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June 25, 2021

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

RE: L-Bar Site Compliance Monitoring Program—2020 Year-End Groundwater Monitoring Data Submittal

Dear Mr. Gruenenfelder:

On behalf of Alcoa, Great West Engineering has prepared this revised letter and associated attachments to summarize the groundwater monitoring results collected in 2020 as part of the *Compliance Monitoring Program* (CMP) at the L-Bar site. This year-end data package has been updated to address Ecology comments received March 5, 2020, and based on the teleconference call held on March 31, 2021 with representatives from Ecology, Alcoa, and Great West Engineering.

The following attachments summarize the groundwater monitoring data collected in 2020:

Attachment A	Site Map and CMP Monitoring Network
Attachment B	Groundwater Elevation Hydrograph
Attachment C	Spring 2020 Groundwater Flow Map
Attachment D	Fall 2020 Groundwater Flow Map
Attachment E	Groundwater Field Measurements and Analytical Data
Attachment F	Groundwater Quality Analytical Laboratory Data Packages
Attachment G	Groundwater Time Series Concentration Plots:
	G-1 Chloride Concentrations
	G-2 Ammonia Concentrations
	G-3 Total Dissolved Solids Concentrations

Attachment A is the site map showing the current CMP groundwater monitoring network, which includes thirteen (13) sampling locations, including twelve (12) shallow resource-protection groundwater monitoring wells and one (1) deep production well (PW). 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 recently updated in the *L-Bar Site Compliance Monitoring Program Sampling and Analysis Work Plan, 2020 Revision* (Jacobs, 2020). Per the CMP, the primary indicator parameters (ammonia, chloride, and TDS) are consistently sampled twice (semi-annual) per year. The secondary parameters (nitrate, nitrite, barium [total], manganese [total], selenium [total], and thallium [total], plus laboratory analyzed turbidity) are sampled twice per year every other year (i.e., secondary constituents are

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sampled during even numbered years and excluded during odd numbered years). As such, both primary and secondary indicator parameters were sampled in 2020.

Attachment B is the updated groundwater elevation hydrograph showing the groundwater level fluctuations from semi-annual CMP monitoring events conducted over the past 20 years from 2001 through the latest 2020 sampling event. Previous 5-year Review Reports have discussed the seasonal fluctuations, which were persistent in 2020 monitoring events.

Attachments C and D present the groundwater flow maps for the respective spring and fall 2020 monitoring events. The dashed lines represent the inferred groundwater elevation contours, and the blue arrows represent the generalized and inferred groundwater flow direction, perpendicular to the groundwater elevation contours. Both the spring and fall groundwater flow maps support a general flow direction to the north-northwest, illustrating groundwater discharging towards and into the Colville River, which is consistent with previously reported flow conditions.

Attachment E presents the groundwater monitoring field measurements and the groundwater analytical results for both spring and fall monitoring events performed in 2020. Bold-font values are detected concentrations that exceed the site-specific cleanup levels as specified in the *L-Bar Site Compliance Monitoring Program Sampling and Analysis Work Plan, 2020 Revision* (Jacobs, 2020).

Attachment F are the laboratory reports for the respective spring and fall semi-annual groundwater sampling events. Note that several non-detect results for manganese, selenium, and thallium are marked with a star (for example <0.01*) represent cases where the laboratory reported the result as a “non-detect,” but the laboratory did not meet the method reporting limit. The case narrative provides an explanation for these data quality issues. The goal of the CMP is to achieve 100 percent completeness of sampling data, and to analyze all constituents per their respective methods to achieve constituent-specific reporting limits to enable appropriate comparisons to the cleanup levels. This laboratory error on reporting limits was for secondary constituents which are typically non-detect, and is not considered a substantive limitation to track long-term remedy progress which focuses on the primary indicator parameters.

Attachment G provides updated time-series plots for the primary indicator parameters (Chloride, Ammonia, and TDS in Attachment G.1, G.2, and G.3, respectively) and all the CMP groundwater monitoring wells. Overall, the concentrations for primary indicator parameters are showing continued progress towards achievement of cleanup levels. The next periodic review will provide a focused assessment to track progress towards achievement of cleanup levels. Secondary parameters are not presented in time-series plots since the majority of results are low-level concentrations or are non-detect; the secondary parameters are tabulated in Attachment E and compared to their respective cleanup levels.

Please feel free to contact me should you have any questions or comments regarding this revised 2020 CMP groundwater data submittal.



Sincerely,

Great West Engineering, Inc.

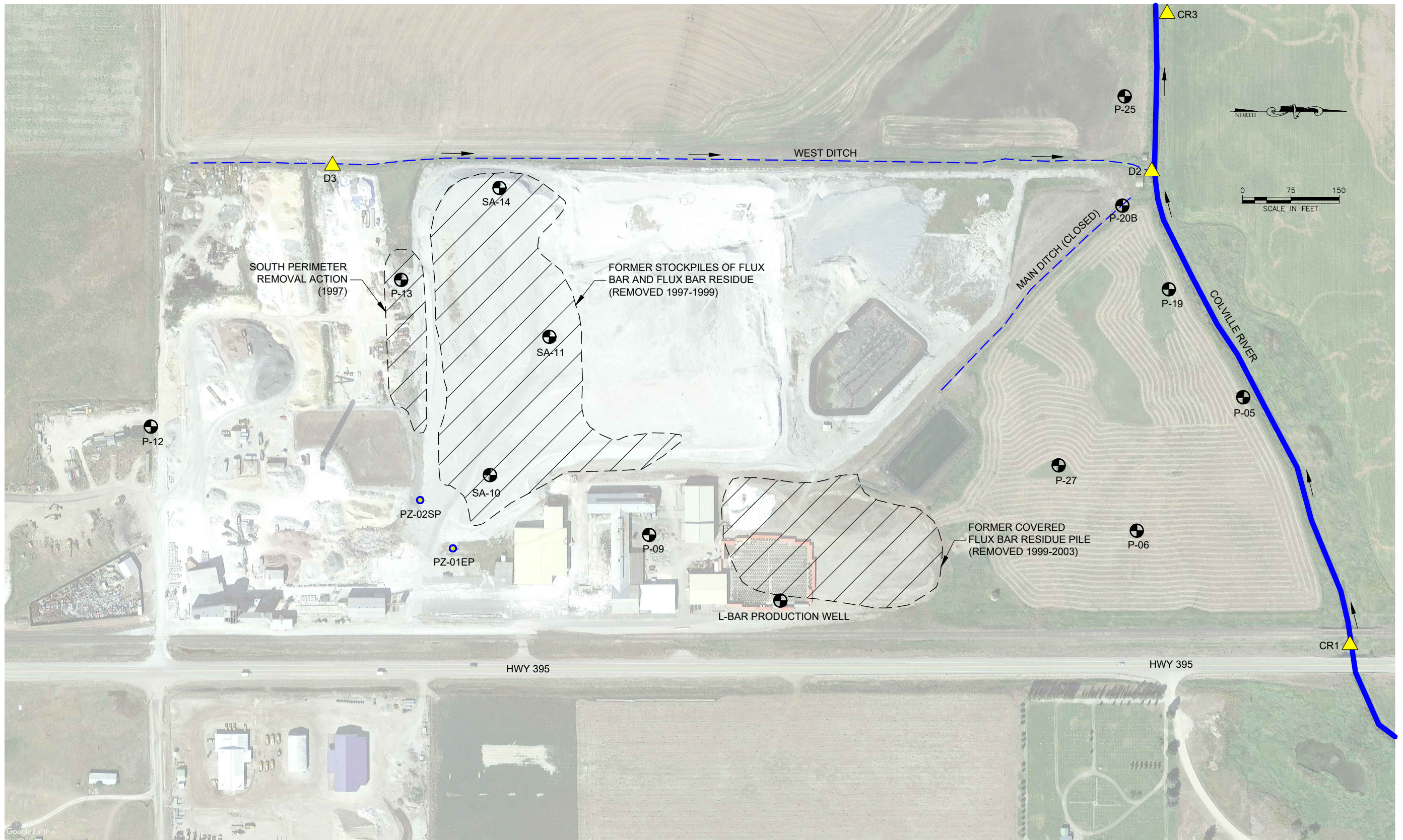
A handwritten signature in blue ink that reads "Craig Sauer".

Craig Sauer, PG
Project Manager

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

Attachment A

Site Map and CMP Monitoring Network

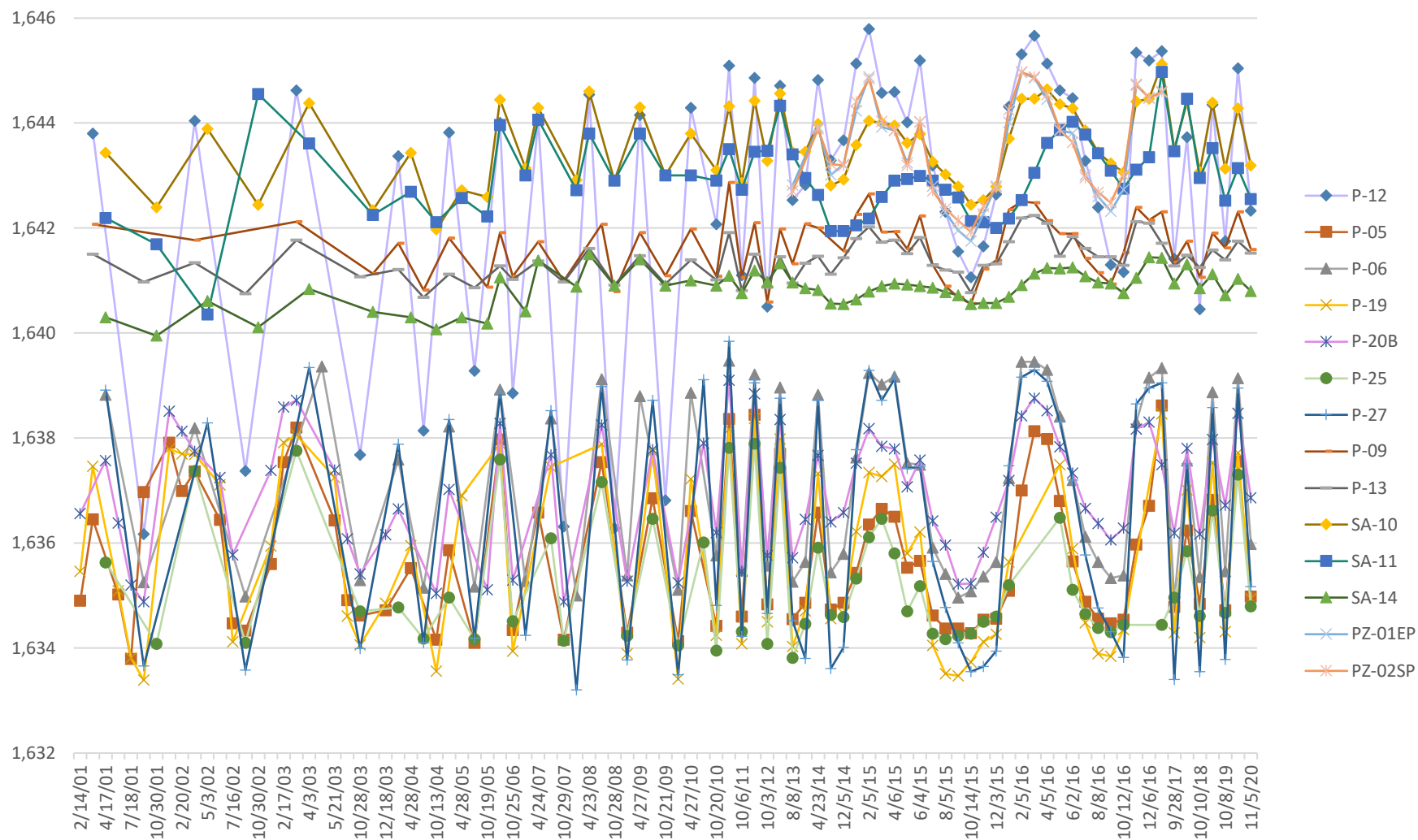


LEGEND

-  COMPLIANCE GROUNDWATER MONITORING WELL
-  GROUNDWATER PIEZOMETER
-  COMPLIANCE SURFACE WATER SAMPLING STATION
-  MAJOR SOURCE REMOVAL AREA

Attachment B

Groundwater Elevation Hydrograph



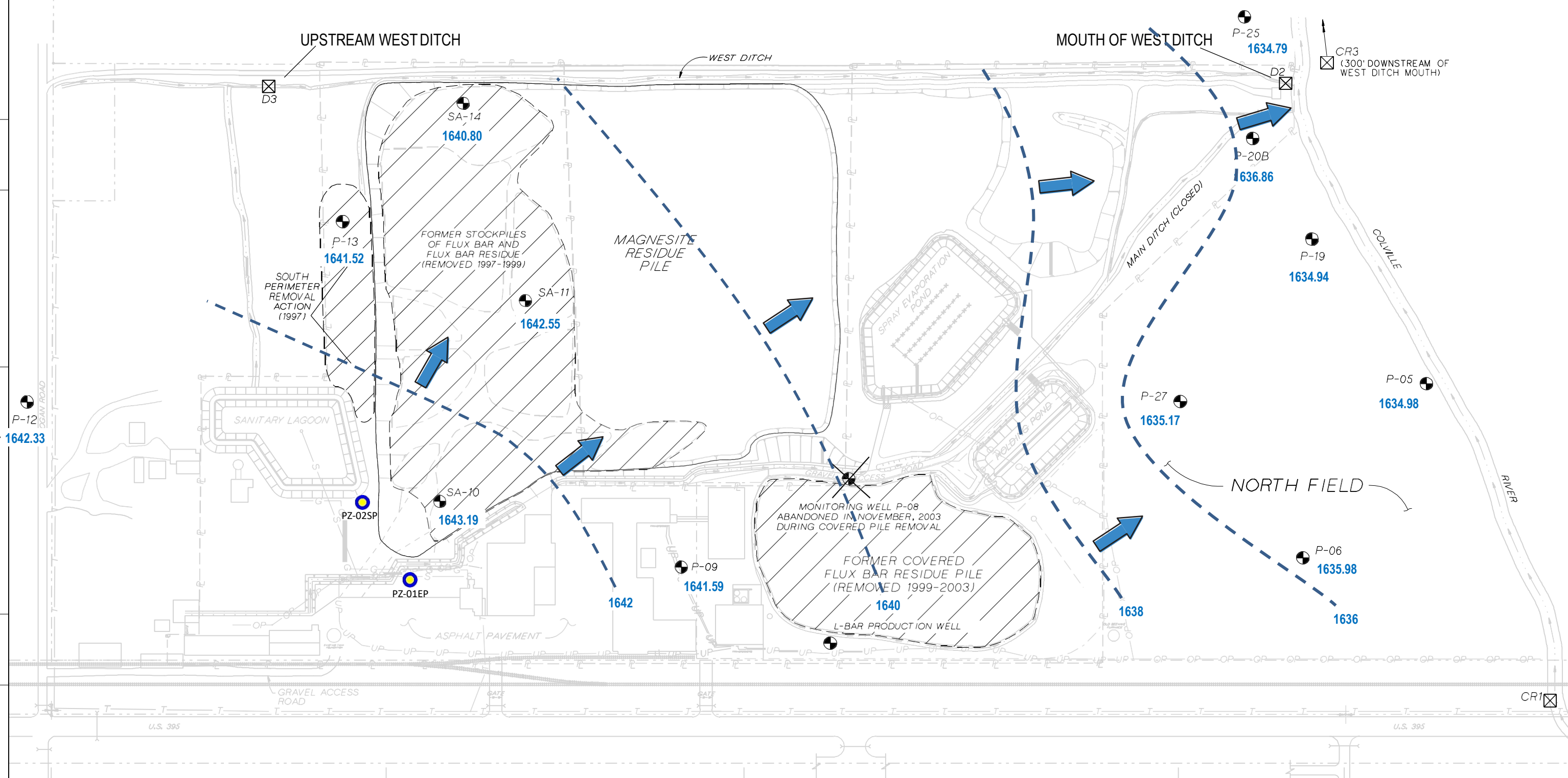
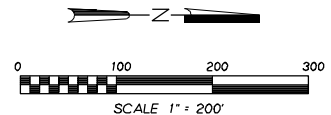
Attachment B. Groundwater Elevation Hydrograph
 2020 Year-End Groundwater Monitoring Data Submittal
 L-Bar Site Compliance Monitoring Program

Attachment C

Spring 2020 Groundwater Flow Map

Attachment D

Fall 2020 Groundwater Flow Map



LEGEND

- | | | | |
|---|---|---|--|
|  P-05 | COMPLIANCE MONITORING WELL LOCATION |  | INFERRED GROUNDWATER ELEVATION CONTOUR |
|  D2 | COMPLIANCE SURFACE WATER SAMPLING STATION |  | INFERRED GROUNDWATER FLOW DIRECTION FOR SHALLOW WATER-BEARING UNIT |
|  | MAJOR SOURCE REMOVAL AREA |  | GROUNDWATER PIEZOMETER |

Attachment D. Fall 2020 Groundwater Flow Map
2020 Year-End Groundwater Monitoring Data Submittal
L-Bar Site Compliance Monitoring Program

VERTICAL DATUM IS NAVD88

1:25, 28, 44, 45, 47, 62, 64
364
10/20/2020
10/20/2020

Attachment E

Groundwater Field Measurements and Analytical Data

Attachment E. Groundwater Field Measurements and Analytical Data

2020 Year-End Groundwater Monitoring Data Submittal

L-Bar Site Compliance Monitoring Program

Group	Analyte	Unit	P-12	P-13	SA-10	SA-11	SA-14	P-09	P-05	P-06	P-27	P-19	P-20B	P-25	PW	Cleanup Level
<i>Spring Sampling Event - 5/28/20</i>																
Field	Water Level	ft bgs	4.39	4.23	27.79	25.13	25.82	1.5	5.44	3.19	3.24	2.31	3.78	2.11	--	--
Field	Temperature	°C	11.1	12.7	12.5	12.2	12.8	17.1	10.1	11.9	12.1	16.3	18.5	13.3	14.0	--
Field	pH	units	7.67	7.34	7.91	8.64	10.18	7.56	7.33	7.26	7.23	6.84	7.22	6.97	7.88	--
Field	Conductivity	uS/cm	1,147	7,410	30,180	19,100	5,300	3,376	6,470	1,101	19,960	16,930	5,840	3,384	486	--
Inorganics	Ammonia-N	mg/L	<0.02	39.9	662	77.0	9.90	2.68	<0.02	0.654	<0.02	0.87	17.0	0.559	0.287	0.13
Inorganics	Chloride	mg/L	8.11	1,200	8,240	6,220	1,070	850	2,080	136	7,600	6,210	1,590	720	1.15	230
Inorganics	TDS	mg/L	648	4,470	20,700	14,100	3,760	1,800	3,260	636	10,900	9,040	3,550	2,110	236	1,092
Inorganics	Nitrate (as N)	mg/L	1.08	0.155	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	12.0	<0.1	<0.1	10
Inorganics	Nitrite (as N)	mg/L	<0.1	0.31	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1
Inorganics	Turbidity	NTU	0.200	0.393	12.5	1.60	0.263	9.22	0.375	112	1.39	25.5	11.2	217	0.445	--
Metals	Barium	mg/L	0.0298	0.0437	0.0550	0.0363	0.0157	0.293	0.401	0.229	2.14	0.165	0.0482	0.0449	0.0746	1
Metals	Manganese	mg/L	<0.001	4.62	4.95	0.312	0.00460	1.51	0.0862	1.91	0.00451	2.18	0.366	11.5	0.00113	0.44
Metals	Selenium	mg/L	<0.001	0.00299	0.0100	0.0157	0.0188	<0.001	0.00223	<0.001	0.0103	0.00598	0.00398	<0.001	<0.001	0.0082
Metals	Thallium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00112
<i>Fall Sampling Event - 11/5/20</i>																
Field	Water Level	ft bgs	7.1	4.46	28.88	25.72	26.05	2.22	8.01	6.35	7.02	5.09	5.39	4.62	--	--
Field	Temperature	°C	12.4	10.7	11.1	11.2	10.9	12.0	11.5	12.0	11.2	10.8	15.2	12.1	22.6	--
Field	pH	units	7.87	7.35	8.04	8.35	10.49	8.94	7.75	7.57	7.26	6.98	7.32	7.24	8.10	--
Field	Conductivity	uS/cm	1,109	7,620	30,840	19,100	5,430	2,236	7,050	1,140	18,720	14,060	7,180	3,478	583	--
Inorganics	Ammonia-N	mg/L	<0.02	38.4	676	97.4	19.1	0.365	<0.02	0.484	0.0281	0.722	21.2	0.924	<0.02	0.13
Inorganics	Chloride	mg/L	7.11	1,190	7,590	8,340	1,000	514	2,460	73.8	7,200	4,810	1,610	340	1.02	230
Inorganics	TDS	mg/L	562	4,110	16,400	14,300	2,940	1,210	2,860	840	8,650	7,320	3,160	1,890	286	1,092
Inorganics	Nitrate (as N)	mg/L	1.24	3.67	0.401	0.627	<0.1	<0.1	<0.1	0.149	<0.1	<0.1	18.1	<0.1	<0.1	10
Inorganics	Nitrite (as N)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1
Inorganics	Turbidity	NTU	0.256	0.447	12.3	16.5	0.743	0.472	1.46	151	2.00	1.70	1.32	107	0.768	--
Metals	Barium	mg/L	0.0336	0.0521	0.0513	0.0620	0.0168	0.0831	0.742	0.361	1.87	0.0935	0.0828	0.0651	0.0775	1
Metals	Manganese	mg/L	<0.01*	4.55	2.63	0.560	0.0104	0.0934	0.511	1.74	<0.01*	2.38	0.635	10.7	<0.01*	0.44
Metals	Selenium	mg/L	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	0.0082
Metals	Thallium	mg/L	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	0.00112

Notes:
Bold values are those that exceed their respective cleanup level

Non-detect values shown as ND or preceded with "<" symbol; non-detect value is Practical Quantitation Limit (PQL)

Non-detect values flagged with "*" indicate non-detect result but the laboratory did not meet the target reporting limits per the method (see case narrative in laboratory report).

Attachment F

Groundwater Quality Analytical Laboratory Data Packages

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
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Client: Great West Engineering, Inc.
Address: 9221 N. Division St., Suite F
Spokane, WA 99218
Attn: Craig Sauer

Work Order: WAE0919
Project: Alcoa L-Bar
Reported: 4/26/2021 16:02

Case Narrative

<u>Laboratory ID</u>	<u>Sample Name</u>
WAE0919-01	2005P12
WAE0919-02	2005P13
WAE0919-03	2005SA10
WAE0919-04	2005SA11
WAE0919-05	2005SA14
WAE0919-06	2005P09
WAE0919-07	2005PW
WAE0919-08	2005P05
WAE0919-09	2005P06
WAE0919-10	2005P19
WAE0919-11	2005P20B
WAE0919-12	2005P25
WAE0919-13	2005P27
WAE0919-14	2005FD

QA/QC Checks

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

1. Holding Time Requirements

The turbidity analysis was analyzed out of holding time for all samples.

2. Calibration Requirements

No problems encountered.

3. Surrogate Recovery Requirements

No problems encountered.

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

No problems encountered.

5. Method Blank Requirements

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The method blanks were non-detect for all analytes.

6. Internal Standard(s) Response Requirements

No problems encountered

7. 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 or her designee.

Kathleen A. Sattler, Lab Manager

Anatek Labs, Inc.

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Analytical Results Report

Sample Location: 2005P12
Lab/Sample Number: WAE0919-01 Collect Date: 05/28/20 08:15
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	<0.02	mg/L	0.0200	6/12/20 11:02	TLM	SM 4500-NH3 H	
Chloride	8.11	mg/L	0.100	6/16/20 0:04	ARC	EPA 300.0	
Nitrate-N	1.08	mg/L	0.100	5/29/20 18:04	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 18:04	ARC	EPA 300.0	
TDS	648	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	0.200	NTU	0.100	6/2/20 16:44	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.0298	mg/L	0.00100	6/19/20 13:47	TRC	EPA 200.8	
Manganese	<0.001	mg/L	0.00100	6/19/20 13:47	TRC	EPA 200.8	
Selenium	<0.001	mg/L	0.00100	6/19/20 13:47	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 13:47	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 2005P13
Lab/Sample Number: WAE0919-02 Collect Date: 05/28/20 08:50
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	39.9	mg/L	0.600	6/12/20 11:30	TLM	SM 4500-NH3 H	
Chloride	1200	mg/L	5.00	6/16/20 0:21	ARC	EPA 300.0	
Nitrate-N	0.155	mg/L	0.100	5/29/20 18:20	ARC	EPA 300.0	
Nitrite-N	0.310	mg/L	0.100	5/29/20 18:20	ARC	EPA 300.0	
TDS	4470	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	0.393	NTU	0.100	6/2/20 16:47	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.0437	mg/L	0.00100	6/19/20 13:50	TRC	EPA 200.8	
Manganese	4.62	mg/L	0.100	6/19/20 15:14	TRC	EPA 200.8	
Selenium	0.00299	mg/L	0.00100	6/19/20 13:50	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 13:50	TRC	EPA 200.8	

Anatek Labs, Inc.

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Analytical Results Report

(Continued)

Sample Location: 2005SA10
Lab/Sample Number: WAE0919-03 Collect Date: 05/28/20 14:05
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	662	mg/L	10.0	6/12/20 12:21	TLM	SM 4500-NH3 H	
Chloride	8240	mg/L	50.0	6/17/20 2:23	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/29/20 18:37	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 18:37	ARC	EPA 300.0	
TDS	20700	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	12.5	NTU	0.100	6/2/20 16:49	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.0550	mg/L	0.00100	6/19/20 13:52	TRC	EPA 200.8	
Manganese	4.95	mg/L	0.100	6/19/20 15:17	TRC	EPA 200.8	M2
Selenium	0.0100	mg/L	0.00100	6/19/20 13:52	TRC	EPA 200.8	M1
Thallium	<0.001	mg/L	0.00100	6/19/20 13:52	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 2005SA11
Lab/Sample Number: WAE0919-04 Collect Date: 05/28/20 13:30
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	77.0	mg/L	3.00	6/12/20 12:02	TLM	SM 4500-NH3 H	
Chloride	6220	mg/L	50.0	6/17/20 2:40	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/29/20 18:53	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 18:53	ARC	EPA 300.0	
TDS	14100	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	1.60	NTU	0.100	6/2/20 16:52	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.0363	mg/L	0.00100	6/19/20 13:59	TRC	EPA 200.8	
Manganese	0.312	mg/L	0.00100	6/19/20 13:59	TRC	EPA 200.8	
Selenium	0.0157	mg/L	0.00100	6/19/20 13:59	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 13:59	TRC	EPA 200.8	

Anatek Labs, Inc.

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Analytical Results Report

(Continued)

Sample Location: 2005SA14
Lab/Sample Number: WAE0919-05 Collect Date: 05/28/20 14:35
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	9.90	mg/L	0.0200	6/12/20 11:07	TLM	SM 4500-NH3 H	
Chloride	1070	mg/L	5.00	6/16/20 1:10	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/29/20 19:10	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 19:10	ARC	EPA 300.0	
TDS	3760	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	0.263	NTU	0.100	6/2/20 16:55	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.0157	mg/L	0.00100	6/19/20 14:07	TRC	EPA 200.8	
Manganese	0.00460	mg/L	0.00100	6/19/20 14:07	TRC	EPA 200.8	
Selenium	0.0188	mg/L	0.00100	6/19/20 14:07	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 14:07	TRC	EPA 200.8	

Anatek Labs, Inc.

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Analytical Results Report

(Continued)

Sample Location: 2005P09
Lab/Sample Number: WAE0919-06 Collect Date: 05/28/20 12:55
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	2.68	mg/L	0.600	6/12/20 11:41	TLM	SM 4500-NH3 H	
Chloride	850	mg/L	5.00	6/16/20 1:27	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/29/20 19:26	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 19:26	ARC	EPA 300.0	
TDS	1800	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	9.22	NTU	0.100	6/2/20 17:36	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.293	mg/L	0.00100	6/19/20 14:09	TRC	EPA 200.8	
Manganese	1.51	mg/L	0.100	6/19/20 15:19	TRC	EPA 200.8	
Selenium	<0.001	mg/L	0.00100	6/19/20 14:09	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 14:09	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 2005PW
Lab/Sample Number: WAE0919-07 Collect Date: 05/28/20 12:30
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	0.287	mg/L	0.0200	6/12/20 11:09	TLM	SM 4500-NH3 H	
Chloride	1.15	mg/L	0.100	6/15/20 21:51	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/29/20 19:43	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 19:43	ARC	EPA 300.0	
TDS	236	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	0.445	NTU	0.100	6/2/20 17:38	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.0746	mg/L	0.00100	6/19/20 14:12	TRC	EPA 200.8	
Manganese	0.00113	mg/L	0.00100	6/19/20 14:12	TRC	EPA 200.8	
Selenium	<0.001	mg/L	0.00100	6/19/20 14:12	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 14:12	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 2005P05
Lab/Sample Number: WAE0919-08 Collect Date: 05/28/20 10:45
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	<0.02	mg/L	0.0200	6/12/20 11:10	TLM	SM 4500-NH3 H	
Chloride	2080	mg/L	20.0	6/17/20 2:57	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/29/20 19:59	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 19:59	ARC	EPA 300.0	
TDS	3260	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	0.375	NTU	0.100	6/2/20 17:42	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.401	mg/L	0.00100	6/19/20 14:14	TRC	EPA 200.8	
Manganese	0.0862	mg/L	0.00100	6/19/20 14:14	TRC	EPA 200.8	
Selenium	0.00223	mg/L	0.00100	6/19/20 14:14	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 14:14	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 2005P06
Lab/Sample Number: WAE0919-09 Collect Date: 05/28/20 11:15
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	0.654	mg/L	0.0200	6/12/20 11:12	TLM	SM 4500-NH3 H	
Chloride	136	mg/L	1.00	6/16/20 2:00	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/29/20 20:16	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 20:16	ARC	EPA 300.0	
TDS	636	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	112	NTU	0.300	6/2/20 17:49	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.229	mg/L	0.00100	6/19/20 14:16	TRC	EPA 200.8	
Manganese	1.91	mg/L	0.100	6/19/20 15:21	TRC	EPA 200.8	
Selenium	<0.001	mg/L	0.00100	6/19/20 14:16	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 14:16	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 2005P19
Lab/Sample Number: WAE0919-10 Collect Date: 05/28/20 10:05
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	0.870	mg/L	0.400	6/12/20 11:14	TLM	SM 4500-NH3 H	
Chloride	6210	mg/L	50.0	6/17/20 3:13	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/29/20 23:02	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 23:02	ARC	EPA 300.0	
TDS	9040	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	25.5	NTU	0.300	6/2/20 17:51	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.165	mg/L	0.00100	6/19/20 14:19	TRC	EPA 200.8	
Manganese	2.18	mg/L	0.100	6/19/20 15:24	TRC	EPA 200.8	
Selenium	0.00598	mg/L	0.00100	6/19/20 14:19	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 14:19	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 2005P20B
Lab/Sample Number: WAE0919-11 Collect Date: 05/28/20 12:05
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	17.0	mg/L	0.600	6/12/20 11:48	TLM	SM 4500-NH3 H	
Chloride	1590	mg/L	5.00	6/16/20 2:33	ARC	EPA 300.0	
Nitrate-N	12.0	mg/L	0.100	5/29/20 23:19	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 23:19	ARC	EPA 300.0	
TDS	3550	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	11.2	NTU	0.100	6/2/20 17:53	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.0482	mg/L	0.00100	6/19/20 14:29	TRC	EPA 200.8	
Manganese	0.366	mg/L	0.00100	6/19/20 14:29	TRC	EPA 200.8	
Selenium	0.00398	mg/L	0.00100	6/19/20 14:29	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 14:29	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 2005P25
Lab/Sample Number: WAE0919-12 Collect Date: 05/28/20 09:30
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	0.559	mg/L	0.0200	6/12/20 11:17	TLM	SM 4500-NH3 H	
Chloride	720	mg/L	5.00	6/16/20 4:14	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/29/20 23:35	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 23:35	ARC	EPA 300.0	
TDS	2110	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	217	NTU	0.600	6/2/20 17:58	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.0449	mg/L	0.00100	6/19/20 14:34	TRC	EPA 200.8	
Manganese	11.5	mg/L	0.100	6/19/20 15:26	TRC	EPA 200.8	
Selenium	<0.001	mg/L	0.00100	6/19/20 14:34	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 14:34	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 2005P27
Lab/Sample Number: WAE0919-13 Collect Date: 05/28/20 11:40
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	<0.02	mg/L	0.0200	6/12/20 11:18	TLM	SM 4500-NH3 H	
Chloride	7600	mg/L	50.0	6/17/20 3:30	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/29/20 23:52	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/29/20 23:52	ARC	EPA 300.0	
TDS	10900	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	1.39	NTU	0.100	6/2/20 18:01	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	2.14	mg/L	0.100	6/19/20 15:28	TRC	EPA 200.8	
Manganese	0.00451	mg/L	0.00100	6/19/20 14:37	TRC	EPA 200.8	
Selenium	0.0103	mg/L	0.00100	6/19/20 14:37	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 14:37	TRC	EPA 200.8	

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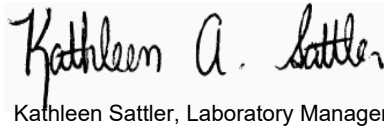
Analytical Results Report

(Continued)

Sample Location: 2005FD
Lab/Sample Number: WAE0919-14 Collect Date: 05/28/20 16:30
Date Received: 05/28/20 16:20 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	669	mg/L	10.0	6/12/20 12:17	TLM	SM 4500-NH3 H	
Chloride	6990	mg/L	50.0	6/17/20 3:46	ARC	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	5/30/20 0:08	ARC	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	5/30/20 0:08	ARC	EPA 300.0	
TDS	19600	mg/L	5.00	6/3/20 8:40	BAS	SM 2540 C	M3
Turbidity	4.20	NTU	0.100	6/2/20 18:03	MMS	EPA 180.1	H3
Metals by ICP-MS							
Barium	0.0578	mg/L	0.00100	6/19/20 14:39	TRC	EPA 200.8	M2
Manganese	4.89	mg/L	0.100	6/19/20 15:31	TRC	EPA 200.8	M2
Selenium	0.0139	mg/L	0.00100	6/19/20 14:39	TRC	EPA 200.8	
Thallium	<0.001	mg/L	0.00100	6/19/20 14:39	TRC	EPA 200.8	

Authorized Signature,



Kathleen Sattler, Laboratory Manager

H3	Sample was received past holding time.
M1	Matrix spike recovery was high; the associated blank spike recovery was acceptable. Potential matrix effect
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable. Potential matrix effect.
M3	Spike recovery value is unusable. Analyte concentration disproportionate to the spike level. Blank spike recovery acceptable.
PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was spiked or duplicated.

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Certifications

Code	Description	Facility	Number
W WA DOE	Washington Department of Ecology	Anatek-Spokane, WA	C585

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Quality Control Data

Inorganics

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAF0028 - W Ions										
Blank (BAF0028-BLK1)					Prepared & Analyzed: 5/29/2020					
Nitrite-N	ND		0.100	mg/L						
Nitrate-N	ND		0.100	mg/L						
Blank (BAF0028-BLK2)					Prepared & Analyzed: 5/29/2020					
Nitrite-N	ND		0.100	mg/L						
Nitrate-N	ND		0.100	mg/L						
LCS (BAF0028-BS1)					Prepared & Analyzed: 5/29/2020					
Nitrite-N	4.12			mg/L	4.00		103	90-110		
Nitrate-N	4.01			mg/L	4.00		100	90-110		
LCS (BAF0028-BS2)					Prepared & Analyzed: 5/29/2020					
Nitrite-N	4.00			mg/L	4.00		100	90-110		
Nitrate-N	3.92			mg/L	4.00		98.0	90-110		
Matrix Spike (BAF0028-MS1)					Source: WAE0894-01		Prepared & Analyzed: 5/29/2020			
Nitrite-N	3.95		0.100	mg/L	4.02	ND	98.3	80-120		
Nitrate-N	4.24		0.100	mg/L	4.02	0.329	97.5	80-120		
Matrix Spike Dup (BAF0028-MSD1)					Source: WAE0894-01		Prepared & Analyzed: 5/29/2020			
Nitrite-N	4.17		0.100	mg/L	4.02	ND	104	80-120	5.64	20
Nitrate-N	4.45		0.100	mg/L	4.02	0.329	103	80-120	4.83	20
Batch: BAF0100 - W Wet Chem										
Blank (BAF0100-BLK1)					Prepared & Analyzed: 6/2/2020					
Turbidity	ND		0.100	NTU						

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Quality Control Data (Continued)

Inorganics (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAF0227 - W Wet Chem										
Blank (BAF0227-BLK1)					Prepared & Analyzed: 6/3/2020					
TDS	ND		5.00	mg/L						
Blank (BAF0227-BLK2)					Prepared & Analyzed: 6/3/2020					
TDS	ND		5.00	mg/L						
LCS (BAF0227-BS1)					Prepared & Analyzed: 6/3/2020					
TDS	484			mg/L	500		96.8	80-120		
LCS Dup (BAF0227-BSD1)					Prepared & Analyzed: 6/3/2020					
TDS	522			mg/L	500		104	80-120	7.55	20
Duplicate (BAF0227-DUP1)					Prepared & Analyzed: 6/3/2020					
TDS	Source: WAE0866-05			946	5.00	mg/L	926		2.14	20
Matrix Spike (BAF0227-MS1)					Prepared & Analyzed: 6/3/2020					
TDS	21400	M3	5.00	mg/L	500	20700	140	80-120		
Matrix Spike Dup (BAF0227-MSD1)					Prepared & Analyzed: 6/3/2020					
TDS	21200	M3	5.00	mg/L	500	20700	100	80-120	0.939	20
Batch: BAF0435 - W FIA										
Blank (BAF0435-BLK1)					Prepared & Analyzed: 6/12/2020					
Ammonia/N	ND		0.0200	mg/L						
Blank (BAF0435-BLK2)					Prepared & Analyzed: 6/12/2020					
Ammonia/N	ND		0.0200	mg/L						

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Quality Control Data (Continued)

Inorganics (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAF0435 - W FIA (Continued)										
Blank (BAF0435-BLK3)					Prepared & Analyzed: 6/12/2020					
Ammonia/N	ND		0.0200	mg/L						
Blank (BAF0435-BLK4)					Prepared & Analyzed: 6/12/2020					
Ammonia/N	ND		0.0200	mg/L						
LCS (BAF0435-BS1)					Prepared & Analyzed: 6/12/2020					
Ammonia/N	0.203		0.0200	mg/L	0.200		101	90-110		
LCS (BAF0435-BS2)					Prepared & Analyzed: 6/12/2020					
Ammonia/N	0.206		0.0200	mg/L	0.200		103	90-110		
Matrix Spike (BAF0435-MS1)					Prepared & Analyzed: 6/12/2020					
Ammonia/N	0.516		0.0200	mg/L	0.200	0.315	100	80-120		
Matrix Spike (BAF0435-MS2)					Prepared & Analyzed: 6/12/2020					
Ammonia/N	0.784		0.0200	mg/L	0.200	0.582	101	80-120		
Matrix Spike Dup (BAF0435-MSD1)					Prepared & Analyzed: 6/12/2020					
Ammonia/N	0.513		0.0200	mg/L	0.200	0.315	98.7	80-120	0.564	20
Matrix Spike Dup (BAF0435-MSD2)					Prepared & Analyzed: 6/12/2020					
Ammonia/N	0.782		0.0200	mg/L	0.200	0.582	100	80-120	0.294	20
Batch: BAF0522 - W Ions										
Blank (BAF0522-BLK1)					Prepared & Analyzed: 6/15/2020					
Chloride	ND		0.100	mg/L						

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Quality Control Data (Continued)

Inorganics (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAF0522 - W Ions (Continued)										
LCS (BAF0522-BS1)					Prepared & Analyzed: 6/15/2020					
Chloride	3.91			mg/L	4.00		97.8	90-110		
Matrix Spike (BAF0522-MS1)					Prepared & Analyzed: 6/15/2020					
Chloride	4.26		0.100	mg/L	4.02	0.0664	104	80-120		
Matrix Spike Dup (BAF0522-MSD1)					Prepared & Analyzed: 6/15/2020					
Chloride	4.18		0.100	mg/L	4.02	0.0664	102	80-120	1.76	20

Batch: BAF0580 - W Ions

Blank (BAF0580-BLK1)					Prepared & Analyzed: 6/16/2020					
Chloride	ND		0.100	mg/L						
LCS (BAF0580-BS1)					Prepared & Analyzed: 6/16/2020					
Chloride	3.92			mg/L	4.00		98.1	90-110		
Matrix Spike (BAF0580-MS1)					Prepared & Analyzed: 6/16/2020					
Chloride	6.64		0.100	mg/L	4.02	3.33	82.6	80-120		
Matrix Spike Dup (BAF0580-MSD1)					Prepared & Analyzed: 6/16/2020					
Chloride	6.85		0.100	mg/L	4.02	3.33	87.8	80-120	3.10	20

Quality Control Data (Continued)

Metals by ICP-MS

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAF0120 - W 3010 Digest										
Blank (BAF0120-BLK1)					Prepared: 6/3/2020 Analyzed: 6/19/2020					
Manganese	ND		0.00100	mg/L						
Selenium	ND		0.00100	mg/L						
Barium	ND		0.00100	mg/L						
Thallium	ND		0.00100	mg/L						
LCS (BAF0120-BS1)					Prepared: 6/3/2020 Analyzed: 6/19/2020					
Thallium	0.0525		0.00100	mg/L	0.0500		105	85-115		
Manganese	0.0519		0.00100	mg/L	0.0500		104	85-115		
Selenium	0.0477		0.00100	mg/L	0.0500		95.4	85-115		
Barium	0.0509		0.00100	mg/L	0.0500		102	85-115		
Matrix Spike (BAF0120-MS1)					Prepared: 6/3/2020 Analyzed: 6/19/2020					
Manganese	4.77	M2	0.00100	mg/L	0.0500	4.95	NR	70-130		
Selenium	0.0728		0.00100	mg/L	0.0500	0.0100	126	70-130		
Thallium	0.0416		0.00100	mg/L	0.0500	<0.001	83.1	70-130		
Barium	0.106		0.00100	mg/L	0.0500	0.0550	101	70-130		
Matrix Spike (BAF0120-MS2)					Prepared: 6/3/2020 Analyzed: 6/19/2020					
Barium	0.0616	M2	0.00100	mg/L	0.0500	0.0578	7.43	70-130		
Manganese	0.995	M2	0.00100	mg/L	0.0500	4.89	NR	70-130		
Selenium	0.0537		0.00100	mg/L	0.0500	0.0139	79.6	70-130		
Thallium	0.0452		0.00100	mg/L	0.0500	<0.001	90.3	70-130		

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Quality Control Data (Continued)

Metals by ICP-MS (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch: BAF0120 - W 3010 Digest (Continued)

Matrix Spike Dup (BAF0120-MSD1)

Source: WAE0919-03

Prepared: 6/3/2020 Analyzed: 6/19/2020

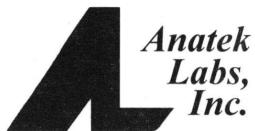
Selenium	0.0781	M1	0.00100	mg/L	0.0500	0.0100	136	70-130	6.97	20
Thallium	0.0435		0.00100	mg/L	0.0500	<0.001	87.0	70-130	4.63	20
Manganese	5.08	M2	0.00100	mg/L	0.0500	4.95	271	70-130	6.46	20
Barium	0.116		0.00100	mg/L	0.0500	0.0550	123	70-130	9.67	20

Matrix Spike Dup (BAF0120-MSD2)

Source: WAE0919-14

Prepared: 6/3/2020 Analyzed: 6/19/2020

Selenium	0.0543		0.00100	mg/L	0.0500	0.0139	80.8	70-130	1.12	20
Manganese	1.02	M2	0.00100	mg/L	0.0500	4.89	NR	70-130	2.88	20
Barium	0.0635	M2	0.00100	mg/L	0.0500	0.0578	11.4	70-130	3.16	20
Thallium	0.0452		0.00100	mg/L	0.0500	<0.001	90.4	70-130	0.0952	20



L-Bar Q2

Chain of Custody Record

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Log-In #

WAE0919



Due: 06/12/20

Company Name: <u>GreatWest</u>	Project Manager: <u>Craig Sauer</u>
Address: <u>9221 N. Division St.</u>	Project Name & #: <u>Alcoa L-Bar</u>
City: <u>Spokane</u> State: <u>WA</u> Zip: <u>99021</u>	Email Address: <u>csauer@greatwesteng.com</u>
Phone: <u>509-994-9938</u>	Purchase Order #: <u>Alcoa</u>
Fax:	Sampler Name & phone: <u>Craig Sauer 509-994-9938</u>

Turn Around

Please refer to

<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	Preservative:	# of Containers	Sample Volume	NH3, C, TDS	Nitrate, Nitrite	Total Metals (Pb, Mn, Se, Th)	Turbidity							
1	2005 P12	5/28 0815	W		3		X	X	X	X							SWBS #14 DB Field duplicate taken (2005FD) 2005FD (sample date 5/28, sample time 1630). Same matrix and analytes. MS/MSD @ 2005 SA10 (1405)
2	2005 P13	5/28 0850	W		3		X	X	X	X							
3	2005 SA10	5/28 1405	W		3		X	X	X	X							
4	2005 SA11	5/28 1330	W		3		X	X	X	X							
5	2005 SA14	5/28 1435	W		3		X	X	X	X							
6	2005 P09	5/28 1255	W		3		X	X	X	X							
7	2005 PW	5/28 1230	W		3		X	X	X	X							
8	2005 P05	5/28 1045	W		3		X	X	X	X							
9	2005 P06	5/28 1115	W		3		X	X	X	X							
10	2005 P19	5/28 1005	W		3		X	X	X	X							
11	2005 P20B	5/28 1205	W		3		X	X	X	X							
12	2005 P25	5/28 0930	W		3		X	X	X	X							
13	2005 P27	5/28 1140	W		3		X	X	X	X							

Inspection Checklist					
Received Intact?	☒	N			
Labels & Chains Agree?	☒	N			
Containers Sealed?	☒	N			
VOC Head Space?	☒	N			
Cooler?	☒	N			
Ice/Ice Packs Present?	☒	N			
Temperature (°C):	9.8° Dig-7				
Preservative:	H2SO4 2001181 <2				
	HNO3 2000994 <2 pH 2001015				
Date & Time:	5-28-20 1715				
Inspected By:	W/g				

	Printed Name	Signature	Company	Date	Time
Relinquished by	Craig Sauer		GWE	5/28/20	16:18
Received by	Brook Berger		Anatek	5-28-20	1620
Relinquished by					
Received by					
Relinquished by					
Received by					

Samples submitted to Anatek Labs may be subcontracted to other accredited labs if necessary. This message serves as notice of this possibility. Subcontracted analyses will be clearly noted on the analytical report.

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Client: Great West Engineering, Inc.
Address: 9221 N. Division St., Suite F
Spokane, WA 99218
Attn: Craig Sauer

Work Order: WAK0214
Project: Alcoa Q4 L-Bar
Reported: 4/26/2021 15:44

Case Narrative

<u>Laboratory ID</u>	<u>Sample Name</u>
WAK0214-01	110520P12
WAK0214-02	110520P13
WAK0214-03	110520SA10
WAK0214-04	110520SA11
WAK0214-05	110520SA14
WAK0214-06	110520P09
WAK0214-07	110520PW
WAK0214-08	110520P05
WAK0214-09	110520P06
WAK0214-10	110520P19
WAK0214-11	110520P20B
WAK0214-12	110520P25
WAK0214-13	110520P27
WAK0214-14	110520FD3

QA/QC Checks

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

1. Holding Time Requirements

110520P12, 110520P13, 110520SA10, 110520SA11, 110520SA14, 110520P09, 110520PW, 110520P05, 110520P06, 110520P19, 110520P20B, 110520P25, and 110520P27 pH's were all analyzed out of holding time. 110520SA11, 110520SA14, 110520P27 and 110520FD3 chlorides were initially analyzed within holding time and were then re-analyzed outside of holding time to achieve more accurate results with better dilutions.

2. Calibration Requirements

No problems encountered.

3. Surrogate Recovery Requirements

No problems encountered.

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

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No problems encountered.

5. Method Blank Requirements

The method blanks were non-detect for all analytes. The thallium, selenium and bariums were analyzed at a dilution of 1:10 to get the maganese within calibration. The samples are normally analyzed without a dilution after a 1:10 dilution. The analyst did not analyze them without a dilution. The samples in the future will be analyzed without a dilution and with an appropriate dilution to get all analytes within the calibration range.

6. Internal Standard(s) Response Requirements

No problems encountered

7. 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 or her designee.

Kathleen A. Sattler, Lab Manager

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Analytical Results Report

Sample Location: 110520P12
Lab/Sample Number: WAK0214-01 Collect Date: 11/05/20 07:45
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	<0.02	mg/L	0.0200	11/24/20 10:46	SAG	SM 4500-NH3 H	
Chloride	7.11	mg/L	0.100	12/1/20 18:08	BAS	EPA 300.0	
Nitrate-N	1.24	mg/L	0.100	11/6/20 13:53	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 13:53	BAS	EPA 300.0	
pH	7.77	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	562	mg/L	5.00	11/10/20 14:15	BAS	SM 2540 C	
Turbidity	0.256	NTU	0.100	11/6/20 18:03	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0336	mg/L	0.0100	11/20/20 15:07	TRC	EPA 200.8	
Manganese	<0.01	mg/L	0.0100	11/20/20 15:07	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:07	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:07	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520P13
Lab/Sample Number: WAK0214-02 Collect Date: 11/05/20 08:20
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	38.4	mg/L	0.400	11/20/20 15:00	SAG	SM 4500-NH3 H	
Chloride	1190	mg/L	5.00	12/1/20 18:57	BAS	EPA 300.0	
Nitrate-N	3.67	mg/L	0.100	11/6/20 14:09	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 14:09	BAS	EPA 300.0	
pH	7.13	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	4110	mg/L	5.00	11/10/20 14:15	BAS	SM 2540 C	
Turbidity	0.447	NTU	0.100	11/6/20 18:05	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0521	mg/L	0.0100	11/20/20 15:09	TRC	EPA 200.8	
Manganese	4.55	mg/L	0.0100	11/20/20 15:09	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:09	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:09	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520SA10
Lab/Sample Number: WAK0214-03 Collect Date: 11/05/20 09:25
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	676	mg/L	10.0	11/20/20 15:47	SAG	SM 4500-NH3 H	
Chloride	7590	mg/L	50.0	12/4/20 11:32	BAS	EPA 300.0	H2
Nitrate-N	0.401	mg/L	0.100	11/6/20 14:26	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 14:26	BAS	EPA 300.0	
pH	7.53	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	16400	mg/L	5.00	11/10/20 14:15	BAS	SM 2540 C	
Turbidity	12.3	NTU	0.100	11/6/20 18:06	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0513	mg/L	0.0100	11/20/20 15:11	TRC	EPA 200.8	
Manganese	2.63	mg/L	0.0100	11/20/20 15:11	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:11	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:11	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520SA11
Lab/Sample Number: WAK0214-04 Collect Date: 11/05/20 09:05
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	97.4	mg/L	1.00	11/20/20 15:05	SAG	SM 4500-NH3 H	
Chloride	8340	mg/L	50.0	12/4/20 11:49	BAS	EPA 300.0	H2
Nitrate-N	0.627	mg/L	0.100	11/6/20 14:42	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 14:42	BAS	EPA 300.0	
pH	7.81	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	14300	mg/L	5.00	11/10/20 14:15	BAS	SM 2540 C	
Turbidity	16.5	NTU	0.100	11/6/20 18:07	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0620	mg/L	0.0100	11/20/20 15:18	TRC	EPA 200.8	
Manganese	0.560	mg/L	0.0100	11/20/20 15:18	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:18	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:18	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520SA14
Lab/Sample Number: WAK0214-05 Collect Date: 11/05/20 08:45
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	19.1	mg/L	0.400	11/20/20 15:08	SAG	SM 4500-NH3 H	
Chloride	1000	mg/L	5.00	12/1/20 19:47	BAS	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	11/6/20 17:11	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 17:11	BAS	EPA 300.0	
pH	9.76	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	2940	mg/L	5.00	11/10/20 14:15	BAS	SM 2540 C	
Turbidity	0.743	NTU	0.100	11/6/20 18:09	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0168	mg/L	0.0100	11/20/20 15:36	TRC	EPA 200.8	
Manganese	0.0104	mg/L	0.0100	11/20/20 15:36	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:36	TRC	EPA 200.8	
Thallium	ND	mg/L	0.0100	11/20/20 15:36	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520P09
Lab/Sample Number: WAK0214-06 Collect Date: 11/05/20 11:55
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	0.365	mg/L	0.0200	11/20/20 15:09	SAG	SM 4500-NH3 H	
Chloride	514	mg/L	2.50	12/1/20 20:04	BAS	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	11/6/20 17:28	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 17:28	BAS	EPA 300.0	
pH	8.47	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	1210	mg/L	5.00	11/10/20 14:15	BAS	SM 2540 C	
Turbidity	0.472	NTU	0.100	11/6/20 18:11	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0831	mg/L	0.0100	11/20/20 15:39	TRC	EPA 200.8	
Manganese	0.0934	mg/L	0.0100	11/20/20 15:39	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:39	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:39	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520PW
Lab/Sample Number: WAK0214-07 Collect Date: 11/05/20 11:35
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	ND	mg/L	0.0200	11/20/20 15:10	SAG	SM 4500-NH3 H	
Chloride	1.02	mg/L	0.100	12/1/20 20:20	BAS	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	11/6/20 17:44	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 17:44	BAS	EPA 300.0	
pH	7.84	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	286	mg/L	5.00	11/10/20 10:05	BAS	SM 2540 C	
Turbidity	0.768	NTU	0.100	11/6/20 18:12	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0775	mg/L	0.0100	11/20/20 15:41	TRC	EPA 200.8	
Manganese	<0.01	mg/L	0.0100	11/20/20 15:41	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:41	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:41	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520P05
Lab/Sample Number: WAK0214-08 Collect Date: 11/05/20 13:05
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	ND	mg/L	0.0200	11/20/20 15:19	SAG	SM 4500-NH3 H	
Chloride	2460	mg/L	10.0	12/1/20 20:37	BAS	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	11/6/20 18:01	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 18:01	BAS	EPA 300.0	
pH	7.25	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	2860	mg/L	5.00	11/10/20 10:05	BAS	SM 2540 C	
Turbidity	1.46	NTU	0.100	11/6/20 18:14	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.742	mg/L	0.0100	11/20/20 15:43	TRC	EPA 200.8	
Manganese	0.511	mg/L	0.0100	11/20/20 15:43	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:43	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:43	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520P06
Lab/Sample Number: WAK0214-09 Collect Date: 11/05/20 13:25
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	0.484	mg/L	0.400	11/20/20 15:21	SAG	SM 4500-NH3 H	
Chloride	73.8	mg/L	0.400	12/1/20 20:53	BAS	EPA 300.0	
Nitrate-N	0.149	mg/L	0.100	11/6/20 18:17	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 18:17	BAS	EPA 300.0	
pH	7.31	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	840	mg/L	5.00	11/10/20 10:05	BAS	SM 2540 C	
Turbidity	151	NTU	1.00	11/6/20 18:16	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.361	mg/L	0.0100	11/20/20 15:46	TRC	EPA 200.8	
Manganese	1.74	mg/L	0.0100	11/20/20 15:46	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:46	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:46	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520P19
Lab/Sample Number: WAK0214-10 Collect Date: 11/05/20 11:10
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	0.722	mg/L	0.400	11/20/20 15:24	SAG	SM 4500-NH3 H	
Chloride	4810	mg/L	20.0	12/1/20 21:10	BAS	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	11/6/20 18:34	BAS	EPA 300.0	
Nitrite-N	ND	mg/L	0.100	11/6/20 18:34	BAS	EPA 300.0	
pH	6.84	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	7320	mg/L	5.00	11/10/20 10:05	BAS	SM 2540 C	
Turbidity	1.70	NTU	0.100	11/6/20 18:18	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0935	mg/L	0.0100	11/20/20 15:48	TRC	EPA 200.8	
Manganese	2.38	mg/L	0.0100	11/20/20 15:48	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:48	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:48	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520P20B
Lab/Sample Number: WAK0214-11 Collect Date: 11/05/20 10:40
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	21.2	mg/L	0.400	11/20/20 15:26	SAG	SM 4500-NH3 H	
Chloride	1610	mg/L	10.0	12/1/20 21:26	BAS	EPA 300.0	
Nitrate-N	18.1	mg/L	0.100	11/6/20 18:50	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 18:50	BAS	EPA 300.0	
pH	7.13	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	3160	mg/L	5.00	11/10/20 10:05	BAS	SM 2540 C	
Turbidity	1.32	NTU	0.100	11/6/20 18:20	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0828	mg/L	0.0100	11/20/20 15:50	TRC	EPA 200.8	
Manganese	0.635	mg/L	0.0100	11/20/20 15:50	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:50	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:50	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520P25
Lab/Sample Number: WAK0214-12 Collect Date: 11/05/20 10:10
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	0.924	mg/L	0.400	11/20/20 15:29	SAG	SM 4500-NH3 H	
Chloride	340	mg/L	2.50	12/1/20 21:43	BAS	EPA 300.0	
Nitrate-N	<0.1	mg/L	0.100	11/6/20 19:07	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 19:07	BAS	EPA 300.0	
pH	7.03	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	1890	mg/L	5.00	11/10/20 10:05	BAS	SM 2540 C	
Turbidity	107	NTU	1.00	11/6/20 18:23	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0651	mg/L	0.0100	11/20/20 15:53	TRC	EPA 200.8	
Manganese	10.7	mg/L	0.0100	11/20/20 15:53	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:53	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:53	TRC	EPA 200.8	

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Analytical Results Report

(Continued)

Sample Location: 110520P27
Lab/Sample Number: WAK0214-13 Collect Date: 11/05/20 11:00
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	0.0281	mg/L	0.0200	11/20/20 15:35	SAG	SM 4500-NH3 H	
Chloride	7200	mg/L	50.0	12/4/20 12:05	BAS	EPA 300.0	H2
Nitrate-N	<0.1	mg/L	0.100	11/6/20 19:23	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 19:23	BAS	EPA 300.0	
pH	7.11	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	8650	mg/L	5.00	11/10/20 10:05	BAS	SM 2540 C	
Turbidity	2.00	NTU	0.100	11/6/20 18:25	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	1.87	mg/L	0.0100	11/20/20 15:55	TRC	EPA 200.8	
Manganese	<0.01	mg/L	0.0100	11/20/20 15:55	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:55	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:55	TRC	EPA 200.8	

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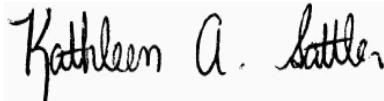
Analytical Results Report

(Continued)

Sample Location: 110520FD3
Lab/Sample Number: WAK0214-14 Collect Date: 11/05/20 17:00
Date Received: 11/05/20 15:48 Collected By: Craig Sauer
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Ammonia/N	797	mg/L	10.0	11/23/20 11:17	SAG	SM 4500-NH3 H	
Chloride	9520	mg/L	50.0	12/4/20 12:22	BAS	EPA 300.0	H2
Nitrate-N	<0.1	mg/L	0.100	11/6/20 19:40	BAS	EPA 300.0	
Nitrite-N	<0.1	mg/L	0.100	11/6/20 19:40	BAS	EPA 300.0	
pH	7.54	pH Units	1.00	11/12/20 15:45	GES	SM 4500-H-B	H8
TDS	16800	mg/L	5.00	11/10/20 10:05	BAS	SM 2540 C	
Turbidity	10.3	NTU	0.100	11/6/20 18:26	MMS	EPA 180.1	
Metals by ICP-MS							
Barium	0.0552	mg/L	0.0100	11/20/20 15:57	TRC	EPA 200.8	
Manganese	3.16	mg/L	0.0100	11/20/20 15:57	TRC	EPA 200.8	M2
Selenium	<0.01	mg/L	0.0100	11/20/20 15:57	TRC	EPA 200.8	
Thallium	<0.01	mg/L	0.0100	11/20/20 15:57	TRC	EPA 200.8	

Authorized Signature,


Kathleen Sattler, Laboratory Manager

H2 Initial analysis within holding time, Reanalysis for the required dilution was past holding time.
H8 Analysis performed past the recommended method holding time as per client instructions
M2 Matrix spike recovery was low; the associated blank spike recovery was acceptable. Potential matrix effect.
PQL Practical Quantitation Limit
ND Not Detected
MCL EPA's Maximum Contaminant Level
Dry Sample results reported on a dry weight basis
* Not a state-certified analyte

RPD Relative Percent Difference
%REC Percent Recovery
Source Sample that was spiked or duplicated.

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The results reported related only to the samples indicated.

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Certifications

Code	Description	Facility	Number
W WA DOE	Washington Department of Ecology	Anatek-Spokane, WA	C585

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Quality Control Data

Inorganics

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAK0224 - W Ions										
Blank (BAK0224-BLK1)					Prepared & Analyzed: 11/6/2020					
Nitrite-N	ND		0.100	mg/L						
Nitrate-N	ND		0.100	mg/L						
LCS (BAK0224-BS1)										
					Prepared & Analyzed: 11/6/2020					
Nitrite-N	4.21			mg/L	4.00		105	90-110		
Nitrate-N	4.27			mg/L	4.00		107	90-110		
Matrix Spike (BAK0224-MS1)										
					Source: WAK0152-05		Prepared & Analyzed: 11/7/2020			
Nitrite-N	17.0		0.400	mg/L	16.0		106	80-120		
Nitrate-N	92.8		0.400	mg/L	16.0	72.1	130	80-120		
Matrix Spike Dup (BAK0224-MSD1)										
					Source: WAK0152-05		Prepared & Analyzed: 11/7/2020			
Nitrite-N	16.4		0.400	mg/L	16.0		102	80-120	3.85	20
Nitrate-N	93.1		0.400	mg/L	16.0	72.1	131	80-120	0.327	20
Batch: BAK0323 - W Wet Chem										
Blank (BAK0323-BLK1)					Prepared & Analyzed: 11/6/2020					
Turbidity	ND		0.100	NTU						
Batch: BAK0493 - W Wet Chem										
Blank (BAK0493-BLK1)					Prepared & Analyzed: 11/10/2020					
TDS	ND		5.00	mg/L						
Blank (BAK0493-BLK2)					Prepared & Analyzed: 11/10/2020					
TDS	ND		5.00	mg/L						

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Quality Control Data (Continued)

Inorganics (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAK0493 - W Wet Chem (Continued)										
LCS (BAK0493-BS1)										
TDS	499			mg/L	500		99.8	80-120		
LCS Dup (BAK0493-BSD1)										
TDS	468			mg/L	500		93.6	80-120	6.41	20
Duplicate (BAK0493-DUP1)										
TDS	329		5.00	mg/L		352			6.75	20
Matrix Spike (BAK0493-MS1)										
TDS	906		5.00	mg/L	500	430	95.2	80-120		
Matrix Spike Dup (BAK0493-MSD1)										
TDS	972		5.00	mg/L	500	430	108	80-120	7.03	20
Batch: BAK0637 - W FIA										
Blank (BAK0637-BLK1)										
Ammonia/N	ND		0.0200	mg/L						
Blank (BAK0637-BLK2)										
Ammonia/N	ND		0.0200	mg/L						
LCS (BAK0637-BS1)										
Ammonia/N	0.183		0.0200	mg/L	0.200		91.4	90-110		
Matrix Spike (BAK0637-MS1)										
Ammonia/N	0.297		0.0200	mg/L	0.200	0.111	93.1	80-120		

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Quality Control Data (Continued)

Inorganics (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAK0637 - W FIA (Continued)										
Matrix Spike Dup (BAK0637-MSD1)		Source: WAK0223-02				Prepared & Analyzed: 11/20/2020				
Ammonia/N	0.303		0.0200	mg/L	0.200	0.111	96.0	80-120	1.93	20
Batch: BAK0675 - W Wet Chem										
Blank (BAK0675-BLK1)						Prepared & Analyzed: 11/10/2020				
TDS	ND		5.00	mg/L						
Blank (BAK0675-BLK2)						Prepared & Analyzed: 11/10/2020				
TDS	ND		5.00	mg/L						
LCS (BAK0675-BS1)						Prepared & Analyzed: 11/10/2020				
TDS	482			mg/L	500		96.4	80-120		
LCS Dup (BAK0675-BSD1)						Prepared & Analyzed: 11/10/2020				
TDS	484			mg/L	500		96.8	80-120	0.414	20
Duplicate (BAK0675-DUP1)		Source: WAK0239-04				Prepared & Analyzed: 11/10/2020				
TDS	521		5.00	mg/L		535			2.65	20
Matrix Spike (BAK0675-MS1)		Source: WAK0281-02				Prepared & Analyzed: 11/10/2020				
TDS	644		5.00	mg/L	500	193	90.2	80-120		
Matrix Spike Dup (BAK0675-MSD1)		Source: WAK0281-02				Prepared & Analyzed: 11/10/2020				
TDS	636		5.00	mg/L	500	193	88.6	80-120	1.25	20
Batch: BAK0682 - W FIA										
Blank (BAK0682-BLK1)						Prepared & Analyzed: 11/23/2020				
Ammonia/N	ND		0.0200	mg/L						

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Quality Control Data (Continued)

Inorganics (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAK0682 - W FIA (Continued)										
Blank (BAK0682-BLK2)					Prepared & Analyzed: 11/23/2020					
Ammonia/N	ND		0.0200	mg/L						
LCS (BAK0682-BS1)					Prepared & Analyzed: 11/23/2020					
Ammonia/N	0.206		0.0200	mg/L	0.200		103	90-110		
Matrix Spike (BAK0682-MS1)					Prepared & Analyzed: 11/23/2020					
Ammonia/N	0.308		0.0200	mg/L	0.200	0.0896	109	80-120		
Matrix Spike Dup (BAK0682-MSD1)					Prepared & Analyzed: 11/23/2020					
Ammonia/N	0.314		0.0200	mg/L	0.200	0.0896	112	80-120	2.19	20
Batch: BAL0053 - W Ions										
Blank (BAL0053-BLK1)					Prepared & Analyzed: 12/1/2020					
Chloride	ND		0.100	mg/L						
LCS (BAL0053-BS1)					Prepared & Analyzed: 12/1/2020					
Chloride	3.91			mg/L	4.00		97.7	90-110		
Matrix Spike (BAL0053-MS1)					Prepared & Analyzed: 12/1/2020					
Chloride	11.1		0.100	mg/L	4.02	7.11	100	80-120		
Matrix Spike Dup (BAL0053-MSD1)					Prepared & Analyzed: 12/1/2020					
Chloride	11.1		0.100	mg/L	4.02	7.11	98.3	80-120	0.720	20
Batch: BAL0144 - W Ions										
Blank (BAL0144-BLK1)					Prepared & Analyzed: 12/3/2020					
Chloride	ND		0.100	mg/L						

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Quality Control Data (Continued)

Inorganics (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAL0144 - W Ions (Continued)										
LCS (BAL0144-BS1)										
Chloride	3.97			mg/L	4.00		99.3	90-110		
Matrix Spike (BAL0144-MS1)										
Chloride	5.08		0.100	mg/L	4.02	0.897	104	80-120		
Matrix Spike Dup (BAL0144-MSD1)										
Chloride	5.02		0.100	mg/L	4.02	0.897	103	80-120	1.08	20

Quality Control Data (Continued)

Metals by ICP-MS

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BAK0509 - W 3010 Digest										
Blank (BAK0509-BLK1)										
Barium	ND		0.00100	mg/L						
Manganese	ND		0.00100	mg/L						
Selenium	ND		0.00100	mg/L						
Thallium	ND		0.00100	mg/L						
LCS (BAK0509-BS1)										
Thallium	0.0490		0.00100	mg/L	0.0500		98.0	85-115		
Manganese	0.0465		0.00100	mg/L	0.0500		93.0	85-115		
Selenium	0.0489		0.00100	mg/L	0.0500		97.7	85-115		
Barium	0.0485		0.00100	mg/L	0.0500		97.1	85-115		
Matrix Spike (BAK0509-MS1)										
Barium	0.0908		0.00100	mg/L	0.0500	0.0513	79.2	70-130		
Thallium	0.0448		0.00100	mg/L	0.0500	<0.01	89.3	70-130		
Selenium	0.0502		0.00100	mg/L	0.0500	<0.01	94.9	70-130		
Manganese	2.15	M2	0.00100	mg/L	0.0500	2.63	NR	70-130		
Matrix Spike (BAK0509-MS2)										
Thallium	0.0435		0.00100	mg/L	0.0500	<0.01	86.7	70-130		
Barium	0.0969		0.00100	mg/L	0.0500	0.0552	83.5	70-130		
Manganese	2.74	M2	0.00100	mg/L	0.0500	3.16	NR	70-130		
Selenium	0.0554		0.00100	mg/L	0.0500	<0.01	99.8	70-130		
Matrix Spike Dup (BAK0509-MSD1)										
Selenium	0.0482		0.00100	mg/L	0.0500	<0.01	90.9	70-130	4.06	20
Manganese	2.23	M2	0.00100	mg/L	0.0500	2.63	NR	70-130	3.36	20
Barium	0.0940		0.00100	mg/L	0.0500	0.0513	85.4	70-130	3.37	20
Thallium	0.0450		0.00100	mg/L	0.0500	<0.01	89.8	70-130	0.490	20

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Quality Control Data (Continued)

Metals by ICP-MS (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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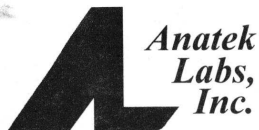
Batch: BAK0509 - W 3010 Digest (Continued)

Matrix Spike Dup (BAK0509-MSD2)

Source: WAK0214-14

Prepared: 11/18/2020 Analyzed: 11/20/2020

Selenium	0.0513		0.00100	mg/L	0.0500	<0.01	91.6	70-130	7.75	20
Thallium	0.0424		0.00100	mg/L	0.0500	<0.01	84.6	70-130	2.47	20
Manganese	2.78	M2	0.00100	mg/L	0.0500	3.16	NR	70-130	1.43	20
Barium	0.0952		0.00100	mg/L	0.0500	0.0552	80.0	70-130	1.85	20



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

Anatek
Log-In #

WAK0214



Due: 11/20/20

Company Name: <u>Great West Engineering</u>	Project Manager: <u>Craig Sauer</u>
Address: <u>9221 N Division St</u>	Project Name & #: <u>Alcoa Q4 L-Bar</u>
City: <u>Spokane</u> State: <u>WA</u> Zip: <u>99021</u>	Email Address: <u>csauer@greatwesteng.com</u>
Phone: <u>509-994-9938</u>	Purchase Order #: <u>Alcoa</u>
Fax:	Sampler Name & phone: <u>C Sauer 509-994-9938</u>

Turn Around

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

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

Provide Sample Description				List Analyses Requested										Note Special Instructions/Comments				
Lab ID	Sample Identification	Sampling Date/Time	Matrix	Preservative: # of Containers	Sample Volume	NH3, Cl, FDB	Nitrate + Nitrite	Total Metals	Ba, Mn, Se, Ti	Turbidity								
2	110520 P12	11/05 745	w	3	-	X	X	X	X									
2	110520 P13	11/05 820	w	3	-	X	X	X	X									
+1	110520 SA10	11/05 925	w	3	-	X	X	X	X									
+1	110520 SA11	11/05 905	w	3	-	X	X	X	X									
2	110520 SA14	11/05 845	w	3	-	X	X	X	X									
2	110520 P09	11/05 1155	w	3	-	X	X	X	X									
+1	110520 PW	11/05 1135	w	3	-	X	X	X	X									
2	110520 P05	11/05 1305	w	3	-	X	X	X	X									
2	110520 P06	11/05 1325	w	3	-	X	X	X	X									
2	110520 P19	11/05 1110	w	3	-	X	X	X	X									
2	110520 P20B	11/05 1040	w	3	-	X	X	X	X									
2	110520 P25	11/05 1010	w	3	-	X	X	X	X									
2	110520 P27	11/05 1400	w	3	-	X	X	X	X									

Relinquished by	<u>Craig Sauer</u>	<u>[Signature]</u>	<u>GWE</u>	<u>11/5</u>	<u>15:45</u>
Received by	<u>Brock Genger</u>	<u>[Signature]</u>	<u>Anatek</u>	<u>11-5-20</u>	<u>1548</u>
Relinquished by					
Received by					
Relinquished by					
Received by					

Inspection Checklist

Received Intact?	☒	N
Labels & Chains Agree?	☒	N
Containers Sealed?	☒	N
VOC Head Space?	☒	N
Cooler?	☒	N
Ice/Ice Packs Present?	☒	N

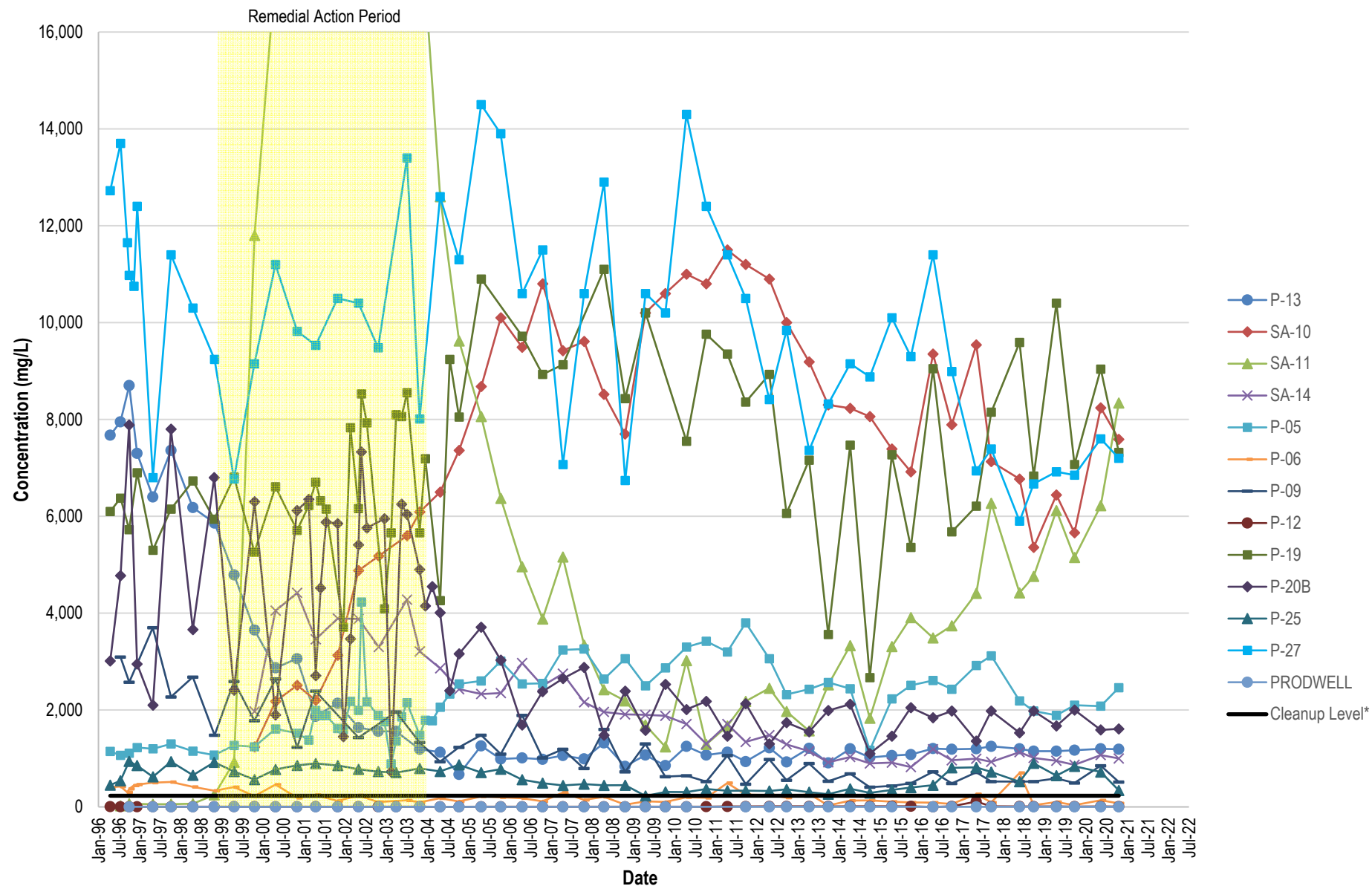
Temperature (°C): See below Wet
Preservative: #204 2002883-2
HN03 2002880-2 pH 2001015
Date & Time: 11-5-20 1715
Inspected By: Weg

Samples submitted to Anatek Labs may be subcontracted to other accredited labs if necessary. This message serves as notice of this possibility. Subcontracted analyses will be clearly noted on the analytical report.

+ cooler 1: 14.1°/13.9° IRI
* cooler 2: 11.2°/11.0°

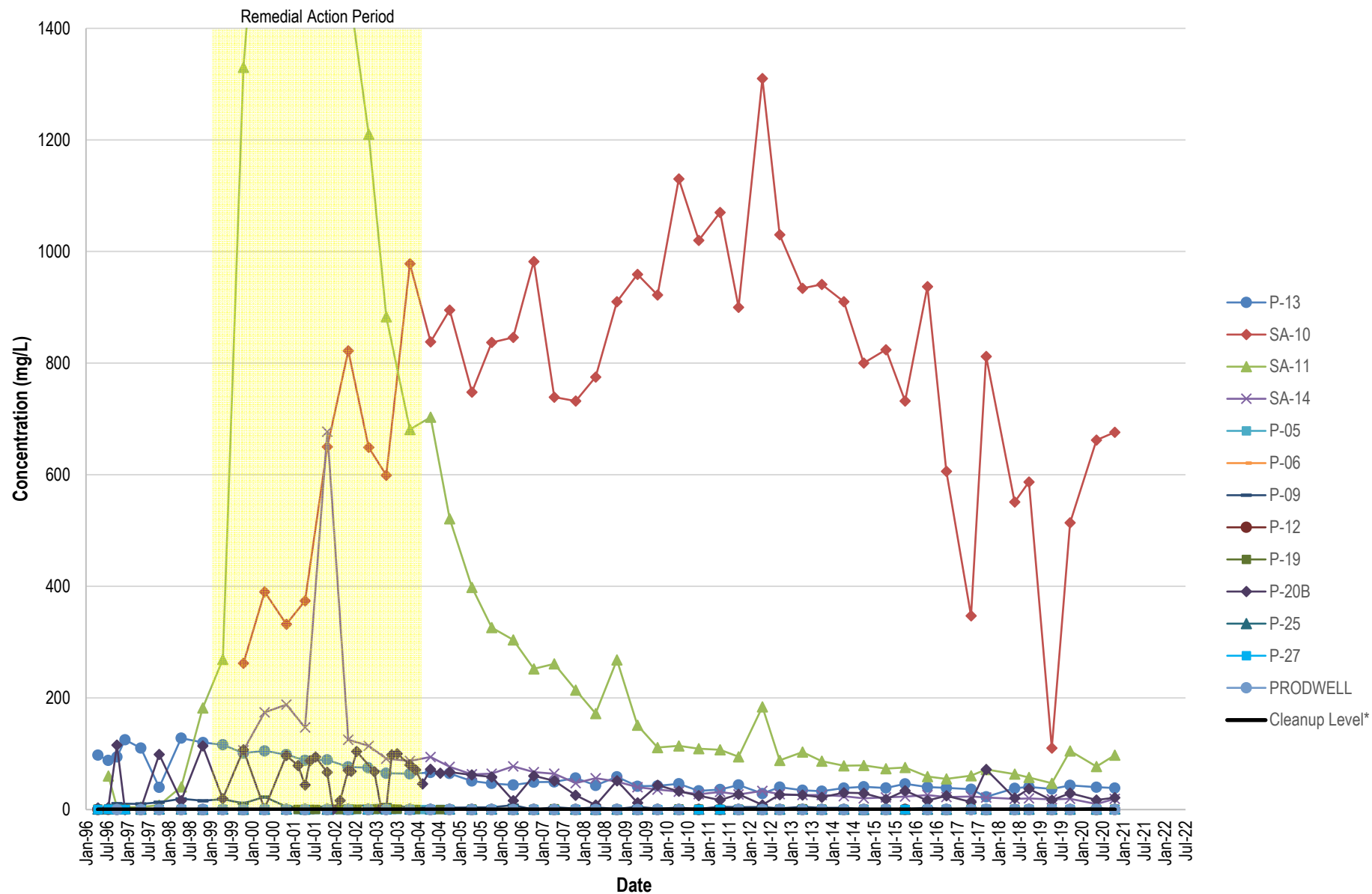
Attachment G

Groundwater Time Series Concentration Plots



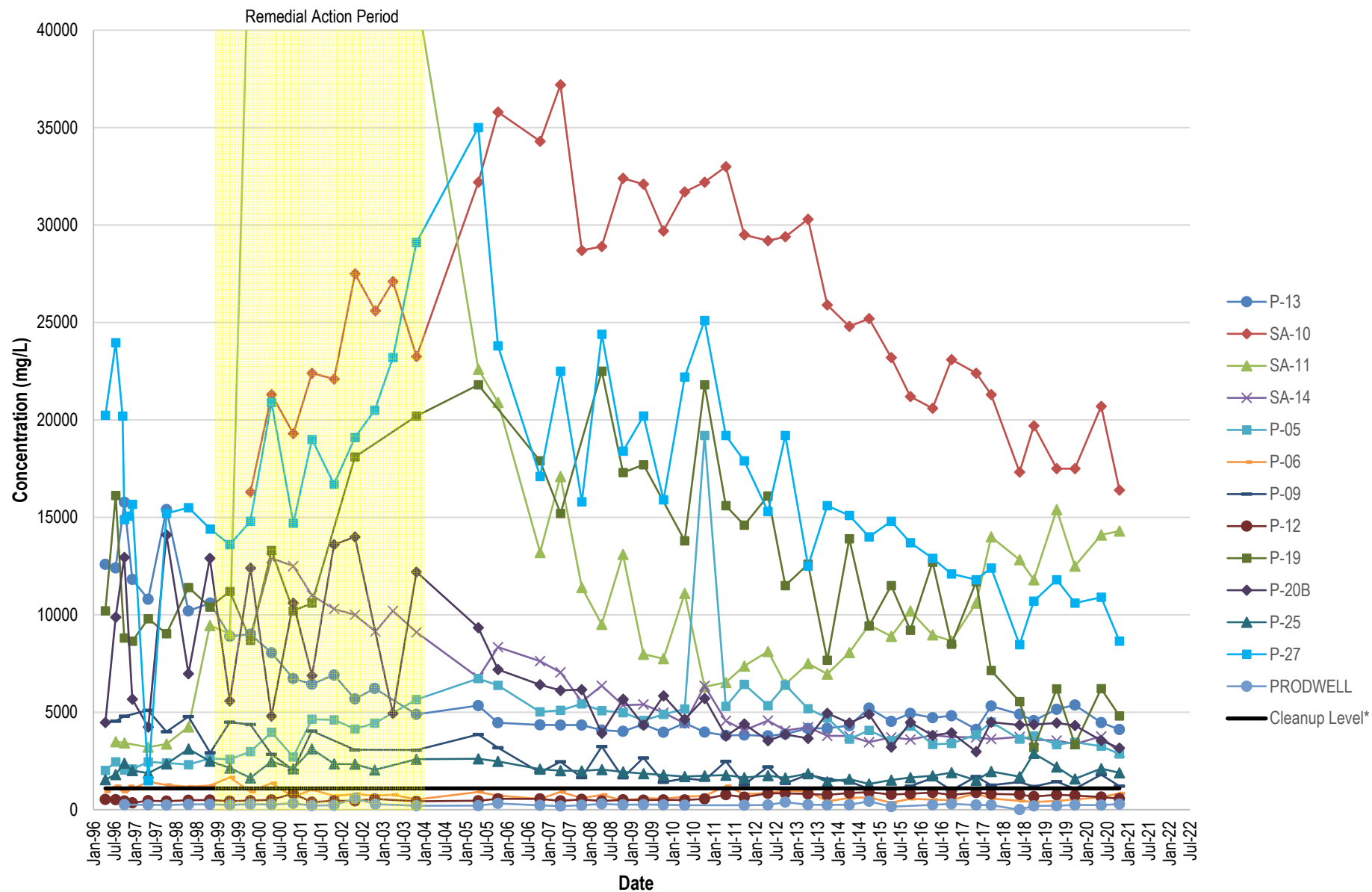
Notes:

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)*.



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 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 SA-11.
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 G-3. Total Dissolved Solids Concentrations
 2020 Year-End Groundwater Monitoring Data Submittal
 L-Bar Site Compliance Monitoring Program