

DOCKETED	
Docket Number:	99-AFC-04C
Project Title:	Duke Energy North American's Moss Landing Power Plant Modernization Project (Compliance)
TN #:	231185
Document Title:	Moss Landing Power Plant - 2018 Annual Compliance Report (Part 4)
Description:	N/A
Filer:	Mary Dyas
Organization:	California Energy Commission
Submitter Role:	Energy Commission
Submission Date:	12/12/2019 9:55:00 AM
Docketed Date:	12/12/2019

Attachment 2

2018

**Filtered Waste Water Through 5 micron Filters
From
Three Surface Impoundments**

**Of
Surface Impoundment Closure Activity
For Flushing the Piping Decontamination to the
Impoundments**

Laboratory Analyses

**Dynegy Moss Landing, LLC
Moss Landing Power Plant**

**DTSC Permit
Facility EPA ID No. CAT 080 011 653
WDR Order No. R3-2014-0029**



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1808177

Report Created for: Fletcher Consultants, Inc.

4858 Harbord Drive
Oakland, CA 94618

Project Contact: Craig R. Fletcher

Project P.O.:

Project: MCWP Closure Project

Project Received: 08/03/2018

Analytical Report reviewed & approved for release on 08/08/2018 by:

Jennifer Lagerbom
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Fletcher Consultants, Inc.

Project: MCWP Closure Project

WorkOrder: 1808177

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Fletcher Consultants, Inc.
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Analytical Qualifiers

a1 Sample diluted due to matrix interference
g3 pH sample volume was reduced due to nature of the sample.

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
<http://www.mcccampbell.com> / E-mail: main@mcccampbell.com

Analytical Report

Client: Fletcher Consultants, Inc.**Date Received:** 8/3/18 15:32**Date Prepared:** 8/4/18**Project:** MCWP Closure Project**WorkOrder:** 1808177**Extraction Method:** CA Title 22**Analytical Method:** SW6020**Unit:** mg/L

CAM / CCR 17 Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-136	1808177-001A	Solid	08/02/2018 11:00	ICP-MS3 162SMPL.D	162712

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.10	1	08/07/2018 02:07
Arsenic	ND	0.10	1	08/07/2018 02:07
Barium	1.5	1.0	1	08/07/2018 02:07
Beryllium	ND	0.10	1	08/07/2018 02:07
Cadmium	ND	0.050	1	08/07/2018 02:07
Chromium	1.8	0.10	1	08/07/2018 02:07
Cobalt	0.19	0.10	1	08/07/2018 02:07
Copper	16	0.10	1	08/07/2018 02:07
Lead	0.40	0.10	1	08/07/2018 02:07
Mercury	ND	0.010	1	08/07/2018 02:07
Molybdenum	0.13	0.10	1	08/07/2018 02:07
Nickel	5.7	0.10	1	08/07/2018 02:07
Selenium	ND	0.10	1	08/07/2018 02:07
Silver	ND	0.10	1	08/07/2018 02:07
Thallium	ND	0.10	1	08/07/2018 02:07
Vanadium	5.9	0.10	1	08/07/2018 02:07
Zinc	10	1.0	1	08/07/2018 02:07

Analyst(s): ND

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Analytical Report

Client: Fletcher Consultants, Inc.

Date Received: 8/3/18 15:32

Date Prepared: 8/4/18

Project: MCWP Closure Project

WorkOrder: 1808177

Extraction Method: CA Title 22

Analytical Method: SW6020

Unit: mg/L

CAM / CCR 17 Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-137	1808177-002A	Solid	08/02/2018 12:00	ICP-MS3 156SMPL.D	162712

Analytes	Result	RL	DE	Date Analyzed
Antimony	ND	0.10	1	08/07/2018 01:30
Arsenic	ND	0.10	1	08/07/2018 01:30
Barium	2.7	1.0	1	08/07/2018 01:30
Beryllium	ND	0.10	1	08/07/2018 01:30
Cadmium	ND	0.050	1	08/07/2018 01:30
Chromium	4.3	0.10	1	08/07/2018 01:30
Cobalt	0.32	0.10	1	08/07/2018 01:30
Copper	0.18	0.10	1	08/07/2018 01:30
Lead	0.88	0.10	1	08/07/2018 01:30
Mercury	0.019	0.010	1	08/07/2018 01:30
Molybdenum	0.46	0.10	1	08/07/2018 01:30
Nickel	7.5	0.10	1	08/07/2018 01:30
Selenium	ND	0.10	1	08/07/2018 01:30
Silver	ND	0.10	1	08/07/2018 01:30
Thallium	ND	0.10	1	08/07/2018 01:30
Vanadium	8.1	0.10	1	08/07/2018 01:30
Zinc	25	1.0	1	08/07/2018 01:30

Analyst(s): ND

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Analytical Report

Client: Fletcher Consultants, Inc.

Date Received: 8/3/18 15:32

Date Prepared: 8/4/18

Project: MCWP Closure Project

WorkOrder: 1808177

Extraction Method: CA Title 22

Analytical Method: SW6020

Unit: mg/L

CAM / CCR 17 Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-138	1808177-003A	Solid	08/02/2018 11:15	ICP-MS3 175SMPL.D	162712

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.10	1	08/07/2018 03:28
Arsenic	ND	0.10	1	08/07/2018 03:28
Barium	ND	1.0	1	08/07/2018 03:28
Beryllium	ND	0.10	1	08/07/2018 03:28
Cadmium	ND	0.050	1	08/07/2018 03:28
Chromium	0.29	0.10	1	08/07/2018 03:28
Cobalt	ND	0.10	1	08/07/2018 03:28
Copper	130	1.0	10	08/08/2018 03:19
Lead	ND	0.10	1	08/07/2018 03:28
Mercury	ND	0.010	1	08/07/2018 03:28
Molybdenum	ND	0.10	1	08/07/2018 03:28
Nickel	0.55	0.10	1	08/07/2018 03:28
Selenium	ND	0.10	1	08/07/2018 03:28
Silver	ND	0.10	1	08/07/2018 03:28
Thallium	ND	0.10	1	08/07/2018 03:28
Vanadium	0.47	0.10	1	08/07/2018 03:28
Zinc	240	1.0	1	08/07/2018 03:28

Analyst(s): ND

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CAM / CCR 17 Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-139	1808177-004A	Solid	08/02/2018 11:30	ICP-MS3 150SMPL.D	162712

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.10	1	08/07/2018 00:52
Arsenic	ND	0.10	1	08/07/2018 00:52
Barium	ND	1.0	1	08/07/2018 00:52
Beryllium	ND	0.10	1	08/07/2018 00:52
Cadmium	ND	0.050	1	08/07/2018 00:52
Chromium	1.6	0.10	1	08/07/2018 00:52
Cobalt	ND	0.10	1	08/07/2018 00:52
Copper	1.7	0.10	1	08/07/2018 00:52
Lead	ND	0.10	1	08/07/2018 00:52
Mercury	ND	0.010	1	08/07/2018 00:52
Molybdenum	ND	0.10	1	08/07/2018 00:52
Nickel	3.2	0.10	1	08/07/2018 00:52
Selenium	ND	0.10	1	08/07/2018 00:52
Silver	ND	0.10	1	08/07/2018 00:52
Thallium	ND	0.10	1	08/07/2018 00:52
Vanadium	0.54	0.10	1	08/07/2018 00:52
Zinc	ND	1.0	1	08/07/2018 00:52

Analyst(s): ND



Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/3/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals + Misc. Elements

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-136	1808177-001A	Solid	08/02/2018 11:00	ICP-MS1 030SMPL.D	162689
Analytes	Result		RL	DE	Date Analyzed
Antimony	3.6		0.50	1	08/07/2018 12:20
Arsenic	16		0.50	1	08/07/2018 12:20
Barium	52		5.0	1	08/07/2018 12:20
Beryllium	ND		0.50	1	08/07/2018 12:20
Cadmium	0.78		0.25	1	08/07/2018 12:20
Chromium	610		25	50	08/07/2018 19:24
Cobalt	25		0.50	1	08/07/2018 12:20
Copper	610		25	50	08/07/2018 19:24
Iron	330,000		1000	50	08/07/2018 19:24
Lead	120		0.50	1	08/07/2018 12:20
Mercury	49		2.5	50	08/07/2018 19:24
Molybdenum	72		0.50	1	08/07/2018 12:20
Nickel	520		25	50	08/07/2018 19:24
Selenium	1.5		0.50	1	08/07/2018 12:20
Silver	ND		0.50	1	08/07/2018 12:20
Thallium	ND		0.50	1	08/07/2018 12:20
Vanadium	530		0.50	1	08/07/2018 12:20
Zinc	380		5.0	1	08/07/2018 12:20
Surrogates	REC (%)		Limits		
Terbium	100		70-130		08/07/2018 12:20
Analyst(s):	ND				

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/3/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals + Misc. Elements

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-137	1808177-002A	Solid	08/02/2018 12:00	ICP-MS1 031SMPL.D	162689

Analytes	Result	RL	DE	Date Analyzed
Antimony	3.2	0.50	1	08/07/2018 12:26
Arsenic	10	0.50	1	08/07/2018 12:26
Barium	68	5.0	1	08/07/2018 12:26
Beryllium	ND	0.50	1	08/07/2018 12:26
Cadmium	1.2	0.25	1	08/07/2018 12:26
Chromium	340	0.50	1	08/07/2018 12:26
Cobalt	17	0.50	1	08/07/2018 12:26
Copper	380	0.50	1	08/07/2018 12:26
Iron	180,000	1000	50	08/07/2018 19:30
Lead	80	0.50	1	08/07/2018 12:26
Mercury	60	2.5	50	08/07/2018 19:30
Molybdenum	49	0.50	1	08/07/2018 12:26
Nickel	390	0.50	1	08/07/2018 12:26
Selenium	1.0	0.50	1	08/07/2018 12:26
Silver	ND	0.50	1	08/07/2018 12:26
Thallium	ND	0.50	1	08/07/2018 12:26
Vanadium	420	0.50	1	08/07/2018 12:26
Zinc	420	5.0	1	08/07/2018 12:26

Surrogates	REC (%)	Limits	
Terbium	102	70-130	08/07/2018 12:26

Analyst(s): ND

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/3/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals + Misc. Elements

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-138	1808177-003A	Solid	08/02/2018 11:15	ICP-MS1 032SMPL.D	162689
Analytes	Result		RL	DE	Date Analyzed
Antimony	ND		0.50	1	08/08/2018 18:50
Arsenic	ND		0.50	1	08/08/2018 18:50
Barium	6.2		5.0	1	08/08/2018 18:50
Beryllium	ND		0.50	1	08/08/2018 18:50
Cadmium	ND		0.25	1	08/08/2018 18:50
Chromium	4.9		0.50	1	08/08/2018 18:50
Cobalt	1.0		0.50	1	08/08/2018 18:50
Copper	47		0.50	1	08/08/2018 18:50
Iron	3800		20	1	08/08/2018 18:50
Lead	1.2		0.50	1	08/08/2018 18:50
Mercury	0.14		0.050	1	08/08/2018 18:50
Molybdenum	1.3		0.50	1	08/08/2018 18:50
Nickel	7.3		0.50	1	08/08/2018 18:50
Selenium	ND		0.50	1	08/08/2018 18:50
Silver	ND		0.50	1	08/08/2018 18:50
Thallium	ND		0.50	1	08/08/2018 18:50
Vanadium	7.4		0.50	1	08/08/2018 18:50
Zinc	40		5.0	1	08/08/2018 18:50
Surrogates	REC (%)		Limits		
Terbium	83		70-130		08/08/2018 18:50
Analyst(s): ND					

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/3/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals + Misc. Elements

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-139	1808177-004A	Solid	08/02/2018 11:30	ICP-MS1 101SMPL.D	162689

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	10	20	08/07/2018 19:37
Arsenic	22	10	20	08/07/2018 19:37
Barium	ND	100	20	08/07/2018 19:37
Beryllium	ND	10	20	08/07/2018 19:37
Cadmium	ND	5.0	20	08/07/2018 19:37
Chromium	600	10	20	08/07/2018 19:37
Cobalt	22	10	20	08/07/2018 19:37
Copper	570	10	20	08/07/2018 19:37
Iron	580,000	400	20	08/07/2018 19:37
Lead	66	10	20	08/07/2018 19:37
Mercury	ND	1.0	20	08/07/2018 19:37
Molybdenum	60	10	20	08/07/2018 19:37
Nickel	290	10	20	08/07/2018 19:37
Selenium	ND	10	20	08/07/2018 19:37
Silver	ND	10	20	08/07/2018 19:37
Thallium	ND	10	20	08/07/2018 19:37
Vanadium	250	10	20	08/07/2018 19:37
Zinc	ND	100	20	08/07/2018 19:37

Surrogates	REC (%)	Limits	
Terbium	101	70-130	08/07/2018 19:37

Analyst(s): ND

Analytical Comments: a1

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Analytical Report

Client: Fletcher Consultants, Inc.**Date Received:** 8/3/18 15:32**Date Prepared:** 8/3/18-8/6/18**Project:** MCWP Closure Project**WorkOrder:** 1808177**Extraction Method:** SW9045C**Analytical Method:** SW9045C**Unit:** pH units @ 25°C

pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-136	1808177-001A	Solid	08/02/2018 11:00	WetChem	162693

Analytes	Result	Accuracy	DF	Date Analyzed
pH	6.43	±0.1	1	08/03/2018 16:06

Analyst(s): PHU

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-137	1808177-002A	Solid	08/02/2018 12:00	WetChem	162693

Analytes	Result	Accuracy	DF	Date Analyzed
pH	6.72	±0.1	1	08/03/2018 16:09

Analyst(s): PHU

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-138	1808177-003A	Solid	08/02/2018 11:15	WetChem	162752

Analytes	Result	Accuracy	DF	Date Analyzed
pH	7.85	±0.1	1	08/06/2018 13:30

Analyst(s): PHU**Analytical Comments:** g3

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-139	1808177-004A	Solid	08/02/2018 11:30	WetChem	162693

Analytes	Result	Accuracy	DF	Date Analyzed
pH	4.03	±0.1	1	08/03/2018 16:12

Analyst(s): PHU



Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/5/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-136	1808177-001A	Solid	08/02/2018 11:00	ICP-MS3 087SMPL.D	162719

Analytes	Result	RL	DE	Date Analyzed
Arsenic	ND	0.10	1	08/06/2018 18:22
Barium	ND	1.0	1	08/06/2018 18:22
Cadmium	ND	0.050	1	08/06/2018 18:22
Chromium	ND	0.10	1	08/06/2018 18:22
Lead	ND	0.10	1	08/06/2018 18:22
Mercury	ND	0.010	1	08/06/2018 18:22
Selenium	ND	0.10	1	08/06/2018 18:22
Silver	ND	0.10	1	08/06/2018 18:22

Analyst(s): MIG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-137	1808177-002A	Solid	08/02/2018 12:00	ICP-MS3 088SMPL.D	162719

Analytes	Result	RL	DE	Date Analyzed
Arsenic	ND	0.10	1	08/06/2018 18:28
Barium	ND	1.0	1	08/06/2018 18:28
Cadmium	ND	0.050	1	08/06/2018 18:28
Chromium	ND	0.10	1	08/06/2018 18:28
Lead	ND	0.10	1	08/06/2018 18:28
Mercury	ND	0.010	1	08/06/2018 18:28
Selenium	ND	0.10	1	08/06/2018 18:28
Silver	ND	0.10	1	08/06/2018 18:28

Analyst(s): MIG

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/5/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-138	1808177-003A	Solid	08/02/2018 11:15	ICP-MS3 089SMPL.D	162719

Analytes	Result	RL	DE	Date Analyzed
Arsenic	ND	0.10	1	08/06/2018 18:35
Barium	ND	1.0	1	08/06/2018 18:35
Cadmium	ND	0.050	1	08/06/2018 18:35
Chromium	ND	0.10	1	08/06/2018 18:35
Lead	ND	0.10	1	08/06/2018 18:35
Mercury	ND	0.010	1	08/06/2018 18:35
Selenium	ND	0.10	1	08/06/2018 18:35
Silver	ND	0.10	1	08/06/2018 18:35

Analyst(s): MIG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-139	1808177-004A	Solid	08/02/2018 11:30	ICP-MS3 090SMPL.D	162719

Analytes	Result	RL	DE	Date Analyzed
Arsenic	ND	0.10	1	08/06/2018 18:41
Barium	ND	1.0	1	08/06/2018 18:41
Cadmium	ND	0.050	1	08/06/2018 18:41
Chromium	ND	0.10	1	08/06/2018 18:41
Lead	ND	0.10	1	08/06/2018 18:41
Mercury	ND	0.010	1	08/06/2018 18:41
Selenium	ND	0.10	1	08/06/2018 18:41
Silver	ND	0.10	1	08/06/2018 18:41

Analyst(s): MIG



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Quality Control Report

Client: Fletcher Consultants, Inc.

Date Prepared: 8/4/18

Date Analyzed: 8/6/18

Instrument: ICP-MS3

Matrix: Soil

Project: MCWP Closure Project

WorkOrder: 1808177

BatchID: 162712

Extraction Method: CA Title 22

Analytical Method: SW6020

Unit: mg/L

Sample ID: MB/LCS/LCSD-162712

QC Summary Report for Metals (STLC)

Analyte	MB Result	RL			
Antimony	ND	0.10	-	-	-
Arsenic	ND	0.10	-	-	-
Barium	ND	1.0	-	-	-
Beryllium	ND	0.10	-	-	-
Cadmium	ND	0.050	-	-	-
Chromium	ND	0.10	-	-	-
Cobalt	ND	0.10	-	-	-
Copper	ND	0.10	-	-	-
Lead	ND	0.10	-	-	-
Mercury	ND	0.010	-	-	-
Molybdenum	ND	0.10	-	-	-
Nickel	ND	0.10	-	-	-
Selenium	ND	0.10	-	-	-
Silver	ND	0.10	-	-	-
Thallium	ND	0.10	-	-	-
Vanadium	ND	0.10	-	-	-
Zinc	ND	1.0	-	-	-

(Cont.)

CA ELAP 1644 • NELAP 4033ORELAP



Quality Control Report

Client: Fletcher Consultants, Inc.
Date Prepared: 8/4/18
Date Analyzed: 8/6/18
Instrument: ICP-MS3
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162712
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-162712

QC Summary Report for Metals (STLC)

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	10.8	10.8	10	108	108	75-125	0	20
Arsenic	9.97	9.96	10	100	100	75-125	0	20
Barium	102	101	100	102	101	75-125	1.20	20
Beryllium	9.88	9.83	10	99	98	75-125	0.528	20
Cadmium	9.77	9.62	10	98	96	75-125	1.59	20
Chromium	9.64	9.68	10	96	97	75-125	0.414	20
Cobalt	9.57	9.57	10	96	96	75-125	0	20
Copper	9.70	9.69	10	97	97	75-125	0	20
Lead	9.74	9.68	10	97	97	75-125	0	20
Mercury	0.239	0.250	0.25	96	100	75-125	4.50	20
Molybdenum	10.2	10.2	10	102	102	75-125	0	20
Nickel	9.83	9.84	10	98	98	75-125	0	20
Selenium	9.95	9.94	10	100	99	75-125	0.141	20
Silver	10.1	10.0	10	101	100	75-125	0.993	20
Thallium	9.76	9.65	10	98	97	75-125	1.11	20
Vanadium	9.66	9.55	10	97	96	75-125	1.10	20
Zinc	97.8	97.6	100	98	98	75-125	0	20



Quality Control Report

Client: Fletcher Consultants, Inc.
Date Prepared: 8/3/18
Date Analyzed: 8/6/18
Instrument: ICP-MS1
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162689
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-162689

QC Summary Report for Metals

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.50	-	-	-
Arsenic	ND	0.50	-	-	-
Barium	ND	5.0	-	-	-
Beryllium	ND	0.50	-	-	-
Cadmium	ND	0.25	-	-	-
Chromium	ND	0.50	-	-	-
Cobalt	ND	0.50	-	-	-
Copper	ND	0.50	-	-	-
Iron	ND	20	-	-	-
Lead	ND	0.50	-	-	-
Mercury	ND	0.050	-	-	-
Molybdenum	ND	0.50	-	-	-
Nickel	ND	0.50	-	-	-
Selenium	ND	0.50	-	-	-
Silver	ND	0.50	-	-	-
Thallium	ND	0.50	-	-	-
Vanadium	ND	0.50	-	-	-
Zinc	ND	5.0	-	-	-
Surrogate Recovery					
Terbium	521		500	104	70-130



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<http://www.mcccampbell.com> / E-mail: main@mcccampbell.com

Quality Control Report

Client: Fletcher Consultants, Inc.
Date Prepared: 8/3/18
Date Analyzed: 8/6/18
Instrument: ICP-MS1
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162689
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-162689

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	53.5	52.2	50	107	104	75-125	2.57	20
Arsenic	51.4	50.7	50	103	101	75-125	1.49	20
Barium	536	522	500	107	104	75-125	2.59	20
Beryllium	52.8	51.2	50	106	102	75-125	2.92	20
Cadmium	51.6	50.2	50	103	100	75-125	2.65	20
Chromium	52.3	51.0	50	105	102	75-125	2.52	20
Cobalt	50.5	49.3	50	101	99	75-125	2.38	20
Copper	51.9	50.9	50	104	102	75-125	1.89	20
Iron	5100	5010	5000	102	100	75-125	1.66	20
Lead	51.6	49.9	50	103	100	75-125	3.21	20
Mercury	1.25	1.25	1.25	100	100	75-125	0	20
Molybdenum	51.8	50.1	50	104	100	75-125	3.33	20
Nickel	52.6	51.0	50	105	102	75-125	3.05	20
Selenium	51.3	50.0	50	103	100	75-125	2.51	20
Silver	53.1	51.4	50	106	103	75-125	3.18	20
Thallium	50.6	48.9	50	101	98	75-125	3.54	20
Vanadium	52.2	50.8	50	104	102	75-125	2.68	20
Zinc	519	508	500	104	102	75-125	2.12	20
Surrogate Recovery								
Terbium	534	521	500	107	104	70-130	2.48	20



Quality Control Report

Client: Fletcher Consultants, Inc.
Date Prepared: 8/3/18
Date Analyzed: 8/3/18
Instrument: WetChem
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162693
Extraction Method: SW9045C
Analytical Method: SW9045C
Unit: pH units @ 25°C

QC Summary Report for pH

SampleID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1808172-001A	7.43	1	7.41	1	0.02	0.1

Client: Fletcher Consultants, Inc.
Date Prepared: 8/6/18
Date Analyzed: 8/6/18
Instrument: WetChem
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162752
Extraction Method: SW9045C
Analytical Method: SW9045C
Unit: pH units @ 25°C

QC Summary Report for pH

SampleID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1808164-001A	11.41	1	11.41	1	0	0.1



Quality Control Report

Client: Fletcher Consultants, Inc.
Date Prepared: 8/5/18
Date Analyzed: 8/6/18
Instrument: ICP-MS3
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162719
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-162719

QC Summary Report for Metals (TCLP)

Analyte	MB Result	RL			
Arsenic	ND	0.10	-	-	-
Barium	ND	1.0	-	-	-
Cadmium	ND	0.050	-	-	-
Chromium	ND	0.10	-	-	-
Lead	ND	0.10	-	-	-
Mercury	ND	0.010	-	-	-
Selenium	ND	0.10	-	-	-
Silver	ND	0.10	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Arsenic	9.66	9.63	10	97	96	75-125	0.249	20
Barium	100	98.6	100	100	99	75-125	1.43	20
Cadmium	9.39	9.23	10	94	92	75-125	1.78	20
Chromium	9.23	9.09	10	92	91	75-125	1.53	20
Lead	9.53	9.30	10	95	93	75-125	2.38	20
Mercury	0.233	0.230	0.25	93	92	75-125	1.55	20
Selenium	9.71	9.62	10	97	96	75-125	0.952	20
Silver	9.84	9.77	10	98	98	75-125	0	20

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CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 1808177

ClientCode: FC

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQUIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Dry-Weight

Report to:

Craig R. Fletcher
Fletcher Consultants, Inc.
4858 Harbord Drive
Oakland, CA 94618
(510) 654-3486 FAX: (510) 654-3399

Email: fci2000@sbcglobal.net; craig@fletchercon
cc/3rd Party: emie.bloecher@vistroenergy.com;
PO:
Project: MCWP Closure Project

Bill to:

Craig R. Fletcher
Fletcher Consultants, Inc.
4858 Harbord Drive
Oakland, CA 94618

Requested TAT: 5 days;

Date Received: 08/03/2018

Date Logged: 08/03/2018

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1808177-001	MLS18-136	Solid	8/2/2018 11:00	☐	A	A	A	A								
1808177-002	MLS18-137	Solid	8/2/2018 12:00	☐	A	A	A	A								
1808177-003	MLS18-138	Solid	8/2/2018 11:15	☐	A	A	A	A								
1808177-004	MLS18-139	Solid	8/2/2018 11:30	☐	A	A	A	A								

Test Legend:

1	CAM17MS_STLC_S	2	CAMMETMS_TTLC_S	3	PH_S	4	RCRAMS_TCLP_S
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



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WORK ORDER SUMMARY

Client Name: FLETCHER CONSULTANTS, INC.

Project: MCWP Closure Project

Work Order: 1808177

Client Contact: Craig R. Fletcher

QC Level: LEVEL 2

Contact's Email: fci2000@sbcglobal.net;
craig@fletcherconsultantsinc.com

Comments:

Date Logged: 8/3/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1808177-001A	MLS18-136	Solid	SW6020 (RCRA Metals) (TCLP)	1	16OZ GJ, Unpres	☐	8/2/2018 11:00	5 days*		☐	
			SW9045C (pH)			☐		5 days		☐	
			SW6020 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc>			☐		5 days		☐	
			SW6020 (CAM 17) (STLC)			☐		5 days*		☐	
1808177-002A	MLS18-137	Solid	SW6020 (RCRA Metals) (TCLP)	1	16OZ GJ, Unpres	☐	8/2/2018 12:00	5 days*		☐	
			SW9045C (pH)			☐		5 days		☐	
			SW6020 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc>			☐		5 days		☐	
			SW6020 (CAM 17) (STLC)			☐		5 days*		☐	
1808177-003A	MLS18-138	Solid	SW6020 (RCRA Metals) (TCLP)	1	16OZ GJ, Unpres	☐	8/2/2018 11:15	5 days*		☐	
			SW9045C (pH)			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



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WORK ORDER SUMMARY

Client Name: FLETCHER CONSULTANTS, INC.

Project: MCWP Closure Project

Work Order: 1808177

Client Contact: Craig R. Fletcher

QC Level: LEVEL 2

Contact's Email: fci2000@sbcglobal.net;
craig@fletcherconsultantsinc.com

Comments:

Date Logged: 8/3/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1808177-003A	MLS18-138	Solid	SW6020 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc> SW6020 (CAM 17) (STLC)	1	16OZ GJ, Unpres	☐ ☐	8/2/2018 11:15	5 days 5 days*		☐ ☐	
1808177-004A	MLS18-139	Solid	SW6020 (RCRA Metals) (TCLP) SW9045C (pH) SW6020 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc> SW6020 (CAM 17) (STLC)	1	16OZ GJ, Unpres	☐ ☐ ☐ ☐	8/2/2018 11:30	5 days* 5 days 5 days 5 days*		☐ ☐ ☐ ☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

1808177

MOSS LANDING POWER PLANT

Post Office Box 690 * Moss Landing, California 95039 * (831) 633-6786

CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT NAME: MCWP Closure Project						Analysis Required								Remarks
SAMPLERS (signature)						Report Attention:								
SAMPLE LOCATION	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE NUMBER AND DESCRIPTION	No. of containers	Volume Quantity (cc)	TCLP metals (RCRA 9)	Ti1022 WET metals CAM 17	TT20 CAM 17 metals	IRON	PH		
MCWP #192	8/2/18	1100		X	MLS18-136 2-55 drums of solids from MCWP Filter F1 Hering MCWP #1,2 Flushing Water	1	500	X	X	X	X	X	1-week Turnaround requested ernie.bloecher@vistraenergy.com	
MCWP #3	8/2/18	1200		X	MLS18-137 1-55 drum of solids from F1 Hering MCWP #3 Flushing Water	1	500	X	X	X	X	X		
Harz pad	8/2/18	1115		X	MLS18-138 3-55 gal. drums of Filter Cloths from Old Filter Press	1		X	X	X	X	X		
					MLS18-139	1		X	X	X	X	X		
Harz pad	8/2/18	1130		X	4-55 gal. drums of solid from MCWP Sumps of #6 & 7 (white Fiberglass Tanks)									

Signature	Print Name	Company	Date	Time
Relinquished by: [Signature]	RICHARD CARRILLO	Dynegy	8/2/18	1515
Received by: [Signature]	CRAIG R. FLETCHER	FCI	8/2/18	1515
Relinquished by: [Signature]	CRAIG R. FLETCHER	FCI	8/3/18	1532
Received by: [Signature]	JENA ALFARO	MAI	8/3/18	1532
Relinquished by:				
Received by Laboratory:				

Samples going to: 2.0° wet

recept contract laboratory's name, address, and phone # before transporting or shipping

8772529262

McCampbell Analytical
1534 Willow Plaz Rd
Pittsburg CA 94565

→ BILL TO FLETCHER CONSULTANTS, INC Page 24 of 25



Sample Receipt Checklist

Client Name: **Fletcher Consultants, Inc.**
Project: **MCWP Closure Project**

Date and Time Received: **8/3/2018 15:32**
Date Logged: **8/3/2018**
Received by: **Jena Alfaro**
Logged by: **Agustina Venegas**

WorkOrder No: **1808177** Matrix: Solid
Carrier: Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Sample IDs noted by Client on COC?	Yes ☒	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☒	No ☐	
Sampler's name noted on COC?	Yes ☒	No ☐	
COC agrees with Quote?	Yes ☐	No ☐	NA ☒

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☒
Shipping container/cooler in good condition?	Yes ☒	No ☐	
Samples in proper containers/bottles?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☒	No ☐	NA ☐
Samples Received on Ice?	Yes ☒	No ☐	

(Ice Type: WET ICE)

Sample/Temp Blank temperature	Temp: 2°C	NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☐ No ☐	NA ☒
Sample labels checked for correct preservation?	Yes ☒ No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐ No ☐	NA ☒

UCMR Samples:

pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?	Yes ☐ No ☐	NA ☒
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?	Yes ☐ No ☐	NA ☒

Comments:



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"When Quality Counts"

Analytical Report

WorkOrder: 1808177

Report Created for: Fletcher Consultants, Inc.

4858 Harbord Drive
Oakland, CA 94618

Project Contact: Craig R. Fletcher

Project P.O.:

Project: MCWP Closure Project

Project Received: 08/03/2018

Analytical Report reviewed & approved for release on 08/08/2018 by:

Jennifer Lagerbom
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.



Solids from Filtering/Solids from Flangeless
Boxes/
Filter Press
Cloths from
plates



Glossary of Terms & Qualifier Definitions

Client: Fletcher Consultants, Inc.

Project: MCWP Closure Project

WorkOrder: 1808177

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



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Glossary of Terms & Qualifier Definitions

Client: Fletcher Consultants, Inc.
Project: MCWP Closure Project
WorkOrder: 1808177

Analytical Qualifiers

a1 Sample diluted due to matrix interference
g3 pH sample volume was reduced due to nature of the sample.

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/4/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Drums - Solids
from Piping Flush H₂O
Pl₂

CAM / CCR 17 Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-136	1808177-001A	Solid	08/02/2018 11:00	ICP-MS3 162SMPL.D	162712

Analytes	Result	RL	QE	Date Analyzed
Antimony	ND	0.10	1	08/07/2018 02:07
Arsenic	ND	0.10	1	08/07/2018 02:07
Barium	1.5	1.0	1	08/07/2018 02:07
Beryllium	ND	0.10	1	08/07/2018 02:07
Cadmium	ND	0.050	1	08/07/2018 02:07
Chromium	1.8	0.10	1	08/07/2018 02:07
Cobalt	0.18	0.10	1	08/07/2018 02:07
Copper	16	0.10	1	08/07/2018 02:07
Lead	0.40	0.10	1	08/07/2018 02:07
Mercury	ND	0.010	1	08/07/2018 02:07
Molybdenum	0.13	0.10	1	08/07/2018 02:07
Nickel	5.7	0.10	1	08/07/2018 02:07
Selenium	ND	0.10	1	08/07/2018 02:07
Silver	ND	0.10	1	08/07/2018 02:07
Thallium	ND	0.10	1	08/07/2018 02:07
Vanadium	5.9	0.10	1	08/07/2018 02:07
Zinc	10	1.0	1	08/07/2018 02:07

Analyst(s): ND

(Cont.)

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1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mcccampbell.com / E-mail: main@mcccampbell.com

Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/4/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

*Solids from filtering
P#3 Flush H₂O*

CAM / CCR 17 Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-137	1808177-002A	Solid	08/02/2018 12:00	ICP-MS3 166SMPL.D	162712
Analytes	Result	RL	DE	Date Analyzed	
Antimony	ND	0.10	1	08/07/2018 01:30	
Arsenic	ND	0.10	1	08/07/2018 01:30	
Barium	2.7	1.0	1	08/07/2018 01:30	
Beryllium	ND	0.10	1	08/07/2018 01:30	
Cadmium	ND	0.050	1	08/07/2018 01:30	
Chromium	4.3	0.10	1	08/07/2018 01:30	
Cobalt	0.32	0.10	1	08/07/2018 01:30	
Copper	0.18	0.10	1	08/07/2018 01:30	
Lead	0.88	0.10	1	08/07/2018 01:30	
Mercury	0.019	0.010	1	08/07/2018 01:30	
Molybdenum	0.46	0.10	1	08/07/2018 01:30	
Nickel	7.5	0.10	1	08/07/2018 01:30	
Selenium	ND	0.10	1	08/07/2018 01:30	
Silver	ND	0.10	1	08/07/2018 01:30	
Thallium	ND	0.10	1	08/07/2018 01:30	
Vanadium	8.1	0.10	1	08/07/2018 01:30	
Zinc	25	1.0	1	08/07/2018 01:30	

Analyst(s): ND

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/4/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

from
Filter cloths - Filter
Press Plates

CAM / CCR 17 Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-138	1808177-003A	Solid	08/02/2018 11:15	ICP-MS3 175SMPL.D	162712

Analytes	Result	RL	DE	Date Analyzed
Antimony	ND	0.10	1	08/07/2018 03:28
Arsenic	ND	0.10	1	08/07/2018 03:28
Barium	ND	1.0	1	08/07/2018 03:28
Beryllium	ND	0.10	1	08/07/2018 03:28
Cadmium	ND	0.050	1	08/07/2018 03:28
Chromium	0.29	0.10	1	08/07/2018 03:28
Cobalt	ND	0.10	1	08/07/2018 03:28
Copper	130	1.0	10	08/08/2018 03:19
Lead	ND	0.10	1	08/07/2018 03:28
Mercury	ND	0.010	1	08/07/2018 03:28
Molybdenum	ND	0.10	1	08/07/2018 03:28
Nickel	0.55	0.10	1	08/07/2018 03:28
Selenium	ND	0.10	1	08/07/2018 03:28
Silver	ND	0.10	1	08/07/2018 03:28
Thallium	ND	0.10	1	08/07/2018 03:28
Vanadium	0.47	0.10	1	08/07/2018 03:28
Zinc	240	1.0	1	08/07/2018 03:28

Analyst(s): ND

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/4/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L

Solids V6+7 fiberglass tanks

CAM / CCR 17 Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-139	1808177-004A	Solid	08/02/2018 11:30	ICP-MS3 160SMPLD	162712

Analytes	Result	RL	DE	Date Analyzed
Antimony	ND	0.10	1	08/07/2018 00:52
Arsenic	ND	0.10	1	08/07/2018 00:52
Barium	ND	1.0	1	08/07/2018 00:52
Beryllium	ND	0.10	1	08/07/2018 00:52
Cadmium	ND	0.050	1	08/07/2018 00:52
Chromium	1.6	0.10	1	08/07/2018 00:52
Cobalt	ND	0.10	1	08/07/2018 00:52
Copper	1.7	0.10	1	08/07/2018 00:52
Lead	ND	0.10	1	08/07/2018 00:52
Mercury	ND	0.010	1	08/07/2018 00:52
Molybdenum	ND	0.10	1	08/07/2018 00:52
Nickel	3.2	0.10	1	08/07/2018 00:52
Selenium	ND	0.10	1	08/07/2018 00:52
Silver	ND	0.10	1	08/07/2018 00:52
Thallium	ND	0.10	1	08/07/2018 00:52
Vanadium	0.54	0.10	1	08/07/2018 00:52
Zinc	ND	1.0	1	08/07/2018 00:52

Analyst(s): ND



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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/3/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

Solids, pipe flush
H₂O, Ponds 1+2

CAM / CCR 17 Metals + Misc. Elements

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-136	1808177-001A	Solid	08/02/2018 11:00	ICP-MS1 030SMPL.D	162689

Analytes	Result	RL	DE	Date Analyzed
Antimony	3.6	0.50	1	08/07/2018 12:20
Arsenic	16	0.50	1	08/07/2018 12:20
Barium	62	5.0	1	08/07/2018 12:20
Beryllium	ND	0.50	1	08/07/2018 12:20
Cadmium	0.78	0.25	1	08/07/2018 12:20
Chromium	610	25	50	08/07/2018 19:24
Cobalt	25	0.50	1	08/07/2018 12:20
Copper	610	25	50	08/07/2018 19:24
Iron	330,000	1000	50	08/07/2018 19:24
Lead	120	0.50	1	08/07/2018 12:20
Mercury	49	2.5	50	08/07/2018 19:24
Molybdenum	72	0.50	1	08/07/2018 12:20
Nickel	520	25	50	08/07/2018 19:24
Selenium	1.5	0.50	1	08/07/2018 12:20
Silver	ND	0.50	1	08/07/2018 12:20
Thallium	ND	0.50	1	08/07/2018 12:20
Vanadium	530	0.50	1	08/07/2018 12:20
Zinc	380	5.0	1	08/07/2018 12:20

Surrogates	REC (%)	Limits	
Terbium	100	70-130	08/07/2018 12:20

Analyst(s): ND

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/3/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

*Solids for filling
 Pond #3 flush water*

CAM / CCR 17 Metals + Misc. Elements

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-137	1808177-002A	Solid	08/02/2018 12:00	ICP-MS1 031SMPL.D	162689
Analytes	Result		RL	DE	Date Analyzed
Antimony	3.2		0.50	1	08/07/2018 12:26
Arsenic	10		0.50	1	08/07/2018 12:26
Barium	68		5.0	1	08/07/2018 12:26
Beryllium	ND		0.50	1	08/07/2018 12:26
Cadmium	1.2		0.25	1	08/07/2018 12:26
Chromium	340		0.50	1	08/07/2018 12:26
Cobalt	17		0.50	1	08/07/2018 12:26
Copper	380		0.50	1	08/07/2018 12:26
Iron	180,000		1000	50	08/07/2018 19:30
Lead	80		0.50	1	08/07/2018 12:26
Mercury	60		2.5	50	08/07/2018 19:30
Molybdenum	49		0.50	1	08/07/2018 12:26
Nickel	390		0.50	1	08/07/2018 12:26
Selenium	1.0		0.50	1	08/07/2018 12:26
Silver	ND		0.50	1	08/07/2018 12:26
Thallium	ND		0.50	1	08/07/2018 12:26
Vanadium	420		0.50	1	08/07/2018 12:26
Zinc	420		5.0	1	08/07/2018 12:26
Surrogates	REC (%)		Limits		
Terbium	102		70-130		08/07/2018 12:26
Analyst(s): ND					

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/3/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

Filter cloths from
Filter Inss Plates

CAM / CCR 17 Metals + Misc. Elements

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-138	1808177-003A	Solid	08/02/2018 11:15	ICP-MS1 032SMPL.D	162689
<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DE</u>	<u>Date Analyzed</u>	
Antimony	ND	0.50	1	08/08/2018 18:50	
Arsenic	ND	0.50	1	08/08/2018 18:50	
Barium	6.2	5.0	1	08/08/2018 18:50	
Beryllium	ND	0.50	1	08/08/2018 18:50	
Cadmium	ND	0.25	1	08/08/2018 18:50	
Chromium	4.9	0.50	1	08/08/2018 18:50	
Cobalt	1.0	0.50	1	08/08/2018 18:50	
Copper	47	0.50	1	08/08/2018 18:50	
Iron	3800	20	1	08/08/2018 18:50	
Lead	1.2	0.50	1	08/08/2018 18:50	
Mercury	0.14	0.050	1	08/08/2018 18:50	
Molybdenum	1.3	0.50	1	08/08/2018 18:50	
Nickel	7.3	0.50	1	08/08/2018 18:50	
Selenium	ND	0.50	1	08/08/2018 18:50	
Silver	ND	0.50	1	08/08/2018 18:50	
Thallium	ND	0.50	1	08/08/2018 18:50	
Vanadium	7.4	0.50	1	08/08/2018 18:50	
Zinc	40	5.0	1	08/08/2018 18:50	
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>			
Terbium	83	70-130		08/08/2018 18:50	
<u>Analyst(s):</u>	ND				

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/3/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

Solids from
UG + 7 Fiberglass
Tanks

CAM / CCR 17 Metals + Misc. Elements

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-139	1808177-004A	Solid	08/02/2018 11:30	ICP-MS1 101SMPL.D	162689
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DE</u>	<u>Date Analyzed</u>
Antimony	ND		10	20	08/07/2018 19:37
Arsenic	22		10	20	08/07/2018 19:37
Barium	ND		100	20	08/07/2018 19:37
Beryllium	ND		10	20	08/07/2018 19:37
Cadmium	ND		5.0	20	08/07/2018 19:37
Chromium	600		10	20	08/07/2018 19:37
Cobalt	22		10	20	08/07/2018 19:37
Copper	570		10	20	08/07/2018 19:37
Iron	580,000		400	20	08/07/2018 19:37
Lead	66		10	20	08/07/2018 19:37
Mercury	ND		1.0	20	08/07/2018 19:37
Molybdenum	60		10	20	08/07/2018 19:37
Nickel	290		10	20	08/07/2018 19:37
Selenium	ND		10	20	08/07/2018 19:37
Silver	ND		10	20	08/07/2018 19:37
Thallium	ND		10	20	08/07/2018 19:37
Vanadium	250		10	20	08/07/2018 19:37
Zinc	ND		100	20	08/07/2018 19:37
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
Terbium	101		70-130		08/07/2018 19:37
<u>Analyst(s):</u> ND			<u>Analytical Comments:</u> a1		

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/3/18-8/6/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW9045C
Analytical Method: SW9045C
Unit: pH units @ 25°C

pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-136	1808177-001A	Solid	08/02/2018 11:00	WetChem	162693

Analytes	Result	Accuracy	DF	Date Analyzed
pH	6.43	±0.1	1	08/03/2018 16:06

Analyst(s): PHU

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-137	1808177-002A	Solid	08/02/2018 12:00	WetChem	162693

Analytes	Result	Accuracy	DF	Date Analyzed
pH	6.72	±0.1	1	08/03/2018 16:09

Analyst(s): PHU

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-138	1808177-003A	Solid	08/02/2018 11:15	WetChem	162752

Analytes	Result	Accuracy	DF	Date Analyzed
pH	7.85	±0.1	1	08/06/2018 13:30

Analyst(s): PHU

Analytical Comments: g3

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-139	1808177-004A	Solid	08/02/2018 11:30	WetChem	162693

Analytes	Result	Accuracy	DF	Date Analyzed
pH	4.03	±0.1	1	08/03/2018 16:12

Analyst(s): PHU



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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/5/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-136	1808177-001A	Solid	08/02/2018 11:00	ICP-MS3 087SMPL.D	162719

Analytes	Result	RL	DE	Date Analyzed
Arsenic	ND	0.10	1	08/06/2018 18:22
Barium	ND	1.0	1	08/06/2018 18:22
Cadmium	ND	0.050	1	08/06/2018 18:22
Chromium	ND	0.10	1	08/06/2018 18:22
Lead	ND	0.10	1	08/06/2018 18:22
Mercury	ND	0.010	1	08/06/2018 18:22
Selenium	ND	0.10	1	08/06/2018 18:22
Silver	ND	0.10	1	08/06/2018 18:22

Analyst(s): MIG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-137	1808177-002A	Solid	08/02/2018 12:00	ICP-MS3 088SMPL.D	162719

Analytes	Result	RL	DE	Date Analyzed
Arsenic	ND	0.10	1	08/06/2018 18:28
Barium	ND	1.0	1	08/06/2018 18:28
Cadmium	ND	0.050	1	08/06/2018 18:28
Chromium	ND	0.10	1	08/06/2018 18:28
Lead	ND	0.10	1	08/06/2018 18:28
Mercury	ND	0.010	1	08/06/2018 18:28
Selenium	ND	0.10	1	08/06/2018 18:28
Silver	ND	0.10	1	08/06/2018 18:28

Analyst(s): MIG

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Analytical Report

Client: Fletcher Consultants, Inc.
Date Received: 8/3/18 15:32
Date Prepared: 8/5/18
Project: MCWP Closure Project

WorkOrder: 1808177
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L

Metals (TCLP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-138	1808177-003A	Solid	08/02/2018 11:15	ICP-MS3 089SMPL.D	162719

Analytes	Result	RL	DE	Date Analyzed
Arsenic	ND	0.10	1	08/06/2018 18:35
Barium	ND	1.0	1	08/06/2018 18:35
Cadmium	ND	0.050	1	08/06/2018 18:35
Chromium	ND	0.10	1	08/06/2018 18:35
Lead	ND	0.10	1	08/06/2018 18:35
Mercury	ND	0.010	1	08/06/2018 18:35
Selenium	ND	0.10	1	08/06/2018 18:35
Silver	ND	0.10	1	08/06/2018 18:35

Analyst(s): MIG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MLS18-139	1808177-004A	Solid	08/02/2018 11:30	ICP-MS3 090SMPL.D	162719

Analytes	Result	RL	DE	Date Analyzed
Arsenic	ND	0.10	1	08/06/2018 18:41
Barium	ND	1.0	1	08/06/2018 18:41
Cadmium	ND	0.050	1	08/06/2018 18:41
Chromium	ND	0.10	1	08/06/2018 18:41
Lead	ND	0.10	1	08/06/2018 18:41
Mercury	ND	0.010	1	08/06/2018 18:41
Selenium	ND	0.10	1	08/06/2018 18:41
Silver	ND	0.10	1	08/06/2018 18:41

Analyst(s): MIG



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Quality Control Report

Client: Fletcher Consultants, Inc.
Date Prepared: 8/4/18
Date Analyzed: 8/6/18
Instrument: ICP-MS3
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162712
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-162712

QC Summary Report for Metals (STLC)

Analyte	MB Result	RL			
Antimony	ND	0.10	-	-	-
Arsenic	ND	0.10	-	-	-
Barium	ND	1.0	-	-	-
Beryllium	ND	0.10	-	-	-
Cadmium	ND	0.050	-	-	-
Chromium	ND	0.10	-	-	-
Cobalt	ND	0.10	-	-	-
Copper	ND	0.10	-	-	-
Lead	ND	0.10	-	-	-
Mercury	ND	0.010	-	-	-
Molybdenum	ND	0.10	-	-	-
Nickel	ND	0.10	-	-	-
Selenium	ND	0.10	-	-	-
Silver	ND	0.10	-	-	-
Thallium	ND	0.10	-	-	-
Vanadium	ND	0.10	-	-	-
Zinc	ND	1.0	-	-	-

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Quality Control Report

Client: Fletcher Consultants, Inc.
Date Prepared: 8/4/18
Date Analyzed: 8/6/18
Instrument: ICP-MS3
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162712
Extraction Method: CA Title 22
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-162712

QC Summary Report for Metals (STLC)

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	10.8	10.8	10	108	108	75-125	0	20
Arsenic	9.97	9.98	10	100	100	75-125	0	20
Barium	102	101	100	102	101	75-125	1.20	20
Beryllium	9.88	9.83	10	99	98	75-125	0.528	20
Cadmium	9.77	9.62	10	98	96	75-125	1.59	20
Chromium	9.64	9.68	10	96	97	75-125	0.414	20
Cobalt	9.57	9.57	10	96	96	75-125	0	20
Copper	9.70	9.69	10	97	97	75-125	0	20
Lead	9.74	9.68	10	97	97	75-125	0	20
Mercury	0.239	0.250	0.25	96	100	75-125	4.50	20
Molybdenum	10.2	10.2	10	102	102	75-125	0	20
Nickel	9.83	9.84	10	98	98	75-125	0	20
Selenium	9.95	9.94	10	100	99	75-125	0.141	20
Silver	10.1	10.0	10	101	100	75-125	0.993	20
Thallium	9.76	9.65	10	98	97	75-125	1.11	20
Vanadium	9.66	9.55	10	97	96	75-125	1.10	20
Zinc	97.8	97.6	100	98	98	75-125	0	20



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Quality Control Report

Client: Fletcher Consultants, Inc.
Date Prepared: 8/3/18
Date Analyzed: 8/6/18
Instrument: ICP-MS1
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162689
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-162689

QC Summary Report for Metals

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.50	-	-	-
Arsenic	ND	0.50	-	-	-
Barium	ND	5.0	-	-	-
Beryllium	ND	0.50	-	-	-
Cadmium	ND	0.25	-	-	-
Chromium	ND	0.50	-	-	-
Cobalt	ND	0.50	-	-	-
Copper	ND	0.50	-	-	-
Iron	ND	20	-	-	-
Lead	ND	0.50	-	-	-
Mercury	ND	0.050	-	-	-
Molybdenum	ND	0.50	-	-	-
Nickel	ND	0.50	-	-	-
Selenium	ND	0.50	-	-	-
Silver	ND	0.50	-	-	-
Thallium	ND	0.50	-	-	-
Vanadium	ND	0.50	-	-	-
Zinc	ND	5.0	-	-	-
Surrogate Recovery					
Terbium	521		500	104	70-130

(Cont.)

CA ELAP 1644 • NELAP 4033ORELAP



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WorkOrder: 1808177
BatchID: 162689
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg
Sample ID: MB/LCS/LCSD-162689

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	53.5	52.2	50	107	104	75-125	2.57	20
Arsenic	51.4	50.7	50	103	101	75-125	1.49	20
Barium	536	522	500	107	104	75-125	2.59	20
Beryllium	52.8	51.2	50	106	102	75-125	2.92	20
Cadmium	51.6	50.2	50	103	100	75-125	2.65	20
Chromium	52.3	51.0	50	105	102	75-125	2.52	20
Cobalt	50.5	49.3	50	101	99	75-125	2.38	20
Copper	51.9	50.9	50	104	102	75-125	1.89	20
Iron	5100	5010	5000	102	100	75-125	1.66	20
Lead	51.6	49.9	50	103	100	75-125	3.21	20
Mercury	1.25	1.25	1.25	100	100	75-125	0	20
Molybdenum	51.8	50.1	50	104	100	75-125	3.33	20
Nickel	52.6	51.0	50	105	102	75-125	3.05	20
Selenium	51.3	50.0	50	103	100	75-125	2.51	20
Silver	53.1	51.4	50	106	103	75-125	3.18	20
Thallium	50.6	48.9	50	101	98	75-125	3.54	20
Vanadium	52.2	50.8	50	104	102	75-125	2.68	20
Zinc	519	508	500	104	102	75-125	2.12	20
Surrogate Recovery								
Terbium	534	521	500	107	104	70-130	2.48	20



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Quality Control Report

Client: Fletcher Consultants, Inc.
Date Prepared: 8/3/18
Date Analyzed: 8/3/18
Instrument: WetChem
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162693
Extraction Method: SW9045C
Analytical Method: SW9045C
Unit: pH units @ 25°C

QC Summary Report for pH

SampleID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1808172-001A	7.43	1	7.41	1	0.02	0.1

Client: Fletcher Consultants, Inc.
Date Prepared: 8/6/18
Date Analyzed: 8/6/18
Instrument: WetChem
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162752
Extraction Method: SW9045C
Analytical Method: SW9045C
Unit: pH units @ 25°C

QC Summary Report for pH

SampleID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1808164-001A	11.41	1	11.41	1	0	0.1



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Quality Control Report

Client: Fletcher Consultants, Inc.
Date Prepared: 8/5/18
Date Analyzed: 8/6/18
Instrument: ICP-MS3
Matrix: Soil
Project: MCWP Closure Project

WorkOrder: 1808177
BatchID: 162719
Extraction Method: SW1311/SW3010
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-162719

QC Summary Report for Metals (TCLP)

Analyte	MB Result	RL			
Arsenic	ND	0.10	-	-	-
Barium	ND	1.0	-	-	-
Cadmium	ND	0.050	-	-	-
Chromium	ND	0.10	-	-	-
Lead	ND	0.10	-	-	-
Mercury	ND	0.010	-	-	-
Selenium	ND	0.10	-	-	-
Silver	ND	0.10	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Arsenic	9.66	9.63	10	97	96	75-125	0.249	20
Barium	100	98.6	100	100	99	75-125	1.43	20
Cadmium	9.39	9.23	10	94	92	75-125	1.78	20
Chromium	9.23	9.09	10	92	91	75-125	1.53	20
Lead	9.53	9.30	10	95	93	75-125	2.38	20
Mercury	0.233	0.230	0.25	93	92	75-125	1.55	20
Selenium	9.71	9.62	10	97	96	75-125	0.952	20
Silver	9.84	9.77	10	98	98	75-125	0	20

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CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 1808177

ClientCode: FC

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQULS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Dry-Weight

Report to:

Craig R. Fletcher
Fletcher Consultants, Inc.
4858 Harbord Drive
Oakland, CA 94618
(510) 654-3486 FAX: (510) 654-3399

Email: fci2000@sbcglobal.net; craig@fletchercon
cc3rd Party: emie.bloecher@vistroenergy.com;
PO:
Project: MCWP Closure Project

Bill to:

Craig R. Fletcher
Fletcher Consultants, Inc.
4858 Harbord Drive
Oakland, CA 94618

Requested TAT: 5 days;

Date Received: 08/03/2018

Date Logged: 08/03/2018

Lab ID	Client ID	MatrixCo	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1808177-001	MLS18-136	Solid	8/2/2018 11:00	☐	A	A	A	A								
1808177-002	MLS18-137	Solid	8/2/2018 12:00	☐	A	A	A	A								
1808177-003	MLS18-138	Solid	8/2/2018 11:15	☐	A	A	A	A								
1808177-004	MLS18-139	Solid	8/2/2018 11:30	☐	A	A	A	A								

Test Legend:

1	CAM17MS_STLC_S
5	
9	

2	CAMMETMS_TTLC_S
6	
10	

3	PH_S
7	
11	

4	RCRAMS_TCLP_S
8	
12	

Prepared by: Agustina Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



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WORK ORDER SUMMARY

Client Name: FLETCHER CONSULTANTS, INC.

Project: MCWP Closure Project

Work Order: 1808177

Client Contact: Craig R. Fletcher

QC Level: LEVEL 2

Contact's Email: fci2000@sbcglobal.net;
craig@fletcherconsultantsinc.com

Comments:

Date Logged: 8/3/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1808177-001A	MLS18-136	Solid	SW6020 (RCRA Metals) (TCLP)	1	16OZ GI, Unpres	☐	8/2/2018 11:00	5 days*		☐	
			SW9045C (pH)			☐		5 days		☐	
			SW6020 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc>			☐		5 days		☐	
			SW6020 (CAM 17) (STLC)			☐		5 days*		☐	
1808177-002A	MLS18-137	Solid	SW6020 (RCRA Metals) (TCLP)	1	16OZ GI, Unpres	☐	8/2/2018 12:00	5 days*		☐	
			SW9045C (pH)			☐		5 days		☐	
			SW6020 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc>			☐		5 days		☐	
			SW6020 (CAM 17) (STLC)			☐		5 days*		☐	
1808177-003A	MLS18-138	Solid	SW6020 (RCRA Metals) (TCLP)	1	16OZ GI, Unpres	☐	8/2/2018 11:15	5 days*		☐	
			SW9045C (pH)			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



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WORK ORDER SUMMARY

Client Name: FLETCHER CONSULTANTS, INC.

Project: MCWP Closure Project

Work Order: 1808177

Client Contact: Craig R. Fletcher

QC Level: LEVEL 2

Contact's Email: fci2000@sbcglobal.net;
craig@fletcherconsultantsinc.com

Comments:

Date Logged: 8/3/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1808177-003A	MLS18-138	Solid	SW6020 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc> SW6020 (CAM 17) (STLC)	1	16OZ G3, Unpres	☐	8/2/2018 11:15	5 days		☐	
						☐		5 days*		☐	
1808177-004A	MLS18-139	Solid	SW6020 (RCRA Metals) (TCLP) SW9045C (pH) SW6020 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc> SW6020 (CAM 17) (STLC)	1	16OZ G3, Unpres	☐ ☐ ☐	8/2/2018 11:30	5 days* 5 days 5 days		☐ ☐ ☐	
						☐		5 days*		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

1808177

MOSS LANDING POWER PLANT

Post Office Box 690 * Moss Landing, California 95039 * (831) 633-6786

CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT NAME: <u>MOSS Closure Project</u>						Analysis Required								Remarks	
SAMPLERS (signature) <u>[Signature]</u>						Remarks									
SAMPLE LOCATION	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE NUMBER AND DESCRIPTION	No. of containers	Volume Quantity (L)	TELL MEAS (PCE)	TELL MEAS (WET)	TELL MEAS (GAM)	TELL MEAS (C)	TELL MEAS (M)	TELL MEAS (I)	TELL MEAS (F)	
MCWP #192	8/2/18	1100		X	MLS1B-136 2-55 drums of solids from MCWP #192 Filter Housing	1	500	X	X	X	X	X	X		
MCWP #3	8/2/18	1200		X	MLS1B-137 1-55 drums of solids from Filter Housing MCWP #3	1	500	X	X	X	X	X	X		
Harb Rod	8/2/18	1115		X	MLS1B-138 3-55 drums of solids from Filter Housing	1		X	X	X	X	X	X		
Harb Rod	8/3/18	1130		X	MLS1B-139 4-55 drums of solids from MCWP Sample of 8/2/18 (white fibers, less Tars)	1		X	X	X	X	X	X		
Signature						Print Name						Company		Date	Time
Relinquished by <u>[Signature]</u>						RICHARD CARRILLO						DUPONT		8/2/18	1515
Received by <u>[Signature]</u>						KATE E. FLETCHER						ECL		8/2/18	1515
Relinquished by <u>[Signature]</u>						JENNA ALFARO						FPI		8/3/18	1532
Received by <u>[Signature]</u>												MAI		8/3/18	1532
Relinquished by															
Received by Laboratory															

Samples going to: 2:00 AM

MOSS LANDING POWER PLANT
1534 Willow Moss Rd
Pittsburg, CA 94565

→ BILL TO FLEXTRIL CONSULTANTS, INC. Page 24 of 25



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Sample Receipt Checklist

Client Name: **Fletcher Consultants, Inc.**
Project: **MCWP Closure Project**

Date and Time Received: **8/3/2018 15:32**
Date Logged: **8/3/2018**
Received by: **Jena Alfaro**
Logged by: **Agustina Venegas**

WorkOrder No: **1808177** Matrix: **Solid**
Carrier: **Client Drop-in**

Chain of Custody (COC) Information

Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Sample IDs noted by Client on COC?	Yes ☒	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☒	No ☐	
Sampler's name noted on COC?	Yes ☒	No ☐	
COC agrees with Quote?	Yes ☐	No ☐	NA ☒

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☒
Shipping container/cooler in good condition?	Yes ☒	No ☐	
Samples in proper containers/bottles?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☒	No ☐	NA ☐
Samples Received on Ice?	Yes ☒	No ☐	
(Ice Type: WET ICE)			
Sample/Temp Blank temperature	Temp: 2°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	NA ☒
Sample labels checked for correct preservation?	Yes ☒	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☐	NA ☒
UCMR Samples:			
pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?	Yes ☐	No ☐	NA ☒
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?	Yes ☐	No ☐	NA ☒

Comments:

MOSS LANDING POWER PLANT
METAL CLEANING WASTE IMPOUNDMENT
FOURTH QUARTER AND ANNUAL 2018 GROUNDWATER
MONITORING REPORT

January 2018

Prepared for:

Dynegy Moss Landing, LLC

Prepared By:



Aptim Environmental and Infrastructure, Inc.
180 Promenade Circle, Suite 320
Sacramento, California 95834

Project No. 631223270



EXECUTIVE SUMMARY

Aptim Environmental and Infrastructure, Inc. (APTIM) has prepared this Moss Landing Power Plant Quarterly Groundwater Monitoring Report for the Metal Cleaning Waste Impoundments (MCWI) in accordance with the reporting requirements of the California Central Coast Regional Water Quality Control Board Order Number R3-2014-0029, the United States Environmental Protection Agency (USEPA), and the California Environmental Protection Agency, California Department of Toxic Substances Control (DTSC), Hazardous Waste Facility Permit USEPA ID Number CAT080011653 (September 2017). This report presents: 1) a tabular summary of laboratory analytical results for groundwater samples collected on October 16th and 17th, 2018; 2) historical trend graphs for water chemistry data, which comply with the reporting requirements for this site; 3) determination of the gradient, direction, and velocity of groundwater flow beneath the waste management area; 4) statistical analysis of monitoring parameters; 5) leachate and sludge monitoring information; and 6) annual reporting information. All are included in this report in accordance with the above-mentioned permits, the groundwater monitoring plan Revision 14: March 2017, Section 6, Pages 6-18 and 6-19, and the California Code of Regulations, Title 22, 66264.97(e)(14), (15), and (16).

The following is a brief summary of this quarter's observations, laboratory results, and field tests.

Visual inspections of the MCWI leachate and groundwater collection systems were performed and logged daily by plant personnel.

Statistical analysis results (Table 4) from the routine samples collected during the fourth quarter 2018 monitoring event indicated a potential Statistically Significant Increase (SSI) for molybdenum in well W-13.

Verification samples were collected on November 19^h, 2018. Statistical analyses results (Table 5) from the November 2018 verification samples (Ver A and Ver B) confirmed the fourth quarter 2018 SSIs for molybdenum in well W-13.



A demonstration report for molybdenum at Well W-13 concluded that it is likely that the molybdenum detected in well W-13 is naturally occurring and not a result of site activities.

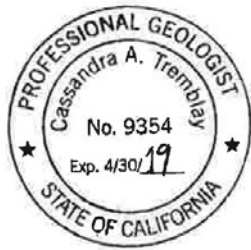
A review of the historical molybdenum data from the site wells indicated the following:

- Molybdenum is detected at wells W-1-R and W-12 at significantly higher naturally occurring concentrations.
- Molybdenum also appears to naturally fluctuate in the aquifer as demonstrated by the relatively higher levels during the 2011 to 2014 time period, followed by relatively lower levels during the 2015 to 2017 time period. Starting again in 2018, it appears that molybdenum levels are again naturally rising in the aquifer at the site.
- Many of the other wells at the site (W-3-R, W-10, W-11, and W-14-R) detect molybdenum at similar or higher levels than W-13, but do not exceed their statistical concentration limits. This indicates that the levels of molybdenum detected at W-13 are within the naturally occurring levels for the site
- Based on data from W-11, the up gradient well, fluctuations in naturally occurring molybdenum in the aquifer could be in the range as those detected at W-13.
- In addition, trip blank and method blank samples had molybdenum contamination in April, May, and September 2018, which shows lab error and calls into question the accuracy of low detected values.

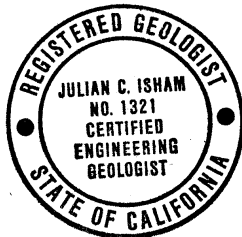
In addition, the detection of relatively high concentrations of ammonia in the laboratory quality control samples show a high bias for that parameter in the site wells. That high laboratory bias is the likely reason for the apparent ammonia SSIs in the site wells.

Moss Landing Power Plant
Metal Cleaning Waste Impoundment
Quarterly Groundwater Monitoring Report
Fourth Quarter and Annual 2018

The information presented in this report has been compiled from different sources. APTIM collected the field measurements and groundwater samples, prepared the groundwater contour map, calculated the flow velocity, and compiled the report. Groundwater samples were analyzed by BC Laboratories, Inc. of Bakersfield, California. Moss Landing Power Plant (MLPP) provided the leachate collection system data and the quarterly surface impoundment activities. For the annual portion of this report, MLPP provided the Annual Liner Inspection Report of the de-construction of the primary liners as part of Closure of the Class I Surface Impoundments followed by the inspection of the secondary liners. The professionals whose signatures appear below certify that all the data obtained from the above sources are included in this report.



Cassie Tremblay
Senior Geologist and Project Manager, P.G.



Julian Isham
Geology Manager, P.G., C.E.G., CHG

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Section 1

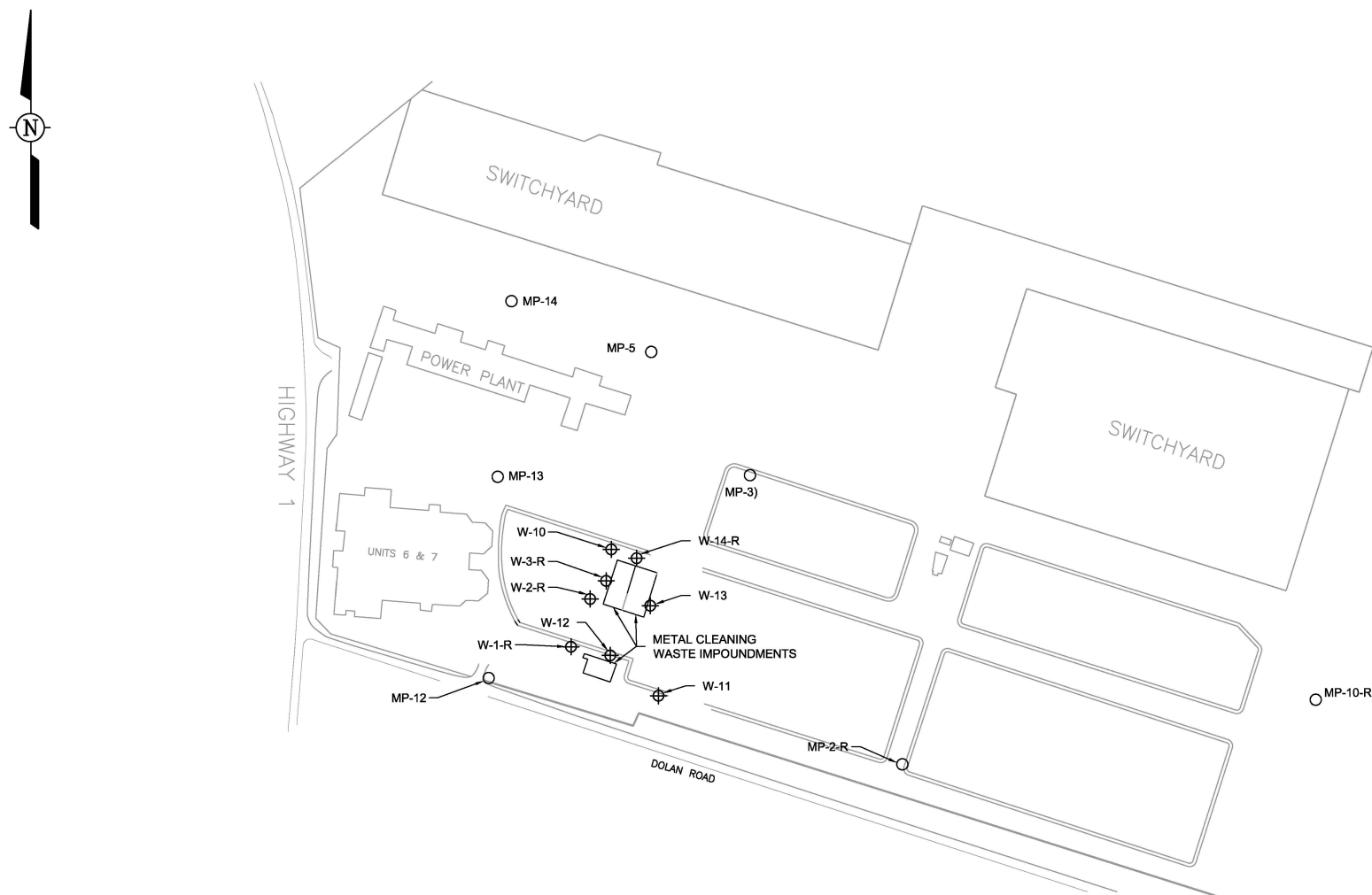
INTRODUCTION

This report presents results of quarterly groundwater sampling performed in July 2018 and the verification sampling results performed in September 2018, at the Moss Landing Power Plant's Metal Cleaning Waste Impoundments (MCWI). Groundwater sampling was conducted on October 16th and 17th, 2018 and potential SSI verification sampling was conducted on November 19th, 2018. Samples were collected and analyzed in compliance with the Waste Discharge Requirements, Order No. R3-2014-0029 of the Monitoring and Reporting Program issued by the California Central Coast Regional Water Quality Control Board (CCCRWQCB) and DTSC Hazardous Waste Facility Permit (HWFP), Moss Landing Power Plant (September 2017). Figure 1 shows the locations of the 8 monitoring wells and 7 piezometers at the site.

Section 2 of the report describes field sampling methods used in conjunction with collection of groundwater samples. Sections 3 and 4 present analytical results for the detection monitoring program parameters and linear trend graphs of the analytical results. Laboratory analysis was performed by BC Laboratories, Inc. (BC) of Bakersfield, California. BC is certified by the California State Water Resources Control Board Environmental Laboratory Accreditation Program for the requested analyses. Section 5 summarizes the results of hydrogeological measurements from site piezometers and groundwater monitoring wells for the fourth quarter 2018.

Section 6 describes the statistical methodology, the tolerance limit method and presents statistical analysis results as required by the HWFP. Appendix E contains a summary of this Quarterly Surface Impoundment activities. Activities regarding the regulated impoundment's leachate detection, collection and removal systems are described in Section 7 and the detection and removal record is in Appendix F. Section 8 discusses the Closure process of the Impoundments and refers to Appendix G, which includes the primary liner deconstruction and secondary liner inspection report.

IMAGE	X-REF	OFFICE	DRAWN BY		CHECKED BY		APPROVED BY		DRAWING NUMBER	631223270-18Q3
---	---	PDX	KORSMO	9/30/18	CT	09/30/18	DE	09/30/18		



A horizontal scale bar with a black and white checkered pattern. Above the bar, the numbers 0, 500, and 1000 are printed. Below the bar, the text 'SCALE IN FEET' is printed.

Section 2

FIELD SAMPLING METHODS

Groundwater samples were collected from compliance monitoring wells W-1-R, W-2-R, W-3-R, W-10, W-11, W-12, W-13, and W-14-R on October 16th and 17th, 2018 and subsequently, on November 19th, 2018 additional verification samples were collected for molybdenum in well W-13, at Moss Landing Power Plant (see Figure 1 for the location of these wells). The monitoring wells were purged and sampled according to methods described in Section 6, Sampling and Analysis Plan (SAP) of the groundwater monitoring program (GWMP). Purging, sampling, and water level measurements were performed by APTIM personnel.

Copies of the field sampling logs are included as Appendix B. Water level data collected on October 16th, 2018 was utilized to produce a groundwater contour map to determine groundwater flow direction and to calculate the hydraulic gradient under the regulated impoundments. Water level information is presented in Section 5.

All samples were preserved as described in the SAP. The samples were delivered to BC Labs of Bakersfield, California, within allowable holding times. The laboratories analyzed the samples for those parameters listed in Table 5-3 of the SAP following analytical procedures listed on Table 6-6 of the SAP. USEPA methods employed are identified in the laboratory analytical test reports (Appendix C).

Statistical analysis methods for the groundwater monitoring program are outlined in Section 6 of this report and are described in detail in the GWMP (Section 7).

Section 3

NOVEMBER 2018 MONITORING PARAMETER RESULTS

Validated laboratory results for the monitoring wells are shown in Table 1. Table 2 contains the field measured parameters. Copies of the field logs, laboratory reports, with their Quality Control (QC) documentation and chain-of-custody records are presented in Appendices B, C, and D, respectively.

The data was accepted by the laboratory because QC limits such as laboratory control standards and continuing calibration verification recovery were acceptable.

As part of the laboratory QC program, field and trip blank samples (consisting of American Society for Testing and Materials Type I deionized water) were analyzed along with the groundwater samples for quality assurance. The laboratory analytical reports for the field and trip blank samples were as follows:

Laboratory Report for Field Blank		Laboratory Report for Trip Blank	
Constituent	Units (mg/L)	Constituent	Units (mg/L)
Ammonia as N	0.022	Ammonia as N	ND
Hexavalent Chromium	0.019	Hexavalent Chromium	0.045
Dissolved Barium	0.00015	Dissolved Barium	ND
Dissolved Chromium	ND	Dissolved Chromium	ND
Dissolved Cobalt	ND	Dissolved Cobalt	ND
Dissolved Copper	ND	Dissolved Copper	0.00049
Dissolved Molybdenum	ND	Dissolved Molybdenum	0.000053
Dissolved Nickel	ND	Dissolved Nickel	ND
Dissolved Vanadium	ND	Dissolved Vanadium	ND
Dissolved Zinc	ND	Dissolved Zinc	ND
ND = non-detect			

The detection of several parameters in both the field blank and the trip blank samples is an indication of laboratory contamination.

Table 1
Laboratory Chemical Analysis Results
Moss Landing Power Plant - MCWI
Sampling Date: October 16-17, 2018

Units: mg/L (ppm)

Analyte		Method	Well No. W-1-R				Well No. W-2-R				Well No. W-3-R				Well No. W-10				Well No. W-11			
			PQL	MDL		Result	PQL	MDL		Result	PQL	MDL		Result	PQL	MDL		Result	PQL	MDL		Result
MONITORING PARAMETERS																						
Ammonia-N	EPA-350.1	0.100	0.018	J	0.06	0.100	0.018		0.018	0.1000	0.018	<	0.018	0.100	0.018	<	0.018	0.100	0.018	J	0.02	
	EPA-218.6	0.200	0.000031	J	0.0039	0.200	0.000031	J	0.0015	0.2000	0.000031	J	0.0004	0.200	0.000031	J	0.0052	0.200	0.000031	J	0.0032	
Chromium, Hexavalent	200.8/6020	0.001	0.000066		0.140	0.001	0.000066		0.036	0.0010	0.000066		0.030	0.001	0.000066		0.058	0.001	0.000066		0.082	
Barium	EPA-200.8	0.003	0.000150		0.0050	0.003	0.000150	J	0.0023	0.0030	0.000150	J	0.0021	0.003	0.000150		0.0059	0.003	0.000150		0.0060	
Chromium	200.8/6020	0.001	0.00001	J	0.00049	0.001	0.00001	J	0.00005	0.0010	0.00001	J	0.00032	0.001	0.00001	J	0.00005	0.001	0.00001	J	0.00003	
Cobalt	EPA-200.8	0.002	0.00032	J	0.00120	0.002	0.00032	J	0.00074	0.0020	0.00032	J	0.00110	0.002	0.00032	J	0.00079	0.002	0.00032	J	0.00066	
Copper	200.8/6020	0.001	0.000033		0.00120	0.001	0.000033	J	0.00018	0.0010	0.000033	J	0.00081	0.001	0.000033	J	0.00054	0.001	0.000033	J	0.00071	
Molybdenum	EPA-200.8	0.002	0.00015		0.0180	0.002	0.00015		0.0049	0.0020	0.00015		0.0130	0.002	0.00015		0.0023	0.002	0.00015		0.0036	
Nickel	EPA-200.8	0.003	0.00039	J	0.0024	0.003	0.00039	J	0.0025	0.0030	0.00039		0.0041	0.003	0.00039		0.0031	0.003	0.00039		0.0039	
Vanadium	EPA-200.8	0.005	0.0022	J	0.0037	0.005	0.0022	<	0.0022	0.0050	0.0022	J	0.0024	0.005	0.0022	<	0.0022	0.005	0.0022	J	0.0024	
Zinc	EPA-200.8	0.005	0.0022	J	0.0037	0.005	0.0022	<	0.0022	0.0050	0.0022	J	0.0024	0.005	0.0022	<	0.0022	0.005	0.0022	J	0.0024	

Units: mg/L (ppm)

Analyte		Method	Well No. W-12				Well No. W-13				Well No. W-14-R				Well No. W-15			
			PQL	MDL	Result		PQL	MDL	Result		PQL	MDL	Result		PQL	MDL	Result	
MONITORING PARAMETERS																		
Ammonia-N	EPA-350.1	0.100	0.018	J	0.034	0.100	0.018	J	<	0.018	0.100	0.018	<	0.018	0.100	0.018	J	0.025
Chromium, Hexavalent	EPA-218.6	0.200	0.000031	J	0.0041	0.200	0.000031	J		0.0030	0.200	0.000031	J	0.0053	0.200	0.000031	J	0.0051
Barium	200.8/6020	0.001	0.000066		0.0610	0.001	0.00007			0.0410	0.001	0.000066		0.0590	0.001	0.000066		0.0580
Chromium	EPA-200.8	0.003	0.000150		0.00680	0.003	0.00015			0.00350	0.003	0.000150		0.00530	0.003	0.000150		0.00540
Cobalt	200.8/6020	0.001	0.000011	J	0.00034	0.001	0.00001	J		0.00026	0.001	0.00001	J	0.00002	0.001	0.00001	J	0.00002
Copper	EPA-200.8	0.002	0.000320	J	0.00100	0.002	0.00032	J		0.00079	0.002	0.00032	J	0.00063	0.002	0.00032	J	0.00063
Molybdenum	200.8/6020	0.001	0.000033		0.00350	0.001	0.00003	J		0.00064	0.001	0.000033	J	0.00062	0.001	0.000033	J	0.00061
Nickel	EPA-200.8	0.002	0.000150		0.0150	0.002	0.00015			0.0120	0.002	0.00015		0.0069	0.002	0.00015		0.0068
Vanadium	EPA-200.8	0.003	0.000390	J	0.0026	0.003	0.00039			0.0043	0.003	0.00039		0.0034	0.003	0.00039		0.0033
Zinc	EPA-200.8	0.005	0.002200	<	0.0022	0.005	0.00220	<		0.0022	0.005	0.0022	<	0.0022	0.005	0.0022	<	0.0022

MDL = Method Detection Limit

J indicates value detected above MDL but below PQL - estimated value

Table 2
Field Parameters Data Summary
Moss Landing Power Plant - MCWI
Sampling Date: October 16-17, 2018

WELL No.	SAMPLE DATE	GROUNDWATER				
		ELEVATION (ft.>MLLW) ¹	pH (units)	TEMP. (deg. C)	SPEC COND (umhos/cm)	TURBIDITY (NTU) ²
W-1-R	10/16/2018	5.13	6.50	17.40	4073	1.91
W-2-R	10/16/2018	4.66	6.61	19.00	959	1.21
W-3-R	10/16/2018	4.62	6.61	19.70	1835	2.42
W-10	10/17/2018	4.59	6.67	16.30	706	1.43
W-12	10/16/2018	3.71	6.83	17.40	1694	1.97
W-14-R	10/17/2018	4.58	6.51	12.30	726	0.77
W-11	10/16/2018	4.87	6.67	17.80	1569	1.41
W-13	10/16/2018	4.83	6.68	17.90	1221	1.08

¹ Feet above mean sea level.

² Nephelometric turbidity units.

Section 4

CHEMICAL ANALYSIS TREND GRAPHS

The site currently evaluates 8 wells (point-of-compliance wells W-1-R, W-2-R, W-3-R, W-10, W-11, W-12, W-13, and W-14-R) for monitoring parameters (MPs) and water quality parameters (WQs). Point-of-compliance wells W-1-R, W-2-R, W-10, W-11, W-12, W-13 and W-14-R are screened in the first encountered shallow water-bearing zone. Point-of-compliance well W-3-R is screened in a deeper water-bearing zone.

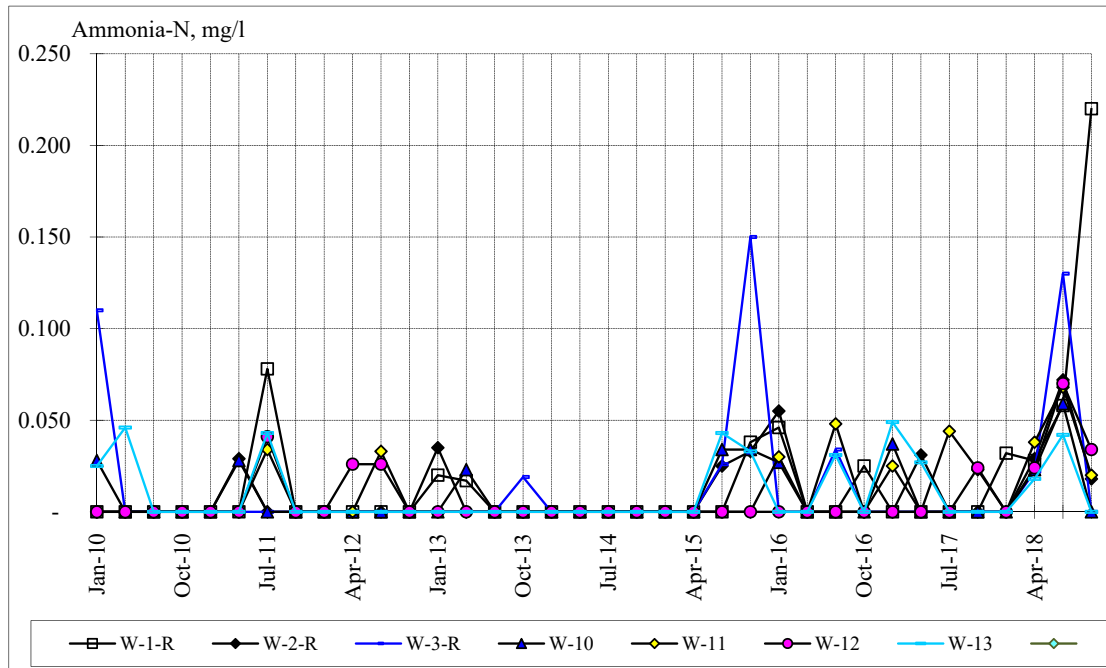
The MP consists of the following: ammonia/ammonium.

The constituents of concern (COC) consist of the following: barium, chromium (total), hexavalent chromium, cobalt, copper, molybdenum, nickel, vanadium and zinc.

The WQs consist of the following: pH and conductivity.

Figures 2a through 2l are trend graphs for the analytes listed in the GWMP as MPs, trend graphs for the COC and WQs parameters listed in the GWMP.

Figure 2a
Constituent of Concern Trend Graph
Moss Landing Power Plant



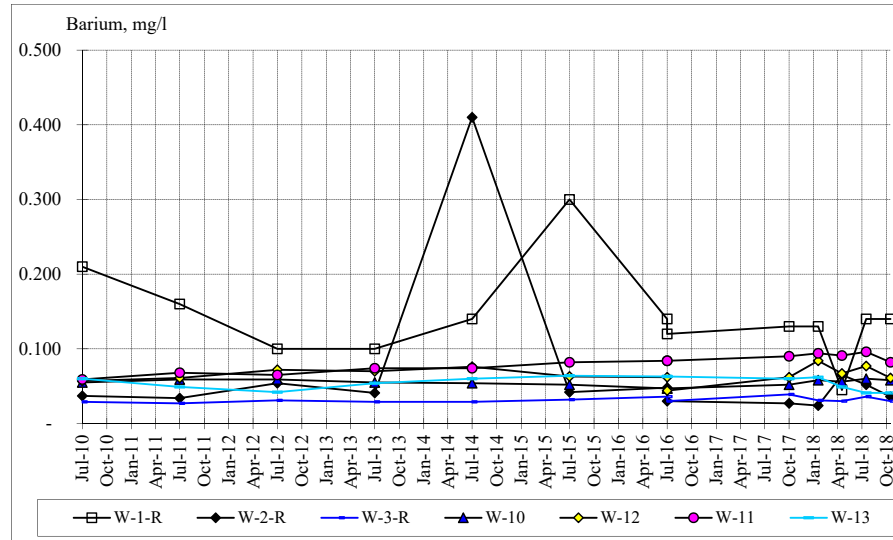
Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	Well W-13
Jan-10	-	-	0.110	0.028	-	0.089	-	0.025
Apr-10	-	-	-	-	-	-	-	0.046
Jul-10	-	-	-	-	-	-	-	-
Oct-10	-	-	-	-	-	-	-	-
Jan-11	-	-	-	-	-	-	-	-
Apr-11	-	0.029	-	0.028	-	0.026	-	-
Jul-11	0.078	-	-	-	0.041	-	0.034	0.043
Oct-11	-	-	-	-	-	-	-	-
Jan-12	-	-	-	-	-	-	-	-
Apr-12	-	-	-	-	0.026	-	-	-
Jul-12	-	-	-	-	0.026	-	0.033	-
Oct-12	-	-	-	-	-	-	-	-
Jan-13	0.020	0.035	-	-	-	-	-	-
Apr-13	0.017	-	-	0.023	-	-	-	-
Jul-13	-	-	-	-	-	-	-	-
Oct-13	-	-	0.019	-	-	-	-	-
Jan-14	-	-	-	-	-	0.017	-	-
Apr-14	-	-	-	-	-	0.017	-	-
Jul-14	-	-	-	-	-	-	-	-
Oct-14	-	-	-	-	-	-	-	-
Jan-15	-	-	-	-	-	-	-	-
Apr-15	-	-	-	-	-	-	-	-
Jul-15	-	0.025	0.026	0.034	-	-	-	0.043
Oct-15	0.038	0.033	0.150	0.034	-	0.087	-	0.033
Jan-16	0.046	0.055	-	0.027	-	-	0.030	-
Apr-16	-	-	-	-	-	-	-	-
Jul-16	-	-	0.034	-	-	0.026	0.048	0.031
Oct-16	0.025	-	-	-	-	-	-	-
Jan-17	-	-	-	0.037	-	0.041	0.025	0.049
Apr-17	-	0.031	-	-	-	-	-	0.027
Jul-17	-	-	-	-	-	-	0.044	-
Oct-17	-	-	-	-	0.024	-	0.023	-
Jan-18	0.032	-	-	-	-	-	-	-
Apr-18	0.028	0.029	0.022	0.023	0.024	-	0.038	0.018
Jul-18 ³	0.058	0.072	0.130	0.059	0.070	0.061	0.068	0.042
Oct-18	0.220	0.018	-	-	0.034	-	0.020	-

¹ Background wells were sampled annually (July). Changed to Quarterly during the 2nd quarter, 2000.

² Blank values represent a non-detect level.

Figure 2b
Constituent of Concern Trend Graph

Moss Landing Power Plant

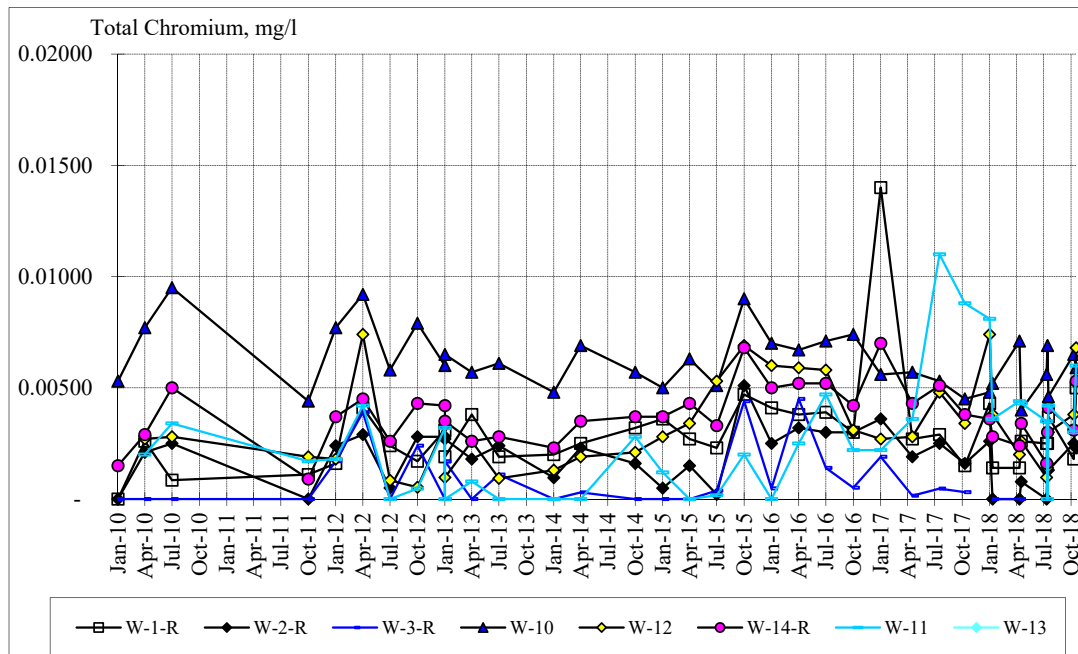


Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	¹ Well W-13
Oct. 95	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Jan. 96	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Apr. 96	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Jul. 96	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Oct. 96	<0.2	<0.2		<0.2	<0.2	<0.2	NS	NS
Jan. 97	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Apr. 97	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Jul. 97	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Oct. 97							<0.2	<0.2
Jul. 98	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Oct. 98	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Jul. 99	0.04	0.06		0.06	0.11	0.04	0.03	0.08
Apr. 00	0.06	0.06		0.06	0.09	0.03	0.03	0.05
Jul. 00	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Jul. 01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Jan. 02	0.0385	0.0511	0.0393	0.0691	0.101	0.0696	0.0365	0.0393
Apr. 02	0.0587	0.0653	0.0402	0.0683	0.0891	0.0566	0.0391	0.0617
Jul. 02	0.0588	0.0744	0.0896	0.0704	0.0814	0.0588	0.0433	0.0724
Oct. 02	0.0450	0.0624	0.0390	0.0647	0.0860	0.0570	0.0401	0.0709
Jan. 03	0.0455	0.0724	0.0493	0.0836	0.0833	0.0540	0.0508	0.0636
Apr. 03	0.0534	0.0498	0.0371	0.0618	0.0888	0.0469	0.0423	0.0744
Jul. 03	0.0977	0.0558	0.0338	0.0649	0.0749	0.0515	0.0463	0.0870
Oct. 03	0.1000	0.0557	0.0372	0.0619	0.0801	0.0529	0.0479	0.0967
Jan. 04	0.0524	0.0534	0.0672	0.0622	0.0796	0.0529	0.0475	0.0857
Apr. 04	0.0472	0.0566	0.0362	0.0596	0.0971	0.2380	0.0477	0.0899
Jul. 04	0.1310	0.0456	0.0350	0.0572	0.0791	0.0505	0.0472	0.0894
Oct. 04	0.0908	0.0365	0.0408	0.0568	0.0782	0.0516	0.0498	0.0826
Jan. 05	0.0549	0.0387	0.0419	0.0580	0.0726	0.0528	0.0493	0.0684
Jul. 05	0.0780	0.0350	0.0376	0.1250	0.0874	0.0560	0.0637	0.0703
Jul. 06	0.0565	0.0594	0.0383	0.0636	0.0843	0.0522	0.0718	0.0620
Jul. 07	0.0904	0.0505	0.0286	0.0588	0.0679	0.0443	0.0515	0.0576
Jul. 08	0.101	0.0453	0.0397	0.0643	0.0773	0.0474	0.0572	0.063
Jul. 09	0.181	0.0396	0.0374	0.0577	0.0731	0.0471	0.0616	0.0679
Jul-10	0.210	0.037	0.029	0.055	0.057	0.047	0.059	0.060
Jul-11	0.160	0.034	0.027	0.059	0.061	0.049	0.068	0.049
Jul-12	0.100	0.054	0.031	0.059	0.072	0.042	0.065	0.042
Jul-13	0.100	0.041	0.029	0.055	0.070	0.042	0.074	0.054
Jul-14	0.140	0.410	0.029	0.054	0.076	0.046	0.074	0.060
Jul-15	0.300	0.042	0.032	0.052	0.063	0.048	0.082	0.064
Jul-16	0.140	0.048	0.036	0.047	0.062	0.044	0.084	0.063
Jul-16	0.120	0.030	0.030	0.047	0.044	0.062	0.084	0.063
Oct-17	0.130	0.027	0.039	0.052	0.062	0.082	0.090	0.060
Jan-18	0.130	0.024	0.031	0.058	0.084	0.065	0.094	0.062
Apr-18	0.045	0.065	0.030	0.056	0.067	0.058	0.091	0.049
Jul-18	0.140	0.052	0.036	0.060	0.077	0.061	0.096	0.041
Oct-18	0.140	0.036	0.030	0.058	0.061	0.059	0.082	0.041

¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

² Blank values represent a non-detect level.

Figure 2c
Constituent of Concern Trend Graph
Moss Landing Power Plant



Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	Well W-13
Jan-10	-	-	-	0.00530		0.00150		
Apr-10	0.00260	0.00210	-	0.00770	0.00270	0.00290	0.00200	0.00180
Jul-10	0.00085	0.00250	-	0.00950	0.00280	0.00500	0.00340	0.00840
Oct-18	0.00180	0.00250	-	0.00650	0.00380	0.00310	0.00300	0.00260
Jan-18	0.00140	-	-	0.00520	0.00380	0.00280	0.00360	0.00210
Apr-18	0.00140	-	-	0.00710	0.00200	0.00240	0.00440	0.00230
Jul-18	0.00250	-	-	0.00560	0.00097	0.00160	0.00350	0.00136
Oct-11	0.00110	-	-	0.00440	0.00190	0.00090	0.00170	0.00088
Jan-12	0.00160	0.00240	0.00170	0.00770	0.00180	0.00370	0.00180	0.00390
Apr-12	0.00410	0.00290	0.00390	0.00920	0.00740	0.00450	0.00420	0.00490
Jul-12	0.00240	0.00050	-	0.00580	0.00084	0.00260	-	0.00180
Oct-12	0.00170	0.00280	0.00240	0.00790	0.00053	0.00430	0.00047	0.00390
Jan-13	0.00310	0.00280	-	0.00600	0.00330	0.00420	0.00320	0.00180
Apr-13	0.00380	0.00180	-	0.00570	0.00260	0.00260	0.00079	0.00360
Jul-13	0.00190	0.00240	0.00110	0.00610	0.00093	0.00280	-	0.00300
Jan-13	0.00190	0.00270	0.00170	0.00650	0.00097	0.00350	-	0.00340
Jan-14	0.00200	0.00096	-	0.00480	0.00130	0.00230	-	0.00150
Apr-14	0.00250	0.00230	0.00030	0.00690	0.00190	0.00350	-	0.00170
Jul-18	0.00250	0.00160	-	0.00690	0.00140	0.00300	-	0.00170
Oct-14	0.00320	0.00160	-	0.00570	0.00210	0.00370	0.00280	0.00220
Jan-15	0.00360	0.00049	-	0.00500	0.00280	0.00370	0.00120	0.00200
Apr-15	0.00270	0.00150	-	0.00630	0.00340	0.00430	-	0.00280
Jul-15	0.00230	0.00021	0.00038	0.00510	0.00530	0.00330	0.00017	0.00200
Oct-15	0.00470	0.00510	0.00440	0.00900	0.00690	0.00680	0.00200	0.00076
Jan-16	0.00410	0.00250	0.00048	0.00700	0.00600	0.00500	-	0.00290
Apr-16	0.00380	0.00320	0.00450	0.00670	0.00590	0.00520	0.00250	0.00640
Jul-16	0.00390	0.00300	0.00140	0.00710	0.00580	0.00520	0.00470	0.00450
Oct-16	0.00300	0.00300	0.00051	0.00740	0.00310	0.00420	0.00220	0.00300
Jan-17	0.01400	0.00360	0.00190	0.00560	0.00270	0.00700	0.00220	0.00610
Apr-17	0.00270	0.00190	0.00015	0.00570	0.00280	0.00430	0.00360	0.00410
Jul-17	0.00290	0.00250	0.00047	0.00530	0.00480	0.00510	0.01100	0.00490
Oct-17	0.00150	0.00160	0.00031	0.00450	0.00340	0.00380	0.00880	0.00260
Jan-18	0.00430	0.00260	0.00045	0.00480	0.00740	0.00360	0.00810	0.00350
Apr-18	0.00260	0.00078	-	0.00400	0.00260	0.00340	0.00430	0.00270
Jul-18	0.00370	0.00130	0.00039	0.00460	0.00300	0.00410	0.00420	0.00220
Oct-18	0.00500	0.00230	0.00210	0.00590	0.00680	0.00530	0.00600	0.00350

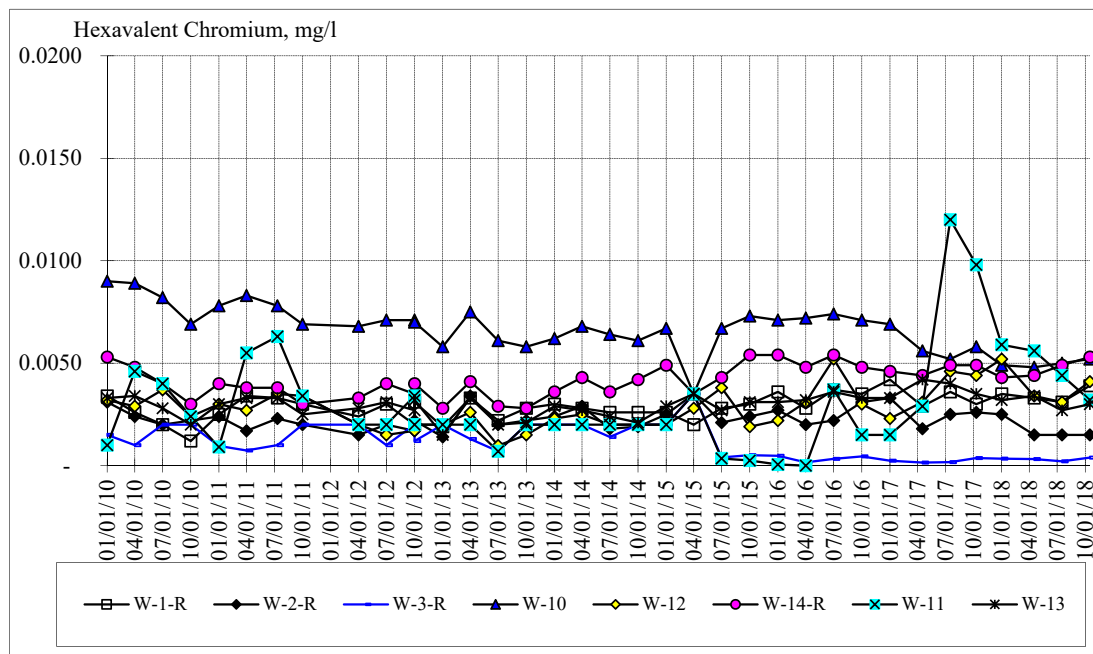
¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

² Blank values represent a non-detect level.

³ Jan. 18 W-1-R adjusted to match verification sample.

Figure 2d
Constituent of Concern Trend Graph

Moss Landing Power Plant

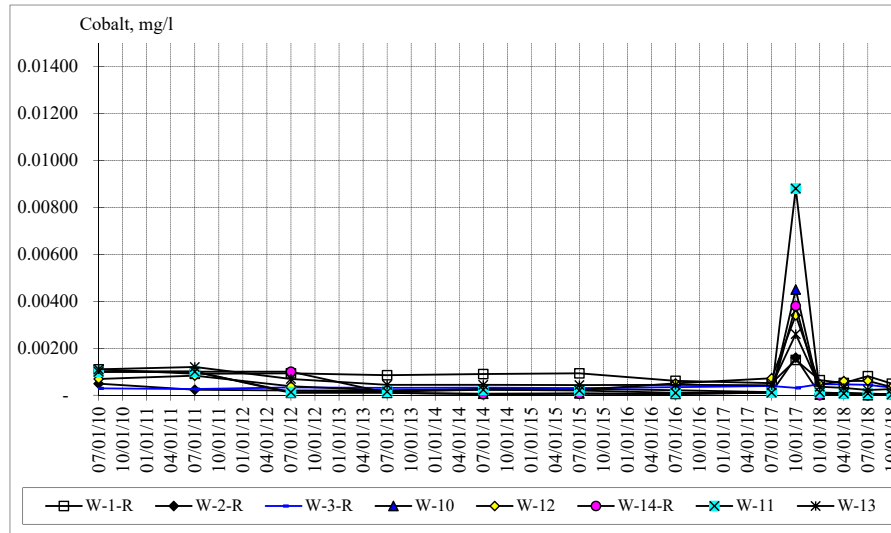


Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	Well W-13
01/01/10	0.0034	0.0031	0.0015	0.0090	0.0032	0.0053	0.0010	0.0033
04/01/10	0.0026	0.0024	0.0010	0.0089	0.0029	0.0048	0.0046	0.0034
07/01/10	0.0020	0.0020	0.0020	0.0082	0.0037	0.0040	0.0040	0.0028
10/01/10	0.0012	0.0022	0.0020	0.0069	0.0024	0.0030	0.0024	0.0020
01/01/11	0.0025	0.0024	0.0010	0.0078	0.0030	0.0040	0.0009	0.0030
04/01/11	0.0034	0.0017	0.0007	0.0083	0.0027	0.0038	0.0055	0.0033
07/11/11	0.0033	0.0023	0.0010	0.0078	0.0035	0.0038	0.0063	0.0033
10/01/11	0.0030	0.0020	0.0020	0.0069	0.0034	0.0030	0.0034	0.0025
10/01/12	0.0020	0.0017	0.0020	0.0071	0.0017	0.0035	0.0034	0.0027
04/01/12	0.0024	0.0015	0.0020	0.0068	0.0020	0.0033	0.0020	0.0028
07/01/12	0.0030	0.0020	0.0010	0.0071	0.0015	0.0040	0.0020	0.0031
10/01/12	0.0031	0.0022	0.0012	0.0070	0.0020	0.0040	0.0020	0.0032
01/01/13	0.0019	0.0014	0.0020	0.0058	0.0020	0.0028	0.0020	0.0015
04/01/13	0.0033	0.0034	0.0013	0.0075	0.0026	0.0041	0.0020	0.0033
07/01/13	0.0022	0.0020	0.0007	0.0061	0.0010	0.0029	0.0007	0.0020
10/01/13	0.0028	0.0022	0.0020	0.0058	0.0015	0.0028	0.0020	0.0021
01/01/14	0.0030	0.0024	0.0020	0.0062	0.0023	0.0036	0.0020	0.0029
04/01/14	0.0028	0.0029	0.0020	0.0068	0.0025	0.0043	0.0020	0.0027
07/01/14	0.0026	0.0018	0.0014	0.0064	0.0020	0.0036	0.0020	0.0024
10/01/14	0.0026	0.0019	0.0020	0.0061	0.0020	0.0042	0.0020	0.0021
01/01/15	0.0026	0.0025	0.0020	0.0067	0.0020	0.0049	0.0020	0.0029
04/01/15	0.0020	0.0035	0.0035	0.0035	0.0028	0.0035	0.0035	0.0035
07/01/15	0.0028	0.0021	0.0004	0.0067	0.0038	0.0043	0.0004	0.0027
10/01/15	0.0030	0.0024	0.0005	0.0073	0.0019	0.0054	0.0003	0.0031
01/01/16	0.0036	0.0027	0.0005	0.0071	0.0022	0.0054	0.0001	0.0031
04/01/16	0.0028	0.0020	0.0002	0.0072	0.0031	0.0048	-	0.0032
07/01/16	0.0037	0.0022	0.0003	0.0074	0.0052	0.0054	0.0037	0.0036
10/01/16	0.0035	0.0031	0.0005	0.0071	0.0030	0.0048	0.0015	0.0033
01/01/17	0.0042	0.0033	0.0002	0.0069	0.0023	0.0046	0.0015	0.0033
04/17/17	0.0029	0.0018	0.0002	0.0056	0.0031	0.0044	0.0029	0.0042
07/17/17	0.0036	0.0025	0.0002	0.0052	0.0046	0.0049	0.0120	0.0040
10/10/17	0.0030	0.0026	0.0004	0.0058	0.0044	0.0049	0.0098	0.0035
01/01/18	0.0035	0.0025	0.0003	0.0049	0.0052	0.0043	0.0059	0.0032
04/17/18	0.0033	0.0015	0.0003	0.0048	0.0034	0.0044	0.0056	0.0034
07/17/18	0.0031	0.0015	0.0002	0.0050	0.0031	0.0049	0.0044	0.0027
10/16/18	0.0039	0.0015	0.0004	0.0052	0.0041	0.0053	0.0032	0.0030

¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

² Blank values represent a non-detect level.

Figure 2e
Constituent of Concern Trend Graph
Moss Landing Power Plant



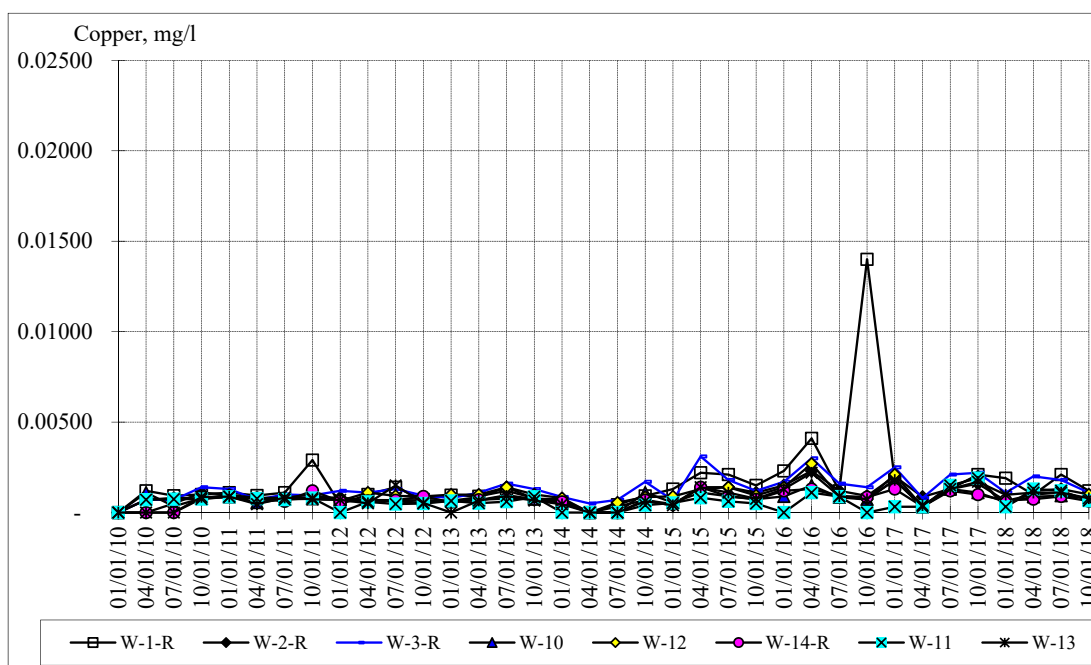
Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	¹ Well W-13
Oct. 95	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Jan. 96	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Apr. 96	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Jul. 96	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Oct. 96	<0.05	<0.05		<0.05	<0.05	<0.05	NS	NS
Jan. 97	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Apr. 97	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Jul. 97	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Oct. 97							<0.05	<0.05
Jul. 98	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Oct. 98	<0.05	<0.05		<0.05	<0.05	<0.05		
Jul. 99	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Apr. 00	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Jul. 00	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Jul. 01	<0.04	<0.04		<0.04	<0.04	<0.04	<0.04	<0.04
Jan. 02	0.0016	0.0012	0.0008	<0.0002	0.0007	<0.0002	<0.0002	<0.0002
Apr. 02	0.0015	0.0017	0.0005	<0.0002	0.0002	<0.0002	<0.0002	0.0003
Jul. 02	0.0018	0.0019	0.0005	<0.0002	0.0002	<0.0002	0.0029	0.0012
Oct. 02	0.0017	0.0021	0.0005	<0.0002	0.0004	<0.0002	<0.0002	0.0016
Jan. 03	0.002	0.0024	0.0004	<0.0002	0.0007	<0.0002	<0.0002	0.0004
Apr. 03	0.0023	0.0015	0.0005	<0.0002	0.0006	<0.0002	<0.0002	0.0017
Jul. 03	0.0024	0.0014	0.0006	<0.0002	0.0006	<0.0002	<0.0002	0.0031
Oct. 03	0.0013	0.0013	0.0004	<0.0002	0.0009	<0.0002	<0.0002	0.003
Jan. 04	0.0012	0.0011	<0.0002	<0.0002	0.0007	<0.0002	<0.0002	0.0032
Apr. 04	<0.0002	0.0006	0.0004	<0.0002	0.0013	0.0023	<0.0002	0.0038
Jul. 04	0.0016	0.0007	0.0005	<0.0002	0.0005	<0.0002	<0.0002	0.0042
Oct. 04	0.0012	0.0007	0.0004	<0.0002	0.0008	<0.0002	<0.0002	0.0033
Jan. 05	0.001	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	0.0025
Jul. 05	0.0016	0.0004	0.0007	<0.0002	0.0023	<0.0002	<0.0002	0.0018
Jul. 06	0.0016	0.0004	0.0008	<0.0002	0.0007	<0.0002	<0.0002	0.0013
Jul. 07	0.0012	0.0004	0.0005	<0.0002	0.0005	<0.0002	<0.0002	0.0011
Jul. 08	0.001	0.0005	0.0002	<0.0002	0.0003	<0.0002	<0.0002	0.0013
Jul. 09	0.0011	0.0005	0.0002	<0.0002	0.0003	<0.0002	<0.0002	0.0015
07/01/10	0.00110	0.00049	0.00029	0.00100	0.00069	0.00100	0.00100	0.00110
07/01/11	0.00091	0.00023	0.00026	0.00100	0.00083	0.00100	0.00100	0.00120
07/01/12	0.00093	0.00020	0.00033	0.00010	0.00038	0.00100	0.00013	0.00069
07/01/13	0.00085	0.00020	0.00031	0.00010	0.00020	0.00010	0.00015	0.00044
07/01/14	0.00090	0.00027	0.00032	0.00006	0.00024	0.00004	0.00023	0.00044
07/01/15	0.00093	0.00028	0.00030	0.00008	0.00022	0.00006	0.00020	0.00043
07/01/16	0.00061	0.00021	0.00034	0.00005	0.00050	0.00005	0.00010	0.00044
07/01/17	0.00051	0.00013	0.00039	0.00011	0.00072	0.00011	0.00011	0.00042
10/01/17	0.00150	0.00160	0.00031	0.00450	0.00340	0.00380	0.00880	0.00260
01/01/18	0.00064	0.00004	0.00047	0.00003	0.00046	-	0.00012	0.00036
04/17/18	0.00052	0.00011	0.00046	0.00008	0.00060	0.00006	0.00008	0.00031
07/17/18	0.00081	0.00005	0.00044	-	0.00061	-	0.00007	0.00022
10/16/18	0.00049	0.00005	0.00032	0.00005	0.00034	0.00002	0.00003	0.00026

¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

² Blank values represent a non-detect level.

Figure 2f
Constituent of Concern Trend Graph

Moss Landing Power Plant

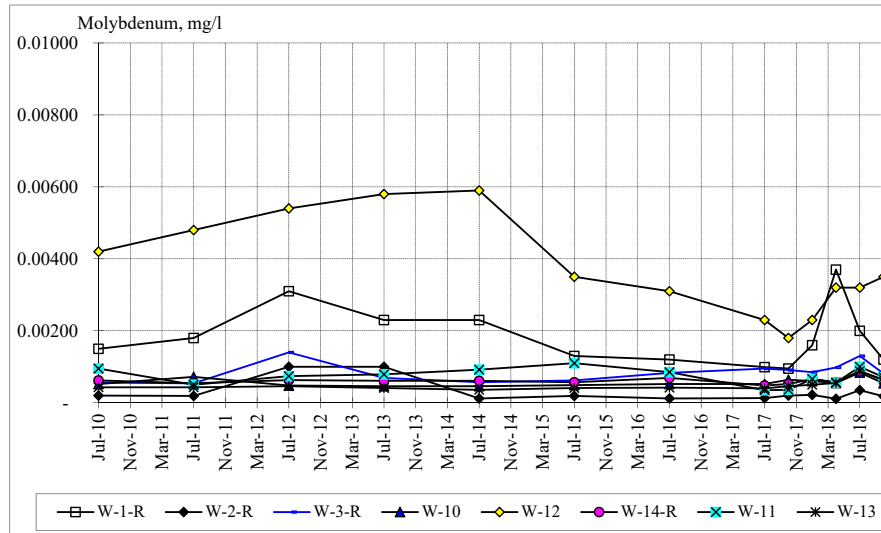


Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	Well W-13
01/01/10	-	-	-	-	-	-	-	-
04/01/10	0.00120	-	0.00071	0.00110	0.00070	-	0.00071	-
07/01/10	0.00093	0.00050	0.00070	0.00035	0.00081	-	0.00074	-
10/01/10	0.00100	0.00110	0.00140	0.00078	0.00078	0.00077	0.00075	0.00086
01/01/11	0.00110	0.00098	0.00130	0.00086	0.00097	0.00093	0.00087	0.00088
04/01/11	0.00094	0.00053	0.00071	0.00055	0.00081	0.00080	0.00077	0.00046
07/11/11	0.00110	0.00082	0.00100	0.00073	0.00082	0.00062	0.00072	0.00083
10/11/11	0.00290	0.00082	0.00095	0.00076	0.00100	0.00120	0.00080	0.00073
01/12/12	0.00046	0.00083	0.00120	0.00072	0.00065	0.00062	-	0.00070
04/01/12	0.00100	0.00068	0.00110	0.00068	0.00110	0.00065	0.00059	0.00051
07/01/12	0.00140	0.00062	0.00130	0.00068	0.00092	0.00068	0.00047	0.00150
10/01/12	0.00072	0.00054	0.00094	0.00068	0.00089	0.00089	0.00050	0.00053
01/01/13	0.00096	0.00065	0.00080	0.00066	0.00099	0.00057	0.00064	-
04/01/13	0.00090	0.00085	0.00110	0.00069	0.00099	0.00071	0.00052	0.00066
07/01/13	0.00120	0.00140	0.00160	0.00096	0.00140	0.00077	0.00060	0.00092
10/01/13	0.00080	0.00076	0.00130	0.00074	0.00100	0.00073	0.00087	0.00066
01/01/14	0.00053	0.00074	0.00086	0.00057	0.00080	0.00059	-	0.00046
04/01/14	-	-	0.00050	-	-	-	-	-
07/01/14	0.00043	0.00033	0.00070	-	0.00055	-	-	-
10/01/14	0.00092	0.00069	0.00170	0.00110	0.00086	0.00069	0.00041	0.00063
01/01/15	0.00130	0.00038	0.00068	0.00055	0.00089	0.00046	0.00053	0.00040
04/01/15	0.00220	0.00140	0.00310	0.00110	0.00130	0.00140	0.00082	0.00140
07/01/15	0.00210	0.00140	0.00180	0.00090	0.00140	0.00089	0.00062	0.00110
10/01/15	0.00150	0.00110	0.00120	0.00074	0.00094	0.00073	0.00050	0.00076
01/01/16	0.00230	0.00150	0.00170	0.00089	0.00140	0.00120	-	0.00130
04/01/16	0.00410	0.00230	0.00300	0.00150	0.00270	0.00130	0.00110	0.00220
07/01/16	0.00120	0.00120	0.00160	0.00084	0.00090	0.00092	0.00088	0.00090
10/01/16	0.01400	0.00092	0.00140	0.00072	0.00074	0.00085	-	0.00074
01/01/17	0.00180	0.00200	0.00250	0.00180	0.00210	0.00130	0.00032	0.00180
04/17/17	0.00032	0.00087	0.00080	0.00032	0.00032	0.00033	0.00032	0.00041
07/17/17	0.00130	0.00130	0.00210	0.00130	0.00140	0.00120	0.00150	0.00130
10/01/17	0.00210	0.00160	0.00220	0.00110	0.00200	0.00099	0.00190	0.00170
01/01/18	0.00190	0.00064	0.00110	0.00058	0.00032	0.00067	0.00032	0.00098
04/17/18	0.00099	0.00100	0.00200	0.00087	0.00120	0.00074	0.00130	0.00110
07/17/18	0.00210	0.00110	0.00180	0.00093	0.00130	0.00089	0.00120	0.00110
10/16/18	0.00120	0.00074	0.00110	0.00079	0.00100	0.00063	0.00066	0.00079

¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

² Blank values represent a non-detect level.

Figure 2g
Constituent of Concern Trend Graph
Moss Landing Power Plant



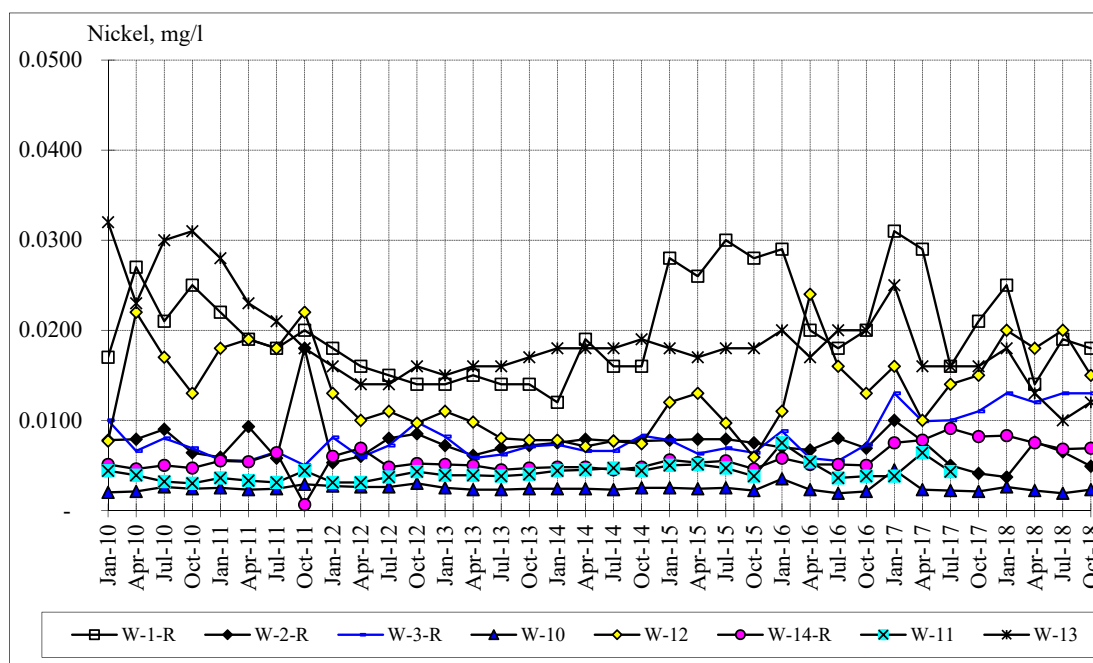
Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	¹ Well W-13
Oct. 95	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Jan. 96	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Apr. 96	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Jul. 96	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Oct. 96	<0.2	<0.2		<0.2	<0.2	<0.2	NS	NS
Jan. 97	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Apr. 97	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Jul. 97	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Oct. 97							<0.2	<0.2
Jul. 98	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Oct. 98	<0.2	<0.2		<0.2	<0.2	<0.2		
Jul. 99	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Apr.00	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Jul.00	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Jul. 01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Jan. 02	0.002	<0.001	<0.001	<0.001	0.012	<0.001	<0.001	<0.001
Apr. 02	0.002	<0.001	0.001	<0.001	0.016	<0.001	0.001	<0.001
Jul. 02	0.002	<0.001	0.001	<0.001	0.012	<0.001	<0.001	<0.001
Oct. 02	0.002	<0.001	<0.001	<0.001	0.013	<0.001	<0.001	<0.001
Jan. 03	0.003	<0.001	0.001	0.003	0.011	<0.001	<0.001	<0.001
Apr. 03	0.004	<0.001	0.002	<0.001	0.005	<0.001	<0.001	<0.001
Jul. 03	0.003	<0.001	0.001	<0.001	0.008	<0.001	<0.001	<0.001
Oct. 03	0.003	<0.001	<0.001	<0.001	0.008	<0.001	<0.001	<0.001
Jan. 04	0.005	<0.001	0.001	<0.001	0.006	<0.001	<0.001	<0.001
Apr. 04	<0.001	<0.001	<0.001	<0.001	0.004	0.002	<0.001	<0.001
Jul. 04	0.003	<0.001	<0.001	<0.001	0.005	<0.001	<0.001	<0.001
Oct. 04	0.003	<0.001	<0.001	<0.001	0.006	<0.001	<0.001	<0.001
Jan. 05	0.005	<0.001	0.001	<0.001	0.006	0.001	0.002	<0.001
Jul. 05	0.003	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001
Jul. 06	0.004	<0.001	<0.001	<0.001	0.005	<0.001	<0.001	<0.001
Jul. 07	0.003	<0.001	<0.001	<0.001	0.007	<0.001	<0.001	<0.001
Jul. 08	0.004	<0.001	<0.001	<0.001	0.008	<0.001	<0.001	<0.001
Jul. 09	0.002	<0.001	<0.001	<0.001	0.007	<0.001	<0.001	<0.001
Jul-10	0.00150	0.00020	0.00056	0.00052	0.00420	0.00062	0.00095	0.00043
Jul-11	0.00180	0.00019	0.00054	0.00072	0.00480	0.00054	0.00050	0.00043
Jul-12	0.00310	0.00100	0.00140	0.00048	0.00540	0.00063	0.00074	0.00046
Jul-13	0.00230	0.00100	0.00069	0.00046	0.00580	0.00061	0.00079	0.00041
Jul-14	0.00230	0.00012	0.00057	0.00046	0.00590	0.00061	0.00092	0.00036
Jul-15	0.00130	0.00019	0.00062	0.00049	0.00350	0.00057	0.00110	0.00041
Jul-16	0.00120	0.00012	0.00083	0.00052	0.00310	0.00069	0.00085	0.00042
Jul-17	0.00099	0.00013	0.00095	0.00052	0.00230	0.00048	0.00035	0.00040
Oct-17	0.00095	0.00020	0.00091	0.00064	0.00180	0.00052	0.00036	0.00046
Jan-18	0.00160	0.00022	0.00085	0.00060	0.00230	0.00066	0.00066	0.00050
Apr-18	0.00370	0.00011	0.00098	0.00055	0.00320	0.00057	0.00056	0.00055
Jul-18	0.00200	0.00035	0.00130	0.00084	0.00320	0.00088	0.00100	0.00088
Oct-18	0.00120	0.00018	0.00081	0.00054	0.00350	0.00062	0.00071	0.00064

¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

² Blank values represent a non-detect level.

Figure 2h
Constituent of Concern Trend Graph

Moss Landing Power Plant



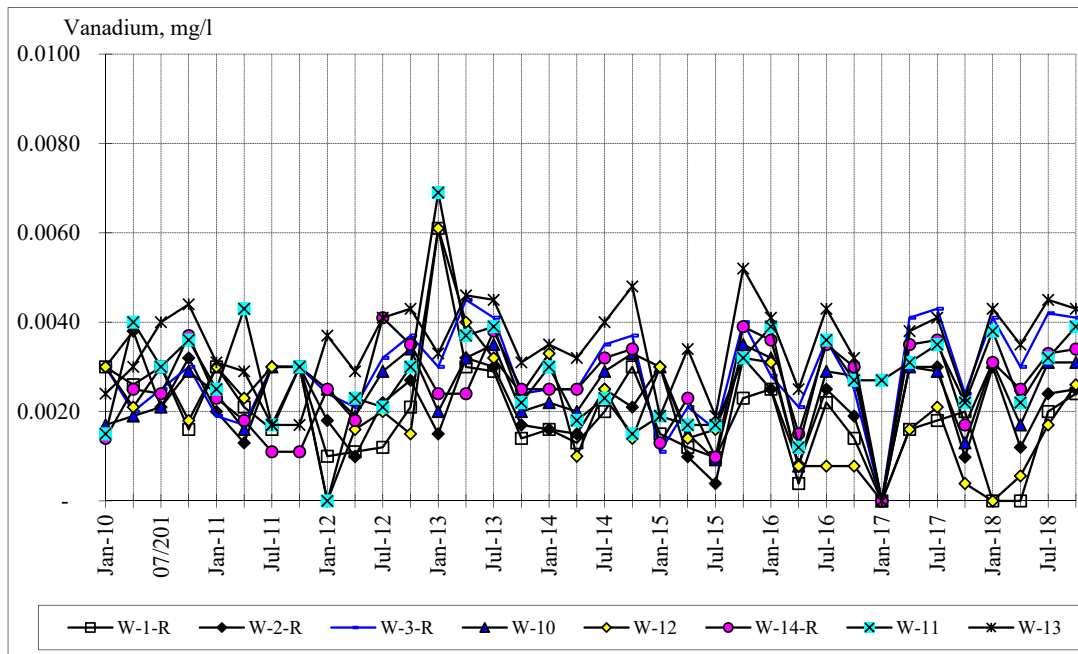
Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	Well W-13
Jan-10	0.0170	0.0078	0.0100	0.0020	0.0077	0.0051	0.0044	0.0320
Apr-10	0.0270	0.0079	0.0066	0.0021	0.0220	0.0046	0.0039	0.0230
Jul-10	0.0210	0.0090	0.0080	0.0026	0.0170	0.0050	0.0032	0.0300
Oct-10	0.0250	0.0064	0.0069	0.0024	0.0130	0.0047	0.0030	0.0310
Jan-11	0.0220	0.0059	0.0056	0.0025	0.0180	0.0055	0.0036	0.0280
Apr-11	0.0190	0.0093	0.0055	0.0023	0.0190	0.0054	0.0033	0.0230
Jul-11	0.0180	0.0058	0.0065	0.0024	0.0180	0.0064	0.0031	0.0210
Oct-11	0.0200	0.0180	0.0050	0.0029	0.0220	0.0006	0.0044	0.0180
Jan-12	0.0180	0.0053	0.0081	0.0027	0.0130	0.0060	0.0031	0.0160
Apr-12	0.0160	0.0060	0.0059	0.0026	0.0100	0.0069	0.0031	0.0140
Jul-12	0.0150	0.0080	0.0072	0.0026	0.0110	0.0048	0.0037	0.0140
Oct-12	0.0140	0.0085	0.0098	0.0030	0.0097	0.0052	0.0043	0.0160
Jan-13	0.0140	0.0072	0.0082	0.0025	0.0110	0.0051	0.0039	0.0150
Apr-13	0.0150	0.0061	0.0058	0.0023	0.0098	0.0050	0.0039	0.0160
Jul-13	0.0140	0.0069	0.0062	0.0023	0.0080	0.0045	0.0038	0.0160
Oct-13	0.0140	0.0072	0.0071	0.0024	0.0078	0.0047	0.0040	0.0170
Jan-14	0.0120	0.0075	0.0073	0.0024	0.0078	0.0048	0.0044	0.0180
Apr-14	0.0190	0.0079	0.0066	0.0024	0.0071	0.0048	0.0045	0.0180
Jul-14	0.0160	0.0077	0.0066	0.0023	0.0077	0.0045	0.0047	0.0180
Oct-14	0.0160	0.0077	0.0083	0.0025	0.0074	0.0048	0.0044	0.0190
Jan-15	0.0280	0.0078	0.0078	0.0025	0.0120	0.0056	0.0050	0.0180
Apr-15	0.0260	0.0079	0.0063	0.0024	0.0130	0.0053	0.0051	0.0170
Jul-15	0.0300	0.0079	0.0069	0.0025	0.0097	0.0055	0.0047	0.0180
Oct-15	0.0280	0.0075	0.0064	0.0022	0.0059	0.0046	0.0038	0.0180
Jan-16	0.0290	0.0070	0.0088	0.0035	0.0110	0.0058	0.0075	0.0200
Apr-16	0.0200	0.0067	0.0058	0.0023	0.0240	0.0051	0.0054	0.0170
Jul-16	0.0180	0.0080	0.0055	0.0019	0.0160	0.0051	0.0036	0.0200
Oct-16	0.0200	0.0069	0.0073	0.0021	0.0130	0.0050	0.0038	0.0200
Jan-17	0.0310	0.0100	0.0130	0.0045	0.0160	0.0075	0.0038	0.0250
Apr-17	0.0290	0.0077	0.0099	0.0023	0.0100	0.0078	0.0064	0.0160
Jul-17	0.0160	0.0050	0.0100	0.0022	0.0140	0.0091	0.0043	0.0160
Oct-17	0.0210	0.0041	0.0110	0.0021	0.0150	0.0082	0.0041	0.0160
Jan-18	0.0250	0.0037	0.0130	0.0026	0.0200	0.0083	0.0054	0.0180
Apr-18	0.0140	0.0076	0.0120	0.0022	0.0180	0.0075	0.0037	0.0130
Jul-18	0.0190	0.0065	0.0130	0.0019	0.0200	0.0068	0.0040	0.0100
Oct-18	0.0180	0.0049	0.0130	0.0023	0.0150	0.0069	0.0036	0.0120

¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

² Blank values represent a non-detect level.

³ Jan. 18 W-3-R adjusted to match verification sample.

Figure 2i
Constituent of Concern Trend Graph
Moss Landing Power Plant

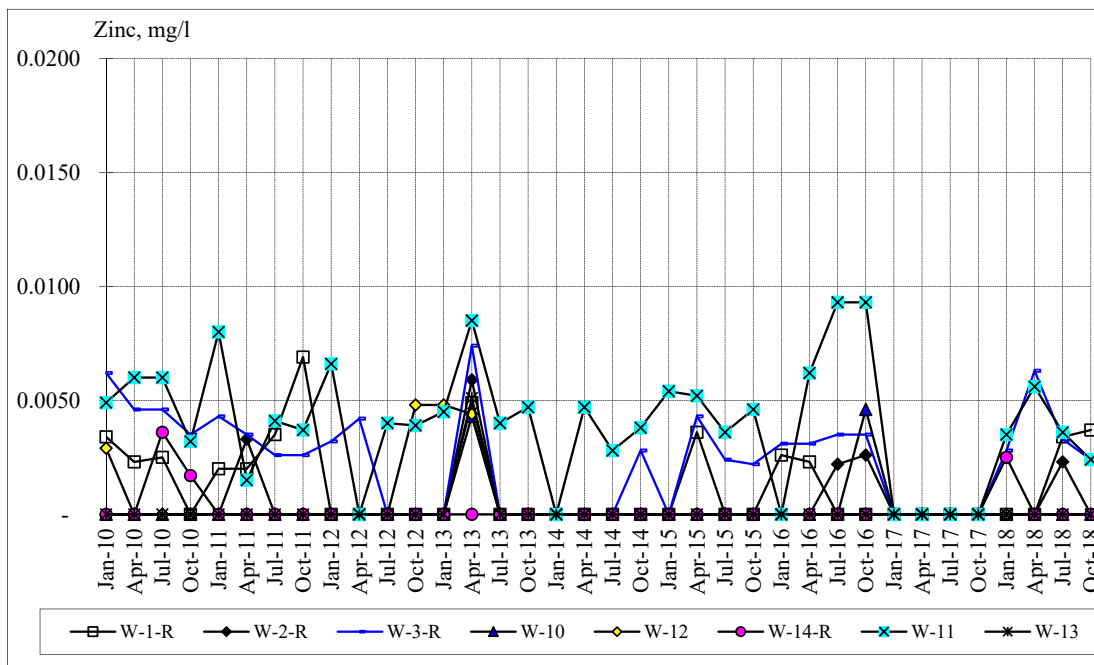


Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	Well W-13
Jan-10	0.0030	0.0030	0.0030	0.0017	0.0030	0.0014	0.0015	0.0024
Apr-10	0.0026	0.0038	0.0020	0.0019	0.0021	0.0025	0.0040	0.0030
07/201	0.0030	0.0021	0.0025	0.0021	0.0030	0.0024	0.0030	0.0040
Oct-10	0.0016	0.0032	0.0030	0.0029	0.0018	0.0037	0.0036	0.0044
Jan-11	0.0030	0.0020	0.0019	0.0024	0.0030	0.0023	0.0025	0.0031
Apr-11	0.0021	0.0013	0.0017	0.0016	0.0023	0.0018	0.0043	0.0029
Jul-11	0.0016	0.0030	0.0030	0.0030	0.0030	0.0011	0.0017	0.0017
Oct-11	0.0030	0.0030	0.0030	0.0030	0.0030	0.0011	0.0030	0.0017
Jan-12	0.0010	0.0018	0.0024	0.0025	-	0.0025	-	0.0037
Apr-12	0.0011	0.0010	0.0021	0.0019	0.0016	0.0018	0.0023	0.0029
Jul-12	0.0012	0.0022	0.0032	0.0029	0.0020	0.0041	0.0021	0.0041
Oct-12	0.0021	0.0027	0.0037	0.0034	0.0015	0.0035	0.0030	0.0043
Jan-13	0.0061	0.0015	0.0030	0.0020	0.0061	0.0024	0.0069	0.0033
Apr-13	0.0030	0.0032	0.0045	0.0032	0.0040	0.0024	0.0037	0.0046
Jul-13	0.0029	0.0030	0.0041	0.0035	0.0032	0.0038	0.0039	0.0045
Oct-13	0.0014	0.0017	0.0024	0.0020	0.0024	0.0025	0.0022	0.0031
Jan-14	0.0016	0.0016	0.0025	0.0022	0.0033	0.0025	0.0030	0.0035
Apr-14	0.0013	0.0015	0.0025	0.0020	0.0010	0.0025	0.0018	0.0032
Jul-14	0.0020	0.0025	0.0035	0.0029	0.0025	0.0032	0.0023	0.0040
Oct-14	0.0030	0.0021	0.0037	0.0033	0.0014	0.0034	0.0015	0.0048
Jan-15	0.0015	0.0030	0.0011	0.0030	0.0030	0.0013	0.0019	0.0019
Apr-15	0.0012	0.0010	0.0021	0.0015	0.0014	0.0023	0.0017	0.0034
Jul-15	0.0010	0.0004	0.0016	0.0009	0.0016	0.0010	0.0017	0.0019
Oct-15	0.0023	0.0032	0.0040	0.0035	0.0032	0.0039	0.0032	0.0052
Jan-16	0.0025	0.0025	0.0028	0.0032	0.0031	0.0036	0.0039	0.0041
Apr-16	0.0004	0.0008	0.0021	0.0008	0.0008	0.0015	0.0012	0.0025
Jul-16	0.0022	0.0025	0.0036	0.0029	0.0008	0.0035	0.0036	0.0043
Oct-16	0.0014	0.0019	0.0025	0.0028	0.0008	0.0030	0.0027	0.0032
Jan-17	-	-	-	-	-	-	0.0027	-
Apr-17	0.0016	0.0030	0.0041	0.0030	0.0016	0.0035	0.0031	0.0038
Jul-17	0.0018	0.0030	0.0043	0.0029	0.0021	0.0036	0.0035	0.0041
Oct-17	0.0020	0.0010	0.0024	0.0013	0.0004	0.0017	0.0022	0.0023
Jan-18	-	0.0030	0.0041	0.0031	-	0.0031	0.0038	0.0043
Apr-18	-	0.0012	0.0030	0.0017	0.0006	0.0025	0.0022	0.0035
Jul-18	0.0020	0.0024	0.0042	0.0031	0.0017	0.0033	0.0032	0.0045
Oct-18	0.0024	0.0025	0.0041	0.0031	0.0026	0.0034	0.0039	0.0043

¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

² Blank values represent a non-detect level.

Figure 2j
Constituent of Concern Trend Graph
Moss Landing Power Plant



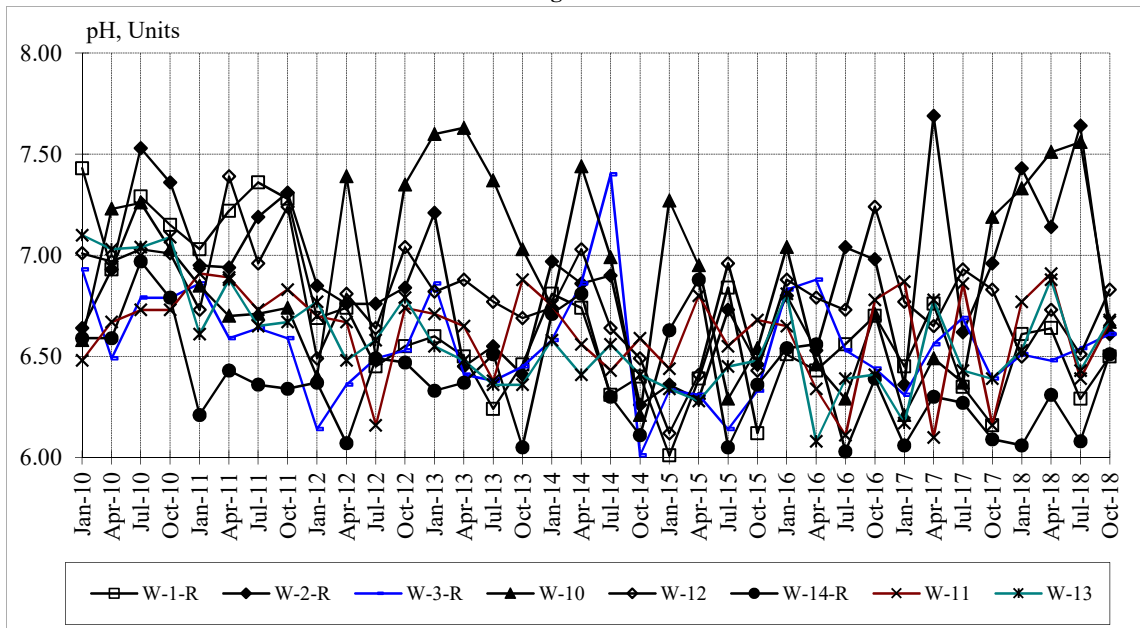
Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	Well W-13
Jan-10	0.0034	-	0.0062	-	0.0029	-	0.0049	-
Apr-10	0.0023	-	0.0046	-	-	-	0.0060	-
Jul-10	0.0025	-	0.0046	-	-	0.0036	0.0060	-
Oct-10	-	-	0.0035	-	-	0.0017	0.0032	-
Jan-11	0.0020	-	0.0043	-	-	-	0.0080	-
Apr-11	0.0020	0.0033	0.0035	-	-	-	0.0015	-
Jul-11	0.0035	-	0.0026	-	-	-	0.0041	-
Oct-11	0.0069	-	0.0026	-	-	-	0.0037	-
Jan-12	-	-	0.0032	-	-	-	0.0066	-
Apr-12	-	-	0.0042	-	-	-	-	-
Jul-12	-	-	-	-	-	-	0.0040	-
Oct-12	-	-	-	-	0.0048	-	0.0039	-
Jan-13	-	-	-	-	0.0048	-	0.0045	-
Apr-13	0.0049	0.0059	0.0074	0.0043	0.0044	-	0.0085	0.0051
Jul-13	-	-	-	-	-	-	0.0040	-
Oct-13	-	-	-	-	-	-	0.0047	-
Jan-14	-	-	-	-	-	-	-	-
Apr-14	-	-	-	-	-	-	0.0047	-
Jul-14	-	-	-	-	-	-	0.0028	-
Oct-14	-	-	0.0028	-	-	-	0.0038	-
Jan-15	-	-	-	-	-	-	0.0054	-
Apr-15	0.0036	-	0.0043	-	-	-	0.0052	-
Jul-15	-	-	0.0024	-	-	-	0.0036	-
Oct-15	-	-	0.0022	-	-	-	0.0046	-
Jan-16	0.0026	-	0.0031	-	-	-	-	-
Apr-16	0.0023	-	0.0031	-	-	-	0.0062	-
Jul-16	-	0.0022	0.0035	-	-	-	0.0093	-
Oct-16	-	0.0026	0.0035	0.0046	-	-	0.0093	-
Jan-17	-	-	-	-	-	-	-	-
Apr-17	-	-	-	-	-	-	-	-
Jul-17	-	-	-	-	-	-	-	-
Oct-17	-	-	-	-	-	-	-	-
Jan-18	-	-	0.0028	-	-	0.0025	0.0035	-
Apr-18	-	-	0.0063	-	-	-	0.0056	-
Jul-18	0.0034	0.0023	0.0033	-	-	-	0.0036	-
Oct-18	0.0037	-	0.0024	-	-	-	0.0024	-

¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

² Blank values represent a non-detect level.

³ Jan. 18 W-1-R and W-11 adjusted to match verification samples.

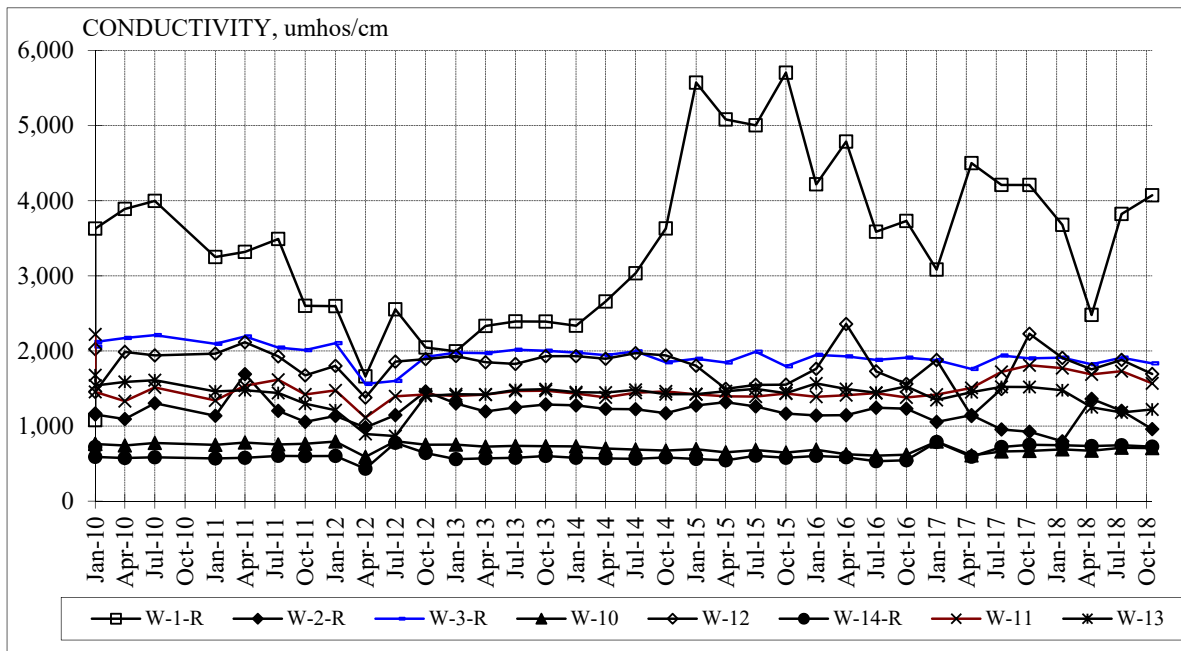
Figure 2k
Figure 2k
Constituent of Concern Trend Graph
Moss Landing Power Plant



Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	Well W-11	Well W-13
Jan-10	7.43	6.64	6.93	6.58	7.01	6.59	6.48	7.10
Apr-10	6.93	6.93	6.49	7.23	6.97	6.59	6.67	7.03
Jul-10	7.29	7.53	6.79	7.26	7.03	6.97	6.73	7.04
Oct-10	7.15	7.36	6.79	7.03	7.01	6.79	6.73	7.09
Jan-11	7.03	6.95	6.86	6.85	6.73	6.21	6.91	6.61
Apr-11	7.22	6.94	6.59	6.70	7.39	6.43	6.89	6.88
Jul-11	7.36	7.19	6.64	6.71	6.96	6.36	6.73	6.65
Oct-11	7.28	7.31	6.59	6.74	7.24	6.34	6.83	6.67
Jan-12	6.69	6.85	6.14	6.40	6.49	6.37	6.70	6.77
Apr-12	6.74	6.76	6.36	7.39	6.81	6.07	6.67	6.48
Jul-12	6.45	6.76	6.49	6.49	6.64	6.49	6.16	6.58
Oct-12	6.55	6.84	6.53	7.35	7.04	6.47	6.74	6.79
Jan-13	6.60	7.21	6.86	7.60	6.82	6.33	6.71	6.55
Apr-13	6.50	6.45	6.41	7.63	6.88	6.37	6.65	6.48
Jul-13	6.24	6.55	6.38	7.37	6.77	6.51	6.38	6.36
Oct-13	6.46	6.41	6.45	7.03	6.69	6.05	6.88	6.36
Jan-14	6.81	6.97	6.58	6.75	6.74	6.71	6.75	6.58
Apr-14	6.74	6.86	6.86	7.44	7.03	6.81	6.56	6.41
Jul-14	6.31	6.90	7.40	6.99	6.64	6.30	6.43	6.56
Oct-14	6.40	6.26	6.01	6.21	6.49	6.11	6.59	6.41
Jan-15	6.01	6.36	6.33	7.27	6.12	6.63	6.44	6.34
Apr-15	6.39	6.29	6.31	6.95	6.41	6.88	6.80	6.28
Jul-15	6.84	6.73	6.14	6.29	6.96	6.05	6.55	6.45
Oct-15	6.12	6.46	6.33	6.54	6.43	6.36	6.68	6.48
Jan-16	6.51	6.80	6.83	7.04	6.88	6.54	6.65	6.81
Apr-16	6.43	6.53	6.88	6.46	6.79	6.56	6.34	6.08
Jul-16	6.56	7.04	6.53	6.29	6.73	6.03	6.11	6.39
Oct-16	6.70	6.98	6.44	6.71	7.24	6.39	6.78	6.41
Jan-17	6.45	6.36	6.31	6.21	6.77	6.06	6.87	6.17
Apr-17	6.76	7.69	6.56	6.49	6.65	6.30	6.10	6.78
Jul-17	6.35	6.62	6.69	6.37	6.93	6.27	6.86	6.43
Oct-17	6.16	6.96	6.39	7.19	6.83	6.09	6.16	6.39
Jan-18	6.61	7.43	6.51	7.33	6.50	6.06	6.77	6.53
Apr-18	6.64	7.14	6.48	7.51	6.73	6.31	6.91	6.88
Jul-18	6.29	7.64	6.54	7.56	6.51	6.08	6.39	6.43
Oct-18	6.50	6.61	6.61	6.67	6.83	6.51	6.67	6.68

¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

Figure 21
Constituent of Concern Trend Graph
Moss Landing Power Plant



Sample Event	Well W-1-R	Well W-2-R	Well W-3-R	Well W-10	Well W-12	Well W-14-R	¹ Well W-11	Well W-13
Jan-10	1,078	1,167	2,059	762	2,024	721	2,221	1,677
Apr-10	3,891	1,093	2,173	742	1,987	575	1,332	1,588
Jul-10	3,998	1,304	2,211	775	1,941	584	1,514	1,611
Jan-11	3,629	1,154	2,120	761	1,455	589	1,455	1,540
Jan-11	3,251	1,137	2,095	750	1,964	569	1,341	1,461
Apr-11	3,319	1,691	2,193	780	2,116	577	1,537	1,477
Jul-11	3,491	1,203	2,045	755	1,928	603	1,617	1,441
Oct-11	2,601	1,056	2,011	764	1,675	600	1,421	1,298
Jan-12	2,597	1,135	2,104	794	1,801	602	1,475	1,211
Apr-12	1,661	981.7	1,561	589.3	1,379	431.7	1,112	894.3
Jul-12	2,554	1,146	1,601	798.3	1,858	776.3	1,396	866.4
Oct-12	2,046	1,461	1,921	751.4	1,891	640.9	1,421	1,401.0
Jan-13	1,995	1,301	1,977	753.1	1,933	559.4	1,401	1,424
Apr-13	2,333	1,194	1,971	725.9	1,850	570.4	1,419	1,420
Jul-13	2,393	1,248	2,016	736.3	1,827	577.3	1,467	1,481
Oct-13	2,391	1,287	2,003	731.7	1,930	601.8	1,471	1,491
Jan-14	2,336	1,276	1,978	729.1	1,931	576.8	1,433	1,451
Apr-14	2,658	1,228	1,944	701.3	1,896	569.3	1,382	1,446
Jul-14	3,034	1,224	1,995	687.3	1,971	564.1	1,444	1,483
Oct-14	3,631	1,171	1,849	673.7	1,941	581.9	1,461	1,424
Jan-15	5,573	1,274	1,896	691.9	1,803	561.9	1,423	1,425
Apr-15	5,083	1,318	1,846	649.9	1,496	543.7	1,396	1,464
Jul-15	5,005	1,261	1,990	680.9	1,548	604.3	1,393	1,495
Oct-15	5,705	1,166	1,796	646.7	1,551	577.4	1,433	1,438
Jan-16	4,219	1,141	1,948	684.3	1,763	602.4	1,390	1,568
Apr-16	4,788	1,145	1,928	625.3	2,359	584.3	1,411	1,493
Jul-16	3,588	1,244	1,881	605.8	1,729	531.9	1,439	1,444
Oct-16	3,731	1,231	1,911	618.7	1,562	544.8	1,381	1,528
Jan-17	3,084	1,055	1,878	794	1,880	787	1,419	1,347
Apr-17	4,501	1,146	1,760	609	1,134	591	1,508	1,451
Jul-17	4,211	955	1,939	662	1,494	721	1,721	1,522
Oct-17	4,210	924	1,901	668	2,229	751	1,809	1,520
Jan-18	3,679	797	1,911	690	1,908	744	1,771	1,477
Apr-18	2,480	1,362	1,823	671	1,755	734	1,688	1,250
Jul-18	3,824	1,203	1,911	711	1,881	744	1,731	1,181
Oct-18	4,073	959	1,835	706	1,694	726	1,569	1,221

¹ Background were sampled annually (July). Changed to Quarterly during 2nd quarter, 2000.

NS = not sampled

HYDROGEOLOGICAL MEASUREMENT RESULTS

Fourth Quarter 2018

Using groundwater elevation data collected at the site on October 16th, 2018, and presented in Table 3, a shallow groundwater contour map for site-wide conditions was prepared and is shown in Figure 3a. The groundwater data indicates that the gradient in the vicinity of the MCWIs is relatively flat. A shallow groundwater contour map for the impoundment area is shown in Figure 3b. The direction of groundwater flow is generally to the west towards the Pacific Ocean.

Groundwater levels measured at the site in October 2018 were on average approximately 0.05 of a foot higher than the water levels measured at the site in July 2018.

Because the groundwater gradient in the vicinity of the MCWIs is relatively flat as shown on Figure 3b, the groundwater elevation data between wells W-13 and W-10 were used to estimate groundwater flow direction, hydraulic gradient, and seepage velocity beneath the MCWIs. Because each well in the monitoring program is used as its own background dataset (intrawell analysis) for determination of a release from the MCWIs, the determination of an upgradient well or an upgradient water quality standard is not necessary.

Wells W-13 and W-10 were chosen for the gradient analysis because there has been a consistent historical direction of groundwater flow from W-13 beneath the MCWIs to W-10. The gradient beneath the MCWIs between these two wells is assessed to determine if any localized groundwater flow regime changes have occurred.

On October 16th, 2018, water level measurements indicate that the groundwater flow direction beneath the MCWIs was toward the northwest between W-13 and W-10 with a horizontal hydraulic gradient of approximately 0.0012 foot per foot (ft/ft). A hydraulic conductivity of 40.25 ft/day was calculated from slug test data (PG&E 1996). The effective porosity of the aquifer matrix was estimated from empirical data to be 25 percent (%) for sediments similar to those at the site (Domenico and Schwartz, 1990). The groundwater seepage velocity was calculated to be 0.19 foot per day (ft/day). Based

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on this information, groundwater moves approximately 17.25 ft to the northwest between quarterly monitoring events with a flow velocity of approximately 0.19 ft/day.

Annual Summary

This section presents an annual summary of the 2018 groundwater flow and direction data determined for Moss Landing Power Plant's MCWI. The groundwater monitoring system is shown on Figure 1.

The 2018 quarterly groundwater-monitoring events were conducted on the following dates:

- First Quarter 2017 – January 16, 2018
- Second Quarter 2017 – April 17, 2018
- Third Quarter 2017 – July 17, 2018
- Fourth Quarter 2017 – October 16, 2018

The direction of groundwater flow beneath the MCWIs has been to the northwest throughout 2018, which is consistent with historical conditions. The groundwater gradients and flow rate for 2018 are shown below.

Date	Hydraulic Gradient (feet/foot)	Velocity (feet/day)
January 16, 2017	0.0013	0.21
April 17, 2017	0.0012	0.20
July 17, 2017	0.0012	0.19
October 16, 2017	0.0012	0.19

The groundwater gradient ranged from 0.0012 to 0.0013 feet/foot (ft/ft) in 2018. The groundwater velocity was ranged from 0.19 to 0.21 ft/day in 2018. Based on this annual review, wells W-13 and W-10 will be retained as representative monitoring points for localized gradient analysis.

Table 3
Water Table Elevation Data
Moss Landing Power Plant - MCWI
Sampling Date: October 16-17, 2018

Well Identity	Well Status	Top of casing elevation	Depth to Bottom feet 1/10/2017	Depth to water ft. btoc		Water table elevation ft. mllw		Change in water table elevation ft. mllw 3rd QTR 2018 - 4th QTR 2018
				3rd QTR 2018 7/17/2018	4th QTR 2018 10/16/2018	3rd QTR 2018 7/17/2018	4th QTR 2018 10/16/2018	
W-1-R	Compliance	32.74	35.30	26.73	27.61	5.35	5.13	0.22
W-2-R	Compliance	33.01	40.50	28.29	28.35	4.69	4.66	0.03
W-3-R	Compliance	30.12	60.60	25.48	25.50	4.58	4.62	-0.04
W-10	Compliance	31.96	37.10	27.27	27.37	4.62	4.59	0.03
W-11	Compliance	30.85	35.70	25.81	25.98	4.91	4.87	0.04
W-12	Compliance	35.56	38.90	31.54	31.85	3.73	3.71	0.02
W-13	Compliance	27.72	34.30	22.78	22.89	4.86	4.83	0.03
W-14-R	Compliance	32.90	43.60	28.18	28.32	4.61	4.58	0.03
MP-2-R	Piezometer	23.88	42.85	19.78	20.40	3.70	3.48	0.22
MP-3	Piezometer	28.44	38.00	23.86	23.98	4.49	4.46	0.03
MP-5	Piezometer	33.20	40.40	28.46	28.38	4.80	4.82	-0.02
MP-10-R	Piezometer	24.47	39.10	18.93	19.92	4.88	4.55	0.33
MP-12	Piezometer	31.88	41.55	27.22	27.17	4.64	4.71	-0.07
MP-13	Piezometer	29.61	34.80	25.19	25.03	4.58	4.58	0.00
MP-14	Piezometer	29.16	34.25	24.90	24.63	4.49	4.53	-0.04

mllw = Mean lower low water

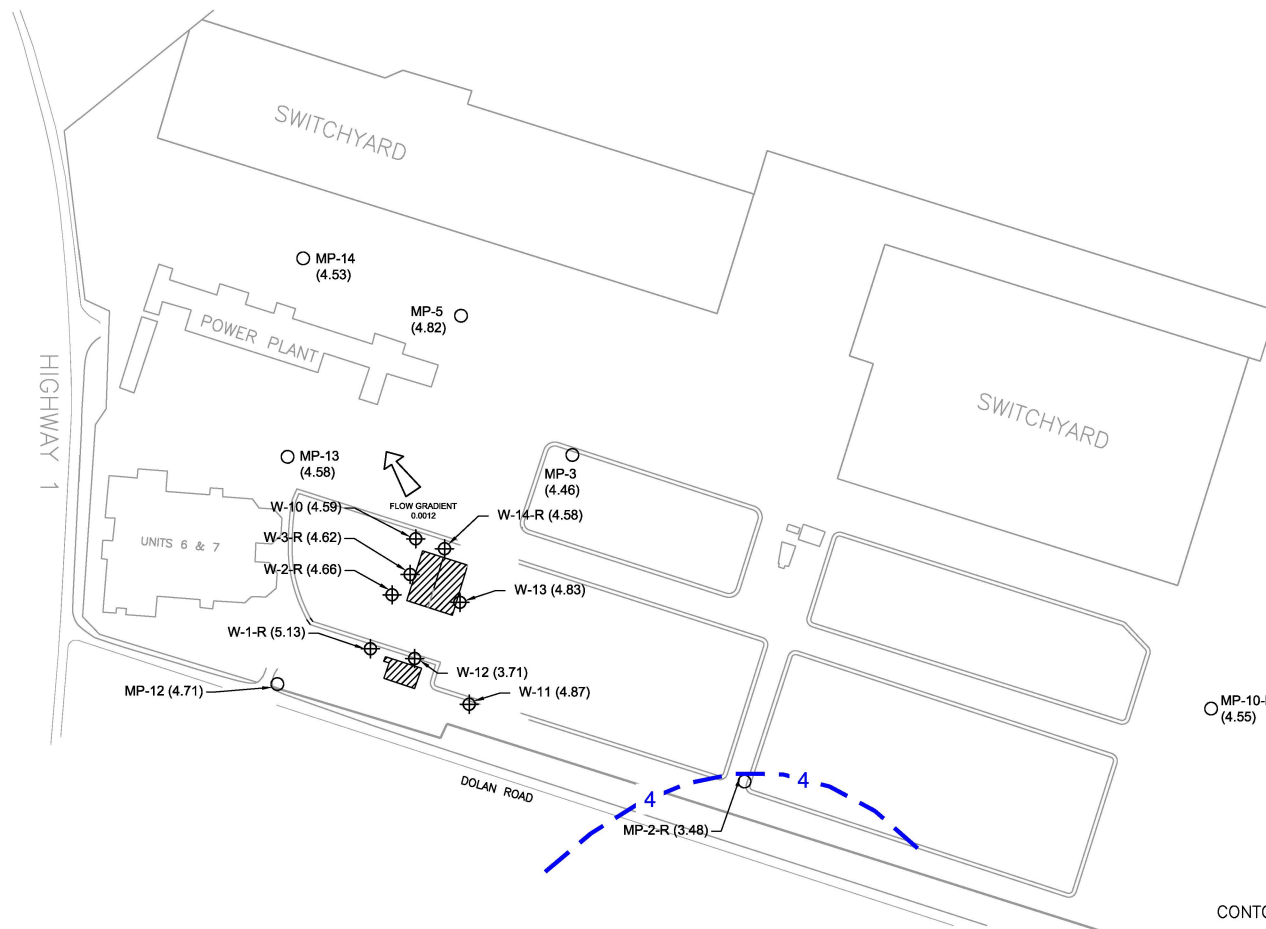
btoc = Below top of casing

QTR = Quarter

NA = Not Available

Average change from the previous quarter to the current quarter: 0.054

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	PDX	KORSMO 10/18/18	CT 10/18/18	DE 10/18/18	631223270-18Q3



EXPLANATION

- W-14 ⊕ MONITORING WELL LOCATION
- MP-13 ○ PIEZOMETER LOCATION
- (4.69) GROUNDWATER SURFACE ELEVATION (MLLW)
- GROUNDWATER SURFACE CONTOUR (BASED ON ALL WELLS EXCEPT AS SPECIFIED BELOW)
- ← GROUNDWATER FLOW DIRECTION (BASED ON WELLS W-10 AND W-13)
- * NOT USED IN CONTOURING
- ▨ METAL CLEANING WASTE IMPOUNDMENTS

0 500 1000

SCALE IN FEET

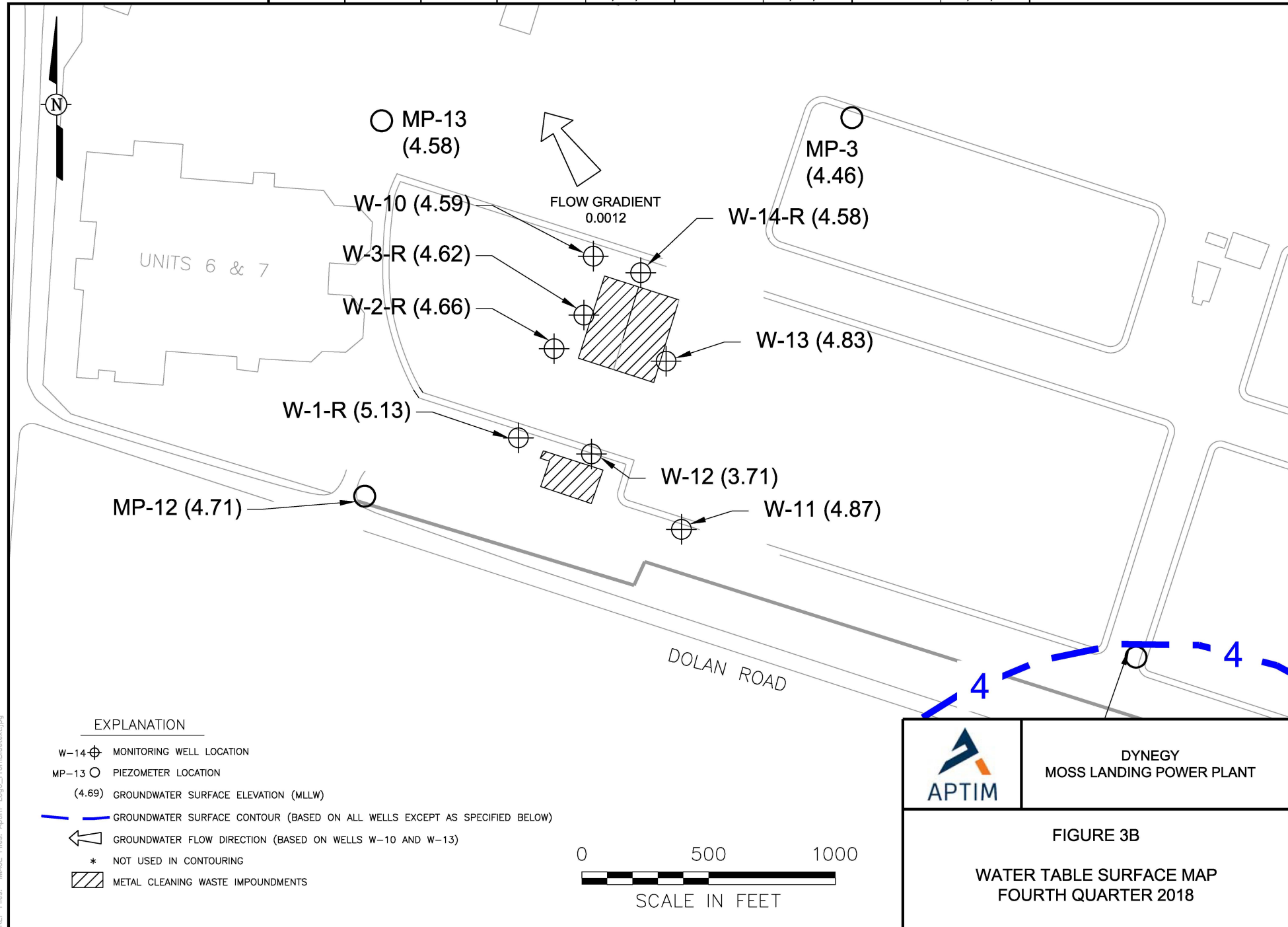


DYNEGY
MOSS LANDING POWER PLANT

FIGURE 3A
WATER TABLE SURFACE MAP
FOURTH QUARTER 2018

\\10.137.137.250\Common\AutoCAD\COMMERCIAL DRAFTING DATA\Sacramento Office\148555 Moss Landing
10.137.137.250\Users\erik.korsmo\Desktop\Work\Client\Jynergy - Moss - Quarterly Reporting\DESIGN\761 T AND 3A AND 3B - 102218.dwg User: erik.korsmo Oct 22, 2018 - 11:03am
XREF Files: IMAGE File: APTIM Logo_Foundation.dwg

IMAGE	X-REF	OFFICE	DRAWN BY		CHECKED BY		APPROVED BY		DRAWING NUMBER
---	---	PDX	KORSMO	10/18/18	CT	10/18/18	DE	10/18/18	631223270-18Q3



ANALYTICAL RESULT STATISTICAL ANALYSIS

Statistical analysis based on the tolerance limit method was used to calculate a concentration limit to evaluate concentrations of the monitoring parameters (MPs) and constituents of concern (COCs) for the Moss Landing Power Plant RCRA Groundwater Detection Monitoring System. The tolerance limit methodology is described in detail in the “Statistical Evaluation Plan and Proposed Concentration Limits Report” (SEP and PCL) prepared by Shaw Environmental, Inc., now APTIM, in July 2005. The methodology is based on the frequency of Non-Detect (ND) results in the background data. The background concentration limits for the MPs are included in Appendix A. The concentration limits were updated in 2017 following the issuance of the new DTSC permit, which added well W-11 to the point-of-compliance network. Application of the methodology can be classified into three methods.

Method A is used for compounds in which the background data set is 90 to 100 percent non-detect (ND). The concentration limit for the Method A compounds is the laboratory practical quantification limit (PQL) listed in Table 4. Method B is used for compounds which have 50 percent (%) or more (but less than 90%) NDs in the background data set or for background datasets with less than 50% ND but which have neither normal nor transformed normal data distribution. The concentration limit for the Method B compounds is the non-parametric tolerance limit (maximum background concentration [MC]) listed in Table 4. Method C is used for compounds that have less than 50% NDs in the background data set. If less than 15% of the background dataset is ND, for the Method C compounds the concentration limit is the upper control limit (UCL) listed in Table 4. If greater than 15%, but less than 50%, of the background dataset is ND, for the Adjusted Method C compounds the concentration limit is the UCL calculated with Cohen’s Adjustment. Appendix A contains a flowchart of the three methods (Figure 4 of the SEP and PCL). Based on the frequency of non-detects in the background data set, Figure 4 in Appendix A summarizes the statistical analytical method used for each monitoring parameter and constituent of concern in each compliance well.

Appendix A also contains the confidence level for the Method B concentration limits that have a confidence level less than 90%, and lists the background data sets. This is important because when the confidence level for a Method B concentration limit is low,

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the probability of false positive is relatively high. To avoid this possibility, a Data Status Verification Monitoring Program was developed. Section 3-4 of the SEP and PCL describes the program in detail. Generally, a SSI is not concluded to exist until one or more quarters of monitoring data can confirm it.

Statistical analysis results (Table 4) from the routine samples collected during the fourth quarter 2018 monitoring event indicated potential SSIs for molybdenum in well W-13.

Verification samples were collected on November 19th, 2018. Statistical analyses results (Table 5) from the November 2018 verification samples (Ver A and Ver B) confirmed the fourth quarter 2018 SSIs for molybdenum in well W-13.

W-13:

Molybdenum: Molybdenum was detected in the regular sample at 0.00064 mg/L, which is above the UCL of 0.00054 mg/L. Verification samples were collected during this event from W-13 for molybdenum. Verification sample results for molybdenum at W-13 were 0.00060 mg/L and 0.00056 mg/L for both (VER A) and (VER B) indicating that the fourth quarter 2018 SSI was confirmed for molybdenum. A demonstration report for molybdenum in Well W-13 concluded that it is likely that the molybdenum detected in well W-13 is naturally occurring and not a result of site activities.

A review of the historical molybdenum data from the site wells indicated the following:

- Molybdenum is detected at wells W-1-R and W-12 at significantly higher naturally occurring concentrations.
- Molybdenum also appears to naturally fluctuate in the aquifer as demonstrated by the relatively higher levels during the 2011 to 2014 time period, followed by relatively lower levels during the 2015 to 2017 time period. Starting again in 2018, it appears that molybdenum levels are again naturally rising in the aquifer at the site.
- Many of the other wells at the site (W-3-R, W-10, W-11, and W-14-R) detect molybdenum at similar or higher levels than W-13, but do not exceed their

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statistical concentration limits. This also indicates that the levels of molybdenum detected at W-13 are within the naturally occurring levels for the site

- Based on data from W-11, the up gradient well, fluctuations in naturally occurring molybdenum in the aquifer could be in the range as those detected at W-13.
- In addition, molybdenum contamination was detected in the trip blank and method blank samples in April, May, September, and November 2018, which shows lab error and calls into question the accuracy of these low detected values.

Almost all of the monitoring parameters are naturally occurring in the environment and are thus not unambiguous indicators of a release from the impoundments. These parameters are very common in the environment, especially close to the Pacific Ocean where slight impacts from salt water intrusion can affect water quality. Their presence in the monitoring samples is not absolute evidence of a release from the impoundments.

Annual Summary

First Quarter 2018: Statistical analysis results for the first quarter 2018 sampling period indicated potential SSIs for the following constituents:

- Zinc in W-1-R and W-11
- Chromium in W-1-R
- Nickel in W-3-R

Statistical analysis results from the verification samples collected during the first quarter 2018 monitoring event did not confirm the SSIs for zinc in W-1-R and W-11, chromium in W-1-R, or nickel in W-3-R.

Second Quarter 2018: Statistical analysis results for the second quarter 2018 sampling period indicated potential SSIs for the following constituent:

- Molybdenum in W-13

Statistical analysis results from the verification samples collected during the second quarter 2018 monitoring event confirmed the SSI for molybdenum in W-13.

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Third Quarter 2018: Statistical analysis results for the third quarter 2018 sampling period indicated potential SSIs for the following constituents:

- Molybdenum in W-13
- Ammonia in W-1-R, W-2-R, W-10, W-11, W-12, W-13, W-14-R

Statistical analysis of the verification samples collected during the third quarter 2018 monitoring event confirmed the SSIs for Molybdenum in W-13, Ammonia in W-2-R, W-10, W-11, and W-12. Verifications from the same sampling event did not confirm Ammonia in W-1-R, W-13 and W-14-R.

Fourth Quarter 2018: Statistical analysis results for the fourth quarter 2018 sampling period indicated potential SSIs for the following constituent:

- Molybdenum in W-13

Statistical analysis results from the verification samples collected during the fourth quarter 2018 monitoring event confirmed the SSI for molybdenum in W-13.

Table 4
Statistical Analysis of Chemical Analytical Results
Moss Landing Power Plant - MCWI
Sampling Date: October 16-17, 2018

Units: mg/L (ppm)	Parameter	Well Name		Analytical Result (mg/L)	PQL	MC	UCL	Significant Increase?
Method (A)								
No wells analyzed per Method (A)								
Method (B)								
	Ammonia	W-1-R	J	0.06	0.1	0.078		no
	Ammonia	W-2-R		0.02	0.1	0.055		no
	Ammonia	W-3-R	<	0.02	0.1	0.150		no
	Ammonia	W-10	<	0.018	0.1	0.050		no
	Ammonia	W-11	J	0.02	0.1	0.053		no
	Ammonia	W-12	J	0.03	0.1	0.050		no
	Ammonia	W-13	J	< 0.02	0.1	0.050		no
	Ammonia	W-14-R	<	0.02	0.1	0.087		no
	Cobalt	W-10	J	0.00005	0.001	0.0045		no
	Cobalt	W-11	J	0.00003	0.001	0.0088		no
	Cobalt	W-13	J	0.00026	0.001	0.0042		no
	Cobalt	W-14-R	J	0.00002	0.001	0.0038		no
	Molybdenum	W-2-R		0.00018	0.001	0.0005		no
	Molybdenum	W-10	J	0.00054	0.001	0.0007		no
	Zinc	W-1-R	J	0.0037	0.005	0.0069		no
	Zinc	W-2-R	<	0.0022	0.005	0.006		no
	Zinc	W-10	<	0.0022	0.005	0.0160		no
	Zinc	W-12	<	0.0022	0.005	0.0097		no
	Zinc	W-13	<	0.0022	0.005	0.0057		no
	Zinc	W-14-R	<	0.0022	0.005	0.005		no
Method (C)								
	Barium	W-1-R		0.140	0.001		0.346	no
	Barium	W-2-R		0.036	0.001		0.074	no
	Barium	W-3-R		0.030	0.001		0.047	no
	Barium	W-10		0.058	0.001		0.069	no
	Barium	W-11		0.082	0.001		0.116	no
	Barium	W-12		0.061	0.001		0.106	no
	Barium	W-13		0.041	0.001		0.089	no
	Barium	W-14-R		0.059	0.001		0.083	no
	Chromium, Hexavalent	W-1-R	J	0.00000	0.2		0.004288	no
	Chromium, Hexavalent	W-2-R	J	0.00000	0.2		0.003528	no
	Chromium, Hexavalent	W-3-R	J	0.00000	0.2		0.005000	no
	Chromium, Hexavalent	W-10	J	0.00001	0.2		0.009277	no
	Chromium, Hexavalent	W-11	J	0.00000	0.2		0.012000	no
	Chromium, Hexavalent	W-12	J	0.00000	0.2		0.005235	no
	Chromium, Hexavalent	W-13	J	0.00000	0.2		0.004662	no
	Chromium, Hexavalent	W-14-R	J	0.00001	0.2		0.006205	no
	Chromium, total	W-1-R		0.0050	0.003		0.005088	no
	Chromium, total	W-2-R	J	0.0023	0.003		0.004795	no
	Chromium, total	W-3-R	J	0.0021	0.003		0.004500	no
	Chromium, total	W-10		0.0059	0.003		0.009656	no
	Chromium, total	W-11		0.0060	0.003		0.015000	no
	Chromium, total	W-12		0.0068	0.003		0.008935	no
	Chromium, total	W-13		0.0035	0.003		0.008680	no
	Chromium, total	W-14-R		0.0053	0.003		0.007059	no
	Cobalt	W-1-R	J	0.000490	0.001		0.001617	no
	Cobalt	W-2-R	J	0.000053	0.001		0.000675	no
	Cobalt	W-3-R	J	0.000320	0.001		0.000570	no
	Cobalt	W-12	J	0.000340	0.0010		0.001405	no
	Copper	W-1-R	J	0.00120	0.002		0.003775	no
	Copper	W-2-R	J	0.00074	0.002		0.002316	no
	Copper	W-3-R	J	0.00110	0.002		0.003264	no
	Copper	W-10	J	0.00079	0.002		0.001698	no
	Copper	W-11	J	0.00066	0.002		0.001900	no
	Copper	W-12	J	0.00100	0.002		0.002158	no
	Copper	W-13	J	0.00079	0.002		0.002200	no
	Copper	W-14-R	J	0.00063	0.002		0.001497	no

Table 4
Statistical Analysis of Chemical Analytical Results
Moss Landing Power Plant - MCWI
Sampling Date: October 16-17, 2018

Units: mg/L (ppm)	Parameter	Well Name		Analytical Result (mg/L)	PQL	MC	UCL	Significant Increase?
Method (C)								
	Molybdenum	W-1-R		0.00120	0.001		0.00459	no
	Molybdenum	W-3-R	J	0.00081	0.001		0.00189	no
	Molybdenum	W-11	J	0.00071	0.001		0.00179	no
	Molybdenum	W-12		0.00350	0.001		0.01008	no
	Molybdenum	W-13	J	0.00064	0.001		0.00054	yes
	Molybdenum	W-14-R	J	0.00062	0.001		0.00084	no
	Nickel	W-1-R		0.018	0.002		0.038	no
	Nickel	W-2-R		0.005	0.002		0.010	no
	Nickel	W-3-R		0.013	0.002		0.013	no
	Nickel	W-10		0.002	0.002		0.003	no
	Nickel	W-11		0.004	0.002		0.006	no
	Nickel	W-12		0.015	0.002		0.026	no
	Nickel	W-13		0.012	0.002		0.032	no
	Nickel	W-14-R		0.007	0.002		0.009	no
	Vanadium	W-1-R	J	0.0024	0.003		0.003000	no
	Vanadium	W-2-R	J	0.0025	0.003		0.004078	no
	Vanadium	W-3-R		0.0041	0.003		0.006397	no
	Vanadium	W-10		0.0031	0.003		0.005945	no
	Vanadium	W-11		0.0039	0.003		0.007889	no
	Vanadium	W-12	J	0.0026	0.003		0.007500	no
	Vanadium	W-13		0.0043	0.003		0.006497	no
	Vanadium	W-14-R		0.0034	0.003		0.006534	no
	Zinc	W-3-R	J	0.0024	0.005		0.00740	no
	Zinc	W-11	J	0.0024	0.005		0.02275	no

Note:

PQL = Practical Quantitation Limit

MC = Maximum Background Concentration

UCL = Upper Concentration Limit

J = values reported below the PQL are estimated values above the lab's MDL

< = Less than Method Detection Limit

Table 5
Verification Sampling Results
Moss Landing Power Plant - MCWI
Sampling Date: October 16-17, 2018

Monitoring Well	Parameter Units: mg/L (ppm)	Sample Name	Analytical Result	PQL	MC/UCL	Significant Increase?
W-13	Molybdenum		0.00064	0.001	0.00054	yes

Results from Verification Sample Results from November 19, 2018						
W-13	Molybdenum	W-13 VER A	0.0006	0.001	0.00054	yes
	Molybdenum	W-13 VER B	0.00056	0.001	0.00054	yes

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LEACHATE COLLECTION AND REMOVAL SYSTEM

Visual inspections of the MCWI Leachate Detection, Collection, and Removal Systems (LDCRS) were performed and logged daily by site personnel. No problems were identified for MCWI Nos. 1, 2 and 3. No leachate was removed from LDCRS for MCWI No. 1, MCWI No.2 and MCWI No. 3 during this quarter.

Appendix E contains a summary of the fourth quarter and annual Surface Impoundment activities for 2018.

Appendix F contains a summary of the liquid detected and removed quarterly in 2018 from the primary and secondary leachate systems.

In accordance with the California Regional Water Quality Control Board, Central Coast Region Order No. R3-2009-0049 (The Department of Toxic Substances Control does not require this information):

- Infiltrated groundwater collected from the Groundwater Detection, Collection and Removal Systems (GDCRS) of all three Impoundments for 2018 are also included in Appendix F.

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ANNUAL LINER INSPECTION REPORTS

The surface impoundments were triple lined in 1989. The Regional Water Quality Control Board Order No. R3-2014-0029 and Section 8.4 of the “Hazardous Waste Part B Permit Application for Surface Impoundments at Dynegy Moss Landing, LLC requires annual inspections of the exposed primary liners. The Annual Liner Inspection Report is included in Appendix G of the secondary liner following the de-construction of the primary liner as part of Closure of the Class I Surface Impoundments in 2018. Tim Bauters, PhD, PE from TBI Engineering oversaw the de-construction of the primary liners in MCWP No.’s 1, 2 and 3 by International Lining Technology and inspected the secondary liners when de-construction was completed.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

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