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March 26, 2020

Mr. Chuck Gruenenfelder
Washington State Department of Ecology
Toxics Cleanup Program
4601 N. Monroe, Suite 202
Spokane, WA 99205-1295

Subject: L-Bar Site Compliance Monitoring Program—2019 Year-End Groundwater Monitoring Data Submittal.

Dear Mr. Gruenenfelder:

On behalf of Alcoa, Jacobs has prepared this letter and associated attachments to summarize the groundwater monitoring results collected in 2019 as part of the *Compliance Monitoring Program* (CMP) at the L-Bar site.

The following attachments summarize the groundwater monitoring data collected in 2019:

Attachment A	CMP Well Network and October 2019 Groundwater Flow Map
Attachment B	Groundwater Elevation Hydrographs
Attachment C	Field Parameters for April and October 2019 Sampling Events
Attachment D	Groundwater Analytical Results for April & October 2019 Events
Attachment E	Time-Series Concentration Plots
Attachment F	Laboratory Analytical Data for April & October 2019 Events

As shown in **Attachment A**, the current CMP groundwater monitoring network includes thirteen (13) sampling locations, including twelve (12) shallow resource-protection groundwater monitoring wells and one (1) deep production well. Groundwater monitoring is conducted semi-annually at the L-Bar site as initiated in the *L-Bar Material Removal and Compliance Monitoring Work Plan* (CH2M, 2001) and as modified in the *L-Bar Site Compliance Monitoring Program Sampling and Analysis Work Plan Addendum No. 1, May 2012* (CH2M, 2012). Per the 2012 addendum, the primary indicator parameters (ammonia, chloride, and TDS) are consistently sampled twice (semi-annual) per year, while the secondary parameters are sampled twice per year every other year (i.e., secondary constituents are sampled during even numbered years and excluded during odd numbered years). As such, only primary indicator parameters were sampled in 2019 as presented below.

Attachment A illustrates the October 2019 groundwater elevations, and the inferred groundwater elevation contours for the shallow water-bearing unit (SWBU). The most recent October 2019 groundwater elevation contours support a general flow direction to the north, discharging to the Colville River, which is consistent with previously reported groundwater flow direction.

Attachment B are the site hydrographs illustrating three different periods and/or groupings of wells; Attachment B.1 hydrograph shows all site wells over the period from spring 2001 through fall 2019, Attachment B.2 hydrograph shows the period between fall 2014 and fall 2019 and includes the period from 2014 through 2016 when monthly water level measurements were collected. Attachment B.3 hydrograph shows wells within and around the Magnesite Residue Pile (i.e., SA-series and adjacent wells) from fall 2014 through fall 2019, including the monthly measurements from 2014 through 2016.

Attachment C and D summarize the groundwater monitoring field parameters and analytical results for the respective spring and fall events in 2019; **Attachment E** are updated time-series concentration plots. As shown from the updated time-series concentration plots (**Attachment E**), the latest 2019 groundwater quality results suggest continued improved conditions (i.e., decreased concentration levels) for primary indicator constituents. For example, well SA-10 atop the Magnesite Residue Pile (MRP) located in the general vicinity of former source removal areas continues to exhibit decreasing concentrations for ammonia, chloride, and total dissolved solids. Groundwater conditions in north field area, as demonstrated by observations from wells P-19 and P-27, show variation but are also exhibiting decreases in chloride and ammonia in recent years. While these are only selected examples based on visual interpretation, they do support an overall continued improvement in groundwater concentration at key areas following the remedial actions completed in 2004. Laboratory reports for both 2019 groundwater sampling events are provided in **Attachment F**.

Ecology has finalized recommendations in the Second Periodic Review (Periodic Review) (Ecology, 2019) to optimize the CMP. Alcoa is revising the L-Bar CMP (future Addendum 2) with Ecology's formal recommendations. Those recommendations from Periodic Review to be updated in the CMP revision and to be implemented starting in 2020 include the following:

- Add Oxidation-Reduction Potential (ORP) and turbidity to the existing field parameter list of temperature, conductivity, and pH.
- Adjust the typical spring (April) groundwater sampling schedule to May/early June to coincide with the post-peak spring freshet surface water monitoring program.
- Adjust the typical fall (October) groundwater sampling to October through mid-November per recommendations in the finalized 2017 Second Five-Year Review.

The revised CMP (Addendum 2) will be finalized and revisions implemented prior to 2020 groundwater sampling events.

The next periodic review for the L-Bar site is scheduled to occur in 2022, which will build upon the findings presented in the previous periodic reviews performed in 2012 and 2017 and include another five years of CMP data to evaluate statistically significant trends and quantify progress towards cleanup levels.

Sincerely,

CH2M HILL



Reuben Greer
Project Manager

cc: Michele Maidman/Alcoa
Johnie McCanna/Alcoa
Charlie Kessler/Stevens County Conservation District

References:

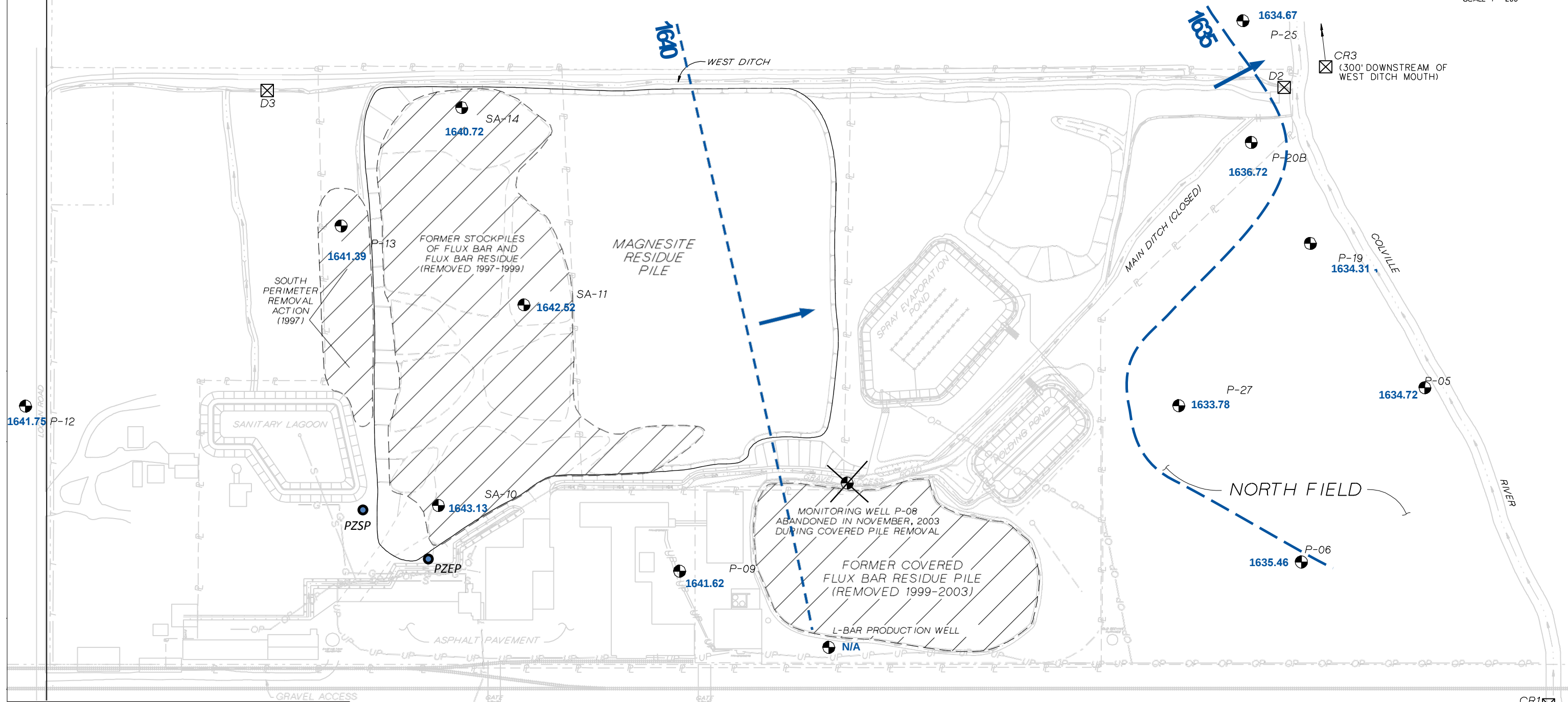
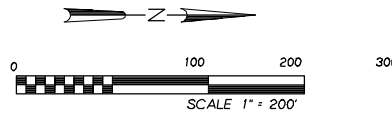
CH2M. 2001. *L-Bar Material Removal and Compliance Monitoring Work Plan*.

CH2M. 2012. *L-Bar Site Compliance Monitoring Program Sampling and Analysis Work Plan Addendum No. 1, May 2012*.

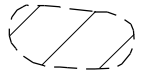
CH2M. 2017. *L-Bar Site Compliance Monitoring Program Data Summary Report and Five-Year Review. 1, March 2018*.

Ecology. 2019. *Second Periodic Review, L-Bar Site*. April 2019

Attachments

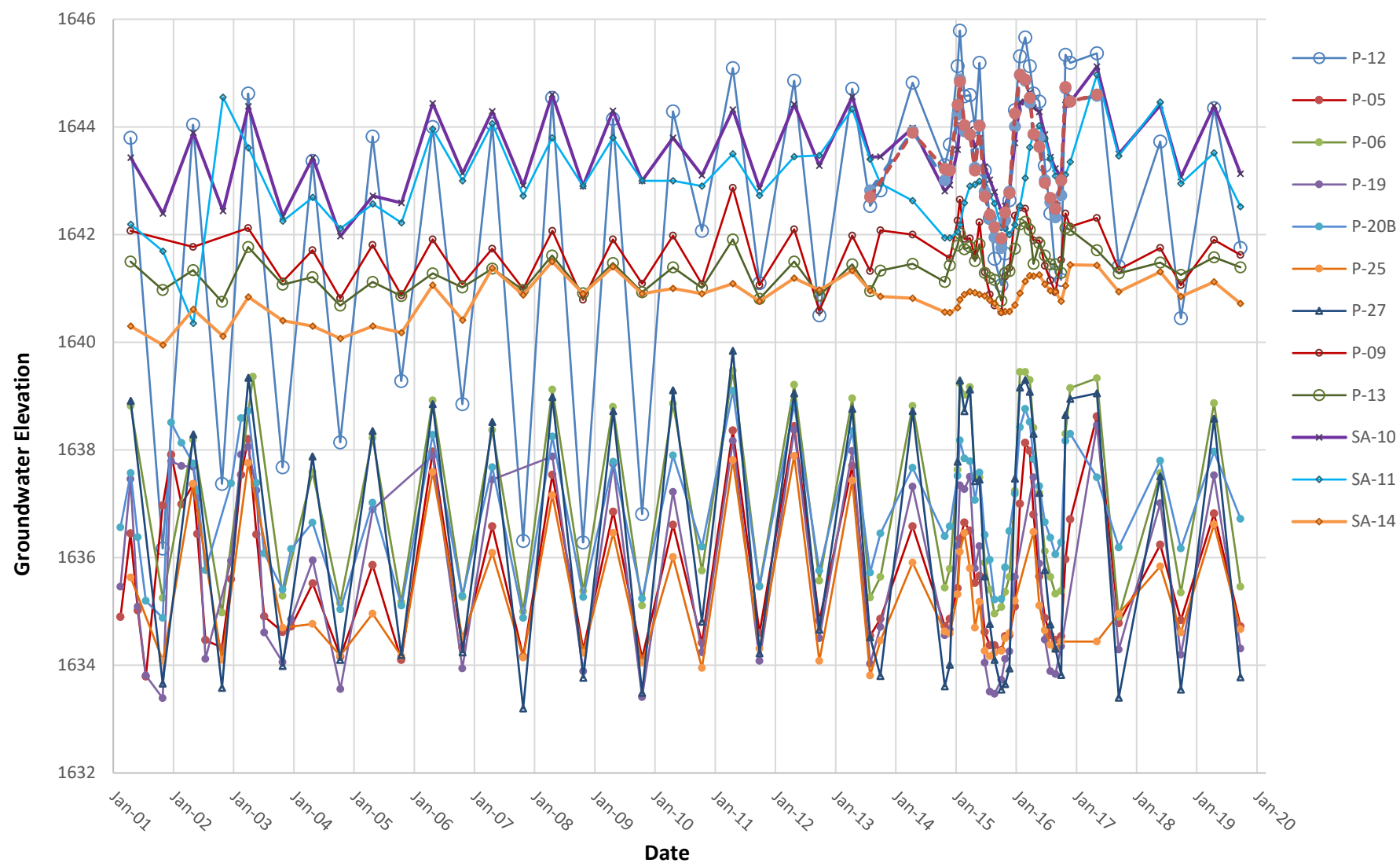


LEGEND

-  P-05
1634.72
COMPLIANCE MONITORING WELL LOCATION AND OCTOBER WATER LEVEL ELEVATION (ft)
-  D2
COMPLIANCE SURFACE WATER SAMPLING STATION
-  MAJOR SOURCE REMOVAL AREA
-  GROUNDWATER CONTOURS AND INFERRED GROUNDWATER FLOW DIRECTION

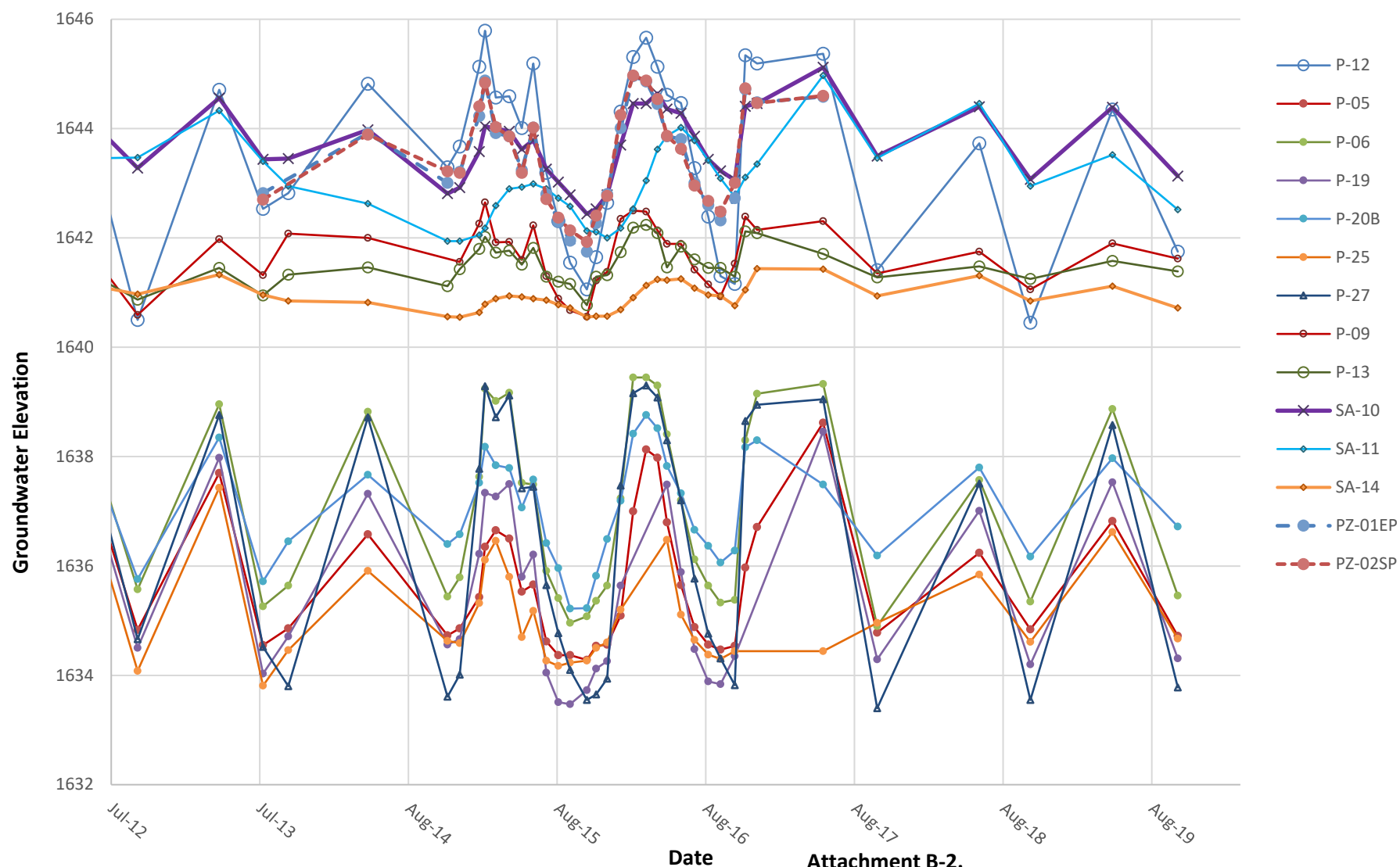
NOTE: GROUNDWATER LEVELS MEASURED ON OCTOBER 12, 2016

ATTACHMENT A
COMPLIANCE MONITORING NETWORK AND
OCTOBER 2019 GROUNDWATER FLOW MAP
L-BAR SITE



Note: graph includes all CMP wells over period of record.

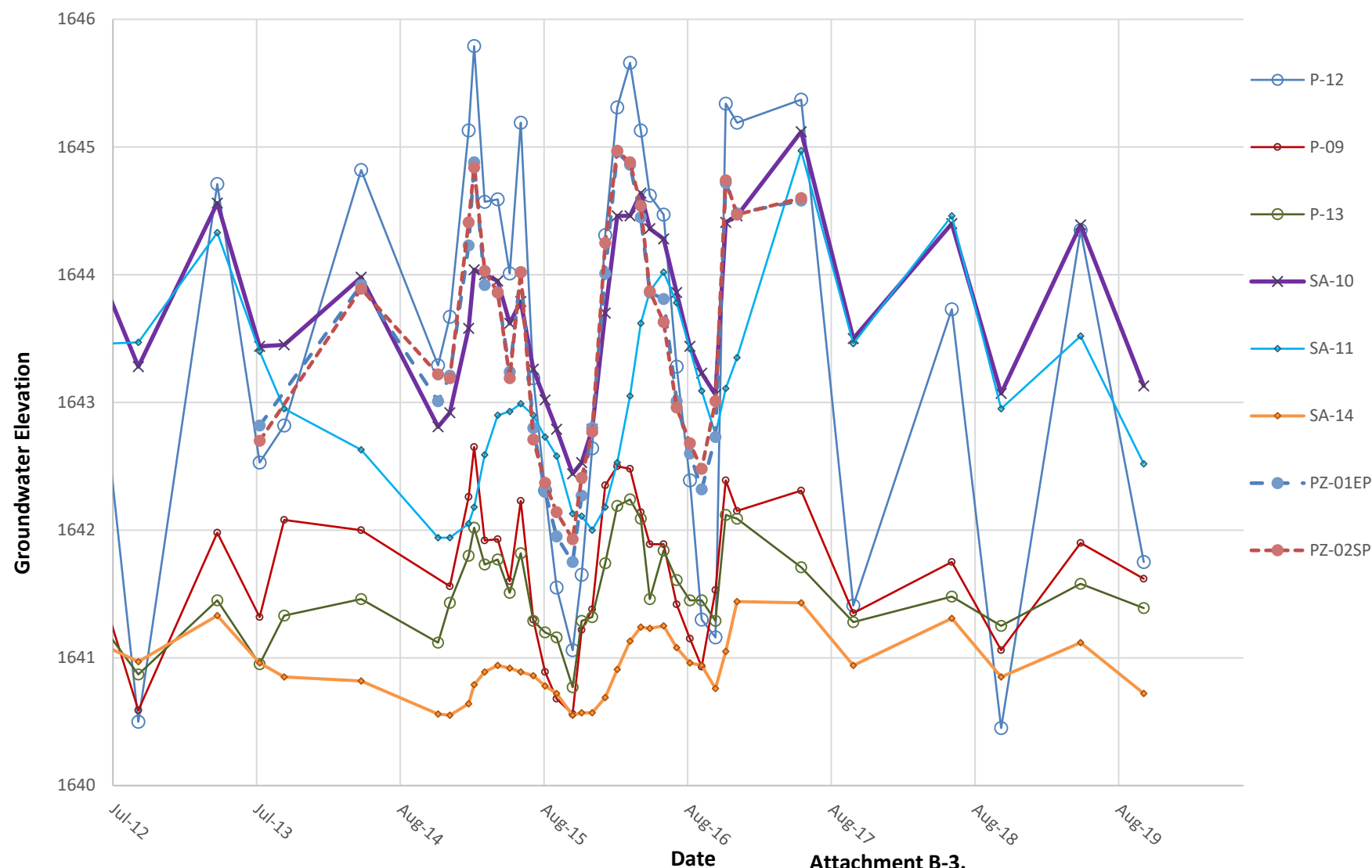
Attachment B-1.
Groundwater Elevation Hydrograph
2019 Compliance Monitoring Program Data Summary Report



Note: graph includes all CMP wells and two piezometers (PZEP and PZSP).
Piezometers PZEP and PZSP were measured only from 2013
through 2017

Attachment B-2.

Groundwater Elevation Hydrograph - Monthly Measurements
November 2014 through October 2019, All Wells
2019 Compliance Monitoring Program Data Summary Report



Note: graph includes all CMP wells and two piezometers (PZEP and PZSP).
Piezometers PZEP and PZSP were measured only from 2013 through 2017

Attachment B-3.

Groundwater Elevation Hydrograph - Monthly Measurements
November 2014 through October 2019, Southern Site Wells
2019 Compliance Monitoring Program Data Summary Report

ATTACHMENT C

Groundwater Monitoring Field Parameter Data - April and October 2019

L-Bar Site Compliance Monitoring Program

Location	Well	Date	TOC Reference Elevation (ft) ¹	Depth to Water (ft)	Groundwater Elevation (ft)	Temp. (°C)	pH	Specific Conductance (uS/cm)
<i>Background</i>	P-12	4/30/2019	1649.43	5.08	1644.35	9.6	7.66	1,229
		10/8/2019		7.68	1641.75	14.4	7.84	1,200
	Prod. Well	4/30/2019	-- not applicable --			19.2	7.82	689
		10/8/2019				14.4	8.68	457
<i>North of Site</i>	P-05	4/30/2019	1642.99	6.17	1636.82	5.6	7.43	4,803
		10/8/2019		8.27	1634.72	10.1	7.47	6,640
	P-06	4/30/2019	1642.33	3.46	1638.87	7.8	7.26	939
		10/8/2019		6.87	1635.46	12.9	7.86	767
	P-19	4/30/2019	1640.03	2.50	1637.53	8.6	6.88	11,729
		10/8/2019		5.72	1634.31	12.9	6.85	11,200
	P-20B	4/30/2019	1642.25	4.28	1637.97	8.7	7.19	5,420
		10/8/2019		5.53	1636.72	16.8	7.00	7,020
	P-25	4/30/2019	1639.41	2.79	1636.62	7.6	6.96	1,293
		10/8/2019		4.74	1634.67	13.5	7.48	3,750
<i>Site Interior</i>	P-27	4/30/2019	1642.19	3.61	1638.58	8.0	7.30	17,266
		10/8/2019		8.41	1633.78	13.0	7.16	18,600
	P-09	4/30/2019	1643.81	1.91	1641.90	12.7	7.82	2,439
		10/8/2019		2.19	1641.62	17.5	8.70	2,390
	P-13	4/30/2019	1645.98	4.40	1641.58	10.3	7.32	6,397
		10/8/2019		4.59	1641.39	13.6	7.71	7,710
<i>Magnesite Residue Pile</i>	SA-10	4/30/2019	1672.07	27.68	1644.39	11.7	8.13	24,683
		10/8/2019		28.94	1643.13	12.6	7.84	26,300
	SA-11	4/30/2019	1668.27	24.75	1643.52	12.1	8.32	18,186
		10/8/2019		25.75	1642.52	12.2	8.06	19,800
	SA-14	4/30/2019	1666.85	25.73	1641.12	11.1	10.25	5,046
		10/8/2019		26.13	1640.72	11.6	10.08	5,360

Notes:

1. Feet above mean sea level; vertical survey datum in NAVD88. All wells were re-surveyed in October 2013 by Benthin and Associates.

Attachment D
Groundwater Monitoring Analytical Results - April and October 2019
L-Bar Site Compliance Monitoring Program

Analyte ¹	Date	Units	Cleanup Levels ²	--- Background ---		---North of Site ---						--- Site Interior ---		--- Magnesite Residue Pile ---		
				P-12	PROD. WELL	P-05	P-06	P-19	P-20B	P-25	P-27	P-09	P-13	SA-10	SA-11	SA-14
Ammonia-N*	April 30, 2019	mg/L	0.13	ND	0.166	ND	0.63	0.792	16.6	0.703	0.218	1.6	36.7	110	47	18.2
	October 8, 2019			0.0414	ND	0.0273	0.147	0.193	29.3	0.687	0.0226	0.387	43.3	514	105	19.2
Chloride*	April 30, 2019	mg/L	230	8.26	0.794	1,890	100	6,200	1,670	645	6,920	588	1,150	6,440	6,120	952
	October 8, 2019			7.19	1.16	2,100	35.5	3,340	2,000	837	6,850	494	1,170	5,660	5,150	868
TDS*	April 30, 2019	mg/L	1,092.4	764	205	3,340	450	10,400	4,450	2,190	11,800	1,440	5,150	17,500	15,400	3,550
	October 8, 2019			724	241	3,460	526	7,070	4,320	1,580	10,600	1,070	5,370	17,500	12,500	3,370

Notes:

¹ Primary indicator parameters indicated with '*'.

² Cleanup Levels as listed in the *L-Bar Cleanup Levels Development and Feasibility Report* (CH2M HILL 1999).

ND - The result is a non-detect

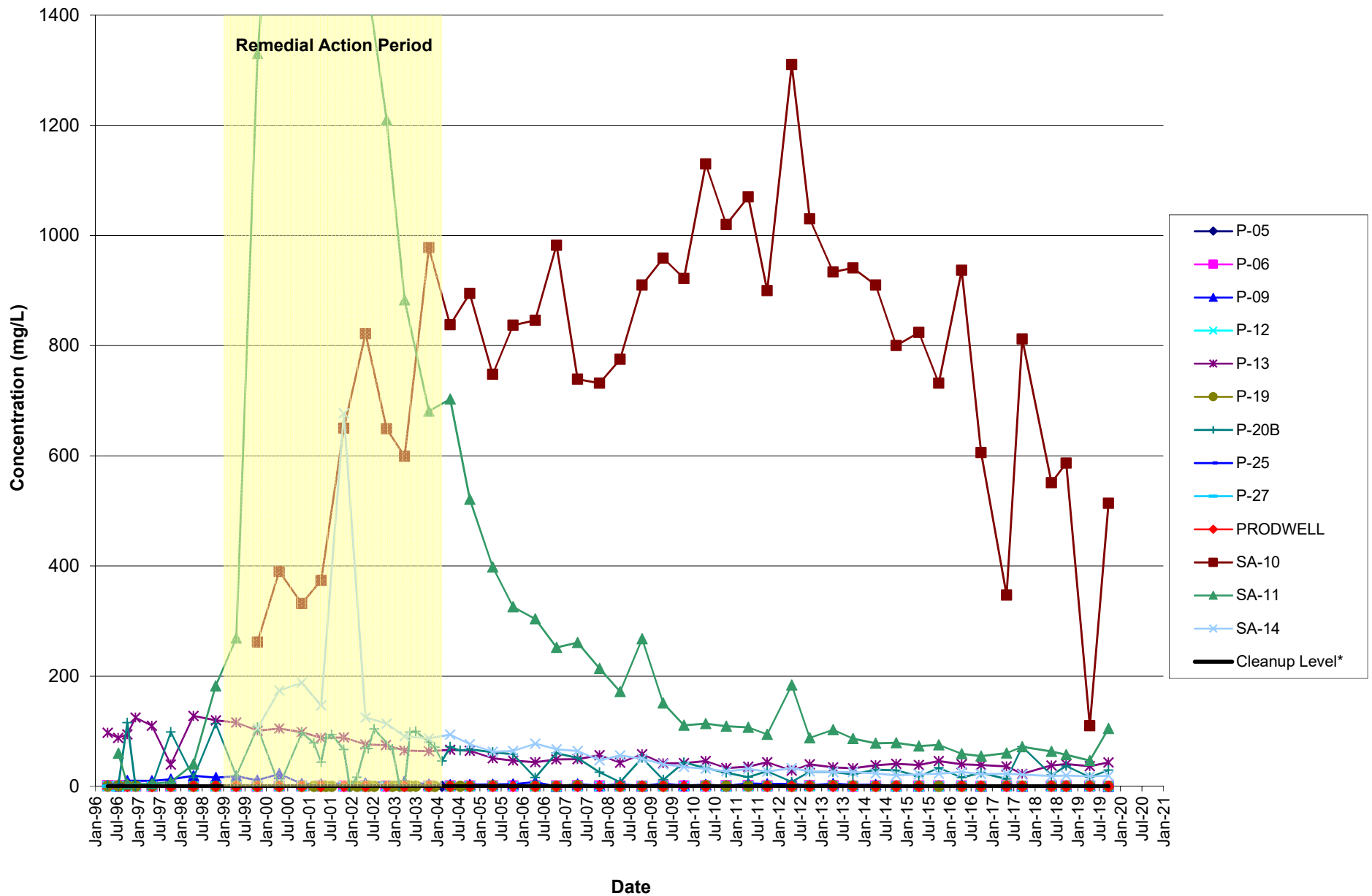
NA - not applicable

TDS - Total Dissolved Solids

BOLD font are values which exceed respective cleanup levels.

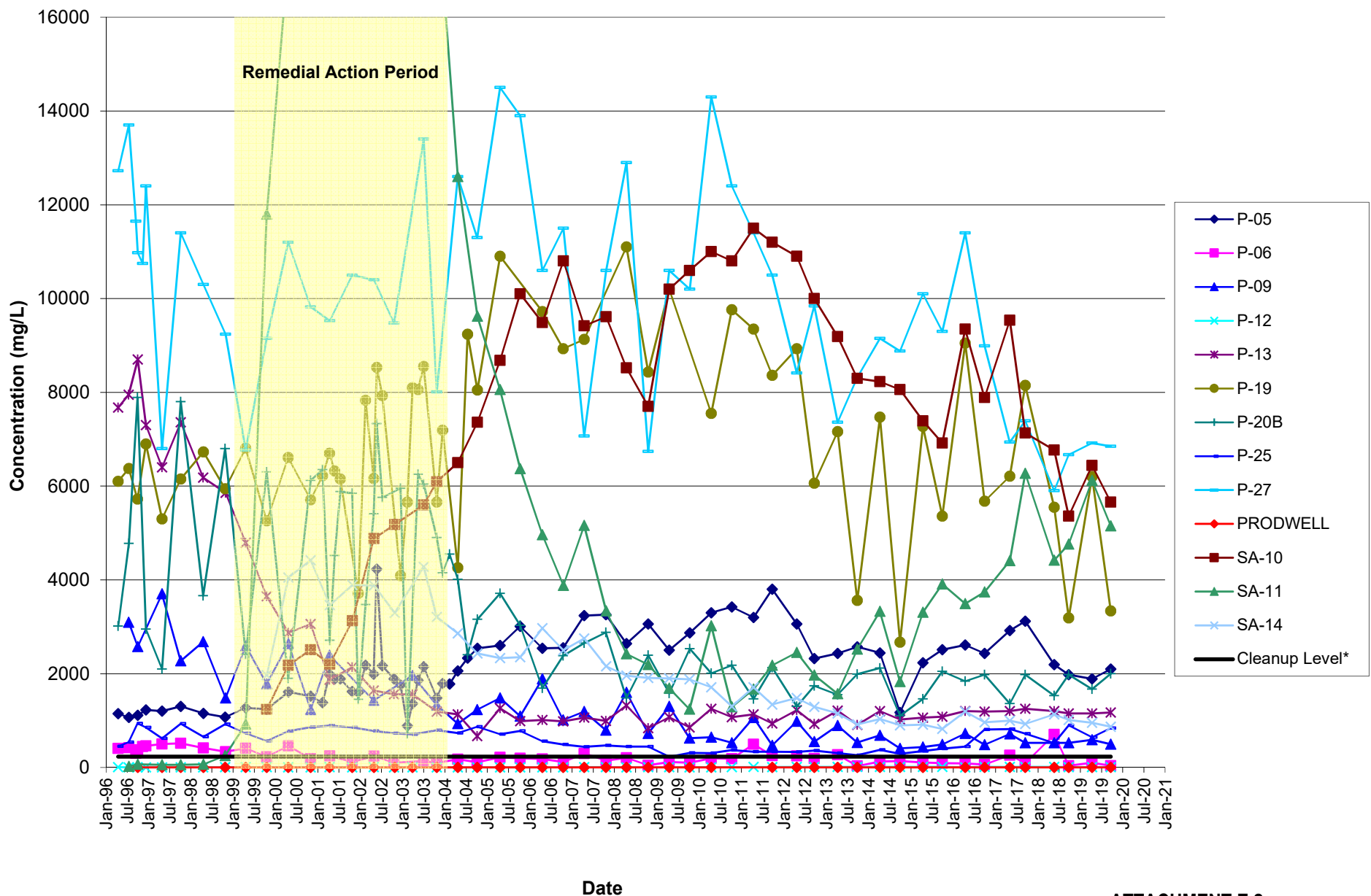
mg/L - milligrams per liter

µmhos/cm - micromhos per centimeter



Notes:

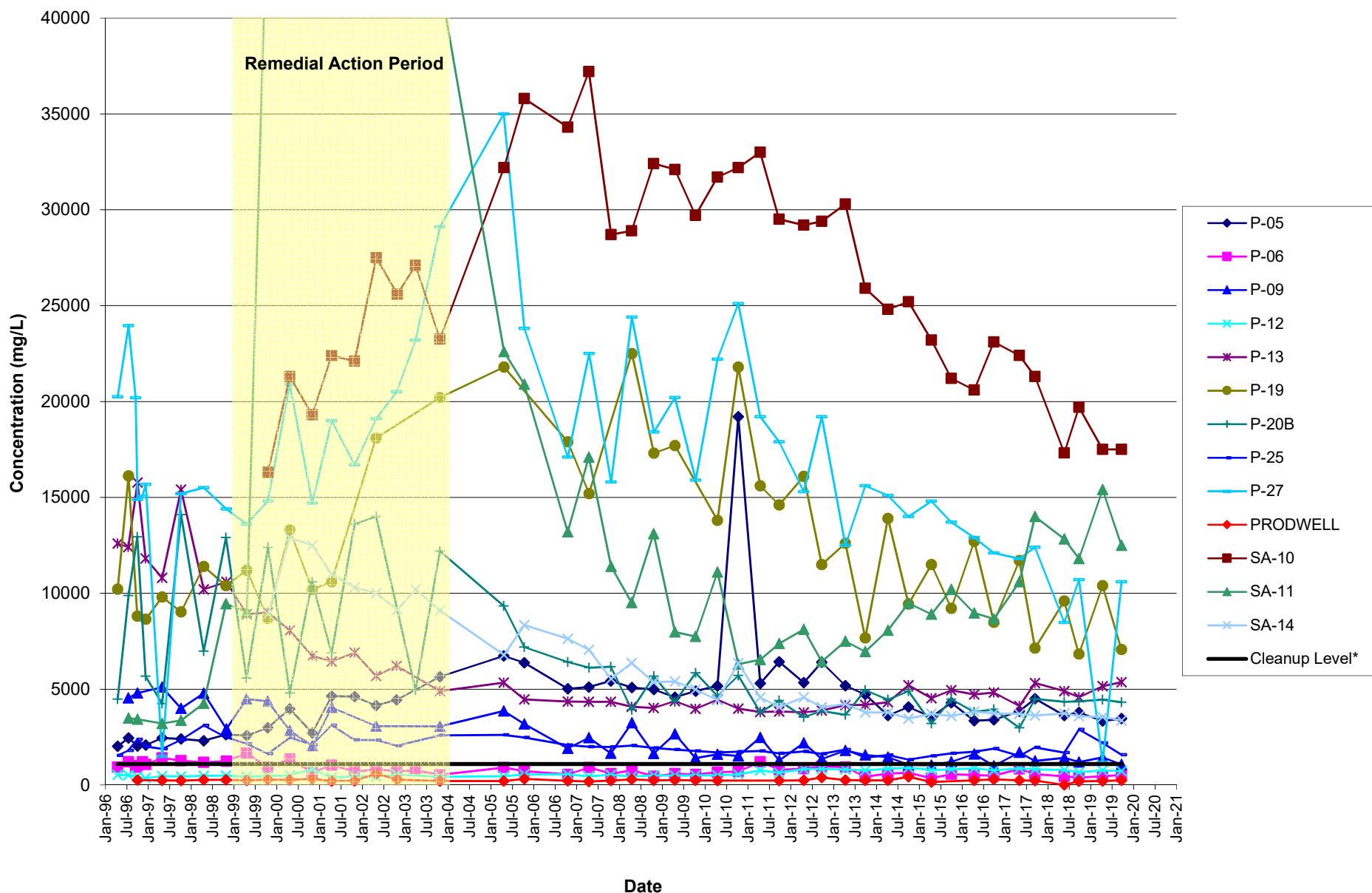
1. Remedial Actions Performed from 1999 to 2003; Magnesite Residue Pile Removal in 1999, Covered Pile Removal in 2003, and Main Ditch Closure in 2003.
2. Concentration scale truncated - some high values not shown for well SA-11
3. *Site-Specific Cleanup Level for Ammonia is 0.13 mg/L; reference *L-Bar Cleanup Levels Development and Feasibility Study Report (CH2M HILL, 1999)*.



Notes:

1. Remedial Action Period 1999 -2003; Magnesite Residue Pile Removal in 1999, Covered Pile Removal in 2003, and Main Ditch Closure in 2003.
2. Concentration scale truncated - some high values not shown for well SA-11
3. *Site-Specific Cleanup Level for Chloride is 230 mg/L; reference *L-Bar Cleanup Levels Development and Feasibility Study Report (CH2M HILL, 1999)*.

ATTACHMENT E.2
Chloride Concentrations
L-Bar Site
Jacobs



Notes:

1. Remedial Actions Performed from 1999 to 2003; Magnesite Residue Pile Removal in 1999, Covered Pile Removal in 2003, and Main Ditch Closure in 2003.
2. Concentration scale truncated - some high values not shown.
3. *Site-Specific Cleanup Level for TDS is 1092.4 mg/L; reference *L-Bar Cleanup Levels Development and Feasibility Study Report (CH2M HILL, 1999)*.

Attachment F - 2019 Laboratory Reports

CASE NARRATIVE

June 6, 2019

Lab Name: Anatek Labs, Inc.

Project Tracking No.: NWA—LBAR

Anatek Batch: 190501026

Project Summary: Eleven water samples were received 5/1/19 for analysis of ammonia, chloride and TDS.

QA/QC Checks

<u>Parameters</u>	<u>Yes / No</u>	<u>Exceptions / Deviations</u>
Sample Holding Time Valid?	Y	NA
Surrogate Recoveries Valid?	Y	NA
QC Sample(s) Recoveries Valid?	Y	NA
Method Blank(s) Valid?	Y	NA
Comments	Y	See Comments Section

1. Holding Time Requirements

No problems encountered.

2. Calibration Requirements

No problems encountered.

3. Surrogate Recovery Requirements

No problems encountered.

4. QC Sample (LSC/MS/MSD) Recovery Requirements

No problems were encountered.

5. Method Blank Requirements

The method blanks were non-detect for all analytes. No problems encountered.

7. Internal Standard(s) Response Requirements

No problems encountered.

8. Comments

**I certify that this data package is in compliance with the terms and conditions of the contract.
Release of the data contained in this data package has been authorized by the Laboratory
Manager or his designee.**

Approved by: Kathleen A. Sattler

Anatek Labs, Inc.

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Client: JACOBS
Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201
Attn: REUBEN GREER

Batch #: 190501026
Project Name: ALCOA - NWA LBAR

Analytical Results Report

Sample Number	190501026-001	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARP20B	Sampling Time	7:30 AM	Extraction Date			
Matrix	Water	Sample Location	P20B				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	16.6	mg/L	0.2	5/6/2019 12:48:00 PM	KAS	SM4500NH3G	
Chloride	1670	mg/L	10	5/14/2019 1:05:00 PM	LMC	EPA 300.0	
TDS	4450	mg/L	10	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Sample Number	190501026-002	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARP19	Sampling Time	7:50 AM	Extraction Date			
Matrix	Water	Sample Location	P19				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	0.792	mg/L	0.02	5/6/2019 11:46:00 AM	KAS	SM4500NH3G	
Chloride	6200	mg/L	50	5/14/2019 1:22:00 PM	LMC	EPA 300.0	
TDS	10400	mg/L	10	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Sample Number	190501026-003	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARP25	Sampling Time	8:25 AM	Extraction Date			
Matrix	Water	Sample Location	P25				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	0.703	mg/L	0.02	5/6/2019 11:51:00 AM	KAS	SM4500NH3G	
Chloride	645	mg/L	5	5/14/2019 1:55:00 PM	LMC	EPA 300.0	
TDS	2190	mg/L	10	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Anatek Labs, Inc.

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Client: JACOBS
Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201
Attn: REUBEN GREER

Batch #: 190501026
Project Name: ALCOA - NWA LBAR

Analytical Results Report

Sample Number	190501026-004	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARP05	Sampling Time	9:20 AM	Extraction Date			
Matrix	Water	Sample Location	P05				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	<0.02	mg/L	0.02	5/6/2019 11:52:00 AM	KAS	SM4500NH3G	
Chloride	1890	mg/L	10	5/14/2019 2:11:00 PM	LMC	EPA 300.0	
TDS	3340	mg/L	5	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Sample Number	190501026-005	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARP06	Sampling Time	9:40 AM	Extraction Date			
Matrix	Water	Sample Location	P06				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	0.630	mg/L	0.02	5/6/2019 11:53:00 AM	KAS	SM4500NH3G	
Chloride	100	mg/L	0.4	5/14/2019 9:06:00 PM	LMC	EPA 300.0	
TDS	450	mg/L	10	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Sample Number	190501026-006	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARP27	Sampling Time	10:00 AM	Extraction Date			
Matrix	Water	Sample Location	P27				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	0.218	mg/L	0.02	5/6/2019 11:55:00 AM	KAS	SM4500NH3G	
Chloride	6920	mg/L	100	5/14/2019 2:44:00 PM	LMC	EPA 300.0	
TDS	11800	mg/L	5	5/6/2019 5:00:00 PM	NDE	SM 2540C	

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Batch #: 190501026
Project Name: ALCOA - NWA LBAR

Analytical Results Report

Sample Number	190501026-007	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARP12	Sampling Time	10:45 AM	Extraction Date			
Matrix	Water	Sample Location	P12				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	<0.02	mg/L	0.02	5/6/2019 11:56:00 AM	KAS	SM4500NH3G	
Chloride	8.26	mg/L	0.1	5/14/2019 3:01:00 PM	LMC	EPA 300.0	
TDS	764	mg/L	5	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Sample Number	190501026-008	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARP13	Sampling Time	11:20 AM	Extraction Date			
Matrix	Water	Sample Location	P13				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	36.7	mg/L	0.2	5/6/2019 12:51:00 PM	KAS	SM4500NH3G	
Chloride	1150	mg/L	5	5/14/2019 3:17:00 PM	LMC	EPA 300.0	
TDS	5150	mg/L	5	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Sample Number	190501026-009	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARSA14	Sampling Time	11:50 AM	Extraction Date			
Matrix	Water	Sample Location	SA14				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	18.2	mg/L	0.2	5/6/2019 12:53:00 PM	KAS	SM4500NH3G	
Chloride	952	mg/L	0.1	5/14/2019 4:24:00 PM	LMC	EPA 300.0	
TDS	3550	mg/L	5	5/6/2019 5:00:00 PM	NDE	SM 2540C	

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Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201
Attn: REUBEN GREER

Batch #: 190501026
Project Name: ALCOA - NWA LBAR

Analytical Results Report

Sample Number	190501026-010	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARSA11	Sampling Time	12:05 PM	Extraction Date			
Matrix	Water	Sample Location	SA11				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	47.0	mg/L	0.2	5/6/2019 12:56:00 PM	KAS	SM4500NH3G	
Chloride	6120	mg/L	20	5/14/2019 4:14:00 PM	LMC	EPA 300.0	
TDS	15400	mg/L	5	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Sample Number	190501026-011	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARSA10	Sampling Time	12:20 PM	Extraction Date			
Matrix	Water	Sample Location	SA10				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	110	mg/L	0.2	5/6/2019 12:58:00 PM	KAS	SM4500NH3G	
Chloride	6440	mg/L	20	5/14/2019 4:57:00 PM	LMC	EPA 300.0	
TDS	17500	mg/L	5	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Sample Number	190501026-012	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARPW	Sampling Time	12:40 PM	Extraction Date			
Matrix	Water	Sample Location	PW				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	0.166	mg/L	0.02	5/6/2019 12:02:00 PM	KAS	SM4500NH3G	
Chloride	0.794	mg/L	0.1	5/14/2019 5:14:00 PM	LMC	EPA 300.0	
TDS	205	mg/L	5	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Anatek Labs, Inc.

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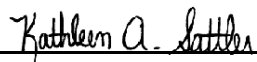
Client: JACOBS **Batch #:** 190501026
Address: 999 W RIVERSIDE AVE #500 **Project Name:** ALCOA - NWA LBAR
SPOKANE, WA 99201
Attn: REUBEN GREER

Analytical Results Report

Sample Number	190501026-013	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARP09	Sampling Time	1:15 PM	Extraction Date			
Matrix	Water	Sample Location	P09				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	1.60	mg/L	0.02	5/6/2019 12:03:00 PM	KAS	SM4500NH3G	
Chloride	588	mg/L	2	5/15/2019 12:37:00 PM	LMC	EPA 300.0	
TDS	1440	mg/L	5	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Sample Number	190501026-014	Sampling Date	4/30/2019	Date/Time Received	5/1/2019	10:45 AM	
Client Sample ID	1904LBARSAFD	Sampling Time	2:00 PM	Extraction Date			
Matrix	Water	Sample Location	SAFD				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	17.3	mg/L	0.2	5/6/2019 1:01:00 PM	KAS	SM4500NH3G	
Chloride	961	mg/L	5	5/17/2019 11:54:00 AM	LMC	EPA 300.0	
TDS	3440	mg/L	5	5/6/2019 5:00:00 PM	NDE	SM 2540C	

Authorized Signature


Kathleen A. Sattler, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Client: JACOBS
Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201
Attn: REUBEN GREER

Batch #: 190501026
Project Name: ALCOA - NWA LBAR

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
TDS	501	mg/L	500	100.2	80-120	5/6/2019	5/6/2019
Chloride	3.85	mg/L	4	96.3	90-110	5/17/2019	5/17/2019
Chloride	3.83	mg/L	4	95.8	90-110	5/15/2019	5/15/2019
Chloride	3.65	mg/L	4	91.3	90-110	5/14/2019	5/14/2019
AMMONIA-NITROGEN	0.208	mg/L	0.2	104.0	90-110	5/6/2019	5/6/2019

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Chloride	3.84	mg/L	4	96.0	0.3	0-20	5/17/2019	5/17/2019
Chloride	3.66	mg/L	4	91.5	0.3	0-20	5/14/2019	5/14/2019
TDS	531	mg/L	500	106.2	5.8	0-20	5/6/2019	5/6/2019

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
190501026-014	TDS	3440	3900	mg/L	500	92.0	80-120	5/6/2019	5/6/2019
190502038-006A	Chloride	ND	3.45	mg/L	4	86.3	80-120	5/15/2019	5/15/2019
190430005-002	AMMONIA-NITROGEN	<0.02	0.204	mg/L	0.2	102.0	80-120	5/6/2019	5/6/2019

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
TDS	3860	mg/L	500	84.0	9.1	0-20	5/6/2019	5/6/2019
Chloride	3.78	mg/L	4	94.5	9.1	0-20	5/15/2019	5/15/2019
AMMONIA-NITROGEN	0.197	mg/L	0.2	98.5	3.5	0-25	5/6/2019	5/6/2019

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Ammonia-nitrogen	<0.02	mg/L	0.02	5/6/2019	5/6/2019
Chloride	ND	mg/L	0.1	5/17/2019	5/17/2019
Chloride	ND	mg/L	0.1	5/15/2019	5/15/2019
Chloride	ND	mg/L	0.1	5/14/2019	5/14/2019

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: JACOBS
Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201
Attn: REUBEN GREER

Batch #: 190501026
Project Name: ALCOA - NWA LBAR

Analytical Results Report Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
TDS	<5	mg/L	5	5/6/2019	5/6/2019

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Login Report

Customer Name: JACOBS

Order ID: 190501026

999 W RIVERSIDE AVE #500

Order Date: 5/1/2019

SPOKANE

WA

99201

Contact Name: REUBEN GREER

Project Name: ALCOA - NWA LBAR

Comment:

Sample #: 190501026-001 **Customer Sample #:** 1904LBARP20B

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 7:30 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-002 **Customer Sample #:** 1904LBARP19

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 7:50 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-003 **Customer Sample #:** 1904LBARP25

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 8:25 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Customer Name: JACOBS

Order ID: 190501026

999 W RIVERSIDE AVE #500

Order Date: 5/1/2019

SPOKANE

WA

99201

Contact Name: REUBEN GREER

Project Name: ALCOA - NWA LBAR

Comment:

Sample #: 190501026-004 **Customer Sample #:** 1904LBARP05

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 9:20 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-005 **Customer Sample #:** 1904LBARP06

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 9:40 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-006 **Customer Sample #:** 1904LBARP27

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 10:00 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-007 **Customer Sample #:** 1904LBARP12

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 10:45 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>

Customer Name: JACOBS

Order ID: 190501026

999 W RIVERSIDE AVE #500

Order Date: 5/1/2019

SPOKANE

WA

99201

Contact Name: REUBEN GREER

Project Name: ALCOA - NWA LBAR

Comment:

CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-008 **Customer Sample #:** 1904LBARP13

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019
Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 11:20 AM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-009 **Customer Sample #:** 1904LBARSA14

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019
Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 11:50 AM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-010 **Customer Sample #:** 1904LBARSA11

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019
Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 12:05 PM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Customer Name: JACOBS

Order ID: 190501026

999 W RIVERSIDE AVE #500

Order Date: 5/1/2019

SPOKANE

WA

99201

Contact Name: REUBEN GREER

Project Name: ALCOA - NWA LBAR

Comment:

Sample #: 190501026-010A **Customer Sample #:** 1904LBARSA11 MS

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 12:05 PM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-010B **Customer Sample #:** 1904LBARSA11 MSD

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 12:05 PM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-011 **Customer Sample #:** 1904LBARSA10

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 12:20 PM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-012 **Customer Sample #:** 1904LBARPW

Recv'd: ☒ **Matrix:** Water **Collector:** REUBEN GREER **Date Collected:** 4/30/2019

Quantity: 2 **Date Received:** 5/1/2019 10:45:00 AM **Time Collected:** 12:40 PM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>

Customer Name: JACOBS

Order ID: 190501026

999 W RIVERSIDE AVE #500

Order Date: 5/1/2019

SPOKANE

WA

99201

Contact Name: REUBEN GREER

Project Name: ALCOA - NWA LBAR

Comment:

CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-013 Customer Sample #: 1904LBARP09

Recv'd: ☒ Matrix: Water Collector: REUBEN GREER Date Collected: 4/30/2019

Quantity: 2 Date Received: 5/1/2019 10:45:00 AM Time Collected: 1:15 PM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

Sample #: 190501026-014 Customer Sample #: 1904LBARSADF

Recv'd: ☒ Matrix: Water Collector: REUBEN GREER Date Collected: 4/30/2019

Quantity: 2 Date Received: 5/1/2019 10:45:00 AM Time Collected: 2:00 PM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	5/13/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	5/13/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	5/13/2019	<u>Normal (~10 Days)</u>

SAMPLE CONDITION RECORD

Samples received in a cooler?	Yes
Samples received intact?	Yes
What is the temperature of the sample(s)? (°C)	3.7
Samples received with a COC?	Yes
Samples received within holding time?	Yes
Are all sample bottles properly preserved?	Yes
Labels and chain agree?	Yes
Total number of containers?	32



Chain of Custody Record

1282 Alturas Drive, Moscow ID 83843 (208) 883-2839 FAX 882-9246
504 E Sprague Ste D, Spokane WA 99202 (509) 838-3999 FAX 838-4433

90501 026 CH2R Last Due 5/13/2019
st SAMP 4/30/2019 1st RCVD 5/1/2019
L.COA - NWA LBAR

PAGE 1 OF 2

Company Name: JACOBS	Project Manager: REUBEN GREER
Address: 999 W RIVERSIDE AVE SUITE 500	Project Name & #: LCOA - NWA LBAR
City: SPOKANE State: WA Zip: 99201	Email Address: reuben.greer@jacobs.com
Phone: 509-464-7215	Purchase Order #:
Fax:	Sampler Name & phone:

Please refer to our normal turn around times at:
<http://www.anateklabs.com/services/guidelines/reporting.asp>

☒ Normal ☐ Next Day* ☐ 2nd Day* ☐ Other*
*All rush order requests must be prior approved.
Phone _____ Mail _____ Fax _____ Email _____

Provide Sample Description				List Analyses Requested										Note Special Instructions/Comments					
Lab ID	Sample Identification	Sampling Date/Time	Matrix	# of Containers	Sample Volume	Preservative:													
						NH3-N													
						TDS, CI													
1	1904LBARP20B	43019/7:30	W	2		X	X												
2	1904LBARP19	43019/7:50		1		X	X												
3	1904LBARP25	43019/8:25				X	X												
4	1904LBARP05	43019/9:20				X	X												
5	1904LBARP06	43019/9:40				X	X												
6	1904LBARP27	43019/10:00				X	X												
7	1904LBARP12	43019/10:45				X	X												
8	1904LBARP13	43019/11:20				X	X												
9	1904LBARSA14	43019/11:50		✓		X	X												
10	1904LBARSA11	43019/12:05		6		X	X												
11	1904LBARSA10	43019/12:20		2		X	X												
12	1904LBARPW	43019/12:40				X	X												
13	1904LBARP09	43019/13:15	✓	✓		X	X												

	Printed Name	Signature	Company	Date	Time
Relinquished by	REUBEN GREER		JACOBS	5-1-19	1045
Received by	ANNE LOCK		Anatek	5-1-19	1045
Relinquished by					
Received by					
Relinquished by					
Received by					

SWBS

Inspection Checklist

Received Intact? ☒ Y ☐ N
Labels & Chains Agree? ☒ Y ☐ N
Containers Sealed? ☒ Y ☐ N
VOC Head Space? ☒ Y ☐ N

Initials:

Temperature (°C): 3.7 deg-04
Preservative: H2SO4 R379-1 <2
pH P18285-3H
Date & Time: 5-1-19 1330
Inspected By:



Chain of Custody Record

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504 E Sprague Ste D, Spokane WA 99202 (509) 838-3999 FAX 838-4433

90501 026 **CH2R** Last Due 5/13/2019
1st SAMP 4/30/2019 1st RCVD 5/1/2019
LCOA - NWA LBAR

PAGE 2 of 2

[illegible]

CASE NARRATIVE

November 7, 2019

Lab Name: Anatek Labs, Inc.

Project Tracking No.: LBAR-NWA

Anatek Batch: 191008076

Project Summary: Fourteen water samples were received 10/8/19 for analysis of ammonia, chloride, and TDS.

QA/QC Checks

<u>Parameters</u>	<u>Yes / No</u>	<u>Exceptions / Deviations</u>
Sample Holding Time Valid?	Y	NA
Surrogate Recoveries Valid?	Y	NA
QC Sample(s) Recoveries Valid?	Y	NA
Method Blank(s) Valid?	Y	NA
Comments	Y	See Comments Section

1. Holding Time Requirements

Initial analysis of all samples performed within holding time requirements. No problems encountered.

2. Calibration Requirements

No problems encountered.

3. Surrogate Recovery Requirements

No problems encountered.

4. QC Sample (LSC/MS/MSD) Recovery Requirements

No problems were encountered.

5. Method Blank Requirements

The method blanks were non-detect for all analytes. No problems encountered.

7. Internal Standard(s) Response Requirements

No problems encountered.

8. Comments

**I certify that this data package is in compliance with the terms and conditions of the contract.
Release of the data contained in this data package has been authorized by the Laboratory
Manager or his designee.**

Approved by: Kathleen A. Sattler

Anatek Labs, Inc.

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Client: JACOBS
Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201
Attn: REUBEN GREER

Batch #: 191008076
Project Name: ALCOA - NWA LBAR

Analytical Results Report

Sample Number	191008076-001	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM
Client Sample ID	1910LBARP20B	Sampling Time	8:20 AM	Extraction Date		
Matrix	Water	Sample Location	LBARP20B			
Comments						
	</					

Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: JACOBS
Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201
Attn: REUBEN GREER

Batch #: 191008076
Project Name: ALCOA - NWA LBAR

Analytical Results Report

Sample Number	191008076-004	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM	
Client Sample ID	1910LBARP06	Sampling Time	10:15 AM	Extraction Date			
Matrix	Water	Sample Location	LBARP06				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	0.147	mg/L	0.02	10/16/2019 2:52:00 PM	TLM	SM4500NH3G	
Chloride	35.5	mg/L	0.4	10/16/2019 8:49:00 PM	LMC	EPA 300.0	
TDS	526	mg/L	10	10/14/2019 3:00:00 PM	NDE	SM 2540C	

Sample Number	191008076-005	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM	
Client Sample ID	1910LBARP27	Sampling Time	10:50 AM	Extraction Date			
Matrix	Water	Sample Location	LBARP27				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	0.0266	mg/L	0.02	10/16/2019 2:54:00 PM	TLM	SM4500NH3G	
Chloride	6850	mg/L	50	10/16/2019 3:34:00 PM	LMC	EPA 300.0	
TDS	10600	mg/L	5	10/14/2019 2:00:00 PM	NDE	SM 2540C	

Sample Number	191008076-006	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM	
Client Sample ID	1910LBARP25	Sampling Time	11:20 AM	Extraction Date			
Matrix	Water	Sample Location	LBARP25				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	0.687	mg/L	0.02	10/16/2019 2:55:00 PM	TLM	SM4500NH3G	
Chloride	837	mg/L	5	10/16/2019 3:50:00 PM	LMC	EPA 300.0	
TDS	1580	mg/L	10	10/14/2019 2:00:00 PM	NDE	SM 2540C	

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Client: JACOBS
Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201
Attn: REUBEN GREER

Batch #: 191008076
Project Name: ALCOA - NWA LBAR

Analytical Results Report

Sample Number	191008076-007	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM	
Client Sample ID	1910LBARP09	Sampling Time	12:20 PM	Extraction Date			
Matrix	Water	Sample Location	LBARP09				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	0.387	mg/L	0.02	10/16/2019 2:56:00 PM	TLM	SM4500NH3G	
Chloride	494	mg/L	2.5	10/16/2019 4:07:00 PM	LMC	EPA 300.0	
TDS	1070	mg/L	5	10/14/2019 2:00:00 PM	NDE	SM 2540C	

Sample Number	191008076-008	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM	
Client Sample ID	1910LBARPW	Sampling Time	12:30 PM	Extraction Date			
Matrix	Water	Sample Location	LBARPW				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	<0.02	mg/L	0.02	10/16/2019 2:57:00 PM	TLM	SM4500NH3G	
Chloride	1.16	mg/L	0.1	10/16/2019 6:53:00 PM	LMC	EPA 300.0	
TDS	241	mg/L	5	10/14/2019 3:00:00 PM	NDE	SM 2540C	

Sample Number	191008076-009	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM	
Client Sample ID	1910LBARSA10	Sampling Time	12:50 PM	Extraction Date			
Matrix	Water	Sample Location	LBARSA10				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	514	mg/L	10	10/16/2019 4:06:00 PM	TLM	SM4500NH3G	
Chloride	5660	mg/L	25	10/16/2019 9:38:00 PM	LMC	EPA 300.0	
TDS	17500	mg/L	5	10/14/2019 2:00:00 PM	NDE	SM 2540C	

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Client: JACOBS
Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201
Attn: REUBEN GREER

Batch #: 191008076
Project Name: ALCOA - NWA LBAR

Analytical Results Report

Sample Number	191008076-010	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM	
Client Sample ID	1910LBARSA11	Sampling Time	1:05 PM	Extraction Date			
Matrix	Water	Sample Location	LBARSA11				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	105	mg/L	1	10/16/2019 3:54:00 PM	TLM	SM4500NH3G	
Chloride	5150	mg/L	20	10/16/2019 9:05:00 PM	LMC	EPA 300.0	
TDS	12500	mg/L	5	10/14/2019 3:00:00 PM	NDE	SM 2540C	

Sample Number	191008076-011	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM	
Client Sample ID	1910LBARSA14	Sampling Time	1:40 PM	Extraction Date			
Matrix	Water	Sample Location	LBARSA14				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	19.2	mg/L	1	10/16/2019 3:56:00 PM	TLM	SM4500NH3G	
Chloride	868	mg/L	5	10/16/2019 4:23:00 PM	LMC	EPA 300.0	
TDS	3370	mg/L	5	10/14/2019 3:00:00 PM	NDE	SM 2540C	

Sample Number	191008076-012	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM	
Client Sample ID	1910LBARP13	Sampling Time	2:00 PM	Extraction Date			
Matrix	Water	Sample Location	LBARP13				
Comments							
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ammonia-nitrogen	43.3	mg/L	1	10/16/2019 3:59:00 PM	TLM	SM4500NH3G	
Chloride	1170	mg/L	5	10/16/2019 4:40:00 PM	LMC	EPA 300.0	
TDS	5370	mg/L	5	10/14/2019 3:00:00 PM	NDE	SM 2540C	

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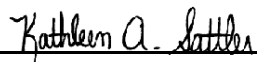
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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: JACOBS **Batch #:** 191008076
Address: 999 W RIVERSIDE AVE #500 **Project Name:** ALCOA - NWA LBAR
SPOKANE, WA 99201
Attn: REUBEN GREER

Analytical Results Report

Sample Number	191008076-013	Sampling Date	10/8/2019	Date/Time Received	10/8/2019	4:10 PM
Client Sample ID	1910LBARSFDF	Sampling Time	3:00 PM	Extraction Date		
Matrix	Water	Sample Location	LBARSFDF			
Comments						
	</					

Authorized Signature


Kathleen A. Sattler, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Client: JACOBS
Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201
Attn: REUBEN GREER

Batch #: 191008076
Project Name: ALCOA - NWA LBAR

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Chloride	4.24	mg/L	4	106.0	90-110	10/18/2019	10/18/2019
AMMONIA-NITROGEN	0.206	mg/L	0.2	103.0	90-110	10/16/2019	10/16/2019
Chloride	4.02	mg/L	4	100.5	90-110	10/16/2019	10/16/2019
TDS	498	mg/L	500	99.6	80-120	10/14/2019	10/14/2019

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
TDS	505	mg/L	500	101.0	1.4	0-20	10/14/2019	10/14/2019

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
191008076-013	TDS	14600	15200	mg/L	500	120.0	80-120	10/14/2019	10/14/2019
191008076-008BA	Chloride	1.16	4.76	mg/L	4	90.0	80-120	10/16/2019	10/16/2019
191018033-001	Chloride	0.695	4.15	mg/L	4	86.4	80-120	10/18/2019	10/18/2019
191009035-002	AMMONIA-NITROGEN	0.0810	0.302	mg/L	0.2	110.5	80-120	10/16/2019	10/16/2019

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
TDS	15200	mg/L	500	120.0	0.0	0-20	10/14/2019	10/14/2019
Chloride	4.94	mg/L	4	94.5	3.7	0-20	10/16/2019	10/16/2019
Chloride	4.39	mg/L	4	92.4	5.6	0-20	10/18/2019	10/18/2019
AMMONIA-NITROGEN	0.300	mg/L	0.2	109.5	0.7	0-25	10/16/2019	10/16/2019

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Ammonia-nitrogen	<0.02	mg/L	0.02	10/16/2019	10/16/2019
Chloride	ND	mg/L	0.1	10/18/2019	10/18/2019
Chloride	ND	mg/L	0.1	10/16/2019	10/16/2019
TDS	<5	mg/L	5	10/14/2019	10/14/2019

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: JACOBS

Batch #: 191008076

Address: 999 W RIVERSIDE AVE #500
SPOKANE, WA 99201

Project Name: ALCOA - NWA LBAR

Attn: REUBEN GREER

Analytical Results Report Quality Control Data

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Login Report

Customer Name: JACOBS

Order ID: 191008076

999 W RIVERSIDE AVE #500

Order Date: 10/8/2019

SPOKANE

WA

99201

Contact Name: REUBEN GREER

Project Name: ALCOA - NWA LBAR

Comment:

Sample #: 191008076-001 **Customer Sample #:** 1910LBARP20B

Recv'd:



Matrix: Water

Collector:

Date Collected: 10/8/2019

Quantity: 2

Date Received: 10/8/2019 4:10:00 PM

Time Collected: 8:20 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-002 **Customer Sample #:** 1910LBARP19

Recv'd:



Matrix: Water

Collector:

Date Collected: 10/8/2019

Quantity: 2

Date Received: 10/8/2019 4:10:00 PM

Time Collected: 9:00 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-003 **Customer Sample #:** 1910LBARP05

Recv'd:



Matrix: Water

Collector:

Date Collected: 10/8/2019

Quantity: 2

Date Received: 10/8/2019 4:10:00 PM

Time Collected: 9:30 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Customer Name: JACOBS

Order ID: 191008076

999 W RIVERSIDE AVE #500

Order Date: 10/8/2019

SPOKANE

WA

99201

Contact Name: REUBEN GREER

Project Name: ALCOA - NWA LBAR

Comment:

Sample #: 191008076-004 **Customer Sample #:** 1910LBARP06

Recv'd: ☒ **Matrix:** Water **Collector:** **Date Collected:** 10/8/2019

Quantity: 2 **Date Received:** 10/8/2019 4:10:00 PM **Time Collected:** 10:15 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-005 **Customer Sample #:** 1910LBARP27

Recv'd: ☒ **Matrix:** Water **Collector:** **Date Collected:** 10/8/2019

Quantity: 2 **Date Received:** 10/8/2019 4:10:00 PM **Time Collected:** 10:50 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-006 **Customer Sample #:** 1910LBARP25

Recv'd: ☒ **Matrix:** Water **Collector:** **Date Collected:** 10/8/2019

Quantity: 2 **Date Received:** 10/8/2019 4:10:00 PM **Time Collected:** 11:20 AM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-007 **Customer Sample #:** 1910LBARP09

Recv'd: ☒ **Matrix:** Water **Collector:** **Date Collected:** 10/8/2019

Quantity: 2 **Date Received:** 10/8/2019 4:10:00 PM **Time Collected:** 12:20 PM

Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>

Customer Name: JACOBS

Order ID: 191008076

999 W RIVERSIDE AVE #500

Order Date: 10/8/2019

SPOKANE

WA

99201

Contact Name: REUBEN GREER

Project Name: ALCOA - NWA LBAR

Comment:

CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-008 Customer Sample #: 1910LBARPW

Recv'd: ☒ Matrix: Water Collector: Date Collected: 10/8/2019
Quantity: 2 Date Received: 10/8/2019 4:10:00 PM Time Collected: 12:30 PM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-008A Customer Sample #: 1910LBARPW MS

Recv'd: ☒ Matrix: Water Collector: Date Collected: 10/8/2019
Quantity: 2 Date Received: 10/8/2019 4:10:00 PM Time Collected: 12:30 PM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-008B Customer Sample #: 1910LBARPW MSD

Recv'd: ☒ Matrix: Water Collector: Date Collected: 10/8/2019
Quantity: 2 Date Received: 10/8/2019 4:10:00 PM Time Collected: 12:30 PM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Customer Name: JACOBS
999 W RIVERSIDE AVE #500
SPOKANE WA 99201

Order ID: 191008076
Order Date: 10/8/2019

Contact Name: REUBEN GREER

Project Name: ALCOA - NWA LBAR

Comment:

Sample #: 191008076-009 **Customer Sample #:** 1910LBARSA10

Recv'd: ☒ **Matrix:** Water **Collector:** **Date Collected:** 10/8/2019
Quantity: 2 **Date Received:** 10/8/2019 4:10:00 PM **Time Collected:** 12:50 PM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-010 **Customer Sample #:** 1910LBARSA11

Recv'd: ☒ **Matrix:** Water **Collector:** **Date Collected:** 10/8/2019
Quantity: 2 **Date Received:** 10/8/2019 4:10:00 PM **Time Collected:** 1:05 PM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-011 **Customer Sample #:** 1910LBARSA14

Recv'd: ☒ **Matrix:** Water **Collector:** **Date Collected:** 10/8/2019
Quantity: 2 **Date Received:** 10/8/2019 4:10:00 PM **Time Collected:** 1:40 PM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-012 **Customer Sample #:** 1910LBARP13

Recv'd: ☒ **Matrix:** Water **Collector:** **Date Collected:** 10/8/2019
Quantity: 2 **Date Received:** 10/8/2019 4:10:00 PM **Time Collected:** 2:00 PM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>

Customer Name: JACOBS

Order ID: 191008076

999 W RIVERSIDE AVE #500

Order Date: 10/8/2019

SPOKANE

WA

99201

Contact Name: REUBEN GREER

Project Name: ALCOA - NWA LBAR

Comment:

CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-013 Customer Sample #: 1910LBARSADF

Recv'd: ☒ Matrix: Water Collector: Date Collected: 10/8/2019
Quantity: 2 Date Received: 10/8/2019 4:10:00 PM Time Collected: 3:00 PM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

Sample #: 191008076-014 Customer Sample #: 1910LBARP12

Recv'd: ☒ Matrix: Water Collector: Date Collected: 10/8/2019
Quantity: 2 Date Received: 10/8/2019 4:10:00 PM Time Collected: 2:25 PM
Comment:

Test	Lab	Method	Due Date	Priority
AMMONIA-NITROGEN SPOA	S	SM4500NH3G	10/18/2019	<u>Normal (~10 Days)</u>
CHLORIDE	S	EPA 300.0	10/18/2019	<u>Normal (~10 Days)</u>
SOLIDS-TDS SPO	S	SM 2540C	10/18/2019	<u>Normal (~10 Days)</u>

SAMPLE CONDITION RECORD

Samples received in a cooler?	Yes
Samples received intact?	Yes
What is the temperature of the sample(s)? (°C)	4.6
Samples received with a COC?	Yes
Samples received within holding time?	Yes
Are all sample bottles properly preserved?	Yes
Labels and chain agree?	Yes
Total number of containers?	32

**Anatek
Labs,
Inc.**

Company Name: _____

Jacobs

Address: 999 W. Riverside Ave STE 500

City: _____ State: _____ Zip: _____

City: Spokane State: WA Zip: 99201

Phone: 509-464-7215

Fax: _____

Project Manager:

Project Manager: Reuben Green

Project Name & #:

Email Address : Aliqa-NWA Lib

reuben.greer@jcwss.com

Sampler Name & phone:

1282 Alturas Drive, Moscow ID 83843 (208) 883-2839 FAX 882-9246
504 E Sprague Ste D, Spokane WA 99202 (509) 838-3999 FAX 838-4433

Chain of Custody Record

○ ⊗

Project Manager: _____

Project Name & #:

Email Address : Aliqa-NWA Lib

reuben.greer@jacobs.com

Sampler Name & phone:

Provide Sample Description

List Analyses Requested

Note Special Instructions/Comments

Lab ID	Sample Identification	Sampling Date/Time	Matrix	# of Containers	Sample Volume	Preservative
1	1910LBAR P20B	10819/0820	W	2		
2	1910LBAR P19	10819/0900	W	2		
3	1910LBAR P05	10819/0930	W	2		
4	1910LBAR P06	10819/1015	W	2		
5	1910LBAR P27	10819/1050	W	2		
6	1910LBAR P25	10819/1120	W	2		
7	1910LBAR P09	10819/1220	W	2		
8	1910LBAR P01	10819/1230	W	6		
9	1910LBAR SA10	10819/1250	W	2		
10	1910LBAR SA11	10819/1305	W	2		
11	1910LBAR SA14	10819/1340	W	2		
12	1910LBAR P13	10819/1400	W	2		
13	1910LBAR SA10	10819/1500	W	2		

Inspection Checklist

Received Intact?	<u>Y</u>	<u>N</u>
Labels & Chains Agree?	<u>Y</u>	<u>N</u>
Containers Sealed?	<u>Y</u>	<u>N</u>
VOC Head Space?	<u>Y</u>	<u>N</u>

h/p/c

Temperature (°C) 4.6 Dig-04

Preservative: H₂SO₄ R386-3 < 2

PA P18285-300

Date & Time: 10-8-17 1730

Inspected By: mg



Chain of Custody Record

1282 Alturas Drive, Moscow ID 83843 (208) 883-2839 FAX 882-9246
504 E Sprague Ste D, Spokane WA 99202 (509) 838-3999 FAX 838-4433

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91008 076 **CH2R** Last Due 10/18/2019
1st SAMP 10/8/2019 1st RCVD 10/8/2019
ALCOA - NWA LBAR

Company Name:	Refer to Page 1	Project Manager:	Reuben Greer
Address:		Project Name & #:	
City:	State:	Zip:	Email Address:
Phone:	509-464-7215	Purchase Order #:	
Fax:		Sampler Name & phone:	

<http://www.anateklabs.com/services/guidelines/reporting.asp>

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☐ Next Day* ☐ Mail
☐ 2nd Day* ☐ Fax
☐ Other* ☐ Email

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