COAL COMBUSTION RESIDUAL LANDFILL

ANNUAL GROUNDWATER MONITORING REPORT

Calendar Year 2023

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Fayette Power Project
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EXECUTIVE SUMMARY

The LCRA Fayette Power Project (FPP) is a coal-fired power plant located east of La Grange in Fayette County, Texas. Coal Combustion Residuals (CCRs) generated at the facility are disposed of in the Combustion Byproducts Landfill (CBL) which is an existing landfill CCR Unit under the U.S. Environmental Protection Agency's Coal Combustion Residuals (CCR) Rules as codified in Title 40 of the Code of Federal Regulations (CFR), Chapter 257, Subpart D and the Texas Commission of Environmental Quality 30 Texas Administrative Code Chapter 352, Subchapter H.

During the calendar year 2023, the CBL was operating under detection monitoring. All groundwater sampling was conducted in accordance with 40 CFR §257.93/30 TAC Chapter 352, Subchapter H - Groundwater sampling and analysis requirements and 40 CFR §257.94. - Detection Monitoring. The CBL will remain in detection monitoring for 2024.

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1.0 BACKGROUND

The LCRA Fayette Power Project (FPP) is a coal-fired power plant located east of La Grange in Fayette County, Texas. Coal Combustion Residuals (CCRs) generated at the facility are disposed of in the Combustion Byproducts Landfill (CBL) located south of the power plant and north of the railroad that borders the FPP site (Figure 1). The existing CBL consists of Cell 1 and Sub-cell 2D. Cell 1 was constructed in 1988 and sub-cell 2D in 2015; therefore, both active cells are considered existing landfill units under the U.S. Environmental Protection Agency's Coal Combustion Residuals (CCR) Rules as codified in Title 40 of the Code of Federal Regulations (CFR), Chapter 257, Subpart D.

2.0 PURPOSE

This report was prepared pursuant to 40 CFR §257.90(e), as amended on Aug. 28, 2020, and 30 Texas Administrative Code Chapter 352, Subchapter H which requires the owner or operator of an existing CCR landfill to prepare an annual groundwater monitoring report for the preceding calendar year.

3.0 GROUNDWATER MONITORING SYSTEM

The groundwater monitoring well network for 2023 consisted of six wells as described below and additionally in Table 1:

- Background – CBL-340I
- Down-gradient - CBL-301I, CBL-302I, CBL-306I, CBL-308I and CBL-341I

No groundwater monitoring wells were installed or decommissioned in 2023. The locations of the monitoring wells are shown on Figure 1.

In accordance with 40 CFR §257.93(c) and 30 Tex. Admin. Code §352.931, groundwater elevations were measured in each monitoring well prior to purging and sampling for each semi-annual sampling event. Consistent with prior CBL potentiometric surface elevation maps, the inferred groundwater flow direction is towards the south-southwest.

Groundwater flow rates were estimated along two transects for each groundwater sampling event. The western area transect has an approximate flow rate of 20-22 feet per year and the eastern area transect has an approximate flow rate of 50 feet per year. Detailed information is contained in the Technical Memorandums dated June 8, 2023, and December 15, 2023, prepared by Bullock, Bennett & Associates, LLC (BBA), which are included in Appendix A.

4.0 STATUS OF THE GROUNDWATER MONITORING PROGRAM

At the beginning of calendar year 2023, the CBL was operating under detection monitoring. All groundwater sampling was conducted in accordance with 40 CFR §257.93 – Groundwater sampling and analysis requirements and §257.94. – Detection Monitoring. Table 2 summarizes the sampling events. At the end of calendar year 2023, the CBL was operating under detection monitoring. As discussed in Section 5, the CBL will remain in detection monitoring for 2024. Table 3 contains a summary of the analytical data collected in 2023. In accordance with 30 TAC §352.901, Table 3 also contains a summary of all groundwater monitoring data collected since January 21, 2016.

5.0 STATISTICAL EVALUATIONS AND ALTERNATE SOURCE DETERMINATION

5.1 Statistical Analysis of First Quarter 2023 Data

In June 2023, Otter Creek Environmental Services, LLC (Otter Creek) completed the statistical analysis of the first quarter detection monitoring Appendix III constituent data utilizing the prediction limit intrawell method. Samples were collected on January 25-30, 2023.

Based on the January 2023 sampling data, there was an initial control limit exceedance for sulfate in CBL-301I. Because this was an initial exceedance in a 1 of 2 resampling method, well CBL-301I was resampled on March 7, 2023. Based on the resample analytical results, there was no confirmed control limit exceedance detected and a statistically significant increase (SSI) was not confirmed. Detailed information is contained in the November 2023 *Results for the Groundwater Statistics, First Semi-annual Monitoring Event in 2023* prepared by Otter Creek which is included in Appendix B.

Historically, concentrations of sulfate in well CBL-301I range between 104 mg/L and 488 mg/L; the resampling event showed a sulfate concentration within the expected range (see Table 3). The laboratory analytical results are included in Appendix D.

5.2 Statistical Analysis Third Quarter 2023 Data

In November 2023, Otter Creek completed the statistical analysis of the third quarter detection monitoring Appendix III constituent data utilizing the prediction limit intrawell method. Third quarter samples were collected between July 18 and August 2, 2023. The field parameters and analytical results were consistent with historic analytical results. The results indicated that there were no SSIs for any constituents in any well. Detailed information is contained in the November 2023 *Results for the Groundwater Statistics, Second Semi-annual Monitoring Event in 2023* prepared by Otter Creek which is included in Appendix C.

6.0 PLANNED ACTIVITIES

Planned activities for 2024 include continued semi-annual detection monitoring with associated statistical analysis and responding in accordance with the CCR rules as new information is developed.

TABLES

TABLE 1
MONITOR WELL DETAILS

Well ID	CBL-340I (Background Well)	CBL-301I	CBL-302I	CBL-306I	CBL-308I	CBL -341I
Installation Date	12/17/2015	5/23/2011	5/24/2011	6/3/2011	12/20/2011	11/14/2016
Hydrogeologic Unit Monitored	Intermediate Sand	Intermediate Sand	Intermediate Sand	Intermediate Sand	Intermediate Sand	Intermediate Sand
Casing Type	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
Total Well Depth (ft bgs)	37	51	24	14	32	43
Screened Interval (ft bgs)	22-37	41-51	14-24	9-14	22-32	33-43
Ground Surface Elevation (ft MSL)	374.69	369.75	355.99	337.93	364.93	364.03
TOC Elevation (ft MSL)	376.98	372.11	358.99	339.96	368.67	366.65
Northing	9949069.45	9946563.44	9947806.017	9946445.582	9947619.46	9947139.86
Easting	3428311.38	3429862.181	3429260.844	3428730.533	3428574.38	3429525.31
Survey Datum	Horizontal Datum: NAD83/2011-EPOCH 2012 Vertical Datum: NAVD88-GEOIDIZA	Horizontal Datum: NAD83/NSRS 2007 Vertical Datum: NAVD88	Horizontal Datum: NAD83/NSRS 2007 Vertical Datum: NAVD88	Horizontal Datum: NAD83/NSRS 2007 Vertical Datum: NAVD88	Horizontal Datum: NAD83/NSRS 2007 Vertical Datum: NAVD88	Horizontal Datum: NAD83/2011-EPOCH 2012 Vertical Datum: NAVD88-GEOIDIZA

TABLE 2

2023 CCR GROUNDWATER MONITORING EVENTS

Well #	Date of sample collection	# Samples collected for analysis	Monitoring program
CBL 340I	1/30/2023	1	Detection monitoring
	7/19/2023	1	Detection monitoring
CBL 301I	1/25/2023	1	Detection monitoring
	3/7/2023	1	Detection monitoring
	8/2/2023	1	Detection monitoring
CBL 302I	1/26/2023	1	Detection monitoring
	7/18/2023	1	Detection monitoring
CBL 306I	1/26/2023	1	Detection monitoring
	7/18/2023	1	Detection monitoring
CBL 308I	1/26/2023	1	Detection monitoring
	7/18/2023	1	Detection monitoring
CBL 341I	1/26/2023	1	Detection monitoring
	7/19/2023	1	Detection monitoring

TABLE 3
GROUNDWATER MONITORING RESULTS SUMMARY

Monitoring Well	Sample Date	Regulatory Phase	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids (Residue Filterable)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium	Radium 226	Radium 228	Radium Combined	Temp C	DO mg/L	DO %	Specific Conductivity
MCL including EPA Phase 1			NE	NE	NE	4	NE	NE	NE	0.006	0.01	2	0.004	0.005	0.1	0.006	0.015	0.04	0.002	0.1	0.05	0.002	--	--	5 pCi/l	NE	NE	NE	NE
Analytical Method			SW3010A	SW3010A	E300.0	E300.0	SM4500H+B	E300.0	DM2450C	SW6020	SW6020	SW6010B	SW6010B	SW6020	SW6020	SW6020	SW6020	SW6020	SM2540C	SW6020	SW6020	SW6020	E903.0	E904.0		--	--	--	--
Method Detection Limit			0.02	0.35	20	0.2	--	20	250	0.0004	0.0007	0.004	0.001	0.0004	0.0004	0.0004	0.0004	0.0004	0.07 ug/L	0.0004	0.0017	0.0004	1	1		--	--	--	--
Practical Quantitation Limit			0.05	1	50	0.5	--	50	250	0.001	0.002	0.01	0.004	0.001	0.001	0.001	0.001	0.001	0.2 ug/L	0.001	0.005	0.001	1	1		--	--	--	--
CBL Background/Up-gradient Well																													
CBL-340I	1/21/2016	B	<0.0500	564	2370	1.09	6.52	652	4990	<0.001	<0.002	0.0267	<0.004	<0.001	0.00116	<0.00100	<0.00100	0.0885	<0.0002	0.00304	<0.005	<0.001	<1.0	1.45	1.45	22.47	4.42	52.4	8121
CBL-340I	5/4/2016	B	0.0832	560	2260	1.92	6.13	616	5230	<0.00100	<0.00200	0.0235	<0.004	<0.001	0.00114	<0.00100	<0.00100	0.085	<0.0002	0.00309	<0.005	<0.001	<1.0	1.22	1.22	22.96	4.12	49.3	8159
CBL-340I	7/27/2016	B	0.081	575	2350	1.06	6.95	668	6250	<0.001	<0.002	0.0271	<0.004	<0.001	0.00146	<0.001	<0.001	0.0711	<0.0002	0.00301	<0.005	<0.001	1.89	1.16	3.05	24.72	6.99	84.4	1272
CBL-340I	10/24/2016	B	0.158	607	2380	1.26	6.19	675	5670	<0.001	<0.002	0.0303	<0.004	<0.001	0.00176	<0.001	<0.001	0.0843	<0.0002	0.00334	0.00725	<0.001	1.47	1.39	2.86	22.76	3.34	39.8	8427
CBL-340I	1/23/2017	B	<0.050	627	2070	0.84	5.46	571	6230	<0.001	<0.002	0.0275	<0.004	<0.001	0.00179	<0.001	<0.001	0.0887	<0.0002	0.00284	<0.005	<0.001	<1.00	<1.00	<1.00	22.79	NA	NA	8259
CBL-340I	3/22/2017	B	0.174	581	2280	8.44	6.49	635	5480	<0.001	<0.002	0.0259	<0.004	<0.001	<0.0001	<0.001	<0.001	0.0684	<0.0002	0.00229	<0.005	<0.001	<1.00	2.71	2.71	22.37	NA	NA	7900
CBL-340I	5/16/2017	B	0.104	584	2520	1.01	5.77	715	5470	<0.001	<0.002	0.027	<0.004	<0.001	0.001	<0.001	<0.001	0.101	<0.0002	0.00248	<0.005	<0.001	<1.00	<1.00	<1.00	22.51	NA	NA	8286
CBL-340I	7/27/2017	B	0.0816	571	2380	0.85	6.42	685	4880	<0.001	<0.002	0.0272	<0.004	<0.001	<0.001	<0.001	<0.001	0.0875	<0.0002	0.00261	<0.005	<0.001	NA	NA	NA	22.73	NA	NA	8292
CBL-340I	2/8/2018	B	0.0638	555	2730	1.00	6.41	752	5290	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.61	NA	NA	NA
CBL-340I	7/27/2018	B	<0.0500	544	2450	1.3	6.25	711	5100	NA	NA	NA	NA	NA	NA	NA	NA	0.0968	NA	NA	NA	NA	NA	NA	NA	23.2	NA	NA	8131
CBL-340I	1/22/2019	B	<0.0500	518	2250	0.83	6.59	639	4720	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-340I	7/31/2019	B	0.124	518	2280	0.88	6.45	684	5560	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-340I	1/30/2020	B	0.0562	539	2240	0.87	6.49	637	5080	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-340I	9/18/2020	B	0.146	547	2130	0.725	6.32	608	5430	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-340I	1/28/2021	B	<0.0500	607	2260	0.835	6.32	634	5520	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-340I	7/22/2021	B	0.384	532	2200	0.865	6.24	618	4990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-340I	1/28/2022	B	0.160	597	2200	1.06	6.42	619	4870	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-340I	7/28/2022	B	0.285	538	2160	0.865	6.35	614	5490	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-340I	1/30/2023	B	0.167	635	2230	0.85	6.37	643	5010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-340I	7/19/2023	B	0.276	631	2130	1.07	6.41	599	5290	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL Down-gradient Wells																													
CBL-301I	1/21/2016	DM	<0.05	905	2300	<0.250	6.33	336	4380	<0.001	<0.002	0.0436	<0.004	<0.001	0.00371	<0.001	0.00105	0.0949	<0.0002	0.00124	<0.005	<0.001	<1.0	<1.0	<1.0	24.12	0.41	5	7133
CBL-301I	5/4/2016	DM	<0.0500	949	2160	<0.500	6.26	311	5050	<0.00100	<0.00200	0.0423	<0.00400	<0.00100	0.00867	<0.00100	0.00153	0.0847	<0.0002	0.00189	<0.00500	<0.00100	<1.0	<1.0	<1.0	25.02	1.21	15	7202
CBL-301I	7/27/2016	DM	<0.05	925	2290	<0.01	5.95	336	6020	<0.001	<0.002	0.0661	<0.004	<0.001	0.0101	<0.001	0.00171	0.0869	<0.0002	0.00156	<0.005	<0.001	<1.0	<1.0	<1.0	23.47	3.08	37.3	9807
CBL-301I	10/24/2016	DM	<0.05	978	2250	<0.250	6.23	326	4570	<0.001	<0.002	0.0907	<0.004	<0.001	0.0142	<0.001	0.00168	0.0932	<0.0002	0.00252	<0.005	<0.001	<1.0	1.15	1.15	25.09	0.77	9.6	7261
CBL-301I	1/23/2017	DM	<0.05	1000	3200	0.312	6.26	488	6140	<0.001	<0.002	0.0497	<0.004	<0.001	<0.001	<0.001	<0.001	0.091	<0.0002	<0.001	<0.005	<0.001	<1.0	<1.0	<1.0	23.83	NA	NA	7532
CBL-301I	3/22/2017	DM	<0.05	1030	2390	<0.500	6.31	337	6570	<0.001	<0.002	0.0662	<0.004	<0.001	0.00546	<0.001	<0.001	0.095	<0.0002	0.00137	<0.005	<0.001	<1.0	<1.0	<1.0	24.93	NA	NA	7495
CBL-301I	5/18/2017	DM	0.0707	1060	2420	<0.500	5.95	342	6430	<0.001	<0.002	0.0774	<0.004	<0.001	0.0165	0.00133	0.00186	0.116	<0.0002	0.0024	<0.005	<0.001	<1.0	<1.0	<1.0	25.92	NA	NA	7532
CBL-301I	7/26/2017	DM	<0.05	961	2500	<0.01	6.02	381	4290	<0.001	<0.002	0.0467	<0.004	<0.001	0.0022	<0.001	<0.001	0.0941	<0.0002	0.00109	<0.005	<0.001	NA	NA	NA	24.95	NA	NA	7365
CBL-301I	2/8/2018	DM	<0.05	873	2480	<0.01	6.17	344	5120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.37	NA	NA	NA
CBL-301I	7/25/2018	DM	<0.05	993	1330	<0.500	6.04	196	5390	NA	NA	NA	NA	NA	NA	NA	NA	0.0971	NA	NA	NA	NA	NA	NA	NA	24.46	NA	NA	7446
CBL-301I	1/17/2019	DM	<0.05	156	619	0.219	7.16	104	1460	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	5/2/2019	DM	<0.05	762	1910	0.112	6.14	398	5650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	7/31/2019	DM	<0.05	783	2240	0.051	6.19	332	6040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	1/28/2020	DM	<0.05	851	2360	0.13	6.26	349	4790	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	9/17/2020	DM	0.0801	1060	2270	<.25	6.13	350	6340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	1/26/2021	DM	<0.0500	1130	2420	<0.500	6.06	374	6060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	7/20/2021	DM	0.0826	1100	25910	2.68	6.13	419	5870	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	9/7/2021	DM	<0.0500	NA	NA	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	1/26/2022	DM	<0.0500	999	2440	<0.500	6.27	406	4700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	7/27/2022	DM	0.085	1010	1840	0.156	6.08	285	4590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	8/30/2022	DM	0.107	NA	NA	NA	6.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	10/25/2022	DM	0.0645	NA	NA	NA	6.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I (split sample)	10/25/2022	DM	0.0769	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	1/25/2023	DM	0.108	977	1960	1.72	6.34	1370	5160	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	3/7/2023	DM	0.102	NA	NA	<0.0500	NA	207	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-301I	8/2/2023	DM	<0.0500	1260	2220	0.054	6.21	383	5360	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.23	NA	NA	7935

TABLE 3
GROUNDWATER MONITORING RESULTS SUMMARY

Monitoring Well	Sample Date	Regulatory Phase	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids (Residue Filterable)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium	Radium 226	Radium 228	Radium Combined	Temp C	DO mg/L	DO %	Specific Conductivity
MCL including EPA Phase 1			NE	NE	NE	4	NE	NE	NE	0.006	0.01	2	0.004	0.005	0.1	0.006	0.015	0.04	0.002	0.1	0.05	0.002	--	--	5 pCi/l	NE	NE	NE	NE
Analytical Method			SW3010A	SW3010A	E300.0	E300.0	SM4500H+B	E300.0	DM2450C	SW6020	SW6020	SW6010B	SW6010B	SW6020	SW6020	SW6020	SW6020	SW6020	SM2540C	SW6020	SW6020	SW6020	E903.0	E904.0		--	--	--	--
Method Detection Limit			0.02	0.35	20	0.2	--	20	250	0.0004	0.0007	0.004	0.001	0.0004	0.0004	0.0004	0.0004	0.0004	0.07 ug/L	0.0004	0.0017	0.0004	1	1		--	--	--	--
Practical Quantitation Limit			0.05	1	50	0.5	--	50	250	0.001	0.002	0.01	0.004	0.001	0.001	0.001	0.001	0.001	0.2 ug/L	0.001	0.005	0.001	1	1		--	--	--	--
CBL-302I	1/22/2016	DM	<0.05	1030	2190	<0.250	6.29	1020	5500	<0.001	<0.002	0.0226	<0.004	<0.001	<0.001	<0.001	<0.001	0.0487	<0.0002	<0.001	<0.005	<0.001	<1.0	1.98	1.98	20.93	1.42	16.4	7835
CBL-302I	5/4/2016	DM	<0.05	1010	2130	<0.500	6.01	993	5390	<0.001	<0.002	0.0218	<0.004	<0.001	<0.001	<0.001	<0.001	0.042	<0.0002	<0.001	<0.005	<0.001	<1.0	<1.0	<1.0	20.84	1.51	17.3	7911
CBL-302I	7/27/2016	DM	<0.05	1030	2210	<0.500	5.17	1090	6850	<0.001	<0.002	0.0251	<0.004	<0.001	<0.001	<0.001	<0.001	0.0411	<0.0002	<0.001	<0.005	<0.001	<1.0	<1.0	<1.0	21.98	1.13	13.3	7906
CBL-302I	10/24/2016	DM	0.156	1070	2170	<0.250	7.75	1180	4210	<0.001	<0.002	0.0269	<0.004	<0.001	<0.001	<0.001	<0.001	0.0483	<0.0002	<0.001	<0.005	<0.001	<1.0	1.13	1.13	22	8.71	103.3	11017
CBL-302I	1/23/2017	DM	<0.05	1100	2080	0.332	5.36	1150	6430	<0.001	<0.002	0.0269	<0.004	<0.001	<0.001	<0.001	<0.001	0.0402	<0.0002	0.00286	<0.005	<0.001	<1.0	<1.0	<1.0	22.13	NA	NA	7723
CBL-302I	3/22/2017	DM	0.297	1090	2050	<0.500	5.4	1120	6460	<0.001	<0.002	0.0277	<0.004	<0.001	<0.001	<0.001	<0.001	0.0558	<0.0002	<0.001	<0.005	<0.001	<1.0	<1.0	<1.0	21.79	NA	NA	7753
CBL-302I	5/16/2017	DM	<0.05	1100	2230	<0.500	4.94	1230	5860	<0.001	<0.002	0.0275	<0.004	<0.001	<0.001	<0.001	<0.001	0.0611	<0.0002	<0.001	<0.005	<0.001	<1.0	<1.0	<1.0	21.52	NA	NA	7777
CBL-302I	7/27/2017	DM	<0.05	1040	2040	<0.02	6.2	1180	5120	<0.001	<0.002	0.026	<0.004	<0.001	<0.001	<0.001	<0.001	0.0534	<0.0002	<0.001	<0.005	<0.001	NA	NA	NA	22.1	NA	NA	7753
CBL-302I	2/8/2018	DM	<0.05	934	2080	0.112	6.21	1240	6010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.47	NA	NA	NA
CBL-302I	7/27/2018	DM	<0.05	995	1980	<0.500	5.77	1390	5510	NA	NA	NA	NA	NA	NA	NA	NA	0.0489	NA	NA	NA	NA	NA	NA	NA	22.2	NA	NA	NA
CBL-302I	1/22/2019	DM	<0.05	855	1960	0.0402	6.44	1250	5060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-302I	7/31/2019	DM	<0.05	914	1540	0.0605	6.15	1260	4190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-302I	1/30/2020	DM	<0.05	838	1540	0.193	6.34	1350	4790	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-302I	9/17/2020	DM	<0.05	853	1410	<0.25	6.2	1280	4990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-302I	1/28/2021	DM	<0.0500	1020	1370	<0.500	6.21	1290	4800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-302I	7/21/2021	DM	0.0743	844	1380	2.25	6.06	1350	4810	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-302I	9/7/2021	DM	NA	NA	NA	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-302I	1/27/2022	DM	<0.0500	754	1310	<0.500	6.32	1340	4510	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-302I	7/28/2022	DM	<0.0500	750	1300	0.165	6.21	1300	5120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-302I	1/26/2023	DM	0.116	889	1460	<0.0500	6.33	1390	4930	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-302I	7/18/2023	DM	<0.0500	981	1330	1.76	6.2	1230	5150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-306I	1/21/2016	DM	<0.0500	137	155	2.5	7.09	266	1280	<0.001	<0.002	0.0512	<0.004	<0.001	<0.001	<0.001	<0.001	0.0239	<0.0002	0.00532	<0.005	<0.001	<1.0	<1.0	<1.0	20.4	6.6	73.5	1854
CBL-306I	5/4/2016	DM	0.0717	47.2	20.0	1.00	6.69	29.5	431	<0.001	<0.002	0.0313	<0.004	<0.001	<0.001	<0.001	<0.001	0.006	<0.0002	0.00305	<0.005	<0.001	<1.0	<1.0	<1.0	21.13	6.14	69.1	672
CBL-306I	7/26/2016	DM	0.0998	105	114	1.37	6.95	139	790	<0.001	<0.002	0.0976	<0.004	<0.001	<0.001	0.00123	<0.001	0.0127	<0.0002	0.00234	<0.005	<0.001	<1.0	<1.0	<1.0	24.72	6.99	84.4	1272
CBL-306I	10/24/2016	DM	0.0556	198	330	2.38	6.72	432	1150	<0.001	<0.002	0.0841	<0.004	<0.001	<0.001	0.00287	<0.001	0.0265	<0.0002	0.00327	<0.005	<0.001	<1.0	1.05	1.05	26.13	7.93	98.6	2423
CBL-306I	1/19/2017	DM	<0.05	174	197	1.85	7.29	270	1320	<0.001	<0.002	0.0706	<0.004	<0.001	<0.001	<0.001	<0.001	0.0281	<0.0002	<0.001	0.00652	<0.001	<1.0	<1.0	<1.0	20.83	NA	NA	1422
CBL-306I	3/22/2017	DM	0.124	204	231	12.6	4.41	340	1460	<0.001	<0.002	0.0688	<0.004	<0.001	<0.001	<0.001	<0.001	0.0229	<0.0002	0.00266	<0.005	<0.001	<1.0	<1.0	<1.0	22.38	NA	NA	2176
CBL-306I	5/18/2017	DM	0.0832	205	289	2.2	5.61	412	1440	<0.001	<0.002	0.0577	<0.004	<0.001	<0.001	<0.001	<0.001	0.0325	<0.0002	0.00195	<0.005	<0.001	<1.0	<1.0	<1.0	23.6	NA	NA	2151
CBL-306I	7/27/2017	DM	0.0531	234	350	2.91	6.94	513	1280	<0.001	<0.002	0.0648	<0.004	<0.001	<0.001	<0.001	<0.001	0.0332	<0.0002	0.00352	<0.005	<0.001	NA	NA	NA	23.89	NA	NA	2687
CBL-306I	2/8/2018	DM	<0.0500	230	385	2.81	6.67	493	1760	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.32	NA	NA	NA
CBL-306I	7/27/2018	DM	<0.0500	275	283	2.95	6.86	406	1450	NA	NA	NA	NA	NA	NA	NA	NA	0.0298	NA	NA	NA	NA	NA	NA	NA	24.05	NA	NA	1996
CBL-306I	1/16/2019	DM	<0.0500	180	215	1.98	6.78	292	1220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-306I	7/31/2019	DM	0.0824	106	538	9.26	6.92	816	676	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-306I	8/23/2019	DM	0.05	226	318	2.66	6.83	387	1710	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.48	NA	NA	2478
CBL-306I	1/29/2020	DM	<0.0500	247	445	2.83	6.7	561	1830	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-306I	9/19/2020	DM	0.0773	260	420	2.72	7.16	506	1730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-306I	1/28/2021	DM	<0.0500	257	292	2.9	6.84	388	1420	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-306I	7/21/2021	DM	0.0927	216	255	2.42	6.55	336	1320	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-306I	1/27/2022	DM	0.0548	212	384	2.99	6.87	510	1730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-306I	7/28/2022	DM	0.11	182	261	2.26	6.7	348	1540	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-306I	1/26/2023	DM	0.0973	149	148	1.92	7.3	205	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-306I	7/18/2023	DM	0.0659	260	336	2.66	6.49	454	1910	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
GROUNDWATER MONITORING RESULTS SUMMARY

Monitoring Well	Sample Date	Regulatory Phase	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids (Residue Filterable)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium	Radium 226	Radium 228	Radium Combined	Temp C	DO mg/L	DO %	Specific Conductivity
MCL including EPA Phase 1			NE	NE	NE	4	NE	NE	NE	0.006	0.01	2	0.004	0.005	0.1	0.006	0.015	0.04	0.002	0.1	0.05	0.002	--	--	5 pCi/l	NE	NE	NE	NE
Analytical Method			SW3010A	SW3010A	E300.0	E300.0	SM4500H+B	E300.0	DM2450C	SW6020	SW6020	SW6010B	SW6010B	SW6020	SW6020	SW6020	SW6020	SW6020	SM2540C	SW6020	SW6020	SW6020	E903.0	E904.0		--	--	--	--
Method Detection Limit			0.02	0.35	20	0.2	--	20	250	0.0004	0.0007	0.004	0.001	0.0004	0.0004	0.0004	0.0004	0.0004	0.07 ug/L	0.0004	0.0017	0.0004	1	1		--	--	--	--
Practical Quantitation Limit			0.05	1	50	0.5	--	50	250	0.001	0.002	0.01	0.004	0.001	0.001	0.001	0.001	0.001	0.2 ug/L	0.001	0.005	0.001	1	1		--	--	--	--
CBL-308I	1/22/2016	DM	<0.0500	903	2760	1.49	6.36	1490	6820	<0.00100	<0.00200	0.0413	<0.00400	<0.00100	<0.00100	<0.001	<0.00100	0.116	<0.0002	0.00106	0.00693	<0.00100	<1.0	1.11	1.11	21.45	2.82	32.9	9772
CBL-308I	5/4/2016	DM	0.121	870	2580	2.3	6.13	1410	6120	<0.00100	<0.00200	0.0395	<0.00400	<0.00100	<0.00100	<0.001	<0.00100	0.134	<0.0002	0.00113	0.00823	<0.00100	<1.0	<1.0	<1.0	22.87	2.81	33.8	9726
CBL-308I	7/26/2016	DM	0.186	911	2680	1.64	5.95	1490	7890	<0.001	<0.002	0.0462	<0.004	<0.001	<0.001	<0.001	<0.001	0.0854	<0.0002	<0.001	0.00793	<0.001	<1.0	1.21	1.21	23.47	3.08	37.3	9807
CBL-308I	10/24/2016	DM	0.256	939	2870	1.59	6.27	1550	10200	<0.001	<0.002	<0.05	<0.004	<0.001	<0.001	<0.001	<0.001	0.106	<0.0002	0.00104	0.00887	<0.001	<1.0	1.66	1.66	23.06	1.6	19.3	10000
CBL-308I	1/19/2017	DM	<0.05	919	2360	1.33	6.83	1320	9620	<0.001	<0.002	0.0458	<0.004	<0.001	<0.001	<0.001	<0.001	0.106	<0.0002	0.0013	0.00995	<0.001	<1.0	1.41	1.41	22.11	NA	NA	9681
CBL-308I	3/22/2017	DM	0.545	947	2530	9.05	6.27	1470	7260	<0.001	<0.002	0.0495	<0.004	<0.001	<0.001	<0.001	<0.001	0.123	<0.0002	0.00105	0.00761	<0.001	<1.0	1.37	1.37	22.67	NA	NA	9659
CBL-308I	5/16/2017	DM	0.109	954	2740	1.7	5.54	1580	6590	<0.001	<0.002	0.0494	<0.004	<0.001	<0.001	<0.001	<0.001	0.13	<0.0002	0.001	0.00779	<0.001	<1.0	1.15	1.15	23.1	NA	NA	9697
CBL-308I	7/26/2017	DM	0.0799	878	2760	1.9	6.27	1550	6480	<0.001	<0.002	0.0436	<0.004	<0.001	<0.001	<0.001	<0.001	0.125	<0.0002	0.00106	0.00769	<0.001	NA	NA	NA	24.75	NA	NA	9929
CBL-308I	2/6/2018	DM	<0.0500	859	2750	1.76	6.26	1570	6200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.73	NA	NA	NA
CBL-308I	7/25/2018	DM	<0.0500	863	2680	2.1	6.07	1540	6320	NA	NA	NA	NA	NA	NA	NA	NA	0.109	NA	NA	NA	NA	NA	NA	NA	23.43	NA	NA	9313
CBL-308I	1/18/2019	DM	<0.0500	760	2240	1.68	6.39	1520	4760	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-308I	7/31/2019	DM	<0.0500	840	2290	1.62	6.25	1420	5820	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-308I	1/29/2020	DM	<0.0500	745	2110	1.6	6.37	1340	5980	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-308I	9/18/2020	DM	0.103	838	2410	1.33	6.22	1310	6860	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-308I	1/28/2021	DM	<0.0500	830	2200	1.44	6.26	1340	6190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-308I	7/21/2021	DM	0.130	684	1780	1.74	6.16	1240	5270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-308I	1/27/2022	DM	<0.0500	974	2020	1.75	6.36	1310	5320	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-308I	7/27/2022	DM	0.0790	736	2470	1.43	6.23	1190	6840	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-308I	1/26/2023	DM	0.1430	732	2570	<0.500	6.41	445	5810	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-308I	7/18/2023	DM	<0.0500	642	1840	1.86	6.26	1290	5680	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	1/23/2017	DM	<0.05	854	1600	0.53	5.74	307	5000	<0.001	<0.002	0.0703	<0.004	<0.001	<0.001	<0.001	<0.001	0.0858	<0.0002	0.00112	<0.005	<0.001	<1.0	1.23	1.23	21.95	NA	NA	6053
CBL-341I	2/23/2017	DM	<0.05	870	2000	<0.50	5.23	404	4520	<0.001	<0.002	0.0733	<0.004	<0.001	<0.001	<0.001	<0.001	0.0840	<0.0002	<0.001	<0.005	<0.001	1.53	2.19	3.72	22.14	NA	NA	6030
CBL-341I	3/22/2017	DM	<0.05	906	1780	<0.50	5.72	346	5110	<0.001	<0.002	0.0739	<0.004	<0.001	<0.001	<0.001	<0.001	0.0895	<0.0002	<0.001	<0.005	<0.001	<1.00	2.62	2.62	22.08	NA	NA	6014
CBL-341I	4/20/2017	DM	0.0587	898	1770	<0.50	5.73	336	4240	<0.001	<0.002	0.0747	<0.004	<0.001	<0.001	<0.001	<0.001	0.0856	<0.0002	0.00116	<0.005	<0.001	2.21	1.90	4.11	21.88	NA	NA	6038
CBL-341I	5/16/2017	DM	0.0896	860	1900	<0.50	5.54	369	4840	<0.001	<0.002	0.0706	<0.004	<0.001	<0.001	<0.001	<0.001	0.0835	<0.0002	<0.001	<0.005	<0.001	<1.00	1.29	1.29	22.18	NA	NA	6108
CBL-341I	6/20/2017	DM	0.0668	950	1820	0.335	6.19	363	5940	<0.001	<0.002	0.0693	<0.004	<0.001	<0.001	0.00163	<0.001	0.0825	<0.0002	0.00328	0.00692	<0.001	NA	NA	NA	22.86	NA	NA	5931
CBL-341I	7/27/2017	DM	0.0507	829	1970	0.055	6.21	419	4150	<0.001	<0.002	0.0685	<0.004	<0.001	<0.001	<0.001	<0.001	0.0912	<0.0002	<0.001	<0.005	<0.001	NA	NA	NA	23.17	NA	NA	6036
CBL-341I	9/11/2017	DM	<0.05	848	1710	0.367	6.1	354	4860	<0.001	<0.002	0.0662	<0.004	<0.001	<0.001	<0.001	<0.001	0.851	<0.0002	<0.001	<0.005	<0.001	NA	NA	NA	22.7	NA	NA	6102
CBL-341I	2/8/2018	DM	<0.05	810	2110	0.106	6.18	383	4320	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.52	NA	NA	4320
CBL-341I	8/24/2018	DM	<0.05	824	1910	0.114	5.82	376	4800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.85	NA	NA	6076
CBL-341I	1/22/2019	DM	<0.05	782	1790	0.0546	6.38	358	3870	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	7/31/2019	DM	<0.05	714	1650	0.1	6.23	329	5370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	1/30/2020	DM	<0.05	767	1780	0.153	6.27	351	4900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	9/17/2020	DM	0.102	814	1700	<0.25	6.14	336	4930	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	1/27/2021	DM	<0.0500	874	1800	<0.500	6.06	324	3940	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	7/22/2021	DM	0.111	852	1750	1.16	5.98	316	4520	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	9/7/2021	DM	NA	NA	NA	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	1/27/2022	DM	<0.0500	1040	1810	<0.500	6.26	320	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	7/28/2022	DM	0.115	704	1690	0.141	6.16	296	4910	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	1/26/2023	DM	0.134	797	1660	<0.250	6.28	309	4390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CBL-341I	7/19/2023	DM	0.076	710	1530	1.12	6.22	259	4190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Regulatory Phase: Background (B), Detection Monitoring (DM), Assessment Monitoring (AM), Corrective Action (CA)

All concentrations reported in mg/L (milligrams per liter)

NE = Not established, EPA considers these compounds are not a concern from a human health standpoint

All concentrations reported in mg/L (milligrams per liter)

NA = Not analyzed in accordance with 40 CFR 257.94

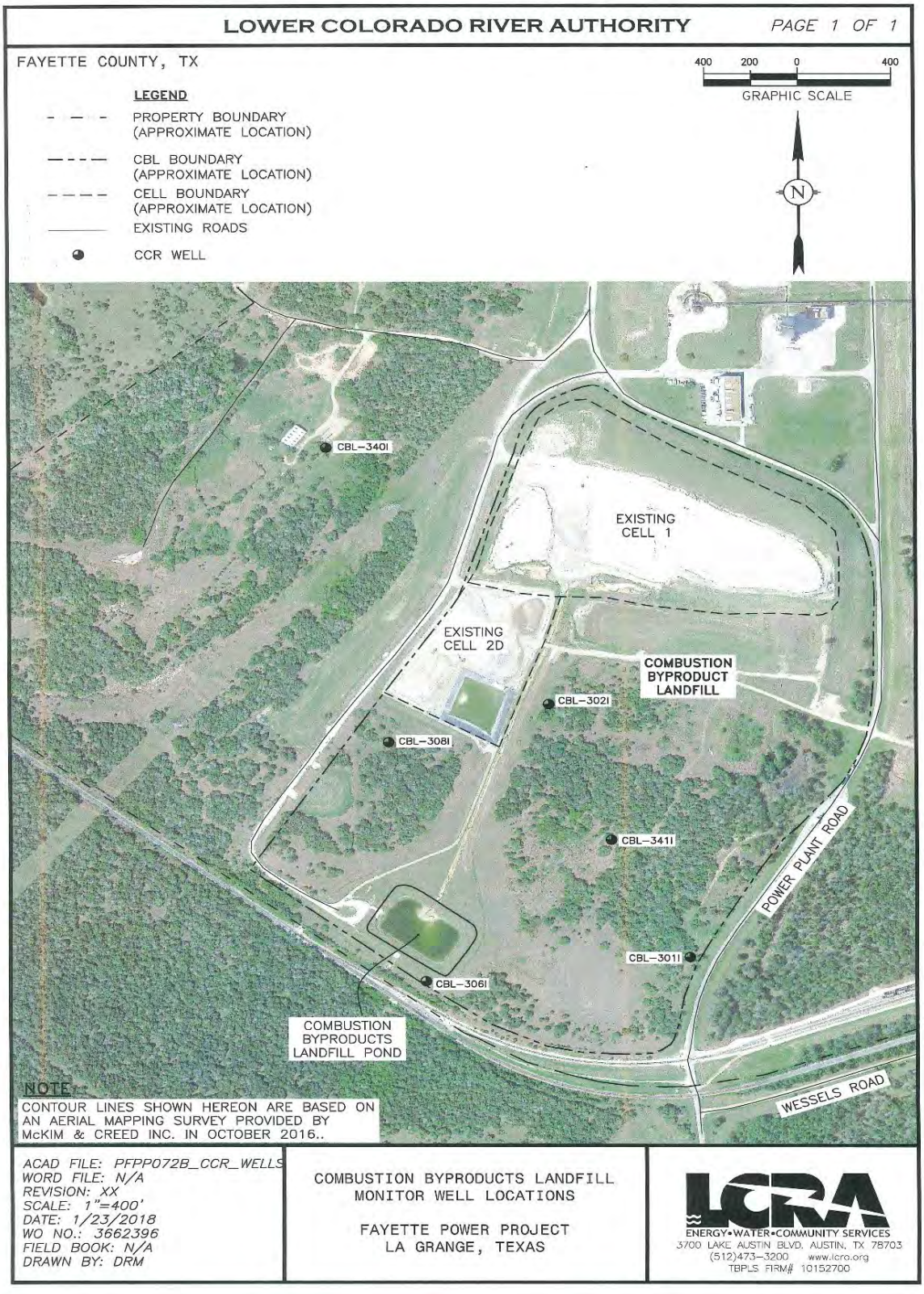
Appendix III to Part 257 Constituents for Detection Monitoring

Appendix IV to Part 257 Constituents for Assessment Monitoring

FIGURES

FIGURE 1

MONITOR WELL LOCATION MAP



APPENDICES

Appendix A
CCR Groundwater Detection Monitoring Program
Evaluation of First Quarter 2023
Potentiometric Surface Data Collected from the CBL
Bullock, Bennett & Associates, LLC
June 8, 2023

CCR Groundwater Detection Monitoring Program
Evaluation of Third Quarter 2023
Potentiometric Surface Data Collected from the CBL
Bullock, Bennett & Associates, LLC
December 15, 2023

Bullock, Bennett & Associates, LLC

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165 N. Lampasas St. • Bertram, Texas 78605 • (512) 355-9198

Technical Memorandum

To: Nancy Overesch, P.G.
Corporate Environmental
Lower Colorado River Authority (LCRA)

Project No. 22482-23

From: Charlie Macon, P.G.

Date: June 8, 2023

Subject: CCR GROUNDWATER DETECTION MONITORING PROGRAM EVALUATION OF FIRST QUARTER 2023 POTENTIOMETRIC SURFACE DATA COLLECTED FROM THE CBL

1.0 INTRODUCTION

This Technical Memorandum (Tech Memo) documents the evaluation of the Intermediate Sand groundwater bearing unit potentiometric surface data obtained during the First Quarter-2023 Combustion Byproducts Landfill (CBL) Groundwater Monitoring Event. The groundwater monitoring is being performed as part of the CBL Groundwater Monitoring Program (GMP) in accordance with the Coal Combustion Residuals (CCR) regulations as codified in 40 Code of Federal Regulations (CFR) 257.93. The CBL is located at the Lower Colorado River Authority's (LCRA's) Fayette Power Project (FPP) facility near La Grange, Texas. This measurement of the potentiometric surface and determination of groundwater flow direction and flow rate is conducted for each groundwater monitoring event pursuant to the GMP requirements of 40 CFR 257.93(c) and 30 Tex. Admin. Code §352.931.

2.0 POTENTIOMETRIC SURFACE DATA COLLECTION, MAPPING, AND GRADIENT DETERMINATION

All groundwater monitoring and sampling activities were performed by an LCRA technician. Prior to conducting well purging and collection of groundwater samples for chemical analysis, the technician used an electronic well probe to determine depth to the Intermediate Sand groundwater surface below the surveyed top of monitoring well casing elevation. Table 1 presents the summary of groundwater measurements obtained from the CBL Groundwater Monitoring network in the First Quarter–2023 event.

Based on the measured groundwater elevations, a potentiometric surface map was prepared to document the First Quarter-2023 monitoring event (Figure 1). The map shows a groundwater potentiometric surface that is relatively consistent with those presented for all prior CBL GMP monitoring events. As illustrated by the map shown in Figure 1, the groundwater flow direction is to the south-southwest. The calculated gradient for the western portion of the CBL is 0.009 ft/ft. For the eastern portion of the CBL, a gradient of 0.023 ft/ft was calculated.

3.0 GROUNDWATER FLOW RATE CALCULATION

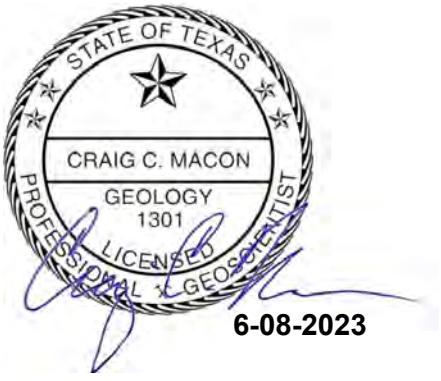
Groundwater flow rate was calculated along two transects, one along the western area having the lower gradient, and one along the eastern area having the higher gradient. As documented in the CBL Hydrogeology Report (Amec, 2013), a hydraulic conductivity value (K) of 6.3×10^{-4} centimeters per second (cm/sec) has been estimated for the Intermediate Sand. The hydraulic conductivity value is based on the rising-head slug test data obtained from monitoring well CBL-302I. Consistent with past evaluations of the Intermediate Sand, this hydraulic conductivity value was utilized for the First Quarter-2023 event to calculate the groundwater flow rate. Also consistent with past evaluations, an assumed porosity value of 0.30 was utilized based on the dominant aquifer lithology (clayey sands and silty sands).

Given the constants $K = 6.3 \times 10^{-4}$ cm/sec (= 648.9 feet/year) and Porosity = 0.30, the following groundwater flow velocities are calculated:

Eastern Transect (gradient of 0.023 ft/ft): 50 ft/yr (rounded)
Western Transect (gradient of 0.009 ft/ft): 20 ft/yr (rounded)

4.0 REFERENCES

Amec Environment & Infrastructure, Inc. (Amec), 2013: *Hydrogeologic Evaluation of Combustion Byproducts Landfill (CBL) Area Report, Fayette Power Project,* December 2013.

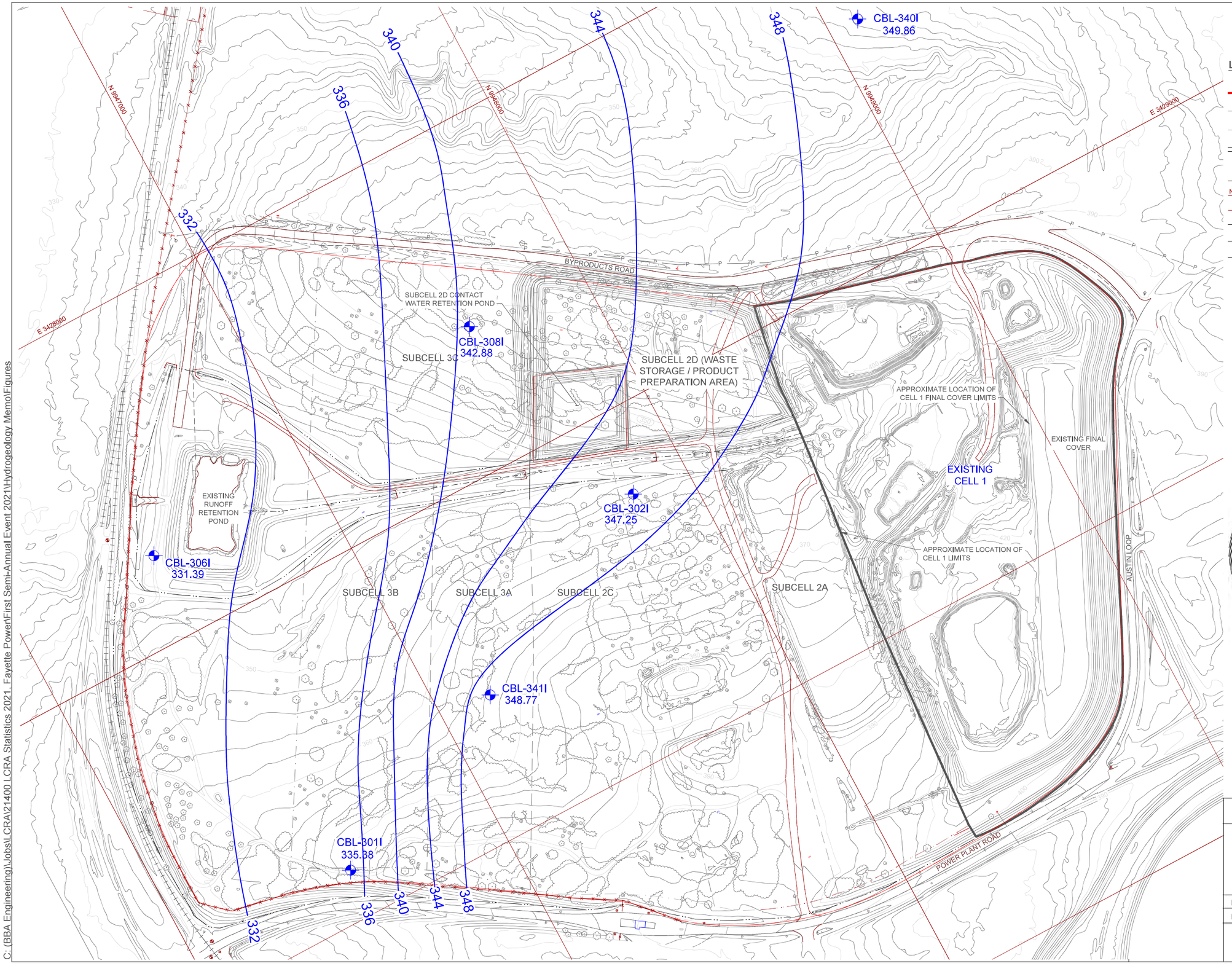


6-08-2023

TABLE 1
Combustion Byproducts Landfill
Groundwater Monitoring Well System
January 2023 Potentiometric Surface Data
Fayette Power Project
La Grange, Texas

Well ID	CBL-340I		CBL-301I		CBL-302I		CBL-306I		CBL-308I		CBL-341I	
Well Top of Casing Elevation	376.98		372.11		358.99		339.96		368.67		366.65	
Date	DTW (ft btoc)	Elevation (ft NAVD)	DTW (ft btoc)	Elevation (ft NAVD)	DTW (ft btoc)	Elevation (ft NAVD)	DTW (ft btoc)	Elevation (ft NAVD)	DTW (ft btoc)	Elevation (ft NAVD)	DTW (ft btoc)	Elevation (ft NAVD)
1/25/2023	NM	NM	36.73	335.38	NM	NM	NM	NM	NM	NM	NM	NM
1/26/2023	NM	NM	NM	NM	11.74	347.25	8.57	331.39	25.79	342.88	17.88	348.77
1/30/2023	27.12	349.86	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

Notes:
NM = Not Measured
ft btoc = feet below top of casing
ft NAVD = feet above North American Vertical Datum (1988)



LEGEND

- CBL UNIT BOUNDARY
- EXISTING GROUND ELEVATION (FT,MSL) (NOTES 1,2)
- EXISTING TOP OF CLAY LINER ELEVATION (FT,MSL) (NOTE 2)
- EXISTING ROAD
- EXISTING BUILDING
- EXISTING RAILROAD
- COORDINATE GRID (NOTE 2)
- EXISTING FENCE
- PROPOSED PHASE BOUNDARY
- PROPOSED LIMIT OF WASTE
- POWER LINE
- WELLS
- CBL GROUNDWATER MONITORING WELL WITH POTENTIOMETRIC SURFACE ELEVATION INDICATED IN FEET ABOVE NAVD 1988.
- POTENTIOMETRIC SURFACE CONTOUR LINE
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:

1. THE EXISTING CONTOUR BASE MAP SHOWN ON THIS DRAWING WAS COMPILED USING AN AERIAL SURVEY BASED ON PHOTOGRAPHY PERFORMED ON 23 OCTOBER 2013 BY SURDEX CORPORATION AND LIDAR DATA PUBLISHED DECEMBER 2008 AND PROVIDED BY LCRA SURVEYING, MAPPING, AND GIS.
2. ELEVATIONS ARE IN FEET (FT) AS DEFINED BY THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD-83) 1983.

STATE OF TEXAS
CRAIG C. MACON
GEOLOGY
1301
LICENSED
PROFESSIONAL GEOSCIENTIST

6-08-2023

0 140 280
SCALE IN FEET

LOWER COLORADO RIVER AUTHORITY

Figure 1
Potentiometric Surface Map of the Intermediate Sand
January 2023

PROJECT: 22482-23	BY: SLB	REVISIONS
DATE: 3/31/2023	CHECKED: CCM	

Bullock, Bennet & Associates, LLC
Engineering and Geoscience
Texas Registrations: Engineering F-8542, Geoscience 50127

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Bullock, Bennett & Associates, LLC

www.bbaengineering.com
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Technical Memorandum

To: Kate McCarthy, P.G. Project No. 22482-23
Corporate Environmental
Lower Colorado River Authority (LCRA)

From: Charlie Macon, P.G.

Date: December 15, 2023

Subject: CCR GROUNDWATER DETECTION MONITORING PROGRAM EVALUATION OF THIRD QUARTER 2023 POTENTIOMETRIC SURFACE DATA COLLECTED FROM THE CBL

1.0 INTRODUCTION

This Technical Memorandum (Tech Memo) documents the evaluation of the Intermediate Sand groundwater bearing unit potentiometric surface data obtained during the Third Quarter-2023 Combustion Byproducts Landfill (CBL) Groundwater Monitoring Event. The groundwater monitoring is being performed as part of the CBL Groundwater Monitoring Program (GMP) in accordance with the Coal Combustion Residuals (CCR) regulations as codified in 40 Code of Federal Regulations (CFR) 257.93 and Title 30 of the Texas Administrative Code §352.931 (30 TAC §352.931). The CBL is located at the Lower Colorado River Authority's (LCRA's) Fayette Power Project (FPP) facility near La Grange, Texas. This measurement of the potentiometric surface and determination of groundwater flow direction and flow rate is conducted for each groundwater monitoring event pursuant to the GMP requirements of 40 CFR §257.93(c) and 30 Texas Administrative Code §352.931.

2.0 POTENTIOMETRIC SURFACE DATA COLLECTION, MAPPING, AND GRADIENT DETERMINATION

All groundwater monitoring and sampling activities were performed by an LCRA technician. Prior to conducting well purging and collection of groundwater samples for chemical analysis, the technician used an electronic well probe to determine depth to the Intermediate Sand groundwater surface below the surveyed top of monitoring well casing elevation. Table 1 presents the summary of groundwater measurements obtained from the CBL Groundwater Monitoring network in the Third Quarter–2023 event.

Based on the measured groundwater elevations, a potentiometric surface map was prepared to document the Third Quarter-2023 monitoring event (Figure 1). The map shows a groundwater potentiometric surface that is relatively consistent with those presented for all prior CBL GMP monitoring events. As illustrated by the map shown in Figure 1, the groundwater flow direction is to the south-southwest. The calculated gradient for the western portion of the CBL is 0.010 ft/ft. For the eastern portion of the CBL, the calculated gradient is 0.023 ft/ft.

3.0 GROUNDWATER FLOW RATE CALCULATION

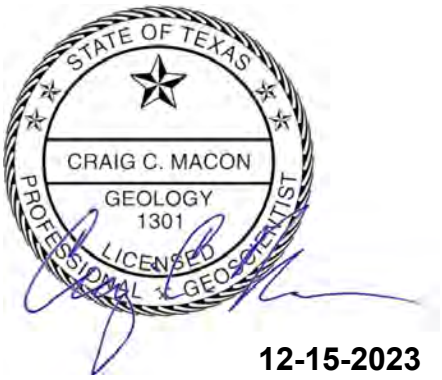
Groundwater flow rate was calculated along two transects, one along the western area having the lower gradient, and one along the eastern area having the higher gradient. As documented in the CBL Hydrogeology Report (Amec, 2013), a hydraulic conductivity value (K) of 6.3×10^{-4} centimeters per second (cm/sec) has been estimated for the Intermediate Sand. The hydraulic conductivity value is based on the rising-head slug test data obtained from monitoring well CBL-302I. Consistent with past evaluations of the Intermediate Sand, this hydraulic conductivity value was utilized for the Third Quarter-2023 event to calculate the groundwater flow rate. Also consistent with past evaluations, an assumed porosity value of 0.30 was utilized based on the dominant aquifer lithology (clayey sands and silty sands).

Given the constants K = 6.3×10^{-4} cm/sec (= 648.9 feet/year) and Porosity = 0.30, the following groundwater flow velocities are calculated:

Eastern Transect (gradient of 0.023 ft/ft): 50 ft/yr (rounded)
Western Transect (gradient of 0.010 ft/ft): 22 ft/yr (rounded)

4.0 REFERENCES

Amec Environment & Infrastructure, Inc. (Amec), 2013: *Hydrogeologic Evaluation of Combustion Byproducts Landfill (CBL) Area Report, Fayette Power Project,* December 2013.



12-15-2023

TABLE 1
Combustion Byproducts Landfill
Groundwater Monitoring Well System
July 2023 Potentiometric Surface Data
Fayette Power Project
La Grange, Texas

Well ID	CBL-340I		CBL-301I		CBL-302I		CBL-306I		CBL-308I		CBL-341I	
Well Top of Casing Elevation	376.98		372.11		358.99		339.96		368.67		366.65	
Date	DTW (ft btoc)	Elevation (ft NAVD)	DTW (ft btoc)	Elevation (ft NAVD)	DTW (ft btoc)	Elevation (ft NAVD)	DTW (ft btoc)	Elevation (ft NAVD)	DTW (ft btoc)	Elevation (ft NAVD)	DTW (ft btoc)	Elevation (ft NAVD)
7/18/2023	NM	NM	36.73	335.38	11.68	347.31	9.89	330.07	24.47	344.20	NM	NM
7/19/2023	24.50	352.48	NM	NM	NM	NM	NM	NM	NM	NM	16.86	349.79

Notes:
NM = Not Measured
ft btoc = feet below top of casing
ft NAVD = feet above North American Vertical Datum (1988)

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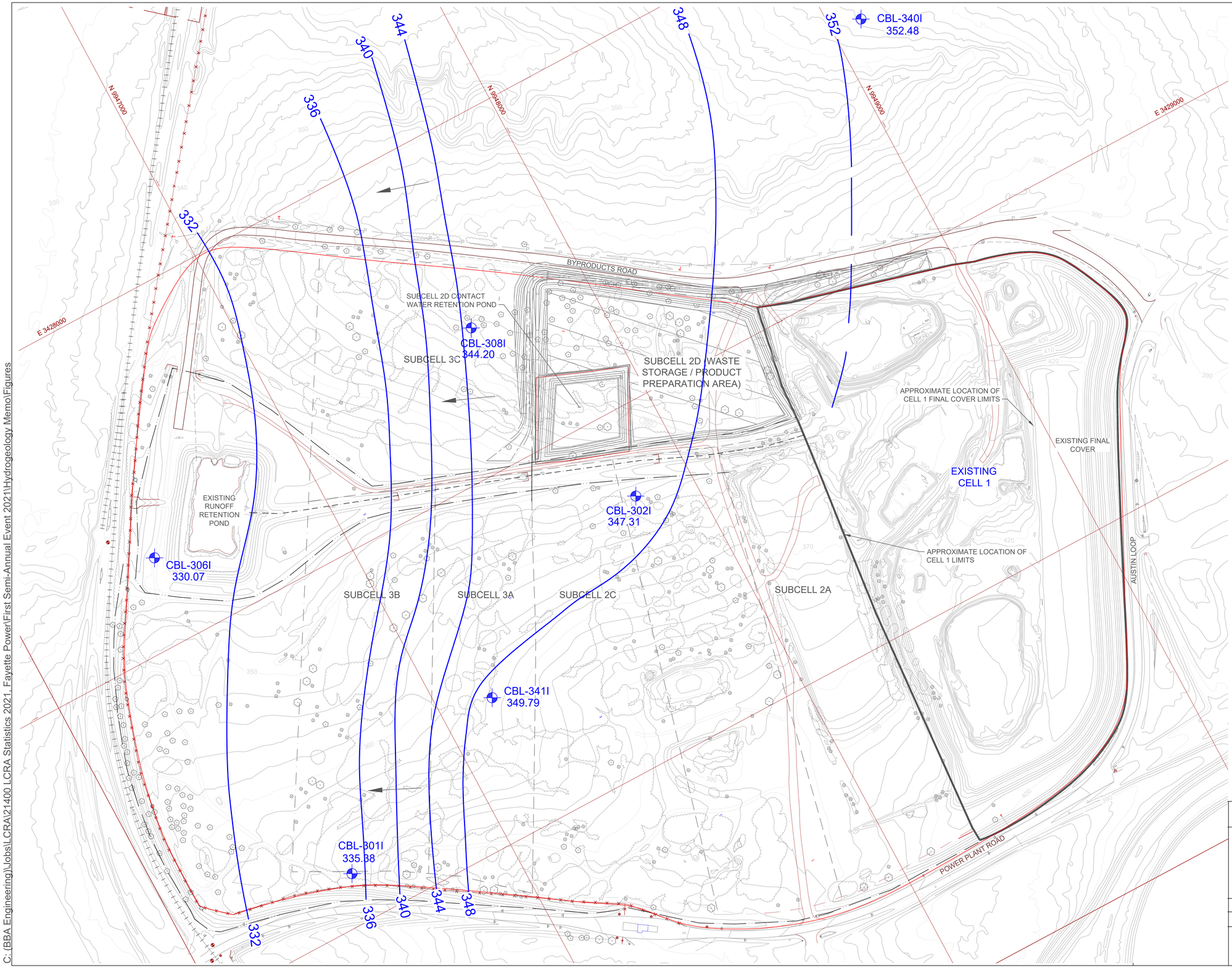

LEGEND

- CBL UNIT BOUNDARY
- EXISTING GROUND ELEVATION (FT,MSL) (NOTES 1,2)
- EXISTING TOP OF CLAY LINER ELEVATION (FT,MSL) (NOTE 2)
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- EXISTING BUILDING
- EXISTING RAILROAD
- COORDINATE GRID (NOTE 2)
- EXISTING FENCE
- PROPOSED PHASE BOUNDARY
- PROPOSED LIMIT OF WASTE
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2. ELEVATIONS ARE IN FEET (FT) AS DEFINED BY THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD-83) 1983.

STATE OF TEXAS
CRAIG C. MACON
GEOLOGY
1301
LICENSED
PROFESSIONAL GEOSCIENTIST

12-15-2023

0 140 280
SCALE IN FEET

LOWER COLORADO RIVER AUTHORITY

Figure 1
Potentiometric Surface Map of the Intermediate Sand July 2023

PROJECT: 22482-23	BY: SLB	REVISIONS
DATE: 10/11/2023	CHECKED: CCM	

Bullock, Bennet & Associates, LLC
Engineering and Geoscience
Texas Registrations: Engineering F-8542, Geoscience 50127

APPENDIX B

Results of the Groundwater Statistics for the Lower Colorado River Authority
First Semi-Annual Monitoring Event in 2023
Otter Creek Environmental Services, LLC
November 2023

Results of the Ground Water Statistics

for Lower Colorado River Authority Fayette Power Project

First Semi-Annual Monitoring Event in 2023

Prepared for:
Lower Colorado River Authority (LCRA)
Fayette Power Project
LaGrange, TX

Prepared by:
Jeffrey A. Holmgren
Otter Creek Environmental Services, L.L.C.
40W565 Foxwick Court
Elgin, IL 60124
(847) 464-1355

November 2023

INTRODUCTION

This report contains the results of the statistical analyses used to evaluate the groundwater data obtained during the first semi-annual monitoring event in 2023 at the Lower Colorado River Authority (LCRA) Fayette Power Project (FPP) Combustion Byproducts Landfill (CBL), the Coal Combustion Residuals (CCR) unit addressed in this report. The statistical analyses were completed within 90 days of receipt of the analytical data. The groundwater at the FPP is monitored by wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, CBL-340I, and CBL-341I.

Statistical comparisons and evaluation for statistically significant increases (SSIs) are conducted on all wells with the exception of former background (side-gradient) monitoring well CBL-340I. Based on the Alternative Source Determination (ASD) study conducted in 2018, the identification of natural aquifer heterogeneity resulted in determination that CBL-340I could not be used to reliably characterize the background geochemistry of the groundwater flowing beneath the CCR unit. As such, intrawell analysis of wells potentially affected by CCR operation was selected at that time, and the need for use of CBL-340I geochemical data was negated. A Groundwater Monitoring System Addendum Certification was prepared in 2018, documenting the transition from former interwell analysis to intrawell analysis.

The statistical plan is designed to detect a release from the facility at the earliest indication. An intrawell methodology is described and then applied to the FPP data. The statistical method conforms with the Coal Combustion Residual (CCR) rule (40 CFR Part 257), USEPA Guidance document (*Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Unified Guidance,* March 2009), and the American Society for Testing and Materials (ASTM) standard D6312-98, *Developing Appropriate Statistical Approaches for Ground-Water Detection Monitoring Programs*. The intrawell statistical evaluations were completed within 90 days of receipt of laboratory data.

Ground Water Monitoring Program

The groundwater monitoring network for FPP includes background well CBL-340I and downgradient wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I. Each of the groundwater monitoring wells is to be sampled at least semiannually and analyzed for the detection monitoring parameters listed in Appendix III of 40 CFR Part 257, as follows:

Boron
Calcium
Chloride
Fluoride
pH
Sulfate
Total Dissolved Solids

Statistical analysis is conducted on data from all Groundwater Monitoring Plan (GMP) wells with the exception of CBL-340I, as described above. The groundwater data obtained for statistical evaluation during the first semi-annual monitoring event in 2023 are summarized in Attachment A. Historical Appendix III data is summarized in Attachment B.

STATISTICAL METHODOLOGIES FOR DETECTION MONITORING

The CCR rule for statistical analysis provides several options for evaluating the ground water data [40 CFR 257.93(f)]. As referenced in Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance (EPA 530/R-09-007), the preferred methods for comparing ground water data are using either prediction limits or using control charts. The control chart procedure offers an advantage over the prediction limits procedure as more data is generated over time, because the control chart procedure generates a graph of compliance data over time and allows for better identification of long-term trends.

An intrawell control chart method was applied to the FPP 2023 first semiannual data using the DUMPStat® statistical program. DUMPStat® is a program for the statistical analysis of groundwater monitoring data using methods described in "Statistical Methods for Groundwater Monitoring" by Dr. Robert D. Gibbons. Groundwater statistical analysis was conducted on the Appendix III constituents listed above.

Intrawell statistics

Intrawell statistics compare new measurements to the historical data at each groundwater monitoring well independently. The Unified Guidance-recommended technique for intrawell comparisons is the combined Shewhart-CUSUM control chart. This control chart procedure detects changes in analyte concentrations both in terms of constituent concentration and cumulative concentration increases. This method is also extremely sensitive to sudden and gradual releases. A requirement for constructing these control charts is that the parameter is detected at a frequency greater than or equal to 25%, otherwise the data variance is not properly defined (ASTM D 6312-98 *Standard Guide for Developing Appropriate Statistical Approaches for Ground-Water Detection Monitoring Programs*).

The combined Shewhart-CUSUM control chart assumes that the data are independent and normally distributed with a fixed mean and a constant variance. Independent data is much more critical than the normality assumption. To achieve independence, it is recommended that data are collected no more frequently than quarterly to account for seasonal variation. The combined Shewhart-CUSUM control chart is robust to deviations from normality. Because the control charts do not use a specific multiplier based on a normal distribution, it is more conservative to assume normality.

Some groundwater monitoring parameters are not detected at a frequency great enough to generate the combined Shewhart-CUSUM control charts. For constituents that are detected less than 25% of the time at a particular well, the data are plotted as a time series until a sufficient number of data points are available to provide a 99% confidence nonparametric prediction limit. Thirteen independent measurements (with 1 resample) are necessary to achieve a 99% confidence (1% false positive rate) nonparametric prediction limit. Eight independent measurements (for pass 1 of 2 resamples) are necessary to achieve a 99% confidence nonparametric prediction limit. The nonparametric prediction limit is the largest determination out of the data set collected for that well and parameter. If the detection frequency is 0% after thirteen samples have been collected, the practical quantitation limit (PQL) becomes the nonparametric prediction limit.

In developing the statistical background, the historical data must be thoroughly screened for anomalous data due to sample collection error or laboratory analysis error. An erroneous data point, if not removed prior to the mean and variance computations, would yield a larger control limit thus increasing the false negative rate. The DUMPStat® program screens for outliers using the Dixon test. If the Dixon test indicates an outlier, the value is compared to three times the median value for intrawell analyses. If the value fails both criteria of the two-stage screening, the value is considered a statistical outlier and will not be used in the mean and variance determinations. Anomalous data will still be plotted on the graphs (with a unique symbol) but will not be included in the calculations.

The verification resample plan is an integral function of the statistical plan to reduce the probability that anomalous data obtained after the background has been established is indicative of a landfill release. Should an indication of an SSI be identified, the resampling plan is implemented by the operator to collect a verification sample.

The background data for each well and constituent is tested for existing trends using Sen's nonparametric estimate of trend.

Results of the Intrawell Statistics

The Appendix III parameter data from wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I were evaluated using the combined Shewhart-CUSUM control chart method.

The initial background was established with the ProUCL software using data obtained in 2016 and 2017. Initial exceedances for boron at CBL-301I and boron at CBL-341I were reported following the first semi-annual monitoring in 2020. Since the boron concentrations determined subsequently in January 2021 at CBL-301I (<0.050 mg/L) and CBL-341I (<0.050 mg/L) do not exceed the baseline threshold values (BTV), the previous exceedances are not statistically significant. BTV will be analogous to control limits in this report and future reports. Background was later established to include historical data obtained from 2016 through 2020 using DUMPStats.

Monitoring well background data sets must be periodically updated with valid detection monitoring results that are representative of background groundwater quality. Failure to update background data sets will exclude factors such as natural temporal variation, changes in field or laboratory methodologies, and changes in the water table due to meteorological conditions or other influences. Since there were no exceedances attributed to the unit, the background data in this evaluation includes historical data obtained from 2016 through 2022 for wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I.

A summary of the intrawell statistics is included in Attachment C, Table 1 “Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts.” The control charts or time series graphs follow the summary table.

For the parameters evaluated, there were control limit exceedances detected for boron at CBL-302I and sulfate at CBL-301I during the first semi-annual monitoring event for 2023.

The initial sample analysis of sulfate concentration determined at CBL-301I (1370 mg/L) exceeded the normal control limit of 652.0236 mg/L. Monitoring well CBL-301I was resampled on March 7, 2023 for

sulfate analysis. The March 2023 resample result (207 mg/L sulfate) did not exceed the control limit. Since the resample did not exceed the control limit, the initial exceedance is not statistically significant.

Boron was not resampled for at CBL-302I because at the time, the current concentration (0.116 mg/L) did not exceed the nonparametric prediction limit of 0.297 mg/L. After further evaluation, it was determined that background concentrations from October 2016 (0.156 mg/L) and March 2017 (0.297 mg/L) should be identified as statistical outliers. With those data points removed from background, the revised nonparametric prediction limit is now 0.0743 mg/L. Subsequent monitoring will determine if the boron exceedance at CBL-302I statistically significant.

A slight increasing trend was detected in the background data for sulfate at CBL-302I.

A control chart factor was selected to provide a balance of the site-wide false positive and false negative rates. A statistical power curve indicates the expected false assessments for the site as a whole. The site-wide false positive rate is 3% and the test becomes sensitive to 3 standard deviation units over background.

CONCLUSIONS

This document describes a comprehensive statistical plan designated for the FPP. The groundwater monitoring network for FPP consists of wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I. Each of the groundwater monitoring wells is sampled and analyzed for the detection monitoring parameters listed in Appendix III of 40 CFR Part 257. The current ground water data was compared to background using intrawell control charts. Using intrawell comparisons, there were no confirmed control limit exceedances detected. A boron exceedance at CBL-302I is awaiting verification.

Attachment A

Ground Water Data obtained during the First Semi-Annual Monitoring Event in 2023

Table 1

Analytical Data Summary for 1/25/2023 to 1/30/2023

Constituents	Units	CBL-301I	CBL-302I	CBL-306I	CBL-308I	CBL-340I	CBL-341I
Boron, Total	mg/L	.1080	.1160	.0973	.1430	.1670	.1340
Calcium, Total	mg/L	977	889	149	732	635	797
Chloride	mg/L	1960	1460	148	2570	2230	1660
Fluoride	mg/L	1.72	<.50	1.92	<.50	.85	<.25
pH	S.U.	6.34	6.33	7.30	6.41	6.37	6.28
Sulfate	mg/L	1370	1390	205	445	643	309
Total Dissolved Solids	mg/L	5160	4930	1000	5810	5010	4390

* - The displayed value is the arithmetic mean of multiple database matches.

Table 2

Analytical Data Summary for 3/7/2023

Constituents	Units	CBL-301I
Boron, Total	mg/L	.102
Fluoride	mg/L	<.05
Sulfate	mg/L	207

* - The displayed value is the arithmetic mean of multiple database matches.

Attachment B

Historical Appendix III Ground Water Data

Table 1

Analytical Data Summary for CBL-301I

Constituents	Units	1/21/2016	5/4/2016	7/27/2016	10/24/2016	1/23/2017	3/22/2017	5/18/2017	7/26/2017	2/8/2018	7/25/2018	1/17/2019	5/2/2019	7/31/2019
Boron, Total	mg/L	<.0500	<.0500	<.0500	<.0500	<.0500	<.0500	.0707	<.0500	<.0500	<.0500	<.0500	<.0500	<.0500
Calcium, Total	mg/L	905	949	925	978	1000	1030	1060	961	873	993	156	762	783
Chloride	mg/L	2300	2160	2290	2250	3200	2390	2420	2500	2480	1330	619	1910	2240
Fluoride	mg/L	<.250	<.500	<.500	<.250	.312	<.500	<.500	<.500	<.500	<.500	.219	.112	.051
pH	S.U.	6.33	6.26	5.95	6.23	6.26	6.31	5.95	6.02	6.17	6.04	7.16	6.14	6.19
Sulfate	mg/L	336	311	336	326	488	337	342	381	344	196	104	398	332
Total Dissolved Solids	mg/L	4380	5050	6020	4570	6140	6570	6430	4290	5120	5390	1460	5650	6040

* - The displayed value is the arithmetic mean of multiple database matches.

Table 1

Analytical Data Summary for CBL-301I

Constituents	1/28/2020	9/17/2020	1/26/2021	7/20/2021	9/7/2021	1/26/2022	7/27/2022	8/30/2022	10/25/2022	1/25/2023	3/7/2023
Boron, Total	<.0500	.0801	<.0500	.0826	<.0500	<.0500	.0850	.1070	.0645	.1080	.1020
Calcium, Total	851	1060	1130	1100		999	1010			977	
Chloride	2360	2270	2420	2590		2440	1840			1960	
Fluoride	.130	<.250	<.500	2.680	<.500	<.050	.156			1.720	<.050
pH	6.26	6.13	6.06	6.13	6.14	6.27	6.08	6.14	6.21	6.34	
Sulfate	349	350	374	419		406	285			1370	207
Total Dissolved Solids	4790	6340	6060	5870		4700	4590			5160	

* - The displayed value is the arithmetic mean of multiple database matches.

Table 2

Analytical Data Summary for CBL-302I

Constituents	Units	1/22/2016	5/4/2016	7/27/2016	10/24/2016	1/23/2017	3/22/2017	5/16/2017	7/27/2017	2/8/2018	7/27/2018	1/22/2019	7/31/2019	1/30/2020
Boron, Total	mg/L	<.0500	<.0500	<.0500	.1560	<.0500	.2970	<.0500	<.0500	<.0500	<.0500	<.0500	<.0500	<.0500
Calcium, Total	mg/L	1030	1010	1030	1070	1100	1090	1100	1040	934	995	855	914	838
Chloride	mg/L	2190	2130	2210	2170	2080	2050	2230	2040	2080	1980	1960	1540	1540
Fluoride	mg/L	<.2500	<.5000	<.5000	<.2500	.3320	<.5000	<.5000	<.5000	.1120	<.5000	.0402	.0605	.1930
pH	S.U.	6.29	6.01	5.17	7.75	5.36	5.40	4.94	6.20	6.21	5.77	6.44	6.15	6.34
Sulfate	mg/L	1020	993	1090	1180	1150	1120	1230	1180	1240	1390	1250	1260	1350
Total Dissolved Solids	mg/L	5500	5390	6850	4210	6430	6460	5860	5120	6010	5510	5060	4190	4790

* - The displayed value is the arithmetic mean of multiple database matches.

Table 2

Analytical Data Summary for CBL-302I

Constituents	9/17/2020	1/28/2021	7/21/2021	9/7/2021	1/27/2022	7/28/2022	1/26/2023
Boron, Total	<.0500	<.0500	.0743		<.0500	<.0500	.1160
Calcium, Total	853	1020	844		754	750	889
Chloride	1410	1370	1380		1310	1300	1460
Fluoride	<.2500	<.5000	2.2500	<.2500	<.0500	.1650	<.5000
pH	6.20	6.21	6.06	6.28	6.32	6.21	6.33
Sulfate	1280	1290	1350		1340	1300	1390
Total Dissolved Solids	4990	4800	4810		4510	5120	4930

* - The displayed value is the arithmetic mean of multiple database matches.

Table 3

Analytical Data Summary for CBL-306I

Constituents	Units	1/21/2016	5/4/2016	7/26/2016	10/24/2016	1/19/2017	3/22/2017	5/18/2017	7/27/2017	2/8/2018	7/27/2018	1/16/2019	7/31/2019	8/23/2019
Boron, Total	mg/L	<.0500	.0717	.0998	.0556	<.0500	.1240	.0832	.0531	<.0500	<.0500	<.0500	.0824	.0500
Calcium, Total	mg/L	137.0	47.2	105.0	198.0	174.0	204.0	205.0	234.0	230.0	275.0	180.0	106.0	226.0
Chloride	mg/L	155	20	114	330	197	231	289	350	385	283	215	538	318
Fluoride	mg/L	2.50	1.00	1.37	2.38	1.85	12.60	2.20	2.91	2.81	2.95	1.98	9.26	2.66
pH	S.U.	7.09	6.69	6.95	6.72	7.29	4.41	5.61	6.94	6.67	6.86	6.78	6.92	6.83
Sulfate	mg/L	266.0	29.5	139.0	432.0	270.0	340.0	412.0	513.0	493.0	406.0	292.0	816.0	387.0
Total Dissolved Solids	mg/L	1280	431	790	1150	1320	1460	1440	1280	1760	1450	1220	676	1710

* - The displayed value is the arithmetic mean of multiple database matches.

Table 3

Analytical Data Summary for CBL-306I

Constituents	1/29/2020	9/19/2020	1/28/2021	7/21/2021	1/27/2022	7/28/2022	1/26/2023
Boron, Total	<.0500	.0773	<.0500	.0927	.0548	.1100	.0973
Calcium, Total	247.0	260.0	257.0	216.0	212.0	182.0	149.0
Chloride	445	420	292	255	384	261	148
Fluoride	2.83	2.72	2.90	2.42	2.99	2.26	1.92
pH	6.70	7.16	6.84	6.55	6.87	6.70	7.30
Sulfate	561.0	506.0	388.0	336.0	510.0	348.0	205.0
Total Dissolved Solids	1830	1730	1420	1320	1730	1540	1000

* - The displayed value is the arithmetic mean of multiple database matches.

Table 4

Analytical Data Summary for CBL-308I

Constituents	Units	1/22/2016	5/4/2016	7/26/2016	10/24/2016	1/19/2017	3/22/2017	5/16/2017	7/26/2017	2/6/2018	7/25/2018	1/18/2019	7/31/2019	1/29/2020
Boron, Total	mg/L	<.0500	.1210	.1860	.2560	<.0500	.5450	.1090	.0799	<.0500	<.0500	<.0500	<.0500	<.0500
Calcium, Total	mg/L	903	870	911	939	919	947	954	878	859	863	760	840	745
Chloride	mg/L	2760	2580	2680	2870	2360	2530	2740	2760	2750	2680	2240	2290	2110
Fluoride	mg/L	1.49	2.30	1.64	1.59	1.33	9.05	1.70	1.90	1.76	2.10	1.68	1.62	1.60
pH	S.U.	6.36	6.13	5.95	6.27	6.83	6.27	5.54	6.27	6.26	6.07	6.39	6.25	6.37
Sulfate	mg/L	1490	1410	1490	1550	1320	1470	1580	1550	1570	1540	1520	1420	1340
Total Dissolved Solids	mg/L	6820	6120	7890	10200	9620	7260	6590	6480	6200	6320	4760	5820	5980

* - The displayed value is the arithmetic mean of multiple database matches.

Table 4

Analytical Data Summary for CBL-308I

Constituents	9/18/2020	1/28/2021	7/21/2021	1/27/2022	7/27/2022	1/26/2023
Boron, Total	.1030	<.0500	.1300	<.0500	.0790	.1430
Calcium, Total	838	830	684	974	736	732
Chloride	2410	2200	1780	2020	2470	2570
Fluoride	1.33	1.44	1.74	1.75	1.43	<.50
pH	6.22	6.26	6.16	6.36	6.23	6.41
Sulfate	1310	1340	1240	1310	1190	445
Total Dissolved Solids	6860	6190	5270	5320	6840	5810

* - The displayed value is the arithmetic mean of multiple database matches.

Table 5

Analytical Data Summary for CBL-340I

Constituents	Units	1/21/2016	5/4/2016	7/27/2016	10/24/2016	1/23/2017	3/22/2017	5/16/2017	7/27/2017	2/8/2018	7/27/2018	1/22/2019	7/31/2019	1/30/2020
Boron, Total	mg/L	<.0500	.0832	.0810	.1580	<.0500	.1740	.1040	.0816	.0638	<.0500	<.0500	.1240	.0562
Calcium, Total	mg/L	564	560	575	607	627	581	584	571	555	544	518	518	539
Chloride	mg/L	2370	2260	2350	2380	2070	2280	2520	2380	2730	2450	2250	2280	2240
Fluoride	mg/L	1.090	1.920	1.060	1.260	.840	8.440	1.010	.850	1.000	1.300	.830	.880	.870
pH	S.U.	6.52	6.13	6.95	6.19	5.46	6.49	5.77	6.42	6.41	6.25	6.59	6.45	6.49
Sulfate	mg/L	652	616	668	675	571	635	715	685	752	711	639	684	637
Total Dissolved Solids	mg/L	4990	5230	6250	5670	6230	5480	5470	4880	5290	5100	4720	5560	5080

* - The displayed value is the arithmetic mean of multiple database matches.

Table 5

Analytical Data Summary for CBL-340I

Constituents	9/18/2020	1/28/2021	7/22/2021	1/28/2022	7/28/2022	1/30/2023
Boron, Total	.1460	<.0500	.3840	.1600	.2850	.1670
Calcium, Total	547	607	532	597	538	635
Chloride	2130	2260	2200	2200	2160	2230
Fluoride	.725	.835	.865	1.060	.865	.850
pH	6.32	6.32	6.24	6.42	6.35	6.37
Sulfate	608	634	618	619	614	643
Total Dissolved Solids	5430	5520	4990	4870	5490	5010

* - The displayed value is the arithmetic mean of multiple database matches.

Table 6

Analytical Data Summary for CBL-341I

Constituents	Units	1/23/2017	2/23/2017	3/22/2017	4/20/2017	5/16/2017	6/20/2017	7/27/2017	9/11/2017	2/8/2018	8/24/2018	1/22/2019	7/31/2019	1/30/2020
Boron, Total	mg/L	<.0500	<.0500	<.0500	.0587	.0896	.0668	.0507	<.0500	<.0500	<.0500	<.0500	<.0500	<.0500
Calcium, Total	mg/L	854	870	906	898	860	950	829	848	810	824	782	714	767
Chloride	mg/L	1600	2000	1780	1770	1900	1820	1970	1710	2110	1910	1790	1650	1780
Fluoride	mg/L	.5300	<.5000	<.5000	<.5000	<.5000	.3350	.0550	.3670	.1060	.1140	.0546	.1000	.1530
pH	S.U.	5.74	5.23	5.72	5.73	5.54	6.19	6.21	6.10	6.18	5.82	6.38	6.23	6.27
Sulfate	mg/L	307	404	346	336	369	363	419	354	383	376	358	329	351
Total Dissolved Solids	mg/L	5000	4520	5110	4240	4840	5940	4150	4860	4320	4800	3870	5370	4900

* - The displayed value is the arithmetic mean of multiple database matches.

Table 6

Analytical Data Summary for CBL-341I

Constituents	9/17/2020	1/27/2021	7/22/2021	9/7/2021	1/27/2022	7/28/2022	1/26/2023
Boron, Total	.1020	<.0500	.1110		<.0500	.1150	.1340
Calcium, Total	814	874	852		1040	704	797
Chloride	1700	1800	1750		1810	1690	1660
Fluoride	<.2500	<.5000	1.1600	<.2500	<.0500	.1410	<.2500
pH	6.14	6.06	5.98	6.18	6.26	6.16	6.28
Sulfate	336	324	316		320	296	309
Total Dissolved Solids	4930	3940	4520		3800	4910	4390

* - The displayed value is the arithmetic mean of multiple database matches.

Attachment C

Summary Tables and Graphs for the Intrawell Comparisons

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts

Constituent	Units	Well	N(back)	N(mon)	N(tot)	Mean	SD	R(i-1)	R(i)	S(i-1)	S(i)	Limit	Type	Conf	
Boron, Total	mg/L	CBL-301I	22	1	23	0.0586	0.0161	0.0645	0.1080		0.0959	0.1391	normal		
Boron, Total	mg/L	CBL-302I	16	1	19			0.0500	0.1160			0.0743	nonpar	.99	**
Boron, Total	mg/L	CBL-306I	18	1	20	0.0679	0.0242	0.1100	0.0973		0.0791	0.1891	normal		
Boron, Total	mg/L	CBL-308I	18	1	19	0.1144	0.1215	0.0790	0.1430		0.1144	0.7217	normal		
Boron, Total	mg/L	CBL-341I	18	1	19	0.0635	0.0234	0.1150	0.1340		0.1165	0.1803	normal		
Calcium, Total	mg/L	CBL-301I	18	1	20	964.9444	101.2710	1010.0000	977.0000		964.9444	1471.2996	normal		
Calcium, Total	mg/L	CBL-302I	18	1	19	957.0556	116.7478	750.0000	889.0000		957.0556	1540.7947	normal		
Calcium, Total	mg/L	CBL-306I	16	1	20	214.8125	36.2569	182.0000	149.0000		214.8125	396.0970	normal		
Calcium, Total	mg/L	CBL-308I	18	1	19	858.3333	82.3615	736.0000	732.0000		858.3333	1270.1407	normal		
Calcium, Total	mg/L	CBL-341I	18	1	19	844.2222	79.4752	704.0000	797.0000		844.2222	1241.5980	normal		
Chloride	mg/L	CBL-301I	18	1	20	2299.4444	372.4241	1840.0000	1960.0000		2299.4444	4161.5647	normal		
Chloride	mg/L	CBL-302I	18	1	19	1831.6667	360.2654	1300.0000	1460.0000		1831.6667	3632.9938	normal		
Chloride	mg/L	CBL-306I	16	1	20	300.6250	82.0828	261.0000	148.0000		300.6250	711.0389	normal		
Chloride	mg/L	CBL-308I	18	1	19	2457.2222	303.1755	2470.0000	2570.0000		2457.2222	3973.0995	normal		
Chloride	mg/L	CBL-341I	18	1	19	1807.7778	129.1399	1690.0000	1660.0000		1807.7778	2453.4775	normal		
Fluoride	mg/L	CBL-301I	20	1	21	0.5080	0.5367	0.1560	1.7200		1.3175	3.1915	normal		
Fluoride	mg/L	CBL-302I	19	1	20	0.4817	0.4622	0.1650	0.5000		0.4817	2.7929	normal		
Fluoride	mg/L	CBL-306I	17	1	20	2.3959	0.5730	2.2600	1.9200		2.3959	5.2610	normal		
Fluoride	mg/L	CBL-308I	17	1	19	1.6706	0.2554	1.4300	0.5000		1.6706	2.9477	normal		
Fluoride	mg/L	CBL-341I	19	1	20	0.3745	0.2679	0.1410	0.2500		0.3745	1.7141	normal		
pH	S.U.	CBL-301I	22	1	23	6.2014	0.2396	6.2100	6.3400		6.2014	5.00 - 7.40	normal		
pH	S.U.	CBL-302I	19	1	20	6.0689	0.5972	6.2100	6.3300		6.0689	3.08 - 9.05	normal		
pH	S.U.	CBL-306I	18	1	20	6.6478	0.6569	6.7000	7.3000		6.8073	3.36 - 9.93	normal		
pH	S.U.	CBL-308I	18	1	19	6.2328	0.2475	6.2300	6.4100		6.2328	5.00 - 7.47	normal		
pH	S.U.	CBL-341I	18	1	20	6.0494	0.2377	6.1600	6.2800		6.1017	4.86 - 7.24	normal		
Sulfate	mg/L	CBL-301I	18	1	20	350.5556	60.2936	285.0000	1370.0000		1324.7798	652.0236	normal		
Sulfate	mg/L	CBL-302I	18	1	19	1222.9444	114.1137	1300.0000	1390.0000		1304.4147	1793.5130	normal		
Sulfate	mg/L	CBL-306I	17	1	20	388.1765	110.3564	348.0000	205.0000		388.1765	939.9583	normal		
Sulfate	mg/L	CBL-308I	18	1	19	1424.4444	121.4240	1190.0000	445.0000		1424.4444	2031.5645	normal		
Sulfate	mg/L	CBL-341I	18	1	19	349.2778	32.8898	296.0000	309.0000		349.2778	513.7270	normal		
Total Dissolved Solids	mg/L	CBL-301I	18	1	20	5444.4444	767.6950	4590.0000	5160.0000		5444.4444	9282.9193	normal		
Total Dissolved Solids	mg/L	CBL-302I	18	1	19	5311.6667	764.8702	5120.0000	4930.0000		5311.6667	9136.0178	normal		
Total Dissolved Solids	mg/L	CBL-306I	17	1	20	1437.0588	267.0853	1540.0000	1000.0000		1437.0588	2772.4853	normal		
Total Dissolved Solids	mg/L	CBL-308I	18	1	19	6696.6667	1385.2713	6840.0000	5810.0000		6696.6667	13623.0230	normal		
Total Dissolved Solids	mg/L	CBL-341I	18	1	19	4667.7778	554.0180	4910.0000	4390.0000		4667.7778	7437.8678	normal		

N(back) and N(mon) = Non-outlier measurements in the background and monitoring periods.
N(tot) = All independent measurements for that constituent and well.
For transformed data, mean and SD in transformed units and control limit in original units.
Conf = confidence level for passing initial test or one of two verification resamples (nonparametric test only).
* - Insufficient Data.
** - Detection Frequency < 25%.
*** - Zero Variance.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Boron, Total	mg/L	CBL-301I	01/21/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	05/04/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	07/27/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	10/24/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	01/23/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	03/22/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	05/18/2017	yes	0.0707					
Boron, Total	mg/L	CBL-301I	07/26/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	02/08/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	07/25/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	01/17/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	05/02/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	07/31/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	01/28/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	09/17/2020	yes	0.0801					
Boron, Total	mg/L	CBL-301I	01/26/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	07/20/2021	yes	0.0826					
Boron, Total	mg/L	CBL-301I	09/07/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	01/26/2022	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	07/27/2022	yes	0.0850					
Boron, Total	mg/L	CBL-301I	08/30/2022	yes	0.1070					
Boron, Total	mg/L	CBL-301I	10/25/2022	yes	0.0645					
Boron, Total	mg/L	CBL-301I	01/25/2023		0.1080			0.0959		
Boron, Total	mg/L	CBL-302I	01/22/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	05/04/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/27/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	10/24/2016	yes	0.1560		yes			*
Boron, Total	mg/L	CBL-302I	01/23/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	03/22/2017	yes	0.2970		yes			*
Boron, Total	mg/L	CBL-302I	05/16/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/27/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	02/08/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/27/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	01/22/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/31/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	01/30/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	09/17/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	01/28/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/21/2021	yes	0.0743					
Boron, Total	mg/L	CBL-302I	01/27/2022	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/28/2022	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	01/26/2023		0.1160					**
Boron, Total	mg/L	CBL-306I	01/21/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	05/04/2016	yes	0.0717					
Boron, Total	mg/L	CBL-306I	07/26/2016	yes	0.0998					
Boron, Total	mg/L	CBL-306I	10/24/2016	yes	0.0556					
Boron, Total	mg/L	CBL-306I	01/19/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	03/22/2017	yes	0.1240					
Boron, Total	mg/L	CBL-306I	05/18/2017	yes	0.0832					
Boron, Total	mg/L	CBL-306I	07/27/2017	yes	0.0531					

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Boron, Total	mg/L	CBL-306I	02/08/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	07/27/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	01/16/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	07/31/2019	yes	0.0824		yes			*
Boron, Total	mg/L	CBL-306I	08/23/2019	yes	0.0500					
Boron, Total	mg/L	CBL-306I	01/29/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	09/19/2020	yes	0.0773					
Boron, Total	mg/L	CBL-306I	01/28/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	07/21/2021	yes	0.0927					
Boron, Total	mg/L	CBL-306I	01/27/2022	yes	0.0548					
Boron, Total	mg/L	CBL-306I	07/28/2022	yes	0.1100					
Boron, Total	mg/L	CBL-306I	01/26/2023		0.0973			0.0791		
Boron, Total	mg/L	CBL-308I	01/22/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	05/04/2016	yes	0.1210					
Boron, Total	mg/L	CBL-308I	07/26/2016	yes	0.1860					
Boron, Total	mg/L	CBL-308I	10/24/2016	yes	0.2560					
Boron, Total	mg/L	CBL-308I	01/19/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	03/22/2017	yes	0.5450					
Boron, Total	mg/L	CBL-308I	05/16/2017	yes	0.1090					
Boron, Total	mg/L	CBL-308I	07/26/2017	yes	0.0799					
Boron, Total	mg/L	CBL-308I	02/06/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	07/25/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	01/18/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	07/31/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	01/29/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	09/18/2020	yes	0.1030					
Boron, Total	mg/L	CBL-308I	01/28/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	07/21/2021	yes	0.1300					
Boron, Total	mg/L	CBL-308I	01/27/2022	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	07/27/2022	yes	0.0790					
Boron, Total	mg/L	CBL-308I	01/26/2023		0.1430			0.1144		
Boron, Total	mg/L	CBL-341I	01/23/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	02/23/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	03/22/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	04/20/2017	yes	0.0587					
Boron, Total	mg/L	CBL-341I	05/16/2017	yes	0.0896					
Boron, Total	mg/L	CBL-341I	06/20/2017	yes	0.0668					
Boron, Total	mg/L	CBL-341I	07/27/2017	yes	0.0507					
Boron, Total	mg/L	CBL-341I	09/11/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	02/08/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	08/24/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	01/22/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	07/31/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	01/30/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	09/17/2020	yes	0.1020					
Boron, Total	mg/L	CBL-341I	01/27/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	07/22/2021	yes	0.1110					
Boron, Total	mg/L	CBL-341I	01/27/2022	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	07/28/2022	yes	0.1150					
Boron, Total	mg/L	CBL-341I	01/26/2023		0.1340			0.1165		

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Calcium, Total	mg/L	CBL-301I	01/21/2016	yes	905.0000					
Calcium, Total	mg/L	CBL-301I	05/04/2016	yes	949.0000					
Calcium, Total	mg/L	CBL-301I	07/27/2016	yes	925.0000					
Calcium, Total	mg/L	CBL-301I	10/24/2016	yes	978.0000					
Calcium, Total	mg/L	CBL-301I	01/23/2017	yes	1000.0000					
Calcium, Total	mg/L	CBL-301I	03/22/2017	yes	1030.0000					
Calcium, Total	mg/L	CBL-301I	05/18/2017	yes	1060.0000					
Calcium, Total	mg/L	CBL-301I	07/26/2017	yes	961.0000					
Calcium, Total	mg/L	CBL-301I	02/08/2018	yes	873.0000					
Calcium, Total	mg/L	CBL-301I	07/25/2018	yes	993.0000					
Calcium, Total	mg/L	CBL-301I	01/17/2019	yes	156.0000		yes			*
Calcium, Total	mg/L	CBL-301I	05/02/2019	yes	762.0000					
Calcium, Total	mg/L	CBL-301I	07/31/2019	yes	783.0000					
Calcium, Total	mg/L	CBL-301I	01/28/2020	yes	851.0000					
Calcium, Total	mg/L	CBL-301I	09/17/2020	yes	1060.0000					
Calcium, Total	mg/L	CBL-301I	01/26/2021	yes	1130.0000					
Calcium, Total	mg/L	CBL-301I	07/20/2021	yes	1100.0000					
Calcium, Total	mg/L	CBL-301I	01/26/2022	yes	999.0000					
Calcium, Total	mg/L	CBL-301I	07/27/2022	yes	1010.0000					
Calcium, Total	mg/L	CBL-301I	01/25/2023		977.0000			964.9444		
Calcium, Total	mg/L	CBL-302I	01/22/2016	yes	1030.0000					
Calcium, Total	mg/L	CBL-302I	05/04/2016	yes	1010.0000					
Calcium, Total	mg/L	CBL-302I	07/27/2016	yes	1030.0000					
Calcium, Total	mg/L	CBL-302I	10/24/2016	yes	1070.0000					
Calcium, Total	mg/L	CBL-302I	01/23/2017	yes	1100.0000					
Calcium, Total	mg/L	CBL-302I	03/22/2017	yes	1090.0000					
Calcium, Total	mg/L	CBL-302I	05/16/2017	yes	1100.0000					
Calcium, Total	mg/L	CBL-302I	07/27/2017	yes	1040.0000					
Calcium, Total	mg/L	CBL-302I	02/08/2018	yes	934.0000					
Calcium, Total	mg/L	CBL-302I	07/27/2018	yes	995.0000					
Calcium, Total	mg/L	CBL-302I	01/22/2019	yes	855.0000					
Calcium, Total	mg/L	CBL-302I	07/31/2019	yes	914.0000					
Calcium, Total	mg/L	CBL-302I	01/30/2020	yes	838.0000					
Calcium, Total	mg/L	CBL-302I	09/17/2020	yes	853.0000					
Calcium, Total	mg/L	CBL-302I	01/28/2021	yes	1020.0000					
Calcium, Total	mg/L	CBL-302I	07/21/2021	yes	844.0000					
Calcium, Total	mg/L	CBL-302I	01/27/2022	yes	754.0000					
Calcium, Total	mg/L	CBL-302I	07/28/2022	yes	750.0000					
Calcium, Total	mg/L	CBL-302I	01/26/2023		889.0000			957.0556		
Calcium, Total	mg/L	CBL-306I	01/21/2016	yes	137.0000					
Calcium, Total	mg/L	CBL-306I	05/04/2016	yes	47.2000		yes			*
Calcium, Total	mg/L	CBL-306I	07/26/2016	yes	105.0000		yes			*
Calcium, Total	mg/L	CBL-306I	10/24/2016	yes	198.0000					
Calcium, Total	mg/L	CBL-306I	01/19/2017	yes	174.0000					
Calcium, Total	mg/L	CBL-306I	03/22/2017	yes	204.0000					
Calcium, Total	mg/L	CBL-306I	05/18/2017	yes	205.0000					
Calcium, Total	mg/L	CBL-306I	07/27/2017	yes	234.0000					
Calcium, Total	mg/L	CBL-306I	02/08/2018	yes	230.0000					
Calcium, Total	mg/L	CBL-306I	07/27/2018	yes	275.0000					
Calcium, Total	mg/L	CBL-306I	01/16/2019	yes	180.0000					

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Calcium, Total	mg/L	CBL-306I	07/31/2019	yes	106.0000		yes			*
Calcium, Total	mg/L	CBL-306I	08/23/2019	yes	226.0000					
Calcium, Total	mg/L	CBL-306I	01/29/2020	yes	247.0000					
Calcium, Total	mg/L	CBL-306I	09/19/2020	yes	260.0000					
Calcium, Total	mg/L	CBL-306I	01/28/2021	yes	257.0000					
Calcium, Total	mg/L	CBL-306I	07/21/2021	yes	216.0000					
Calcium, Total	mg/L	CBL-306I	01/27/2022	yes	212.0000					
Calcium, Total	mg/L	CBL-306I	07/28/2022	yes	182.0000					
Calcium, Total	mg/L	CBL-306I	01/26/2023		149.0000			214.8125		
Calcium, Total	mg/L	CBL-308I	01/22/2016	yes	903.0000					
Calcium, Total	mg/L	CBL-308I	05/04/2016	yes	870.0000					
Calcium, Total	mg/L	CBL-308I	07/26/2016	yes	911.0000					
Calcium, Total	mg/L	CBL-308I	10/24/2016	yes	939.0000					
Calcium, Total	mg/L	CBL-308I	01/19/2017	yes	919.0000					
Calcium, Total	mg/L	CBL-308I	03/22/2017	yes	947.0000					
Calcium, Total	mg/L	CBL-308I	05/16/2017	yes	954.0000					
Calcium, Total	mg/L	CBL-308I	07/26/2017	yes	878.0000					
Calcium, Total	mg/L	CBL-308I	02/06/2018	yes	859.0000					
Calcium, Total	mg/L	CBL-308I	07/25/2018	yes	863.0000					
Calcium, Total	mg/L	CBL-308I	01/18/2019	yes	760.0000					
Calcium, Total	mg/L	CBL-308I	07/31/2019	yes	840.0000					
Calcium, Total	mg/L	CBL-308I	01/29/2020	yes	745.0000					
Calcium, Total	mg/L	CBL-308I	09/18/2020	yes	838.0000					
Calcium, Total	mg/L	CBL-308I	01/28/2021	yes	830.0000					
Calcium, Total	mg/L	CBL-308I	07/21/2021	yes	684.0000					
Calcium, Total	mg/L	CBL-308I	01/27/2022	yes	974.0000					
Calcium, Total	mg/L	CBL-308I	07/27/2022	yes	736.0000					
Calcium, Total	mg/L	CBL-308I	01/26/2023		732.0000			858.3333		
Calcium, Total	mg/L	CBL-341I	01/23/2017	yes	854.0000					
Calcium, Total	mg/L	CBL-341I	02/23/2017	yes	870.0000					
Calcium, Total	mg/L	CBL-341I	03/22/2017	yes	906.0000					
Calcium, Total	mg/L	CBL-341I	04/20/2017	yes	898.0000					
Calcium, Total	mg/L	CBL-341I	05/16/2017	yes	860.0000					
Calcium, Total	mg/L	CBL-341I	06/20/2017	yes	950.0000					
Calcium, Total	mg/L	CBL-341I	07/27/2017	yes	829.0000					
Calcium, Total	mg/L	CBL-341I	09/11/2017	yes	848.0000					
Calcium, Total	mg/L	CBL-341I	02/08/2018	yes	810.0000					
Calcium, Total	mg/L	CBL-341I	08/24/2018	yes	824.0000					
Calcium, Total	mg/L	CBL-341I	01/22/2019	yes	782.0000					
Calcium, Total	mg/L	CBL-341I	07/31/2019	yes	714.0000					
Calcium, Total	mg/L	CBL-341I	01/30/2020	yes	767.0000					
Calcium, Total	mg/L	CBL-341I	09/17/2020	yes	814.0000					
Calcium, Total	mg/L	CBL-341I	01/27/2021	yes	874.0000					
Calcium, Total	mg/L	CBL-341I	07/22/2021	yes	852.0000					
Calcium, Total	mg/L	CBL-341I	01/27/2022	yes	1040.0000					
Calcium, Total	mg/L	CBL-341I	07/28/2022	yes	704.0000					
Calcium, Total	mg/L	CBL-341I	01/26/2023		797.0000			844.2222		
Chloride	mg/L	CBL-301I	01/21/2016	yes	2300.0000					
Chloride	mg/L	CBL-301I	05/04/2016	yes	2160.0000					
Chloride	mg/L	CBL-301I	07/27/2016	yes	2290.0000					

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Chloride	mg/L	CBL-301I	10/24/2016	yes	2250.0000					
Chloride	mg/L	CBL-301I	01/23/2017	yes	3200.0000					
Chloride	mg/L	CBL-301I	03/22/2017	yes	2390.0000					
Chloride	mg/L	CBL-301I	05/18/2017	yes	2420.0000					
Chloride	mg/L	CBL-301I	07/26/2017	yes	2500.0000					
Chloride	mg/L	CBL-301I	02/08/2018	yes	2480.0000					
Chloride	mg/L	CBL-301I	07/25/2018	yes	1330.0000					
Chloride	mg/L	CBL-301I	01/17/2019	yes	619.0000		yes			*
Chloride	mg/L	CBL-301I	05/02/2019	yes	1910.0000					
Chloride	mg/L	CBL-301I	07/31/2019	yes	2240.0000					
Chloride	mg/L	CBL-301I	01/28/2020	yes	2360.0000					
Chloride	mg/L	CBL-301I	09/17/2020	yes	2270.0000					
Chloride	mg/L	CBL-301I	01/26/2021	yes	2420.0000					
Chloride	mg/L	CBL-301I	07/20/2021	yes	2590.0000					
Chloride	mg/L	CBL-301I	01/26/2022	yes	2440.0000					
Chloride	mg/L	CBL-301I	07/27/2022	yes	1840.0000					
Chloride	mg/L	CBL-301I	01/25/2023		1960.0000			2299.4444		
Chloride	mg/L	CBL-302I	01/22/2016	yes	2190.0000					
Chloride	mg/L	CBL-302I	05/04/2016	yes	2130.0000					
Chloride	mg/L	CBL-302I	07/27/2016	yes	2210.0000					
Chloride	mg/L	CBL-302I	10/24/2016	yes	2170.0000					
Chloride	mg/L	CBL-302I	01/23/2017	yes	2080.0000					
Chloride	mg/L	CBL-302I	03/22/2017	yes	2050.0000					
Chloride	mg/L	CBL-302I	05/16/2017	yes	2230.0000					
Chloride	mg/L	CBL-302I	07/27/2017	yes	2040.0000					
Chloride	mg/L	CBL-302I	02/08/2018	yes	2080.0000					
Chloride	mg/L	CBL-302I	07/27/2018	yes	1980.0000					
Chloride	mg/L	CBL-302I	01/22/2019	yes	1960.0000					
Chloride	mg/L	CBL-302I	07/31/2019	yes	1540.0000					
Chloride	mg/L	CBL-302I	01/30/2020	yes	1540.0000					
Chloride	mg/L	CBL-302I	09/17/2020	yes	1410.0000					
Chloride	mg/L	CBL-302I	01/28/2021	yes	1370.0000					
Chloride	mg/L	CBL-302I	07/21/2021	yes	1380.0000					
Chloride	mg/L	CBL-302I	01/27/2022	yes	1310.0000					
Chloride	mg/L	CBL-302I	07/28/2022	yes	1300.0000					
Chloride	mg/L	CBL-302I	01/26/2023		1460.0000			1831.6667		
Chloride	mg/L	CBL-306I	01/21/2016	yes	155.0000					
Chloride	mg/L	CBL-306I	05/04/2016	yes	20.0000		yes			*
Chloride	mg/L	CBL-306I	07/26/2016	yes	114.0000		yes			*
Chloride	mg/L	CBL-306I	10/24/2016	yes	330.0000					
Chloride	mg/L	CBL-306I	01/19/2017	yes	197.0000					
Chloride	mg/L	CBL-306I	03/22/2017	yes	231.0000					
Chloride	mg/L	CBL-306I	05/18/2017	yes	289.0000					
Chloride	mg/L	CBL-306I	07/27/2017	yes	350.0000					
Chloride	mg/L	CBL-306I	02/08/2018	yes	385.0000					
Chloride	mg/L	CBL-306I	07/27/2018	yes	283.0000					
Chloride	mg/L	CBL-306I	01/16/2019	yes	215.0000					
Chloride	mg/L	CBL-306I	07/31/2019	yes	538.0000		yes			*
Chloride	mg/L	CBL-306I	08/23/2019	yes	318.0000					
Chloride	mg/L	CBL-306I	01/29/2020	yes	445.0000					

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Analytical Data and CUSUM Summary

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Chloride	mg/L	CBL-306I	09/19/2020	yes	420.0000					
Chloride	mg/L	CBL-306I	01/28/2021	yes	292.0000					
Chloride	mg/L	CBL-306I	07/21/2021	yes	255.0000					
Chloride	mg/L	CBL-306I	01/27/2022	yes	384.0000					
Chloride	mg/L	CBL-306I	07/28/2022	yes	261.0000					
Chloride	mg/L	CBL-306I	01/26/2023		148.0000			300.6250		
Chloride	mg/L	CBL-308I	01/22/2016	yes	2760.0000					
Chloride	mg/L	CBL-308I	05/04/2016	yes	2580.0000					
Chloride	mg/L	CBL-308I	07/26/2016	yes	2680.0000					
Chloride	mg/L	CBL-308I	10/24/2016	yes	2870.0000					
Chloride	mg/L	CBL-308I	01/19/2017	yes	2360.0000					
Chloride	mg/L	CBL-308I	03/22/2017	yes	2530.0000					
Chloride	mg/L	CBL-308I	05/16/2017	yes	2740.0000					
Chloride	mg/L	CBL-308I	07/26/2017	yes	2760.0000					
Chloride	mg/L	CBL-308I	02/06/2018	yes	2750.0000					
Chloride	mg/L	CBL-308I	07/25/2018	yes	2680.0000					
Chloride	mg/L	CBL-308I	01/18/2019	yes	2240.0000					
Chloride	mg/L	CBL-308I	07/31/2019	yes	2290.0000					
Chloride	mg/L	CBL-308I	01/29/2020	yes	2110.0000					
Chloride	mg/L	CBL-308I	09/18/2020	yes	2410.0000					
Chloride	mg/L	CBL-308I	01/28/2021	yes	2200.0000					
Chloride	mg/L	CBL-308I	07/21/2021	yes	1780.0000					
Chloride	mg/L	CBL-308I	01/27/2022	yes	2020.0000					
Chloride	mg/L	CBL-308I	07/27/2022	yes	2470.0000					
Chloride	mg/L	CBL-308I	01/26/2023		2570.0000			2457.2222		
Chloride	mg/L	CBL-341I	01/23/2017	yes	1600.0000					
Chloride	mg/L	CBL-341I	02/23/2017	yes	2000.0000					
Chloride	mg/L	CBL-341I	03/22/2017	yes	1780.0000					
Chloride	mg/L	CBL-341I	04/20/2017	yes	1770.0000					
Chloride	mg/L	CBL-341I	05/16/2017	yes	1900.0000					
Chloride	mg/L	CBL-341I	06/20/2017	yes	1820.0000					
Chloride	mg/L	CBL-341I	07/27/2017	yes	1970.0000					
Chloride	mg/L	CBL-341I	09/11/2017	yes	1710.0000					
Chloride	mg/L	CBL-341I	02/08/2018	yes	2110.0000					
Chloride	mg/L	CBL-341I	08/24/2018	yes	1910.0000					
Chloride	mg/L	CBL-341I	01/22/2019	yes	1790.0000					
Chloride	mg/L	CBL-341I	07/31/2019	yes	1650.0000					
Chloride	mg/L	CBL-341I	01/30/2020	yes	1780.0000					
Chloride	mg/L	CBL-341I	09/17/2020	yes	1700.0000					
Chloride	mg/L	CBL-341I	01/27/2021	yes	1800.0000					
Chloride	mg/L	CBL-341I	07/22/2021	yes	1750.0000					
Chloride	mg/L	CBL-341I	01/27/2022	yes	1810.0000					
Chloride	mg/L	CBL-341I	07/28/2022	yes	1690.0000					
Chloride	mg/L	CBL-341I	01/26/2023		1660.0000			1807.7778		
Fluoride	mg/L	CBL-301I	01/21/2016	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-301I	05/04/2016	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	07/27/2016	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	10/24/2016	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-301I	01/23/2017	yes	0.3120					
Fluoride	mg/L	CBL-301I	03/22/2017	yes	0.5000	ND				

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Fluoride	mg/L	CBL-301I	05/18/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	07/26/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	02/08/2018	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	07/25/2018	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	01/17/2019	yes	0.2190					
Fluoride	mg/L	CBL-301I	05/02/2019	yes	0.1120					
Fluoride	mg/L	CBL-301I	07/31/2019	yes	0.0510					
Fluoride	mg/L	CBL-301I	01/28/2020	yes	0.1300					
Fluoride	mg/L	CBL-301I	09/17/2020	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-301I	01/26/2021	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	07/20/2021	yes	2.6800					
Fluoride	mg/L	CBL-301I	09/07/2021	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	01/26/2022	yes	0.0500	ND			0.5000	***
Fluoride	mg/L	CBL-301I	07/27/2022	yes	0.1560					
Fluoride	mg/L	CBL-301I	01/25/2023		1.7200			1.3175		
Fluoride	mg/L	CBL-302I	01/22/2016	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-302I	05/04/2016	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	07/27/2016	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	10/24/2016	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-302I	01/23/2017	yes	0.3320					
Fluoride	mg/L	CBL-302I	03/22/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	05/16/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	07/27/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	02/08/2018	yes	0.1120					
Fluoride	mg/L	CBL-302I	07/27/2018	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	01/22/2019	yes	0.0402					
Fluoride	mg/L	CBL-302I	07/31/2019	yes	0.0605					
Fluoride	mg/L	CBL-302I	01/30/2020	yes	0.1930					
Fluoride	mg/L	CBL-302I	09/17/2020	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-302I	01/28/2021	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	07/21/2021	yes	2.2500					
Fluoride	mg/L	CBL-302I	09/07/2021	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-302I	01/27/2022	yes	0.0500	ND			0.5000	***
Fluoride	mg/L	CBL-302I	07/28/2022	yes	0.1650					
Fluoride	mg/L	CBL-302I	01/26/2023		0.5000	ND		0.4817		
Fluoride	mg/L	CBL-306I	01/21/2016	yes	2.5000					
Fluoride	mg/L	CBL-306I	05/04/2016	yes	1.0000					
Fluoride	mg/L	CBL-306I	07/26/2016	yes	1.3700					
Fluoride	mg/L	CBL-306I	10/24/2016	yes	2.3800					
Fluoride	mg/L	CBL-306I	01/19/2017	yes	1.8500					
Fluoride	mg/L	CBL-306I	03/22/2017	yes	12.6000		yes			*
Fluoride	mg/L	CBL-306I	05/18/2017	yes	2.2000					
Fluoride	mg/L	CBL-306I	07/27/2017	yes	2.9100					
Fluoride	mg/L	CBL-306I	02/08/2018	yes	2.8100					
Fluoride	mg/L	CBL-306I	07/27/2018	yes	2.9500					
Fluoride	mg/L	CBL-306I	01/16/2019	yes	1.9800					
Fluoride	mg/L	CBL-306I	07/31/2019	yes	9.2600		yes			*
Fluoride	mg/L	CBL-306I	08/23/2019	yes	2.6600					
Fluoride	mg/L	CBL-306I	01/29/2020	yes	2.8300					
Fluoride	mg/L	CBL-306I	09/19/2020	yes	2.7200					

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Fluoride	mg/L	CBL-306I	01/28/2021	yes	2.9000					
Fluoride	mg/L	CBL-306I	07/21/2021	yes	2.4200					
Fluoride	mg/L	CBL-306I	01/27/2022	yes	2.9900					
Fluoride	mg/L	CBL-306I	07/28/2022	yes	2.2600					
Fluoride	mg/L	CBL-306I	01/26/2023		1.9200			2.3959		
Fluoride	mg/L	CBL-308I	01/22/2016	yes	1.4900					
Fluoride	mg/L	CBL-308I	05/04/2016	yes	2.3000					
Fluoride	mg/L	CBL-308I	07/26/2016	yes	1.6400					
Fluoride	mg/L	CBL-308I	10/24/2016	yes	1.5900					
Fluoride	mg/L	CBL-308I	01/19/2017	yes	1.3300					
Fluoride	mg/L	CBL-308I	03/22/2017	yes	9.0500		yes			*
Fluoride	mg/L	CBL-308I	05/16/2017	yes	1.7000					
Fluoride	mg/L	CBL-308I	07/26/2017	yes	1.9000					
Fluoride	mg/L	CBL-308I	02/06/2018	yes	1.7600					
Fluoride	mg/L	CBL-308I	07/25/2018	yes	2.1000					
Fluoride	mg/L	CBL-308I	01/18/2019	yes	1.6800					
Fluoride	mg/L	CBL-308I	07/31/2019	yes	1.6200					
Fluoride	mg/L	CBL-308I	01/29/2020	yes	1.6000					
Fluoride	mg/L	CBL-308I	09/18/2020	yes	1.3300					
Fluoride	mg/L	CBL-308I	01/28/2021	yes	1.4400					
Fluoride	mg/L	CBL-308I	07/21/2021	yes	1.7400					
Fluoride	mg/L	CBL-308I	01/27/2022	yes	1.7500					
Fluoride	mg/L	CBL-308I	07/27/2022	yes	1.4300					
Fluoride	mg/L	CBL-308I	01/26/2023		0.5000	ND		1.6706		
Fluoride	mg/L	CBL-341I	01/23/2017	yes	0.5300					
Fluoride	mg/L	CBL-341I	02/23/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-341I	03/22/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-341I	04/20/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-341I	05/16/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-341I	06/20/2017	yes	0.3350					
Fluoride	mg/L	CBL-341I	07/27/2017	yes	0.0550					
Fluoride	mg/L	CBL-341I	09/11/2017	yes	0.3670					
Fluoride	mg/L	CBL-341I	02/08/2018	yes	0.1060					
Fluoride	mg/L	CBL-341I	08/24/2018	yes	0.1140					
Fluoride	mg/L	CBL-341I	01/22/2019	yes	0.0546					
Fluoride	mg/L	CBL-341I	07/31/2019	yes	0.1000					
Fluoride	mg/L	CBL-341I	01/30/2020	yes	0.1530					
Fluoride	mg/L	CBL-341I	09/17/2020	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-341I	01/27/2021	yes	0.5000	ND				
Fluoride	mg/L	CBL-341I	07/22/2021	yes	1.1600					
Fluoride	mg/L	CBL-341I	09/07/2021	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-341I	01/27/2022	yes	0.0500	ND			0.5000	***
Fluoride	mg/L	CBL-341I	07/28/2022	yes	0.1410					
Fluoride	mg/L	CBL-341I	01/26/2023		0.2500	ND		0.3745		
pH	S.U.	CBL-301I	01/21/2016	yes	6.3300					
pH	S.U.	CBL-301I	05/04/2016	yes	6.2600					
pH	S.U.	CBL-301I	07/27/2016	yes	5.9500					
pH	S.U.	CBL-301I	10/24/2016	yes	6.2300					
pH	S.U.	CBL-301I	01/23/2017	yes	6.2600					
pH	S.U.	CBL-301I	03/22/2017	yes	6.3100					

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Table 2

Analytical Data and CUSUM Summary

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pH	S.U.	CBL-301I	05/18/2017	yes	5.9500					
pH	S.U.	CBL-301I	07/26/2017	yes	6.0200					
pH	S.U.	CBL-301I	02/08/2018	yes	6.1700					
pH	S.U.	CBL-301I	07/25/2018	yes	6.0400					
pH	S.U.	CBL-301I	01/17/2019	yes	7.1600					
pH	S.U.	CBL-301I	05/02/2019	yes	6.1400					
pH	S.U.	CBL-301I	07/31/2019	yes	6.1900					
pH	S.U.	CBL-301I	01/28/2020	yes	6.2600					
pH	S.U.	CBL-301I	09/17/2020	yes	6.1300					
pH	S.U.	CBL-301I	01/26/2021	yes	6.0600					
pH	S.U.	CBL-301I	07/20/2021	yes	6.1300					
pH	S.U.	CBL-301I	09/07/2021	yes	6.1400					
pH	S.U.	CBL-301I	01/26/2022	yes	6.2700					
pH	S.U.	CBL-301I	07/27/2022	yes	6.0800					
pH	S.U.	CBL-301I	08/30/2022	yes	6.1400					
pH	S.U.	CBL-301I	10/25/2022	yes	6.2100					
pH	S.U.	CBL-301I	01/25/2023		6.3400			6.2014		
pH	S.U.	CBL-302I	01/22/2016	yes	6.2900					
pH	S.U.	CBL-302I	05/04/2016	yes	6.0100					
pH	S.U.	CBL-302I	07/27/2016	yes	5.1700					
pH	S.U.	CBL-302I	10/24/2016	yes	7.7500					
pH	S.U.	CBL-302I	01/23/2017	yes	5.3600					
pH	S.U.	CBL-302I	03/22/2017	yes	5.4000					
pH	S.U.	CBL-302I	05/16/2017	yes	4.9400					
pH	S.U.	CBL-302I	07/27/2017	yes	6.2000					
pH	S.U.	CBL-302I	02/08/2018	yes	6.2100					
pH	S.U.	CBL-302I	07/27/2018	yes	5.7700					
pH	S.U.	CBL-302I	01/22/2019	yes	6.4400					
pH	S.U.	CBL-302I	07/31/2019	yes	6.1500					
pH	S.U.	CBL-302I	01/30/2020	yes	6.3400					
pH	S.U.	CBL-302I	09/17/2020	yes	6.2000					
pH	S.U.	CBL-302I	01/28/2021	yes	6.2100					
pH	S.U.	CBL-302I	07/21/2021	yes	6.0600					
pH	S.U.	CBL-302I	09/07/2021	yes	6.2800					
pH	S.U.	CBL-302I	01/27/2022	yes	6.3200					
pH	S.U.	CBL-302I	07/28/2022	yes	6.2100					
pH	S.U.	CBL-302I	01/26/2023		6.3300			6.0689		
pH	S.U.	CBL-306I	01/21/2016	yes	7.0900					
pH	S.U.	CBL-306I	05/04/2016	yes	6.6900					
pH	S.U.	CBL-306I	07/26/2016	yes	6.9500					
pH	S.U.	CBL-306I	10/24/2016	yes	6.7200					
pH	S.U.	CBL-306I	01/19/2017	yes	7.2900					
pH	S.U.	CBL-306I	03/22/2017	yes	4.4100					
pH	S.U.	CBL-306I	05/18/2017	yes	5.6100					
pH	S.U.	CBL-306I	07/27/2017	yes	6.9400					
pH	S.U.	CBL-306I	02/08/2018	yes	6.6700					
pH	S.U.	CBL-306I	07/27/2018	yes	6.8600					
pH	S.U.	CBL-306I	01/16/2019	yes	6.7800					
pH	S.U.	CBL-306I	07/31/2019	yes	6.9200		yes			*
pH	S.U.	CBL-306I	08/23/2019	yes	6.8300					

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
pH	S.U.	CBL-306I	01/29/2020	yes	6.7000					
pH	S.U.	CBL-306I	09/19/2020	yes	7.1600					
pH	S.U.	CBL-306I	01/28/2021	yes	6.8400					
pH	S.U.	CBL-306I	07/21/2021	yes	6.5500					
pH	S.U.	CBL-306I	01/27/2022	yes	6.8700					
pH	S.U.	CBL-306I	07/28/2022	yes	6.7000					
pH	S.U.	CBL-306I	01/26/2023		7.3000			6.8073		
pH	S.U.	CBL-308I	01/22/2016	yes	6.3600					
pH	S.U.	CBL-308I	05/04/2016	yes	6.1300					
pH	S.U.	CBL-308I	07/26/2016	yes	5.9500					
pH	S.U.	CBL-308I	10/24/2016	yes	6.2700					
pH	S.U.	CBL-308I	01/19/2017	yes	6.8300					
pH	S.U.	CBL-308I	03/22/2017	yes	6.2700					
pH	S.U.	CBL-308I	05/16/2017	yes	5.5400					
pH	S.U.	CBL-308I	07/26/2017	yes	6.2700					
pH	S.U.	CBL-308I	02/06/2018	yes	6.2600					
pH	S.U.	CBL-308I	07/25/2018	yes	6.0700					
pH	S.U.	CBL-308I	01/18/2019	yes	6.3900					
pH	S.U.	CBL-308I	07/31/2019	yes	6.2500					
pH	S.U.	CBL-308I	01/29/2020	yes	6.3700					
pH	S.U.	CBL-308I	09/18/2020	yes	6.2200					
pH	S.U.	CBL-308I	01/28/2021	yes	6.2600					
pH	S.U.	CBL-308I	07/21/2021	yes	6.1600					
pH	S.U.	CBL-308I	01/27/2022	yes	6.3600					
pH	S.U.	CBL-308I	07/27/2022	yes	6.2300					
pH	S.U.	CBL-308I	01/26/2023		6.4100			6.2328		
pH	S.U.	CBL-341I	01/23/2017	yes	5.7400					
pH	S.U.	CBL-341I	02/23/2017	yes	5.2300		yes			*
pH	S.U.	CBL-341I	03/22/2017	yes	5.7200					
pH	S.U.	CBL-341I	04/20/2017	yes	5.7300					
pH	S.U.	CBL-341I	05/16/2017	yes	5.5400					
pH	S.U.	CBL-341I	06/20/2017	yes	6.1900					
pH	S.U.	CBL-341I	07/27/2017	yes	6.2100					
pH	S.U.	CBL-341I	09/11/2017	yes	6.1000					
pH	S.U.	CBL-341I	02/08/2018	yes	6.1800					
pH	S.U.	CBL-341I	08/24/2018	yes	5.8200					
pH	S.U.	CBL-341I	01/22/2019	yes	6.3800					
pH	S.U.	CBL-341I	07/31/2019	yes	6.2300					
pH	S.U.	CBL-341I	01/30/2020	yes	6.2700					
pH	S.U.	CBL-341I	09/17/2020	yes	6.1400					
pH	S.U.	CBL-341I	01/27/2021	yes	6.0600					
pH	S.U.	CBL-341I	07/22/2021	yes	5.9800					
pH	S.U.	CBL-341I	09/07/2021	yes	6.1800					
pH	S.U.	CBL-341I	01/27/2022	yes	6.2600					
pH	S.U.	CBL-341I	07/28/2022	yes	6.1600					
pH	S.U.	CBL-341I	01/26/2023		6.2800			6.1017		
Sulfate	mg/L	CBL-301I	01/21/2016	yes	336.0000					
Sulfate	mg/L	CBL-301I	05/04/2016	yes	311.0000					
Sulfate	mg/L	CBL-301I	07/27/2016	yes	336.0000					
Sulfate	mg/L	CBL-301I	10/24/2016	yes	326.0000					

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Analytical Data and CUSUM Summary

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Sulfate	mg/L	CBL-301I	01/23/2017	yes	488.0000					
Sulfate	mg/L	CBL-301I	03/22/2017	yes	337.0000					
Sulfate	mg/L	CBL-301I	05/18/2017	yes	342.0000					
Sulfate	mg/L	CBL-301I	07/26/2017	yes	381.0000					
Sulfate	mg/L	CBL-301I	02/08/2018	yes	344.0000					
Sulfate	mg/L	CBL-301I	07/25/2018	yes	196.0000					
Sulfate	mg/L	CBL-301I	01/17/2019	yes	104.0000		yes			*
Sulfate	mg/L	CBL-301I	05/02/2019	yes	398.0000					
Sulfate	mg/L	CBL-301I	07/31/2019	yes	332.0000					
Sulfate	mg/L	CBL-301I	01/28/2020	yes	349.0000					
Sulfate	mg/L	CBL-301I	09/17/2020	yes	350.0000					
Sulfate	mg/L	CBL-301I	01/26/2021	yes	374.0000					
Sulfate	mg/L	CBL-301I	07/20/2021	yes	419.0000					
Sulfate	mg/L	CBL-301I	01/26/2022	yes	406.0000					
Sulfate	mg/L	CBL-301I	07/27/2022	yes	285.0000					
Sulfate	mg/L	CBL-301I	01/25/2023		1370.0000			1324.7798		**
Sulfate	mg/L	CBL-302I	01/22/2016	yes	1020.0000					
Sulfate	mg/L	CBL-302I	05/04/2016	yes	993.0000					
Sulfate	mg/L	CBL-302I	07/27/2016	yes	1090.0000					
Sulfate	mg/L	CBL-302I	10/24/2016	yes	1180.0000					
Sulfate	mg/L	CBL-302I	01/23/2017	yes	1150.0000					
Sulfate	mg/L	CBL-302I	03/22/2017	yes	1120.0000					
Sulfate	mg/L	CBL-302I	05/16/2017	yes	1230.0000					
Sulfate	mg/L	CBL-302I	07/27/2017	yes	1180.0000					
Sulfate	mg/L	CBL-302I	02/08/2018	yes	1240.0000					
Sulfate	mg/L	CBL-302I	07/27/2018	yes	1390.0000					
Sulfate	mg/L	CBL-302I	01/22/2019	yes	1250.0000					
Sulfate	mg/L	CBL-302I	07/31/2019	yes	1260.0000					
Sulfate	mg/L	CBL-302I	01/30/2020	yes	1350.0000					
Sulfate	mg/L	CBL-302I	09/17/2020	yes	1280.0000					
Sulfate	mg/L	CBL-302I	01/28/2021	yes	1290.0000					
Sulfate	mg/L	CBL-302I	07/21/2021	yes	1350.0000					
Sulfate	mg/L	CBL-302I	01/27/2022	yes	1340.0000					
Sulfate	mg/L	CBL-302I	07/28/2022	yes	1300.0000					
Sulfate	mg/L	CBL-302I	01/26/2023		1390.0000			1304.4147		
Sulfate	mg/L	CBL-306I	01/21/2016	yes	266.0000					
Sulfate	mg/L	CBL-306I	05/04/2016	yes	29.5000		yes			*
Sulfate	mg/L	CBL-306I	07/26/2016	yes	139.0000					
Sulfate	mg/L	CBL-306I	10/24/2016	yes	432.0000					
Sulfate	mg/L	CBL-306I	01/19/2017	yes	270.0000					
Sulfate	mg/L	CBL-306I	03/22/2017	yes	340.0000					
Sulfate	mg/L	CBL-306I	05/18/2017	yes	412.0000					
Sulfate	mg/L	CBL-306I	07/27/2017	yes	513.0000					
Sulfate	mg/L	CBL-306I	02/08/2018	yes	493.0000					
Sulfate	mg/L	CBL-306I	07/27/2018	yes	406.0000					
Sulfate	mg/L	CBL-306I	01/16/2019	yes	292.0000					
Sulfate	mg/L	CBL-306I	07/31/2019	yes	816.0000		yes			*
Sulfate	mg/L	CBL-306I	08/23/2019	yes	387.0000					
Sulfate	mg/L	CBL-306I	01/29/2020	yes	561.0000					
Sulfate	mg/L	CBL-306I	09/19/2020	yes	506.0000					

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**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Sulfate	mg/L	CBL-306I	01/28/2021	yes	388.0000					
Sulfate	mg/L	CBL-306I	07/21/2021	yes	336.0000					
Sulfate	mg/L	CBL-306I	01/27/2022	yes	510.0000					
Sulfate	mg/L	CBL-306I	07/28/2022	yes	348.0000					
Sulfate	mg/L	CBL-306I	01/26/2023		205.0000			388.1765		
Sulfate	mg/L	CBL-308I	01/22/2016	yes	1490.0000					
Sulfate	mg/L	CBL-308I	05/04/2016	yes	1410.0000					
Sulfate	mg/L	CBL-308I	07/26/2016	yes	1490.0000					
Sulfate	mg/L	CBL-308I	10/24/2016	yes	1550.0000					
Sulfate	mg/L	CBL-308I	01/19/2017	yes	1320.0000					
Sulfate	mg/L	CBL-308I	03/22/2017	yes	1470.0000					
Sulfate	mg/L	CBL-308I	05/16/2017	yes	1580.0000					
Sulfate	mg/L	CBL-308I	07/26/2017	yes	1550.0000					
Sulfate	mg/L	CBL-308I	02/06/2018	yes	1570.0000					
Sulfate	mg/L	CBL-308I	07/25/2018	yes	1540.0000					
Sulfate	mg/L	CBL-308I	01/18/2019	yes	1520.0000					
Sulfate	mg/L	CBL-308I	07/31/2019	yes	1420.0000					
Sulfate	mg/L	CBL-308I	01/29/2020	yes	1340.0000					
Sulfate	mg/L	CBL-308I	09/18/2020	yes	1310.0000					
Sulfate	mg/L	CBL-308I	01/28/2021	yes	1340.0000					
Sulfate	mg/L	CBL-308I	07/21/2021	yes	1240.0000					
Sulfate	mg/L	CBL-308I	01/27/2022	yes	1310.0000					
Sulfate	mg/L	CBL-308I	07/27/2022	yes	1190.0000					
Sulfate	mg/L	CBL-308I	01/26/2023		445.0000			1424.4444		
Sulfate	mg/L	CBL-341I	01/23/2017	yes	307.0000					
Sulfate	mg/L	CBL-341I	02/23/2017	yes	404.0000					
Sulfate	mg/L	CBL-341I	03/22/2017	yes	346.0000					
Sulfate	mg/L	CBL-341I	04/20/2017	yes	336.0000					
Sulfate	mg/L	CBL-341I	05/16/2017	yes	369.0000					
Sulfate	mg/L	CBL-341I	06/20/2017	yes	363.0000					
Sulfate	mg/L	CBL-341I	07/27/2017	yes	419.0000					
Sulfate	mg/L	CBL-341I	09/11/2017	yes	354.0000					
Sulfate	mg/L	CBL-341I	02/08/2018	yes	383.0000					
Sulfate	mg/L	CBL-341I	08/24/2018	yes	376.0000					
Sulfate	mg/L	CBL-341I	01/22/2019	yes	358.0000					
Sulfate	mg/L	CBL-341I	07/31/2019	yes	329.0000					
Sulfate	mg/L	CBL-341I	01/30/2020	yes	351.0000					
Sulfate	mg/L	CBL-341I	09/17/2020	yes	336.0000					
Sulfate	mg/L	CBL-341I	01/27/2021	yes	324.0000					
Sulfate	mg/L	CBL-341I	07/22/2021	yes	316.0000					
Sulfate	mg/L	CBL-341I	01/27/2022	yes	320.0000					
Sulfate	mg/L	CBL-341I	07/28/2022	yes	296.0000					
Sulfate	mg/L	CBL-341I	01/26/2023		309.0000			349.2778		
Total Dissolved Solids	mg/L	CBL-301I	01/21/2016	yes	4380.0000					
Total Dissolved Solids	mg/L	CBL-301I	05/04/2016	yes	5050.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/27/2016	yes	6020.0000					
Total Dissolved Solids	mg/L	CBL-301I	10/24/2016	yes	4570.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/23/2017	yes	6140.0000					
Total Dissolved Solids	mg/L	CBL-301I	03/22/2017	yes	6570.0000					
Total Dissolved Solids	mg/L	CBL-301I	05/18/2017	yes	6430.0000					

* - Outlier for that well and constituent.
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**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Total Dissolved Solids	mg/L	CBL-301I	07/26/2017	yes	4290.0000					
Total Dissolved Solids	mg/L	CBL-301I	02/08/2018	yes	5120.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/25/2018	yes	5390.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/17/2019	yes	1460.0000		yes			*
Total Dissolved Solids	mg/L	CBL-301I	05/02/2019	yes	5650.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/31/2019	yes	6040.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/28/2020	yes	4790.0000					
Total Dissolved Solids	mg/L	CBL-301I	09/17/2020	yes	6340.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/26/2021	yes	6060.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/20/2021	yes	5870.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/26/2022	yes	4700.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/27/2022	yes	4590.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/25/2023		5160.0000			5444.4444		
Total Dissolved Solids	mg/L	CBL-302I	01/22/2016	yes	5500.0000					
Total Dissolved Solids	mg/L	CBL-302I	05/04/2016	yes	5390.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/27/2016	yes	6850.0000					
Total Dissolved Solids	mg/L	CBL-302I	10/24/2016	yes	4210.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/23/2017	yes	6430.0000					
Total Dissolved Solids	mg/L	CBL-302I	03/22/2017	yes	6460.0000					
Total Dissolved Solids	mg/L	CBL-302I	05/16/2017	yes	5860.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/27/2017	yes	5120.0000					
Total Dissolved Solids	mg/L	CBL-302I	02/08/2018	yes	6010.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/27/2018	yes	5510.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/22/2019	yes	5060.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/31/2019	yes	4190.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/30/2020	yes	4790.0000					
Total Dissolved Solids	mg/L	CBL-302I	09/17/2020	yes	4990.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/28/2021	yes	4800.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/21/2021	yes	4810.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/27/2022	yes	4510.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/28/2022	yes	5120.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/26/2023		4930.0000			5311.6667		
Total Dissolved Solids	mg/L	CBL-306I	01/21/2016	yes	1280.0000					
Total Dissolved Solids	mg/L	CBL-306I	05/04/2016	yes	431.0000		yes			*
Total Dissolved Solids	mg/L	CBL-306I	07/26/2016	yes	790.0000					
Total Dissolved Solids	mg/L	CBL-306I	10/24/2016	yes	1150.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/19/2017	yes	1320.0000					
Total Dissolved Solids	mg/L	CBL-306I	03/22/2017	yes	1460.0000					
Total Dissolved Solids	mg/L	CBL-306I	05/18/2017	yes	1440.0000					
Total Dissolved Solids	mg/L	CBL-306I	07/27/2017	yes	1280.0000					
Total Dissolved Solids	mg/L	CBL-306I	02/08/2018	yes	1760.0000					
Total Dissolved Solids	mg/L	CBL-306I	07/27/2018	yes	1450.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/16/2019	yes	1220.0000					
Total Dissolved Solids	mg/L	CBL-306I	07/31/2019	yes	676.0000		yes			*
Total Dissolved Solids	mg/L	CBL-306I	08/23/2019	yes	1710.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/29/2020	yes	1830.0000					
Total Dissolved Solids	mg/L	CBL-306I	09/19/2020	yes	1730.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/28/2021	yes	1420.0000					
Total Dissolved Solids	mg/L	CBL-306I	07/21/2021	yes	1320.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/27/2022	yes	1730.0000					

* - Outlier for that well and constituent.
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ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Total Dissolved Solids	mg/L	CBL-306I	07/28/2022	yes	1540.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/26/2023		1000.0000			1437.0588		
Total Dissolved Solids	mg/L	CBL-308I	01/22/2016	yes	6820.0000					
Total Dissolved Solids	mg/L	CBL-308I	05/04/2016	yes	6120.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/26/2016	yes	7890.0000					
Total Dissolved Solids	mg/L	CBL-308I	10/24/2016	yes	10200.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/19/2017	yes	9620.0000					
Total Dissolved Solids	mg/L	CBL-308I	03/22/2017	yes	7260.0000					
Total Dissolved Solids	mg/L	CBL-308I	05/16/2017	yes	6590.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/26/2017	yes	6480.0000					
Total Dissolved Solids	mg/L	CBL-308I	02/06/2018	yes	6200.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/25/2018	yes	6320.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/18/2019	yes	4760.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/31/2019	yes	5820.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/29/2020	yes	5980.0000					
Total Dissolved Solids	mg/L	CBL-308I	09/18/2020	yes	6860.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/28/2021	yes	6190.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/21/2021	yes	5270.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/27/2022	yes	5320.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/27/2022	yes	6840.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/26/2023		5810.0000			6696.6667		
Total Dissolved Solids	mg/L	CBL-341I	01/23/2017	yes	5000.0000					
Total Dissolved Solids	mg/L	CBL-341I	02/23/2017	yes	4520.0000					
Total Dissolved Solids	mg/L	CBL-341I	03/22/2017	yes	5110.0000					
Total Dissolved Solids	mg/L	CBL-341I	04/20/2017	yes	4240.0000					
Total Dissolved Solids	mg/L	CBL-341I	05/16/2017	yes	4840.0000					
Total Dissolved Solids	mg/L	CBL-341I	06/20/2017	yes	5940.0000					
Total Dissolved Solids	mg/L	CBL-341I	07/27/2017	yes	4150.0000					
Total Dissolved Solids	mg/L	CBL-341I	09/11/2017	yes	4860.0000					
Total Dissolved Solids	mg/L	CBL-341I	02/08/2018	yes	4320.0000					
Total Dissolved Solids	mg/L	CBL-341I	08/24/2018	yes	4800.0000					
Total Dissolved Solids	mg/L	CBL-341I	01/22/2019	yes	3870.0000					
Total Dissolved Solids	mg/L	CBL-341I	07/31/2019	yes	5370.0000					
Total Dissolved Solids	mg/L	CBL-341I	01/30/2020	yes	4900.0000					
Total Dissolved Solids	mg/L	CBL-341I	09/17/2020	yes	4930.0000					
Total Dissolved Solids	mg/L	CBL-341I	01/27/2021	yes	3940.0000					
Total Dissolved Solids	mg/L	CBL-341I	07/22/2021	yes	4520.0000					
Total Dissolved Solids	mg/L	CBL-341I	01/27/2022	yes	3800.0000					
Total Dissolved Solids	mg/L	CBL-341I	07/28/2022	yes	4910.0000					
Total Dissolved Solids	mg/L	CBL-341I	01/26/2023		4390.0000			4667.7778		

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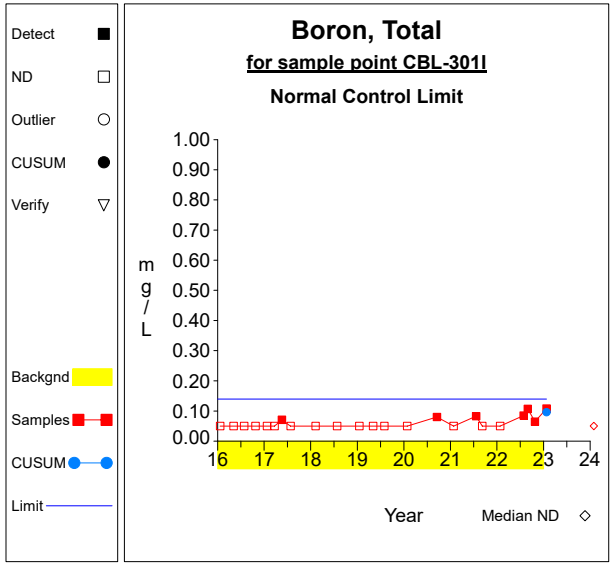
Table 4

Dixon's Test Outliers
1% Significance Level

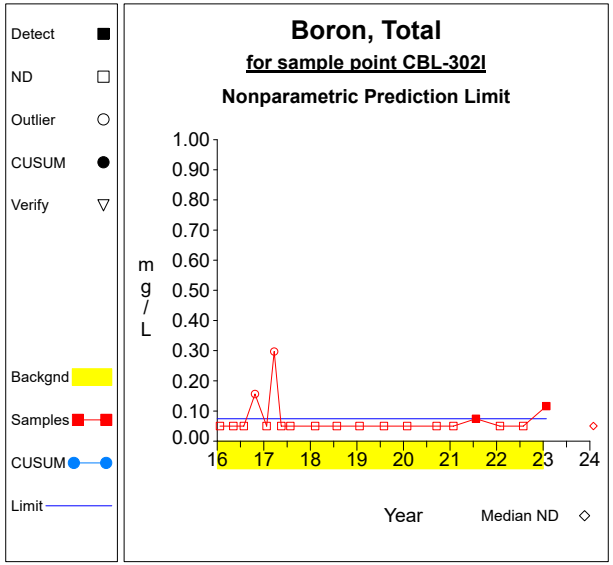
Constituent	Units	Well	Date	Result	ND Qualifier	Date Range	N	Critical Value
Boron, Total	mg/L	CBL-302I	10/24/2016	0.1560		01/22/2016-07/28/2022	18	0.5798
Boron, Total	mg/L	CBL-302I	03/22/2017	0.2970		01/22/2016-07/28/2022	18	0.5798
Calcium, Total	mg/L	CBL-301I	01/17/2019	156.0000		01/21/2016-07/27/2022	19	0.5503
Chloride	mg/L	CBL-301I	01/17/2019	619.0000		01/21/2016-07/27/2022	19	0.5503
Chloride	mg/L	CBL-306I	05/04/2016	20.0000		01/21/2016-07/28/2022	17	0.5798
Fluoride	mg/L	CBL-306I	03/22/2017	12.6000		01/21/2016-07/28/2022	18	0.5643
Fluoride	mg/L	CBL-308I	03/22/2017	9.0500		01/22/2016-07/27/2022	18	0.5643
Sulfate	mg/L	CBL-301I	01/17/2019	104.0000		01/21/2016-07/27/2022	19	0.5503
Sulfate	mg/L	CBL-306I	05/04/2016	29.5000		01/21/2016-07/28/2022	18	0.5643
Total Dissolved Solids	mg/L	CBL-301I	01/17/2019	1460.0000		01/21/2016-07/27/2022	19	0.5503
Total Dissolved Solids	mg/L	CBL-306I	05/04/2016	431.0000		01/21/2016-07/28/2022	18	0.5643

N = Total number of independent measurements in background at each well.
Date Range = Dates of the first and last measurements included in background at each well.
Critical Value depends on the significance level and on N-1 when the two most extreme values are tested or N for the most extreme value.

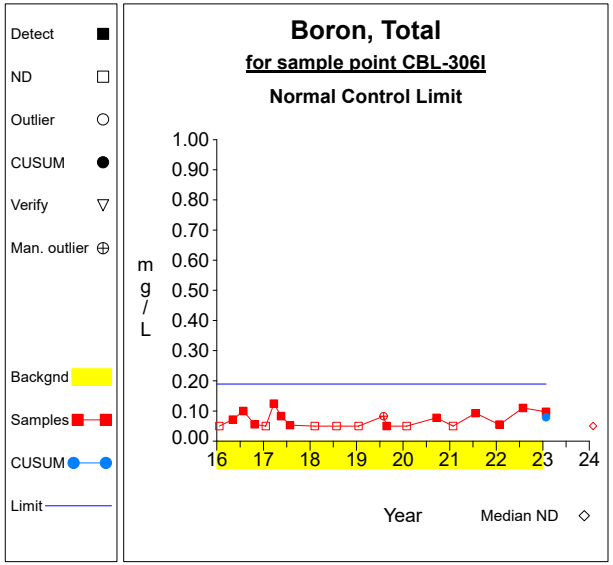
Intra-Well Control Charts / Prediction Limits



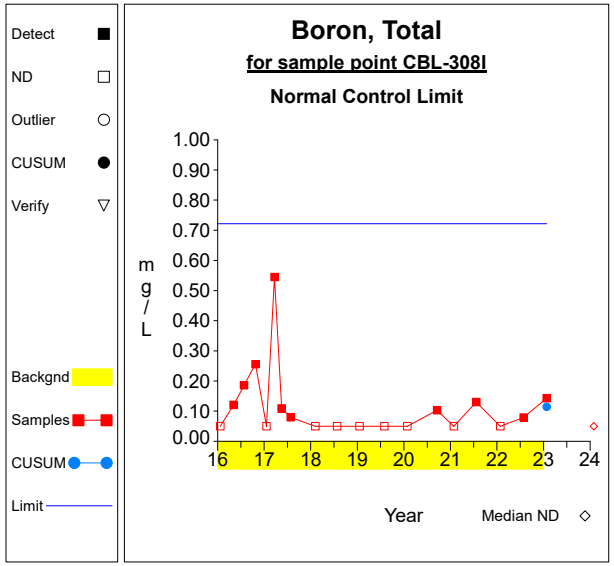
Graph 1



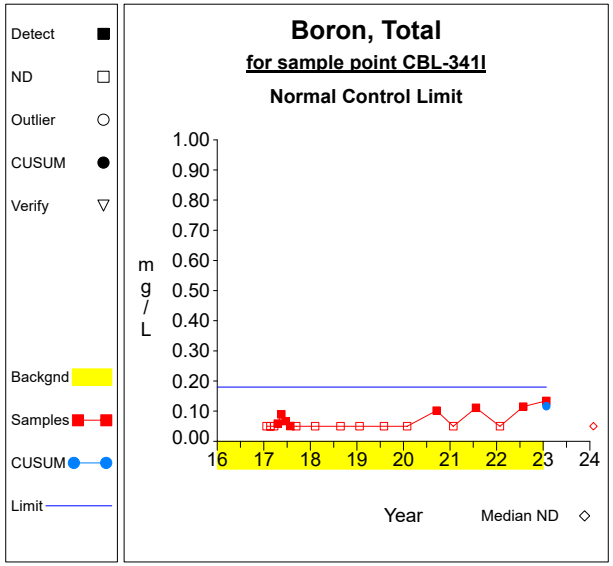
Graph 2



Graph 3

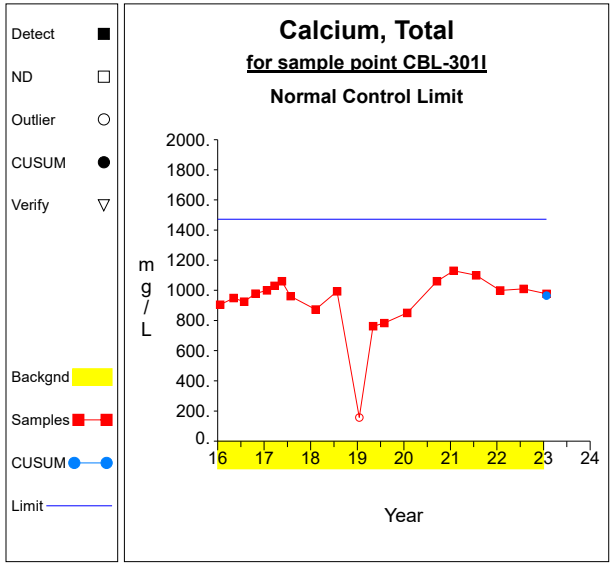


Graph 4

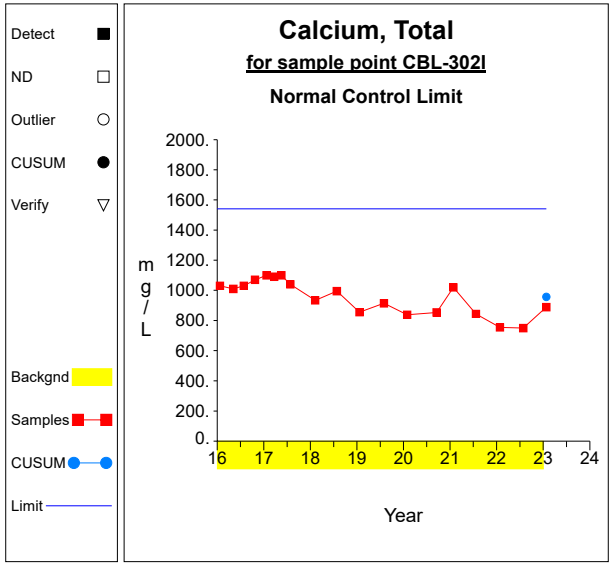


Graph 5

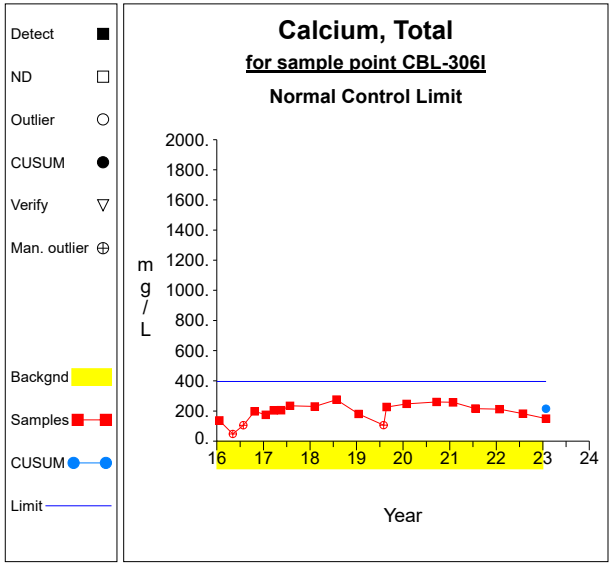
Intra-Well Control Charts / Prediction Limits



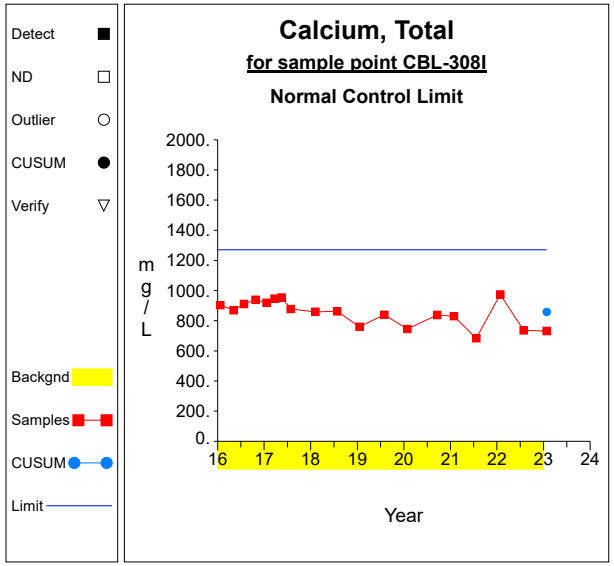
Graph 6



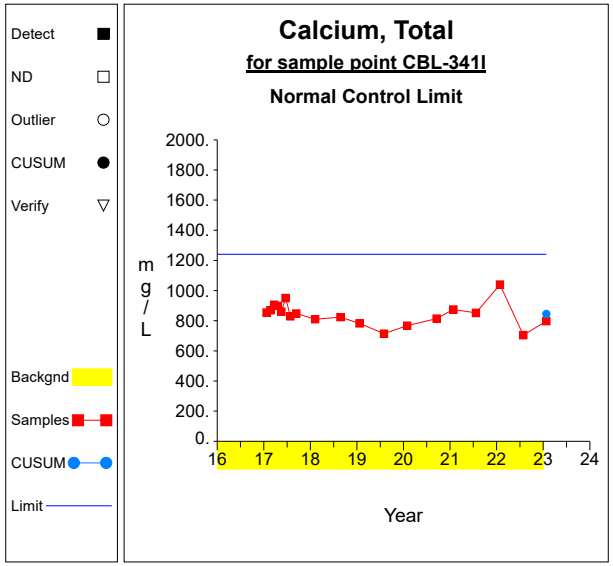
Graph 7



Graph 8

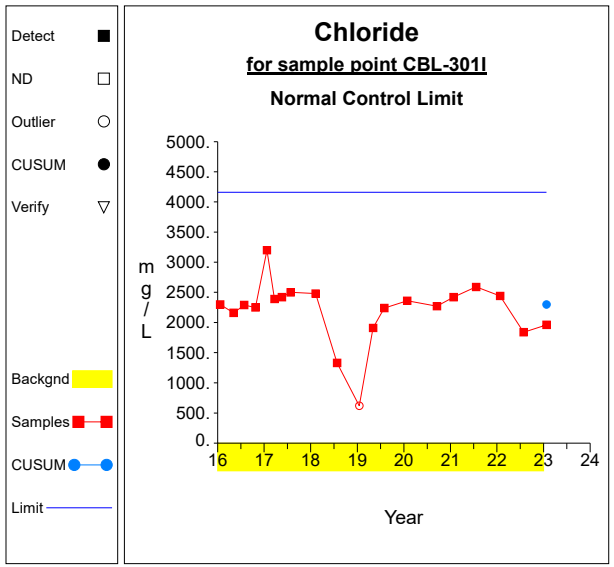


Graph 9

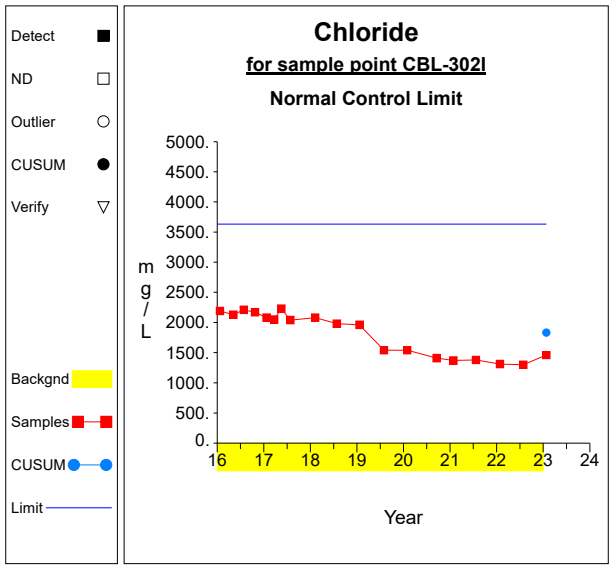


Graph 10

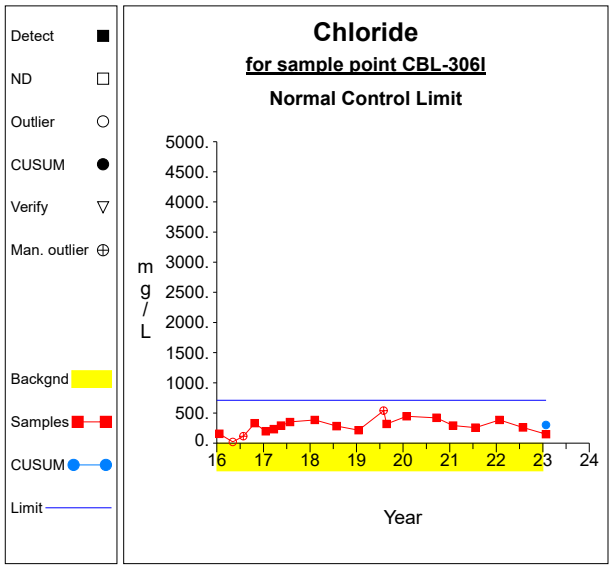
Intra-Well Control Charts / Prediction Limits



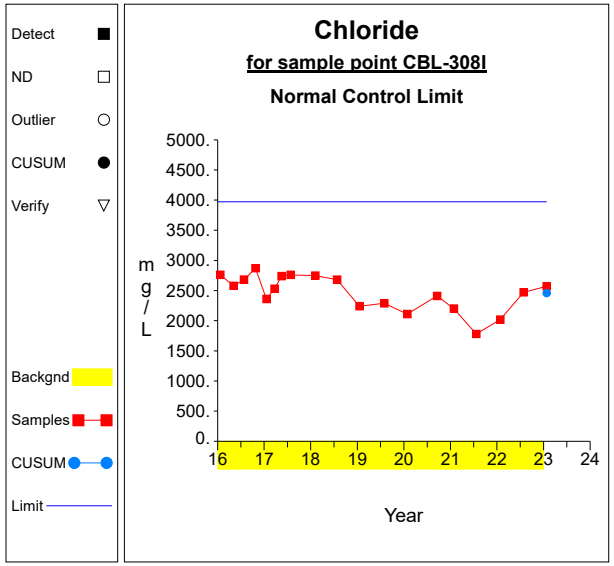
Graph 11



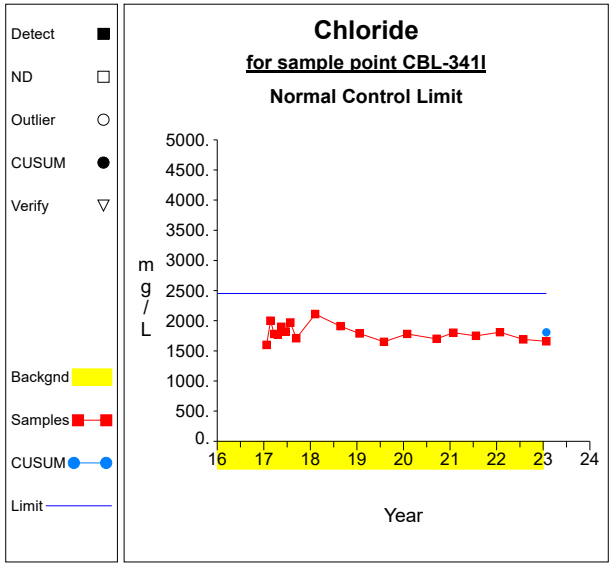
Graph 12



Graph 13

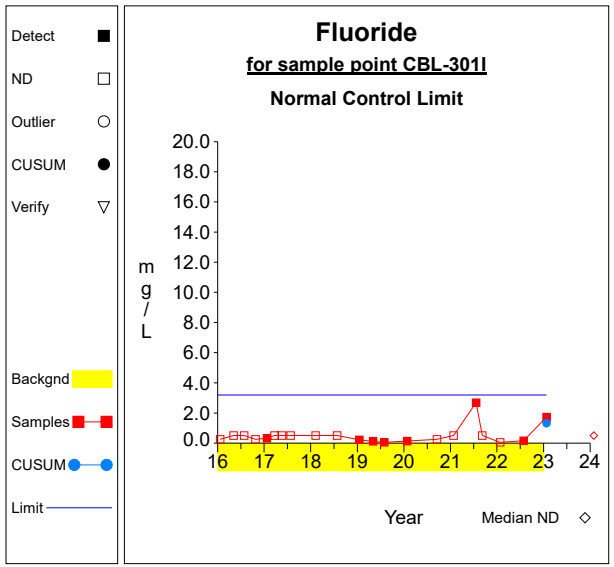


Graph 14

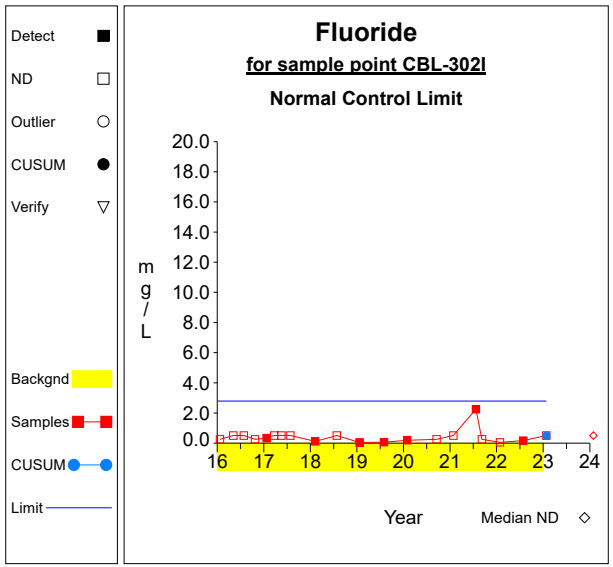


Graph 15

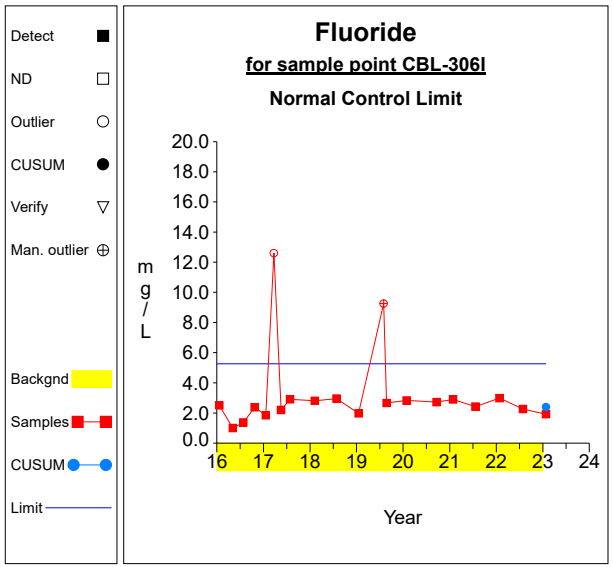
Intra-Well Control Charts / Prediction Limits



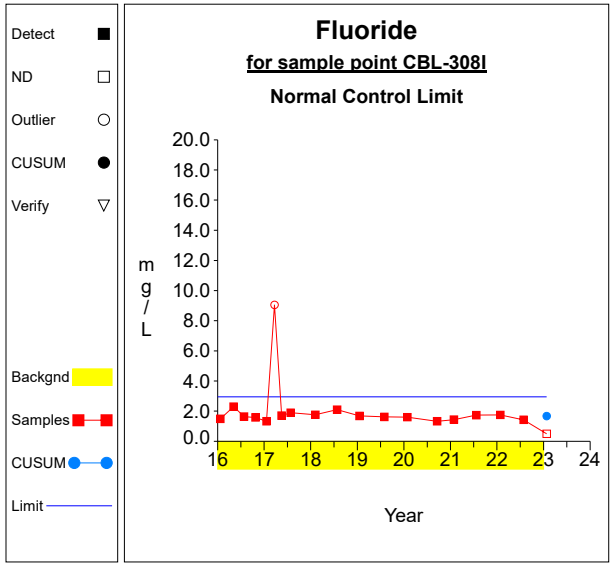
Graph 16



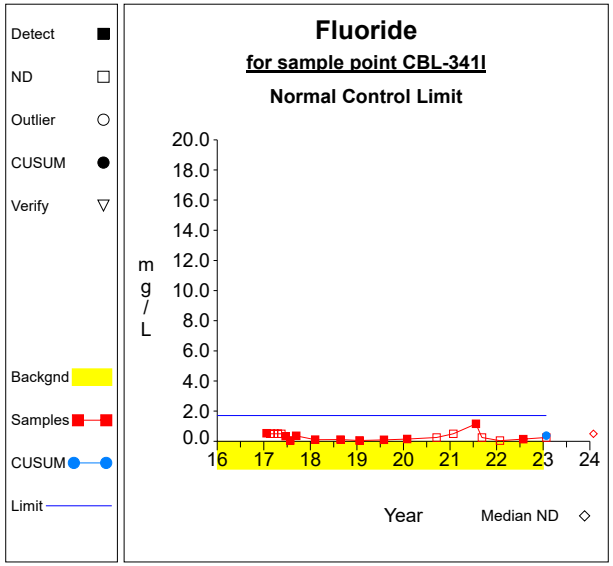
Graph 17



Graph 18

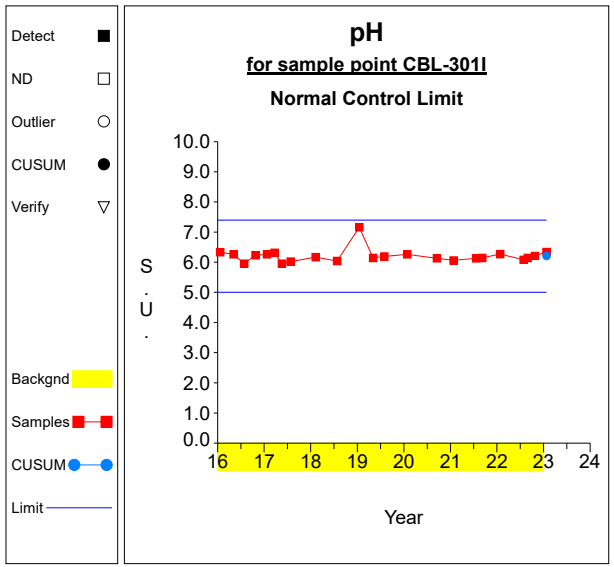


Graph 19

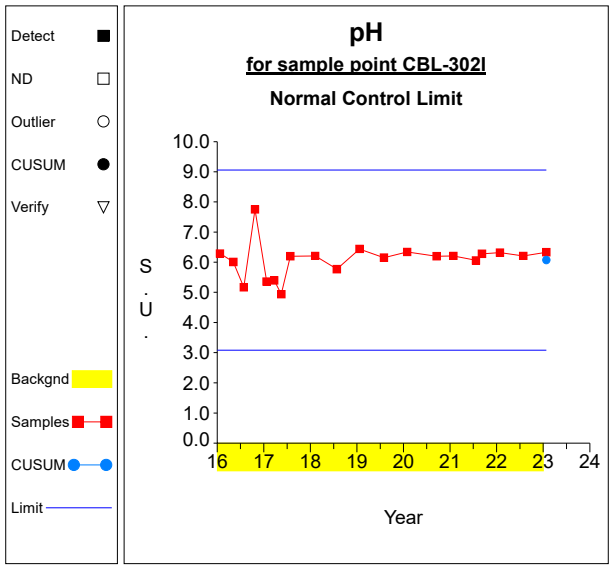


Graph 20

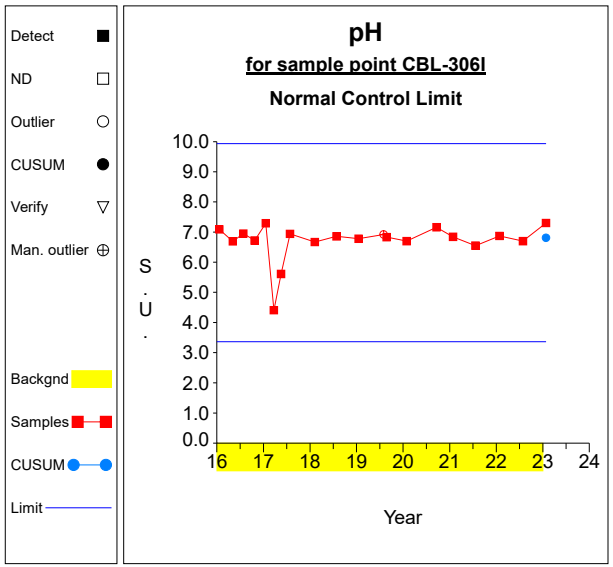
Intra-Well Control Charts / Prediction Limits



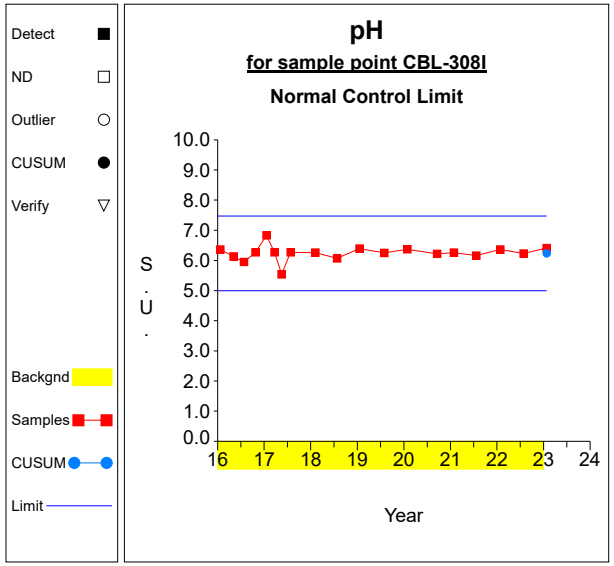
Graph 21



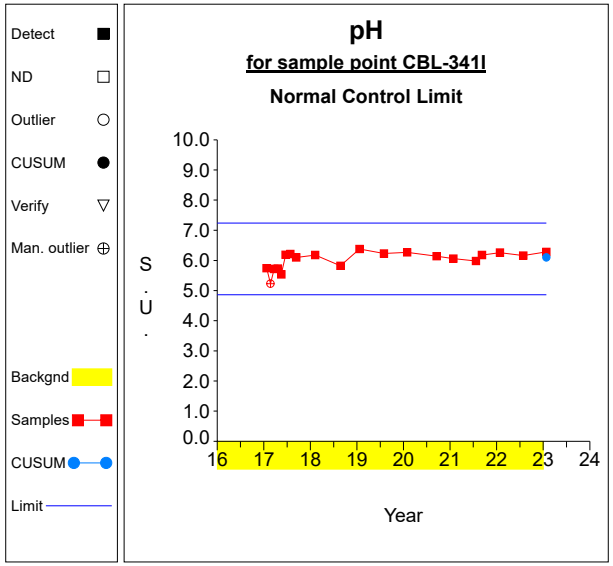
Graph 22



Graph 23

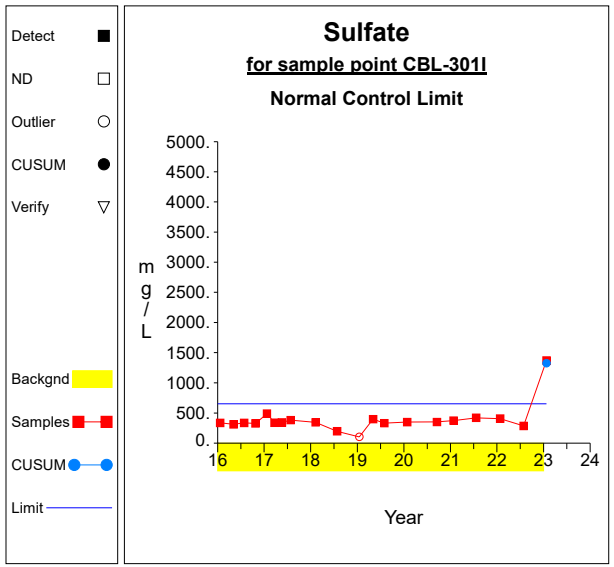


Graph 24

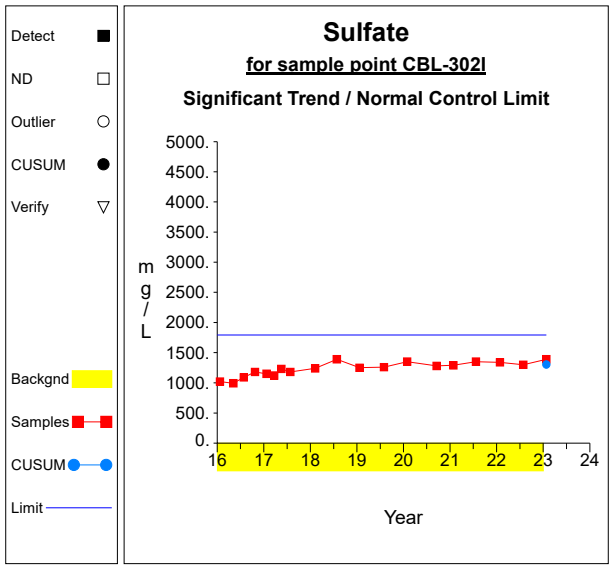


Graph 25

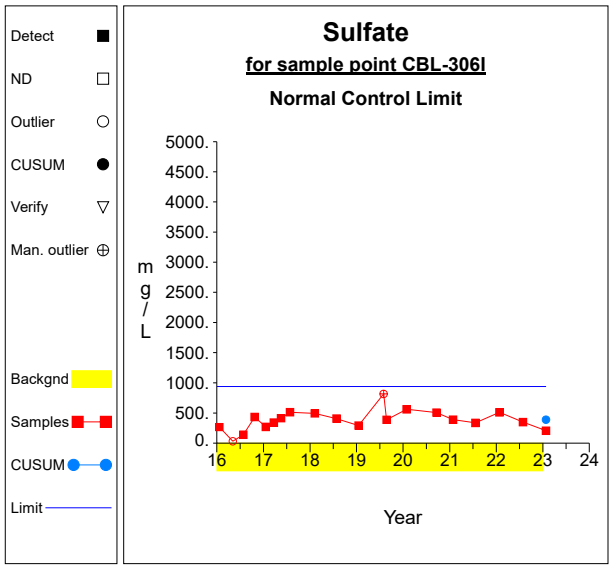
Intra-Well Control Charts / Prediction Limits



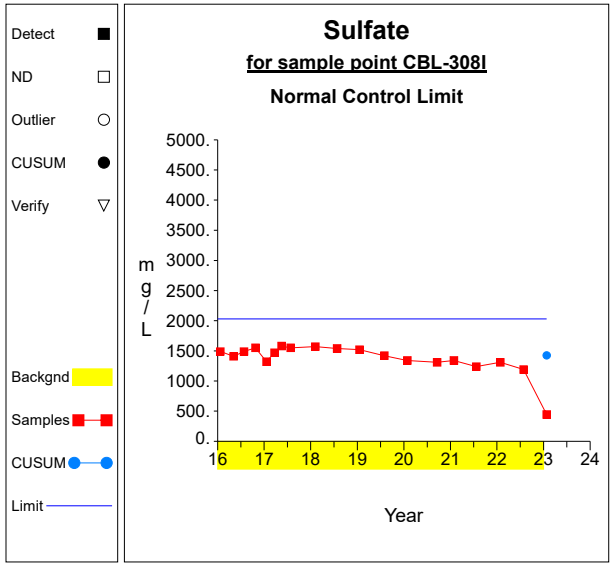
Graph 26



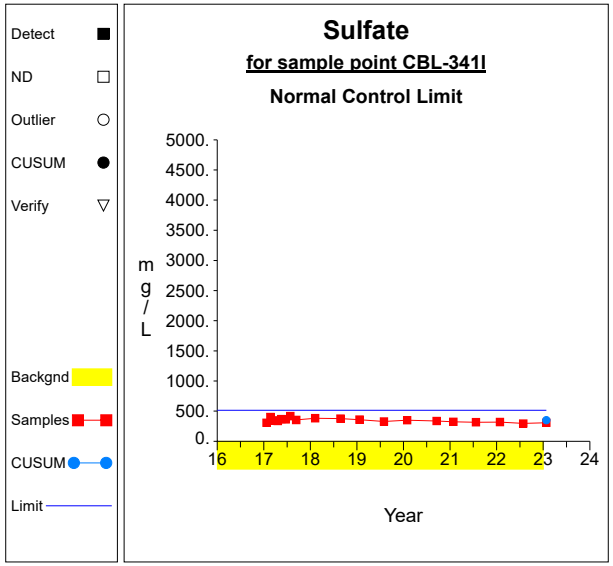
Graph 27



Graph 28

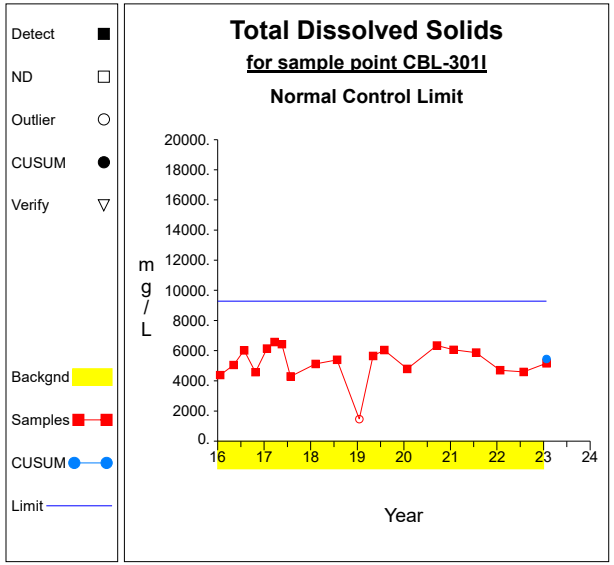


Graph 29

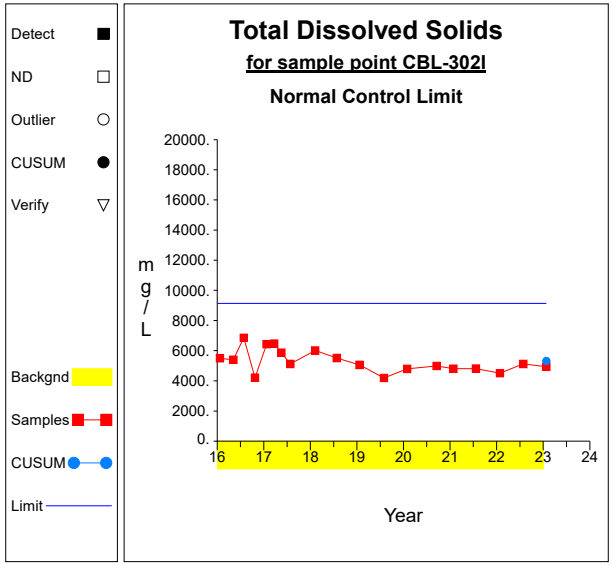


Graph 30

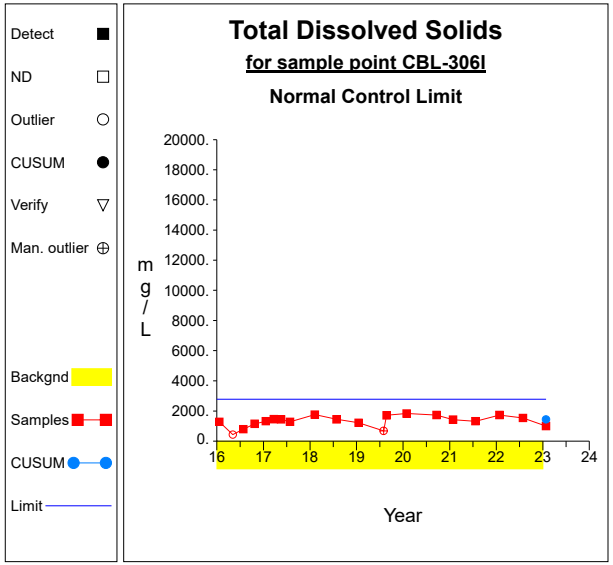
Intra-Well Control Charts / Prediction Limits



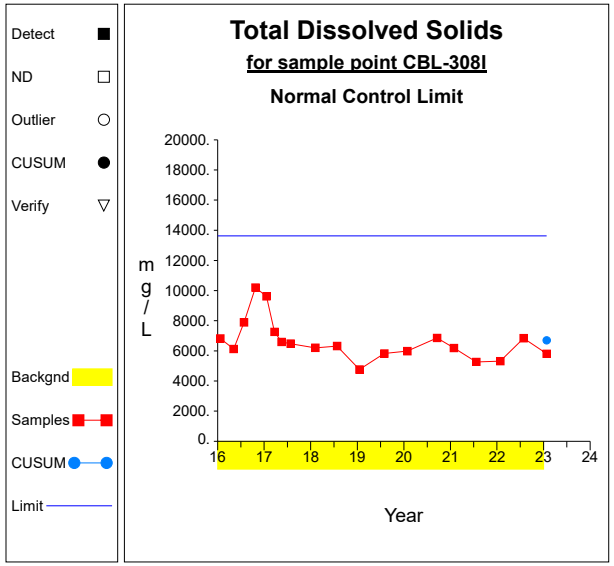
Graph 31



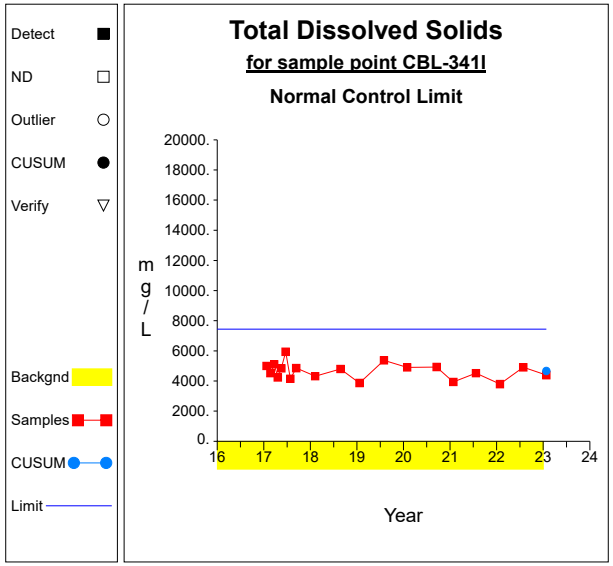
Graph 32



Graph 33

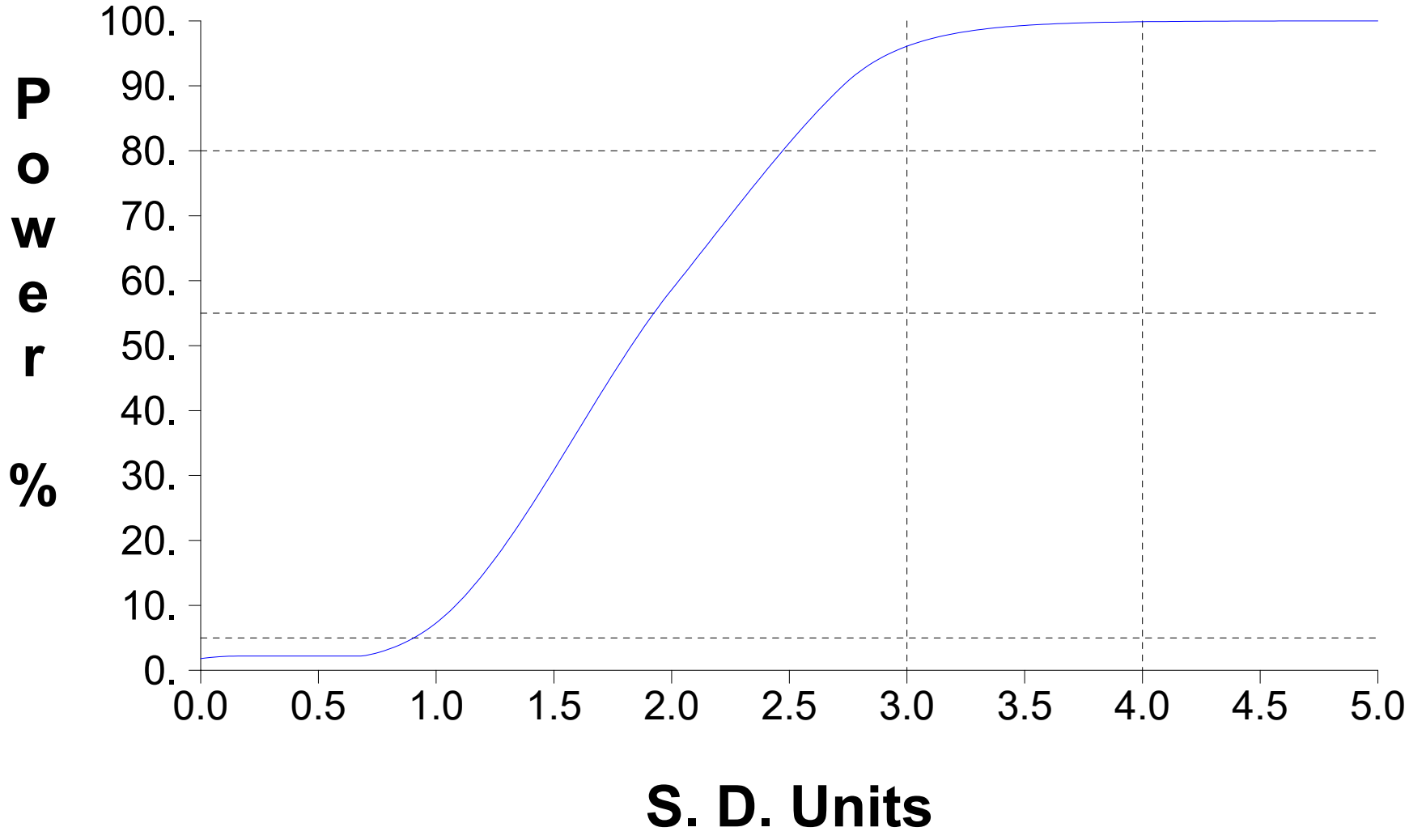


Graph 34



Graph 35

False Positive and False Negative Rates for Current Intra-Well Control Charts Monitoring Program



Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Boron, Total (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.29** / **22** = **0.059**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.081** - **1.664**/**22**) / (**22**-1))^{½} = **0.016**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.059** + **5.0** * **0.016** = **0.139**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **764.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**231** - **2.326** * **764.333**^{½}) / 2 = **83.347**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Boron, Total (mg/L) at CBL-302I
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **0.074**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Boron, Total (mg/L) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.222** / **18** = **0.068**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.093** - **1.494**/**18**) / (**18**-1))^{½} = **0.024**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.068** + **5.0** * **0.024** = **0.189**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **631.667**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **631.667**^{½}) / 2 = **47.27**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.003**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Boron, Total (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **2.059** / **18** = **0.114**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.486** - **4.239**/**18**) / (**18**-1))^{½} = **0.121**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.114** + **5.0** * **0.121** = **0.722**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **605.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **605.0**^{½}) / 2 = **47.894**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.027**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Boron, Total (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.144** / **18** = **0.064**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.082** - **1.308**/**18**) / (**18**-1))^{½} = **0.023**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.064** + **5.0** * **0.023** = **0.18**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **532.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **532.0**^{½}) / 2 = **49.675**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Calcium, Total (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **17369.0** / **18** = **964.944**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.69**x**10^7** - **3.02**x**10^8**/**18**) / (**18**-1))^{½} = **101.271**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **964.944** + **5.0** * **101.271** = **1471.3**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **16.171**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-27.044**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Calcium, Total (mg/L) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **17227.0** / **18** = **957.056**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.67**x**10^7** - **2.97**x**10^8**/**18**) / (**18**-1))^{½} = **116.748**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **957.056** + **5.0** * **116.748** = **1540.795**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-46.655**	Sen's estimator of trend.
6	var(S) = **695.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **695.0**^{½}) / 2 = **45.84**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-66.423**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Calcium, Total (mg/L) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3437.0** / **16** = **214.813**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**758029.0** - **1.18**x**10^7**/**16**) / (**16**-1))^{½} = **36.257**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **214.813** + **5.0** * **36.257** = **396.097**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **16** * (**16**-1) / 2 = **120**	Number of sample pairs during trend detection period.
5	S = **9.18**	Sen's estimator of trend.
6	var(S) = **493.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**120** - **2.326** * **493.333**^{½}) / 2 = **34.168**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-4.826**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Calcium, Total (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **15450.0** / **18** = **858.333**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.34**x**10^7** - **2.39**x**10^8**/**18**) / (**18**-1))^{½} = **82.361**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **858.333** + **5.0** * **82.361** = **1270.141**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-24.047**	Sen's estimator of trend.
6	var(S) = **697.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **697.0**^{½}) / 2 = **45.796**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-45.396**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Calcium, Total (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **15196.0** / **18** = **844.222**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.29**x**10^7** - **2.31**x**10^8**/**18**) / (**18**-1))^{½} = **79.475**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **844.222** + **5.0** * **79.475** = **1241.598**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-24.621**	Sen's estimator of trend.
6	var(S) = **697.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **697.0**^{½}) / 2 = **45.796**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-46.4**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chloride (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **41390.0** / **18** = **2299.444**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**9.75**x**10^7** - **1.71**x**10^9**/**18**) / (**18**-1))^{½} = **372.424**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **2299.444** + **5.0** * **372.424** = **4161.565**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **10.311**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-82.048**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chloride (mg/L) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **32970.0** / **18** = **1831.667**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**6.26**x**10^7** - **1.09**x**10^9**/**18**) / (**18**-1))^{½} = **360.265**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1831.667** + **5.0** * **360.265** = **3632.994**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-159.984**	Sen's estimator of trend.
6	var(S) = **695.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **695.0**^{½}) / 2 = **45.84**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-190.868**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chloride (mg/L) at CBL-306l
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **4810.0** / **16** = **300.625**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.55**x**10^6** - **2.31**x**10^7**/**16**) / (**16**-1))^{½} = **82.083**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **300.625** + **5.0** * **82.083** = **711.039**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **16** * (**16**-1) / 2 = **120**	Number of sample pairs during trend detection period.
5	S = **16.104**	Sen's estimator of trend.
6	var(S) = **493.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**120** - **2.326** * **493.333**^{½}) / 2 = **34.168**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-15.759**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chloride (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **44230.0** / **18** = **2457.222**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.10**x**10^8** - **1.96**x**10^9**/**18**) / (**18**-1))^{½} = **303.175**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **2457.222** + **5.0** * **303.175** = **3973.1**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-106.468**	Sen's estimator of trend.
6	var(S) = **695.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **695.0**^{½}) / 2 = **45.84**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-174.502**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chloride (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **32540.0** / **18** = **1807.778**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**5.91**x**10^7** - **1.06**x**10^9**/**18**) / (**18**-1))^{½} = **129.14**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1807.778** + **5.0** * **129.14** = **2453.477**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-16.82**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-57.489**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Fluoride (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **10.16** / **20** = **0.508**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**10.634** - **103.226**/**20**) / (**20**-1))^{½} = **0.537**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.508** + **5.0** * **0.537** = **3.191**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **681.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**190** - **2.326** * **681.333**^{½}) / 2 = **64.643**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.035**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Fluoride (mg/L) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **9.153** / **19** = **0.482**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**8.255** - **83.772**/**19**) / (**19**-1))^{½} = **0.462**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.482** + **5.0** * **0.462** = **2.793**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **19** * (**19**-1) / 2 = **171**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **604.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**171** - **2.326** * **604.333**^{½}) / 2 = **56.91**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.031**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Fluoride (mg/L) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.73** / **17** = **2.396**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**102.838** - **1658.933**/**17**) / (**17**-1))^{½} = **0.573**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **2.396** + **5.0** * **0.573** = **5.261**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **17** * (**17**-1) / 2 = **136**	Number of sample pairs during trend detection period.
5	S = **0.119**	Sen's estimator of trend.
6	var(S) = **589.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**136** - **2.326** * **589.333**^{½}) / 2 = **39.767**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.032**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Fluoride (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **28.4** / **17** = **1.671**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**48.489** - **806.56**/**17**) / (**17**-1))^{½} = **0.255**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1.671** + **5.0** * **0.255** = **2.948**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **17** * (**17**-1) / 2 = **136**	Number of sample pairs during trend detection period.
5	S = **-0.02**	Sen's estimator of trend.
6	var(S) = **588.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**136** - **2.326** * **588.333**^{½}) / 2 = **39.791**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.111**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Fluoride (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **7.116** / **19** = **0.375**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**3.957** - **50.632**/**19**) / (**19**-1))^{½} = **0.268**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.375** + **5.0** * **0.268** = **1.714**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **19** * (**19**-1) / 2 = **171**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **751.667**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**171** - **2.326** * **751.667**^{½}) / 2 = **53.615**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.133**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
pH (S.U.) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **136.43** / **22** = **6.201**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**847.258** - **18613.145**/**22**) / (**22**-1))^{½} = **0.24**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ ± **F** * **S** = **6.201** ± **5.0** * **0.24** = **5.003**, **7.4**	Compute combined Shewhart-CUSUM normal control interval.
4	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
5	S = **-0.007**	Sen's estimator of trend.
6	var(S) = **1248.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**231** - **2.326** * **1248.333**^{½}) / 2 = **74.409**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.036**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
pH (S.U.) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **115.31** / **19** = **6.069**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**706.23** - **13296.396**/**19**) / (**19**-1))^{½} = **0.597**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ ± **F** * **S** = **6.069** ± **5.0** * **0.597** = **3.083**, **9.055**	Compute combined Shewhart-CUSUM normal control interval.
4	N' = **N** * (**N**-1) / 2 = **19** * (**19**-1) / 2 = **171**	Number of sample pairs during trend detection period.
5	S = **0.044**	Sen's estimator of trend.
6	var(S) = **812.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**171** - **2.326** * **812.333**^{½}) / 2 = **52.353**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.04**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
pH (S.U.) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **119.66** / **18** = **6.648**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**802.809** - **14318.516**/**18**) / (**18**-1))^{½} = **0.657**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ ± **F** * **S** = **6.648** ± **5.0** * **0.657** = **3.363**, **9.932**	Compute combined Shewhart-CUSUM normal control interval.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-0.011**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.094**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
pH (S.U.) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **112.19** / **18** = **6.233**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**700.296** - **12586.596**/**18**) / (**18**-1))^{½} = **0.247**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ ± **F** * **S** = **6.233** ± **5.0** * **0.247** = **4.996**, **7.47**	Compute combined Shewhart-CUSUM normal control interval.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-0.002**	Sen's estimator of trend.
6	var(S) = **691.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **691.333**^{½}) / 2 = **45.921**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.03**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
pH (S.U.) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **108.89** / **18** = **6.049**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**659.685** - **11857.032**/**18**) / (**18**-1))^{½} = **0.238**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ ± **F** * **S** = **6.049** ± **5.0** * **0.238** = **4.861**, **7.238**	Compute combined Shewhart-CUSUM normal control interval.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **0.067**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.015**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **6310.0** / **18** = **350.556**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.27**x**10^6** - **3.98**x**10^7**/**18**) / (**18**-1))^{½} = **60.294**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **350.556** + **5.0** * **60.294** = **652.024**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **6.483**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-8.207**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **22013.0** / **18** = **1222.944**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.71**x**10^7** - **4.85**x**10^8**/**18**) / (**18**-1))^{½} = **114.114**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1222.944** + **5.0** * **114.114** = **1793.513**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **45.342**	Sen's estimator of trend.
6	var(S) = **695.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **695.0**^{½}) / 2 = **45.84**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **25.012**	One-sided lower confidence limit for slope.
9	LCL(S) > 0	**Significant increasing trend.**

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **6599.0** / **17** = **388.176**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.76**x**10^6** - **4.35**x**10^7**/**17**) / (**17**-1))^{½} = **110.356**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **388.176** + **5.0** * **110.356** = **939.958**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **17** * (**17**-1) / 2 = **136**	Number of sample pairs during trend detection period.
5	S = **18.243**	Sen's estimator of trend.
6	var(S) = **589.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**136** - **2.326** * **589.333**^{½}) / 2 = **39.767**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-14.639**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **25640.0** / **18** = **1424.444**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**3.68**x**10^7** - **6.57**x**10^8**/**18**) / (**18**-1))^{½} = **121.424**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1424.444** + **5.0** * **121.424** = **2031.565**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-41.243**	Sen's estimator of trend.
6	var(S) = **693.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **693.0**^{½}) / 2 = **45.884**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-65.458**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **6287.0** / **18** = **349.278**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.21**x**10^6** - **3.95**x**10^7**/**18**) / (**18**-1))^{½} = **32.89**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **349.278** + **5.0** * **32.89** = **513.727**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-10.817**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-19.435**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Total Dissolved Solids (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **98000.0** / **18** = **5444.444**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**5.44**x**10^8** - **9.60**x**10^9**/**18**) / (**18**-1))^{½} = **767.695**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **5444.444** + **5.0** * **767.695** = **9282.919**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **8.889**	Sen's estimator of trend.
6	var(S) = **697.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **697.0**^{½}) / 2 = **45.796**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-248.456**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Total Dissolved Solids (mg/L) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **95610.0** / **18** = **5311.667**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**5.18**x**10^8** - **9.14**x**10^9**/**18**) / (**18**-1))^{½} = **764.87**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **5311.667** + **5.0** * **764.87** = **9136.018**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-219.811**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-407.793**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Total Dissolved Solids (mg/L) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **24430.0** / **17** = **1437.059**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**3.62**x**10^7** - **5.97**x**10^8**/**17**) / (**17**-1))^{½} = **267.085**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1437.059** + **5.0** * **267.085** = **2772.485**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **17** * (**17**-1) / 2 = **136**	Number of sample pairs during trend detection period.
5	S = **76.005**	Sen's estimator of trend.
6	var(S) = **586.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**136** - **2.326** * **586.333**^{½}) / 2 = **39.839**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-5.732**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Total Dissolved Solids (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **120540.0** / **18** = **6696.667**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**8.40**x**10^8** - **1.45**x**10^{10}**/**18**) / (**18**-1))^{½} = **1385.271**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **6696.667** + **5.0** * **1385.271** = **13623.023**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-270.134**	Sen's estimator of trend.
6	var(S) = **697.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **697.0**^{½}) / 2 = **45.796**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-711.043**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Total Dissolved Solids (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **84020.0** / **18** = **4667.778**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**3.97**x**10^8** - **7.06**x**10^9**/**18**) / (**18**-1))^{½} = **554.018**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **4667.778** + **5.0** * **554.018** = **7437.868**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-76.49**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-305.108**	One-sided lower confidence limit for slope.

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts

Constituent	Units	Well	N(back)	N(mon)	N(tot)	Mean	SD	R(i-1)	R(i)	S(i-1)	S(i)	Limit	Type	Conf
Sulfate	mg/L	CBL-301I	18	2	21	350.5556	60.2936	1370.0000	207.0000	1324.7798	350.5556	652.0236	normal	

N(back) and N(mon) = Non-outlier measurements in the background and monitoring periods.
N(tot) = All independent measurements for that constituent and well.
For transformed data, mean and SD in transformed units and control limit in original units.
Conf = confidence level for passing initial test or one of two verification resamples (nonparametric test only).
* - Insufficient Data.
** - Detection Frequency < 25%.
*** - Zero Variance.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result	Outlier	CUSUM	Adjusted	
Sulfate	mg/L	CBL-301I	01/21/2016	yes	336.0000				
Sulfate	mg/L	CBL-301I	05/04/2016	yes	311.0000				
Sulfate	mg/L	CBL-301I	07/27/2016	yes	336.0000				
Sulfate	mg/L	CBL-301I	10/24/2016	yes	326.0000				
Sulfate	mg/L	CBL-301I	01/23/2017	yes	488.0000				
Sulfate	mg/L	CBL-301I	03/22/2017	yes	337.0000				
Sulfate	mg/L	CBL-301I	05/18/2017	yes	342.0000				
Sulfate	mg/L	CBL-301I	07/26/2017	yes	381.0000				
Sulfate	mg/L	CBL-301I	02/08/2018	yes	344.0000				
Sulfate	mg/L	CBL-301I	07/25/2018	yes	196.0000				
Sulfate	mg/L	CBL-301I	01/17/2019	yes	104.0000	yes			*
Sulfate	mg/L	CBL-301I	05/02/2019	yes	398.0000				
Sulfate	mg/L	CBL-301I	07/31/2019	yes	332.0000				
Sulfate	mg/L	CBL-301I	01/28/2020	yes	349.0000				
Sulfate	mg/L	CBL-301I	09/17/2020	yes	350.0000				
Sulfate	mg/L	CBL-301I	01/26/2021	yes	374.0000				
Sulfate	mg/L	CBL-301I	07/20/2021	yes	419.0000				
Sulfate	mg/L	CBL-301I	01/26/2022	yes	406.0000				
Sulfate	mg/L	CBL-301I	07/27/2022	yes	285.0000				
Sulfate	mg/L	CBL-301I	01/25/2023		1370.0000		1324.7798		**
Sulfate	mg/L	CBL-301I	03/07/2023		207.0000		350.5556		

* - Outlier for that well and constituent.
** - Non-outlier detected sample Result and / or CUSUM value exceeds limit.
*** - ND value replaced with median RL.
**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

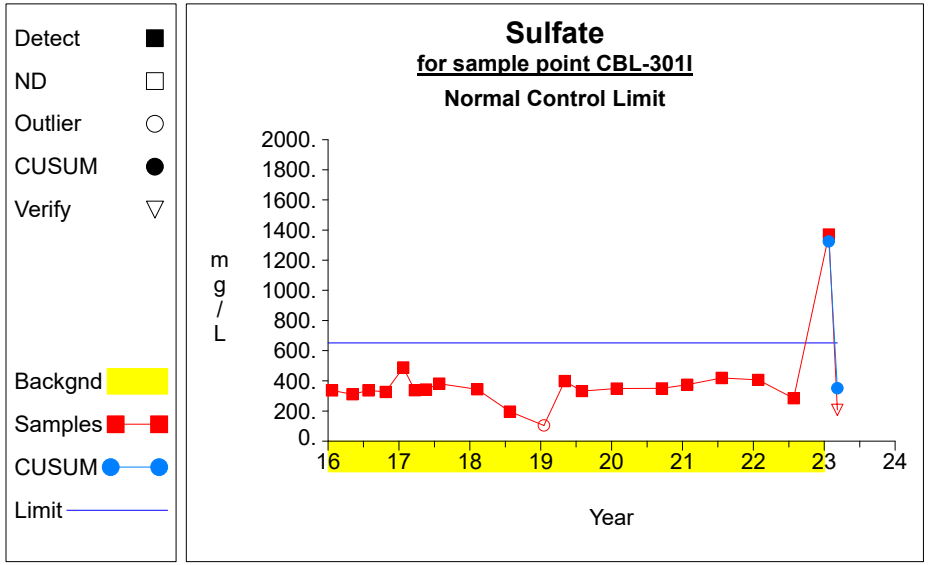
Table 4

Dixon's Test Outliers
1% Significance Level

Constituent	Units	Well	Date	Result	ND Qualifier	Date Range	N	Critical Value
Sulfate	mg/L	CBL-301I	01/17/2019	104.0000		01/21/2016-07/27/2022	19	0.5503

N = Total number of independent measurements in background at each well.
Date Range = Dates of the first and last measurements included in background at each well.
Critical Value depends on the significance level and on N-1 when the two most extreme values are tested or N for the most extreme value.

Intra-Well Sublist Control Charts / Prediction Limits



Graph 1

Worksheet 3 - Intra-Well Sublist Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **6310.0** / **18** = **350.556**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.27**x**10^6** - **3.98**x**10^7**/**18**) / (**18**-1))^{½} = **60.294**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **350.556** + **5.0** * **60.294** = **652.024**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **6.483**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-8.207**	One-sided lower confidence limit for slope.

APPENDIX C

Results of the Groundwater Statistics for the Lower Colorado River Authority
Second Semi-Annual Monitoring Event in 2023
Otter Creek Environmental Services, LLC
November 2023

Results of the Ground Water Statistics

for Lower Colorado River Authority Fayette Power Project

Second Semi-Annual Monitoring Event in 2023

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INTRODUCTION

This report contains the results of the statistical analyses used to evaluate the groundwater data obtained during the second semi-annual monitoring event in 2023 at the Lower Colorado River Authority (LCRA) Fayette Power Project (FPP) Combustion Byproducts Landfill (CBL), the Coal Combustion Residuals (CCR) unit addressed in this report. The statistical analyses were completed within 90 days of receipt of the analytical data. The groundwater at the FPP is monitored by wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, CBL-340I, and CBL-341I.

Statistical comparisons and evaluation for statistically significant increases (SSIs) are conducted on all wells with the exception of former background (side-gradient) monitoring well CBL-340I. Based on the Alternative Source Determination (ASD) study conducted in 2018, the identification of natural aquifer heterogeneity resulted in determination that CBL-340I could not be used to reliably characterize the background geochemistry of the groundwater flowing beneath the CCR unit. As such, intrawell analysis of wells potentially affected by CCR operation was selected at that time, and the need for use of CBL-340I geochemical data was negated. A Groundwater Monitoring System Addendum Certification was prepared in 2018, documenting the transition from former interwell analysis to intrawell analysis.

The statistical plan is designed to detect a release from the facility at the earliest indication. An intrawell methodology is described and then applied to the FPP data. The statistical method conforms with the Coal Combustion Residual (CCR) rule (40 CFR Part 257), USEPA Guidance document (*Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Unified Guidance,* March 2009), and the American Society for Testing and Materials (ASTM) standard D6312-98, *Developing Appropriate Statistical Approaches for Ground-Water Detection Monitoring Programs*. The intrawell statistical evaluations were completed within 90 days of receipt of laboratory data.

Ground Water Monitoring Program

The groundwater monitoring network for FPP includes background well CBL-340I and downgradient wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I. Each of the groundwater monitoring wells is to be sampled at least semiannually and analyzed for the detection monitoring parameters listed in Appendix III of 40 CFR Part 257, as follows:

Boron
Calcium
Chloride
Fluoride
pH
Sulfate
Total Dissolved Solids

Statistical analysis is conducted on data from all Groundwater Monitoring Plan (GMP) wells with the exception of CBL-340I, as described above. The groundwater data obtained for statistical evaluation during the second semi-annual monitoring event in 2023 are summarized in Attachment A. Historical Appendix III data is summarized in Attachment B.

STATISTICAL METHODOLOGIES FOR DETECTION MONITORING

The CCR rule for statistical analysis provides several options for evaluating the ground water data [40 CFR 257.93(f)]. As referenced in Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance (EPA 530/R-09-007), the preferred methods for comparing ground water data are using either prediction limits or using control charts. The control chart procedure offers an advantage over the prediction limits procedure as more data is generated over time, because the control chart procedure generates a graph of compliance data over time and allows for better identification of long-term trends.

An intrawell control chart method was applied to the FPP 2023 second semiannual data using the DUMPStat® statistical program. DUMPStat® is a program for the statistical analysis of groundwater monitoring data using methods described in "Statistical Methods for Groundwater Monitoring" by Dr. Robert D. Gibbons. Groundwater statistical analysis was conducted on the Appendix III constituents listed above.

Intrawell statistics

Intrawell statistics compare new measurements to the historical data at each groundwater monitoring well independently. The Unified Guidance-recommended technique for intrawell comparisons is the combined Shewhart-CUSUM control chart. This control chart procedure detects changes in analyte concentrations both in terms of constituent concentration and cumulative concentration increases. This method is also extremely sensitive to sudden and gradual releases. A requirement for constructing these control charts is that the parameter is detected at a frequency greater than or equal to 25%, otherwise the data variance is not properly defined (ASTM D 6312-98 *Standard Guide for Developing Appropriate Statistical Approaches for Ground-Water Detection Monitoring Programs*).

The combined Shewhart-CUSUM control chart assumes that the data are independent and normally distributed with a fixed mean and a constant variance. Independent data is much more critical than the normality assumption. To achieve independence, it is recommended that data are collected no more frequently than quarterly to account for seasonal variation. The combined Shewhart-CUSUM control chart is robust to deviations from normality. Because the control charts do not use a specific multiplier based on a normal distribution, it is more conservative to assume normality.

Some groundwater monitoring parameters are not detected at a frequency great enough to generate the combined Shewhart-CUSUM control charts. For constituents that are detected less than 25% of the time at a particular well, the data are plotted as a time series until a sufficient number of data points are available to provide a 99% confidence nonparametric prediction limit. Thirteen independent measurements (with 1 resample) are necessary to achieve a 99% confidence (1% false positive rate) nonparametric prediction limit. Eight independent measurements (for pass 1 of 2 resamples) are necessary to achieve a 99% confidence nonparametric prediction limit. The nonparametric prediction limit is the largest determination out of the data set collected for that well and parameter. If the detection frequency is 0% after thirteen samples have been collected, the practical quantitation limit (PQL) becomes the nonparametric prediction limit.

In developing the statistical background, the historical data must be thoroughly screened for anomalous data due to sample collection error or laboratory analysis error. An erroneous data point, if not removed prior to the mean and variance computations, would yield a larger control limit thus increasing the false negative rate. The DUMPStat® program screens for outliers using the Dixon test. If the Dixon test indicates an outlier, the value is compared to three times the median value for intrawell analyses. If the value fails both criteria of the two-stage screening, the value is considered a statistical outlier and will not be used in the mean and variance determinations. Anomalous data will still be plotted on the graphs (with a unique symbol) but will not be included in the calculations.

The verification resample plan is an integral function of the statistical plan to reduce the probability that anomalous data obtained after the background has been established is indicative of a landfill release. Should an indication of an SSI be identified, the resampling plan is implemented by the operator to collect a verification sample.

The background data for each well and constituent is tested for existing trends using Sen's nonparametric estimate of trend.

Results of the Intrawell Statistics

The Appendix III parameter data from wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I were evaluated using the combined Shewhart-CUSUM control chart method.

The initial background was established with the ProUCL software using data obtained in 2016 and 2017. Initial exceedances for boron at CBL-301I and boron at CBL-341I were reported following the second semi-annual monitoring in 2020. Since the boron concentrations determined subsequently in January 2021 at CBL-301I (<0.050 mg/L) and CBL-341I (<0.050 mg/L) do not exceed the baseline threshold values (BTV), the previous exceedances are not statistically significant. BTV will be analogous to control limits in this report and future reports. Background was later established to include historical data obtained from 2016 through 2020 using DUMPStats.

Monitoring well background data sets must be periodically updated with valid detection monitoring results that are representative of background groundwater quality. Failure to update background data sets will exclude factors such as natural temporal variation, changes in field or laboratory methodologies, and changes in the water table due to meteorological conditions or other influences. Since there were no exceedances attributed to the unit, the background data in this evaluation includes historical data obtained from 2016 through 2022 for wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I.

A summary of the intrawell statistics is included in Attachment C, Table 1 “Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts.” The control charts or time series graphs follow the summary table.

For the parameters evaluated, there were no control limit exceedances detected during the second semi-annual monitoring event for 2023. A previous exceedance for boron at CBL-302I was not confirmed by the current data.

A slight increasing trend was detected in the background data for sulfate at CBL-302I.

A control chart factor was selected to provide a balance of the site-wide false positive and false negative rates. A statistical power curve indicates the expected false assessments for the site as a whole. The site-wide false positive rate is 3% and the test becomes sensitive to 3 standard deviation units over background.

CONCLUSIONS

This document describes a comprehensive statistical plan designated for the FPP. The groundwater monitoring network for FPP consists of wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I. Each of the groundwater monitoring wells is sampled and analyzed for the detection monitoring parameters listed in Appendix III of 40 CFR Part 257. The current ground water data was compared to background using intrawell control charts. Using intrawell comparisons, there were no confirmed control limit exceedances detected.

Attachment A

Ground Water Data obtained during the Second Semi-Annual Monitoring Event in 2023

Table 1

Analytical Data Summary for 7/18/2023

Constituents	Units	CBL-302I	CBL-306I	CBL-308I
Boron, Total	mg/L	<.0500	.0659	<.0500
Calcium, Total	mg/L	981	260	642
Chloride	mg/L	1330	336	1840
Fluoride	mg/L	1.76	2.66	1.86
pH	S.U.	6.20	6.49	6.26
Sulfate	mg/L	1230	454	1290
Total Dissolved Solids	mg/L	5150	1910	5680

* - The displayed value is the arithmetic mean of multiple database matches.

Table 2

Analytical Data Summary for 7/19/2023

Constituents	Units	CBL-340I	CBL-341I
Boron, Total	mg/L	.276	.076
Calcium, Total	mg/L	631	710
Chloride	mg/L	2130	1530
Fluoride	mg/L	1.07	1.12
pH	S.U.	6.41	6.22
Sulfate	mg/L	599	259
Total Dissolved Solids	mg/L	5290	4190

* - The displayed value is the arithmetic mean of multiple database matches.

Table 3

Analytical Data Summary for 8/2/2023

Constituents	Units	CBL-301I
Boron, Total	mg/L	<.05
Calcium, Total	mg/L	1260
Chloride	mg/L	2220
Fluoride	mg/L	.054
pH	S.U.	6.21
Sulfate	mg/L	383
Total Dissolved Solids	mg/L	5360

* - The displayed value is the arithmetic mean of multiple database matches.

Attachment B

Historical Appendix III Ground Water Data

Table 1

Analytical Data Summary for CBL-301I

Constituents	Units	1/21/2016	5/4/2016	7/27/2016	10/24/2016	1/23/2017	3/22/2017	5/18/2017	7/26/2017	2/8/2018	7/25/2018	1/17/2019	5/2/2019	7/31/2019
Boron, Total	mg/L	<.0500	<.0500	<.0500	<.0500	<.0500	<.0500	.0707	<.0500	<.0500	<.0500	<.0500	<.0500	<.0500
Calcium, Total	mg/L	905	949	925	978	1000	1030	1060	961	873	993	156	762	783
Chloride	mg/L	2300	2160	2290	2250	3200	2390	2420	2500	2480	1330	619	1910	2240
Fluoride	mg/L	<.250	<.500	<.500	<.250	.312	<.500	<.500	<.500	<.500	<.500	.219	.112	.051
pH	S.U.	6.33	6.26	5.95	6.23	6.26	6.31	5.95	6.02	6.17	6.04	7.16	6.14	6.19
Sulfate	mg/L	336	311	336	326	488	337	342	381	344	196	104	398	332
Total Dissolved Solids	mg/L	4380	5050	6020	4570	6140	6570	6430	4290	5120	5390	1460	5650	6040

* - The displayed value is the arithmetic mean of multiple database matches.

Table 1

Analytical Data Summary for CBL-301I

Constituents	1/28/2020	9/17/2020	1/26/2021	7/20/2021	9/7/2021	1/26/2022	7/27/2022	8/30/2022	10/25/2022	1/25/2023	3/7/2023	8/2/2023
Boron, Total	<.0500	.0801	<.0500	.0826	<.0500	<.0500	.0850	.1070	.0645	.1080	.1020	<.0500
Calcium, Total	851	1060	1130	1100		999	1010			977		1260
Chloride	2360	2270	2420	2590		2440	1840			1960		2220
Fluoride	.130	<.250	<.500	2.680	<.500	<.050	.156			1.720	<.050	.054
pH	6.26	6.13	6.06	6.13	6.14	6.27	6.08	6.14	6.21	6.34		6.21
Sulfate	349	350	374	419		406	285			1370	207	383
Total Dissolved Solids	4790	6340	6060	5870		4700	4590			5160		5360

* - The displayed value is the arithmetic mean of multiple database matches.

Table 2

Analytical Data Summary for CBL-302I

Constituents	Units	1/22/2016	5/4/2016	7/27/2016	10/24/2016	1/23/2017	3/22/2017	5/16/2017	7/27/2017	2/8/2018	7/27/2018	1/22/2019	7/31/2019	1/30/2020
Boron, Total	mg/L	<.0500	<.0500	<.0500	.1560	<.0500	.2970	<.0500	<.0500	<.0500	<.0500	<.0500	<.0500	<.0500
Calcium, Total	mg/L	1030	1010	1030	1070	1100	1090	1100	1040	934	995	855	914	838
Chloride	mg/L	2190	2130	2210	2170	2080	2050	2230	2040	2080	1980	1960	1540	1540
Fluoride	mg/L	<.2500	<.5000	<.5000	<.2500	.3320	<.5000	<.5000	<.5000	.1120	<.5000	.0402	.0605	.1930
pH	S.U.	6.29	6.01	5.17	7.75	5.36	5.40	4.94	6.20	6.21	5.77	6.44	6.15	6.34
Sulfate	mg/L	1020	993	1090	1180	1150	1120	1230	1180	1240	1390	1250	1260	1350
Total Dissolved Solids	mg/L	5500	5390	6850	4210	6430	6460	5860	5120	6010	5510	5060	4190	4790

* - The displayed value is the arithmetic mean of multiple database matches.

Table 2

Analytical Data Summary for CBL-302I

Constituents	9/17/2020	1/28/2021	7/21/2021	9/7/2021	1/27/2022	7/28/2022	1/26/2023	7/18/2023
Boron, Total	<.0500	<.0500	.0743		<.0500	<.0500	.1160	<.0500
Calcium, Total	853	1020	844		754	750	889	981
Chloride	1410	1370	1380		1310	1300	1460	1330
Fluoride	<.2500	<.5000	2.2500	<.2500	<.0500	.1650	<.5000	1.7600
pH	6.20	6.21	6.06	6.28	6.32	6.21	6.33	6.20
Sulfate	1280	1290	1350		1340	1300	1390	1230
Total Dissolved Solids	4990	4800	4810		4510	5120	4930	5150

* - The displayed value is the arithmetic mean of multiple database matches.

Table 3

Analytical Data Summary for CBL-306I

Constituents	Units	1/21/2016	5/4/2016	7/26/2016	10/24/2016	1/19/2017	3/22/2017	5/18/2017	7/27/2017	2/8/2018	7/27/2018	1/16/2019	7/31/2019	8/23/2019
Boron, Total	mg/L	<.0500	.0717	.0998	.0556	<.0500	.1240	.0832	.0531	<.0500	<.0500	<.0500	.0824	.0500
Calcium, Total	mg/L	137.0	47.2	105.0	198.0	174.0	204.0	205.0	234.0	230.0	275.0	180.0	106.0	226.0
Chloride	mg/L	155	20	114	330	197	231	289	350	385	283	215	538	318
Fluoride	mg/L	2.50	1.00	1.37	2.38	1.85	12.60	2.20	2.91	2.81	2.95	1.98	9.26	2.66
pH	S.U.	7.09	6.69	6.95	6.72	7.29	4.41	5.61	6.94	6.67	6.86	6.78	6.92	6.83
Sulfate	mg/L	266.0	29.5	139.0	432.0	270.0	340.0	412.0	513.0	493.0	406.0	292.0	816.0	387.0
Total Dissolved Solids	mg/L	1280	431	790	1150	1320	1460	1440	1280	1760	1450	1220	676	1710

* - The displayed value is the arithmetic mean of multiple database matches.

Table 3

Analytical Data Summary for CBL-306I

Constituents	1/29/2020	9/19/2020	1/28/2021	7/21/2021	1/27/2022	7/28/2022	1/26/2023	7/18/2023
Boron, Total	<.0500	.0773	<.0500	.0927	.0548	.1100	.0973	.0659
Calcium, Total	247.0	260.0	257.0	216.0	212.0	182.0	149.0	260.0
Chloride	445	420	292	255	384	261	148	336
Fluoride	2.83	2.72	2.90	2.42	2.99	2.26	1.92	2.66
pH	6.70	7.16	6.84	6.55	6.87	6.70	7.30	6.49
Sulfate	561.0	506.0	388.0	336.0	510.0	348.0	205.0	454.0
Total Dissolved Solids	1830	1730	1420	1320	1730	1540	1000	1910

* - The displayed value is the arithmetic mean of multiple database matches.

Table 4

Analytical Data Summary for CBL-308I

Constituents	Units	1/22/2016	5/4/2016	7/26/2016	10/24/2016	1/19/2017	3/22/2017	5/16/2017	7/26/2017	2/6/2018	7/25/2018	1/18/2019	7/31/2019	1/29/2020
Boron, Total	mg/L	<.0500	.1210	.1860	.2560	<.0500	.5450	.1090	.0799	<.0500	<.0500	<.0500	<.0500	<.0500
Calcium, Total	mg/L	903	870	911	939	919	947	954	878	859	863	760	840	745
Chloride	mg/L	2760	2580	2680	2870	2360	2530	2740	2760	2750	2680	2240	2290	2110
Fluoride	mg/L	1.49	2.30	1.64	1.59	1.33	9.05	1.70	1.90	1.76	2.10	1.68	1.62	1.60
pH	S.U.	6.36	6.13	5.95	6.27	6.83	6.27	5.54	6.27	6.26	6.07	6.39	6.25	6.37
Sulfate	mg/L	1490	1410	1490	1550	1320	1470	1580	1550	1570	1540	1520	1420	1340
Total Dissolved Solids	mg/L	6820	6120	7890	10200	9620	7260	6590	6480	6200	6320	4760	5820	5980

* - The displayed value is the arithmetic mean of multiple database matches.

Table 4

Analytical Data Summary for CBL-308I

Constituents	9/18/2020	1/28/2021	7/21/2021	1/27/2022	7/27/2022	1/26/2023	7/18/2023
Boron, Total	.1030	<.0500	.1300	<.0500	.0790	.1430	<.0500
Calcium, Total	838	830	684	974	736	732	642
Chloride	2410	2200	1780	2020	2470	2570	1840
Fluoride	1.33	1.44	1.74	1.75	1.43	<.50	1.86
pH	6.22	6.26	6.16	6.36	6.23	6.41	6.26
Sulfate	1310	1340	1240	1310	1190	445	1290
Total Dissolved Solids	6860	6190	5270	5320	6840	5810	5680

* - The displayed value is the arithmetic mean of multiple database matches.

Table 5

Analytical Data Summary for CBL-340I

Constituents	Units	1/21/2016	5/4/2016	7/27/2016	10/24/2016	1/23/2017	3/22/2017	5/16/2017	7/27/2017	2/8/2018	7/27/2018	1/22/2019	7/31/2019	1/30/2020
Boron, Total	mg/L	<.0500	.0832	.0810	.1580	<.0500	.1740	.1040	.0816	.0638	<.0500	<.0500	.1240	.0562
Calcium, Total	mg/L	564	560	575	607	627	581	584	571	555	544	518	518	539
Chloride	mg/L	2370	2260	2350	2380	2070	2280	2520	2380	2730	2450	2250	2280	2240
Fluoride	mg/L	1.090	1.920	1.060	1.260	.840	8.440	1.010	.850	1.000	1.300	.830	.880	.870
pH	S.U.	6.52	6.13	6.95	6.19	5.46	6.49	5.77	6.42	6.41	6.25	6.59	6.45	6.49
Sulfate	mg/L	652	616	668	675	571	635	715	685	752	711	639	684	637
Total Dissolved Solids	mg/L	4990	5230	6250	5670	6230	5480	5470	4880	5290	5100	4720	5560	5080

* - The displayed value is the arithmetic mean of multiple database matches.

Table 5

Analytical Data Summary for CBL-340I

Constituents	9/18/2020	1/28/2021	7/22/2021	1/28/2022	7/28/2022	1/30/2023	7/19/2023
Boron, Total	.1460	<.0500	.3840	.1600	.2850	.1670	.2760
Calcium, Total	547	607	532	597	538	635	631
Chloride	2130	2260	2200	2200	2160	2230	2130
Fluoride	.725	.835	.865	1.060	.865	.850	1.070
pH	6.32	6.32	6.24	6.42	6.35	6.37	6.41
Sulfate	608	634	618	619	614	643	599
Total Dissolved Solids	5430	5520	4990	4870	5490	5010	5290

* - The displayed value is the arithmetic mean of multiple database matches.

Table 6

Analytical Data Summary for CBL-341I

Constituents	Units	1/23/2017	2/23/2017	3/22/2017	4/20/2017	5/16/2017	6/20/2017	7/27/2017	9/11/2017	2/8/2018	8/24/2018	1/22/2019	7/31/2019	1/30/2020
Boron, Total	mg/L	<.0500	<.0500	<.0500	.0587	.0896	.0668	.0507	<.0500	<.0500	<.0500	<.0500	<.0500	<.0500
Calcium, Total	mg/L	854	870	906	898	860	950	829	848	810	824	782	714	767
Chloride	mg/L	1600	2000	1780	1770	1900	1820	1970	1710	2110	1910	1790	1650	1780
Fluoride	mg/L	.5300	<.5000	<.5000	<.5000	<.5000	.3350	.0550	.3670	.1060	.1140	.0546	.1000	.1530
pH	S.U.	5.74	5.23	5.72	5.73	5.54	6.19	6.21	6.10	6.18	5.82	6.38	6.23	6.27
Sulfate	mg/L	307	404	346	336	369	363	419	354	383	376	358	329	351
Total Dissolved Solids	mg/L	5000	4520	5110	4240	4840	5940	4150	4860	4320	4800	3870	5370	4900

* - The displayed value is the arithmetic mean of multiple database matches.

Table 6

Analytical Data Summary for CBL-341I

Constituents	9/17/2020	1/27/2021	7/22/2021	9/7/2021	1/27/2022	7/28/2022	1/26/2023	7/19/2023
Boron, Total	.1020	<.0500	.1110		<.0500	.1150	.1340	.0760
Calcium, Total	814	874	852		1040	704	797	710
Chloride	1700	1800	1750		1810	1690	1660	1530
Fluoride	<.2500	<.5000	1.1600	<.2500	<.0500	.1410	<.2500	1.1200
pH	6.14	6.06	5.98	6.18	6.26	6.16	6.28	6.22
Sulfate	336	324	316		320	296	309	259
Total Dissolved Solids	4930	3940	4520		3800	4910	4390	4190

* - The displayed value is the arithmetic mean of multiple database matches.

Attachment C

Summary Tables and Graphs for the Intrawell Comparisons

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts

Constituent	Units	Well	N(back)	N(mon)	N(tot)	Mean	SD	R(i-1)	R(i)	S(i-1)	S(i)	Limit	Type	Conf	
Boron, Total	mg/L	CBL-301I	22	3	25	0.0586	0.0161	0.1020	0.0500	0.1272	0.0586	0.1391	normal		
Boron, Total	mg/L	CBL-302I	16	2	20			0.1160	0.0500			0.0743	nonpar	.99	**
Boron, Total	mg/L	CBL-306I	18	2	21	0.0679	0.0242	0.0973	0.0659	0.0791	0.0679	0.1891	normal		
Boron, Total	mg/L	CBL-308I	18	2	20	0.1144	0.1215	0.1430	0.0500	0.1144	0.1144	0.7217	normal		
Boron, Total	mg/L	CBL-341I	18	2	20	0.0635	0.0234	0.1340	0.0760	0.1165	0.1114	0.1803	normal		
Calcium, Total	mg/L	CBL-301I	18	2	21	964.9444	101.2710	977.0000	1260.0000	964.9444	1184.0467	1471.2996	normal		
Calcium, Total	mg/L	CBL-302I	18	2	20	957.0556	116.7478	889.0000	981.0000	957.0556	957.0556	1540.7947	normal		
Calcium, Total	mg/L	CBL-306I	16	2	21	214.8125	36.2569	149.0000	260.0000	214.8125	232.8073	396.0970	normal		
Calcium, Total	mg/L	CBL-308I	18	2	20	858.3333	82.3615	732.0000	642.0000	858.3333	858.3333	1270.1407	normal		
Calcium, Total	mg/L	CBL-341I	18	2	20	844.2222	79.4752	797.0000	710.0000	844.2222	844.2222	1241.5980	normal		
Chloride	mg/L	CBL-301I	18	2	21	2299.4444	372.4241	1960.0000	2220.0000	2299.4444	2299.4444	4161.5647	normal		
Chloride	mg/L	CBL-302I	18	2	20	1831.6667	360.2654	1460.0000	1330.0000	1831.6667	1831.6667	3632.9938	normal		
Chloride	mg/L	CBL-306I	16	2	21	300.6250	82.0828	148.0000	336.0000	300.6250	300.6250	711.0389	normal		
Chloride	mg/L	CBL-308I	18	2	20	2457.2222	303.1755	2570.0000	1840.0000	2457.2222	2457.2222	3973.0995	normal		
Chloride	mg/L	CBL-341I	18	2	20	1807.7778	129.1399	1660.0000	1530.0000	1807.7778	1807.7778	2453.4775	normal		
Fluoride	mg/L	CBL-301I	20	3	23	0.5080	0.5367	0.0500	0.0540	0.5080	0.5080	3.1915	normal		
Fluoride	mg/L	CBL-302I	19	2	21	0.4817	0.4622	0.5000	1.7600	0.4817	1.4133	2.7929	normal		
Fluoride	mg/L	CBL-306I	17	2	21	2.3959	0.5730	1.9200	2.6600	2.3959	2.3959	5.2610	normal		
Fluoride	mg/L	CBL-308I	17	2	20	1.6706	0.2554	0.5000	1.8600	1.6706	1.6706	2.9477	normal		
Fluoride	mg/L	CBL-341I	19	2	21	0.3745	0.2679	0.2500	1.1200	0.3745	0.9191	1.7141	normal		
pH	S.U.	CBL-301I	22	2	24	6.2014	0.2396	6.3400	6.2100	6.2014	6.2014	5.00 - 7.40	normal		
pH	S.U.	CBL-302I	19	2	21	6.0689	0.5972	6.3300	6.2000	6.0689	6.0689	3.08 - 9.05	normal		
pH	S.U.	CBL-306I	18	2	21	6.6478	0.6569	7.3000	6.4900	6.8073	6.6478	3.36 - 9.93	normal		
pH	S.U.	CBL-308I	18	2	20	6.2328	0.2475	6.4100	6.2600	6.2328	6.2328	5.00 - 7.47	normal		
pH	S.U.	CBL-341I	18	2	21	6.0494	0.2377	6.2800	6.2200	6.1017	6.0939	4.86 - 7.24	normal		
Sulfate	mg/L	CBL-301I	18	3	22	350.5556	60.2936	207.0000	383.0000	350.5556	350.5556	652.0236	normal		
Sulfate	mg/L	CBL-302I	18	2	20	1222.9444	114.1137	1390.0000	1230.0000	1304.4147	1225.8850	1793.5130	normal		
Sulfate	mg/L	CBL-306I	17	2	21	388.1765	110.3564	205.0000	454.0000	388.1765	388.1765	939.9583	normal		
Sulfate	mg/L	CBL-308I	18	2	20	1424.4444	121.4240	445.0000	1290.0000	1424.4444	1424.4444	2031.5645	normal		
Sulfate	mg/L	CBL-341I	18	2	20	349.2778	32.8898	309.0000	259.0000	349.2778	349.2778	513.7270	normal		
Total Dissolved Solids	mg/L	CBL-301I	18	2	21	5444.4444	767.6950	5160.0000	5360.0000	5444.4444	5444.4444	9282.9193	normal		
Total Dissolved Solids	mg/L	CBL-302I	18	2	20	5311.6667	764.8702	4930.0000	5150.0000	5311.6667	5311.6667	9136.0178	normal		
Total Dissolved Solids	mg/L	CBL-306I	17	2	21	1437.0588	267.0853	1000.0000	1910.0000	1437.0588	1709.6860	2772.4853	normal		
Total Dissolved Solids	mg/L	CBL-308I	18	2	20	6696.6667	1385.2713	5810.0000	5680.0000	6696.6667	6696.6667	13623.0230	normal		
Total Dissolved Solids	mg/L	CBL-341I	18	2	20	4667.7778	554.0180	4390.0000	4190.0000	4667.7778	4667.7778	7437.8678	normal		

N(back) and N(mon) = Non-outlier measurements in the background and monitoring periods.
N(tot) = All independent measurements for that constituent and well.
For transformed data, mean and SD in transformed units and control limit in original units.
Conf = confidence level for passing initial test or one of two verification resamples (nonparametric test only).
* - Insufficient Data.
** - Detection Frequency < 25%.
*** - Zero Variance.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Boron, Total	mg/L	CBL-301I	01/21/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	05/04/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	07/27/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	10/24/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	01/23/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	03/22/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	05/18/2017	yes	0.0707					
Boron, Total	mg/L	CBL-301I	07/26/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	02/08/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	07/25/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	01/17/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	05/02/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	07/31/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	01/28/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	09/17/2020	yes	0.0801					
Boron, Total	mg/L	CBL-301I	01/26/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	07/20/2021	yes	0.0826					
Boron, Total	mg/L	CBL-301I	09/07/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	01/26/2022	yes	0.0500	ND				
Boron, Total	mg/L	CBL-301I	07/27/2022	yes	0.0850					
Boron, Total	mg/L	CBL-301I	08/30/2022	yes	0.1070					
Boron, Total	mg/L	CBL-301I	10/25/2022	yes	0.0645					
Boron, Total	mg/L	CBL-301I	01/25/2023		0.1080			0.0959		
Boron, Total	mg/L	CBL-301I	03/07/2023		0.1020			0.1272		
Boron, Total	mg/L	CBL-301I	08/02/2023		0.0500	ND		0.0586		
Boron, Total	mg/L	CBL-302I	01/22/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	05/04/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/27/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	10/24/2016	yes	0.1560		yes			*
Boron, Total	mg/L	CBL-302I	01/23/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	03/22/2017	yes	0.2970		yes			*
Boron, Total	mg/L	CBL-302I	05/16/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/27/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	02/08/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/27/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	01/22/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/31/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	01/30/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	09/17/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	01/28/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/21/2021	yes	0.0743					
Boron, Total	mg/L	CBL-302I	01/27/2022	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	07/28/2022	yes	0.0500	ND				
Boron, Total	mg/L	CBL-302I	01/26/2023		0.1160					**
Boron, Total	mg/L	CBL-302I	07/18/2023		0.0500	ND				
Boron, Total	mg/L	CBL-306I	01/21/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	05/04/2016	yes	0.0717					
Boron, Total	mg/L	CBL-306I	07/26/2016	yes	0.0998					
Boron, Total	mg/L	CBL-306I	10/24/2016	yes	0.0556					
Boron, Total	mg/L	CBL-306I	01/19/2017	yes	0.0500	ND				

* - Outlier for that well and constituent.
** - Non-outlier detected sample Result and / or CUSUM value exceeds limit.
*** - ND value replaced with median RL.
**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Boron, Total	mg/L	CBL-306I	03/22/2017	yes	0.1240					
Boron, Total	mg/L	CBL-306I	05/18/2017	yes	0.0832					
Boron, Total	mg/L	CBL-306I	07/27/2017	yes	0.0531					
Boron, Total	mg/L	CBL-306I	02/08/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	07/27/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	01/16/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	07/31/2019	yes	0.0824		yes			*
Boron, Total	mg/L	CBL-306I	08/23/2019	yes	0.0500					
Boron, Total	mg/L	CBL-306I	01/29/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	09/19/2020	yes	0.0773					
Boron, Total	mg/L	CBL-306I	01/28/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-306I	07/21/2021	yes	0.0927					
Boron, Total	mg/L	CBL-306I	01/27/2022	yes	0.0548					
Boron, Total	mg/L	CBL-306I	07/28/2022	yes	0.1100					
Boron, Total	mg/L	CBL-306I	01/26/2023		0.0973			0.0791		
Boron, Total	mg/L	CBL-306I	07/18/2023		0.0659			0.0679		
Boron, Total	mg/L	CBL-308I	01/22/2016	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	05/04/2016	yes	0.1210					
Boron, Total	mg/L	CBL-308I	07/26/2016	yes	0.1860					
Boron, Total	mg/L	CBL-308I	10/24/2016	yes	0.2560					
Boron, Total	mg/L	CBL-308I	01/19/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	03/22/2017	yes	0.5450					
Boron, Total	mg/L	CBL-308I	05/16/2017	yes	0.1090					
Boron, Total	mg/L	CBL-308I	07/26/2017	yes	0.0799					
Boron, Total	mg/L	CBL-308I	02/06/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	07/25/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	01/18/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	07/31/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	01/29/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	09/18/2020	yes	0.1030					
Boron, Total	mg/L	CBL-308I	01/28/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	07/21/2021	yes	0.1300					
Boron, Total	mg/L	CBL-308I	01/27/2022	yes	0.0500	ND				
Boron, Total	mg/L	CBL-308I	07/27/2022	yes	0.0790					
Boron, Total	mg/L	CBL-308I	01/26/2023		0.1430			0.1144		
Boron, Total	mg/L	CBL-308I	07/18/2023		0.0500	ND		0.1144		
Boron, Total	mg/L	CBL-341I	01/23/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	02/23/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	03/22/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	04/20/2017	yes	0.0587					
Boron, Total	mg/L	CBL-341I	05/16/2017	yes	0.0896					
Boron, Total	mg/L	CBL-341I	06/20/2017	yes	0.0668					
Boron, Total	mg/L	CBL-341I	07/27/2017	yes	0.0507					
Boron, Total	mg/L	CBL-341I	09/11/2017	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	02/08/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	08/24/2018	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	01/22/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	07/31/2019	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	01/30/2020	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	09/17/2020	yes	0.1020					

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Boron, Total	mg/L	CBL-341I	01/27/2021	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	07/22/2021	yes	0.1110					
Boron, Total	mg/L	CBL-341I	01/27/2022	yes	0.0500	ND				
Boron, Total	mg/L	CBL-341I	07/28/2022	yes	0.1150					
Boron, Total	mg/L	CBL-341I	01/26/2023		0.1340			0.1165		
Boron, Total	mg/L	CBL-341I	07/19/2023		0.0760			0.1114		
Calcium, Total	mg/L	CBL-301I	01/21/2016	yes	905.0000					
Calcium, Total	mg/L	CBL-301I	05/04/2016	yes	949.0000					
Calcium, Total	mg/L	CBL-301I	07/27/2016	yes	925.0000					
Calcium, Total	mg/L	CBL-301I	10/24/2016	yes	978.0000					
Calcium, Total	mg/L	CBL-301I	01/23/2017	yes	1000.0000					
Calcium, Total	mg/L	CBL-301I	03/22/2017	yes	1030.0000					
Calcium, Total	mg/L	CBL-301I	05/18/2017	yes	1060.0000					
Calcium, Total	mg/L	CBL-301I	07/26/2017	yes	961.0000					
Calcium, Total	mg/L	CBL-301I	02/08/2018	yes	873.0000					
Calcium, Total	mg/L	CBL-301I	07/25/2018	yes	993.0000					
Calcium, Total	mg/L	CBL-301I	01/17/2019	yes	156.0000		yes			*
Calcium, Total	mg/L	CBL-301I	05/02/2019	yes	762.0000					
Calcium, Total	mg/L	CBL-301I	07/31/2019	yes	783.0000					
Calcium, Total	mg/L	CBL-301I	01/28/2020	yes	851.0000					
Calcium, Total	mg/L	CBL-301I	09/17/2020	yes	1060.0000					
Calcium, Total	mg/L	CBL-301I	01/26/2021	yes	1130.0000					
Calcium, Total	mg/L	CBL-301I	07/20/2021	yes	1100.0000					
Calcium, Total	mg/L	CBL-301I	01/26/2022	yes	999.0000					
Calcium, Total	mg/L	CBL-301I	07/27/2022	yes	1010.0000					
Calcium, Total	mg/L	CBL-301I	01/25/2023		977.0000			964.9444		
Calcium, Total	mg/L	CBL-301I	08/02/2023		1260.0000			1184.0467		
Calcium, Total	mg/L	CBL-302I	01/22/2016	yes	1030.0000					
Calcium, Total	mg/L	CBL-302I	05/04/2016	yes	1010.0000					
Calcium, Total	mg/L	CBL-302I	07/27/2016	yes	1030.0000					
Calcium, Total	mg/L	CBL-302I	10/24/2016	yes	1070.0000					
Calcium, Total	mg/L	CBL-302I	01/23/2017	yes	1100.0000					
Calcium, Total	mg/L	CBL-302I	03/22/2017	yes	1090.0000					
Calcium, Total	mg/L	CBL-302I	05/16/2017	yes	1100.0000					
Calcium, Total	mg/L	CBL-302I	07/27/2017	yes	1040.0000					
Calcium, Total	mg/L	CBL-302I	02/08/2018	yes	934.0000					
Calcium, Total	mg/L	CBL-302I	07/27/2018	yes	995.0000					
Calcium, Total	mg/L	CBL-302I	01/22/2019	yes	855.0000					
Calcium, Total	mg/L	CBL-302I	07/31/2019	yes	914.0000					
Calcium, Total	mg/L	CBL-302I	01/30/2020	yes	838.0000					
Calcium, Total	mg/L	CBL-302I	09/17/2020	yes	853.0000					
Calcium, Total	mg/L	CBL-302I	01/28/2021	yes	1020.0000					
Calcium, Total	mg/L	CBL-302I	07/21/2021	yes	844.0000					
Calcium, Total	mg/L	CBL-302I	01/27/2022	yes	754.0000					
Calcium, Total	mg/L	CBL-302I	07/28/2022	yes	750.0000					
Calcium, Total	mg/L	CBL-302I	01/26/2023		889.0000			957.0556		
Calcium, Total	mg/L	CBL-302I	07/18/2023		981.0000			957.0556		
Calcium, Total	mg/L	CBL-306I	01/21/2016	yes	137.0000					
Calcium, Total	mg/L	CBL-306I	05/04/2016	yes	47.2000		yes			*
Calcium, Total	mg/L	CBL-306I	07/26/2016	yes	105.0000		yes			*

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Calcium, Total	mg/L	CBL-306I	10/24/2016	yes	198.0000					
Calcium, Total	mg/L	CBL-306I	01/19/2017	yes	174.0000					
Calcium, Total	mg/L	CBL-306I	03/22/2017	yes	204.0000					
Calcium, Total	mg/L	CBL-306I	05/18/2017	yes	205.0000					
Calcium, Total	mg/L	CBL-306I	07/27/2017	yes	234.0000					
Calcium, Total	mg/L	CBL-306I	02/08/2018	yes	230.0000					
Calcium, Total	mg/L	CBL-306I	07/27/2018	yes	275.0000					
Calcium, Total	mg/L	CBL-306I	01/16/2019	yes	180.0000					
Calcium, Total	mg/L	CBL-306I	07/31/2019	yes	106.0000		yes			*
Calcium, Total	mg/L	CBL-306I	08/23/2019	yes	226.0000					
Calcium, Total	mg/L	CBL-306I	01/29/2020	yes	247.0000					
Calcium, Total	mg/L	CBL-306I	09/19/2020	yes	260.0000					
Calcium, Total	mg/L	CBL-306I	01/28/2021	yes	257.0000					
Calcium, Total	mg/L	CBL-306I	07/21/2021	yes	216.0000					
Calcium, Total	mg/L	CBL-306I	01/27/2022	yes	212.0000					
Calcium, Total	mg/L	CBL-306I	07/28/2022	yes	182.0000					
Calcium, Total	mg/L	CBL-306I	01/26/2023		149.0000			214.8125		
Calcium, Total	mg/L	CBL-306I	07/18/2023		260.0000			232.8073		
Calcium, Total	mg/L	CBL-308I	01/22/2016	yes	903.0000					
Calcium, Total	mg/L	CBL-308I	05/04/2016	yes	870.0000					
Calcium, Total	mg/L	CBL-308I	07/26/2016	yes	911.0000					
Calcium, Total	mg/L	CBL-308I	10/24/2016	yes	939.0000					
Calcium, Total	mg/L	CBL-308I	01/19/2017	yes	919.0000					
Calcium, Total	mg/L	CBL-308I	03/22/2017	yes	947.0000					
Calcium, Total	mg/L	CBL-308I	05/16/2017	yes	954.0000					
Calcium, Total	mg/L	CBL-308I	07/26/2017	yes	878.0000					
Calcium, Total	mg/L	CBL-308I	02/06/2018	yes	859.0000					
Calcium, Total	mg/L	CBL-308I	07/25/2018	yes	863.0000					
Calcium, Total	mg/L	CBL-308I	01/18/2019	yes	760.0000					
Calcium, Total	mg/L	CBL-308I	07/31/2019	yes	840.0000					
Calcium, Total	mg/L	CBL-308I	01/29/2020	yes	745.0000					
Calcium, Total	mg/L	CBL-308I	09/18/2020	yes	838.0000					
Calcium, Total	mg/L	CBL-308I	01/28/2021	yes	830.0000					
Calcium, Total	mg/L	CBL-308I	07/21/2021	yes	684.0000					
Calcium, Total	mg/L	CBL-308I	01/27/2022	yes	974.0000					
Calcium, Total	mg/L	CBL-308I	07/27/2022	yes	736.0000					
Calcium, Total	mg/L	CBL-308I	01/26/2023		732.0000			858.3333		
Calcium, Total	mg/L	CBL-308I	07/18/2023		642.0000			858.3333		
Calcium, Total	mg/L	CBL-341I	01/23/2017	yes	854.0000					
Calcium, Total	mg/L	CBL-341I	02/23/2017	yes	870.0000					
Calcium, Total	mg/L	CBL-341I	03/22/2017	yes	906.0000					
Calcium, Total	mg/L	CBL-341I	04/20/2017	yes	898.0000					
Calcium, Total	mg/L	CBL-341I	05/16/2017	yes	860.0000					
Calcium, Total	mg/L	CBL-341I	06/20/2017	yes	950.0000					
Calcium, Total	mg/L	CBL-341I	07/27/2017	yes	829.0000					
Calcium, Total	mg/L	CBL-341I	09/11/2017	yes	848.0000					
Calcium, Total	mg/L	CBL-341I	02/08/2018	yes	810.0000					
Calcium, Total	mg/L	CBL-341I	08/24/2018	yes	824.0000					
Calcium, Total	mg/L	CBL-341I	01/22/2019	yes	782.0000					
Calcium, Total	mg/L	CBL-341I	07/31/2019	yes	714.0000					

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Calcium, Total	mg/L	CBL-341I	01/30/2020	yes	767.0000					
Calcium, Total	mg/L	CBL-341I	09/17/2020	yes	814.0000					
Calcium, Total	mg/L	CBL-341I	01/27/2021	yes	874.0000					
Calcium, Total	mg/L	CBL-341I	07/22/2021	yes	852.0000					
Calcium, Total	mg/L	CBL-341I	01/27/2022	yes	1040.0000					
Calcium, Total	mg/L	CBL-341I	07/28/2022	yes	704.0000					
Calcium, Total	mg/L	CBL-341I	01/26/2023		797.0000			844.2222		
Calcium, Total	mg/L	CBL-341I	07/19/2023		710.0000			844.2222		
Chloride	mg/L	CBL-301I	01/21/2016	yes	2300.0000					
Chloride	mg/L	CBL-301I	05/04/2016	yes	2160.0000					
Chloride	mg/L	CBL-301I	07/27/2016	yes	2290.0000					
Chloride	mg/L	CBL-301I	10/24/2016	yes	2250.0000					
Chloride	mg/L	CBL-301I	01/23/2017	yes	3200.0000					
Chloride	mg/L	CBL-301I	03/22/2017	yes	2390.0000					
Chloride	mg/L	CBL-301I	05/18/2017	yes	2420.0000					
Chloride	mg/L	CBL-301I	07/26/2017	yes	2500.0000					
Chloride	mg/L	CBL-301I	02/08/2018	yes	2480.0000					
Chloride	mg/L	CBL-301I	07/25/2018	yes	1330.0000					
Chloride	mg/L	CBL-301I	01/17/2019	yes	619.0000		yes			*
Chloride	mg/L	CBL-301I	05/02/2019	yes	1910.0000					
Chloride	mg/L	CBL-301I	07/31/2019	yes	2240.0000					
Chloride	mg/L	CBL-301I	01/28/2020	yes	2360.0000					
Chloride	mg/L	CBL-301I	09/17/2020	yes	2270.0000					
Chloride	mg/L	CBL-301I	01/26/2021	yes	2420.0000					
Chloride	mg/L	CBL-301I	07/20/2021	yes	2590.0000					
Chloride	mg/L	CBL-301I	01/26/2022	yes	2440.0000					
Chloride	mg/L	CBL-301I	07/27/2022	yes	1840.0000					
Chloride	mg/L	CBL-301I	01/25/2023		1960.0000			2299.4444		
Chloride	mg/L	CBL-301I	08/02/2023		2220.0000			2299.4444		
Chloride	mg/L	CBL-302I	01/22/2016	yes	2190.0000					
Chloride	mg/L	CBL-302I	05/04/2016	yes	2130.0000					
Chloride	mg/L	CBL-302I	07/27/2016	yes	2210.0000					
Chloride	mg/L	CBL-302I	10/24/2016	yes	2170.0000					
Chloride	mg/L	CBL-302I	01/23/2017	yes	2080.0000					
Chloride	mg/L	CBL-302I	03/22/2017	yes	2050.0000					
Chloride	mg/L	CBL-302I	05/16/2017	yes	2230.0000					
Chloride	mg/L	CBL-302I	07/27/2017	yes	2040.0000					
Chloride	mg/L	CBL-302I	02/08/2018	yes	2080.0000					
Chloride	mg/L	CBL-302I	07/27/2018	yes	1980.0000					
Chloride	mg/L	CBL-302I	01/22/2019	yes	1960.0000					
Chloride	mg/L	CBL-302I	07/31/2019	yes	1540.0000					
Chloride	mg/L	CBL-302I	01/30/2020	yes	1540.0000					
Chloride	mg/L	CBL-302I	09/17/2020	yes	1410.0000					
Chloride	mg/L	CBL-302I	01/28/2021	yes	1370.0000					
Chloride	mg/L	CBL-302I	07/21/2021	yes	1380.0000					
Chloride	mg/L	CBL-302I	01/27/2022	yes	1310.0000					
Chloride	mg/L	CBL-302I	07/28/2022	yes	1300.0000					
Chloride	mg/L	CBL-302I	01/26/2023		1460.0000			1831.6667		
Chloride	mg/L	CBL-302I	07/18/2023		1330.0000			1831.6667		
Chloride	mg/L	CBL-306I	01/21/2016	yes	155.0000					

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Analytical Data and CUSUM Summary

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Chloride	mg/L	CBL-306I	05/04/2016	yes	20.0000		yes			*
Chloride	mg/L	CBL-306I	07/26/2016	yes	114.0000		yes			*
Chloride	mg/L	CBL-306I	10/24/2016	yes	330.0000					
Chloride	mg/L	CBL-306I	01/19/2017	yes	197.0000					
Chloride	mg/L	CBL-306I	03/22/2017	yes	231.0000					
Chloride	mg/L	CBL-306I	05/18/2017	yes	289.0000					
Chloride	mg/L	CBL-306I	07/27/2017	yes	350.0000					
Chloride	mg/L	CBL-306I	02/08/2018	yes	385.0000					
Chloride	mg/L	CBL-306I	07/27/2018	yes	283.0000					
Chloride	mg/L	CBL-306I	01/16/2019	yes	215.0000					
Chloride	mg/L	CBL-306I	07/31/2019	yes	538.0000		yes			*
Chloride	mg/L	CBL-306I	08/23/2019	yes	318.0000					
Chloride	mg/L	CBL-306I	01/29/2020	yes	445.0000					
Chloride	mg/L	CBL-306I	09/19/2020	yes	420.0000					
Chloride	mg/L	CBL-306I	01/28/2021	yes	292.0000					
Chloride	mg/L	CBL-306I	07/21/2021	yes	255.0000					
Chloride	mg/L	CBL-306I	01/27/2022	yes	384.0000					
Chloride	mg/L	CBL-306I	07/28/2022	yes	261.0000					
Chloride	mg/L	CBL-306I	01/26/2023		148.0000			300.6250		
Chloride	mg/L	CBL-306I	07/18/2023		336.0000			300.6250		
Chloride	mg/L	CBL-308I	01/22/2016	yes	2760.0000					
Chloride	mg/L	CBL-308I	05/04/2016	yes	2580.0000					
Chloride	mg/L	CBL-308I	07/26/2016	yes	2680.0000					
Chloride	mg/L	CBL-308I	10/24/2016	yes	2870.0000					
Chloride	mg/L	CBL-308I	01/19/2017	yes	2360.0000					
Chloride	mg/L	CBL-308I	03/22/2017	yes	2530.0000					
Chloride	mg/L	CBL-308I	05/16/2017	yes	2740.0000					
Chloride	mg/L	CBL-308I	07/26/2017	yes	2760.0000					
Chloride	mg/L	CBL-308I	02/06/2018	yes	2750.0000					
Chloride	mg/L	CBL-308I	07/25/2018	yes	2680.0000					
Chloride	mg/L	CBL-308I	01/18/2019	yes	2240.0000					
Chloride	mg/L	CBL-308I	07/31/2019	yes	2290.0000					
Chloride	mg/L	CBL-308I	01/29/2020	yes	2110.0000					
Chloride	mg/L	CBL-308I	09/18/2020	yes	2410.0000					
Chloride	mg/L	CBL-308I	01/28/2021	yes	2200.0000					
Chloride	mg/L	CBL-308I	07/21/2021	yes	1780.0000					
Chloride	mg/L	CBL-308I	01/27/2022	yes	2020.0000					
Chloride	mg/L	CBL-308I	07/27/2022	yes	2470.0000					
Chloride	mg/L	CBL-308I	01/26/2023		2570.0000			2457.2222		
Chloride	mg/L	CBL-308I	07/18/2023		1840.0000			2457.2222		
Chloride	mg/L	CBL-341I	01/23/2017	yes	1600.0000					
Chloride	mg/L	CBL-341I	02/23/2017	yes	2000.0000					
Chloride	mg/L	CBL-341I	03/22/2017	yes	1780.0000					
Chloride	mg/L	CBL-341I	04/20/2017	yes	1770.0000					
Chloride	mg/L	CBL-341I	05/16/2017	yes	1900.0000					
Chloride	mg/L	CBL-341I	06/20/2017	yes	1820.0000					
Chloride	mg/L	CBL-341I	07/27/2017	yes	1970.0000					
Chloride	mg/L	CBL-341I	09/11/2017	yes	1710.0000					
Chloride	mg/L	CBL-341I	02/08/2018	yes	2110.0000					
Chloride	mg/L	CBL-341I	08/24/2018	yes	1910.0000					

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Chloride	mg/L	CBL-341I	01/22/2019	yes	1790.0000					
Chloride	mg/L	CBL-341I	07/31/2019	yes	1650.0000					
Chloride	mg/L	CBL-341I	01/30/2020	yes	1780.0000					
Chloride	mg/L	CBL-341I	09/17/2020	yes	1700.0000					
Chloride	mg/L	CBL-341I	01/27/2021	yes	1800.0000					
Chloride	mg/L	CBL-341I	07/22/2021	yes	1750.0000					
Chloride	mg/L	CBL-341I	01/27/2022	yes	1810.0000					
Chloride	mg/L	CBL-341I	07/28/2022	yes	1690.0000					
Chloride	mg/L	CBL-341I	01/26/2023		1660.0000			1807.7778		
Chloride	mg/L	CBL-341I	07/19/2023		1530.0000			1807.7778		
Fluoride	mg/L	CBL-301I	01/21/2016	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-301I	05/04/2016	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	07/27/2016	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	10/24/2016	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-301I	01/23/2017	yes	0.3120					
Fluoride	mg/L	CBL-301I	03/22/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	05/18/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	07/26/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	02/08/2018	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	07/25/2018	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	01/17/2019	yes	0.2190					
Fluoride	mg/L	CBL-301I	05/02/2019	yes	0.1120					
Fluoride	mg/L	CBL-301I	07/31/2019	yes	0.0510					
Fluoride	mg/L	CBL-301I	01/28/2020	yes	0.1300					
Fluoride	mg/L	CBL-301I	09/17/2020	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-301I	01/26/2021	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	07/20/2021	yes	2.6800					
Fluoride	mg/L	CBL-301I	09/07/2021	yes	0.5000	ND				
Fluoride	mg/L	CBL-301I	01/26/2022	yes	0.0500	ND			0.5000	***
Fluoride	mg/L	CBL-301I	07/27/2022	yes	0.1560					
Fluoride	mg/L	CBL-301I	01/25/2023		1.7200			1.3175		
Fluoride	mg/L	CBL-301I	03/07/2023		0.0500	ND		0.5080		
Fluoride	mg/L	CBL-301I	08/02/2023		0.0540			0.5080		
Fluoride	mg/L	CBL-302I	01/22/2016	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-302I	05/04/2016	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	07/27/2016	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	10/24/2016	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-302I	01/23/2017	yes	0.3320					
Fluoride	mg/L	CBL-302I	03/22/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	05/16/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	07/27/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	02/08/2018	yes	0.1120					
Fluoride	mg/L	CBL-302I	07/27/2018	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	01/22/2019	yes	0.0402					
Fluoride	mg/L	CBL-302I	07/31/2019	yes	0.0605					
Fluoride	mg/L	CBL-302I	01/30/2020	yes	0.1930					
Fluoride	mg/L	CBL-302I	09/17/2020	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-302I	01/28/2021	yes	0.5000	ND				
Fluoride	mg/L	CBL-302I	07/21/2021	yes	2.2500					
Fluoride	mg/L	CBL-302I	09/07/2021	yes	0.2500	ND			0.5000	***

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Fluoride	mg/L	CBL-302I	01/27/2022	yes	0.0500	ND			0.5000	***
Fluoride	mg/L	CBL-302I	07/28/2022	yes	0.1650					
Fluoride	mg/L	CBL-302I	01/26/2023		0.5000	ND		0.4817		
Fluoride	mg/L	CBL-302I	07/18/2023		1.7600			1.4133		
Fluoride	mg/L	CBL-306I	01/21/2016	yes	2.5000					
Fluoride	mg/L	CBL-306I	05/04/2016	yes	1.0000					
Fluoride	mg/L	CBL-306I	07/26/2016	yes	1.3700					
Fluoride	mg/L	CBL-306I	10/24/2016	yes	2.3800					
Fluoride	mg/L	CBL-306I	01/19/2017	yes	1.8500					
Fluoride	mg/L	CBL-306I	03/22/2017	yes	12.6000		yes			*
Fluoride	mg/L	CBL-306I	05/18/2017	yes	2.2000					
Fluoride	mg/L	CBL-306I	07/27/2017	yes	2.9100					
Fluoride	mg/L	CBL-306I	02/08/2018	yes	2.8100					
Fluoride	mg/L	CBL-306I	07/27/2018	yes	2.9500					
Fluoride	mg/L	CBL-306I	01/16/2019	yes	1.9800					
Fluoride	mg/L	CBL-306I	07/31/2019	yes	9.2600		yes			*
Fluoride	mg/L	CBL-306I	08/23/2019	yes	2.6600					
Fluoride	mg/L	CBL-306I	01/29/2020	yes	2.8300					
Fluoride	mg/L	CBL-306I	09/19/2020	yes	2.7200					
Fluoride	mg/L	CBL-306I	01/28/2021	yes	2.9000					
Fluoride	mg/L	CBL-306I	07/21/2021	yes	2.4200					
Fluoride	mg/L	CBL-306I	01/27/2022	yes	2.9900					
Fluoride	mg/L	CBL-306I	07/28/2022	yes	2.2600					
Fluoride	mg/L	CBL-306I	01/26/2023		1.9200			2.3959		
Fluoride	mg/L	CBL-306I	07/18/2023		2.6600			2.3959		
Fluoride	mg/L	CBL-308I	01/22/2016	yes	1.4900					
Fluoride	mg/L	CBL-308I	05/04/2016	yes	2.3000					
Fluoride	mg/L	CBL-308I	07/26/2016	yes	1.6400					
Fluoride	mg/L	CBL-308I	10/24/2016	yes	1.5900					
Fluoride	mg/L	CBL-308I	01/19/2017	yes	1.3300					
Fluoride	mg/L	CBL-308I	03/22/2017	yes	9.0500		yes			*
Fluoride	mg/L	CBL-308I	05/16/2017	yes	1.7000					
Fluoride	mg/L	CBL-308I	07/26/2017	yes	1.9000					
Fluoride	mg/L	CBL-308I	02/06/2018	yes	1.7600					
Fluoride	mg/L	CBL-308I	07/25/2018	yes	2.1000					
Fluoride	mg/L	CBL-308I	01/18/2019	yes	1.6800					
Fluoride	mg/L	CBL-308I	07/31/2019	yes	1.6200					
Fluoride	mg/L	CBL-308I	01/29/2020	yes	1.6000					
Fluoride	mg/L	CBL-308I	09/18/2020	yes	1.3300					
Fluoride	mg/L	CBL-308I	01/28/2021	yes	1.4400					
Fluoride	mg/L	CBL-308I	07/21/2021	yes	1.7400					
Fluoride	mg/L	CBL-308I	01/27/2022	yes	1.7500					
Fluoride	mg/L	CBL-308I	07/27/2022	yes	1.4300					
Fluoride	mg/L	CBL-308I	01/26/2023		0.5000	ND		1.6706		
Fluoride	mg/L	CBL-308I	07/18/2023		1.8600			1.6706		
Fluoride	mg/L	CBL-341I	01/23/2017	yes	0.5300					
Fluoride	mg/L	CBL-341I	02/23/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-341I	03/22/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-341I	04/20/2017	yes	0.5000	ND				
Fluoride	mg/L	CBL-341I	05/16/2017	yes	0.5000	ND				

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Fluoride	mg/L	CBL-341I	06/20/2017	yes	0.3350					
Fluoride	mg/L	CBL-341I	07/27/2017	yes	0.0550					
Fluoride	mg/L	CBL-341I	09/11/2017	yes	0.3670					
Fluoride	mg/L	CBL-341I	02/08/2018	yes	0.1060					
Fluoride	mg/L	CBL-341I	08/24/2018	yes	0.1140					
Fluoride	mg/L	CBL-341I	01/22/2019	yes	0.0546					
Fluoride	mg/L	CBL-341I	07/31/2019	yes	0.1000					
Fluoride	mg/L	CBL-341I	01/30/2020	yes	0.1530					
Fluoride	mg/L	CBL-341I	09/17/2020	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-341I	01/27/2021	yes	0.5000	ND				
Fluoride	mg/L	CBL-341I	07/22/2021	yes	1.1600					
Fluoride	mg/L	CBL-341I	09/07/2021	yes	0.2500	ND			0.5000	***
Fluoride	mg/L	CBL-341I	01/27/2022	yes	0.0500	ND			0.5000	***
Fluoride	mg/L	CBL-341I	07/28/2022	yes	0.1410					
Fluoride	mg/L	CBL-341I	01/26/2023		0.2500	ND		0.3745		
Fluoride	mg/L	CBL-341I	07/19/2023		1.1200			0.9191		
pH	S.U.	CBL-301I	01/21/2016	yes	6.3300					
pH	S.U.	CBL-301I	05/04/2016	yes	6.2600					
pH	S.U.	CBL-301I	07/27/2016	yes	5.9500					
pH	S.U.	CBL-301I	10/24/2016	yes	6.2300					
pH	S.U.	CBL-301I	01/23/2017	yes	6.2600					
pH	S.U.	CBL-301I	03/22/2017	yes	6.3100					
pH	S.U.	CBL-301I	05/18/2017	yes	5.9500					
pH	S.U.	CBL-301I	07/26/2017	yes	6.0200					
pH	S.U.	CBL-301I	02/08/2018	yes	6.1700					
pH	S.U.	CBL-301I	07/25/2018	yes	6.0400					
pH	S.U.	CBL-301I	01/17/2019	yes	7.1600					
pH	S.U.	CBL-301I	05/02/2019	yes	6.1400					
pH	S.U.	CBL-301I	07/31/2019	yes	6.1900					
pH	S.U.	CBL-301I	01/28/2020	yes	6.2600					
pH	S.U.	CBL-301I	09/17/2020	yes	6.1300					
pH	S.U.	CBL-301I	01/26/2021	yes	6.0600					
pH	S.U.	CBL-301I	07/20/2021	yes	6.1300					
pH	S.U.	CBL-301I	09/07/2021	yes	6.1400					
pH	S.U.	CBL-301I	01/26/2022	yes	6.2700					
pH	S.U.	CBL-301I	07/27/2022	yes	6.0800					
pH	S.U.	CBL-301I	08/30/2022	yes	6.1400					
pH	S.U.	CBL-301I	10/25/2022	yes	6.2100					
pH	S.U.	CBL-301I	01/25/2023		6.3400			6.2014		
pH	S.U.	CBL-301I	08/02/2023		6.2100			6.2014		
pH	S.U.	CBL-302I	01/22/2016	yes	6.2900					
pH	S.U.	CBL-302I	05/04/2016	yes	6.0100					
pH	S.U.	CBL-302I	07/27/2016	yes	5.1700					
pH	S.U.	CBL-302I	10/24/2016	yes	7.7500					
pH	S.U.	CBL-302I	01/23/2017	yes	5.3600					
pH	S.U.	CBL-302I	03/22/2017	yes	5.4000					
pH	S.U.	CBL-302I	05/16/2017	yes	4.9400					
pH	S.U.	CBL-302I	07/27/2017	yes	6.2000					
pH	S.U.	CBL-302I	02/08/2018	yes	6.2100					
pH	S.U.	CBL-302I	07/27/2018	yes	5.7700					

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
pH	S.U.	CBL-302I	01/22/2019	yes	6.4400					
pH	S.U.	CBL-302I	07/31/2019	yes	6.1500					
pH	S.U.	CBL-302I	01/30/2020	yes	6.3400					
pH	S.U.	CBL-302I	09/17/2020	yes	6.2000					
pH	S.U.	CBL-302I	01/28/2021	yes	6.2100					
pH	S.U.	CBL-302I	07/21/2021	yes	6.0600					
pH	S.U.	CBL-302I	09/07/2021	yes	6.2800					
pH	S.U.	CBL-302I	01/27/2022	yes	6.3200					
pH	S.U.	CBL-302I	07/28/2022	yes	6.2100					
pH	S.U.	CBL-302I	01/26/2023		6.3300			6.0689		
pH	S.U.	CBL-302I	07/18/2023		6.2000			6.0689		
pH	S.U.	CBL-306I	01/21/2016	yes	7.0900					
pH	S.U.	CBL-306I	05/04/2016	yes	6.6900					
pH	S.U.	CBL-306I	07/26/2016	yes	6.9500					
pH	S.U.	CBL-306I	10/24/2016	yes	6.7200					
pH	S.U.	CBL-306I	01/19/2017	yes	7.2900					
pH	S.U.	CBL-306I	03/22/2017	yes	4.4100					
pH	S.U.	CBL-306I	05/18/2017	yes	5.6100					
pH	S.U.	CBL-306I	07/27/2017	yes	6.9400					
pH	S.U.	CBL-306I	02/08/2018	yes	6.6700					
pH	S.U.	CBL-306I	07/27/2018	yes	6.8600					
pH	S.U.	CBL-306I	01/16/2019	yes	6.7800					
pH	S.U.	CBL-306I	07/31/2019	yes	6.9200		yes			*
pH	S.U.	CBL-306I	08/23/2019	yes	6.8300					
pH	S.U.	CBL-306I	01/29/2020	yes	6.7000					
pH	S.U.	CBL-306I	09/19/2020	yes	7.1600					
pH	S.U.	CBL-306I	01/28/2021	yes	6.8400					
pH	S.U.	CBL-306I	07/21/2021	yes	6.5500					
pH	S.U.	CBL-306I	01/27/2022	yes	6.8700					
pH	S.U.	CBL-306I	07/28/2022	yes	6.7000					
pH	S.U.	CBL-306I	01/26/2023		7.3000			6.8073		
pH	S.U.	CBL-306I	07/18/2023		6.4900			6.6478		
pH	S.U.	CBL-308I	01/22/2016	yes	6.3600					
pH	S.U.	CBL-308I	05/04/2016	yes	6.1300					
pH	S.U.	CBL-308I	07/26/2016	yes	5.9500					
pH	S.U.	CBL-308I	10/24/2016	yes	6.2700					
pH	S.U.	CBL-308I	01/19/2017	yes	6.8300					
pH	S.U.	CBL-308I	03/22/2017	yes	6.2700					
pH	S.U.	CBL-308I	05/16/2017	yes	5.5400					
pH	S.U.	CBL-308I	07/26/2017	yes	6.2700					
pH	S.U.	CBL-308I	02/06/2018	yes	6.2600					
pH	S.U.	CBL-308I	07/25/2018	yes	6.0700					
pH	S.U.	CBL-308I	01/18/2019	yes	6.3900					
pH	S.U.	CBL-308I	07/31/2019	yes	6.2500					
pH	S.U.	CBL-308I	01/29/2020	yes	6.3700					
pH	S.U.	CBL-308I	09/18/2020	yes	6.2200					
pH	S.U.	CBL-308I	01/28/2021	yes	6.2600					
pH	S.U.	CBL-308I	07/21/2021	yes	6.1600					
pH	S.U.	CBL-308I	01/27/2022	yes	6.3600					
pH	S.U.	CBL-308I	07/27/2022	yes	6.2300					

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
pH	S.U.	CBL-308I	01/26/2023		6.4100			6.2328		
pH	S.U.	CBL-308I	07/18/2023		6.2600			6.2328		
pH	S.U.	CBL-341I	01/23/2017	yes	5.7400					
pH	S.U.	CBL-341I	02/23/2017	yes	5.2300		yes			*
pH	S.U.	CBL-341I	03/22/2017	yes	5.7200					
pH	S.U.	CBL-341I	04/20/2017	yes	5.7300					
pH	S.U.	CBL-341I	05/16/2017	yes	5.5400					
pH	S.U.	CBL-341I	06/20/2017	yes	6.1900					
pH	S.U.	CBL-341I	07/27/2017	yes	6.2100					
pH	S.U.	CBL-341I	09/11/2017	yes	6.1000					
pH	S.U.	CBL-341I	02/08/2018	yes	6.1800					
pH	S.U.	CBL-341I	08/24/2018	yes	5.8200					
pH	S.U.	CBL-341I	01/22/2019	yes	6.3800					
pH	S.U.	CBL-341I	07/31/2019	yes	6.2300					
pH	S.U.	CBL-341I	01/30/2020	yes	6.2700					
pH	S.U.	CBL-341I	09/17/2020	yes	6.1400					
pH	S.U.	CBL-341I	01/27/2021	yes	6.0600					
pH	S.U.	CBL-341I	07/22/2021	yes	5.9800					
pH	S.U.	CBL-341I	09/07/2021	yes	6.1800					
pH	S.U.	CBL-341I	01/27/2022	yes	6.2600					
pH	S.U.	CBL-341I	07/28/2022	yes	6.1600					
pH	S.U.	CBL-341I	01/26/2023		6.2800			6.1017		
pH	S.U.	CBL-341I	07/19/2023		6.2200			6.0939		
Sulfate	mg/L	CBL-301I	01/21/2016	yes	336.0000					
Sulfate	mg/L	CBL-301I	05/04/2016	yes	311.0000					
Sulfate	mg/L	CBL-301I	07/27/2016	yes	336.0000					
Sulfate	mg/L	CBL-301I	10/24/2016	yes	326.0000					
Sulfate	mg/L	CBL-301I	01/23/2017	yes	488.0000					
Sulfate	mg/L	CBL-301I	03/22/2017	yes	337.0000					
Sulfate	mg/L	CBL-301I	05/18/2017	yes	342.0000					
Sulfate	mg/L	CBL-301I	07/26/2017	yes	381.0000					
Sulfate	mg/L	CBL-301I	02/08/2018	yes	344.0000					
Sulfate	mg/L	CBL-301I	07/25/2018	yes	196.0000					
Sulfate	mg/L	CBL-301I	01/17/2019	yes	104.0000		yes			*
Sulfate	mg/L	CBL-301I	05/02/2019	yes	398.0000					
Sulfate	mg/L	CBL-301I	07/31/2019	yes	332.0000					
Sulfate	mg/L	CBL-301I	01/28/2020	yes	349.0000					
Sulfate	mg/L	CBL-301I	09/17/2020	yes	350.0000					
Sulfate	mg/L	CBL-301I	01/26/2021	yes	374.0000					
Sulfate	mg/L	CBL-301I	07/20/2021	yes	419.0000					
Sulfate	mg/L	CBL-301I	01/26/2022	yes	406.0000					
Sulfate	mg/L	CBL-301I	07/27/2022	yes	285.0000					
Sulfate	mg/L	CBL-301I	01/25/2023		1370.0000			1324.7798		**
Sulfate	mg/L	CBL-301I	03/07/2023		207.0000			350.5556		
Sulfate	mg/L	CBL-301I	08/02/2023		383.0000			350.5556		
Sulfate	mg/L	CBL-302I	01/22/2016	yes	1020.0000					
Sulfate	mg/L	CBL-302I	05/04/2016	yes	993.0000					
Sulfate	mg/L	CBL-302I	07/27/2016	yes	1090.0000					
Sulfate	mg/L	CBL-302I	10/24/2016	yes	1180.0000					
Sulfate	mg/L	CBL-302I	01/23/2017	yes	1150.0000					

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Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Sulfate	mg/L	CBL-302I	03/22/2017	yes	1120.0000					
Sulfate	mg/L	CBL-302I	05/16/2017	yes	1230.0000					
Sulfate	mg/L	CBL-302I	07/27/2017	yes	1180.0000					
Sulfate	mg/L	CBL-302I	02/08/2018	yes	1240.0000					
Sulfate	mg/L	CBL-302I	07/27/2018	yes	1390.0000					
Sulfate	mg/L	CBL-302I	01/22/2019	yes	1250.0000					
Sulfate	mg/L	CBL-302I	07/31/2019	yes	1260.0000					
Sulfate	mg/L	CBL-302I	01/30/2020	yes	1350.0000					
Sulfate	mg/L	CBL-302I	09/17/2020	yes	1280.0000					
Sulfate	mg/L	CBL-302I	01/28/2021	yes	1290.0000					
Sulfate	mg/L	CBL-302I	07/21/2021	yes	1350.0000					
Sulfate	mg/L	CBL-302I	01/27/2022	yes	1340.0000					
Sulfate	mg/L	CBL-302I	07/28/2022	yes	1300.0000					
Sulfate	mg/L	CBL-302I	01/26/2023		1390.0000			1304.4147		
Sulfate	mg/L	CBL-302I	07/18/2023		1230.0000			1225.8850		
Sulfate	mg/L	CBL-306I	01/21/2016	yes	266.0000					
Sulfate	mg/L	CBL-306I	05/04/2016	yes	29.5000		yes			*
Sulfate	mg/L	CBL-306I	07/26/2016	yes	139.0000					
Sulfate	mg/L	CBL-306I	10/24/2016	yes	432.0000					
Sulfate	mg/L	CBL-306I	01/19/2017	yes	270.0000					
Sulfate	mg/L	CBL-306I	03/22/2017	yes	340.0000					
Sulfate	mg/L	CBL-306I	05/18/2017	yes	412.0000					
Sulfate	mg/L	CBL-306I	07/27/2017	yes	513.0000					
Sulfate	mg/L	CBL-306I	02/08/2018	yes	493.0000					
Sulfate	mg/L	CBL-306I	07/27/2018	yes	406.0000					
Sulfate	mg/L	CBL-306I	01/16/2019	yes	292.0000					
Sulfate	mg/L	CBL-306I	07/31/2019	yes	816.0000		yes			*
Sulfate	mg/L	CBL-306I	08/23/2019	yes	387.0000					
Sulfate	mg/L	CBL-306I	01/29/2020	yes	561.0000					
Sulfate	mg/L	CBL-306I	09/19/2020	yes	506.0000					
Sulfate	mg/L	CBL-306I	01/28/2021	yes	388.0000					
Sulfate	mg/L	CBL-306I	07/21/2021	yes	336.0000					
Sulfate	mg/L	CBL-306I	01/27/2022	yes	510.0000					
Sulfate	mg/L	CBL-306I	07/28/2022	yes	348.0000					
Sulfate	mg/L	CBL-306I	01/26/2023		205.0000			388.1765		
Sulfate	mg/L	CBL-306I	07/18/2023		454.0000			388.1765		
Sulfate	mg/L	CBL-308I	01/22/2016	yes	1490.0000					
Sulfate	mg/L	CBL-308I	05/04/2016	yes	1410.0000					
Sulfate	mg/L	CBL-308I	07/26/2016	yes	1490.0000					
Sulfate	mg/L	CBL-308I	10/24/2016	yes	1550.0000					
Sulfate	mg/L	CBL-308I	01/19/2017	yes	1320.0000					
Sulfate	mg/L	CBL-308I	03/22/2017	yes	1470.0000					
Sulfate	mg/L	CBL-308I	05/16/2017	yes	1580.0000					
Sulfate	mg/L	CBL-308I	07/26/2017	yes	1550.0000					
Sulfate	mg/L	CBL-308I	02/06/2018	yes	1570.0000					
Sulfate	mg/L	CBL-308I	07/25/2018	yes	1540.0000					
Sulfate	mg/L	CBL-308I	01/18/2019	yes	1520.0000					
Sulfate	mg/L	CBL-308I	07/31/2019	yes	1420.0000					
Sulfate	mg/L	CBL-308I	01/29/2020	yes	1340.0000					
Sulfate	mg/L	CBL-308I	09/18/2020	yes	1310.0000					

* - Outlier for that well and constituent.
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*** - ND value replaced with median RL.
**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Sulfate	mg/L	CBL-308I	01/28/2021	yes	1340.0000					
Sulfate	mg/L	CBL-308I	07/21/2021	yes	1240.0000					
Sulfate	mg/L	CBL-308I	01/27/2022	yes	1310.0000					
Sulfate	mg/L	CBL-308I	07/27/2022	yes	1190.0000					
Sulfate	mg/L	CBL-308I	01/26/2023		445.0000			1424.4444		
Sulfate	mg/L	CBL-308I	07/18/2023		1290.0000			1424.4444		
Sulfate	mg/L	CBL-341I	01/23/2017	yes	307.0000					
Sulfate	mg/L	CBL-341I	02/23/2017	yes	404.0000					
Sulfate	mg/L	CBL-341I	03/22/2017	yes	346.0000					
Sulfate	mg/L	CBL-341I	04/20/2017	yes	336.0000					
Sulfate	mg/L	CBL-341I	05/16/2017	yes	369.0000					
Sulfate	mg/L	CBL-341I	06/20/2017	yes	363.0000					
Sulfate	mg/L	CBL-341I	07/27/2017	yes	419.0000					
Sulfate	mg/L	CBL-341I	09/11/2017	yes	354.0000					
Sulfate	mg/L	CBL-341I	02/08/2018	yes	383.0000					
Sulfate	mg/L	CBL-341I	08/24/2018	yes	376.0000					
Sulfate	mg/L	CBL-341I	01/22/2019	yes	358.0000					
Sulfate	mg/L	CBL-341I	07/31/2019	yes	329.0000					
Sulfate	mg/L	CBL-341I	01/30/2020	yes	351.0000					
Sulfate	mg/L	CBL-341I	09/17/2020	yes	336.0000					
Sulfate	mg/L	CBL-341I	01/27/2021	yes	324.0000					
Sulfate	mg/L	CBL-341I	07/22/2021	yes	316.0000					
Sulfate	mg/L	CBL-341I	01/27/2022	yes	320.0000					
Sulfate	mg/L	CBL-341I	07/28/2022	yes	296.0000					
Sulfate	mg/L	CBL-341I	01/26/2023		309.0000			349.2778		
Sulfate	mg/L	CBL-341I	07/19/2023		259.0000			349.2778		
Total Dissolved Solids	mg/L	CBL-301I	01/21/2016	yes	4380.0000					
Total Dissolved Solids	mg/L	CBL-301I	05/04/2016	yes	5050.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/27/2016	yes	6020.0000					
Total Dissolved Solids	mg/L	CBL-301I	10/24/2016	yes	4570.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/23/2017	yes	6140.0000					
Total Dissolved Solids	mg/L	CBL-301I	03/22/2017	yes	6570.0000					
Total Dissolved Solids	mg/L	CBL-301I	05/18/2017	yes	6430.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/26/2017	yes	4290.0000					
Total Dissolved Solids	mg/L	CBL-301I	02/08/2018	yes	5120.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/25/2018	yes	5390.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/17/2019	yes	1460.0000		yes			*
Total Dissolved Solids	mg/L	CBL-301I	05/02/2019	yes	5650.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/31/2019	yes	6040.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/28/2020	yes	4790.0000					
Total Dissolved Solids	mg/L	CBL-301I	09/17/2020	yes	6340.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/26/2021	yes	6060.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/20/2021	yes	5870.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/26/2022	yes	4700.0000					
Total Dissolved Solids	mg/L	CBL-301I	07/27/2022	yes	4590.0000					
Total Dissolved Solids	mg/L	CBL-301I	01/25/2023		5160.0000			5444.4444		
Total Dissolved Solids	mg/L	CBL-301I	08/02/2023		5360.0000			5444.4444		
Total Dissolved Solids	mg/L	CBL-302I	01/22/2016	yes	5500.0000					
Total Dissolved Solids	mg/L	CBL-302I	05/04/2016	yes	5390.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/27/2016	yes	6850.0000					

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**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Total Dissolved Solids	mg/L	CBL-302I	10/24/2016	yes	4210.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/23/2017	yes	6430.0000					
Total Dissolved Solids	mg/L	CBL-302I	03/22/2017	yes	6460.0000					
Total Dissolved Solids	mg/L	CBL-302I	05/16/2017	yes	5860.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/27/2017	yes	5120.0000					
Total Dissolved Solids	mg/L	CBL-302I	02/08/2018	yes	6010.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/27/2018	yes	5510.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/22/2019	yes	5060.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/31/2019	yes	4190.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/30/2020	yes	4790.0000					
Total Dissolved Solids	mg/L	CBL-302I	09/17/2020	yes	4990.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/28/2021	yes	4800.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/21/2021	yes	4810.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/27/2022	yes	4510.0000					
Total Dissolved Solids	mg/L	CBL-302I	07/28/2022	yes	5120.0000					
Total Dissolved Solids	mg/L	CBL-302I	01/26/2023		4930.0000			5311.6667		
Total Dissolved Solids	mg/L	CBL-302I	07/18/2023		5150.0000			5311.6667		
Total Dissolved Solids	mg/L	CBL-306I	01/21/2016	yes	1280.0000					
Total Dissolved Solids	mg/L	CBL-306I	05/04/2016	yes	431.0000		yes			*
Total Dissolved Solids	mg/L	CBL-306I	07/26/2016	yes	790.0000					
Total Dissolved Solids	mg/L	CBL-306I	10/24/2016	yes	1150.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/19/2017	yes	1320.0000					
Total Dissolved Solids	mg/L	CBL-306I	03/22/2017	yes	1460.0000					
Total Dissolved Solids	mg/L	CBL-306I	05/18/2017	yes	1440.0000					
Total Dissolved Solids	mg/L	CBL-306I	07/27/2017	yes	1280.0000					
Total Dissolved Solids	mg/L	CBL-306I	02/08/2018	yes	1760.0000					
Total Dissolved Solids	mg/L	CBL-306I	07/27/2018	yes	1450.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/16/2019	yes	1220.0000					
Total Dissolved Solids	mg/L	CBL-306I	07/31/2019	yes	676.0000		yes			*
Total Dissolved Solids	mg/L	CBL-306I	08/23/2019	yes	1710.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/29/2020	yes	1830.0000					
Total Dissolved Solids	mg/L	CBL-306I	09/19/2020	yes	1730.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/28/2021	yes	1420.0000					
Total Dissolved Solids	mg/L	CBL-306I	07/21/2021	yes	1320.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/27/2022	yes	1730.0000					
Total Dissolved Solids	mg/L	CBL-306I	07/28/2022	yes	1540.0000					
Total Dissolved Solids	mg/L	CBL-306I	01/26/2023		1000.0000			1437.0588		
Total Dissolved Solids	mg/L	CBL-306I	07/18/2023		1910.0000			1709.6860		
Total Dissolved Solids	mg/L	CBL-308I	01/22/2016	yes	6820.0000					
Total Dissolved Solids	mg/L	CBL-308I	05/04/2016	yes	6120.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/26/2016	yes	7890.0000					
Total Dissolved Solids	mg/L	CBL-308I	10/24/2016	yes	10200.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/19/2017	yes	9620.0000					
Total Dissolved Solids	mg/L	CBL-308I	03/22/2017	yes	7260.0000					
Total Dissolved Solids	mg/L	CBL-308I	05/16/2017	yes	6590.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/26/2017	yes	6480.0000					
Total Dissolved Solids	mg/L	CBL-308I	02/06/2018	yes	6200.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/25/2018	yes	6320.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/18/2019	yes	4760.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/31/2019	yes	5820.0000					

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**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Total Dissolved Solids	mg/L	CBL-308I	01/29/2020	yes	5980.0000					
Total Dissolved Solids	mg/L	CBL-308I	09/18/2020	yes	6860.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/28/2021	yes	6190.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/21/2021	yes	5270.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/27/2022	yes	5320.0000					
Total Dissolved Solids	mg/L	CBL-308I	07/27/2022	yes	6840.0000					
Total Dissolved Solids	mg/L	CBL-308I	01/26/2023		5810.0000			6696.6667		
Total Dissolved Solids	mg/L	CBL-308I	07/18/2023		5680.0000			6696.6667		
Total Dissolved Solids	mg/L	CBL-341I	01/23/2017	yes	5000.0000					
Total Dissolved Solids	mg/L	CBL-341I	02/23/2017	yes	4520.0000					
Total Dissolved Solids	mg/L	CBL-341I	03/22/2017	yes	5110.0000					
Total Dissolved Solids	mg/L	CBL-341I	04/20/2017	yes	4240.0000					
Total Dissolved Solids	mg/L	CBL-341I	05/16/2017	yes	4840.0000					
Total Dissolved Solids	mg/L	CBL-341I	06/20/2017	yes	5940.0000					
Total Dissolved Solids	mg/L	CBL-341I	07/27/2017	yes	4150.0000					
Total Dissolved Solids	mg/L	CBL-341I	09/11/2017	yes	4860.0000					
Total Dissolved Solids	mg/L	CBL-341I	02/08/2018	yes	4320.0000					
Total Dissolved Solids	mg/L	CBL-341I	08/24/2018	yes	4800.0000					
Total Dissolved Solids	mg/L	CBL-341I	01/22/2019	yes	3870.0000					
Total Dissolved Solids	mg/L	CBL-341I	07/31/2019	yes	5370.0000					
Total Dissolved Solids	mg/L	CBL-341I	01/30/2020	yes	4900.0000					
Total Dissolved Solids	mg/L	CBL-341I	09/17/2020	yes	4930.0000					
Total Dissolved Solids	mg/L	CBL-341I	01/27/2021	yes	3940.0000					
Total Dissolved Solids	mg/L	CBL-341I	07/22/2021	yes	4520.0000					
Total Dissolved Solids	mg/L	CBL-341I	01/27/2022	yes	3800.0000					
Total Dissolved Solids	mg/L	CBL-341I	07/28/2022	yes	4910.0000					
Total Dissolved Solids	mg/L	CBL-341I	01/26/2023		4390.0000			4667.7778		
Total Dissolved Solids	mg/L	CBL-341I	07/19/2023		4190.0000			4667.7778		

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ND = Not detected, Result = detection limit.

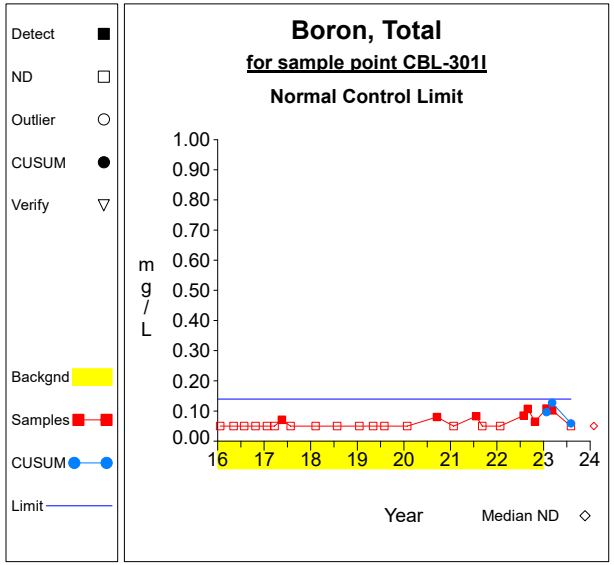
Table 4

Dixon's Test Outliers
1% Significance Level

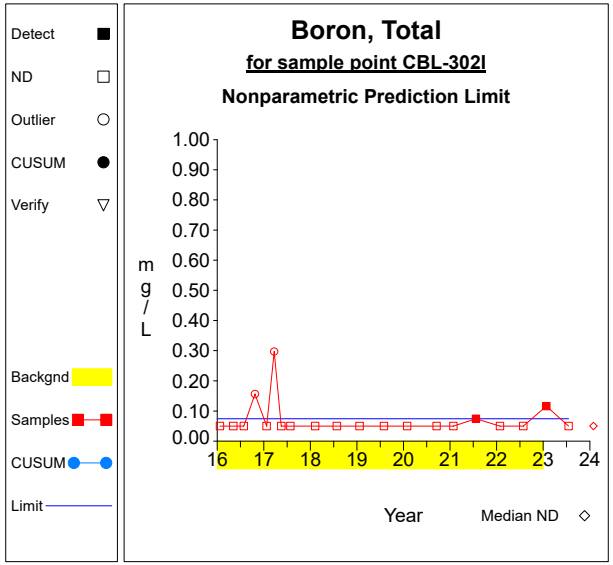
Constituent	Units	Well	Date	Result	ND Qualifier	Date Range	N	Critical Value
Boron, Total	mg/L	CBL-302I	10/24/2016	0.1560		01/22/2016-07/28/2022	18	0.5798
Boron, Total	mg/L	CBL-302I	03/22/2017	0.2970		01/22/2016-07/28/2022	18	0.5798
Calcium, Total	mg/L	CBL-301I	01/17/2019	156.0000		01/21/2016-07/27/2022	19	0.5503
Chloride	mg/L	CBL-301I	01/17/2019	619.0000		01/21/2016-07/27/2022	19	0.5503
Chloride	mg/L	CBL-306I	05/04/2016	20.0000		01/21/2016-07/28/2022	17	0.5798
Fluoride	mg/L	CBL-306I	03/22/2017	12.6000		01/21/2016-07/28/2022	18	0.5643
Fluoride	mg/L	CBL-308I	03/22/2017	9.0500		01/22/2016-07/27/2022	18	0.5643
Sulfate	mg/L	CBL-301I	01/17/2019	104.0000		01/21/2016-07/27/2022	19	0.5503
Sulfate	mg/L	CBL-306I	05/04/2016	29.5000		01/21/2016-07/28/2022	18	0.5643
Total Dissolved Solids	mg/L	CBL-301I	01/17/2019	1460.0000		01/21/2016-07/27/2022	19	0.5503
Total Dissolved Solids	mg/L	CBL-306I	05/04/2016	431.0000		01/21/2016-07/28/2022	18	0.5643

N = Total number of independent measurements in background at each well.
Date Range = Dates of the first and last measurements included in background at each well.
Critical Value depends on the significance level and on N-1 when the two most extreme values are tested or N for the most extreme value.

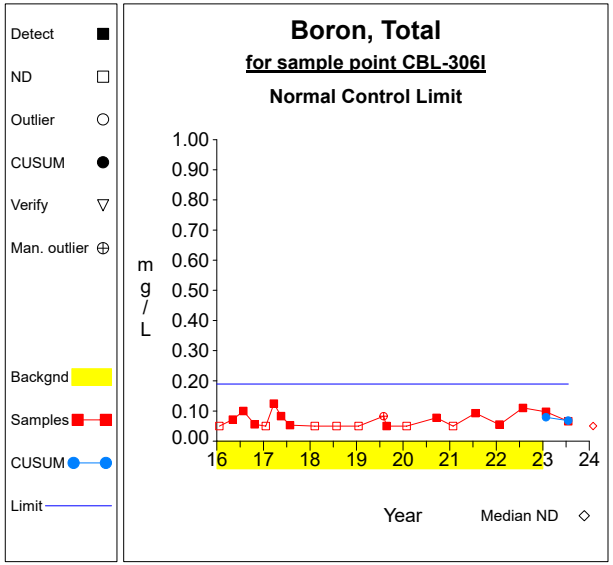
Intra-Well Control Charts / Prediction Limits



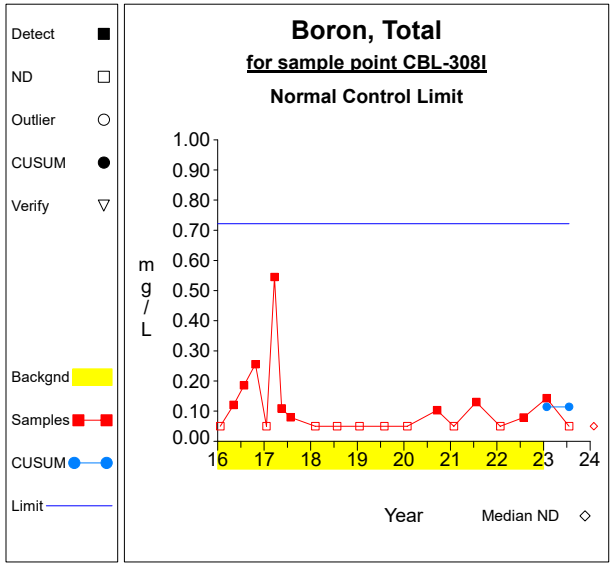
Graph 1



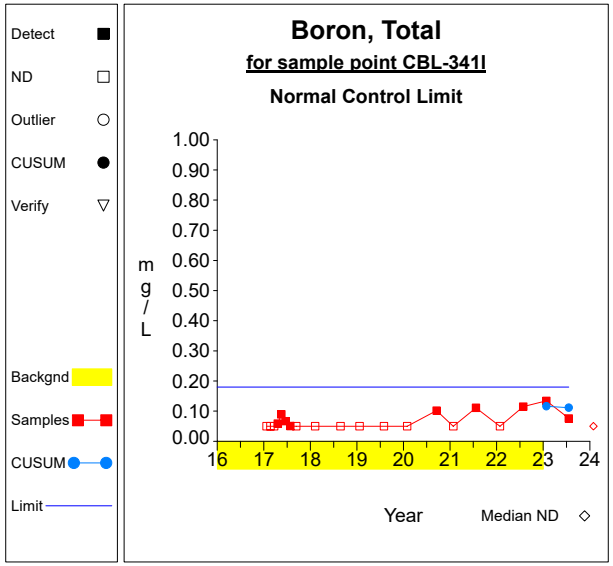
Graph 2



Graph 3

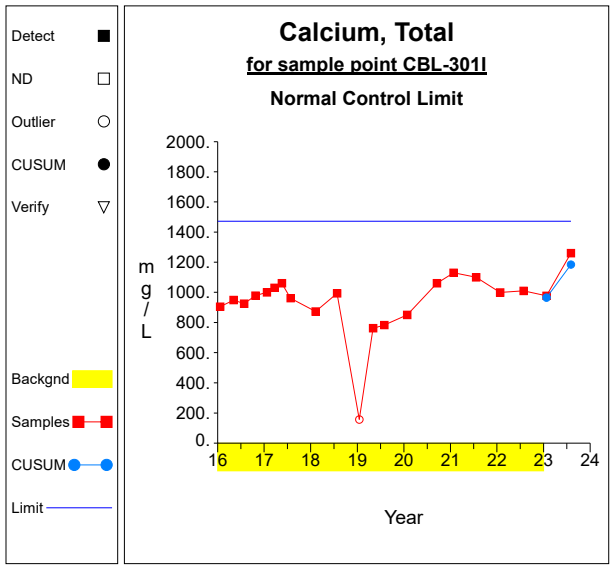


Graph 4

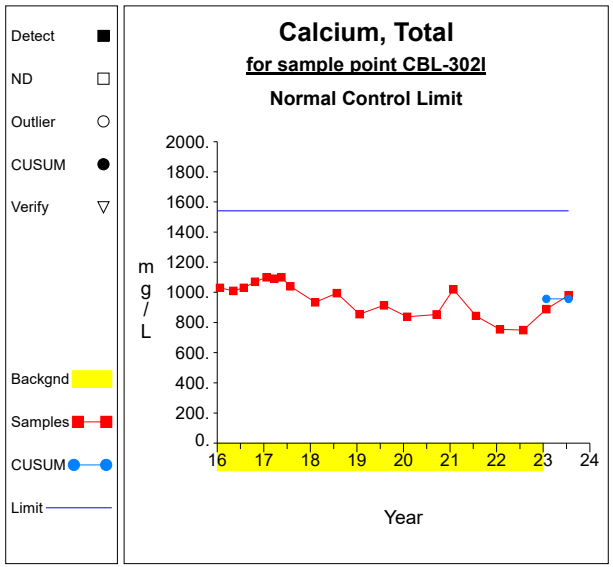


Graph 5

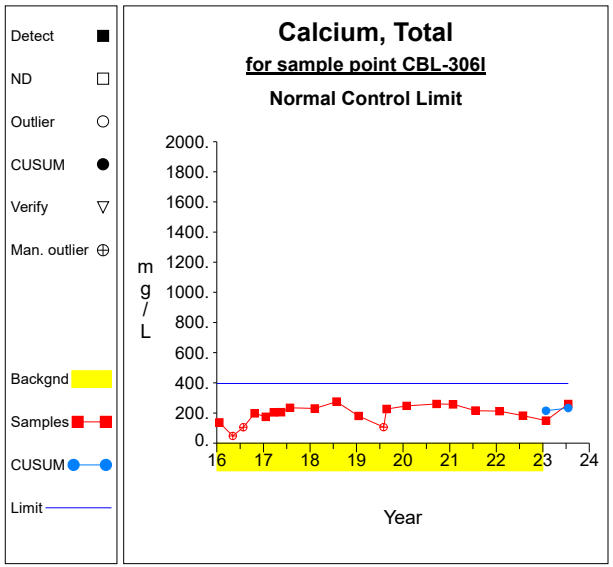
Intra-Well Control Charts / Prediction Limits



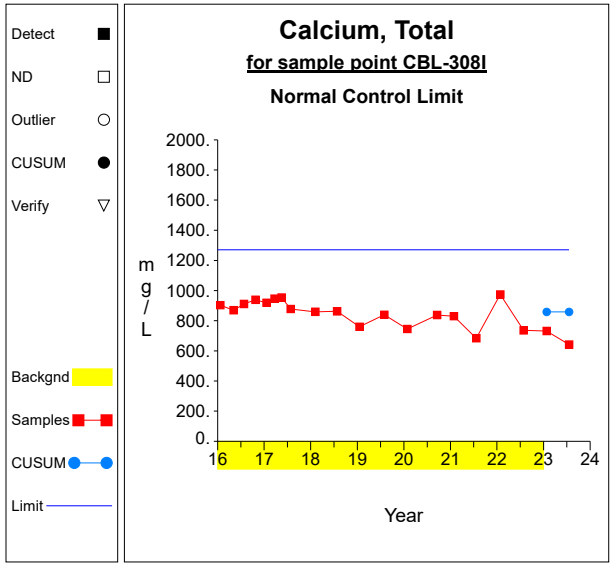
Graph 6



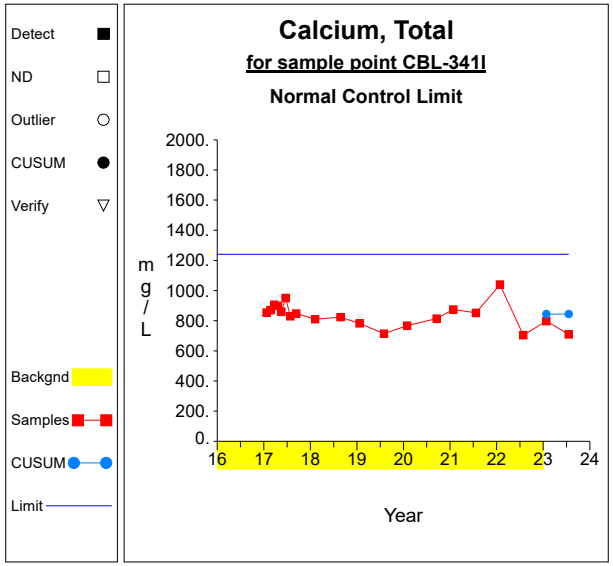
Graph 7



Graph 8

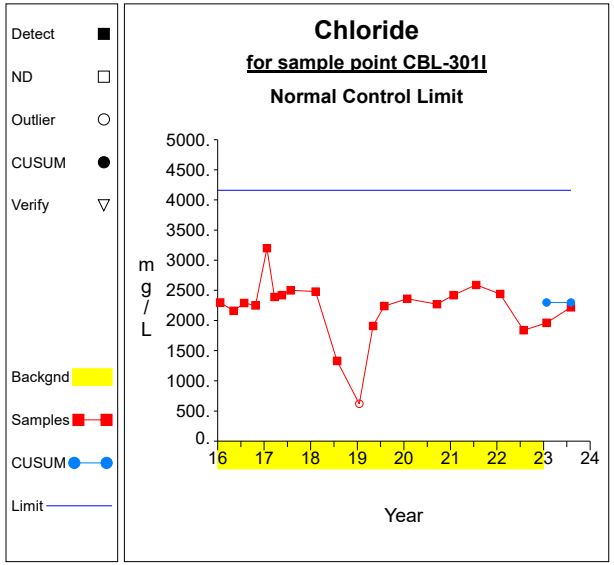


Graph 9

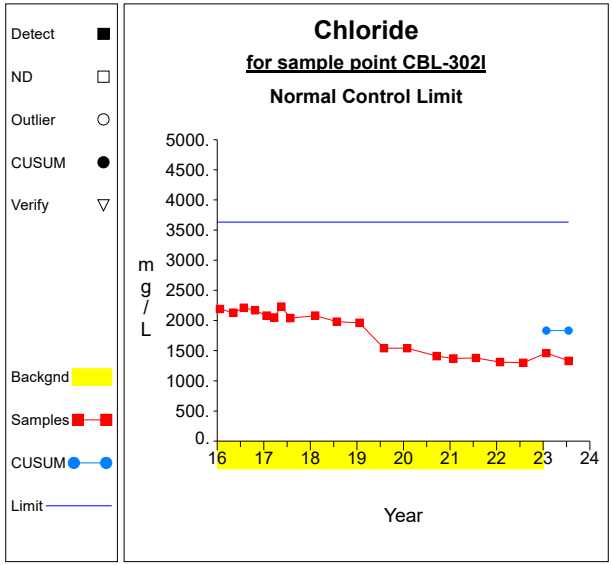


Graph 10

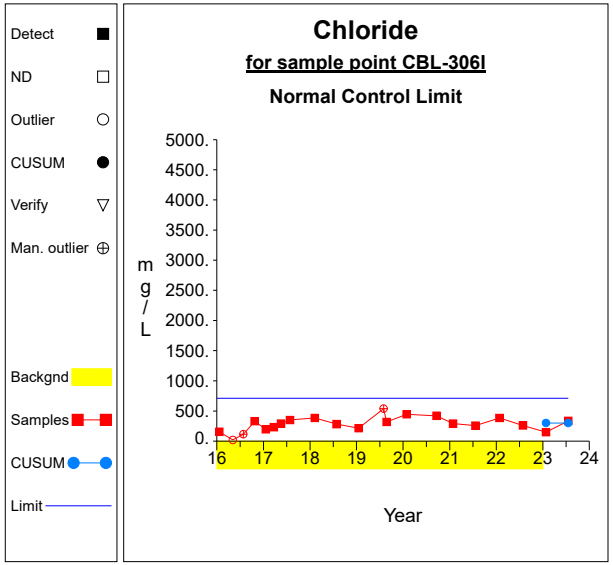
Intra-Well Control Charts / Prediction Limits



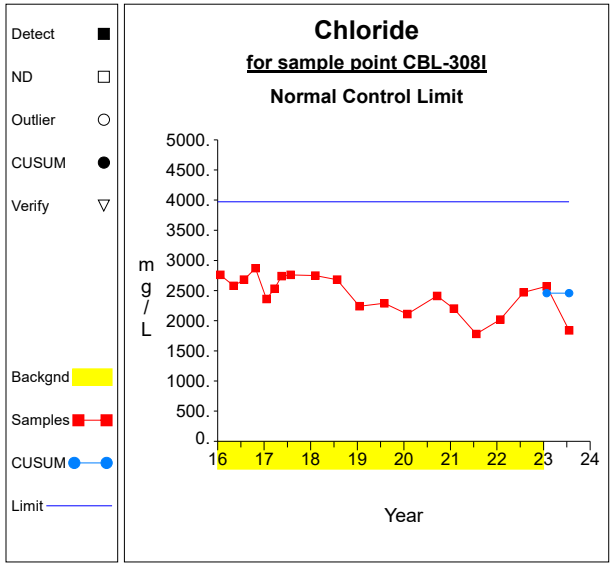
Graph 11



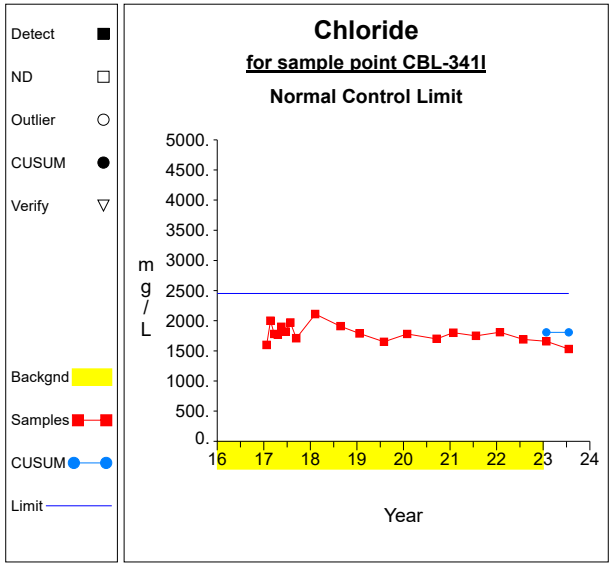
Graph 12



Graph 13

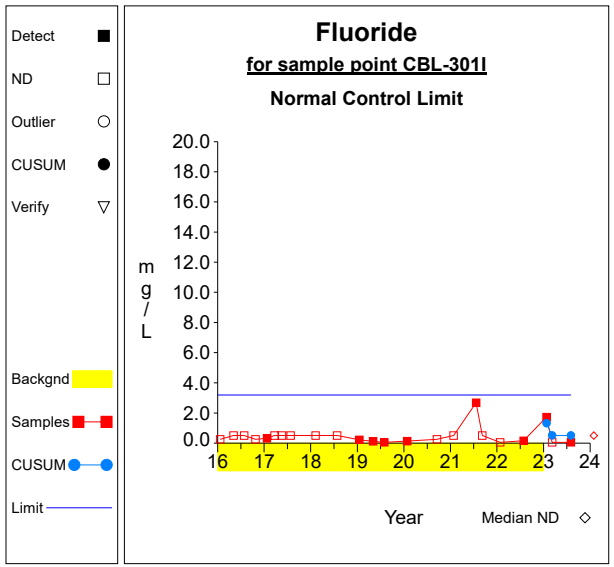


Graph 14

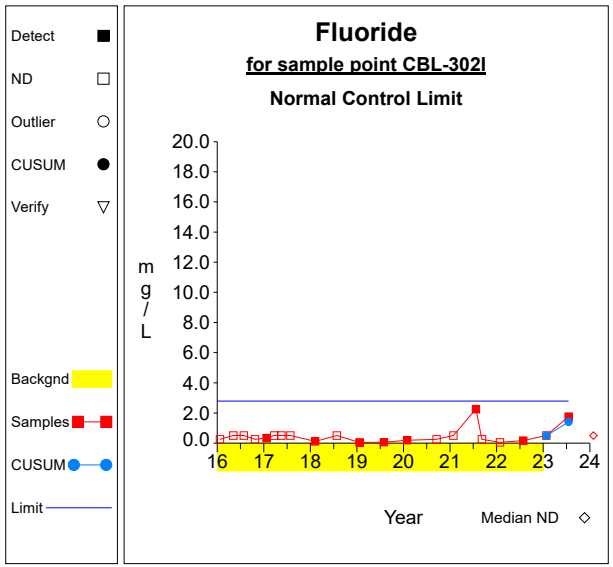


Graph 15

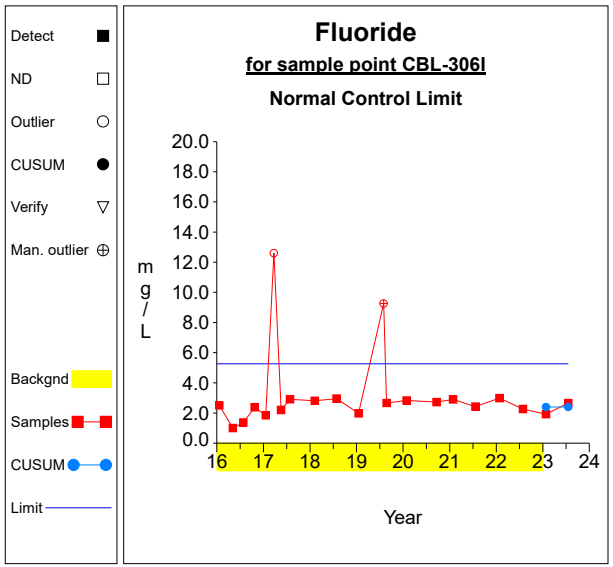
Intra-Well Control Charts / Prediction Limits



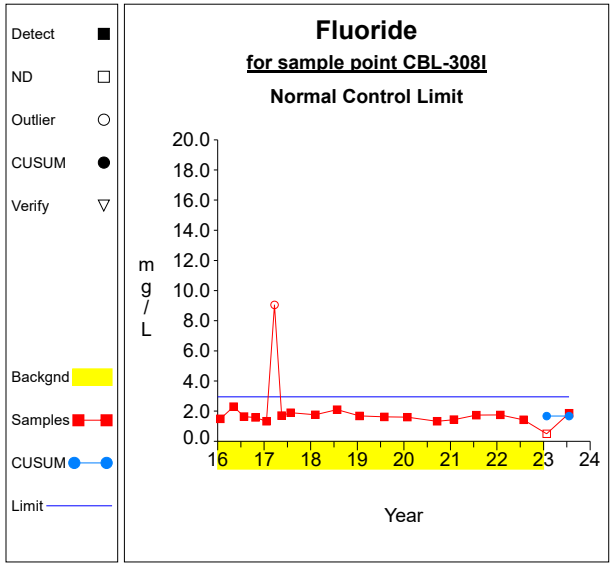
Graph 16



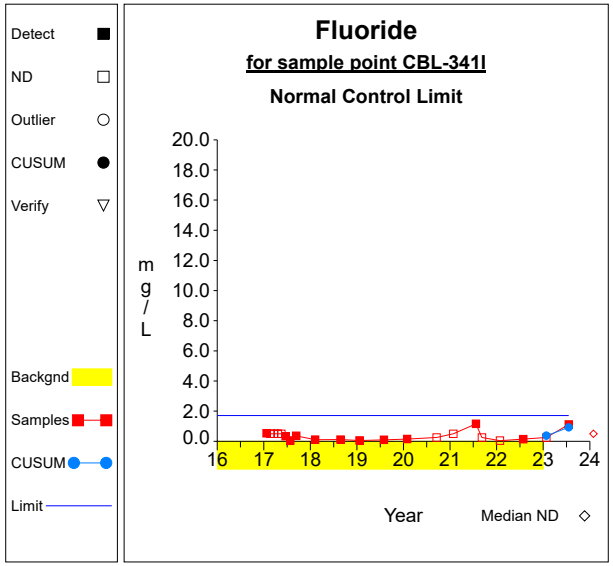
Graph 17



Graph 18

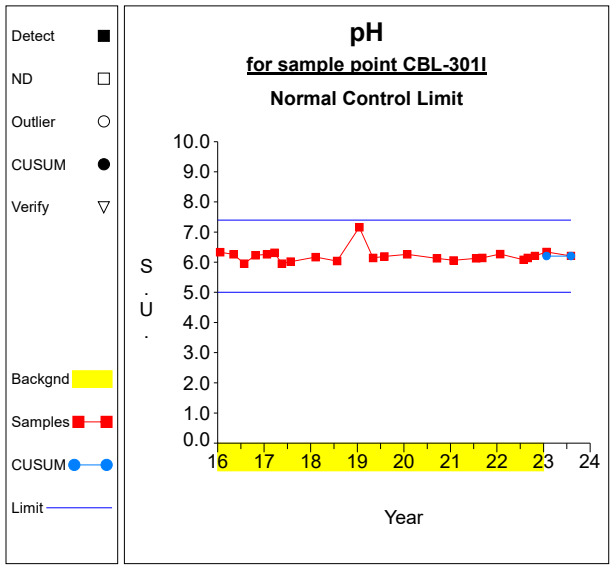


Graph 19

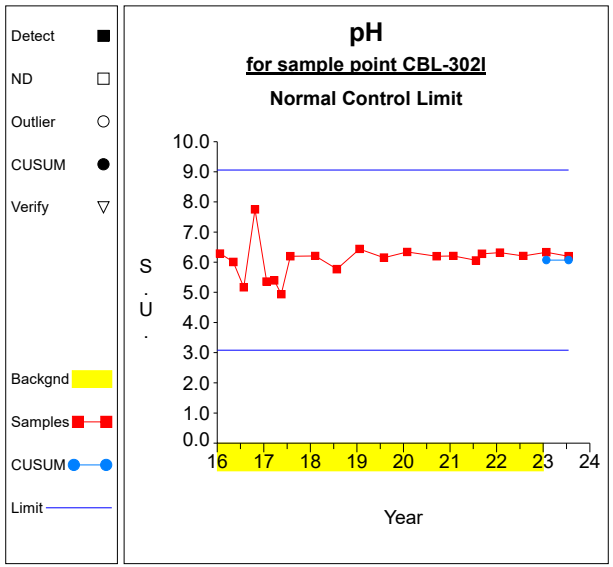


Graph 20

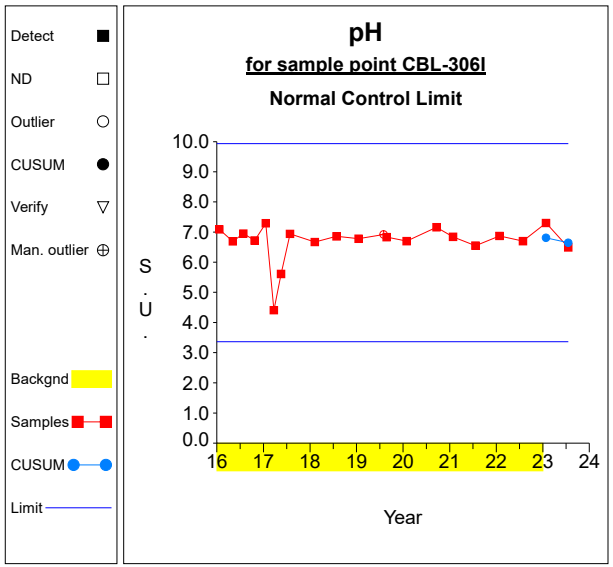
Intra-Well Control Charts / Prediction Limits



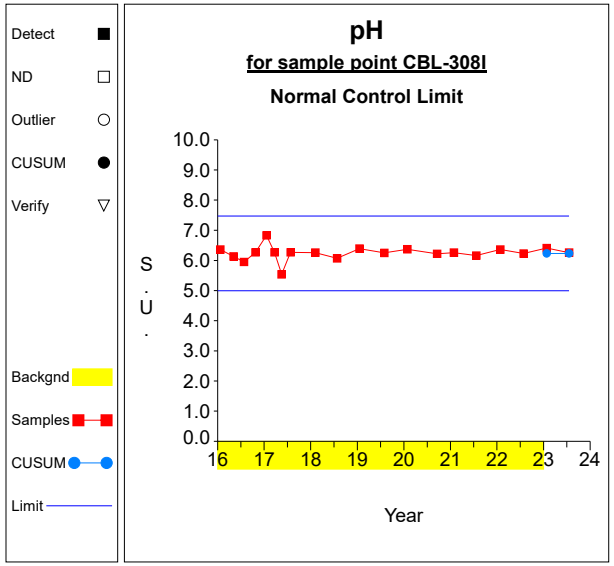
Graph 21



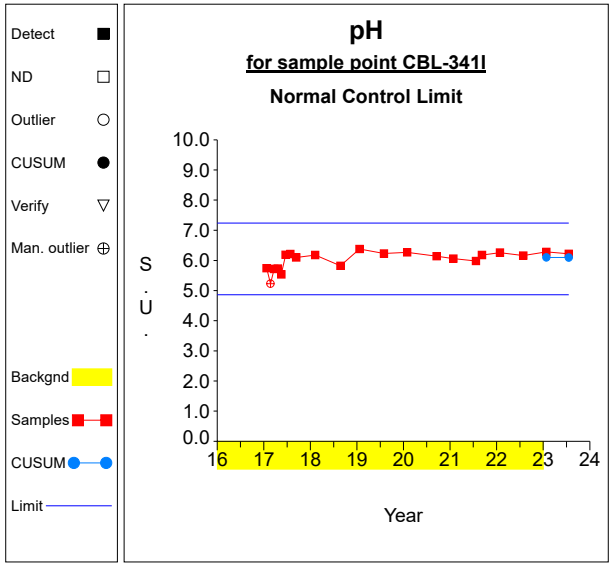
Graph 22



Graph 23

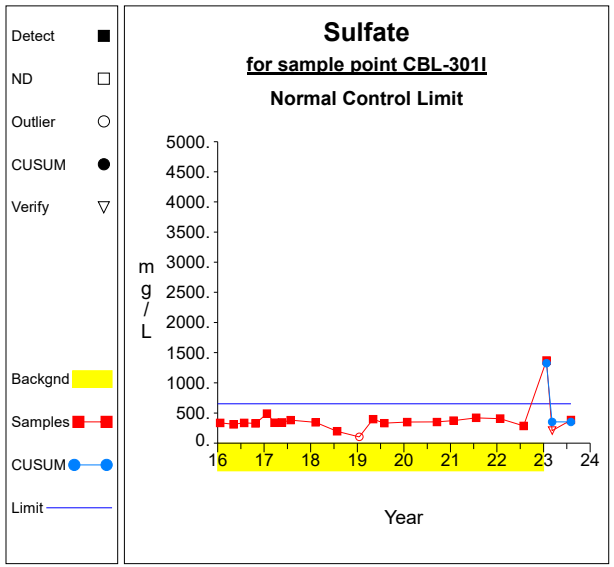


Graph 24

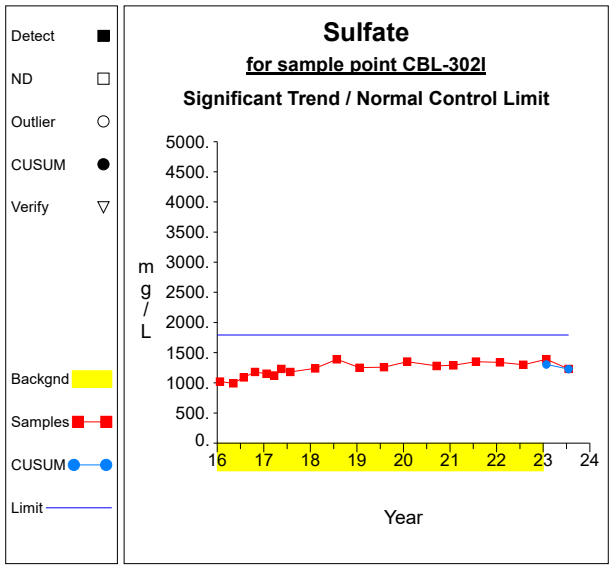


Graph 25

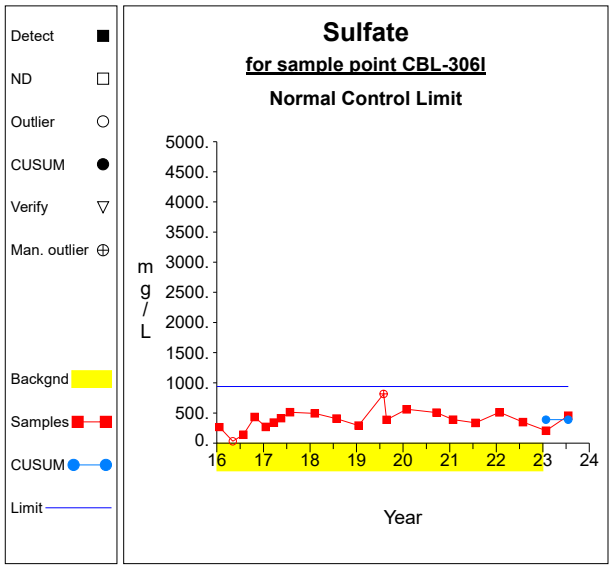
Intra-Well Control Charts / Prediction Limits



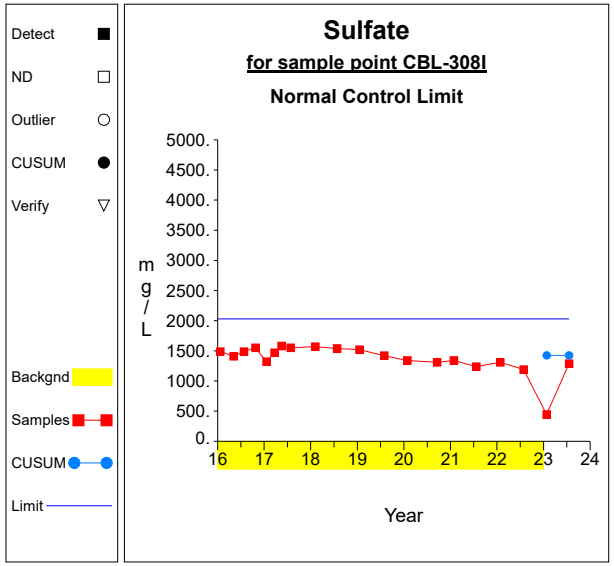
Graph 26



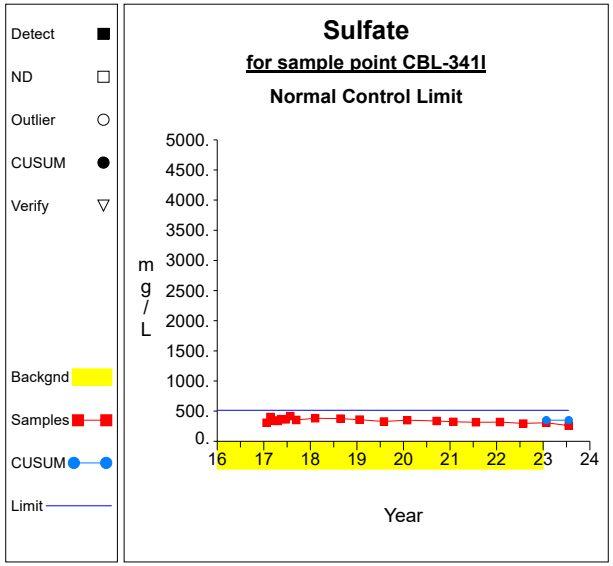
Graph 27



Graph 28

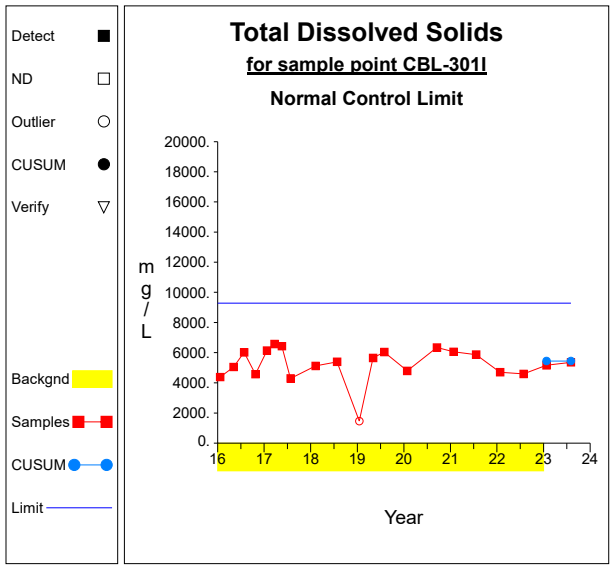


Graph 29

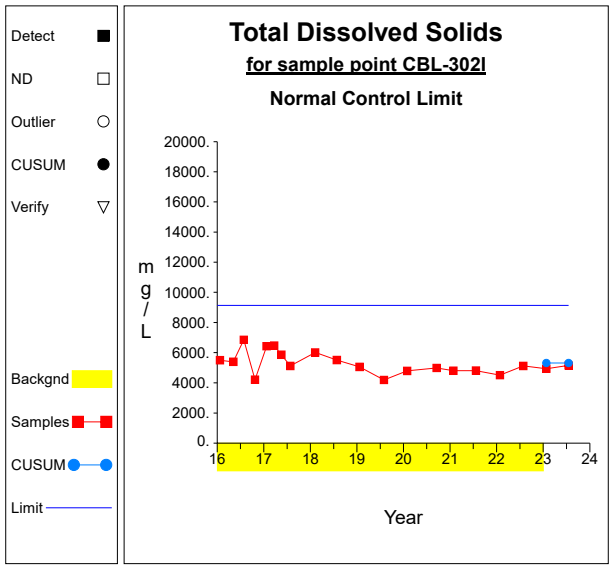


Graph 30

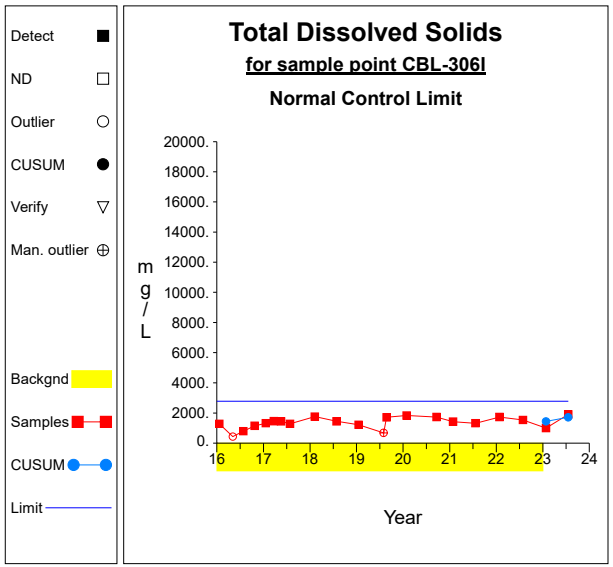
Intra-Well Control Charts / Prediction Limits



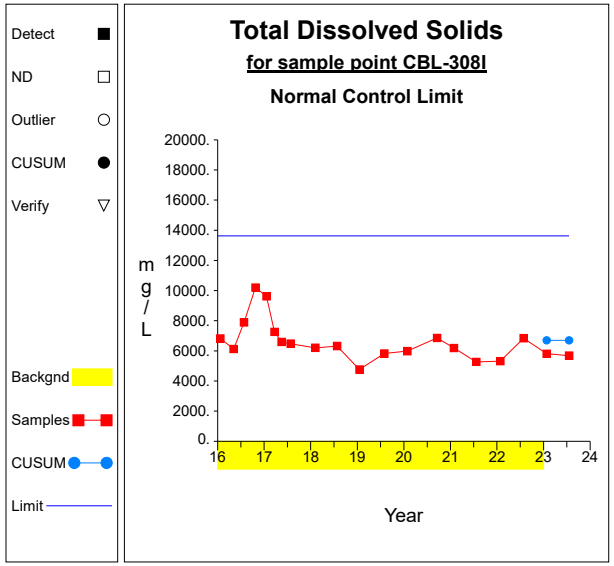
Graph 31



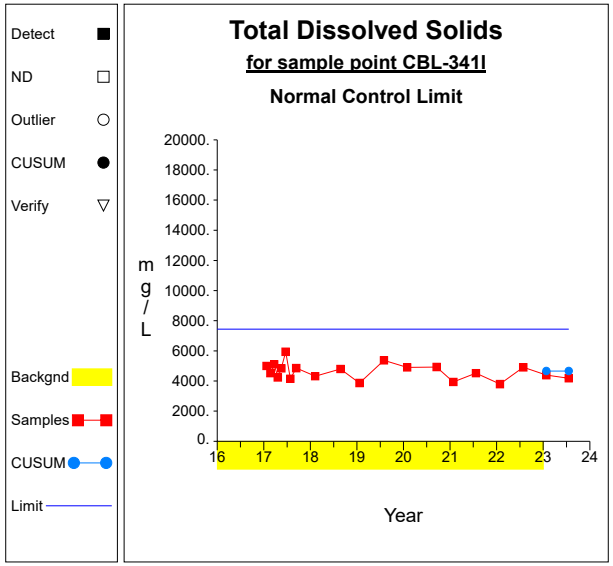
Graph 32



Graph 33

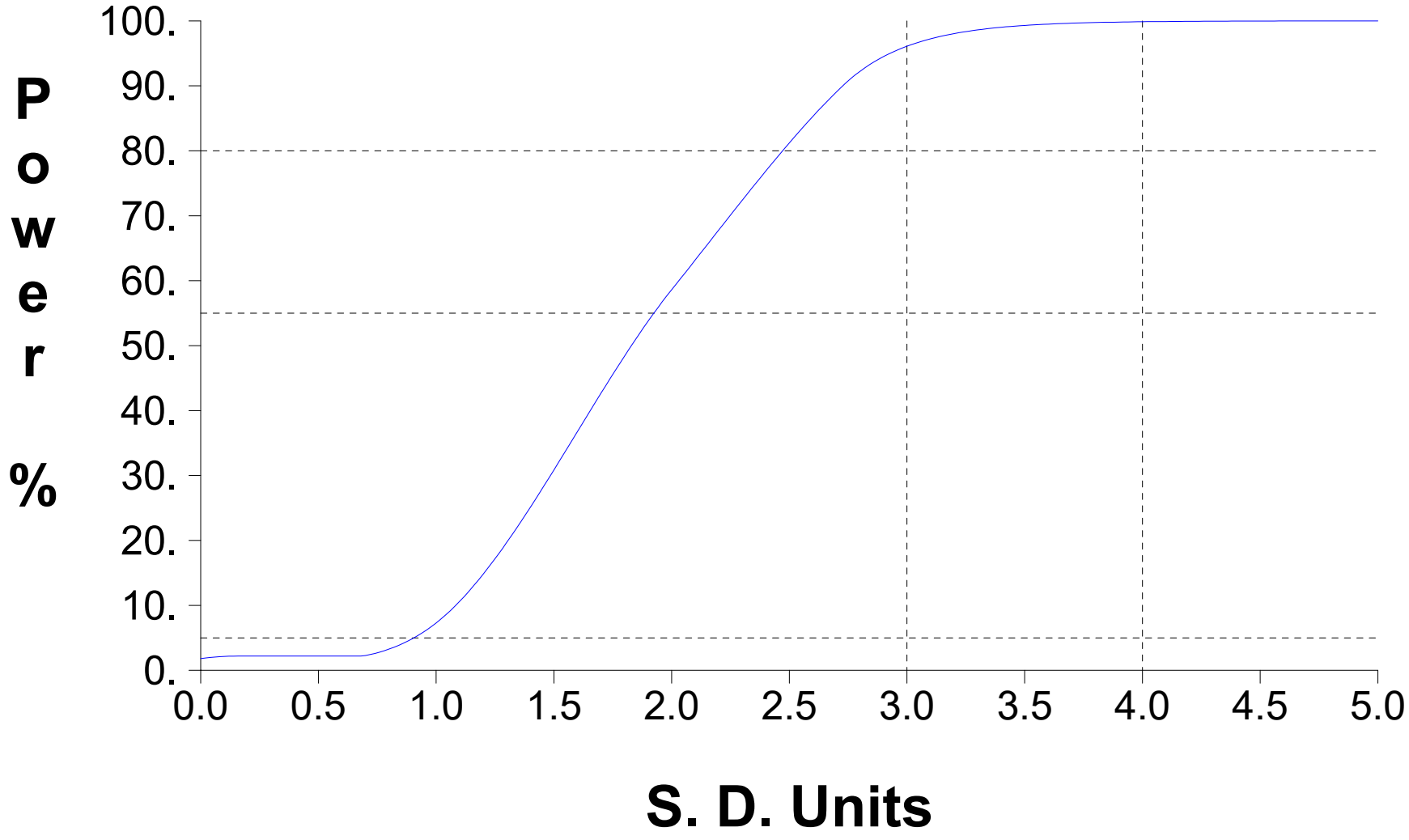


Graph 34



Graph 35

False Positive and False Negative Rates for Current Intra-Well Control Charts Monitoring Program



Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Boron, Total (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.29** / **22** = **0.059**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.081** - **1.664**/**22**) / (**22**-1))^{½} = **0.016**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.059** + **5.0** * **0.016** = **0.139**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **764.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**231** - **2.326** * **764.333**^{½}) / 2 = **83.347**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Boron, Total (mg/L) at CBL-302I
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **0.074**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Boron, Total (mg/L) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.222** / **18** = **0.068**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.093** - **1.494**/**18**) / (**18**-1))^{½} = **0.024**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.068** + **5.0** * **0.024** = **0.189**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **631.667**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **631.667**^{½}) / 2 = **47.27**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.003**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Boron, Total (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **2.059** / **18** = **0.114**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.486** - **4.239**/**18**) / (**18**-1))^{½} = **0.121**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.114** + **5.0** * **0.121** = **0.722**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **605.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **605.0**^{½}) / 2 = **47.894**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.027**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Boron, Total (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.144** / **18** = **0.064**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.082** - **1.308**/**18**) / (**18**-1))^{½} = **0.023**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.064** + **5.0** * **0.023** = **0.18**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **532.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **532.0**^{½}) / 2 = **49.675**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Calcium, Total (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **17369.0** / **18** = **964.944**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.69**x**10^7** - **3.02**x**10^8**/**18**) / (**18**-1))^{½} = **101.271**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **964.944** + **5.0** * **101.271** = **1471.3**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **16.171**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-27.044**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Calcium, Total (mg/L) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **17227.0** / **18** = **957.056**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.67**x**10^7** - **2.97**x**10^8**/**18**) / (**18**-1))^{½} = **116.748**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **957.056** + **5.0** * **116.748** = **1540.795**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-46.655**	Sen's estimator of trend.
6	var(S) = **695.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **695.0**^{½}) / 2 = **45.84**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-66.423**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Calcium, Total (mg/L) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3437.0** / **16** = **214.813**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**758029.0** - **1.18**x**10^7**/**16**) / (**16**-1))^{½} = **36.257**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **214.813** + **5.0** * **36.257** = **396.097**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **16** * (**16**-1) / 2 = **120**	Number of sample pairs during trend detection period.
5	S = **9.18**	Sen's estimator of trend.
6	var(S) = **493.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**120** - **2.326** * **493.333**^{½}) / 2 = **34.168**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-4.826**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Calcium, Total (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **15450.0** / **18** = **858.333**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.34**x**10^7** - **2.39**x**10^8**/**18**) / (**18**-1))^{½} = **82.361**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **858.333** + **5.0** * **82.361** = **1270.141**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-24.047**	Sen's estimator of trend.
6	var(S) = **697.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **697.0**^{½}) / 2 = **45.796**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-45.396**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Calcium, Total (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **15196.0** / **18** = **844.222**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.29**x**10^7** - **2.31**x**10^8**/**18**) / (**18**-1))^{½} = **79.475**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **844.222** + **5.0** * **79.475** = **1241.598**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-24.621**	Sen's estimator of trend.
6	var(S) = **697.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **697.0**^{½}) / 2 = **45.796**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-46.4**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chloride (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **41390.0** / **18** = **2299.444**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**9.75**x**10^7** - **1.71**x**10^9**/**18**) / (**18**-1))^{½} = **372.424**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **2299.444** + **5.0** * **372.424** = **4161.565**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **10.311**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-82.048**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chloride (mg/L) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **32970.0** / **18** = **1831.667**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**6.26**x**10^7** - **1.09**x**10^9**/**18**) / (**18**-1))^{½} = **360.265**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1831.667** + **5.0** * **360.265** = **3632.994**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-159.984**	Sen's estimator of trend.
6	var(S) = **695.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **695.0**^{½}) / 2 = **45.84**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-190.868**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chloride (mg/L) at CBL-306l
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **4810.0** / **16** = **300.625**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.55**x**10^6** - **2.31**x**10^7**/**16**) / (**16**-1))^{½} = **82.083**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **300.625** + **5.0** * **82.083** = **711.039**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **16** * (**16**-1) / 2 = **120**	Number of sample pairs during trend detection period.
5	S = **16.104**	Sen's estimator of trend.
6	var(S) = **493.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**120** - **2.326** * **493.333**^{½}) / 2 = **34.168**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-15.759**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chloride (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **44230.0** / **18** = **2457.222**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.10**x**10^8** - **1.96**x**10^9**/**18**) / (**18**-1))^{½} = **303.175**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **2457.222** + **5.0** * **303.175** = **3973.1**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-106.468**	Sen's estimator of trend.
6	var(S) = **695.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **695.0**^{½}) / 2 = **45.84**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-174.502**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chloride (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **32540.0** / **18** = **1807.778**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**5.91**x**10^7** - **1.06**x**10^9**/**18**) / (**18**-1))^{½} = **129.14**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1807.778** + **5.0** * **129.14** = **2453.477**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-16.82**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-57.489**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Fluoride (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **10.16** / **20** = **0.508**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**10.634** - **103.226**/**20**) / (**20**-1))^{½} = **0.537**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.508** + **5.0** * **0.537** = **3.191**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **681.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**190** - **2.326** * **681.333**^{½}) / 2 = **64.643**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.035**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Fluoride (mg/L) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **9.153** / **19** = **0.482**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**8.255** - **83.772**/**19**) / (**19**-1))^{½} = **0.462**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.482** + **5.0** * **0.462** = **2.793**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **19** * (**19**-1) / 2 = **171**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **604.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**171** - **2.326** * **604.333**^{½}) / 2 = **56.91**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.031**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Fluoride (mg/L) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.73** / **17** = **2.396**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**102.838** - **1658.933**/**17**) / (**17**-1))^{½} = **0.573**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **2.396** + **5.0** * **0.573** = **5.261**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **17** * (**17**-1) / 2 = **136**	Number of sample pairs during trend detection period.
5	S = **0.119**	Sen's estimator of trend.
6	var(S) = **589.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**136** - **2.326** * **589.333**^{½}) / 2 = **39.767**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.032**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Fluoride (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **28.4** / **17** = **1.671**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**48.489** - **806.56**/**17**) / (**17**-1))^{½} = **0.255**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1.671** + **5.0** * **0.255** = **2.948**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **17** * (**17**-1) / 2 = **136**	Number of sample pairs during trend detection period.
5	S = **-0.02**	Sen's estimator of trend.
6	var(S) = **588.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**136** - **2.326** * **588.333**^{½}) / 2 = **39.791**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.111**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Fluoride (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **7.116** / **19** = **0.375**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**3.957** - **50.632**/**19**) / (**19**-1))^{½} = **0.268**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.375** + **5.0** * **0.268** = **1.714**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **19** * (**19**-1) / 2 = **171**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **751.667**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**171** - **2.326** * **751.667**^{½}) / 2 = **53.615**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.133**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
pH (S.U.) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **136.43** / **22** = **6.201**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**847.258** - **18613.145**/**22**) / (**22**-1))^{½} = **0.24**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ ± **F** * **S** = **6.201** ± **5.0** * **0.24** = **5.003**, **7.4**	Compute combined Shewhart-CUSUM normal control interval.
4	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
5	S = **-0.007**	Sen's estimator of trend.
6	var(S) = **1248.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**231** - **2.326** * **1248.333**^{½}) / 2 = **74.409**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.036**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
pH (S.U.) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **115.31** / **19** = **6.069**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**706.23** - **13296.396**/**19**) / (**19**-1))^{½} = **0.597**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ ± **F** * **S** = **6.069** ± **5.0** * **0.597** = **3.083**, **9.055**	Compute combined Shewhart-CUSUM normal control interval.
4	N' = **N** * (**N**-1) / 2 = **19** * (**19**-1) / 2 = **171**	Number of sample pairs during trend detection period.
5	S = **0.044**	Sen's estimator of trend.
6	var(S) = **812.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**171** - **2.326** * **812.333**^{½}) / 2 = **52.353**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.04**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
pH (S.U.) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **119.66** / **18** = **6.648**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**802.809** - **14318.516**/**18**) / (**18**-1))^{½} = **0.657**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ ± **F** * **S** = **6.648** ± **5.0** * **0.657** = **3.363**, **9.932**	Compute combined Shewhart-CUSUM normal control interval.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-0.011**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.094**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
pH (S.U.) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **112.19** / **18** = **6.233**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**700.296** - **12586.596**/**18**) / (**18**-1))^{½} = **0.247**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ ± **F** * **S** = **6.233** ± **5.0** * **0.247** = **4.996**, **7.47**	Compute combined Shewhart-CUSUM normal control interval.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-0.002**	Sen's estimator of trend.
6	var(S) = **691.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **691.333**^{½}) / 2 = **45.921**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.03**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
pH (S.U.) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **108.89** / **18** = **6.049**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**659.685** - **11857.032**/**18**) / (**18**-1))^{½} = **0.238**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ ± **F** * **S** = **6.049** ± **5.0** * **0.238** = **4.861**, **7.238**	Compute combined Shewhart-CUSUM normal control interval.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **0.067**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.015**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **6310.0** / **18** = **350.556**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.27**x**10^6** - **3.98**x**10^7**/**18**) / (**18**-1))^{½} = **60.294**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **350.556** + **5.0** * **60.294** = **652.024**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **6.483**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-8.207**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **22013.0** / **18** = **1222.944**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.71**x**10^7** - **4.85**x**10^8**/**18**) / (**18**-1))^{½} = **114.114**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1222.944** + **5.0** * **114.114** = **1793.513**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **45.342**	Sen's estimator of trend.
6	var(S) = **695.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **695.0**^{½}) / 2 = **45.84**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **25.012**	One-sided lower confidence limit for slope.
9	LCL(S) > 0	**Significant increasing trend.**

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **6599.0** / **17** = **388.176**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.76**x**10^6** - **4.35**x**10^7**/**17**) / (**17**-1))^{½} = **110.356**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **388.176** + **5.0** * **110.356** = **939.958**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **17** * (**17**-1) / 2 = **136**	Number of sample pairs during trend detection period.
5	S = **18.243**	Sen's estimator of trend.
6	var(S) = **589.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**136** - **2.326** * **589.333**^{½}) / 2 = **39.767**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-14.639**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **25640.0** / **18** = **1424.444**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**3.68**x**10^7** - **6.57**x**10^8**/**18**) / (**18**-1))^{½} = **121.424**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1424.444** + **5.0** * **121.424** = **2031.565**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-41.243**	Sen's estimator of trend.
6	var(S) = **693.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **693.0**^{½}) / 2 = **45.884**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-65.458**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Sulfate (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **6287.0** / **18** = **349.278**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.21**x**10^6** - **3.95**x**10^7**/**18**) / (**18**-1))^{½} = **32.89**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **349.278** + **5.0** * **32.89** = **513.727**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-10.817**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-19.435**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Total Dissolved Solids (mg/L) at CBL-301I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **98000.0** / **18** = **5444.444**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**5.44**x**10^8** - **9.60**x**10^9**/**18**) / (**18**-1))^{½} = **767.695**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **5444.444** + **5.0** * **767.695** = **9282.919**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **8.889**	Sen's estimator of trend.
6	var(S) = **697.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **697.0**^{½}) / 2 = **45.796**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-248.456**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Total Dissolved Solids (mg/L) at CBL-302I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **95610.0** / **18** = **5311.667**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**5.18**x**10^8** - **9.14**x**10^9**/**18**) / (**18**-1))^{½} = **764.87**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **5311.667** + **5.0** * **764.87** = **9136.018**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-219.811**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-407.793**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Total Dissolved Solids (mg/L) at CBL-306I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **24430.0** / **17** = **1437.059**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**3.62**x**10^7** - **5.97**x**10^8**/**17**) / (**17**-1))^{½} = **267.085**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **1437.059** + **5.0** * **267.085** = **2772.485**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **17** * (**17**-1) / 2 = **136**	Number of sample pairs during trend detection period.
5	S = **76.005**	Sen's estimator of trend.
6	var(S) = **586.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**136** - **2.326** * **586.333**^{½}) / 2 = **39.839**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-5.732**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Total Dissolved Solids (mg/L) at CBL-308I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **120540.0** / **18** = **6696.667**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**8.40**x**10^8** - **1.45**x**10^{10}**/**18**) / (**18**-1))^{½} = **1385.271**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **6696.667** + **5.0** * **1385.271** = **13623.023**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-270.134**	Sen's estimator of trend.
6	var(S) = **697.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **697.0**^{½}) / 2 = **45.796**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-711.043**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Total Dissolved Solids (mg/L) at CBL-341I
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **84020.0** / **18** = **4667.778**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**3.97**x**10^8** - **7.06**x**10^9**/**18**) / (**18**-1))^{½} = **554.018**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **4667.778** + **5.0** * **554.018** = **7437.868**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **18** * (**18**-1) / 2 = **153**	Number of sample pairs during trend detection period.
5	S = **-76.49**	Sen's estimator of trend.
6	var(S) = **696.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**153** - **2.326** * **696.0**^{½}) / 2 = **45.818**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-305.108**	One-sided lower confidence limit for slope.

APPENDIX D

Analytical Data for Calendar Year 2023

Environmental Laboratory Services
The Solution Lab

LCRA Environmental Laboratory Services
3505 Montopolis Drive
Austin, TX 78744
Phone (512)730-6022
Fax (512)730-6021

February 23, 2023

BECKIE LOEVE
FAYETTE POWER PLANT
6549 POWER PLANT RD
MAIL STOP FPP
La Grange, TX 78945
BECKIE.LOEVE@LCRA.ORG

RE: Final Analytical Report Q2303816

Attn: BECKIE LOEVE

Enclosed are the analytical results for sample(s) received by LCRA Environmental Laboratory Services. Results reported herein conform to the most current NELAP standards, where applicable, unless otherwise narrated in the body of the report. This final report provides results related only to the sample(s) as received for the above referenced work order.

Thank you for selecting ELS for your analytical needs. If you have any questions regarding this report, please contact us at (512) 730-6022 or environmental.lab@lcra.org. We look forward to assisting you again.

Authorized for release by:

Jason Woods
Account Manager
jason.woods@lcra.org

Enclosures:

Environmental Laboratory Services
The Solution Lab

LCRA Environmental Laboratory Services
3505 Montopolis Drive
Austin, TX 78744
Phone (512)730-6022
Fax (512)730-6021

Workorder: Q2303816
Workorder Description: FPPCCR
Client: LCRA
Profile: FPP GWMP CCR
Sampled By: Elle Terrell Colt Petri

Report To: BECKIE LOEVE
FAYETTE POWER PLANT
6549 POWER PLANT RD
MAIL STOP FPP
La Grange, TX 78945

Sample Summary

Lab ID	Sample ID	Matrix	Method	Date Collected	Date Received	Analytes Reported
Q2303816001	CBL - 301I	AQ	E300.0, Anions	01/25/2023 14:25	01/26/2023 17:00	3
Q2303816001	CBL - 301I	AQ	Field pH SM4500H+B TCEQ VOL 1	01/25/2023 14:25	01/26/2023 17:00	1
Q2303816001	CBL - 301I	AQ	SM2540C, TDS	01/25/2023 14:25	01/26/2023 17:00	1
Q2303816001	CBL - 301I	AQ	SW6010B ICP-AES	01/25/2023 14:25	01/26/2023 17:00	2
Q2303816002	CBL - 302I	AQ	E300.0, Anions	01/26/2023 13:15	01/26/2023 17:00	3
Q2303816002	CBL - 302I	AQ	Field pH SM4500H+B TCEQ VOL 1	01/26/2023 13:15	01/26/2023 17:00	1
Q2303816002	CBL - 302I	AQ	SM2540C, TDS	01/26/2023 13:15	01/26/2023 17:00	1
Q2303816002	CBL - 302I	AQ	SW6010B ICP-AES	01/26/2023 13:15	01/26/2023 17:00	2
Q2303816003	CBL - 306I	AQ	E300.0, Anions	01/26/2023 13:55	01/26/2023 17:00	3
Q2303816003	CBL - 306I	AQ	Field pH SM4500H+B TCEQ VOL 1	01/26/2023 13:55	01/26/2023 17:00	1
Q2303816003	CBL - 306I	AQ	SM2540C, TDS	01/26/2023 13:55	01/26/2023 17:00	1
Q2303816003	CBL - 306I	AQ	SW6010B ICP-AES	01/26/2023 13:55	01/26/2023 17:00	2
Q2303816004	CBL - 308I	AQ	E300.0, Anions	01/26/2023 14:52	01/26/2023 17:00	3
Q2303816004	CBL - 308I	AQ	Field pH SM4500H+B TCEQ VOL 1	01/26/2023 14:52	01/26/2023 17:00	1
Q2303816004	CBL - 308I	AQ	SM2540C, TDS	01/26/2023 14:52	01/26/2023 17:00	1
Q2303816004	CBL - 308I	AQ	SW6010B ICP-AES	01/26/2023 14:52	01/26/2023 17:00	2
Q2303816005	CBL - 341I	AQ	E300.0, Anions	01/26/2023 12:09	01/26/2023 17:00	3
Q2303816005	CBL - 341I	AQ	Field pH SM4500H+B TCEQ VOL 1	01/26/2023 12:09	01/26/2023 17:00	1
Q2303816005	CBL - 341I	AQ	SM2540C, TDS	01/26/2023 12:09	01/26/2023 17:00	1
Q2303816005	CBL - 341I	AQ	SW6010B ICP-AES	01/26/2023 12:09	01/26/2023 17:00	2
Q2303816006	CBL - 641I	AQ	E300.0, Anions	01/26/2023 12:09	01/26/2023 17:00	3
Q2303816006	CBL - 641I	AQ	SM2540C, TDS	01/26/2023 12:09	01/26/2023 17:00	1
Q2303816006	CBL - 641I	AQ	SW6010B ICP-AES	01/26/2023 12:09	01/26/2023 17:00	2
Q2303816007	EQB	AQ	E300.0, Anions	01/25/2023 14:30	01/26/2023 17:00	3
Q2303816007	EQB	AQ	SM2540C, TDS	01/25/2023 14:30	01/26/2023 17:00	1
Q2303816007	EQB	AQ	SW6010B ICP-AES	01/25/2023 14:30	01/26/2023 17:00	2
Q2303816008	CBL-340I	AQ	E300.0, Anions	01/30/2023 12:28	01/30/2023 14:30	3
Q2303816008	CBL-340I	AQ	Field pH SM4500H+B TCEQ VOL 1	01/30/2023 12:28	01/30/2023 14:30	1
Q2303816008	CBL-340I	AQ	SM2540C, TDS	01/30/2023 12:28	01/30/2023 14:30	1
Q2303816008	CBL-340I	AQ	SW6010B ICP-AES	01/30/2023 12:28	01/30/2023 14:30	2

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Sample Summary

Lab ID	Sample ID	Matrix	Method	Date Collected	Date Received	Analytes Reported
Q2303816009	FB	AQ	E300.0, Anions	01/26/2023 14:50	01/30/2023 14:30	3
Q2303816009	FB	AQ	SM2540C, TDS	01/26/2023 14:50	01/30/2023 14:30	1
Q2303816009	FB	AQ	SW6010B ICP-AES	01/26/2023 14:50	01/30/2023 14:30	2

Report Definitions

MRL - Minimum Reporting Limit
LOD - Limit of Detection
ML - Maximum Limit - Client Specified
MCL - Maximum Contaminant Level
LOQ - Limit of Quantitation - Client Specified
DF - Dilution Factor
(S) - Surrogate Spike
MDL - Method Detection Limit
RPD - Relative Percent Difference

Qualifier Definitions

J - Analyte detected below quantitation limit
R - RPD outside duplicate precision limit
S - Spike recovery outside limit
B- Analyte detected in method blank
N - Not Accredited
M - Analyte Detected Above Maximum Contaminant Level
SL - Spike Recovery Low
SH - Spike Recovery High
H - Analyzed Past Hold Time
CR - Confirmed Result
CH - Result confirmed by historical data

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Workorder Summary

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Environmental Laboratory Services
The Solution Lab

LCRA Environmental Laboratory Services
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Fax (512)730-6021

Analytical Results

Client ID: LCRA
Lab ID: Q2303816001
Sample ID: CBL - 301I
Project ID: FPP GWMP CCR

Date Collected: 01/25/2023 14:25
Date Received: 01/26/2023 17:00
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.34	pH				1	01/25/2023 14:25	ENT	01/25/2023 14:25	ENT	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	1960	mg/L	50.0	20.0		50	01/28/2023 01:13	ML	01/28/2023 01:13	ML	
Fluoride	1.72	mg/L	0.500	0.200		50	01/28/2023 01:13	ML	01/28/2023 01:13	ML	
Sulfate	1370	mg/L	50.0	20.0		50	01/28/2023 01:13	ML	01/28/2023 01:13	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.108	mg/L	0.0500	0.0200		1	02/07/2023 09:52	FM	02/14/2023 10:28	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	977	mg/L	1.00	0.350		5	02/07/2023 09:52	FM	02/14/2023 10:33	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	5160	mg/L	250	250		100	01/30/2023 16:34	SN	01/30/2023 16:34	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2303816002
Sample ID: CBL - 302I
Project ID: FPP GWMP CCR

Date Collected: 01/26/2023 13:15
Date Received: 01/26/2023 17:00
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.33	pH				1	01/26/2023 13:15	ENT	01/26/2023 13:15	ENT	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	1460	mg/L	50.0	20.0		50	01/28/2023 01:33	ML	01/28/2023 01:33	ML	
Fluoride	<0.500	mg/L	0.500	0.200		50	01/28/2023 01:33	ML	01/28/2023 01:33	ML	
Sulfate	1390	mg/L	50.0	20.0		50	01/28/2023 01:33	ML	01/28/2023 01:33	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.116	mg/L	0.0500	0.0200		1	02/07/2023 09:52	FM	02/14/2023 10:37	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	889	mg/L	1.00	0.350		5	02/07/2023 09:52	FM	02/14/2023 10:41	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	4930	mg/L	250	250		100	02/02/2023 13:18	SN	02/02/2023 13:18	SN	

Environmental Laboratory Services
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Analytical Results

Client ID: LCRA
Lab ID: Q2303816003
Sample ID: CBL - 306I
Project ID: FPP GWMP CCR

Date Collected: 01/26/2023 13:55
Date Received: 01/26/2023 17:00
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	7.30	pH				1	01/26/2023 13:55	ENT	01/26/2023 13:55	ENT	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	148	mg/L	5.00	2.00		5	01/27/2023 23:34	ML	01/27/2023 23:34	ML	
Fluoride	1.92	mg/L	0.0500	0.0200		5	01/27/2023 23:34	ML	01/27/2023 23:34	ML	
Sulfate	205	mg/L	5.00	2.00		5	01/27/2023 23:34	ML	01/27/2023 23:34	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.0973	mg/L	0.0500	0.0200		1	02/07/2023 09:52	FM	02/14/2023 10:46	FM	
Calcium Total	149	mg/L	0.200	0.0700		1	02/07/2023 09:52	FM	02/14/2023 10:46	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	1000	mg/L	25.0	25.0		10	02/02/2023 13:18	SN	02/02/2023 13:18	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2303816004
Sample ID: CBL - 308I
Project ID: FPP GWMP CCR

Date Collected: 01/26/2023 14:52
Date Received: 01/26/2023 17:00
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.41	pH				1	01/26/2023 14:52	ENT	01/26/2023 14:52	ENT	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	2570	mg/L	50.0	20.0		50	01/28/2023 04:12	ML	01/28/2023 04:12	ML	
Fluoride	<0.500	mg/L	0.500	0.200		50	01/28/2023 04:12	ML	01/28/2023 04:12	ML	
Sulfate	445	mg/L	50.0	20.0		50	01/28/2023 04:12	ML	01/28/2023 04:12	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	732	mg/L	1.00	0.350		5	02/07/2023 09:52	FM	02/14/2023 10:59	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.143	mg/L	0.0500	0.0200		1	02/07/2023 09:52	FM	02/14/2023 10:55	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	5810	mg/L	250	250		100	02/02/2023 13:18	SN	02/02/2023 13:18	SN	

Environmental Laboratory Services
The Solution Lab

LCRA Environmental Laboratory Services
3505 Montopolis Drive
Austin, TX 78744
Phone (512)730-6022
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Analytical Results

Client ID: LCRA
Lab ID: Q2303816005
Sample ID: CBL - 341I
Project ID: FPP GWMP CCR

Date Collected: 01/26/2023 12:09
Date Received: 01/26/2023 17:00
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.28	pH				1	01/26/2023 12:09	ENT	01/26/2023 12:09	ENT	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	1660	mg/L	25.0	10.0		25	01/27/2023 20:35	ML	01/27/2023 20:35	ML	
Fluoride	<0.250	mg/L	0.250	0.100		25	01/27/2023 20:35	ML	01/27/2023 20:35	ML	
Sulfate	309	mg/L	25.0	10.0		25	01/27/2023 20:35	ML	01/27/2023 20:35	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	797	mg/L	1.00	0.350		5	02/07/2023 09:52	FM	02/14/2023 11:08	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.134	mg/L	0.0500	0.0200		1	02/07/2023 09:52	FM	02/14/2023 11:04	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	4390	mg/L	250	250		100	02/02/2023 13:18	SN	02/02/2023 13:18	SN	

Environmental Laboratory Services
The Solution Lab

LCRA Environmental Laboratory Services
3505 Montopolis Drive
Austin, TX 78744
Phone (512)730-6022
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Analytical Results

Client ID: LCRA
Lab ID: Q2303816006
Sample ID: CBL - 641I
Project ID: FPP GWMP CCR

Date Collected: 01/26/2023 12:09
Date Received: 01/26/2023 17:00
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	1690	mg/L	25.0	10.0		25	01/28/2023 03:53	ML	01/28/2023 03:53	ML	
Fluoride	<0.250	mg/L	0.250	0.100		25	01/28/2023 03:53	ML	01/28/2023 03:53	ML	
Sulfate	316	mg/L	25.0	10.0		25	01/28/2023 03:53	ML	01/28/2023 03:53	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.130	mg/L	0.0500	0.0200		1	02/07/2023 09:52	FM	02/14/2023 11:12	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	802	mg/L	1.00	0.350		5	02/07/2023 09:52	FM	02/14/2023 11:17	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	3830	mg/L	250	250		100	01/30/2023 16:34	SN	01/30/2023 16:34	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2303816007
Sample ID: EQB
Project ID: FPP GWMP CCR

Date Collected: 01/25/2023 14:30
Date Received: 01/26/2023 17:00
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	<1.00	mg/L	1.00	0.400		1	01/27/2023 22:34	ML	01/27/2023 22:34	ML	
Fluoride	<0.0100	mg/L	0.0100	0.00400		1	01/27/2023 22:34	ML	01/27/2023 22:34	ML	
Sulfate	<1.00	mg/L	1.00	0.400		1	01/27/2023 22:34	ML	01/27/2023 22:34	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	<0.0500	mg/L	0.0500	0.0200		1	02/07/2023 09:52	FM	02/14/2023 11:21	FM	
Calcium Total	0.250	mg/L	0.200	0.0700		1	02/07/2023 09:52	FM	02/14/2023 11:21	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	<25.0	mg/L	25.0	25.0		10	01/30/2023 16:34	SN	01/30/2023 16:34	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2303816008
Sample ID: CBL-340I
Project ID: FPP GWMP CCR

Date Collected: 01/30/2023 12:28
Date Received: 01/30/2023 14:30
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.37	pH				1	01/30/2023 12:28	ENT	01/30/2023 12:28	ENT	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	2230	mg/L	50.0	20.0		50	02/03/2023 13:03	ML	02/03/2023 13:03	ML	
Fluoride	0.850	mg/L	0.500	0.200		50	02/03/2023 13:03	ML	02/03/2023 13:03	ML	
Sulfate	643	mg/L	50.0	20.0		50	02/03/2023 13:03	ML	02/03/2023 13:03	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	635	mg/L	1.00	0.350		5	02/07/2023 09:52	FM	02/14/2023 11:34	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.167	mg/L	0.0500	0.0200		1	02/07/2023 09:52	FM	02/14/2023 11:29	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	5010	mg/L	250	250		100	02/03/2023 09:45	SN	02/03/2023 09:45	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2303816009
Sample ID: FB
Project ID: FPP GWMP CCR

Date Collected: 01/26/2023 14:50
Date Received: 01/30/2023 14:30
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	<1.00	mg/L	1.00	0.400		1	02/03/2023 12:43	ML	02/03/2023 12:43	ML	
Fluoride	<0.0100	mg/L	0.0100	0.00400		1	02/03/2023 12:43	ML	02/03/2023 12:43	ML	
Sulfate	<1.00	mg/L	1.00	0.400		1	02/03/2023 12:43	ML	02/03/2023 12:43	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	<0.0500	mg/L	0.0500	0.0200		1	02/07/2023 09:52	FM	02/14/2023 11:38	FM	
Calcium Total	<0.200	mg/L	0.200	0.0700		1	02/07/2023 09:52	FM	02/14/2023 11:38	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	<25.0	mg/L	25.0	25.0		10	02/02/2023 13:18	SN	02/02/2023 13:18	SN	

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Quality Control Results

QC Batch: MET/9634
Preparation Method: SW3010A, Metals Prep
Associated Lab IDs: Q2303816001, Q2303816002, Q2303816003, Q2303816004, Q2303816005, Q2303816006, Q2303816007, Q2303816008, Q2303816009

Analysis Method: SW6010B ICP-AES

Lab Control Sample (1857838); Lab Control Sample Duplicate (1857839)

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Boron Total	mg/L	1.0	0.854	85.4	80 - 120	0.889	88.9	4.02	20	
Calcium Total	mg/L	10.0	9.5	95.0	80 - 120	9.92	99.2	4.33	20	

Method Blank(1857837)

Parameter	Units	Results	MRL	LOD	Qualifier
Boron Total	mg/L	<0.0500	0.05	0.02	
Calcium Total	mg/L	<0.200	0.2	0.07	

Matrix Spike (1857840); Matrix Spike Duplicate (1857841); Original: Q2303816001

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Boron Total	mg/L	1.0	1.0	89.6	75 - 125	1.03	92.5	2.96	20	
Calcium Total	mg/L	10.0	1030.0	529.0	75 - 125	1050.0	765.0	1.92	20	SH

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Quality Control Results

QC Batch: WET/27905 **Analysis Method:** E300.0, Anions
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2303816001, Q2303816002, Q2303816003, Q2303816004, Q2303816005, Q2303816006, Q2303816007

Limit of Quantitation Check (1856605)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	5.0	4.15	83.0	70 - 130	
Fluoride	mg/L	0.02	0.0215	108.0	70 - 130	
Sulfate	mg/L	5.0	4.23	84.7	70 - 130	

Method Reporting Limit Check (1856603)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	1.0	0.713	71.3	50 - 150	
Fluoride	mg/L	0.01	0.0089	89.0	50 - 150	
Sulfate	mg/L	1.0	0.77	77.0	50 - 150	

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Quality Control Results

QC Batch: WET/27905 **Analysis Method:** E300.0, Anions
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2303816001, Q2303816002, Q2303816003, Q2303816007

Laboratory Reagent Blank(1856609)

Parameter	Units	Results	MRL	LOD	Qualifier
Chloride	mg/L	<1.00	1.0	0.4	
Fluoride	mg/L	<0.0100	0.01	0.004	
Sulfate	mg/L	<1.00	1.0	0.4	

Laboratory Fortified Matrix (1856611); Lab Fortified Matrix Duplicate (1856612); Original: Q2303816007

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Chloride	mg/L	20.0	19.6	98.2	80 - 120	19.7	98.7	0.509	20	
Fluoride	mg/L	1.0	1.0	100.0	80 - 120	1.01	101.0	0.995	20	
Sulfate	mg/L	20.0	19.3	96.6	80 - 120	19.4	97.1	0.517	20	

Laboratory Fortified Blank (1856610)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	30.0	30.6	102.0	90 - 110	
Fluoride	mg/L	1.0	1.01	101.0	90 - 110	
Sulfate	mg/L	30.0	30.5	102.0	90 - 110	

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Quality Control Results

QC Batch: WET/27905
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2303816004, Q2303816006
Analysis Method: E300.0, Anions

Laboratory Fortified Matrix (1856616); Lab Fortified Matrix Duplicate (1856617); Original: Q2303890002

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Chloride	mg/L	100.0	230.0	103.0	80 - 120	229.0	102.0	0.436	20	
Fluoride	mg/L	5.0	6.18	94.7	80 - 120	6.15	94.0	0.487	20	
Sulfate	mg/L	100.0	327.0	101.0	80 - 120	326.0	100.0	0.306	20	

Laboratory Fortified Blank (1856615)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	30.0	30.4	101.0	90 - 110	
Fluoride	mg/L	1.0	1.0	100.0	90 - 110	
Sulfate	mg/L	30.0	30.4	101.0	90 - 110	

Laboratory Reagent Blank(1856614)

Parameter	Units	Results	MRL	LOD	Qualifier
Chloride	mg/L	<1.00	1.0	0.4	
Fluoride	mg/L	<0.0100	0.01	0.004	
Sulfate	mg/L	<1.00	1.0	0.4	

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Quality Control Results

QC Batch: WET/27905
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2303816005
Analysis Method: E300.0, Anions

Laboratory Reagent Blank(1856601)

Parameter	Units	Results	MRL	LOD	Qualifier
Chloride	mg/L	<1.00	1.0	0.4	
Fluoride	mg/L	<0.0100	0.01	0.004	
Sulfate	mg/L	<1.00	1.0	0.4	

Laboratory Fortified Matrix (1856606); Lab Fortified Matrix Duplicate (1856607); Original: Q2303766001

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Chloride	mg/L	20.0	68.2	91.8	80 - 120	68.0	90.7	0.294	20	
Fluoride	mg/L	1.0	1.09	98.4	80 - 120	1.09	97.8	0.0	20	
Sulfate	mg/L	20.0	27.9	104.0	80 - 120	27.9	104.0	0.0	20	

Laboratory Fortified Blank (1856604)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	30.0	30.4	101.0	90 - 110	
Fluoride	mg/L	1.0	1.01	101.0	90 - 110	
Sulfate	mg/L	30.0	30.4	101.0	90 - 110	

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Quality Control Results

QC Batch: WET/27908 **Analysis Method:** SM2540C, TDS
Preparation Method: SM2540C, TDS
Associated Lab IDs: Q2303816001, Q2303816006, Q2303816007

Duplicate (1856799); Original Q2303577003

Parameter	Units	Original	Duplicate	RPD	RPD Limit	Qualifier
Total Dissolved Solids(TDS)	mg/L	719.0	738.0	2.61	20	

Matrix Spike (1856798); Original: Q2303577003

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Total Dissolved Solids(TDS)	mg/L	400.0	1110.0	98.2	70 - 130	

Method Blank(1856796)

Parameter	Units	Results	MRL	LOD	Qualifier
Total Dissolved Solids(TDS)	mg/L	<25.0	25.0	25.0	

Lab Control Sample (1856797)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Total Dissolved Solids(TDS)	mg/L	400.0	403.0	101.0	80 - 120	

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Quality Control Results

QC Batch: WET/27912 **Analysis Method:** SM2540C, TDS
Preparation Method: SM2540C, TDS
Associated Lab IDs: Q2303816002, Q2303816003, Q2303816004, Q2303816005, Q2303816009

Matrix Spike (1856917); Original: Q2303577004

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Total Dissolved Solids(TDS)	mg/L	400.0	1200.0	116.0	70 - 130	

Method Blank(1856914)

Parameter	Units	Results	MRL	LOD	Qualifier
Total Dissolved Solids(TDS)	mg/L	<25.0	25.0	25.0	

Lab Control Sample (1856915)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Total Dissolved Solids(TDS)	mg/L	400.0	377.0	94.3	80 - 120	

Duplicate (1856916); Original Q2303577004

Parameter	Units	Original	Duplicate	RPD	RPD Limit	Qualifier
Total Dissolved Solids(TDS)	mg/L	735.0	758.0	3.08	20	

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Quality Control Results

QC Batch: WET/27914
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2303816008, Q2303816009
Analysis Method: E300.0, Anions

Laboratory Reagent Blank(1856997)

Parameter	Units	Results	MRL	LOD	Qualifier
Chloride	mg/L	<1.00	1.0	0.4	
Fluoride	mg/L	<0.0100	0.01	0.004	
Sulfate	mg/L	<1.00	1.0	0.4	

Limit of Quantitation Check (1857001)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	5.0	4.24	84.9	70 - 130	
Fluoride	mg/L	0.02	0.018	90.0	70 - 130	
Sulfate	mg/L	5.0	4.3	86.1	70 - 130	

Laboratory Fortified Matrix (1857002); Lab Fortified Matrix Duplicate (1857003); Original: Q2304070001

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Chloride	mg/L	40.0	121.0	92.2	80 - 120	121.0	92.2	0.0	20	
Sulfate	mg/L	40.0	57.9	102.0	80 - 120	57.9	102.0	0.0	20	

Method Reporting Limit Check (1856999)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	1.0	0.736	73.6	50 - 150	
Fluoride	mg/L	0.01	0.0102	102.0	50 - 150	
Sulfate	mg/L	1.0	0.815	81.5	50 - 150	

Laboratory Fortified Blank (1857000)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	30.0	30.3	101.0	90 - 110	
Fluoride	mg/L	1.0	1.01	101.0	90 - 110	
Sulfate	mg/L	30.0	30.3	101.0	90 - 110	

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Quality Control Results

QC Batch: WET/27918
Preparation Method: SM2540C, TDS
Associated Lab IDs: Q2303816008
Analysis Method: SM2540C, TDS

Lab Control Sample (1857154)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Total Dissolved Solids(TDS)	mg/L	400.0	385.0	96.2	80 - 120	

Duplicate (1857155); Original Q2304070001

Parameter	Units	Original	Duplicate	RPD	RPD Limit	Qualifier
Total Dissolved Solids(TDS)	mg/L	598.0	615.0	2.8	20	

Method Blank(1857153)

Parameter	Units	Results	MRL	LOD	Qualifier
Total Dissolved Solids(TDS)	mg/L	<25.0	25.0	25.0	

Matrix Spike (1857156); Original: Q2304070001

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Total Dissolved Solids(TDS)	mg/L	400.0	1000.0	101.0	70 - 130	

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QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
MET/9634 - SW6010B ICP-AES			
Q2303816001	CBL - 301I	MEP/12563	SW3010A, Metals Prep
Q2303816002	CBL - 302I	MEP/12563	SW3010A, Metals Prep
Q2303816003	CBL - 306I	MEP/12563	SW3010A, Metals Prep
Q2303816004	CBL - 308I	MEP/12563	SW3010A, Metals Prep
Q2303816005	CBL - 341I	MEP/12563	SW3010A, Metals Prep
Q2303816006	CBL - 641I	MEP/12563	SW3010A, Metals Prep
Q2303816007	EQB	MEP/12563	SW3010A, Metals Prep
Q2303816008	CBL-340I	MEP/12563	SW3010A, Metals Prep
Q2303816009	FB	MEP/12563	SW3010A, Metals Prep
WET/27905 - E300.0, Anions			
Q2303816001	CBL - 301I		
Q2303816002	CBL - 302I		
Q2303816003	CBL - 306I		
Q2303816004	CBL - 308I		
Q2303816005	CBL - 341I		
Q2303816006	CBL - 641I		
Q2303816007	EQB		
WET/27908 - SM2540C, TDS			
Q2303816001	CBL - 301I		
Q2303816006	CBL - 641I		
Q2303816007	EQB		
WET/27912 - SM2540C, TDS			
Q2303816002	CBL - 302I		
Q2303816003	CBL - 306I		
Q2303816004	CBL - 308I		
Q2303816005	CBL - 341I		
Q2303816009	FB		
WET/27914 - E300.0, Anions			
Q2303816008	CBL-340I		
Q2303816009	FB		
WET/27918 - SM2540C, TDS			
Q2303816008	CBL-340I		

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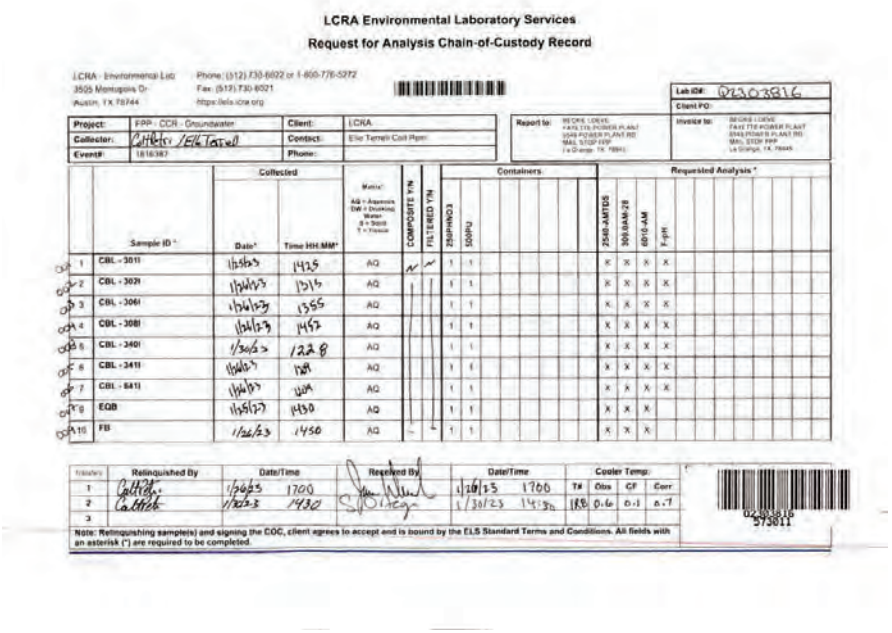

LCRA Environmental Laboratory Services

Request for Analysis Chain-of-Custody Record

Sample ID *	Date*	Time HH:MM*	Matrix*	COMPOSITE Y/N	FILTERED Y/N	Containers: 250HNO3	Containers: 500PU	Requested Analysis * 2540-AMTDS	300.0AM-28	6010-AM	T-pH
1 CBL - 301I	1/25/23	1425	AQ	N	N	1	1	X	X	X	X
2 CBL - 302I	1/24/23	1215	AQ			1	1	X	X	X	X
3 CBL - 306I	1/24/23	1355	AQ			1	1	X	X	X	X
4 CBL - 308I	1/24/23	1457	AQ			1	1	X	X	X	X
5 CBL - 340I	1/30/23	1228	AQ			1	1	X	X	X	X
6 CBL - 341I	1/24/23	1129	AQ			1	1	X	X	X	X
7 CBL - 641I	1/24/23	1129	AQ			1	1	X	X	X	X
8 EQB	1/25/23	1430	AQ			1	1	X	X	X	
9 10 FB	1/26/23	1450	AQ			1	1	X	X	X	

	Relinquished By	Date/Time	Received By	Date/Time	Cooler Temp: T#	Obs	CF	Corr
1	Called:	1/26/23 1700		1/26/23 1700				
2	Called	1/27/23 1430		1/30/23 1430	18	0.6	0.1	0.7
3								

Note: Relinquishing sample(s) and signing the COC, client agrees to accept and is bound by the ELS Standard Terms and Conditions. All fields with an asterisk (*) are required to be completed.

End of Report

LCRA Environmental Laboratory Services

Request for Analysis Chain-of-Custody Record

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Austin, TX 78744

Phone: (512) 730-6022 or 1-800-776-5272
Fax: (512) 730-6021
https://els.lcra.org

Lab ID#: R2303916
Client PO:

Project:	FPP - CCR - Groundwater	Client:	LCRA
Collector:	Caitlin Lee/Elle Terrell	Contact:	Elle Terrell Colt Petr
Event#:	1616387	Phone:	

Report to: BECKIE LOEVE, FAYETTE POWER PLANT, 6549 POWER PLANT RD, MAIL STOP FPP, La Grange, TX 78945

Invoice to: BECKIE LOEVE, FAYETTE POWER PLANT, 6549 POWER PLANT RD, MAIL STOP FPP, La Grange, TX 78945

	Sample ID *	Collected Date*	Collected Time HH:MM*	Matrix* (AQ = Aqueous, DW = Drinking Water, S = Solid, T = Tissue)	COMPOSITE Y/N	FILTERED Y/N	Containers 250PHNO3	Containers 500PU	Requested Analysis * 2540-AMTDS	300.0AM-28	6010-AM	F-pH
1	CBL - 301I	1/25/23	1425	AQ	N	N	1	1	X	X	X	X
2	CBL - 302I	1/24/23	1314	AQ			1	1	X	X	X	X
3	CBL - 306I	1/24/23	1355	AQ			1	1	X	X	X	X
4	CBL - 308I	1/24/23	1457	AQ			1	1	X	X	X	X
5	CBL - 340I	1/30/23	1228	AQ			1	1	X	X	X	X
6	CBL - 341I	1/24/23	1051	AQ			1	1	X	X	X	X
7	CBL - 641I	1/24/23	1204	AQ			1	1	X	X	X	X
9	EQB	1/25/23	1430	AQ			1	1	X	X	X	
10	FB	1/26/23	1450	AQ	-	-	1	1	X	X	X	

Container	Relinquished By	Date/Time	Received By	Date/Time	Cooler Temp: T#	Obs	CF	Corr
1	Caitlin Lee	1/26/23 1700		1/26/23 1700	T#	Obs	CF	Corr
2	Caitlin Lee	1/30/23 1430		1/30/23 14:32	18	0.6	0.1	0.7
3								

Note: Relinquishing sample(s) and signing the COC, client agrees to accept and is bound by the ELS Standard Terms and Conditions. All fields with an asterisk (*) are required to be completed.

02383816
573011

Field Information Form

LCRA ENERGY • WATER • COMMUNITY SERVICES

Sample Date: 1/25/23 (8)
Sample Time: 1425
Sample ID: CBL301I

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr. Clock)	WATER VOL IN CASING (Gallons)	3 X WELL VOL. IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230125	1329	V= 28	8.5	16

PURGING AND SAMPLING EQUIPMENT

Purging Equipment Dedicated I Y I (N)
Sampling Equipment Dedicated I Y I (N)

Purging Device	A	A-Submersible Pump	D-Gas Litf Pump	G-Bailer	X- Purging Other (Specify)
Sampling Device	A	B-Perisataltic Pump	E-Venturi Pump	H-Scoop/Shovel	X- Sampling Other (Specify)
		C-Bladder Pump	F-Dipper/Bottle	I-Piston Pump	
Purging Material	E	A-Teflon	C-Polypropylene	E-Polyethylene	X- Purging Other (Specify)
Sampling Material	E	B-Stainless Steel	D-PVC		X- Sampling Other (Specify)
Tubing-Purging	E	A-Teflon	D-Polypropylene	F-Silicon	X- Purging Other (Specify)
Tubing-Sampling	E	B-Tygon	E-Polyethylene	G-Combination teflon/Polypropylene	X- Sampling Other (Specify)

C-Rope X- (Specify)

FIELD MEASUREMENTS

Well Elevation (ft/msl)
Land Surface Elevation (ft/msl)
Depth to water From top of well casing =Dw 36.73 (ft)
Depth to water From land surface (ft)
Groundwater Elevation
Groundwater Elevation (ft/msl)
Well Depth = D 54.10 (ft)
Pump Placement 51 (ft)

6.34 (STD) PH
822 uS/cm Specific Conductivity
Sample Temp. 22.32 (°C)

Bottle Type	Bottle Size	Bottle Preservative	Analysis	Field Filt.Y/N
P	250mL	HNO3	Metals	N
P	250mL	HNO3	Metals	N
P	500mL	ICE	Anions	N
P	250mL	ICE	Anions	N
P	250mL	HNO3	EB 2 EQ Blank metals P 500mL EQ Blank Anions	
P	250m	HNO3		

Sample Appearance: Clear Odor: none Color: Clear Turbidity: 2.06
Weather Conditions: Partly Cloudy North west wind 5-10mph 57°
Other: Purge water is milkly becoming clear after 3 gallons

WELL VOLUME CALCULATION

V=(D-Dw) (A) (7.48 gal/ft³) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
Dw=depth to water below measuring point
A= cross sectional area
(2" dia. A= 0.0218) 4" dia. A = 0.0872

Well Appearance Normal: Yes X No
If No, Explain

Procedure: ELS Ground water SOP 5-7.0
Date: 1/25/23
Sampler: CP/ET
Employer: LCRA

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Field Information Form

Sample Date: 1/26/23 (12)
Sample Time: 1209
Sample ID: CB|E|3|4|1|I

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr. Clock)	WATER VOL IN CASING (Gallons)	3 X WELL VOL. IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230126	1127	V= 47	141	9

PURGING AND SAMPLING EQUIPMENT

Purging Equipment Dedicated (Y) I N I Sampling Equipment Dedicated (Y) I N I

Purging Device / Sampling Device	B / B	A-Submersible Pump; B-Perisataltic Pump; C-Bladder Pump	D-Gas Litf Pump; E-Venturi Pump; F-Dipper/Bottle	G-Bailer; H-Scoop/Shovel; I-Piston Pump	X- Purging Other (Specify); X- Sampling Other (Specify)
Purging Material / Sampling Material	E / E	A-Teflon; B-Stainless Steel	C-Polypropylene; D-PVC	E-Polyethylene	X- Purging Other (Specify); X- Sampling Other (Specify)
Tubing-Purging / Tubing-Sampling	F / F	A-Teflon; B-Tygon	D-Polypropylene; E-Polyethylene	F-Silicon; G-Combination teflon/Polypropylene	X- Purging Other (Specify); X- Sampling Other (Specify)

C-Rope X- (Specify)

FIELD MEASUREMENTS

Well Elevation	(ft/msl)	Land Surface Elevation	(ft/msl)
Depth to water From top of well casing =Dw	17.88 (ft)	Depth to water From land surface	(ft)
Groundwater Elevation		Groundwater Elevation	(ft/msl)
Well Depth = D	46.43 (ft)	Pump Placement	44 (ft)

628 (STD) pH 5951 uS/cm Specific Conductivity Sample Temp. 21.35 (°C)

Bottle Type	Bottle Size	Bottle Preservative	Analysis	Field Filt.Y/N
P	250mL	HNO3	Metals	N
P	250mL	HNO3	Metals 641I Dup	N
P	500mL	ICE	Anions	N
P	500mL	ICE	Anions 641I Dup	N

Sample Appearance: Clear Odor: none Color: Clear Turbidity: 0.70
Weather Conditions: Clear North wind 5-10mph 50°
Other: Purge water is Clear with no odor. New tubing was used to sample Well

WELL VOLUME CALCULATION

V=(D-Dw) (A) (7.48 gal/ft³) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
Dw=depth to water below measuring point
A= cross sectional area
2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes X No
If No, Explain
Procedure: ELS Ground Water SOP 5-7D
Date: 1/26/23
Sampler: CP
Employer: LCRA

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Field Information Form

Sample Date: 1/26/23 (13)
Sample Time: 1315
Sample ID: CB|L|3|0|2|I

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr. Clock)	WATER VOL IN CASING (Gallons)	3 X WELL VOL. IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230126	1234	V= 2.5	7.5	8

PURGING AND SAMPLING EQUIPMENT

Purging Equipment Dedicated (Y) I N I Sampling Equipment Dedicated (Y) I N I

Purging Device / Sampling Device	B / B	A-Submersible Pump; B-Perisataltic Pump; C-Bladder Pump	D-Gas Litf Pump; E-Venturi Pump; F-Dipper/Bottle	G-Bailer; H-Scoop/Shovel; I-Piston Pump	X- Purging Other (Specify); X- Sampling Other (Specify)
Purging Material / Sampling Material	E / E	A-Teflon; B-Stainless Steel	C-Polypropylene; D-PVC	E-Polyethylene	X- Purging Other (Specify); X- Sampling Other (Specify)
Tubing-Purging / Tubing-Sampling	F / F	A-Teflon; B-Tygon	D-Polypropylene; E-Polyethylene	F-Silicon; G-Combination teflon/Polypropylene	X- Purging Other (Specify); X- Sampling Other (Specify)

C-Rope X- (Specify)

FIELD MEASUREMENTS

Well Elevation	(ft/msl)	Land Surface Elevation	(ft/msl)
Depth to water From top of well casing =Dw	14.74 (ft)	Depth to water From land surface	(ft)
Groundwater Elevation		Groundwater Elevation	(ft/msl)
Well Depth = D	27.11 (ft)	Pump Placement	25 (ft)

633 (STD) pH 6554 uS/cm Specific Conductivity Sample Temp. 21.8 (°C)

Bottle Type	Bottle Size	Bottle Preservative	Analysis	Field Filt.Y/N
P	250mL	HNO3	Metals	N
P	500mL	ICE	Anions	N

Sample Appearance: Clear Odor: none Color: Clear Turbidity: 0.85
Weather Conditions: Clear North wind 5-10mph 50°
Other: Purge water is Clear with no odor. New Tubing was use to collect Sample

WELL VOLUME CALCULATION

V=(D-Dw) (A) (7.48 gal/ft³) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
Dw=depth to water below measuring point
A= cross sectional area
2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes X No
If No, Explain
Procedure: ELS Ground Water SOP 5-7D
Date: 1/26/23
Sampler: CP
Employer: LCRA

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Field Information Form

Sample Date: 1/26/23 (14)
Sample Time: 1355
Sample ID: CBL306T

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr. Clock)	V= WATER VOL IN CASING (Gallons)	3 X WELL VOL. IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230126	1331	V= 1	3	5

PURGING AND SAMPLING EQUIPMENT

Purging Equipment Dedicated (Y) I N I Sampling Equipment Dedicated (Y) I N I

Purging Device / Sampling Device	B / B	A-Submersible Pump; B-Perisaltic Pump; C-Bladder Pump	D-Gas Litf Pump; E-Venturi Pump; F-Dipper/Bottle	G-Bailer; H-Scoop/Shovel; I-Piston Pump	X- Purging Other (Specify); X- Sampling Other (Specify)
Purging Material / Sampling Material	E / E	A-Teflon; B-Stainless Steel	C-Polypropylene; D-PVC	E-Polyethylene	X- Purging Other (Specify); X- Sampling Other (Specify)
Tubing-Purging / Tubing-Sampling	E / E	A-Teflon; B-Tygon	D-Polypropylene; E-Polyethylene	F-Silicon; G-Combination teflon/Polypropylene	X- Purging Other (Specify); X- Sampling Other (Specify)

C-Rope X- (Specify)

FIELD MEASUREMENTS

Well Elevation	(ft/msl)	Land Surface Elevation	(ft/msl)
Depth to water From top of well casing =D_w	8.57 (ft)	Depth to water From land surface	(ft)
Groundwater Elevation		Groundwater Elevation	(ft/msl)
Well Depth = D	14.80 (ft)	Pump Placement	12 (ft)

7.30 (STD) PH 1303 uS/cm Specific Conductivity Sample Temp. 20.30 (°C)

Bottle Type	Bottle Size	Bottle Preservative	Analysis	Field Filt.Y/N
P	250mL	HNO3	Metals	N
P	500mL	ICE	Anions	N
P	250mL	HNO3	606 metals Dup	N
P	250mL	ICE	606 Anions Dup	N

Sample Appearance: Clear Odor: none Color: Clear Turbidity: 2.16
Weather Conditions: Clear North wind 5-10mph 52°
Other: Purge water is Clear with no odor. New Tubing used to sample well

WELL VOLUME CALCULATION

$V=(D-D_w)$ (A) (7.48 galft^3) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
D_w=depth to water below measuring point
A= cross sectional area
2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes X No
If No, Explain

Procedure: ELS Ground water SOP 5-7D
Date: 1/26/23
Sampler: CP
Employer: LCRA

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Field Information Form

Sample Date: 1/26/23 (15)
Sample Time: 1452
Sample ID: CBL308T

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr Clock)	V= WATER VOL IN CASING (Gallons)	3 X WELL VOL. IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230126	1409	V= 1.16	4.7	5

PURGING AND SAMPLING EQUIPMENT

Purging Equipment Dedicated (Y) I N I Sampling Equipment Dedicated (Y) I N I

Purging Device / Sampling Device	B / B	A-Submersible Pump; B-Perisaltic Pump; C-Bladder Pump	D-Gas Litf Pump; E-Venturi Pump; F-Dipper/Bottle	G-Bailer; H-Scoop/Shovel; I-Piston Pump	X- Purging Other (Specify); X- Sampling Other (Specify)
Purging Material / Sampling Material	E / E	A-Teflon; B-Stainless Steel	C-Polypropylene; D-PVC	E-Polyethylene	X- Purging Other (Specify); X- Sampling Other (Specify)
Tubing-Purging / Tubing-Sampling	E / E	A-Teflon; B-Tygon	D-Polypropylene; E-Polyethylene	F-Silicon; G-Combination teflon/Polypropylene	X- Purging Other (Specify); X- Sampling Other (Specify)

C-Rope X- (Specify)

FIELD MEASUREMENTS

Well Elevation	(ft/msl)	Land Surface Elevation	(ft/msl)
Depth to water From top of well casing =D_w	25.79 (ft)	Depth to water From land surface	(ft)
Groundwater Elevation		Groundwater Elevation	(ft/msl)
Well Depth = D	35.30 (ft)	Pump Placement	33 (ft)

6.32 (STD) PH 8463 uS/cm Specific Conductivity Sample Temp. 20.43 (°C)

Bottle Type	Bottle Size	Bottle Preservative	Analysis	Field Filt.Y/N
P	250mL	HNO3	Metals	N
P	500mL	ICE	Anions	N
P	250mL	HNO3	Metals	N
P	250mL	ICE	Anions	N

Sample Appearance: Clear Odor: none Color: clear Turbidity: 1.05
Weather Conditions: Clear with North wind 5-10mph 55°
Other: Purge water is clear with no odor. Well sampled with new Tubing

WELL VOLUME CALCULATION

$V=(D-D_w)$ (A) (7.48 galft^3) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
D_w=depth to water below measuring point
A= cross sectional area
2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes X No
If No, Explain

Procedure: ELS Ground water SOP 5-7D
Date: 1/26/23
Sampler: CP
Employer: LCRA

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Field Information Form

Sample Date: 1/30/23 (12)
Sample Time: 1228
Sample ID: C8C3407

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr Clock)	WATER VOL IN CASING (Gallons)	3 X WELL VOL. IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230130	1136	V= 2.1	6.4	8

PURGING AND SAMPLING EQUIPMENT

Purging Equipment — Dedicated (Y) I N I — Sampling Equipment — Dedicated (Y) I N I

Purging Device	B	A-Submersible Pump	D-Gas Litf Pump	G-Bailer	X- Purging Other (Specify)
Sampling Device	B	B-Perisataltic Pump	E-Venturi Pump	H-Scoop/Shovel	X- Sampling Other (Specify)
		C-Bladder Pump	F-Dipper/Bottle	I-Piston Pump	
Purging Material	F	A-Teflon	C-Polypropylene	E-Polyethylene	X- Purging Other (Specify)
Sampling Material	F	B-Stainless Steel	D-PVC		X- Sampling Other (Specify)
Tubing-Purging	F	A-Teflon	D-Polypropylene	F-Silicon	X- Purging Other (Specify)
Tubing-Sampling	F	B-Tygon	E-Polyethylene	G-Combination teflon/Polypropylene	X- Sampling Other (Specify)

C-Rope X- (Specify)

FIELD MEASUREMENTS

Well Elevation	(ft/msl)	Land Surface Elevation	(ft/msl)
Depth to water From top of well casing =D_w	27.12 (ft)	Depth to water From land surface	(ft)
Groundwater Elevation		Groundwater Elevation	(ft/msl)
Well Depth = D	40.19 (ft)	Pump Placement	38 (ft)

6.37 (STD) PH — 8280 uS/cm Specific Conductivity — Sample Temp. 20.6 (°C) 57 BJT02/23

Bottle Type	Bottle Size	Bottle Preservative	Analysis	Field Filt.Y/N
P	250mL	HNO3	Metals	N
P	500mL	ICE	Anions	N

Sample Appearance: _____ Odor: _____ Color: _____ Turbidity: _____
Weather Conditions: overcast North wind 10-15mph 34°
Other: Purge water is clear with no odor

WELL VOLUME CALCULATION

$V=(D-D_w)(A)(7.48\ gal/ft^3)$ where
V= volume of standing water in well
D= depth to bottom of well below measuring point
D_w=depth to water below measuring point
A= cross-sectional area
2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes Y No _____
If No, Explain _____

Procedure: ELS Ground Water SOP 5-7D
Date: 1/30/23
Sampler: CP
Employer: LCRA

Rev. 1 (08/2009)

Environmental Laboratory Services
The Solution Lab

LCRA Environmental Laboratory Services
3505 Montopolis Drive
Austin, TX 78744
Phone (512)730-6022
Fax (512)730-6021

March 20, 2023

BECKIE LOEVE
FAYETTE POWER PLANT
6549 POWER PLANT RD
MAIL STOP FPP
La Grange, TX 78945
BECKIE.LOEVE@LCRA.ORG

RE: Final Analytical Report Q2308772

Attn: BECKIE LOEVE

Enclosed are the analytical results for sample(s) received by LCRA Environmental Laboratory Services. Results reported herein conform to the most current NELAP standards, where applicable, unless otherwise narrated in the body of the report. This final report provides results related only to the sample(s) as received for the above referenced work order.

Thank you for selecting ELS for your analytical needs. If you have any questions regarding this report, please contact us at (512) 730-6022 or environmental.lab@lcra.org. We look forward to assisting you again.

Authorized for release by:

Kelly Kukowski

Kelly Kukowski
Account Manager
Kelly.Kukowski@LCRA.ORG

Enclosures:

LCRA Environmental Laboratory Services
3505 Montopolis Drive
Austin, TX 78744
Phone (512)730-6022
Fax (512)730-6021

Workorder: Q2308772
Workorder Description: FPPCCR
Client: LCRA
Profile: FPP GWMP CCR
Sampled By: Colt Petri

Report To: BECKIE LOEVE
FAYETTE POWER PLANT
6549 POWER PLANT RD
MAIL STOP FPP
La Grange, TX 78945

Sample Summary

Lab ID	Sample ID	Matrix	Method	Date Collected	Date Received	Analytes Reported
Q2308772001	CBL - 301I	AQ	E300.0, Anions	03/07/2023 11:01	03/07/2023 15:07	2
Q2308772001	CBL - 301I	AQ	SW6010B ICP-AES	03/07/2023 11:01	03/07/2023 15:07	1
Q2308772002	EQB	AQ	E300.0, Anions	03/07/2023 11:10	03/07/2023 15:07	2
Q2308772002	EQB	AQ	SW6010B ICP-AES	03/07/2023 11:10	03/07/2023 15:07	1

Report Definitions

MRL - Minimum Reporting Limit
LOD - Limit of Detection
ML - Maximum Limit - Client Specified
MCL - Maximum Contaminant Level
LOQ - Limit of Quantitation - Client Specified
DF - Dilution Factor
(S) - Surrogate Spike
MDL - Method Detection Limit
RPD - Relative Percent Difference

Qualifier Definitions

J - Analyte detected below quantitation limit
R - RPD outside duplicate precision limit
S - Spike recovery outside limit
B- Analyte detected in method blank
N - Not Accredited
M - Analyte Detected Above Maximum Contaminant Level
SL - Spike Recovery Low
SH - Spike Recovery High
H - Analyzed Past Hold Time
CR - Confirmed Result
CH - Result confirmed by historical data

LCRA Environmental Laboratory Services
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Workorder Summary

Environmental Laboratory Services
The Solution Lab

LCRA Environmental Laboratory Services
3505 Montopolis Drive
Austin, TX 78744
Phone (512)730-6022
Fax (512)730-6021

Analytical Results

Client ID: LCRA
Lab ID: Q2308772001
Sample ID: CBL - 301I
Project ID: FPP GWMP CCR

Date Collected: 03/07/2023 11:01
Date Received: 03/07/2023 15:07
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Fluoride	<0.0500	mg/L	0.0500	0.0200		5	03/10/2023 11:54	ML	03/10/2023 11:54	ML	

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Sulfate	207	mg/L	50.0	20.0		50	03/08/2023 18:04	FO	03/08/2023 18:04	FO	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.102	mg/L	0.0500	0.0200		1	03/09/2023 15:30	FM	03/20/2023 12:23	FM	

Environmental Laboratory Services
The Solution Lab

LCRA Environmental Laboratory Services
3505 Montopolis Drive
Austin, TX 78744
Phone (512)730-6022
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Analytical Results

Client ID: LCRA
Lab ID: Q2308772002
Sample ID: EQB
Project ID: FPP GWMP CCR

Date Collected: 03/07/2023 11:10
Date Received: 03/07/2023 15:07
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Fluoride	<0.0100	mg/L	0.0100	0.00400		1	03/08/2023 18:24	FO	03/08/2023 18:24	FO	
Sulfate	<1.00	mg/L	1.00	0.400		1	03/08/2023 18:24	FO	03/08/2023 18:24	FO	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	<0.0500	mg/L	0.0500	0.0200		1	03/09/2023 15:30	FM	03/20/2023 12:28	FM	

LCRA Environmental Laboratory Services
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Austin, TX 78744
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Fax (512)730-6021

Quality Control Results

QC Batch: MET/9682
Preparation Method: SW3010A, Metals Prep
Associated Lab IDs: Q2308772001, Q2308772002
Analysis Method: SW6010B ICP-AES

Method Blank(1872071)

Parameter	Units	Results	MRL	LOD	Qualifier
Boron Total	mg/L	<0.0500	0.05	0.02	

Matrix Spike (1872074); Matrix Spike Duplicate (1872075); Original: Q2308772001

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Boron Total	mg/L	1.0	1.13	102.0	75 - 125	1.15	105.0	1.75	20	

Lab Control Sample (1872072); Lab Control Sample Duplicate (1872073)

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Boron Total	mg/L	1.0	1.03	103.0	80 - 120	1.03	103.0	0.0	20	

LCRA Environmental Laboratory Services
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Austin, TX 78744
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Quality Control Results

QC Batch: WET/28130
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2308772001, Q2308772002
Analysis Method: E300.0, Anions

Method Reporting Limit Check (1871925)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	0.01	0.0103	103.0	50 - 150	
Sulfate	mg/L	1.0	0.766	76.6	50 - 150	

Limit of Quantitation Check (1871927)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	0.02	0.0195	97.5	70 - 130	
Sulfate	mg/L	5.0	4.11	82.1	70 - 130	

Laboratory Fortified Blank (1871926)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	1.0	0.993	99.3	90 - 110	
Sulfate	mg/L	30.0	30.0	100.0	90 - 110	

Laboratory Fortified Matrix (1871928); Lab Fortified Matrix Duplicate (1871929); Original: Q2308974003

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Fluoride	mg/L	1.0	1.15	96.2	80 - 120	1.14	95.7	0.873	20	
Sulfate	mg/L	20.0	44.6	105.0	80 - 120	44.3	104.0	0.675	20	

Laboratory Reagent Blank(1871923)

Parameter	Units	Results	MRL	LOD	Qualifier
Fluoride	mg/L	<0.0100	0.01	0.004	
Sulfate	mg/L	<1.00	1.0	0.4	

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Quality Control Results

QC Batch: WET/28133
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2308772001
Analysis Method: E300.0, Anions

Method Reporting Limit Check (1872220)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	0.01	0.0128	128.0	50 - 150	

Laboratory Fortified Blank (1872221)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	1.0	1.09	109.0	90 - 110	

Laboratory Fortified Matrix (1872223); Lab Fortified Matrix Duplicate (1872224); Original: Q2309193002

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Fluoride	mg/L	1.0	1.21	103.0	80 - 120	1.21	104.0	0.0	20	

Laboratory Reagent Blank(1872218)

Parameter	Units	Results	MRL	LOD	Qualifier
Fluoride	mg/L	<0.0100	0.01	0.004	

Limit of Quantitation Check (1872222)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	0.02	0.0148	74.0	70 - 130	

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QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
MET/9682 - SW6010B ICP-AES			
Q2308772001	CBL - 301I	MEP/12621	SW3010A, Metals Prep
Q2308772002	EQB	MEP/12621	SW3010A, Metals Prep
WET/28130 - E300.0, Anions			
Q2308772001	CBL - 301I		
Q2308772002	EQB		
WET/28133 - E300.0, Anions			
Q2308772001	CBL - 301I		

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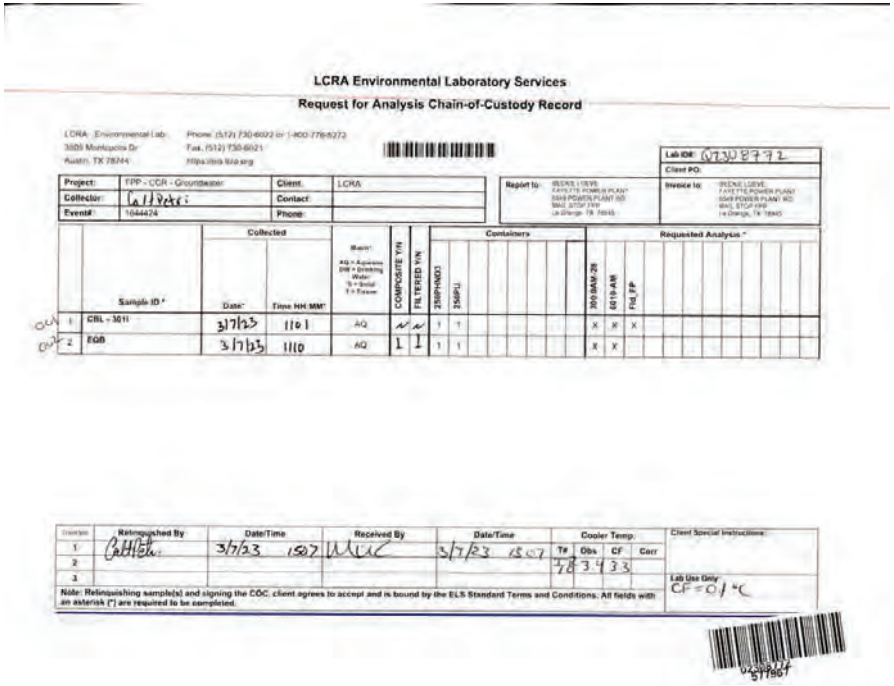

LCRA Environmental Laboratory Services

Request for Analysis Chain-of-Custody Record

LCRA Environmental Lab
3505 Montopolis Dr
Austin, TX 78744

Phone: (512) 730-6022 or 1-800-776-5272
Fax: (512) 730-6021
https://els.lcra.org

Lab ID#: 0730 8772
Client PO:

Project:	FPP - CCR - Groundwater	Client:	LCRA
Collector:	Collectors	Contact:	
Event#:	1044424	Phone:	

Report to:

Invoice to:

	Sample ID *	Collected Date*	Collected Time HH:MM*	Matrix*	COMPOSITE Y/N	FILTERED Y/N	Containers 250PHNO3	Containers 250PU	Requested Analysis * 300.0/SM 28	Requested Analysis * 6010 AM	Requested Analysis * Flds_FP
1	CBL - 3011	3/7/23	1101	AQ	N	N	1	1	X	X	X
2	EQB	3/7/23	1110	AQ	1	1	1	1	X	X	

	Relinquished By	Date/Time	Received By	Date/Time	Cooler Temp: Tº	Obs	CF	Corr
1	Cathleen	3/7/23 1507	MLuC	3/7/23 1507	7	8	3.4	3.3
2								
3								

Client Special Instructions:

Lab Use Only
CF = 0.1 °C

Note: Relinquishing sample(s) and signing the COC, client agrees to accept and is bound by the ELS Standard Terms and Conditions. All fields with an asterisk (*) are required to be completed.

End of Report

DATA USABILITY SUMMARY – LCRA Analytical Reports Q2303816 and Q2308772

Bullock, Bennett & Associates, LLC has reviewed the analytical data packages to be included in Appendix D of the Coal Combustion Residual Landfill 2022 Annual Groundwater Monitoring Report (Annual Groundwater Report) that was produced by LCRA Environmental Laboratory Services (ELS) for the analysis of groundwater samples collected in January 2023 and March 2023 at the Fayette Power Project (FPP) site. The Data were reviewed for conformance to the groundwater sampling and analysis requirements of 40 CFR § 257.93/30 TAC 352.931 and adherence to project objectives.

Objectives of the Data: To provide current data on concentrations of COCs in groundwater at the site for purposes of comparing Combustion Byproducts Landfill (CBL) compliance sample data to Appendix III Control Limits. To accomplish the stated data objectives, all field and laboratory procedures were performed in accordance with industry-established protocol, and the FPP Sampling and Analysis Plan. Appropriate quality assurance/quality control (QA/QC) measures were utilized. As described within the body of the Annual Groundwater Report, field QA/QC protocols integrated into this project followed industry standards and involved, among other factors:

- Use of sampling equipment decontamination protocol;
- Proper sample handling, preservation, and shipping procedures; and
- Maintenance of the sample chain of custody.

Also, as presented in the individual laboratory data packages, laboratory QA/QC procedures integrated into this project followed industry standards and involved, among others:

- Maintenance of sample custody;
- Application of laboratory cross references to field sample identifications and to specific QC samples;
- Use of laboratory control samples (LCSs);
- Use of matrix spike/matrix duplicate spikes (MS/MSDs);
- Use of appropriate method and method reporting limit (MRL);
- Reporting of non-detect results as less than the value of the MRL;
- Use of surrogate recoveries;
- Calculation of relative percent differences (RPDs);
- Use of method and preparation blanks; and
- The application of data qualifiers.

Data Reviewed: The data reviewed consisted of laboratory submittals and field data as follows:

- Project Objectives (i.e., recoveries and relative percent differences);
- Analytical Results, including, as applicable, data qualifiers;
- Documentation of preservation and holding times;
- Field and laboratory equipment calibrations;
- Laboratory blanks;
- Internal Laboratory Control Standards and Surrogate Recoveries;
- Laboratory Control Samples;
- Matrix Spike/Matrix Spike Duplicates;
- Field Precision as determined by duplicate samples collected in the field; and
- Field Procedures.

The results of the supporting quality control analyses for each of these QC factors were summarized in Quality Control narratives provided by the laboratory, and field/laboratory-completed chain of custody forms, the field forms, and the LCRA standard operational field procedures and the Groundwater Sampling Procedures. A review of each of these was included in this Data Usability Review.

Based on the Data Usability Review, the groundwater data are usable for their intended purpose. All samples were collected in the field using industry-standard operating procedures (SOPs), including decontamination protocol, sample preservation, and chain of custody.

Also, as presented in detail in the attached laboratory data packages, all appropriate QA/QC protocol were accomplished by the analytical laboratory. Where applicable, data have been appropriately qualified in the laboratory reports and the data, therefore, have been used accordingly.

It is noted that the January 2023 sampling event's Matrix Spike (MS) (1857840) recovery and associated Matrix Spike Duplicate (MSD) (1857841) recovery from the original sample (Lab ID: Q2221595004) for calcium analysis had high recoveries, outside of the established Control Limit ranges, and these results are appropriately flagged. Given that the Spike concentration (10 milligrams per liter) in these samples were approximately 98 times lower than the sample aliquot which was spiked, the high recoveries are not unexpected. Laboratory Control Sample Spike and Laboratory Control Sample Spike Duplicates were within acceptable recovery limits. Based on this information, the data are considered usable.

All exceptions were documented and described in the Quality Control narratives and no conditions with regard to laboratory control samples, matrix spike/matrix spike duplicates, sample preservation and holding times, or equipment calibrations were identified that would cause any of the data not to be useable.

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August 30, 2023

BECKIE LOEVE
FAYETTE POWER PLANT
6549 POWER PLANT RD
MAIL STOP FPP
La Grange, TX 78945
BECKIE.LOEVE@LCRA.ORG

RE: Final Analytical Report Q2328307

Attn: BECKIE LOEVE

Enclosed are the analytical results for sample(s) received by LCRA Environmental Laboratory Services. Results reported herein conform to the most current NELAP standards, where applicable, unless otherwise narrated in the body of the report. This final report provides results related only to the sample(s) as received for the above referenced work order.

Thank you for selecting ELS for your analytical needs. If you have any questions regarding this report, please contact us at (512) 730-6022 or environmental.lab@lcra.org. We look forward to assisting you again.

Authorized for release by:

Jason Woods
Account Manager
jason.woods@lcra.org

Enclosures:

LCRA Environmental Laboratory Services
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Phone (512)730-6022
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Workorder: Q2328307
Workorder Description: FPPCCR
Client: LCRA
Profile: FPP GWMP CCR
Sampled By: SHALEY KLUMKER / COLT PETRI

Report To: BECKIE LOEVE
FAYETTE POWER PLANT
6549 POWER PLANT RD
MAIL STOP FPP
La Grange, TX 78945

Sample Summary

Lab ID	Sample ID	Matrix	Method	Date Collected	Date Received	Analytes Reported
Q2328307001	CBL - 302I	AQ	E300.0, Anions	07/18/2023 12:08	07/19/2023 14:22	3
Q2328307001	CBL - 302I	AQ	Field pH SM4500H+B TCEQ VOL 1	07/18/2023 12:08	07/19/2023 14:22	1
Q2328307001	CBL - 302I	AQ	SM2540C, TDS	07/18/2023 12:08	07/19/2023 14:22	1
Q2328307001	CBL - 302I	AQ	SW6010B ICP-AES	07/18/2023 12:08	07/19/2023 14:22	2
Q2328307002	CBL - 306I	AQ	E300.0, Anions	07/18/2023 10:37	07/19/2023 14:22	3
Q2328307002	CBL - 306I	AQ	Field pH SM4500H+B TCEQ VOL 1	07/18/2023 10:37	07/19/2023 14:22	1
Q2328307002	CBL - 306I	AQ	SM2540C, TDS	07/18/2023 10:37	07/19/2023 14:22	1
Q2328307002	CBL - 306I	AQ	SW6010B ICP-AES	07/18/2023 10:37	07/19/2023 14:22	2
Q2328307003	CBL - 308I	AQ	E300.0, Anions	07/18/2023 11:15	07/19/2023 14:22	3
Q2328307003	CBL - 308I	AQ	Field pH SM4500H+B TCEQ VOL 1	07/18/2023 11:15	07/19/2023 14:22	1
Q2328307003	CBL - 308I	AQ	SM2540C, TDS	07/18/2023 11:15	07/19/2023 14:22	1
Q2328307003	CBL - 308I	AQ	SW6010B ICP-AES	07/18/2023 11:15	07/19/2023 14:22	2
Q2328307004	CBL - 340I	AQ	E300.0, Anions	07/19/2023 12:18	07/19/2023 14:22	3
Q2328307004	CBL - 340I	AQ	Field pH SM4500H+B TCEQ VOL 1	07/19/2023 12:18	07/19/2023 14:22	1
Q2328307004	CBL - 340I	AQ	SM2540C, TDS	07/19/2023 12:18	07/19/2023 14:22	1
Q2328307004	CBL - 340I	AQ	SW6010B ICP-AES	07/19/2023 12:18	07/19/2023 14:22	2
Q2328307005	CBL - 341I	AQ	E300.0, Anions	07/19/2023 10:41	07/19/2023 14:22	3
Q2328307005	CBL - 341I	AQ	Field pH SM4500H+B TCEQ VOL 1	07/19/2023 10:41	07/19/2023 14:22	1
Q2328307005	CBL - 341I	AQ	SM2540C, TDS	07/19/2023 10:41	07/19/2023 14:22	1
Q2328307005	CBL - 341I	AQ	SW6010B ICP-AES	07/19/2023 10:41	07/19/2023 14:22	2
Q2328307006	CBL - 641I	AQ	E300.0, Anions	07/19/2023 10:41	07/19/2023 14:22	3
Q2328307006	CBL - 641I	AQ	Field pH SM4500H+B TCEQ VOL 1	07/19/2023 10:41	07/19/2023 14:22	1
Q2328307006	CBL - 641I	AQ	SM2540C, TDS	07/19/2023 10:41	07/19/2023 14:22	1
Q2328307006	CBL - 641I	AQ	SW6010B ICP-AES	07/19/2023 10:41	07/19/2023 14:22	2
Q2328307007	EQB	AQ	E300.0, Anions	07/19/2023 12:25	07/19/2023 14:22	3
Q2328307007	EQB	AQ	SM2540C, TDS	07/19/2023 12:25	07/19/2023 14:22	1
Q2328307007	EQB	AQ	SW6010B ICP-AES	07/19/2023 12:25	07/19/2023 14:22	2
Q2328307008	FB	AQ	E300.0, Anions	07/19/2023 12:19	07/19/2023 14:22	3
Q2328307008	FB	AQ	SM2540C, TDS	07/19/2023 12:19	07/19/2023 14:22	1
Q2328307008	FB	AQ	SW6010B ICP-AES	07/19/2023 12:19	07/19/2023 14:22	2

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Report Definitions

MRL - Minimum Reporting Limit
LOD - Limit of Detection
ML - Maximum Limit - Client Specified
MCL - Maximum Contaminant Level
LOQ - Limit of Quantitation - Client Specified
DF - Dilution Factor
(S) - Surrogate Spike
MDL - Method Detection Limit
RPD - Relative Percent Difference

Qualifier Definitions

J - Analyte detected below quantitation limit
R - RPD outside duplicate precision limit
S - Spike recovery outside limit
B- Analyte detected in method blank
N - Not Accredited
M - Analyte Detected Above Maximum Contaminant Level
SL - Spike Recovery Low
SH - Spike Recovery High
H - Analyzed Past Hold Time
CR - Confirmed Result
CH - Result confirmed by historical data

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Workorder Summary

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Analytical Results

Client ID: LCRA
Lab ID: Q2328307001
Sample ID: CBL - 302I
Project ID: FPP GWMP CCR

Date Collected: 07/18/2023 12:08
Date Received: 07/19/2023 14:22
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.20	pH				1	07/20/2023 15:26	SK	07/20/2023 15:26	SK	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	1330	mg/L	50.0	20.0		50	07/21/2023 12:23	ML	07/21/2023 12:23	ML	
Sulfate	1230	mg/L	50.0	20.0		50	07/21/2023 12:23	ML	07/21/2023 12:23	ML	

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Fluoride	1.76	mg/L	0.0100	0.00400		1	07/24/2023 20:56	FO	07/24/2023 20:56	FO	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	<0.0500	mg/L	0.0500	0.0200		1	07/25/2023 12:29	FM	07/26/2023 09:56	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	981	mg/L	2.00	0.700		10	07/25/2023 12:29	FM	07/26/2023 10:58	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	5150	mg/L	250	250		100	07/20/2023 13:10	SN	07/20/2023 13:10	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2328307002
Sample ID: CBL - 306I
Project ID: FPP GWMP CCR

Date Collected: 07/18/2023 10:37
Date Received: 07/19/2023 14:22
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.49	pH				1	07/20/2023 15:27	SK	07/20/2023 15:27	SK	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	336	mg/L	25.0	10.0		25	07/21/2023 12:44	ML	07/21/2023 12:44	ML	
Fluoride	2.66	mg/L	0.250	0.100		25	07/21/2023 12:44	ML	07/21/2023 12:44	ML	
Sulfate	454	mg/L	25.0	10.0		25	07/21/2023 12:44	ML	07/21/2023 12:44	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.0659	mg/L	0.0500	0.0200		1	07/25/2023 12:29	FM	07/26/2023 10:02	FM	
Calcium Total	260	mg/L	0.200	0.0700		1	07/25/2023 12:29	FM	07/26/2023 10:02	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	1910	mg/L	125	125		50	07/20/2023 13:10	SN	07/20/2023 13:10	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2328307003
Sample ID: CBL - 308I
Project ID: FPP GWMP CCR

Date Collected: 07/18/2023 11:15
Date Received: 07/19/2023 14:22
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.26	pH				1	07/20/2023 15:27	SK	07/20/2023 15:27	SK	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	1840	mg/L	50.0	20.0		50	07/21/2023 13:05	ML	07/21/2023 13:05	ML	
Fluoride	1.86	mg/L	0.500	0.200		50	07/21/2023 13:05	ML	07/21/2023 13:05	ML	
Sulfate	1290	mg/L	50.0	20.0		50	07/21/2023 13:05	ML	07/21/2023 13:05	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	642	mg/L	2.00	0.700		10	07/25/2023 12:29	FM	07/26/2023 10:53	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	<0.0500	mg/L	0.0500	0.0200		1	07/25/2023 12:29	FM	07/26/2023 10:07	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	5680	mg/L	250	250		100	07/20/2023 13:10	SN	07/20/2023 13:10	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2328307004
Sample ID: CBL - 340I
Project ID: FPP GWMP CCR

Date Collected: 07/19/2023 12:18
Date Received: 07/19/2023 14:22
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.41	pH				1	07/20/2023 15:26	SK	07/20/2023 15:26	SK	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	2130	mg/L	50.0	20.0		50	07/21/2023 13:26	ML	07/21/2023 13:26	ML	
Fluoride	1.07	mg/L	0.500	0.200		50	07/21/2023 13:26	ML	07/21/2023 13:26	ML	
Sulfate	599	mg/L	50.0	20.0		50	07/21/2023 13:26	ML	07/21/2023 13:26	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.276	mg/L	0.0500	0.0200		1	07/25/2023 12:29	FM	07/26/2023 10:13	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	631	mg/L	2.00	0.700		10	07/25/2023 12:29	FM	07/26/2023 10:48	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	5290	mg/L	250	250		100	07/20/2023 13:10	SN	07/20/2023 13:10	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2328307005
Sample ID: CBL - 341I
Project ID: FPP GWMP CCR

Date Collected: 07/19/2023 10:41
Date Received: 07/19/2023 14:22
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.22	pH				1	07/20/2023 15:24	SK	07/20/2023 15:24	SK	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	1530	mg/L	50.0	20.0		50	07/21/2023 13:47	ML	07/21/2023 13:47	ML	
Sulfate	259	mg/L	50.0	20.0		50	07/21/2023 13:47	ML	07/21/2023 13:47	ML	

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Fluoride	1.12	mg/L	0.0100	0.00400		1	07/24/2023 21:14	FO	07/24/2023 21:14	FO	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.0760	mg/L	0.0500	0.0200		1	07/25/2023 12:29	FM	07/26/2023 10:18	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	710	mg/L	2.00	0.700		10	07/25/2023 12:29	FM	07/26/2023 10:43	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	4190	mg/L	250	250		100	07/20/2023 13:10	SN	07/20/2023 13:10	SN	

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Fax (512)730-6021

Analytical Results

Client ID: LCRA
Lab ID: Q2328307006
Sample ID: CBL - 641I
Project ID: FPP GWMP CCR

Date Collected: 07/19/2023 10:41
Date Received: 07/19/2023 14:22
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (Field pH SM4500H+B TCEQ VOL 1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
pH	6.22	pH				1	07/20/2023 15:25	SK	07/20/2023 15:25	SK	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	1630	mg/L	50.0	20.0		50	07/21/2023 14:08	ML	07/21/2023 14:08	ML	
Sulfate	277	mg/L	50.0	20.0		50	07/21/2023 14:08	ML	07/21/2023 14:08	ML	

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Fluoride	0.900	mg/L	0.0100	0.00400		1	07/24/2023 21:33	FO	07/24/2023 21:33	FO	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	0.0744	mg/L	0.0500	0.0200		1	07/25/2023 12:29	FM	07/26/2023 10:23	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	752	mg/L	2.00	0.700		10	07/25/2023 12:29	FM	07/26/2023 10:39	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	4270	mg/L	250	250		100	07/20/2023 13:10	SN	07/20/2023 13:10	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2328307007
Sample ID: EQB
Project ID: FPP GWMP CCR

Date Collected: 07/19/2023 12:25
Date Received: 07/19/2023 14:22
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	<1.00	mg/L	1.00	0.400		1	07/21/2023 14:29	ML	07/21/2023 14:29	ML	
Fluoride	<0.0100	mg/L	0.0100	0.00400		1	07/21/2023 14:29	ML	07/21/2023 14:29	ML	
Sulfate	<1.00	mg/L	1.00	0.400		1	07/21/2023 14:29	ML	07/21/2023 14:29	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	<0.0500	mg/L	0.0500	0.0200		1	07/25/2023 12:29	FM	07/26/2023 10:29	FM	
Calcium Total	<0.200	mg/L	0.200	0.0700		1	07/25/2023 12:29	FM	07/26/2023 10:29	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	<25.0	mg/L	25.0	25.0		10	07/20/2023 13:10	SN	07/20/2023 13:10	SN	

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Analytical Results

Client ID: LCRA
Lab ID: Q2328307008
Sample ID: FB
Project ID: FPP GWMP CCR

Date Collected: 07/19/2023 12:19
Date Received: 07/19/2023 14:22
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	<1.00	mg/L	1.00	0.400		1	07/21/2023 16:35	ML	07/21/2023 16:35	ML	
Fluoride	<0.0100	mg/L	0.0100	0.00400		1	07/21/2023 16:35	ML	07/21/2023 16:35	ML	
Sulfate	<1.00	mg/L	1.00	0.400		1	07/21/2023 16:35	ML	07/21/2023 16:35	ML	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	<0.0500	mg/L	0.0500	0.0200		1	07/25/2023 12:29	FM	07/26/2023 10:34	FM	
Calcium Total	<0.200	mg/L	0.200	0.0700		1	07/25/2023 12:29	FM	07/26/2023 10:34	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	<25.0	mg/L	25.0	25.0		10	07/20/2023 13:10	SN	07/20/2023 13:10	SN	

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Quality Control Results

QC Batch: MET/9892
Preparation Method: SW3010A, Metals Prep
Associated Lab IDs: Q2328307001, Q2328307002, Q2328307003, Q2328307004, Q2328307005, Q2328307006, Q2328307007, Q2328307008

Analysis Method: SW6010B ICP-AES

Lab Control Sample (1937516); Lab Control Sample Duplicate (1937517)

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Boron Total	mg/L	1.0	1.09	109.0	80 - 120	1.07	107.0	1.85	20	
Calcium Total	mg/L	10.0	10.5	105.0	80 - 120	10.4	104.0	0.957	20	

Matrix Spike (1937518); Matrix Spike Duplicate (1937519); Original: Q2328307001

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Boron Total	mg/L	1.0	0.913	91.3	75 - 125	0.906	90.6	0.77	20	
Calcium Total	mg/L	10.0	853.0	-1280.0	75 - 125	856.0	-1260.0	0.351	20	SL

Method Blank(1937515)

Parameter	Units	Results	MRL	LOD	Qualifier
Boron Total	mg/L	<0.0500	0.05	0.02	
Calcium Total	mg/L	<0.200	0.2	0.07	

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Quality Control Results

QC Batch: WET/28974 **Analysis Method:** SM2540C, TDS
Preparation Method: SM2540C, TDS
Associated Lab IDs: Q2328307001, Q2328307002, Q2328307003, Q2328307004, Q2328307005, Q2328307006, Q2328307007, Q2328307008

Method Blank(1935043)

Parameter	Units	Results	MRL	LOD	Qualifier
Total Dissolved Solids(TDS)	mg/L	<25.0	25.0	25.0	

Matrix Spike (1935046); Original: Q2328440007

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Total Dissolved Solids(TDS)	mg/L	400.0	834.0	91.0	70 - 130	

Duplicate (1935045); Original Q2328440007

Parameter	Units	Original	Duplicate	RPD	RPD Limit	Qualifier
Total Dissolved Solids(TDS)	mg/L	470.	452.0	3.9	20	

Lab Control Sample (1935044)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Total Dissolved Solids(TDS)	mg/L	400.0	388.0	97.0	80 - 120	

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Quality Control Results

QC Batch: WET/28981 **Analysis Method:** E300.0, Anions
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2328307001, Q2328307002, Q2328307003, Q2328307004, Q2328307005, Q2328307006, Q2328307007

Laboratory Fortified Blank (1935516)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	60.0	59.6	99.3	90 - 110	
Fluoride	mg/L	3.0	3.09	103.0	90 - 110	
Sulfate	mg/L	60.0	60.1	100.0	90 - 110	

Laboratory Reagent Blank(1935513)

Parameter	Units	Results	MRL	LOD	Qualifier
Chloride	mg/L	<1.00	1.0	0.4	
Fluoride	mg/L	<0.0100	0.01	0.004	
Sulfate	mg/L	<1.00	1.0	0.4	

Laboratory Fortified Matrix (1935518); Lab Fortified Matrix Duplicate (1935519); Original: Q2328307004

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Chloride	mg/L	3000.0	4410.0	76.0	80 - 120	4400.0	75.8	0.227	20	SL
Fluoride	mg/L	150.0	153.0	101.0	80 - 120	153.0	101.0	0.0	20	
Sulfate	mg/L	3000.0	4370.0	126.0	80 - 120	4380.0	126.0	0.229	20	SH

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Quality Control Results

QC Batch: WET/28981 **Analysis Method:** E300.0, Anions
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2328307001, Q2328307002, Q2328307003, Q2328307004, Q2328307005, Q2328307006, Q2328307007, Q2328307008

Method Reporting Limit Check (1935515)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	1.0	0.709	70.9	50 - 150	
Fluoride	mg/L	0.01	0.0118	118.0	50 - 150	
Sulfate	mg/L	1.0	0.752	75.2	50 - 150	

Limit of Quantitation Check (1935517)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	5.0	4.17	83.5	70 - 130	
Fluoride	mg/L	0.02	0.0194	97.0	70 - 130	
Sulfate	mg/L	5.0	3.98	79.6	70 - 130	

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Quality Control Results

QC Batch: WET/28981 **Analysis Method:** E300.0, Anions
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2328307008

Laboratory Fortified Blank (1935379)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	60.0	59.8	99.7	90 - 110	
Fluoride	mg/L	3.0	3.1	103.0	90 - 110	
Sulfate	mg/L	60.0	60.0	100.0	90 - 110	

Laboratory Fortified Matrix (1935380); Lab Fortified Matrix Duplicate (1935381); Original: Q2328307008

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Chloride	mg/L	60.0	59.7	99.5	80 - 120	59.5	99.2	0.336	20	
Fluoride	mg/L	3.0	3.1	103.0	80 - 120	3.1	103.0	0.0	20	
Sulfate	mg/L	60.0	60.0	99.9	80 - 120	60.0	100.0	0.0	20	

Laboratory Reagent Blank(1935378)

Parameter	Units	Results	MRL	LOD	Qualifier
Chloride	mg/L	<1.00	1.0	0.4	
Fluoride	mg/L	<0.0100	0.01	0.004	
Sulfate	mg/L	<1.00	1.0	0.4	

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Quality Control Results

QC Batch: WET/28994 **Analysis Method:** E300.0, Anions
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2328307001, Q2328307005, Q2328307006

Laboratory Fortified Blank (1936729)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	3.0	2.96	98.7	90 - 110	

Limit of Quantitation Check (1936730)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	0.02	0.0176	88.0	70 - 130	

Laboratory Fortified Matrix (1936731); Lab Fortified Matrix Duplicate (1936732); Original: Q2328794002

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Fluoride	mg/L	3.0	2.86	92.3	80 - 120	2.88	92.8	0.697	20	

Laboratory Reagent Blank(1936726)

Parameter	Units	Results	MRL	LOD	Qualifier
Fluoride	mg/L	<0.0100	0.01	0.004	

Method Reporting Limit Check (1936728)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	0.01	0.0093	93.0	50 - 150	

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QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
MET/9892 - SW6010B ICP-AES			
Q2328307001	CBL - 302I	MEP/12948	SW3010A, Metals Prep
Q2328307002	CBL - 306I	MEP/12948	SW3010A, Metals Prep
Q2328307003	CBL - 308I	MEP/12948	SW3010A, Metals Prep
Q2328307004	CBL - 340I	MEP/12948	SW3010A, Metals Prep
Q2328307005	CBL - 341I	MEP/12948	SW3010A, Metals Prep
Q2328307006	CBL - 641I	MEP/12948	SW3010A, Metals Prep
Q2328307007	EQB	MEP/12948	SW3010A, Metals Prep
Q2328307008	FB	MEP/12948	SW3010A, Metals Prep
WET/28974 - SM2540C, TDS			
Q2328307001	CBL - 302I		
Q2328307002	CBL - 306I		
Q2328307003	CBL - 308I		
Q2328307004	CBL - 340I		
Q2328307005	CBL - 341I		
Q2328307006	CBL - 641I		
Q2328307007	EQB		
Q2328307008	FB		
WET/28981 - E300.0, Anions			
Q2328307001	CBL - 302I		
Q2328307002	CBL - 306I		
Q2328307003	CBL - 308I		
Q2328307004	CBL - 340I		
Q2328307005	CBL - 341I		
Q2328307006	CBL - 641I		
Q2328307007	EQB		
Q2328307008	FB		
WET/28994 - E300.0, Anions			
Q2328307001	CBL - 302I		
Q2328307005	CBL - 341I		
Q2328307006	CBL - 641I		

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Request for Analysis Chain-of-Custody Record

LCRA - Environmental Lab
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Phone: (512) 730-6022 or 1-800-776-5272
Fax: (512) 730-6021
https://els.lcra.org

Lab ID#: 02328307
Client PO:

Project	FPP - CCR - Groundwater	Client:	LCRA
Collector:	Shaley Klunker / Colt Petri	Contact:	
Event#:	1662005	Phone:	

Report to: BROOKE LUEVE, FAYETTE POWER PLANT, 6549 POWER PLANT RD, MAIL STOP FPP, La Grange, TX 78945

Invoice to: BROOKE LUEVE, FAYETTE POWER PLANT, 6549 POWER PLANT RD, MAIL STOP FPP, La Grange, TX 78945

#	Sample ID *	Date*	Time HH:MM*	Matrix* (AQ = Aqueous, DW = Drinking Water, S = Solid, T = Tissue)	COMPOSITE Y/N	FILTERED Y/N	250PHNO3	500PU	2540-AMTDS	300.0AM-28	6010-AM	F-pH
1	CBL - 301I			AQ	N	N	1	1	X	X	X	X
2	CBL - 302I	7/18/23	12:08	AQ			1	1	X	X	X	X
3	CBL - 306I	7/18/23	10:37	AQ			1	1	X	X	X	X
4	CBL - 308I	7/18/23	11:15	AQ			1	1	X	X	X	X
5	CBL - 340I	7/19/23	12:18	AQ			1	1	X	X	X	X
6	CBL - 341I	7/19/23	10:41	AQ			1	1	X	X	X	X
7	CBL - 641I	7/19/23	10:41	AQ			1	1	X	X	X	X
8	EQB	7/19/23	1225	AQ			1	1	X	X	X	
10	FB	7/19/23	1219	AQ			1	1	X	X	X	

Transfer	Relinquished By	Date/Time	Received By	Date/Time	Cooler Temp: T#	Obs	CF	Corr
1	Colt Petri	7/19/23 1422						
2					IR 11	4.6	+0.1	4.7
3			S. Ortega	7/19/23 1422				

Client Special Instructions:

Note: Relinquishing sample(s) and signing the COC, client agrees to accept and is bound by the ELS Standard Terms and Conditions. All fields with an asterisk (*) are required to be completed.

02328307
597502

End of Report

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Field Information Form

Sample Date: 7/18/23
Sample Time: 1037
Sample ID: CBL306I

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr Clock)	WATER VOL IN CASING (Gallons)	3 X WELL VOL. IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230718	1021	V= 0.8	2.4	3

PURGING AND SAMPLING EQUIPMENT

Purging Equipment Dedicated (Y) / N
Sampling Equipment Dedicated (Y) / N

Purging Device: B
Sampling Device: B

A-Submersible Pump, B-Perisataltic Pump, C-Bladder Pump, D-Gas Litf Pump, E-Venturi Pump, F-Dipper/Bottle, G-Bailer, H-Scoop/Shovel, I-Piston Pump
X- ______ Purging Other (Specify)
X- ______ Sampling Other (Specify)

Purging Material: F
Sampling Material: F

A-Teflon, B-Stainless Steel, C-Polypropylene, D-PVC, E-Polyethylene
X- ______ Purging Other (Specify)
X- ______ Sampling Other (Specify)

Tubing-Purging: F
Tubing-Sampling: F

A-Teflon, B-Tygon, C-Rope, D-Polypropylene, E-Polyethylene, F-Silicon, G-Combination teflon/Polypropylene
C-Rope X- ______ (Specify)
X- ______ Purging Other (Specify)
X- ______ Sampling Other (Specify)

FIELD MEASUREMENTS

Well Elevation: ______ (ft/msl)
Land Surface Elevation: ______ (ft/msl)
Depth to water From top of well casing $= D_w$: 9.89 (ft)
Depth to water From land surface: ______ (ft)
Groundwater Elevation: ______
Groundwater Elevation: ______ (ft/msl)
Well Depth = D: 14.80 (ft)
Pump Placement: 13.80 (ft)

pH: 6.49 (STD)
Specific Conductivity: 2334 uS/cm
Sample Temp.: 23.90 (°C)

Bottle Type	Size	Preservative	Analysis	Field Filt.Y/N
P	250ml	HNO_3	Metals	N
P	250ml	ICE	Anions	N

Sample Appearance: Clear Odor: None Color: Clear Turbidity: 1.86
Weather Conditions: Sunny with South west Wind 5-10mph 89°
Other: Purge water is clear with no odor

WELL VOLUME CALCULATION

$V=(D-D_w)$ (A) (7.48 gal/ft^3) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
D_w=depth to water below measuring point
A= cross sectional area
(2" dia. A= 0.0218) 4" dia. A = 0.0872

Well Appearance Normal: Yes Y No ______
If No, Explain ______

Procedure: ELS Ground Water SOP 5-7D

Date: 7/18/23
Sampler: SK/CP
Employer: LCRA

Rev 1 (08/2009)

LCRA ENERGY • WATER • COMMUNITY SERVICES

Field Information Form

Sample Date: 7/18/23 (10)
Sample Time: 12:08
Sample ID: CBL3021

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr Clock)	V= WATER VOL IN CASING (Gallons)	3 X WELL VOL IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230718	1146	12.5	17.5	13.5

PURGING AND SAMPLING EQUIPMENT

Purging Equipment Dedicated (Y) I N I Sampling Equipment ..... Dedicated (Y) I N I

Purging Device / Sampling Device	B / B	A-Submersible Pump; B-Perisataltic Pump; C-Bladder Pump	D-Gas Litf Pump; E-Venturi Pump; F-Dipper/Bottle	G-Bailer; H-Scoop/Shovel; I-Piston Pump	X- Purging Other (Specify); X- Sampling Other (Specify)
Purging Material / Sampling Material	F / F	A-Teflon; B-Stainless Steel	C-Polypropylene; D-PVC	E-Polyethylene	X- Purging Other (Specify); X- Sampling Other (Specify)
Tubing-Purging / Tubing-Sampling	F / F	A-Teflon; B-Tygon	D-Polypropylene; E-Polyethylene	F-Silicon; G-Combination teflon/Polypropylene	X- Purging Other (Specify); X- Sampling Other (Specify)

C-Rope X- _____ (Specify)

FIELD MEASUREMENTS

Well Elevation	(ft/msl)	Land Surface Elevation	(ft/msl)
Depth to water From top of well casing =Dw	111.68 (ft)	Depth to water From land surface	(ft)
Groundwater Elevation		Groundwater Elevation	(ft/msl)
Well Depth = D	27.11 (ft)	Pump Placement	25 (ft)

6.20 (STD) pH 6522 uS/cm Specific Conductivity Sample Temp. 23.61 (°C)

Bottle Type	Bottle Size	Bottle Preservative	Analysis	Field Filt.Y/N
P	250mL	HNO_3	Metals	N
P	500mL	Ice	Anions	N
P	250mL	HNO_3	Field Blank (FB 3)	N

Sample Appearance: Clear Odor: None Color: Clear Turbidity: 5.32
Weather Conditions: Sunny w/ SSW wind 9mph
Other: Purge water clear w/ no odor

WELL VOLUME CALCULATION

V=(D-Dw) (A) (7.48 galft³) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
Dw=depth to water below measuring point
A= cross sectional area
2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes Y No
If No, Explain

Procedure: ELS Groundwater SOP 5-7D
Date: 7/18/23
Sampler: CP/SK
Employer: LCRA

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Field Information Form

Sample Date: 7/18/23 (9)
Sample Time: 1115
Sample ID: CBL3038

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr Clock)	V= WATER VOL IN CASING (Gallons)	3 X WELL VOL IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230718		18	53	25

PURGING AND SAMPLING EQUIPMENT

Purging Equipment Dedicated (Y) I N I Sampling Equipment ..... Dedicated (Y) I N I

Purging Device / Sampling Device	B / B	A-Submersible Pump; B-Perisataltic Pump; C-Bladder Pump	D-Gas Litf Pump; E-Venturi Pump; F-Dipper/Bottle	G-Bailer; H-Scoop/Shovel; I-Piston Pump	X- Purging Other (Specify); X- Sampling Other (Specify)
Purging Material / Sampling Material	F / F	A-Teflon; B-Stainless Steel	C-Polypropylene; D-PVC	E-Polyethylene	X- Purging Other (Specify); X- Sampling Other (Specify)
Tubing-Purging / Tubing-Sampling	F / F	A-Teflon; B-Tygon	D-Polypropylene; E-Polyethylene	F-Silicon; G-Combination teflon/Polypropylene	X- Purging Other (Specify); X- Sampling Other (Specify)

C-Rope X- NA (Specify)

FIELD MEASUREMENTS

Well Elevation	(ft/msl)	Land Surface Elevation	(ft/msl)
Depth to water From top of well casing =Dw	24.47 (ft)	Depth to water From land surface	(ft)
Groundwater Elevation		Groundwater Elevation	(ft/msl)
Well Depth = D	35.25 (ft)	Pump Placement	34 (ft)

6.26 (STD) pH 8325 uS/cm Specific Conductivity Sample Temp. 24.39 (°C)

Bottle Type	Bottle Size	Bottle Preservative	Analysis	Field Filt.Y/N
P	250mL	HNO_3	Metals	N
P	250mL	Ice	Anions	N

Sample Appearance: clear Odor: none Color: clear Turbidity:
Weather Conditions: Sunny w/ S. wind 5-10mph 95°
Other: Purge water-slightly opaque w/ no odor.

WELL VOLUME CALCULATION

V=(D-Dw) (A) (7.48 galft³) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
Dw=depth to water below measuring point
A= cross sectional area
2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes Y No
If No, Explain

Procedure: ELS Groundwater SOP 5-7D
Date: 7/18/23
Sampler: CP/SK
Employer: LCRA

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LCRA ENERGY • WATER • COMMUNITY SERVICES

Field Information Form

Sample Date: 7/19/23 (12)
Sample Time: 12:18
Sample ID: CBL340I

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr Clock)	WATER VOL IN CASING (Gallons)	3 X WELL VOL IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230719	1127	V= 12.6	17.7	60

PURGING AND SAMPLING EQUIPMENT

	Purging Equipment	Dedicated (Y) I N	Sampling Equipment	Dedicated (Y) I N
Purging Device / Sampling Device	B / B	A-Submersible Pump, B-Perisataltic Pump, C-Bladder Pump	D-Gas Litf Pump, E-Venturi Pump, F-Dipper/Bottle	G-Bailer, H-Scoop/Shovel, I-Piston Pump
Purging Material / Sampling Material	F / F	A-Teflon, B-Stainless Steel	C-Polypropylene, D-PVC	E-Polyethylene
Tubing-Purging / Tubing-Sampling	F / F	A-Teflon, B-Tygon	D-Polypropylene, E-Polyethylene	F-Silicon, G-Combination teflon/Polypropylene

X- _____ Purging Other (Specify)
X- _____ Sampling Other (Specify)
X- _____ Purging Other (Specify)
X- _____ Sampling Other (Specify)
X- _____ Purging Other (Specify)
X- _____ Sampling Other (Specify)
C-Rope X- _____ (Specify)

FIELD MEASUREMENTS

Well Elevation	(ft/msl)	Land Surface Elevation	(ft/msl)
Depth to water From top of well casing =Dw	24.50 (ft)	Depth to water From land surface	(ft)
Groundwater Elevation		Groundwater Elevation	(ft/msl)
Well Depth = D	40.14 (ft)	Pump Placement	38 (ft)

6.41 (STD) PH
7898 uS/cm Specific Conductivity
Sample Temp. 24.51 (°C)

Bottle Type	Size	Preservative	Analysis	Field Filt. Y/N
P	250 mL	HNO_3	metals	N
P	500 mL	Ice	anions	N
~~P~~	~~250 mL~~	~~HNO_3~~	~~Field blank (F 7/19/23 SK~~	

Sample Appearance: Clear Odor: None Color: Clear Turbidity: 0.61
Weather Conditions: Sunny w/ SSW wind @ 11mph 93°
Other: Purge water clear w/ no odor

WELL VOLUME CALCULATION

V=(D-Dw) (A) (7.48 galft³) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
Dw=depth to water below measuring point
A= cross sectional area
2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes Y No
If No, Explain

Procedure: ELS Groundwater SOP 5-7D
Date: 7/19/23
Sampler: CP/SK
Employer: LCRA

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Field Information Form

Sample Date: 7/19/23 (11)
Sample Time: 10:41
Sample ID: CBL341I

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr Clock)	WATER VOL IN CASING (Gallons)	3 X WELL VOL IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230719	0947	V= 14.8	14.5	9

PURGING AND SAMPLING EQUIPMENT

	Purging Equipment	Dedicated (Y) I N	Sampling Equipment	Dedicated (Y) I N
Purging Device / Sampling Device	B / B	A-Submersible Pump, B-Perisataltic Pump, C-Bladder Pump	D-Gas Litf Pump, E-Venturi Pump, F-Dipper/Bottle	G-Bailer, H-Scoop/Shovel, I-Piston Pump
Purging Material / Sampling Material	F / F	A-Teflon, B-Stainless Steel	C-Polypropylene, D-PVC	E-Polyethylene
Tubing-Purging / Tubing-Sampling	F / F	A-Teflon, B-Tygon	D-Polypropylene, E-Polyethylene	F-Silicon, G-Combination teflon/Polypropylene

X- _____ Purging Other (Specify)
X- _____ Sampling Other (Specify)
X- _____ Purging Other (Specify)
X- _____ Sampling Other (Specify)
X- _____ Purging Other (Specify)
X- _____ Sampling Other (Specify)
C-Rope X- _____ (Specify)

FIELD MEASUREMENTS

Well Elevation	(ft/msl)	Land Surface Elevation	(ft/msl)
Depth to water From top of well casing =Dw	16.86 (ft)	Depth to water From land surface	(ft)
Groundwater Elevation		Groundwater Elevation	(ft/msl)
Well Depth = D	46.43 (ft)	Pump Placement	44 (ft)

6.22 (STD) PH
5798 uS/cm Specific Conductivity
Sample Temp. 22.96 (°C)

Bottle Type	Size	Preservative	Analysis	Field Filt. Y/N
P	250 mL	HNO_3	metals	N
P	500 mL	Ice	Anions	N
P	250 mL	HNO_3	Metals dup. (641I)	N
P	500 mL	Ice	Anions dup. (641I)	N

Sample Appearance: Clear Odor: None Color: Clear Turbidity: 0.69
Weather Conditions: Mostly sunny w/ SSW wind @ 12 mph 89°
Other: Purge water brownish and slightly opaque with no odor
Cleared after ~~10~~ 15 mins 7/19/23 SK 5-10

WELL VOLUME CALCULATION

V=(D-Dw) (A) (7.48 galft³) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
Dw=depth to water below measuring point
A= cross sectional area
2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes Y No
If No, Explain ~~ELS Groundwater~~ 7/19/23 SK

Procedure: ELS Groundwater SOP 5-7D
Date: 7/19/23
Sampler: CP/SK
Employer: LCRA

Rev 1 (08/2009)

Environmental Laboratory Services
The Solution Lab

LCRA Environmental Laboratory Services
3505 Montopolis Drive
Austin, TX 78744
Phone (512)730-6022
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August 30, 2023

BECKIE LOEVE
FAYETTE POWER PLANT
6549 POWER PLANT RD
MAIL STOP FPP
La Grange, TX 78945
BECKIE.LOEVE@LCRA.ORG

RE: Final Analytical Report Q2331368

Attn: BECKIE LOEVE

Enclosed are the analytical results for sample(s) received by LCRA Environmental Laboratory Services. Results reported herein conform to the most current NELAP standards, where applicable, unless otherwise narrated in the body of the report. This final report provides results related only to the sample(s) as received for the above referenced work order.

Thank you for selecting ELS for your analytical needs. If you have any questions regarding this report, please contact us at (512) 730-6022 or environmental.lab@lcra.org. We look forward to assisting you again.

Authorized for release by:

Kelly Kukowski
Account Manager
Kelly.Kukowski@LCRA.ORG

Enclosures:

Environmental Laboratory Services
The Solution Lab

LCRA Environmental Laboratory Services
3505 Montopolis Drive
Austin, TX 78744
Phone (512)730-6022
Fax (512)730-6021

Workorder: Q2331368
Workorder Description: FPPCCR_
Client: LCRA
Profile: FPP GWMP CCR
Sampled By: Colt Petri

Report To: BECKIE LOEVE
FAYETTE POWER PLANT
6549 POWER PLANT RD
MAIL STOP FPP
La Grange, TX 78945

Sample Summary

Lab ID	Sample ID	Matrix	Method	Date Collected	Date Received	Analytes Reported
Q2331368001	CBL-301I	AQ	E300.0, Anions	08/02/2023 12:41	08/02/2023 15:10	3
Q2331368001	CBL-301I	AQ	SM2540C, TDS	08/02/2023 12:41	08/02/2023 15:10	1
Q2331368001	CBL-301I	AQ	SW6010B ICP-AES	08/02/2023 12:41	08/02/2023 15:10	2
Q2331368001	CBL-301I	AQ	TCEQ SOP V1	08/02/2023 12:41	08/02/2023 15:10	3

Report Definitions

MRL - Minimum Reporting Limit
LOD - Limit of Detection
ML - Maximum Limit - Client Specified
MCL - Maximum Contaminant Level
LOQ - Limit of Quantitation - Client Specified
DF - Dilution Factor
(S) - Surrogate Spike
MDL - Method Detection Limit
RPD - Relative Percent Difference

Qualifier Definitions

J - Analyte detected below quantitation limit
R - RPD outside duplicate precision limit
S - Spike recovery outside limit
B- Analyte detected in method blank
N - Not Accredited
M - Analyte Detected Above Maximum Contaminant Level
SL - Spike Recovery Low
SH - Spike Recovery High
H - Analyzed Past Hold Time
CR - Confirmed Result
CH - Result confirmed by historical data

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Workorder Summary

Environmental Laboratory Services
The Solution Lab

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Phone (512)730-6022
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Analytical Results

Client ID: LCRA
Lab ID: Q2331368001
Sample ID: CBL-301I
Project ID: FPP GWMP CCR

Date Collected: 08/02/2023 12:41
Date Received: 08/02/2023 15:10
Location:
Facility:
Sample Point:

Matrix: Aqueous
Sample Type: SAMPLE

Field Parameters (TCEQ SOP V1)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Temperature	24.23	C				1	08/02/2023 12:41	CCP	08/02/2023 12:41	CCP	N
pH	6.21	pH				1	08/02/2023 12:41	CCP	08/02/2023 12:41	CCP	N
Specific Conductance	7935	us/cm				1	08/02/2023 12:41	CCP	08/02/2023 12:41	CCP	N

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Fluoride	0.0540	mg/L	0.0500	0.0200		5	08/09/2023 04:50	FO	08/09/2023 04:50	FO	

INORGANICS (E300.0, Anions)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Chloride	2220	mg/L	50.0	20.0		50	08/03/2023 02:23	FO	08/03/2023 02:23	FO	
Sulfate	383	mg/L	50.0	20.0		50	08/03/2023 02:23	FO	08/03/2023 02:23	FO	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Calcium Total	1260	mg/L	2.00	0.700		10	08/08/2023 10:43	FM	08/09/2023 10:37	FM	

INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Boron Total	<0.0500	mg/L	0.0500	0.0200		1	08/08/2023 10:43	FM	08/09/2023 10:32	FM	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Total Dissolved Solids(TDS)	5360	mg/L	250	250		100	08/03/2023 13:18	SN	08/03/2023 13:18	SN	

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Quality Control Results

QC Batch: MET/9920
Preparation Method: SW3010A, Metals Prep
Associated Lab IDs: Q2331368001
Analysis Method: SW6010B ICP-AES

Matrix Spike (1945919); Matrix Spike Duplicate (1945920); Original: Q2331368001

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Boron Total	mg/L	1.0	1.07	107.0	75 - 125	1.07	107.0	0.0	20	
Calcium Total	mg/L	10.0	1160.0	-1020.0	75 - 125	1160.0	-1010.0	0.0	20	SL

Method Blank(1945918)

Parameter	Units	Results	MRL	LOD	Qualifier
Boron Total	mg/L	<0.0500	0.05	0.02	
Calcium Total	mg/L	<0.200	0.2	0.07	

Lab Control Sample (1945916); Lab Control Sample Duplicate (1945917)

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Boron Total	mg/L	1.0	0.959	95.9	80 - 120	0.974	97.4	1.55	20	
Calcium Total	mg/L	10.0	11.0	110.0	80 - 120	11.0	110.0	0.0	20	

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Quality Control Results

QC Batch: WET/29067
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2331368001
Analysis Method: E300.0, Anions

Laboratory Fortified Matrix (1943321); Lab Fortified Matrix Duplicate (1943322); Original: Q2331006004

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Chloride	mg/L	60.0	88.1	95.0	80 - 120	88.1	95.1	0.0	20	
Sulfate	mg/L	60.0	71.4	101.0	80 - 120	71.4	101.0	0.0	20	

Laboratory Reagent Blank(1943319)

Parameter	Units	Results	MRL	LOD	Qualifier
Chloride	mg/L	<1.00	1.0	0.4	
Sulfate	mg/L	<1.00	1.0	0.4	

Laboratory Fortified Blank (1943320)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	60.0	61.3	102.0	90 - 110	
Sulfate	mg/L	60.0	61.5	102.0	90 - 110	

Limit of Quantitation Check (1943315)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	5.0	4.12	82.3	70 - 130	
Sulfate	mg/L	5.0	4.09	81.8	70 - 130	

Method Reporting Limit Check (1943313)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Chloride	mg/L	1.0	0.732	73.2	50 - 150	
Sulfate	mg/L	1.0	0.819	81.9	50 - 150	

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Quality Control Results

QC Batch: WET/29071
Preparation Method: SM2540C, TDS
Associated Lab IDs: Q2331368001
Analysis Method: SM2540C, TDS

Matrix Spike (1943878); Original: Q2331169018

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Total Dissolved Solids(TDS)	mg/L	400.0	678.0	96.2	70 - 130	

Duplicate (1943877); Original Q2331169018

Parameter	Units	Original	Duplicate	RPD	RPD Limit	Qualifier
Total Dissolved Solids(TDS)	mg/L	293.	294.0	0.341	20	

Lab Control Sample (1943876)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Total Dissolved Solids(TDS)	mg/L	400.0	393.0	98.2	80 - 120	

Method Blank(1943875)

Parameter	Units	Results	MRL	LOD	Qualifier
Total Dissolved Solids(TDS)	mg/L	<25.0	25.0	25.0	

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Quality Control Results

QC Batch: WET/29101
Preparation Method: E300.0, Anions
Associated Lab IDs: Q2331368001
Analysis Method: E300.0, Anions

Laboratory Reagent Blank(1946153)

Parameter	Units	Results	MRL	LOD	Qualifier
Fluoride	mg/L	<0.0100	0.01	0.004	

Method Reporting Limit Check (1946142)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	0.01	0.0083	83.0	50 - 150	

Limit of Quantitation Check (1946144)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	0.02	0.0174	87.0	70 - 130	

Laboratory Fortified Blank (1946154)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Fluoride	mg/L	3.0	3.11	104.0	90 - 110	

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QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
MET/9920 - SW6010B ICP-AES			
Q2331368001	CBL-301I	MEP/12976	SW3010A, Metals Prep
WET/29067 - E300.0, Anions			
Q2331368001	CBL-301I		
WET/29071 - SM2540C, TDS			
Q2331368001	CBL-301I		
WET/29101 - E300.0, Anions			
Q2331368001	CBL-301I		

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LCRA Environmental Laboratory Services

Request for Analysis Chain-of-Custody Record

LCRA - Environmental Lab
3505 Montopolis Dr
Austin, TX 78744

Phone: (512) 730-6022 or 1-800-776-5272
Fax: (512) 730-6021
https://els.lcra.org

Lab ID#: Q2331368
Client PO:

Project:	FPP-CCR GROUNDWATER	Client:	LCRA
Collector:	Colt Pate/Brady Chumbley	Contact:	
Event#:	1669943	Phone:	

Report to:

Invoice to:

	Sample ID *	Collected Date*	Collected Time HH:MM*	Matrix*	COMPOSITE Y/N	FILTERED Y/N	Containers 1LFU	250HNO3	500FU	Requested Analysis * 2540-AMTDS	300.0/AM-2B	6010-AM	Fld_PP
1	CBL-301I	8/3/23	1241	AQ	1	2	1	1	1	X	X	X	X

	Relinquished By	Date/Time	Received By	Date/Time	Cooler Temp. T#	Obs	CF	Corr
1	Colt Pate	8/3/23 1510						
2					WCR	6.3	-	0.4
3				8/3/23 1510				

Client Special Instructions:

Note: Relinquishing sample(s) and signing the COC, client agrees to accept and is bound by the ELS Standard Terms and Conditions. All fields with an asterisk (*) are required to be completed.

Q2331368
600563

End of Report

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Field Information Form

Sample Date: 8/2/23 (16)
Sample Time: 1241
Sample ID: CBL301T

PURGING INFORMATION

PURGE DATE (YY MM DD)	START PURGE (2400 Hr Clock)	V= WATER VOL IN CASING (Gallons)	3 X WELL VOL IN (Gallons)	ACTUAL VOLUME PURGED (Gallons)
230802	1215	29	86	10

PURGING AND SAMPLING EQUIPMENT

Purging Equipment — Dedicated I Y I (N)
Sampling Equipment — Dedicated I Y I (N)

Purging Device	A	A-Submersible Pump	D-Gas Litf Pump	G-Bailer	X- Purging Other (Specify)
Sampling Device	A	B-Perisataltic Pump	E-Venturi Pump	H-Scoop/Shovel	X- Sampling Other (Specify)
		C-Bladder Pump	F-Dipper/Bottle	I-Piston Pump	
Purging Material	E	A-Teflon	C-Polypropylene	E-Polyethylene	X- Purging Other (Specify)
Sampling Material	E	B-Stainless Steel	D-PVC		X- Sampling Other (Specify)
Tubing-Purging	E	A-Teflon	D-Polypropylene	F-Silicon	X- Purging Other (Specify)
Tubing-Sampling	E	B-Tygon	E-Polyethylene	G-Combination teflon/Polypropylene	X- Sampling Other (Specify)

C-Rope X- _____ (Specify)

FIELD MEASUREMENTS

Well Elevation	(ft/msl)	Land Surface Elevation	(ft/msl)
Depth to water From top of well casing =Dw	36.50 (ft)	Depth to water From land surface	(ft)
Groundwater Elevation		Groundwater Elevation	(ft/msl)
Well Depth = D	54.10 (ft)	Pump Placement	51 (ft)

6.21 (STD) PH — 7935 uS/cm Specific Conductivity — Sample Temp. 24.23 (°C)

Bottle Type	Bottle Size	Bottle Preservative	Analysis	Field Filt.Y/N
P	250ml	HNO3	Metals	N
P	250ml	ICE	Anions	N
P	250ml	HNO3	Metals	N
P	250ml	ICE	Anions	N

Sample Appearance: Clear Odor: None Color: Clear Turbidity: 27.8
Weather Conditions: Clear and Calm 102°
Other: Purge water is milkly Clearing after 2 gallons.

WELL VOLUME CALCULATION

V=(D-Dw) (A) (7.48 gal/ft³) where
V= volume of standing water in well
D= depth to bottom of well below measuring point
Dw=depth to water below measuring point
A= cross sectional area
2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes X No
If No, Explain

Procedure: ELS Ground water SOP 5-7D
Date: 8/2/23
Sampler: SK/CP
Employer: LCRA

Rev 1 (08/2009)

DATA USABILITY SUMMARY – LCRA Analytical Reports Q2328307 and Q2331368

Bullock, Bennett & Associates, LLC has reviewed the analytical data packages to be included in Appendix D of the Coal Combustion Residual Landfill 2023 Annual Groundwater Monitoring Report (Annual Groundwater Report) that was produced by LCRA Environmental Laboratory Services (ELS) for the analysis of groundwater samples collected in July 2023 and August 2023 at the Fayette Power Project (FPP) site. The Data were reviewed for conformance to the groundwater sampling and analysis requirements of 40 CFR § 257.93/30 TAC 352.931 and adherence to project objectives.

Objectives of the Data: To provide current data on concentrations of COCs in groundwater at the site for purposes of comparing Combustion Byproducts Landfill (CBL) compliance sample data to Appendix III Control Limits. To accomplish the stated data objectives, all field and laboratory procedures were performed in accordance with industry-established protocol, and the FPP Sampling and Analysis Plan. Appropriate quality assurance/quality control (QA/QC) measures were utilized. As described within the body of the Annual Groundwater Report, field QA/QC protocols integrated into this project followed industry standards and involved, among other factors:

- Use of sampling equipment decontamination protocol;
- Proper sample handling, preservation, and shipping procedures; and
- Maintenance of the sample chain of custody.

Also, as presented in the individual laboratory data packages, laboratory QA/QC procedures integrated into this project followed industry standards and involved, among others:

- Maintenance of sample custody;
- Application of laboratory cross references to field sample identifications and to specific QC samples;
- Use of laboratory control samples (LCSs);
- Use of matrix spike/matrix duplicate spikes (MS/MSDs);
- Use of appropriate method and method reporting limit (MRL);
- Reporting of non-detect results as less than the value of the MRL;
- Use of surrogate recoveries;
- Calculation of relative percent differences (RPDs);
- Use of method and preparation blanks; and
- The application of data qualifiers.

Data Reviewed: The data reviewed consisted of laboratory submittals and field data as follows:

- Project Objectives (i.e., recoveries and relative percent differences);
- Analytical Results, including, as applicable, data qualifiers;
- Documentation of preservation and holding times;
- Field and laboratory equipment calibrations;
- Laboratory blanks;
- Internal Laboratory Control Standards and Surrogate Recoveries;
- Laboratory Control Samples;
- Matrix Spike/Matrix Spike Duplicates;
- Field Precision as determined by duplicate samples collected in the field; and
- Field Procedures.

The results of the supporting quality control analyses for each of these QC factors were summarized in Quality Control narratives provided by the laboratory, and field/laboratory-completed chain of custody forms, the field forms, and the LCRA standard operational field procedures and the Groundwater Sampling Procedures. A review of each of these was included in this Data Usability Review.

Based on the Data Usability Review, the groundwater data are usable for their intended purpose. All samples were collected in the field using industry-standard operating procedures (SOPs), including decontamination protocol, sample preservation, and chain of custody.

Also, as presented in detail in the attached laboratory data packages, all appropriate QA/QC protocol were accomplished by the analytical laboratory. Where applicable, data have been appropriately qualified in the laboratory reports and the data, therefore, have been used accordingly.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Issues were identified as follows:

- August 2023 sampling event's MS (1937518) and associated MSD (1937519) sample recoveries from the original sample (Lab ID: Q2328307001) for calcium analysis had low recoveries, outside of the established Control Limit ranges, and these results are appropriately flagged. Given that the Spike concentration (10 milligrams per liter) in these samples were approximately 98 times lower than the sample aliquot which was spiked, the low recoveries are not unexpected. Laboratory Control Sample Spike and Laboratory Control Sample Spike Duplicates were within acceptable recovery limits. Based on this information, the data are considered usable.

- August 2023 sampling event's MS (1935518) and associated MSD (1935519) sample recoveries from the original sample (Lab ID: Q2328307004) for chloride analysis had low recoveries, outside of the established Control Limit ranges, and these results are appropriately flagged. As the spike recovery was just below the Control Limit Range, and the corresponding Laboratory Control Sample Spike and Laboratory Control Sample Spike Duplicates were within acceptable recovery limits, the data are considered usable.

- August 2023 sampling event's MS (1935518) and associated MSD (1935519) sample recoveries from the original sample (Lab ID: Q2328307004) for sulfate analysis had high recoveries, outside of the established Control Limit ranges, and these results are appropriately flagged. As the spike recovery was just above the Control Limit Range, and the corresponding Laboratory Control Sample Spike and Laboratory Control Sample Spike Duplicates were within acceptable recovery limits, the data are considered usable.

- September 2023 sampling event's MS (1945919) and associated MSD (1945920) sample recoveries from the original sample (Lab ID: Q2331368001) for calcium analysis had low recoveries, outside of the established Control Limit ranges, and these results are appropriately flagged. Given that the Spike concentration (10 milligrams per liter) in these samples were approximately 126 times lower than the sample aliquot which was spiked, the low recoveries are not unexpected. Laboratory Control Sample Spike and Laboratory Control Sample Spike Duplicates were within acceptable recovery limits. Based on this information, the data are considered usable.

All exceptions were documented and described in the Quality Control narratives and no conditions with regard to laboratory control samples, matrix spike/matrix spike duplicates, sample preservation and holding times, or equipment calibrations were identified that would cause any of the data not to be useable.