



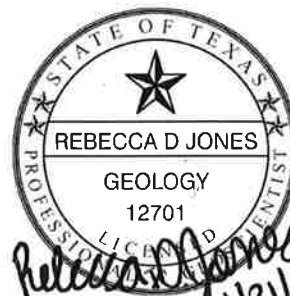
**COAL COMBUSTION RESIDUAL LANDFILL**  
**ANNUAL GROUNDWATER MONITORING REPORT**  
**Calendar Year 2021**



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**Lower Colorado River Authority**  
Fayette Power Plant Project  
6549 Power Plant Rd.  
La Grange, Texas 78945



## **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 (TCEQ) 30 Texas Administrative Code Chapter 352, Subchapter H.

The CBL operated under detection monitoring throughout calendar year 2021. 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. Based on the sampling and analysis, the CBL remains in detection monitoring in 2022.

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**2021 Groundwater Monitoring Report**  
Fayette Power Project  
La Grange, TX

## **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 2 D 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 and Texas Commission of Environmental Quality (TCEQ) 30 Texas Administrative (Tex. Admin.) Code Chapter 352, Subchapter H.

## **2.0 PURPOSE**

This report was prepared pursuant to 40 CFR § 257.90(e), as amended on Aug. 28, 2020, and 30 Tex. Admin. 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 2021 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 2021. 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 19 feet per year and the eastern area transect has an approximate flow rate of 41-61 feet per year. Detailed information is contained in the Technical Memoranda dated April 26, 2021 and December 15, 2021 prepared by Bullock, Bennett & Associates, LLC (BBA), which are included in Appendix A.

#### **4.0 STATUS OF THE GROUNDWATER MONITORING PROGRAM**

The CBL operated under detection monitoring throughout calendar year 2021. 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. Table 2 summarizes the sampling events. At the end of calendar year 2021, the CBL continues to operate under detection monitoring. As discussed in Section 5, the CBL will remain in detection monitoring for 2022. Table 3 contains a summary of the analytical data collected in 2021. In accordance with 30 TAC § 352.901, Table 3 also contains a summary of all groundwater monitoring data collected since October 19, 2015.

On May 17, 2021, BBA certified the transition from the use of prediction interval procedure referenced in 40 CFR § 257.93(f)(3) to the use of the control chart procedure referenced in 40 CFR § 257.93(f)(4). The detailed Groundwater Monitoring System Addendum Certification is included in Appendix B.

#### **5.0 STATISTICAL EVALUATIONS AND ALTERNATE SOURCE DETERMINATION**

##### **5.1 Statistical Analysis of First Quarter 2021 Data**

In May 2021, 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 26-28, 2021. The field parameters and analytical results were consistent with historical analytical results. The results indicated that there were no statistically significant increases (SSIs) for any constituents in any well. Detailed information is contained in the May 2021 Results for the Groundwater Statistics prepared by Otter Creek which is included in Appendix C.

## 5.2 Statistical Analysis Third Quarter 2021 Data

In December 2021, 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 20-22, 2021.

Based on the July 2021 sampling data, there was an initial exceedance for boron in CBL-301I and an initial exceedance for fluoride in CBL-301I, CBL-302I, and CBL-341I. Because these are initial exceedances in a 1 of 2 resampling method, wells CBL-301I, CBL-302I, and CBL-341I were resampled on September 7, 2021. Based on the resample analytical results, there were no confirmed control chart exceedances detected and a significantly significant increase was not confirmed. Detailed information is contained in the November 2021 Results for the Groundwater Statistics prepared by Otter Creek which is included in Appendix D. Historically, the boron analyses in CBL-301I have regularly been below detection limits with occasional detections, followed by the subsequent sample being below detection limit again (See Table 3). The data usability summary and laboratory analytical results are included in Appendix E.

## 6.0 KEY ACTIONS

Key actions for 2021 are detailed in Section 5. Key actions for 2022 include continued semi-annual detection monitoring with associated statistical analysis and responding in accordance with the CCR rules as new information is developed.



**TABLE 1****MONITOR WELL DETAILS**

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

**TABLE 2****2021 CCR GROUNDWATER MONITORING EVENTS**

| Well #   | Date of sample collection | # Samples collected for analysis | Monitoring program   |
|----------|---------------------------|----------------------------------|----------------------|
| CBL 340I | 1/28/2021                 | 1                                | Detection monitoring |
|          | 7/22/2021                 | 1                                | Detection monitoring |
| CBL 301I | 1/26/2021                 | 1                                | Detection monitoring |
|          | 7/20/2021                 | 1                                | Detection monitoring |
|          | 9/7/2021                  | 1                                | Detection monitoring |
| CBL 302I | 1/28/2021                 | 1                                | Detection monitoring |
|          | 7/21/2021                 | 1                                | Detection monitoring |
|          | 9/7/2021                  | 1                                | Detection monitoring |
| CBL 306I | 1/28/2021                 | 1                                | Detection monitoring |
|          | 7/21/2021                 | 1                                | Detection monitoring |
| CBL 308I | 1/28/2021                 | 1                                | Detection monitoring |
|          | 7/21/2021                 | 1                                | Detection monitoring |
| CBL 341I | 1/27/2021                 | 1                                | Detection monitoring |
|          | 7/22/2021                 | 1                                | Detection monitoring |
|          | 9/7/2021                  | 1                                | Detection monitoring |





TABLE 3

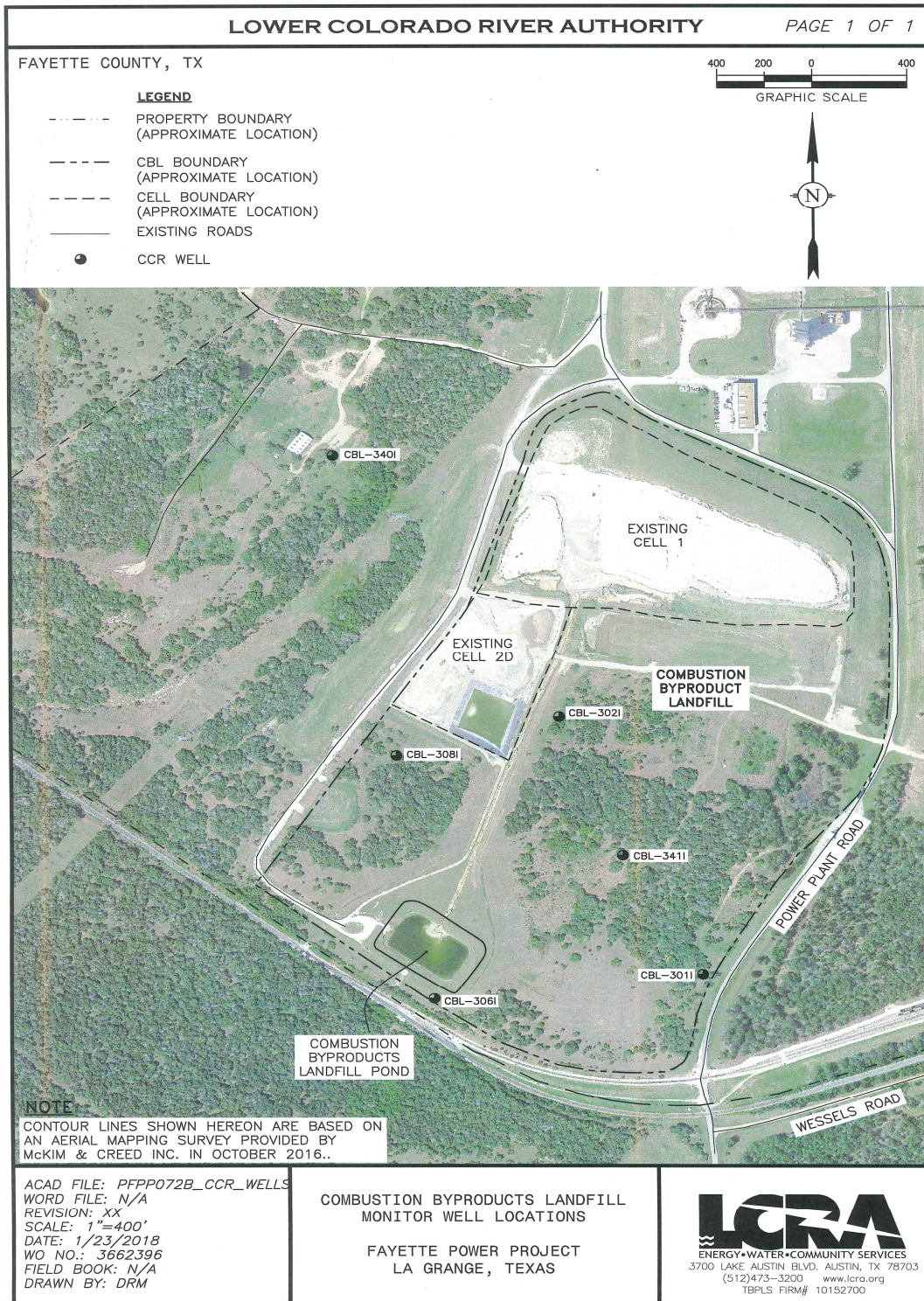
GROUNDWATER MONITORING RESULTS SUMMARY

| 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 | Temp C | DO mg/L | DO % | Specific Conductivity |    |
|------------------------------|-------------|------------------|---------|---------|----------|----------|-----------|---------|---|----------|----------|---------|-----------|----------|----------|---------|----------|---------|-----------|------------|----------|----------|------------|------------|--------|---------|------|-----------------------|----|
| MCL including EPA Phase 1    |             |                  | NE      | NE      | NE       | 4.0      | NE        | NE      | NE  | 0.006    | 0.010    | 2.000   | 0.004     | 0.005    | 0.100    | 0.006   | 0.015    | 0.040   | 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       | 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       | 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       | 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       | 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       | 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       | 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       | 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         | 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         | 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         | 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-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       | 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       | 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       | 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       | 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       | 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         | 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         | 23.17  | NA      | NA   | 6036                  |    |
| 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         | 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         | 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 |

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

**FIGURE 1**

**MONITOR WELL LOCATION MAP**



## **Appendix A**

CCR Groundwater Detection Monitoring Program  
Evaluation of First Quarter 2021  
Potentiometric Surface Data Collected from the CBL  
Bullock, Bennett & Associates, LLC  
April 26, 2021

CCR Groundwater Detection Monitoring Program  
Evaluation of Third Quarter 2021  
Potentiometric Surface Data Collected from the CBL  
Bullock, Bennett & Associates, LLC  
December 15, 2021



Bullock, Bennett & Associates, LLC

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## Technical Memorandum

To: Rebecca D. Jones, P.G.                      Project No. 21400  
Environmental Coordinator  
Lower Colorado River Authority (LCRA)

From: Charlie Macon, P.G.

Date: April 26, 2021

**Subject:        CCR GROUNDWATER DETECTION MONITORING PROGRAM  
                     EVALUATION OF FIRST QUARTER 2021 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-2021 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 evaluation 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–2021 event.

Based on the measured groundwater elevations, a potentiometric surface map was prepared to document the First Quarter-2021 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 0.019 ft/ft was calculated.



### 3.0 GROUNDWATER FLOW RATE CALCULATION

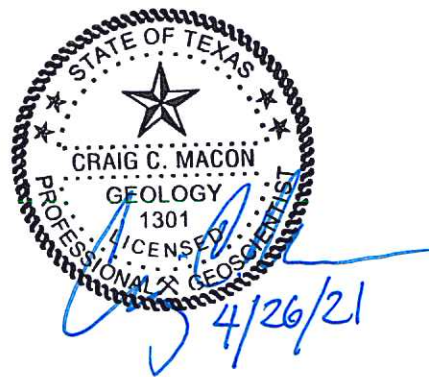
Groundwater flow rate was calculated along two transects, one along the western area having the lower gradient, and one along the eastern area having the higher gradient. As documented in the CBL Hydrogeology Report (Amec, 2013), a hydraulic conductivity value (K) of  $6.3 \times 10^{-4}$  centimeters 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-2021 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 0.019 ft/ft): 41 ft/yr  
Western Transect (gradient of 0.009 ft/ft): 19 ft/yr

### 4.0 REFERENCES

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



**TABLE 1**  
**Combustion Byproducts Landfill**  
**Groundwater Monitoring Well System**  
**January 2021 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 NGVD) | DTW (ft btoc) | Elevation (ft NGVD) | DTW (ft btoc) | Elevation (ft NGVD) | DTW (ft btoc) | Elevation (ft NGVD) | DTW (ft btoc) | Elevation (ft NGVD) | DTW (ft btoc) | Elevation (ft NGVD) |
| 1/26/2021                    | NM            | NM                  | 36.41         | 335.70              | NM            | NM                  | NM            | NM                  | NM            | NM                  | NM            | NM                  |
| 1/27/2021                    | NM            | NM                  | NM            | NM                  | NM            | NM                  | NM            | NM                  | NM            | NM                  | 17.16         | 349.49              |
| 1/28/2021                    | 27.30         | 349.68              | NM            | NM                  | 12.06         | 346.93              | 10.21         | 329.75              | 26.07         | 342.60              | NM            | NM                  |

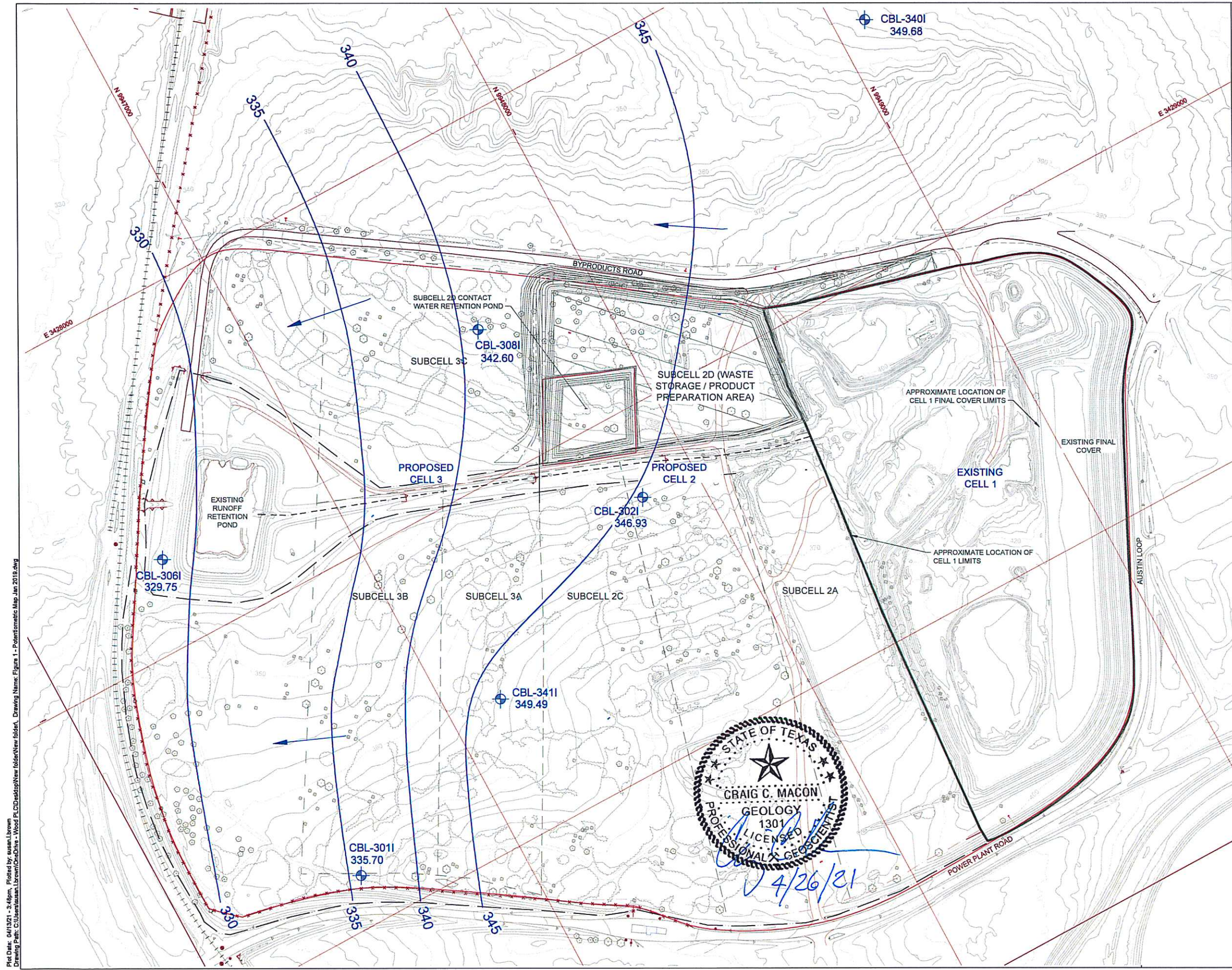
Notes:

NM = Not Measured

ft btoc = feet below top of casing

ft NGVD =feet above National Geodetic Vertical Datum

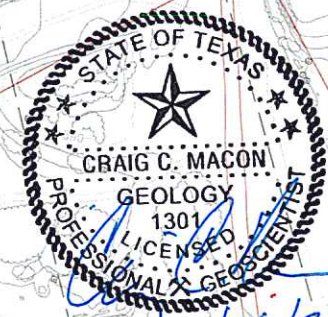
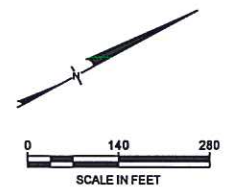
Plot Date: 04/13/21 - 3:48pm, Plotted by: susan.l.brown  
 Drawing Path: C:\Users\susan.l.brown\OneDrive - Wood PL\CD\desktop\New folder\New folder, Drawing Name: Figure 1 - Potentiometric Map Jan 2021.dwg



**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.



**LOWER COLORADO RIVER AUTHORITY**

**Figure 1  
Potentiometric Surface Map  
of the Intermediate Sand  
January 2021**

|                |              |           |
|----------------|--------------|-----------|
| PROJECT: 21400 | BY: SLB      | REVISIONS |
| DATE: 4/9/2021 | CHECKED: CCM |           |

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



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**Bullock, Bennett & Associates, LLC**

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## **Technical Memorandum**

To: Rebecca D. Jones, P.G.                                      Project No. 21400  
    Environmental Coordinator  
    Lower Colorado River Authority (LCRA)

From: Charlie Macon, P.G.

Date: December 15, 2021

**Subject:      CCR GROUNDWATER DETECTION MONITORING PROGRAM  
                  EVALUATION OF THIRD QUARTER 2021 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-2021 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 evaluation 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 Third Quarter-2021 event.

Based on the measured groundwater elevations, a potentiometric surface map was prepared to document the Third Quarter-2021 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 0.028 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  $6.3 \times 10^{-4}$  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-2021 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 0.028 ft/ft): 61 ft/yr  
Western Transect (gradient of 0.009 ft/ft): 19 ft/yr

### **4.0 REFERENCES**

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

**TABLE 1**  
**Combustion Byproducts Landfill**  
**Groundwater Monitoring Well System**  
**July 2021 Potentiometric Surface Data**  
 Fayette Power Project  
 La Grange, Texas

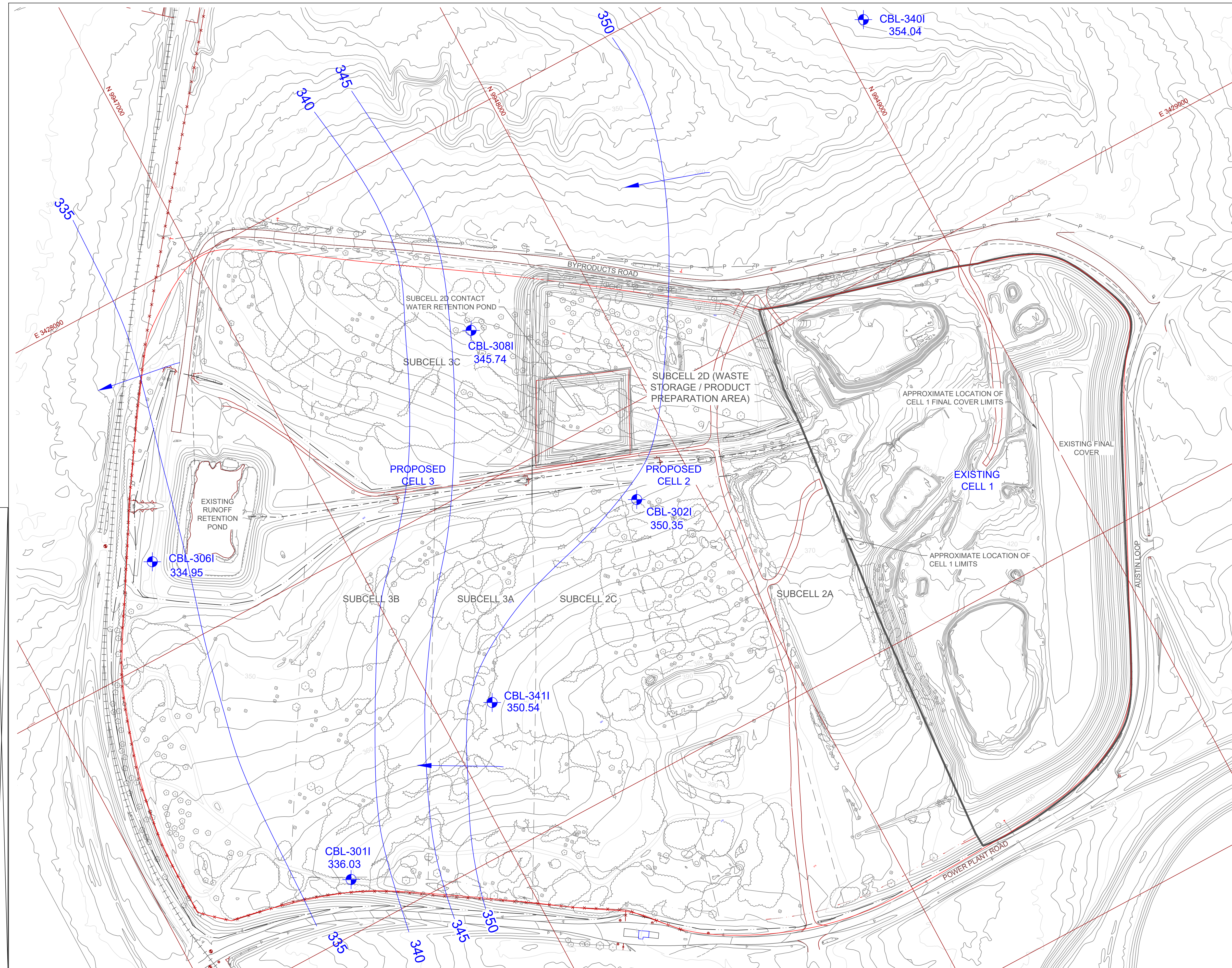
| Well ID                      | CBL-340I      |                     | CBL-301I      |                     | CBL-302I      |                     | CBL-306I      |                     | CBL-308I      |                     | CBL-341I      |                     |
|------------------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|
| Well Top of Casing Elevation | 376.98        |                     | 372.11        |                     | 358.99        |                     | 339.96        |                     | 368.67        |                     | 366.65        |                     |
| Date                         | DTW (ft btoc) | Elevation (ft NGVD) | DTW (ft btoc) | Elevation (ft NGVD) | DTW (ft btoc) | Elevation (ft NGVD) | DTW (ft btoc) | Elevation (ft NGVD) | DTW (ft btoc) | Elevation (ft NGVD) | DTW (ft btoc) | Elevation (ft NGVD) |
| 7/20/2021                    | NM            | NM                  | 36.08         | 336.03              | NM            | NM                  | NM            | NM                  | NM            | NM                  | NM            | NM                  |
| 7/21/2021                    | NM            | NM                  | NM            | NM                  | 8.64          | 350.35              | 5.01          | 334.95              | 22.93         | 345.74              | NM            | NM                  |
| 7/22/2021                    | 22.94         | 354.04              | NM            | NM                  | NM            | NM                  | NM            | NM                  | NM            | NM                  | 16.11         | 350.54              |

Notes:

NM = Not Measured

ft btoc = feet below top of casing

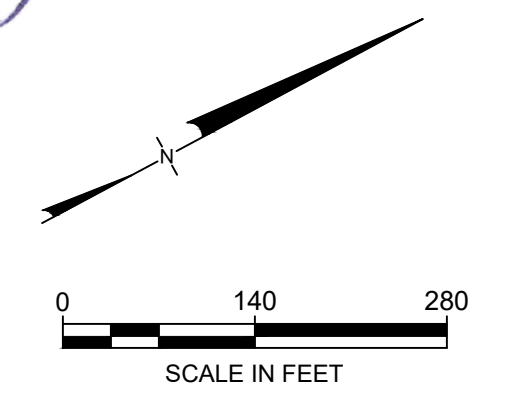
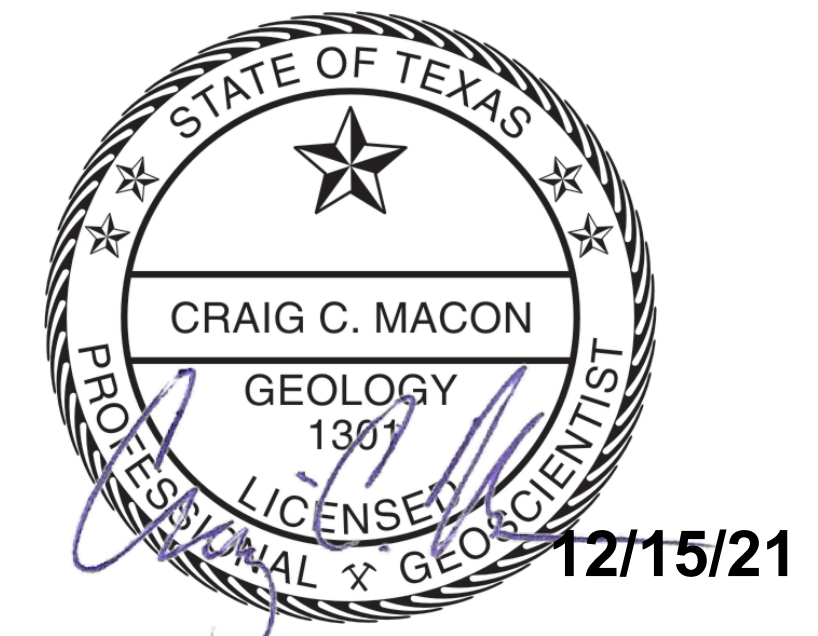
ft NGVD =feet above National Geodetic Vertical Datum



**LEGEND**

- CBL UNIT BOUNDARY
- 350 EXISTING GROUND ELEVATION (FT,MSL) (NOTES 1,2)
- (350) EXISTING TOP OF CLAY LINER ELEVATION (FT,MSL) (NOTE 2)
- EXISTING BUILDING
- EXISTING RAILROAD
- N 9949000  
E 3428000 COORDINATE GRID (NOTE 2)
- x x x EXISTING FENCE
- PROPOSED PHASE BOUNDARY
- PROPOSED LIMIT OF WASTE
- P - P - P POWER LINE
- WELLS
- CBL-302I  
347.90 CBL GROUNDWATER MONITORING WELL WITH POTENTIOMETRIC SURFACE ELEVATION INDICATED IN FEET ABOVE NAVD 1988.
- 350 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.



|   |              |           |
|---|--------------|-----------|
| <b>LOWER COLORADO RIVER AUTHORITY</b>   |              |           |
| <b>Figure 1<br/>Potentiometric Surface Map<br/>of the Intermediate Sand<br/>July 2021</b>   |              |           |
| PROJECT: 21400  | BY: SLB      | REVISIONS |
| DATE: 10/27/2021  | CHECKED: CCM |           |
| <b>Bullock, Bennet &amp; Associates, LLC</b><br>Engineering and Geoscience<br>Texas Registrations: Engineering F-8542, Geoscience 50127 |              |           |

## **APPENDIX B**

Groundwater Monitoring System Addendum Certification,  
Coal Combustion Residuals Unit: Combustion Byproducts Landfill  
Bullock, Bennett & Associates, LLC  
May 17, 2021



**GROUNDWATER MONITORING SYSTEM ADDENDUM CERTIFICATION  
LOWER COLORADO RIVER AUTHORITY  
COAL COMBUSTION RESIDUALS UNIT: COMBUSTION BYPRODUCTS LANDFILL  
FAYETTE POWER PROJECT  
La Grange, Texas**

BULLOCK, BENNETT & ASSOCIATES, LLC (Consultant) has been retained by the Lower Colorado River Authority (LCRA) to conduct statistical analysis of groundwater analytical data obtained from the First Quarter, 2021 Groundwater Monitoring Event (GME) at LCRA's Combustion Byproducts Landfill (CBL), Fayette Power Project, La Grange, Texas. The statistical analyses are being conducted in accordance with Title 40 of the Code of Federal Regulations § 257.93 (40 C.F.R. § 257.93).

## **1.0 BACKGROUND**

Consistent with the previously published document *Groundwater Monitoring System Addendum Certification, Lower Colorado River Authority, Coal Combustion Residuals Unit: Combustion Byproducts Landfill, Fayette Power Project* (Amec Foster Wheeler, April 13, 2018), use of intrawell statistical analysis for groundwater evaluation continues under the Detection Monitoring Program for the CBL. The new Groundwater Monitoring System Addendum Certification presented herein, documents the transition from the prior use of the Prediction Interval procedure referenced in 40 C.F.R. § 257.93 (f) (3), to the use of the Control Chart procedure referenced in 40 C.F.R. § 257.93 (f) (4).

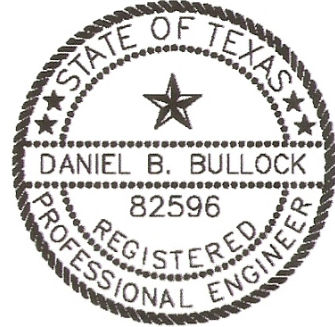
The procedural transition was recommended, based on the Consultant's review of statistical analysis packages. Specifically, the Consultant has recommended use going forward of the analysis package DUMPStat, which utilizes the control chart procedure, and is used by industry for statistical analysis of chemical data from groundwater detection monitoring well networks. 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. A Professional Engineer's (P.E.'s) certification of the revision to the Intrawell Statistical Analysis Procedure for the CBL's Detection Monitoring Program is provided herein.

## **2.0 LIMITATIONS**

The Consultant's signature on this document represents that to the best of the Consultant's knowledge, information, and professional judgement, the aforementioned information is accurate as of the signature date. The Consultant's opinions and decisions are made on the basis of the Consultant's experience, qualifications, and professional judgement and are not construed as warranties or guaranties. In addition, opinions relating to environmental, geologic, and geotechnical conditions (or other estimates) are based on available data, and actual conditions may vary from those encountered at the times and locations where data are obtained, despite the use of due care.

**3.0 CERTIFICATION**

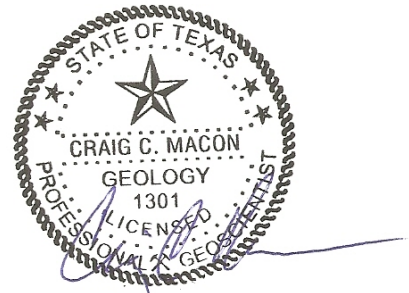
I, **Dan Bullock**, being a Registered P.E. with the State of Texas, do hereby certify to the best of my knowledge, information, and belief, that the groundwater monitoring system for the Coal Combustion Residual (CCR) Unit (Combustion Byproducts Landfill), as herein revised, has been designed and constructed to meet the requirements of 40 C.F.R. § 257.91, in accordance with recognized and generally accepted good engineering and scientific practices.



SIGNATURE *Daniel B. Bullock*

DATE 5/17/2021

I, **Craig C. Macon**, being a Professional Geoscientist in the State of Texas, do hereby certify to the best of my knowledge, information, and belief, that the Groundwater Monitoring System for the CCR Unit: Coal Combustion Byproducts Landfill, as herein revised, has been designed and constructed to meet the requirements of 40 C.F.R. § 257.91, in accordance with recognized and generally accepted good scientific practices.



SIGNATURE *Craig C. Macon*

DATE 5/17/2021

## **APPENDIX C**

Results of the Groundwater Statistics for the Lower Colorado River Authority  
First Semi-Annual Monitoring Event in 2021  
Otter Creek Environmental Services, LLC  
May 2021

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**Results of the Ground Water Statistics**  
**for Lower Colorado River Authority Fayette Power Project**

**First Semi-Annual Monitoring Event in 2021**

*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

**May 2021**

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## Introduction

This report contains the results of the statistical analyses used to evaluate the ground water data obtained during the first semi-annual monitoring event in 2021 at the Lower Colorado River Authority (LCRA) Fayette Power Project. The ground water at the LCRA Fayette Power Project is monitored by wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I. Statistical comparisons and evaluation for statistically significant increases were completed within 90 days of receipt of laboratory data.

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 LCRA Fayette Power Project data. The statistics conform to 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*.

## Ground Water Monitoring Program

The groundwater monitoring network for LCRA Fayette Power Project includes background well CBL 340I and down-gradient wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I. Each of the groundwater monitoring wells is sampled semiannually and analyzed for the detection monitoring parameters listed in Appendix III of 40 CFR Part 257.

### Appendix III to Part 257 – Constituents for Detection Monitoring

Boron  
Calcium  
Chloride  
Fluoride  
pH  
Sulfate  
Total Dissolved Solids

### Appendix IV to Part 257 – Constituents for Assessment Monitoring

|           |            |
|-----------|------------|
| Antimony  | Lead       |
| Arsenic   | Lithium    |
| Barium    | Mercury    |
| Beryllium | Molybdenum |
| Cadmium   | Selenium   |
| Chromium  | Thallium   |
| Cobalt    | Radium 226 |
| Fluoride  | Radium 228 |

The down-gradient groundwater data obtained during the first semi-annual monitoring event in 2021 are summarized in Attachment A. Historical Appendix III data are summarized in Attachment B.

## **INTRAWELL STATISTICAL METHODOLOGY FOR DETECTION MONITORING**

The CCR rule provides several options for evaluating the groundwater 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 groundwater data are using either prediction limits or using control charts. With the accumulation of a larger set of groundwater data over time, control charts methodology becomes an advantageous method, allowing for better identification of long-term trends.

An intrawell control chart method was applied to the LCRA Fayette Power Project 2021 Q1 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 statistics are conducted on the Appendix III constituents listed above. Previous statistical analyses were performed using the prediction limits method with the ProUCL program.

As of this First Quarter 2021 statistical evaluation and moving forward, intrawell analysis will continue, using the control chart methodology referenced in 40 CFR 257.93(f)(4), instead of the prediction limits method previously used. In accordance with 40 CFR 257.93(f)(6), a new certification of the statistical method was issued by a professional engineer.

### **Intrawell statistics**

Intrawell statistics compare new measurements to the historical data at each ground water monitoring well independently. The Unified Guidance-recommended technique for intrawell comparisons is the combined Shewhart-CUSUM control chart. This control chart procedure is useful because it will detect changes in analyte concentrations both in terms of the constituent concentration and cumulative concentration increases. This method is also 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.

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.

Groundwater monitoring parameters that 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 should be plotted as a time series until enough 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 sampling error, analytical error, or simply by chance alone. 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 method to reduce the probability that anomalous data obtained after the background has been established, is indicative of a landfill release. Should an indication of a statistically significant increase be identified, the resampling plan is implemented by the operator to collect a verification sample within 60 days of identification.

### **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 using the ProUCL software package discussed above, 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 (<50 µg/L) and CBL-341I (<50 µg/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.

As groundwater monitoring at a CCR facility proceeds, it is recommended to update background data sets periodically with valid detection monitoring results that are representative of background groundwater quality. Failure to update background 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 2020 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.

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 4% and the test becomes sensitive to 3 standard deviation units over background.

## **CONCLUSIONS**

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



**Attachment A**

Ground Water Data obtained during the First Semi-Annual Monitoring Event in 2021

Table 1

## Analytical Data Summary for 1/26/2021 to 1/28/2021

| Constituents           | Units | CBL-301I | CBL-302I | CBL-306I | CBL-308I | CBL-341I |
|------------------------|-------|----------|----------|----------|----------|----------|
| Boron, Total           | mg/L  | <.05     | <.05     | <.05     | <.05     | <.05     |
| Calcium, Total         | mg/L  | 1130     | 1020     | 257      | 830      | 874      |
| Chloride               | mg/L  | 2420     | 1370     | 292      | 2200     | 1800     |
| Fluoride               | mg/L  | <.50     | <.50     | 2.90     | 1.44     | <.50     |
| pH                     | S.U.  | 6.06     | 6.21     | 6.84     | 6.26     | 6.06     |
| Sulfate                | mg/L  | 374      | 1290     | 388      | 1340     | 324      |
| Total Dissolved Solids | mg/L  | 6060     | 4800     | 1420     | 6190     | 3940     |

\* - 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-3011**

| 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 |
|------------------------|-----------|-----------|-----------|
| Boron, Total           | <.0500    | .0801     | <.0500    |
| Calcium, Total         | 851       | 1060      | 1130      |
| Chloride               | 2360      | 2270      | 2420      |
| Fluoride               | .130      | <.250     | <.500     |
| pH                     | 6.26      | 6.13      | 6.06      |
| Sulfate                | 349       | 350       | 374       |
| Total Dissolved Solids | 4790      | 6340      | 6060      |

\* - 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  | <.050     | <.050    | <.050     | .156       | <.050     | .297      | <.050     | <.050     | <.050    | <.050     | <.050     | <.050     | <.050     |
| 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 |
|------------------------|-----------|-----------|
| Boron, Total           | <.050     | <.050     |
| Calcium, Total         | 853       | 1020      |
| Chloride               | 1410      | 1370      |
| Fluoride               | <.2500    | <.5000    |
| pH                     | 6.20      | 6.21      |
| Sulfate                | 1280      | 1290      |
| Total Dissolved Solids | 4990      | 4800      |

\* - 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       |          |           | 198        | 174       | 204       | 205       | 234       | 230      | 275       | 180       | 106       | 226       |
| Chloride               | mg/L  | 155       | 20       |           | 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**

| <b>Constituents</b>    | <b>1/29/2020</b> | <b>9/19/2020</b> | <b>1/28/2021</b> |
|------------------------|------------------|------------------|------------------|
| Boron, Total           | <.0500           | .0773            | <.0500           |
| Calcium, Total         | 247              | 260              | 257              |
| Chloride               | 445              | 420              | 292              |
| Fluoride               | 2.83             | 2.72             | 2.90             |
| pH                     | 6.70             | 7.16             | 6.84             |
| Sulfate                | 561.0            | 506.0            | 388.0            |
| Total Dissolved Solids | 1830             | 1730             | 1420             |

\* - 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**

| <b>Constituents</b>    | <b>9/18/2020</b> | <b>1/28/2021</b> |
|------------------------|------------------|------------------|
| Boron, Total           | .1030            | <.0500           |
| Calcium, Total         | 838              | 830              |
| Chloride               | 2410             | 2200             |
| Fluoride               | 1.33             | 1.44             |
| pH                     | 6.22             | 6.26             |
| Sulfate                | 1310             | 1340             |
| Total Dissolved Solids | 6860             | 6190             |

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

**Table 5**

**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 | 2/8/2018 | 8/24/2018 | 1/22/2019 | 7/31/2019 | 1/30/2020 | 9/17/2020 |
|------------------------|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|
| Boron, Total           | mg/L  | <.0500    | <.0500    | <.0500    | .0587     | .0896     | .0668     | .0507     | <.0500   | <.0500    | <.0500    | <.0500    | <.0500    | .1020     |
| Calcium, Total         | mg/L  | 854       | 870       | 906       | 898       | 860       | 950       | 829       | 810      | 824       | 782       | 714       | 767       | 814       |
| Chloride               | mg/L  | 1600      | 2000      | 1780      | 1770      | 1900      | 1820      | 1970      | 2110     | 1910      | 1790      | 1650      | 1780      | 1700      |
| Fluoride               | mg/L  | .5300     | <.5000    | <.5000    | <.5000    | <.5000    | .3350     | .0550     | .1060    | .1140     | .0546     | .1000     | .1530     | <.2500    |
| pH                     | S.U.  | 5.74      |           | 5.72      | 5.73      | 5.54      | 6.19      | 6.21      | 6.18     | 5.82      | 6.38      | 6.23      | 6.27      | 6.14      |
| Sulfate                | mg/L  | 307       | 404       | 346       | 336       | 369       | 363       | 419       | 383      | 376       | 358       | 329       | 351       | 336       |
| Total Dissolved Solids | mg/L  | 5000      | 4520      | 5110      | 4240      | 4840      | 5940      | 4150      | 4320     | 4800      | 3870      | 5370      | 4900      | 4930      |

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

Table 5

## Analytical Data Summary for CBL-341I

| Constituents           | 1/27/2021 |
|------------------------|-----------|
| Boron, Total           | <.0500    |
| Calcium, Total         | 874       |
| Chloride               | 1800      |
| Fluoride               | <.5000    |
| pH                     | 6.06      |
| Sulfate                | 324       |
| Total Dissolved Solids | 3940      |

\* - 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 | 15      | 1      | 16     |           |           | 0.0801    | 0.0500    |        |           | 0.0801       | nonpar | .99  | ** |
| Boron, Total           | mg/L  | CBL-302I | 14      | 1      | 15     |           |           | 0.0500    | 0.0500    |        |           | 0.2970       | nonpar | .99  | ** |
| Boron, Total           | mg/L  | CBL-306I | 15      | 1      | 16     | 0.0665    | 0.0228    | 0.0773    | 0.0500    |        | 0.0665    | 0.1806       | normal |      |    |
| Boron, Total           | mg/L  | CBL-308I | 14      | 1      | 15     | 0.1250    | 0.1357    | 0.1030    | 0.0500    |        | 0.1250    | 0.8036       | normal |      |    |
| Boron, Total           | mg/L  | CBL-341I | 13      | 1      | 14     | 0.0591    | 0.0172    | 0.1020    | 0.0500    |        | 0.0591    | 0.1452       | normal |      |    |
| Calcium, Total         | mg/L  | CBL-301I | 14      | 1      | 16     | 937.8571  | 94.2189   | 1060.0000 | 1130.0000 |        | 1059.3358 | 1408.9518    | normal |      |    |
| Calcium, Total         | mg/L  | CBL-302I | 14      | 1      | 15     | 989.9286  | 94.3541   | 853.0000  | 1020.0000 |        | 989.9286  | 1461.6988    | normal |      |    |
| Calcium, Total         | mg/L  | CBL-306I | 13      | 1      | 16     | 205.8462  | 47.9997   | 260.0000  | 257.0000  |        | 221.0002  | 445.8448     | normal |      |    |
| Calcium, Total         | mg/L  | CBL-308I | 14      | 1      | 15     | 873.2857  | 63.6389   | 838.0000  | 830.0000  |        | 873.2857  | 1191.4803    | normal |      |    |
| Calcium, Total         | mg/L  | CBL-341I | 13      | 1      | 14     | 836.7692  | 63.0491   | 814.0000  | 874.0000  |        | 836.7692  | 1152.0149    | normal |      |    |
| Chloride               | mg/L  | CBL-301I | 14      | 1      | 16     | 2292.8571 | 394.9183  | 2270.0000 | 2420.0000 |        | 2292.8571 | 4267.4485    | normal |      |    |
| Chloride               | mg/L  | CBL-302I | 14      | 1      | 15     | 1972.1429 | 271.4967  | 1410.0000 | 1370.0000 |        | 1972.1429 | 3329.6262    | normal |      |    |
| Chloride               | mg/L  | CBL-306I | 13      | 1      | 16     | 319.6923  | 108.7837  | 420.0000  | 292.0000  |        | 319.6923  | 863.6109     | normal |      |    |
| Chloride               | mg/L  | CBL-308I | 14      | 1      | 15     | 2554.2857 | 234.4458  | 2410.0000 | 2200.0000 |        | 2554.2857 | 3726.5147    | normal |      |    |
| Chloride               | mg/L  | CBL-341I | 13      | 1      | 14     | 1829.2308 | 144.5373  | 1700.0000 | 1800.0000 |        | 1829.2308 | 2551.9172    | normal |      |    |
| Fluoride               | mg/L  | CBL-301I | 15      | 1      | 16     | 0.3883    | 0.1724    | 0.5000    | 0.5000    |        | 0.3883    | 1.2502       | normal |      |    |
| Fluoride               | mg/L  | CBL-302I | 14      | 1      | 15     | 0.3741    | 0.1872    | 0.5000    | 0.5000    |        | 0.3741    | 1.3103       | normal |      |    |
| Fluoride               | mg/L  | CBL-306I | 13      | 1      | 16     | 2.3200    | 0.6159    | 2.7200    | 2.9000    |        | 2.4380    | 5.3997       | normal |      |    |
| Fluoride               | mg/L  | CBL-308I | 13      | 1      | 15     | 1.6954    | 0.2759    | 1.3300    | 1.4400    |        | 1.6954    | 3.0751       | normal |      |    |
| Fluoride               | mg/L  | CBL-341I | 13      | 1      | 14     | 0.3037    | 0.2058    | 0.5000    | 0.5000    |        | 0.3037    | 1.3325       | normal |      |    |
| pH                     | S.U.  | CBL-301I | 15      | 1      | 16     | 6.2267    | 0.2859    | 6.1300    | 6.0600    |        | 6.2267    | 4.80 - 7.66  | normal |      |    |
| pH                     | S.U.  | CBL-302I | 14      | 1      | 15     | 6.0164    | 0.6925    | 6.2000    | 6.2100    |        | 6.0164    | 2.55 - 9.48  | normal |      |    |
| pH                     | S.U.  | CBL-306I | 15      | 1      | 16     | 6.6413    | 0.7227    | 7.1600    | 6.8400    |        | 6.6413    | 3.03 - 10.25 | normal |      |    |
| pH                     | S.U.  | CBL-308I | 14      | 1      | 15     | 6.2271    | 0.2799    | 6.2200    | 6.2600    |        | 6.2271    | 4.83 - 7.63  | normal |      |    |
| pH                     | S.U.  | CBL-341I | 12      | 1      | 14     | 6.0125    | 0.2802    | 6.1400    | 6.0600    |        | 6.0125    | 4.61 - 7.41  | normal |      |    |
| Sulfate                | mg/L  | CBL-301I | 14      | 1      | 16     | 344.7143  | 61.2164   | 350.0000  | 374.0000  |        | 344.7143  | 650.7964     | normal |      |    |
| Sulfate                | mg/L  | CBL-302I | 14      | 1      | 15     | 1195.2143 | 114.4648  | 1280.0000 | 1290.0000 |        | 1204.1514 | 1767.5381    | normal |      |    |
| Sulfate                | mg/L  | CBL-306I | 14      | 1      | 16     | 416.6429  | 163.4642  | 506.0000  | 388.0000  |        | 416.6429  | 1233.9640    | normal |      |    |
| Sulfate                | mg/L  | CBL-308I | 14      | 1      | 15     | 1468.5714 | 93.7146   | 1310.0000 | 1340.0000 |        | 1468.5714 | 1937.1442    | normal |      |    |
| Sulfate                | mg/L  | CBL-341I | 13      | 1      | 14     | 359.7692  | 30.9493   | 336.0000  | 324.0000  |        | 359.7692  | 514.5157     | normal |      |    |
| Total Dissolved Solids | mg/L  | CBL-301I | 14      | 1      | 16     | 5484.2857 | 791.9083  | 6340.0000 | 6060.0000 |        | 5484.2857 | 9443.8270    | normal |      |    |
| Total Dissolved Solids | mg/L  | CBL-302I | 14      | 1      | 15     | 5455.0000 | 806.9387  | 4990.0000 | 4800.0000 |        | 5455.0000 | 9489.6933    | normal |      |    |
| Total Dissolved Solids | mg/L  | CBL-306I | 15      | 1      | 16     | 1301.8000 | 409.5196  | 1730.0000 | 1420.0000 |        | 1301.8000 | 3349.3981    | normal |      |    |
| Total Dissolved Solids | mg/L  | CBL-308I | 14      | 1      | 15     | 6922.8571 | 1459.6756 | 6860.0000 | 6190.0000 |        | 6922.8571 | 14221.2350   | normal |      |    |
| Total Dissolved Solids | mg/L  | CBL-341I | 13      | 1      | 14     | 4768.4615 | 554.2239  | 4930.0000 | 3940.0000 |        | 4768.4615 | 7539.5809    | 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 4**

**Dixon's Test Outliers  
1% Significance Level**

| Constituent            | Units | Well     | Date       | Result    | ND Qualifier | Date Range            | N  | Critical Value |
|------------------------|-------|----------|------------|-----------|--------------|-----------------------|----|----------------|
| Calcium, Total         | mg/L  | CBL-3011 | 01/17/2019 | 156.0000  |              | 01/21/2016-09/17/2020 | 15 | 0.6177         |
| Chloride               | mg/L  | CBL-3011 | 01/17/2019 | 619.0000  |              | 01/21/2016-09/17/2020 | 15 | 0.6177         |
| Chloride               | mg/L  | CBL-3061 | 05/04/2016 | 20.0000   |              | 01/21/2016-09/19/2020 | 14 | 0.6403         |
| Fluoride               | mg/L  | CBL-3061 | 03/22/2017 | 12.6000   |              | 01/21/2016-09/19/2020 | 15 | 0.6403         |
| Fluoride               | mg/L  | CBL-3061 | 07/31/2019 | 9.2600    |              | 01/21/2016-09/19/2020 | 15 | 0.6403         |
| Fluoride               | mg/L  | CBL-3081 | 03/22/2017 | 9.0500    |              | 01/22/2016-09/18/2020 | 14 | 0.6403         |
| Sulfate                | mg/L  | CBL-3011 | 01/17/2019 | 104.0000  |              | 01/21/2016-09/17/2020 | 15 | 0.6177         |
| Sulfate                | mg/L  | CBL-3061 | 05/04/2016 | 29.5000   |              | 01/21/2016-09/19/2020 | 15 | 0.6177         |
| Total Dissolved Solids | mg/L  | CBL-3011 | 01/17/2019 | 1460.0000 |              | 01/21/2016-09/17/2020 | 15 | 0.6177         |

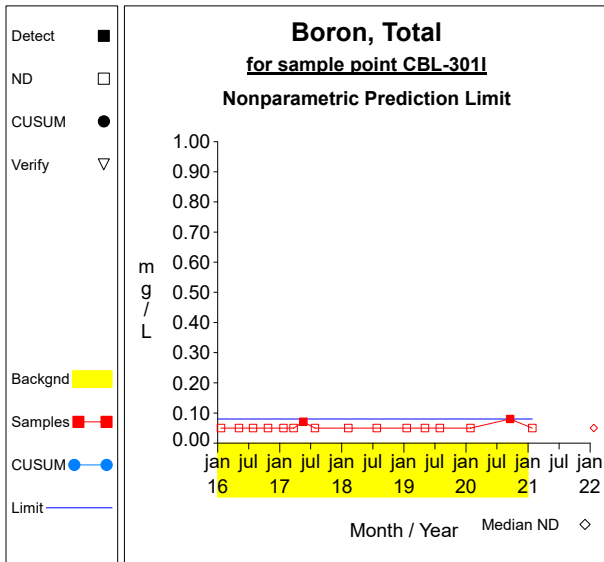
N = Total number of independent measurements in background at each well.

Date Range = Dates of the first and last measurements included in background at each well.

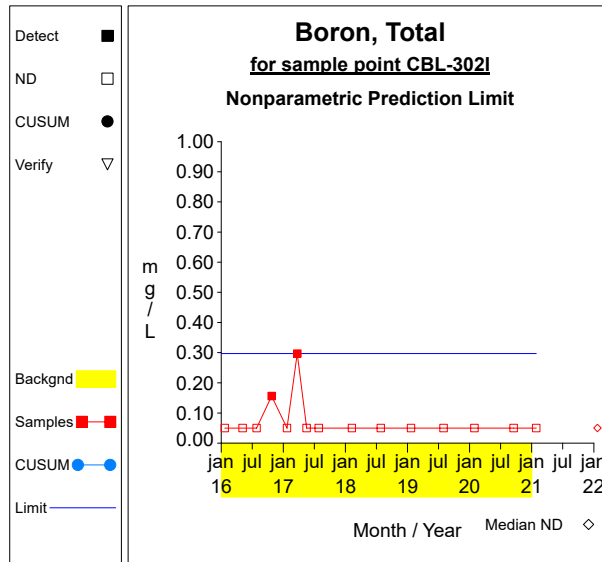
Critical Value depends on the significance level and on N-1 when the two most extreme values are tested or N for the most extreme value.



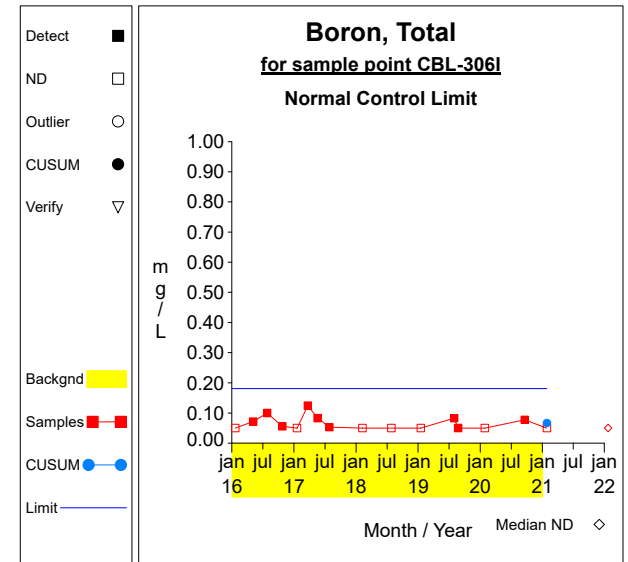
## Intra-Well Control Charts / Prediction Limits



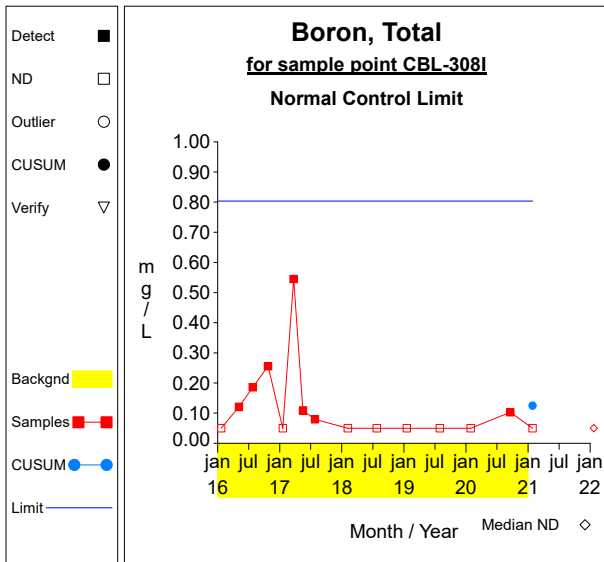
**Graph 1**



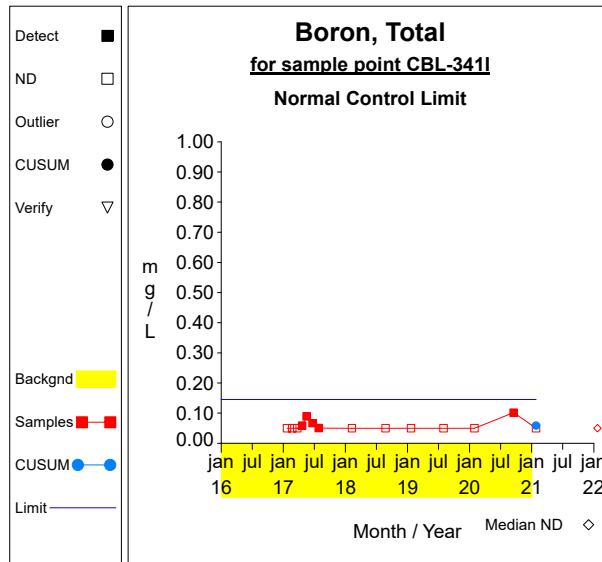
**Graph 2**



**Graph 3**

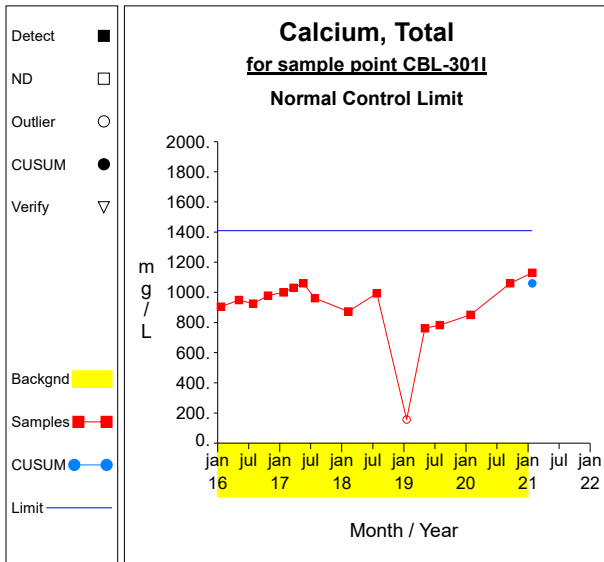


**Graph 4**

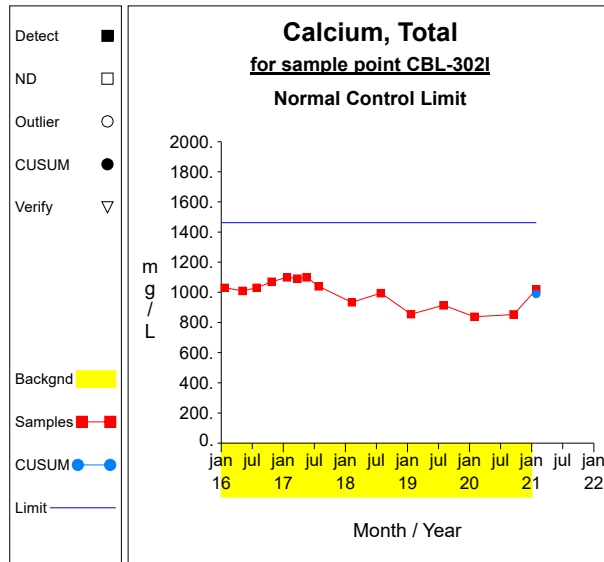


**Graph 5**

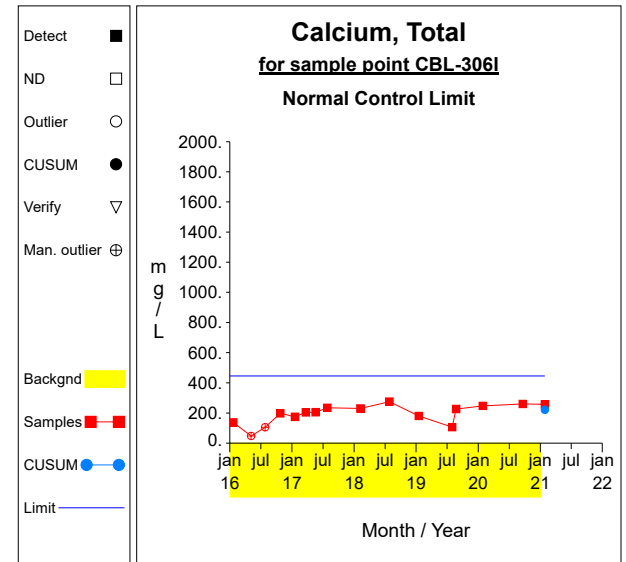
### Intra-Well Control Charts / Prediction Limits



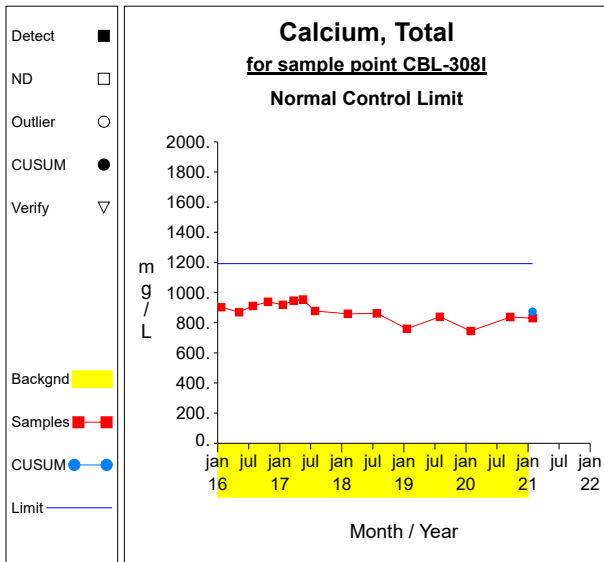
**Graph 6**



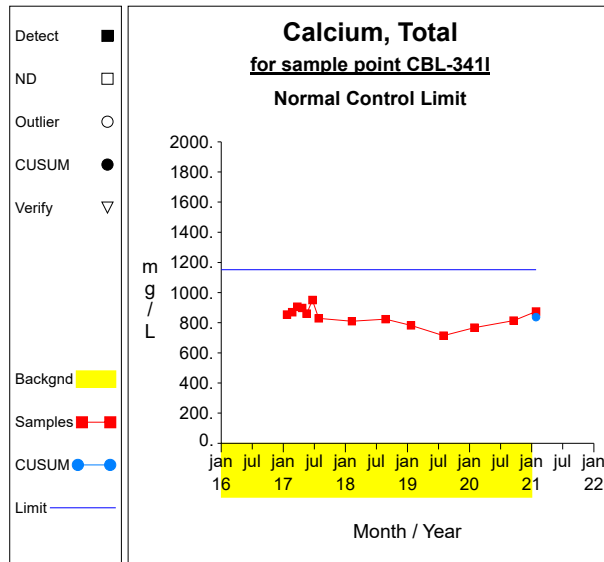
**Graph 7**



**Graph 8**

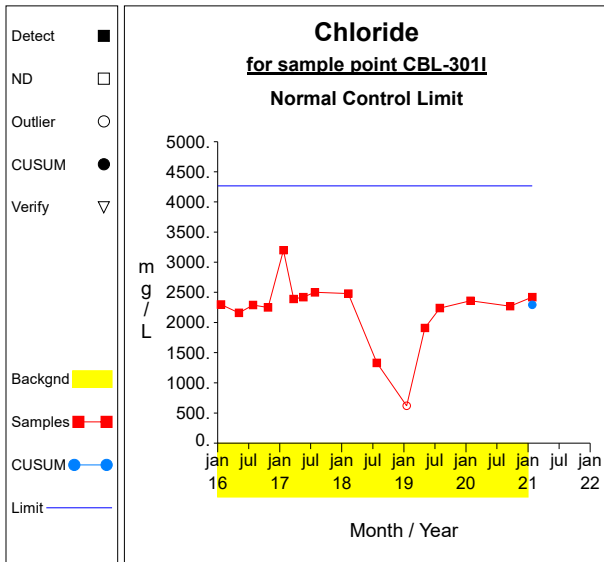


**Graph 9**

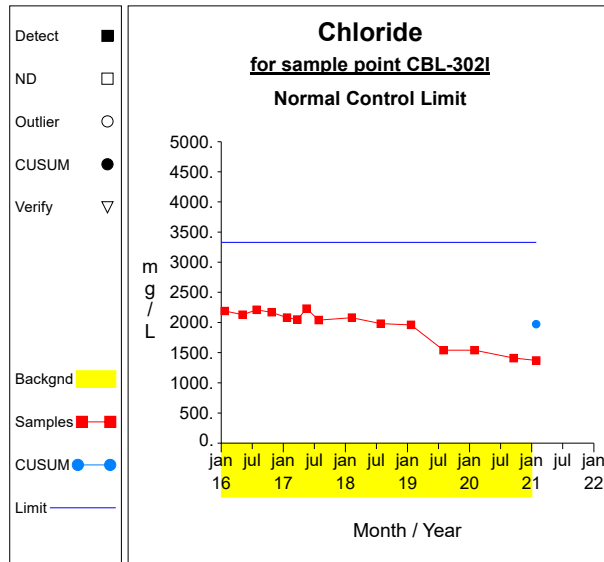


**Graph 10**

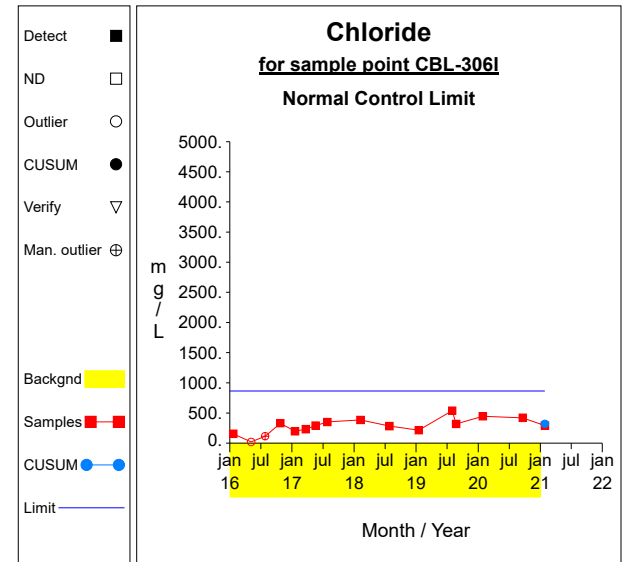
### Intra-Well Control Charts / Prediction Limits



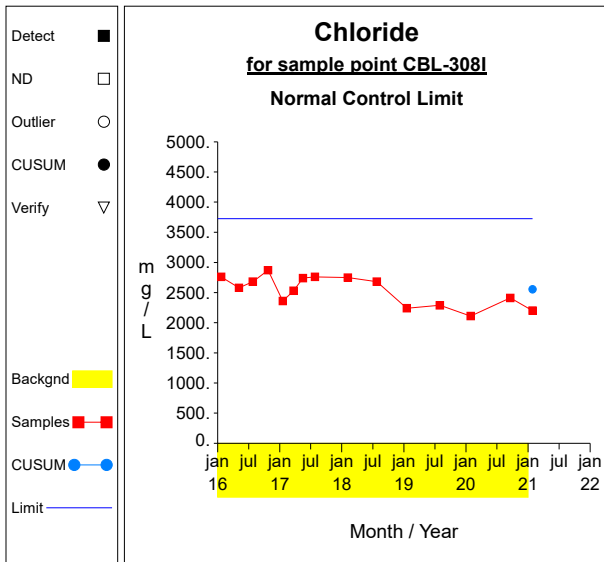
**Graph 11**



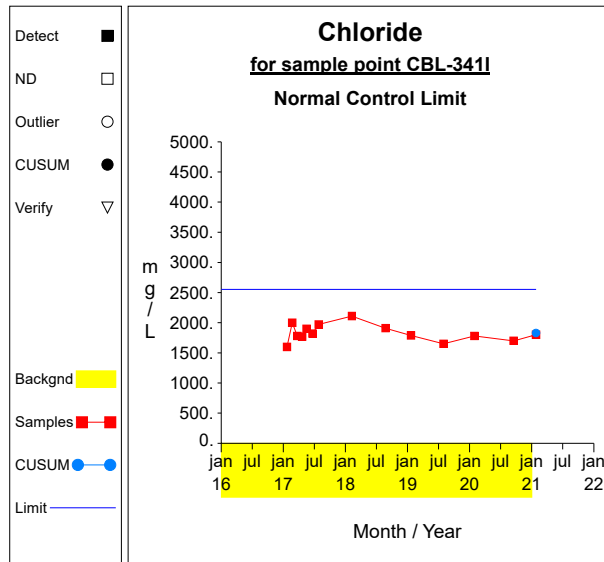
**Graph 12**



**Graph 13**

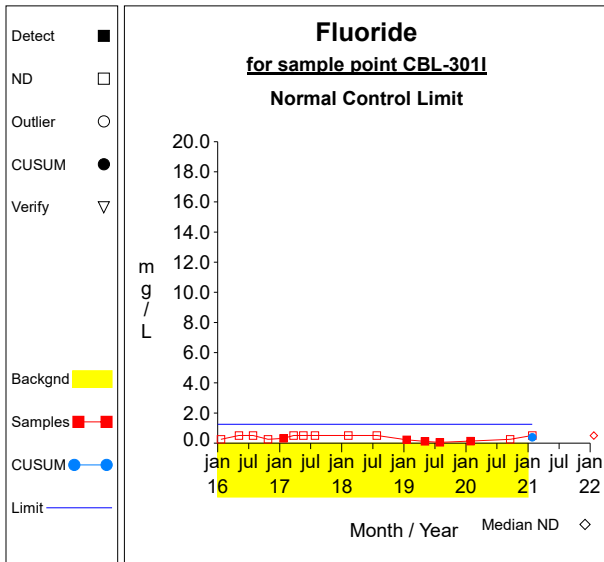


**Graph 14**

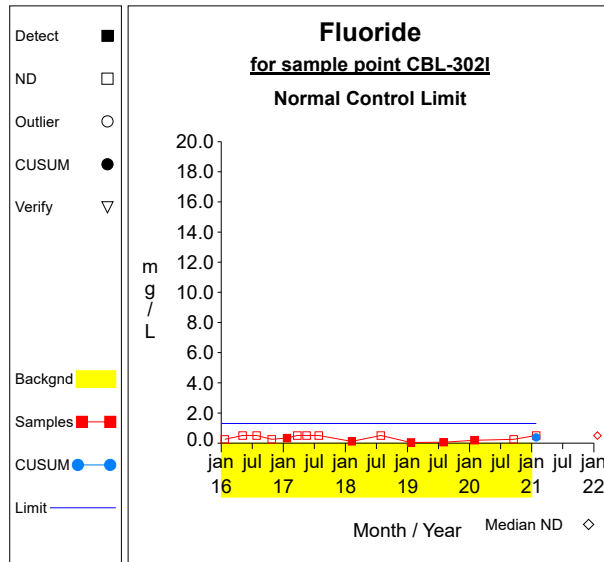


**Graph 15**

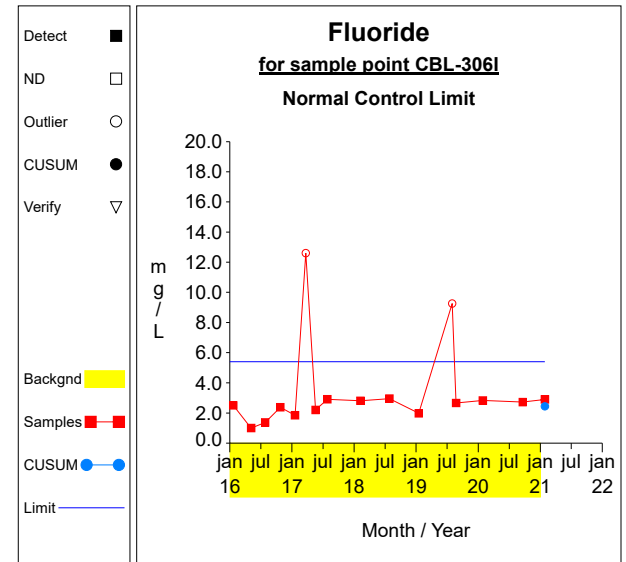
### Intra-Well Control Charts / Prediction Limits



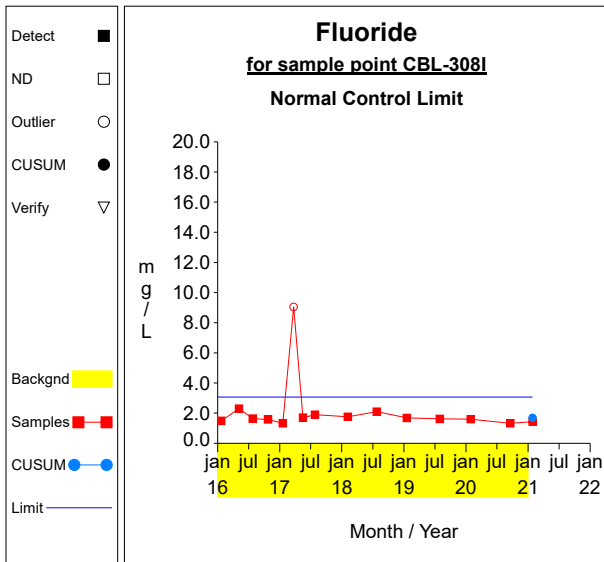
**Graph 16**



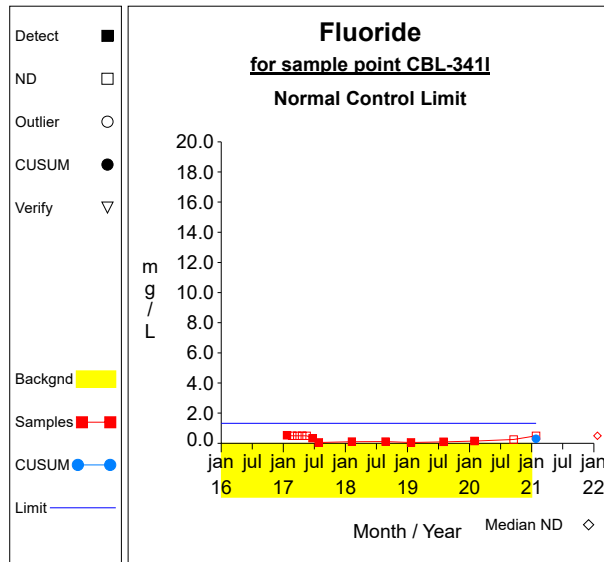
**Graph 17**



**Graph 18**

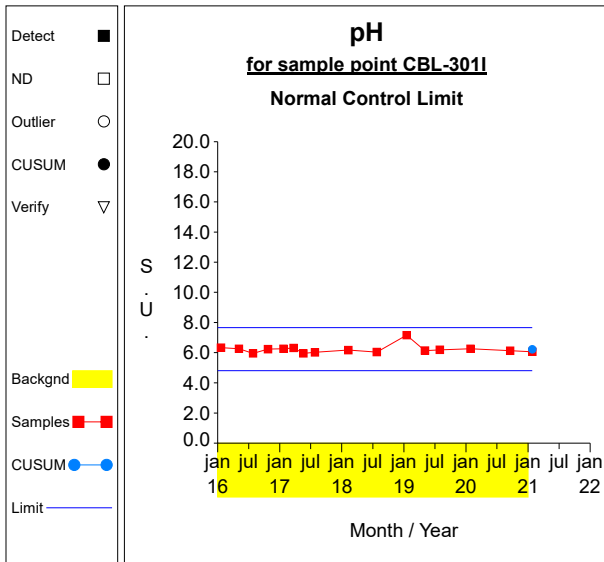


**Graph 19**

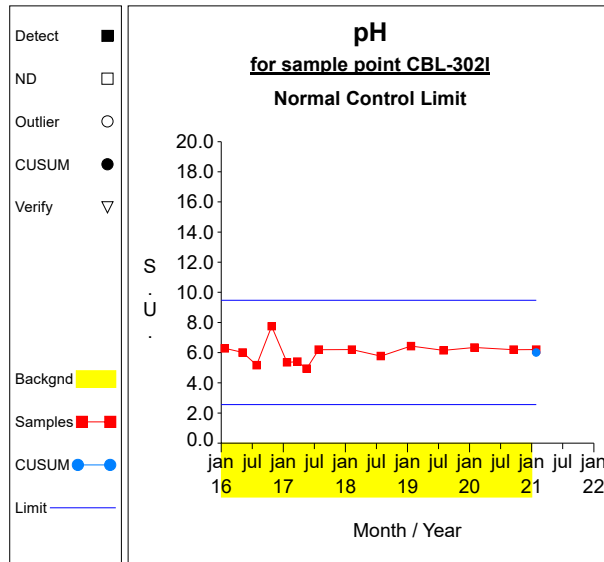


**Graph 20**

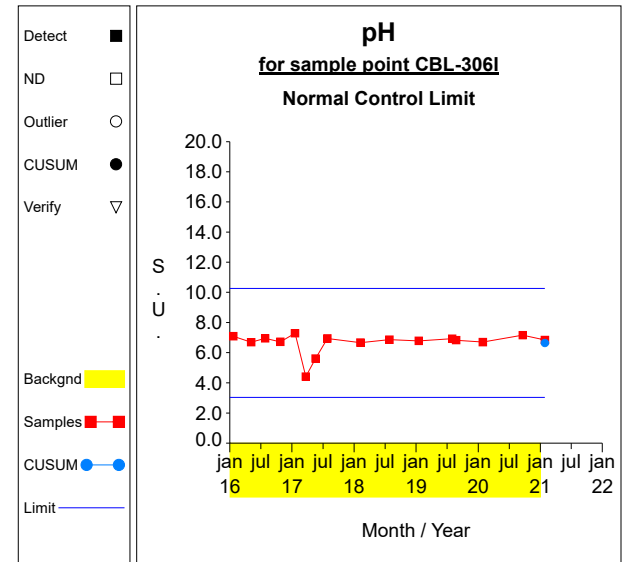
### Intra-Well Control Charts / Prediction Limits



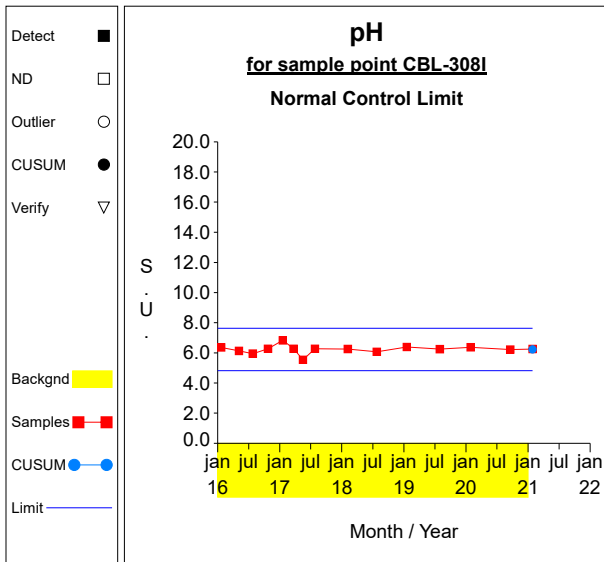
**Graph 21**



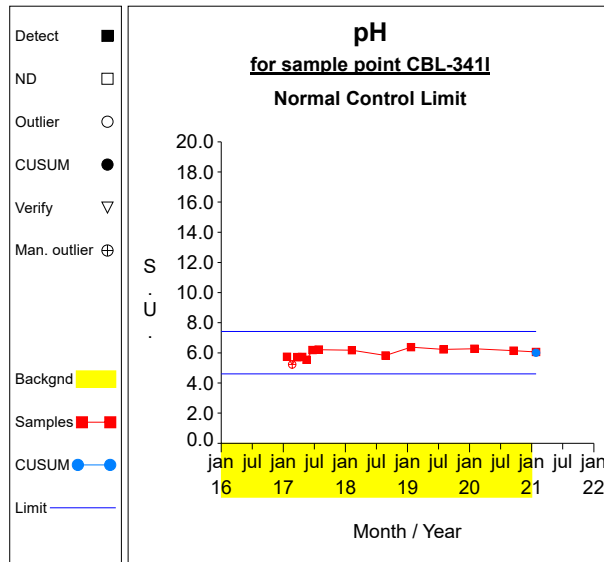
**Graph 22**



**Graph 23**

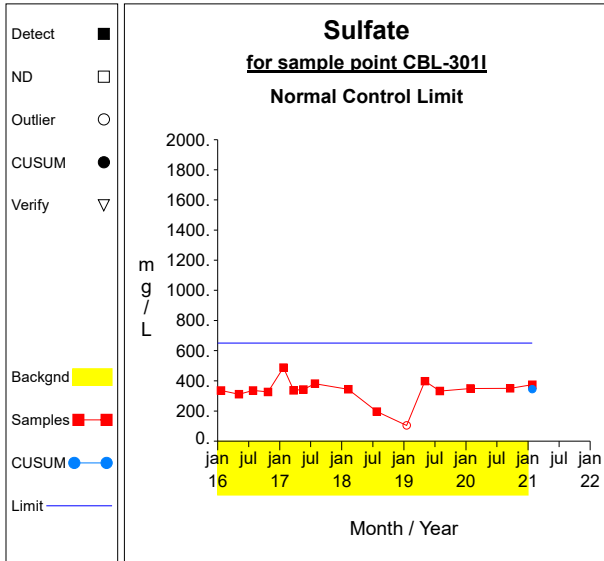


**Graph 24**

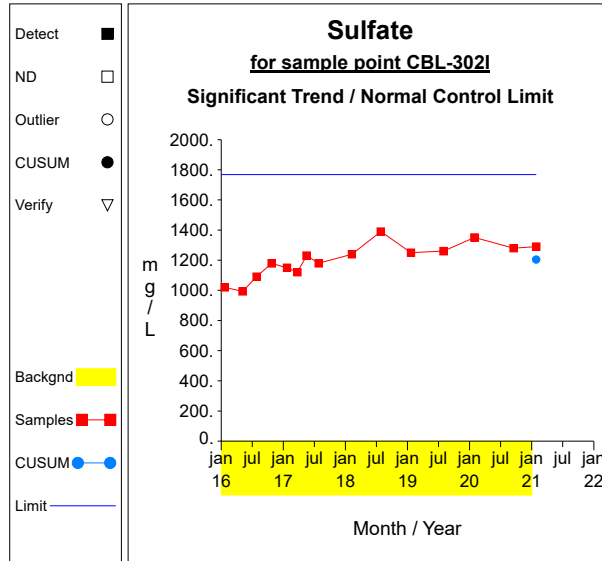


**Graph 25**

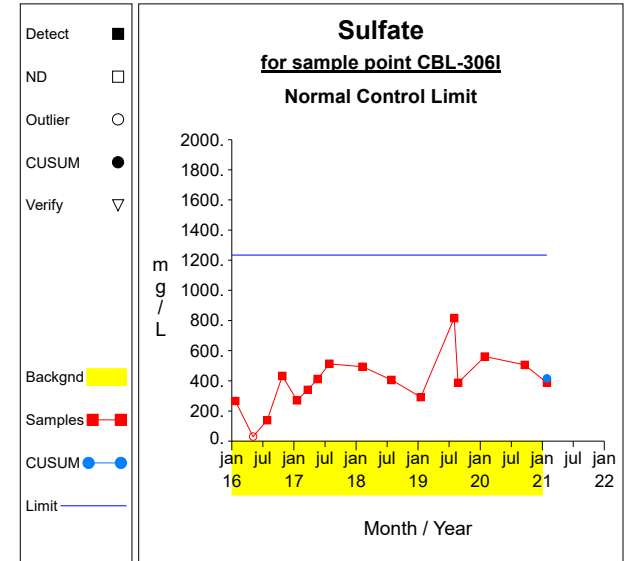
### Intra-Well Control Charts / Prediction Limits



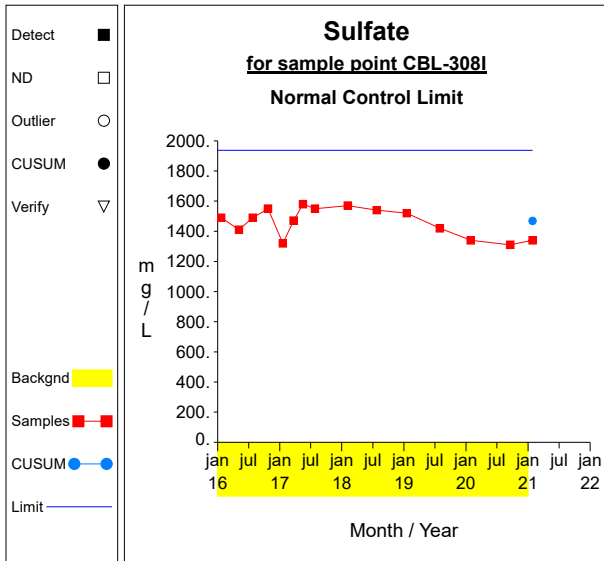
**Graph 26**



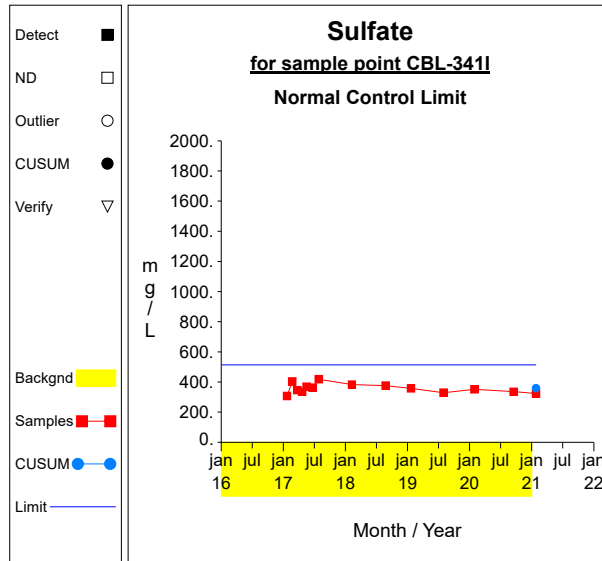
**Graph 27**



**Graph 28**

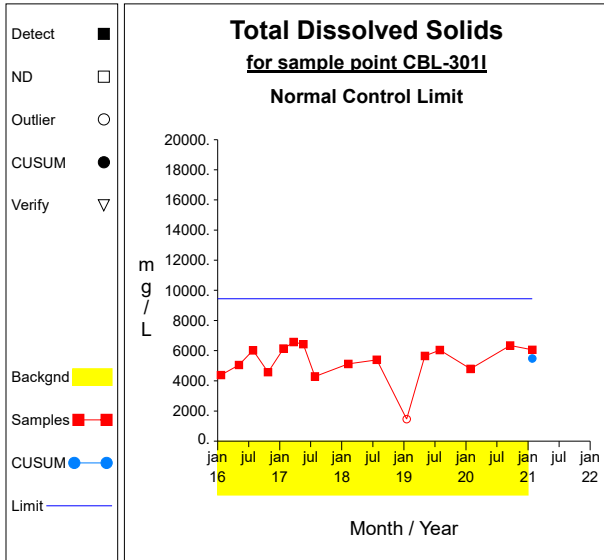


**Graph 29**

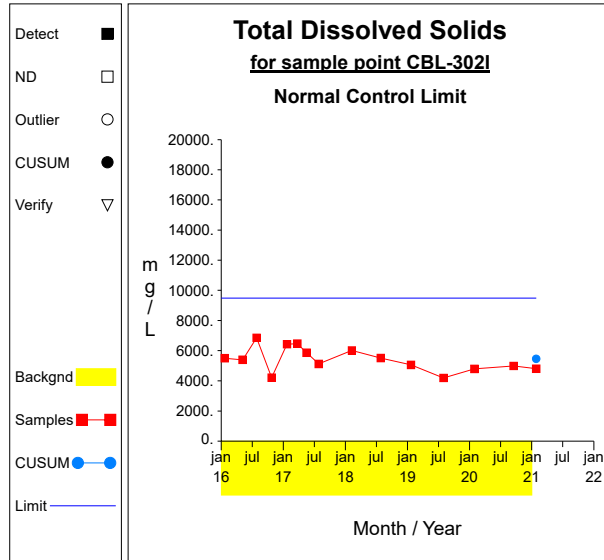


**Graph 30**

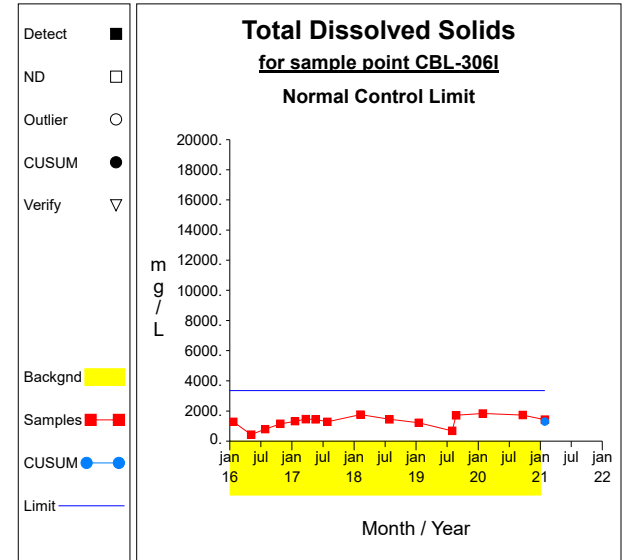
## Intra-Well Control Charts / Prediction Limits



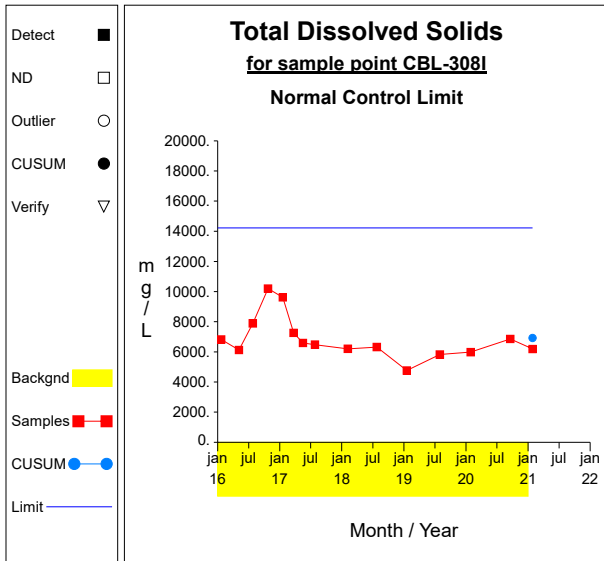
**Graph 31**



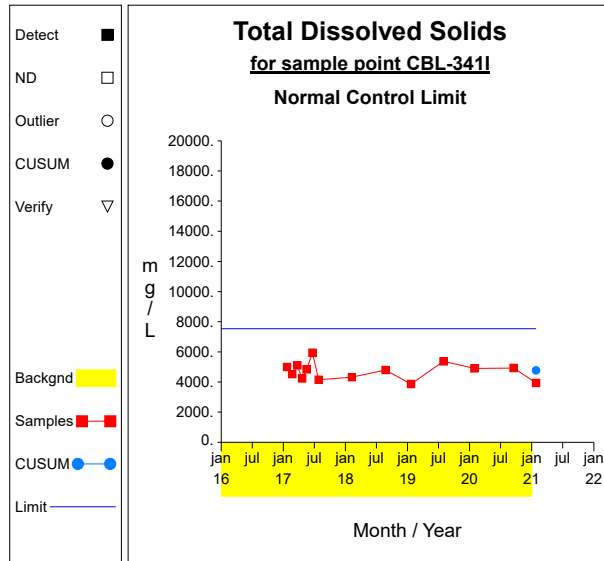
**Graph 32**



**Graph 33**

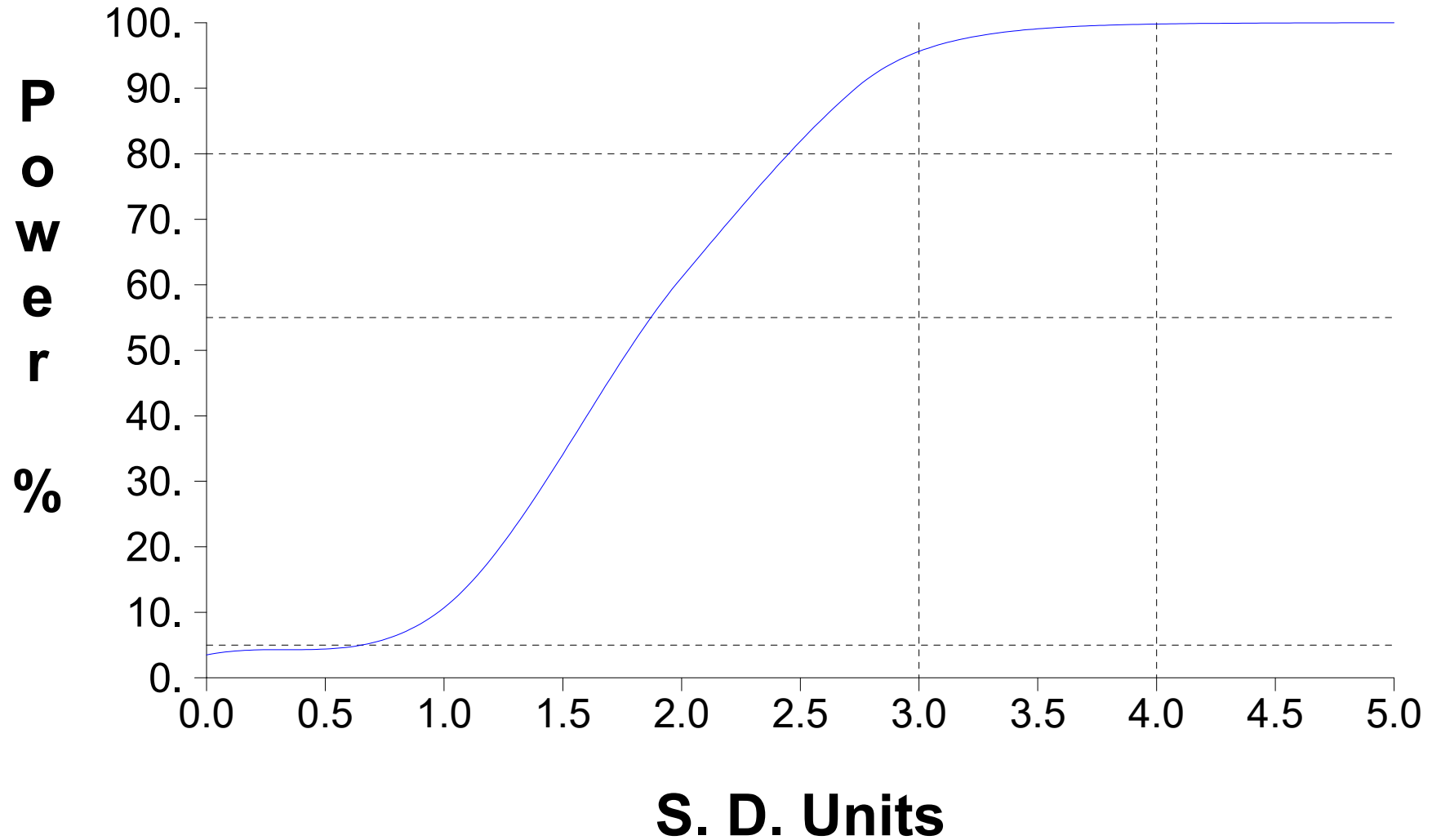


**Graph 34**



**Graph 35**

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





## **APPENDIX D**

Results of the Groundwater Statistics for the Lower Colorado River Authority  
Second Semi-Annual Monitoring Event in 2021  
Otter Creek Environmental Services, LLC  
November 2021

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**Results of the Groundwater Statistics**  
**for Lower Colorado River Authority Fayette Power Project**

**Second Semi-Annual Monitoring Event in 2021**

*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 2021**

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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 2021 at the Lower Colorado River Authority (LCRA) Fayette Power Project (FPP). The groundwater at the FPP is monitored by wells CBL-301I, CBL-302I, CBL-306I, CBL-308I, and CBL-341I. Statistical comparisons and evaluation for statistically significant increases (SSIs) were completed within 90 days of receipt of laboratory data.

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 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*.

## 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

The groundwater data obtained during the second semi-annual monitoring event in 2021 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 groundwater data are using either prediction limits or control charts. The control chart procedure offers an advantage over the prediction limits procedure as more data is generated over time, because they generate a graph of compliance data over time and allow for better identification of long-term trends.

An intrawell control chart method was applied to the FPP 2021 Q2 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 analyses are 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 is useful because it will detect changes in analyte concentrations both in terms of the constituent concentration and cumulative concentration increases. This method is also sensitive to sudden and gradual releases. A requirement for constructing these control charts is the parameter is detected at a frequency greater than or equal to 25%, otherwise data variance is not properly defined.

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.

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 enough data points are available to provide a 99% confidence nonparametric prediction limit. Thirteen independent measurements (with 1 resample) are necessary to provide 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 was thoroughly screened for anomalous data due to sampling error, analytical error, or simply by chance alone. 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<sup>®</sup> 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 a statistically significant increase be identified, the resampling plan is implemented by the operator to collect a verification sample within 60 days of identification.

**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 data for each well 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.

As groundwater monitoring at a CCR facility proceeds, it is recommended to update monitoring well background data sets periodically 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 groundwater monitoring well background data sets in this evaluation includes historical data obtained from 2016 through 2020 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, the control limit exceedances detected are summarized in the table below.

**Control Limit Exceedances during the Second Semi-Annual Monitoring Event in 2021 (initial sampling event)**

| Well     | Parameter      | Result | CUSUM Value | Control Limit | Control Limit Type | Verified/<br>Awaiting verification |
|----------|----------------|--------|-------------|---------------|--------------------|------------------------------------|
| CBL-301I | Boron, mg/L    | 0.0826 | --          | 0.0801        | Nonparametric      | Awaiting verification              |
|          | Fluoride, mg/L | 2.68   | 2.5507      | 1.2502        | Normal             | Awaiting verification              |
| CBL-302I | Fluoride, mg/L | 2.25   | 2.1096      | 1.3103        | Normal             | Awaiting verification              |

In addition to the cited Control Limit exceedances, 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 4% and the test becomes sensitive to 3 standard deviation units over background.

Based on the initial results, monitoring wells CBL-301I and CBL-302I were resampled on September 7, 2021, and analyzed for the parameters that exceeded control limits, consistent with the established retesting protocol described in the Unified Guidance document (EPA 530/R-09-007). The results of the statistics following the resample analyses are summarized in the table below.

**Statistics Following Resample Analyses**

| Well     | Parameter      | Result | CUSUM Value | Control Limit | Control Limit Type | Comment                          |
|----------|----------------|--------|-------------|---------------|--------------------|----------------------------------|
| CBL-301I | Boron, mg/L    | <0.050 | --          | 0.0801        | Nonparametric      | Previous exceedance not verified |
|          | Fluoride, mg/L | <0.50  | 0.3883      | 1.2502        | Normal             | Previous exceedance not verified |
| CBL-302I | Fluoride, mg/L | <0.25  | 0.3741      | 1.3103        | Normal             | Previous exceedance not verified |

**CONCLUSIONS**

This document describes a comprehensive statistical plan designated for the FPP. The groundwater monitoring network for FPP consists of monitoring 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 groundwater data was compared to background using intrawell control charts. Using intrawell comparisons, there were no confirmed control limit exceedances detected.

**Attachment A**

Groundwater Data obtained during the Second Semi-Annual Monitoring Event in 2021

**Table 1**

**Analytical Data Summary for 7/20/2021 to 7/22/2021**

| Constituents           | Units | CBL-301I | CBL-302I | CBL-306I | CBL-308I | CBL-341I |
|------------------------|-------|----------|----------|----------|----------|----------|
| Boron, Total           | mg/L  | .0826    | .0743    | .0927    | .1300    | .1110    |
| Calcium, Total         | mg/L  | 1100     | 844      | 216      | 684      | 852      |
| Chloride               | mg/L  | 2590     | 1380     | 255      | 1780     | 1750     |
| Fluoride               | mg/L  | 2.68     | 2.25     | 2.42     | 1.74     | 1.16     |
| pH                     | S.U.  | 6.13     | 6.06     | 6.55     | 6.16     | 5.98     |
| Sulfate                | mg/L  | 419      | 1350     | 336      | 1240     | 316      |
| Total Dissolved Solids | mg/L  | 5870     | 4810     | 1320     | 5270     | 4520     |

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



**Table 2****Analytical Data Summary for 9/7/2021**

| <b>Constituents</b> | <b>Units</b> | <b>CBL-301I</b> | <b>CBL-302I</b> | <b>CBL-341I</b> |
|---------------------|--------------|-----------------|-----------------|-----------------|
| Boron, Total        | mg/L         | <.05            |                 |                 |
| Fluoride            | mg/L         | <.50            | <.25            | <.25            |
| pH                  | S.U.         | 6.14            | 6.28            | 6.18            |

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

**Attachment B**

Historical Appendix III Groundwater Data

**Table 1**

**Analytical Data Summary for CBL-3011**

| Constituents           | Units | 1/21/2016<br>1/22/2016 | 5/4/2016 | 7/26/2016<br>7/27/2016 | 10/24/2016 | 1/23/2017 | 3/22/2017 | 5/16/2017<br>5/18/2017 | 7/26/2017<br>7/27/2017 | 2/6/2018<br>2/8/2018 | 7/25/2018<br>7/27/2018 | 1/16/2019<br>1/18/2019 | 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**

| <b>Constituents</b>    | <b>1/28/2020<br/>1/30/2020</b> | <b>9/17/2020<br/>9/19/2020</b> | <b>1/26/2021<br/>1/28/2021</b> | <b>7/20/2021<br/>7/22/2021</b> | <b>9/7/2021</b> |
|------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------------|
| Boron, Total           | <.0500                         | .0801                          | <.0500                         | .0826                          | <.0500          |
| Calcium, Total         | 851                            | 1060                           | 1130                           | 1100                           |                 |
| Chloride               | 2360                           | 2270                           | 2420                           | 2590                           |                 |
| Fluoride               | .130                           | <.250                          | <.500                          | 2.680                          | <.500           |
| pH                     | 6.26                           | 6.13                           | 6.06                           | 6.13                           | 6.14            |
| Sulfate                | 349                            | 350                            | 374                            | 419                            |                 |
| Total Dissolved Solids | 4790                           | 6340                           | 6060                           | 5870                           |                 |

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

**Table 2**

**Analytical Data Summary for CBL-302I**

| Constituents           | Units | 1/21/2016<br>1/22/2016 | 5/4/2016 | 7/26/2016<br>7/27/2016 | 10/24/2016 | 1/23/2017 | 3/22/2017 | 5/16/2017<br>5/18/2017 | 7/26/2017<br>7/27/2017 | 2/6/2018<br>2/8/2018 | 7/25/2018<br>7/27/2018 | 1/22/2019 | 7/31/2019 | 1/28/2020<br>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**

| <b>Constituents</b>    | <b>9/17/2020<br/>9/19/2020</b> | <b>1/26/2021<br/>1/28/2021</b> | <b>7/20/2021<br/>7/22/2021</b> | <b>9/7/2021</b> |
|------------------------|--------------------------------|--------------------------------|--------------------------------|-----------------|
| Boron, Total           | <.0500                         | <.0500                         | .0743                          |                 |
| Calcium, Total         | 853                            | 1020                           | 844                            |                 |
| Chloride               | 1410                           | 1370                           | 1380                           |                 |
| Fluoride               | <.2500                         | <.5000                         | 2.2500                         | <.2500          |
| pH                     | 6.20                           | 6.21                           | 6.06                           | 6.28            |
| Sulfate                | 1280                           | 1290                           | 1350                           |                 |
| Total Dissolved Solids | 4990                           | 4800                           | 4810                           |                 |

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

**Table 3**

**Analytical Data Summary for CBL-306I**

| Constituents           | Units | 1/21/2016<br>1/22/2016 | 5/4/2016 | 7/26/2016<br>7/27/2016 | 10/24/2016 | 1/19/2017 | 3/22/2017 | 5/16/2017<br>5/18/2017 | 7/26/2017<br>7/27/2017 | 2/6/2018<br>2/8/2018 | 7/25/2018<br>7/27/2018 | 1/16/2019<br>1/18/2019 | 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                    |          |                        | 198        | 174       | 204       | 205                    | 234                    | 230                  | 275                    | 180                    | 106       | 226       |
| Chloride               | mg/L  | 155                    | 20       |                        | 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           | 1/28/2020 | 9/17/2020 | 1/26/2021 | 7/20/2021 |
|------------------------|-----------|-----------|-----------|-----------|
|                        | 1/30/2020 | 9/19/2020 | 1/28/2021 | 7/22/2021 |
| Boron, Total           | <.0500    | .0773     | <.0500    | .0927     |
| Calcium, Total         | 247       | 260       | 257       | 216       |
| Chloride               | 445       | 420       | 292       | 255       |
| Fluoride               | 2.83      | 2.72      | 2.90      | 2.42      |
| pH                     | 6.70      | 7.16      | 6.84      | 6.55      |
| Sulfate                | 561.0     | 506.0     | 388.0     | 336.0     |
| Total Dissolved Solids | 1830      | 1730      | 1420      | 1320      |

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



**Table 4**

**Analytical Data Summary for CBL-308I**

| Constituents           | Units | 1/21/2016<br>1/22/2016 | 5/4/2016 | 7/26/2016<br>7/27/2016 | 10/24/2016 | 1/19/2017 | 3/22/2017 | 5/16/2017<br>5/18/2017 | 7/26/2017<br>7/27/2017 | 2/6/2018<br>2/8/2018 | 7/25/2018<br>7/27/2018 | 1/16/2019<br>1/18/2019 | 7/31/2019 | 1/28/2020<br>1/30/2020 |
|------------------------|-------|------------------------|----------|------------------------|------------|-----------|-----------|------------------------|------------------------|----------------------|------------------------|------------------------|-----------|------------------------|
| 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           | 9/17/2020 | 1/26/2021 | 7/20/2021 |
|------------------------|-----------|-----------|-----------|
|                        | 9/19/2020 | 1/28/2021 | 7/22/2021 |
| Boron, Total           | .1030     | <.0500    | .1300     |
| Calcium, Total         | 838       | 830       | 684       |
| Chloride               | 2410      | 2200      | 1780      |
| Fluoride               | 1.33      | 1.44      | 1.74      |
| pH                     | 6.22      | 6.26      | 6.16      |
| Sulfate                | 1310      | 1340      | 1240      |
| Total Dissolved Solids | 6860      | 6190      | 5270      |

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

**Table 5**

**Analytical Data Summary for CBL-341I**

| Constituents           | Units | 1/23/2017 | 2/23/2017 | 3/22/2017 | 4/20/2017 | 5/16/2017<br>5/18/2017 | 6/20/2017 | 7/26/2017<br>7/27/2017 | 2/6/2018<br>2/8/2018 | 8/24/2018 | 1/22/2019 | 7/31/2019 | 1/28/2020<br>1/30/2020 | 9/17/2020<br>9/19/2020 |
|------------------------|-------|-----------|-----------|-----------|-----------|------------------------|-----------|------------------------|----------------------|-----------|-----------|-----------|------------------------|------------------------|
| Boron, Total           | mg/L  | <.0500    | <.0500    | <.0500    | .0587     | .0896                  | .0668     | .0507                  | <.0500               | <.0500    | <.0500    | <.0500    | <.0500                 | .1020                  |
| Calcium, Total         | mg/L  | 854       | 870       | 906       | 898       | 860                    | 950       | 829                    | 810                  | 824       | 782       | 714       | 767                    | 814                    |
| Chloride               | mg/L  | 1600      | 2000      | 1780      | 1770      | 1900                   | 1820      | 1970                   | 2110                 | 1910      | 1790      | 1650      | 1780                   | 1700                   |
| Fluoride               | mg/L  | .5300     | <.5000    | <.5000    | <.5000    | <.5000                 | .3350     | .0550                  | .1060                | .1140     | .0546     | .1000     | .1530                  | <.2500                 |
| pH                     | S.U.  | 5.74      | 5.72      | 5.73      | 5.73      | 5.54                   | 6.19      | 6.21                   | 6.18                 | 5.82      | 6.38      | 6.23      | 6.27                   | 6.14                   |
| Sulfate                | mg/L  | 307       | 404       | 346       | 336       | 369                    | 363       | 419                    | 383                  | 376       | 358       | 329       | 351                    | 336                    |
| Total Dissolved Solids | mg/L  | 5000      | 4520      | 5110      | 4240      | 4840                   | 5940      | 4150                   | 4320                 | 4800      | 3870      | 5370      | 4900                   | 4930                   |

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

**Table 5**

**Analytical Data Summary for CBL-341I**

| <b>Constituents</b>    | <b>1/26/2021<br/>1/28/2021</b> | <b>7/20/2021<br/>7/22/2021</b> | <b>9/7/2021</b> |
|------------------------|--------------------------------|--------------------------------|-----------------|
| Boron, Total           | <.0500                         | .1110                          |                 |
| Calcium, Total         | 874                            | 852                            |                 |
| Chloride               | 1800                           | 1750                           |                 |
| Fluoride               | <.5000                         | 1.1600                         | <.2500          |
| pH                     | 6.06                           | 5.98                           | 6.18            |
| Sulfate                | 324                            | 316                            |                 |
| Total Dissolved Solids | 3940                           | 4520                           |                 |

\* - 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 | 15      | 2      | 17     |           |           | 0.0500    | 0.0826    |           |           | 0.0801       | nonpar | .99  | ** |
| Boron, Total           | mg/L  | CBL-302I | 14      | 2      | 16     |           |           | 0.0500    | 0.0743    |           |           | 0.2970       | nonpar | .99  | ** |
| Boron, Total           | mg/L  | CBL-306I | 15      | 2      | 17     | 0.0665    | 0.0228    | 0.0500    | 0.0927    | 0.0665    | 0.0756    | 0.1806       | normal |      |    |
| Boron, Total           | mg/L  | CBL-308I | 14      | 2      | 16     | 0.1250    | 0.1357    | 0.0500    | 0.1300    | 0.1250    | 0.1250    | 0.8036       | normal |      |    |
| Boron, Total           | mg/L  | CBL-341I | 13      | 2      | 15     | 0.0591    | 0.0172    | 0.0500    | 0.1110    | 0.0591    | 0.0981    | 0.1452       | normal |      |    |
| Calcium, Total         | mg/L  | CBL-301I | 14      | 2      | 17     | 937.8571  | 94.2189   | 1130.0000 | 1100.0000 | 1059.3358 | 1150.8144 | 1408.9518    | normal |      |    |
| Calcium, Total         | mg/L  | CBL-302I | 14      | 2      | 16     | 989.9286  | 94.3541   | 1020.0000 | 844.0000  | 989.9286  | 989.9286  | 1461.6988    | normal |      |    |
| Calcium, Total         | mg/L  | CBL-306I | 13      | 2      | 17     | 205.8462  | 47.9997   | 257.0000  | 216.0000  | 221.0002  | 205.8462  | 445.8448     | normal |      |    |
| Calcium, Total         | mg/L  | CBL-308I | 14      | 2      | 16     | 873.2857  | 63.6389   | 830.0000  | 684.0000  | 873.2857  | 873.2857  | 1191.4803    | normal |      |    |
| Calcium, Total         | mg/L  | CBL-341I | 13      | 2      | 15     | 836.7692  | 63.0491   | 874.0000  | 852.0000  | 836.7692  | 836.7692  | 1152.0149    | normal |      |    |
| Chloride               | mg/L  | CBL-301I | 14      | 2      | 17     | 2292.8571 | 394.9183  | 2420.0000 | 2590.0000 | 2292.8571 | 2293.8113 | 4267.4485    | normal |      |    |
| Chloride               | mg/L  | CBL-302I | 14      | 2      | 16     | 1972.1429 | 271.4967  | 1370.0000 | 1380.0000 | 1972.1429 | 1972.1429 | 3329.6262    | normal |      |    |
| Chloride               | mg/L  | CBL-306I | 13      | 2      | 17     | 319.6923  | 108.7837  | 292.0000  | 255.0000  | 319.6923  | 319.6923  | 863.6109     | normal |      |    |
| Chloride               | mg/L  | CBL-308I | 14      | 2      | 16     | 2554.2857 | 234.4458  | 2200.0000 | 1780.0000 | 2554.2857 | 2554.2857 | 3726.5147    | normal |      |    |
| Chloride               | mg/L  | CBL-341I | 13      | 2      | 15     | 1829.2308 | 144.5373  | 1800.0000 | 1750.0000 | 1829.2308 | 1829.2308 | 2551.9172    | normal |      |    |
| Fluoride               | mg/L  | CBL-301I | 15      | 2      | 17     | 0.3883    | 0.1724    | 0.5000    | 2.6800    | 0.3883    | 2.5507    | 1.2502       | normal |      |    |
| Fluoride               | mg/L  | CBL-302I | 14      | 2      | 16     | 0.3741    | 0.1872    | 0.5000    | 2.2500    | 0.3741    | 2.1096    | 1.3103       | normal |      |    |
| Fluoride               | mg/L  | CBL-306I | 13      | 2      | 17     | 2.3200    | 0.6159    | 2.9000    | 2.4200    | 2.4380    | 2.3200    | 5.3997       | normal |      |    |
| Fluoride               | mg/L  | CBL-308I | 13      | 2      | 16     | 1.6954    | 0.2759    | 1.4400    | 1.7400    | 1.6954    | 1.6954    | 3.0751       | normal |      |    |
| Fluoride               | mg/L  | CBL-341I | 13      | 2      | 15     | 0.3037    | 0.2058    | 0.5000    | 1.1600    | 0.3037    | 1.0057    | 1.3325       | normal |      |    |
| pH                     | S.U.  | CBL-301I | 15      | 2      | 17     | 6.2267    | 0.2859    | 6.0600    | 6.1300    | 6.2267    | 6.2267    | 4.80 - 7.66  | normal |      |    |
| pH                     | S.U.  | CBL-302I | 14      | 2      | 16     | 6.0164    | 0.6925    | 6.2100    | 6.0600    | 6.0164    | 6.0164    | 2.55 - 9.48  | normal |      |    |
| pH                     | S.U.  | CBL-306I | 15      | 2      | 17     | 6.6413    | 0.7227    | 6.8400    | 6.5500    | 6.6413    | 6.6413    | 3.03 - 10.25 | normal |      |    |
| pH                     | S.U.  | CBL-308I | 14      | 2      | 16     | 6.2271    | 0.2799    | 6.2600    | 6.1600    | 6.2271    | 6.2271    | 4.83 - 7.63  | normal |      |    |
| pH                     | S.U.  | CBL-341I | 12      | 2      | 15     | 6.0125    | 0.2802    | 6.0600    | 5.9800    | 6.0125    | 6.0125    | 4.61 - 7.41  | normal |      |    |
| Sulfate                | mg/L  | CBL-301I | 14      | 2      | 17     | 344.7143  | 61.2164   | 374.0000  | 419.0000  | 344.7143  | 373.0877  | 650.7964     | normal |      |    |
| Sulfate                | mg/L  | CBL-302I | 14      | 2      | 16     | 1195.2143 | 114.4648  | 1290.0000 | 1350.0000 | 1204.1514 | 1273.0886 | 1767.5381    | normal |      |    |
| Sulfate                | mg/L  | CBL-306I | 14      | 2      | 17     | 416.6429  | 163.4642  | 388.0000  | 336.0000  | 416.6429  | 416.6429  | 1233.9640    | normal |      |    |
| Sulfate                | mg/L  | CBL-308I | 14      | 2      | 16     | 1468.5714 | 93.7146   | 1340.0000 | 1240.0000 | 1468.5714 | 1468.5714 | 1937.1442    | normal |      |    |
| Sulfate                | mg/L  | CBL-341I | 13      | 2      | 15     | 359.7692  | 30.9493   | 324.0000  | 316.0000  | 359.7692  | 359.7692  | 514.5157     | normal |      |    |
| Total Dissolved Solids | mg/L  | CBL-301I | 14      | 2      | 17     | 5484.2857 | 791.9083  | 6060.0000 | 5870.0000 | 5484.2857 | 5484.2857 | 9443.8270    | normal |      |    |
| Total Dissolved Solids | mg/L  | CBL-302I | 14      | 2      | 16     | 5455.0000 | 806.9387  | 4800.0000 | 4810.0000 | 5455.0000 | 5455.0000 | 9489.6933    | normal |      |    |
| Total Dissolved Solids | mg/L  | CBL-306I | 15      | 2      | 17     | 1301.8000 | 409.5196  | 1420.0000 | 1320.0000 | 1301.8000 | 1301.8000 | 3349.3981    | normal |      |    |
| Total Dissolved Solids | mg/L  | CBL-308I | 14      | 2      | 16     | 6922.8571 | 1459.6756 | 6190.0000 | 5270.0000 | 6922.8571 | 6922.8571 | 14221.2350   | normal |      |    |
| Total Dissolved Solids | mg/L  | CBL-341I | 13      | 2      | 15     | 4768.4615 | 554.2239  | 3940.0000 | 4520.0000 | 4768.4615 | 4768.4615 | 7539.5809    | 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 verification resample (nonparametric test only).  
 \* - Insufficient Data.  
 \*\* - Detection Frequency < 25%.  
 \*\*\* - Zero Variance.

Table 4

**Dixon's Test Outliers  
1% Significance Level**

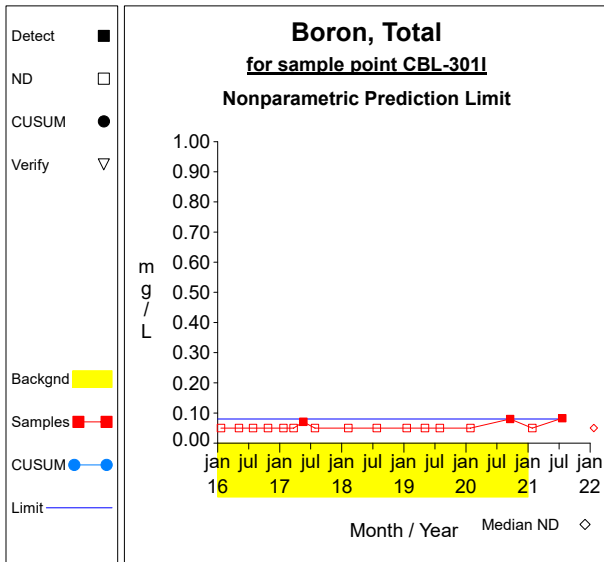
| Constituent            | Units | Well     | Date       | Result    | ND Qualifier | Date Range            | N  | Critical Value |
|------------------------|-------|----------|------------|-----------|--------------|-----------------------|----|----------------|
| Calcium, Total         | mg/L  | CBL-3011 | 01/17/2019 | 156.0000  |              | 01/21/2016-09/17/2020 | 15 | 0.6177         |
| Chloride               | mg/L  | CBL-3011 | 01/17/2019 | 619.0000  |              | 01/21/2016-09/17/2020 | 15 | 0.6177         |
| Chloride               | mg/L  | CBL-3061 | 05/04/2016 | 20.0000   |              | 01/21/2016-09/19/2020 | 14 | 0.6403         |
| Fluoride               | mg/L  | CBL-3061 | 03/22/2017 | 12.6000   |              | 01/21/2016-09/19/2020 | 15 | 0.6403         |
| Fluoride               | mg/L  | CBL-3061 | 07/31/2019 | 9.2600    |              | 01/21/2016-09/19/2020 | 15 | 0.6403         |
| Fluoride               | mg/L  | CBL-3081 | 03/22/2017 | 9.0500    |              | 01/22/2016-09/18/2020 | 14 | 0.6403         |
| Sulfate                | mg/L  | CBL-3011 | 01/17/2019 | 104.0000  |              | 01/21/2016-09/17/2020 | 15 | 0.6177         |
| Sulfate                | mg/L  | CBL-3061 | 05/04/2016 | 29.5000   |              | 01/21/2016-09/19/2020 | 15 | 0.6177         |
| Total Dissolved Solids | mg/L  | CBL-3011 | 01/17/2019 | 1460.0000 |              | 01/21/2016-09/17/2020 | 15 | 0.6177         |

N = Total number of independent measurements in background at each well.

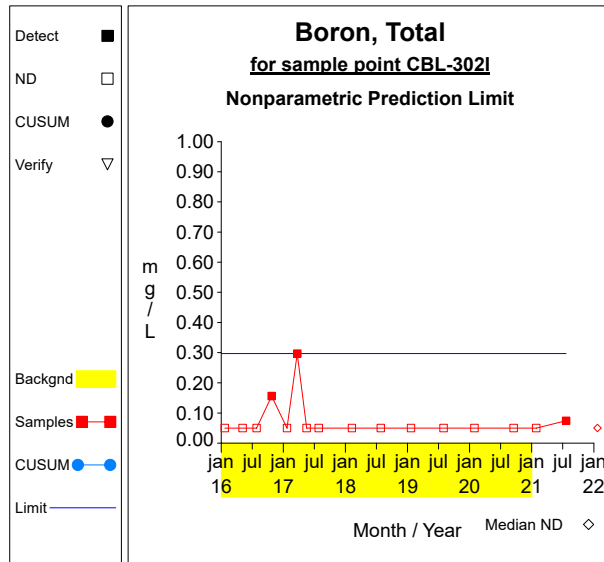
Date Range = Dates of the first and last measurements included in background at each well.

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.

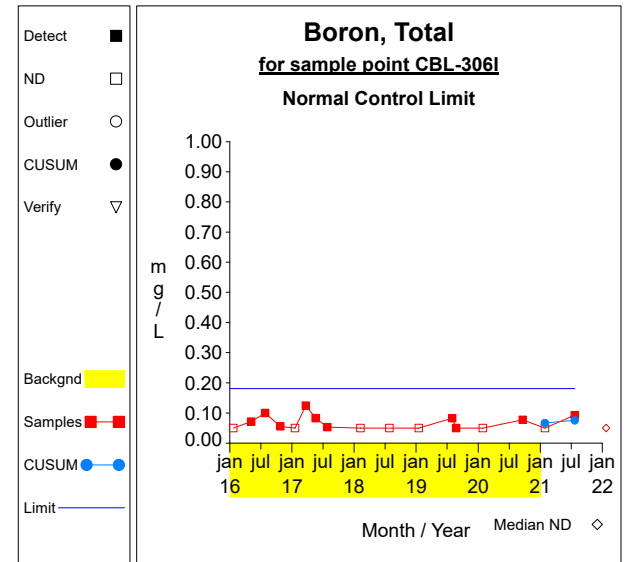
## Intra-Well Control Charts / Prediction Limits



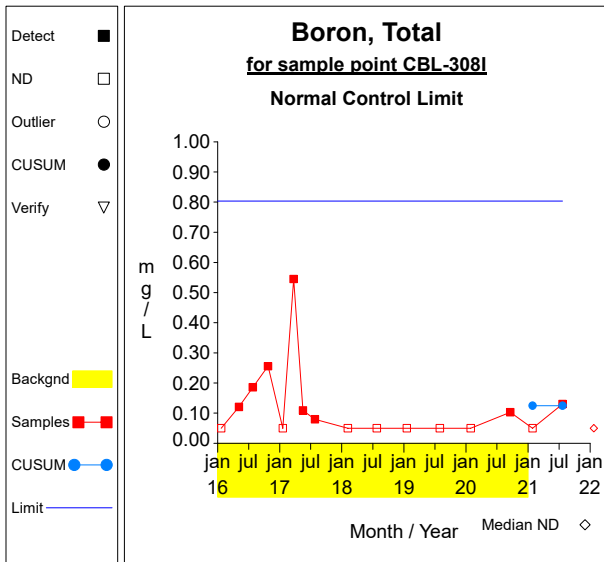
**Graph 1**



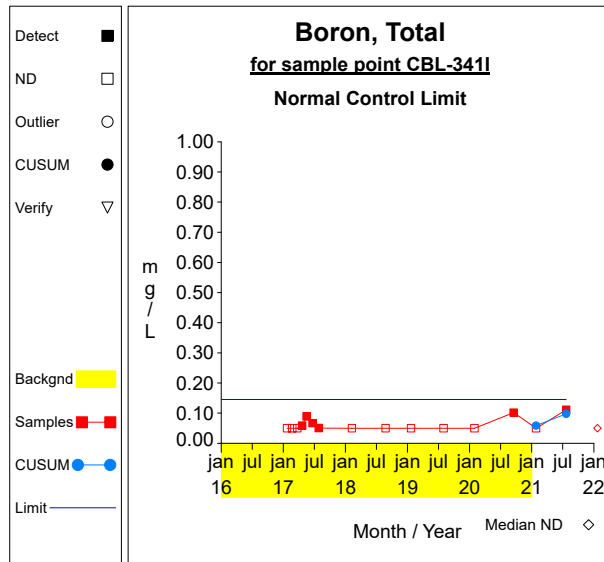
**Graph 2**



**Graph 3**



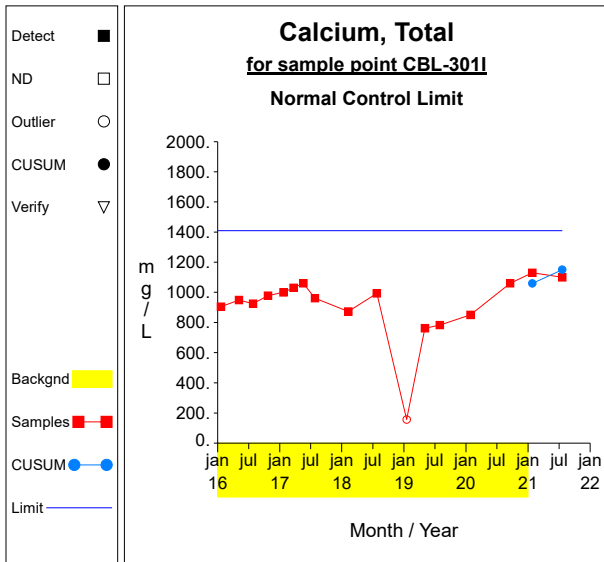
**Graph 4**



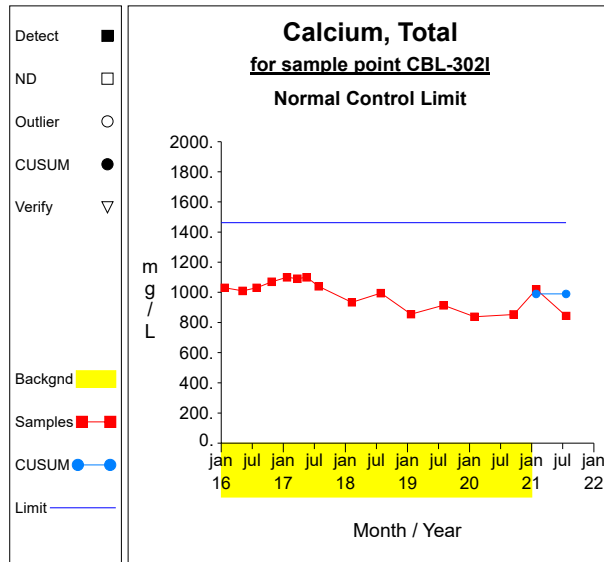
**Graph 5**



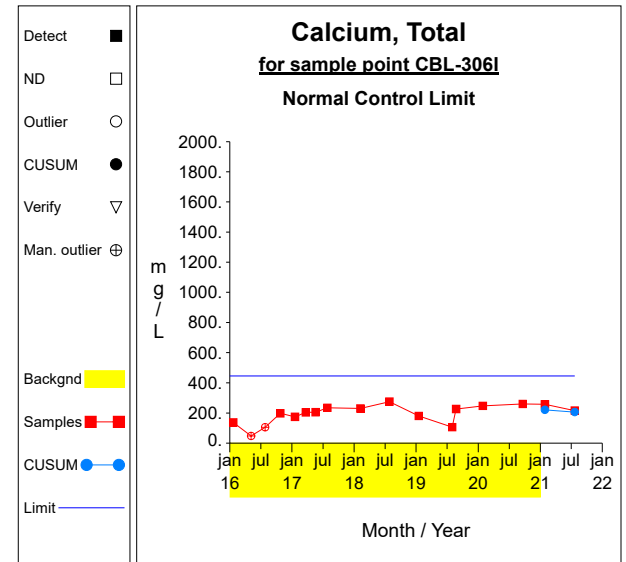
## Intra-Well Control Charts / Prediction Limits



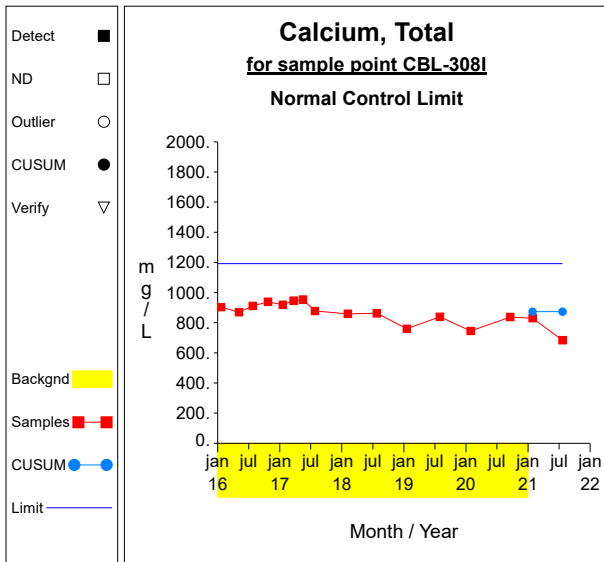
**Graph 6**



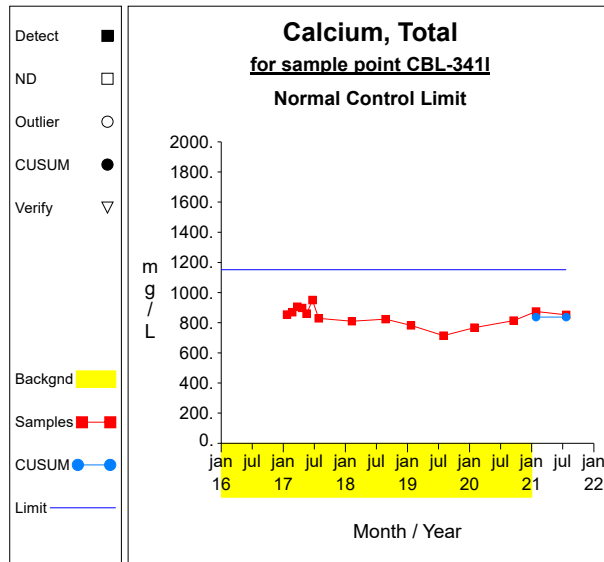
**Graph 7**



**Graph 8**

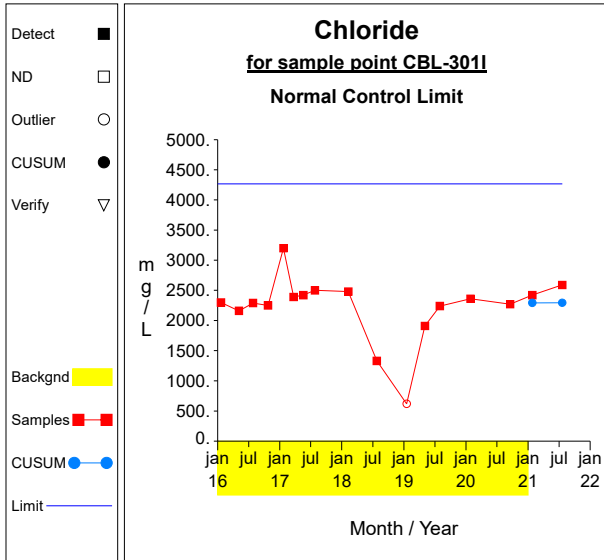


**Graph 9**

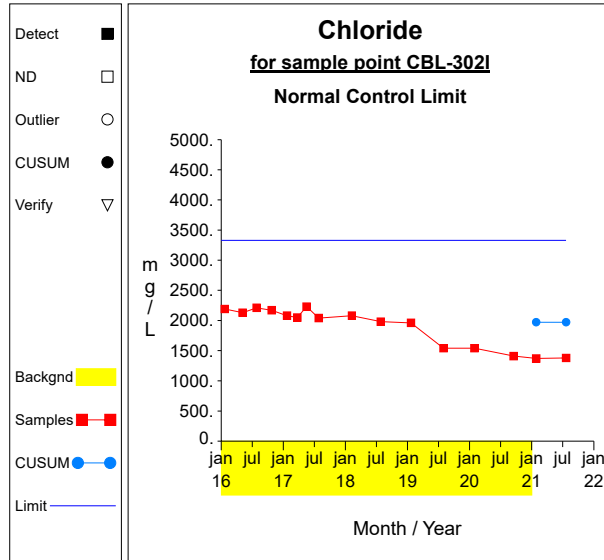


**Graph 10**

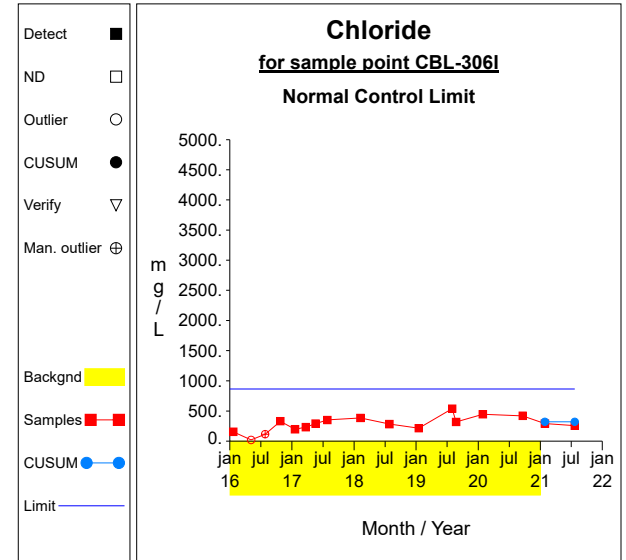
### Intra-Well Control Charts / Prediction Limits



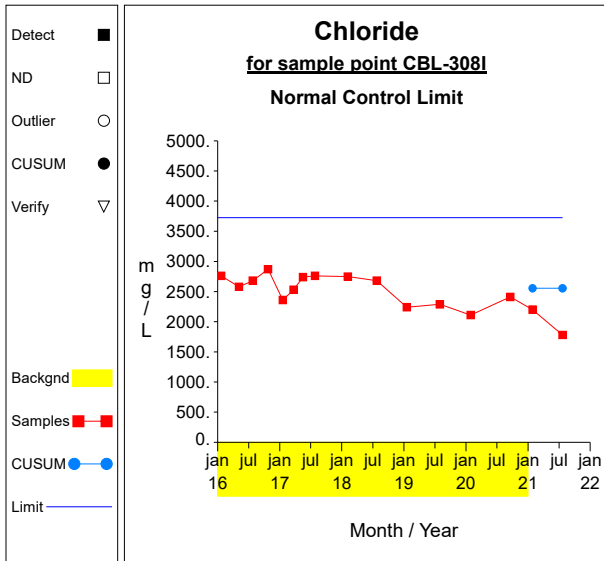
**Graph 11**



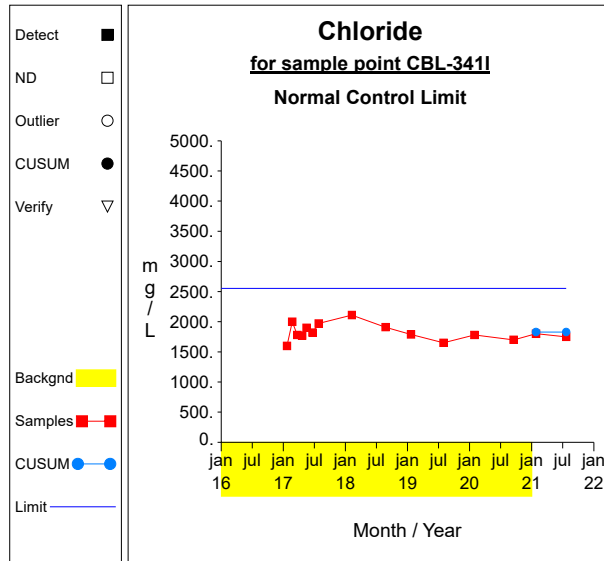
**Graph 12**



**Graph 13**

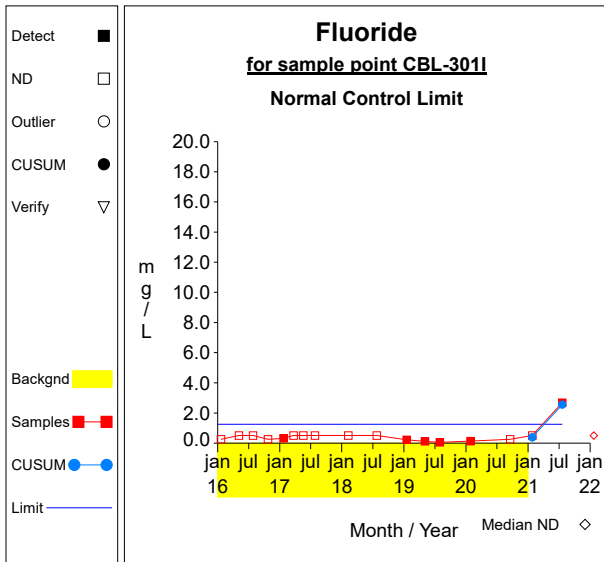


**Graph 14**

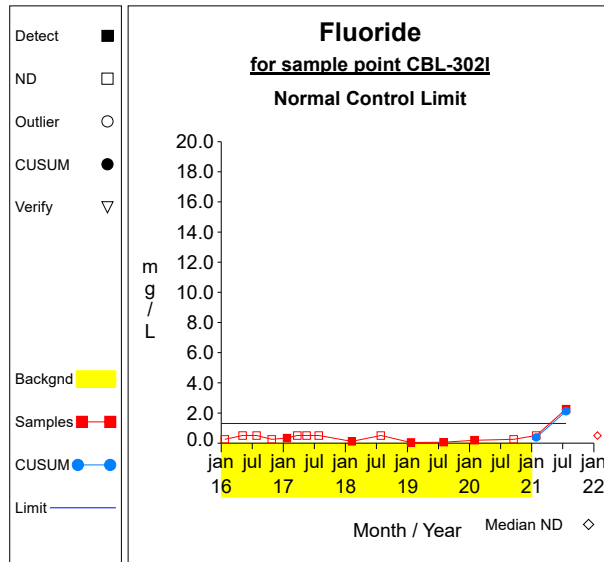


**Graph 15**

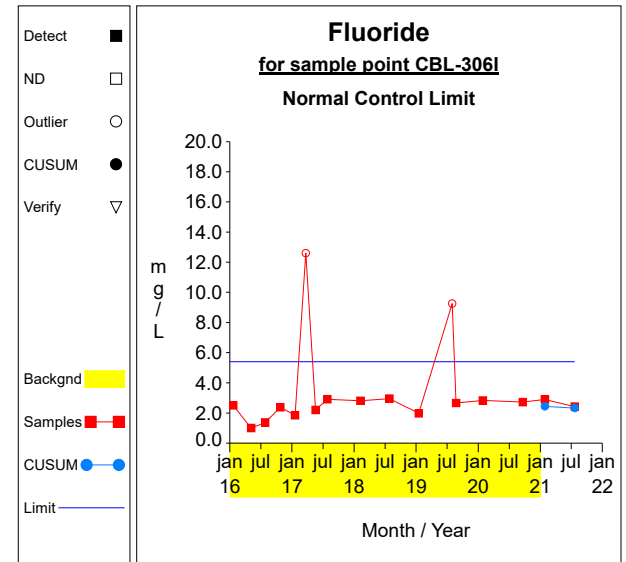
### Intra-Well Control Charts / Prediction Limits



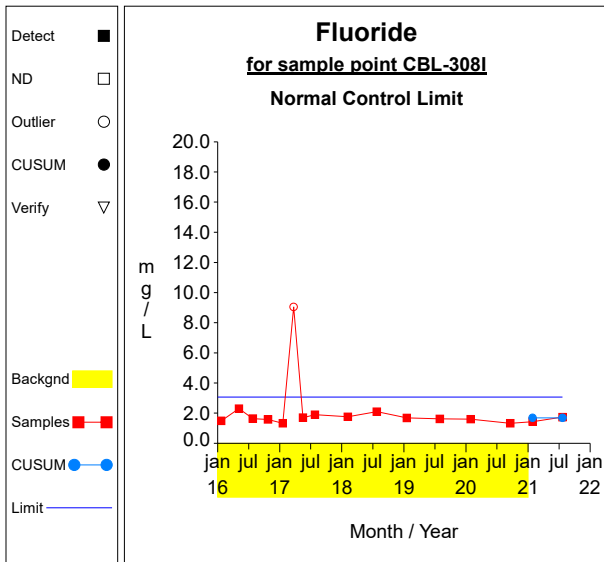
**Graph 16**



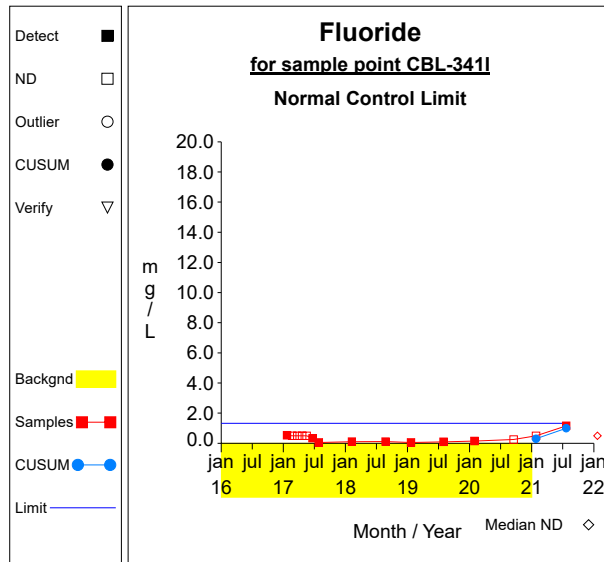
**Graph 17**



**Graph 18**

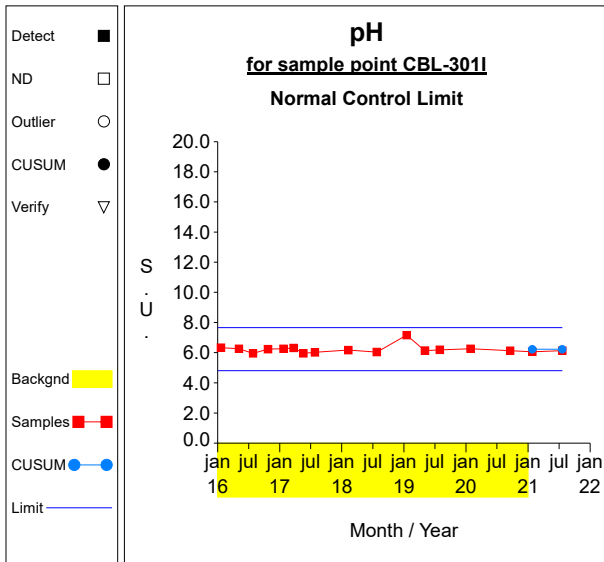


**Graph 19**

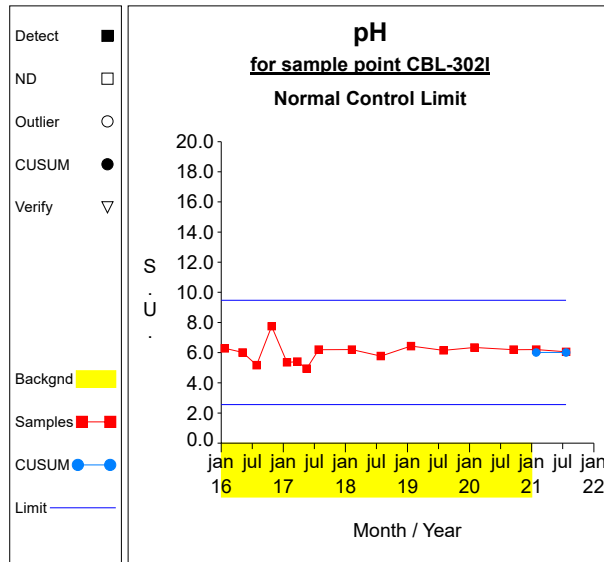


**Graph 20**

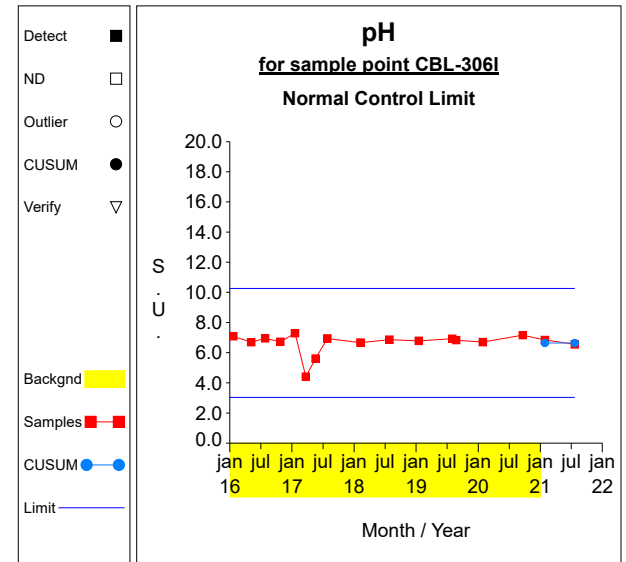
### Intra-Well Control Charts / Prediction Limits



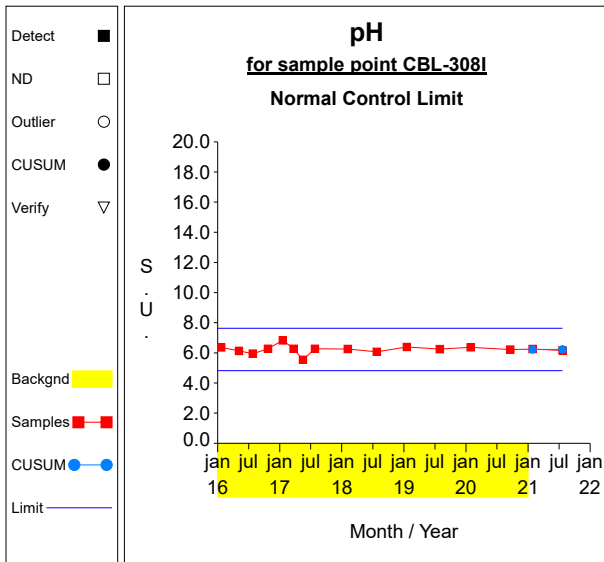
**Graph 21**



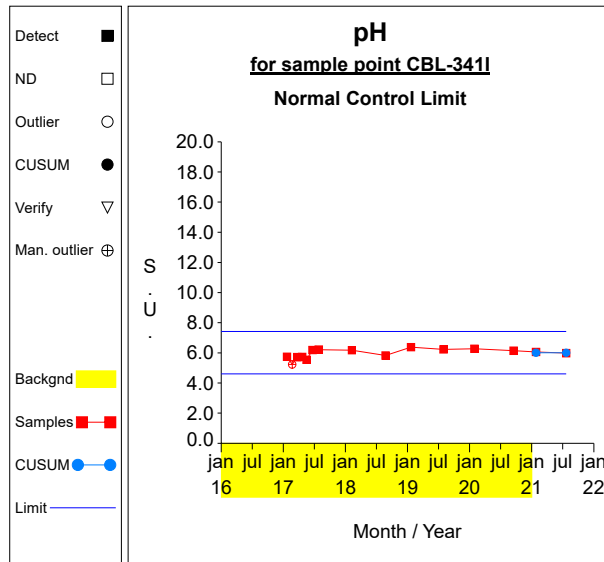
**Graph 22**



**Graph 23**

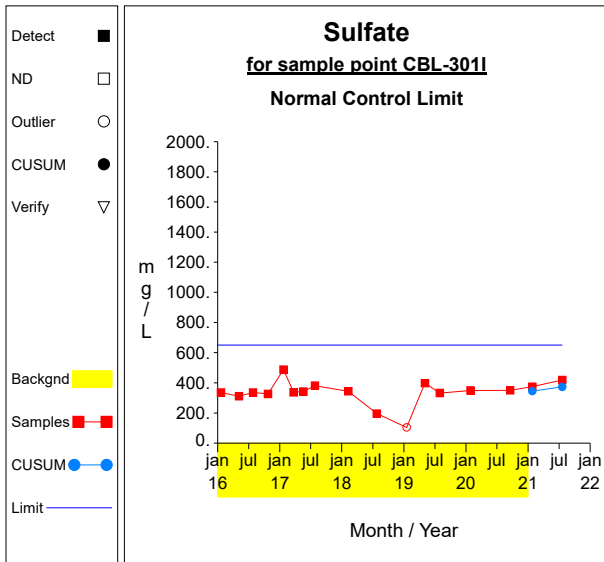


**Graph 24**

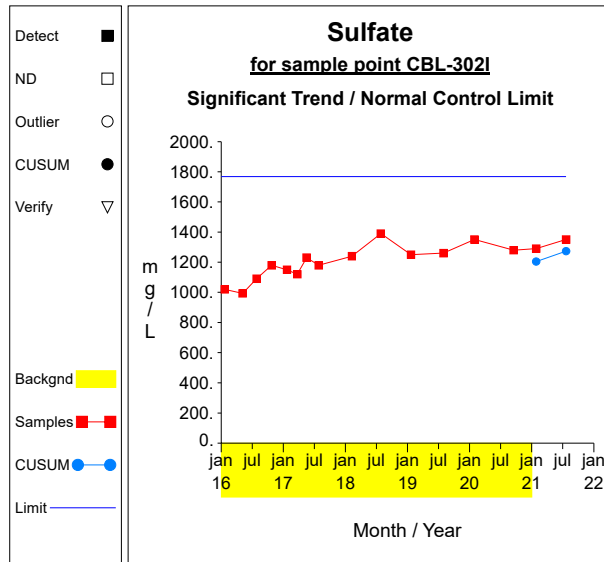


**Graph 25**

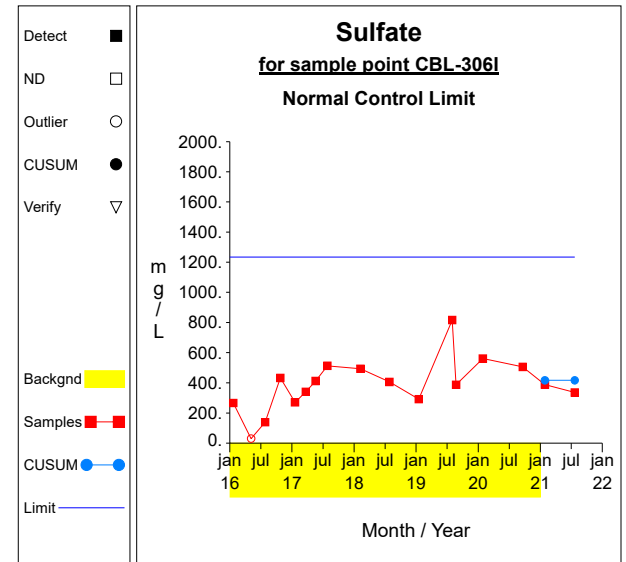
### Intra-Well Control Charts / Prediction Limits



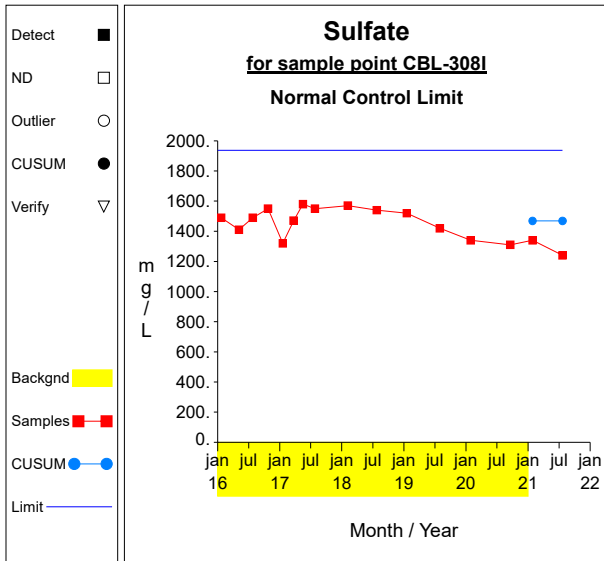
**Graph 26**



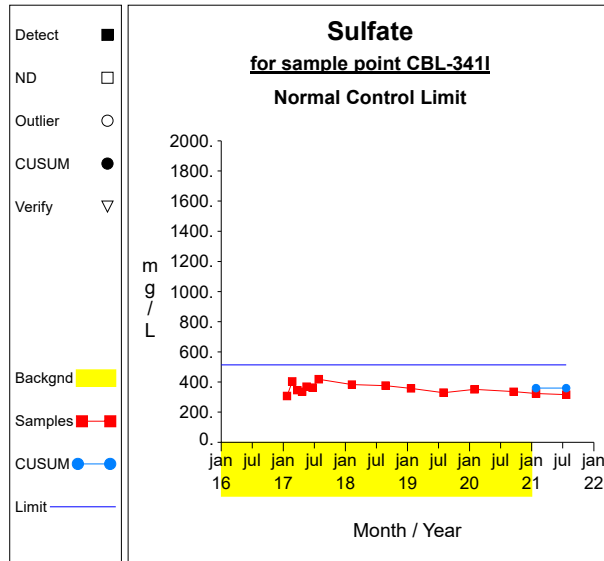
**Graph 27**



**Graph 28**

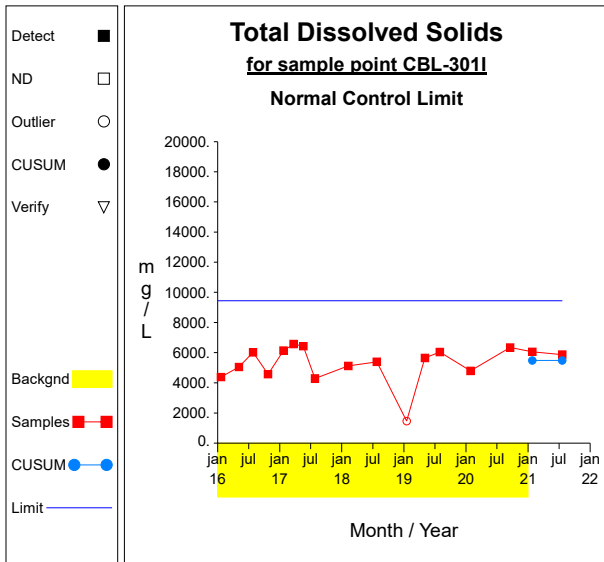


**Graph 29**

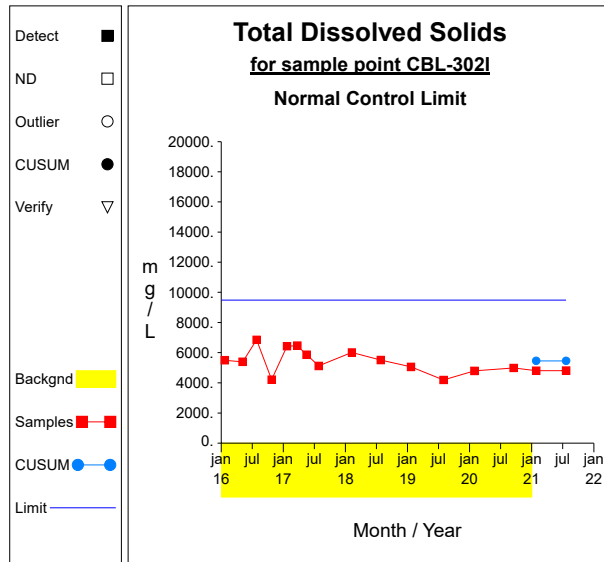


**Graph 30**

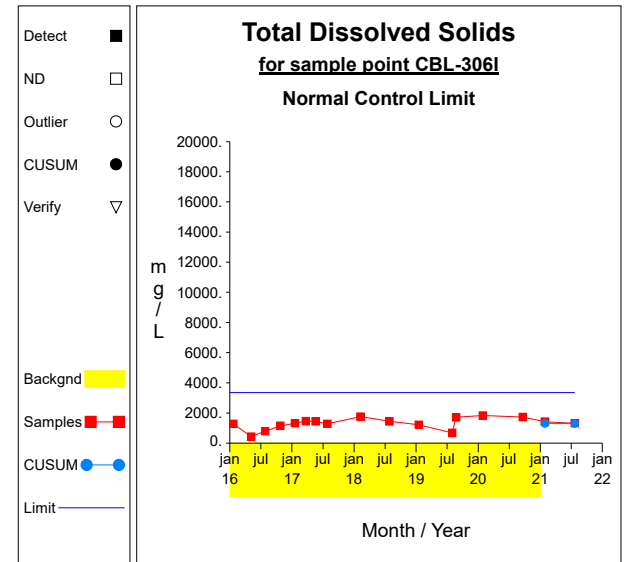
## Intra-Well Control Charts / Prediction Limits



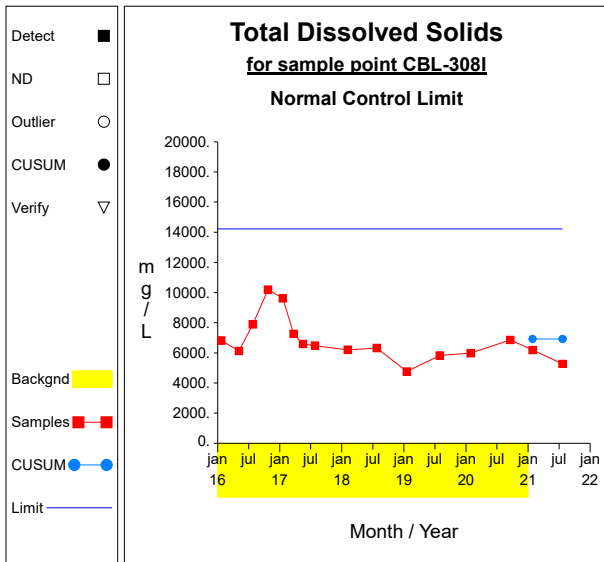
**Graph 31**



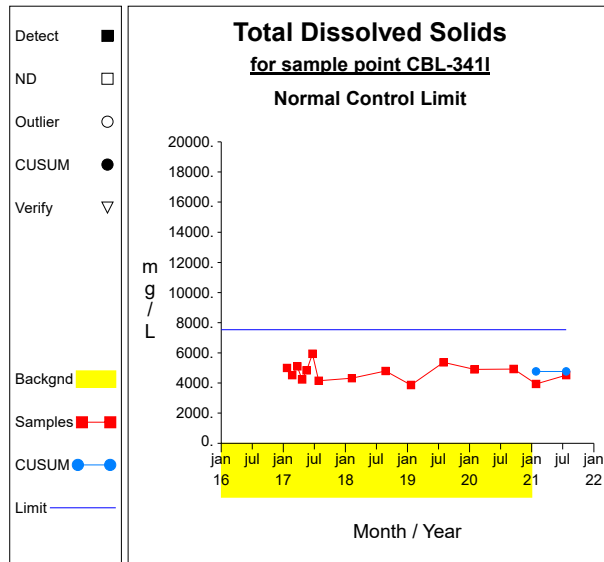
**Graph 32**



**Graph 33**

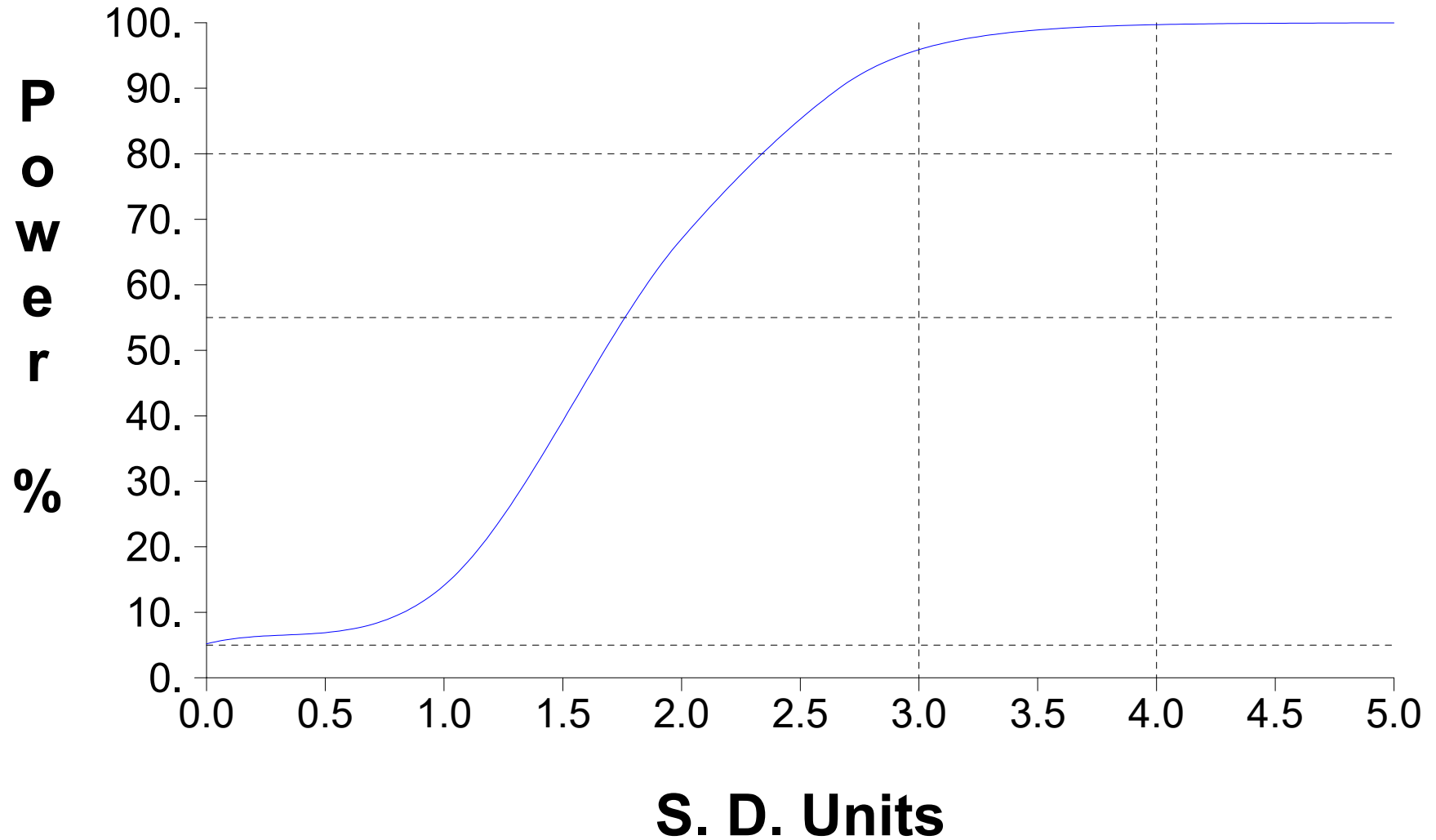


**Graph 34**



**Graph 35**

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



**Attachment D**

Summary Tables and Graphs for the Intrawell Comparisons - Resamples



**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 | 15      | 3      | 18     |        |        | 0.0826 | 0.0500 |        |        | 0.0801 | nonpar | .99  | ** |
| Fluoride     | mg/L  | CBL-301I | 15      | 3      | 18     | 0.3883 | 0.1724 | 2.6800 | 0.5000 | 2.5507 | 0.3883 | 1.2502 | normal |      |    |
| Fluoride     | mg/L  | CBL-302I | 14      | 3      | 17     | 0.3741 | 0.1872 | 2.2500 | 0.2500 | 2.1096 | 0.3741 | 1.3103 | 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.

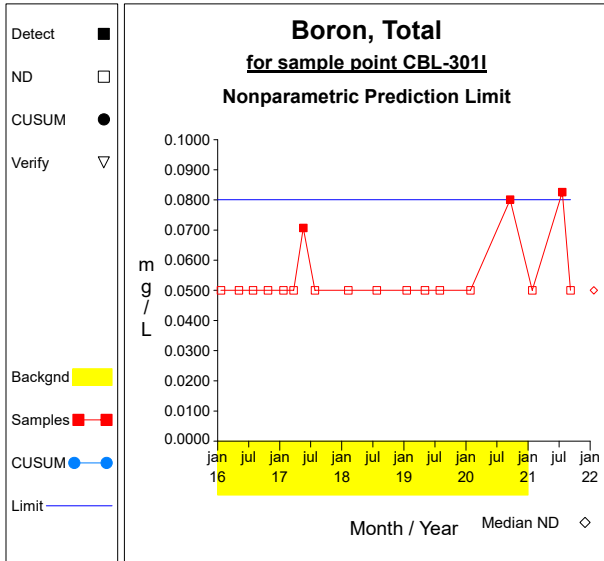
Conf = confidence level for passing initial test or one verification resample (nonparametric test only).

\* - Insufficient Data.

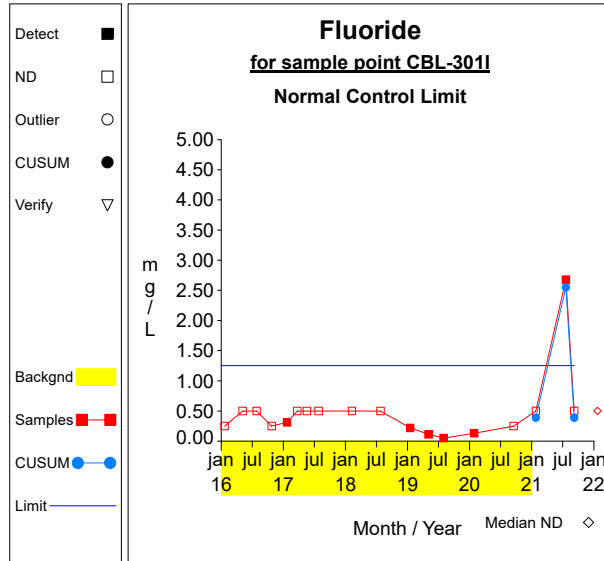
\*\* - Detection Frequency < 25%.

\*\*\* - Zero Variance.

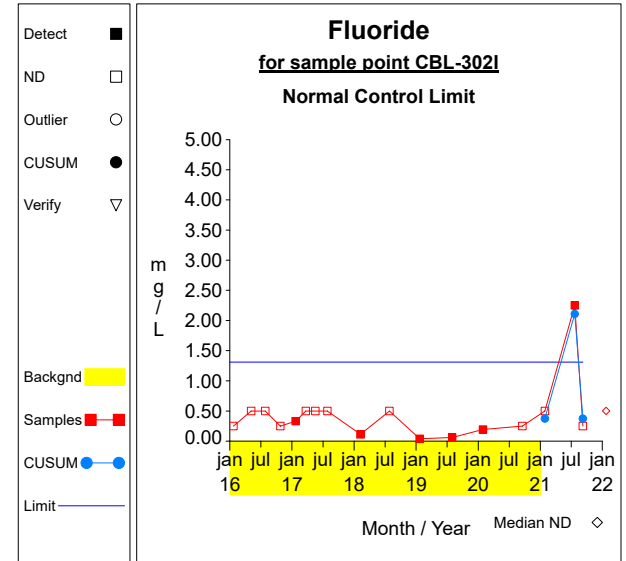
## Intra-Well Sublist Control Charts / Prediction Limits



**Graph 1**



**Graph 2**



**Graph 3**

## **APPENDIX E**

Data Usability Summary  
Analytical Data for Calendar Year 2021

## DATA USABILITY SUMMARY

LCRA has reviewed the data packages included in Appendix E of the Coal Combustion Residual Landfill 2021 Annual Groundwater Monitoring Report (Annual Groundwater Report) that were produced by LCRA Environmental Laboratory Services (ELS) for the analysis of groundwater samples collected in January, July, and September 2021 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, the FPP Sampling and Analysis Plan, and 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 2021 sampling event's Matrix Spike (MS) (1567208) recovery and associated Matrix Spike Duplicate (MSD) (1567209) recovery from the original sample (Lab ID: Q2102242001) for calcium analysis had low recoveries, outside of the established Control Limit ranges, and these results are appropriately flagged. In the July 2021 sampling event event, MS (1634247) recovery and associated MSD (1634248) recovery from the original sample (Lab ID: Q2119257001) for calcium analysis also had low recoveries outside of the established Control Limit range, and the results are also appropriately flagged. Given that the Spike concentration (10 milligrams per liter) in these samples were 110 to 113 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.



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Austin, TX 78744  
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Fax: (512) 730-6021

February 17, 2021

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

RE: Final Analytical Report Q2102242

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. We look forward to assisting you again.

Authorized for release by:

Account Manager  
jason.woods@lcra.org



Enclosures:



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

## Sample Summary

| Lab ID      | Sample ID  | Matrix | Method                           | Date Collected  | Date Received   |
|-------------|------------|--------|----------------------------------|-----------------|-----------------|
| Q2102242001 | CBL - 301I | AQ     | E300.0, Anions                   | 1/26/2021 13:09 | 1/28/2021 15:42 |
| Q2102242001 | CBL - 301I | AQ     | Field pH SM4500H+B<br>TCEQ VOL 1 | 1/26/2021 13:09 | 1/28/2021 15:42 |
| Q2102242001 | CBL - 301I | AQ     | SM2540C, TDS                     | 1/26/2021 13:09 | 1/28/2021 15:42 |
| Q2102242001 | CBL - 301I | AQ     | SW6010B ICP-AES                  | 1/26/2021 13:09 | 1/28/2021 15:42 |
| Q2102242002 | CBL - 302I | AQ     | E300.0, Anions                   | 1/28/2021 09:17 | 1/28/2021 15:42 |
| Q2102242002 | CBL - 302I | AQ     | Field pH SM4500H+B<br>TCEQ VOL 1 | 1/28/2021 09:17 | 1/28/2021 15:42 |
| Q2102242002 | CBL - 302I | AQ     | SM2540C, TDS                     | 1/28/2021 09:17 | 1/28/2021 15:42 |
| Q2102242002 | CBL - 302I | AQ     | SW6010B ICP-AES                  | 1/28/2021 09:17 | 1/28/2021 15:42 |
| Q2102242003 | CBL - 306I | AQ     | E300.0, Anions                   | 1/28/2021 13:59 | 1/28/2021 15:42 |
| Q2102242003 | CBL - 306I | AQ     | Field pH SM4500H+B<br>TCEQ VOL 1 | 1/28/2021 13:59 | 1/28/2021 15:42 |
| Q2102242003 | CBL - 306I | AQ     | SM2540C, TDS                     | 1/28/2021 13:59 | 1/28/2021 15:42 |
| Q2102242003 | CBL - 306I | AQ     | SW6010B ICP-AES                  | 1/28/2021 13:59 | 1/28/2021 15:42 |
| Q2102242004 | CBL - 308I | AQ     | E300.0, Anions                   | 1/28/2021 11:29 | 1/28/2021 15:42 |
| Q2102242004 | CBL - 308I | AQ     | Field pH SM4500H+B<br>TCEQ VOL 1 | 1/28/2021 11:29 | 1/28/2021 15:42 |
| Q2102242004 | CBL - 308I | AQ     | SM2540C, TDS                     | 1/28/2021 11:29 | 1/28/2021 15:42 |
| Q2102242004 | CBL - 308I | AQ     | SW6010B ICP-AES                  | 1/28/2021 11:29 | 1/28/2021 15:42 |
| Q2102242005 | CBL - 340I | AQ     | E300.0, Anions                   | 1/28/2021 13:18 | 1/28/2021 15:42 |
| Q2102242005 | CBL - 340I | AQ     | Field pH SM4500H+B<br>TCEQ VOL 1 | 1/28/2021 13:18 | 1/28/2021 15:42 |

## Report Definitions

- MRL - Minimum Reporting Limit**
- LOD - Limit of Detection**
- ML - Maximum Limit - Client Specified**
- MCL - Maximum Contaminant Level**
- MDL - Method Detection Limit**
- LOQ - Limit of Quantitation - Client Specified**
- DF - Dilution Factor**
- Qual - Qualifier**
- (S) - Surrogate Spike**
- QC Qual - red font indicates Result Value outside acceptable range**
- B- Analyte detected in method blank**
- S - Spike recovery outside limit**
- R - RPD outside duplicate precision limit**
- J - Analyte detected below quantitation limit**
- RPD - Relative Percent Difference**
- SL - Spike Recovery Low**
- SH - Spike Recovery High**



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## Sample Summary (cont.)

| Lab ID      | Sample ID  | Matrix | Method                           | Date Collected  | Date Received   |
|-------------|------------|--------|----------------------------------|-----------------|-----------------|
| Q2102242005 | CBL - 340I | AQ     | SM2540C, TDS                     | 1/28/2021 13:18 | 1/28/2021 15:42 |
| Q2102242005 | CBL - 340I | AQ     | SW6010B ICP-AES                  | 1/28/2021 13:18 | 1/28/2021 15:42 |
| Q2102242006 | CBL - 341I | AQ     | E300.0, Anions                   | 1/27/2021 14:12 | 1/28/2021 15:42 |
| Q2102242006 | CBL - 341I | AQ     | Field pH SM4500H+B<br>TCEQ VOL 1 | 1/27/2021 14:12 | 1/28/2021 15:42 |
| Q2102242006 | CBL - 341I | AQ     | SM2540C, TDS                     | 1/27/2021 14:12 | 1/28/2021 15:42 |
| Q2102242006 | CBL - 341I | AQ     | SW6010B ICP-AES                  | 1/27/2021 14:12 | 1/28/2021 15:42 |
| Q2102242007 | CBL - 641I | AQ     | E300.0, Anions                   | 1/27/2021 14:12 | 1/28/2021 15:42 |
| Q2102242007 | CBL - 641I | AQ     | Field pH SM4500H+B<br>TCEQ VOL 1 | 1/27/2021 14:12 | 1/28/2021 15:42 |
| Q2102242007 | CBL - 641I | AQ     | SM2540C, TDS                     | 1/27/2021 14:12 | 1/28/2021 15:42 |
| Q2102242007 | CBL - 641I | AQ     | SW6010B ICP-AES                  | 1/27/2021 14:12 | 1/28/2021 15:42 |
| Q2102242008 | EQB        | AQ     | E300.0, Anions                   | 1/27/2021 09:40 | 1/28/2021 15:42 |
| Q2102242008 | EQB        | AQ     | SM2540C, TDS                     | 1/27/2021 09:40 | 1/28/2021 15:42 |
| Q2102242008 | EQB        | AQ     | SW6010B ICP-AES                  | 1/27/2021 09:40 | 1/28/2021 15:42 |
| Q2102242009 | FB         | AQ     | E300.0, Anions                   | 1/28/2021 13:05 | 1/28/2021 15:42 |
| Q2102242009 | FB         | AQ     | SM2540C, TDS                     | 1/28/2021 13:05 | 1/28/2021 15:42 |
| Q2102242009 | FB         | AQ     | SW6010B ICP-AES                  | 1/28/2021 13:05 | 1/28/2021 15:42 |

## Report Definitions

- MRL - Minimum Reporting Limit**
- LOD - Limit of Detection**
- ML - Maximum Limit - Client Specified**
- MCL - Maximum Contaminant Level**
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- QC Qual - red font indicates Result Value outside acceptable range**
- B- Analyte detected in method blank**
- S - Spike recovery outside limit**
- R - RPD outside duplicate precision limit**
- J - Analyte detected below quantitation limit**
- RPD - Relative Percent Difference**
- SL - Spike Recovery Low**
- SH - Spike Recovery High**





## Project Summary

### Sample Analysis Comments

**Lab ID:** Q2102242001      **Sample ID:** CBL - 301I

- Not Accredited - pH

**Lab ID:** Q2102242002      **Sample ID:** CBL - 302I

- Not Accredited - pH

**Lab ID:** Q2102242003      **Sample ID:** CBL - 306I

- Not Accredited - pH

**Lab ID:** Q2102242004      **Sample ID:** CBL - 308I

- Not Accredited - pH

**Lab ID:** Q2102242005      **Sample ID:** CBL - 340I

- Not Accredited - pH

**Lab ID:** Q2102242006      **Sample ID:** CBL - 341I

- Not Accredited - pH

**Lab ID:** Q2102242007      **Sample ID:** CBL - 641I

- Not Accredited - pH



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## Analytical Results

|                                 |  |                            |
|---------------------------------|--|----------------------------|
| <b>Lab ID:</b> Q2102242001      | <b>Date Received:</b> 1/28/2021 15:42  | <b>Matrix:</b> Aqueous     |
| <b>Sample ID:</b> CBL - 3011    | <b>Date Collected:</b> 1/26/2021 13:09 | <b>Sample Type:</b> SAMPLE |
| <b>Project ID:</b> FPP GWMP CCR |  |                            |
| <b>Facility:</b>                |  |                            |

| Parameter  | Results | Units | MRL    | LOD    | DF  | Prepared       | By | Analyzed       | By  | Qual |
|--|---------|-------|--------|--------|-----|----------------|----|----------------|-----|------|
| <b>Field Parameters (Field pH SM4500H+B TCEQ VOL 1)</b>  |         |       |        |        |     |                |    |                |     |      |
| pH   | 6.06    | pH    |        |        | 1   |                |    | 01/26/21 13:09 | CCP | *    |
| <b>INORGANICS (E300.0, Anions)</b>                       |         |       |        |        |     |                |    |                |     |      |
| Chloride   | 2420    | mg/L  | 50.0   | 20.0   | 50  |                |    | 01/29/21 01:57 |     | ML   |
| Fluoride   | <0.500  | mg/L  | 0.500  | 0.200  | 50  |                |    | 01/29/21 01:57 |     | ML   |
| Sulfate  | 374     | mg/L  | 50.0   | 20.0   | 50  |                |    | 01/29/21 01:57 |     | ML   |
| <b>INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)</b> |         |       |        |        |     |                |    |                |     |      |
| Boron Total  | <0.0500 | mg/L  | 0.0500 | 0.0200 | 1   | 02/02/21 09:59 | ME | 02/04/21 12:26 |     | FM   |
| Calcium Total  | 1130    | mg/L  | 2.00   | 0.700  | 10  | 02/02/21 09:59 | ME | 02/04/21 12:32 |     | FM   |
| <b>TOTAL DISSOLVED SOLIDS (SM2540C, TDS)</b>             |         |       |        |        |     |                |    |                |     |      |
| Total Dissolved Solids(TDS)                              | 6060    | mg/L  | 250    | 250    | 100 |                |    | 01/29/21 18:17 |     | ERR  |



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## Analytical Results (cont.)

|                                 |  |                            |
|---------------------------------|--|----------------------------|
| <b>Lab ID:</b> Q2102242002      | <b>Date Received:</b> 1/28/2021 15:42  | <b>Matrix:</b> Aqueous     |
| <b>Sample ID:</b> CBL - 302I    | <b>Date Collected:</b> 1/28/2021 09:17 | <b>Sample Type:</b> SAMPLE |
| <b>Project ID:</b> FPP GWMP CCR |  |                            |
| <b>Facility:</b>                |  |                            |

| Parameter  | Results | Units | MRL    | LOD    | DF | Prepared       | By | Analyzed       | By  | Qual |
|--|---------|-------|--------|--------|----|----------------|----|----------------|-----|------|
| <b>Field Parameters (Field pH SM4500H+B TCEQ VOL 1)</b>  |         |       |        |        |    |                |    |                |     |      |
| pH   | 6.21    | pH    |        |        | 1  |                |    | 01/28/21 09:17 | CCP | *    |
| <b>INORGANICS (E300.0, Anions)</b>                       |         |       |        |        |    |                |    |                |     |      |
| Chloride   | 1370    | mg/L  | 50.0   | 20.0   | 50 |                |    | 01/29/21 02:16 |     | ML   |
| Fluoride   | <0.500  | mg/L  | 0.500  | 0.200  | 50 |                |    | 01/29/21 02:16 |     | ML   |
| Sulfate  | 1290    | mg/L  | 50.0   | 20.0   | 50 |                |    | 01/29/21 02:16 |     | ML   |
| <b>INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)</b> |         |       |        |        |    |                |    |                |     |      |
| Boron Total  | <0.0500 | mg/L  | 0.0500 | 0.0200 | 1  | 02/02/21 09:59 | ME | 02/04/21 12:56 |     | FM   |
| Calcium Total  | 1020    | mg/L  | 2.00   | 0.700  | 10 | 02/02/21 09:59 | ME | 02/04/21 13:14 |     | FM   |
| <b>TOTAL DISSOLVED SOLIDS (SM2540C, TDS)</b>             |         |       |        |        |    |                |    |                |     |      |
| Total Dissolved Solids(TDS)                              | 4800    | mg/L  | 125    | 125    | 50 |                |    | 02/01/21 19:11 |     | ERR  |



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## Analytical Results (cont.)

|                                 |  |                            |
|---------------------------------|--|----------------------------|
| <b>Lab ID:</b> Q2102242003      | <b>Date Received:</b> 1/28/2021 15:42  | <b>Matrix:</b> Aqueous     |
| <b>Sample ID:</b> CBL - 306I    | <b>Date Collected:</b> 1/28/2021 13:59 | <b>Sample Type:</b> SAMPLE |
| <b>Project ID:</b> FPP GWMP CCR |  |                            |
| <b>Facility:</b>                |  |                            |

| Parameter  | Results | Units | MRL    | LOD    | DF | Prepared       | By | Analyzed       | By  | Qual |
|--|---------|-------|--------|--------|----|----------------|----|----------------|-----|------|
| <b>Field Parameters (Field pH SM4500H+B TCEQ VOL 1)</b>  |         |       |        |        |    |                |    |                |     |      |
| pH   | 6.84    | pH    |        |        | 1  |                |    | 01/28/21 13:59 | CCP | *    |
| <b>INORGANICS (E300.0, Anions)</b>                       |         |       |        |        |    |                |    |                |     |      |
| Chloride   | 292     | mg/L  | 10.0   | 4.00   | 10 |                |    | 01/29/21 02:36 |     | ML   |
| Fluoride   | 2.90    | mg/L  | 0.100  | 0.0400 | 10 |                |    | 01/29/21 02:36 |     | ML   |
| Sulfate  | 388     | mg/L  | 10.0   | 4.00   | 10 |                |    | 01/29/21 02:36 |     | ML   |
| <b>INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)</b> |         |       |        |        |    |                |    |                |     |      |
| Boron Total  | <0.0500 | mg/L  | 0.0500 | 0.0200 | 1  | 02/02/21 09:59 | ME | 02/04/21 13:33 |     | FM   |
| Calcium Total  | 257     | mg/L  | 0.200  | 0.0700 | 1  | 02/02/21 09:59 | ME | 02/04/21 13:33 |     | FM   |
| <b>TOTAL DISSOLVED SOLIDS (SM2540C, TDS)</b>             |         |       |        |        |    |                |    |                |     |      |
| Total Dissolved Solids(TDS)                              | 1420    | mg/L  | 25.0   | 25.0   | 10 |                |    | 02/01/21 19:11 |     | ERR  |



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## Analytical Results (cont.)

|                                 |  |                            |
|---------------------------------|--|----------------------------|
| <b>Lab ID:</b> Q2102242004      | <b>Date Received:</b> 1/28/2021 15:42  | <b>Matrix:</b> Aqueous     |
| <b>Sample ID:</b> CBL - 308I    | <b>Date Collected:</b> 1/28/2021 11:29 | <b>Sample Type:</b> SAMPLE |
| <b>Project ID:</b> FPP GWMP CCR |  |                            |
| <b>Facility:</b>                |  |                            |

| Parameter  | Results | Units | MRL    | LOD    | DF  | Prepared       | By | Analyzed       | By  | Qual |
|--|---------|-------|--------|--------|-----|----------------|----|----------------|-----|------|
| <b>Field Parameters (Field pH SM4500H+B TCEQ VOL 1)</b>  |         |       |        |        |     |                |    |                |     |      |
| pH   | 6.26    | pH    |        |        | 1   |                |    | 01/28/21 11:29 | CCP | *    |
| <b>INORGANICS (E300.0, Anions)</b>                       |         |       |        |        |     |                |    |                |     |      |
| Chloride   | 2200    | mg/L  | 50.0   | 20.0   | 50  |                |    | 01/29/21 02:55 |     | ML   |
| Fluoride   | 1.44    | mg/L  | 0.500  | 0.200  | 50  |                |    | 01/29/21 02:55 |     | ML   |
| Sulfate  | 1340    | mg/L  | 50.0   | 20.0   | 50  |                |    | 01/29/21 02:55 |     | ML   |
| <b>INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)</b> |         |       |        |        |     |                |    |                |     |      |
| Boron Total  | <0.0500 | mg/L  | 0.0500 | 0.0200 | 1   | 02/02/21 09:59 | ME | 02/04/21 13:39 |     | FM   |
| Calcium Total  | 830     | mg/L  | 2.00   | 0.700  | 10  | 02/02/21 09:59 | ME | 02/04/21 13:45 |     | FM   |
| <b>TOTAL DISSOLVED SOLIDS (SM2540C, TDS)</b>             |         |       |        |        |     |                |    |                |     |      |
| Total Dissolved Solids(TDS)                              | 6190    | mg/L  | 250    | 250    | 100 |                |    | 02/01/21 19:11 |     | ERR  |



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## Analytical Results (cont.)

|                                 |  |                            |
|---------------------------------|--|----------------------------|
| <b>Lab ID:</b> Q2102242005      | <b>Date Received:</b> 1/28/2021 15:42  | <b>Matrix:</b> Aqueous     |
| <b>Sample ID:</b> CBL - 340I    | <b>Date Collected:</b> 1/28/2021 13:18 | <b>Sample Type:</b> SAMPLE |
| <b>Project ID:</b> FPP GWMP CCR |  |                            |
| <b>Facility:</b>                |  |                            |

| Parameter  | Results | Units | MRL    | LOD    | DF  | Prepared       | By | Analyzed       | By  | Qual |
|--|---------|-------|--------|--------|-----|----------------|----|----------------|-----|------|
| <b>Field Parameters (Field pH SM4500H+B TCEQ VOL 1)</b>  |         |       |        |        |     |                |    |                |     |      |
| pH   | 6.32    | pH    |        |        | 1   |                |    | 01/28/21 13:18 | CCP | *    |
| <b>INORGANICS (E300.0, Anions)</b>                       |         |       |        |        |     |                |    |                |     |      |
| Chloride   | 2260    | mg/L  | 50.0   | 20.0   | 50  |                |    | 01/29/21 03:14 |     | ML   |
| Fluoride   | 0.835   | mg/L  | 0.500  | 0.200  | 50  |                |    | 01/29/21 03:14 |     | ML   |
| Sulfate  | 634     | mg/L  | 50.0   | 20.0   | 50  |                |    | 01/29/21 03:14 |     | ML   |
| <b>INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)</b> |         |       |        |        |     |                |    |                |     |      |
| Boron Total  | <0.0500 | mg/L  | 0.0500 | 0.0200 | 1   | 02/02/21 09:59 | ME | 02/04/21 14:10 |     | FM   |
| Calcium Total  | 607     | mg/L  | 2.00   | 0.700  | 10  | 02/02/21 09:59 | ME | 02/04/21 14:16 |     | FM   |
| <b>TOTAL DISSOLVED SOLIDS (SM2540C, TDS)</b>             |         |       |        |        |     |                |    |                |     |      |
| Total Dissolved Solids(TDS)                              | 5520    | mg/L  | 250    | 250    | 100 |                |    | 02/01/21 19:11 |     | ERR  |



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## Analytical Results (cont.)

|                                 |  |                            |
|---------------------------------|--|----------------------------|
| <b>Lab ID:</b> Q2102242006      | <b>Date Received:</b> 1/28/2021 15:42  | <b>Matrix:</b> Aqueous     |
| <b>Sample ID:</b> CBL - 3411    | <b>Date Collected:</b> 1/27/2021 14:12 | <b>Sample Type:</b> SAMPLE |
| <b>Project ID:</b> FPP GWMP CCR |  |                            |
| <b>Facility:</b>                |  |                            |

| Parameter  | Results | Units | MRL    | LOD    | DF | Prepared       | By | Analyzed       | By  | Qual |
|--|---------|-------|--------|--------|----|----------------|----|----------------|-----|------|
| <b>Field Parameters (Field pH SM4500H+B TCEQ VOL 1)</b>  |         |       |        |        |    |                |    |                |     |      |
| pH   | 6.06    | pH    |        |        | 1  |                |    | 01/27/21 14:12 | CCP | *    |
| <b>INORGANICS (E300.0, Anions)</b>                       |         |       |        |        |    |                |    |                |     |      |
| Chloride   | 1800    | mg/L  | 50.0   | 20.0   | 50 |                |    | 01/29/21 03:33 |     | ML   |
| Fluoride   | <0.500  | mg/L  | 0.500  | 0.200  | 50 |                |    | 01/29/21 03:33 |     | ML   |
| Sulfate  | 324     | mg/L  | 50.0   | 20.0   | 50 |                |    | 01/29/21 03:33 |     | ML   |
| <b>INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)</b> |         |       |        |        |    |                |    |                |     |      |
| Boron Total  | <0.0500 | mg/L  | 0.0500 | 0.0200 | 1  | 02/02/21 09:59 | ME | 02/04/21 14:40 |     | FM   |
| Calcium Total  | 874     | mg/L  | 2.00   | 0.700  | 10 | 02/02/21 09:59 | ME | 02/04/21 14:46 |     | FM   |
| <b>TOTAL DISSOLVED SOLIDS (SM2540C, TDS)</b>             |         |       |        |        |    |                |    |                |     |      |
| Total Dissolved Solids(TDS)                              | 3940    | mg/L  | 125    | 125    | 50 |                |    | 02/01/21 19:11 |     | ERR  |



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## Analytical Results (cont.)

|                                 |  |                            |
|---------------------------------|--|----------------------------|
| <b>Lab ID:</b> Q2102242007      | <b>Date Received:</b> 1/28/2021 15:42  | <b>Matrix:</b> Aqueous     |
| <b>Sample ID:</b> CBL - 641I    | <b>Date Collected:</b> 1/27/2021 14:12 | <b>Sample Type:</b> SAMPLE |
| <b>Project ID:</b> FPP GWMP CCR |  |                            |
| <b>Facility:</b>                |  |                            |

| Parameter  | Results | Units | MRL    | LOD    | DF | Prepared       | By | Analyzed       | By  | Qual |
|--|---------|-------|--------|--------|----|----------------|----|----------------|-----|------|
| <b>Field Parameters (Field pH SM4500H+B TCEQ VOL 1)</b>  |         |       |        |        |    |                |    |                |     |      |
| pH   | 6.06    | pH    |        |        | 1  |                |    | 01/27/21 14:12 | CCP | *    |
| <b>INORGANICS (E300.0, Anions)</b>                       |         |       |        |        |    |                |    |                |     |      |
| Chloride   | 1730    | mg/L  | 50.0   | 20.0   | 50 |                |    | 01/29/21 03:52 |     | ML   |
| Fluoride   | <0.500  | mg/L  | 0.500  | 0.200  | 50 |                |    | 01/29/21 03:52 |     | ML   |
| Sulfate  | 310     | mg/L  | 50.0   | 20.0   | 50 |                |    | 01/29/21 03:52 |     | ML   |
| <b>INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)</b> |         |       |        |        |    |                |    |                |     |      |
| Boron Total  | <0.0500 | mg/L  | 0.0500 | 0.0200 | 1  | 02/02/21 09:59 | ME | 02/04/21 15:11 |     | FM   |
| Calcium Total  | 859     | mg/L  | 2.00   | 0.700  | 10 | 02/02/21 09:59 | ME | 02/04/21 15:17 |     | FM   |
| <b>TOTAL DISSOLVED SOLIDS (SM2540C, TDS)</b>             |         |       |        |        |    |                |    |                |     |      |
| Total Dissolved Solids(TDS)                              | 3980    | mg/L  | 125    | 125    | 50 |                |    | 02/01/21 19:11 |     | ERR  |





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## Analytical Results (cont.)

|                                 |  |                            |
|---------------------------------|--|----------------------------|
| <b>Lab ID:</b> Q2102242008      | <b>Date Received:</b> 1/28/2021 15:42  | <b>Matrix:</b> Aqueous     |
| <b>Sample ID:</b> EQB           | <b>Date Collected:</b> 1/27/2021 09:40 | <b>Sample Type:</b> SAMPLE |
| <b>Project ID:</b> FPP GWMP CCR |  |                            |
| <b>Facility:</b>                |  |                            |

| Parameter  | Results | Units | MRL    | LOD    | DF | Prepared       | By | Analyzed       | By | Qual |
|--|---------|-------|--------|--------|----|----------------|----|----------------|----|------|
| <b>INORGANICS (E300.0, Anions)</b>                       |         |       |        |        |    |                |    |                |    |      |
| Chloride   | <1.00   | mg/L  | 1.00   | 0.400  | 1  |                |    | 01/28/21 20:52 |    | ML   |
| Fluoride   | <0.0100 | mg/L  | 0.0100 | 0.0040 | 1  |                |    | 01/28/21 20:52 |    | ML   |
| Sulfate  | <1.00   | mg/L  | 1.00   | 0.400  | 1  |                |    | 01/28/21 20:52 |    | ML   |
| <b>INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)</b> |         |       |        |        |    |                |    |                |    |      |
| Boron Total  | <0.0500 | mg/L  | 0.0500 | 0.0200 | 1  | 02/02/21 09:59 | ME | 02/04/21 15:41 |    | FM   |
| Calcium Total  | <0.200  | mg/L  | 0.200  | 0.0700 | 1  | 02/02/21 09:59 | ME | 02/04/21 15:41 |    | FM   |
| <b>TOTAL DISSOLVED SOLIDS (SM2540C, TDS)</b>             |         |       |        |        |    |                |    |                |    |      |
| Total Dissolved Solids(TDS)                              | <25.0   | mg/L  | 25.0   | 25.0   | 10 |                |    | 02/01/21 19:11 |    | ERR  |



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## Analytical Results (cont.)

|                                 |  |                            |
|---------------------------------|--|----------------------------|
| <b>Lab ID:</b> Q2102242009      | <b>Date Received:</b> 1/28/2021 15:42  | <b>Matrix:</b> Aqueous     |
| <b>Sample ID:</b> FB            | <b>Date Collected:</b> 1/28/2021 13:05 | <b>Sample Type:</b> SAMPLE |
| <b>Project ID:</b> FPP GWMP CCR |  |                            |
| <b>Facility:</b>                |  |                            |

| Parameter  | Results | Units | MRL    | LOD    | DF | Prepared       | By | Analyzed       | By | Qual |
|--|---------|-------|--------|--------|----|----------------|----|----------------|----|------|
| <b>INORGANICS (E300.0, Anions)</b>                       |         |       |        |        |    |                |    |                |    |      |
| Chloride   | <1.00   | mg/L  | 1.00   | 0.400  | 1  |                |    | 01/29/21 01:38 |    | ML   |
| Fluoride   | <0.0100 | mg/L  | 0.0100 | 0.0040 | 1  |                |    | 01/29/21 01:38 |    | ML   |
| Sulfate  | <1.00   | mg/L  | 1.00   | 0.400  | 1  |                |    | 01/29/21 01:38 |    | ML   |
| <b>INORGANICS (SW3010A, Metals Prep/SW6010B ICP-AES)</b> |         |       |        |        |    |                |    |                |    |      |
| Boron Total  | <0.0500 | mg/L  | 0.0500 | 0.0200 | 1  | 02/02/21 09:59 | ME | 02/04/21 15:47 |    | FM   |
| Calcium Total  | <0.200  | mg/L  | 0.200  | 0.0700 | 1  | 02/02/21 09:59 | ME | 02/04/21 15:47 |    | FM   |
| <b>TOTAL DISSOLVED SOLIDS (SM2540C, TDS)</b>             |         |       |        |        |    |                |    |                |    |      |
| Total Dissolved Solids(TDS)                              | <25.0   | mg/L  | 25.0   | 25.0   | 10 |                |    | 02/01/21 19:11 |    | ERR  |



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## Quality Control

|   |                                      |
|---|--------------------------------------|
| <b>Preparation Batch:</b> WET / 23633   | <b>Analysis Method:</b> SM2540C, TDS |
| <b>Preparation Method:</b> SM2540C, TDS |                                      |
| <b>Associated Lab IDs:</b> Q2102242001  |                                      |

### Method Blank (1565947)

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

### Lab Control Sample (1565948)

| Parameter                   | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Qual |
|-----------------------------|-------|---------------|--------------|------------------|------------------|------|
| Total Dissolved Solids(TDS) | mg/L  | 400           | 367          | 91.8             | 80 - 120         |      |

### Duplicate (1565949); Original: Q2102168006

| Parameter                   | Original | Duplicate | Units | RPD % | Limit | Qual |
|-----------------------------|----------|-----------|-------|-------|-------|------|
| Total Dissolved Solids(TDS) | 524      | 530       | mg/L  | 1.14  | 20    |      |

### Matrix Spike (1565950) Original: Q2102168006

| Parameter                   | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Qual |
|-----------------------------|-------|---------------|--------------|------------------|------------------|------|
| Total Dissolved Solids(TDS) | mg/L  | 400           | 950          | 106              | 70 - 130         |      |



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## Quality Control (cont.)

|   |                                      |
|---|--------------------------------------|
| <b>Preparation Batch:</b> WET / 23641   | <b>Analysis Method:</b> SM2540C, TDS |
| <b>Preparation Method:</b> SM2540C, TDS   |                                      |
| <b>Associated Lab IDs:</b> Q2102242002, Q2102242003, Q2102242004, Q2102242005, Q2102242006, Q2102242007, Q2102242008, Q2102242009 |                                      |

### Method Blank (1566940)

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

### Lab Control Sample (1566941)

| Parameter                   | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Qual |
|-----------------------------|-------|---------------|--------------|------------------|------------------|------|
| Total Dissolved Solids(TDS) | mg/L  | 400           | 368          | 92               | 80 - 120         |      |

### Duplicate (1566944); Original: Q2102149001

| Parameter                   | Original | Duplicate | Units | RPD % | Limit | Qual |
|-----------------------------|----------|-----------|-------|-------|-------|------|
| Total Dissolved Solids(TDS) | 475      | 455       | mg/L  | 4.3   | 20    |      |

### Matrix Spike (1566945) Original: Q2102149001

| Parameter                   | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Qual |
|-----------------------------|-------|---------------|--------------|------------------|------------------|------|
| Total Dissolved Solids(TDS) | mg/L  | 400           | 874          | 99.8             | 70 - 130         |      |

## Quality Control (cont.)

|  |  |
|--|--|
| <b>Preparation Batch:</b> WET / 23625  | <b>Analysis Method:</b> E300.0, Anions |
| <b>Preparation Method:</b> E300.0, Anions  |  |
| <b>Associated Lab IDs:</b> Q2102242001, Q2102242002, Q2102242003, Q2102242004, Q2102242005, Q2102242006, Q2102242007, Q2102242008, Q2102242009 |  |

### Laboratory Reagent Blank (1565489)

| Parameter | Results | Units | MRL    | LOD     | Qualifier |
|-----------|---------|-------|--------|---------|-----------|
| Chloride  | <1.00   | mg/L  | 1.00   | 0.400   |           |
| Fluoride  | <0.0100 | mg/L  | 0.0100 | 0.00400 |           |
| Sulfate   | <1.00   | mg/L  | 1.00   | 0.400   |           |

### Method Reporting Limit Check (1565491)

| Parameter | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Qual |
|-----------|-------|---------------|--------------|------------------|------------------|------|
| Chloride  | mg/L  | 1             | .768         | 76.8             | 50 - 150         |      |
| Fluoride  | mg/L  | .01           | .0095        | 95               | 50 - 150         |      |
| Sulfate   | mg/L  | 1             | .783         | 78.3             | 50 - 150         |      |

### Laboratory Fortified Blank (1565492)

| Parameter | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Qual |
|-----------|-------|---------------|--------------|------------------|------------------|------|
| Chloride  | mg/L  | 30            | 30.1         | 100              | 90 - 110         |      |
| Fluoride  | mg/L  | 1             | 1.01         | 101              | 90 - 110         |      |
| Sulfate   | mg/L  | 30            | 30           | 100              | 90 - 110         |      |

### Limit of Quantitation Check (1565493)

| Parameter | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Qual |
|-----------|-------|---------------|--------------|------------------|------------------|------|
| Chloride  | mg/L  | 5             | 4.11         | 82.3             | 70 - 130         |      |
| Fluoride  | mg/L  | .02           | .0183        | 91.5             | 70 - 130         |      |
| Sulfate   | mg/L  | 5             | 4.22         | 84.4             | 70 - 130         |      |

### Laboratory Fortified Matrix (1565498) Original: Q2102242008; Lab Fortified Matrix Duplicate (1565499)

| Parameter | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Dup Result | % Dup Recovery | RPD  | RPD Limit % | Qual |
|-----------|-------|---------------|--------------|------------------|------------------|------------|----------------|------|-------------|------|
| Chloride  | mg/L  | 20            | 19.6         | 97.9             | 80 - 120         | 19.6       | 98             | 0    | 20          |      |
| Fluoride  | mg/L  | 1             | .996         | 99.6             | 80 - 120         | .993       | 99.3           | .302 | 20          |      |
| Sulfate   | mg/L  | 20            | 19.1         | 95.5             | 80 - 120         | 19.1       | 95.6           | 0    | 20          |      |

### Laboratory Reagent Blank (1565495)

| Parameter | Results | Units | MRL    | LOD     | Qualifier |
|-----------|---------|-------|--------|---------|-----------|
| Chloride  | <1.00   | mg/L  | 1.00   | 0.400   |           |
| Fluoride  | <0.0100 | mg/L  | 0.0100 | 0.00400 |           |
| Sulfate   | <1.00   | mg/L  | 1.00   | 0.400   |           |

### Laboratory Fortified Blank (1565496)

| Parameter | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Qual |
|-----------|-------|---------------|--------------|------------------|------------------|------|
| Chloride  | mg/L  | 30            | 30.3         | 101              | 90 - 110         |      |
| Fluoride  | mg/L  | 1             | 1.02         | 102              | 90 - 110         |      |
| Sulfate   | mg/L  | 30            | 30.5         | 102              | 90 - 110         |      |

### Laboratory Fortified Matrix (1565500) Original: Q2102242009; Lab Fortified Matrix Duplicate (1565501)

| Parameter | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Dup Result | % Dup Recovery | RPD | RPD Limit % | Qual |
|-----------|-------|---------------|--------------|------------------|------------------|------------|----------------|-----|-------------|------|
| Chloride  | mg/L  | 20            | 19.8         | 98.8             | 80 - 120         | 19.8       | 98.9           | 0   | 20          |      |
| Fluoride  | mg/L  | 1             | 1.01         | 101              | 80 - 120         | 1.01       | 101            | 0   | 20          |      |



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

### Quality Control (cont.)

**Preparation Batch:** WET / 23625                      **Analysis Method:** E300.0, Anions  
**Preparation Method:** E300.0, Anions  
**Associated Lab IDs:** Q2102242001, Q2102242002, Q2102242003, Q2102242004, Q2102242005, Q2102242006, Q2102242007, Q2102242008, Q2102242009

*(continued)*

| Parameter | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Dup Result | % Dup Recovery | RPD | RPD Limit % | Qual |
|-----------|-------|---------------|--------------|------------------|------------------|------------|----------------|-----|-------------|------|
| Sulfate   | mg/L  | 20            | 19.3         | 96.6             | 80 - 120         | 19.3       | 96.7           | 0   | 20          |      |



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**Quality Control (cont.)**

|  |   |
|--|---|
| <b>Preparation Batch:</b> MEP / 10831  | <b>Analysis Method:</b> SW6010B ICP-AES |
| <b>Preparation Method:</b> SW3010A, Metals Prep  |   |
| <b>Associated Lab IDs:</b> Q2102242001, Q2102242002, Q2102242003, Q2102242004, Q2102242005, Q2102242006, Q2102242007, Q2102242008, Q2102242009 |   |

**Lab Control Sample (1567205); Lab Control Sample Duplicate (1567206)**

| Parameter     | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Dup Result | % Dup Recovery | RPD  | RPD Limit % | Qual |
|---------------|-------|---------------|--------------|------------------|------------------|------------|----------------|------|-------------|------|
| Boron Total   | mg/L  | 1             | 1.06         | 106              | 80 - 120         | 1.04       | 104            | 1.9  | 20          |      |
| Calcium Total | mg/L  | 10            | 11           | 110              | 80 - 120         | 10.9       | 109            | .913 | 20          |      |

**Method Blank (1567207)**

| Parameter     | Results | Units | MRL    | LOD    | Qualifier |
|---------------|---------|-------|--------|--------|-----------|
| Boron Total   | <0.0500 | mg/L  | 0.0500 | 0.0200 |           |
| Calcium Total | <0.200  | mg/L  | 0.200  | 0.0700 |           |

**Matrix Spike (1567208) Original: Q2102242001; Matrix Spike Duplicate (1567209)**

| Parameter            | Units | Spiked Amount | Spike Result | % Spike Recovery | Control Limits % | Dup Result | % Dup Recovery | RPD  | RPD Limit % | Qual     |
|----------------------|-------|---------------|--------------|------------------|------------------|------------|----------------|------|-------------|----------|
| Boron Total          | mg/L  | 1             | 1.01         | 101              | 75 - 125         | 1          | 100            | .995 | 20          |          |
| <b>Calcium Total</b> | mg/L  | 10            | 1110         | <b>-248</b>      | 75 - 125         | 1100       | <b>-308</b>    | .905 | 20          | <b>S</b> |



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## Quality Control Cross Reference

### *MET/8281 - SW6010B ICP-AES*

| Lab ID      | Sample ID  | Prep Batch | Prep Method          |
|-------------|------------|------------|----------------------|
| Q2102242001 | CBL - 301I | MEP/10831  | SW3010A, Metals Prep |
| Q2102242002 | CBL - 302I | MEP/10831  | SW3010A, Metals Prep |
| Q2102242003 | CBL - 306I | MEP/10831  | SW3010A, Metals Prep |
| Q2102242004 | CBL - 308I | MEP/10831  | SW3010A, Metals Prep |
| Q2102242005 | CBL - 340I | MEP/10831  | SW3010A, Metals Prep |
| Q2102242006 | CBL - 341I | MEP/10831  | SW3010A, Metals Prep |
| Q2102242007 | CBL - 641I | MEP/10831  | SW3010A, Metals Prep |
| Q2102242008 | EQB        | MEP/10831  | SW3010A, Metals Prep |
| Q2102242009 | FB         | MEP/10831  | SW3010A, Metals Prep |

#### *Batch Comment(s):*

- Metals pipettes used for dilutions: 10mL-L34077G, 1mL- 131716

### *WET/23625 - E300.0, Anions*

| Lab ID      | Sample ID  | Prep Batch | Prep Method |
|-------------|------------|------------|-------------|
| Q2102242001 | CBL - 301I |            |             |
| Q2102242002 | CBL - 302I |            |             |
| Q2102242003 | CBL - 306I |            |             |
| Q2102242004 | CBL - 308I |            |             |
| Q2102242005 | CBL - 340I |            |             |
| Q2102242006 | CBL - 341I |            |             |
| Q2102242007 | CBL - 641I |            |             |
| Q2102242008 | EQB        |            |             |
| Q2102242009 | FB         |            |             |

### *WET/23633 - SM2540C, TDS*

| Lab ID      | Sample ID  | Prep Batch | Prep Method |
|-------------|------------|------------|-------------|
| Q2102242001 | CBL - 301I |            |             |

### *WET/23641 - SM2540C, TDS*

| Lab ID      | Sample ID  | Prep Batch | Prep Method |
|-------------|------------|------------|-------------|
| Q2102242002 | CBL - 302I |            |             |
| Q2102242003 | CBL - 306I |            |             |
| Q2102242004 | CBL - 308I |            |             |
| Q2102242005 | CBL - 340I |            |             |
| Q2102242006 | CBL - 341I |            |             |
| Q2102242007 | CBL - 641I |            |             |
| Q2102242008 | EQB        |            |             |
| Q2102242009 | FB         |            |             |



## 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) 356-6021  
https://els.lcra.org

# \* 11726 \*

02102242

|  |                             |
|--|-----------------------------|
| <b>Project:</b> FPP - CCR - Groundwater          | <b>Client:</b> LCRA         |
| <b>Collector:</b> <i>Colt Petri/Elle Tercell</i> | <b>Contact:</b> Jason Woods |
| <b>Event#:</b> 1561896 / 11726                   | <b>Phone:</b> (512)730-5339 |

|  |
|--|
| <b>Report To:</b> BECKIE LOEVE<br>FAYETTE POWER PLANT<br>6549 POWER PLANT RD<br>MAIL STOP FPP<br>La Grange, TX 78945 |
|--|

|   |
|---|
| <b>Lab ID#:</b>   |
| <b>Client PO:</b>   |
| <b>Invoice To:</b> BECKIE LOEVE<br>FAYETTE POWER PLANT<br>6549 POWER PLANT RD<br>MAIL STOP FPP<br>La Grange, TX 78945 |

| LAB USE ONLY | Sample ID *                             | Collected * |               | Matrix*<br>AQ = Aqueous<br>S = Solid<br>T = Tissue<br>DW = Drinking Water | Container(s) Type/Preservative/Number * |              |              |              |  |  |  |  | Requested Analysis * |  |              |              |              |              |
|--------------|---|-------------|---------------|---|---|--------------|--------------|--------------|--|--|--|--|----------------------|--|--------------|--------------|--------------|--------------|
|              |   | Date*       | Time * HH:MM  |   | COMPOSITE Y/N                           | FILTERED Y/N | 250PHNO3     | 500PU        |  |  |  |  |                      |  | 6010-AM      | 2540-AMTDS   | F-pH         | 300.0AM-28   |
| 1            | CBL - 3011                              | 1/26/21     | 1309          | AQ  |   |              | 1            | 1            |  |  |  |  |                      |  | X            | X            | X            | X            |
| 2            | CBL - 3021                              | 1/28/21     | 917           | AQ  |   |              | 1            | 1            |  |  |  |  |                      |  | X            | X            | X            | X            |
| 3            | CBL - 3061                              | 1/28/21     | 1359          | AQ  |   |              | 1            | 1            |  |  |  |  |                      |  | X            | X            | X            | X            |
| 4            | CBL - 3081                              | 1/28/21     | 1129          | AQ  |   |              | 1            | 1            |  |  |  |  |                      |  | X            | X            | X            | X            |
| 5            | CBL - 3401                              | 1/28/21     | 1318          | AQ  |   |              | 1            | 1            |  |  |  |  |                      |  | X            | X            | X            | X            |
| 6            | CBL - 3411                              | 1/27/21     | 1412          | AQ  |   |              | 1            | 1            |  |  |  |  |                      |  | X            | X            | X            | X            |
| 7            | <del>CBL - 3421</del> <i>CP 1/28/21</i> |             | <del>14</del> | <del>AQ</del>   |   |              | <del>1</del> | <del>1</del> |  |  |  |  |                      |  | <del>X</del> | <del>X</del> | <del>X</del> | <del>X</del> |
| 8            | CBL - 6421                              | 1/27/21     | 1412          | AQ  |   |              | 1            | 1            |  |  |  |  |                      |  | X            | X            | X            | X            |
| 9            | EQB                                     | 1/28/21     | 940           | AQ  |   |              | 1            | 1            |  |  |  |  |                      |  | X            | X            |              | X            |
| 10           | FB                                      | 1/28/21     | 1305          | AQ  |   |              | 1            | 1            |  |  |  |  |                      |  | X            | X            |              | X            |

| Transfers | Relinquished By   | Date/Time    | Received By | Date/Time    | Cooler Temp: |    |          |       |
|-----------|-------------------|--------------|-------------|--------------|--------------|----|----------|-------|
|           |                   |              |             |              | #            | T# | Obs.     | Corr. |
| 1         | <i>Colt Petri</i> | 1/28/21 1547 | <i>Mung</i> | 1/28/21 1542 |              |    |          |       |
| 2         |                   |              |             |              | 1            |    | R 9.1.4° | 1.5°  |
| 3         |                   |              |             |              | 2            |    |          |       |

Client Special Instructions:



02102242  
496016

Lab Use 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.



# Field Information Form

Sample Date: 1/26/21 8  
 Sample Time: 1309  
 Sample ID: CBL301H

## PURGING INFORMATION

PURGE DATE (YY MM DD): 21 01 26  
 START PURGE (2400 Hr. Clock): 1235  
 WATER VOL IN CASING (Gallons): V= 29  
 3X WELL VOL. IN (Gallons): 86  
 ACTUAL VOLUME PURGED (Gallons): 113

## PURGING AND SAMPLING EQUIPMENT

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

|                   |                                       |                    |                 |                      |    |                          |
|-------------------|---------------------------------------|--------------------|-----------------|----------------------|----|--------------------------|
| Purging Device    | <input checked="" type="checkbox"/> A | A-Submersible Pump | D-Gas Lift Pump | G-Bailer             | X- | _____                    |
| Sampling Device   | <input checked="" type="checkbox"/> A | B-Perisaltic Pump  | E-Venturi Pump  | H-Scoop/Shovel       | X- | Purging Other (Specify)  |
|                   |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump        | X- | _____                    |
|                   |                                       |                    |                 |                      | X- | Sampling Other (Specify) |
| Purging Material  | <input checked="" type="checkbox"/> E | A-Teflon           | C-Polypropylene | E-Polyethylene       | X- | _____                    |
| Sampling Material | <input checked="" type="checkbox"/> E | B-Stainless Steel  | D-PVC           |                      | X- | Purging Other (Specify)  |
|                   |                                       |                    |                 |                      | X- | _____                    |
|                   |                                       |                    |                 |                      | X- | Sampling Other (Specify) |
| Tubing-Purging    | <input checked="" type="checkbox"/> F | A-Teflon           | D-Polypropylene | F-Silicon            | X- | _____                    |
| Tubing-Sampling   | <input checked="" type="checkbox"/> E | B-Tygon            | E-Polyethylene  | G-Combination        | X- | Purging Other (Specify)  |
|                   |                                       |                    |                 | teflon/Polypropylene | X- | _____                    |
|                   |                                       |                    |                 |                      | 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<sub>w</sub>: 36.41 (ft)  
 Depth to water From land surface: \_\_\_\_\_ (ft)  
 Groundwater Elevation: \_\_\_\_\_ (ft/msl)  
 Groundwater Elevation: \_\_\_\_\_ (ft/msl)  
 Well Depth = D: 54.08 (ft)  
 Pump Placement: \_\_\_\_\_ (ft)  
6.06 (STD) PH  
7998 uS/cm Specific Conductivity  
 Sample Temp. 24.54 (°C)

| Bottle |         |                  | Analysis    | Field Filt. Y/N |
|--------|---------|------------------|-------------|-----------------|
| Type   | Size    | Preservative     |             |                 |
| P      | 2x250mL | HNO <sub>3</sub> | Metals      | N               |
| P      | 250mL   | HNO <sub>3</sub> | FB#2 Metals | N               |
| P      | 250mL   | ICE              | Anions      | N               |
| P      | 500mL   | ICE              | Anions      | N               |

Sample Appearance: Clear Odor: None Color: Clear Turbidity: 10.0  
 Weather Conditions: Partly Cloudy North wind 5-10mph 75°  
 Other: Purge water is cloudy, milky white in color. Purge water clear after 2gallons

## WELL VOLUME CALCULATION

$V=(D-D_w)(A)$  (7.48 galft<sup>3</sup>) where  
 V= volume of standing water in well  
 D= depth to bottom of well below measuring point  
 D<sub>w</sub>=depth to water below measuring point  
 A= cross sectional area

2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes  No \_\_\_\_\_  
If No, Explain \_\_\_\_\_

Procedure: ELSGroundwater SOP 5-7D

Date: 1/26/21  
 Sampler: ET/CP  
 Employer: LCRA

**Field Information Form**

Sample Date: 1/28/21 (5)  
 Sample Time: 1355  
 Sample ID: EBL306I

**PURGING INFORMATION**

210128 PURGE DATE (YY MM DD)      0946 START PURGE (2400 Hr. Clock)      0.75 WATER VOL IN CASING (Gallons)      225 3 X WELL VOL. IN (Gallons)      4 ACTUAL VOLUME PURGED (Gallons)

**PURGING AND SAMPLING EQUIPMENT**

Purging Equipment ..... Dedicated  INI      Sampling Equipment ..... Dedicated  INI

|                   |                                       |                    |                 |                      |    |                          |
|-------------------|---------------------------------------|--------------------|-----------------|----------------------|----|--------------------------|
| Purging Device    | <input checked="" type="checkbox"/> B | A-Submersible Pump | D-Gas Lift Pump | G-Bailer             | X- | _____                    |
| Sampling Device   | <input checked="" type="checkbox"/> B | B-Peristaltic Pump | E-Venturi Pump  | H-Scoop/Shovel       | X- | Purging Other (Specify)  |
|                   |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump        | X- | _____                    |
|                   |                                       |                    |                 |                      | X- | Sampling Other (Specify) |
| Purging Material  | <input checked="" type="checkbox"/> F | A-Teflon           | C-Polypropylene | E-Polyethylene       | X- | _____                    |
| Sampling Material | <input checked="" type="checkbox"/> F | B-Stainless Steel  | D-PVC           |                      | X- | Purging Other (Specify)  |
|                   |                                       |                    |                 |                      | X- | Sampling Other (Specify) |
| Tubing-Purging    | <input checked="" type="checkbox"/> F | A-Teflon           | D-Polypropylene | F-Silicon            | X- | _____                    |
| Tubing-Sampling   | <input checked="" type="checkbox"/> F | B-Tygon            | E-Polyethylene  | G-Combination        | X- | Purging Other (Specify)  |
|                   |                                       |                    |                 | teflon/Polypropylene | X- | _____                    |
|                   |                                       |                    |                 |                      | 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<sub>w</sub> 110.21 (ft)      Depth to water From land surface                      (ft)

Groundwater Elevation                      (ft/msl)      Groundwater Elevation                      (ft/msl)

Well Depth = D 114.80 (ft)      Pump Placement                     12 (ft)

6.84 (STD) PH      2040 uS/cm Specific Conductivity      Sample Temp. 23.81 (°C)

| Bottle |       |                  | Analysis | Field Filt. Y/N |
|--------|-------|------------------|----------|-----------------|
| Type   | Size  | Preservative     |          |                 |
| P      | 250mL | HNO <sub>3</sub> | Metals   | N               |
| P      | 250mL | HNO <sub>3</sub> | Metals   | N               |
| P      | 250mL | ICE              | Anions   | N               |
| P      | 500mL | ICE              | Anions   | N               |

Sample Appearance: Clear      Odor: none      Color: Clear      Turbidity: 3.10

Weather Conditions: Partly Cloudy North wind 5-10mph 39°

Other: Purge water is clear with no odor. Well went dry after 4 gallons was purged. Small pond is holding water. Normally well doesn't go dry if pond has water

**WELL VOLUME CALCULATION**

V=(D D<sub>w</sub>) (A) (7.48 gal/ft<sup>3</sup>) where  
 V= volume of standing water in well  
 D= depth to bottom of well below measuring point  
 D<sub>w</sub>=depth to water below measuring point  
 A= cross sectional area

2" dia. A= 0.0218      4" dia. A = 0.0872

Well Appearance Normal: Yes  No \_\_\_\_\_  
 If No, Explain \_\_\_\_\_

Procedure: ELSGround water SOP 5-7D

Date: 1/28/21  
 Sampler: CD  
 Employer: LCRA



# Field Information Form

Sample Date: 1/28/21

Sample Time: 1129

Sample ID: CBL308I

## PURGING INFORMATION

210128

PURGE DATE  
(YY MM DD)

1051

START PURGE  
(2400 Hr. Clock)

V= 1.5

WATER VOL IN CASING  
(Gallons)

4.5

3 X WELL VOL. IN  
(Gallons)

5

ACTUAL VOLUME PURGED  
(Gallons)

## PURGING AND SAMPLING EQUIPMENT

Purging Equipment ..... Dedicated  IN I

Sampling Equipment ..... Dedicated  IN I

Purging Device  B A-Submersible Pump

D-Gas Lift Pump

G-Bailer

X- \_\_\_\_\_  
Purging Other (Specify)

Sampling Device  B B-Peristaltic Pump  
C-Bladder Pump

E-Venturi Pump  
F-Dipper/Bottle

H-Scoop/Shovel  
I-Piston Pump

X- \_\_\_\_\_  
Sampling Other (Specify)

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<sub>w</sub> 2607 (ft)

Depth to water  
From land surface            (ft)

Groundwater Elevation           

Groundwater Elevation            (ft/msl)

Well Depth = D 3517 (ft)

Pump Placement 31 (ft)

6.26 (STD)  
PH

8561 uS/cm  
Specific Conductivity

Sample Temp. 21.59 (°C)

| Bottle |       |                  | Analysis                  | Field Filt. Y/N |
|--------|-------|------------------|---------------------------|-----------------|
| Type   | Size  | Preservative     |                           |                 |
| P      | 250mL | HVO <sub>3</sub> | Metals                    | N               |
| P      | 250mL | HVO <sub>3</sub> | Metals                    | N               |
| P      | 250mL | ICE              | Anions                    | N               |
| P      | 500mL | ICE              | Anions                    | N               |
| P      | 250mL | HVO <sub>3</sub> | 608 metals D <sub>w</sub> | N               |

Sample Appearance: clear Odor: none Color: clear Turbidity: 0.70

Weather Conditions: partly cloudy north wind 5-10 mph 42°

Other: Purge water is clear with no odor CBL308I water dumped into CBL20 barrel

## WELL VOLUME CALCULATION

Well Appearance Normal: Yes  No \_\_\_\_\_  
If No, Explain \_\_\_\_\_

Procedure: ELS Ground water SOP 5-7P

Date: 1/28/21

Sampler: CP

Employer: LCRA

V=(D-D<sub>w</sub>) (A) (7.48 gal/ft<sup>3</sup>) where

V= volume of standing water in well

D= depth to bottom of well below measuring point

D<sub>w</sub>=depth to water below measuring point

A= cross sectional area

2" dia. A = 0.0218 4" dia. A = 0.0872

# Field Information Form

(13)

Sample Date: 1/27/21  
 Sample Time: 1412  
 Sample ID: CBL23421

## PURGING INFORMATION

PURGE DATE (YY MM DD): 21 01 27      START PURGE (2400 Hr. Clock): 11257      V= 48      3 X WELL VOL. IN (Gallons): 143      ACTUAL VOLUME PURGED (Gallons): 110

## PURGING AND SAMPLING EQUIPMENT

Purging Equipment ..... Dedicated  I N I      Sampling Equipment ..... Dedicated  I N I

|                   |                                       |                    |                 |                                    |    |                          |
|-------------------|---------------------------------------|--------------------|-----------------|------------------------------------|----|--------------------------|
| Purging Device    | <input checked="" type="checkbox"/> B | A-Submersible Pump | D-Gas Lift Pump | G-Bailer                           | X- | _____                    |
| Sampling Device   | <input checked="" type="checkbox"/> B | B-Perisaltic Pump  | E-Venturi Pump  | H-Scoop/Shovel                     | X- | Purging Other (Specify)  |
|                   |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump                      | X- | _____                    |
|                   |                                       |                    |                 |                                    | X- | Sampling Other (Specify) |
| Purging Material  | <input checked="" type="checkbox"/> F | A-Teflon           | C-Polypropylene | E-Polyethylene                     | X- | _____                    |
| Sampling Material | <input checked="" type="checkbox"/> F | B-Stainless Steel  | D-PVC           |                                    | X- | Purging Other (Specify)  |
|                   |                                       |                    |                 |                                    | X- | Sampling Other (Specify) |
| Tubing-Purging    | <input checked="" type="checkbox"/> F | A-Teflon           | D-Polypropylene | F-Silicon                          | X- | _____                    |
| Tubing-Sampling   | <input checked="" type="checkbox"/> F | B-Tygon            | E-Polyethylene  | 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<sub>w</sub>: 117.16 (ft)      Depth to water From land surface: \_\_\_\_\_ (ft)

Groundwater Elevation: \_\_\_\_\_ (ft/msl)      Groundwater Elevation: \_\_\_\_\_ (ft/msl)

Well Depth = D: 46.39 (ft)      Pump Placement: 41 (ft)

PH: 6.06 (STD)      Specific Conductivity: 6046 uS/cm      Sample Temp.: 21.71 (°C)

| Bottle |       |                               | Analysis          | Field Filt. Y/N |
|--------|-------|-------------------------------|-------------------|-----------------|
| Type   | Size  | Preservative                  |                   |                 |
| P      | 250ml | H <sub>2</sub> O <sub>2</sub> | Metals            | M               |
| P      | 500ml | ICE                           | Anions            | M               |
| P      | 250ml | H <sub>2</sub> O <sub>2</sub> | Metals CBL 42 Dup | N               |
| P      | 500ml | ICE                           | Anions CBL 42 Dup | N               |
| P      | 250ml | H <sub>2</sub> O <sub>2</sub> | Metals FB# 3      | N               |

Sample Appearance: Clear      Odor: None      Color: Clear      Turbidity: 0.33

Weather Conditions: Partly Cloudy North wind 5-10mph 60°

Other: Purge water is clear with no odor

### WELL VOLUME CALCULATION

V = (D - D<sub>w</sub>) (A) (7.48 gal/ft<sup>3</sup>) where  
 V = volume of standing water in well  
 D = depth to bottom of well below measuring point  
 D<sub>w</sub> = depth to water below measuring point  
 A = cross sectional area

2" dia. A = 0.0218      4" dia. A = 0.0872

Well Appearance Normal: Yes  No \_\_\_\_\_  
 If No, Explain \_\_\_\_\_

Procedure: ELS Groundwater SOP 5-7A

Date: 1/27/21  
 Sampler: CP  
 Employer: LCRA



# Field Information Form

Sample Date: 1/28/21 14  
 Sample Time: 9:17  
 Sample ID: C1843621

## PURGING INFORMATION

PURGE DATE (YY MM DD): 21 01 28      START PURGE (2400 Hr. Clock): 0839      V= 24      3x WELL VOL. IN (Gallons): 72      ACTUAL VOLUME PURGED (Gallons): 7

## PURGING AND SAMPLING EQUIPMENT

Purging Equipment ..... Dedicated  INI      Sampling Equipment ..... Dedicated  INI

|                   |  |                 |                                    |    |                          |
|-------------------|--|-----------------|------------------------------------|----|--------------------------|
| Purging Device    | <input checked="" type="checkbox"/> B A-Submersible Pump | D-Gas Lift Pump | G-Bailer                           | X- | _____                    |
| Sampling Device   | <input checked="" type="checkbox"/> B B-Peristaltic Pump | E-Venturi Pump  | H-Scoop/Shovel                     | X- | Purging Other (Specify)  |
|                   | <input type="checkbox"/> C C-Bladder Pump                | F-Dipper/Bottle | I-Piston Pump                      | X- | Sampling Other (Specify) |
| Purging Material  | <input checked="" type="checkbox"/> F A-Teflon           | C-Polypropylene | E-Polyethylene                     | X- | _____                    |
| Sampling Material | <input checked="" type="checkbox"/> F B-Stainless Steel  | D-PVC           |                                    | X- | Purging Other (Specify)  |
| Tubing-Purging    | <input checked="" type="checkbox"/> F A-Teflon           | D-Polypropylene | F-Silicon                          | X- | Sampling Other (Specify) |
| Tubing-Sampling   | <input checked="" type="checkbox"/> F B-Tygon            | E-Polyethylene  | G-Combination teflon/Polypropylene | X- | Purging Other (Specify)  |
|                   | C-Rope X- _____  |                 |                                    | X- | Sampling Other (Specify) |

(Specify)

## FIELD MEASUREMENTS

Well Elevation: \_\_\_\_\_ (ft/msl)      Land Surface Elevation: \_\_\_\_\_ (ft/msl)

Depth to water From top of well casing = D<sub>w</sub>: 12.06 (ft)      Depth to water From land surface: \_\_\_\_\_ (ft)

Groundwater Elevation: \_\_\_\_\_ (ft/msl)      Groundwater Elevation: \_\_\_\_\_ (ft/msl)

Well Depth = D: 27.14 (ft)      Pump Placement: 23 (ft)

PH: 6.21 (STD)      Specific Conductivity: 6122 uS/cm      Sample Temp.: <sup>CP 1/28/21</sup> 21.22 (°C)   
 21.13

| Bottle |       |                  | Analysis        | Field Filt. Y/N |
|--------|-------|------------------|-----------------|-----------------|
| Type   | Size  | Preservative     |                 |                 |
| P      | 250   | HNO <sub>3</sub> | Metal           | N               |
| P      | 500   | TCE              | Anions          | N               |
| P      | 250mL | HNO <sub>3</sub> | Metals EQ Blank | N               |
| P      | 500mL | TCE              | Anions EQ Blank | N               |

Sample Appearance: clear      Odor: none      Color: clear      Turbidity: 10.9

Weather Conditions: Partly Cloud North wind 5-10mph 37°

Other: Purge water is clear with no odors

## WELL VOLUME CALCULATION

V=(D-D<sub>w</sub>) (A) (7.48 gal/ft<sup>3</sup>) where  
 V= volume of standing water in well  
 D= depth to bottom of well below measuring point  
 D<sub>w</sub>=depth to water below measuring point  
 A= cross sectional area

2" dia. A= 0.0218      4" dia. A= 0.0872

Well Appearance Normal: Yes  No \_\_\_\_\_  
 If No, Explain \_\_\_\_\_

Procedure: EL5 Groundwater SOP 5-7D

Date: 1/28/21  
 Sampler: CP  
 Employer: LCRA



# Field Information Form

Sample Date: 1/28/20  
 Sample Time: 1318  
 Sample ID: CB43401

## PURGING INFORMATION

210128 PURGE DATE (YY MM DD)      1209 START PURGE (2400 Hr. Clock)      21 WATER VOL IN CASING (Gallons)      6.3 3 X WELL VOL. IN (Gallons)      7 ACTUAL VOLUME PURGED (Gallons)

## PURGING AND SAMPLING EQUIPMENT

Purging Equipment ..... Dedicated  INI      Sampling Equipment ..... Dedicated  INI

|                   |                                       |                    |                 |                                    |    |                          |
|-------------------|---------------------------------------|--------------------|-----------------|------------------------------------|----|--------------------------|
| Purging Device    | <input checked="" type="checkbox"/> B | A-Submersible Pump | D-Gas Lift Pump | G-Bailer                           | X- | _____                    |
| Sampling Device   | <input checked="" type="checkbox"/> B | B-Peristaltic Pump | E-Venturi Pump  | H-Scoop/Shovel                     | X- | Purging Other (Specify)  |
|                   |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump                      | X- | Sampling Other (Specify) |
| Purging Material  | <input checked="" type="checkbox"/> F | A-Teflon           | C-Polypropylene | E-Polyethylene                     | X- | _____                    |
| Sampling Material | <input checked="" type="checkbox"/> F | B-Stainless Steel  | D-PVC           |                                    | X- | Purging Other (Specify)  |
| Tubing-Purging    | <input checked="" type="checkbox"/> F | A-Teflon           | D-Polypropylene | F-Silicon                          | X- | _____                    |
| Tubing-Sampling   | <input checked="" type="checkbox"/> F | B-Tygon            | E-Polyethylene  | G-Combination teflon/Polypropylene | X- | Purging Other (Specify)  |
|                   |                                       | C-Rope X-_____     |                 |                                    | X- | Sampling Other (Specify) |

## FIELD MEASUREMENTS

Well Elevation                      (ft/msl)      Land Surface Elevation                      (ft/msl)

Depth to water From top of well casing = D<sub>w</sub> 27.30 (ft)      Depth to water From land surface                      (ft)

Groundwater Elevation                      (ft/msl)      Groundwater Elevation                      (ft/msl)

Well Depth = D 40.16 (ft)      Pump Placement 35 (ft)

6.32 (STD) PH      7951 uS/cm Specific Conductivity      Sample Temp. 22.78 (°C)

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

Sample Appearance: clear      Odor: none      Color: clear      Turbidity: 0.37

Weather Conditions: Partly Cloud North wind 5-10mph 47°

Other: Purge water is clear no odor.

## WELL VOLUME CALCULATION

V=(D D<sub>w</sub>) (A) (7.48 gal/ft<sup>3</sup>) where  
 V= volume of standing water in well  
 D= depth to bottom of well below measuring point  
 D<sub>w</sub>=depth to water below measuring point  
 A= cross sectional area

2" dia. A = 0.0218      4" dia. A = 0.0872

Well Appearance Normal: Yes  No \_\_\_\_\_  
 If No, Explain \_\_\_\_\_

Procedure: ELS Ground water SOP 5-7A

Date: 1/28/21  
 Sampler: CP  
 Employer: LCRA



LCRA Environmental Laboratory Services  
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August 30, 2021

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

RE: Final Analytical Report                      Q2119257

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](mailto:environmental.lab@lcra.org). We look forward to assisting you again.

Authorized for release by:

Jason Woods  
Account Manager  
[jason.woods@lcra.org](mailto:jason.woods@lcra.org)



Enclosures:



**Workorder:** Q2119257  
**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 |
|-------------|------------|--------|-------------------------------|------------------|------------------|-------------------|
| Q2119257001 | CBL - 301I | AQ     | E300.0, Anions                | 07/20/2021 10:00 | 07/22/2021 14:15 | 3                 |
| Q2119257001 | CBL - 301I | AQ     | Field pH SM4500H+B TCEQ VOL 1 | 07/20/2021 10:00 | 07/22/2021 14:15 | 1                 |
| Q2119257001 | CBL - 301I | AQ     | SM2540C, TDS                  | 07/20/2021 10:00 | 07/22/2021 14:15 | 1                 |
| Q2119257001 | CBL - 301I | AQ     | SW6010B ICP-AES               | 07/20/2021 10:00 | 07/22/2021 14:15 | 2                 |
| Q2119257002 | CBL - 302I | AQ     | E300.0, Anions                | 07/21/2021 12:01 | 07/22/2021 14:15 | 3                 |
| Q2119257002 | CBL - 302I | AQ     | Field pH SM4500H+B TCEQ VOL 1 | 07/21/2021 12:01 | 07/22/2021 14:15 | 1                 |
| Q2119257002 | CBL - 302I | AQ     | SM2540C, TDS                  | 07/21/2021 12:01 | 07/22/2021 14:15 | 1                 |
| Q2119257002 | CBL - 302I | AQ     | SW6010B ICP-AES               | 07/21/2021 12:01 | 07/22/2021 14:15 | 2                 |
| Q2119257003 | CBL - 306I | AQ     | E300.0, Anions                | 07/21/2021 09:30 | 07/22/2021 14:15 | 3                 |
| Q2119257003 | CBL - 306I | AQ     | Field pH SM4500H+B TCEQ VOL 1 | 07/21/2021 09:30 | 07/22/2021 14:15 | 1                 |
| Q2119257003 | CBL - 306I | AQ     | SM2540C, TDS                  | 07/21/2021 09:30 | 07/22/2021 14:15 | 1                 |
| Q2119257003 | CBL - 306I | AQ     | SW6010B ICP-AES               | 07/21/2021 09:30 | 07/22/2021 14:15 | 2                 |
| Q2119257004 | CBL - 308I | AQ     | E300.0, Anions                | 07/21/2021 10:35 | 07/22/2021 14:15 | 3                 |
| Q2119257004 | CBL - 308I | AQ     | Field pH SM4500H+B TCEQ VOL 1 | 07/21/2021 10:35 | 07/22/2021 14:15 | 1                 |
| Q2119257004 | CBL - 308I | AQ     | SM2540C, TDS                  | 07/21/2021 10:35 | 07/22/2021 14:15 | 1                 |
| Q2119257004 | CBL - 308I | AQ     | SW6010B ICP-AES               | 07/21/2021 10:35 | 07/22/2021 14:15 | 2                 |
| Q2119257005 | CBL - 340I | AQ     | E300.0, Anions                | 07/22/2021 11:23 | 07/22/2021 14:15 | 3                 |
| Q2119257005 | CBL - 340I | AQ     | Field pH SM4500H+B TCEQ VOL 1 | 07/22/2021 11:23 | 07/22/2021 14:15 | 1                 |
| Q2119257005 | CBL - 340I | AQ     | SM2540C, TDS                  | 07/22/2021 11:23 | 07/22/2021 14:15 | 1                 |
| Q2119257005 | CBL - 340I | AQ     | SW6010B ICP-AES               | 07/22/2021 11:23 | 07/22/2021 14:15 | 2                 |
| Q2119257006 | CBL - 341I | AQ     | E300.0, Anions                | 07/22/2021 09:55 | 07/22/2021 14:15 | 3                 |
| Q2119257006 | CBL - 341I | AQ     | Field pH SM4500H+B TCEQ VOL 1 | 07/22/2021 09:55 | 07/22/2021 14:15 | 1                 |
| Q2119257006 | CBL - 341I | AQ     | SM2540C, TDS                  | 07/22/2021 09:55 | 07/22/2021 14:15 | 1                 |
| Q2119257006 | CBL - 341I | AQ     | SW6010B ICP-AES               | 07/22/2021 09:55 | 07/22/2021 14:15 | 2                 |
| Q2119257007 | CBL - 640I | AQ     | E300.0, Anions                | 07/22/2021 11:23 | 07/22/2021 14:15 | 3                 |
| Q2119257007 | CBL - 640I | AQ     | Field pH SM4500H+B TCEQ VOL 1 | 07/22/2021 11:23 | 07/22/2021 14:15 | 1                 |
| Q2119257007 | CBL - 640I | AQ     | SM2540C, TDS                  | 07/22/2021 11:23 | 07/22/2021 14:15 | 1                 |
| Q2119257007 | CBL - 640I | AQ     | SW6010B ICP-AES               | 07/22/2021 11:23 | 07/22/2021 14:15 | 2                 |
| Q2119257008 | EQB        | AQ     | E300.0, Anions                | 07/22/2021 10:27 | 07/22/2021 14:15 | 3                 |
| Q2119257008 | EQB        | AQ     | SM2540C, TDS                  | 07/22/2021 10:27 | 07/22/2021 14:15 | 1                 |

## Sample Summary

| Lab ID      | Sample ID | Matrix | Method          | Date Collected   | Date Received    | Analytes Reported |
|-------------|-----------|--------|-----------------|------------------|------------------|-------------------|
| Q2119257008 | EQB       | AQ     | SW6010B ICP-AES | 07/22/2021 10:27 | 07/22/2021 14:15 | 2                 |
| Q2119257009 | FB        | AQ     | E300.0, Anions  | 07/22/2021 10:30 | 07/22/2021 14:15 | 3                 |
| Q2119257009 | FB        | AQ     | SM2540C, TDS    | 07/22/2021 10:30 | 07/22/2021 14:15 | 1                 |
| Q2119257009 | FB        | AQ     | SW6010B ICP-AES | 07/22/2021 10:30 | 07/22/2021 14:15 | 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**



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

## Workorder Summary

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## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 07/20/2021 10:00 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2119257001      | <b>Date Received:</b> 07/22/2021 14:15  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> CBL - 3011    | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

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

| Parameter | Results | Units | MRL | LOD | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------|---------|-------|-----|-----|----|----|------------------|-----|------------------|-----|-----------|
| pH        | 6.13    | pH    |     |     |    | 1  | 07/20/2021 10:00 | CCP | 07/20/2021 10:00 | CCP | N         |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL    | LOD    | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|--------|--------|----|----|------------------|----|------------------|----|-----------|
| Fluoride  | 2.68    | mg/L  | 0.0500 | 0.0200 |    | 5  | 07/26/2021 22:21 | ML | 07/26/2021 22:21 | ML |           |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL  | LOD  | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|------|------|----|----|------------------|----|------------------|----|-----------|
| Chloride  | 2590    | mg/L  | 50.0 | 20.0 |    | 50 | 07/23/2021 03:31 | FO | 07/23/2021 03:31 | FO |           |
| Sulfate   | 419     | mg/L  | 50.0 | 20.0 |    | 50 | 07/23/2021 03:31 | FO | 07/23/2021 03:31 | FO |           |

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

| Parameter     | Results | Units | MRL  | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|---------------|---------|-------|------|-------|----|----|------------------|----|------------------|----|-----------|
| Calcium Total | 1100    | mg/L  | 2.00 | 0.700 |    | 10 | 07/26/2021 09:56 | ME | 07/28/2021 22:14 | FM |           |

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

| Parameter   | Results | Units | MRL    | LOD    | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-------------|---------|-------|--------|--------|----|----|------------------|----|------------------|----|-----------|
| Boron Total | 0.0826  | mg/L  | 0.0500 | 0.0200 |    | 1  | 07/26/2021 09:56 | ME | 07/27/2021 22:48 | FO |           |

### TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

| Parameter                   | Results | Units | MRL | LOD | ML | DF  | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------------------------|---------|-------|-----|-----|----|-----|------------------|-----|------------------|-----|-----------|
| Total Dissolved Solids(TDS) | 5870    | mg/L  | 250 | 250 |    | 100 | 07/26/2021 14:06 | ERR | 07/26/2021 14:06 | ERR |           |

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 07/21/2021 12:01 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2119257002      | <b>Date Received:</b> 07/22/2021 14:15  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> CBL - 3021    | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

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

| Parameter | Results | Units | MRL | LOD | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------|---------|-------|-----|-----|----|----|------------------|-----|------------------|-----|-----------|
| pH        | 6.06    | pH    |     |     |    | 1  | 07/21/2021 12:01 | CCP | 07/21/2021 12:01 | CCP | N         |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL    | LOD    | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|--------|--------|----|----|------------------|----|------------------|----|-----------|
| Fluoride  | 2.25    | mg/L  | 0.0500 | 0.0200 |    | 5  | 07/26/2021 22:39 | ML | 07/26/2021 22:39 | ML |           |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL  | LOD  | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|------|------|----|----|------------------|----|------------------|----|-----------|
| Chloride  | 1380    | mg/L  | 50.0 | 20.0 |    | 50 | 07/23/2021 03:49 | FO | 07/23/2021 03:49 | FO |           |
| Sulfate   | 1350    | mg/L  | 50.0 | 20.0 |    | 50 | 07/23/2021 03:49 | FO | 07/23/2021 03:49 | FO |           |

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

| Parameter   | Results | Units | MRL    | LOD    | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-------------|---------|-------|--------|--------|----|----|------------------|----|------------------|----|-----------|
| Boron Total | 0.0743  | mg/L  | 0.0500 | 0.0200 |    | 1  | 07/26/2021 09:56 | ME | 07/27/2021 23:06 | FO |           |

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

| Parameter     | Results | Units | MRL  | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|---------------|---------|-------|------|-------|----|----|------------------|----|------------------|----|-----------|
| Calcium Total | 844     | mg/L  | 2.00 | 0.700 |    | 10 | 07/26/2021 09:56 | ME | 07/28/2021 22:21 | FM |           |

### TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

| Parameter                   | Results | Units | MRL | LOD | ML | DF  | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------------------------|---------|-------|-----|-----|----|-----|------------------|-----|------------------|-----|-----------|
| Total Dissolved Solids(TDS) | 4810    | mg/L  | 250 | 250 |    | 100 | 07/26/2021 14:06 | ERR | 07/26/2021 14:06 | ERR |           |

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 07/21/2021 09:30 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2119257003      | <b>Date Received:</b> 07/22/2021 14:15  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> CBL - 306I    | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

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

| Parameter | Results | Units | MRL | LOD | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------|---------|-------|-----|-----|----|----|------------------|-----|------------------|-----|-----------|
| pH        | 6.55    | pH    |     |     |    | 1  | 07/21/2021 09:30 | CCP | 07/21/2021 09:30 | CCP | N         |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL   | LOD    | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|-------|--------|----|----|------------------|----|------------------|----|-----------|
| Chloride  | 255     | mg/L  | 10.0  | 4.00   |    | 10 | 07/23/2021 02:19 | FO | 07/23/2021 02:19 | FO |           |
| Fluoride  | 2.42    | mg/L  | 0.100 | 0.0400 |    | 10 | 07/23/2021 02:19 | FO | 07/23/2021 02:19 | FO |           |
| Sulfate   | 336     | mg/L  | 10.0  | 4.00   |    | 10 | 07/23/2021 02:19 | FO | 07/23/2021 02:19 | FO |           |

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

| Parameter     | Results | Units | MRL    | LOD    | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|---------------|---------|-------|--------|--------|----|----|------------------|----|------------------|----|-----------|
| Boron Total   | 0.0927  | mg/L  | 0.0500 | 0.0200 |    | 1  | 07/26/2021 09:56 | ME | 07/27/2021 23:11 | FO |           |
| Calcium Total | 216     | mg/L  | 0.200  | 0.0700 |    | 1  | 07/26/2021 09:56 | ME | 07/27/2021 23:11 | FO |           |

### TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

| Parameter                   | Results | Units | MRL  | LOD  | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------------------------|---------|-------|------|------|----|----|------------------|-----|------------------|-----|-----------|
| Total Dissolved Solids(TDS) | 1320    | mg/L  | 25.0 | 25.0 |    | 10 | 07/26/2021 14:06 | ERR | 07/26/2021 14:06 | ERR |           |

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 07/21/2021 10:35 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2119257004      | <b>Date Received:</b> 07/22/2021 14:15  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> CBL - 3081    | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

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

| Parameter | Results | Units | MRL | LOD | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------|---------|-------|-----|-----|----|----|------------------|-----|------------------|-----|-----------|
| pH        | 6.16    | pH    |     |     |    | 1  | 07/21/2021 10:35 | CCP | 07/21/2021 10:35 | CCP | N         |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL   | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|-------|-------|----|----|------------------|----|------------------|----|-----------|
| Chloride  | 1780    | mg/L  | 50.0  | 20.0  |    | 50 | 07/23/2021 04:07 | FO | 07/23/2021 04:07 | FO |           |
| Fluoride  | 1.74    | mg/L  | 0.500 | 0.200 |    | 50 | 07/23/2021 04:07 | FO | 07/23/2021 04:07 | FO |           |
| Sulfate   | 1240    | mg/L  | 50.0  | 20.0  |    | 50 | 07/23/2021 04:07 | FO | 07/23/2021 04:07 | FO |           |

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

| Parameter     | Results | Units | MRL  | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|---------------|---------|-------|------|-------|----|----|------------------|----|------------------|----|-----------|
| Calcium Total | 684     | mg/L  | 1.00 | 0.350 |    | 5  | 07/26/2021 09:56 | ME | 07/28/2021 22:27 | FM |           |

### 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  | 07/26/2021 09:56 | ME | 07/27/2021 23:17 | FO |           |

### TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

| Parameter                   | Results | Units | MRL | LOD | ML | DF  | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------------------------|---------|-------|-----|-----|----|-----|------------------|-----|------------------|-----|-----------|
| Total Dissolved Solids(TDS) | 5270    | mg/L  | 250 | 250 |    | 100 | 07/26/2021 14:06 | ERR | 07/26/2021 14:06 | ERR |           |

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 07/22/2021 11:23 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2119257005      | <b>Date Received:</b> 07/22/2021 14:15  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> CBL - 3401    | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

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

| Parameter | Results | Units | MRL | LOD | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------|---------|-------|-----|-----|----|----|------------------|-----|------------------|-----|-----------|
| pH        | 6.24    | pH    |     |     |    | 1  | 07/22/2021 11:23 | CCP | 07/22/2021 11:23 | CCP | N         |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL   | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|-------|-------|----|----|------------------|----|------------------|----|-----------|
| Chloride  | 2200    | mg/L  | 50.0  | 20.0  |    | 50 | 07/23/2021 02:37 | FO | 07/23/2021 02:37 | FO |           |
| Fluoride  | 0.865   | mg/L  | 0.500 | 0.200 |    | 50 | 07/23/2021 02:37 | FO | 07/23/2021 02:37 | FO |           |
| Sulfate   | 618     | mg/L  | 50.0  | 20.0  |    | 50 | 07/23/2021 02:37 | FO | 07/23/2021 02:37 | FO |           |

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

| Parameter     | Results | Units | MRL  | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|---------------|---------|-------|------|-------|----|----|------------------|----|------------------|----|-----------|
| Calcium Total | 532     | mg/L  | 1.00 | 0.350 |    | 5  | 07/26/2021 09:56 | ME | 07/28/2021 22:33 | FM |           |

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

| Parameter   | Results | Units | MRL    | LOD    | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-------------|---------|-------|--------|--------|----|----|------------------|----|------------------|----|-----------|
| Boron Total | 0.384   | mg/L  | 0.0500 | 0.0200 |    | 1  | 07/26/2021 09:56 | ME | 07/27/2021 23:23 | FO |           |

### TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

| Parameter                   | Results | Units | MRL | LOD | ML | DF  | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------------------------|---------|-------|-----|-----|----|-----|------------------|-----|------------------|-----|-----------|
| Total Dissolved Solids(TDS) | 4990    | mg/L  | 250 | 250 |    | 100 | 07/26/2021 14:06 | ERR | 07/26/2021 14:06 | ERR |           |



## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 07/22/2021 09:55 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2119257006      | <b>Date Received:</b> 07/22/2021 14:15  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> CBL - 3411    | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

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

| Parameter | Results | Units | MRL | LOD | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------|---------|-------|-----|-----|----|----|------------------|-----|------------------|-----|-----------|
| pH        | 5.98    | pH    |     |     |    | 1  | 07/22/2021 09:55 | CCP | 07/22/2021 09:55 | CCP | N         |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL    | LOD    | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|--------|--------|----|----|------------------|----|------------------|----|-----------|
| Fluoride  | 1.16    | mg/L  | 0.0500 | 0.0200 |    | 5  | 07/26/2021 22:57 | ML | 07/26/2021 22:57 | ML |           |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL  | LOD  | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|------|------|----|----|------------------|----|------------------|----|-----------|
| Chloride  | 1750    | mg/L  | 50.0 | 20.0 |    | 50 | 07/23/2021 02:55 | FO | 07/23/2021 02:55 | FO |           |
| Sulfate   | 316     | mg/L  | 50.0 | 20.0 |    | 50 | 07/23/2021 02:55 | FO | 07/23/2021 02:55 | FO |           |

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

| Parameter     | Results | Units | MRL  | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|---------------|---------|-------|------|-------|----|----|------------------|----|------------------|----|-----------|
| Calcium Total | 852     | mg/L  | 2.00 | 0.700 |    | 10 | 07/26/2021 09:56 | ME | 07/28/2021 22:40 | FM |           |

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

| Parameter   | Results | Units | MRL    | LOD    | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-------------|---------|-------|--------|--------|----|----|------------------|----|------------------|----|-----------|
| Boron Total | 0.111   | mg/L  | 0.0500 | 0.0200 |    | 1  | 07/26/2021 09:56 | ME | 07/27/2021 23:29 | FO |           |

### TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

| Parameter                   | Results | Units | MRL | LOD | ML | DF  | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------------------------|---------|-------|-----|-----|----|-----|------------------|-----|------------------|-----|-----------|
| Total Dissolved Solids(TDS) | 4520    | mg/L  | 250 | 250 |    | 100 | 07/26/2021 14:06 | ERR | 07/26/2021 14:06 | ERR |           |

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 07/22/2021 11:23 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2119257007      | <b>Date Received:</b> 07/22/2021 14:15  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> CBL - 6401    | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

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

| Parameter | Results | Units | MRL | LOD | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------|---------|-------|-----|-----|----|----|------------------|-----|------------------|-----|-----------|
| pH        | 6.24    | pH    |     |     |    | 1  | 07/22/2021 11:23 | CCP | 07/22/2021 11:23 | CCP | N         |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL   | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|-------|-------|----|----|------------------|----|------------------|----|-----------|
| Chloride  | 2000    | mg/L  | 50.0  | 20.0  |    | 50 | 07/23/2021 03:13 | FO | 07/23/2021 03:13 | FO |           |
| Fluoride  | 0.885   | mg/L  | 0.500 | 0.200 |    | 50 | 07/23/2021 03:13 | FO | 07/23/2021 03:13 | FO |           |
| Sulfate   | 553     | mg/L  | 50.0  | 20.0  |    | 50 | 07/23/2021 03:13 | FO | 07/23/2021 03:13 | FO |           |

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

| Parameter   | Results | Units | MRL    | LOD    | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-------------|---------|-------|--------|--------|----|----|------------------|----|------------------|----|-----------|
| Boron Total | 0.392   | mg/L  | 0.0500 | 0.0200 |    | 1  | 07/26/2021 09:56 | ME | 07/27/2021 23:35 | FO |           |

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

| Parameter     | Results | Units | MRL  | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|---------------|---------|-------|------|-------|----|----|------------------|----|------------------|----|-----------|
| Calcium Total | 504     | mg/L  | 1.00 | 0.350 |    | 5  | 07/26/2021 09:56 | ME | 07/28/2021 22:47 | FM |           |

### TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

| Parameter                   | Results | Units | MRL | LOD | ML | DF  | Prepared         | By  | Analyzed         | By  | Qualifier |
|-----------------------------|---------|-------|-----|-----|----|-----|------------------|-----|------------------|-----|-----------|
| Total Dissolved Solids(TDS) | 4850    | mg/L  | 250 | 250 |    | 100 | 07/26/2021 14:06 | ERR | 07/26/2021 14:06 | ERR |           |

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 07/22/2021 10:27 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2119257008      | <b>Date Received:</b> 07/22/2021 14:15  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> EQB           | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

### 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  | 07/22/2021 21:12 | FO | 07/22/2021 21:12 | FO |           |
| Fluoride  | <0.0100 | mg/L  | 0.0100 | 0.00400 |    | 1  | 07/22/2021 21:12 | FO | 07/22/2021 21:12 | FO |           |
| Sulfate   | <1.00   | mg/L  | 1.00   | 0.400   |    | 1  | 07/22/2021 21:12 | FO | 07/22/2021 21:12 | 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  | 07/26/2021 09:56 | ME | 07/27/2021 23:42 | FO |           |
| Calcium Total | <0.200  | mg/L  | 0.200  | 0.0700 |    | 1  | 07/26/2021 09:56 | ME | 07/27/2021 23:42 | FO |           |

### 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 | 07/26/2021 14:06 | ERR | 07/26/2021 14:06 | ERR |           |

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 07/22/2021 10:30 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2119257009      | <b>Date Received:</b> 07/22/2021 14:15  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> FB            | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

### 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  | 07/23/2021 01:43 | FO | 07/23/2021 01:43 | FO |           |
| Fluoride  | <0.0100 | mg/L  | 0.0100 | 0.00400 |    | 1  | 07/23/2021 01:43 | FO | 07/23/2021 01:43 | FO |           |
| Sulfate   | <1.00   | mg/L  | 1.00   | 0.400   |    | 1  | 07/23/2021 01:43 | FO | 07/23/2021 01:43 | 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  | 07/26/2021 09:56 | ME | 07/27/2021 23:48 | FO |           |
| Calcium Total | <0.200  | mg/L  | 0.200  | 0.0700 |    | 1  | 07/26/2021 09:56 | ME | 07/27/2021 23:48 | FO |           |

### 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 | 07/26/2021 14:06 | ERR | 07/26/2021 14:06 | ERR |           |

## Quality Control Results

**QC Batch:** MET/8631      **Analysis Method:** SW6010B ICP-AES  
**Preparation Method:** SW3010A, Metals Prep  
**Associated Lab IDs:** Q2119257001, Q2119257002, Q2119257003, Q2119257004, Q2119257005, Q2119257006, Q2119257007, Q2119257008, Q2119257009

### Matrix Spike (1634247); Matrix Spike Duplicate (1634248); Original: Q2119257001

| Parameter     | Units | Spiked Amount | Spike Result | %Spike Recovery | Control Limits % | Duplicate Result | %Duplicate Recovery | RPD       | RPD Limit | Qualifier |
|---------------|-------|---------------|--------------|-----------------|------------------|------------------|---------------------|-----------|-----------|-----------|
| Boron Total   | mg/L  | 1.0           | 1.15         | 107.0           | 75 - 125         | 1.14             | 106.0               | 0.87<br>3 | 20        |           |
| Calcium Total | mg/L  | 10.0          | 1040.0       | -557.0          | 75 - 125         | 1040.0           | -619.0              | 0.0       | 20        | SL        |

### Lab Control Sample (1634244); Lab Control Sample Duplicate (1634245)

| Parameter     | Units | Spiked Amount | Spike Result | %Spike Recovery | Control Limits % | Duplicate Result | %Duplicate Recovery | RPD       | RPD Limit | Qualifier |
|---------------|-------|---------------|--------------|-----------------|------------------|------------------|---------------------|-----------|-----------|-----------|
| Boron Total   | mg/L  | 1.0           | 1.04         | 104.0           | 80 - 120         | 1.03             | 103.0               | 0.96<br>6 | 20        |           |
| Calcium Total | mg/L  | 10.0          | 10.6         | 106.0           | 80 - 120         | 10.5             | 105.0               | 0.94<br>8 | 20        |           |

### Method Blank(1634246)

| 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 |           |

## Quality Control Results

**QC Batch:** WET/24648      **Analysis Method:** E300.0, Anions  
**Preparation Method:** E300.0, Anions  
**Associated Lab IDs:** Q2119257001, Q2119257002, Q2119257003, Q2119257004, Q2119257005, Q2119257006, Q2119257007, Q2119257008, Q2119257009

### Limit of Quantitation Check (1633605)

| Parameter | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|-----------|
| Chloride  | mg/L  | 5.0           | 4.0          | 79.9            | 70 - 130         |           |
| Fluoride  | mg/L  | 0.02          | 0.0213       | 106.0           | 70 - 130         |           |
| Sulfate   | mg/L  | 5.0           | 4.19         | 83.8            | 70 - 130         |           |

### Method Reporting Limit Check (1633603)

| Parameter | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|-----------|
| Chloride  | mg/L  | 1.0           | 0.711        | 71.1            | 50 - 150         |           |
| Fluoride  | mg/L  | 0.01          | 0.0134       | 134.0           | 50 - 150         |           |
| Sulfate   | mg/L  | 1.0           | 0.842        | 84.2            | 50 - 150         |           |

## Quality Control Results

**QC Batch:** WET/24648      **Analysis Method:** E300.0, Anions  
**Preparation Method:** E300.0, Anions  
**Associated Lab IDs:** Q2119257001, Q2119257002, Q2119257003, Q2119257004, Q2119257005, Q2119257006, Q2119257007, Q2119257009

### Laboratory Fortified Blank (1633608)

| Parameter | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|-----------|
| Chloride  | mg/L  | 30.0          | 29.9         | 99.6            | 90 - 110         |           |
| Fluoride  | mg/L  | 1.0           | 1.01         | 101.0           | 90 - 110         |           |
| Sulfate   | mg/L  | 30.0          | 29.7         | 99.0            | 90 - 110         |           |

### Laboratory Reagent Blank(1633607)

| 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 (1633612); Lab Fortified Matrix Duplicate (1633613); Original: Q2119257009

| Parameter | Units | Spiked Amount | Spike Result | %Spike Recovery | Control Limits % | Duplicate Result | %Duplicate Recovery | RPD       | RPD Limit | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|------------------|---------------------|-----------|-----------|-----------|
| Chloride  | mg/L  | 20.0          | 19.1         | 95.5            | 80 - 120         | 19.2             | 96.2                | 0.52<br>2 | 20        |           |
| Fluoride  | mg/L  | 1.0           | 1.01         | 101.0           | 80 - 120         | 1.01             | 101.0               | 0.0       | 20        |           |
| Sulfate   | mg/L  | 20.0          | 19.1         | 95.7            | 80 - 120         | 19.3             | 96.4                | 1.04      | 20        |           |

## Quality Control Results

**QC Batch:** WET/24648  
**Preparation Method:** E300.0, Anions  
**Associated Lab IDs:** Q2119257008

**Analysis Method:** E300.0, Anions

### Laboratory Reagent Blank(1633601)

| 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 (1633610); Lab Fortified Matrix Duplicate (1633611); Original: Q2119257008

| Parameter | Units | Spiked Amount | Spike Result | %Spike Recovery | Control Limits % | Duplicate Result | %Duplicate Recovery | RPD       | RPD Limit | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|------------------|---------------------|-----------|-----------|-----------|
| Chloride  | mg/L  | 20.0          | 19.0         | 95.1            | 80 - 120         | 19.3             | 96.3                | 1.57      | 20        |           |
| Fluoride  | mg/L  | 1.0           | 1.0          | 100.0           | 80 - 120         | 1.01             | 101.0               | 0.99<br>5 | 20        |           |
| Sulfate   | mg/L  | 20.0          | 18.9         | 94.3            | 80 - 120         | 19.1             | 95.5                | 1.05      | 20        |           |

### Laboratory Fortified Blank (1633604)

| Parameter | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|-----------|
| Chloride  | mg/L  | 30.0          | 29.4         | 97.8            | 90 - 110         |           |
| Fluoride  | mg/L  | 1.0           | 0.997        | 99.7            | 90 - 110         |           |
| Sulfate   | mg/L  | 30.0          | 29.2         | 97.3            | 90 - 110         |           |



## Quality Control Results

**QC Batch:** WET/24655      **Analysis Method:** SM2540C, TDS  
**Preparation Method:** SM2540C, TDS  
**Associated Lab IDs:** Q2119257001, Q2119257002, Q2119257003, Q2119257004, Q2119257005, Q2119257006, Q2119257007, Q2119257008, Q2119257009

### Method Blank(1634456)

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

### Matrix Spike (1634459); Original: Q2119265001

| Parameter                   | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------------------------|-------|---------------|--------------|-----------------|------------------|-----------|
| Total Dissolved Solids(TDS) | mg/L  | 400.0         | 980.0        | 245.0           | 70 - 130         | SH        |

### Lab Control Sample (1634457)

| Parameter                   | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------------------------|-------|---------------|--------------|-----------------|------------------|-----------|
| Total Dissolved Solids(TDS) | mg/L  | 400.0         | 381.0        | 95.2            | 80 - 120         |           |

### Duplicate (1634458); Original Q2119265001

| Parameter                   | Units | Original | Duplicate | RPD   | RPD Limit | Qualifier |
|-----------------------------|-------|----------|-----------|-------|-----------|-----------|
| Total Dissolved Solids(TDS) | mg/L  | 0.0      | 573.0     | 200.0 | 20        |           |

## Quality Control Results

**QC Batch:** WET/24659      **Analysis Method:** E300.0, Anions  
**Preparation Method:** E300.0, Anions  
**Associated Lab IDs:** Q2119257001, Q2119257002, Q2119257006

### Limit of Quantitation Check (1634704)

| Parameter | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|-----------|
| Fluoride  | mg/L  | 0.02          | 0.0237       | 118.0           | 70 - 130         |           |

### Laboratory Fortified Matrix (1634702); Lab Fortified Matrix Duplicate (1634703); Original: Q2119426001

| Parameter | Units | Spiked Amount | Spike Result | %Spike Recovery | Control Limits % | Duplicate Result | %Duplicate Recovery | RPD | RPD Limit | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|------------------|---------------------|-----|-----------|-----------|
| Fluoride  | mg/L  | 1.0           | 1.08         | 91.6            | 80 - 120         | 1.08             | 91.5                | 0.0 | 20        |           |

### Method Reporting Limit Check (1634700)

| Parameter | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|-----------|
| Fluoride  | mg/L  | 0.01          | 0.0121       | 121.0           | 50 - 150         |           |

### Laboratory Fortified Blank (1634701)

| Parameter | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|-----------|
| Fluoride  | mg/L  | 1.0           | 0.966        | 96.6            | 90 - 110         |           |

### Laboratory Reagent Blank(1634698)

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

## QC Cross Reference

| Lab ID                            | Sample ID  | Prep Batch | Prep Method          |
|-----------------------------------|------------|------------|----------------------|
| <b>MET/8631 - SW6010B ICP-AES</b> |            |            |                      |
| Q2119257001                       | CBL - 301I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257002                       | CBL - 302I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257003                       | CBL - 306I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257004                       | CBL - 308I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257005                       | CBL - 340I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257006                       | CBL - 341I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257007                       | CBL - 640I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257008                       | EQB        | MEP/11272  | SW3010A, Metals Prep |
| Q2119257009                       | FB         | MEP/11272  | SW3010A, Metals Prep |
| <b>MET/8636 - SW6010B ICP-AES</b> |            |            |                      |
| Q2119257001                       | CBL - 301I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257002                       | CBL - 302I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257004                       | CBL - 308I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257005                       | CBL - 340I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257006                       | CBL - 341I | MEP/11272  | SW3010A, Metals Prep |
| Q2119257007                       | CBL - 640I | MEP/11272  | SW3010A, Metals Prep |
| <b>WET/24648 - E300.0, Anions</b> |            |            |                      |
| Q2119257001                       | CBL - 301I |            |                      |
| Q2119257002                       | CBL - 302I |            |                      |
| Q2119257003                       | CBL - 306I |            |                      |
| Q2119257004                       | CBL - 308I |            |                      |
| Q2119257005                       | CBL - 340I |            |                      |
| Q2119257006                       | CBL - 341I |            |                      |
| Q2119257007                       | CBL - 640I |            |                      |
| Q2119257008                       | EQB        |            |                      |
| Q2119257009                       | FB         |            |                      |
| <b>WET/24655 - SM2540C, TDS</b>   |            |            |                      |
| Q2119257001                       | CBL - 301I |            |                      |
| Q2119257002                       | CBL - 302I |            |                      |
| Q2119257003                       | CBL - 306I |            |                      |
| Q2119257004                       | CBL - 308I |            |                      |
| Q2119257005                       | CBL - 340I |            |                      |
| Q2119257006                       | CBL - 341I |            |                      |
| Q2119257007                       | CBL - 640I |            |                      |
| Q2119257008                       | EQB        |            |                      |
| Q2119257009                       | FB         |            |                      |

## QC Cross Reference

| Lab ID                            | Sample ID  | Prep Batch | Prep Method |
|-----------------------------------|------------|------------|-------------|
| <i>WET/24659 - E300.0, Anions</i> |            |            |             |
| Q2119257001                       | CBL - 301I |            |             |
| Q2119257002                       | CBL - 302I |            |             |
| Q2119257006                       | CBL - 341I |            |             |

End of Report

## 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#: <b>02119257</b>   |
| Client PO:   |
| Invoice to: BECKIE LOEVE<br>FAYETTE POWER PLANT<br>6549 POWER PLANT RD<br>MAIL STOP FPP<br>La Grange, TX 78945 |

|                   |                                  |                 |             |
|-------------------|----------------------------------|-----------------|-------------|
| <b>Project:</b>   | FPP - CCR - Groundwater          | <b>Client:</b>  | LCRA        |
| <b>Collector:</b> | <i>Elle Tessell / Colt Petri</i> | <b>Contact:</b> | Lisa Benton |
| <b>Event#:</b>    |                                  | <b>Phone:</b>   |             |

|                   |  |
|-------------------|--|
| <b>Report to:</b> | BECKIE LOEVE<br>FAYETTE POWER PLANT<br>6549 POWER PLANT RD<br>MAIL STOP FPP<br>La Grange, TX 78945 |
|-------------------|--|

|     | Sample ID *   | Collected |             | Matrix*<br>AQ = Aqueous<br>DW = Drinking<br>Water<br>S = Solid<br>T = Tissue | COMPOSITE Y/N | FILTERED Y/N | Containers |       |  |  | Requested Analysis * |  |            |            |         |      |
|-----|---|-----------|-------------|--|---------------|--------------|------------|-------|--|--|----------------------|--|------------|------------|---------|------|
|     |   | Date*     | Time HH:MM* |  |               |              | 250PHNO3   | 500PU |  |  |                      |  | 2540-AMTDS | 300.0AM-28 | 6010-AM | F-pH |
| 001 | CBL - 301I  | 7/20/21   | 1000        | AQ   | N             | N            | 1          | 1     |  |  |                      |  | X          | X          | X       | X    |
| 002 | CBL - 302I  | 7/21/21   | 1201        | AQ   |               |              | 1          | 1     |  |  |                      |  | X          | X          | X       | X    |
| 003 | CBL - 306I  | 7/21/21   | 930         | AQ   |               |              | 1          | 1     |  |  |                      |  | X          | X          | X       | X    |
| 004 | CBL - 308I  | 7/21/21   | 1035        | AQ   |               |              | 1          | 1     |  |  |                      |  | X          | X          | X       | X    |
| 005 | CBL - 340I  | 7/22/21   | 1123        | AQ   |               |              | 1          | 1     |  |  |                      |  | X          | X          | X       | X    |
| 006 | CBL - <del>341I</del> <sup>colt petri</sup><br>341I | 7/22/21   | 955         | AQ   |               |              | 1          | 1     |  |  |                      |  | X          | X          | X       | X    |
| 007 | CBL - <del>641I</del> <sup>colt petri</sup><br>641I | 7/22/21   | 1123        | AQ   |               |              | 1          | 1     |  |  |                      |  | X          | X          | X       | X    |
| 008 | EQB   | 7/22/21   | 1027        | AQ   |               |              | 1          | 1     |  |  |                      |  | X          | X          | X       |      |
| 009 | FB  | 7/22/21   | 1030        | AQ   |               |              | 1          | 1     |  |  |                      |  | X          | X          | X       |      |

| Transfers | Relinquished By   | Date/Time |      | Received By         | Date/Time  |      | Cooler Temp: |     |       |       | Client Special Instructions: |  |
|-----------|-------------------|-----------|------|---------------------|------------|------|--------------|-----|-------|-------|------------------------------|--|
|           |                   |           |      |                     |            |      | #            | T#  | Obs.  | Corr. |                              |  |
| 1         | <i>Colt Petri</i> | 7/22/21   | 1415 | <i>Sanak Rashid</i> | 07/22/2021 | 1415 |              |     |       |       |                              |  |
| 2         |                   |           |      |                     |            |      | 1            | 129 | 0.1°C | 0.2°C |                              |  |
| 3         |                   |           |      |                     |            |      | 2            |     |       |       |                              |  |

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.



**Field Information Form**

**PURGING INFORMATION**

210720

PURGE DATE  
(YY MM DD)

0918

START PURGE  
(2400 Hr. Clock)

V= 29

WATER VOL IN CASING  
(Gallons)

88

3 X WELL VOL. IN  
(Gallons)

10

ACTUAL VOLUME PURGED  
(Gallons)

**PURGING AND SAMPLING EQUIPMENT**

Purging Equipment ..... Dedicated  Y  N

Sampling Equipment ..... Dedicated  Y  N

|                   |                                       |                    |                 |                      |    |                          |
|-------------------|---------------------------------------|--------------------|-----------------|----------------------|----|--------------------------|
| Purging Device    | <input checked="" type="checkbox"/> A | A-Submersible Pump | D-Gas Lift Pump | G-Bailer             | X- | _____                    |
| Sampling Device   | <input checked="" type="checkbox"/> A | B-Peristaltic Pump | E-Venturi Pump  | H-Scoop/Shovel       | X- | Purging Other (Specify)  |
|                   |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump        | X- | _____                    |
|                   |                                       |                    |                 |                      |    | Sampling Other (Specify) |
| Purging Material  | <input checked="" type="checkbox"/> E | A-Teflon           | C-Polypropylene | E-Polyethylene       | X- | _____                    |
| Sampling Material | <input checked="" type="checkbox"/> E | B-Stainless Steel  | D-PVC           |                      | X- | Purging Other (Specify)  |
|                   |                                       |                    |                 |                      | X- | _____                    |
|                   |                                       |                    |                 |                      |    | Sampling Other (Specify) |
| Tubing-Purging    | <input checked="" type="checkbox"/> E | A-Teflon           | D-Polypropylene | F-Silicon            | X- | _____                    |
| Tubing-Sampling   | <input checked="" type="checkbox"/> E | B-Tygon            | E-Polyethylene  | G-Combination        | X- | Purging Other (Specify)  |
|                   |                                       |                    |                 | teflon/Polypropylene | X- | _____                    |
|                   |                                       |                    |                 |                      |    | Sampling Other (Specify) |
|                   |                                       | C-Rope             | X-              |                      |    | _____                    |

(Specify)

**FIELD MEASUREMENTS**

|  |  |                                     |                          |
|--|--|-------------------------------------|--------------------------|
| Well Elevation   | <u>        </u> (ft/msl)                   | Land Surface Elevation              | <u>        </u> (ft/msl) |
| Depth to water<br>From top of well casing = D <sub>w</sub> | <u>36.08</u> (ft)                          | Depth to water<br>From land surface | <u>        </u> (ft)     |
| Groundwater Elevation                                      | <u>        </u> (ft/msl)                   | Groundwater Elevation               | <u>        </u> (ft/msl) |
| Well Depth = D   | <u>54.10</u> (ft)                          | Pump Placement                      | <u>50</u> (ft)           |
| <u>6.13</u> (STD)<br>PH                                    | <u>7852</u> uS/cm<br>Specific Conductivity | Sample Temp.                        | <u>26.11</u> (°C)        |

| Bottle |         |                               | Analysis | Field Filt. Y/N |
|--------|---------|-------------------------------|----------|-----------------|
| Type   | Size    | Preservative                  |          |                 |
| P      | 2x250ml | H <sub>2</sub> O <sub>2</sub> | Metals   | N               |
| P      | 250ml   | ICE                           | Anions   | N               |
| P      | 500ml   | ICE                           | Anions   | N               |

Sample Appearance: Clear Odor: none Color: Clear Turbidity: 23.3  
 Weather Conditions: Overcast no wind 78°  
 Other: Purge water is milky white clearing after 1gallon

**WELL VOLUME CALCULATION**

Well Appearance Normal: Yes  No \_\_\_\_\_  
 If No, Explain \_\_\_\_\_

V=(D-D<sub>w</sub>) (A) (7.48 galft<sup>3</sup>) where  
 V= volume of standing water in well  
 D= depth to bottom of well below measuring point  
 D<sub>w</sub>=depth to water below measuring point  
 A= cross-sectional area

Procedure: EHS Ground water SOP 5-7D

Date: 7/20/21  
 Sampler: ET/CP  
 Employer: LCRA

2" dia. A= 0.0218 4" dia. A= 0.0872

**Field Information Form**

**PURGING INFORMATION**

PURGE DATE (YY MM DD) 210721 START PURGE (2400 Hr. Clock) 0857 WATER VOL IN CASING (Gallons) V= 1.6 3 X WELL VOL. IN (Gallons) 4.8 ACTUAL VOLUME PURGED (Gallons) 6

**PURGING AND SAMPLING EQUIPMENT**

Purging Equipment Dedicated  INI Sampling Equipment Dedicated  INI

|                   |                                       |                    |                 |                                       |    |                          |
|-------------------|---------------------------------------|--------------------|-----------------|---------------------------------------|----|--------------------------|
| Purging Device    | <input checked="" type="checkbox"/> B | A-Submersible Pump | D-Gas Lift Pump | G-Bailer                              | X- |                          |
| Sampling Device   | <input checked="" type="checkbox"/> B | B-Peristaltic Pump | E-Venturi Pump  | H-Scoop/Shovel                        | X- | Purging Other (Specify)  |
|                   |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump                         | X- | Sampling Other (Specify) |
| Purging Material  | <input checked="" type="checkbox"/> E | A-Teflon           | C-Polypropylene | E-Polyethylene                        | X- |                          |
| Sampling Material | <input checked="" type="checkbox"/> F | B-Stainless Steel  | D-PVC           |                                       | X- | Purging Other (Specify)  |
| Tubing-Purging    | <input checked="" type="checkbox"/> E | A-Teflon           | D-Polypropylene | F-Silicon                             | X- | Sampling Other (Specify) |
| Tubing-Sampling   | <input checked="" type="checkbox"/> F | B-Tygon            | E-Polyethylene  | G-Combination<br>teflon/Polypropylene | X- | Purging Other (Specify)  |
|                   |                                       | C-Rope             | X-              |                                       | X- | Sampling Other (Specify) |

**FIELD MEASUREMENTS**

Well Elevation            (ft/msl) Land Surface Elevation            (ft/msl)  
Depth to water From top of well casing = D<sub>w</sub> 5.01 (ft) Depth to water From land surface            (ft)  
Groundwater Elevation            (ft/msl) Groundwater Elevation            (ft/msl)  
Well Depth = D 14.80 (ft) Pump Placement 1.2 (ft)  
PH 6.55 (STD) Specific Conductivity 1513 uS/cm Sample Temp. 22.88 (°C)

| Bottle |         |                               | Analysis | Field Filt. Y/N |
|--------|---------|-------------------------------|----------|-----------------|
| Type   | Size    | Preservative                  |          |                 |
| P      | 2x250ml | H <sub>2</sub> O <sub>2</sub> | Metals   | N               |
| P      | 250ml   | ICE                           | Anions   | N               |
| P      | 500ml   | ICE                           | Anions   | N               |

Sample Appearance: Clear Odor: none Color: Clear Turbidity: 10.7  
Weather Conditions: Clear south east wind 0-5mph 80°  
Other: Purge water is clear with no odor. Tank has water running in it it is higher than normal.

**WELL VOLUME CALCULATION**

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

Well Appearance Normal: Yes  No   
If No, Explain \_\_\_\_\_

Procedure: EL5 Ground water SOP S-7P

Date: 7/21/21  
Sampler: ET/CP  
Employer: LCRA

# Field Information Form

Sample Date: 7/21/21 (11)  
 Sample Time: 1035  
 Sample ID: CBL3082

## PURGING INFORMATION

PURGE DATE (YY MM DD): 210721      START PURGE (2400 Hr. Clock): 0953      V= 2      WATER VOL IN CASING (Gallons): 6      3 X WELL VOL, IN (Gallons): 6      ACTUAL VOLUME PURGED (Gallons): 6

## PURGING AND SAMPLING EQUIPMENT

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

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

## FIELD MEASUREMENTS

Well Elevation: \_\_\_\_\_ (ft/msl)      Land Surface Elevation: \_\_\_\_\_ (ft/msl)  
 Depth to water From top of well casing = D<sub>w</sub>: 22.93 (ft)      Depth to water From land surface: \_\_\_\_\_ (ft)  
 Groundwater Elevation: \_\_\_\_\_ (ft/msl)      Groundwater Elevation: \_\_\_\_\_ (ft/msl)  
 Well Depth = D: 35.25 (ft)      Pump Placement: 31 (ft)  
 PH: 6.16 (STD)      Specific Conductivity: 7742 uS/cm      Sample Temp.: 23.30 (°C)

| Bottle |         |                  | Analysis | Field Filt. Y/N |
|--------|---------|------------------|----------|-----------------|
| Type   | Size    | Preservative     |          |                 |
| P      | 2x250ml | HVO <sub>2</sub> | metals   | N               |
| P      | 500ml   | ICE              | Anions   | N               |
| P      | 250ml   | ICE              | Anions   | N               |

Sample Appearance: clear      Odor: none      Color: clear      Turbidity: 1.63  
 Weather Conditions: clear south east wind 0-5mp 84°  
 Other: Purge water is clear with no odor

### WELL VOLUME CALCULATION

V=(D-D<sub>w</sub>) (A) (7.48 gal/ft<sup>3</sup>) where  
 V= volume of standing water in well  
 D= depth to bottom of well below measuring point  
 D<sub>w</sub>=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: ELSGround water SOP 5-7P  
 Date: 7/21/21  
 Sampler: ET/CP  
 Employer: LCRA



Sample Date: 7/21/21

Sample Time: 1201

Sample ID: CBL3021

**Field Information Form**

**PURGING INFORMATION**

210721

PURGE DATE  
(YY MM DD)

1125

START PURGE  
(2400 Hr. Clock)

V= 3

WATER VOL IN CASING  
(Gallons)

9

3 X WELL VOL. IN  
(Gallons)

8

ACTUAL VOLUME PURGED  
(Gallons)

**PURGING AND SAMPLING EQUIPMENT**

Purging Equipment ..... Dedicated  **Y** I N I

Sampling Equipment ..... Dedicated  **Y** I N I

|                   |                                       |                    |                 |                                       |    |                          |
|-------------------|---------------------------------------|--------------------|-----------------|---------------------------------------|----|--------------------------|
| Purging Device    | <input checked="" type="checkbox"/> B | A-Submersible Pump | D-Gas Lift Pump | G-Bailer                              | X- |                          |
| Sampling Device   | <input checked="" type="checkbox"/> B | B-Peristaltic Pump | E-Venturi Pump  | H-Scoop/Shovel                        | X- | Purging Other (Specify)  |
|                   |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump                         | X- | Sampling Other (Specify) |
| Purging Material  | <input checked="" type="checkbox"/> F | A-Teflon           | C-Polypropylene | E-Polyethylene                        | X- |                          |
| Sampling Material | <input checked="" type="checkbox"/> F | B-Stainless Steel  | D-PVC           |                                       | X- | Purging Other (Specify)  |
| Tubing-Purging    | <input checked="" type="checkbox"/> F | A-Teflon           | D-Polypropylene | F-Silicon                             | X- | Sampling Other (Specify) |
| Tubing-Sampling   | <input checked="" type="checkbox"/> F | B-Tygon            | E-Polyethylene  | G-Combination<br>teflon/Polypropylene | X- | Purging Other (Specify)  |
|                   |                                       | C-Rope X-          |                 |                                       | X- | Sampling Other (Specify) |

**FIELD MEASUREMENTS**

Well Elevation                      (ft/msl)      Land Surface Elevation                      (ft/msl)

Depth to water  
From top of well casing = D<sub>w</sub> 8.64 (ft)      Depth to water  
From land surface                      (ft)

Groundwater Elevation                      (ft/msl)      Groundwater Elevation                      (ft/msl)

Well Depth = D 27.11 (ft)      Pump Placement 2.5 (ft)

6.06 (STD) PH      6249 uS/cm Specific Conductivity      Sample Temp. 21.90 (°C)

| Bottle |       |                  | Analysis        | Field Filt. Y/N |
|--------|-------|------------------|-----------------|-----------------|
| Type   | Size  | Preservative     |                 |                 |
| P      | 250ml | HVO <sub>2</sub> | Metals          | N               |
| P      | 500ml | ICE              | Anions          | N               |
| P      | 200ml | HVO <sub>2</sub> | Metals Blank #3 | N               |

Sample Appearance: Clear      Odor: none      Color: clear      Turbidity: 4.71

Weather Conditions: Clear south east wind 0-5mp 940

Other: Purge water is clear with no odors

**WELL VOLUME CALCULATION**

V=(D-D<sub>w</sub>) (A) (7.48 galft<sup>3</sup>) where  
V= volume of standing water in well  
D= depth to bottom of well below measuring point  
D<sub>w</sub>=depth to water below measuring point  
A= cross sectional area  
2" dia. A = 0.0218    4" dia. A = 0.0872

Well Appearance Normal: Yes  No   
If No, Explain \_\_\_\_\_

Procedure: ELS Ground water SOP 5-70

Date: 7/21/21  
Sampler: CP  
Employer: LCRA

Sample Date: 7/22/21 (13)Sample Time: 955Sample ID: CIBL341T**Field Information Form****PURGING INFORMATION**210722PURGE DATE  
(YY MM DD)0856START PURGE  
(2400 Hr. Clock)V= 49WATER VOL IN CASING  
(Gallons)1483 X WELL VOL. IN  
(Gallons)    ACTUAL VOLUME PURGED  
(Gallons)**PURGING AND SAMPLING EQUIPMENT**Purging Equipment ..... Dedicated  I N ISampling Equipment ..... Dedicated  I N I

|                 |                                       |                    |                 |                |    |                         |
|-----------------|---------------------------------------|--------------------|-----------------|----------------|----|-------------------------|
| Purging Device  | <input checked="" type="checkbox"/> B | A-Submersible Pump | D-Gas Lift Pump | G-Bailer       | X- | _____                   |
| Sampling Device | <input checked="" type="checkbox"/> B | B-Peristaltic Pump | E-Venturi Pump  | H-Scoop/Shovel | X- | Purging Other (Specify) |
|                 |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump  | X- | _____                   |

Sampling Other (Specify)

|                   |                                       |                   |                 |                |    |                         |
|-------------------|---------------------------------------|-------------------|-----------------|----------------|----|-------------------------|
| Purging Material  | <input checked="" type="checkbox"/> F | A-Teflon          | C-Polypropylene | E-Polyethylene | X- | _____                   |
| Sampling Material | <input checked="" type="checkbox"/> F | B-Stainless Steel | D-PVC           |                | X- | Purging Other (Specify) |

Sampling Other (Specify)

|                 |                                       |          |                 |               |    |                         |
|-----------------|---------------------------------------|----------|-----------------|---------------|----|-------------------------|
| Tubing-Purging  | <input checked="" type="checkbox"/> F | A-Teflon | D-Polypropylene | F-Silicon     | X- | _____                   |
| Tubing-Sampling | <input checked="" type="checkbox"/> F | B-Tygon  | E-Polyethylene  | G-Combination | X- | Purging Other (Specify) |

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<sub>w</sub> 16.11 (ft) | Depth to water From land surface      (ft)Groundwater Elevation      (ft/msl) | Groundwater Elevation      (ft/msl)Well Depth = D 46.43 (ft) | Pump Placement 42 (ft)5.98 (STD) PH7414 uS/cm Specific Conductivity  
6151Sample Temp. 22.75 (°C)

| Bottle |                  |                               | Analysis | Field Filt. Y/N |
|--------|------------------|-------------------------------|----------|-----------------|
| Type   | Size             | Preservative                  |          |                 |
| P      | <del>250ml</del> | H <sub>2</sub> O <sub>2</sub> | Metals   | N               |
| P      | 500ml            | Ascorbic AC                   | Anions   | N               |
|        |                  |                               |          |                 |

Sample Appearance: Clear Odor: none Color: clear Turbidity: 1.46Weather Conditions: Partly Cloudy No wind 82°Other: Purge water is clear with no odor**WELL VOLUME CALCULATION**V=(D-D<sub>w</sub>) (A) (7.48 galft<sup>3</sup>) where

V= volume of standing water in well

D= depth to bottom of well below measuring point

D<sub>w</sub>=depth to water below measuring point

A= cross-sectional area

2" dia. A= 0.0218 4" dia. A= 0.0872Well Appearance Normal: Yes  No \_\_\_\_\_  
If No, Explain \_\_\_\_\_Procedure: ELS Ground Water SOP 5-70Date: 7/22/21Sampler: ET/CPEmployer: LCRA



Sample Date: 7/22/21 14

Sample Time: 1123

Sample ID: CBL340D

### Field Information Form

#### PURGING INFORMATION

210721

PURGE DATE  
(YY MM DD)

1026

START PURGE  
(2400 Hr. Clock)

V= 28

WATER VOL. IN CASING  
(Gallons)

8.4

3 X WELL VOL. IN  
(Gallons)

ACTUAL VOLUME PURGED  
(Gallons)

#### PURGING AND SAMPLING EQUIPMENT

Purging Equipment ..... Dedicated  IN I

Sampling Equipment ..... Dedicated  IN I

|                 |                                       |                    |                 |                |    |                          |
|-----------------|---------------------------------------|--------------------|-----------------|----------------|----|--------------------------|
| Purging Device  | <input checked="" type="checkbox"/> B | A-Submersible Pump | D-Gas Lift Pump | G-Bailer       | X- | _____                    |
| Sampling Device | <input checked="" type="checkbox"/> B | B-Peristaltic Pump | E-Venturi Pump  | H-Scoop/Shovel | X- | Purging Other (Specify)  |
|                 |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump  | X- | Sampling Other (Specify) |

|                   |                                       |                   |                 |                |    |                          |
|-------------------|---------------------------------------|-------------------|-----------------|----------------|----|--------------------------|
| Purging Material  | <input checked="" type="checkbox"/> F | A-Teflon          | C-Polypropylene | E-Polyethylene | X- | _____                    |
| Sampling Material | <input checked="" type="checkbox"/> F | B-Stainless Steel | D-PVC           |                | X- | Purging Other (Specify)  |
|                   |                                       |                   |                 |                | X- | Sampling Other (Specify) |

|                 |                                       |          |                 |                      |    |                          |
|-----------------|---------------------------------------|----------|-----------------|----------------------|----|--------------------------|
| Tubing-Purging  | <input checked="" type="checkbox"/> F | A-Teflon | D-Polypropylene | F-Silicon            | X- | _____                    |
| Tubing-Sampling | <input checked="" type="checkbox"/> F | B-Tygon  | E-Polyethylene  | G-Combination        | X- | Purging Other (Specify)  |
|                 |                                       |          |                 | 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<sub>w</sub> 2294 (ft)

Depth to water  
From land surface      (ft)

Groundwater Elevation     

Groundwater Elevation      (ft/msl)

Well Depth = D 4014 (ft)

Pump Placement 37 (ft)

6.24 (STD)  
PH

7414 uS/cm  
Specific Conductivity

Sample Temp. 23.35 (°C)

| Bottle |         |              | Analysis                      | Field Filt. Y/N |
|--------|---------|--------------|-------------------------------|-----------------|
| Type   | Size    | Preservative |                               |                 |
| P      | 2x250ml | HNO3         | Metals + metals Dup. 640I     | N               |
| P      | 2x500ml | ICE          | Anions + Anions Dup. 640I     | N               |
| P      | 2x250   | HNO3         | Metal Field Blank + EQ Blank  | N               |
| P      | 2x500   | ICE          | Anions Field Blank + EQ Blank | N               |

Sample Appearance: clear Odor: none Color: clear none Turbidity: 1.48

Weather Conditions: Partly Cloudy South wind 5-10mp 87°

Other: Purge water is clear with no odor

#### WELL VOLUME CALCULATION

Well Appearance Normal: Yes  No \_\_\_\_\_  
If No, Explain \_\_\_\_\_

V=(D-D<sub>w</sub>) (A) (7.48 galft<sup>3</sup>) where  
V= volume of standing water in well  
D= depth to bottom of well below measuring point  
D<sub>w</sub>=depth to water below measuring point  
A= cross sectional area

Procedure: ELS Ground water SOP 5-7D

Date: 7/22/21

Sampler: ET/CP

Employer: LCRA

2" dia. A= 0.0218 4" dia. A = 0.0872



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

September 21, 2021

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

RE: Final Analytical Report                      Q2124046

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](mailto:environmental.lab@lcra.org). We look forward to assisting you again.

Authorized for release by:

Jason Woods  
Account Manager  
[jason.woods@lcra.org](mailto:jason.woods@lcra.org)



Enclosures:

**Workorder:** Q2124046  
**Workorder Description:** FPP\_CCR\_09072021  
**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 |
|-------------|-------------|--------|-----------------|------------------|------------------|-------------------|
| Q2124046001 | CBL-301I    | AQ     | E300.0, Anions  | 09/07/2021 13:35 | 09/07/2021 16:59 | 1                 |
| Q2124046001 | CBL-301I    | AQ     | N/A             | 09/07/2021 13:35 | 09/07/2021 16:59 | 1                 |
| Q2124046001 | CBL-301I    | AQ     | SW6010B ICP-AES | 09/07/2021 13:35 | 09/07/2021 16:59 | 1                 |
| Q2124046002 | CBL-302I    | AQ     | E300.0, Anions  | 09/07/2021 14:32 | 09/07/2021 16:59 | 1                 |
| Q2124046002 | CBL-302I    | AQ     | N/A             | 09/07/2021 14:32 | 09/07/2021 16:59 | 1                 |
| Q2124046003 | CBL-341I    | AQ     | E300.0, Anions  | 09/07/2021 15:43 | 09/07/2021 16:59 | 1                 |
| Q2124046003 | CBL-341I    | AQ     | N/A             | 09/07/2021 15:43 | 09/07/2021 16:59 | 1                 |
| Q2124046004 | EQB         | AQ     | E300.0, Anions  | 09/07/2021 14:30 | 09/07/2021 16:59 | 1                 |
| Q2124046004 | EQB         | AQ     | SW6010B ICP-AES | 09/07/2021 14:30 | 09/07/2021 16:59 | 1                 |
| Q2124046005 | Field Blank | AQ     | E300.0, Anions  | 09/07/2021 14:25 | 09/07/2021 16:59 | 1                 |
| Q2124046005 | Field Blank | AQ     | SW6010B ICP-AES | 09/07/2021 14:25 | 09/07/2021 16:59 | 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**

## Workorder Summary

---

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 09/07/2021 13:35 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2124046001      | <b>Date Received:</b> 09/07/2021 16:59  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> CBL-301I      | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

### Field Parameters (N/A)

| Parameter   | Results | Units | MRL | LOD | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-------------|---------|-------|-----|-----|----|----|------------------|-----|------------------|-----|-----------|
| Water Level | 35.28   | feet  |     |     |    | 1  | 09/07/2021 13:35 | CCP | 09/07/2021 13:35 | CCP | N         |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL   | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|-------|-------|----|----|------------------|----|------------------|----|-----------|
| Fluoride  | <0.500  | mg/L  | 0.500 | 0.200 |    | 50 | 09/08/2021 10:59 | ML | 09/08/2021 10:59 | 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  | 09/10/2021 09:58 | ME | 09/16/2021 20:31 | FM |           |



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

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 09/07/2021 14:32 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2124046002      | <b>Date Received:</b> 09/07/2021 16:59  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> CBL-3021      | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

### Field Parameters (N/A)

| Parameter   | Results | Units | MRL | LOD | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-------------|---------|-------|-----|-----|----|----|------------------|-----|------------------|-----|-----------|
| Water Level | 10.71   | feet  |     |     |    | 1  | 09/07/2021 14:32 | CCP | 09/07/2021 14:32 | CCP | N         |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL   | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|-------|-------|----|----|------------------|----|------------------|----|-----------|
| Fluoride  | <0.250  | mg/L  | 0.250 | 0.100 |    | 25 | 09/08/2021 11:45 | ML | 09/08/2021 11:45 | ML |           |



## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 09/07/2021 15:43 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2124046003      | <b>Date Received:</b> 09/07/2021 16:59  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> CBL-3411      | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

### Field Parameters (N/A)

| Parameter   | Results | Units | MRL | LOD | ML | DF | Prepared         | By  | Analyzed         | By  | Qualifier |
|-------------|---------|-------|-----|-----|----|----|------------------|-----|------------------|-----|-----------|
| Water Level | 16.02   | feet  |     |     |    | 1  | 09/07/2021 15:43 | CCP | 09/07/2021 15:43 | CCP | N         |

### INORGANICS (E300.0, Anions)

| Parameter | Results | Units | MRL   | LOD   | ML | DF | Prepared         | By | Analyzed         | By | Qualifier |
|-----------|---------|-------|-------|-------|----|----|------------------|----|------------------|----|-----------|
| Fluoride  | <0.250  | mg/L  | 0.250 | 0.100 |    | 25 | 09/08/2021 12:08 | ML | 09/08/2021 12:08 | ML |           |

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 09/07/2021 14:30 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2124046004      | <b>Date Received:</b> 09/07/2021 16:59  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> EQB           | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

### 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  | 09/08/2021 12:31 | ML | 09/08/2021 12:31 | 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  | 09/10/2021 09:58 | ME | 09/16/2021 20:36 | FM |           |

## Analytical Results

|                                 |   |                            |
|---------------------------------|---|----------------------------|
| <b>Client ID:</b> LCRA          | <b>Date Collected:</b> 09/07/2021 14:25 | <b>Matrix:</b> Aqueous     |
| <b>Lab ID:</b> Q2124046005      | <b>Date Received:</b> 09/07/2021 16:59  | <b>Sample Type:</b> SAMPLE |
| <b>Sample ID:</b> Field Blank   | <b>Location:</b>                        |                            |
| <b>Project ID:</b> FPP GWMP CCR | <b>Facility:</b>                        |                            |
|                                 | <b>Sample Point:</b>                    |                            |

### 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  | 09/08/2021 12:54 | ML | 09/08/2021 12:54 | 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  | 09/10/2021 09:58 | ME | 09/16/2021 20:41 | FM |           |

## Quality Control Results

**QC Batch:** MET/8748      **Analysis Method:** SW6010B ICP-AES  
**Preparation Method:** SW3010A, Metals Prep  
**Associated Lab IDs:** Q2124046001, Q2124046004, Q2124046005

### Lab Control Sample (1656229); Lab Control Sample Duplicate (1656230)

| Parameter   | Units | Spiked Amount | Spike Result | %Spike Recovery | Control Limits % | Duplicate Result | %Duplicate Recovery | RPD       | RPD Limit | Qualifier |
|-------------|-------|---------------|--------------|-----------------|------------------|------------------|---------------------|-----------|-----------|-----------|
| Boron Total | mg/L  | 1.0           | 1.11         | 111.0           | 80 - 120         | 1.12             | 112.0               | 0.89<br>7 | 20        |           |

### Matrix Spike (1656232); Matrix Spike Duplicate (1656233); Original: Q2124046001

| Parameter   | Units | Spiked Amount | Spike Result | %Spike Recovery | Control Limits % | Duplicate Result | %Duplicate Recovery | RPD | RPD Limit | Qualifier |
|-------------|-------|---------------|--------------|-----------------|------------------|------------------|---------------------|-----|-----------|-----------|
| Boron Total | mg/L  | 1.0           | 0.999        | 99.9            | 75 - 125         | 0.997            | 99.7                | 0.2 | 20        |           |

### Method Blank(1656231)

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

## Quality Control Results

**QC Batch:** WET/24933      **Analysis Method:** E300.0, Anions  
**Preparation Method:** E300.0, Anions  
**Associated Lab IDs:** Q2124046001, Q2124046002, Q2124046003, Q2124046004, Q2124046005

### Laboratory Reagent Blank(1654723)

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

### Method Reporting Limit Check (1654725)

| Parameter | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|-----------|
| Fluoride  | mg/L  | 0.01          | 0.0124       | 124.0           | 50 - 150         |           |

### Limit of Quantitation Check (1654727)

| Parameter | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|-----------|
| Fluoride  | mg/L  | 0.02          | 0.021        | 105.0           | 70 - 130         |           |

### Laboratory Fortified Matrix (1654728); Lab Fortified Matrix Duplicate (1654729); Original: Q2124046001

| Parameter | Units | Spiked Amount | Spike Result | %Spike Recovery | Control Limits % | Duplicate Result | %Duplicate Recovery | RPD  | RPD Limit | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|------------------|---------------------|------|-----------|-----------|
| Fluoride  | mg/L  | 50.0          | 50.3         | 101.0           | 80 - 120         | 51.4             | 103.0               | 2.16 | 20        |           |

### Laboratory Fortified Blank (1654726)

| Parameter | Units | Spiked Amount | Spike Result | Spike Recovery% | Control Limits % | Qualifier |
|-----------|-------|---------------|--------------|-----------------|------------------|-----------|
| Fluoride  | mg/L  | 1.0           | 1.05         | 105.0           | 90 - 110         |           |

## Quality Control Results

**QC Batch:** WET/24933      **Analysis Method:** E300.0, Anions  
**Preparation Method:** E300.0, Anions  
**Associated Lab IDs:** Q2124046002, Q2124046003, Q2124046004, Q2124046005

**Duplicate (1654730); Original Q2124046001**

| Parameter | Units | Original | Duplicate | RPD  | RPD Limit | Qualifier |
|-----------|-------|----------|-----------|------|-----------|-----------|
| Fluoride  | mg/L  | 0.065    | 0.075     | 14.3 |           |           |

## QC Cross Reference

| Lab ID                                   | Sample ID   | Prep Batch | Prep Method          |
|--|-------------|------------|----------------------|
| <b><i>MET/8748 - SW6010B ICP-AES</i></b> |             |            |                      |
| Q2124046001                              | CBL-301I    | MEP/11424  | SW3010A, Metals Prep |
| Q2124046004                              | EQB         | MEP/11424  | SW3010A, Metals Prep |
| Q2124046005                              | Field Blank | MEP/11424  | SW3010A, Metals Prep |
| <b><i>WET/24933 - E300.0, Anions</i></b> |             |            |                      |
| Q2124046001                              | CBL-301I    |            |                      |
| Q2124046002                              | CBL-302I    |            |                      |
| Q2124046003                              | CBL-341I    |            |                      |
| Q2124046004                              | EQB         |            |                      |
| Q2124046005                              | Field Blank |            |                      |

End of Report

**LCRA Environmental Laboratory Services**  
**Request for Analysis Chain-of-Custody Record**

LCRA - Environmental Lab Phone: (512) 730-6022 or 1-800-776-5272  
 3505 Montopolis Dr Fax: (512) 730-6021  
 Austin, TX 78744 https://els.lcra.org



Q2124046

|            |                 |          |      |
|------------|-----------------|----------|------|
| Project:   | FPP CCR Wells   | Client:  | LCRA |
| Collector: | <i>CaltPete</i> | Contact: |      |
| Event#:    |                 | Phone:   |      |

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

|             |  |
|-------------|--|
| Lab ID#:    |  |
| Client PO:  |  |
| Invoice to: | BECKIE LOEVE<br>FAYETTE POWER PLANT<br>6549 POWER PLANT RD<br>MAIL STOP FPP<br>La Grange, TX 78945 |

001  
002  
003  
004  
005

|   | Sample ID * | Collected |             | Matrix*<br>AQ = Aqueous<br>DW = Drinking Water<br>S = Solid<br>T = Tissue | COMPOSITE Y/N | FILTERED Y/N | Containers |       |  |  | Requested Analysis * |  |            |         |            |  |  |  |  |
|---|-------------|-----------|-------------|---|---------------|--------------|------------|-------|--|--|----------------------|--|------------|---------|------------|--|--|--|--|
|   |             | Date*     | Time HH:MM* |   |               |              | 250PHNO3   | 250PU |  |  |                      |  | 300.0AM-28 | 6010-AM | F-WaterLVI |  |  |  |  |
| 1 | CBL-3011    | 9/7/21    | 1335        | AQ  | N             | N            | 1          | 1     |  |  |                      |  | X          | X       | X          |  |  |  |  |
| 2 | CBL-3021    |           | 1437        | AQ  |               |              |            | 1     |  |  |                      |  | X          |         | X          |  |  |  |  |
| 3 | CBL-3411    |           | 1543        | AQ  |               |              |            | 1     |  |  |                      |  | X          |         | X          |  |  |  |  |
| 4 | EQB         |           | 1430        | AQ  |               |              | 1          | 1     |  |  |                      |  | X          | X       |            |  |  |  |  |
| 5 | Field Blank |           | 1425        | AQ  |               |              | 1          | 1     |  |  |                      |  | X          | X       |            |  |  |  |  |

| Transfers | Relinquished By | Date/Time   | Received By     | Date/Time   | Cooler Temp: |                  |     |                  | Client Special Instructions: |
|-----------|-----------------|-------------|-----------------|-------------|--------------|------------------|-----|------------------|------------------------------|
|           |                 |             |                 |             | T#           | Obs              | CF  | Corr.            |                              |
| 1         | <i>CaltPete</i> | 9/7/21 1659 | <i>CaltPete</i> | 9/7/21 1659 |              |                  |     |                  |                              |
| 2         |                 |             |                 |             | 28           | 4.2 <sup>u</sup> | 0.1 | 4.2 <sup>u</sup> |                              |
| 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.



Q2124046  
517820





# Field Information Form

Sample Date: 9/7/21 <sup>(4)</sup>  
 Sample Time: 1335  
 Sample ID: CBL301T

## PURGING INFORMATION

210907 PURGE DATE (YY MM DD)      1300 START PURGE (2400 Hr. Clock)       $V = \frac{\quad}{\quad} \frac{\quad}{\quad} \frac{\quad}{\quad} \frac{\quad}{\quad} \frac{\quad}{\quad} \frac{\quad}{\quad}$  3.1 WATER VOL IN CASING (Gallons)      9.2 3 X WELL VOL. IN (Gallons)      10 ACTUAL VOLUME PURGED (Gallons)

## PURGING AND SAMPLING EQUIPMENT

Purging Equipment Dedicated IYI       Sampling Equipment Dedicated IYI

|                   |                                       |                    |                 |                                    |    |                          |
|-------------------|---------------------------------------|--------------------|-----------------|------------------------------------|----|--------------------------|
| Purging Device    | <input checked="" type="checkbox"/> A | A-Submersible Pump | D-Gas Lift Pump | G-Bailer                           | X- | _____                    |
| Sampling Device   | <input checked="" type="checkbox"/> A | B-Peristaltic Pump | E-Venturi Pump  | H-Scoop/Shovel                     | X- | Purging Other (Specify)  |
|                   |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump                      | X- | Sampling Other (Specify) |
| Purging Material  | <input checked="" type="checkbox"/> E | A-Teflon           | C-Polypropylene | E-Polyethylene                     | X- | _____                    |
| Sampling Material | <input checked="" type="checkbox"/> E | B-Stainless Steel  | D-PVC           |                                    | X- | Purging Other (Specify)  |
| Tubing-Purging    | <input checked="" type="checkbox"/> E | A-Teflon           | D-Polypropylene | F-Silicon                          | X- | _____                    |
| Tubing-Sampling   | <input checked="" type="checkbox"/> E | B-Tygon            | E-Polyethylene  | G-Combination teflon/Polypropylene | X- | Purging Other (Specify)  |
|                   |                                       | C-Rope X-          |                 |                                    | X- | Sampling Other (Specify) |

(Specify)

## FIELD MEASUREMENTS

Well Elevation                      (ft/msl)      Land Surface Elevation                      (ft/msl)  
 Depth to water From top of well casing = D<sub>w</sub> 35.28 (ft)      Depth to water From land surface                      (ft)  
 Groundwater Elevation                      (ft/msl)      Groundwater Elevation                      (ft/msl)  
 Well Depth = D 54.10 (ft)      Pump Placement 50 (ft)  
6.14 (STD) PH      7912 uS/cm Specific Conductivity      Sample Temp. 24.15 (°C)

| Bottle |       |                               | Analysis | Field Filt. Y/N |
|--------|-------|-------------------------------|----------|-----------------|
| Type   | Size  | Preservative                  |          |                 |
| P      | 250ml | H <sub>2</sub> O <sub>2</sub> | Metals   | N               |
| P      | 250ml | ICE                           | Anions   | N               |
|        |       |                               |          |                 |

Sample Appearance: Clear      Odor: none      Color: Clear      Turbidity: 25.1  
 Weather Conditions: Partly cloudy South wind 5-10mph 95°  
 Other: Purge water is cloudy. Clearing after 2 gallons. New Tubing is used every Resample Time at this well

### WELL VOLUME CALCULATION

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

Well Appearance Normal: Yes  No \_\_\_\_\_  
 If No, Explain \_\_\_\_\_  
 Procedure: HSGround water 30ft 5-70  
 Date: 9/7/21  
 Sampler: CP  
 Employer: LCRA



# Field Information Form

Sample Date: 9/7/21

Sample Time: 1432

Sample ID: CB4302

## PURGING INFORMATION

210907

PURGE DATE  
(YY MM DD)

1356

START PURGE  
(2400 Hr. Clock)

V= 27

WATER VOL IN CASING  
(Gallons)

8

3 X WELL VOL. IN  
(Gallons)

8

ACTUAL VOLUME PURGED  
(Gallons)

## PURGING AND SAMPLING EQUIPMENT

Purging Equipment ..... Dedicated  I  N  I

Sampling Equipment ..... Dedicated  I  N  I

|                   |                                       |                    |                 |                                       |    |                          |
|-------------------|---------------------------------------|--------------------|-----------------|---------------------------------------|----|--------------------------|
| Purging Device    | <input checked="" type="checkbox"/> B | A-Submersible Pump | D-Gas Lift Pump | G-Bailer                              | X- | _____                    |
| Sampling Device   | <input checked="" type="checkbox"/> B | B-Peristaltic Pump | E-Venturi Pump  | H-Scoop/Shovel                        | X- | Purging Other (Specify)  |
|                   |                                       | C-Bladder Pump     | F-Dipper/Bottle | I-Piston Pump                         | X- | Sampling Other (Specify) |
| Purging Material  | <input checked="" type="checkbox"/> F | A-Teflon           | C-Polypropylene | E-Polyethylene                        | X- | _____                    |
| Sampling Material | <input checked="" type="checkbox"/> F | B-Stainless Steel  | D-PVC           |                                       | X- | Purging Other (Specify)  |
| Tubing-Purging    | <input checked="" type="checkbox"/> F | A-Teflon           | D-Polypropylene | F-Silicon                             | X- | Sampling Other (Specify) |
| Tubing-Sampling   | <input checked="" type="checkbox"/> P | B-Tygon            | E-Polyethylene  | G-Combination<br>teflon/Polypropylene | X- | Purging Other (Specify)  |
|                   |                                       | C-Rope X-          | _____           |                                       | X- | Sampling Other (Specify) |

## FIELD MEASUREMENTS

|  |                 |          |                                     |                 |          |
|--|-----------------|----------|-------------------------------------|-----------------|----------|
| Well Elevation   | <u>        </u> | (ft/msl) | Land Surface Elevation              | <u>        </u> | (ft/msl) |
| Depth to water<br>From top of well casing = D <sub>w</sub> | <u>110.71</u>   | (ft)     | Depth to water<br>From land surface | <u>        </u> | (ft)     |
| Groundwater Elevation                                      | <u>        </u> |          | Groundwater Elevation               | <u>        </u> | (ft/msl) |
| Well Depth = D   | <u>27.11</u>    | (ft)     | Pump Placement                      | <u>24</u>       | (ft)     |
| <u>6.28</u> (STD)  |                 |          | Sample Temp.                        | <u>23.98</u>    | (°C)     |
| PH   |                 |          | <u>6.274</u> uS/cm                  |                 |          |
|  |                 |          | Specific Conductivity               |                 |          |

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

Sample Appearance: clear Odor: none Color: clear Turbidity: 4.9  
 Weather Conditions: Partly Cloudy South wind 5-10mph  
 Other: Purge water is clear with no odor. New Tubing was used.

## WELL VOLUME CALCULATION

V=(D-D<sub>w</sub>) (A) (7.48 galft<sup>3</sup>) where  
 V= volume of standing water in well  
 D= depth to bottom of well below measuring point  
 D<sub>w</sub>=depth to water below measuring point  
 A= cross sectional area

2" dia. A= 0.0218 4" dia. A = 0.0872

Well Appearance Normal: Yes  No   
 If No, Explain \_\_\_\_\_

Procedure: ELS Ground water S-70

Date: 9/7/21  
 Sampler: CP  
 Employer: LCRA



# Field Information Form

Sample Date: 9/7/21 ③

Sample Time: 1543

Sample ID: CBL3411I

## PURGING INFORMATION

210907

PURGE DATE  
(YY MM DD)

1449

START PURGE  
(2400 Hr. Clock)

V= 5

WATER VOL IN CASING  
(Gallons)

15

3 X WELL VOL. IN  
(Gallons)

12

ACTUAL VOLUME PURGED  
(Gallons)

## PURGING AND SAMPLING EQUIPMENT

Purging Equipment ..... Dedicated  I  N  I

Sampling Equipment ..... Dedicated  I  N  I

Purging Device  B A-Submersible Pump D-Gas Lift Pump G-Bailer X- \_\_\_\_\_  
Sampling Device  B B-Peristaltic Pump E-Venturi Pump H-Scoop/Shovel X- Purging Other (Specify) \_\_\_\_\_  
C-Bladder Pump F-Dipper/Bottle I-Piston Pump X- Sampling Other (Specify) \_\_\_\_\_

Purging Material  F A-Teflon C-Polypropylene E-Polyethylene X- \_\_\_\_\_  
Sampling Material  F B-Stainless Steel D-PVC X- Purging Other (Specify) \_\_\_\_\_

Tubing-Purging  F A-Teflon D-Polypropylene F-Silicon X- \_\_\_\_\_  
Tubing-Sampling  F B-Tygon E-Polyethylene G-Combination 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<sub>w</sub> 16.02 (ft)

Depth to water  
From land surface            (ft)

Groundwater Elevation           

Groundwater Elevation            (ft/msl)

Well Depth = D 46.43 (ft)

Pump Placement 41 (ft)

6.18 (STD)  
PH

6093 uS/cm  
Specific Conductivity

Sample Temp. 22.87 (°C)

| Bottle |       |                  | Analysis        | Field Filt. Y/N |
|--------|-------|------------------|-----------------|-----------------|
| Type   | Size  | Preservative     |                 |                 |
| P      | 250ml | HNO <sub>3</sub> | Metals EQ Blank | N               |
| P      | 250ml | ICE              | Anions EQ Blank | N               |
| P      | 250ml | ICE              | Anions          | N               |

Sample Appearance: Clear Odor: none Color: Clear Turbidity: 1.53

Weather Conditions: Partly Cloud South wind 5-10mph 101°

Other: Purge water is clear with no odor. New Tubing was used at well

## WELL VOLUME CALCULATION

Well Appearance Normal: Yes  No \_\_\_\_\_  
If No, Explain \_\_\_\_\_

V=(D-D<sub>w</sub>) (A) (7.48 galft<sup>3</sup>) where  
V= volume of standing water in well  
D= depth to bottom of well below measuring point  
D<sub>w</sub>=depth to water below measuring point  
A= cross sectional area

Procedure: ELS Ground water 5-7P

Date: 9/7/21

Sampler: CP

Employer: LCRA

2" dia. A = 0.0218 4" dia. A = 0.0872