March 2020
Former Reynolds Metals Reduction Plant – Longview

ANCHOR QEA

2019 Annual Groundwater Monitoring Report

Prepared for Northwest Alloys, Inc., and
Millennium Bulk Terminals – Longview, LLC

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Former Reynolds Metals Reduction Plant – Longview

2019 Annual Groundwater Monitoring Report

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ABBREVIATIONS

ASTM	ASTM International
BMP	Black Mud Pond
CAP	*Cleanup Action Plan*
CDID	Consolidated Diking Improvement District
Closure and Post-Closure Plan	*Closure Plan and Post-Closure Plan for the Longview Reduction Plant*
cPAH	carcinogenic polycyclic aromatic hydrocarbon
Ecology	Washington State Department of Ecology
MBTL	Millennium Bulk Terminals – Longview, LLC
MTCA	Model Toxics Control Act
Reynolds	Reynolds Metals Company
SM	Standard Method
SPL	spent potliner
USEPA	U.S. Environmental Protection Agency
WAD	weak acid dissociable

1 Introduction

The former Reynolds Metals Reduction Plant in Longview, Washington (Figure 1), is subject to a cleanup action specified in the *Cleanup Action Plan* (CAP) (Ecology 2018). The CAP was developed in conjunction with the Washington State Department of Ecology (Ecology) using information presented in the *Remedial Investigation and Feasibility Study* (Anchor QEA 2015) and prepared in accordance with the requirements of the Model Toxics Control Act (MTCA; Ecology 2007), Chapter 70.105D Revised Code of Washington, administered by Ecology under the MTCA Cleanup Regulation, Chapter 173-340 Washington Administrative Code. The interim groundwater monitoring program is intended to comprehensively collect groundwater monitoring data prior to remediation. The program includes requirements in accordance with the *Compliance Monitoring and Contingency Response Plan* (Appendix A of the CAP), the *Closed BMP Facility Post-Closure Plan Amendment* (Appendix B of the CAP), and additional monitoring wells that were selected based on locations that are hydraulically downgradient of former source areas located in the East and West Groundwater Areas. Ecology approved the interim groundwater monitoring program in an October 8, 2019 correspondence (Schrieve 2019).

1.1 Site Description

The site is located at 4029 Industrial Way, just outside the city limits of Longview in Cowlitz County, Washington, approximately 2.9 miles northwest of the center of Longview and 4.8 miles northwest of I-5. The property includes about 460 acres and is currently operated as a multi-modal bulk materials handling facility by Millennium Bulk Terminals – Longview, LLC (MBTL). The site is approximately 10 feet above mean sea level and bounded by the Columbia River to the south; Consolidated Diking Improvement District (CDID) drainage ditches to the north, west, and east; Industrial Way along the northern boundary; and private property to the east. A site map is provided in Figure 2. The physical plant, buildings, and other improvements are owned by MBTL, whereas the upland property is owned by Northwest Alloys, Inc., a wholly owned subsidiary of Alcoa, Inc.

1.2 Background

1.2.1 Former Spent Potliner Area

Reynolds Metals Company (Reynolds) used spent potliner (SPL) as feedstock for the cryolite recovery process and stockpiled it prior to processing. In July 1983, Reynolds and Ecology agreed that the SPL stockpile would be removed and a groundwater monitoring program for this area would be developed (Order No. DE 83-293). Per this agreement, six groundwater wells have been monitored quarterly since that point in time. Quarterly monitoring under Order No. DE 83-293 ceased during second quarter 2019 in order to begin the interim groundwater monitoring program under MTCA. The locations of these monitoring locations are shown in Figure 3.

1.2.2 Closed Black Mud Pond

The Closed Black Mud Pond (BMP) is a 33-acre waste impoundment situated in the northwestern corner of the site. The Closed BMP was constructed by Reynolds to contain materials generated during the cryolite recovery process. In 1992, Reynolds capped the area and began monitoring in accordance with the Ecology-approved *Operations and Maintenance Manual: Black Mud Pond Post-Closure Care* (Reynolds 1992) and the Ecology-approved *Closure Plan and Post-Closure Plan for the Longview Reduction Plant* (Closure and Post-Closure Plan; Reynolds and CH2M Hill 1991). Since that time, the Closed BMP has been subject to post-closure care consisting of ongoing maintenance and monitoring as specified in the Closure and Post-Closure Plan. Monitoring activities included collecting samples quarterly from nine groundwater wells and two surface water ditch locations. The *Closed BMP Facility Post-Closure Plan Amendment* (Appendix B of the CAP) updates those maintenance provisions and aligns monitoring requirements with the compliance monitoring framework under the CAP (Ecology 2018). This plan is now the superseding document for monitoring activities at the Closed BMP. Therefore, quarterly monitoring under the Closure and Post-Closure Plan ceased during second quarter 2019, and monitoring began in accordance with the *Closed BMP Facility Post-Closure Plan Amendment*. Closed BMP monitoring locations included in the Closure and Post-Closure Plan are shown in Figure 4, and locations included in *Closed BMP Facility Post-Closure Plan Amendment* are shown in Figure 5.

1.2.3 East and West Groundwater Areas

The interim groundwater monitoring program is intended to comprehensively monitor groundwater prior to remediation. In addition to those wells monitored at the Closed BMP, additional monitoring wells were selected based on locations that are hydraulically downgradient of former source areas located in the East and West Groundwater Areas. These well locations were discussed with Ecology on August 20, 2019, and a proposal was presented to Ecology in an October 3, 2019 email. Ecology approved the interim groundwater monitoring program, which includes the East and West Groundwater Area wells on October 8, 2020. The East and West Groundwater Area well locations are shown in Figures 5 and 6.

1.2.4 Interim Groundwater Monitoring Program

Collectively, the monitoring locations included in the *Closed BMP Facility Post-Closure Plan Amendment* and those additional wells selected in the East and West Groundwater Areas are the program wells in the interim groundwater monitoring program.

1.3 Report Organization

The remainder of this document is organized into the following sections:

- Section 2: Summary of Monitoring Program

- Section 3: Summary of Monitoring Results
- Section 4: References

This report includes the following attachments:

- Attachment A: Historical Groundwater and Surface Elevation Data
- Attachment B: Field Sampling Data Sheets and Chain-of-Custody Documentation
- Attachment C: Laboratory Reports
- Attachment D: Historical Groundwater and Surface Water Chemistry Data
- Attachment E: Time-Series Concentration Plots
- Attachment F: Data Validation Reports

2 Summary of Monitoring Programs

This section summarizes the monitoring locations, frequency, and parameters of the programs. Monitoring methods of the groundwater collection are also discussed.

2.1 Monitoring Program Locations

The monitoring wells and surface water monitoring locations for the former SPL area and Closed BMP are shown in Figures 3 and 4, respectively. Interim groundwater monitoring program locations for the West Groundwater Monitoring Area, including the Closed BMP Facility, and the East Groundwater Area are shown in Figures 5 and 6, respectively.

2.2 Monitoring Parameters and Frequency

Summaries of the Closed BMP and former SPL area monitoring programs, and the interim groundwater monitoring program, including monitoring frequency and parameters for each location, are listed in Table 1.

2.3 Monitoring Methods

2.3.1 Groundwater Sampling Methodology

Sampling was conducted as outlined in the document *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells*, produced by USEPA in April 1996 and revised in September 2017 (USEPA 2017). USEPA's low-flow groundwater sampling procedure recommends a pumping rate between 0.1 and 1 liter per minute during purging and sampling. The pumping rate was selected for each well to maintain a water level drawdown of less than 0.1 meter (0.3 foot). Drawdown was controlled in wells by checking the depth to water in 3- to 5-minute intervals with a water level indicator. If the minimal drawdown that can be achieved exceeds 0.3 foot but remains stable, purging may continue. Wells that did not meet the low-flow standards for pumping rate and drawdown were purged of at least three casing volumes until field parameters (pH, specific conductivity, and temperature) stabilized or until the well pumped dry. Wells that were purged dry were allowed to recover at least 80% of the well's initial water column height before samples were collected. Several of the wells were slow to recover and did not recover to 80% of the water column height in a 24-hour period after being purged dry. Wells that did not recover to 80% were allowed to recover for as close as possible to 24 hours before sampling.

The monitoring wells that met the low-flow standards for pumping rate and drawdown were purged and sampled using a peristaltic pump and dedicated pump tubing that was connected to dedicated polyethylene tubing. Wells that did not meet the low-flow standards were purged and sampled using either a Waterra inertial pump (if the well purged dry) or a peristaltic pump (if the well was less than 20 feet in depth or the well did not purge dry). Samples for dissolved analysis (metals only) were

filtered in the field with a 0.45-micron in-line disposable filter. Turbidity measurements were collected immediately prior to and after sample collection.

2.3.2 Surface Water Sampling Methodology

Surface water samples were collected with a disposable polyethylene bailer. The bailer was lowered into the waterbody from the shore (CDID Up and W-2) or from a floating dock (CDID Down). The sample was collected from the bottom of the bailer using a disposable bottom-emptying device. One round of field parameters (pH, specific conductivity, temperature, and turbidity) was collected during sampling. Turbidity measurements were collected immediately prior to and after sample collection.

2.3.3 Sample Handling and Shipping

Samples were delivered by laboratory-provided courier or Anchor QEA, LLC, staff to Apex Laboratories, LLC, in Tigard, Oregon, under chain-of-custody documentation.

2.3.4 Waste Management

Groundwater generated during the purging and sampling of the monitoring wells was containerized in 5-gallon buckets and disposed of at the on-site wastewater treatment facility shown in Figure 2.

3 Summary of Monitoring Results

The 2019 monitoring program included sampling from the Closed BMP and former SPL area monitoring programs and the interim groundwater monitoring program. The following actions were completed during 2019:

- First quarter: Closed BMP and former SPL area monitoring on March 4 through March 6, 2019
- Second quarter: Closed BMP and former SPL area monitoring on May 7 through May 9, 2019
- Third quarter: Closed BMP Facility monitoring per the *Closed BMP Facility Post-Closure Plan Amendment* and former SPL area monitoring on August 19 through August 21, 2019
- Fourth quarter: Interim groundwater monitoring program on October 29 through October 31, 2019

3.1 Water Level Measurements

Water levels were measured in monitoring wells and surface water locations on the following dates:

- March 4, 2019
- May 7, 2019
- August 19, 2019
- October 29, 2019

Depth to water measurements and water level elevations for 2019 are shown in Tables 2a and 2b. The newly added surface water monitoring location W-2 (in interim groundwater monitoring program) does not have an elevation gauge; therefore, the CDID Upstream reference point elevation is used in estimating the water level elevation at this location. Historical groundwater and surface elevation data are in Attachment A.

3.2 Groundwater and Surface Water Monitoring

Groundwater and surface water samples were collected on the following dates:

- March 4 through March 6, 2019
- May 7 through May 9, 2019
- August 19 through August 21, 2019
- October 29 through October 31, 2019

Field sampling parameters (pH, specific conductivity temperature, and turbidity) for the 2019 monitoring events are summarized in Tables 3a and 3b. Monitoring well groundwater sampling analytical data from 2019 are summarized in Tables 4a through 4c. Surface water sampling analytical data from 2019 are summarized in Tables 5a and 5b. Copies of field sampling data sheets and chain-of-custody documentation are in Attachment B. Laboratory reports for the 2019 monitoring events are included in Attachment C. Attachment D tabulates historical groundwater and surface water

chemistry data, and Attachment E provides time-series concentration plots by well and surface water location. Historical data trends are plotted for Closed BMP and former SPL area wells that remain in the interim groundwater monitoring program, and wells that have been added to the program will be plotted in future reports once there is a full year of data to trend.

Summaries of the groundwater and surface water monitoring programs that occurred each quarter are included in Sections 3.2.1 through 3.2.3.

3.2.1 First and Second Quarter

In March and May 2019 (first and second quarter), groundwater samples were collected from nine Closed BMP monitoring wells and two surface water locations and analyzed for the following:

- Field parameters: pH, specific conductivity, temperature, and turbidity
- Total cyanide
- Weak acid dissociable (WAD) cyanide
- Free cyanide
- Fluoride
- Chloride
- Sulfate
- Dissolved metals (groundwater) and total metals (surface water) (arsenic, calcium, chromium, copper, magnesium, sodium, and nickel)

Groundwater samples were also collected from six former SPL area monitoring wells and analyzed for the following:

- Field parameters: pH, specific conductivity, temperature, and turbidity
- Total cyanide
- WAD cyanide
- Free cyanide
- Fluoride
- Chloride

Field sampling parameters from the first and second quarter for the Closed BMP and SPL area programs are summarized in Table 3a. Monitoring well groundwater sampling analytical data are summarized in Table 4a. Surface water sampling analytical data are summarized in Tables 5a.

3.2.2 Third Quarter

In August 2019 (third quarter), groundwater samples were collected per the *Closed BMP Facility Post-Closure Plan Amendment* from five monitoring wells and three surface water locations and analyzed for the following:

- Field parameters: pH, specific conductivity, temperature, and turbidity
- Total fluoride
- Dissolved fluoride

Field sampling parameters, groundwater sampling analytical data, and surface water sampling analytical data for the Closed BMP for the third quarter monitoring event are summarized in Tables 3b, 4b, and 5b, respectively.

Groundwater samples were also collected from six former SPL area monitoring wells and analyzed for the following:

- Field parameters: pH, specific conductivity, temperature, and turbidity
- Total cyanide
- WAD cyanide
- Free cyanide
- Fluoride
- Chloride

Field sampling parameters and groundwater sampling analytical data for the former SPL area for the third quarter monitoring event are summarized in Tables 3a and 4a, respectively.

3.2.3 Fourth Quarter

In October 2019 (fourth quarter), monitoring was conducted per the interim groundwater monitoring program. Groundwater samples were collected from five monitoring wells and three surface water locations per the *Closed BMP Facility Post-Closure Plan Amendment* and analyzed for the following:

- Field parameters: pH, specific conductivity, temperature, and turbidity
- Total fluoride
- Dissolved fluoride

Groundwater samples were also collected from three monitoring wells in the West Groundwater Area and eight monitoring wells in the East Groundwater Area and analyzed for the following:

- Field parameters: pH, specific conductivity, temperature, and turbidity
- Total fluoride
- Dissolved fluoride

Field sampling parameters, groundwater sampling analytical data, and surface water sampling analytical data for the interim groundwater monitoring program for the fourth quarter monitoring event are summarized in Tables 3b, 4b, and 5b, respectively.

Groundwater samples collected from monitoring wells R4-S and G4-S in the East Groundwater Area were also analyzed for free cyanide and carcinogenic polycyclic aromatic hydrocarbons (cPAHs). Free cyanide and cPAH results are summarized in Tables 4b and 4c, respectively.

Monitoring well SSA7-MW-01 in the East Groundwater Area was not sampled due to low water levels and the well being dry.

3.3 Deviations in Monitoring Methods

There were no deviations from the monitoring methods.

3.4 Data Validation Review

Laboratory data were subjected to a standard data validation review. The data tables have been updated to reflect data that have been qualified or rejected during the validation review process. The data validation reviews are in Attachment F.

4 References

Anchor QEA, LLC, 2015. *Remedial Investigation and Feasibility Study*. Former Reynolds Metals Reduction Plant – Longview. Prepared for Northwest Alloys, Inc., and Millennium Bulk Terminals – Longview, LLC. January 2015.

Ecology (Washington State Department of Ecology), 2007. Model Toxics Control Act Statute and Regulation. Toxics Cleanup Program. Chapter 70.105 D and Chapter 173-340 WAC. November 2007.

Ecology, 2018. *Cleanup Action Plan*. Final. Former Reynolds Metals Reduction Plant – Longview. October 2018.

Reynolds (Reynolds Metals Company), 1992. *Operations and Maintenance Manual: Black Mud Pond Post-Closure Care*. November 1992.

Reynolds and CH2M Hill, 1991. *Closure Plan and Post-Closure Plan for the Longview Reduction Plant*. Longview, Washington. Prepared for the Washington Department of Ecology. July 1991.

Schrieve, Garin, 2019. Regarding: Former Reynolds Metals Aluminum Smelter - Interim Groundwater and Surface Water Monitoring. Email to: Nicole LaFranchise (Anchor QEA, LLC). October 8, 2019.

USEPA (U.S. Environmental Protection Agency), 2017. *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells*. Revision Number 4. Revised: September 19, 2017.

Tables

Table 1
Groundwater Monitoring Program Summary

Parameter	Laboratory Analytical Method	Closed BMP		Former SPL Area	Interim Monitoring Program			
					Closed BMP Facility[3]		West Groundwater Area[4]	East Groundwater Area[4]
		Groundwater	Surface Water	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater
		RL-1S, RL-1D, RL-2S, RL-2D, RL-3S, RL-3D, RL-4S, RL-4D, RL-5	CDID Up, CDID Down	R-1S, R-1D, R-2, R-3, R-4S, R-4D	RL-1S, RL-2S, RL-3S, PZ-6, PZ-7	CDID Up, CDID Down, W-2	G6-S, G6-D, RLSW2	R-1S, R-2, R-4S, G-1S, G2-S, G3-S, G4-S, G4-D, SSA7-MW-01
Field parameters[1]	--	X	X	X	X	X	X	X
Total cyanide	USEPA 335.4			X				
WAD cyanide	SM 4500-CN I			X				
Free cyanide	ASTM D7237	X	X	X				X (G4-S and R-4S only)
Fluoride	SM 4500-F C	X	X	X	X	X	X	X
Dissolved Fluoride	SM 4500-F C				X	X	X	X
Chloride	USEPA 300.0/ 9056A	X	X	X				
Sulfate	USEPA 300.0/ 9056A	X	X					
Dissolved metals[2]	USEPA 200.8	X						
Total metals[2]	USEPA 200.9		X					
cPAHs	USEPA 8270D							X (G4-S and R-4S only)

Notes:

1. Field parameters include pH, specific conductivity, temperature, and turbidity.

2. Total and dissolved metals include arsenic, calcium, chromium, copper, magnesium, sodium, nickel.

3. Interim sampling at the Closed BMP Facility is conducted quarterly.

4. Interim sampling in the East Groundwater Area and the West Groundwater Area not covered by the *Closed BMP Facility Post-Closure Plan Amendment* is conducted semi-annually, once during the wet season and once during the dry season.

ASTM: ASTM International
BMP: Black Mud Pond
CDID: Consolidated Diking Improvement District
SM: Standard Method
SPL: former Spent Potliner
USEPA: U.S. Environmental Protection Agency
WAD: weak acid dissociable
cPAH: carcinogenic polycyclic aromatic hydrocarbon

Table 2a
2019 Hydrology Measurements – Closed BMP and SPL Area Programs

Monitoring Locations	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[3] (feet)	Water Level Elevation (feet, NAVD88)
Monitoring Wells – Closed BMP				
RL-1S	12.57	3/4/2019	8.88	3.69
RL-1S	12.57	5/7/2019	8.84	3.73
RL-1D	12.61	3/4/2019	9.11	3.50
RL-1D	12.61	5/7/2019	9.07	3.54
RL-2S	11.35	3/4/2019	9.23	2.12
RL-2S	11.35	5/7/2019	9.65	1.70
RL-2D	10.89	3/4/2019	8.48	2.41
RL-2D	10.89	5/7/2019	8.93	1.96
RL-3S	13.03	3/4/2019	7.79	5.24
RL-3S	13.03	5/7/2019	8.12	4.91
RL-3D	12.97	3/4/2019	7.66	5.31
RL-3D	12.97	5/7/2019	7.80	5.17
RL-4S[1]	15.19	3/4/2019	5.05	10.14
RL-4S[1]	15.19	5/7/2019	5.82	9.37
RL-4D[1]	15.26	3/4/2019	7.45	7.81
RL-4D[1]	15.26	5/7/2019	7.82	7.44
RL-5	17.68	3/4/2019	11.91	5.77
RL-5	17.68	5/7/2019	12.45	5.23
Monitoring Wells – SPL Area				
R-1S	17.13	3/4/2019	3.97	13.16
R-1S	17.13	5/7/2019	4.37	12.76
R-1S	17.13	8/19/2019	5.55	11.58
R-1D	17.69	3/4/2019	6.01	11.68
R-1D	17.69	5/7/2019	5.55	12.14
R-1D	17.69	8/19/2019	7.01	10.68
R-2	9.37	3/4/2019	3.33	6.04
R-2	9.37	5/7/2019	3.67	5.70
R-2	9.37	8/19/2019	7.34	2.03
R-3	13.15	3/4/2019	2.88	10.27
R-3	13.15	5/7/2019	2.31	10.84
R-3	13.15	8/19/2019	4.03	9.12
R-4S	18.82	3/4/2019	7.24	11.58
R-4S	18.82	5/7/2019	7.05	11.77
R-4S	18.82	8/19/2019	8.98	9.84
R-4D	18.97	3/4/2019	8.20	10.77
R-4D	18.97	5/7/2019	8.01	10.96
R-4D	18.97	8/19/2019	10.10	8.87
Surface Water Monitoring Locations[2]				
Cable Plant Ditch	10.96	3/4/2019	8.51	2.45
Cable Plant Ditch	10.96	5/7/2019	8.43	2.53

Table 2a
2019 Hydrology Measurements – Closed BMP and SPL Area Programs

Monitoring Locations	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[3] (feet)	Water Level Elevation (feet, NAVD88)
Cable Plant Ditch	10.96	8/19/2019	9.61	1.35
Recirculation Ditch	7.12	3/4/2019	2.60	4.52
Recirculation Ditch	7.12	5/7/2019	0.51	6.61
Recirculation Ditch	7.12	8/19/2019	2.67	4.45
Reynolds Stormwater Ditch	11.03	3/4/2019	6.41	4.62
Reynolds Stormwater Ditch	11.03	5/7/2019	6.51	4.52
Reynolds Stormwater Ditch	11.03	8/19/2019	6.56	4.47
CDID Upstream	4.11	3/4/2019	3.63	0.48
CDID Upstream	4.11	5/7/2019	3.91	0.20
CDID Downstream – Staff Gauge	6.38	3/4/2019	--	0.19
CDID Downstream – Staff Gauge	6.38	5/7/2019	--	0.39
CDID Downstream – Staff Gauge	6.38	8/19/2019	--	1.64
CDID Downstream – Boom	8.26	3/4/2019	8.08	0.18
CDID Downstream – Boom	8.26	5/7/2019	7.99	0.27
CDID Downstream – Boom	8.26	8/19/2019	6.64	1.62
Columbia River Staff Gauge	17.19	3/4/2019	--	4.89
Columbia River Staff Gauge	17.19	5/7/2019	--	7.89
Columbia River Staff Gauge	17.19	8/19/2019	--	5.49
Columbia River – Pier at Stairs	21.68	3/4/2019	16.61	5.07
Columbia River – Pier at Stairs	21.68	5/7/2019	13.42	8.26
Columbia River – Pier at Stairs	21.68	8/19/2019	15.71	5.97
Columbia River @ SW Dolphin	21.75	3/4/2019	16.64	5.11
Columbia River @ SW Dolphin	21.75	5/7/2019	13.51	8.24
Columbia River @ SW Dolphin	21.75	8/19/2019	15.81	5.94

Notes:
1. Well casing extensions added in March 2011, and vertical coordinates resurveyed in August 2011.
2. Horizontal and vertical surface water locations coordinates resurveyed on August 10, 2011.
3. Depth to water measured from top of casing.
BMP: Black Mud Pond
CDID: Consolidated Diking Improvement District
NAVD88: North American Vertical Datum of 1988
SPL: former Spent Potliner

Table 2b
2019 Hydrology Measurements – Interim Groundwater Monitoring Program

Monitoring Locations	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
Monitoring Wells – Closed BMP Facility				
RL-1S	12.57	8/19/2019	9.81	2.76
RL-1S	12.57	10/29/2019	9.84	2.73
RL-2S	11.35	8/19/2019	9.36	1.99
RL-2S	11.35	10/29/2019	9.19	2.16
RL-3S	13.03	8/19/2019	8.84	4.19
RL-3S	13.03	10/29/2019	8.40	4.63
PZ-6	9.43	8/19/2019	7.63	1.80
PZ-6	9.43	10/29/2019	7.23	2.20
PZ-7	13.08	8/19/2019	10.76	2.32
PZ-7	13.08	10/29/2019	10.39	2.69
Monitoring Wells – West Groundwater Area				
RLSW2	17.82	10/29/2019	9.99	7.83
G6-S	30.40	10/29/2019	18.87	11.53
G6-D	12.94	10/29/2019	22.00	-9.06
Monitoring Wells – East Groundwater Area				
R-1S	17.13	10/29/2019	5.65	11.48
R-2	9.37	10/29/2019	4.68	4.69
R-4S	18.82	10/29/2019	9.04	9.78
G1-S	29.67	10/29/2019	16.71	12.96
G2-S	18.14	10/29/2019	6.78	11.36
G3-S	15.70	10/29/2019	6.34	9.36
G4-S	8.69	10/29/2019	5.07	3.62
G4-D	8.96	10/29/2019	5.19	3.77
SSA7-MW-01[2]	--	10/29/2019	--	--
Surface Water Monitoring Locations				
CDID Upstream	4.11	8/19/2019	2.59	1.52
CDID Upstream	4.11	10/29/2019	2.75	1.36
CDID Downstream – Staff Gauge	6.38	8/19/2019	--	1.64
CDID Downstream – Staff Gauge	6.38	10/29/2019	--	1.49
CDID Downstream – Boom	8.26	8/19/2019	6.64	1.62
CDID Downstream – Boom	8.26	10/29/2019	6.90	1.36
W-2[3]	4.11	8/19/2019	2.59	1.52
W-2[3]	4.11	10/29/2019	2.75	1.36

Notes:
1. Depth to water measured from top of casing.
2. Well dry on October 29, 2019.
3. Reference Point Elevation same as CDID Upstream.
BMP: Black Mud Pond
CDID: Consolidated Diking Improvement District
NAVD88: North American Vertical Datum of 1988

Table 3a

2019 Field Sampling Parameters – Closed BMP and SPL Area Programs

Location ID	Date	Sample ID	Volume Purged (liters)	pH (SU)	Specific Conductivity (µS/cm)	Temperature (degrees Celsius)	Turbidity at Start of Sampling (NTU)	Turbidity at End of Sampling (NTU)
Monitoring Wells – Closed BMP								
RL-1S	3/6/2019	BMP-030619-07	8.5	5.98	149.6	9.5	17.5	13.8
RL-1S	5/9/2019	BMP-050919-08	7.6	5.91	165.9	10.7	8.73	9.54
RL-1D	3/6/2019	BMP-030619-08	15.1	6.69	1130	10.5	>1000	683
RL-1D	5/9/2019	BMP-050919-09	15.1	6.61	1207	11.4	120	113
RL-2S	3/5/2019	BMP-030519-03	4.4	9.89	6827	10.8	15.2	15.7
RL-2S	5/8/2019	BMP-050819-03	10.8	9.68	7654	13.0	29.3	21.8
RL-2D	3/5/2019	BMP-030519-04	3.6	7.31	5845	11.4	3.94	2.11
RL-2D	5/8/2019	BMP-050819-04	5.8	7.50	3859	13.3	18.6	10.8
RL-3S	3/5/2019	BMP-030519-06	6.2	7.00	737.0	10.9	92.7	65.7
RL-3S	5/8/2019	BMP-050819-07	9.8	7.01	611.3	13.1	61.9	52.5
RL-3D	3/6/2019	BMP-030619-12	15.1	6.56	1394	11.6	123	121
RL-3D	5/9/2019	BMP-050919-12	15.1	6.69	1108	13.4	175	59.8
RL-4S	3/6/2019	BMP-030619-11	6.6	6.89	483.9	11.4	90.5	68.0
RL-4S	5/9/2019	BMP-050919-11	6.6	6.61	485.8	13.3	113	94
RL-4D	3/6/2019	BMP-030619-09	6.0	6.63	701	11.3	35.4	26.8
RL-4D	5/9/2019	BMP-050919-10	6.4	6.71	611.5	15.4	112	66.0
RL-5	3/5/2019	BMP-030519-05	8.4	6.47	511.7	11.1	21.4	21.6
RL-5	5/8/2019	BMP-050819-05	6.4	6.61	433.1	11.8	23.7	25.1
Monitoring Wells – SPL Area								
R-1S	3/4/2019	SPL-030419-03	7.2	7.16	503.1	10.5	2.37	2.96
R-1S	5/7/2019	SPL-050719-04	7.2	7.04	502.5	12.3	2.71	2.60
R-1S	8/19/2019	SPL-081919-04	6.0	6.98	433.0	16.7	17.3	4.83
R-1D	3/5/2019	SPL-030519-06	3.8	6.58	2143	12.6	11.7	20.9
R-1D	5/8/2019	SPL-050819-06	3.8	6.88	2114	14.5	15.0	18.1
R-1D	8/20/2019	SPL-082019-06	5.7	6.57	2060	14.7	29.5	13.3
R-2	3/4/2019	SPL-030419-01	8.8	6.56	396.2	8.9	8.70	5.13
R-2	5/7/2019	SPL-050719-01	7.0	5.91	400.1	10.5	10.5	6.52

Table 3a
2019 Field Sampling Parameters – Closed BMP and SPL Area Programs

Location ID	Date	Sample ID	Volume Purged (liters)	pH (SU)	Specific Conductivity (µS/cm)	Temperature (degrees Celsius)	Turbidity at Start of Sampling (NTU)	Turbidity at End of Sampling (NTU)
R-2	8/19/2019	SPL-081919-01	6.4	6.46	425.9	11.6	7.79	8.01
R-3	3/4/2019	SPL-030419-02	13.6	10.05	12919	12.2	2.66	2.73
R-3	5/7/2019	SPL-050719-02	10.8	8.12	15082	14.8	2.50	2.08
R-3	8/19/2019	SPL-081919-03	6.6	10.09	16591	17.0	3.60	3.33
R-4S	3/5/2019	SPL-030519-07	5.7	7.28	1877	12.3	6.03	9.17
R-4S	5/8/2019	SPL-050819-07	5.7	7.21	1887	13.1	19.8	18.1
R-4S	8/20/2019	SPL-082019-07	4.7	7.12	1745	14.6	8.10	8.93
R-4D	3/4/2019	SPL-030419-04	6.4	6.60	1178	12.5	2.08	1.08
R-4D	5/7/2019	SPL-050719-05	6.2	6.58	1186	15.6	1.55	2.02
R-4D	8/19/2019	SPL-081919-05	5.0	6.55	1195	17.4	15.1	17.7
Surface Water Locations								
CDID Down	3/5/2019	BMPS-030519-01	--	7.62	397.0	3.9	37.8	30.7
CDID Down	5/8/2019	BMPS-050819-01	--	7.66	566.9	18.7	28.0	22.6
CDID Up	3/5/2019	BMPS-030519-02	--	6.83	255.8	3.8	47.1	28.9
CDID Up	5/8/2019	BMPS-050819-02	--	7.27	329.9	17.7	45.0	37.9

Notes:
µS/cm: microsiemens per centimeter
BMP: Black Mud Pond
CDID: Consolidated Diking Improvement District
NTU: nephelometric turbidity unit
SPL: former Spent Potliner
SU: standard unit

Table 3b

2019 Field Sampling Parameters – Interim Groundwater Monitoring Program

Location ID	Date	Sample ID	Volume Purged (liters)	pH (SU)	Specific Conductivity (µS/cm)	Temperature (degrees Celsius)	Turbidity at Start of Sampling (NTU)	Turbidity at End of Sampling (NTU)
Monitoring Wells – Closed BMP								
RL-1S	8/21/2019	BMP-082119-08	4.7	5.78	213.4	12.1	9.76	17.1
RL-1S	10/31/2019	AQ-RL1S-103119	4.7	6.54	246.0	12.1	19.2	26.7
RL-2S	8/21/2019	BMP-082119-09	7.6	9.97	6980	12.9	9.13	7.73
RL-2S	10/31/2019	AQ-RL2S-103119	7.6	9.97	6676	12.3	30.7	18.4
RL-3S	8/20/2019	BMP-082019-06	11.0	6.94	733	15.1	11.6	5.12
RL-3S	10/31/2019	AQ-RL3S-103119	7.6	7.97	625.6	12.5	53.2	44.8
PZ-6	8/20/2019	BMP-082019-04	14.2	9.84	1844	15.2	48.2	36.1
PZ-6	10/30/2019	AQ-PZ6-103019	15.2	9.60	2285	14.1	45.1	40.7
PZ-7	8/20/2019	BMP-082019-05	7.6	6.84	1348	16.6	20.2	11.8
PZ-7	10/30/2019	AQ-PZ7-103019	10.6	6.82	1249	13.7	13.3	12.0
Monitoring Wells – West Groundwater Area								
RLSW2	10/31/2019	AQ-RLSW2-103119	2.8	7.11	1339	14.3	14.0	9.69
G6-S	10/30/2019	AQ-G6S-103019	9.6	7.72	2145	12.8	6.79	6.43
G6-D	10/30/2019	AQ-G6D-103019	5.0	6.56	3172	12.5	3.09	2.88
Monitoring Wells – East Groundwater Area								
R-1S	10/29/2019	AQ-R1S-102919	9.0	6.79	444.9	15.3	8.54	9.69
R-2	10/29/2019	AQ-R2-102919	9.2	6.20	446.2	11.3	13.6	13.0
R-4S	10/30/2019	AQ-R4S-103019	4.7	6.75	1656	13.5	14.5	22.0
G1-S	10/29/2019	AQ-G1S-102919	6.0	6.83	908	13.4	3.47	3.89
G2-S	10/29/2019	AQ-G2S-102919	8.8	7.00	3216	13.4	8.47	8.76
G3-S	10/30/2019	AQ-G3S-103019	10.4	7.06	1725	12.3	2.38	4.00
G4-S	10/30/2019	AQ-G4S-103019	19.0	6.21	914	11.9	17.7	11.1
G4-D	10/30/2019	AQ-G4D-103019	15.2	6.33	975	11.9	>1000	716
SSA7-MW-01	--	--	--	--	--	--	--	--
Surface Water Locations								
CDID Down	8/20/2019	BMPS-082019-01	--	7.57	637	19.5	9.27	9.07
CDID Down	10/31/2019	AQ-CDIDdown-103119	--	7.01	562.4	6.4	30.7	8.83

Table 3b
2019 Field Sampling Parameters – Interim Groundwater Monitoring Program

Location ID	Date	Sample ID	Volume Purged (liters)	pH (SU)	Specific Conductivity (µS/cm)	Temperature (degrees Celsius)	Turbidity at Start of Sampling (NTU)	Turbidity at End of Sampling (NTU)
CDID Up	8/20/2019	BMPS-082019-02	--	6.98	242.9	19.3	36.9	52.1
CDID Up	10/31/2019	AQ-CDIDup-103119	--	7.27	243.4	6.3	13.9	12.2
W2	8/20/2019	BMPS-082019-03	--	6.89	188.5	19.3	34.6	18.8
W2	10/31/2019	AQ-W2-103119	--	6.68	194.4	7.9	77.3	22.1

Notes:
µS/cm: microsiemens per centimeter
BMP: Black Mud Pond
CDID: Consolidated Diking Improvement District
NTU: nephelometric turbidity unit
SPL: former Spent Potliner
SU: standard unit

Table 4a
2019 Groundwater Sampling Results – Closed BMP and SPL Area Programs

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Total Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Fluoride mg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
Closed BMP																
RL-1S	BMP-030619-07	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**1.21**	**1.08**	**10.5**	**0.352**	**6240**	1.00 U	**7.73**	--	**2830**	**4.10**	**24700**
RL-1S	BMP-050919-08	5/9/2019	0.00500 U	0.00500 U	0.00500 U	**1.04**	1.00 U	**9.33**	**0.364**	**8890**	1.00 U	**3.01**	--	**4060**	**3.83**	**26500**
RL-1D	BMP-030619-08	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**0.277**	**2.96**	1.00 U	**1.17**	**136000**	1.00 U	1.00 U	--	**67400**	1.00 U	**26700**
RL-1D	BMP-050919-09	5/9/2019	0.00500 U	0.00500 U	0.00500 U	**0.287**	**2.91**	1.00 U	**1.02**	**137000**	1.00 U	1.00 U	--	**61200**	**0.591 J**	**25700**
RL-2S	BMP-030519-03	3/5/2019	**19.0**	**0.0473**	0.00500 U	**59.5**	**33.0**	**154**	**36.5**	**11600**	**96.6**	**14.5**	--	**3640**	**62.2**	**1910000**
RL-2S	BMP-050819-03	5/8/2019	**20.1**	**0.0596**	0.00500 U	**83.0**	**41.9**	**175**	**42.0**	**15200**	**101**	**15.3**	--	**4560**	**67.9**	**2460000**
RL-2D	BMP-030519-04	3/5/2019	**0.173**	**0.0230**	0.00500 U	**31.5**	**36.1**	**38.1**	**33.1**	**76600**	**87.3**	**19.0**	--	**25200**	**42.2**	**1280000**
RL-2D	BMP-050819-04	5/8/2019	0.00500 U	**0.0144**	0.00500 U	**24.6**	**31.0**	**24.6**	**14.0**	**56000**	**33.9**	**6.78**	--	**22400**	**14.4**	**894000**
RL-3S	BMP-030519-06	3/5/2019	**0.0510**	**0.00500**	0.00500 U	**10.9**	**2.37**	**2.06**	**4.77**	**33300**	1.00 U	1.00 U	--	**18200**	1.00 U	**91200**
RL-3S	BMP-050819-07	5/8/2019	**0.0610**	**0.00540**	0.00500 U	**12.8**	**2.45**	**1.46**	**3.60**	**30300**	**1.20**	1.00 U	--	**16100**	1.00 U	**95000**
RL-3D	BMP-030619-12	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**0.299**	**3.74**	1.00 U	**0.976**	**125000**	1.00 U	1.00 U	--	**56700**	1.00 U	**31900**
RL-3D	BMP-050919-12	5/9/2019	0.00500 U	0.00500 U	0.00500 U	**0.313**	**3.64**	1.00 U	**0.737**	**124000**	1.00 U	1.00 U	--	**53900**	1.00 U	**31200**
RL-4S	BMP-030619-11	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**1.17**	**2.91**	**1.23**	**2.24**	**35600**	1.00 U	1.00 U	--	**18600**	**0.752 J**	**63800**
RL-4S	BMP-050919-11	5/9/2019	0.00500 U	0.00500 U	0.00500 U	**1.34**	**2.77**	1.00 U	**2.51**	**34800**	1.00 U	1.00 U	--	**17500**	**0.673 J**	**47800**
RL-4D	BMP-030619-09	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**0.372**	**5.98**	1.00 U	**1.03**	**40100**	1.00 U	1.00 U	--	**18600**	1.00 U	**37300**
RL-4D (FD)	BMP-030619-10	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**0.356**	**5.97**	1.00 U	**0.989**	**40500**	1.00 U	1.00 U	--	**18600**	1.00 U	**36800**
RL-4D	BMP-050919-10	5/9/2019	0.00500 U	0.00500 U	0.00500 U	**0.397**	**5.55**	1.00 U	**0.912**	**40300**	1.00 U	1.00 U	--	**17800**	1.00 U	**36500**
RL-5	BMP-030519-05	3/5/2019	**0.0509**	**0.00820**	0.00500 U	**2.54**	**5.94**	**39.4**	**1.14**	**5100**	**0.983 J**	**19.4**	--	**2210**	**4.52**	**112000**
RL-5	BMP-050819-05	5/8/2019	**0.0380**	**0.00510**	0.00500 U	**2.44**	**4.54**	**34.2**	**0.876**	**4640**	**0.729 J**	**18.5**	--	**1940**	**4.11**	**86300**
RL-5 (FD)	BMP-050819-06	5/8/2019	**0.0327**	**0.00530**	0.00500 U	**2.42**	**4.53**	**34.5**	**0.838**	**4780**	**0.628 J**	**18.3**	--	**2010**	**4.24**	**87500**
SPL Area																
R-1S	SPL-030419-03	03/04/19	**0.0176**	**0.00630**	0.00500 U	**26.7**	1.00 U	--	--	--	--	--	--	--	--	--
R-1S	SPL-050719-04	05/07/19	**0.0203 UJ**	0.00500 U	0.00500 U	**24.8**	1.00 U	--	--	--	--	--	--	--	--	--
R-1S	SPL-081919-04	08/19/19	**0.0177**	**0.00710**	0.00500 U	**21.3**	**2.30**	--	--	--	--	--	--	--	--	--
R-1D	SPL-030519-06	03/05/19	**0.0369**	**0.00670**	0.00500 U	**0.605**	**32.6**	--	--	--	--	--	--	--	--	--
R-1D	SPL-050819-06	05/08/19	**0.0332 UJ**	**0.00520**	0.00500 U	**0.604**	**93.6**	--	--	--	--	--	--	--	--	--
R-1D	SPL-082019-06	08/20/19	**0.0334**	**0.00610**	0.00500 U	**0.577**	**95.1**	--	--	--	--	--	--	--	--	--
R-2	SPL-030419-01	03/04/19	**0.00510**	0.00500 U	0.00500 U	**0.556**	**5.50**	--	--	--	--	--	--	--	--	--
R-2	SPL-050719-01	05/07/19	0.00500 U	0.00500 U	0.00500 U	**0.540**	**5.25**	--	--	--	--	--	--	--	--	--
R-2	SPL-081919-01	08/19/19	0.00500 U	0.00500 U	0.00500 U	**0.504**	**5.63**	--	--	--	--	--	--	--	--	--
R-2 (FD)	SPL-081919-02	08/19/19	**0.00690**	0.00500 U	0.00500 U	**0.500**	**5.54**	--	--	--	--	--	--	--	--	--
R-3	SPL-030419-02	03/04/19	**115**	**0.177**	**0.00251**	**1100**	**39.8**	--	--	--	--	--	--	--	--	--
R-3	SPL-050719-02	05/07/19	**128**	**0.154**	**0.00322**	**1190**	**41.6**	--	--	--	--	--	--	--	--	--
R-3 (FD)	SPL-050719-03	05/07/19	**65.3 UJ**	**0.180**	**0.00370**	**1130**	**41.1**	--	--	--	--	--	--	--	--	--
R-3	SPL-081919-03	08/19/19	**147**	**3.37**	0.00500 U	**1240**	**49.4**	--	--	--	--	--	--	--	--	--
R-4S	SPL-030519-07	03/05/19	**0.0195**	**0.00550**	0.00500 U	**19.6**	**7.42**	--	--	--	--	--	--	--	--	--
R-4S	SPL-050819-07	05/08/19	**0.0178**	0.00500 U	0.00500 U	**15.5**	**7.27**	--	--	--	--	--	--	--	--	--
R-4S	SPL-082019-07	08/20/19	**0.0179**	**0.00550**	**0.00363 J**	**22.3**	**7.28**	--	--	--	--	--	--	--	--	--
R-4D	SPL-030419-04	03/04/19	**0.0290**	0.01000 U	0.00500 U	**1.49**	**9.79**	--	--	--	--	--	--	--	--	--
R-4D (FD)	SPL-030419-05	03/04/19	**0.0258**	**0.00540**	0.00500 U	**1.45**	**9.79**	--	--	--	--	--	--	--	--	--
R-4D	SPL-050719-05	05/07/19	**0.0232** UJ	0.00500 U	0.00500 U	**1.44**	**8.91**	--	--	--	--	--	--	--	--	--
R-4D	SPL-081919-05	08/19/19	**0.0247**	0.00500 U	0.00500 U	**1.54**	**9.73**	--	--	--	--	--	--	--	--	--

Notes:
Bold: detected value
J: estimated value. Result detected below the lowest point of the calibration curve but above specified method detection limit.
U: not detected above method reporting limit
UJ: not detected above estimated detection limit

µg/L: micrograms per liter (parts per billion)
FD: field duplicate
mg/L: milligrams per liter (parts per million)
WAD: weak acid dissociable

Table 4b
2019 Groundwater Sampling Results – Interim Groundwater Monitoring Program: Free Cyanide and Fluoride

Location ID	Sample ID	Date	Free Cyanide mg/L	Total Fluoride mg/L	Dissolved Fluoride mg/L
Closed BMP Facility					
RL-1S	BMP-082119-08	8/21/2019	--	**2.46**	**2.01**
RL-1S	AQ-RL1S-103119	10/31/2019	--	**5.21**	**8.28**
RL-2S	BMP-082119-09	8/21/2019	--	**95.5**	**93.1**
RL-2S	AQ-RL2S-103119	10/31/2019	--	**86.5**	**77.6**
RL-3S	BMP-082019-06	8/20/2019	--	**16.8**	**16.6**
RL-3S	BMP-082019-07	8/20/2019	--	**16.9**	**16.5**
RL-3S	AQ-RL3S-103119	10/31/2019	--	**9.69**	**9.74**
PZ-6	BMP-082019-04	8/20/2019	--	**56.1**	**55.3**
PZ-6	AQ-PZ6-103019	10/30/2019	--	**59.0**	**61.2**
PZ-7	BMP-082019-05	8/20/2019	--	**14.8**	**14.8**
PZ-7	AQ-PZ7-103019	10/30/2019	--	**12.3**	**11.8**
West Groundwater Area					
RLSW-2	AQ-RLSW2-103119	10/31/2019	--	**97.1**	**72.0**
G6-S	AQ-G6S-103019	10/30/2019	--	**85.6**	**85.5**
G6-D	AQ-G6D-103019	10/30/2019	--	**2.83**	**2.59**
G6-D (FD)	AQ-G6D-D-103019	10/30/2019	--	**2.85**	**2.58**
East Groundwater Area					
R-1S	AQ-R1S-102919	10/29/19	--	**29.4**	**23.8**
R-2	AQ-R2-102919	10/29/19	--	**0.614**	**0.576**
R-4S	AQ-R4S-103019	10/30/19	0.00500 U	**19.3**	**17.8**
G1-S	AQ-G1S-102919	10/29/19	--	**13.9**	**12.1**
G1-S (FD)	AQ-G1S-D-102919	10/29/19	--	**12.8**	**12.3**
G2-S	AQ-G2S-102919	10/29/19	--	**25.6**	**25.7**
G3-S	AQ-G3S-103019	10/30/19	--	**31.1**	**28.2**
G4-S	AQ-G4S-103019	10/30/19	0.00500 U	**0.244**	**0.279**
G4-D	AQ-G4D-103019	10/30/19	--	**0.243**	**0.240**
SSA7-MW-01[a]	--	--	--	--	--

Notes:
Bold: detected value
J: estimated value. Result detected below the lowest point of the calibration curve but above specified method detection limit.
U: not detected above method reporting limit
a. Well went dry, and a sample was not collected.

FD: field duplicate
mg/L: milligrams per liter (parts per million)

Table 4c
2019 Groundwater Sampling Results – Interim Groundwater Monitoring Program: cPAHs

Location ID	Sample ID	Date	Acenaphthene µg/L		Acenaphthylene µg/L		Anthracene µg/L		Benz(a) anthracene µg/L		Benzo(a) pyrene µg/L		Benzo(b) fluoranthene µg/L		Benzo(k) fluoranthene µg/L		Carbazole µg/L		Dibenzofuran µg/L		Benzo(g,h,i) perylene µg/L		Chrysene µg/L		Dibenz(a,h) anthracene µg/L		Fluoranthene µg/L	
R4-S	AQ-R4S-103019	10/30/19	0.0331	U	0.0331	U	**0.139**		**0.114**		0.0165	U	0.0165	U	0.0165	U	**0.0349**		0.0331	U	0.0331	U	0.0165	U	0.0165	U	0.0331	U
G4-S	AQ-G4S-103019	10/30/19	0.0339	U	0.0339	U	0.0339	U	0.0170	U	0.0170	U	0.0170	U	0.0170	U	0.0339	U	0.0339	U	0.0339	U	0.0170	U	0.0170	U	0.0339	U

Notes:
Bold: detected value
U: not detected above method reporting limit

µg/L: micrograms per liter (parts per billion)
SPL: former Spent Potliner

Table 4c
2019 Groundwater Sampling Results – Interim Groundwater Monitoring Program: cPAHs

Location ID	Sample ID	Date	Fluorene µg/L		Indeno (1,2,3-cd)pyrene µg/L		1-Methylnaphthalene µg/L		2-Methylnaphthalene µg/L		Naphthalene µg/L		Phenanthrene µg/L		Pyrene µg/L	
R4-S	AQ-R4S-103019	10/30/19	0.0331	U	0.0165	U	0.0661	U	0.0661	U	0.0661	U	0.0661	U	0.0331	U
G4-S	AQ-G4S-103019	10/30/19	0.0339	U	0.0170	U	0.0679	U	0.0679	U	0.0679	U	0.0679	U	0.0339	U

Notes:
Bold: detected value
U: not detected above method reporting limit

µg/L: micrograms per liter (parts per billion)
SPL: former Spent Potliner

Table 5a
2019 Surface Water Sampling Results – Closed BMP Program

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Total Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Total Arsenic µg/L	Total Calcium µg/L	Total Chromium µg/L	Total Copper µg/L	Total Magnesium µg/L	Total Nickel µg/L	Total Sodium µg/L
CDID Up	BMPS-030519-02	3/5/2019	**0.0227**	**0.0107**	**0.00420 J**	**0.967**	**6.16**	**20.2**	**1.04**	**17900**	**1.10**	**4.70**	**7640**	**3.07**	**27600**
CDID Up	BMPS-050819-02	5/8/2019	**0.0316**	**0.0142**	**0.00487 J**	**1.52**	**6.30**	**8.63**	**2.44**	**21300**	**0.865 J**	**2.34**	**9350**	**1.97**	**38700**
CDID Down	BMPS-030519-01	3/5/2019	**0.1660**	**0.0144**	0.00500 U	**3.83**	**8.22**	**12.7**	**2.55**	**18900**	**2.13**	**5.16**	**7590**	**3.55**	**85700**
CDID Down	BMPS-050819-01	5/8/2019	**6.36**	**0.00510**	0.00500 U	**5.63**	**4.24**	**23.5**	**4.73**	**20500**	**2.15**	**4.79**	**9040**	**4.17**	**111000**

Notes:
Bold: detected value
J: estimated value. Result detected below the lowest point of the calibration curve but above specified method detection limit.
U: not detected above method reporting limit

µg/L: micrograms per liter (parts per billion)
CDID: Consolidated Diking Improvement District
mg/L: milligrams per liter (parts per million)
WAD: weak acid dissociable

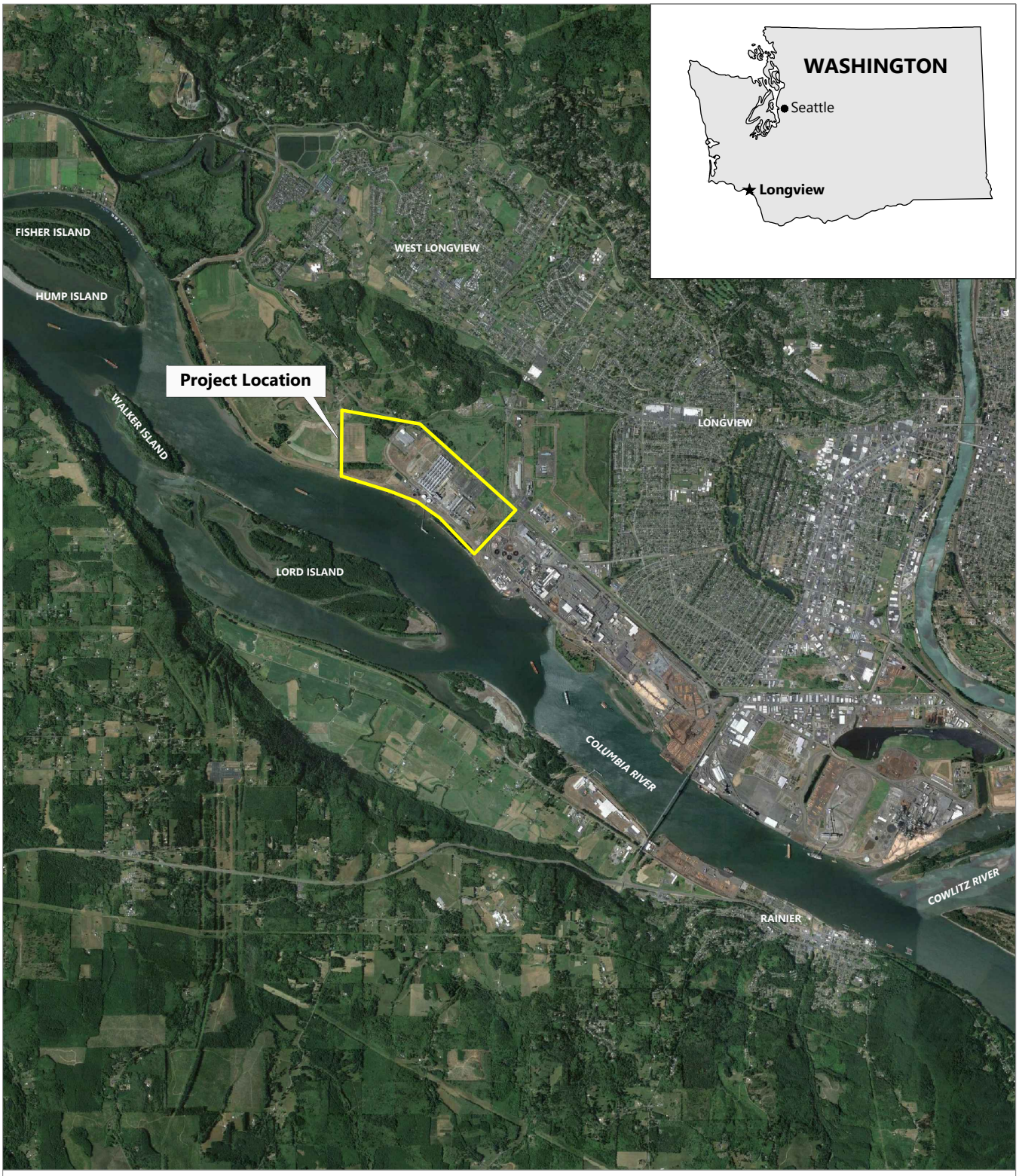
Table 5b
2019 Surface Water Sampling Results – Interim Groundwater Monitoring Program

Location ID	Sample ID	Date	Total Fluoride mg/L	Dissolved Fluoride mg/L
CDID Up	BMPS-082019-02	8/20/2019	**0.994**	**0.961**
CDID Up	AQ-CDIDup-103119	10/31/2019	**0.887**	**0.755**
CDID Down	BMPS-082019-01	8/20/2019	**6.97**	**6.79**
CDID Down	AQ-CDIDdown-103119	10/31/2019	**5.74**	**5.23**
W-2	BMPS-082019-03	8/20/2019	**0.178**	**0.165**
W-2	AQ-W2-103119	10/31/2019	**0.200**	**0.203**

Notes:
Bold: detected value

CDID: Consolidated Diking Improvement District
mg/L: milligrams per liter (parts per million)

Figures



AERIAL SOURCE: Google Earth Pro, dated 07-2014.

Publish Date: 2020/02/13 9:29 AM | User: chewett
Filepath: K:\Projects\0730-MBT-Longview\01-B-09 (Permits)\NPDES Permit App\0730-WK-001 (Vicinity).dwg F1-AGMR

ANCHOR QEA

Figure 1
Site Vicinity Map

Annual Groundwater Monitoring Report
Former Reynolds Metals Reduction Plant - Longview

AERIAL SOURCE: Google Earth Pro, 2014.

LEGEND:

Property Boundary

Approximate Ordinary High Water Line

0 500
Feet

Publish Date: 2020/02/13 9:28 AM | User: chewett
Filepath: K:\Projects\0730-MBT-Longview\MBT- 2011 Capex\Groundwater Monitoring\0133-RP-006-Site Map.dwg F2 (AGMR)

ANCHOR QEA

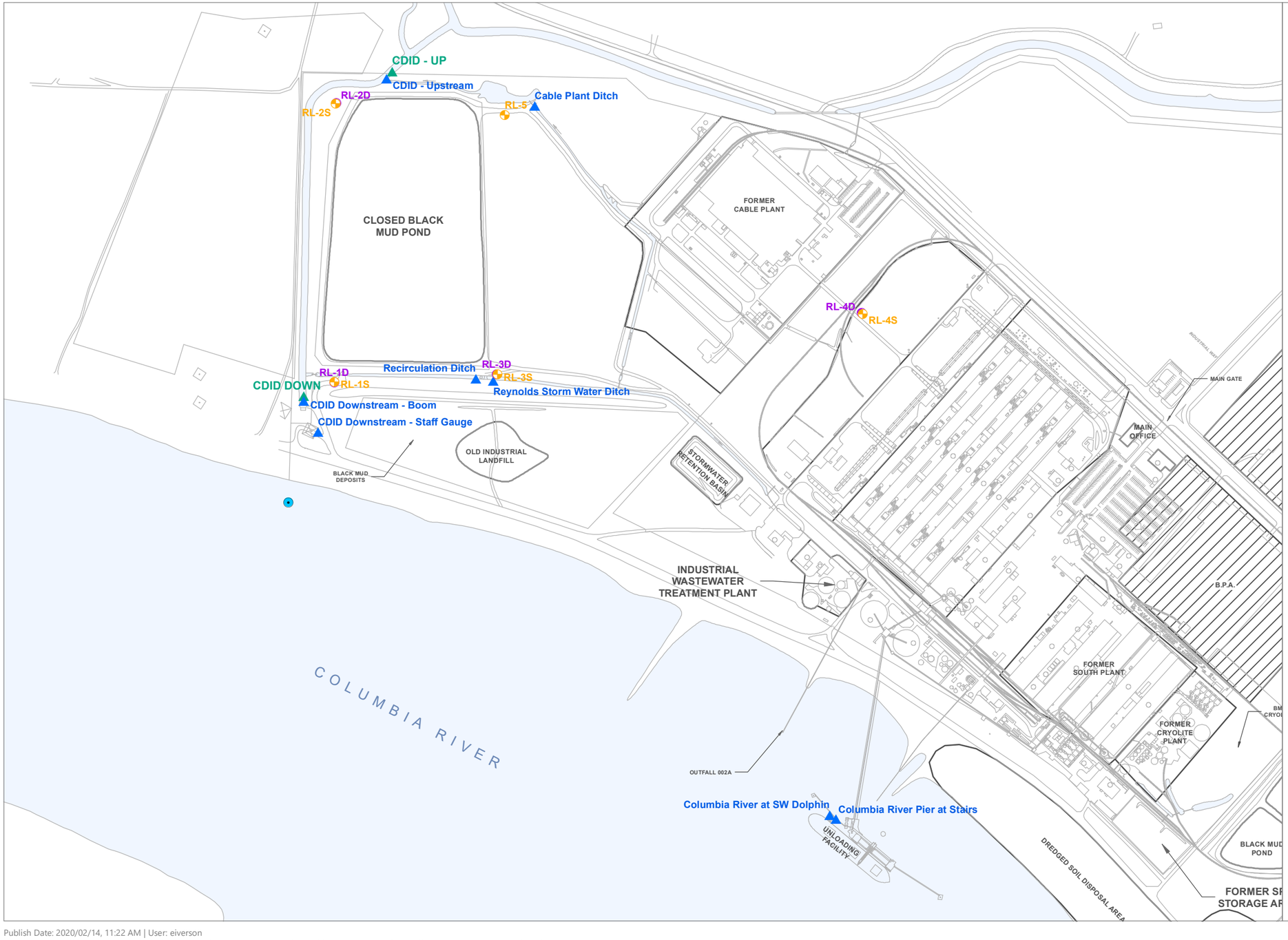
Figure 2
Site Location Map

Annual Groundwater Monitoring Report
Former Reynolds Metals Reduction Plant - Longview

Publish Date: 2020/02/14, 11:23 AM | User: eiverson
Filepath: \\orcas\GIS\Jobs\110730-01.05_Millennium_Bulk_Term_Holdback_Agrmt\Maps\Monitoring_Report\Spent_Potliner_Area.mxd

ANCHOR QEA

Figure 3
Former SPL Monitoring Locations
Annual Groundwater Monitoring Report
Former Reynolds Metals Reduction Plant – Longview



LEGEND:

- Monitoring Well Location (Shallow)
- Monitoring Well Location (Deep)
- Surface Water Hydrology Monitoring Location
- Surface Water Sampling Location
- Columbia River Staff Gauge

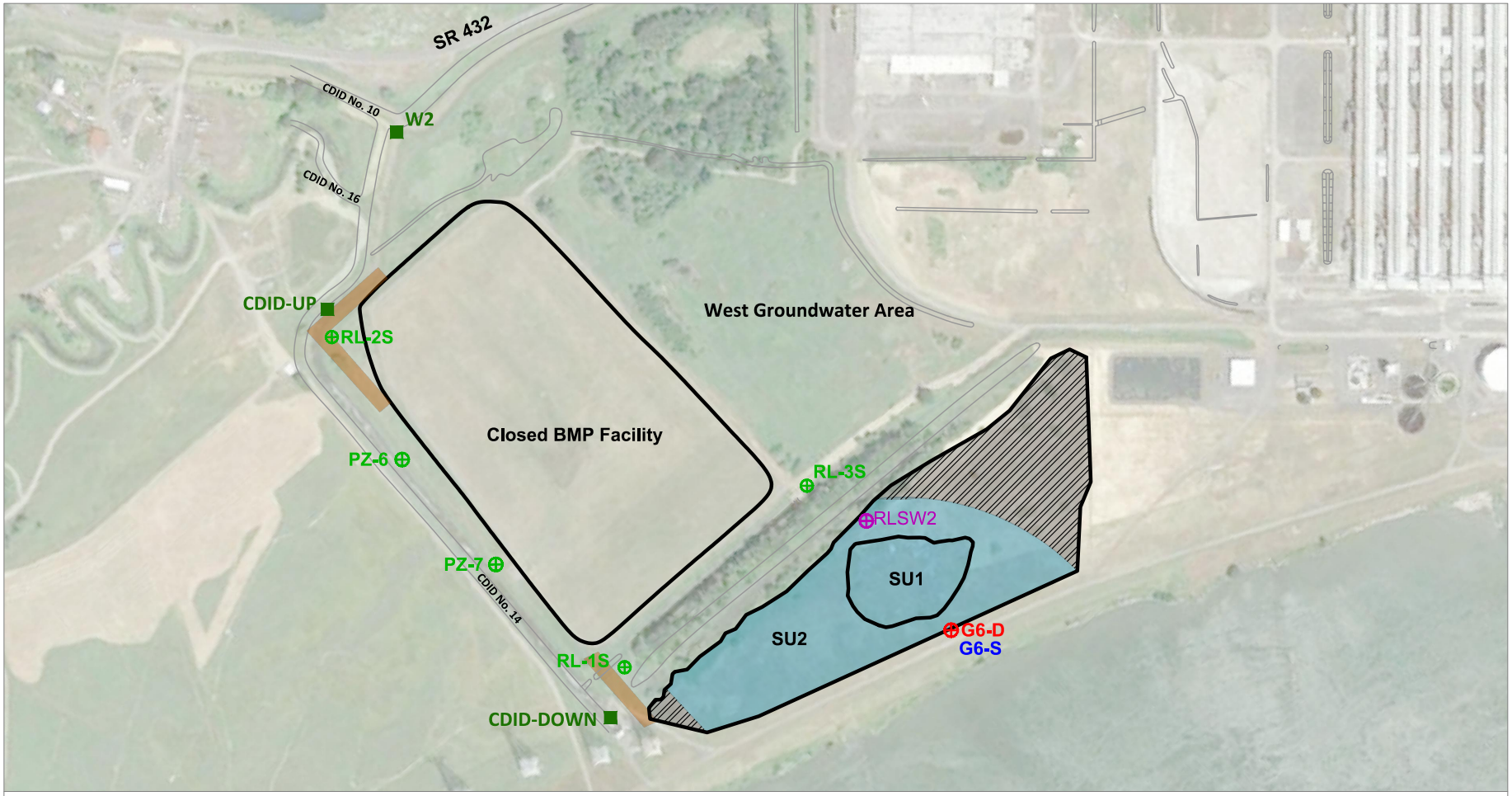
NOTE:
Surface water sampling locations are approximate.

0 600
Feet

Publish Date: 2020/02/14, 11:22 AM | User: eiverson
Filepath: \\orcas\GIS\Jobs\110730-01.05_Millennium_Bulk_Term_Holdback_Agrmt\Maps\Monitoring_Report\Groundwater_Monitoring_BlackPond.mxd

ANCHOR QEA

Figure 4
Closed BMP Monitoring Locations
Annual Groundwater Monitoring Report
Former Reynolds Metals Reduction Plant – Longview



SOURCE: Aerial image from Google Earth, dated June 2017.

HORIZONTAL DATUM: Washington State Plane South Zone, North American Datum of 1983 (NAD83), U.S. Survey Feet

LEGEND:

- Low Permeability Cap
- Excavate and Consolidate On-site
- Backfill (Reactive Agent Below Waterline)
- Permeable Reactive Barrier

- G6-D ⊕ Groundwater Compliance Monitoring Location
- G6-S ⊕ Groundwater Sentinel Monitoring Location
- RLSW2 ⊕ Interior Groundwater Monitoring Location
- PZ-6 ⊕ Required Groundwater Monitoring Location for Closed BMP Facility
- CDID-DOWN ■ Required Surface Water Monitoring Location for Closed BMP Facility

0 600
Feet

Publish Date: 2020/02/13 9:26 AM | User: chewett
Filepath: K:\Projects\0730-MBT-Longview\01-C-02 (Cap and CD-Order)\Appendix A\0730-RP-013 (GW Mon Locs).dwg Figure 5 (AGMR)

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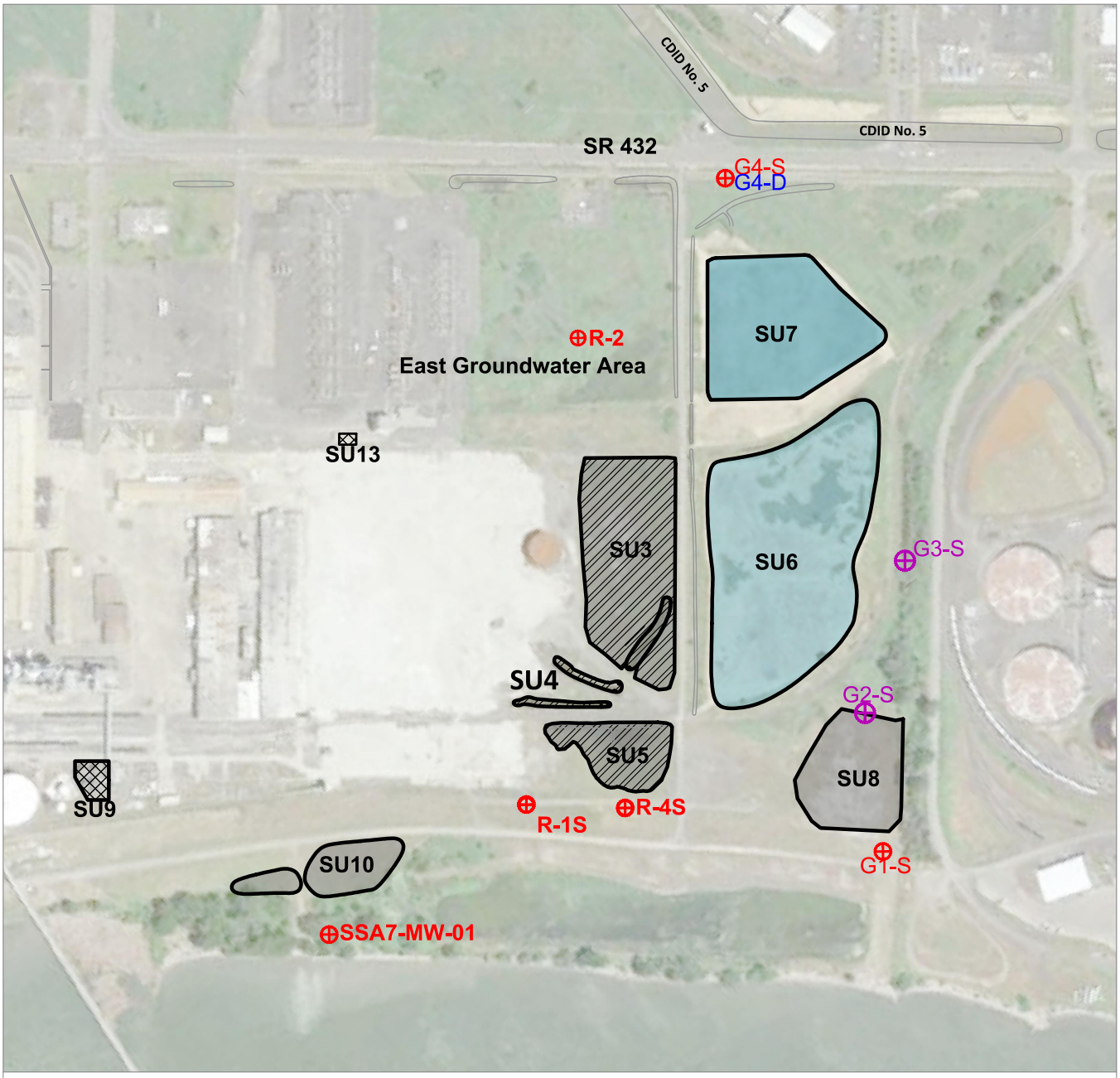
Figure 5
Interim Groundwater Monitoring Locations - West Groundwater Area

Annual Groundwater Monitoring Report
Former Reynolds Metals Reduction Plant - Longview



SOURCE: Aerial image from Google Earth, dated June 2017.

HORIZONTAL DATUM: Washington State Plane South Zone, North American Datum of 1983 (NAD83), U.S. Survey Feet

LEGEND:

- Low Permeability Cap
- Excavate and Consolidate On-site
- Excavate and Dispose Off-site
- Backfill (Reactive Agent below Waterline)
- R-2 ⊕ Groundwater Compliance Monitoring Location
- G2-S ⊕ Interior Groundwater Monitoring Location
- G4-D ⊕ Groundwater Sentinel Monitoring Location

0 500 Feet

Publish Date: 2020/02/13 9:26 AM | User: chewett
Filepath: K:\Projects\0730-MBT-Longview\01-C-02 (Cap and CD-Order)\Appendix A\0730-RP-013 (GW Mon Locs).dwg Figure 6 (AGMR)

ANCHOR QEA

Figure 6
Interim Groundwater Monitoring Locations - East Groundwater Area

Annual Groundwater Monitoring Report
Former Reynolds Metals Reduction Plant - Longview

Attachment A
Historical Groundwater and Surface Elevation Data

Attachment A-1

Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
Monitoring Wells				
RL-1S	12.57	03/01/11	6.27	6.30
RL-1S	12.57	05/09/11	8.31	4.26
RL-1S	12.57	07/22/11	9.50	3.07
RL-1S	12.57	10/04/11	10.04	2.53
RL-1S	12.57	01/10/12	8.89	3.68
RL-1S	12.57	04/03/12	8.11	4.46
RL-1S	12.57	07/09/12	9.64	2.93
RL-1S	12.57	10/01/12	10.17	2.40
RL-1S	12.57	02/11/13	9.43	3.14
RL-1S	12.57	04/22/13	9.10	3.47
RL-1S	12.57	07/15/13	9.84	2.73
RL-1S	12.57	10/07/13	9.22	3.35
RL-1S	12.57	01/28/14	9.70	2.87
RL-1S	12.57	04/22/14	9.36	3.21
RL-1S	12.57	07/22/14	9.85	2.72
RL-1S	12.57	11/03/14	9.60	2.97
RL-1S	12.57	01/20/15	8.41	4.16
RL-1S	12.57	04/14/15	9.42	3.15
RL-1S	12.57	07/22/15	10.31	2.26
RL-1S	12.57	10/13/15	10.28	2.29
RL-1S	12.57	01/12/16	8.59	3.98
RL-1S	12.57	04/05/16	8.70	3.87
RL-1S	12.57	07/19/16	9.92	2.65
RL-1S	12.57	10/25/16	8.68	3.89
RL-1S	12.57	01/17/17	8.78	3.79
RL-1S	12.57	04/18/17	8.61	3.96
RL-1S	12.57	07/18/17	9.93	2.64
RL-1S	12.57	10/17/17	10.26	2.31
RL-1S	12.57	01/16/18	8.79	3.78
RL-1S	12.57	05/08/18	8.74	3.83
RL-1S	12.57	07/24/18	10.19	2.38
RL-1S	12.57	10/23/18	10.50	2.07
RL-1S	12.57	03/04/19	8.88	3.69
RL-1S	12.57	05/07/19	8.84	3.73
RL-1S	12.57	08/19/19	9.81	2.76
RL-1S	12.57	10/29/19	9.84	2.73
RL-1D	12.61	03/01/11	8.37	4.24
RL-1D	12.61	05/09/11	8.33	4.28
RL-1D	12.61	07/22/11	8.41	4.20
RL-1D	12.61	10/04/11	9.04	3.57
RL-1D	12.61	01/10/12	8.94	3.67

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
RL-1D	12.61	04/03/12	8.43	4.18
RL-1D	12.61	07/09/12	8.82	3.79
RL-1D	12.61	10/01/12	9.58	3.03
RL-1D	12.61	02/11/13	8.82	3.79
RL-1D	12.61	04/22/13	9.32	3.29
RL-1D	12.61	07/15/13	9.10	3.51
RL-1D	12.61	10/07/13	9.11	3.50
RL-1D	12.61	01/28/14	9.41	3.20
RL-1D	12.61	04/22/14	8.69	3.92
RL-1D	12.61	07/22/14	9.05	3.56
RL-1D	12.61	11/03/14	9.26	3.35
RL-1D	12.61	01/20/15	8.64	3.97
RL-1D	12.61	04/14/15	9.08	3.53
RL-1D	12.61	07/22/15	9.68	2.93
RL-1D	12.61	10/13/15	9.65	2.96
RL-1D	12.61	01/12/16	8.32	4.29
RL-1D	12.61	04/05/16	8.46	4.15
RL-1D	12.61	07/19/16	9.25	3.36
RL-1D	12.61	10/25/16	9.14	3.47
RL-1D	12.61	01/17/17	8.33	4.28
RL-1D	12.61	04/18/17	7.90	4.71
RL-1D	12.61	07/18/17	8.83	3.78
RL-1D	12.61	10/17/17	9.59	3.02
RL-1D	12.61	01/16/18	8.75	3.86
RL-1D	12.61	05/08/18	8.85	3.76
RL-1D	12.61	07/24/18	9.39	3.22
RL-1D	12.61	10/23/18	9.87	2.74
RL-1D	12.61	03/04/19	9.11	3.50
RL-1D	12.61	05/07/19	9.07	3.54
RL-2S	11.35	03/01/11	5.29	6.06
RL-2S	11.35	05/09/11	8.90	2.45
RL-2S	11.35	07/22/11	9.05	2.30
RL-2S	11.35	10/04/11	9.37	1.98
RL-2S	11.35	01/10/12	8.54	2.81
RL-2S	11.35	04/03/12	7.39	3.96
RL-2S	11.35	07/09/12	9.23	2.12
RL-2S	11.35	10/01/12	9.70	1.65
RL-2S	11.35	02/11/13	9.00	2.35
RL-2S	11.35	04/22/13	8.83	2.52
RL-2S	11.35	07/15/13	9.30	2.05
RL-2S	11.35	10/07/13	8.28	3.07
RL-2S	11.35	01/28/14	9.02	2.33

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
RL-2S	11.35	04/22/14	9.09	2.26
RL-2S	11.35	07/22/14	9.40	1.95
RL-2S	11.35	11/03/14	8.56	2.79
RL-2S	11.35	01/20/15	6.90	4.45
RL-2S	11.35	04/14/15	9.16	2.19
RL-2S	11.35	07/22/15	10.04	1.31
RL-2S	11.35	10/13/15	9.35	2.00
RL-2S	11.35	01/12/16	8.55	2.80
RL-2S	11.35	04/05/16	9.10	2.25
RL-2S	11.35	07/19/16	9.49	1.86
RL-2S	11.35	10/25/16	8.48	2.87
RL-2S	11.35	01/17/17	8.84	2.51
RL-2S	11.35	04/18/17	8.87	2.48
RL-2S	11.35	07/18/17	9.85	1.50
RL-2S	11.35	10/17/17	9.50	1.85
RL-2S	11.35	01/16/18	8.25	3.10
RL-2S	11.35	05/08/18	9.57	1.78
RL-2S	11.35	07/24/18	9.83	1.52
RL-2S	11.35	10/23/18	9.88	1.47
RL-2S	11.35	03/04/19	9.23	2.12
RL-2S	11.35	05/07/19	9.65	1.70
RL-2S	11.35	08/19/19	9.36	1.99
RL-2S	11.35	10/29/19	9.19	2.16
RL-2D	10.89	03/01/11	6.56	4.33
RL-2D	10.89	05/09/11	8.24	2.65
RL-2D	10.89	07/22/11	8.55	2.34
RL-2D	10.89	10/04/11	8.84	2.05
RL-2D	10.89	01/10/12	7.93	2.96
RL-2D	10.89	04/03/12	7.21	3.68
RL-2D	10.89	07/09/12	9.23	1.66
RL-2D	10.89	10/01/12	9.70	1.19
RL-2D	10.89	02/11/13	8.40	2.49
RL-2D	10.89	04/22/13	8.33	2.56
RL-2D	10.89	07/15/13	8.78	2.11
RL-2D	10.89	10/07/13	7.68	3.21
RL-2D	10.89	01/28/14	8.45	2.44
RL-2D	10.89	04/22/14	8.31	2.58
RL-2D	10.89	07/22/14	8.94	1.95
RL-2D	10.89	11/03/14	8.12	2.77
RL-2D	10.89	01/20/15	7.13	3.76
RL-2D	10.89	04/14/15	8.56	2.33
RL-2D	10.89	07/22/15	9.69	1.20

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
RL-2D	10.89	10/13/15	9.22	1.67
RL-2D	10.89	01/12/16	7.88	3.01
RL-2D	10.89	04/05/16	8.55	2.34
RL-2D	10.89	07/19/16	9.13	1.76
RL-2D	10.89	10/25/16	7.96	2.93
RL-2D	10.89	01/17/17	7.98	2.91
RL-2D	10.89	04/18/17	8.24	2.65
RL-2D	10.89	07/18/17	9.34	1.55
RL-2D	10.89	10/17/17	8.99	1.90
RL-2D	10.89	01/16/18	7.71	3.18
RL-2D	10.89	05/08/18	8.89	2.00
RL-2D	10.89	07/24/18	9.51	1.38
RL-2D	10.89	10/23/18	9.39	1.50
RL-2D	10.89	03/04/19	8.48	2.41
RL-2D	10.89	05/07/19	8.93	1.96
RL-3S	13.03	03/01/11	4.31	8.72
RL-3S	13.03	05/09/11	3.92	9.11
RL-3S	13.03	07/22/11	6.98	6.05
RL-3S	13.03	10/04/11	7.50	5.53
RL-3S	13.03	01/10/12	6.78	6.25
RL-3S	13.03	04/03/12	5.79	7.24
RL-3S	13.03	07/09/12	6.90	6.13
RL-3S	13.03	10/01/12	7.12	5.91
RL-3S	13.03	02/11/13	7.32	5.71
RL-3S	13.03	04/22/13	7.06	5.97
RL-3S	13.03	07/15/13	8.01	5.02
RL-3S	13.03	10/07/13	7.03	6.00
RL-3S	13.03	01/28/14	7.82	5.21
RL-3S	13.03	04/22/14	7.67	5.36
RL-3S	13.03	07/22/14	7.97	5.06
RL-3S	13.03	11/03/14	7.00	6.03
RL-3S	13.03	01/20/15	6.62	6.41
RL-3S	13.03	04/14/15	7.49	5.54
RL-3S	13.03	07/22/15	8.28	4.75
RL-3S	13.03	10/13/15	8.81	4.22
RL-3S	13.03	01/12/16	6.96	6.07
RL-3S	13.03	04/05/16	7.72	5.31
RL-3S	13.03	07/19/16	8.44	4.59
RL-3S	13.03	10/25/16	7.50	5.53
RL-3S	13.03	01/17/17	6.85	6.18
RL-3S	13.03	04/18/17	6.98	6.05
RL-3S	13.03	07/18/17	8.08	4.95

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
RL-3S	13.03	10/17/17	8.61	4.42
RL-3S	13.03	01/16/18	7.39	5.64
RL-3S	13.03	05/08/18	7.77	5.26
RL-3S	13.03	07/24/18	8.33	4.70
RL-3S	13.03	10/23/18	8.88	4.15
RL-3S	13.03	03/04/19	7.79	5.24
RL-3S	13.03	05/07/19	8.12	4.91
RL-3S	13.03	08/19/19	8.84	4.19
RL-3S	13.03	10/29/19	8.40	4.63
RL-3D	12.97	03/01/11	5.61	7.36
RL-3D	12.97	05/09/11	3.81	9.16
RL-3D	12.97	07/22/11	6.79	6.18
RL-3D	12.97	10/04/11	7.29	5.68
RL-3D	12.97	01/10/12	6.84	6.13
RL-3D	12.97	04/03/12	5.73	7.24
RL-3D	12.97	07/09/12	6.74	6.23
RL-3D	12.97	10/01/12	7.01	5.96
RL-3D	12.97	02/11/13	7.15	5.82
RL-3D	12.97	04/22/13	7.04	5.93
RL-3D	12.97	07/15/13	7.79	5.18
RL-3D	12.97	10/07/13	7.04	5.93
RL-3D	12.97	01/28/14	7.54	5.43
RL-3D	12.97	04/22/14	7.51	5.46
RL-3D	12.97	07/22/14	7.72	5.25
RL-3D	12.97	11/03/14	7.33	5.64
RL-3D	12.97	01/20/15	6.83	6.14
RL-3D	12.97	04/14/15	7.24	5.73
RL-3D	12.97	07/22/15	8.05	4.92
RL-3D	12.97	10/13/15	8.72	4.25
RL-3D	12.97	01/12/16	6.89	6.08
RL-3D	12.97	04/05/16	7.40	5.57
RL-3D	12.97	07/19/16	8.21	4.76
RL-3D	12.97	10/25/16	7.39	5.58
RL-3D	12.97	01/17/17	6.54	6.43
RL-3D	12.97	04/18/17	6.91	6.06
RL-3D	12.97	07/18/17	7.71	5.26
RL-3D	12.97	10/17/17	8.34	4.63
RL-3D	12.97	01/16/18	7.20	5.77
RL-3D	12.97	05/08/18	7.41	5.56
RL-3D	12.97	07/24/18	8.07	4.90
RL-3D	12.97	10/23/18	8.58	4.39
RL-3D	12.97	03/04/19	7.66	5.31

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
RL-3D	12.97	05/07/19	7.80	5.17
RL-4S	15.19	03/01/11	2.65	12.54
RL-4S	15.19	05/09/11	4.79	10.40
RL-4S	15.19	07/22/11	7.96	7.23
RL-4S	15.19	10/04/11	7.29	7.90
RL-4S	15.19	01/10/12	4.46	10.73
RL-4S	15.19	04/03/12	3.89	11.30
RL-4S	15.19	07/09/12	6.34	8.85
RL-4S	15.19	10/01/12	8.50	6.69
RL-4S	15.19	02/11/13	5.14	10.05
RL-4S	15.19	04/22/13	4.77	10.42
RL-4S	15.19	07/15/13	6.50	8.69
RL-4S	15.19	10/07/13	5.26	9.93
RL-4S	15.19	01/28/14	5.77	9.42
RL-4S	15.19	04/22/14	5.31	9.88
RL-4S	15.19	07/22/14	7.53	7.66
RL-4S	15.19	11/03/14	5.78	9.41
RL-4S	15.19	01/20/15	4.02	11.17
RL-4S	15.19	04/14/15	5.52	9.67
RL-4S	15.19	07/22/15	8.62	6.57
RL-4S	15.19	10/13/15	9.90	5.29
RL-4S	15.19	01/12/16	5.02	10.17
RL-4S	15.19	04/05/16	5.53	9.66
RL-4S	15.19	07/19/16	7.91	7.28
RL-4S	15.19	10/25/16	4.87	10.32
RL-4S	15.19	01/17/17	4.72	10.47
RL-4S	15.19	04/18/17	4.49	10.70
RL-4S	15.19	07/18/17	7.15	8.04
RL-4S	15.19	10/17/17	8.68	6.51
RL-4S	15.19	01/16/18	4.08	11.11
RL-4S	15.19	05/08/18	5.68	9.51
RL-4S	15.19	07/24/18	8.11	7.08
RL-4S	15.19	10/23/18	9.35	5.84
RL-4S	15.19	03/04/19	5.05	10.14
RL-4S	15.19	05/07/19	5.82	9.37
RL-4D	15.26	03/01/11	4.59	10.67
RL-4D	15.26	05/09/11	7.00	8.26
RL-4D	15.26	07/22/11	6.10	9.16
RL-4D	15.26	10/04/11	8.96	6.30
RL-4D	15.26	01/10/12	7.05	8.21
RL-4D	15.26	04/03/12	6.20	9.06
RL-4D	15.26	07/09/12	8.06	7.20

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
RL-4D	15.26	10/01/12	9.85	5.41
RL-4D	15.26	02/11/13	7.38	7.88
RL-4D	15.26	04/22/13	7.38	7.88
RL-4D	15.26	07/15/13	8.48	6.78
RL-4D	15.26	10/07/13	7.59	7.67
RL-4D	15.26	01/28/14	7.89	7.37
RL-4D	15.26	04/22/14	7.19	8.07
RL-4D	15.26	07/22/14	8.98	6.28
RL-4D	15.26	11/03/14	7.92	7.34
RL-4D	15.26	01/20/15	5.90	9.36
RL-4D	15.26	04/14/15	7.68	7.58
RL-4D	15.26	07/22/15	9.80	5.46
RL-4D	15.26	10/13/15	10.84	4.42
RL-4D	15.26	01/12/16	7.03	8.23
RL-4D	15.26	04/05/16	7.60	7.66
RL-4D	15.26	07/19/16	9.42	5.84
RL-4D	15.26	10/25/16	7.13	8.13
RL-4D	15.26	01/17/17	6.80	8.46
RL-4D	15.26	04/18/17	6.53	8.73
RL-4D	15.26	07/18/17	8.74	6.52
RL-4D	15.26	10/17/17	9.86	5.40
RL-4D	15.26	01/16/18	6.60	8.66
RL-4D	15.26	05/08/18	7.51	7.75
RL-4D	15.26	07/24/18	9.48	5.78
RL-4D	15.26	10/23/18	10.29	4.97
RL-4D	15.26	03/04/19	7.45	7.81
RL-4D	15.26	05/07/19	7.82	7.44
RL-5	17.68	03/01/11	11.41	6.27
RL-5	17.68	05/09/11	12.05	5.63
RL-5	17.68	07/22/11	14.27	3.41
RL-5	17.68	10/04/11	15.90	1.78
RL-5	17.68	01/10/12	11.88	5.80
RL-5	17.68	04/03/12	11.72	5.96
RL-5	17.68	07/09/12	13.50	4.18
RL-5	17.68	10/01/12	16.09	1.59
RL-5	17.68	02/11/13	12.09	5.59
RL-5	17.68	04/22/13	11.94	5.74
RL-5	17.68	07/15/13	14.45	3.23
RL-5	17.68	10/07/13	12.91	4.77
RL-5	17.68	01/28/14	12.25	5.43
RL-5	17.68	04/22/14	11.96	5.72
RL-5	17.68	07/22/14	14.93	2.75

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
RL-5	17.68	11/03/14	15.63	2.05
RL-5	17.68	01/20/15	11.58	6.10
RL-5	17.68	04/14/15	12.06	5.62
RL-5	17.68	07/22/15	15.97	1.71
RL-5	17.68	10/13/15	17.15	0.53
RL-5	17.68	01/12/16	11.94	5.74
RL-5	17.68	04/05/16	12.05	5.63
RL-5	17.68	07/19/16	15.39	2.29
RL-5	17.68	10/25/16	14.57	3.11
RL-5	17.68	01/17/17	11.97	5.71
RL-5	17.68	04/18/17	11.78	5.90
RL-5	17.68	07/18/17	14.90	2.78
RL-5	17.68	10/17/17	16.54	1.14
RL-5	17.68	01/16/18	11.69	5.99
RL-5	17.68	05/08/18	12.19	5.49
RL-5	17.68	07/24/18	15.70	1.98
RL-5	17.68	10/23/18	17.00	0.68
RL-5	17.68	03/04/19	11.91	5.77
RL-5	17.68	05/07/19	12.45	5.23
PZ-6	9.43	08/19/19	7.63	1.80
PZ-6	9.43	10/29/19	7.23	2.20
PZ-7	13.08	08/19/19	10.76	2.32
PZ-7	13.08	10/29/19	10.39	2.69
RLSW-2	17.82	10/29/19	9.99	7.83
G6-S	30.40	10/29/19	18.87	11.53
G6-D	12.94	10/29/19	22.00	-9.06
Surface Water Monitoring Locations[2]				
Cable Plant Ditch	10.96	03/01/11	6.71	4.25
Cable Plant Ditch	10.96	05/09/11	2.24	8.72
Cable Plant Ditch	10.96	07/22/11	7.49	3.47
Cable Plant Ditch	10.96	10/04/11	8.72	2.24
Cable Plant Ditch	10.96	01/10/12	7.26	3.70
Cable Plant Ditch	10.96	04/03/12	6.97	3.99
Cable Plant Ditch	10.96	07/09/12	7.46	3.50
Cable Plant Ditch	10.96	10/01/12	9.55	1.41
Cable Plant Ditch	10.96	02/11/13	7.37	3.59
Cable Plant Ditch	10.96	04/22/13	7.39	3.57
Cable Plant Ditch	10.96	07/15/13	8.07	2.89
Cable Plant Ditch	10.96	10/07/13	7.32	3.64
Cable Plant Ditch	10.96	01/28/14	7.53	3.43
Cable Plant Ditch	10.96	04/22/14	8.72	2.24
Cable Plant Ditch	10.96	07/22/14	9.24	1.72

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
Cable Plant Ditch	10.96	11/03/14	9.08	1.88
Cable Plant Ditch	10.96	01/20/15	8.98	1.98
Cable Plant Ditch	10.96	04/14/15	7.29	3.67
Cable Plant Ditch[3]	10.96	07/22/15	9.50	1.46
Cable Plant Ditch[3]	10.96	10/13/15	9.53	1.43
Cable Plant Ditch	10.96	01/12/16	9.07	1.89
Cable Plant Ditch	10.96	04/05/16	9.07	1.89
Cable Plant Ditch[3]	10.96	07/19/16	9.32	1.64
Cable Plant Ditch	10.96	10/25/16	9.08	1.88
Cable Plant Ditch	10.96	01/17/17	9.10	1.86
Cable Plant Ditch	10.96	04/18/17	8.95	2.01
Cable Plant Ditch	10.96	07/18/17	9.37	1.59
Cable Plant Ditch	10.96	10/17/17	9.20	1.76
Cable Plant Ditch	10.96	01/16/18	8.27	2.69
Cable Plant Ditch	10.96	05/08/18	8.49	2.47
Cable Plant Ditch	10.96	07/24/18	9.78	1.18
Cable Plant Ditch	10.96	10/23/18	9.82	1.14
Cable Plant Ditch	10.96	03/04/19	8.51	2.45
Cable Plant Ditch	10.96	05/07/19	8.43	2.53
Cable Plant Ditch	10.96	08/19/19	9.61	1.35
Recirculation Ditch	7.12	03/01/11	0.73	6.39
Recirculation Ditch	7.12	05/09/11	-0.04	7.16
Recirculation Ditch	7.12	07/22/11	2.64	4.48
Recirculation Ditch	7.12	10/04/11	2.12	5.00
Recirculation Ditch	7.12	01/10/12	0.52	6.60
Recirculation Ditch	7.12	04/03/12	-0.01	7.13
Recirculation Ditch	7.12	07/09/12	1.52	5.60
Recirculation Ditch	7.12	10/01/12	5.48	1.64
Recirculation Ditch	7.12	02/11/13	1.52	5.60
Recirculation Ditch	7.12	04/22/13	1.07	6.05
Recirculation Ditch	7.12	07/15/13	1.98	5.14
Recirculation Ditch	7.12	10/07/13	1.36	5.76
Recirculation Ditch	7.12	01/28/14	2.03	5.09
Recirculation Ditch	7.12	04/22/14	2.30	4.82
Recirculation Ditch	7.12	07/22/14	1.72	5.40
Recirculation Ditch	7.12	11/03/14	1.88	5.24
Recirculation Ditch	7.12	01/20/15	0.44	6.68
Recirculation Ditch	7.12	04/14/15	2.23	4.89
Recirculation Ditch	7.12	07/22/15	2.34	4.78
Recirculation Ditch	7.12	10/13/15	3.23	3.89
Recirculation Ditch	7.12	01/12/16	0.92	6.20
Recirculation Ditch	7.12	04/05/16	2.12	5.00

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
Recirculation Ditch	7.12	07/19/16	2.31	4.81
Recirculation Ditch	7.12	10/25/16	1.78	5.34
Recirculation Ditch	7.12	01/17/17	2.00	5.12
Recirculation Ditch	7.12	04/18/17	2.04	5.08
Recirculation Ditch	7.12	07/18/17	2.09	5.03
Recirculation Ditch	7.12	10/17/17	2.41	4.71
Recirculation Ditch	7.12	1/16/2018	0.83	6.29
Recirculation Ditch	7.12	5/8/2018	-0.01	7.13
Recirculation Ditch	7.12	7/24/2018	2.45	4.67
Recirculation Ditch	7.12	10/23/2018	2.80	4.32
Recirculation Ditch	7.12	03/04/19	2.60	4.52
Recirculation Ditch	7.12	5/7/2019	0.51	6.61
Recirculation Ditch	7.12	8/19/2019	2.67	4.45
Reynolds Stormwater Ditch	11.03	03/01/11	3.30	7.73
Reynolds Stormwater Ditch	11.03	05/09/11	7.38	3.65
Reynolds Stormwater Ditch	11.03	07/22/11	5.29	5.74
Reynolds Stormwater Ditch	11.03	10/04/11	5.93	5.10
Reynolds Stormwater Ditch	11.03	01/10/12	5.94	5.09
Reynolds Stormwater Ditch	11.03	04/03/12	4.60	6.43
Reynolds Stormwater Ditch	11.03	07/09/12	5.33	5.70
Reynolds Stormwater Ditch	11.03	10/01/12	5.66	5.37
Reynolds Stormwater Ditch	11.03	02/11/13	6.27	4.76
Reynolds Stormwater Ditch	11.03	04/22/13	6.09	4.94
Reynolds Stormwater Ditch	11.03	07/15/13	6.46	4.57
Reynolds Stormwater Ditch	11.03	10/07/13	5.91	5.12
Reynolds Stormwater Ditch	11.03	01/28/14	6.67	4.36
Reynolds Stormwater Ditch	11.03	04/22/14	6.35	4.68
Reynolds Stormwater Ditch	11.03	07/22/14	6.39	4.64
Reynolds Stormwater Ditch	11.03	11/03/14	5.96	5.07
Reynolds Stormwater Ditch	11.03	01/20/15	6.21	4.82
Reynolds Stormwater Ditch	11.03	04/14/15	6.44	4.59
Reynolds Stormwater Ditch	11.03	07/22/15	6.31	4.72
Reynolds Stormwater Ditch	11.03	10/13/15	7.08	3.95
Reynolds Stormwater Ditch	11.03	01/12/16	8.95	2.08
Reynolds Stormwater Ditch	11.03	04/05/16	6.44	4.59
Reynolds Stormwater Ditch	11.03	07/19/16	7.08	3.95
Reynolds Stormwater Ditch	11.03	10/25/16	6.21	4.82
Reynolds Stormwater Ditch	11.03	01/17/17	5.75	5.28
Reynolds Stormwater Ditch	11.03	04/18/17	6.23	4.80
Reynolds Stormwater Ditch	11.03	07/18/17	6.53	4.50
Reynolds Stormwater Ditch	11.03	10/17/17	6.91	4.12
Reynolds Stormwater Ditch	11.03	01/16/18	6.74	4.29

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
Reynolds Stormwater Ditch	11.03	05/08/18	6.69	4.34
Reynolds Stormwater Ditch	11.03	07/24/18	6.74	4.29
Reynolds Stormwater Ditch	11.03	10/23/18	6.70	4.33
Reynolds Stormwater Ditch	11.03	03/04/19	6.41	4.62
Reynolds Stormwater Ditch	11.03	05/07/19	6.51	4.52
Reynolds Stormwater Ditch	11.03	08/19/19	6.56	4.47
CDID Upstream	4.11	03/01/11	2.20	1.91
CDID Upstream	4.11	05/09/11	3.38	0.73
CDID Upstream	4.11	07/22/11	2.90	1.21
CDID Upstream	4.11	10/04/11	2.94	1.17
CDID Upstream	4.11	01/10/12	3.14	0.97
CDID Upstream	4.11	04/03/12	3.21	0.90
CDID Upstream	4.11	07/09/12	3.04	1.07
CDID Upstream	4.11	10/01/12	3.56	0.55
CDID Upstream	4.11	02/11/13	3.55	0.56
CDID Upstream	4.11	04/22/13	3.48	0.63
CDID Upstream	4.11	07/15/13	2.85	1.26
CDID Upstream	4.11	10/07/13	2.82	1.29
CDID Upstream	4.11	01/28/14	3.37	0.74
CDID Upstream	4.11	04/22/14	3.48	0.63
CDID Upstream	4.11	07/22/14	3.04	1.07
CDID Upstream	4.11	11/03/14	2.95	1.16
CDID Upstream	4.11	01/20/15	2.78	1.33
CDID Upstream	4.11	04/14/15	3.47	0.64
CDID Upstream	4.11	07/22/15	3.31	0.80
CDID Upstream	4.11	10/13/15	2.61	1.50
CDID Upstream	4.11	01/12/16	2.93	1.18
CDID Upstream	4.11	04/05/16	3.48	0.63
CDID Upstream	4.11	07/19/16	2.75	1.36
CDID Upstream	4.11	10/25/16	2.69	1.42
CDID Upstream	4.11	01/17/17	3.38	0.73
CDID Upstream	4.11	04/18/17	3.99	0.12
CDID Upstream	4.11	07/18/17	3.43	0.68
CDID Upstream	4.11	10/17/17	2.95	1.16
CDID Upstream	4.11	01/16/18	3.60	0.51
CDID Upstream	4.11	05/08/18	3.96	0.15
CDID Upstream	4.11	07/24/18	2.98	1.13
CDID Upstream	4.11	10/23/18	3.49	0.62
CDID Upstream	4.11	03/04/19	3.63	0.48
CDID Upstream	4.11	05/07/19	3.91	0.20
CDID Upstream	4.11	08/19/19	2.59	1.52
CDID Upstream	4.11	10/29/19	2.75	1.36

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
CDID Downstream – Staff Gauge	6.38	03/01/11	---	1.9
CDID Downstream – Staff Gauge	6.38	05/09/11	---	1.0
CDID Downstream – Staff Gauge	6.38	07/22/11	---	1.6
CDID Downstream – Staff Gauge	6.38	10/04/11	---	1.4
CDID Downstream – Staff Gauge	6.38	01/10/12	---	0.99
CDID Downstream – Staff Gauge	6.38	04/03/12	---	1.09
CDID Downstream – Staff Gauge	6.38	07/09/12	---	1.09
CDID Downstream – Staff Gauge	6.38	10/01/12	---	0.89
CDID Downstream – Staff Gauge	6.38	02/11/13	---	0.49
CDID Downstream – Staff Gauge	6.38	04/22/13	---	0.69
CDID Downstream – Staff Gauge	6.38	07/15/13	---	1.29
CDID Downstream – Staff Gauge	6.38	10/07/13	---	1.49
CDID Downstream – Staff Gauge	6.38	01/28/14	---	1.09
CDID Downstream – Staff Gauge	6.38	04/22/14	---	0.89
CDID Downstream – Staff Gauge	6.38	07/22/14	---	1.29
CDID Downstream – Staff Gauge	6.38	11/03/14	---	1.49
CDID Downstream – Staff Gauge	6.38	01/20/15	---	1.19
CDID Downstream – Staff Gauge	6.38	04/14/15	---	0.69
CDID Downstream – Staff Gauge	6.38	07/22/15	---	0.79
CDID Downstream – Staff Gauge	6.38	10/13/15	---	1.49
CDID Downstream – Staff Gauge	6.38	01/12/16	---	1.09
CDID Downstream – Staff Gauge	6.38	04/05/16	---	0.64
CDID Downstream – Staff Gauge	6.38	07/19/16	---	1.19
CDID Downstream – Staff Gauge	6.38	10/25/16	---	1.49
CDID Downstream – Staff Gauge	6.38	01/17/17	---	0.79
CDID Downstream – Staff Gauge	6.38	04/18/17	---	0.19
CDID Downstream – Staff Gauge	6.38	07/18/17	---	0.69
CDID Downstream – Staff Gauge	6.38	10/17/17	---	1.09
CDID Downstream – Staff Gauge	6.38	01/16/18	---	0.29
CDID Downstream – Staff Gauge	6.38	05/08/18	---	0.39
CDID Downstream – Staff Gauge	6.38	07/24/18	---	0.89
CDID Downstream – Staff Gauge	6.38	10/23/18	---	0.69
CDID Downstream – Staff Gauge	6.38	03/04/19	---	0.19
CDID Downstream – Staff Gauge	6.38	05/07/19	---	0.39
CDID Downstream – Staff Gauge	6.38	08/19/19	---	1.64
CDID Downstream – Staff Gauge	6.38	10/29/19	---	1.49
CDID Downstream – Boom	8.26	03/01/11	6.57	1.69
CDID Downstream – Boom	8.26	05/09/11	7.55	0.71
CDID Downstream – Boom	8.26	07/22/11	6.84	1.42
CDID Downstream – Boom	8.26	10/04/11	7.11	1.15
CDID Downstream – Boom	8.26	01/10/12	7.29	0.97
CDID Downstream – Boom	8.26	04/03/12	7.32	0.94

Attachment A-1

Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
CDID Downstream – Boom	8.26	07/09/12	7.35	0.91
CDID Downstream – Boom	8.26	10/01/12	7.30	0.96
CDID Downstream – Boom	8.26	02/11/13	7.74	0.52
CDID Downstream – Boom	8.26	04/22/13	7.73	0.53
CDID Downstream – Boom	8.26	07/15/13	7.04	1.22
CDID Downstream – Boom	8.26	10/07/13	6.92	1.34
CDID Downstream – Boom	8.26	01/28/14	7.63	0.63
CDID Downstream – Boom	8.26	04/22/14	7.55	0.71
CDID Downstream – Boom	8.26	07/22/14	7.02	1.24
CDID Downstream – Boom	8.26	11/03/14	6.90	1.36
CDID Downstream – Boom	8.26	01/20/15	7.02	1.24
CDID Downstream – Boom	8.26	04/14/15	7.61	0.65
CDID Downstream – Boom	8.26	07/22/15	7.52	0.74
CDID Downstream – Boom	8.26	10/13/15	6.84	1.42
CDID Downstream – Boom	8.26	01/12/16	7.20	1.06
CDID Downstream – Boom	8.26	04/05/16	7.71	0.55
CDID Downstream – Boom	8.26	07/19/16	7.07	1.19
CDID Downstream – Boom	8.26	10/25/16	6.84	1.42
CDID Downstream – Boom	8.26	01/17/17	7.46	0.80
CDID Downstream – Boom	8.26	04/18/17	8.09	0.17
CDID Downstream – Boom	8.26	07/18/17	7.61	0.65
CDID Downstream – Boom	8.26	10/17/17	7.17	1.09
CDID Downstream – Boom	8.26	01/16/18	7.86	0.40
CDID Downstream – Boom	8.26	05/08/18	7.96	0.30
CDID Downstream – Boom	8.26	07/24/18	7.42	0.84
CDID Downstream – Boom	8.26	10/23/18	7.55	0.71
CDID Downstream – Boom	8.26	03/04/19	8.08	0.18
CDID Downstream – Boom	8.26	05/07/19	7.99	0.27
CDID Downstream – Boom	8.26	08/19/19	6.64	1.62
CDID Downstream – Boom	8.26	10/29/19	6.90	1.36
Columbia River Staff Gauge	17.19	03/01/11	---	10.9
Columbia River Staff Gauge[4]	17.19	05/09/11	---	9.5
Columbia River Staff Gauge[5]	17.19	07/22/11	---	11.54
Columbia River Staff Gauge[4]	17.19	10/04/11	---	7.0
Columbia River Staff Gauge[4]	17.19	01/10/12	---	--
Columbia River Staff Gauge[4]	17.19	04/03/12	---	12.99
Columbia River Staff Gauge[4]	17.19	07/09/12	---	9.69
Columbia River Staff Gauge[6]	17.19	10/01/12	---	8.35
Columbia River Staff Gauge[7]	17.19	02/11/13	---	6.20
Columbia River Staff Gauge[7]	17.19	04/22/13	---	7.0
Columbia River Staff Gauge[7]	17.19	07/15/13	---	7.80
Columbia River Staff Gauge[7]	17.19	10/07/13	---	6.00

Attachment A-1
Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
Columbia River Staff Gauge[7]	17.19	01/28/14	---	6.50
Columbia River Staff Gauge	17.19	04/22/14	---	10.19
Columbia River Staff Gauge[7]	17.19	07/22/14	---	4.69
Columbia River Staff Gauge[7]	17.19	11/03/14	---	7.19
Columbia River Staff Gauge	17.19	01/20/15	---	8.79
Columbia River Staff Gauge[7]	17.19	04/14/15	---	6.19
Columbia River Staff Gauge	17.19	07/22/15	---	6.74
Columbia River Staff Gauge[7]	17.19	10/13/15	---	13.69
Columbia River Staff Gauge	17.19	01/12/16	---	7.39
Columbia River Staff Gauge[7]	17.19	04/05/16	---	5.69
Columbia River Staff Gauge[7]	17.19	07/19/16	---	6.19
Columbia River Staff Gauge[7]	17.19	10/25/16	---	5.69
Columbia River Staff Gauge[7]	17.19	01/17/17	---	8.94
Columbia River Staff Gauge[7]	17.19	04/18/17	---	11.29
Columbia River Staff Gauge[7]	17.19	07/18/17	---	5.69
Columbia River Staff Gauge[7]	17.19	10/17/17	---	3.69
Columbia River Staff Gauge[7]	17.19	01/16/18	---	7.49
Columbia River Staff Gauge[7]	17.19	05/08/18	---	9.94
Columbia River Staff Gauge[7]	17.19	07/24/18	---	4.69
Columbia River Staff Gauge[7]	17.19	10/23/18	---	4.49
Columbia River Staff Gauge[7]	17.19	03/04/19	---	4.89
Columbia River Staff Gauge[7]	17.19	05/07/19	---	7.89
Columbia River Staff Gauge[7]	17.19	08/19/19	---	5.49
Columbia River – Pier at Stairs	21.68	10/04/11	13.79	7.89
Columbia River – Pier at Stairs	21.68	01/10/12	15.84	5.84
Columbia River – Pier at Stairs	21.68	04/03/12	8.87	12.81
Columbia River – Pier at Stairs	21.68	07/09/12	12.09	9.59
Columbia River – Pier at Stairs	21.68	10/01/12	16.00	5.68
Columbia River – Pier at Stairs	21.68	02/11/13	15.17	6.51
Columbia River – Pier at Stairs	21.68	04/22/13	15.52	6.16
Columbia River – Pier at Stairs	21.68	07/15/13	14.03	7.65
Columbia River – Pier at Stairs	21.68	10/07/13	15.01	6.67
Columbia River – Pier at Stairs	21.68	01/28/14	16.44	5.24
Columbia River – Pier at Stairs	21.68	04/22/14	11.67	10.01
Columbia River – Pier at Stairs	21.68	07/22/14	16.30	5.38
Columbia River – Pier at Stairs	21.68	11/03/14	14.87	6.81
Columbia River – Pier at Stairs	21.68	01/20/15	13.12	8.56
Columbia River – Pier at Stairs	21.68	04/14/15	13.60	8.08
Columbia River – Pier at Stairs	21.68	07/22/15	14.94	6.74
Columbia River – Pier at Stairs	21.68	10/13/15	16.20	5.48
Columbia River – Pier at Stairs	21.68	01/12/16	13.97	7.71
Columbia River – Pier at Stairs	21.68	04/05/16	15.69	5.99

Attachment A-1

Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
Columbia River – Pier at Stairs	21.68	07/19/16	15.61	6.07
Columbia River – Pier at Stairs	21.68	10/25/16	16.22	5.46
Columbia River – Pier at Stairs	21.68	01/17/17	12.58	9.10
Columbia River – Pier at Stairs	21.68	04/18/17	10.22	11.46
Columbia River – Pier at Stairs	21.68	07/18/17	16.21	5.47
Columbia River – Pier at Stairs	21.68	10/17/17	17.84	3.84
Columbia River – Pier at Stairs	21.68	01/16/18	13.96	7.72
Columbia River – Pier at Stairs	21.68	05/08/18	11.72	9.96
Columbia River – Pier at Stairs	21.68	07/24/18	16.53	5.15
Columbia River – Pier at Stairs	21.68	10/23/18	17.04	4.64
Columbia River – Pier at Stairs	21.68	03/04/19	16.61	5.07
Columbia River – Pier at Stairs	21.68	05/07/19	13.42	8.26
Columbia River – Pier at Stairs	21.68	08/19/19	15.71	5.97
Columbia River @ SW Dolphin	21.75	10/04/11	13.75	8.00
Columbia River @ SW Dolphin	21.75	01/10/12	15.93	5.82
Columbia River @ SW Dolphin	21.75	04/03/12	8.98	12.77
Columbia River @ SW Dolphin	21.75	07/09/12	12.18	9.57
Columbia River @ SW Dolphin	21.75	10/01/12	16.50	5.25
Columbia River @ SW Dolphin	21.75	02/11/13	15.20	6.55
Columbia River @ SW Dolphin	21.75	04/22/13	15.57	6.18
Columbia River @ SW Dolphin	21.75	07/15/13	14.10	7.65
Columbia River @ SW Dolphin	21.75	10/07/13	15.14	6.61
Columbia River @ SW Dolphin	21.75	01/28/14	16.51	5.24
Columbia River @ SW Dolphin	21.75	04/22/14	11.71	10.04
Columbia River @ SW Dolphin	21.75	07/22/14	16.37	5.38
Columbia River @ SW Dolphin	21.75	11/03/14	14.89	6.86
Columbia River @ SW Dolphin	21.75	01/20/15	13.13	8.62
Columbia River @ SW Dolphin	21.75	04/14/15	13.64	8.11
Columbia River @ SW Dolphin	21.75	07/22/15	15.03	6.72
Columbia River @ SW Dolphin	21.75	10/13/15	16.26	5.49
Columbia River @ SW Dolphin	21.75	01/12/16	14.00	7.75
Columbia River @ SW Dolphin	21.75	04/05/16	15.63	6.12
Columbia River @ SW Dolphin	21.75	07/19/16	15.67	6.08
Columbia River @ SW Dolphin	21.75	10/25/16	16.28	5.47
Columbia River @ SW Dolphin	21.75	01/17/17	12.64	9.11
Columbia River @ SW Dolphin	21.75	04/18/17	10.26	11.49
Columbia River @ SW Dolphin	21.75	07/18/17	16.25	5.50
Columbia River @ SW Dolphin	21.75	10/17/2017	17.88	3.87
Columbia River @ SW Dolphin	21.75	1/16/2018	14.01	7.74
Columbia River @ SW Dolphin	21.75	5/8/2018	11.77	9.98
Columbia River @ SW Dolphin	21.75	7/24/2018	16.62	5.13
Columbia River @ SW Dolphin	21.75	10/23/2018	17.12	4.63

Attachment A-1

Historical Groundwater and Surface Elevation Data – Closed BMP and West Groundwater Area

Monitoring Point	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
Columbia River @ SW Dolphin	21.75	03/04/19	16.64	5.11
Columbia River @ SW Dolphin	21.75	5/7/2019	13.51	8.24
Columbia River @ SW Dolphin	21.75	8/19/2019	15.81	5.94
W-2[8]	4.11	08/19/19	2.59	1.52
W-2[8]	4.11	10/29/19	2.75	1.36

Notes:

1. Depth to water is measured from top of casing for monitoring wells.
2. Washington South Zone, NAD83 geographic and state planar coordinates – U.S. survey in feet.
3. Ditch dry, measurement to ditch bed.
4. Gauge was broken or missing below 12 feet.
5. Staff gauge missing below 12 feet. Reading taken at U.S. Geological Survey Ridgefield Station.
6. Staff gauge broken. Used staff gauge in river by Reynolds Pump Station.
7. New gauge was installed by CDID on February 9, 2013. At certain levels, gauge is unreadable due to algae, and reading is estimated.
8. Reference point elevation and depth to water same as CDID upstream.

BMP: Black Mud Pond
CDID: Consolidated Improvement Diking District
NAD83: North American Datum of 1983
NAVD88: North American Vertical Datum of 1988

Attachment A-2

Historical Groundwater and Surface Elevation Data – Former SPL Area and East Groundwater Area

Monitoring Location	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
R-1S	17.13	03/01/11	3.21	13.92
R-1S	17.13	05/09/11	3.86	13.27
R-1S	17.13	07/22/11	4.41	12.72
R-1S	17.13	10/04/11	5.60	11.53
R-1S	17.13	01/10/12	4.19	12.94
R-1S	17.13	04/03/12	3.05	14.08
R-1S	17.13	07/09/12	4.56	12.57
R-1S	17.13	10/01/12	5.62	11.51
R-1S	17.13	02/11/13	4.02	13.11
R-1S	17.13	04/22/13	4.16	12.97
R-1S	17.13	07/15/13	4.83	12.30
R-1S	17.13	10/07/13	4.81	12.32
R-1S	17.13	01/28/14	4.35	12.78
R-1S	17.13	04/22/14	3.76	13.37
R-1S	17.13	07/22/14	4.97	12.16
R-1S	17.13	11/03/14	5.38	11.75
R-1S	17.13	01/20/15	3.41	13.72
R-1S	17.13	04/14/15	4.18	12.95
R-1S	17.13	07/22/15	5.54	11.59
R-1S	17.13	10/13/15	6.26	10.87
R-1S	17.13	01/12/16	3.61	13.52
R-1S	17.13	04/05/16	3.78	13.35
R-1S	17.13	07/19/16	5.26	11.87
R-1S	17.13	10/25/16	5.16	11.97
R-1S	17.13	01/17/17	3.80	13.33
R-1S	17.13	04/18/17	3.09	14.04
R-1S	17.13	07/18/17	4.68	12.45
R-1S	17.13	10/17/17	5.68	11.45
R-1S	17.13	01/16/18	3.45	13.68
R-1S	17.13	05/08/18	4.02	13.11
R-1S	17.13	07/24/18	5.12	12.01
R-1S	17.13	10/23/18	5.97	11.16
R-1S	17.13	03/04/19	3.97	13.16
R-1S	17.13	05/07/19	4.37	12.76
R-1S	17.13	08/19/19	5.55	11.58
R-1S	17.13	10/29/19	5.65	11.48
R-1D	17.69	03/01/11	5.05	12.64
R-1D	17.69	05/09/11	5.04	12.65
R-1D	17.69	07/22/11	5.38	12.31
R-1D	17.69	10/04/11	6.84	10.85
R-1D	17.69	01/10/12	5.80	11.89
R-1D	17.69	04/03/12	4.50	13.19

Attachment A-2
Historical Groundwater and Surface Elevation Data – Former SPL Area and East Groundwater Area

Monitoring Location	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
R-1D	17.69	07/09/12	5.92	11.77
R-1D	17.69	10/01/12	7.09	10.60
R-1D	17.69	02/11/13	5.61	12.08
R-1D	17.69	04/22/13	6.15	11.54
R-1D	17.69	07/15/13	6.07	11.62
R-1D	17.69	10/07/13	6.29	11.40
R-1D	17.69	01/28/14	6.29	11.40
R-1D	17.69	04/22/14	5.13	12.56
R-1D	17.69	07/22/14	6.22	11.47
R-1D	17.69	11/03/14	7.28	10.41
R-1D	17.69	01/20/15	6.60	11.09
R-1D	17.69	04/14/15	5.62	12.07
R-1D	17.69	07/22/15	6.98	10.71
R-1D	17.69	10/13/15	7.76	9.93
R-1D	17.69	01/12/16	4.75	12.94
R-1D	17.69	04/05/16	5.21	12.48
R-1D	17.69	07/19/16	6.71	10.98
R-1D	17.69	10/25/16	6.83	10.86
R-1D	17.69	01/17/17	5.06	12.63
R-1D	17.69	04/18/17	4.03	13.66
R-1D	17.69	07/18/17	5.75	11.94
R-1D	17.69	10/17/17	7.09	10.60
R-1D	17.69	01/16/18	5.49	12.20
R-1D	17.69	05/08/18	5.07	12.62
R-1D	17.69	07/24/18	6.56	11.13
R-1D	17.69	10/23/18	7.31	10.38
R-1D	17.69	03/04/19	6.01	11.68
R-1D	17.69	05/07/19	5.55	12.14
R-1D	17.69	08/19/19	7.01	10.68
R-2	9.37	03/01/11	2.56	6.81
R-2	9.37	05/09/11	3.10	6.27
R-2	9.37	07/22/11	4.02	5.35
R-2	9.37	10/04/11	6.76	2.61
R-2	9.37	01/10/12	3.13	6.24
R-2	9.37	04/03/12	2.74	6.63
R-2	9.37	07/09/12	3.72	5.65
R-2	9.37	10/01/12	7.14	2.23
R-2	9.37	02/11/13	3.32	6.05
R-2	9.37	04/22/13	3.11	6.26
R-2	9.37	07/15/13	4.27	5.10
R-2	9.37	10/07/13	3.22	6.15
R-2	9.37	01/28/14	3.27	6.10

Attachment A-2
Historical Groundwater and Surface Elevation Data – Former SPL Area and East Groundwater Area

Monitoring Location	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
R-2	9.37	04/22/14	2.93	6.44
R-2	9.37	07/22/14	5.16	4.21
R-2	9.37	11/03/14	3.61	5.76
R-2	9.37	01/20/15	2.95	6.42
R-2	9.37	04/14/15	3.21	6.16
R-2	9.37	07/22/15	6.67	2.70
R-2	9.37	10/13/15	10.98	-1.61
R-2	9.37	01/12/16	3.23	6.14
R-2	9.37	04/05/16	3.26	6.11
R-2	9.37	07/19/16	5.12	4.25
R-2	9.37	10/25/16	3.49	5.88
R-2	9.37	01/17/17	3.22	6.15
R-2	9.37	04/18/17	3.01	6.36
R-2	9.37	07/18/17	5.43	3.94
R-2	9.37	10/17/17	9.91	-0.54
R-2	9.37	01/16/18	3.11	6.26
R-2	9.37	05/08/18	3.51	5.86
R-2	9.37	07/24/18	6.54	2.83
R-2	9.37	10/23/18	9.52	-0.15
R-2	9.37	03/04/19	3.33	6.04
R-2	9.37	05/07/19	3.67	5.70
R-2	9.37	08/19/19	7.34	2.03
R-2	9.37	10/29/19	4.68	4.69
R-3	13.15	03/01/11	1.90	11.25
R-3	13.15	05/09/11	3.54	9.61
R-3	13.15	07/22/11	2.97	10.18
R-3	13.15	10/04/11	3.59	9.56
R-3	13.15	01/10/12	2.54	10.61
R-3	13.15	04/03/12	1.31	11.84
R-3	13.15	07/09/12	2.59	10.56
R-3	13.15	10/01/12	3.96	9.19
R-3	13.15	02/11/13	2.49	10.66
R-3	13.15	04/22/13	2.39	10.76
R-3	13.15	07/15/13	2.57	10.58
R-3	13.15	10/07/13	2.11	11.04
R-3	13.15	01/28/14	3.37	9.78
R-3	13.15	04/22/14	3.36	9.79
R-3	13.15	07/22/14	3.34	9.81
R-3	13.15	11/03/14	2.86	10.29
R-3	13.15	01/20/15	2.07	11.08
R-3	13.15	04/14/15	2.46	10.69
R-3	13.15	07/22/15	4.00	9.15

Attachment A-2
Historical Groundwater and Surface Elevation Data – Former SPL Area and East Groundwater Area

Monitoring Location	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
R-3	13.15	10/13/15	4.73	8.42
R-3	13.15	01/12/16	1.91	11.24
R-3	13.15	04/05/16	3.28	9.87
R-3	13.15	07/19/16	3.98	9.17
R-3	13.15	10/25/16	2.69	10.46
R-3	13.15	01/17/17	1.76	11.39
R-3	13.15	04/18/17	2.72	10.43
R-3	13.15	07/18/17	3.54	9.61
R-3	13.15	10/17/17	4.01	9.14
R-3	13.15	01/16/18	2.16	10.99
R-3	13.15	05/08/18	1.82	11.33
R-3	13.15	07/24/18	3.98	9.17
R-3	13.15	10/23/18	4.28	8.87
R-3	13.15	03/04/19	2.88	10.27
R-3	13.15	05/07/19	2.31	10.84
R-3	13.15	08/19/19	4.03	9.12
R-4S	18.82	03/01/11	6.74	12.08
R-4S	18.82	05/09/11	6.49	12.33
R-4S	18.82	07/22/11	6.92	11.90
R-4S	18.82	10/04/11	8.45	10.37
R-4S	18.82	01/10/12	7.47	11.35
R-4S	18.82	04/03/12	5.88	12.94
R-4S	18.82	07/09/12	6.87	11.95
R-4S	18.82	10/01/12	8.89	9.93
R-4S	18.82	02/11/13	7.14	11.68
R-4S	18.82	04/22/13	7.36	11.46
R-4S	18.82	07/15/13	7.72	11.10
R-4S	18.82	10/07/13	8.11	10.71
R-4S	18.82	01/28/14	7.60	11.22
R-4S	18.82	04/22/14	6.45	12.37
R-4S	18.82	07/22/14	7.85	10.97
R-4S	18.82	11/03/14	8.54	10.28
R-4S	18.82	01/20/15	6.82	12.00
R-4S	18.82	04/14/15	7.18	11.64
R-4S	18.82	07/22/15	8.55	10.27
R-4S	18.82	10/13/15	9.32	9.50
R-4S	18.82	01/12/16	6.51	12.31
R-4S	18.82	04/05/16	6.79	12.03
R-4S	18.82	07/19/16	8.49	10.33
R-4S	18.82	10/25/16	8.22	10.60
R-4S	18.82	01/17/17	6.67	12.15
R-4S	18.82	04/18/17	5.35	13.47

Attachment A-2
Historical Groundwater and Surface Elevation Data – Former SPL Area and East Groundwater Area

Monitoring Location	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
R-4S	18.82	07/18/17	7.58	11.24
R-4S	18.82	10/17/17	8.83	9.99
R-4S	18.82	01/16/18	6.57	12.25
R-4S	18.82	05/08/18	6.59	12.23
R-4S	18.82	07/24/18	8.16	10.66
R-4S	18.82	10/23/18	8.95	9.87
R-4S	18.82	03/04/19	7.24	11.58
R-4S	18.82	05/07/19	7.05	11.77
R-4S	18.82	08/19/19	8.98	9.84
R-4D	18.97	03/01/11	7.41	11.56
R-4D	18.97	05/09/11	7.33	11.64
R-4D	18.97	07/22/11	7.60	11.37
R-4D	18.97	10/04/11	8.19	10.78
R-4D	18.97	01/10/12	8.33	10.64
R-4D	18.97	04/03/12	6.34	12.63
R-4D	18.97	07/09/12	7.46	11.51
R-4D	18.97	10/01/12	9.65	9.32
R-4D	18.97	02/11/13	7.97	11.00
R-4D	18.97	04/22/13	8.22	10.75
R-4D	18.97	07/15/13	8.47	10.50
R-4D	18.97	10/07/13	8.87	10.10
R-4D	18.97	01/28/14	8.67	10.30
R-4D	18.97	04/22/14	7.20	11.77
R-4D	18.97	07/22/14	8.70	10.27
R-4D	18.97	11/03/14	9.28	9.69
R-4D	18.97	01/20/15	7.39	11.58
R-4D	18.97	04/14/15	8.18	10.79
R-4D	18.97	07/22/15	8.18	10.79
R-4D	18.97	10/13/15	10.10	8.87
R-4D	18.97	01/12/16	7.15	11.82
R-4D	18.97	04/05/16	7.80	11.17
R-4D	18.97	07/19/16	9.44	9.53
R-4D	18.97	10/25/16	9.00	9.97
R-4D	18.97	01/17/17	7.31	11.66
R-4D	18.97	04/18/17	5.97	13.00
R-4D	18.97	07/18/17	8.53	10.44
R-4D	18.97	10/17/17	9.63	9.34
R-4D	18.97	01/16/18	7.43	11.54
R-4D	18.97	05/08/18	7.26	11.71
R-4D	18.97	07/24/18	9.05	9.92
R-4D	18.97	10/23/18	9.84	9.13
R-4D	18.97	03/04/19	8.20	10.77

Attachment A-2

Historical Groundwater and Surface Elevation Data – Former SPL Area and East Groundwater Area

Monitoring Location	Reference Point Elevation (feet, NAVD88)	Date	Depth to Water[1] (feet)	Water Level Elevation (feet, NAVD88)
R-4D	18.97	05/07/19	8.01	10.96
R-4D	18.97	08/19/19	10.10	8.87
G1-S	29.67	10/29/19	16.71	12.96
G2-S	18.14	10/29/19	6.78	11.36
G3-S	15.70	10/29/19	6.34	9.36
G4-S	8.69	10/29/19	5.07	3.62
G4-D	8.96	10/29/19	5.19	3.77
SSA7-MW-01	--	10/29/19	--	--

Notes:

1. Depth to water is measured from top of casing.

NAVD88: North American Vertical Datum of 1988

SPL: former Spent Potliner

Attachment B
Field Sampling Data Sheets and Chain-of-Custody Documentation

Provided on CD

Attachment C
Laboratory Reports

Provided on CD

Attachment D
Historical Groundwater and Surface Water Chemistry Data

Attachment D1a
Historical Groundwater Chemistry Data – Closed BMP, Closed BMP Facility, and West Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
RL-1S	MBT-030211-08	3/2/2011	0.00500 U	0.00500 U	0.00500 U	**2.59**	-	**2.84**	**12.9**	**0.567 J**	**7550**	**0.500 J**	**11.6**	**3460**	**4.49**	**39600**
RL-1S	MBT-051011-08	5/10/2011	0.00500 U	0.00500 U	0.00500 UJ	**7.99**	-	**2.15**	**11.2**	**0.800 J**	**6980**	**1.66 J**	**17.4**	**3300**	**8.92**	**71500**
RL-1S	MBT-072711-15	7/27/2011	**0.00800**	**0.00550**	0.00500 U	**7.42**	-	**3.05**	**4.54**	**0.889 J**	**11400**	**1.70 J**	**2.51 J**	**5350**	**5.04**	**83100**
RL-1S	RL-1S-100611	10/6/2011	**0.0154**	0.00500	0.00500 U	**9.79**	-	**3.75**	**1.88**	**0.967 J**	**13600**	2.32 U	4.00 U	**6390**	**2.71**	**100000**
RL-1S	MBT-011212-15	1/12/2012	0.00500 U	0.00500 U	0.00500 U	**3.20**	-	**3.07**	**12.2**	**0.411 J**	**9230**	**0.789 J**	**3.87 J**	**4230**	**4.19**	**45200**
RL-1S	BMP-040512-07	4/5/2012	0.00500 U	0.00500 U	0.00500 U	**7.78**	-	**3.35**	**10.2**	**0.600**	**6630**	**1.07**	**14.8**	**2860**	**6.16**	**63900**
RL-1S	BMP-071212-07	7/12/2012	0.00500 U	0.00500 U	0.00500 U	**3.76**	-	**3.48**	**5.29**	**1.22 J**	**12500**	**1.31 J**	**1.28** J	**5590**	**5.28**	**51600**
RL-1S	BMP-100412-01	10/4/2012	**0.0329**	**0.00670**	0.00500 U	**16.3**	-	**4.36**	1.00 U	**1.56 J**	**15300**	**1.74 J**	2.00 U	**7290**	**2.84**	**111000**
RL-1S	BMP-021313-06	2/13/2013	0.00500 U	0.00500 U	**0.00210 J**	**1.88**	-	**4.28**	**9.71**	2.00 U	**9610**	2.00 U	**1.38 J**	**4550**	**3.00**	**31200**
RL-1S	BMP-042413-07	4/24/2013	0.00500 U	0.00500 U	0.00500 U	**1.60**	-	**2.81**	**10.80**	**0.370**	**9260**	2.00 U	**1.71 J**	**4400**	**2.86**	**29700**
RL-1S	BMP-071713-06	7/17/2013	**0.00550**	0.00500 U	0.00500 U	**2.83**	-	**2.77**	**2.68**	**0.323**	**13900**	**0.811 J**	2.00 U	**6400**	**2.06**	**43100**
RL-1S	BMP-100913-07	10/9/2013	**0.00580**	0.00500 U	0.00500 U	**1.95**	-	**2.07**	**5.98**	**0.288**	**8620**	**0.778 J**	**3.18**	**3940**	**2.54**	**31500**
RL-1S	BMP-012914-07	1/29/2014	0.00500 U	0.00500 U	0.00500 U	**1.50**	-	**1.69**	**11.3**	**0.227**	**9630**	**1.390**	**2.77**	**4630**	**2.89**	**30000**
RL-1S	BMP-042414-06	4/24/2014	0.00500 U	0.00500 U	0.00500 U	**0.978**	-	**1.32**	**8.37**	**0.319**	**6550**	**0.711 J**	**5.18**	**3090**	**2.27**	**18500**
RL-1S	BMP-072414-05	7/24/2014	0.00500 U	0.00500 U	0.00500 U	**2.43**	-	**1.98**	**1.76**	**0.767** J	**14400**	**0.944 J**	**0.589** J	**6530**	**2.42**	**34800**
RL-1S (FD)	BMP-072414-06	7/24/2014	0.00500 U	0.00500 U	0.00500 U	**1.93**	-	**1.81**	**2.05**	**0.800** J	**14300**	**0.789 J**	**0.633** J	**6580**	**2.41**	**36200**
RL-1S	BMP-110514-05	11/5/2014	0.00500 U	0.00500 U	0.00500 U	**2.32**	-	**1.72**	**5.94**	**0.385**	**12000**	**0.567 J**	**2.36**	**5820**	**2.18**	**37300**
RL-1S	BMP-012215-06	1/22/2015	**0.0848**	0.00500 U	0.00500 U	**0.971**	-	**3.66**	**12.5**	**0.169**	**6550**	**0.656 J**	**3.20**	**3120**	**2.07 J**	**21100**
RL-1S	BMP-041615-06	4/16/2015	**0.00580**	0.00500 U	0.00500 U	**1.47**	-	**2.25**	**8.29**	**0.300**	**10300**	**0.656 J**	**1.69**	**5090**	**3.14**	**28900**
RL-1S	BMP-072415-07	7/24/2015	**0.0103**	0.00500 U	0.00500 U	**4.28**	-	**2.82**	1.00 U	**0.494**	**15600**	**0.989 J**	1.00 UJ	**7440**	**1.18**	**59100**
RL-1S	BMP-101515-07	10/15/2015	**0.0101**	0.00500 U	0.00500 U	**3.57**	-	**2.64**	1.00 U	**0.322**	**15800**	1.00 U	1.00 U	**7730**	1.00 U	**51200**
RL-1S	BMP-011316-01	1/13/2016	0.00500 U	0.00500 U	0.00500 U	**1.15**	-	**3.18**	**13.9**	**0.544 J**	**6510**	**0.756 J**	**8.37**	**3040**	**3.06**	**21400**
RL-1S	BMP-040716-09	4/7/2016	0.00500 U	0.00500 U	0.00500 U	**1.08**	-	**1.39**	**13.5**	**0.289**	**7710**	**1.37**	**4.73** J	**3640**	**4.52**	**26300**
RL-1S	BMP-072116-07	7/21/2016	**0.00620**	0.00500 U	0.00500 U	**2.54**	-	**2.19**	1.00 U	**0.733 J**	**15700**	**1.54**	**1.38** UJ	**7070**	**3.17**	**38400**
RL-1S	BMP-102716-06	10/27/2016	0.00500 U	0.00500 U	0.00500 U	**1.36**	-	**1.30**	**8.24**	1.00 **U**	**10300**	1.00 U	**1.81** J	**4730**	**2.19**	**27800**
RL-1S	BMP-011817-01	1/18/2017	0.00500 U	0.00500 U	0.00500 UJ	**0.897**	-	**2.4**	**9.41**	**0.244**	**6970**	**0.61 J**	**5.52** J	**3030**	**2.50**	**14000**
RL-1S	BMP-042017-08	4/20/2017	0.00500 U	0.00500 U	0.00500 U	**0.976**	-	1.00 U	**12.4**	**0.257**	**5690**	**0.622 J**	**5.11** UJ	**2640**	**3.54**	**22100**
RL-1S	BMP-072017-05	7/20/2017	**0.00970**	0.00500 U	0.00500 UJ	**1.62**	-	**1.34**	**1.80**	**1.14**	**12100**	**0.811 J**	**2.49** UJ	**5840**	**5.61**	**30100**
RL-1S	BMP-101917-06	10/19/2017	0.00500 U	0.00500 U	0.00500 U	**4.21 J**	-	**2.00**	1.00 U	**0.889 J**	**14800**	**0.622 J**	**0.989** UJ	**6680**	**3.51**	**38700**
RL-1S (FD)	BMP-101917-07	10/19/2017	**0.00650**	0.00500 U	0.00500 U	**2.78 J**	-	**1.63**	1.00 U	**0.956 J**	**14900**	**0.656 J**	**1.17** UJ	**6500**	**3.70**	**38600**
RL-1S	BMP-011818-06	1/18/2018	0.00500 U	0.00500 U	0.00200 U	**1.11**	-	**1.88**	9.29	**0.384**	**5840**	**0.767 J**	**4.38**	**2560**	**3.10**	**19600**
RL-1S	BMP-051018-07	5/10/2018	0.00500 U	0.00500 U	0.00500 U	**1.06**	-	**1.03**	8.91	**0.241**	**7550**	**0.500 U**	**4.86**	**3510**	**4.10**	**25800**
RL-1S	BMP-072618-06	7/26/2018	**0.01370**	0.00500 U	0.00500 U	**2.97**	-	**1.93**	1.00 U	**0.629**	**13500**	**0.525 J**	**1.51**	**6330**	**3.07**	**35200**
RL-1S	BMP-102518-07	10/25/2018	**0.02220**	0.00500 U	0.00250 U	**4.48**	-	**2.23**	1.00 U	**0.585**	**15000**	**0.611 J**	**0.77** J	**6820**	**2.34**	**43700**
RL-1S	BMP-030619-07	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**1.21**	-	**1.08**	**10.5**	**0.352**	**6240**	1.00 U	**7.73**	**2830**	**4.10**	**24700**
RL-1S	BMP-050919-08	5/9/2019	0.00500 U	0.00500 U	0.00500 U	**1.04**	-	1.00 U	**9.33**	**0.364**	**8890**	1.00 U	**3.01**	**4060**	**3.83**	**26500**
RL-1S	BMP-082119-08	8/21/2019	-	-	-	**2.46**	**2.01**	-	-	-	-	-	-	-	-	-
RL-1S	AQ-RL1S-103119	10/31/2019	-	-	-	**5.21**	**8.28**	-	-	-	-	-	-	-	-	-

Attachment D1a
Historical Groundwater Chemistry Data – Closed BMP, Closed BMP Facility, and West Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
RL-1D	MBT-030311-13	3/3/2011	0.0150 U	0.00500 U	0.00500 U	1.00 U	-	**2.82**	1.00 U	**1.32 J**	**134000**	**0.244 J**	**0.411 J**	**63200**	**1.53 J**	**26000**
RL-1D	MBT-051011-09	5/10/2011	0.00500 U	0.0150 U	0.00500 UJ	1.00 U	-	**2.69**	1.00 U	**1.18 J**	**117000**	**1.36 J**	**0.578 J**	**60500**	**0.678 J**	**24800**
RL-1D	MBT-072611-08	7/26/2011	0.0150 U	0.0150 U	0.00500 UJ	--- R	-	**2.74**	1.00 U	**1.37 J**	**111000**	2.0 U	4.00 U	**58900**	**0.900 J**	**23900**
RL-1D	RL-1D-100611	10/6/2011	0.00500 U	0.00500 U	0.00500 U	**0.333**	-	**2.85**	1.00 U	**1.20 J**	**122000**	2.0 U	4.00 U	**58900**	**1.09 J**	**24000**
RL-1D	MBT-011112-08	1/11/2012	0.00500 U	0.00500 U	0.00500 U	**0.330**	-	**2.77**	1.00 U	**1.04**	**130000**	**1.72**	4.00 U	**63100**	**1.62 J**	**24300**
RL-1D	BMP-040412-05	4/4/2012	0.00500 U	0.00500 U	0.00500 UJ	**0.395**	-	**2.16**	1.00 U	**1.31 J**	**125000**	**1.59 J**	4.00 U	**62400**	**2.28**	**25100**
RL-1D	BMP-071212-08	7/12/2012	0.00500 U	0.00500 U	0.00500 U	**0.289**	-	**2.80**	1.00 U	**1.39 J**	**120000**	**0.844 J**	2.00 U	**59500**	**2.54**	**24800**
RL-1D	BMP-100412-02	10/4/2012	0.00500 U	0.00500 U	0.00500 U	**0.357**	-	**2.86**	1.00 U	**0.967 J**	**250000**	4.00 U	2.00 U	**122000**	**1.73 J**	**24500**
RL-1D	BMP-021313-07	2/13/2013	0.00500 U	0.00500 U	0.00500 U	**0.313**	-	**2.88**	1.00 U	**0.967 J**	**114000**	**0.856 J**	2.00 U	**60300**	**1.71 J**	**24800**
RL-1D	BMP-042413-08	4/24/2013	0.00500 U	0.00500 U	0.00500 U	**0.256**	-	**2.85**	1.00 U	**1.180 J**	**126000**	**0.678 J**	2.00 U	**66000**	**1.00 J**	**25500**
RL-1D (FD)	BMP-042413-09	4/24/2013	0.00500 U	0.00500 U	0.00500 U	**0.262**	-	**2.83**	1.00 U	**1.140 J**	**120000**	**0.711 J**	2.00 U	**62600**	**1.17 J**	**26100**
RL-1D	BMP-071713-07	7/17/2013	0.00500 U	0.00500 U	0.00500 U	**0.306**	-	**2.79**	1.00 U	**0.989 J**	**120000**	**1.340 J**	2.00 U	**58600**	**1.79 J**	**24000**
RL-1D	BMP-100913-08	10/9/2013	0.00500 U	0.00500 U	0.00500 U	**0.277**	-	**2.70**	1.00 U	**0.822 J**	**118000**	**1.010**	1.00 U	**57000**	**1.23 J**	**25100**
RL-1D	BMP-012914-08	1/29/2014	0.00500 U	0.00500 U	0.00500 U	**0.299**	-	**3.17**	1.00 U	**1.090**	**140000**	**2.940**	**0.67 J**	**71300**	**1.24**	**27300**
RL-1D	BMP-042414-07	4/24/2014	0.00500 U	0.00500 U	0.00500 U	**0.316**	-	**3.27**	1.00 U	**0.778 J**	**120000**	**1.07 J**	2.00 U	**55700**	**0.833**	**24700**
RL-1D	BMP-072414-07	7/24/2014	0.00500 U	0.00500 U	0.00500 U	**0.293**	-	**2.86**	1.00 U	**0.722 J**	**121000**	**0.711 J**	1.00 U	**54100**	**0.700 J**	**22800**
RL-1D	BMP-110514-06	11/5/2014	0.00500 U	0.00500 U	0.00500 U	**0.346**	-	**3.30**	1.00 U	**1.02**	**122000**	**0.889 J**	1.00 U	**59500**	**0.867 J**	**23900**
RL-1D	BMP-012215-07	1/22/2015	**0.0085**	0.00500 U	0.00500 U	**0.278**	-	**3.03**	1.00 U	**1.19**	**141000**	**1.27**	1.00 U	**65700**	**2.12 J**	**25700**
RL-1D	BMP-041615-07	4/16/2015	0.00500 U	0.00500 U	0.00500 U	**0.316**	-	**3.02**	1.00 U	**1.020**	**133000**	**0.800 J**	1.00 U	**68000**	**0.933 J**	**23700**
RL-1D	BMP-072415-08	7/24/2015	0.00500 U	0.00500 U	0.00500 U	**0.263**	-	**3.32**	1.00 U	**0.761**	**119000**	**2.09**	1.00 UJ	**61500**	**1.01**	**22000**
RL-1D	BMP-101515-08	10/15/2015	0.00500 U	0.00500 U	0.00500 U	**0.298**	-	**3.15**	1.00 U	**0.789**	**126000**	**0.833 J**	1.00 U	**59000**	1.00 U	**23400**
RL-1D	BMP-011416-09	1/14/2016	0.00500 U	0.00500 U	0.00500 U	**0.278**	-	**3.07**	1.00 U	**1.13**	**120000**	**0.822 J**	1.00 U	**58100**	**0.733 J**	**23500**
RL-1D (FD)	BMP-011416-10	1/14/2016	0.00500 U	0.00500 U	0.00500 U	**0.276**	-	**3.08**	1.00 U	**0.944 J**	**120000**	**0.767 J**	1.00 U	**48100**	**0.611 J**	**19400**
RL-1D	BMP-040716-10	4/7/2016	0.00500 U	0.00500 U	0.00500 U	**0.269**	-	**3.08**	1.00 U	**0.844 J**	**126000**	**2.70**	1.00 UJ	**61800**	**1.19**	**22200**
RL-1D	BMP-072116-08	7/21/2016	0.00500 U	0.00500 U	0.00500 U	**0.262**	-	**6.89**	1.00 U	**1.740**	**126000**	**2.96**	1.00 J	**60800**	**0.83 J**	**22900**
RL-1D	BMP-102716-07	10/27/2016	0.00500 U	0.00500 U	0.00500 U	**0.240**	-	**3.11**	1.00 U	**0.900 J**	**122000**	**0.944 J**	1.00 J	**59100**	**0.956 J**	**23700**
RL-1D	BMP-011917-10	1/19/2017	0.00500 U	0.00500 U	0.00500 U	**0.334**	-	**2.98**	1.00 U	**0.99 J**	**126000**	**2.440**	1.00 UJ	**57400**	**1.17**	**22900**
RL-1D	BMP-041917-01	4/19/2017	**0.0665**	0.00500 U	0.00500 UJ	**0.294**	-	**2.95**	1.00 U	**1.01**	**126000**	**1.81**	1.00 UJ	**59500**	**0.88 J**	**21800**
RL-1D	BMP-072017-06	7/20/2017	0.00500 U	0.00500 U	0.00500 UJ	**0.267**	-	**2.89**	1.00 U	**1.29**	**123000**	**0.87 J**	1.00 UJ	**58000**	**0.944 J**	**22700**
RL-1D	BMP-101917-08	10/19/2017	0.00500 U	0.00500 U	**0.00200 J**	**0.296**	-	**2.96**	1.00 U	**1.390**	**127000**	1.00 U	**0.789** UJ	**59100**	**1.000**	**21400**
RL-1D	BMP-011818-07	1/18/2018	0.01000 U	0.00500 U	0.00500 U	**0.282**	-	**3.42**	1.00 U	**1.840**	**117000**	1.12	**1.400**	**55200**	**2.320**	**21200**
RL-1D (FD)	BMP-011818-08	1/18/2018	0.01000 U	0.00500 U	0.00500 U	**0.275**	-	**3.34**	1.00 U	**1.810**	**114000**	**1.38**	**0.600 J**	**53700**	**2.31**	**21100**
RL-1D	BMP-051018-08	5/10/2018	0.00500 U	0.00500 U	0.00500 U	**0.297**	-	**3.24**	1.00 U	**1.310**	**135000**	**0.50 J**	1.00 U	**67800**	1.00 U	**26600**
RL-1D	BMP-072618-07	7/26/2018	0.00500 U	0.00500 U	0.00500 U	**0.312**	-	**2.92**	1.00 U	**1.090**	**119000**	1.00 U	1.00 U	**62600**	1.00 U	**24800**
RL-1D	BMP-102518-08	10/25/2018	0.00500 U	0.00500 U	0.00500 U	**0.294**	-	**2.85**	1.00 U	**0.898**	**122000**	1.00 U	1.00 U	**60200**	1.00 U	**26000**
RL-1D	BMP-030619-08	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**0.277**	-	**2.96**	1.00 U	**1.17**	**136000**	1.00 U	1.00 U	**67400**	1.00 U	**26700**
RL-1D	BMP-050919-09	5/9/2019	0.00500 U	0.00500 U	0.00500 U	**0.287**	-	**2.91**	1.00 U	**1.02**	**137000**	1.00 U	1.00 U	**61200**	**0.591 J**	**25700**
RL-2S	MBT-030411-17	3/4/2011	**29.0**	**0.0501**	0.00500 U	**117**	-	**42.0**	**297**	**12.2 J**	**1690**	**22.9**	**3.11 J**	**342 J**	**22.9**	**755000**

Attachment D1a
Historical Groundwater Chemistry Data – Closed BMP, Closed BMP Facility, and West Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
RL-2S	MBT-051111-18	5/11/2011	**15.7**	**0.0398**	0.00500 U	**69.1**	-	**33.0**	**146**	**19.7**	**5750**	**31.8**	**4.39 J**	**1060**	**27.1**	**1200000**
RL-2S	MBT-072711-16	7/27/2011	**12.4**	**0.140**	**0.00220 J**	**57.1**	-	**31.8**	**127**	**2.82**	**1080**	**5.97**	**1.00 J**	**199**	**4.5**	**160000**
RL-2S	RL-2S-100611	10/6/2011	**21.3**	**0.106**	**0.03220**	**72.3**	-	**39.4**	**164**	**19.5**	**4510**	**35.8**	20.0 U	**882**	**26.1**	**1040000**
RL-2S	MBT-011212-16	1/12/2012	**26.4**	**0.184**	0.00500 U	**1.75**	-	**1.06**	**5.57**	**37.6**	**9680**	**94.9**	40.0 U	**3210**	**77.9**	**2230000**
RL-2S	BMP-040512-11	4/5/2012	**8.82**	**0.0740**	0.00500 U	**26.2**	-	**14.1**	**69.0**	**16.1**	**5210**	**33.9**	**7.14**	**1310**	**25.5**	**960000**
RL-2S	BMP-071212-09	7/12/2012	**15.1**	**0.116**	0.00500 U	**58.6**	-	**36.6**	**157**	**33.0**	**11900**	**56.7**	2.00 U	**2420**	**57.6**	**1480000**
RL-2S	BMP-100412-05	10/4/2012	**19.2**	**0.0248**	0.00500 U	**69.4**	-	**33.2**	**166**	**34.0**	**9730**	**66.7**	20.0 U	**2140**	**65.9**	**1750000**
RL-2S	BMP-021313-08	2/13/2013	**11.0**	**0.0334**	0.00500 U	**81.4**	-	**34.8**	**186**	**23.3**	**8910**	**51.2**	**9.51**	**2560**	**33.8**	**1160000**
RL-2S	BMP-042413-10	4/24/2013	**23.6**	**0.0373**	0.00500 U	**86.3**	-	**42.4**	**225**	**41.6**	**11900**	**92.5**	**12.60 J**	**3180**	**69.0**	**2260000**
RL-2S	BMP-071713-08	7/17/2013	**12.5**	**0.0471**	0.00500 U	**83.8**	-	**54.3**	**214**	**33.0 J**	**9830**	**66.8**	45.0 U	**3430**	**50.2**	**1970000**
RL-2S	BMP-100913-11	10/9/2013	**19.9**	**0.0380**	0.00500 U	**14.0**	-	**39.3**	**231**	**39.2**	**13200**	**91.2**	**9.42**	**9230**	**60.4**	**1960000**
RL-2S	BMP-013014-11	1/30/2014	**14.7**	**0.0380**	0.00500 U	**51.1**	-	**29.2**	**141**	**33.0**	**8160**	**74**	**11.30**	**2580**	**37.2**	**1820000**
RL-2S	BMP-042414-08	4/24/2014	**11**	**0.0318**	0.00500 U	**14.1**	-	**7.67**	**35**	**3.9**	**992**	**9.28**	**3.41**	**310**	**6.7**	**215000**
RL-2S	BMP-072414-08	7/24/2014	**18.2**	**0.0426**	0.00500 U	**63.0**	-	**30.5**	**134**	**26.1**	**9090**	**58.6**	**10.30**	**1820**	**40.7**	**1400000**
RL-2S	BMP-110514-07	11/5/2014	**4.23 J**	**0.0153**	0.00500 U	**18.5**	-	**8.95**	**38.7**	**6.5**	**1220**	**13.4**	**3.29**	**827**	**9.36**	**370000**
RL-2S	BMP-012215-08	1/22/2015	**22.8**	**0.0503**	0.00500 U	**66.7**	-	**29.8**	**190**	**34.2**	**11500**	**83.5**	**11.7**	**3320**	**58.6**	**1840000**
RL-2S	BMP-041615-08	4/16/2015	**18.5**	**0.0451**	0.00500 UJ	**68.6**	-	**32.6**	**145**	**26.6**	**8800**	**70.3**	**11.9**	**1880**	**43.6**	**1630000**
RL-2S (FD)	BMP-041615-09	4/16/2015	**18.8**	**0.0482**	**0.00490 J**	**68.8**	-	**33.7**	**147**	**28.1**	**9090**	**72.8**	**12.2**	**1950**	**46.9**	**1690000**
RL-2S	BMP-072415-09	7/24/2015	**20.9**	**0.0910**	0.00500 U	**77.4**	-	**44.2**	**185**	**37.9**	**8870**	**107**	**17.6**	**2290**	**68.6**	**2140000**
RL-2S	BMP-101515-09	10/15/2015	**20.3**	**0.0422**	0.00500 U	**118**	-	**37.3**	**194**	**27.2**	**8880**	**67.2**	**9.56**	**4040**	**45.9**	**1620000**
RL-2S	BMP-011416-11	1/14/2016	**22.2**	**0.0435**	0.00500 U	**55.8**	-	**23.9**	**137**	**19.3**	**5410**	**51.4**	**8.22**	**2560**	**37.7**	**1200000**
RL-2S	BMP-040716-11	4/7/2016	**21.7**	**0.0727**	0.00500 U	**64.2**	-	**31.4**	**147**	**34.7**	**11800**	**88.9**	**12.7 J**	**2260**	**57.6**	**1990000**
RL-2S	BMP-072116-09	7/21/2016	**18.9**	**0.0528**	0.00500 U	**63.9**	-	**31.7**	**134**	**33.5**	**7420**	**84.0**	**11.5**	**1900**	**50.3**	**1760000**
RL-2S	BMP-102716-08	10/27/2016	**18.5**	**0.0482**	0.00500 U	**56.2**	-	**32.3**	**128**	**31.2**	**14800**	**80.9**	**17.9**	**3180**	**51.1**	**1680000**
RL-2S	BMP-011917-11	1/19/2017	**7.97**	**0.0258**	0.00500 U	**34.5**	-	**13.3**	**74.2**	**10.0**	**3020**	**23.8**	**4.78**	**1230**	**14.4**	**592000**
RL-2S	BMP-042017-09	4/20/2017	**20.5**	**0.0591**	0.00500 U	**58.7**	-	**23.9**	**137**	**19.8**	**9690**	**47.3**	**9.08 J**	**1850**	**30.6**	**1190000**
RL-2S	BMP-072017-09	7/20/2017	**25.4**	**0.0510 J**	**0.00200 J**	**57.4**	-	**24.3**	**120**	**26.3**	**8720**	**63.8**	**7.90 J**	**1930**	**36.9**	**1360000**
RL-2S (FD)	BMP-072017-10	7/20/2017	**24.1**	**0.0644 J**	0.00500 UJ	**62.0**	-	**26.1**	**132**	**25.8**	**8770**	**61.8**	**5.67** J	**2050**	**33.0**	**1360000**
RL-2S	BMP-101917-09	10/19/2017	**15.8**	**0.0412**	**0.00200 J**	**55.1**	-	**24**	**104**	**22.6**	**5260**	**57.2**	**9.83**	**1200**	**38.4**	**1190000**
RL-2S	BMP-011818-09	1/18/2018	**25.4**	**0.0608**	0.00500 U	**68.3**	-	**31.5**	**185**	**33.0**	**9010**	**87.2 J**	**13.1 J**	**2120**	**65.8 J**	**1700000**
RL-2S	BMP-051018-11	5/10/2018	**15.4**	**0.0524**	0.00500 U	**59.9**	-	**29.8**	**116**	**28.9**	**11100**	**74.4**	**12.9**	**2100**	**43.6**	**1730000**
RL-2S	BMP-072618-10	7/26/2018	**18.1**	**0.0461**	0.00500 U	**61.4**	-	**26.5**	**118**	**25.1**	**7630**	**56.7**	**9.55**	**1630**	**37.3**	**1520000**
RL-2S	BMP-102418-03	10/24/2018	**11.5**	**0.0316**	0.00500 U	**40.9**	-	**1.93**	**8.66**	**17.9**	**6290**	**41.8**	**6.75**	**1530**	**28.7**	**1080000**
RL-2S	BMP-030519-03	3/5/2019	**19.0**	**0.0473**	0.00500 U	**59.5**	-	**33.0**	**154**	**36.5**	**11600**	**96.6**	**14.5**	**3640**	**62.2**	**1910000**
RL-2S	BMP-050819-03	5/8/2019	**20.1**	**0.0596**	0.00500 U	**83.0**	-	**41.9**	**175**	**42.0**	**15200**	**101**	**15.3**	**4560**	**67.9**	**2460000**
RL-2S	BMP-082119-09	8/21/2019	-	-	-	**95.5**	**93.1**	-	-	-	-	-	-	-	-	-
RL-2S	AQ-RL2S-103119	10/31/2019	-	-	-	**86.5**	**77.6**	-	-	-	-	-	-	-	-	-
RL-2D	MBT-030311-12	3/3/2011	**0.880**	**0.0278**	0.00500 U	**20.2**		**39.2**	**42.0**	**10.0 J**	**79800**	**13.1 J**	40.0 U	**35000**	**13.6 J**	**923000**

Attachment D1a
Historical Groundwater Chemistry Data – Closed BMP, Closed BMP Facility, and West Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
RL-2D	MBT-051111-17	5/11/2011	**0.228**	**0.0103**	0.00500 U	**9.83**	-	**30.1**	**15.4**	**3.94**	**70600**	**4.66**	**0.578 J**	**36400**	**4.07**	**469000**
RL-2D	MBT-072611-11	7/26/2011	**0.258**	0.0106 U	0.00500 UJ	**8.04**	-	**28.5**	**10.4**	**2.69**	**73600**	**2.64**	**0.322 J**	**39700**	**2.71**	**284000**
RL-2D	RL-2D-100611	10/6/2011	**0.562**	**0.0205**	0.00500 U	**10.4**	-	**35.2**	**15.7**	**5.84**	**66700**	**9.97**	4.00 U	**32300**	**6.63**	**590000**
RL-2D	MBT-011112-11	1/11/2012	**0.208**	**0.0128**	0.00500 U	**10.8 J**	-	**31.8**	**15.2**	**3.72**	**72200**	**3.78 J**	4.00 U	**36800**	**6.76**	**491000**
RL-2D	BMP-040412-03	4/4/2012	**0.894 J**	**0.0277**	0.00500 UJ	**20.2**	-	**39.4**	**33.5**	**6.61 J**	**76100**	**7.94 J**	10.00 U	**37400**	**15.0**	**691000**
RL-2D (FD)	BMP-040412-04	4/4/2012	**0.574 J**	**0.0215**	0.00500 UJ	**20.4**	-	**39.7**	**33.1**	**7.33 J**	**77200**	**7.83 J**	10.00 U	**37900**	**15.1**	**680000**
RL-2D	BMP-071112-03	7/11/2012	**1.02**	**0.0230**	0.00500 U	**10.2**	-	**33.6**	**12.6**	**5.11**	**73900**	**6.47**	2.00 U	**35300**	**8.53**	**584000**
RL-2D	BMP-100412-06	10/4/2012	**0.112**	0.0200 U	0.00500 U	**13.3**	-	**32.5**	**17.4**	**4.72 J**	**75100**	**4.56 J**	10.0 U	**36800**	**10.5**	**563000**
RL-2D (FD)	BMP-100412-07	10/4/2012	**0.115**	**0.0129**	0.00500 U	**13.7**	-	**32.5**	**18.1**	**4.83 J**	**73500**	**3.89 J**	10.0 U	**35900**	**10.1**	**580000**
RL-2D	BMP-021213-04	2/12/2013	**0.239**	**0.0196**	0.00500 U	**16.6**	-	**40.4**	**27.6**	**7.66**	**60500**	**12.4**	**1.47** J	**31800**	**7.74**	**711000**
RL-2D	BMP-042313-03	4/23/2013	**0.2290**	**0.0142**	**0.00400 J**	**12.3**	-	**35.2**	**15.9**	**3.81**	**73200**	**4.89**	2.00 U	**35400**	**3.9**	**478000**
RL-2D	BMP-071613-03	7/16/2013	**0.464**	**0.0135**	0.00500 U	**10.3**	-	**34.0**	**14.1**	**3.9**	**76900**	**5.11**	2.00 U	**35200**	**3.79**	**466000**
RL-2D	BMP-100813-03	10/8/2013	**0.214**	**0.0130**	0.00500 U	**14.2**	-	**35.5**	**24.6**	**3.72**	**70600**	**5.86**	**0.51 J**	**34100**	**3.87**	**445000**
RL-2D (FD)	BMP-100813-04	10/8/2013	**0.271**	**0.0146**	0.00500 U	**13.5**	-	**35.9**	**22.4**	**3.7**	**71100**	**6.19**	**0.54 J**	**34300**	**3.8**	**433000**
RL-2D	BMP-012914-04	1/29/2014	**0.435**	**0.0193**	0.00500 U	**16.8**	-	**38.1**	**29.2**	**6.34**	**77400**	**10.8**	**1.24**	**37000**	**6.46**	**762000**
RL-2D	BMP-042314-03	4/23/2014	**0.238**	**0.0178**	0.00500 U	**18.4**	-	**35.9**	**28.1**	**7.74**	**64000**	**14.9**	**1.67 J**	**29000**	**8.82**	**707000**
RL-2D	BMP-072314-03	7/23/2014	**0.212**	**0.0250**	0.00500 U	**24.4**	-	**33.9**	**34.0**	**11.9**	**78400**	**23.1 J**	10.0 U	**34800**	**15**	**825000**
RL-2D	BMP-110414-03	11/4/2014	**0.300 J**	**0.028**	0.00500 U	**23.3**	-	**38.5**	**35.0**	**9.24**	**53300**	**18.7**	**2.84**	**27400**	**10.5**	**923000**
RL-2D	BMP-012115-03	1/21/2015	**0.404**	**0.0562**	0.00500 U	**38.4**	-	**45.4**	**77.8**	**24.9**	**73600**	**52.9**	**18.1**	**29000**	**29.6**	**1250000**
RL-2D	BMP-041515-03	4/15/2015	**0.475**	**0.0218**	0.00500 U	**27.3**	-	**36.4**	**29.9**	**10.8**	**47900**	**25.2**	**4.63 J**	**24200**	**13.1**	**906000**
RL-2D	BMP-072315-03	7/23/2015	**0.371**	**0.0316**	0.00500 U	**31.9**	-	**39.0**	**50.3**	**18.6**	**74700**	**47.9**	**8.50**	**33900**	**26.0**	**1140000**
RL-2D	BMP-101415-03	10/14/2015	**0.425**	**0.0620**	0.00500 U	**46.8**	-	**48.3**	**74.8**	**27.0**	**59600**	**63.5**	**12.6**	**23200**	**33.2**	**1400000**
RL-2D	BMP-011316-04	1/13/2016	**0.574**	**0.0728**	0.00500 U	**0.441**	-	**41.3**	**58.4**	**29.2**	**45500**	**73.9**	**12.2**	**19600**	**36.3**	**1440000**
RL-2D	BMP-040616-03	4/6/2016	**0.354**	**0.0394**	0.00500 U	**34.2** J	-	**39.8**	**33.2**	**16.5**	**36400**	**40.4**	**6.39 J**	**16800**	**20.6**	**1110000**
RL-2D	BMP-072016-03	7/20/2016	**0.277**	**0.0374**	0.00500 U	**30.7**	-	**44.0**	**39.0**	**18.0**	**48900**	**44.7**	**5.82**	**23600**	**21.8**	**1210000**
RL-2D	BMP-102616-03	10/26/2016	**0.0304**	**0.0528**	0.00500 U	**38.2**	-	**45.8**	**45.3**	**21.7**	**43200**	**57.4**	**10.6**	**18600**	**27.0**	**1380000**
RL-2D	BMP-011817-04	1/18/2017	**0.243**	**0.0582**	0.00500 U	**38.4**	-	**41.1**	**36.3**	**19.6**	**37200**	**49.9**	**8.47**	**16600**	**23.3**	**1310000**
RL-2D	BMP-041917-04	4/19/2017	**0.477**	**0.0450**	0.00500 U	**17.5**	-	**39.6**	**46.7**	**17.7**	**51000**	**46.8**	**8.75 J**	**20700**	**21.7**	**1160000**
RL-2D	BMP-071917-03	7/19/2017	**0.181**	**0.0370**	0.00500 U	**21.6**	-	**33.2**	**19.8**	**10.9**	**40800**	**26.7**	**4.10 J**	**20500**	**13.1**	**935000**
RL-2D	BMP-101817-03	10/18/2017	**0.317**	**0.0528**	0.00500 U	**34.8**	-	**41.3**	**44.0**	**21.4**	**39300 J**	**56.2**	**15.7**	**17200**	**28.7**	**1160000**
RL-2D	BMP-011718-03	1/17/2018	**0.440**	**0.0606**	0.00500 U	**38.3**	-	**42.9**	**56.3**	**28.0**	**46200**	**64.4**	**15.9**	**18200**	**36.2**	**1400000**
RL-2D	BMP-050918-04	5/9/2018	**0.185**	**0.0359**	0.00500 U	**24.6**	-	**35.9**	**27.2**	**13.2**	**41500**	**34.9**	**6.41**	**22700**	**15.8**	**1010000**
RL-2D	BMP-072518-04	7/25/2018	**0.301**	**0.0308**	0.00500 U	**30.4**	-	**28.8**	**31.8**	**22.2**	**78400**	**55.7**	**12.8**	**30900**	**28.7**	**1150000**
RL-2D	BMP-102418-04	10/24/2018	**0.690**	**0.0581**	0.00500 U	**43.3**	-	**3.63**	**5.8**	**35.2**	**61200**	**90.9**	**23.1**	**24300**	**46.6**	**1500000**
RL-2D	BMP-030519-04	3/5/2019	**0.173**	**0.0230**	0.00500 U	**31.5**	-	**36.1**	**38.1**	**33.1**	**76600**	**87.3**	**19.0**	**25200**	**42.2**	**1280000**
RL-2D	BMP-050819-04	5/8/2019	0.00500 U	**0.0144**	0.00500 U	**24.6**	-	**31.0**	**24.6**	**14.0**	**56000**	**33.9**	**6.78**	**22400**	**14.4**	**894000**
RL-3S	MBT-030311-11	3/3/2011	**0.0226**	**0.00840**	0.00500 U	**3.07**	-	**9.72**	1.00 U	**12.9**	**62300**	2.00 U	**0.311 J**	**31400**	**1.66 J**	**172000**
RL-3S	MBT-051111-15	5/11/2011	**0.0297**	0.00500 U	0.00500 U	**3.62**	-	**9.92**	1.00 U	**12.9**	**57000**	**1.51 J**	**0.322 J**	**27100**	**1.23 J**	**155000**

Attachment D1a
Historical Groundwater Chemistry Data – Closed BMP, Closed BMP Facility, and West Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
RL-3S	MBT-072611-12	7/26/2011	**0.0422**	0.0100 U	0.00500 U	**6.09**	-	**14.0**	1.00 U	**10.4**	**58600**	2.0 U	4.00 U	**32600**	**1.77 J**	**253000**
RL-3S	RL-3S-100611	10/6/2011	**0.0271**	**0.00740**	0.00500 U	**4.12**	-	**10.5**	**1.46**	**17.6**	**65700**	2.0 U	4.00 U	**27700**	**1.84 J**	**164000**
RL-3S	MBT-01112-13	1/11/2012	**0.0245**	**0.00670**	0.00500 U	**2.95 J**	-	**11.2**	**3.56**	**6.13**	**71200**	**1.02**	4.00 U	**33300**	**3.76**	**152000**
RL-3S	BMP-040412-02	4/4/2012	**0.0354 J**	**0.0129**	0.00500 UJ	**7.38**	-	**17.3**	1.00 U	**9.42**	**84300**	**1.77 J**	4.00 U	**43200**	**4.53**	**243000**
RL-3S	BMP-071112-04	7/11/2012	**0.0520**	**0.0138**	0.00500 U	**7.59**	-	**18.5**	10.0 U	**8.16**	**79200**	**1.38 J**	2.00 U	**41300**	**6.03**	**260000**
RL-3S (FD)	BMP-071112-05	7/11/2012	**0.0529**	**0.0136**	0.00500 U	**7.68**	-	**18.3**	10.0 U	**8.09**	**75300**	**1.32 J**	2.00 U	**40500**	**5.84**	**255000**
RL-3S	BMP-100412-09	10/4/2012	**0.0349**	**0.00960**	0.00500 U	**6.28**	-	**11.5**	1.00 U	**12.1**	**64000**	**0.933 J**	2.00 U	**30100**	**3.04**	**181000**
RL-3S	BMP-021313-09	2/13/2013	**0.0393**	**0.01060**	0.00500 U	**7.75**	-	**17.2**	**2.17**	**8.97**	**83400**	**1.220 J**	2.00 U	**46500**	**2.20**	**233000**
RL-3S	BMP-042313-05	4/23/2013	**0.0448**	**0.00630**	0.00500 U	**9.98**	-	**10.9**	**13.90**	**7.33**	**52200**	**0.733 J**	2.00 U	**30800**	**1.62 J**	**181000**
RL-3S	BMP-071613-04	7/16/2013	**0.0468**	**0.00910**	0.00500 U	**13.0**	-	**8.85**	**13.0**	**6.66**	**36600**	**1.280 J**	2.00 U	**21200**	**1.41 J**	**171000**
RL-3S	BMP-100813-06	10/8/2013	**0.0258**	**0.00690**	0.00500 U	**5.41**	-	**5.31**	**11.2**	**9.79**	**41100**	**0.822 J**	1.00 U	**19400**	**1.09**	**96600**
RL-3S	BMP-012914-06	1/29/2014	**0.0461**	**0.00870**	0.00500 U	**11.3**	-	**6.10**	**11.10**	**7.04**	**41200**	**1.990**	1.00 U	**22900**	**0.856 J**	**142000**
RL-3S	BMP-042314-05	4/23/2014	**0.0413**	**0.00830**	0.00500 U	**11.0**	-	**3.56**	**5.82**	**8.17**	**33500**	**0.656 J**	2.00 U	**18800**	**0.86 J**	**108000**
RL-3S	BMP-072314-04	7/23/2014	**0.0638**	0.00500 U	0.00500 U	**19.3**	-	**3.83**	**5.56**	**5.64**	**23600**	**2.220 U**	1.00 U	**14700**	**1.42**	**151000**
RL-3S	BMP-110414-04	11/4/2014	**0.0135 J**	**0.00700**	**0.00220**	**4.79**	-	**3.96**	**11.7**	**8.87**	**28100**	1.00 U	1.00 U	**12700**	**2.11**	**51400**
RL-3S	BMP-012115-05	1/21/2015	**0.0512**	**0.00740**	0.00500 U	**9.30**	-	**3.47**	**7.10**	**6.82**	**36400**	**0.656 J**	**0.567 J**	**16000**	**0.711 J**	**89300**
RL-3S	BMP-041515-05	4/15/2015	**0.0546**	**0.0102**	0.00500 U	**11.9**	-	**2.91**	**3.31**	**6.31**	**29300**	1.00 U	**0.553 J**	**17500**	1.00 U	**114000**
RL-3S	BMP-072315-04	7/23/2015	**0.0610**	**0.00650**	0.00500 U	**20.2**	-	**4.05**	**1.51**	**4.16**	**24200**	**2.32**	**2.79**	**14500**	**0.989 J**	**165000**
RL-3S	BMP-101415-04	10/14/2015	**0.0561**	**0.00840**	0.00500 U	**18.3**	-	**3.79**	1.00 U	**4.64**	**26100**	**2.16**	1.00 U	**14500**	**0.789 J**	**153000**
RL-3S (FD)	BMP-101415-05	10/14/2015	**0.0541**	**0.00780**	0.00500 U	**18.7**	-	**3.80**	1.00 U	**4.63**	**26000**	**2.07**	1.00 U	**14400**	**0.667 J**	**154000**
RL-3S	BMP-011316-06	1/13/2016	**0.0435**	**0.00510**	0.00500 U	**9.86**	-	**3.14**	**5.14**	**6.06**	**32600**	**0.789 J**	1.00 U	**17700**	**0.756 J**	**88400**
RL-3S	BMP-040616-06	4/6/2016	**0.0614**	**0.0103**	0.00500 U	**9.69 J**	-	**2.94**	**2.96**	**5.49**	**30000**	**1.92**	2.00 U	**15200**	**0.722 J**	**90800**
RL-3S	BMP-072016-04	7/20/2016	**0.0689**	**0.00820**	0.00500 U	**15.5**	-	**5.02**	**2.30**	**4.41**	**25200**	**2.08**	1.00 U	**15400**	**0.689 J**	**141000**
RL-3S	BMP-102616-04	10/26/2016	**0.0380**	0.00500 U	0.00500 U	**9.14**	-	**3.53**	**6.21**	**5.56**	**32200**	**1.00**	1.00 U	**16000**	**0.667 J**	**76200**
RL-3S	BMP-011917-08	1/19/2017	**0.0626**	**0.00520**	0.00500 U	**11.5**	-	**3.41**	**4.88**	**4.99**	**33400**	**1.69**	1.00 U	**17700**	**1.280**	**107000**
RL-3S (FD)	BMP-011917-09	1/19/2017	**0.0516**	**0.00520**	0.00500 U	**11.6**	-	**3.28**	**4.64**	**5.18**	**33400**	**1.43**	1.00 U	**17300**	**1.960**	**108000**
RL-3S	BMP-041917-06	4/19/2017	**0.0779**	**0.00570**	0.00500 U	**11.8**	-	**2.95**	**4.02**	**4.52**	**30200**	**1.23**	1.00 U	**15200**	**0.589 J**	**87200**
RL-3S	BMP-071917-04	7/19/2017	**0.0806**	**0.00620**	0.00500 U	**16.4**	-	**3.39**	**8.57**	**4.24**	**28300**	**1.44**	**0.600 J**	**17100**	**0.733 J**	**114000**
RL-3S	BMP-101817-04	10/18/2017	**0.0742**	**0.00610**	0.00500 U	**17.2**	-	**3.88**	**1.15**	**6.39**	**30100**	**2.27 J**	**1.950 J**	**17200**	3.00 U	**131000**
RL-3S	BMP-011718-05	1/17/2018	**0.0366**	**0.01900**	0.00500 U	**8.3**	-	**2.58**	**7.12**	**4.97**	**28500**	**0.88 J**	1.00 U	**14900**	0.98 J	**71200**
RL-3S	BMP-050918-06	5/9/2018	**0.0745**	**0.00870**	0.00500 U	**13.8**	-	**2.88**	**7.72**	**3.81**	**31200**	**0.97 J**	1.00 U	**17000**	1.00 U	**116000**
RL-3S	BMP-072518-05	7/25/2018	**0.0787**	**0.00720**	0.00500 U	**18.5**	-	**3.35**	**3.19**	**3.46**	**27600**	**1.98**	**0.510 J**	**15500**	0.56 J	**148000**
RL-3S	BMP-102418-05	10/24/2018	**0.0780**	**0.00690**	0.00500 U	**19.2**	-	**3.39**	1.00 U	**4.52**	**28500**	**2.83**	**0.591 J**	**15600**	0.66 J	**149000**
RL-3S	BMP-030519-06	3/5/2019	**0.0510**	**0.00500**	0.00500 U	**10.9**	-	**2.37**	**2.06**	**4.77**	**33300**	1.00 U	1.00 U	**18200**	1.00 U	**91200**
RL-3S	BMP-050819-07	5/8/2019	**0.0610**	**0.00540**	0.00500 U	**12.8**	-	**2.45**	**1.46**	**3.60**	**30300**	**1.20**	1.00 U	**16100**	1.00 U	**95000**
RL-3S	BMP-082019-06	8/20/2019	-	-	-	**16.8**	**16.6**	-	-	-	-	-	-	-	-	-
RL-3S (Dup)	BMP-082019-07	8/20/2019	-	-	-	**16.9**	**16.5**	-	-	-	-	-	-	-	-	-
RL-3S	AQ-RL3S-103119	10/31/2019	-	-	-	**9.69**	**9.74**	-	-	-	-	-	-	-	-	-

Attachment D1a
Historical Groundwater Chemistry Data – Closed BMP, Closed BMP Facility, and West Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
RL-3D	MBT-030411-18	3/4/2011	0.00500 U	0.00500 U	0.00500 U	1.00 U	-	**3.90**	1.00 U	**1.66 J**	**99900**	2.00 U	**0.378 J**	**51900**	**1.19 J**	**35300**
RL-3D	MBT-051111-16	5/11/2011	0.0300 U	0.0150 U	**0.00200 J**	1.00 U	-	**3.67**	1.00 U	**1.58 J**	**101000**	**1.36 J**	**0.300 J**	**50800**	**0.489 J**	**30600**
RL-3D	MBT-072711-17	7/27/2011	0.0150 U	0.0150 U	**0.00350 J**	**0.223 J**	-	**3.33**	1.00 U	**1.42 J**	**100000**	2.0 U	**0.511 J**	**52100**	**0.767 J**	**29600**
RL-3D	RL-3D-100611	10/6/2011	0.00500 U	0.00500 U	0.00500 U	**0.267**	-	**3.63**	1.00 U	**1.48 J**	**118000**	2.0 U	4.00 U	**54900**	**1.40 J**	**29000**
RL-3D	MBT-011212-17	1/12/2012	0.00500 U	0.00500 U	0.00500 U	**0.457**	-	**3.99**	1.00 U	**1.21**	**108000**	**1.14**	4.00 U	**52700**	**1.93 J**	**33400**
RL-3D	BMP-040512-09	4/5/2012	0.00500 U	0.00500 U	0.00500 U	**0.470**	-	**4.14**	1.00 U	**1.79**	**113000**	**1.00**	2.00 U	**55200**	**1.73 J**	**36500**
RL-3D	BMP-071212-10	7/12/2012	0.00500 U	0.00500 U	0.00500 U	**0.314**	-	**4.01**	1.00 U	**1.53 J**	**105000**	**0.567 J**	2.00 U	**51400**	**2.33**	**32800**
RL-3D	BMP-100412-08	10/4/2012	0.00500 U	0.00500 U	0.00500 U	**0.368**	-	**3.87**	1.00 U	**1.32 J**	**117000**	**0.589 J**	2.00 U	**55800**	**1.87 J**	**32000**
RL-3D	BMP-021313-10	2/13/2013	0.00500 U	0.00500 U	0.00500 U	**0.316**	-	**3.86**	1.00 U	**1.14 J**	**102000**	**0.922 J**	2.00 U	**52600**	**1.83 J**	**32200**
RL-3D	BMP-042413-11	4/24/2013	0.00500 U	0.00500 U	0.00500 U	**0.301**	-	**3.74**	1.00 U	**0.822 J**	**109000**	**0.589 J**	**1.73 J**	**45200**	**0.83 J**	**25500**
RL-3D	BMP-071713-11	7/17/2013	**0.00500**	0.00500 U	0.00500 U	**0.260**	-	**3.69**	1.00 U	**1.29 J**	**110000**	**1.00 J**	2.00 U	**52400**	**1.38 J**	**28800**
RL-3D	BMP-100913-12	10/9/2013	**0.00700**	0.00500 U	0.00500 U	**0.278**	-	**4.02**	**1.15**	**1.22**	**105000**	**1.00**	1.00 U	**50300**	**1.33 J**	**31800**
RL-3D	BMP-013014-12	1/30/2014	0.00500 U	0.00500 U	0.00500 U	**0.372**	-	**3.90**	**1.44**	**1.37**	**118000**	**1.720**	1.00 U	**58500**	**1.040**	**36000**
RL-3D	BMP-042414-09	4/24/2014	0.00500 U	0.00500 U	0.00500 U	**0.579**	-	**3.68**	**1.21**	**0.789 J**	**79600**	**0.656 J**	2.00 U	**38100**	**0.544 J**	**26700**
RL-3D	BMP-072414-10	7/24/2014	0.00500 U	0.00500 U	0.00500 U	**0.384**	-	**3.45**	1.00 U	**0.789 J**	**98600**	**0.833 J**	1.00 U	**44100**	**0.633 J**	**28400**
RL-3D	BMP-110514-09	11/5/2014	0.00500 U	0.00500 U	0.00500 U	**0.492**	-	**3.95**	**1.24**	**1.13**	**102000**	**0.922 J**	**0.644 J**	**47400**	**0.944 J**	**30400**
RL-3D	BMP-012215-09	1/22/2015	0.00500 U	0.00500 U	0.00500 U	**0.365**	-	**3.79**	**1.08**	**1.28**	**116000**	**1.74**	1.00 U	**53900**	**1.94 J**	**30900**
RL-3D	BMP-041615-10	4/16/2015	0.00500 U	0.00500 U	0.00500 U	**0.334**	-	**5.70**	1.00 U	**0.944 J**	**112000**	**0.578 J**	1.00 U	**49800**	**1.04**	**28900**
RL-3D	BMP-072415-11	7/24/2015	0.00500 U	0.00500 U	0.00500 U	**0.260**	-	**3.82**	1.00 U	**0.778 J**	**106000**	**2.01**	1.00 UJ	**46800**	**1.02**	**26400**
RL-3D (FD)	BMP-072415-12	7/24/2015	0.00500 U	0.00500 U	0.00500 U	**0.252**	-	**3.80**	1.00 U	**0.922 J**	**107000**	**2.27**	**0.911 J**	**47400**	**0.944 J**	**26800**
RL-3D	BMP-101515-12	10/15/2015	0.00500 U	0.00500 U	0.00500 U	**0.260**	-	**3.80**	1.00 U	**0.880**	**120000**	**0.567 J**	1.00 U	**56400**	1.00 U	**28300**
RL-3D	BMP-011416-12	1/14/2016	0.00500 U	0.00500 U	0.00500 U	**0.435**	-	**3.74**	**1.41**	**1.36**	**96500**	**0.811 J**	1.00 U	**47200**	**0.678 J**	**28800**
RL-3D	BMP-040716-12	4/7/2016	0.00500 U	0.00500 U	0.00500 U	**0.478**	-	**2.43**	1.00 U	**0.789 J**	**83300**	**3.13 J**	1.00 UJ	**39400**	**0.900 J**	**25400**
RL-3D	BMP-072116-12	7/21/2016	0.00500 U	0.00500 U	0.00500 U	**0.406**	-	**4.01**	1.00 U	**0.800 J**	**100000**	**2.80**	1.00 U	**45300**	**0.60 J**	**27300**
RL-3D	BMP-102716-10	10/27/2016	0.00500 U	0.00500 U	0.00500 U	**0.452**	-	**3.67**	**1.10**	**0.800 J**	**109000**	**0.911 J**	1.00 U	**46300**	**0.789 J**	**31900**
RL-3D	BMP-011917-12	1/19/2017	0.00500 U	0.00500 U	0.00500 U	**0.534**	-	**3.74**	**1.50**	**1.30**	**99300**	**1.60**	1.00 U	**44000**	**0.87 J**	**30200**
RL-3D	BMP-042017-10	4/20/2017	0.00500 U	0.00500 U	0.00500 U	**0.441**	-	**3.57**	1.00 U	**0.644 J**	**98400**	**1.06**	1.00 U	**45100**	**0.711 J**	**28200**
RL-3D (FD)	BMP-042017-11	4/20/2017	0.00500 U	0.00500 U	0.00500 U	**0.437**	-	**3.63**	1.00 U	**0.811 J**	**102000**	**1.07**	1.00 U	**49100**	**0.778 J**	**28300**
RL-3D	BMP-072017-12	7/20/2017	0.00500 U	0.00500 U	0.00500 UJ	**0.337**	-	**3.66**	1.00 U	**0.978 J**	**111000**	**0.611 J**	**0.646 J**	**49300**	**1.00**	**28000**
RL-3D	BMP-101917-10	10/19/2017	0.00500 U	0.00500 U	0.00500 U	**0.298**	-	**3.72**	1.00 U	**1.22**	**118000**	1.00 U	**0.633 J**	**48900**	**0.978 J**	**27200**
RL-3D	BMP-011818-12	1/18/2018	0.00500 U	0.00500 U	0.00500 U	**0.345**	-	**3.95**	1.00 U	**1.28**	**96600**	0.84 J	**0.533 J**	**43300**	**1.920**	**25200**
RL-3D	BMP-051018-12	5/10/2018	0.00500 U	0.00500 U	0.00500 U	**0.358**	-	**3.92**	1.00 U	**0.85**	**132000**	1.00 U	1.00 U	**65900**	1.00 U	**38200**
RL-3D	BMP-072618-12	7/26/2018	0.00500 U	0.00500 U	0.00500 U	**0.277**	-	**3.83**	1.00 U	**1.05**	**110000**	1.00 U	1.00 U	**56300**	1.00 U	**30700**
RL-3D	BMP-102518-11	10/25/2018	0.00500 U	0.00500 U	0.00500 U	**0.252**	-	**3.68**	1.00 U	**0.98**	**122000**	1.00 U	1.00 U	**48200**	1.00 U	**30800**
RL-3D	BMP-030619-12	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**0.299**	-	**3.74**	1.00 U	**0.976**	**125000**	1.00 U	1.00 U	**56700**	1.00 U	**31900**
RL-3D	BMP-050919-12	5/9/2019	0.00500 U	0.00500 U	0.00500 U	**0.313**	-	**3.64**	1.00 U	**0.737**	**124000**	1.00 U	1.00 U	**53900**	1.00 U	**31200**
RL-4S	MBT-030311-14	3/3/2011	0.00500 U	0.00500 U	0.00500 U	1.00 U	-	**9.20**	**1.74**	**4.01**	**37700**	2.00 U	**0.300 J**	**20800**	**1.63 J**	**42200**
RL-4S	MBT-051111-14	5/11/2011	**0.00610**	0.00500 U	0.00500 U	1.00 U	-	**10.3**	**2.45**	**3.23**	**37900**	**1.47 J**	**0.356 J**	**19700**	**1.10 J**	**37100**

Attachment D1a
Historical Groundwater Chemistry Data – Closed BMP, Closed BMP Facility, and West Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
RL-4S	MBT-072711-18	7/27/2011	0.00500 U	0.00500 U	**0.00440 J**	**0.761 J**	-	**11.1**	**1.13**	**5.16**	**33400**	2.0 U	4.00 U	**18300**	**1.14 J**	**33900**
RL-4S	RL-4S-100611	10/6/2011	0.00500 U	0.00500 U	0.00500 U	**0.940**	-	**12.0**	1.00 U	**3.14**	**32700**	2.0 U	4.00 U	**18000**	**1.46 J**	**34600**
RL-4S	MBT-011212-18	1/12/2012	0.00500 U	0.00500 U	0.00500 U	**0.901**	-	**11.9**	**2.23**	**2.59**	**41000**	**0.967 J**	4.00 U	**21400**	**1.97 J**	**38600**
RL-4S	BMP-040512-06	4/5/2012	0.00500 U	0.00500 U	0.00500 U	**0.911**	-	**12.8**	**1.20**	**2.23**	**43200**	**0.778 J**	2.00 U	**22000**	**1.61 J**	**37900**
RL-4S	BMP-071212-11	7/12/2012	0.00500 U	0.00500 U	0.00500 U	**0.744**	-	**13.8**	**1.18**	**3.34**	**38500**	**0.744 J**	2.00 U	**19800**	**1.88 J**	**35200**
RL-4S	BMP-100412-10	10/4/2012	0.00500 U	**0.00650**	0.00500 U	**0.882**	-	**12.0**	1.00 U	**4.34**	**36500**	**0.578 J**	2.00 U	**19100**	**1.56 J**	**34800**
RL-4S	BMP-021313-11	2/13/2013	0.00500 U	0.00500	0.00500 U	**0.790**	-	**12.7**	**3.54**	**1.94 J**	**40500**	**0.722 J**	2.00 U	**21500**	**1.49 J**	**38300**
RL-4S	BMP-042413-12	4/24/2013	0.00500 U	0.00500	0.00500 U	**0.901**	-	**12.0**	**2.41**	**2.99**	**38400**	**0.656 J**	2.00 U	**21100**	**1.12 J**	**37000**
RL-4S	BMP-071713-12	7/17/2013	0.00500 U	0.00500	0.00500 U	**0.872**	-	**11.0**	**2.45**	**3.92**	**39400**	**1.93 J**	2.00 U	**20300**	**1.34 J**	**36100**
RL-4S	BMP-100913-09	10/9/2013	0.00500 U	0.00500	0.00500 U	**0.798**	-	**10.7**	**3.31**	**5.66**	**37700**	**0.98 J**	1.00 U	**19300**	**1.1 J**	**38400**
RL-4S	BMP-013014-10	1/30/2014	0.00500 U	0.00500 U	0.00500 U	**0.858**	-	**10.5**	**4.61**	**2.56**	**40100**	**1.230**	1.00 U	**22100**	**0.933 J**	**38500**
RL-4S	BMP-042414-12	4/24/2014	0.00500 U	0.00500 U	0.00500 U	**0.986**	-	**9.38**	**4.49**	**2.43**	**37000**	**0.733 J**	2.00 U	**20600**	**0.911 J**	**36100**
RL-4S	BMP-072414-11	7/24/2014	**0.00580**	0.00500 U	0.00500 U	**0.909**	-	**8.32**	**2.25**	**3.49**	**34400**	**0.800 J**	1.00 U	**17800**	**0.922 J**	**34300**
RL-4S	BMP-110514-10	11/5/2014	0.00500 U	0.00500 U	0.00500 U	**1.08**	-	**8.19**	**4.43**	**2.89**	**35900**	**0.722 J**	**2.42**	**18700**	**1.01**	**41000**
RL-4S (FD)	BMP-110514-11	11/5/2014	0.00500 U	0.00500 U	0.00500 U	**1.08**	-	**8.08**	**6.73**	**2.79**	**35800**	**0.778 J**	1.00 U	**18300**	**0.944 J**	**40000**
RL-4S	BMP-012215-12	1/22/2015	**0.00590**	0.00500 U	0.00500 U	**0.959**	-	**7.3**	**1.80**	**2.14**	**35100**	**0.833 J**	1.00 U	**19800**	**0.911 J**	**38000**
RL-4S	BMP-041615-11	4/16/2015	0.00500 U	0.00500 U	0.00500 U	**0.981**	-	**6.90**	**1.13**	**2.47**	**34100**	**0.778 J**	**1.03**	**19100**	**1.13**	**36600**
RL-4S	BMP-072415-06	7/24/2015	0.00500 U	0.00500 U	0.00500 U	**0.924**	-	**6.45**	1.00 U	**3.06**	**30100**	**1.12**	1.00 UJ	**16200**	**0.878 J**	**33700**
RL-4S	BMP-101515-10	10/15/2015	0.00500 U	0.00500 U	0.00500 U	**0.908**	-	**6.95**	1.00 U	**3.11**	**30200**	**0.722 J**	1.00 U	**16600**	**0.644 J**	**36200**
RL-4S	BMP-011416-08	1/14/2016	0.00500 U	0.00500 U	0.00500 U	**0.946**	-	**6.32**	**1.77**	**2.32**	**34700**	**0.856 J**	1.00 U	**19400**	**1.070**	**39600**
RL-4S	BMP-040716-08	4/7/2016	0.00500 U	0.00500 U	0.00500 U	**0.329**	-	**5.92**	**1.36**	**2.20**	**32900**	**1.93**	1.00 UJ	**17600**	**0.967 J**	**35500**
RL-4S	BMP-072116-11	7/21/2016	0.00500 U	0.00500 U	0.00500 U	**0.939**	-	**6.04**	1.00 U	**2.23**	**33000**	**1.86**	**0.522 J**	**17300**	**0.911 J**	**36000**
RL-4S	BMP-102716-11	10/27/2016	0.00500 U	0.00500 U	0.00500 U	**0.974**	-	**4.92**	1.00 U	**2.30**	**34100**	**0.711 J**	1.00 U	**17700**	**1.10**	**44400**
RL-4S (FD)	BMP-102716-12	10/27/2016	0.00500 U	0.00500 U	0.00500 U	**0.978**	-	**4.95**	1.00 U	**2.27**	**34500**	**0.678 J**	1.00 U	**17800**	**1.100**	**44700**
RL-4S	BMP-011917-07	1/19/2017	0.00500 U	0.00500 U	0.00500 U	**1.14**	-	**4.01**	**1.02**	**2.19**	**35200**	**0.99 J**	1.00 U	**18700**	**0.99 J**	**41500**
RL-4S	BMP-042017-12	4/20/2017	0.00500 U	0.00500 U	0.00500 U	**0.984**	-	**4.18**	1.00 U	**2.00**	**34600**	**0.767 J**	1.00 U	**18500**	**0.911 J**	**39500**
RL-4S	BMP-072017-08	7/20/2017	0.00500 U	0.00500 U	0.00500 UJ	**0.978**	-	**3.89**	1.00 U	**2.39**	**31500**	**0.833 J**	1.00 U	**17300**	**0.811 J**	**39300**
RL-4S	BMP-101917-11	10/19/2017	0.00500 U	0.00500 U	0.00500 U	**1.11**	-	**3.58**	1.00 U	**2.72**	**30200**	1.00 U	1.00 U	**15600**	**0.644 J**	**38400**
RL-4S	BMP-011818-11	1/18/2018	0.00500 U	0.00500 U	0.00500 U	**1.06**	-	**3.48**	1.00 U	**2.22**	**31400**	**0.94 J**	1.00 U	**16600**	**1.560**	**38300**
RL-4S	BMP-051018-10	5/10/2018	0.00500 U	0.00500 U	0.00500 U	**1.13**	-	**3.44**	1.00 U	**2.04**	**35500**	**0.662 J**	1.00 U	**22200**	**0.600 J**	**53200**
RL-4S	BMP-072618-09	7/26/2018	0.00500 U	0.00500 U	0.00500 U	**1.21**	-	**2.98**	1.00 U	**3.08**	**33600**	1.00 U	1.00 U	**17500**	**0.592 J**	**45800**
RL-4S	BMP-102518-09	10/25/2018	0.00500 U	0.00500 U	0.00500 U	**1.18**	-	**2.88**	1.00 U	**2.45**	**30100**	1.00 U	1.00 U	**14700**	**0.452 J**	**48500**
RL-4S (FD)	BMP-102518-10	10/25/2018	0.00500 U	0.00500 U	0.00500 U	**1.22**	-	**2.87**	1.00 U	**2.47**	**29100**	**0.51 J**	1.00 U	**15000**	**0.567 J**	**46200**
RL-4S	BMP-030619-11	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**1.17**	-	**2.91**	**1.23**	**2.24**	**35600**	1.00 U	1.00 U	**18600**	**0.752 J**	**63800**
RL-4S	BMP-050919-11	5/9/2019	0.00500 U	0.00500 U	0.00500 U	**1.34**	-	**2.77**	1.00 U	**2.51**	**34800**	1.00 U	1.00 U	**17500**	**0.673 J**	**47800**
RL-4D	MBT-030311-10	3/3/2011	0.00500 U	0.00500 U	0.00500 U	1.00 U	-	**9.31**	**13.1**	**1.39 J**	**50500**	**0.267 J**	4.00 U	**24300**	**0.778 J**	**27600**
RL-4D	MBT-051111-13	5/11/2011	**0.0510**	0.00500 U	0.00500 U	1.00 U	-	**9.81**	**11.0**	**1.56 J**	**45900**	**1.29 J**	4.00 U	**23100**	2.00 U	**25100**
RL-4D	MBT-072611-14	7/26/2011	0.00500 U	0.00500 U	0.00500 UJ	**0.296 J**	-	**10.0**	**8.98**	**1.52 J**	**44300**	2.0 U	4.00 U	**22400**	**0.656 J**	**24400**

Attachment D1a
Historical Groundwater Chemistry Data – Closed BMP, Closed BMP Facility, and West Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
RL-4D	RL-4D-100611	10/6/2011	0.00500 U	0.00500 U	0.00500 U	**0.300**	-	**10.2**	**7.05**	**1.39 J**	**44700**	2.0 U	4.00 U	**22000**	**0.778 J**	**24400**
RL-4D	MBT-011112-14	1/11/2012	0.00500 U	0.00500 U	0.00500 U	**0.331**	-	**10.7**	**6.06**	**1.46**	**50100**	**0.944 J**	4.00 U	**24200**	**1.24 J**	**26200**
RL-4D	BMP-040412-01	4/4/2012	0.00500 U	0.00500 U	0.00500 UJ	**0.411**	-	**11.5**	**5.66**	**1.61 J**	**49300**	**1.19 J**	4.00 U	**23100**	**1.07 J**	**26200**
RL-4D	BMP-07112-06	7/11/2012	**0.00660**	0.00500 U	0.00500 U	**0.353**	-	**12.3**	**4.15**	**1.20 J**	**46400**	**0.689 J**	2.00 U	**21500**	**1.53 J**	**25300**
RL-4D	BMP-100412-11	10/4/2012	0.00500 U	**0.00760**	0.00500 U	**0.406**	-	**12.1**	**2.51**	**1.30 J**	**45400**	**0.900 J**	2.00 U	**21300**	**1.07 J**	**25100**
RL-4D	BMP-021313-12	2/13/2013	0.00500 U	0.00500	0.00500 U	**0.350**	-	**13.1**	**3.95**	**0.967 J**	**49000**	**0.533 J**	2.00 U	**23400**	**0.956 J**	**27700**
RL-4D	BMP-042313-06	4/23/2013	0.00500 U	0.00500	0.00500 U	**0.422**	-	**13.3**	**5.10**	**0.900 J**	**44600**	2.00 U	2.00 U	**22000**	**0.700 J**	**27000**
RL-4D	BMP-071613-05	7/16/2013	0.00500 U	0.00500	0.00500 U	**0.362**	-	**13.0**	**4.28**	**1.040 J**	**43400**	**0.844 J**	2.00 U	**20100**	**0.778 J**	**25300**
RL-4D	BMP-100913-10	10/9/2013	0.00500 U	0.00500	0.00500 U	**0.321**	-	**12.6**	**4.29**	**1.000**	**43300**	**0.756 J**	1.00 U	**20000**	**0.656 J**	**27200**
RL-4D	BMP-013014-09	1/30/2014	0.00500 U	0.00500 U	0.00500 U	**0.346**	-	**13.4**	**5.12**	**1.10**	**48000**	**1.260**	1.00 U	**23300**	**0.533 J**	**31000**
RL-4D	BMP-042414-10	4/24/2014	0.00500 U	0.00500 U	0.00500 U	**0.389**	-	**13.1**	**7.13**	**0.756 J**	**43400**	**0.622 J**	2.00 U	**21000**	**0.556 J**	**26500**
RL-4D (FD)	BMP-042414-11	4/24/2014	0.00500 U	0.00500 U	0.00500 U	**0.382**	-	**12.8**	**7.04**	**0.822 J**	**42900**	**0.578 J**	2.00 U	**20900**	**0.511 J**	**26600**
RL-4D	BMP-072414-12	7/24/2014	**0.00520**	0.00500 U	0.00500 U	**0.342**	-	**11.8**	**5.91**	**0.689 J**	**41900**	**0.533 J**	1.00 U	**19300**	**0.511 J**	**25900**
RL-4D	BMP-110514-12	11/5/2014	0.00500 U	0.00500 U	0.00500 U	**0.392**	-	**12.1**	**8.37**	**0.851**	**42800**	**0.567 J**	1.00 U	**20300**	**0.533 J**	**27500**
RL-4D	BMP-012215-10	1/22/2015	0.00500 U	0.00500 U	0.00500 U	**0.352**	-	**11.7**	**9.66**	**0.844 J**	**44700**	**0.589 J**	1.00 U	**22300**	**0.544 J**	**31500**
RL-4D (FD)	BMP-012215-11	1/22/2015	**0.00510**	0.00500 U	0.00500 U	**0.351**	-	**11.7**	**9.72**	**0.789 J**	**44100**	**0.644 J**	1.00 U	**22200**	**0.622 J**	**30900**
RL-4D	BMP-041615-12	4/16/2015	0.00500 U	0.00500 U	0.00500 U	**0.347**	-	**10.3**	**7.54**	**0.744 J**	**41200**	**0.533 J**	1.00 U	**20300**	**0.578 J**	**29300**
RL-4D	BMP-072415-05	7/24/2015	0.00500 U	0.00500 U	0.00500 U	**0.328**	-	**11.7**	**7.67**	**0.523**	**39800**	**0.844 J**	**0.667 J**	**19400**	**0.511 J**	**27300**
RL-4D	BMP-101515-06	10/15/2015	0.00500 U	0.00500 U	0.00500 U	**0.395**	-	**11.0**	**3.22**	**0.537**	**41800**	**0.800 J**	1.00 U	**20100**	1.00 U	**28600**
RL-4D	BMP-011416-07	1/14/2016	0.00500 U	0.00500 U	0.00500 U	**0.372**	-	**10.4**	**4.44**	**0.911 J**	**42000**	**0.589 J**	1.00 U	**21500**	1.00 U	**30600**
RL-4D	BMP-040716-07	4/7/2016	0.00500 U	0.00500 U	0.00500 U	**0.341**	-	**10.0**	**3.23**	**0.678 J**	**40400**	**2.02**	1.00 U	**19500**	**0.678 J**	**28700**
RL-4D	BMP-072116-05	7/21/2016	**0.00580**	0.00500 U	0.00500 U	**0.349**	-	**10.6**	**2.61**	**0.944 J**	**42200**	**1.440**	1.00 U	**19200**	**1.580**	**28100**
RL-4D (FD)	BMP-072116-06	7/21/2016	**0.00620**	0.00500 U	0.00500 U	**0.330**	-	**10.6**	**2.51**	**1.090**	**42500**	**1.730**	**0.878 J**	**19500**	**0.567 J**	**28500**
RL-4D	BMP-102716-05	10/27/2016	0.00500 U	0.00500 U	0.00500 U	**0.314**	-	**8.92**	**1.71**	**0.756 J**	**40700**	**0.744 J**	1.00 U	**18800**	**0.511 J**	**30500**
RL-4D	BMP-011917-06	1/19/2017	**0.00510**	0.00500 U	0.00500 U	**0.372**	-	**9.03**	**2.88**	**1.09**	**41900**	**0.833 J**	1.00 U	**19400**	**0.544 J**	**30300**
RL-4D	BMP-042017-07	4/20/2017	0.00500 U	0.00500 U	0.00500 U	**0.334**	-	**8.41**	**1.69**	**0.567 J**	**40000**	**0.767 J**	1.00 U	**19000**	**0.544 J**	**29500**
RL-4D	BMP-072017-07	7/20/2017	0.00500 U	0.00500 U	**0.00200 J**	**0.355**	-	**7.40**	1.00 U	**0.811 J**	**38100**	**0.544 J**	1.00 U	**18700**	**0.589 J**	**28900**
RL-4D	BMP-101917-05	10/19/2017	0.00500 U	0.00500 U	0.00500 U	**0.374**	-	**7.31**	1.00 U	**1.09**	**38400**	1.00 U	**0.756 J**	**17200**	**0.533 J**	**27800**
RL-4D	BMP-011818-10	1/18/2018	**0.00580**	0.00500 U	0.00500 U	**0.347**	-	**7.37**	**1.19**	**1.03**	**36000**	**0.74 J**	1.00 U	**16600**	**1.130**	**29600**
RL-4D	BMP-051018-09	5/10/2018	**0.00530**	0.00500 U	0.00500 U	**0.369**	-	**6.94**	**1.92**	**0.73**	**42900**	1.00 U	1.00 U	**23900**	1.00 U	**42200**
RL-4D	BMP-072618-08	7/26/2018	0.00500 U	0.00500 U	0.00500 U	**0.386**	-	**5.95**	**1.37**	**0.83**	**43200**	1.00 U	1.00 U	**18800**	1.00 U	**34900**
RL-4D	BMP-102518-06	10/25/2018	0.00500 U	0.00500 U	0.00500 U	**0.402**	-	**5.88**	1.00 U	**0.55**	**40800**	1.00 U	1.00 U	**17400**	1.00 U	**34700**
RL-4D	BMP-030619-09	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**0.372**	-	**5.98**	1.00 U	**1.03**	**40100**	1.00 U	1.00 U	**18600**	1.00 U	**37300**
RL-4D (FD)	BMP-030619-10	3/6/2019	0.00500 U	0.00500 U	0.00500 U	**0.356**	-	**5.97**	1.00 U	**0.989**	**40500**	1.00 U	1.00 U	**18600**	1.00 U	**36800**
RL-4D	BMP-050919-10	5/9/2019	0.00500 U	0.00500 U	0.00500 U	**0.397**	-	**5.55**	1.00 U	**0.912**	**40300**	1.00 U	1.00 U	**17800**	1.00 U	**36500**
RL-5	MBT-030411-15	3/4/2011	**0.0184**	**0.00780**	0.00500 U	**2.73**	-	**7.96**	**60.1**	**1.18 J**	**8380**	**0.844 J**	**19.1**	**3730**	**6.14**	**139000**
RL-5	MBT-051011-12	5/10/2011	**0.0230**	**0.00570**	**0.00200 J**	**2.82**	-	**7.21**	**56.7**	**1.04 J**	**8340**	**1.59 J**	**20.6**	**3880**	**6.73**	**134000**
RL-5	MBT-072611-13	7/26/2011	**0.0288**	0.00500 U	0.00500 UJ	**2.39**	-	**7.95**	**76.7**	**1.33 J**	**7860**	2.0 U	**11.6**	**3690**	**4.69**	**124000**

Attachment D1a
Historical Groundwater Chemistry Data – Closed BMP, Closed BMP Facility, and West Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
RL-5	RL-5-100711	10/7/2011	**0.0332**	**0.00640**	0.00500 U	**2.26**	-	**8.55**	**78.2**	**1.32 J**	**8980**	2.0 U	**22.7**	**4330**	**8.23**	**148000**
RL-5	MBT-011112-12	1/11/2012	**0.0683**	**0.0136**	0.00500 U	**2.88 J**	-	**9.04**	**93.6**	**1.20**	**11000**	**1.12**	**21.7**	**4800**	**8.41**	**160000**
RL-5	BMP-040512-12	4/5/2012	**0.0275**	**0.00670**	0.00500 U	**3.04**	-	**7.04**	**48.6**	**0.867**	**7520**	**1.41**	**20.1**	**3180**	**6.26**	**122000**
RL-5	BMP-071212-12	7/12/2012	**0.0378**	**0.00600**	0.00500 U	**2.50**	-	**8.19**	**105**	**1.41 J**	**10500**	**0.700 J**	**19.1**	**4490**	**7.34**	**151000**
RL-5	BMP-100412-12	10/4/2012	**0.0314**	**0.00990**	0.00500 U	**2.79**	-	**8.04**	**77.5**	**1.50 J**	**9570**	**1.16 J**	**17.8**	**4150**	**8.29**	**141000**
RL-5	BMP-021213-05	2/12/2013	**0.0355**	**0.00940**	0.00500 U	**2.73**	-	**7.03**	**61.9**	**1.18 J**	**8170**	**1.17 J**	**21.4**	**3540**	**6.24**	**136000**
RL-5	BMP-042313-04	4/23/2013	**0.0263**	0.00500 U	0.00500 U	**3.56**	-	**6.30**	**46.0**	**1.12 J**	**7630**	**1.09 J**	**24.1**	**3380**	**6.92**	**124000**
RL-5	BMP-071713-09	7/17/2013	**0.0283**	**0.00530**	0.00500 U	**2.59**	-	**6.79**	**84.0**	**1.01 J**	**8790**	**1.00 J**	**18.4**	**3940**	**6.13**	**136000**
RL-5 (FD)	BMP-071713-10	7/17/2013	**0.0344**	**0.00550**	0.00500 U	**2.64**	-	**6.78**	**83.9**	**1.14 J**	**9160**	**1.02 J**	**19.4**	**4150**	**6.47**	**142000**
RL-5	BMP-100813-05	10/8/2013	**0.210**	**0.0196**	0.00500 U	**2.50**	-	**6.65**	**107.0**	**1.26**	**12700**	**1.68**	**21.7**	**5520**	**7.02**	**187000**
RL-5	BMP-012914-05	1/29/2014	**0.0559**	**0.00910**	0.00500 U	**3**	-	**8.22**	**86.1**	**1.43**	**10300**	**2.28**	**18.4**	**5130**	**5.82**	**174000**
RL-5	BMP-042314-04	4/23/2014	**0.035**	**0.00790**	0.00500 U	**3.11**	-	**6.89**	**50.1**	**1.17**	**7030**	**1.87**	**22.1**	**3350**	**7.16**	**124000**
RL-5	BMP-072414-09	7/24/2014	**0.0349**	**0.00800**	0.00500 U	**2.72**	-	**6.20**	**61.5**	**1.08**	**7730**	**0.79 J**	**16.3**	**3360**	**6.46**	**119000**
RL-5	BMP-110514-08	11/5/2014	**0.0313**	0.00500 U	0.00500 U	**2.85**	-	**7.58**	**66.2**	**1.21**	**8390**	**1.11**	**15.6**	**3740**	**7.54**	**136000**
RL-5	BMP-012115-04	1/21/2015	**0.0696**	**0.0109**	0.00500 U	**3.11**	-	**7.03**	**55.5**	**1.43**	**6980**	**1.26**	**19.4**	**2720**	**5.73**	**114000**
RL-5	BMP-041515-04	4/15/2015	**0.0351**	**0.00730**	0.00500 U	**2.87**	-	**5.87**	**48.0**	**0.978 J**	**6280**	**0.889 J**	**20.8 J**	**2810**	**5.46**	**121000**
RL-5	BMP-072415-10	7/24/2015	**0.0332**	**0.00650**	0.00500 U	**2.61**	-	**6.32**	**68.2**	**0.989 J**	**7710**	**1.32**	**18.5 UJ**	**3450**	**7.61**	**130000**
RL-5	BMP-101515-11	10/15/2015	**0.0341**	0.00500 U	0.00500 U	**2.49**	-	**8.52**	**63.9**	**1.00**	**8110**	**1.03**	**15.2**	**3710**	**6.87**	**130000**
RL-5	BMP-011316-05	1/13/2016	**0.0589**	**0.00880**	0.00500 U	**261**	-	**5.64**	**50.7**	**1.38**	**4690**	**1.50**	**24.9**	**2100**	**5.29**	**89700**
RL-5	BMP-040616-04	4/6/2016	**0.0313**	**0.00760**	0.00500 U	**2.70 J**	-	**4.53**	**38.2**	**1.33**	**4810**	**2.06**	**22.8**	**2070**	**5.61**	**92300**
RL-5 (FD)	BMP-040616-05	4/6/2016	**0.0322**	**0.00780**	0.00500 U	**2.51 J**	-	**4.55**	**38.4**	**1.44**	**4880**	**2.18**	**24.1**	**2080**	**5.77**	**93300**
RL-5	BMP-072116-10	7/21/2016	**0.0360**	**0.00780**	0.00500 U	**2.69**	-	**7.01**	**62.9**	**0.856 J**	**6730**	**1.73**	**19.4**	**2970**	**5.97**	**118000**
RL-5	BMP-102716-09	10/27/2016	**0.0293**	0.00500 U	0.00500 U	**2.55**	-	**5.73**	**60.6**	**0.789 J**	**7150**	**1.01**	**20.7**	**3060**	**7.46**	**125000**
RL-5	BMP-011817-05	1/18/2017	**0.0592**	**0.00760**	0.00500 U	**2.94**	-	**4.41**	**43.5**	**1.20**	**5100**	**1.40**	**16.7**	**2160**	**4.84**	**101000**
RL-5	BMP-041917-05	4/19/2017	**0.0635**	**0.00650**	0.00500 U	**2.51**	-	**3.93**	**28.0**	**0.833 J**	**4320**	**1.28**	**18.8**	**1780**	**5.33**	**79300**
RL-5	BMP-072017-11	7/20/2017	**0.0433**	0.00500 U	0.00500 UJ	**2.76**	-	**3.75**	**44.4**	**1.17**	**6030**	**0.944 J**	**19.9**	**2630**	**6.28**	**105000**
RL-5	BMP-101917-12	10/19/2017	**0.0279**	**0.00540**	0.00500 U	**2.76**	-	**4.55**	**44.4**	**1.21**	**13400**	**0.700 J**	**10.7**	**5470**	**4.63**	**104000**
RL-5	BMP-011718-04	1/17/2018	**0.0402**	**0.01580**	0.00500 U	**2.82**	-	**4.49**	**37.0**	**1.23**	**4830**	**1.730**	**19.4**	**2050**	**5.57**	**96800**
RL-5	BMP-050918-05	5/9/2018	**0.0301**	**0.00970**	0.00500 U	**2.43**	-	**3.25**	**29.2**	**1.10**	**4830**	**0.887 J**	**19.0**	**2030**	**5.72**	**104000**
RL-5	BMP-072618-11	7/26/2018	**0.0298**	**0.00610**	0.00500 U	**2.65**	-	**3.79**	**37.2**	**1.02**	**5820**	**0.668 J**	**18.0**	**2690**	**6.65**	**100000**
RL-5	BMP-102518-12	10/25/2018	**0.0266**	0.00500 U	0.00500 U	**2.62**	-	**5.07**	**42.3**	**1.29**	**10300**	**0.709 J**	**8.45**	**4180**	**5.74**	**118000**
RL-5	BMP-030519-05	3/5/2019	**0.0509**	**0.00820**	0.00500 U	**2.54**	-	**5.94**	**39.4**	**1.14**	**5100**	**0.983 J**	**19.4**	**2210**	**4.52**	**112000**
RL-5	BMP-050819-05	5/8/2019	**0.0380**	**0.00510**	0.00500 U	**2.44**	-	**4.54**	**34.2**	**0.876**	**4640**	**0.729 J**	**18.5**	**1940**	**4.11**	**86300**
RL-5 (FD)	BMP-050819-06	5/8/2019	**0.0327**	**0.00530**	0.00500 U	**2.42**	-	**4.53**	**34.5**	**0.838**	**4780**	**0.628 J**	**18.3**	**2010**	**4.24**	**87500**
PZ-6	BMP-082019-04	8/20/2019	-	-	-	**56.1**	**55.3**	-	-	-	-	-	-	-	-	-
PZ-6	AQ-PZ6-103019	10/30/2019	-	-	-	**59.0**	**61.2**	-	-	-	-	-	-	-	-	-
PZ-7	BMP-082019-05	8/20/2019	-	-	-	**14.8**	**14.8**	-	-	-	-	-	-	-	-	-
PZ-7	AQ-PZ7-103019	10/30/2019	-	-	-	**12.3**	**11.8**	-	-	-	-	-	-	-	-	-

Attachment D1a

Historical Groundwater Chemistry Data – Closed BMP, Closed BMP Facility, and West Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Dissolved Arsenic µg/L	Dissolved Calcium µg/L	Dissolved Chromium µg/L	Dissolved Copper µg/L	Dissolved Magnesium µg/L	Dissolved Nickel µg/L	Dissolved Sodium µg/L
RLSW-2	AQ-RLSW2-103119	10/31/2019	-	-	-	**97.1**	**72.0**	-	-	-	-	-	-	-	-	-
G6-S	AQ-G6S-103019	10/30/2019	-	-	-	**85.6**	**85.5**	-	-	-	-	-	-	-	-	-
G6-D	AQ-G6D-103019	10/30/2019	-	-	-	**2.83**	**2.59**	-	-	-	-	-	-	-	-	-
G6-D (FD)	AQ-G6D-D-103019	10/30/2019	-	-	-	**2.85**	**2.58**	-	-	-	-	-	-	-	-	-

Notes:
Bold: detected value
J: estimated value
R: rejected and unusable value
U: not detected above method reporting limit
UJ: not detected above estimated detection limit

µg/L: microgram per liter (parts per billion)
FD: field duplicate
mg/L: milligram per liter (parts per million)
WAD: weak acid dissociable

Attachment D1b
Historical Surface Water Chemistry Data – Closed BMP and Closed BMP Facility

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Total Arsenic µg/L	Total Calcium µg/L	Total Chromium µg/L	Total Copper µg/L	Total Magnesium µg/L	Total Nickel µg/L	Total Sodium µg/L
CDID Up	MBT-030411-16	3/4/2011	**0.0155**	0.00500 U	0.00500 U	**1.28**	-	**3.02**	**21.2**	**1.19 J**	**12500**	**1.19 J**	**6.57**	**5030**	**4.47**	**22700**
CDID Up	MBT-051011-11	5/10/2011	**0.0518**	**0.0276**	**0.0214 J**	**2.96**	-	**4.06**	**18.7**	**2.14**	**19200**	**1.19 J**	**4.42**	**7570**	**4.82**	**49400**
CDID Up	MBT-072611-09	7/26/2011	**0.0198**	0.00630 U	0.00500 UJ	**2.82**	-	**6.55**	**3.53**	**3.01**	**22900**	2.0 U	**1.26 J**	**10700**	**2.00**	**56900**
CDID Up	MBT-100611-02	10/6/2011	**0.00530**	0.00500 U	0.00500 U	**0.619**	-	**9.83**	**2.58**	**1.69 J**	**22900**	2.0 U	4.00 U	**9330**	**1.04 J**	**20800**
CDID Up	MBT-011112-10	1/11/2012	**0.0178**	**0.00840**	0.00500 U	**0.908**	-	**5.43**	**22.7**	**0.733**	**16700**	**0.744 J**	**3.68**	**6880**	**4.02**	**16700**
CDID Up	BMPS-040512-10	4/5/2012	0.00500 U	0.00500 U	0.00500 U	**0.668**	-	**5.69**	**7.41**	**1.61**	**18700**	**0.689 J**	**4.78**	**7500**	**2.98**	**13200**
CDID Up	BMPS-071112-02	7/11/2012	**0.00740**	0.00500 U	0.00500 U	**0.549**	-	**7.18**	**3.36**	**1.90 J**	**20700**	**0.878 J**	2.00 U	**8930**	**1.31 J**	**16500**
CDID Up	BMPS-100412-04	10/4/2012	0.00500 U	**0.00800**	0.00500 U	**0.343**	-	**8.51**	**2.93**	**0.822 J**	**19900**	4.00 U	**1.03 J**	**8810**	**0.911 J**	**13900**
CDID Up	BMPS-021213-03	2/12/2013	**0.0194**	**0.0110**	**0.00250 J**	**1.13**	-	**6.27**	**12.1**	**0.944 J**	**18900**	**0.567 J**	**2.61**	**8140**	**3.02**	**22100**
CDID Up	BMPS-042313-02	4/23/2013	**0.0637**	**0.0148**	0.00500 U	**2.93**	-	**4.47**	**16.0**	**2.36**	**18300**	**1.120 J**	**3.77**	**7860**	**3.91**	**51000**
CDID Up	BMPS-071613-02	7/16/2013	**0.00820**	0.00500 U	0.00500 U	**1.82**	-	**6.92**	**5.7**	**2.61**	**16800**	**0.689 J**	**1.39 J**	**7160**	**1.51 J**	**37300**
CDID Up	BMPS-100813-02	10/8/2013	**0.0107**	0.00500 U	0.00500 U	**0.934**	-	**4.21**	**11.9**	**1.66**	**13400**	**1.030**	**2.71**	**5370**	**2.08**	**14600**
CDID Up	BMPS-012914-03	1/29/2014	**0.02410**	**0.00620**	**0.00380 J**	**1.62**	-	**8.24**	**27.6**	**2.3**	**19300**	**1.98**	**3.80**	**8820**	**2.990**	**39100**
CDID Up	BMPS-042314-02	4/23/2014	**0.0050 U**	0.0050 U	0.00500 U	**0.407**	-	**6.93**	**4.05**	**1.61**	**17400**	**0.633 J**	**1.39 J**	**7680**	**1.67**	**11500**
CDID Up	BMPS-072314-02	7/23/2014	**0.0050 U**	0.0050 U	0.00500 U	**0.353**	-	**6.94**	**3.31**	**1.59**	**17900**	**0.556 J**	4.00 U	**6630**	**0.83 J**	**12500**
CDID Up	BMPS-110414-01	11/4/2014	**0.0106 J**	0.0050 U	0.00500 U	**0.695**	-	**9.50**	**9.81**	**1.81**	**19300**	**1.00**	**3.14**	**7230**	**1.78**	**16100**
CDID Up	BMPS-012115-02	1/21/2015	**0.0225**	**0.0066**	0.00500 U	**1.04**	-	**5.13**	**19.5**	**1.29**	**14000**	**1.34**	**6.50**	**5830**	**3.26 J**	**17900**
CDID Up	BMPS-041515-02	4/15/2015	**0.0295**	**0.0141**	**0.00300 J**	**1.51**	-	**4.97**	**12.1**	**2.28**	**20200**	**1.20**	**2.61**	**8750**	**4.03**	**29300**
CDID Up	BMPS-072315-02	7/23/2015	**0.00610**	0.00500 U	0.00500 U	**0.760**	-	**7.30**	**3.89**	**3.80**	**19800**	**5.24**	**13.6**	**9950**	**6.76**	**24800**
CDID Up	BMPS-101415-02	10/14/2015	0.00500 U	**0.00520**	0.00500 U	**0.381**	-	**6.41**	**2.95**	**0.933 J**	**18400**	**0.556 J**	**0.500 J**	**7790**	2.00 U	**16500**
CDID Up	BMPS-011316-03	1/13/2016	**0.0139**	0.00500 U	**0.00210 J**	**1.11**	-	**5.67**	**20.5**	**1.74**	**15600**	**1.66**	**8.51**	**6110**	**4.47**	**20900**
CDID Up	BMPS-040616-02	4/6/2016	**0.0594**	**0.0104**	0.00500 U	**1.81 J**	-	**5.09**	**15.7**	**2.70**	**17400**	**1.18**	**3.37**	**7470**	**4.09**	**35700**
CDID Up	BMPS-051316-02	5/13/2016	NA	NA	NA	**0.97**	-	NA	NA	NA	NA	NA	NA	NA	NA	NA
CDID Up	BMPS-072016-02	7/20/2016	**0.00560**	**0.00510**	0.00500 U	**0.593**	-	**6.70**	**3.21**	**4.11**	**20000**	**0.822 J**	**1.18**	**9760**	**1.51**	**107000**
CDID Up	BMPS-102616-02	10/26/2016	**0.00620**	0.00500 U	0.00500 U	**2.05**	-	**4.23**	**6.47**	**2.89**	**13900**	**0.611 J**	**2.980**	**4940**	**3.17**	**17700**
CDID Up	BMPS-011817-03	1/18/2017	**0.0255**	**0.00570**	**0.00700 J**	**1.44**	-	**3.35**	**15.2**	**0.811 J**	**11900**	**1.09**	**5.20**	**4630**	**3.44**	**19400**
CDID Up	BMPS-041917-03	4/19/2017	**1.27**	**0.0130**	**0.00300 J**	**5.01**	-	**3.43**	**20.0**	**2.81**	**16500**	**1.53**	**3.81**	**6610**	**4.60**	**46700**
CDID Up	BMPS-071917-02	7/19/2017	**0.0128**	**0.00500**	**0.00400 J**	**1.34**	-	**6.38**	**5.42**	**1.76**	**19400**	**0.411 J**	**1.68**	**8740**	**1.26**	**38200**
CDID Up	BMPS-101817-02	10/18/2017	0.0050 U	0.00500 U	0.00500 U	**0.45**	-	**7.00**	**5.78**	**1.12**	**14900**	**0.678 J**	**1.42**	**6040**	**0.86 J**	**14800**
CDID Up	BMPS-011718-02	1/17/2018	0.0050 U	0.00500 U	0.00500 U	**0.53**	-	**7.19**	**7.77**	**1.42**	**17900**	**0.822 J**	**2.92**	**7410**	**2.26**	**13600**
CDID Up	BMPS-050918-03	5/9/2018	**0.0534**	**0.02020**	**0.00800**	**2.16**	-	**5.44**	**12.40**	**3.08**	**17800**	**1.220**	**3.82**	**7490**	**3.38**	**47400**
CDID Up	BMPS-072518-02	7/25/2018	0.0050 U	0.00500 U	0.00500 U	**0.16**	-	**6.43**	**4.68**	**0.91**	**15300**	1.00 U	**1.05**	**7050**	**0.55 J**	**11200**
CDID Up (FD)	BMPS-072518-03	7/25/2018	0.0050 U	0.00500 U	0.00500 U	**0.16**	-	**6.46**	**4.77**	**0.93**	**15300**	**0.410 J**	**1.31**	**6950**	**0.62 J**	**11100**
CDID Up	BMPS-102418-02	10/24/2018	**0.0056**	0.00500 U	0.00250 U	**0.49**	-	**5.91**	**3.22**	**0.46**	**16800**	1.00 U	**0.60 J**	**6460**	**0.57 J**	**17900**
CDID Up	BMPS-030519-02	3/5/2019	**0.0227**	**0.0107**	**0.00420 J**	**0.967**	-	**6.16**	**20.2**	**1.04**	**17900**	**1.10**	**4.70**	**7640**	**3.07**	**27600**
CDID Up	BMPS-050819-02	5/8/2019	**0.0316**	**0.0142**	**0.00487 J**	**1.52**	-	**6.30**	**8.63**	**2.44**	**21300**	**0.865 J**	**2.34**	**9350**	**1.97**	**38700**
CDID Up	BMPS-082019-02	8/20/2019	-	-	-	**0.994**	**0.961**	-	-	-	-	-	-	-	-	-
CDID Up	AQ-CDIDup-103119	10/31/2019	-	-	-	**0.887**	**0.755**	-	-	-	-	-	-	-	-	-

Attachment D1b
Historical Surface Water Chemistry Data – Closed BMP and Closed BMP Facility

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Total Arsenic µg/L	Total Calcium µg/L	Total Chromium µg/L	Total Copper µg/L	Total Magnesium µg/L	Total Nickel µg/L	Total Sodium µg/L
CDID Down	MBT-030211-09	3/2/2011	**0.0335**	**0.00850**	0.00500 U	**1.98**	-	**2.92**	**11.5**	**1.62 J**	**11700**	**1.52 J**	**6.61**	**4780**	**3.64**	**33700**
CDID Down	MBT-051011-10	5/10/2011	**0.0913**	**0.00930**	**0.00340 J**	**4.74**	-	**3.40**	**19.5**	**3.37**	**15800**	**1.89 J**	**7.73**	**6510**	**5.47**	**72400**
CDID Down	MBT-072611-10	7/26/2011	**0.00690**	0.00500 U	**0.00220 J**	**1.43**	-	**7.26**	**3.12**	**1.79 J**	**21500**	2.0 U	**0.767 J**	**9910**	**1.22 J**	**32800**
CDID Down	MBT-100611-01	10/6/2011	**0.0199**	**0.00840**	0.00500 U	**2.25**	-	**10.10**	**3.66**	**2.19**	**24500**	2.0 U	4.00 U	**10300**	**1.86 J**	**53300**
CDID Down	MBT-011112-09	1/11/2012	**0.0418**	**0.0141**	**0.00220 J**	**11.7**	-	**6.90**	**19.9**	**1.73**	**14400**	**1.69**	**7.41**	**5880**	**5.96**	**56100**
CDID Down	BMPS-040512-08	4/5/2012	**0.00700**	**0.00630**	0.00500 U	**0.745**	-	**7.32**	**6.64**	**1.51**	**21200**	**0.656 J**	**3.73**	**8550**	**2.19**	**15100**
CDID Down	BMPS-071112-01	7/11/2012	**0.0146**	**0.00600**	0.00500 U	**1.88**	-	**6.53**	**4.93**	**2.07**	**22900**	**1.14 J**	**2.12**	**9340**	**2.53**	**34100**
CDID Down	BMPS-100412-03	10/4/2012	**0.00900**	0.00500 U	0.00500 U	**0.932**	-	**8.92**	**2.94**	**1.09 J**	**20600**	4.00 U	**1.69 J**	**9070**	**1.06 J**	**20100**
CDID Down	BMPS-021213-01	2/12/2013	**0.050**	**0.0160**	**0.00450 J**	**2.01**	-	**3.70**	**11.6**	**1.07 J**	**14500**	**0.789 J**	**4.26**	**5850**	**3.42**	**39000**
CDID Down (FD)	BMPS-021213-02	2/12/2013	**0.0467**	**0.0156**	**0.00410 J**	**2.06**	-	**3.67**	**11.4**	**1.23 J**	**14600**	**1.03 J**	**4.53**	**5900**	**3.40**	**39400**
CDID Down	BMPS-042313-01	4/23/2013	**0.0891**	**0.0154**	0.00500 U	**4.36**	-	**4.33**	**20.5**	**4.23**	**16100**	**2.42**	**6.89**	**7330**	**4.90**	**78700**
CDID Down	BMPS-071613-01	7/16/2013	**0.0209**	0.00500 U	0.00500 U	**4.06**	-	**6.86**	**8.85**	**5.41**	**21100**	**1.93 J**	**3.60**	**8960**	**2.86**	**81600**
CDID Down	BMPS-100813-01	10/8/2013	**0.0147**	**0.00620**	0.00500 U	**1.01**	-	**4.88**	**12.7**	**1.60**	**13900**	**2.17**	**2.48**	**5270**	**1.80**	**17300**
CDID Down	BMPS-012914-01	1/29/2014	**0.090**	**0.0140**	0.00500 U	**5.11**	-	**7.55**	**14.6**	**3.03**	**19000**	**3.44**	**4.71**	**8650**	**3.31**	**86300**
CDID Down (FD)	BMPS-012914-02	1/29/2014	**0.0969**	**0.0136**	0.00500 U	**5.09**	-	**7.56**	**14.7**	**3.17**	**19900**	**3.60**	**11.20**	**9230**	**3.40**	**93100**
CDID Down	BMPS-042314-01	4/23/2014	**0.0637**	**0.0105**	0.00500 U	**1.93**	-	**5.95**	**11.9**	**2.67**	**17200**	**1.77**	**3.13**	**7710**	**3.47**	**38900**
CDID Down	BMPS-072314-01	7/23/2014	**0.0059**	0.00500 U	0.00500 U	**0.773**	-	**7.26**	**3.67**	**2.14**	**18300**	**0.54 J**	4.00 U	**6940**	**0.82 J**	**18100**
CDID Down	BMPS-110414-02	11/4/2014	**0.00590 J**	0.00500 U	0.00500 U	**1.53**	-	**4.03**	**10.4**	**1.97**	**10600**	**0.644**	**2.72**	**3930**	**1.76**	**11700**
CDID Down	BMPS-012115-01	1/21/2015	**0.0957**	**0.0130**	0.00500 U	**1.26**	-	**4.91**	**19.9**	**1.70**	**14800**	**2.02**	**4.88**	**6410**	**2.99 J**	**29100**
CDID Down	BMPS-041515-01	4/15/2015	**0.0733**	**0.0141**	**0.00300 J**	**4.18**	-	**4.69**	**22.0**	**3.96**	**19500**	**3.19**	**7.57**	**8260**	**4.62**	**77900**
CDID Down	BMPS-072315-01	7/23/2015	**0.0140**	0.00500 U	0.00500 U	**6.53**	-	**7.41**	**5.70**	**5.49**	**16300**	**1.04**	**2.33**	**10300**	**2.48**	**131000**
CDID Down	BMPS-101415-01	10/14/2015	0.00500 U	0.00500 U	0.00500 U	**2.69**	-	**6.78**	**4.04**	**2.23**	**17000**	1.00 U	**1.12**	**8440**	2.00 U	**60200**
CDID Down	BMPS-011316-02	1/13/2016	**0.170**	**0.00820**	0.00500 U	**2.67**	-	**5.14**	**29.8**	**3.00**	**16900**	**2.33**	**7.62**	**6970**	**5.11**	**55000**
CDID Down	BMPS-040616-01	4/6/2016	**0.0891**	**0.0122**	0.00500 U	**4.92 J**	-	**4.31**	**24.1**	**4.18**	**15700**	**2.19**	**5.70**	**6950**	**4.50**	**89800**
CDID Down	BMPS-051316-01	5/13/2016	NA	NA	NA	**2.98**	-	NA	NA	NA	NA	NA	NA	NA	NA	NA
CDID Down	BMPS-072116-13	7/21/2016	**0.0120**	0.00500 U	0.00500 U	**5.82**	-	**6.51**	**8.19**	**3.98**	**21400**	1.00 U	**1.39**	**9780**	**1.20**	**108000**
CDID Down	BMPS-102616-01	10/26/2016	**0.01990**	0.00500 U	0.00500 U	**6.14**	-	**5.56**	**5.49**	**2.72**	**16000**	1.00 U	**1.73**	**8460**	**1.64**	**113000**
CDID Down	BMPS-011817-02	1/18/2017	**0.0887**	**0.0101**	0.00500 UJ	**4.19**	-	**5.74**	**12.5**	**3.71**	**18500**	**2.46**	**4.64**	**7890**	**3.20**	**52100**
CDID Down	BMPS-041917-02	4/19/2017	**0.447**	**0.0197**	**0.00300 J**	**4.26**	-	**3.27**	**22.0**	**4.12**	**15100**	**2.69**	**5.09**	**6320**	**4.71**	**77600**
CDID Down	BMPS-071917-01	7/19/2017	**0.0156**	0.00500 U	0.00500 U	**6.48**	-	**5.18**	**14.0**	**6.82**	**21100**	**0.933 J**	**4.07**	**9900**	**2.90**	**132000**
CDID Down	BMPS-101817-01	10/18/2017	**0.0101**	0.00500 U	0.00500 U	**1.61**	-	**7.15**	**7.56**	**2.37**	**16200**	**0.500 J**	**2.46**	**6640**	**1.30**	**28400**
CDID Down	BMPS-011718-01	1/17/2018	**0.0158**	**0.00670**	0.00500 U	**0.56**	-	**6.05**	**8.77**	**1.59**	**16800**	**1.21**	**3.17**	**6860**	**2.49**	**14400**
CDID Down	BMPS-050918-01	5/9/2018	**0.0947**	**0.00940**	0.00500 U	**6.54**	-	**3.72**	**23.5**	**5.51**	**16800**	**2.13**	**5.79**	**7320**	**4.04**	**107000**
CDID Down	BMPS-050918-02	5/9/2018	**0.0934**	**0.01000**	0.00500 U	**6.54**	-	**3.72**	**23.5**	**5.70**	**17600**	**2.35**	**6.04**	**7270**	**4.02**	**111000**
CDID Down (FD)	BMPS-072518-01	7/25/2018	**0.0057**	0.00500 U	0.00500 U	**0.29**	-	**6.20**	**4.96**	**1.42**	**15600**	1.000 U	**1.02**	**6770**	**0.64 J**	**13300**
CDID Down	BMPS-102418-01	10/24/2018	**0.0082**	0.00500 U	0.00500 U	**1.97**	-	**5.52**	**5.77**	**1.69**	**19400**	1.000 U	**0.987 J**	**7250**	**0.72 J**	**34700**
CDID Down	BMPS-030519-01	3/5/2019	**0.1660**	**0.0144**	0.00500 U	**3.83**	-	**8.22**	**12.7**	**2.55**	**18900**	**2.13**	**5.16**	**7590**	**3.55**	**85700**
CDID Down	BMPS-050819-01	5/8/2019	**6.36**	**0.00510**	0.00500 U	**5.63**	-	**4.24**	**23.5**	**4.73**	**20500**	**2.15**	**4.79**	**9040**	**4.17**	**111000**

Attachment D1b
Historical Surface Water Chemistry Data – Closed BMP and Closed BMP Facility

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L	Sulfate mg/L	Total Arsenic µg/L	Total Calcium µg/L	Total Chromium µg/L	Total Copper µg/L	Total Magnesium µg/L	Total Nickel µg/L	Total Sodium µg/L
CDID Down	BMPS-082019-01	8/20/2019	-	-	-	**6.97**	**6.79**	-	-	-	-	-	-	-	-	-
CDID Down	AQ-CDIDdown-103119	10/31/2019	-	-	-	**5.74**	**5.23**	-	-	-	-	-	-	-	-	-
W-2	BMPS-082019-03	8/20/2019	-	-	-	**0.178**	**0.165**	-	-	-	-	-	-	-	-	-
W-2	AQ-W2-103119	10/31/2019	-	-	-	**0.200**	**0.203**	-	-	-	-	-	-	-	-	-

Notes:
Bold: detected value
J: estimated value
U: not detected above method reporting limit
UJ: not detected above estimated detection limit

µg/L: microgram per liter (parts per billion)
CDID: Consolidated Diking Improvement District
FD: field duplicate
mg/L: milligram per liter (parts per million)
NA: not applicable
WAD: weak acid dissociable

Attachment D2a

Historical Groundwater Chemistry Data: Cyanide, Fluoride, and Chloride – Former SPL Area and East Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L
R-1S	MBT-030211-04	03/02/11	**0.0170**	**0.0125**	0.00500 U	**39.9**	-	**1.51**
R-1S	MBT-050911-03	05/09/11	**0.0207**	0.00670 U	0.00500 U	**35.4**	-	**2.95**
R-1S	MBT-072511-02	07/25/11	**0.0199**	**0.0178**	0.00500 UJ	**32.5**	-	**2.24**
R-1S	R-1S-100511	10/05/11	**0.0331**	**0.0123**	0.00500 U	**30.1**	-	**2.38**
R-1S	MBT-011012-03	01/10/12	**0.0395**	**0.00910**	0.00500 U	**37.6**	-	**3.07**
R-1S	SPL-040312-06	04/03/12	**0.0240 J**	**0.01140**	0.00500 U	**41.2**	-	**1.61**
R-1S	SPL-070912-04	07/09/12	**0.0226**	**0.00870**	0.00500 U	**35.6**	-	**3.62**
R-1S	SPL-100312-06	10/03/12	**0.0417**	**0.0111**	0.00500 U	**29.8**	-	**2.86**
R-1S	SPL-021113-02	02/11/13	**0.0343**	**0.00830**	0.00500 U	**30.3**	-	**3.16**
R-1S	SPL-042213-03	04/22/13	**0.0241**	**0.0114**	0.00500 U	**31.4**	-	**2.85**
R-1S	SPL-071513-05	07/15/13	**0.0240**	0.00500 U	0.00500 U	**27.4**	-	**4.25**
R-1S	SPL-100713-03	10/07/13	**0.0272**	**0.00790**	0.00500 U	**30.0**	-	**6.61**
R-1S (FD)	SPL-100713-04	10/07/13	**0.0279**	**0.00660**	0.00500 U	**29.9**	-	**6.04**
R-1S	SPL-012814-03	01/28/14	**0.0253**	**0.00800**	0.00500 U	**34.3**	-	**2.52**
R-1S (FD)	SPL-012814-04	01/28/14	**0.0254**	**0.00610**	0.00500 U	**33.5**	-	**2.50**
R-1S	SPL-042214-03	04/22/14	**0.0138**	**0.00890**	0.00500 U	**27.2**	-	**1.54**
R-1S	SPL-072214-04	07/22/14	**0.0338**	**0.00510**	0.00500 U	**27.5**	-	**1.66**
R-1S	SPL-110314-03	11/03/14	**0.0210**	0.00500 U	**0.00210 J**	**22.5**	-	**1.70**
R-1S	SPL-012015-03	01/20/15	**0.0256**	**0.00810 J**	**0.00380 J**	**28.4**	-	**1.87**
R-1S	SPL-041415-04	04/14/15	**0.0159**	**0.00600**	0.00500 U	**26.0**	-	**2.39**
R-1S	SPL-072215-03	07/22/15	**0.0192**	**0.00660**	0.00500 U	**24.8**	-	**3.93**
R-1S (FD)	SPL-072215-04	07/22/15	**0.0192**	**0.00580**	0.00500 U	**24.7**	-	**3.68**
R-1S	SPL-101315-02	10/13/15	**0.0261**	**0.00930**	0.00500 U	**20.7**	-	**2.50**
R-1S	SPL-011216-03	01/12/16	**0.0374**	0.00500 U	0.00500 U	**33.2**	-	1.00 U
R-1S	SPL-040516-04	04/05/16	**0.0181**	**0.00530**	0.00500 U	**26.0**	-	**3.67**
R-1S	SPL-071916-04	07/19/16	**0.0240**	**0.0111**	0.00500 U	**23.6**	-	**4.13**
R-1S	SPL-102516-03	10/25/16	**0.0275**	0.00500 U	0.00500 U	**31.3**	-	**3.58**
R-1S	SPL-011717-03	01/17/17	**0.0404**	**0.00700**	0.00500 U	**29.2**	-	**1.30**
R-1S (FD)	SPL-011717-04	01/17/17	**0.0256**	**0.00810**	0.00500 U	**28.7**	-	**1.30**
R-1S	SPL-041817-03	04/18/17	**0.681 J**	**0.0100**	0.00500 U	**25.8**	-	**2.26**

Attachment D2a

Historical Groundwater Chemistry Data: Cyanide, Fluoride, and Chloride – Former SPL Area and East Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L
R-1S	SPL-071817-03	07/18/17	**0.0220**	**0.00810**	0.00500 U	**24.8**	**-**	**5.78**
R-1S	SPL-101717-04	10/17/17	**0.0335**	**0.00800**	0.00500 U	**25.0**	**-**	1.00 U
R-1S	SPL-011618-04	01/16/18	**0.0207**	**0.01030**	0.00500 UJ	**33.2**	**-**	**2.74**
R-1S	SPL-050818-03	05/08/18	**0.0208**	**0.00900**	0.00500 U	**27.4**	**-**	**1.77**
R-1S	SPL-072418-03	07/24/18	**0.0177**	**0.00700**	0.00500 U	**23.3**	**-**	**2.79**
R-1S (FD)	SPL-072418-04	07/24/18	**0.0159**	**0.00610**	0.00500 U	**23.3**	**-**	**2.81**
R-1S	SPL-102318-03	10/23/18	**0.0218**	**0.00830 J**	0.00500 U	**24.4**	**-**	**2.95**
R-1S	SPL-030419-03	03/04/19	**0.0176**	**0.00630**	0.00500 U	**26.7**	**-**	1.00 U
R-1S	SPL-050719-04	05/07/19	**0.0203 UJ**	0.00500 U	0.00500 U	**24.8**	**-**	1.00 U
R-1S	SPL-081919-04	08/19/19	**0.0177**	**0.00710**	0.00500 U	**21.3**	**-**	**2.30**
R-1S	AQ-R1S-102919	10/29/19	**-**	**-**	-	**29.4**	**23.8**	**-**
R-1D	MBT-030211-07	03/02/11	**0.0231**	**0.00860**	0.00500 U	1.00 U	-	**107**
R-1D	MBT-050911-06	05/09/11	**0.0520**	0.00510 U	0.00500 U	1.00 U	-	**108**
R-1D (FD)	MBT-050911-07	05/09/11	**0.0430**	**0.0142**	**0.00260**	1.00 U	-	**109**
R-1D	MBT-072511-04	07/25/11	**0.0432**	**0.0501**	**0.00660 J**	**0.586 J**	-	**108**
R-1D	R-1D-100511	10/05/11	**0.0537**	**0.0235**	**0.00360 J**	**0.668**	-	**105**
R-1D	MBT-011012-04	01/10/12	**0.0482**	**0.0248**	**0.00700**	**0.550 J**	-	**108**
R-1D	SPL-040312-07	04/03/12	**0.0377 J**	**0.0103**	0.00500 U	**0.615**	-	**108**
R-1D	SPL-070912-05	07/09/12	**0.0461**	**0.0143**	**0.00250 J**	**0.633**	-	**104**
R-1D	SPL-100312-05	10/03/12	**0.0590**	**0.0171**	**0.00290 J**	**0.879**	-	**105**
R-1D	SPL-021113-03	02/11/13	**0.0279**	**0.00760**	0.00500 U	**0.641**	-	**103**
R-1D	SPL-042213-04	04/22/13	**0.0349**	**0.0139**	**0.00260 J**	**0.668**	-	**110**
R-1D (FD)	SPL-042213-05	04/22/13	**0.0416**	**0.0173**	**0.00670**	**0.668**	-	**110**
R-1D	SPL-071513-06	07/15/13	**0.0403**	**0.0111**	**0.00800**	**0.628**	-	**105**
R-1D	SPL-100713-05	10/07/13	**0.0461**	**0.0149**	**0.00370 J**	**0.641**	-	**112**
R-1D	SPL-012914-06	01/29/14	**0.0458**	**0.0167**	**0.00730 J**	**0.625**	-	**108**
R-1D	SPL-042314-05	04/23/14	**0.0366**	**0.00950**	0.00500 U	**0.662**	-	**102**
R-1D	SPL-072314-06	07/23/14	**0.0392**	**0.00840**	0.00500 UJ	**0.668**	-	**99.5**
R-1D	SPL-110414-05	11/04/14	**0.0317**	**0.00570**	0.00500 U	**0.527**	-	**102**
R-1D (FD)	SPL-110414-06	11/04/14	**0.0329**	**0.0145**	**0.00210 J**	**0.527**	-	**102**

Attachment D2a

Historical Groundwater Chemistry Data: Cyanide, Fluoride, and Chloride – Former SPL Area and East Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L
R-1D	SPL-012115-05	01/21/15	**0.0415**	**0.0111 J**	0.00500 U	**0.738**	-	**114**
R-1D	SPL-041515-06	04/15/15	**0.0455**	**0.0161**	0.00500 UJ	**0.580**	-	**102**
R-1D	SPL-072315-06	07/23/15	**0.0364**	**0.00800**	0.00500 UJ	**0.618**	-	**100**
R-1D	SPL-101415-05	10/14/15	**0.0390**	**0.01320**	0.00500 UJ	**0.592**	-	**108**
R-1D	SPL-011316-06	01/13/16	**0.0421**	**0.0106**	**0.00560**	**0.582**	-	**99.1**
R-1D	SPL-040616-06	04/06/16	**0.687**	**0.0119**	0.00500 U	**7.03**	-	**99.4**
R-1D	SPL-072016-06	07/20/16	**0.0447**	**0.0118**	0.00500 UJ	**0.569**	-	**107**
R-1D	SPL-102616-05	10/26/16	**0.0412**	**0.0130**	**0.00260**	**0.627**	-	**102**
R-1D (FD)	SPL-102616-06	10/26/16	**0.0454**	**0.0131**	**0.00210**	**0.663**	-	**105**
R-1D	SPL-011817-06	01/18/17	**0.0436**	**0.0146**	0.00500 U	**0.566**	-	**16.9**
R-1D	SPL-041917-05	04/19/17	**0.0411 J**	**0.0108**	**0.00400 J**	**0.638**	-	**98.5**
R-1D	SPL-071917-06	07/19/17	**0.0342**	**0.00870**	**0.00300 J**	**0.555**	-	**97.5**
R-1D	SPL-101817-06	10/18/17	**0.0422**	**0.00970**	**0.0180**	**0.661**	-	**98.6**
R-1D	SPL-011718-06	01/17/18	**0.0367**	**0.0121**	**0.00400 J**	**0.577**	-	**99.2**
R-1D	SPL-050918-05	05/09/18	**0.0456**	**0.0245**	**0.00600**	**0.634**	-	**102**
R-1D (FD)	SPL-050918-06	05/09/18	**0.0463**	**0.0255**	0.00500 U	**0.572**	-	**102**
R-1D	SPL-072518-06	07/25/18	**0.0469**	**0.0142**	**0.00500**	**0.629**	-	**81.7**
R-1D	SPL-102418-05	10/24/18	**0.0500**	**0.0157**	**0.00700**	**0.608**	-	**95.7**
R-1D	SPL-030519-06	03/05/19	**0.0369**	**0.00670**	0.00500 U	**0.605**	-	**32.6**
R-1D	SPL-050819-06	05/08/19	**0.0332 UJ**	**0.00520**	0.00500 U	**0.604**	-	**93.6**
R-1D	SPL-082019-06	08/20/19	**0.0334**	**0.00610**	0.00500 U	**0.577**	-	**95.1**
R-2	MBT-030211-06	03/02/11	0.00500 U	0.00500 U	0.00500 U	1.00 U	-	**5.93**
R-2	MBT-050911-01	05/09/11	0.00500 U	0.00500 U	0.00500 U	1.00 U	-	**5.77**
R-2	MBT-072511-07	07/25/11	0.00500 U	0.00500 U	0.00500 UJ	**0.478 J**	-	**5.73**
R-2	R-2-100511	10/05/11	**0.00550**	0.00500 U	0.00500 U	**0.512**	-	**5.95**
R-2	MBT-011012-01	01/10/12	0.00500 U	0.00500 U	0.00500 U	**0.469 J**	-	**5.92**
R-2	SPL-040312-01	04/03/12	**0.00570 J**	0.00500 U	0.00500 U	**0.546**	-	**5.68**
R-2	SPL-070912-01	07/09/12	0.00500 U	0.00500 U	0.00500 U	**0.519**	-	**5.66**
R-2	SPL-100312-01	10/03/12	**0.00700**	0.00500 U	0.00500 U	**0.521**	-	**5.65**
R-2	SPL-021113-01	02/11/13	0.00500 U	0.00500 U	0.00500 U	**0.518**	-	**5.70**

Attachment D2a

Historical Groundwater Chemistry Data: Cyanide, Fluoride, and Chloride – Former SPL Area and East Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L
R-2	SPL-042213-01	04/22/13	0.00500 U	0.00500 U	0.00500 U	**0.546**	-	**5.56**
R-2	SPL-071513-01	07/15/13	**0.00530**	0.00500 U	**0.00230 J**	**0.567**	-	**5.51**
R-2 (FD)	SPL-071513-02	07/15/13	0.00500 U	0.00500 U	**0.00350 J**	**0.498**	-	**5.48**
R-2	SPL-100713-01	10/07/13	**0.00750**	0.00500 U	0.00500 U	**0.543**	-	**5.58**
R-2	SPL-012814-01	01/28/14	**0.00730**	0.00500 U	0.00500 U	**0.443**	-	**6.24**
R-2	SPL-042214-01	04/22/14	0.00500 U	0.00500 U	0.00500 U	**0.544**	-	**6.00**
R-2	SPL-072214-01	07/22/14	0.00500 U	0.00500 U	0.00500 U	**0.469**	-	**5.35**
R-2	SPL-110314-01	11/03/14	0.00500 U	0.00500 U	**0.00210 J**	**0.541**	-	**5.86**
R-2	SPL-012015-02	01/20/15	**0.00670**	0.00500 UJ	**0.00380 J**	**0.664**	-	**5.36**
R-2	SPL-041415-01	04/14/15	0.00500 U	0.00500 U	0.00500 U	**0.520**	-	**5.34**
R-2 (FD)	SPL-041415-02	04/14/15	0.00500 U	0.00500 U	0.00500 U	**0.514**	-	**5.35**
R-2	SPL-072215-01	07/22/15	0.00500 U	0.00500 U	0.00500 U	**0.504**	-	**5.46**
R-2	SPL-101315-01	10/13/15	0.00500 U	0.00500 U	0.00500 U	**0.378**	-	**5.69**
R-2	SPL-011216-01	01/12/16	0.00500 U	0.00500 U	0.00500 UJ	**1.210**	-	**5.35**
R-2	SPL-040516-01	04/05/16	**0.0116**	0.00500 U	0.00500 U	**0.908**	-	**5.15**
R-2	SPL-071916-01	07/19/16	**0.00540**	0.00500 U	0.00500 U	**0.718**	-	**5.72**
R-2 (FD)	SPL-071916-02	07/19/16	**0.00650**	0.00500 U	0.00500 U	**0.716**	-	**5.72**
R-2	SPL-102516-01	10/25/16	**0.00760**	0.00500 U	0.00500 UJ	**0.720**	-	**5.62**
R-2	SPL-011717-01	01/17/17	0.00500 U	0.00500 U	0.00500 UJ	**0.633**	-	**5.25**
R-2	SPL-041817-01	04/18/17	0.00500 UJ	0.00500 U	0.00500 UJ	**0.858**	-	**5.31**
R-2	SPL-071817-01	07/18/17	**0.0104**	0.00500 U	0.00500 U	**0.723**	-	**5.27**
R-2	SPL-101717-01	10/17/17	0.00500 U	0.00500 U	0.00500 U	**0.454**	-	**5.60**
R-2	SPL-011618-01	01/16/18	0.00500 U	**0.01080**	0.00500 UJ	**0.852**	-	**5.34**
R-2 (FD)	SPL-011618-02	01/16/18	0.00500 U	0.00500 U	0.00500 UJ	**0.845**	-	**5.35**
R-2	SPL-050818-01	05/08/18	0.00500 U	0.00500 U	0.00500 U	**0.773**	-	**5.38**
R-2	SPL-072418-01	07/24/18	**0.00500**	0.00500 U	0.00500 U	**0.673**	-	**5.13**
R-2	SPL-102318-01	10/23/18	0.00500 U	0.00500 U	0.00500 U	**0.470**	-	**5.29**
R-2	SPL-030419-01	03/04/19	**0.00510**	0.00500 U	0.00500 U	**0.556**	-	**5.50**
R-2	SPL-050719-01	05/07/19	0.00500 U	0.00500 U	0.00500 U	**0.540**	-	**5.25**
R-2	SPL-081919-01	08/19/19	0.00500 U	0.00500 U	0.00500 U	**0.504**	-	**5.63**

Attachment D2a

Historical Groundwater Chemistry Data: Cyanide, Fluoride, and Chloride – Former SPL Area and East Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L
R-2 (FD)	SPL-081919-02	08/19/19	**0.00690**	0.00500 U	0.00500 U	**0.500**	**-**	**5.54**
R-2	AQ-R2-102919	10/29/19	**-**	-	-	**0.614**	**0.576**	**-**
R-3	MBT-030211-05	03/02/11	**253**	**0.0368**	0.00500 U	**2020**	**-**	**64.5**
R-3	MBT-050911-02	05/09/11	**353**	**0.304**	**0.00840**	**2020**	**-**	**63.5**
R-3	MBT-072511-03	07/25/11	**368**	**0.734**	**0.00720 J**	**2100**	**-**	**47.6**
R-3	R-3-100511	10/05/11	**376**	**0.488**	**0.00620**	**2180**	**-**	**74.7**
R-3	MBT-011012-02	01/10/12	**407**	**0.279**	**0.02110 J**	**2200**	**-**	**68.4**
R-3	SPL-040312-02	04/03/12	**396 J**	**0.815**	**0.0330**	**2000**	**-**	**70.8**
R-3	SPL-070912-02	07/09/12	**356**	**0.605**	0.0050 U	**1970**	**-**	**69.5**
R-3 (FD)	SPL-070912-03	07/09/12	**360**	**0.590**	0.0050 U	**1920**	**-**	**69.0**
R-3	SPL-100312-07	10/03/12	**363**	**0.484**	**0.00580**	**1920**	**-**	**61.0**
R-3	SPL-021213-06	02/12/13	**309**	**0.034**	**0.00980**	**2010**	**-**	**63.1**
R-3	SPL-042213-02	04/22/13	**300**	**0.893**	**0.00680**	**1960**	**-**	**63.4**
R-3	SPL-071513-03	07/15/13	**284**	**0.126**	**0.00880**	**2060**	**-**	**56.4**
R-3	SPL-100713-02	10/07/13	**266**	**0.229**	**0.0105**	**1980**	**-**	**79.7**
R-3	SPL-012814-02	01/28/14	**214**	**0.740**	**0.00630**	**1820**	**-**	**62.9**
R-3	SPL-042214-02	04/22/14	**222**	**4.450**	0.00500 U	**1900**	**-**	**61.0**
R-3	SPL-072214-02	07/22/14	**214**	**0.429**	**0.00360 J**	**1840**	**-**	**58.4**
R-3 (FD)	SPL-072214-03	07/22/14	**222**	**0.362**	**0.00450 J**	**1910**	**-**	**60.3**
R-3	SPL-110314-02	11/03/14	**272**	**0.0965**	0.00500 U	**1940**	**-**	**59.6**
R-3	SPL-012015-01	01/20/15	**245**	**0.0712 J**	**0.00810**	**1880**	**-**	**59.5**
R-3	SPL-041415-03	04/14/15	**263**	**0.514**	**0.01190**	**1920**	**-**	**58.0**
R-3	SPL-072215-02	07/22/15	**228**	**0.496**	0.00500 U	**1700**	**-**	**58.9**
R-3	SPL-101315-04	10/13/15	**240**	**0.7170**	**0.0115**	**2000**	**-**	**54.4**
R-3	SPL-011216-02	01/12/16	**293**	**0.523 J**	0.00500 U	**1910**	**-**	**50.4**
R-3	SPL-040516-02	04/05/16	**189**	**0.325**	**0.00340 J**	**1690**	**-**	**81.6**
R-3 (FD)	SPL-040516-03	04/05/16	**219**	**0.203**	**0.00330 J**	**1800**	**-**	**83.6**
R-3	SPL-071916-03	07/19/16	**238**	**0.849**	0.00500 U	**1800**	**-**	**61.2**
R-3	SPL-102516-02	10/25/16	**235**	**0.0960**	**0.00820**	**1880**	**-**	**59.7**
R-3	SPL-011717-02	01/17/17	**194**	**0.198**	**0.00500**	**1700**	**-**	**51.5**

Attachment D2a

Historical Groundwater Chemistry Data: Cyanide, Fluoride, and Chloride – Former SPL Area and East Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L
R-3	SPL-041817-02	04/18/17	**147 J**	**2.02**	**0.00400 J**	**1510**	**-**	**62.4**
R-3	SPL-071817-02	07/18/17	**156**	**0.648**	**0.00700**	**1610**	**-**	**55.7**
R-3	SPL-101717-02	10/17/17	**184**	**0.479 J**	**0.00700**	**3360**	**-**	**141**
R-3 (FD)	SPL-101717-03	10/17/17	**187**	**0.354 J**	**0.00800**	**3270**	**-**	**147**
R-3	SPL-011618-03	01/16/18	**90.1**	**3.25**	**0.00500 J**	**1040**	**-**	**40.3**
R-3	SPL-050818-02	05/08/18	**179**	**3.38**	**0.00500**	**1520**	**-**	**49.8**
R-3	SPL-072418-02	07/24/18	**174**	**0.179**	**0.00400 J**	**1650**	**-**	**49.3**
R-3	SPL-102318-02	10/23/18	**200**	**4.34 J**	**0.00500**	**1730**	**-**	**47.0**
R-3	SPL-030419-02	03/04/19	**115**	**0.177**	**0.00251**	**1100**	**-**	**39.8**
R-3	SPL-050719-02	05/07/19	**128**	**0.154**	**0.00322**	**1190**	**-**	**41.6**
R-3 (FD)	SPL-050719-03	05/07/19	**65.3 UJ**	**0.180**	**0.00370**	**1130**	**-**	**41.1**
R-3	SPL-081919-03	08/19/19	**147**	**3.37**	0.00500 U	**1240**	**-**	**49.4**
R-4S	MBT-030111-03	03/01/11	**0.0222**	**0.00530**	0.00500 UJ	**8.44**	**-**	**8.64**
R-4S	MBT-050911-05	05/09/11	**0.0203**	**0.0174**	0.00500 U	**7.70**	**-**	**8.65**
R-4S	MBT-072511-05	07/25/11	**0.0250**	**0.0295**	0.00500 UJ	**8.25**	**-**	**8.66**
R-4S (FD)	MBT-072511-06	07/25/11	**0.0245**	**0.0293**	0.00500 UJ	**8.28**	**-**	**8.66**
R-4S	R-4S-100511	10/05/11	**0.0238**	**0.00970**	0.00500 U	**11.4**	**-**	**9.49**
R-4S	MBT-011012-07	01/10/12	**0.0247**	**0.0110**	0.00500 U	**12.0**	**-**	**10.9**
R-4S	SPL-040312-04	04/03/12	**0.0182 J**	**0.00910**	0.00500 U	**9.79**	**-**	**11.2**
R-4S (FD)	SPL-040312-05	04/03/12	**0.0392 J**	**0.00720**	0.00500 U	**9.63**	**-**	**11.2**
R-4S	SPL-070912-07	07/09/12	**0.0294**	**0.00680**	0.00500 U	**8.35**	**-**	**11.0**
R-4S	SPL-100312-02	10/03/12	**0.0310**	**0.00860**	0.00500 U	**14.5**	**-**	**8.32**
R-4S	SPL-021213-07	02/12/13	**0.0232**	**0.00690**	0.00500 U	**15.7**	**-**	**8.31**
R-4S	SPL-042213-07	04/22/13	**0.0231**	**0.00700**	0.00500 U	**21.6**	**-**	**8.60**
R-4S	SPL-071513-07	07/15/13	**0.0239**	**0.00540**	**0.00250 J**	**12.4**	**-**	**8.17**
R-4S	SPL-100713-07	10/07/13	**0.0251**	**0.00830**	0.00500 U	**13.9**	**-**	**8.58**
R-4S	SPL-012914-07	01/29/14	**0.0224**	**0.00880**	0.00500 UJ	**16.5**	**-**	**7.02**
R-4S	SPL-042314-06	04/23/14	**0.0234**	**0.00750**	0.00500 U	**0.410**	**-**	**9.09**
R-4S (FD)	SPL-042314-07	04/23/14	**0.0236**	**0.00640**	0.00500 U	**14.6**	**-**	**9.97**
R-4S	SPL-072314-07	07/23/14	**0.0236**	**0.00540**	0.00500 UJ	**15.5**	**-**	**8.54**

Attachment D2a

Historical Groundwater Chemistry Data: Cyanide, Fluoride, and Chloride – Former SPL Area and East Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L
R-4S	SPL-110414-07	11/04/14	**0.0220**	**0.00640**	**0.00220 J**	**15.8**	-	**9.04**
R-4S	SPL-012115-06	01/21/15	**0.0252**	**0.00950 J**	0.00500 U	**16.3**	-	**8.65**
R-4S (FD)	SPL-012115-07	01/21/15	**0.0252**	**0.00930 J**	0.00500 U	**15.7**	-	**8.71**
R-4S	SPL-041515-07	04/15/15	**0.0235**	**0.00840**	0.00500 UJ	**16.0**	-	**8.55**
R-4S	SPL-072315-07	07/23/15	**0.0213**	**0.00790**	0.00500 UJ	**17.0**	-	**8.35**
R-4S	SPL-101415-06	10/14/15	**0.0241**	**0.00710**	0.00500 UJ	**15.5**	-	**7.84**
R-4S (FD)	SPL-101415-07	10/14/15	**0.0271**	**0.00660**	0.00500 UJ	**18.5**	-	**8.30**
R-4S	SPL-011316-07	01/13/16	**0.0230**	**0.00760**	0.00500 U	**15.4**	-	**8.28**
R-4S	SPL-040616-07	04/05/16	**0.119**	**0.0100**	0.00500 U	**12.4**	-	**8.80**
R-4S	SPL-072016-07	07/20/16	**0.0222**	0.0100 U	0.00500 UJ	**16.9**	-	**8.69**
R-4S	SPL-102616-07	10/26/16	**0.288**	**0.00680**	0.00500 U	**19.2**	-	**8.33**
R-4S	SPL-011817-07	01/18/17	**0.0211**	**0.00770**	0.00500 U	**20.0**	-	**7.51**
R-4S	SPL-041917-06	04/19/17	**0.0349 J**	**0.00580**	0.00500 UJ	**14.6**	-	**8.46**
R-4S (FD)	SPL-041917-07	04/19/17	**0.0239 J**	**0.00620**	0.00500 UJ	**15.1**	-	**8.41**
R-4S	SPL-071917-07	07/19/17	**0.0212**	**0.00810**	0.00500 UJ	**18.0**	-	**7.98**
R-4S	SPL-101817-07	10/18/17	**0.0212**	**0.0103**	0.00500 U	**20.3**	-	**7.50**
R-4S	SPL-011718-07	01/17/18	**0.0157**	**0.0101**	0.00500 UJ	**15.5**	-	**7.87**
R-4S	SPL-050918-07	05/09/18	**0.0251**	**0.0180**	0.00500 U	**14.5**	-	**8.71**
R-4S	SPL-072518-07	07/25/18	**0.0218**	**0.00780**	**0.00300 J**	**17.2**	-	**7.54**
R-4S	SPL-102418-06	10/24/18	**0.0200**	**0.00650**	0.00500 U	**18.9**	-	**7.14**
R-4S (FD)	SPL-102418-07	10/24/18	**0.0202**	**0.00700**	0.00500 U	**18.6**	-	**7.14**
R-4S	SPL-030519-07	03/05/19	**0.0195**	**0.00550**	0.00500 U	**19.6**	-	**7.42**
R-4S	SPL-050819-07	05/08/19	**0.0178**	0.00500 U	0.00500 U	**15.5**	-	**7.27**
R-4S	SPL-082019-07	08/20/19	**0.0179**	**0.00550**	**0.00363 J**	**22.3**	-	**7.28**
R-4S	AQ-R4S-103019	10/30/19	-	-	0.00500 U	**19.3**	**17.8**	-
R-4D	MBT-030111-01	03/01/11	**0.0259**	**0.00550**	0.00500 UJ	**1.70**	-	**8.89**
R-4D (FD)	MBT-030111-02	03/01/11	**0.0256**	**0.00540**	0.00500 UJ	**1.68**	-	**8.91**
R-4D	MBT-050911-04	05/09/11	**0.0296**	0.00690 U	0.00500 U	**1.83**	-	**8.88**
R-4D	MBT-072511-01	07/25/11	**0.0380**	**0.0175**	0.00500 UJ	**1.83**	-	**8.89**
R-4D	R-4D-100511	10/05/11	**0.0259**	**0.00630**	0.00500 U	**1.54**	-	**8.99**

Attachment D2a

Historical Groundwater Chemistry Data: Cyanide, Fluoride, and Chloride – Former SPL Area and East Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L
R-4D	MBT-011012-05	01/10/12	**0.0340**	**0.00680**	0.00500 U	**1.76**	-	**8.79**
R-4D (FD)	MBT-011012-06	01/10/12	**0.0309**	**0.00680**	0.00500 U	**1.72**	-	**8.79**
R-4D	SPL-040312-03	04/03/12	**0.0419 J**	**0.00860**	0.00500 U	**2.15**	-	**8.97**
R-4D	SPL-070912-06	07/09/12	**0.0366**	**0.00850**	0.00500 U	**2.12**	-	**11.2**
R-4D	SPL-100312-03	10/03/12	**0.0292**	**0.00660**	0.00500 U	**2.10**	-	**9.16**
R-4D (FD)	SPL-100312-04	10/03/12	**0.0299**	**0.00660**	0.00500 U	**2.09**	-	**9.22**
R-4D	SPL-021113-04	02/11/13	**0.0309**	**0.00600**	0.00500 U	**1.94**	-	**9.28**
R-4D (FD)	SPL-021113-05	02/11/13	**0.0309**	**0.00600**	0.00500 U	**1.93**	-	**9.26**
R-4D	SPL-042213-06	04/22/13	**0.0430**	**0.00590**	0.00500 U	**1.85**	-	**9.41**
R-4D	SPL-071513-04	07/15/13	**0.0357**	**0.00520**	0.00500 U	**1.76**	-	**9.22**
R-4D	SPL-100713-06	10/07/13	**0.0409**	**0.00750**	0.00500 U	**1.94**	-	**8.94**
R-4D	SPL-012814-05	01/28/14	**0.0323**	**0.00720**	0.00500 U	**1.50**	-	**10.8**
R-4D	SPL-042214-04	04/22/14	**0.0292**	0.00500 U	0.00500 U	**1.75**	-	**10.0**
R-4D	SPL-072214-05	07/22/14	**0.0257**	0.00500 U	0.00500 U	**1.53**	-	**8.88**
R-4D	SPL-110314-04	11/03/14	**0.0255**	**0.00540**	0.00500 U	**1.75**	-	**10.1**
R-4D	SPL-012015-04	01/20/15	**0.0286**	0.00500 UJ	**0.00450 J**	**1.60**	-	**9.93**
R-4D	SPL-041415-05	04/14/15	**0.0249**	0.00500 U	0.00500 U	**1.32**	-	**9.86**
R-4D	SPL-072215-05	07/22/15	**0.0260**	0.00500 U	0.00500 U	**1.33**	-	**9.93**
R-4D	SPL-101315-03	10/13/15	**0.0252**	**0.00600**	0.00500 U	**1.36**	-	**10.1**
R-4D	SPL-011216-04	01/12/16	**0.0243**	0.00500 U	0.00500 U	**1.63**	-	**9.58**
R-4D(FD)	SPL-011216-05	01/12/16	**0.0239**	0.00500 U	0.00500 U	**1.46**	-	**9.58**
R-4D	SPL-040516-05	04/05/16	**0.0271**	0.00500 U	0.00500 U	**1.68**	-	**9.96**
R-4D	SPL-071916-05	07/19/16	**0.0284**	**0.00620**	0.00500 U	**1.42**	-	**10.6**
R-4D	SPL-102516-04	10/25/16	**0.0254**	0.00500 U	0.00500 U	**1.92**	-	**10.1**
R-4D	SPL-011717-05	01/17/17	**0.0271**	0.00500 U	0.00500 U	**1.38**	-	**9.47**
R-4D	SPL-041817-04	04/18/17	**0.0437 J**	0.00500 U	0.00500 U	**1.98**	-	**10.1**
R-4D	SPL-071817-04	07/18/17	**0.0245**	0.00500 U	0.00500 U	**1.77**	-	**9.62**
R-4D (FD)	SPL-071817-05	07/18/17	**0.0240**	0.00500 U	0.00500 U	**1.67**	-	**9.41**
R-4D	SPL-101717-05	10/17/17	**0.0264**	**0.00660**	0.00500 U	**1.62**	-	**9.64**
R-4D	SPL-011618-05	01/16/18	**0.0283**	**0.00640**	0.00500 UJ	**1.62**	-	**10.0**

Attachment D2a

Historical Groundwater Chemistry Data: Cyanide, Fluoride, and Chloride – Former SPL Area and East Groundwater Area

Location ID	Sample ID	Date	Total Cyanide mg/L	WAD Cyanide mg/L	Free Cyanide mg/L	Fluoride mg/L	Dissolved Fluoride mg/L	Chloride mg/L
R-4D	SPL-050818-04	05/08/18	**0.0249**	**0.00910**	0.00500 U	**1.69**	**-**	**10.4**
R-4D	SPL-072418-05	07/24/18	**0.0350**	**0.00570**	0.00500 U	**1.59**	**-**	**9.37**
R-4D	SPL-102318-04	10/23/18	**0.0263**	0.00500 U	0.00500 U	**1.72**	**-**	**9.08**
R-4D	SPL-030419-04	03/04/19	**0.0290**	0.01000 U	0.00500 U	**1.49**	**-**	**9.79**
R-4D (FD)	SPL-030419-05	03/04/19	**0.0258**	**0.00540**	0.00500 U	**1.45**	**-**	**9.79**
R-4D	SPL-050719-05	05/07/19	**0.0232** UJ	0.00500 U	0.00500 U	**1.44**	**-**	**8.91**
R-4D	SPL-081919-05	08/19/19	**0.0247**	0.00500 U	0.00500 U	**1.54**	**-**	**9.73**
G1-S	AQ-G1S-102919	10/29/19	-	-	-	**13.9**	**12.1**	-
G1-S (FD)	AQ-G1S-D-102919	10/29/19	-	-	-	**12.8**	**12.3**	-
G2-S	AQ-G2S-102919	10/29/19	-	-	-	**25.6**	**25.7**	-
G3-S	AQ-G3S-103019	10/30/19	-	-	-	**31.1**	**28.2**	-
G4-S	AQ-G4S-103019	10/30/19	-	-	0.00500 U	**0.244**	**0.279**	-
G4-D	AQ-G4D-103019	10/30/19	-	-	-	**0.243**	**0.240**	-
SSA7-MW-01	D	D	-	-	-	-	-	-

Notes:

Bold: detected value

J: estimated value

U: not detected above method reporting limit

UJ: not detected above estimated detection limit

D: well dry—no sample collected

FD: field duplicate

mg/L: milligram per liter (parts per million)

WAD: weak acid dissociable

Attachment D2b

Historical Groundwater Chemistry Data: cPAHs – East Groundwater Area

Location ID	Sample ID	Date	Acenaphthene µg/L		Acenaphthylene µg/L		Anthracene µg/L		Benz(a)anthracene µg/L		Benzo(a)pyrene µg/L		Benzo(b)fluoranthene µg/L		Benzo(k)fluoranthene µg/L		Carbazole µg/L		Dibenzofuran µg/L		Benzo(g,h,i)perylene µg/L	
R4-S	AQ-R4S-103019	10/30/19	0.0331	U	0.0331	U	**0.139**		**0.114**		0.0165	U	0.0165	U	0.0165	U	**0.0349**		0.0331	U	0.0331	U
G4-S	AQ-G4S-103019	10/30/19	0.0339	U	0.0339	U	0.0339	U	0.0170	U	0.0170	U	0.0170	U	0.0170	U	0.0339	U	0.0339	U	0.0339	U

Notes:
Bold: detected value
U: not detected above method reporting limit

µg/L: microgram per liter (parts per billion)

Attachment D2b

Historical Groundwater Chemistry Data: cPAHs – East Groundwater Area

Location ID	Sample ID	Date	Chrysene µg/L		Dibenz(a,h) anthracene µg/L		Fluoranthene µg/L		Fluorene µg/L		Indeno (1,2,3-cd)pyrene µg/L		1-Methylnaphthalene µg/L		2-Methylnaphthalene µg/L		Naphthalene µg/L		Phenanthrene µg/L		Pyrene µg/L	
R4-S	AQ-R4S-103019	10/30/19	0.0165	U	0.0165	U	0.0331	U	0.0331	U	0.0165	U	0.0661	U	0.0661	U	0.0661	U	0.0661	U	0.0331	U
G4-S	AQ-G4S-103019	10/30/19	0.0170	U	0.0170	U	0.0339	U	0.0339	U	0.0170	U	0.0679	U	0.0679	U	0.0679	U	0.0679	U	0.0339	U

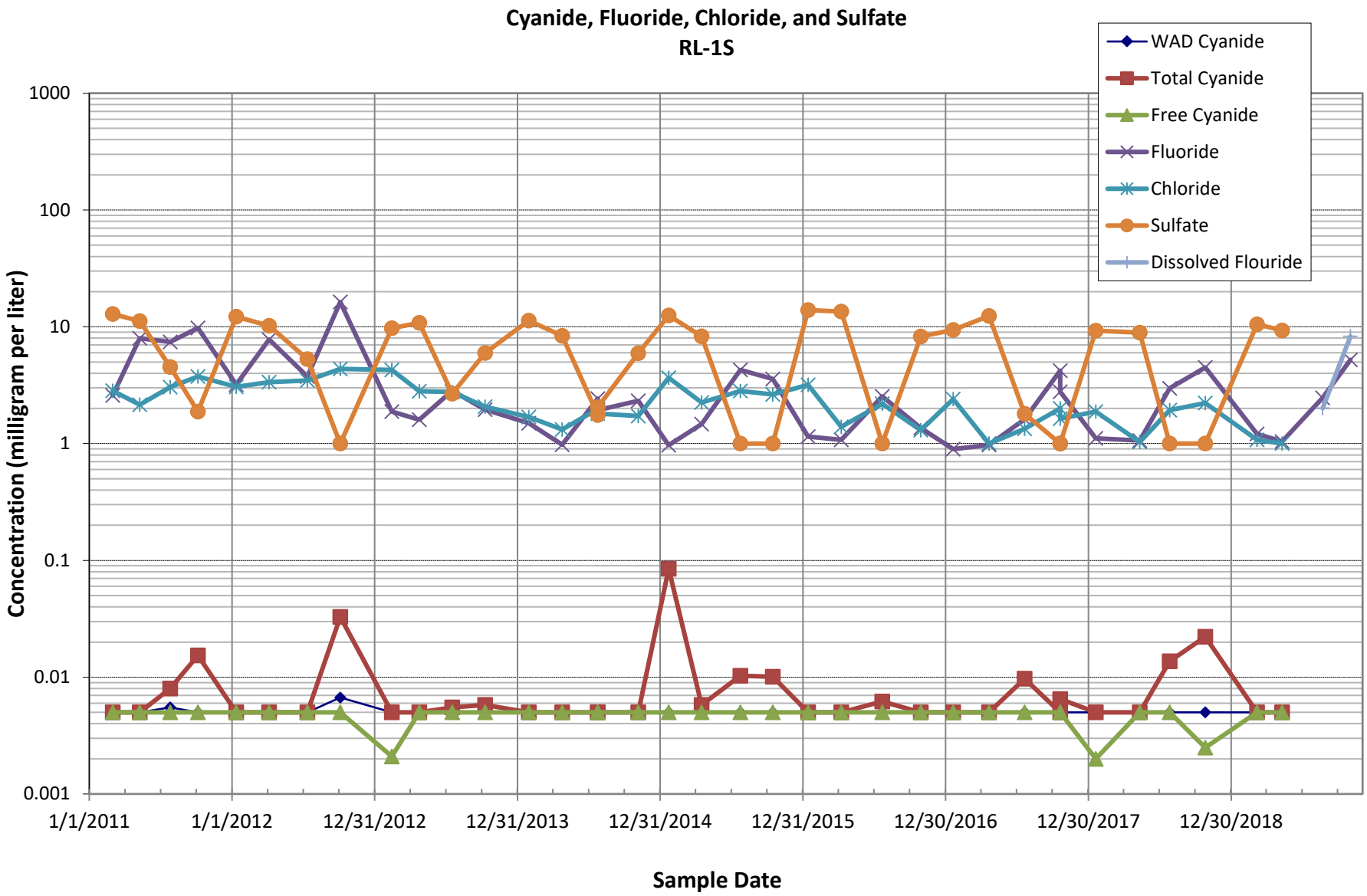
Notes:
Bold: detected value
U: not detected above method reporting limit

µg/L: microgram per liter (parts per billion)

Attachment E
Time-Series Concentration Plots

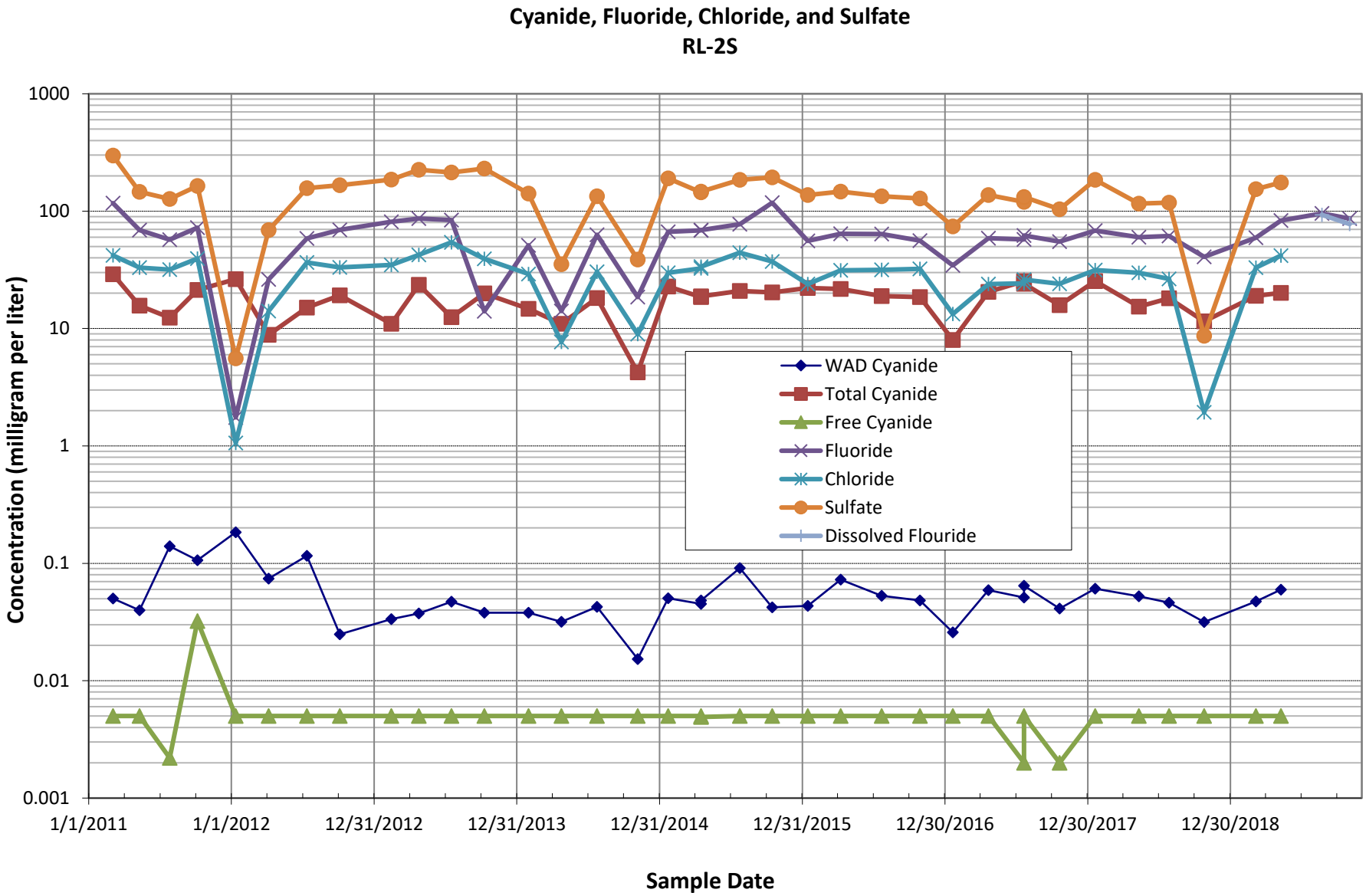
Attachment E1

Time-Series Concentration Plots – Closed BMP and West Groundwater Area



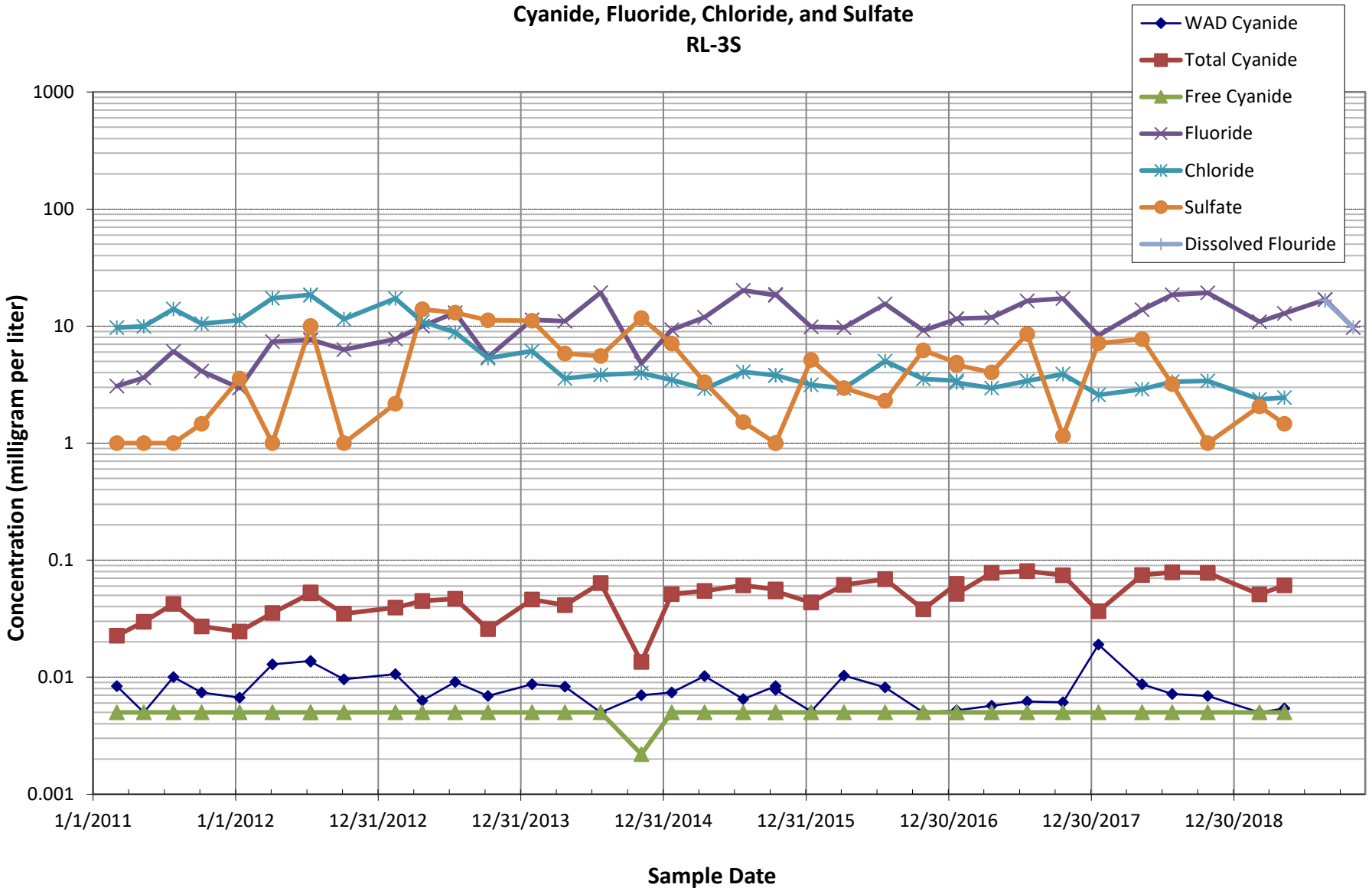
Attachment E1

Time-Series Concentration Plots – Closed BMP and West Groundwater Area



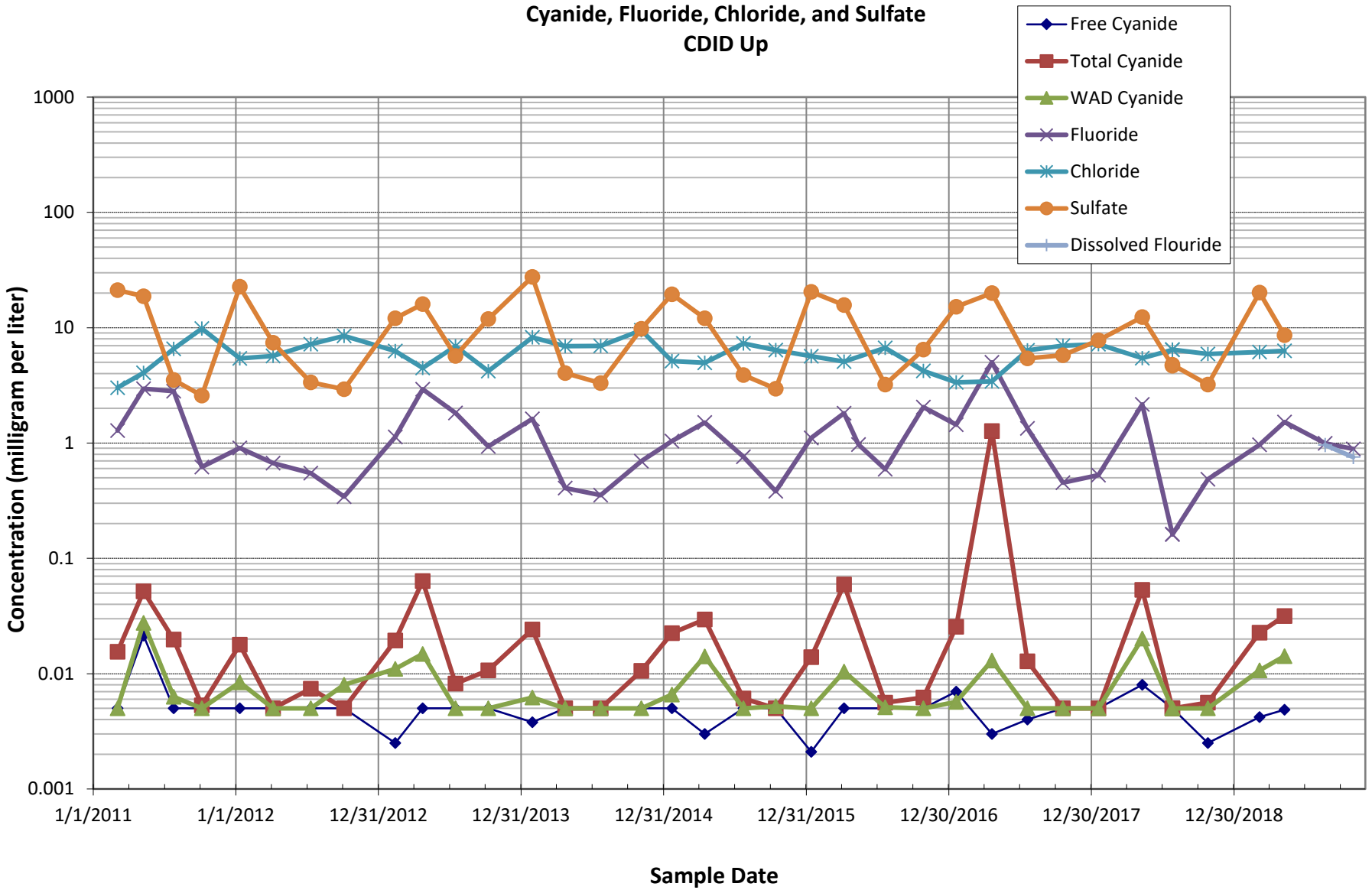
Attachment E1

Time-Series Concentration Plots – Closed BMP and West Groundwater Area



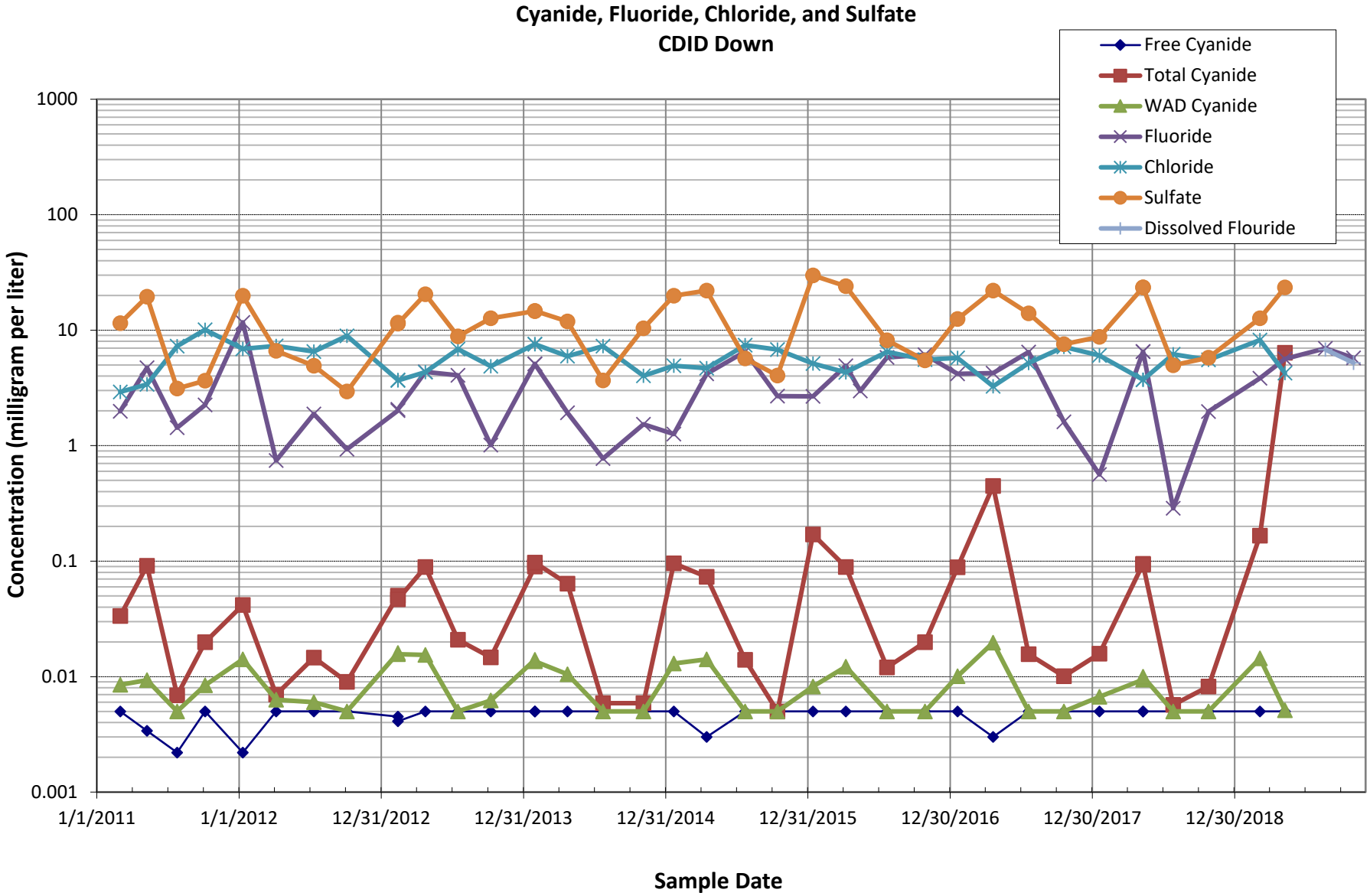
Attachment E1

Time-Series Concentration Plots – Closed BMP and West Groundwater Area



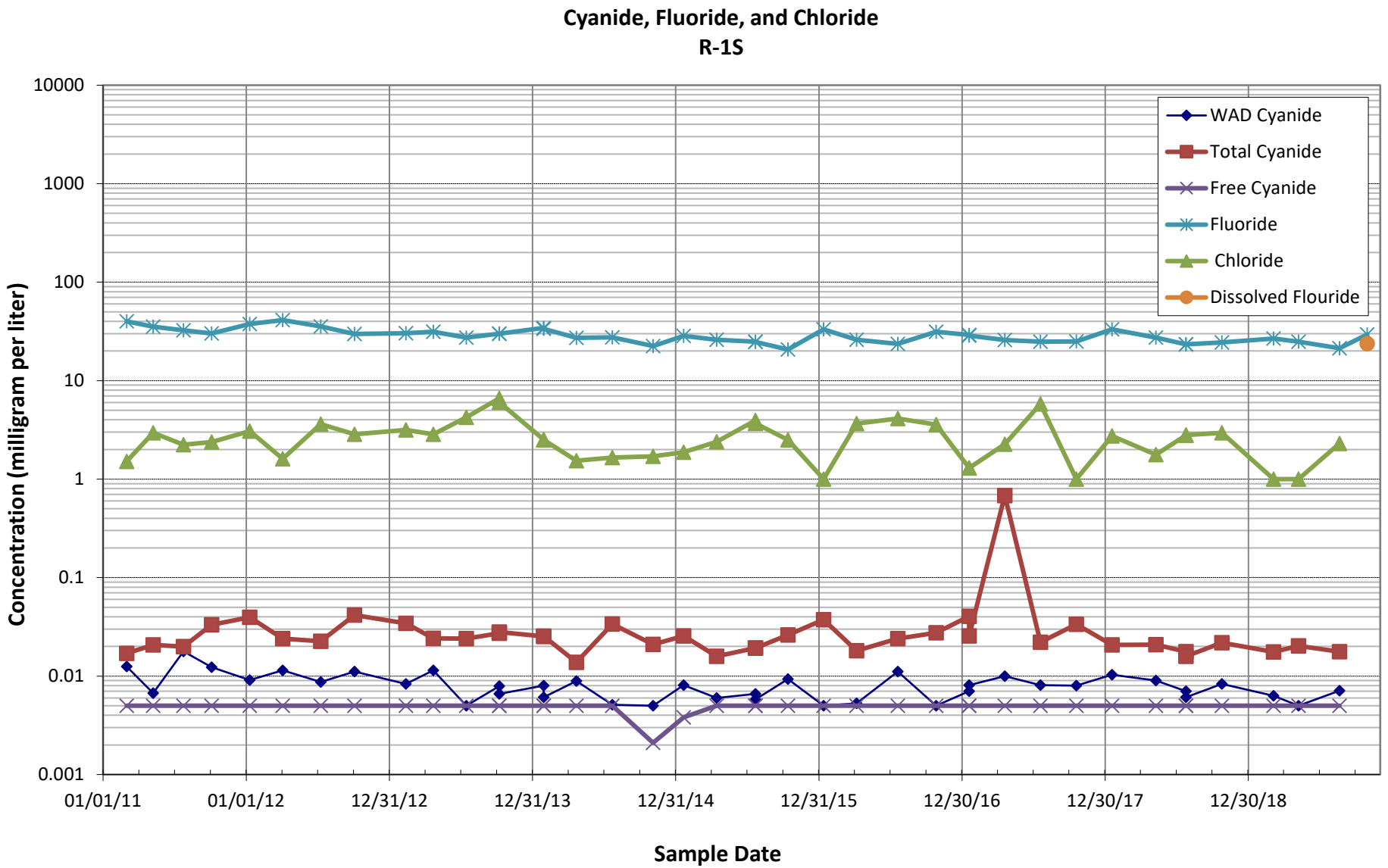
Attachment E1

Time-Series Concentration Plots – Closed BMP and West Groundwater Area



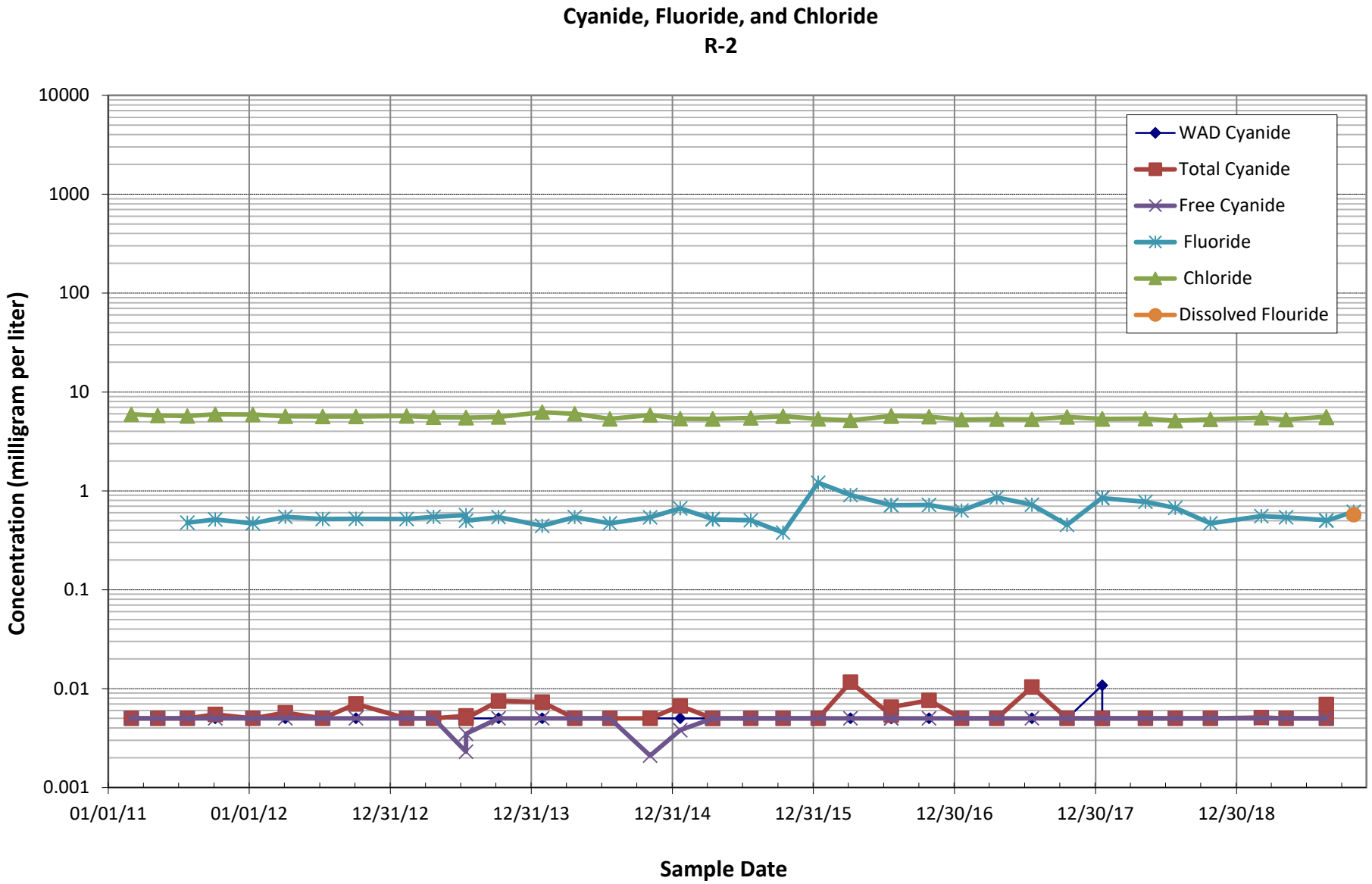
Attachment E2

Time-Series Concentration Plots – Former SPL Area and East Groundwater Area



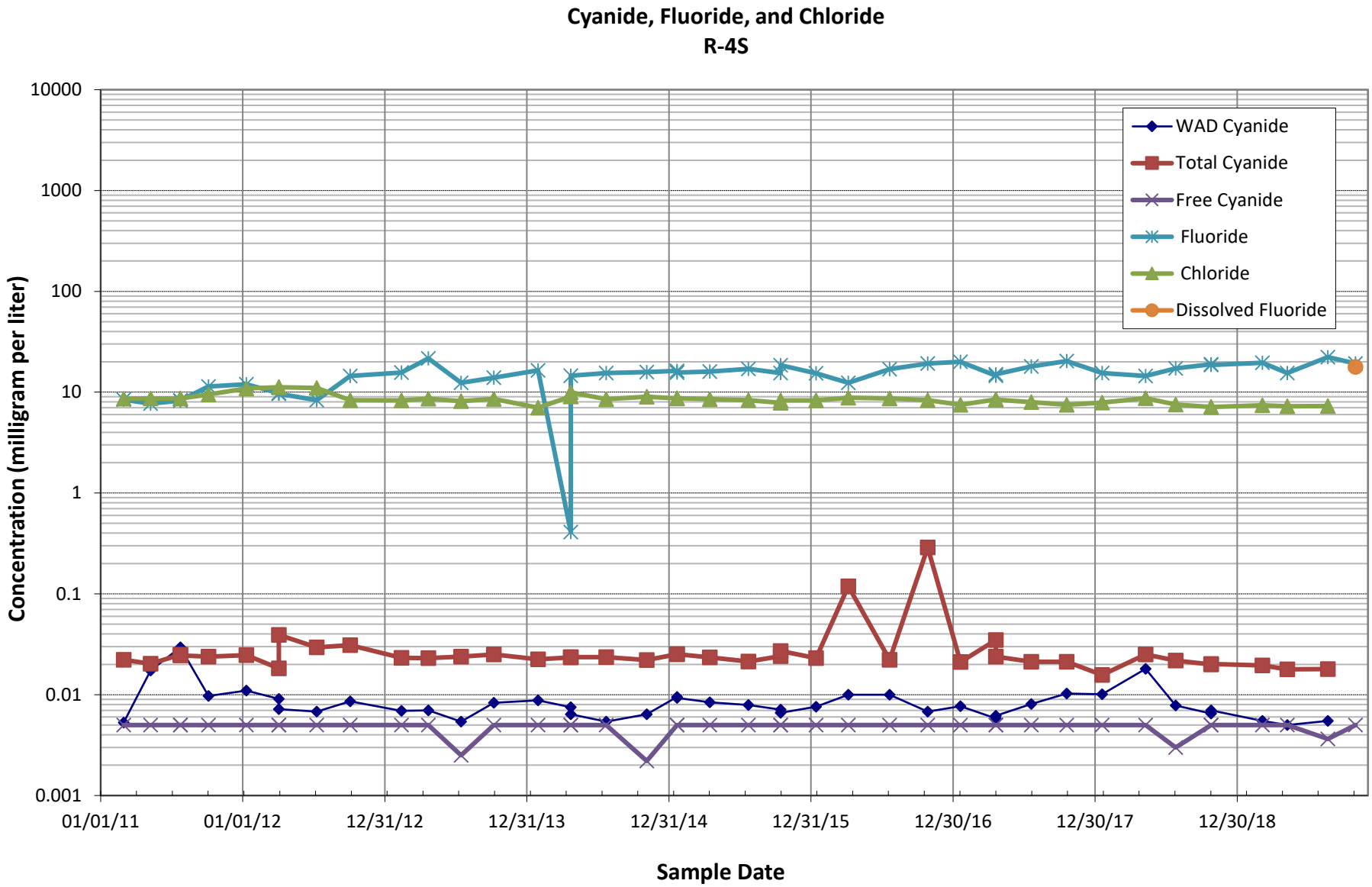
Attachment E2

Time-Series Concentration Plots – Former SPL Area and East Groundwater Area



Attachment E2

Time-Series Concentration Plots – Former SPL Area and East Groundwater Area



Attachment F
Data Validation Reports

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ANCHOR QEA

Data Validation Report – USEPA Stage 2A

April 29, 2019

Project: Former Reynolds Metals Reduction Plant – Longview

Project Number: 200730-01.02

Task: Black Mud Pond Groundwater and Surface Water

This report summarizes the review of analytical results for 11 water samples and one field duplicate collected on March 5 and 6, 2019. The samples were collected by Anchor QEA, LLC, and submitted to Apex Laboratories, LLC (Apex), in Tigard, Oregon. The samples were analyzed for the following parameters:

- Chloride (Cl^-) and sulfate ($SO4^-$) by U.S. Environmental Protection Agency (USEPA) Method 300.0
- Fluoride (F^-) by Standard Method (SM) 4500-F C
- Total Cyanide (CN) by USEPA Method 335.4
- Weak acid dissociable (WAD) CN by SM 4500-CN (I/E)
- Free CN by ASTM International Method D4282
- Total and dissolved metals by USEPA Method 200.8

Apex sample data groups (SDGs) A9C0109 and A9C0151 were reviewed in this report. Sample IDs, matrices, and analyses are presented in Table 1.

Table 1
Sample IDs, Matrices, and Analyses

Sample ID	Well ID	Lab Sample ID	Matrix	Analyses
BMPS-030519-01	CDID Down	A9C0109-01	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMPS-030519-02	CDID Up	A9C0109-02	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-030519-03	RL-2S	A9C0109-03	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-030519-04	RL-2D	A9C0109-04	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-030519-05	RL-5	A9C0109-05	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-030519-06	RL-3S	A9C0109-06	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-030619-07	RL-1S	A9C0151-01	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-030619-08	RL-1D	A9C0151-02	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-030619-09	RL-4D	A9C0151-03	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-030619-10	RL-4D (FD)	A9C0151-04	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-030619-11	RL-4S	A9C0151-05	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-030619-12	RL-3D	A9C0151-06	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals

Note:
FD: field duplicate

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/ quality control (QA/QC) guidelines outlined in the analytical procedures. Laboratory results were reviewed using the laboratory control limits and the following guidelines:

- *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater and Surface Water Monitoring of Closed Black Mud Pond* (Anchor QEA 2013)
- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986)
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2017)

Unless noted in this report, laboratory results for the samples listed above were within QA/QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by Apex at the time of receipt; the samples were received within the recommended temperature range and in good condition.

Holding Times and Sample Preservation

All samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes.

Field Quality Control

Field Duplicate

One field duplicate was collected in association with this sample set. Parent and/or field duplicate results that were less than five times the reporting limit (RL) were evaluated by the difference between the results using the control limit of ± the parent RL. Detected results are summarized in Table 2. All relative percent difference (RPD) or difference values were within control limits, and no data were qualified based on field duplicate results.

Table 2
Field Duplicate Summary

Analyte	BMP-030619-09	BMP-030619-10	RPD	Difference	Reporting Limit
Calcium	40.1 mg/L	40.5 mg/L	1.0%	--	--
Magnesium	18.6 mg/L	18.6 mg/L	0.0%	--	--
Sodium	37.3 mg/L	36.8 mg/L	1.3%	--	--
Arsenic	1.03 µg/L	0.989 µg/L	4.1%	--	--
Chloride	5.98 mg/L	5.97 mg/L	0.2%	--	--
Fluoride	0.372 mg/L	0.356 mg/L	--	0.016 mg/L	0.1 mg/L

Notes:
µg/L: micrograms per liter
mg/L: milligrams per liter

Laboratory Control Samples and Laboratory Control Sample Duplicates

Laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs) were analyzed at the required frequency. All LCS and LCSD analyses resulted in recoveries or RPDs within project-required control limits.

Matrix Spike Samples

Matrix spike (MS) samples were analyzed at the required frequency, or LCSs were analyzed in place of MS samples. Results from MS analyses conducted on non-project samples were not evaluated. No data were qualified if the sample concentration was greater than four times the spike concentration. All MS recovery values were within project-required control limits.

Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequency. Duplicates analyzed on non-project samples were not evaluated. Parent and/or duplicate results that were less than five times the RL were evaluated by the difference between the results using the control limit of ± RL. All duplicate RPD and/or difference values were within control limits.

Method Reporting Limits

RLs were acceptable as reported. All values were reported using the laboratory RLs. Values were reported as undiluted, or when diluted, the RL reflects the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods, and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the LCS/LCSD and MS recovery values. Precision was acceptable as demonstrated by the LCS/LCSD,

laboratory, and field duplicate RPD values. All data are acceptable as reported and completeness goals were met.

References

Anchor QEA (Anchor QEA, LLC) 2013. *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater and Surface Water Monitoring of Closed Black Mud Pond*. September 2013.

USEPA (U.S. Environmental Protection Agency), 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*. Third Edition. Office of Solid Waste and Emergency Response. EPA-530/SW-846.

USEPA, 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. EPA-540-R-2017-001. January 2017.

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Data Validation Report – USEPA Stage 2A

April 29, 2019

Project: Former Reynolds Metals Reduction Plant – Longview

Project Number: 200730-01.02

Task: Spent Potliner Groundwater

This report summarizes the review of analytical results for six water samples and one field duplicate collected on March 4 and 5, 2019. The samples were collected by Anchor QEA, LLC, and submitted to Apex Laboratories, LLC (Apex), in Tigard, Oregon. The samples were analyzed for the following parameters:

- Chloride (Cl^-) by U.S. Environmental Protection Agency (USEPA) Method 300.0
- Fluoride (F^-) by Standard Method (SM) 4500-F C
- Total Cyanide (CN) by USEPA Method 335.4
- Weak acid dissociable (WAD) CN by SM 4500-CN (I/E)
- Free CN by ASTM International Method D4282

Apex sample data groups (SDGs) A8C0072 and A8C0111 were reviewed in this report. Sample IDs, matrices, and analyses are presented in Table 1.

Table 1
Sample IDs, Matrices, and Analyses

Sample ID	Well ID	Lab Sample ID	Matrix	Analyses
SPL-030419-01	R-2	A9C0072-01	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-030419-02	R-3	A9C0072-02	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-030419-03	R-1S	A9C0072-03	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-030419-04	R-4D	A9C0072-04	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-030419-05	R-4D (FD)	A9C0072-05	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-030519-06	R-1D	A9C0111-01	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-030519-07	R-4S	A9C0111-02	Water	Cl^-, F^-, CN, WAD CN, Free CN

Note:
FD: field duplicate

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/ quality control (QA/QC) guidelines outlined in the analytical procedures. Laboratory results were reviewed using the laboratory control limits and the following guidelines:

- *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater Monitoring of the Former Spent Potliner Area* (Anchor QEA 2013)

- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986)
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2017)

Unless noted in this report, laboratory results for the samples listed above were within QA/QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by Apex at the time of receipt; the samples were received within the recommended temperature range and in good condition.

Holding Times and Sample Preservation

Samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes.

Field Quality Control

Field Duplicates

One field duplicate was collected in association with this sample set. Detected results are summarized in Table 2.

Table 2
Field Duplicate Summary

Analyte	SPL-030419-04	SPL-030419-05	RPD	Difference	Reporting Limit
Cl^-	9.79 mg/L	9.79 mg/L	0.0%	--	--
WAD CN	0.01 mg/L	0.0054 mg/L	--	0.0046	0.0100
F^-	1.49 mg/L	1.45 mg/L	2.7%	--	--
CN	0.029 mg/L	0.0258 mg/L	--	0.0032	0.0100

Notes:
mg/L: milligrams per liter

Result values less than five times the reporting limit (RL) may have exaggerated relative percent difference (RPD) values; therefore, if the sample or field duplicate result was less than five times the RL, the sample result is evaluated by the difference between them.

All RPD and/or difference values were within control limits, so no data were qualified based on field duplicate results.

Laboratory Control Samples and Laboratory Control Sample Duplicates

Laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs) were analyzed at the required frequency. All LCS and LCSD analyses resulted in recoveries and RPDs within project-required control limits.

Matrix Spike and Matrix Spike Duplicate Samples

Matrix spike (MS) and matrix spike duplicate (MSD) samples were analyzed at the required frequency. Results from MS analyses conducted on non-project samples were not evaluated. MS and MSD analyses resulted in recoveries and RPDs within project-required control limits.

Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequency. Duplicate result values less than five times the RL may have exaggerated RPD values; therefore, if the sample or duplicate result was less than five times the RL, the sample result is evaluated by the difference between them. Results from duplicate analyses conducted on non-project samples were not evaluated. All RPD and/or difference values were within control limits.

Method Reporting Limits

RLs were acceptable as reported. All values were reported using the laboratory RLs. Values were reported as undiluted, or when diluted, the RL reflects the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods, and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the LCS/LCSD and MS/MSD recovery values. Precision was acceptable as demonstrated by the LCS/LCSD, field duplicate, and laboratory duplicate RPD or difference values. All data are acceptable as reported, and completeness goals were met.

References

Anchor QEA (Anchor QEA, LLC), 2013. *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater Monitoring of the Former Spent Potliner Area*. September 2013.

USEPA (U.S. Environmental Protection Agency), 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*. Third Edition. Office of Solid Waste and Emergency Response. EPA-530/SW-846.

USEPA, 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. United States Environmental Protection Agency. EPA-540-R-2017-001. January 2017.

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ANCHOR QEA

Data Validation Report – USEPA Stage 2A

June 13, 2019

Project: Former Reynolds Metals Reduction Plant – Longview

Project Number: 200730-01.02

Task: Black Mud Pond Groundwater and Surface Water

This report summarizes the review of analytical results for 11 water samples and one field duplicate collected on May 8 and 9, 2019. The samples were collected by Anchor QEA, LLC, and submitted to Apex Laboratories, LLC (Apex), in Tigard, Oregon. The samples were analyzed for the following parameters:

- Chloride (Cl^-) and sulfate ($SO4^-$) by U.S. Environmental Protection Agency (USEPA) Method 300.0
- Fluoride (F^-) by Standard Method (SM) 4500-F C
- Total Cyanide (CN) by USEPA Method 335.4
- Weak acid dissociable (WAD) CN by SM 4500-CN (I/E)
- Free CN by ASTM International Method D4282
- Total and dissolved metals by USEPA Method 200.8

Apex sample data groups (SDGs) A9E0271 and A9E0328 were reviewed in this report. Sample IDs, matrices, and analyses are presented in Table 1.

Table 1
Sample IDs, Matrices, and Analyses

Sample ID	Well ID	Lab Sample ID	Matrix	Analyses
BMPS-050819-01	CDID Down	A9E0271-01	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMPS-050819-02	CDID Up	A9E0271-02	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-050819-03	RL-2S	A9E0271-03	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-050819-04	RL-2D	A9E0271-04	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-050819-05	RL-5	A9E0271-05	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-050819-06	RL-5 (FD)	A9E0271-06	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-050819-07	RL-3S	A9E0271-07	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-050919-08	RL-1S	A9E0328-01	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-050919-09	RL-1D	A9E0328-02	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-050919-10	RL-4D	A9E0328-03	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-050919-11	RL-4S	A9E0328-04	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals
BMP-050919-12	RL-3D	A9E0328-05	Water	Cl^-, $SO4^-$, F^-, CN, WAD CN, Free CN, metals

Note:
FD: field duplicate

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/ quality control (QA/QC) guidelines outlined in the analytical procedures. Laboratory results were reviewed using the laboratory control limits and the following guidelines:

- *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater and Surface Water Monitoring of Closed Black Mud Pond* (Anchor QEA 2013)
- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986)
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2017)

Unless noted in this report, laboratory results for the samples listed above were within QA/QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by Apex at the time of receipt; the samples were received within the recommended temperature range and in good condition.

Holding Times and Sample Preservation

All samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes, with the following exceptions:

- SDG A9E0328: One method blank for dissolved arsenic had a result above the reporting limit (RL). Associated sample results were significantly greater than (greater than five times) the method blank detection, so no data were qualified.
- SDG A9E0271: One method blank for dissolved calcium had a result above the RL. Associated sample results were significantly greater than (greater than five times) the method blank detection, so no data were qualified.

Field Quality Control

Field Duplicate

One field duplicate was collected in association with this sample set. Parent and/or field duplicate results that were less than five times the RL were evaluated by the difference between the results using the control limit of ± the parent RL. Detected results are summarized in Table 2. All relative percent difference (RPD) or difference values were within control limits, and no data were qualified based on field duplicate results.

Table 2
Field Duplicate Summary

Analyte	BMP-050819-05	BMP-050819-06	RPD	Difference	Reporting Limit
Arsenic	0.876B µg/L	0.838B µg/L	4.4%	--	--
Calcium	4.64 mg/L	4.78 mg/L	3.0%	--	--
Chloride	4.54 mg/L	4.53 mg/L	--	0.001 mg/L	1 mg/L
Chromium	0.000729 mg/L	0.000628 mg/L	--	0.000101 mg/L	0.001 mg/L
Copper	0.0185 mg/L	0.0183 mg/L	1.1%	--	--
Cyanide, Total	0.038 mg/L	0.0327 mg/L	15.0%	--	--
Cyanide, WAD	0.0051 mg/L	0.0053 mg/L	--	0.0002 mg/L	0.005 mg/L
Fluoride	2.44 mg/L	2.42 mg/L	0.8%	--	--
Magnesium	1.94 mg/L	2.01 mg/L	3.5%	--	--
Nickel	0.00411 mg/L	0.00424 mg/L	--	0.00013 mg/L	0.001 mg/L
Sodium	86.3 mg/L	87.5 mg/L	1.4%	--	--
Sulfate	34.2 mg/L	34.5 mg/L	0.9%	--	--

Notes:
µg/L: micrograms per liter
mg/L: milligrams per liter

Laboratory Control Samples and Laboratory Control Sample Duplicates

Laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs) were analyzed at the required frequency. All LCS and LCSD analyses resulted in recoveries or RPDs within project--required control limits.

Matrix Spike and Matrix Spike Duplicate Samples

Matrix spike (MS) and matrix spike duplicate (MSD) samples were analyzed at the required frequency, or LCSs were analyzed in place of MS/MSD samples. Results from MS and MSD analyses conducted on non-project samples were not evaluated. No data were qualified if the sample concentration was greater than four times the spike concentration. All MS and MSD recovery values were within project-required control limits.

Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequency. Duplicates analyzed on non-project samples were not evaluated. Parent and/or duplicate results that were less than five times the RL were evaluated by the difference between the results using the control limit of ± RL. All duplicate RPD and/or difference values were within control limits.

Method Reporting Limits

RLs were acceptable as reported. All values were reported using the laboratory RLs. Values were reported as undiluted, or when diluted, the RL reflects the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods, and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the LCS/LCSD and MS/MSD recovery values. Precision was acceptable as demonstrated by the LCS/LCSD, laboratory, and field duplicate RPD values. All data are acceptable as reported and completeness goals were met.

References

Anchor QEA (Anchor QEA, LLC) 2013. *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater and Surface Water Monitoring of Closed Black Mud Pond*. September 2013.

USEPA (U.S. Environmental Protection Agency), 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*. Third Edition. Office of Solid Waste and Emergency Response. EPA-530/SW-846.

USEPA, 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. EPA-540-R-2017-001. January 2017.

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ANCHOR QEA

Data Validation Report – USEPA Stage 2A

May 13, 2019

Project: Former Reynolds Metals Reduction Plant – Longview

Project Number: 200730-01.02

Task: Spent Potliner Groundwater

This report summarizes the review of analytical results for six water samples and one field duplicate collected on May 7 and 8, 2019. The samples were collected by Anchor QEA, LLC, and submitted to Apex Laboratories, LLC (Apex), in Tigard, Oregon. The samples were analyzed for the following parameters:

- Chloride (Cl^-) by U.S. Environmental Protection Agency (USEPA) Method 300.0
- Fluoride (F^-) by Standard Method (SM) 4500-F C
- Total Cyanide (CN) by USEPA Method 335.4
- Weak acid dissociable (WAD) CN by SM 4500-CN (I/E)
- Free CN by ASTM International Method D4282

Apex sample data groups (SDGs) A9E0233 and A9E0273 were reviewed in this report. Sample IDs, matrices, and analyses are presented in Table 1.

Table 1
Sample IDs, Matrices, and Analyses

Sample ID	Well ID	Lab Sample ID	Matrix	Analyses
SPL-050719-01	R-2	A9E0223-01	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-050719-02	R-3	A9E0223-02	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-050719-03	R-3 (FD)	A9E0223-03	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-050719-04	R-1S	A9E0223-04	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-050719-05	R-4D	A9E0223-05	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-050819-06	R-1D	A9E0273-01	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-050819-07	R-4S	A9E0273-02	Water	Cl^-, F^-, CN, WAD CN, Free CN

Note:
FD: field duplicate

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/ quality control (QA/QC) guidelines outlined in the analytical procedures. Laboratory results were reviewed using the laboratory control limits and the following guidelines:

- *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater Monitoring of the Former Spent Potliner Area* (Anchor QEA 2013)

- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986)
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2017)

Unless noted in this report, laboratory results for the samples listed above were within QA/QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by Apex at the time of receipt; the samples were received within the recommended temperature range and in good condition.

Holding Times and Sample Preservation

Samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes.

Field Quality Control

Field Duplicates

One field duplicate was collected in association with this sample set. Detected results are summarized in Table 2.

Table 2
Field Duplicate Summary

Analyte	SPL-050719-02	SPL-050719-03	RPD	Difference	Control Limit
Chloride	41.6 mg/L	41.1 mg/L	--	0.00048 mg/L	0.005 mg/L
Cyanide, WAD	0.154 mg/L	0.180 mg/L	16%	--	--
Cyanide, Free	0.00322 mg/L	0.00370 mg/L	--	0.00048 mg/L	0.005 mg/L
Fluoride	1,190 mg/L	1130 mg/L	5%	--	--
Cyanide, Total	128 mg/L	65.3 mg/L	65%	--	--

Note:
mg/L: milligrams per liter

Result values less than five times the reporting limit (RL) may have exaggerated relative percent difference (RPD) values; therefore, if the sample or field duplicate result was less than five times the RL, the sample result is evaluated by the difference between them.

All RPD and/or difference values were within control limits, with the exception of the total CN RPD, which was above the project-required control limit. No data were qualified based on field duplicate results.

Laboratory Control Samples and Laboratory Control Sample Duplicates

Laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs) were analyzed at the required frequency. All LCS and LCSD analyses resulted in recoveries and RPDs within project-required control limits.

Matrix Spike and Matrix Spike Duplicate Samples

Matrix spike (MS) and matrix spike duplicate (MSD) samples were analyzed at the required frequency. Results from MS analyses conducted on non-project samples were not evaluated. MS and MSD analyses resulted in recoveries and RPDs within project-required control limits.

Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequency. Duplicate result values less than five times the RL may have exaggerated RPD values; therefore, if the sample or duplicate result was less than five times the RL, the sample result is evaluated by the difference between them. Results from duplicate analyses conducted on non-project samples were not evaluated. All RPD and/or difference values were within control limits, with the exception of total CN for sample SPL-050719-04, which had an RPD above the project-required control limit. Associated detected sample results were qualified "J" to indicate they are estimated. All qualified results are summarized in Table 3.

Method Reporting Limits

RLs were acceptable as reported. All values were reported using the laboratory RLs. Values were reported as undiluted or when diluted, the RL reflects the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods, and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the LCS/LCSD and MS recovery values. Precision was acceptable as demonstrated by the LCS/LCSD, field duplicate, and laboratory duplicate RPD or difference values. All data are acceptable as reported or qualified, and completeness goals were met.

Data Qualifier Definitions

J Indicates an estimated value

Table 3
Data Qualification Summary

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
SPL-050719-03	Conventionals	Cyanide, Total	65.3 mg/L	65.3J mg/L	Lab duplicate RPD above control
SPL-050719-04	Conventionals	Cyanide, Total	0.0203 mg/L	0.0203J mg/L	Lab duplicate RPD above control
SPL-050719-05	Conventionals	Cyanide, Total	0.0232 mg/L	0.0232J mg/L	Lab duplicate RPD above control
SPL-050819-06	Conventionals	Cyanide, Total	0.0332 mg/L	0.0332J mg/L	Lab duplicate RPD above control

References

Anchor QEA (Anchor QEA, LLC), 2013. *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater Monitoring of the Former Spent Potliner Area*. September 2013.

USEPA (U.S. Environmental Protection Agency), 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*. Third Edition. Office of Solid Waste and Emergency Response. EPA-530/SW-846.

USEPA, 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. United States Environmental Protection Agency. EPA-540-R-2017-001. January 2017.

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Data Validation Report – USEPA Stage 2A

November 19, 2019

Project: Former Reynolds Metals Reduction Plant – Longview

Project Number: 200730-01.02

Task: Black Mud Pond Groundwater and Surface Water

This report summarizes the review of analytical results for eight water samples and one field duplicate collected on August 20 and 21, 2019. The samples were collected by Anchor QEA, LLC, and submitted to Apex Laboratories, LLC (Apex), in Tigard, Oregon. The samples were analyzed for the following parameters:

- Total and dissolved fluoride (F^-) by Standard Method (SM) 4500-F C

Apex sample data groups (SDGs) A9H0653 and A9H0674 were reviewed in this report. Sample IDs, matrices, and analyses are presented in Table 1.

Table 1
Sample IDs, Matrices, and Analyses

Sample ID	Well ID	Lab Sample ID	Matrix	Analyses
BMPS-082019-01	CDID Down	A9H0653-01	Water	F^-
BMPS-082019-02	CDID Up	A9H0653-02	Water	F^-
BMPS-082019-03	W-2	A9H0653-03	Water	F^-
BMP-082019-04	PZ-6	A9H0653-04	Water	F^-
BMP-082019-05	PZ-7	A9H0653-05	Water	F^-
BMP-082019-06	RL-3S	A9H0653-06	Water	F^-
BMP-082019-07	RL-3S (FD)	A9H0653-07	Water	F^-
BMP-082119-08	RL-1S	A9H0674-01	Water	F^-
BMP-082119-09	RL-2S	A9H0674-02	Water	F^-

Note:
FD: field duplicate

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/ quality control (QA/QC) guidelines outlined in the analytical procedures. Laboratory results were reviewed using the laboratory control limits and the following guidelines:

- *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater and Surface Water Monitoring of Closed Black Mud Pond* (Anchor QEA 2013)
- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986)
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2017)

Unless noted in this report, laboratory results for the samples listed above were within QA/QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by Apex at the time of receipt; the samples were received within the recommended temperature range and in good condition.

Holding Times and Sample Preservation

All samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies and were free of target analytes.

Field Quality Control

Field Duplicate

One field duplicate was collected in association with this sample set. All relative percent difference (RPD) values were within control limits, and no data were qualified based on field duplicate results.

Table 2
Field Duplicate Summary

Analyte	BMP-082019-06	BMP-082019-07	RPD
Total F^-	16.8 mg/L	16.9 mg/L	0.6%
Dissolved F^-	16.6 mg/L	16.5 mg/L	0.6%

Note:
mg/L: milligrams per liter

Laboratory Control Samples and Laboratory Control Sample Duplicates

Laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs) were analyzed at the required frequency. All LCS and LCSD analyses resulted in recoveries or RPDs within project-required control limits.

Matrix Spike Samples

Matrix spike (MS) samples were analyzed at the required frequency, or LCSs were analyzed in place of MS samples. Results from MS analyses conducted on non-project samples were not evaluated. No

data were qualified if the sample concentration was greater than four times the spike concentration. All MS recovery values were within project-required control limits.

Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequency. Duplicates analyzed on non-project samples were not evaluated. Parent and/or duplicate results that were less than five times the RL were evaluated by the difference between the results using the control limit of ± RL. All duplicate RPD and/or difference values were within control limits.

Method Reporting Limits

RLs were acceptable as reported. All values were reported using the laboratory RLs. Values were reported as undiluted, or when diluted, the RL reflects the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods, and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the LCS/LCSD and MS/MSD recovery values. Precision was acceptable as demonstrated by the LCS/LCSD, laboratory, and field duplicate RPD values. All data are acceptable as reported and completeness goals were met.

References

Anchor QEA (Anchor QEA, LLC) 2013. *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater and Surface Water Monitoring of Closed Black Mud Pond*. September 2013.

USEPA (U.S. Environmental Protection Agency), 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*. Third Edition. Office of Solid Waste and Emergency Response. EPA-530/SW-846.

USEPA, 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. EPA-540-R-2017-001. January 2017.

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Data Validation Report – USEPA Stage 2A

November 12, 2019

Project: Former Reynolds Metals Reduction Plant – Longview

Project Number: 200730-01.02

Task: Spent Potliner Groundwater

This report summarizes the review of analytical results for six water samples and one field duplicate collected on August 19 and 20, 2019. The samples were collected by Anchor QEA, LLC, and submitted to Apex Laboratories, LLC (Apex), in Tigard, Oregon. The samples were analyzed for the following parameters:

- Chloride (Cl^-) by U.S. Environmental Protection Agency (USEPA) Method 300.0
- Fluoride (F^-) by Standard Method (SM) 4500-F C
- Total Cyanide (CN) by USEPA Method 335.4
- Weak acid dissociable (WAD) CN by SM 4500-CN (I/E)
- Free CN by ASTM International Method D4282

Apex sample data groups (SDGs) A9H0615 and A9H0649 were reviewed in this report. Sample IDs, matrices, and analyses are presented in Table 1.

Table 1
Sample IDs, Matrices, and Analyses

Sample ID	Well ID	Lab Sample ID	Matrix	Analyses
SPL-081919-01	R-2	A9H0615-01	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-081919-02	R-2 (FD)	A9H0615-02	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-081919-03	R-3	A9H0615-03	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-081919-04	R-1S	A9H0615-04	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-081919-05	R-4D	A9H0615-05	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-082019-06	R-1D	A9H0649-01	Water	Cl^-, F^-, CN, WAD CN, Free CN
SPL-082019-07	R-4S	A9H0649-02	Water	Cl^-, F^-, CN, WAD CN, Free CN

Note:
FD: field duplicate

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/ quality control (QA/QC) guidelines outlined in the analytical procedures. Laboratory results were reviewed using the laboratory control limits and the following guidelines:

- *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater Monitoring of the Former Spent Potliner Area* (Anchor QEA 2013)

- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986)
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2017)

Unless noted in this report, laboratory results for the samples listed above were within QA/QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by Apex at the time of receipt; the samples were received within the recommended temperature range and in good condition.

Holding Times and Sample Preservation

Samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes.

Field Quality Control

Field Duplicates

One field duplicate was collected in association with this sample set. Detected results are summarized in Table 2.

Table 2
Field Duplicate Summary

Analyte	SPL-081919-01	SPL-081919-02	RPD	Difference	Reporting Limit
Chloride	5.63 mg/L	5.54 mg/L	1.6 %	--	--
Cyanide, Total	0.005U mg/L	0.0069 mg/L	--	0.0019	0.005 mg/L
Fluoride	0.504 mg/L	0.5 mg/L	0.8%	--	--

Note:
mg/L: milligrams per liter
U: indicates the analyte was analyzed for but not detected at or above the specified limit

Result values less than five times the reporting limit (RL) may have exaggerated relative percent difference (RPD) values; therefore, if the sample or field duplicate result was less than five times the RL, the sample result is evaluated by the difference between them.

All RPD and/or difference values were within control limits.

Laboratory Control Samples and Laboratory Control Sample Duplicates

Laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs) were analyzed at the required frequency. All LCS and LCSD analyses resulted in recoveries and RPDs within project-required control limits.

Matrix Spike and Matrix Spike Duplicate Samples

Matrix spike (MS) and matrix spike duplicate (MSD) samples were analyzed at the required frequency. Results from MS analyses conducted on non-project samples were not evaluated. MS and MSD analyses resulted in recoveries and RPDs within project-required control limits.

Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequency. Duplicate result values less than five times the RL may have exaggerated RPD values; therefore, if the sample or duplicate result was less than five times the RL, the sample result is evaluated by the difference between them. Results from duplicate analyses conducted on non-project samples were not evaluated. All RPD and/or difference values were within control limits.

Method Reporting Limits

RLs were acceptable as reported. All values were reported using the laboratory RLs. Values were reported as undiluted or when diluted, the RL reflects the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods, and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the LCS/LCSD and MS recovery values. Precision was acceptable as demonstrated by the LCS/LCSD, field duplicate, and laboratory duplicate RPD or difference values. All data are acceptable as reported, and completeness goals were met.

References

Anchor QEA (Anchor QEA, LLC), 2013. *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater Monitoring of the Former Spent Potliner Area*. September 2013.

USEPA (U.S. Environmental Protection Agency), 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*. Third Edition. Office of Solid Waste and Emergency Response. EPA-530/SW-846.

USEPA, 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. United States Environmental Protection Agency. EPA-540-R-2017-001. January 2017.

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Data Validation Report – USEPA Stage 2A

January 14, 2020

Project: Former Reynolds Metals Reduction Plant – Longview

Project Number: 200730-01.02

Task: West Groundwater and Surface Water

This report summarizes the review of analytical results for 11 water samples and one field duplicate collected on October 30 and 31, 2019. The samples were collected by Anchor QEA, LLC, and submitted to Apex Laboratories, LLC (Apex), in Tigard, Oregon. The samples were analyzed for the following parameters:

- Total and dissolved fluoride (F^-) by Standard Method (SM) 4500-F C

Apex sample data groups (SDGs) A9J1105 and A9K0008 were reviewed in this report. Sample IDs, matrices, and analyses are presented in Table 1.

Table 1
Sample IDs, Matrices, and Analyses

Sample ID	Well ID	Lab Sample ID	Matrix	Analyses
AQ-PZ6-103019	PZ-6	A9J1105-01	Water	F^-
AQ-G6S-103019	G6-S	A9J1105-02	Water	F^-
AQ-G6D-103019	G6-D	A9J1105-03	Water	F^-
AQ-G6D-D-103019	G6-D (FD)	A9J1105-04	Water	F^-
AQ-PZ7-103019	PZ-7	A9J1105-05	Water	F^-
AQ-RL1S-103119	RL-1S	A9K0008-01	Water	F^-
AQ-RL2S-103119	RL-2S	A9K0008-02	Water	F^-
AQ-RL3S-103119	RL-3S	A9K0008-03	Water	F^-
AQ-RLSW2-103119	RLSW-2	A9K0008-04	Water	F^-
AQ-CDIDdown-103119	CDID Down	A9K0008-05	Water	F^-
AQ-CDIDup-103119	CDID Up	A9K0008-06	Water	F^-
AQ-W2-103119	W-2	A9K0008-07	Water	F^-

Note:
FD: field duplicate

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/ quality control (QA/QC) guidelines outlined in the analytical procedures. Laboratory results were reviewed using the laboratory control limits and the following guidelines:

- *Sampling and Analysis Plan and Quality Assurance Project Plan, Interim Groundwater and Surface Water Monitoring* (Anchor QEA 2019)
- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986)
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2017)

Unless noted in this report, laboratory results for the samples listed above were within QA/QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by Apex at the time of receipt; the samples were received within the recommended temperature range and in good condition.

Holding Times and Sample Preservation

All samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies and were free of target analytes.

Field Quality Control

Field Duplicate

One field duplicate was collected in association with this sample set. Result values less than five times the reporting limit (RL) may have exaggerated relative percent difference (RPD) values; therefore, if the sample or field duplicate result was less than five times the RL, the sample result was evaluated by the difference between them using the RL as the control limit. All difference values were within the control limits, and no data were qualified based on field duplicate results.

Detected results are summarized in Table 2.

Table 2
Field Duplicate Summary

Analyte	AQ-G6D-103019	AQ-G6D-D-103019	Difference	Reporting Limit
Total F^-	2.83 mg/L	2.85 mg/L	0.02 mg/L	1 mg/L
Dissolved F^-	2.59 mg/L	2.58 mg/L	0.01 mg/L	1 mg/L

Note:
mg/L: milligrams per liter

Laboratory Control Samples

Laboratory control samples (LCSs) were analyzed at the required frequency. All LCS analyses resulted in recoveries within project-required control limits.

Matrix Spike Samples

Matrix spike (MS) samples and matrix spike duplicate (MSD) samples were analyzed at the required frequency. Results from MS and MSD analyses conducted on non-project samples were not evaluated. No data were qualified if the sample concentration was greater than four times the spike concentration. All MS and MSD recovery values and associated MS/MSD RPD values were within project-required control limits.

Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequency, or MSD samples were analyzed in place of laboratory duplicates. All RPD values were within project-required control limits.

Method Reporting Limits

RLs were acceptable as reported. All values were reported using the laboratory RLs. Values were reported as undiluted, or when diluted, the RL reflects the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods, and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the LCS, MS, and MSD recovery values. Precision was acceptable as demonstrated by the MS/MSD RPD values and field duplicate difference values. All data are acceptable as reported, and completeness goals were met.

References

Anchor QEA (Anchor QEA, LLC) 2013. *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater and Surface Water Monitoring*. October 2019.

USEPA (U.S. Environmental Protection Agency), 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*. Third Edition. Office of Solid Waste and Emergency Response. EPA-530/SW-846.

USEPA, 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. EPA-540-R-2017-001. January 2017.

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Data Validation Report – USEPA Stage 2A

January 14, 2020

Project: Former Reynolds Metals Reduction Plant – Longview

Project Number: 200730-01.02

Task: East Groundwater

This report summarizes the review of analytical results for eight water samples and one field duplicate sample collected on October 29 and 30, 2019. The samples were collected by Anchor QEA, LLC, and submitted to Apex Laboratories, LLC (Apex), in Tigard, Oregon. The samples were analyzed for the following parameters:

- Total and dissolved fluoride (F^-) by Standard Method (SM) 4500-F C
- Free CN by ASTM International Method D4282
- Polycyclic aromatic hydrocarbons (PAHs) by U.S. Environmental Protection Agency (USEPA) Method 8270D

Apex sample data groups (SDGs) A9J1052 and A9J1106 were reviewed in this report. Sample IDs, matrices, and analyses are presented in Table 1.

Table 1
Sample IDs, Matrices, and Analyses

Sample ID	Well ID	Lab Sample ID	Matrix	Analyses
AQ-R1S-102919	R-1S	A9J1052-01	Water	F^-
AQ-R2-102919	R-2	A9J1052-02	Water	F^-
AQ-G1S-102919	G1-S	A9J1052-03	Water	F^-
AQ-G1S-D-102919	G1-S (FD)	A9J1052-04	Water	F^-
AQ-G2S-102919	G2-S	A9J1052-05	Water	F^-
AQ-R4S-103019	R-4S	A9J1106-01	Water	Free CN, F^-, PAHs
AQ-G3S-103019	G3-S	A9J1106-02	Water	F^-
AQ-G4S-103019	G4-S	A9J1106-03	Water	Free CN, F^-, PAHs
AQ-G4D-103019	G4-D	A9J1106-04	Water	F^-

Note:
FD: field duplicate

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/ quality control (QA/QC) guidelines outlined in the analytical procedures. Laboratory results were reviewed using the laboratory control limits and the following guidelines:

- *Sampling and Analysis Plan and Quality Assurance Project Plan, Interim Groundwater and Surface Water Monitoring* (Anchor QEA 2019)
- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986)
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2017a)
- *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA 2017b)

Unless noted in this report, laboratory results for the samples listed above were within QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by Apex at the time of receipt; the samples were received within the recommended temperature range and in good condition.

Holding Times and Sample Preservation

Samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes.

Field Quality Control

Field Duplicates

One field duplicate was collected in association with this sample set. Detected results are summarized in Table 2.

Table 2
Field Duplicate Summary

Analyte	AQ-G1S-102919	AQ-G1S-D-102919	RPD
Total F^-	13.9 mg/L	12.8 mg/L	8.2%
Dissolved F^-	12.1 mg/L	12.3 mg/L	1.6%

Note:
mg/L: milligrams per liter

Result values less than five times the reporting limit (RL) may have exaggerated relative percent difference (RPD) values; therefore, if the sample or field duplicate result was less than five times the RL, the sample result is evaluated by the difference between them.

All RPD and/or difference values were within control limits.

Surrogate Recoveries

All surrogate recoveries were within the laboratory control limits.

Laboratory Control Samples and Laboratory Control Sample Duplicates

Laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs) were analyzed at the required frequency. All LCS and LCSD analyses resulted in recoveries and RPDs within project-required control limits.

Matrix Spike and Matrix Spike Duplicate Samples

Matrix spike (MS) and matrix spike duplicate (MSD) samples were analyzed at the required frequency, or LCS and LCSD samples were analyzed in place of MS and MSD samples. Results from MS and MSD analyses conducted on non-project samples were not evaluated. MS and MSD analyses resulted in recoveries and RPDs within project-required control limits.

Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequency, or MSD samples were analyzed in place of laboratory duplicate samples. Duplicate result values less than five times the RL may have exaggerated RPD values; therefore, if the sample or duplicate result was less than five times the RL, the sample result is evaluated by the difference between them using the RL as the control limit. Results from duplicate analyses conducted on non-project samples were not evaluated. All RPD and/or difference values were within control limits.

Method Reporting Limits

RLs were acceptable as reported. All values were reported using the laboratory RLs. Values were reported as undiluted, or when diluted, the RL reflects the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods, and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the LCS, LCSD, MS, and MSD recovery values. Precision was acceptable as demonstrated by the LCS/LCSD, MS/MSD, field duplicate, and laboratory duplicate RPD or difference values. All data are acceptable as reported, and completeness goals were met.

References

Anchor QEA (Anchor QEA, LLC), 2019. *Sampling and Analysis Plan and Quality Assurance Project Plan, Groundwater and Surface Water Monitoring*. October 2019.

USEPA (U.S. Environmental Protection Agency), 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*. Third Edition. Office of Solid Waste and Emergency Response. EPA-530/SW-846.

USEPA, 2017a. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. United States Environmental Protection Agency. EPA-540-R-2017-001. January 2017.

USEPA, 2017b. *National Functional Guidelines for Organic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. United States Environmental Protection Agency. EPA-540-R-2017-002. January 2017