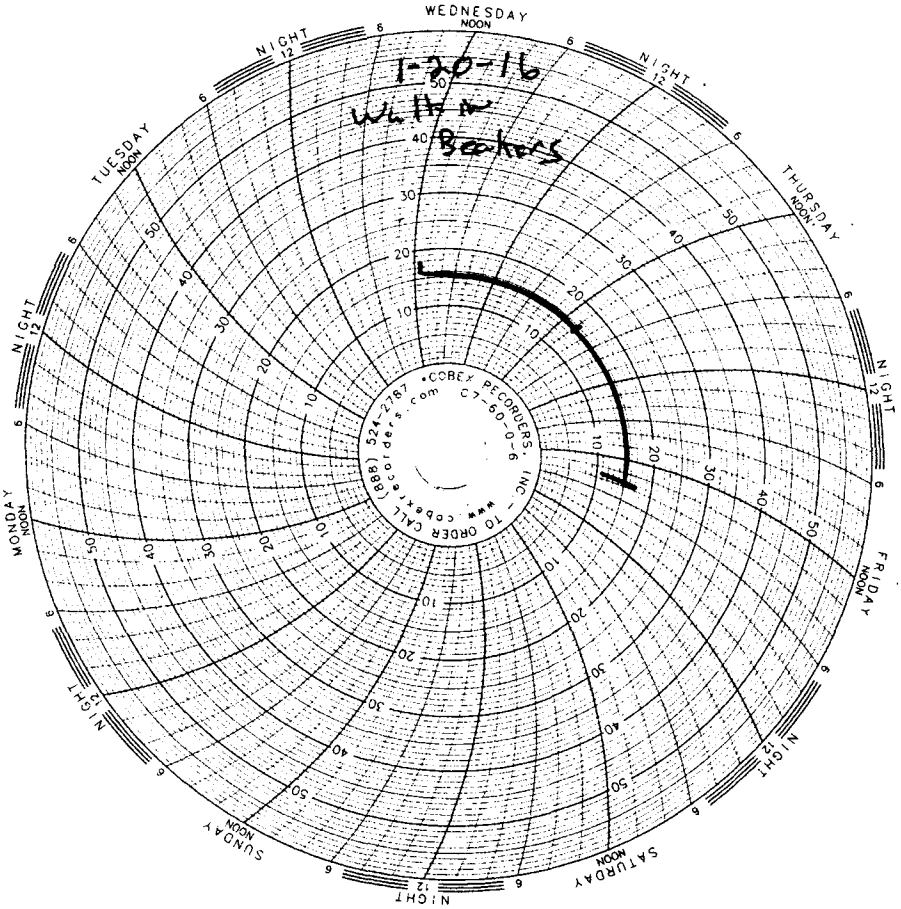
Aquatic Testing Laboratories

Test Temperature Chart

Test No: RT-160120

Date Tested: 01/20/16 to 01/22/16

Acceptable Range: 15 +/- 1°C



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

Friday, February 05, 2016

Lab Number: **AB40900**

Collection Date/Time:	1/12/2016	9:44	Sample Collector:	LUNDY D	Client Sample #:
Submittal Date/Time:	1/13/2016	10:05	Sample ID	H1 2016	Coliform Designation:

Sample Description: ARS Grab M1-M3

Analyte	Method	Unit	**Result**	Qual	PQL	MCL	Date Analyzed	Analyst:
Nitrate as NO3	EPA300.0	mg/L	**1**		1	45	1/14/2016	HM
Nitrate as NO3-N	EPA300.0	mg/L	**0.2**		0.1	10	1/14/2016	HM
o-Phosphate-P	EPA300.0	mg/L	**2.1**		0.1		1/14/2016	HM
Silica as SiO2, Dissolved	EPA200.7	mg/L	**10**		0.5		1/18/2016	MW
Urea-N	Mulvenna&Savid	µg/L	**158**		10		1/28/2016	MP

Sample Comments:

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter ug/L : Micrograms per liter PQL : Practical Quantitation Limit MCL: Maximum Contamination Level
H = Analyzed ouside of hold time E = Analysis performed by External Laboratory; See Report attachments. T = Temperature Exceedance

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: 3140 Telegraph Rd. Suite A, 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 ☐ For State or Local Health Department reporting: Electronic Data Transfer (EDT)? YES ☐ NO ☑ System ID Number: _____	Turn Around Time: STD (7-14 Days) ☑ 48-Hour ☐ 5-Day ☐ 24-Hour ☐
	Phone # 805.218.3662 Fax # 805.289.3935
	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	Other	Repeat	Special	# Cont.	Container Type	Container Size	Analysis Requested: Nitrate as NO3 [EPA 300.0]	O-Phosphate-P [EPA 300.0]	Silica as SiO2 [EPA 4500-SI-E] Dissolved (per DC 1/13/16)	Urea [Mulvenna & Savid]		
40900	H1 2016	M1 ARS Grab	1-12-16	0944	2.6						1			✓	✓				
"	H1 2016	M2 ARS Grab*	1-12-16	0944	"						1						✓		
	H1 2016	M3 ARS Grab	1-12-16	0944	"						1					✓			

	Printed Name	Signature	Date	Time	Comments or Special Instructions:
Sampled by:	Dane Lundy		1-12-16	~~1027~~ 0944	*Pour off 50 ml & freeze to hold for Urea test
Relinquished by:	Dane Lundy		1-12-16	1027	
Received by:					
Relinquished by:					
Received by:	Monterey Bay Analytical Services		1/13/16	1005	

☐ Payment received Check # Amount: Receipt # Date:

MRS - Morro Bay

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

Lab ID	Cont. Size	Pres	Date/Initials

Comments

+2 mL HNO_3 to 125mL LJ 1/13/16