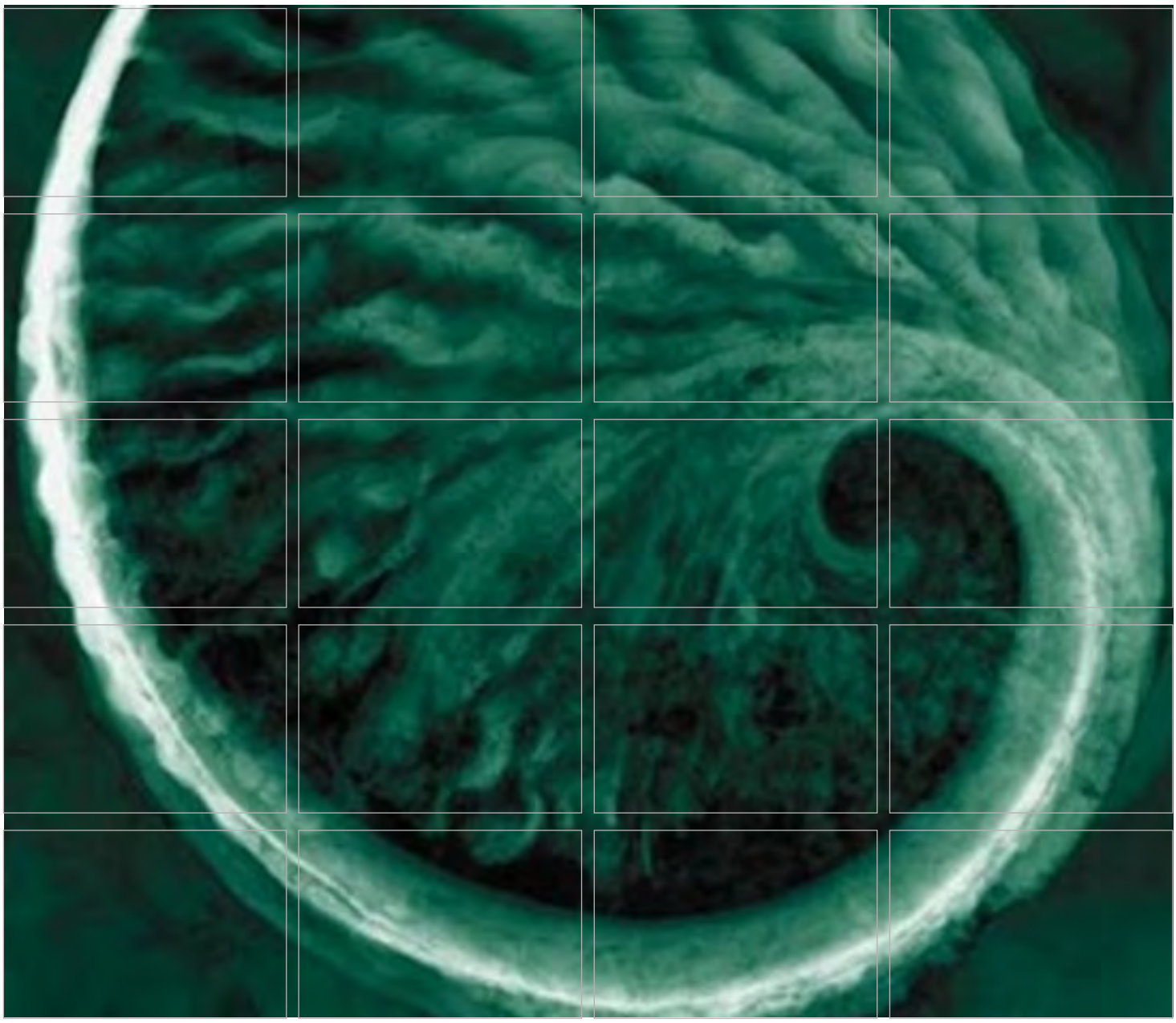

# Annual Groundwater Monitoring and Corrective Action Report

**CPS Energy**
**Calaveras Power Station – Evaporation Pond**
**San Antonio, Texas**

January 2020

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Calaveras Power Station – Evaporation Pond

# Annual Groundwater Monitoring and Corrective Action Report

January 2020

Project No. 0503422
San Antonio, Texas


Jeffery L. Bauguss, P.E.
*Partner-in-Charge*

Walter Zverina
*Project Manager*

Karen Fletcher
*Senior Scientist*

**Environmental Resources Management**
206 East 9th Street, Suite 1700
Austin, TX 78701
T: 512-459-4700



*Texas Registered Engineering Firm F-2393*
*Texas Board of Professional Geoscientist Firm 50036*

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## *1. INTRODUCTION*

CPS Energy owns and operates the Calaveras Power Station which consists of two power plants (J.T Deely and J.K. Spruce) that are subject to regulation under Title 40, Code of Federal Regulations, Part 257 (40 CFR §257) (a.k.a. the CCR Rule). The Power Station is located in unincorporated Bexar County, Texas, approximately 13 miles southeast of San Antonio. Currently, CPS Energy operates three CCR units at the Power Station: Evaporation Pond, Fly Ash Landfill, and the Sludge Recycle Holding (SRH) Pond. This *Annual Groundwater Monitoring and Corrective Action Report* (Report) only addresses the Evaporation Pond.

This Report was produced by Environmental Resource Management (ERM), on behalf of CPS Energy, and summarizes the groundwater monitoring activities for the Evaporation Pond and provides a statistical summary of the findings for samples collected during the 2019 semi-annual monitoring events. Consistent with the requirements of the CCR Rule, this Report will be posted to the facility's operating record and notification will be made to the State of Texas. Additionally, this Report will be placed on the CPS Energy publically accessible internet site. Unless otherwise mentioned, the analyses in this Report follow the *Groundwater Sampling and Analysis Program* (SAP) (ERM, 2017) posted on the internet site. The table below cross references the reporting requirements under the CCR Rule with the contents of this Report.

Regulatory Requirement Cross-Reference

| Regulatory Citation | Requirement (paraphrased) | Where Addressed in this Report |
|---|---|---|
| §257.90(e) | Status of the groundwater monitoring and corrective action program | Section 2 |
| §257.90(e) | Summarize key actions completed | Section 2 |
| §257.90(e) | Describe any problems encountered and actions to resolve problems | Section 2 |
| §257.90(e) | Key activities for upcoming year | Section 4 |
| §257.90(e)(1) | Map or aerial image of CCR unit and monitoring wells | Figure 1 |
| §257.90(e)(2) | Identification of new monitoring wells installed or decommissioned during the preceding year | Section 2 |
| §257.90(e)(3) | Summary of groundwater data, monitoring wells and dates sampled, and whether sample was required under detection or assessment monitoring | Sections 2 and 3, Tables 1 through 3, and Figure 2 |
| §257.90(e)(4) | Narrative discussion of any transition between monitoring programs | Section 4 |

The Evaporation Pond is located northeast of the Power Station generating units and is south of the Fly Ash Landfill. The Evaporation Pond currently receives boiler chemical cleaning waste and other authorized liquid wastes. The Evaporation Pond was originally constructed as a fly ash landfill, but was converted from a landfill to an impoundment in 1996. The CCR unit location is shown on Figure 1.

## 2. PROGRAM STATUS

From December 2016 to October 2017, groundwater samples were collected as part of background sampling. After October 2017, groundwater samples were collected as part of detection monitoring. The samples were collected from the groundwater monitoring well network certified for use in determining compliance with the CCR Rule.

The groundwater monitoring well network consists of three upgradient monitoring wells (JKS-47, JKS-63R, and JKS-64) and three downgradient monitoring wells (JKS-36, JKS-61, and JKS-62). As discussed in further detail below, upgradient monitor well JKS-63 was plugged and abandoned and replaced with a newly installed upgradient monitor well (JKS-63R). All monitoring wells are screened within the uppermost groundwater bearing unit (GWBU). The uppermost GWBU is approximately 20 feet thick and is comprised of clayey/silty sand to well-sorted sand. The uppermost GWBU is located below unconfining units (i.e., sands, silts, and low to medium plasticity clays), and above a high plasticity clay (lower confining unit).

The monitoring well locations are shown in Figure 1. No problems were encountered in the data collection or in well performance with the exception of upgradient monitor well JKS-63. A groundwater sample was not collected from JKS-63 during the April 2019 sampling event due to a blockage in the well casing. Upon further inspection of the blockage, it was discovered that tree roots had entered the well which prevented sample collection. JKS-63 was plugged and abandoned and replaced in the well network with JKS-63R on May 2, 2019.

### 2.1. GROUNDWATER FLOW RATE AND DIRECTION

Depth to groundwater surface measurements were made at each monitoring well prior to sampling. Groundwater elevations were calculated by subtracting the depth to groundwater from the surveyed reference elevation for each well.

Groundwater elevations collected during the monitoring events are summarized in Table 1. Groundwater elevations and the potentiometric surface for the most recent monitoring event (October 2019) are shown on Figure 2. Groundwater in the vicinity of the Evaporation Pond appears to flow towards Lake Calaveras (east). The horizontal gradient is approximately 0.002 feet/foot.

### 2.2. SAMPLING SUMMARY

A summary of the total number of samples collected from each monitoring well is provided in Table 2. Groundwater analytical results from the monitoring events are summarized in Table 3. Laboratory data packages are provided in Appendix A.

The Evaporation Pond monitoring wells were sampled by CPS Energy using low flow sampling techniques during the monitoring events. With the exception of JKS-63 (as noted above), no data gaps were identified during the 2019 semi-annual groundwater monitoring events. An initial sample, identified as Event 11, was collected at JKS-63R on August 20, 2019.

### 2.3. DATA QUALITY

ERM reviewed field and laboratory documentation to assess the validity, reliability and usability of the analytical results. Samples were sent to Xenco Laboratories, located in San Antonio, Texas for analysis. Data quality information reviewed for these results included field

sampling forms, chain-of-custody documentation, holding times, lab methods, cooler temperatures, laboratory method blanks, laboratory control sample recoveries, field duplicate samples, matrix spikes/matrix spike duplicates, quantitation limits, and equipment blanks. A summary of the data qualifiers are included in Table 3. The data quality review found the results to be valid, reliable, and useable for decision making purposes with the listed qualifiers. No analytical results were rejected.

## *3. STATISTICAL ANALYSIS AND RESULTS*

Consistent with the CCR Rule and the SAP, a prediction limit approach [40 CFR §257.93(f)] was used to identify potential impacts to groundwater. Tables and figures generated as part of the statistical analysis are provided in Appendix B. The steps outlined in the decision framework in the SAP include:

- Interwell versus intrawell comparisons;
- Establishment of upgradient dataset;
- Calculation of prediction limits; and
- Conclusions.

The remaining sections of this Report are focused on evaluation of the October 2019 sampling results. Note the April 2019 sampling results were evaluated as discussed in the *April 2019 Groundwater Sampling Event – Calaveras Power Station CCR Units* (ERM, 2019) provided in Appendix C.

### *3.1. INTERWELL VS INTRAWELL COMPARISONS*

When multiple upgradient wells were available within the same unit, concentrations were compared among these wells to determine if they could be pooled to create a single, interwell, upgradient dataset. For each analyte, Boxplots (Appendix B, Figure 1) and Kruskal-Wallis test results (Appendix B, Table 1) are provided for upgradient wells. The statistical test shows that:

- One Appendix III analyte [fluoride] will follow interwell analysis, with no significant differences present in upgradient data; and
- The remaining six Appendix III analytes [boron, calcium, chloride, pH, sulfate, and total dissolved solids (TDS)] will follow intrawell analysis, with significant differences present in upgradient data.

Interwell analytes will use a pooled upgradient dataset for subsequent report sections. Conversely, intrawell analytes will have each individual upgradient dataset used for subsequent report sections.

### *3.2. ESTABLISHMENT OF UPGRADIENT DATASET*

When evaluating the concentrations of analytes in groundwater, USEPA Unified Guidance (2009) recommends performing a careful quality check of the data to identify any anomalies. In addition to the data validation that was performed, descriptive statistics, outlier testing, and temporal stationarity checks were completed to finalize the upgradient dataset.

### *3.2.1. Descriptive Statistics*

Descriptive statistics were calculated for the upgradient wells and analytes at the Evaporation Pond (Appendix B, Table 2). The descriptive statistics highlight a number of relevant characteristics about the upgradient datasets including:

- There are a total of 19 well-analyte combinations for the upgradient dataset;
- 19 well-analyte combinations have detection rates greater than or equal to 50 percent;
- 17 well-analyte combinations have 100 percent detects;
- Nine well-analyte combinations follow a normal distribution (using Shapiro-Wilks Normality Test);
- Two well-analyte combinations follow a log-normal distribution; and
- Eight well-analyte combinations have no discernible distribution.

### *3.2.2. Outlier Determination*

Both statistical and visual outlier tests were performed on the upgradient datasets. Data points identified as both a statistical and visual outlier (Appendix B, Table 3 and Appendix B, Figure 2) were reviewed before they were excluded from the dataset. A total of seven potential outliers were initially flagged in the upgradient datasets. However, these values were consistent with seasonal fluctuations and concentrations detected in other upgradient wells or in historical groundwater sampling results. No analytical or sampling issues were identified during data review; therefore, the seven values were considered valid and were retained for upper prediction limit (UPL) calculations.

### *3.2.3. Check for Temporal Stability*

A trend test was performed for all values in the upgradient wells that had at least eight detected data points and at least 50 percent detection rate. Time series figures of upgradient wells are provided in Appendix B, Figure 3. Additionally, the Mann Kendall trend test results are provided in Appendix B, Table 4. The following summarizes the results of the trend analysis:

- There are a total of 19 well-analyte combinations in the upgradient dataset;
- 19 well-analyte combinations meet the data requirements of the trend test of which:
    - One well-analyte combination had a significant increasing trend;
    - Two well-analyte combinations had a significant decreasing trend; and
    - 16 well-analyte combinations had no significant trend (i.e., concentrations were stable over time).

## *3.3. CALCULATION OF PREDICTION LIMITS*

A multi-part assessment of the monitoring wells was performed to determine what type of UPL to calculate as a compliance point. A decision framework was applied for each upgradient well based on inter/intrawell analysis, data availability, and presence of temporal trends.

A total of three well-analyte combinations were found to have either increasing or decreasing trends. For these well-analyte combinations, a bootstrapped UPL calculated around a Theil Sen trend was used to derive a more accurate UPL. The remaining 16 well-analyte combinations

were found to have no significant trend. Sanitas was used to calculate static UPLs using an annual site-wide false positive rate of 0.1 with a 1-of-2 re-testing approach.

A final UPL was selected for each analyte and compared to the October 2019 sampling results in the downgradient wells. A final lower prediction limit (LPL) was also selected for pH. For the one analyte following interwell analysis, the upgradient dataset was pooled prior to UPL calculations, resulting in a single UPL value per analyte. For the six analytes following intrawell analysis, a UPL value was calculated for each of the upgradient wells. For these wells and analytes, the maximum UPL was selected as the representative UPL for each analyte. A similar approach was used to determine the LPL for pH; however, the minimum LPL was selected in the case of intrawell analysis. All final UPL and LPL values are shown in the table below. Full upgradient well calculations are provided in Appendix B, Table 5.

Final UPL and LPL Values

| Analysis Type | Analyte | LPL | UPL | Unit |
|---|---|---|---|---|
| Intrawell | Boron | -- | 1.88 | mg/L |
| Intrawell | Calcium | -- | 1,300 | mg/L |
| Intrawell | Chloride | -- | 2,780 | mg/L |
| Interwell | Fluoride | -- | 0.382 | mg/L |
| Intrawell | pH | 4.58 | 6.47 | SU |
| Intrawell | Sulfate | -- | 2,110 | mg/L |
| Intrawell | TDS | -- | 6,660 | mg/L |

### *3.4. CONCLUSIONS*

The downgradient samples collected during the October 2019 monitoring event were used for compliance comparisons. All downgradient wells were below the UPLs and above the LPLs with the following exceptions shown in the table below. Full downgradient results are provided in Appendix B, Table 6.

Downgradient Results Exceedances

| Analyte | Well | LPL | UPL | Sample Date | Value | Unit |
|---|---|---|---|---|---|---|
| Boron | JKS-61 | -- | 1.88 | 2019-10-22 | 2.90 | mg/L |
| Fluoride | JKS-36 | -- | 0.382 | 2019-10-22 | 1.41 | mg/L |
| Fluoride | JKS-61 | -- | 0.382 | 2019-10-22 | 0.48 | mg/L |
| pH | JKS-36 | 4.58 | 6.47 | 2019-10-22 | 3.66 | SU |

All initial exceedances of the UPL and LPL may be confirmed with re-testing of the downgradient wells per the 1-of-2 re-testing scheme. If the initial exceedance is confirmed with re-testing results from the same well, the well-analyte combination will be declared a statistically significant increase (SSI) above background. Any wells with re-testing results at or below the UPL, or at or above the LPL, will be considered in compliance and will not require further action. Any resampling results will be reported in the subsequent *Written Demonstration*.

All downgradient wells with initial exceedances were examined for trends to assess the stability of concentrations. A summary of these trend test results are provided in Appendix B, Figure 4. One of the downgradient wells with potential SSIs has an increasing trend (fluoride) and a decreasing trend (pH).

## *4. RECOMMENDATIONS*

Currently, there are no plans to transition from detection monitoring to assessment monitoring. Consistent with the 1-of-2 re-testing approach described in the Unified Guidance and the SAP, initial exceedances may be re-tested within 90 days. Based on these re-testing results, if an SSI is found, a notification or *Written Demonstration* will be prepared within 90 days. Based on the findings of the *Written Demonstration*, detection monitoring or assessment monitoring will be initiated as appropriate under §257.94 and §257.95.

## *5. REFERENCES*

ERM, 2017. *Groundwater Sampling and Analysis Program.* Austin, Texas.

USEPA, 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities.* Unified Guidance. USEPA/530/R/09/007. Office of Resource Conservation and Recovery. Washington, D.C.

# Tables

TABLE 1
Groundwater Elevations Summary
CPS Energy - Calaveras Power Station
Evaporation Pond

| | | JKS-47 Upgradient (1) | | JKS-63 Upgradient | | JKS-63R Upgradient | | JKS-64 Upgradient | |
|---|---|---|---|---|---|---|---|---|---|
| | | TOC Elevation | 513.63 | TOC Elevation | 526.86 | TOC Elevation | 522.27 | TOC Elevation | 507.84 |
| Sampling Event | Sampling Event Dates | Depth to Water (feet btoc) | Water Level (msl) | Depth to Water (feet btoc) | Water Level (msl) | Depth to Water (feet btoc) | Water Level (msl) | Depth to Water (feet btoc) | Water Level (msl) |
| 1 | 12/6/16 to 12/8/16 | 30.98 | 482.65 | 44.45 | 482.41 | (4) | (4) | 24.98 | 482.86 |
| 2 | 2/21/17 to 2/23/17 | 30.64 | 482.99 | 44.25 | 482.61 | (4) | (4) | 24.24 | 483.60 |
| 3 | 3/28/17 to 3/30/17 | 30.47 | 483.16 | 44.12 | 482.74 | (4) | (4) | 24.21 | 483.63 |
| 4 | 5/2/17 to 5/4/17 | 30.29 | 483.34 | 43.89 | 482.97 | (4) | (4) | 24.46 | 483.38 |
| 5 | 6/20/17 to 6/21/17 | 30.40 | 483.23 | 43.85 | 483.01 | (4) | (4) | 24.40 | 483.44 |
| 6 | 7/25/17 to 7/26/17 | 30.62 | 483.01 | 44.00 | 482.86 | (4) | (4) | 24.78 | 483.06 |
| 7 | 8/29/17 to 8/30/17 | 30.50 | 483.13 | 43.90 | 482.96 | (4) | (4) | 25.70 | 482.14 |
| 8 | 10/10/17 to 10/11/17 | 30.71 | 482.92 | 44.05 | 482.81 | (4) | (4) | 24.95 | 482.89 |
| 9 | 4/4/18 to 4/5/18 | 30.42 | 483.21 | 43.81 | 483.05 | (4) | (4) | 24.67 | 483.17 |
| 10 | 10/30/18 to 10/31/18 | 30.90 | 482.73 | (2) | (2) | (4) | (4) | 25.46 | 482.38 |
| 11 | 4/9/19 to 4/10/19 | 30.17 | 483.46 | (2) | (2) | 39.27 (4) | 483.00 | 24.50 | 483.34 |
| 12 | 10/22/19 to 10/23/19 | 30.87 | 482.76 | (3) | (3) | 39.48 | 482.79 | 25.30 | 482.54 |

| | | JKS-36 Downgradient | | JKS-61 Downgradient | | JKS-62 Downgradient | |
|---|---|---|---|---|---|---|---|
| | | TOC Elevation | 508.41 | TOC Elevation | 505.51 | TOC Elevation | 509.84 |
| Sampling Event | Sampling Event Dates | Depth to Water (feet btoc) | Water Level (msl) | Depth to Water (feet btoc) | Water Level (msl) | Depth to Water (feet btoc) | Water Level (msl) |
| 1 | 12/6/16 to 12/8/16 | 25.99 | 482.42 | 23.95 | 481.56 | 28.63 | 481.21 |
| 2 | 2/21/17 to 2/23/17 | 25.78 | 482.63 | 23.31 | 482.20 | 28.30 | 481.54 |
| 3 | 3/28/17 to 3/30/17 | 25.37 | 483.04 | 23.10 | 482.41 | 28.42 | 481.42 |
| 4 | 5/2/17 to 5/4/17 | 43.89 | 464.52 | 22.85 | 482.66 | 28.00 | 481.84 |
| 5 | 6/20/17 to 6/21/17 | 25.40 | 483.01 | 22.05 | 483.46 | 28.05 | 481.79 |
| 6 | 7/25/17 to 7/26/17 | 25.62 | 482.79 | 23.50 | 482.01 | 28.12 | 481.72 |
| 7 | 8/29/17 to 8/30/17 | 25.70 | 482.71 | 23.60 | 481.91 | 28.12 | 481.72 |
| 8 | 10/10/17 to 10/11/17 | 25.91 | 482.50 | 23.97 | 481.54 | 28.00 | 481.84 |
| 9 | 4/4/18 to 4/5/18 | 25.46 | 482.95 | 23.08 | 482.43 | 27.66 | 482.18 |
| 10 | 10/30/18 to 10/31/18 | 25.90 | 482.51 | 23.94 | 481.57 | 28.33 | 481.51 |
| 11 | 4/9/19 to 4/10/19 | 25.23 | 483.18 | 22.97 | 482.54 | 27.52 | 482.32 |
| 12 | 10/22/19 to 10/23/19 | 25.90 | 482.51 | 24.20 | 481.31 | 27.85 | 481.99 |

NOTES:
btoc = below top of casing
msl = mean sea level
(1) JKS-47 was re-sampled on 2/28/17.
(2) Blockage in JKS-63 well casing.
(3) JKS-63 was plugged and abandoned on 5/2/19.
(4) JKS-63R was installed on 5/2/19; initial water level reading collected on 8/20/19.

TABLE 2
Groundwater Sampling Summary
CPS Energy - Calaveras Power Station
Evaporation Pond

| CCR Unit | Well ID | Well Function | Number of Samples Collected in 2016 - 2019 | 2016 - 2019 Sample Dates | | | | | | | | | | | | Monitoring Program |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 12/6/16 to 12/8/16 | 2/21/17 to 2/23/17 | 3/28/17 to 3/30/17 | 5/2/17 to 5/4/17 | 6/20/17 to 6/21/17 | 7/25/17 to 7/26/17 | 8/29/17 to 8/30/17 | 10/10/17 to 10/11/17 | 4/4/18 to 4/5/18 | 10/30/18 to 10/31/18 | 4/9/19 to 4/10/19 | 10/22/19 to 10/23/19 | |
| Evaporation Pond | JKS-36 | Downgradient Monitoring | 12 | X | X | X | X | X | X | X | X | X | X | X | X | Detection |
| | JKS-47 | Upgradient Monitoring | 12 | X | (1) | X | X | X | X | X | X | X | X | X | X | Detection |
| | JKS-61 | Downgradient Monitoring | 12 | X | X | X | X | X | X | X | X | X | X | X | X | Detection |
| | JKS-62 | Downgradient Monitoring | 12 | X | X | X | X | X | X | X | X | X | X | X | X | Detection |
| | JKS-63 | Upgradient Monitoring | 8 | X | X | X | X | (2) | X | X | X | X | (3) | (3) | (3) | Detection |
| | JKS-63R (4) | Upgradient Monitoring | 2 | (4) | (4) | (4) | (4) | (4) | (4) | (4) | (4) | (4) | (4) | X (4) | X | Detection |
| | JKS-64 | Upgradient Monitoring | 12 | X | X | X | X | X | X | X | X | X | X | X | X | Detection |

NOTES:
X = Indicates that a sample was collected.
(1) JKS-47 was re-sampled on 2/28/2017.
(2) A sample was not collected at JKS-63 during Event 5 (June 2017), due to the well going dry during sampling activities.
(3) A sample was not collected at JKS-63 during Event 10 (October 2018) and Event 11 (April 2019), due to blockage in the well casing. JKS-63 was plugged and abandoned on 5/2/19.
(4) JKS-63R was installed on 5/2/19; the first sample was collected on 8/20/19.

TABLE 3
Groundwater Analytical Results Summary
CPS Energy - Calaveras Power Station
Evaporation Pond

| | | JKS-47 Upgradient | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Sample Date** | **12/8/16** | **2/28/17** | **3/29/17** | **5/3/17** | **6/21/17** | **7/26/17** | **8/30/17** | **10/11/17** | **4/5/18** | **10/30/18** | **4/10/19** | **10/23/19** |
| | **Task** | **Event 1 Dec 2016** | **Event 2 Feb 2017** | **Event 3 Mar 2017** | **Event 4 May 2017** | **Event 5 Jun 2017** | **Event 6 Jul 2017** | **Event 7 Aug 2017** | **Event 8 Oct 2017** | **Event 9 Apr 2018** | **Event 10 Oct 2018** | **Event 11 Apr 2019** | **Event 12 Oct 2019** |
| **Constituents** | **Unit** | | | | | | | | | | | | |
| **Appendix III - Detection Monitoring** | | | | | | | | | | | | | |
| Boron | mg/L | 0.824 | 0.838 | 0.696 | 0.817 | 0.804 | 0.828 JH | 0.760 | 1.02 | 0.844 | 0.806 | 0.590 | 1.05 |
| Calcium | mg/L | 54.0 | 62.1 | 168 | 26.2 | 71.1 | 62.7 JH | 66.7 | 36.1 | 53.5 | 83.2 D | 128 | 36.5 |
| Chloride | mg/L | 107 | 150 | 232 D | 193 | 168 | 148 JH | 210 D | 68.5 | 151 | 186 | 279 | 53.9 X |
| Fluoride | mg/L | 0.0360 U | 0.0360 U | 0.315 | 0.382 JH | 0.213 JH | 0.360 U | 0.0960 U | 0.0360 U | 0.0360 U | 0.0998 J | 0.0985 J | 0.154 JH |
| Sulfate | mg/L | 213 D | 267 D | 369 D | 299 | 266 D | 248 JH | 284 D | 171 | 236 | 262 | 347 | 210 X |
| pH - Field Collected | SU | 5.82 | 5.83 | 5.75 | 6.00 | 5.75 | 5.85 | 5.90 | 5.93 | 5.91 | 5.72 | 5.92 | 4.58 |
| Total dissolved solids | mg/L | 811 | 922 | 1170 | 1060 | 979 | 806 JH | 904 | 677 | 787 | 727 | 1240 | 665 |
| **Appendix IV - Assessment Monitoring** | | | | | | | | | | | | | |
| Antimony | mg/L | 0.00120 U | 0.000240 U | 0.000294 J | 0.00120 U | 0.000275 J | 0.000240 U | 0.000240 U | 0.000240 U | NR | NR | NR | NR |
| Arsenic | mg/L | 0.00442 J | 0.00130 J | 0.00136 J | 0.00123 U | 0.00185 J | 0.00105 J | 0.00124 J | 0.000246 U | NR | NR | NR | NR |
| Barium | mg/L | 0.0475 | 0.0132 | 0.0180 | 0.0118 J | 0.0154 | 0.00981 | 0.0104 | 0.00785 | NR | NR | NR | NR |
| Beryllium | mg/L | 0.000813 J | 0.000255 J | 0.000131 U | 0.000654 U | 0.000352 J | 0.000131 U | 0.000172 J | 0.000131 U | NR | NR | NR | NR |
| Cadmium | mg/L | 0.000734 U | 0.000637 J | 0.000977 J | 0.000797 J | 0.000735 J | 0.000611 J | 0.000814 J | 0.000147 U | NR | NR | NR | NR |
| Chromium | mg/L | 0.234 | 0.00430 | 0.000988 J | 0.00262 U | 0.00262 J | 0.000855 J | 0.00130 J | 0.000525 U | NR | NR | NR | NR |
| Cobalt | mg/L | 0.00915 J | 0.00102 J | 0.00153 J | 0.00113 J | 0.00227 | 0.000976 J | 0.00107 J | 0.0000699 U | NR | NR | NR | NR |
| Fluoride | mg/L | 0.0360 U | 0.0360 U | 0.315 | 0.382 JH | 0.213 JH | 0.360 U | 0.0960 U | 0.0360 U | NR | NR | NR | NR |
| Lead | mg/L | 0.00586 J | 0.000950 J | 0.000448 J | 0.000758 U | 0.00157 J | 0.000202 J | 0.000449 J | 0.000152 U | NR | NR | NR | NR |
| Lithium | mg/L | 0.0615 | 0.0478 | 0.00238 U | 0.0207 | 0.0720 | 0.0644 | 0.0799 | 0.0521 | NR | NR | NR | NR |
| Mercury | mg/L | 0.0000600 J | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | NR | NR | NR | NR |
| Molybdenum | mg/L | 0.0317 | 0.00126 J | 0.00173 J | 0.00128 J | 0.000788 J | 0.000581 J | 0.000653 J | 0.000255 U | NR | NR | NR | NR |
| Selenium | mg/L | 0.0493 | 0.0697 | 0.0518 | 0.0564 | 0.0613 | 0.0577 | 0.0525 | 0.0854 | NR | NR | NR | NR |
| Thallium | mg/L | 0.00166 U | 0.000332 U | 0.000332 U | 0.00166 U | 0.000332 U | 0.000332 U | 0.000332 U | 0.000332 U | NR | NR | NR | NR |
| Radium-226 | pCi/L | 1.2 ± 0.342 | 0.578 ± 0.275 | 0.630 ± 0.237 | 0.538 ± 0.192 | 0.729 ± 0.278 | 0.304 ± 0.233 | 1.06 ± 0.361 | 0.246 ± 0.180 | NR | NR | NR | NR |
| Radium-228 | pCi/L | 1.66 ± 1.15 | 1.34 ± 1.05 | 1.27 ± 0.960 U | 2.17 ± 1.01 | 0.664 ± 0.929 | 0.771 ± 1.48 | 1.65 ± 1.05 | 0.463 ± 0.886 | NR | NR | NR | NR |

NOTES:

(A) JKS-63 plugged and abandoned and replaced with JKS-63R on 5/2/19. Sample events 1 through 10 collected from JKS-63 and thereafter from JKS-63R.

(1) Sample not collected due to the well going dry during sampling activities.

(2) Sample not collected due to blockage in the well casing.

mg/L: Milligrams per Liter.

SU: Standard Units.

pCi/L: Picocuries per Liter.

-- : Laboratory did not analyze sample for indicated constituent.

B: Target analyte or common lab contaminant was identified in the method blank.

D: Sample diluted due to targets detected over highest point of calibration curve or due to matrix interference.

J: Analyte detected above method (sample) detection limit but below method quantitation limit.

H: Bias in sample result likely to be high.

NR: Analysis of this constituent not required for detection monitoring.

U: Analyte not detected at laboratory reporting limit (Sample Detection Limit).

X: Matrix Spike/Matrix Spike Duplicate recoveries were found to be outside of the laboratory control limits.

TABLE 3
Groundwater Analytical Results Summary
CPS Energy - Calaveras Power Station
Evaporation Pond

| | | JKS-63 / JKS-63R Upgradient (A) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Sample Date** | **12/8/16** | **2/22/17** | **3/29/17** | **5/3/17** | **6/21/17** | **7/26/17** | **8/30/17** | **10/11/17** | **4/5/18** | **10/30/18** | **8/20/19** | **10/23/19** |
| | **Task** | **Event 1 Dec 2016** | **Event 2 Feb 2017** | **Event 3 Mar 2017** | **Event 4 May 2017** | **Event 5 Jun 2017** | **Event 6 Jul 2017** | **Event 7 Aug 2017** | **Event 8 Oct 2017** | **Event 9 Apr 2018** | **Event 10 Oct 2018** | **Event 11 Aug 2019** | **Event 12 Oct 2019** |
| **Constituents** | **Unit** | | | | | | | | | | | | |
| **Appendix III - Detection Monitoring** | | | | | | | | | | | | | |
| Boron | mg/L | 0.800 | 0.866 | NR | 0.981 | (1) | 1.33 JH | 1.23 | 1.06 | 1.13 | (2) | 2.03 | 1.03 |
| Calcium | mg/L | 783 | 914 | 713 | 1060 | (1) | 835 | 174 | 872 | 836 | (2) | 221 | 953 D |
| Chloride | mg/L | 1230 D | 1160 D | 1220 D | 1340 | (1) | 1960 JHD | 1890 D | 1420 | 1670 | (2) | 2360 D | 2240 |
| Fluoride | mg/L | 0.0573 J | 0.320 | 0.297 | 0.364 JH | (1) | 0.0971 JH | 0.182 JH | 0.0360 U | 0.0360 U | (2) | 0.206 J | 0.352 JH |
| Sulfate | mg/L | 0.0460 U | 1860 D | 1890 D | 1860 | (1) | 1970 D | 1920 D | 1820 | 2110 | (2) | 1810 D | 1750 D |
| pH - Field Collected | SU | 5.61 | 5.35 | 5.60 | 5.85 | (1) | 5.88 | 5.82 | 5.63 | 5.64 | (2) | -- | 4.76 |
| Total dissolved solids | mg/L | 5750 | 4760 | 4870 | 5560 | (1) | 6410 | 5000 | 5080 | 5220 | (2) | 6660 | 5200 |
| **Appendix IV - Assessment Monitoring** | | | | | | | | | | | | | |
| Antimony | mg/L | 0.00120 U | 0.000459 J | 0.000695 J | 0.00120 U | (1) | 0.000240 U | 0.000424 J | 0.000240 U | NR | NR | NR | NR |
| Arsenic | mg/L | 0.00332 J | 0.00294 | 0.00128 J | 0.00123 U | (1) | 0.000893 J | 0.000992 J | 0.000246 U | NR | NR | NR | NR |
| Barium | mg/L | 0.0626 | 0.0540 | 0.0336 | 0.0316 | (1) | 0.0294 | 0.0258 | 0.0222 | NR | NR | NR | NR |
| Beryllium | mg/L | 0.000654 U | 0.000930 J | 0.000442 J | 0.000654 U | (1) | 0.000196 J | 0.000223 J | 0.000131 U | NR | NR | NR | NR |
| Cadmium | mg/L | 0.00339 J | 0.00405 | 0.00394 | 0.00316 J | (1) | 0.00282 | 0.00263 | 0.00285 | NR | NR | NR | NR |
| Chromium | mg/L | 1.49 | 0.735 | 0.371 | 0.114 | (1) | 0.0742 | 0.0584 | 0.0130 | NR | NR | NR | NR |
| Cobalt | mg/L | 0.0802 | 0.0762 | 0.0546 | 0.0331 | (1) | 0.0137 | 0.0119 | 0.0119 | NR | NR | NR | NR |
| Fluoride | mg/L | 0.0573 J | 0.320 | 0.297 | 0.364 JH | (1) | 0.0971 JH | 0.182 JH | 0.0360 U | NR | NR | NR | NR |
| Lead | mg/L | 0.00441 J | 0.00599 | 0.00108 J | 0.000758 U | (1) | 0.000238 J | 0.000551 J | 0.000152 U | NR | NR | NR | NR |
| Lithium | mg/L | 0.000476 U | 0.116 | 0.00238 U | 0.654 | (1) | 0.946 | 1.15 | 0.791 | NR | NR | NR | NR |
| Mercury | mg/L | 0.000236 | 0.000237 | 0.000206 | 0.0000400 J | (1) | 0.000260 | 0.000441 | 0.000376 | NR | NR | NR | NR |
| Molybdenum | mg/L | 0.186 | 0.00789 | 0.00966 | 0.00419 J | (1) | 0.00281 | 0.00180 J | 0.000255 U | NR | NR | NR | NR |
| Selenium | mg/L | 0.0188 | 0.0210 | 0.0257 | 0.0188 | (1) | 0.0288 | 0.0318 | 0.0244 | NR | NR | NR | NR |
| Thallium | mg/L | 0.00166 U | 0.000332 U | 0.000332 U | 0.00166 U | (1) | 0.000332 U | 0.000332 U | 0.000332 U | NR | NR | NR | NR |
| Radium-226 | pCi/L | 3.42 ± 0.573 | 2.76 ± 0.476 | 5.79 ± 0.790 | 4.57 ± 0.577 | (1) | 6.7 ± 0.744 | 7.36 ± 0.874 | 5.04 ± 0.711 | NR | NR | NR | NR |
| Radium-228 | pCi/L | 2.44 ± 1.44 | 4.13 ± 1.21 | 2.04 ± 1.61 U | 3.41 ± 0.968 | (1) | 10.9 ± 2.31 | 1.79 ± 1.27 | 6.77 ± 1.48 | NR | NR | NR | NR |

NOTES:

(A) JKS-63 plugged and abandoned and replaced with JKS-63R on 5/2/19. Sample events 1 through 10 collected from JKS-63 and thereafter from JKS-63R.

(1) Sample not collected due to the well going dry during sampling activities.

(2) Sample not collected due to blockage in the well casing.

mg/L: Milligrams per Liter.

SU: Standard Units.

pCi/L: Picocuries per Liter.

-- : Laboratory did not analyze sample for indicated constituent.

B: Target analyte or common lab contaminant was identified in the method blank.

D: Sample diluted due to targets detected over highest point of calibration curve or due to matrix interference.

J: Analyte detected above method (sample) detection limit but below method quantitation limit.

H: Bias in sample result likely to be high.

NR: Analysis of this constituent not required for detection monitoring.

U: Analyte not detected at laboratory reporting limit (Sample Detection Limit).

X: Matrix Spike/Matrix Spike Duplicate recoveries were found to be outside of the laboratory control limits.

TABLE 3
Groundwater Analytical Results Summary
CPS Energy - Calaveras Power Station
Evaporation Pond

| | | JKS-64 Upgradient | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Sample Date** | **12/8/16** | **2/23/17** | **3/29/17** | **5/4/17** | **6/21/17** | **7/26/17** | **8/30/17** | **10/11/17** | **4/5/18** | **10/30/18** | **4/10/19** | **10/23/19** |
| | **Task** | **Event 1 Dec 2016** | **Event 2 Feb 2017** | **Event 3 Mar 2017** | **Event 4 May 2017** | **Event 5 Jun 2017** | **Event 6 Jul 2017** | **Event 7 Aug 2017** | **Event 8 Oct 2017** | **Event 9 Apr 2018** | **Event 10 Oct 2018** | **Event 11 Apr 2019** | **Event 12 Oct 2019** |
| **Constituents** | **Unit** | | | | | | | | | | | | |
| **Appendix III - Detection Monitoring** | | | | | | | | | | | | | |
| Boron | mg/L | 0.839 | 0.837 | 1.14 | 0.962 | 0.816 | 0.904 JH | 0.835 | 0.901 | 0.837 | 0.805 | 0.804 | 0.747 |
| Calcium | mg/L | 24.0 | 24.0 | 31.4 | 23.8 | 20.6 | 21.7 JH | 21.6 | 25.2 | 23.6 | 24.4 | 23.0 | 24.4 |
| Chloride | mg/L | 12.7 | 12.4 | 11.8 | 11.0 | 11.4 | 11.5 | 11.5 | 9.63 | 14.2 | 15.5 | 16.6 | 17.7 |
| Fluoride | mg/L | 0.0360 U | 0.294 JH | 0.332 | 0.188 | 0.231 JH | 0.157 JH | 0.224 JH | 0.0360 U | 0.0360 U | 0.106 J | 0.121 J | 0.176 JH |
| Sulfate | mg/L | 171 | 182 | 184 | 174 | 172 | 170 JH | 172 | 164 | 189 | 196 | 193 | 192 X |
| pH - Field Collected | SU | 6.46 | 5.50 | 6.30 | 6.33 | 6.21 | 6.09 | 6.20 | 6.21 | 6.13 | 5.97 | 6.14 | 4.82 |
| Total dissolved solids | mg/L | 594 | 585 | 611 | 581 | 572 | 555 JH | 463 | 576 | 549 | 525 | 551 | 588 |
| **Appendix IV - Assessment Monitoring** | | | | | | | | | | | | | |
| Antimony | mg/L | 0.000240 U | 0.000240 U | 0.000240 U | 0.00120 U | 0.000240 U | 0.000240 U | 0.000240 U | 0.000240 U | NR | NR | NR | NR |
| Arsenic | mg/L | 0.000911 J | 0.000730 J | 0.000556 J | 0.00123 U | 0.000476 J | 0.000490 J | 0.000519 J | 0.000246 U | NR | NR | NR | NR |
| Barium | mg/L | 0.00768 | 0.00451 | 0.00392 J | 0.00410 J | 0.00320 J | 0.00324 J | 0.00275 BJ | 0.000484 U | NR | NR | NR | NR |
| Beryllium | mg/L | 0.000131 U | 0.000131 U | 0.000131 U | 0.000654 U | 0.000131 U | 0.000131 U | 0.000131 U | 0.000131 U | NR | NR | NR | NR |
| Cadmium | mg/L | 0.000147 U | 0.000147 U | 0.000147 U | 0.000734 U | 0.000147 U | 0.000147 U | 0.000147 U | 0.000147 U | NR | NR | NR | NR |
| Chromium | mg/L | 0.000525 U | 0.000905 J | 0.000525 U | 0.00262 U | 0.000867 J | 0.000637 J | 0.000961 J | 0.000525 U | NR | NR | NR | NR |
| Cobalt | mg/L | 0.000998 J | 0.000952 J | 0.000851 J | 0.000859 J | 0.000745 J | 0.000856 J | 0.000889 J | 0.0000699 U | NR | NR | NR | NR |
| Fluoride | mg/L | 0.0360 U | 0.294 JH | 0.332 | 0.188 | 0.231 JH | 0.157 JH | 0.224 JH | 0.0360 U | NR | NR | NR | NR |
| Lead | mg/L | 0.000186 J | 0.000152 U | 0.000152 U | 0.000758 U | 0.000152 U | 0.000152 U | 0.000152 U | 0.000152 U | NR | NR | NR | NR |
| Lithium | mg/L | 0.0173 J | 0.0146 J | 0.00238 U | 0.0152 J | 0.0173 J | 0.0181 J | 0.0252 | 0.0208 | NR | NR | NR | NR |
| Mercury | mg/L | 0.0000263 UX | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000540 J | 0.0000263 U | NR | NR | NR | NR |
| Molybdenum | mg/L | 0.000398 J | 0.000317 J | 0.000255 U | 0.00128 U | 0.000265 J | 0.000255 U | 0.000273 J | 0.000255 U | NR | NR | NR | NR |
| Selenium | mg/L | 0.000512 J | 0.000550 J | 0.000495 J | 0.00227 U | 0.000468 J | 0.000468 J | 0.000454 U | 0.000454 U | NR | NR | NR | NR |
| Thallium | mg/L | 0.000332 U | 0.000332 U | 0.000332 U | 0.00166 U | 0.000332 U | 0.000332 U | 0.000332 U | 0.000332 U | NR | NR | NR | NR |
| Radium-226 | pCi/L | 0.981 ± 0.400 | 1.16 ± 0.408 | 0.530 ± 0.284 | 0.231 ± 0.174 | 0.258 ± 0.175 | 0.286 ± 0.247 | 1.05 ± 0.361 | 0.531 ± 0.276 | NR | NR | NR | NR |
| Radium-228 | pCi/L | 0.429 ± 1.56 | 2.07 ± 1.22 | -0.102 ± 1.07 U | 0.408 ± 0.764 | 0.699 ± 0.761 | 2.49 ± 1.54 | 0.26 ± 0.639 | 1 ± 0.834 | NR | NR | NR | NR |

NOTES:

(A) JKS-63 plugged and abandoned and replaced with JKS-63R on 5/2/19. Sample events 1 through 10 collected from JKS-63 and thereafter from JKS-63R.

(1) Sample not collected due to the well going dry during sampling activities.

(2) Sample not collected due to blockage in the well casing.

mg/L: Milligrams per Liter.

SU: Standard Units.

pCi/L: Picocuries per Liter.

-- : Laboratory did not analyze sample for indicated constituent.

B: Target analyte or common lab contaminant was identified in the method blank.

D: Sample diluted due to targets detected over highest point of calibration curve or due to matrix interference.

J: Analyte detected above method (sample) detection limit but below method quantitation limit.

H: Bias in sample result likely to be high.

NR: Analysis of this constituent not required for detection monitoring.

U: Analyte not detected at laboratory reporting limit (Sample Detection Limit).

X: Matrix Spike/Matrix Spike Duplicate recoveries were found to be outside of the laboratory control limits.

TABLE 3
Groundwater Analytical Results Summary
CPS Energy - Calaveras Power Station
Evaporation Pond

| | | JKS-36 Downgradient | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Sample Date** | **12/8/16** | **2/23/17** | **3/29/17** | **5/4/17** | **6/21/17** | **7/26/17** | **8/30/17** | **10/11/17** | **4/5/18** | **10/30/18** | **4/10/19** | **10/22/19** |
| | **Task** | **Event 1 Dec 2016** | **Event 2 Feb 2017** | **Event 3 Mar 2017** | **Event 4 May 2017** | **Event 5 Jun 2017** | **Event 6 Jul 2017** | **Event 7 Aug 2017** | **Event 8 Oct 2017** | **Event 9 Apr 2018** | **Event 10 Oct 2018** | **Event 11 Apr 2019** | **Event 12 Oct 2019** |
| **Constituents** | **Unit** | | | | | | | | | | | | |
| **Appendix III - Detection Monitoring** | | | | | | | | | | | | | |
| Boron | mg/L | 0.308 | 0.671 | 0.748 | 0.731 | 0.581 | 0.625 JH | 0.663 | 0.637 | 0.625 | 0.686 | 0.663 | 0.632 |
| Calcium | mg/L | 69.7 | 165 | 147 | 282 | 247 | 255 JHX | 241 | 289 | 281 | 311 D | 315 D | 265 D |
| Chloride | mg/L | 14.5 | 199 D | 37.0 | 355 | 364 D | 379 JHD | 319 D | 328 | 347 X | 313 | 285 | 274 |
| Fluoride | mg/L | 0.0360 U | 0.439 JH | 0.330 | 1.53 | 1.26 | 1.37 JH | 1.30 | 1.32 | 1.95 X | 1.47 | 1.45 | 1.41 |
| Sulfate | mg/L | 49.2 | 409 D | 271 D | 726 | 731 D | 775 JHD | 707 D | 741 | 816 X | 946 | 697 | 756 D |
| pH - Field Collected | SU | 6.71 | 4.96 | 6.98 | 4.04 | 3.72 | 3.80 | 5.20 | 3.24 | 3.48 | 3.61 | 3.71 | 3.66 |
| Total dissolved solids | mg/L | 368 | 1010 | 591 | 1610 | 1820 | 1700 JH | 1220 | 1770 | 1650 | 1630 | 1520 | 1600 |
| **Appendix IV - Assessment Monitoring** | | | | | | | | | | | | | |
| Antimony | mg/L | 0.00120 U | 0.000240 U | 0.00123 J | 0.00120 U | 0.000240 U | 0.00121 J | 0.000240 U | 0.000240 U | NR | NR | NR | NR |
| Arsenic | mg/L | 0.00123 U | 0.000588 J | 0.00134 J | 0.00324 J | 0.00276 | 0.00369 | 0.00341 | 0.00372 | NR | NR | NR | NR |
| Barium | mg/L | 0.0988 | 0.0967 | 0.139 | 0.0270 | 0.0187 | 0.0207 | 0.0372 | 0.0225 | NR | NR | NR | NR |
| Beryllium | mg/L | 0.000654 U | 0.00198 J | 0.000131 U | 0.0259 | 0.0226 | 0.0261 | 0.0212 | 0.0259 | NR | NR | NR | NR |
| Cadmium | mg/L | 0.00257 J | 0.00510 | 0.000548 J | 0.0118 | 0.0102 | 0.0117 | 0.0101 | 0.0113 | NR | NR | NR | NR |
| Chromium | mg/L | 0.00262 U | 0.00608 | 0.0409 | 0.0100 J | 0.00968 | 0.0156 | 0.00792 | 0.0132 | NR | NR | NR | NR |
| Cobalt | mg/L | 0.000579 J | 0.0871 | 0.00751 | 0.220 | 0.186 | 0.216 | 0.195 | 0.215 | NR | NR | NR | NR |
| Fluoride | mg/L | 0.0360 U | 0.439 JH | 0.330 | 1.53 | 1.26 | 1.37 JH | 1.30 | 1.32 | NR | NR | NR | NR |
| Lead | mg/L | 0.000758 U | 0.000152 U | 0.000152 U | 0.000758 U | 0.000164 J | 0.000220 J | 0.000261 J | 0.000152 U | NR | NR | NR | NR |
| Lithium | mg/L | 0.0123 J | 0.119 | 0.00238 U | 0.326 | 0.340 | 0.371 | 0.372 | 0.379 | NR | NR | NR | NR |
| Mercury | mg/L | 0.000834 | 0.000289 | 0.00143 | 0.00240 | 0.00244 | 0.00160 | 0.00113 | 0.00226 | NR | NR | NR | NR |
| Molybdenum | mg/L | 0.00397 J | 0.00261 | 0.0686 | 0.00183 J | 0.000704 J | 0.000791 J | 0.00151 J | 0.000255 U | NR | NR | NR | NR |
| Selenium | mg/L | 0.0334 | 0.0448 | 0.0313 | 0.0673 | 0.0616 | 0.0697 | 0.0633 | 0.0663 | NR | NR | NR | NR |
| Thallium | mg/L | 0.00166 U | 0.000487 J | 0.000332 U | 0.00166 U | 0.000876 J | 0.00114 J | 0.000889 J | 0.000332 U | NR | NR | NR | NR |
| Radium-226 | pCi/L | 0.0888 ± 0.151 | 1.12 ± 0.342 | 0.453 ± 0.276 | 4.85 ± 0.656 | 4.02 ± 0.608 | 4.32 ± 0.667 | 6.28 ± 0.845 | 3.6 ± 0.600 | NR | NR | NR | NR |
| Radium-228 | pCi/L | 2.14 ± 1.02 | 2.17 ± 0.979 | 0.166 ± 0.861 U | 4.28 ± 1.19 | 3.44 ± 1.04 | 3.95 ± 1.79 | 2.63 ± 0.928 | 3.3 ± 1.33 | NR | NR | NR | NR |

NOTES:

(A) JKS-63 plugged and abandoned and replaced with JKS-63R on 5/2/19. Sample events 1 through 10 collected from JKS-63 and thereafter from JKS-63R.

(1) Sample not collected due to the well going dry during sampling activities.

(2) Sample not collected due to blockage in the well casing.

mg/L: Milligrams per Liter.

SU: Standard Units.

pCi/L: Picocuries per Liter.

-- : Laboratory did not analyze sample for indicated constituent.

B: Target analyte or common lab contaminant was identified in the method blank.

D: Sample diluted due to targets detected over highest point of calibration curve or due to matrix interference.

J: Analyte detected above method (sample) detection limit but below method quantitation limit.

H: Bias in sample result likely to be high.

NR: Analysis of this constituent not required for detection monitoring.

U: Analyte not detected at laboratory reporting limit (Sample Detection Limit).

X: Matrix Spike/Matrix Spike Duplicate recoveries were found to be outside of the laboratory control limits.

TABLE 3
Groundwater Analytical Results Summary
CPS Energy - Calaveras Power Station
Evaporation Pond

| | | JKS-61 Downgradient | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Sample Date** | **12/7/16** | **2/23/17** | **3/29/17** | **5/3/17** | **6/21/17** | **7/26/17** | **8/30/17** | **10/11/17** | **4/5/18** | **10/31/18** | **4/10/19** | **10/22/19** |
| | **Task** | **Event 1 Dec 2016** | **Event 2 Feb 2017** | **Event 3 Mar 2017** | **Event 4 May 2017** | **Event 5 Jun 2017** | **Event 6 Jul 2017** | **Event 7 Aug 2017** | **Event 8 Oct 2017** | **Event 9 Apr 2018** | **Event 10 Oct 2018** | **Event 11 Apr 2019** | **Event 12 Oct 2019** |
| **Constituents** | **Unit** | | | | | | | | | | | | |
| **Appendix III - Detection Monitoring** | | | | | | | | | | | | | |
| Boron | mg/L | 1.07 | 1.29 | 1.15 | 1.18 | 0.960 | 1.01 JH | 0.994 | 0.997 | 1.09 | 3.25 | 2.72 | 2.90 |
| Calcium | mg/L | 134 | 95.9 | 155 | 113 | 115 | 107 JH | 105 | 135 | 171 | 197 D | 176 | 168 D |
| Chloride | mg/L | 198 | 158 | 162 | 168 | 193 | 190 JH | 218 D | 210 | 285 | 213 | 253 | 248 |
| Fluoride | mg/L | 0.393 | 0.503 | 0.522 | 0.643 JH | 0.459 JH | 0.479 JH | 0.0960 U | 0.0360 U | 0.406 J | 0.430 J | 0.403 J | 0.480 J |
| Sulfate | mg/L | 401 D | 377 JD | 382 D | 388 | 408 D | 390 JHD | 385 D | 401 | 562 | 548 | 619 | 548 D |
| pH - Field Collected | SU | 6.72 | 6.51 | 6.48 | 6.68 | 6.53 | 6.55 | 7.40 | 6.27 | 6.42 | 6.38 | 6.52 | 5.61 |
| Total dissolved solids | mg/L | 1400 | 1180 | 1190 | 1260 | 1430 | 1290 JH | 1170 | 1280 | 1620 | 514 | 1650 | 1790 |
| **Appendix IV - Assessment Monitoring** | | | | | | | | | | | | | |
| Antimony | mg/L | 0.00120 U | 0.000240 U | 0.000240 U | 0.00120 U | 0.000240 U | 0.000240 U | 0.000240 U | 0.000240 U | NR | NR | NR | NR |
| Arsenic | mg/L | 0.00123 U | 0.000768 J | 0.000709 J | 0.00123 U | 0.000563 J | 0.000622 J | 0.000569 J | 0.000246 U | NR | NR | NR | NR |
| Barium | mg/L | 0.0364 | 0.0186 | 0.0173 | 0.0178 J | 0.0148 | 0.0167 | 0.0153 | 0.0162 | NR | NR | NR | NR |
| Beryllium | mg/L | 0.000654 U | 0.000131 U | 0.000131 U | 0.000654 U | 0.000131 U | 0.000131 U | 0.000131 U | 0.000131 U | NR | NR | NR | NR |
| Cadmium | mg/L | 0.000734 U | 0.000147 U | 0.000147 U | 0.000734 U | 0.000147 U | 0.000147 U | 0.000147 U | 0.000147 U | NR | NR | NR | NR |
| Chromium | mg/L | 0.00262 U | 0.000911 J | 0.000525 U | 0.00262 U | 0.000525 U | 0.000604 J | 0.000808 J | 0.000525 U | NR | NR | NR | NR |
| Cobalt | mg/L | 0.000719 J | 0.000725 J | 0.000769 J | 0.000779 J | 0.000805 J | 0.000765 J | 0.000855 J | 0.0000699 U | NR | NR | NR | NR |
| Fluoride | mg/L | 0.393 | 0.503 | 0.522 | 0.643 JH | 0.459 JH | 0.479 JH | 0.0960 U | 0.0360 U | NR | NR | NR | NR |
| Lead | mg/L | 0.000758 U | 0.000152 U | 0.000152 U | 0.000758 U | 0.000152 U | 0.000152 U | 0.000152 U | 0.000152 U | NR | NR | NR | NR |
| Lithium | mg/L | 0.000476 U | 0.0158 J | 0.00238 U | 0.0120 J | 0.0342 | 0.0336 | 0.0443 | 0.0335 | NR | NR | NR | NR |
| Mercury | mg/L | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | NR | NR | NR | NR |
| Molybdenum | mg/L | 0.00165 J | 0.00129 J | 0.000984 J | 0.00128 U | 0.000776 J | 0.000742 J | 0.000712 J | 0.000255 U | NR | NR | NR | NR |
| Selenium | mg/L | 0.00227 U | 0.00123 J | 0.00123 J | 0.00227 U | 0.00185 J | 0.00154 J | 0.00172 J | 0.000454 U | NR | NR | NR | NR |
| Thallium | mg/L | 0.00166 U | 0.000332 U | 0.000332 U | 0.00166 U | 0.000332 U | 0.000332 U | 0.000332 U | 0.000332 U | NR | NR | NR | NR |
| Radium-226 | pCi/L | 1.15 ± 0.429 | 0.723 ± 0.306 | 0.256 ± 0.237 U | 0.237 ± 0.193 | 0.398 ± 0.239 | 0.511 ± 0.223 | 0.821 ± 0.324 | 0.485 ± 0.212 | NR | NR | NR | NR |
| Radium-228 | pCi/L | 2.79 ± 1.44 | 0.358 ± 1.06 | 0.761 ± 0.688 U | -0.064 ± 0.607 | 2.03 ± 0.997 | 0.491 ± 0.813 | 0.247 ± 0.710 | 1.64 ± 1.08 | NR | NR | NR | NR |

NOTES:

(A) JKS-63 plugged and abandoned and replaced with JKS-63R on 5/2/19. Sample events 1 through 10 collected from JKS-63 and thereafter from JKS-63R.

(1) Sample not collected due to the well going dry during sampling activities.

(2) Sample not collected due to blockage in the well casing.

mg/L: Milligrams per Liter.

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-- : Laboratory did not analyze sample for indicated constituent.

B: Target analyte or common lab contaminant was identified in the method blank.

D: Sample diluted due to targets detected over highest point of calibration curve or due to matrix interference.

J: Analyte detected above method (sample) detection limit but below method quantitation limit.

H: Bias in sample result likely to be high.

NR: Analysis of this constituent not required for detection monitoring.

U: Analyte not detected at laboratory reporting limit (Sample Detection Limit).

X: Matrix Spike/Matrix Spike Duplicate recoveries were found to be outside of the laboratory control limits.

TABLE 3
Groundwater Analytical Results Summary
CPS Energy - Calaveras Power Station
Evaporation Pond

| | | JKS-62 Downgradient | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Sample Date** | **12/8/16** | **2/23/17** | **3/29/17** | **5/4/17** | **6/21/17** | **7/26/17** | **8/30/17** | **10/11/17** | **4/5/18** | **10/30/18** | **4/10/19** | **10/23/19** |
| | **Task** | **Event 1 Dec 2016** | **Event 2 Feb 2017** | **Event 3 Mar 2017** | **Event 4 May 2017** | **Event 5 Jun 2017** | **Event 6 Jul 2017** | **Event 7 Aug 2017** | **Event 8 Oct 2017** | **Event 9 Apr 2018** | **Event 10 Oct 2018** | **Event 11 Apr 2019** | **Event 12 Oct 2019** |
| **Constituents** | **Unit** | | | | | | | | | | | | |
| **Appendix III - Detection Monitoring** | | | | | | | | | | | | | |
| Boron | mg/L | 0.549 | 0.481 | 0.597 | 0.601 | 0.501 | 0.485 JH | 0.485 | 0.549 | 0.522 | 0.559 | 0.612 | 0.528 |
| Calcium | mg/L | 155 | 152 | 220 | 156 | 150 | 134 JH | 150 | 158 | 160 | 161 D | 205 D | 151 D |
| Chloride | mg/L | 257 D | 279 DX | 279 D | 278 | 291 D | 260 JHD | 281 D | 241 | 312 | 279 | 336 | 276 |
| Fluoride | mg/L | 0.246 | 0.362 JH | 0.418 | 0.388 | 0.366 JH | 0.342 JH | 0.233 JH | 0.0360 U | 0.353 J | 0.309 J | 0.356 J | 0.380 J |
| Sulfate | mg/L | 190 | 187 | 193 | 188 | 184 | 181 JH | 188 D | 175 | 200 | 183 | 191 | 183 |
| pH - Field Collected | SU | 6.79 | 6.67 | 6.63 | 6.71 | 6.68 | 6.82 | 7.51 | 6.52 | 6.72 | 6.58 | 6.29 | 5.43 |
| Total dissolved solids | mg/L | 1120 | 1170 | 1140 | 1100 | 1080 | 976 JH | 1080 | 1080 | 1110 | 956 | 1190 | 1160 |
| **Appendix IV - Assessment Monitoring** | | | | | | | | | | | | | |
| Antimony | mg/L | 0.000240 U | 0.000240 U | 0.000240 U | 0.00120 U | 0.000240 U | 0.000240 U | 0.000240 U | 0.000240 U | NR | NR | NR | NR |
| Arsenic | mg/L | 0.000684 J | 0.000293 J | 0.000246 U | 0.00123 U | 0.000254 J | 0.000246 U | 0.000246 U | 0.000246 U | NR | NR | NR | NR |
| Barium | mg/L | 0.0825 | 0.0786 | 0.0813 | 0.0747 | 0.0734 | 0.0737 | 0.0708 | 0.0793 | NR | NR | NR | NR |
| Beryllium | mg/L | 0.000131 U | 0.000131 U | 0.000131 U | 0.000654 U | 0.000131 U | 0.000131 U | 0.000131 U | 0.000131 U | NR | NR | NR | NR |
| Cadmium | mg/L | 0.000147 U | 0.000147 U | 0.000147 U | 0.000734 U | 0.000147 U | 0.000147 U | 0.000147 U | 0.000147 U | NR | NR | NR | NR |
| Chromium | mg/L | 0.00186 J | 0.00109 J | 0.000525 U | 0.00262 U | 0.000551 J | 0.000691 J | 0.00107 J | 0.000525 U | NR | NR | NR | NR |
| Cobalt | mg/L | 0.00110 J | 0.000198 J | 0.000744 J | 0.000350 U | 0.000278 J | 0.000211 J | 0.0000699 U | 0.0000699 U | NR | NR | NR | NR |
| Fluoride | mg/L | 0.246 | 0.362 JH | 0.418 | 0.388 | 0.366 JH | 0.342 JH | 0.233 JH | 0.0360 U | NR | NR | NR | NR |
| Lead | mg/L | 0.000588 J | 0.000152 U | 0.000152 U | 0.000758 U | 0.000154 J | 0.000152 U | 0.000152 U | 0.000152 U | NR | NR | NR | NR |
| Lithium | mg/L | 0.000476 U | 0.0129 J | 0.00238 U | 0.00134 J | 0.0353 | 0.0305 | 0.0457 | 0.0263 | NR | NR | NR | NR |
| Mercury | mg/L | 0.0000540 J | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | 0.0000263 U | NR | NR | NR | NR |
| Molybdenum | mg/L | 0.000414 J | 0.000259 J | 0.000255 U | 0.00128 U | 0.000255 U | 0.000255 U | 0.000255 U | 0.000255 U | NR | NR | NR | NR |
| Selenium | mg/L | 0.222 | 0.192 | 0.196 | 0.195 | 0.185 | 0.181 | 0.191 | 0.208 | NR | NR | NR | NR |
| Thallium | mg/L | 0.000332 U | 0.000332 U | 0.000332 U | 0.00166 U | 0.000332 U | 0.000332 U | 0.000332 U | 0.000332 U | NR | NR | NR | NR |
| Radium-226 | pCi/L | 0.485 ± 0.229 | 0.402 ± 0.220 | 0.665 ± 0.321 | 0.0997 ± 0.153 | 0.425 ± 0.233 | 0.399 ± 0.220 | 2.02 ± 0.489 | 0.669 ± 0.279 | NR | NR | NR | NR |
| Radium-228 | pCi/L | 2.15 ± 1.38 | 1.53 ± 1.28 U | 0.305 ± 1.10 U | -0.138 ± 0.656 | 0.66 ± 0.760 | 1.07 ± 0.949 | 0.673 ± 0.821 | 0.371 ± 0.631 | NR | NR | NR | NR |

NOTES:

(A) JKS-63 plugged and abandoned and replaced with JKS-63R on 5/2/19. Sample events 1 through 10 collected from JKS-63 and thereafter from JKS-63R.

(1) Sample not collected due to the well going dry during sampling activities.

(2) Sample not collected due to blockage in the well casing.

mg/L: Milligrams per Liter.

SU: Standard Units.

pCi/L: Picocuries per Liter.

-- : Laboratory did not analyze sample for indicated constituent.

B: Target analyte or common lab contaminant was identified in the method blank.

D: Sample diluted due to targets detected over highest point of calibration curve or due to matrix interference.

J: Analyte detected above method (sample) detection limit but below method quantitation limit.

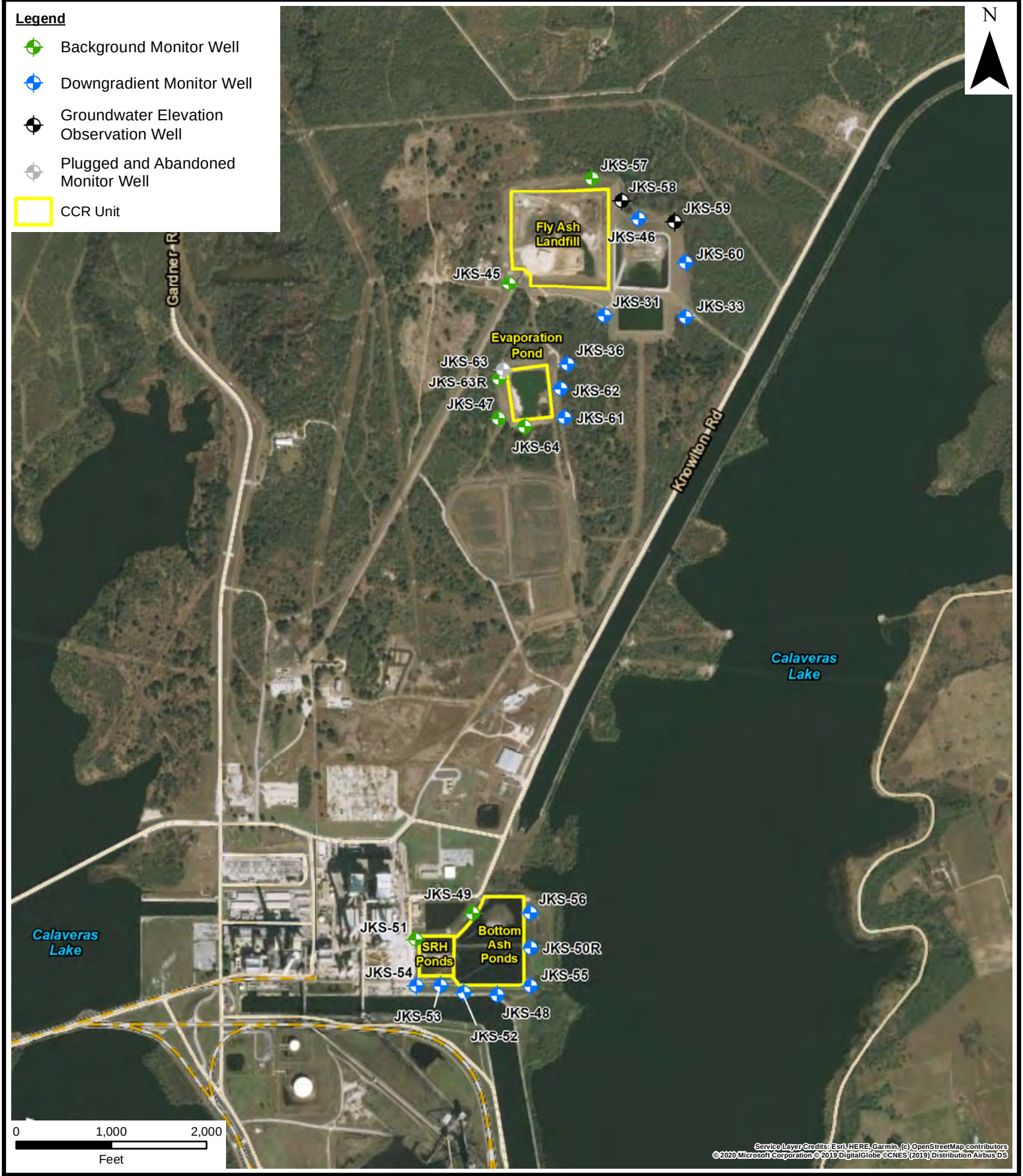
H: Bias in sample result likely to be high.

NR: Analysis of this constituent not required for detection monitoring.

U: Analyte not detected at laboratory reporting limit (Sample Detection Limit).

X: Matrix Spike/Matrix Spike Duplicate recoveries were found to be outside of the laboratory control limits.

# Figures



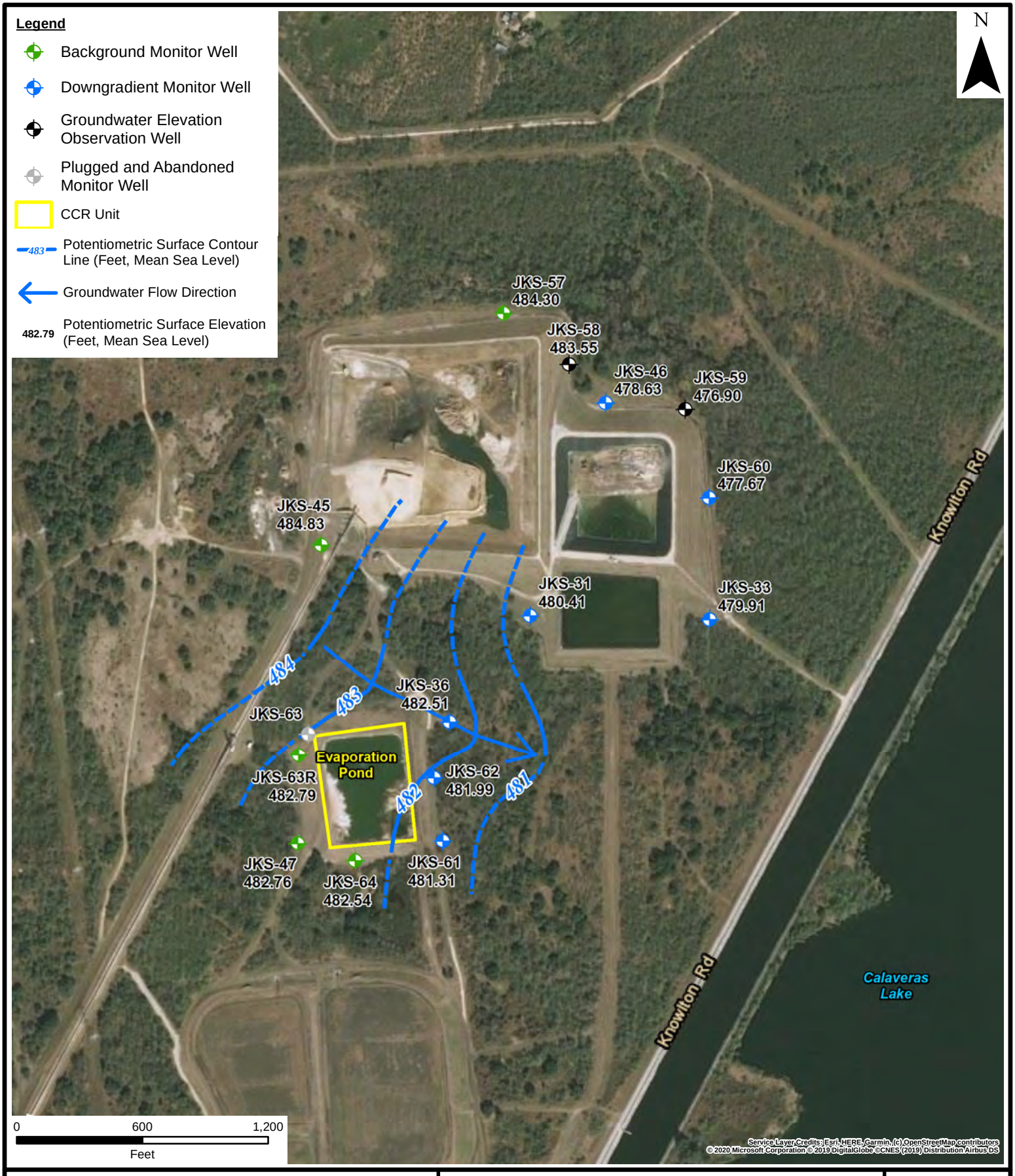

# Environmental Resources Management

| | | | | | |
|---|---|---|---|---|---|
| DESIGN: | WZ | DRAWN: | EFC | CHKD.: | WZ |
| DATE: | 1/17/2020 | SCALE: | AS SHOWN | REVISION: | 0 |

\\ushoufs01\Data\Houston\Projects\0503422 CPS Energy Calaveras 2019 CCR Tasks.WZ\GIS_CAD\MXD\2019gwmon\fig1_0503422_CPSCalv_WellLocs.mxd

FIGURE 1
CCR WELL NETWORK LOCATION MAP
CPS Energy - Calaveras Power Station
San Antonio, Texas

ERM




# Environmental Resources Management

| | | | | | |
|---|---|---|---|---|---|
| DESIGN: | NH | DRAWN: | EFC | CHKD.: | WZ |
| DATE: | 1/15/2020 | SCALE: | AS SHOWN | REVISION: | 0 |

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FIGURE 2
POTENTIOMETRIC SURFACE MAP - OCTOBER 2019
Evaporation Pond CCR Unit
CPS Energy - Calaveras Power Station
San Antonio, Texas

ERM

# Laboratory Data Packages

*Appendix A*

**(*Data Packages Available Upon Request*)**

# Statistical Analysis Tables and Figures

*Appendix B*

APPENDIX B - TABLE 1
Kruskal-Wallis Test Comparisons of Upgradient Wells
Calaveras Power Station
Evaporation Pond

| Analyte | N | Num Detects | Percent Detect | DF | KW Statistic | p-value | Conclusion | UPL Type |
|---|---|---|---|---|---|---|---|---|
| Boron | 33 | 33 | 100.00% | 2 | 9.91 | 0.00706 | Significant Difference | Intrawell |
| Calcium | 34 | 34 | 100.00% | 2 | 29.1 | <0.001 | Significant Difference | Intrawell |
| Chloride | 34 | 34 | 100.00% | 2 | 29.3 | <0.001 | Significant Difference | Intrawell |
| Fluoride | 34 | 23 | 67.65% | 2 | 1.38 | 0.503 | No Significant Difference | Interwell |
| pH | 35 | 35 | 100.00% | 2 | 13.1 | 0.00145 | Significant Difference | Intrawell |
| Sulfate | 34 | 33 | 97.06% | 2 | 19.7 | <0.001 | Significant Difference | Intrawell |
| Total dissolved solids | 34 | 34 | 100.00% | 2 | 29.3 | <0.001 | Significant Difference | Intrawell |

NOTES:

Non-detects were substituted with a value of half the detection limit for calculations
N: number of data points
DF: degrees of freedom
statistic: Kruskal Wallis test statistic

p-value: P-values below 0.05 indicate that the median concentrations in the upgradient wells are significantly different from each other and the upgradient wells should not be pooled.

p-value: P-values equal or above 0.05 indicate that the median concentrations in the upgradient wells are not significantly different from each other and the upgradient wells can be pooled.

APPENDIX B - TABLE 2
Descriptive Statistics for Upgradient Wells
Calaveras Power Station
Evaporation Pond

| Analyte | Well | Units | N | Num Detects | Percent Detect | Min ND | Max ND | Min Detect | Median | Mean | Max Detect | SD | CV | Distribution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | JKS-47 | mg/L | 12 | 12 | 100.00% | | | 0.59 | 0.82 | 0.823 | 1.05 | 0.123 | 0.149296105 | Normal |
| Boron | JKS-63 | mg/L | 9 | 9 | 100.00% | | | 0.8 | 1.06 | 1.16 | 2.03 | 0.365 | 0.314253394 | Lognormal |
| Boron | JKS-64 | mg/L | 12 | 12 | 100.00% | | | 0.747 | 0.837 | 0.869 | 1.14 | 0.102 | 0.117394176 | NDD |
| Calcium | JKS-47 | mg/L | 12 | 12 | 100.00% | | | 26.2 | 62.4 | 70.7 | 168 | 40.4 | 0.572091587 | Lognormal |
| Calcium | JKS-63 | mg/L | 10 | 10 | 100.00% | | | 174 | 836 | 736 | 1060 | 299 | 0.406508671 | NDD |
| Calcium | JKS-64 | mg/L | 12 | 12 | 100.00% | | | 20.6 | 23.9 | 24 | 31.4 | 2.7 | 0.112710312 | NDD |
| Chloride | JKS-47 | mg/L | 12 | 12 | 100.00% | | | 53.9 | 160 | 162 | 279 | 64.9 | 0.400327364 | Normal |
| Chloride | JKS-63 | mg/L | 10 | 10 | 100.00% | | | 1160 | 1540 | 1650 | 2360 | 442 | 0.267920321 | Normal |
| Chloride | JKS-64 | mg/L | 12 | 12 | 100.00% | | | 9.63 | 12.1 | 13 | 17.7 | 2.47 | 0.189995473 | Normal |
| Fluoride | Pooled | mg/L | 34 | 23 | 67.65% | 0.018 | 0.18 | 0.0573 | 0.156 | 0.158 | 0.382 | 0.121 | 0.765413882 | NDD |
| pH | JKS-47 | SU | 13 | 13 | 100.00% | | | 4.58 | 5.83 | 5.72 | 6 | 0.372 | 0.065032378 | NDD |
| pH | JKS-63 | SU | 10 | 10 | 100.00% | | | 4.76 | 5.64 | 5.59 | 5.88 | 0.329 | 0.058918156 | NDD |
| pH | JKS-64 | SU | 12 | 12 | 100.00% | | | 4.82 | 6.17 | 6.03 | 6.46 | 0.449 | 0.074430618 | NDD |
| Sulfate | JKS-47 | mg/L | 12 | 12 | 100.00% | | | 171 | 264 | 264 | 369 | 56.2 | 0.212664879 | Normal |
| Sulfate | JKS-63 | mg/L | 10 | 9 | 90.00% | 0.023 | 0.023 | 1750 | 1860 | 1700 | 2110 | 605 | 0.356166285 | NDD |
| Sulfate | JKS-64 | mg/L | 12 | 12 | 100.00% | | | 164 | 178 | 180 | 196 | 10.7 | 0.059743519 | Normal |
| Total dissolved solids | JKS-47 | mg/L | 12 | 12 | 100.00% | | | 665 | 858 | 896 | 1240 | 187 | 0.208882243 | Normal |
| Total dissolved solids | JKS-63 | mg/L | 10 | 10 | 100.00% | | | 4760 | 5210 | 5450 | 6660 | 646 | 0.118498469 | Normal |
| Total dissolved solids | JKS-64 | mg/L | 12 | 12 | 100.00% | | | 463 | 574 | 562 | 611 | 39.1 | 0.069461679 | Normal |

NOTES:

Non-detects were substituted with a value of half the detection limit for calculations
Well = Pooled, indicates that the summary statistics were produced for the pooled upgradient wells based on the Kruskal-Wallis test (Table 1).
SU: Standard units
N: number of data points
ND: Non-detect
SD: Standard Deviation
CV: Coefficient of Variation (standard deviation divided by the mean)
NDD: No Discernible Distribution

APPENDIX B - TABLE 3
Potential Outliers in Upgradient Wells
Calaveras Power Station
Evaporation Pond

| Well | Sample | Date | Analyte | Units | Detect | Concentration | UPL type | Distribution | Statistical Outlier | Visual Outlier | Normal Outlier | Log Statistical Outlier | Log Visual Outlier | Lognormal Outlier | Statistical and Visual Outlier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JKS-47 | JKS 47565343-007 | 10/11/2017 | Boron | mg/L | TRUE | 1.02 | Intrawell | Normal | | X | | | X | | |
| JKS-47 | JKS-47002 | 10/23/2019 | Boron | mg/L | TRUE | 1.05 | Intrawell | Normal | | X | | | X | | |
| JKS-63 | 63R001 | 8/20/2019 | Boron | mg/L | TRUE | 2.03 | Intrawell | Lognormal | X | X | X | | X | | |
| JKS-64 | JKS-64549681-009 | 3/29/2017 | Boron | mg/L | TRUE | 1.14 | Intrawell | NDD | X | X | X | X | X | X | 0 |
| JKS-47 | JKS-47549681-004 | 3/29/2017 | Calcium | mg/L | TRUE | 168 | Intrawell | Lognormal | X | X | X | | X | | |
| JKS-47 | JKS47620699-005 | 4/10/2019 | Calcium | mg/L | TRUE | 128 | Intrawell | Lognormal | | X | | | X | | |
| JKS-64 | JKS-64549681-009 | 3/29/2017 | Calcium | mg/L | TRUE | 31.4 | Intrawell | NDD | X | X | X | X | X | X | 0 |
| JKS-47 | JKS-47-WG-20170223 | 2/23/2017 | pH | SU | TRUE | 5.42 | Intrawell | NDD | X | X | X | X | X | X | 0 |
| JKS-47 | JKS-47-WG-20191023-02 | 10/23/2019 | pH | SU | TRUE | 4.58 | Intrawell | NDD | X | X | X | X | X | X | 0 |
| JKS-63 | JKS-63-WG-20170222 | 2/22/2017 | pH | SU | TRUE | 5.35 | Intrawell | NDD | | X | | | X | | |
| JKS-63 | JKS-63R-WG-20191023-02 | 10/23/2019 | pH | SU | TRUE | 4.76 | Intrawell | NDD | X | X | X | X | X | X | 0 |
| JKS-64 | JKS-64-WG-20170223 | 2/23/2017 | pH | SU | TRUE | 5.5 | Intrawell | NDD | X | X | X | X | X | X | 0 |
| JKS-64 | JKS-64-WG-20191023-02 | 10/23/2019 | pH | SU | TRUE | 4.82 | Intrawell | NDD | X | X | X | X | X | X | 0 |
| JKS-47 | JKS47620699-005 | 4/10/2019 | Sulfate | mg/L | TRUE | 347 | Intrawell | Normal | | X | | | | | |
| JKS-63 | WELL 63581537-002 | 4/5/2018 | Sulfate | mg/L | TRUE | 2110 | Intrawell | NDD | | X | | | X | | |
| JKS-63 | JKS 63558516-006 | 7/26/2017 | Total dissolved solids | mg/L | TRUE | 6410 | Intrawell | Normal | | X | | | | | |

NOTES:

NDD: No Discernible Distribution
SU: Standard units
Outlier tests were performed on detected data only.
Statistical outliers were determined using a Dixon's test for N < 25 and with Rosner's test for N > 25.
Visual outliers were identified if they fall above the confidence envelope on the QQ plot.
Data points were considered potential outliers if they were both statistical and visual outliers.
NDD wells had data points considered as potential outliers if they were either a normal or lognormal outlier.
[Blank] data distribution indicates that the well data did not have enough detected data points for outlier analysis.
Lognormally distributed data was first log-transformed before visual and statistical outlier tests were performed.
Normal data distribution indicates that the well data was directly used for statistical and visual outlier tests.
NDD indicates that both the untransformed and transformed data were examined with statistical and visual outlier tests.
'0' indicates that the data point was a statistical and visual outlier but was retained after review by the hydrogeologist.

APPENDIX B - TABLE 4
Mann Kendall Test for Trends in Upgradient Wells
Calaveras Power Station
Evaporation Pond

| Analyte | UPL Type | Well | N | Num Detects | Percent Detect | p-value | tau | Conclusion |
|---|---|---|---|---|---|---|---|---|
| Boron | Intrawell | JKS-47 | 12 | 12 | 100.00% | 0.737 | 0.0909 | Stable, No Trend |
| Boron | Intrawell | JKS-63 | 9 | 9 | 100.00% | 0.119 | 0.444 | Stable, No Trend |
| Boron | Intrawell | JKS-64 | 12 | 12 | 100.00% | 0.011 | -0.565 | Decreasing Trend |
| Calcium | Intrawell | JKS-47 | 12 | 12 | 100.00% | 0.841 | 0.0606 | Stable, No Trend |
| Calcium | Intrawell | JKS-63 | 10 | 10 | 100.00% | 1 | 0.0222 | Stable, No Trend |
| Calcium | Intrawell | JKS-64 | 12 | 12 | 100.00% | 0.89 | -0.0308 | Stable, No Trend |
| Chloride | Intrawell | JKS-47 | 12 | 12 | 100.00% | 1 | 0 | Stable, No Trend |
| Chloride | Intrawell | JKS-63 | 10 | 10 | 100.00% | 0.00915 | 0.644 | Increasing Trend |
| Chloride | Intrawell | JKS-64 | 12 | 12 | 100.00% | 0.149 | 0.321 | Stable, No Trend |
| Fluoride | Interwell | JKS-47, JKS-63, JKS-64 | 34 | 23 | 67.65% | 0.381 | -0.109 | Stable, No Trend |
| pH | Intrawell | JKS-47 | 13 | 13 | 100.00% | 0.582 | 0.116 | Stable, No Trend |
| pH | Intrawell | JKS-63 | 10 | 10 | 100.00% | 1 | 0.0222 | Stable, No Trend |
| pH | Intrawell | JKS-64 | 12 | 12 | 100.00% | 0.0331 | -0.473 | Decreasing Trend |
| Sulfate | Intrawell | JKS-47 | 12 | 12 | 100.00% | 0.459 | -0.182 | Stable, No Trend |
| Sulfate | Intrawell | JKS-63 | 10 | 9 | 90.00% | 1 | 0 | Stable, No Trend |
| Sulfate | Intrawell | JKS-64 | 12 | 12 | 100.00% | 0.192 | 0.29 | Stable, No Trend |
| Total dissolved solids | Intrawell | JKS-47 | 12 | 12 | 100.00% | 0.116 | -0.364 | Stable, No Trend |
| Total dissolved solids | Intrawell | JKS-63 | 10 | 10 | 100.00% | 0.381 | 0.244 | Stable, No Trend |
| Total dissolved solids | Intrawell | JKS-64 | 12 | 12 | 100.00% | 0.0629 | -0.424 | Stable, No Trend |

NOTES:

Non-detects were substituted with a value of zero for trend calculations
N: number of data points
tau: Kendall's tau statistic
p-value: A two-sided p-value describing the probability of the H0 being true (a=0.05)
Trend tests were performed on all upgradient data, only if the dataset met the minimum data quality criteria (ERM 2017).

APPENDIX B - TABLE 5
Calculated UPLs for Upgradient Datasets
Calaveras Power Station
Evaporation Pond

| Analyte | UPL Type | Trend | Well | N | Num Detects | Percent Detects | LPL | UPL | Units | ND Adjustment | Transformation | Alpha | Method | Final LPL | Final UPL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | Intrawell | Stable, No Trend | JKS-47 | 12 | 12 | 1 | | 1.04 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | |
| Boron | Intrawell | Stable, No Trend | JKS-63 | 9 | 9 | 1 | | 1.88 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | X |
| Boron | Intrawell | Decreasing Trend | JKS-64 | 12 | 12 | 1 | | 0.973 | mg/L | None | No | 0.00584 | NP Detrended UPL | | |
| Calcium | Intrawell | Stable, No Trend | JKS-47 | 12 | 12 | 1 | | 143 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | |
| Calcium | Intrawell | Stable, No Trend | JKS-63 | 10 | 10 | 1 | | 1300 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | X |
| Calcium | Intrawell | Stable, No Trend | JKS-64 | 12 | 12 | 1 | | 28.8 | mg/L | None | ln(x) | 0.00584 | Param Intra 1 of 2 | | |
| Chloride | Intrawell | Stable, No Trend | JKS-47 | 12 | 12 | 1 | | 278 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | |
| Chloride | Intrawell | Increasing Trend | JKS-63 | 10 | 10 | 1 | | 2780 | mg/L | None | No | 0.00584 | NP Detrended UPL | | X |
| Chloride | Intrawell | Stable, No Trend | JKS-64 | 12 | 12 | 1 | | 17.4 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | |
| Fluoride | Interwell | Stable, No Trend | JKS-47, JKS-63, JKS-64 | 34 | 23 | 0.6764706 | | 0.382 | mg/L | None | No | 0.00159 | NP Inter (normality) 1 of 2 | | X |
| pH | Intrawell | Stable, No Trend | JKS-47 | 13 | 13 | 1 | 4.58 | 6 | SU | None | No | 0.0198 | NP Intra (normality) 1 of 2 | X | |
| pH | Intrawell | Stable, No Trend | JKS-63 | 10 | 10 | 1 | 4.76 | 5.88 | SU | None | No | 0.0303 | NP Intra (normality) 1 of 2 | | |
| pH | Intrawell | Decreasing Trend | JKS-64 | 12 | 12 | 1 | 4.93 | 6.47 | SU | None | No | 0.022 | NP Detrended UPL | | X |
| Sulfate | Intrawell | Stable, No Trend | JKS-47 | 12 | 12 | 1 | | 365 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | |
| Sulfate | Intrawell | Stable, No Trend | JKS-63 | 10 | 9 | 0.9 | | 2110 | mg/L | None | No | 0.0152 | NP Intra (normality) 1 of 2 | | X |
| Sulfate | Intrawell | Stable, No Trend | JKS-64 | 12 | 12 | 1 | | 199 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | |
| Total dissolved solids | Intrawell | Stable, No Trend | JKS-47 | 12 | 12 | 1 | | 1230 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | |
| Total dissolved solids | Intrawell | Stable, No Trend | JKS-63 | 10 | 10 | 1 | | 6660 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | X |
| Total dissolved solids | Intrawell | Stable, No Trend | JKS-64 | 12 | 12 | 1 | | 632 | mg/L | None | No | 0.00584 | Param Intra 1 of 2 | | |

NOTES:

Non-detects (ND) were substituted with a value of half the detection limit for calculations
UPL: upper prediction limit
LPL: Lower prediction limit. These were only calculated for pH
UPLs were constructed with a site wide false positive rate of 0.1 and a 1 of 2 retesting.
UPLs were calculated using Sanitas Software.
SU: Standard units
NP: non parametric
Intra: indicates an intrawell UPL was used
Inter: indicates an interwell UPL was used
In the case where multiple UPLs were calculated for an analyte, the maximum UPL was used as the final UPL.
In the case where multiple LPLs were calculated for an pH the minimum LPL was used as the final LPL.

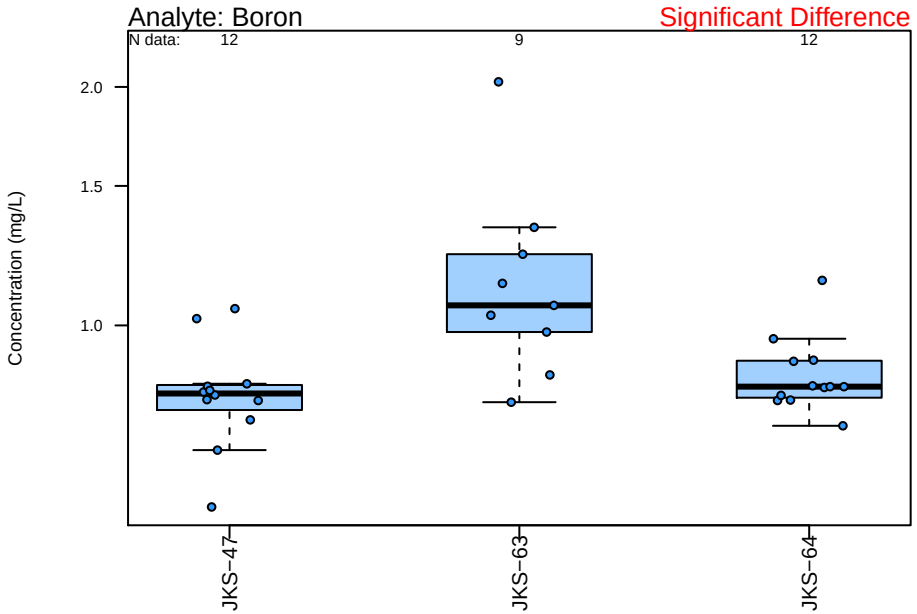
APPENDIX B - TABLE 6
Comparisons of Downgradient Wells to UPLs
Calaveras Power Station
Evaporation Pond

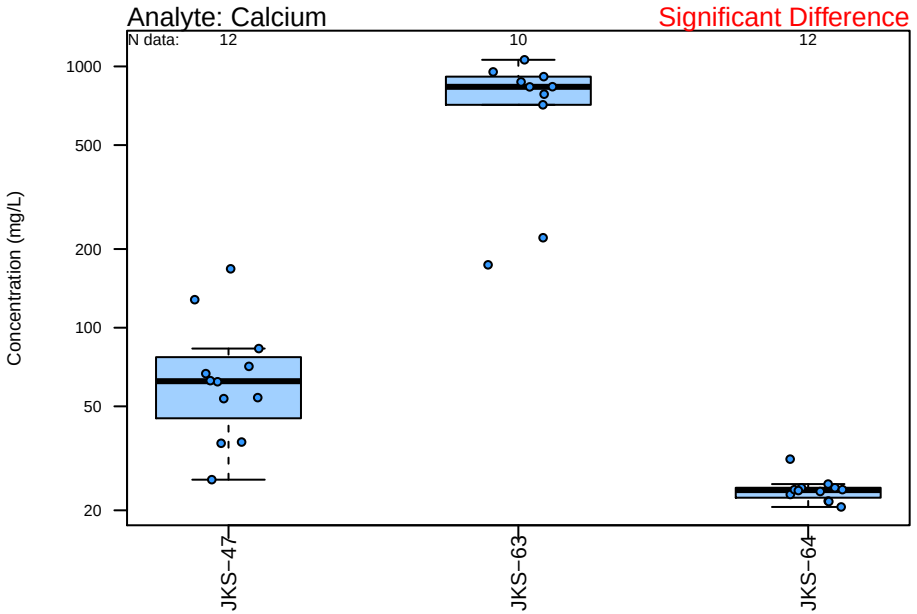
| Analyte | Well | LPL | UPL | Units | Recent Date | Observation | Qualifier | Obs > UPL | Notes | Mann Kendall p-value | Mann Kendall tau |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | JKS-36 | | 1.88 | mg/L | 43760 | 0.632 | | | | | |
| Boron | JKS-61 | | 1.88 | mg/L | 43760 | 2.9 | | X | Trend Test: Stable, No Trend | 0.204 | 0.282 |
| Boron | JKS-62 | | 1.88 | mg/L | 43761 | 0.528 | | | | | |
| Calcium | JKS-36 | | 1300 | mg/L | 43760 | 265 | | | | | |
| Calcium | JKS-61 | | 1300 | mg/L | 43760 | 168 | | | | | |
| Calcium | JKS-62 | | 1300 | mg/L | 43761 | 151 | | | | | |
| Chloride | JKS-36 | | 2780 | mg/L | 43760 | 274 | | | | | |
| Chloride | JKS-61 | | 2780 | mg/L | 43760 | 248 | | | | | |
| Chloride | JKS-62 | | 2780 | mg/L | 43761 | 276 | | | | | |
| Fluoride | JKS-36 | | 0.382 | mg/L | 43760 | 1.41 | | X | Trend Test: Increasing Trend | 0.021 | 0.515 |
| Fluoride | JKS-61 | | 0.382 | mg/L | 43760 | 0.48 | | X | Trend Test: Stable, No Trend | 0.45 | -0.168 |
| Fluoride | JKS-62 | | 0.382 | mg/L | 43761 | 0.38 | | | | | |
| pH | JKS-36 | 4.58 | 6.47 | SU | 43760 | 3.66 | | X | Trend Test: Decreasing Trend | 0.021 | -0.515 |
| pH | JKS-61 | 4.58 | 6.47 | SU | 43760 | 5.61 | | | | | |
| pH | JKS-62 | 4.58 | 6.47 | SU | 43761 | 5.43 | | | | | |
| Sulfate | JKS-36 | | 2110 | mg/L | 43760 | 756 | | | | | |
| Sulfate | JKS-61 | | 2110 | mg/L | 43760 | 548 | | | | | |
| Sulfate | JKS-62 | | 2110 | mg/L | 43761 | 183 | | | | | |
| Total dissolved solids | JKS-36 | | 6660 | mg/L | 43760 | 1600 | | | | | |
| Total dissolved solids | JKS-61 | | 6660 | mg/L | 43760 | 1790 | | | | | |
| Total dissolved solids | JKS-62 | | 6660 | mg/L | 43761 | 1160 | | | | | |

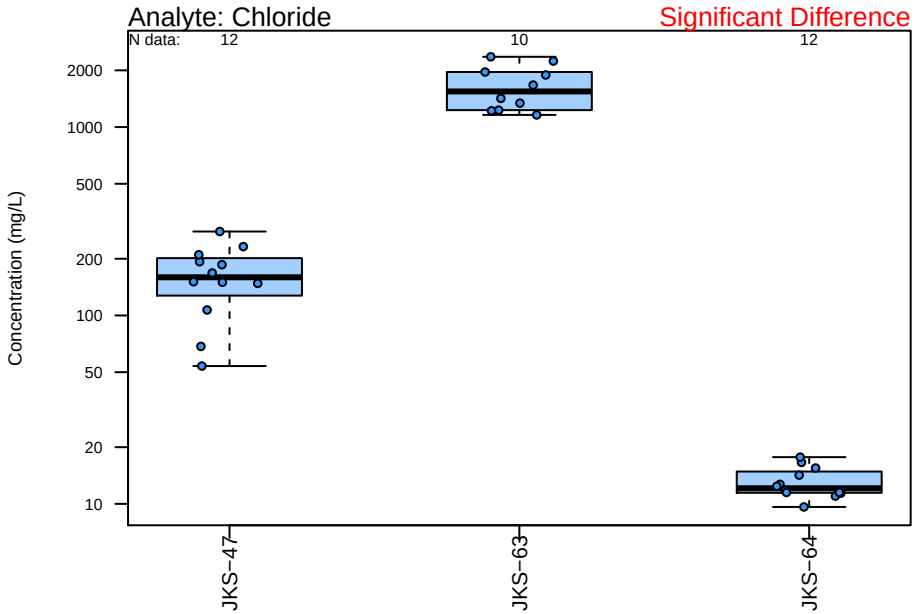
NOTES:

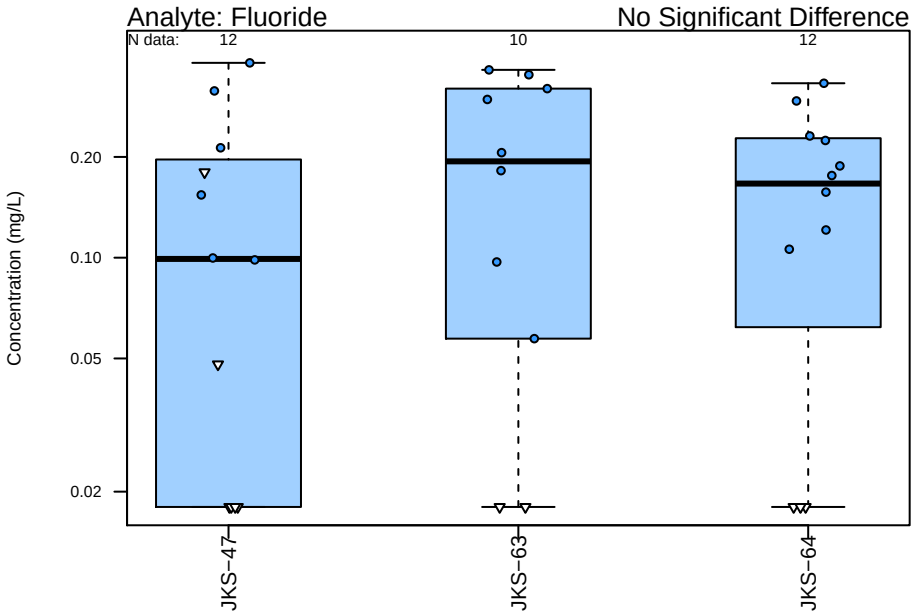
Non-detects were substituted with a value of zero for trend calculations
UPL: Upper Prediction Limit
ND: Not detected
SU: Standard units
tau: Kendall's tau statistic
Obs > UPL: Exceed 'X' indicates that the most recent observed value is higher than the UPL (or out of range of the LPL and UPL in the case of pH.)
Obs > UPL: Exceed 'X0' indicates that the two most recent values are higher than the UPL, but the upgradient well is 100% ND.
Obs > UPL: Exceed '0' indicated that the most recent observed value is higher than the UPL, but is not scored as an SSI due to Double Quantification Rule (ERM 2017).

**Appendix B − Figure 1**
**Unit: Evaporation Pond**
**Boxplots of Upgradient Wells**

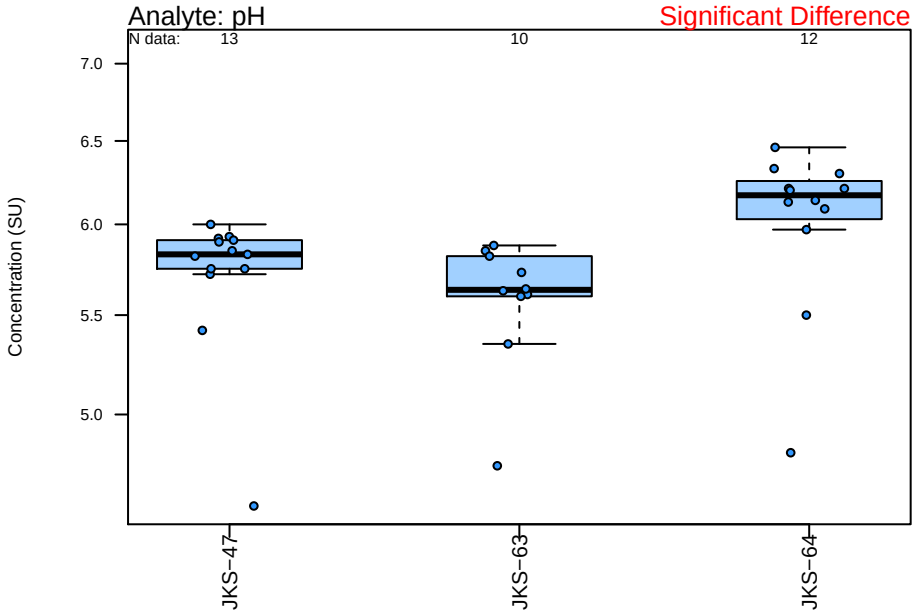


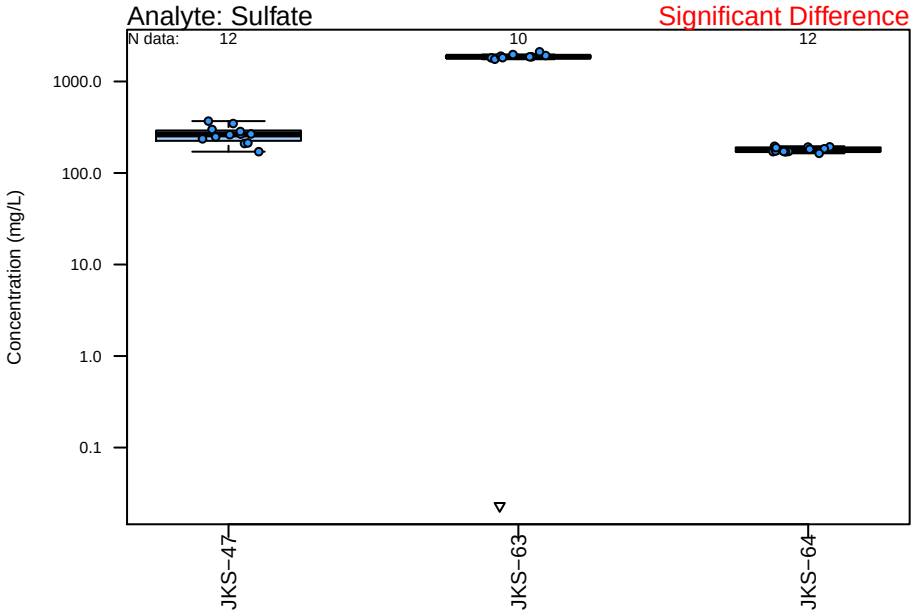



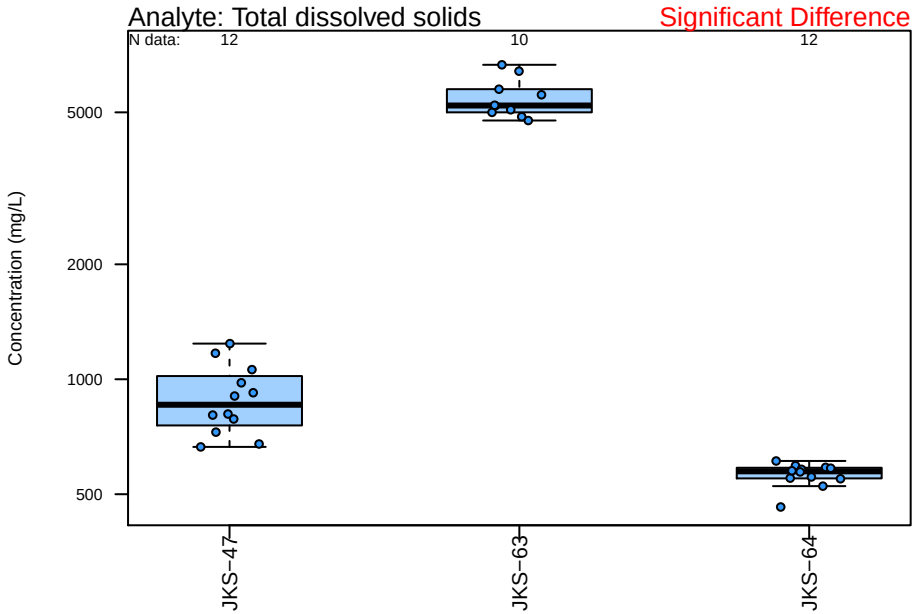



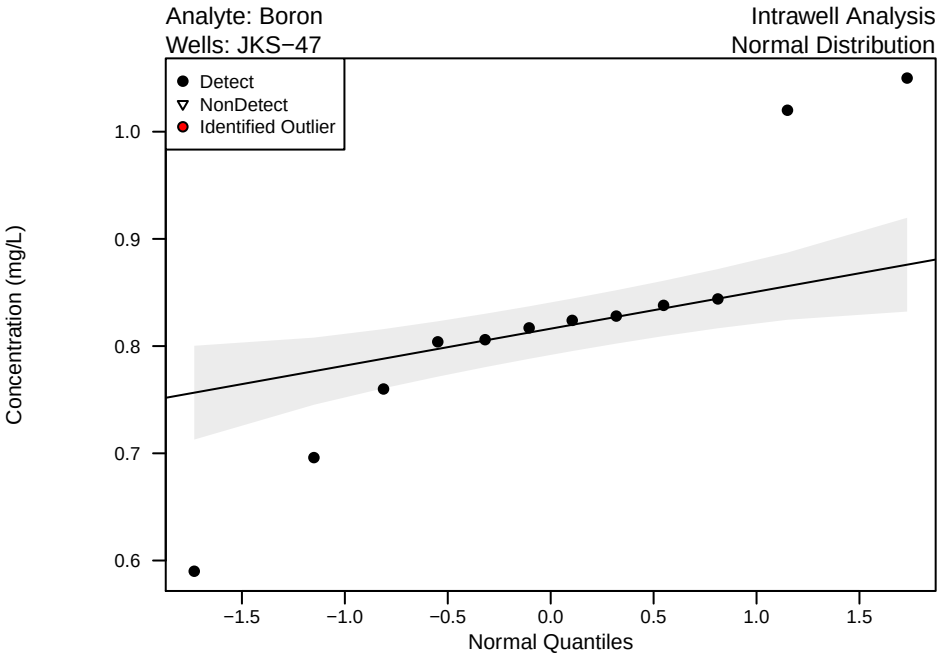
**Appendix B − Figure 1**
**Unit: Evaporation Pond**
**Boxplots of Upgradient Wells**



**Appendix B − Figure 2**
**Unit: Evaporation Pond**
**QQ Plots of Upgradient Wells**

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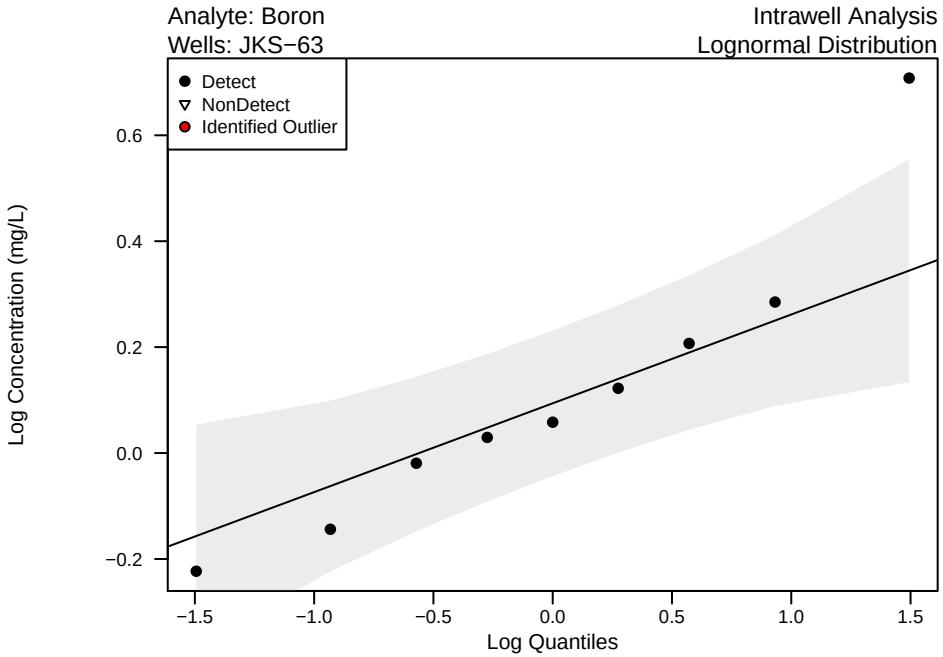
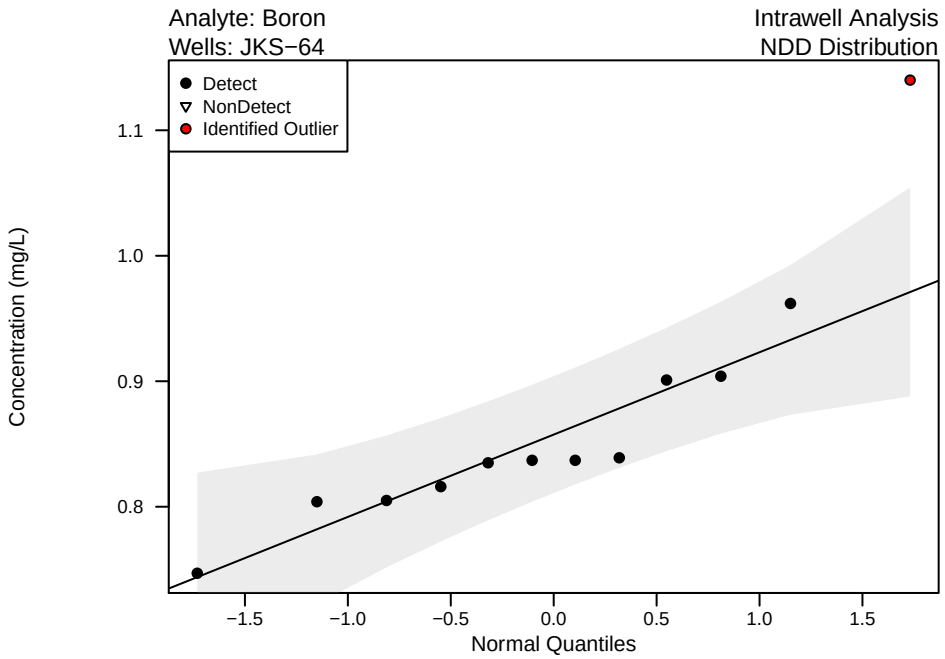
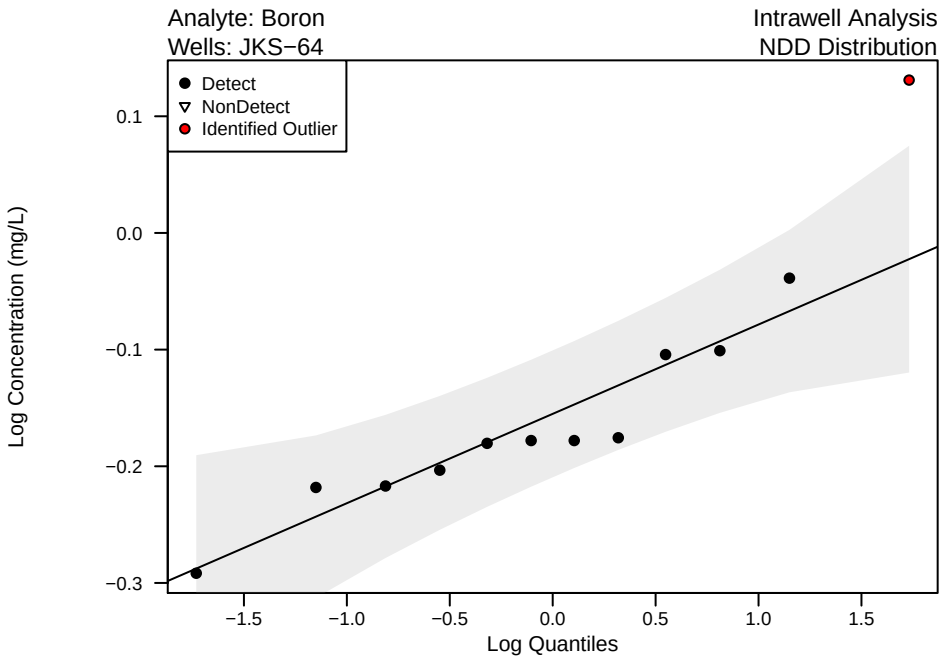
not Lognormal/NDD distribution.

Intentionally left blank,
not Normal/NDD distribution.



**Appendix B − Figure 2**
**Unit: Evaporation Pond**
**QQ Plots of Upgradient Wells**

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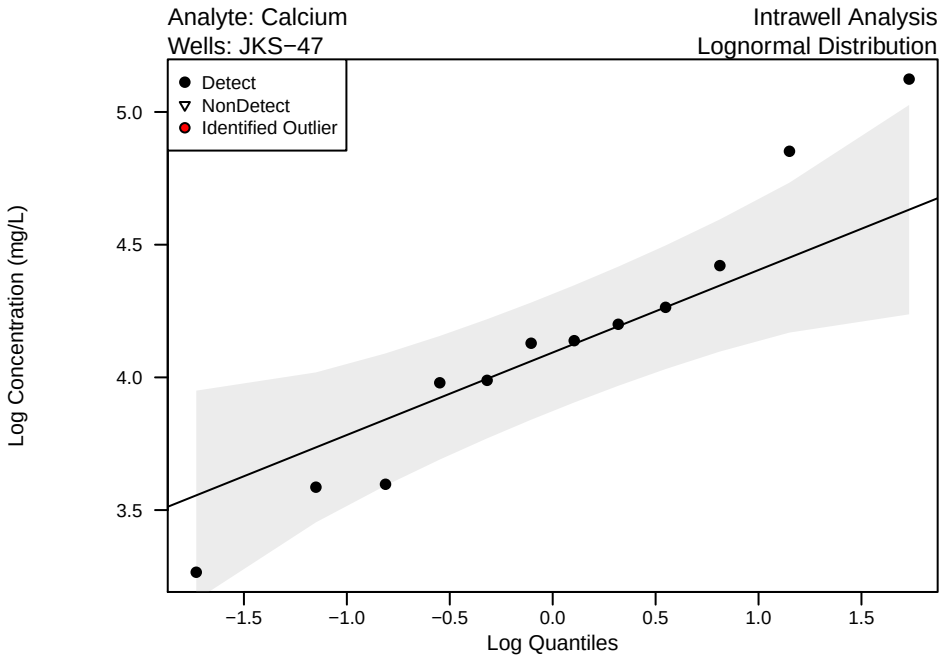
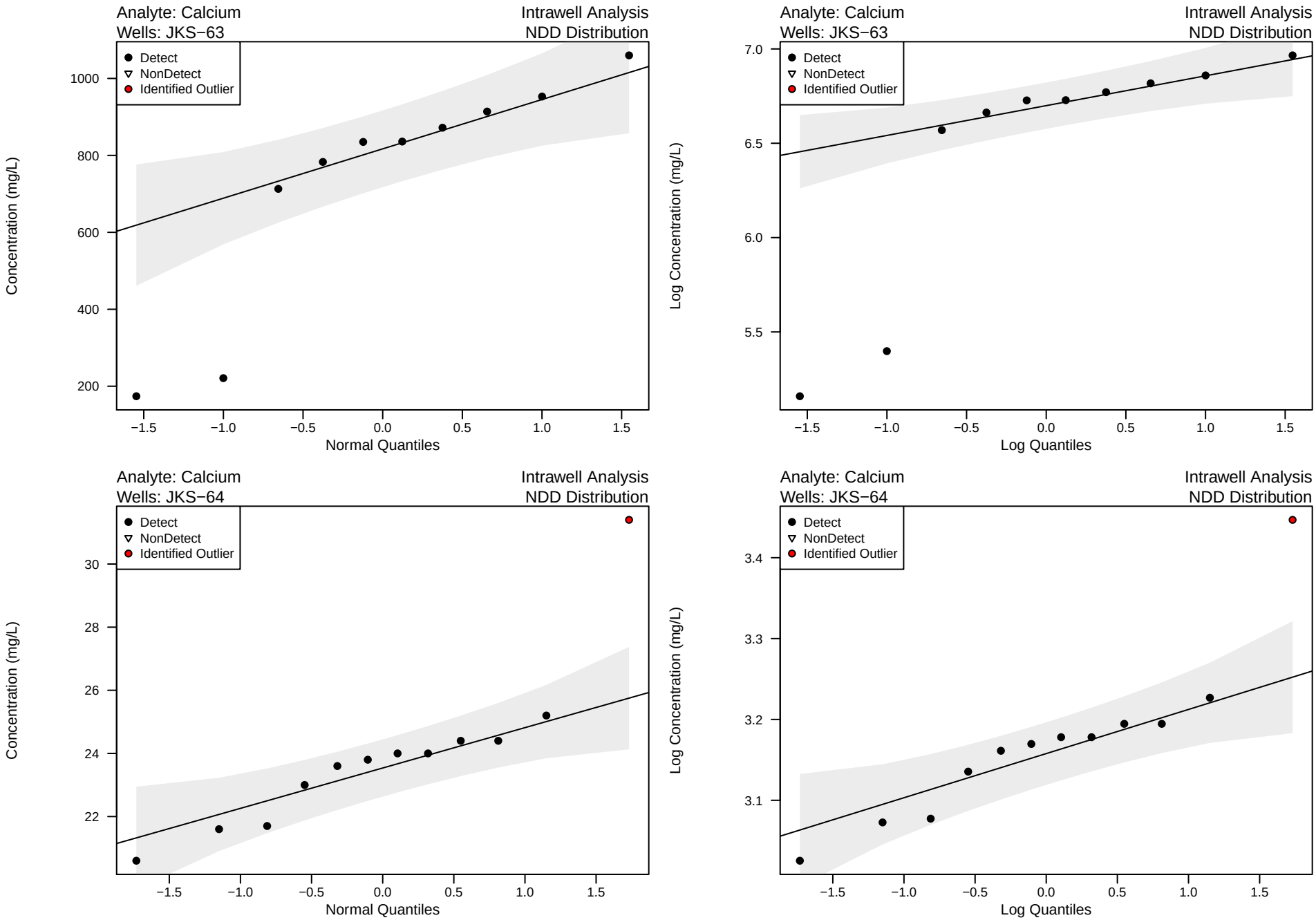
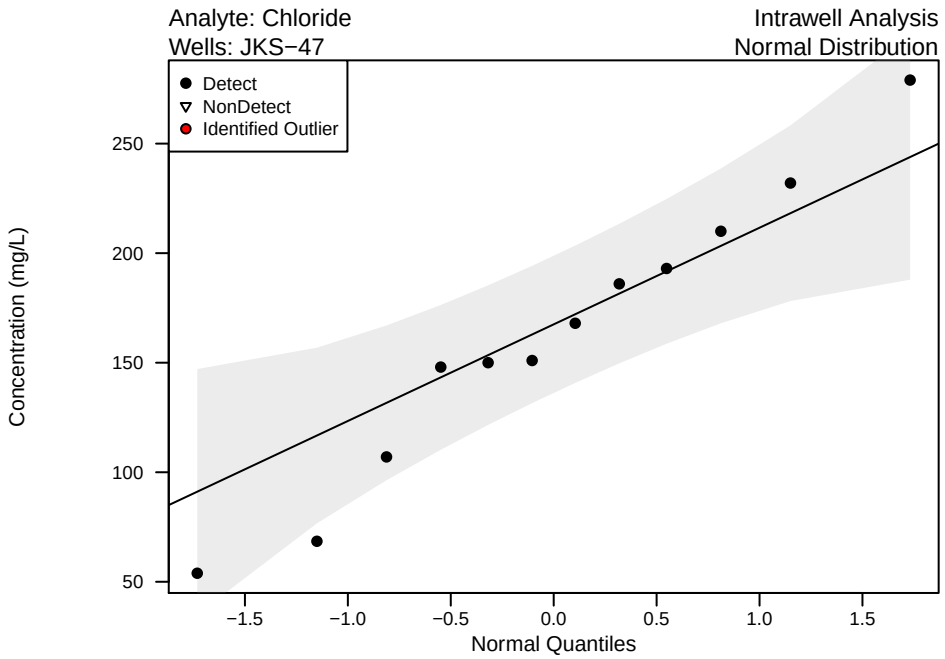


**Appendix B − Figure 2**
**Unit: Evaporation Pond**
**QQ Plots of Upgradient Wells**



**Appendix B − Figure 2**
**Unit: Evaporation Pond**
**QQ Plots of Upgradient Wells**

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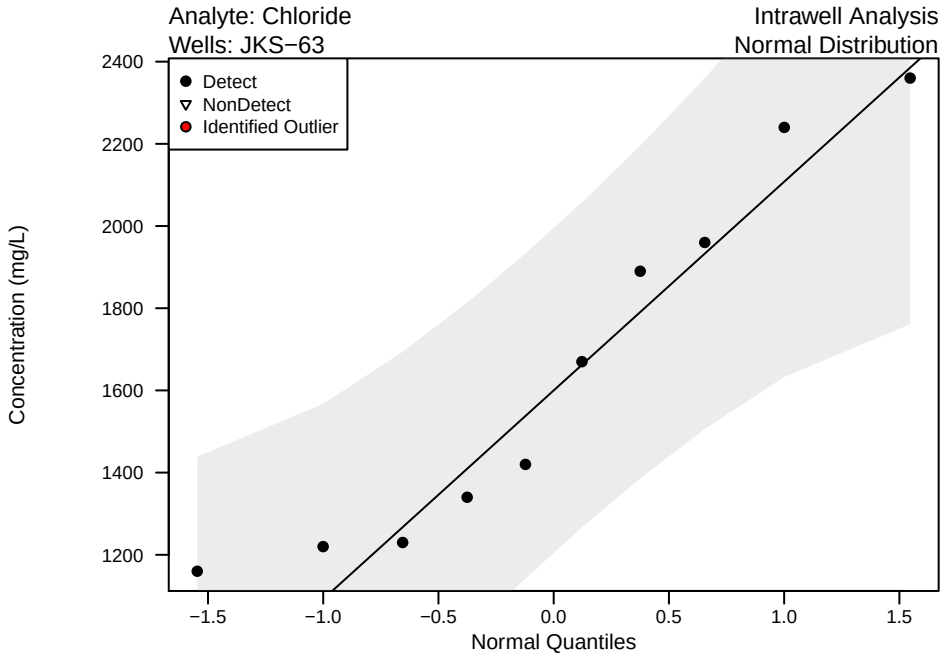


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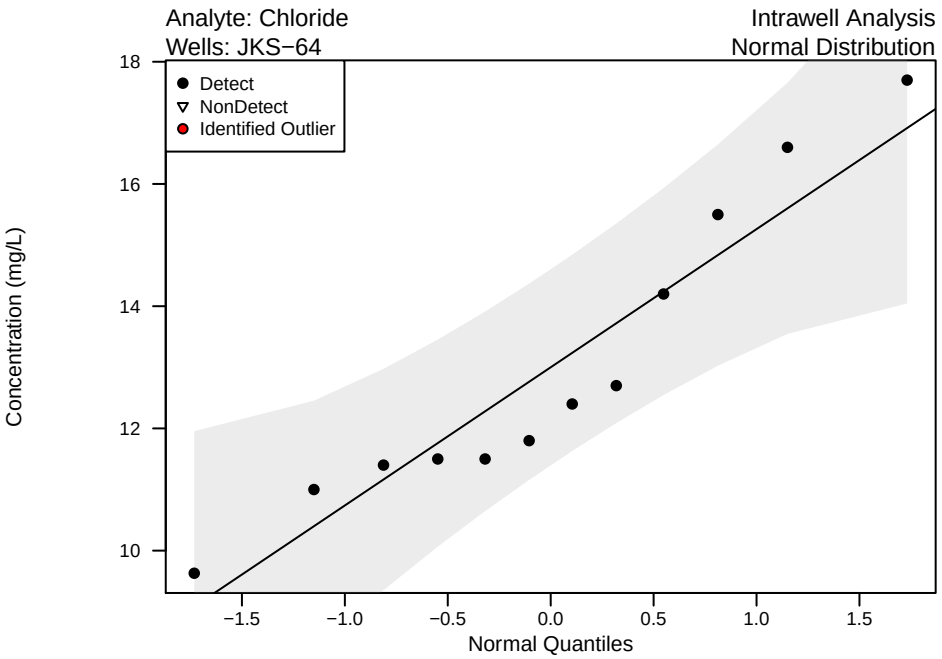
not Lognormal/NDD distribution.

**Appendix B − Figure 2**
**Unit: Evaporation Pond**
**QQ Plots of Upgradient Wells**

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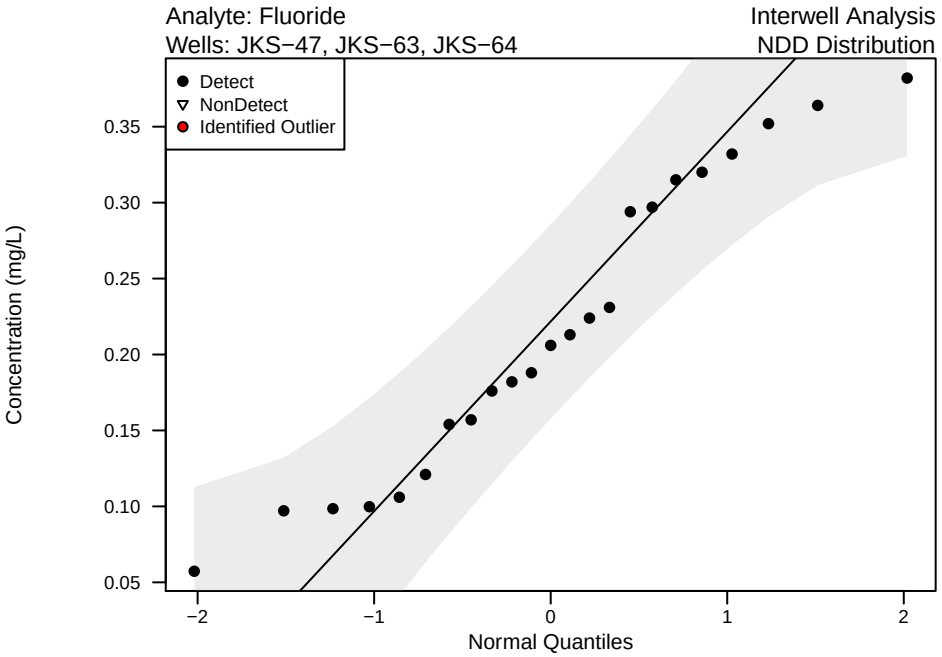
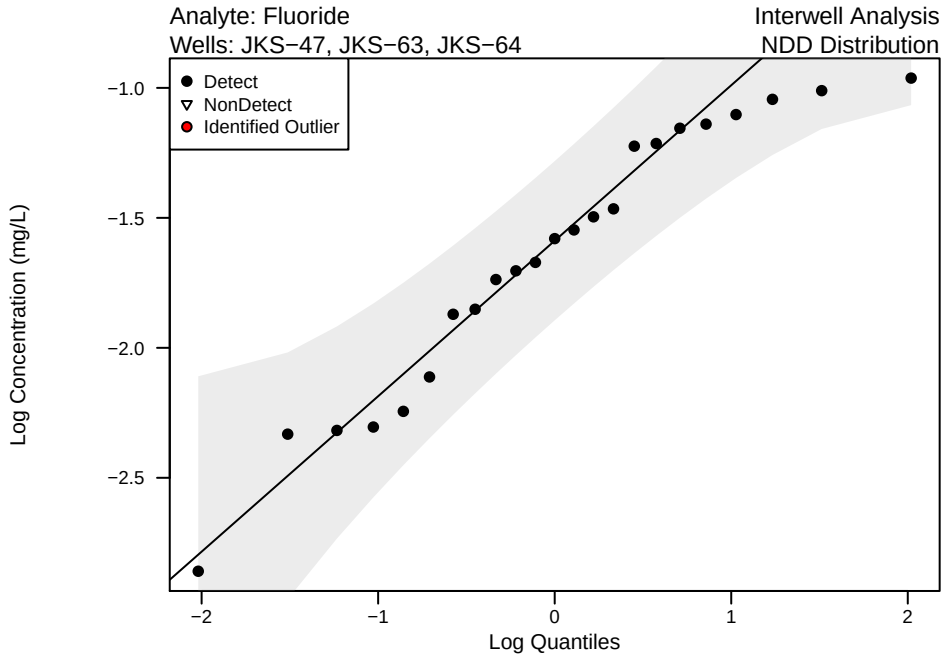
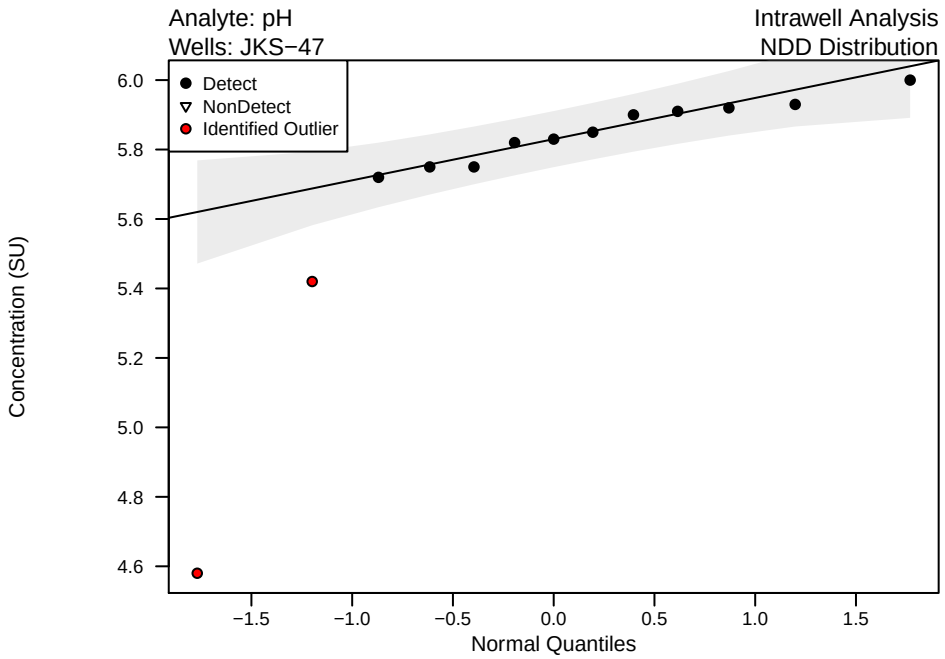
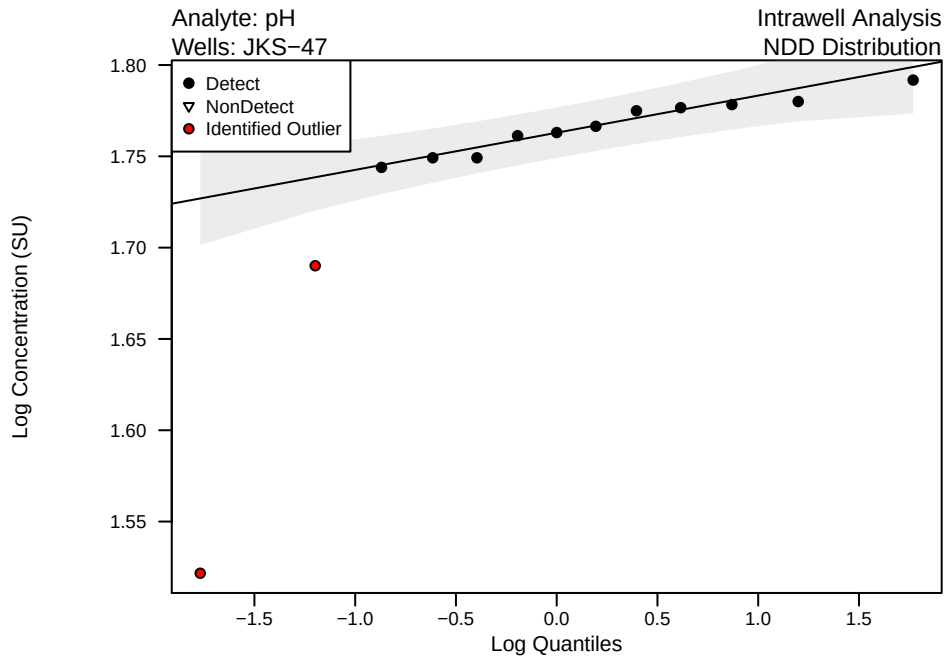
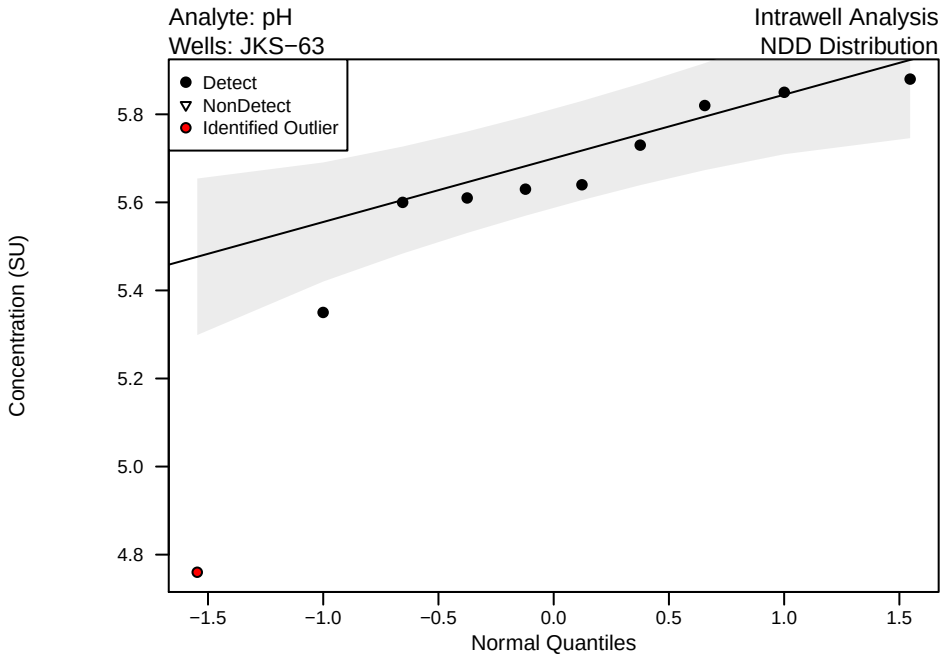


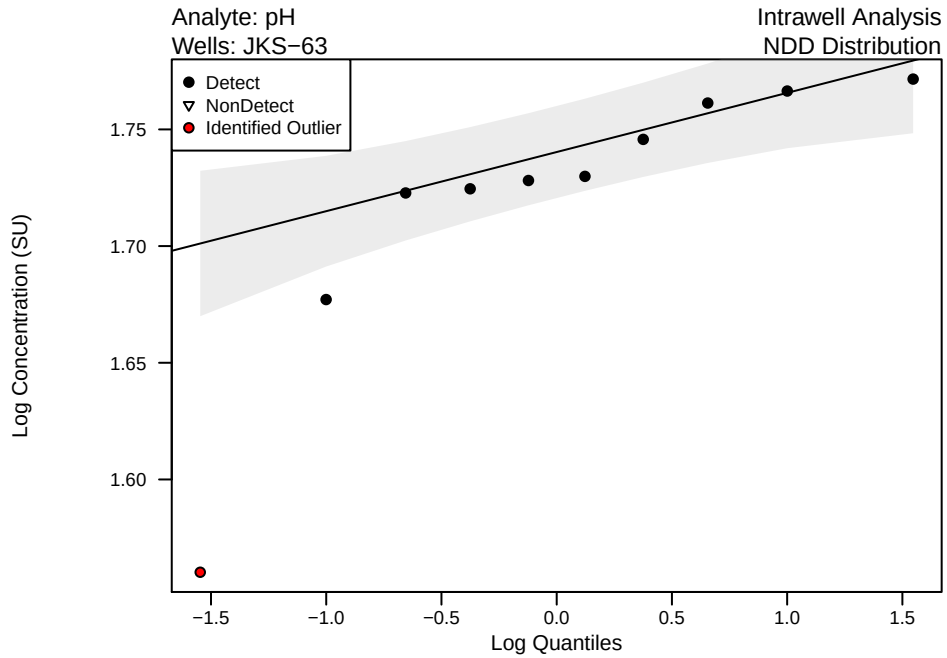



**Appendix B − Figure 2**
**Unit: Evaporation Pond**
**QQ Plots of Upgradient Wells**

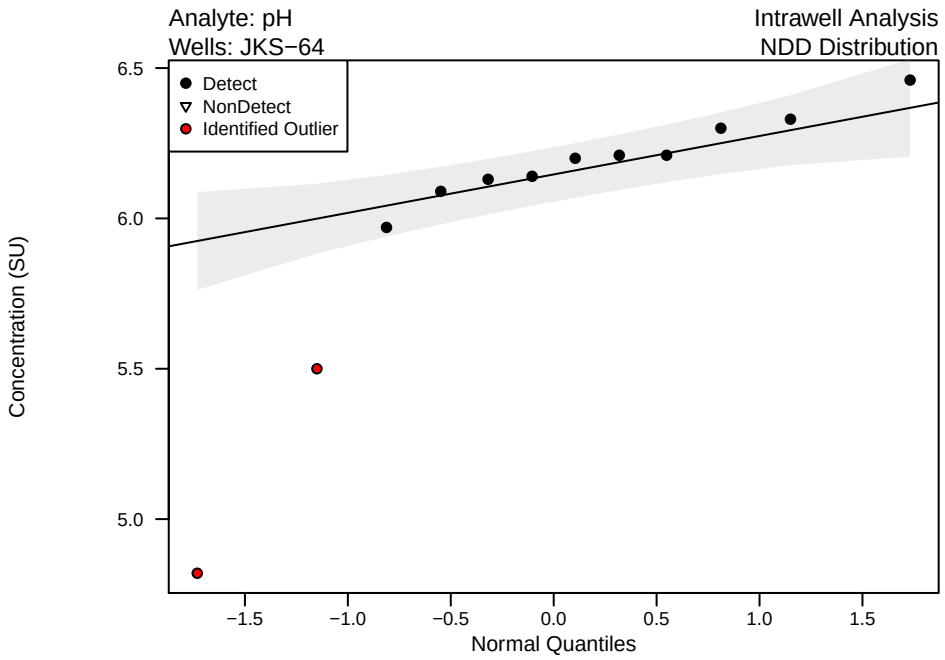


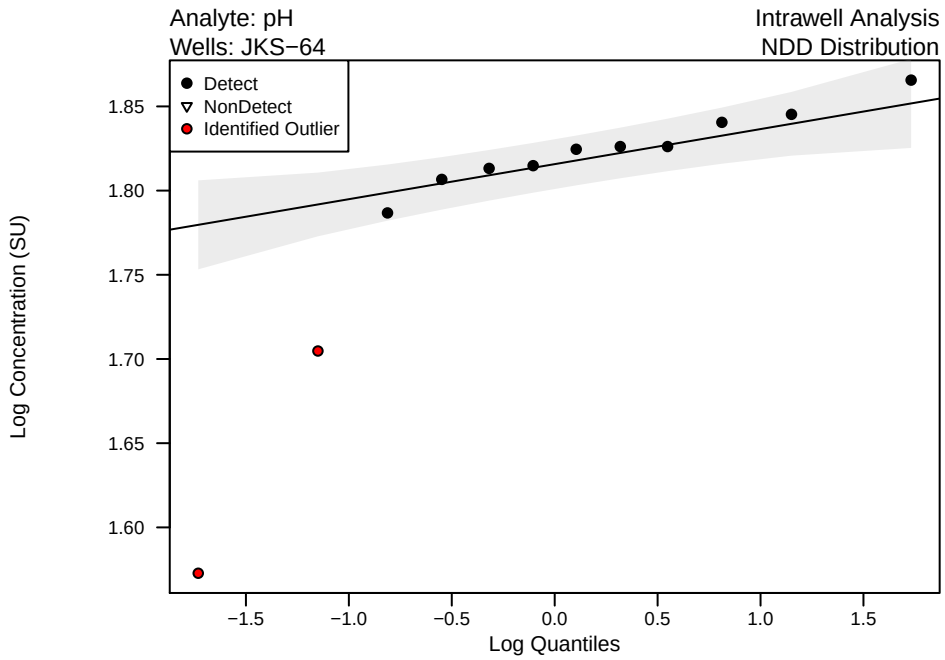



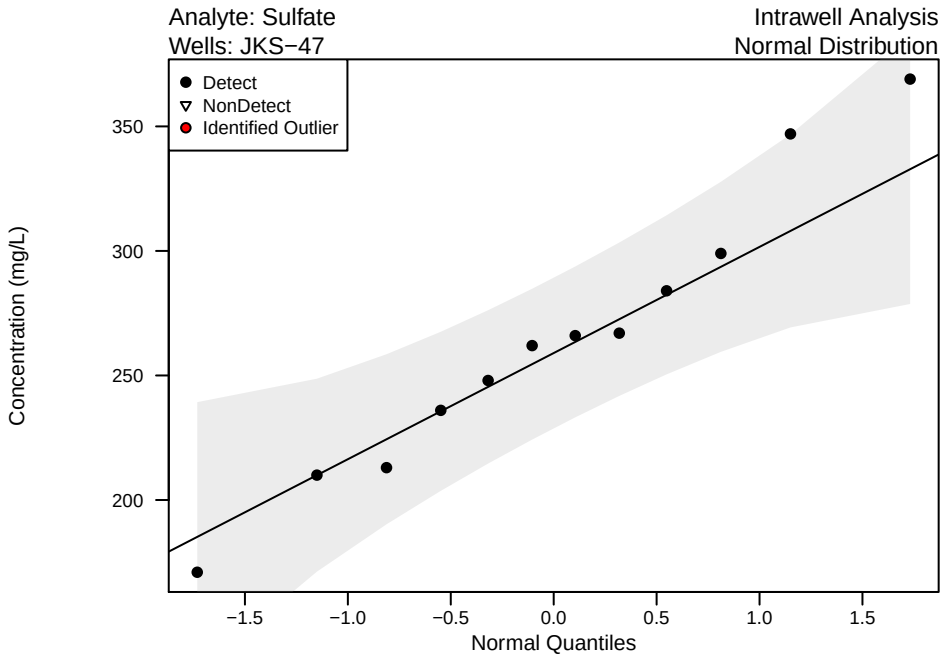



**Appendix B − Figure 2**
**Unit: Evaporation Pond**
**QQ Plots of Upgradient Wells**

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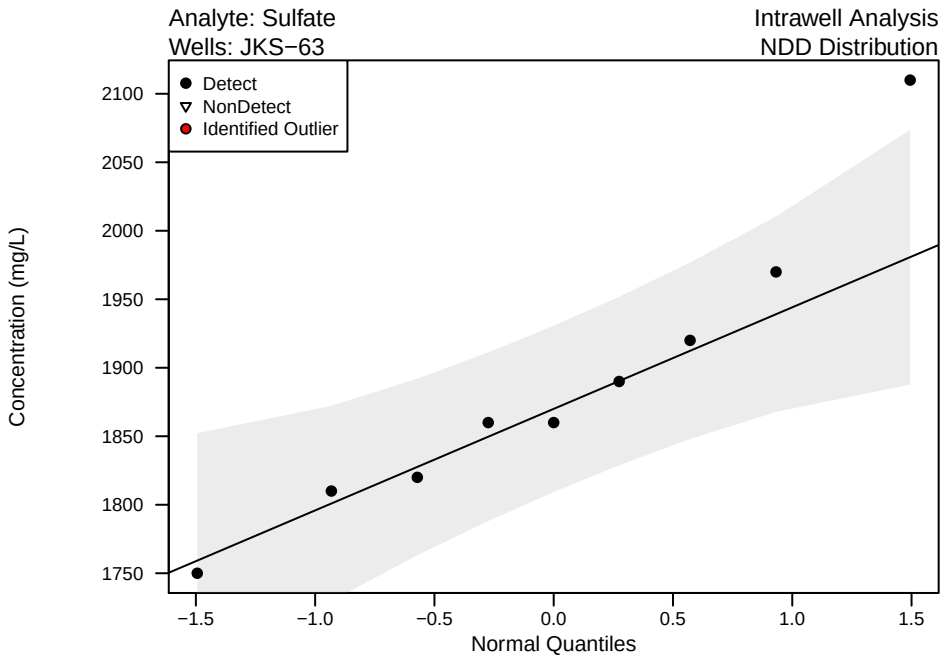
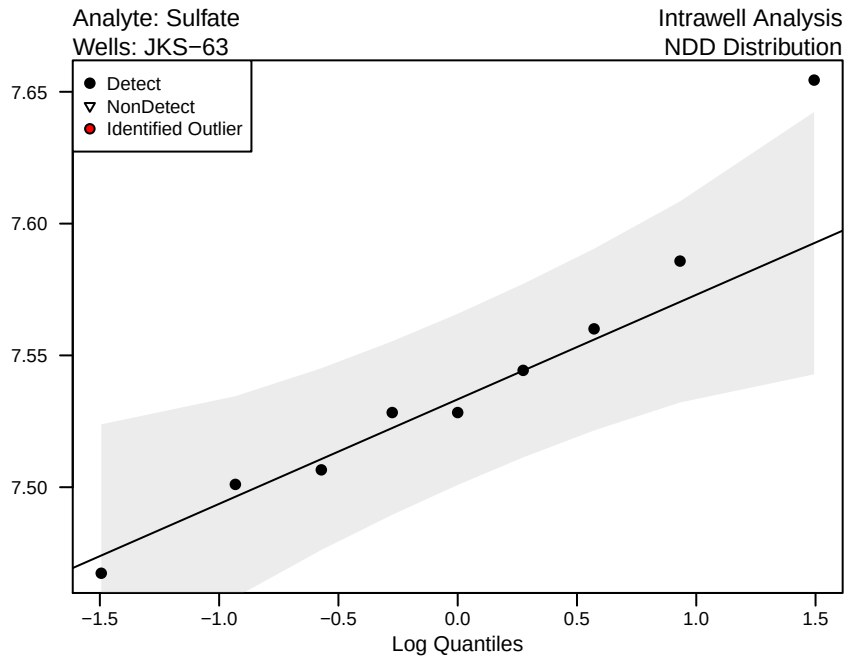
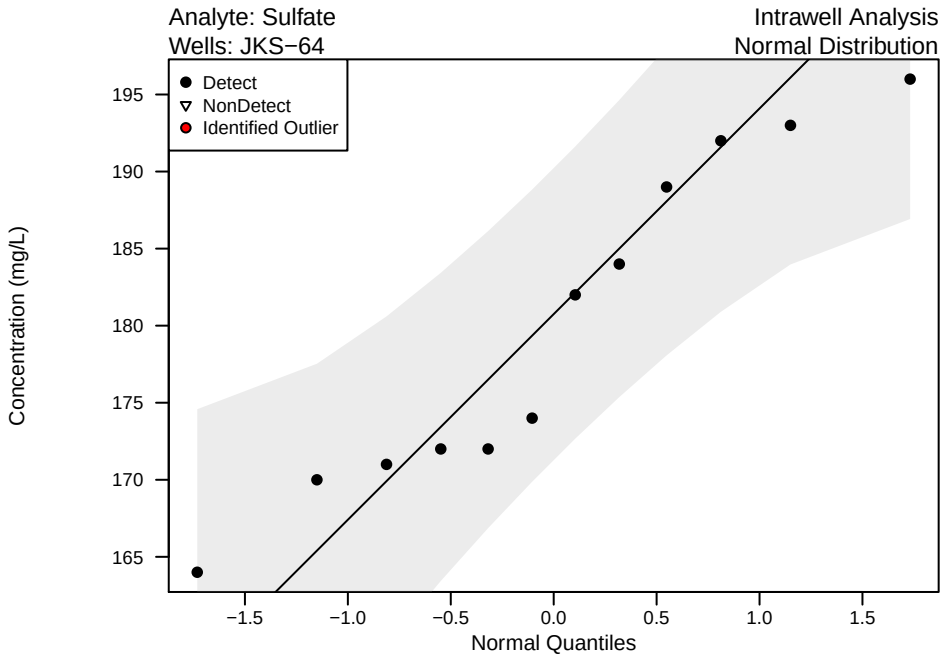
**Appendix B − Figure 2**
**Unit: Evaporation Pond**
**QQ Plots of Upgradient Wells**

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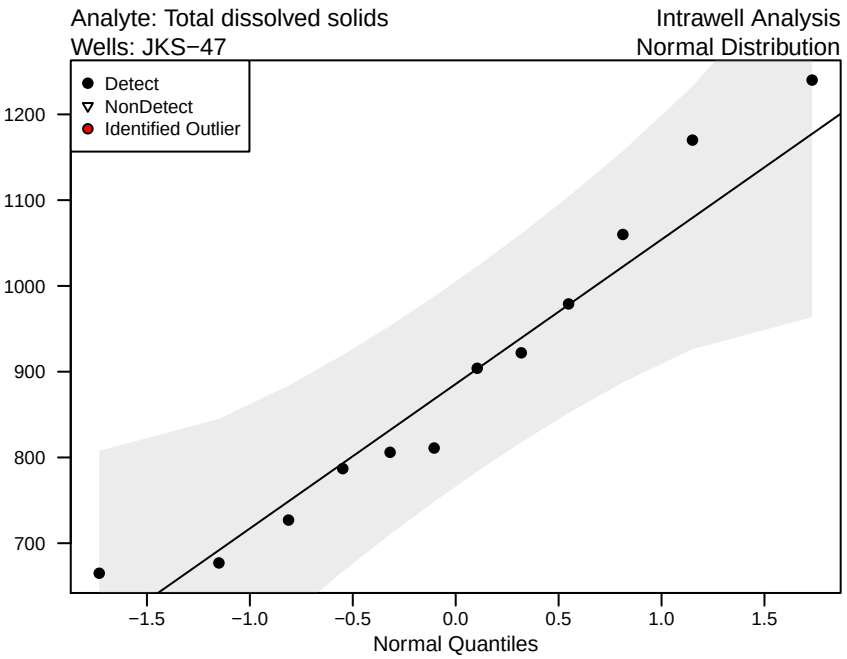
not Lognormal/NDD distribution.

**Appendix B − Figure 2**
**Unit: Evaporation Pond**
**QQ Plots of Upgradient Wells**

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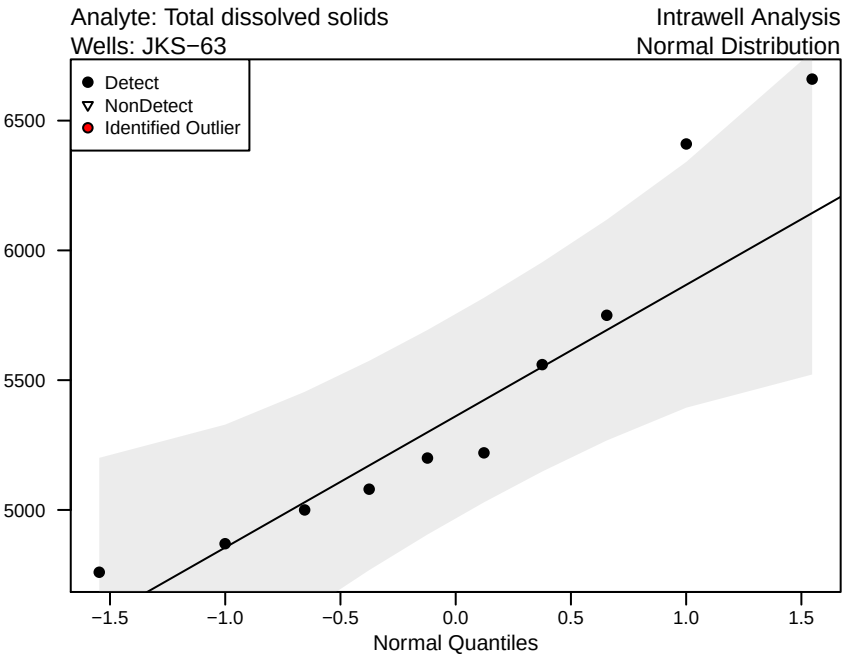


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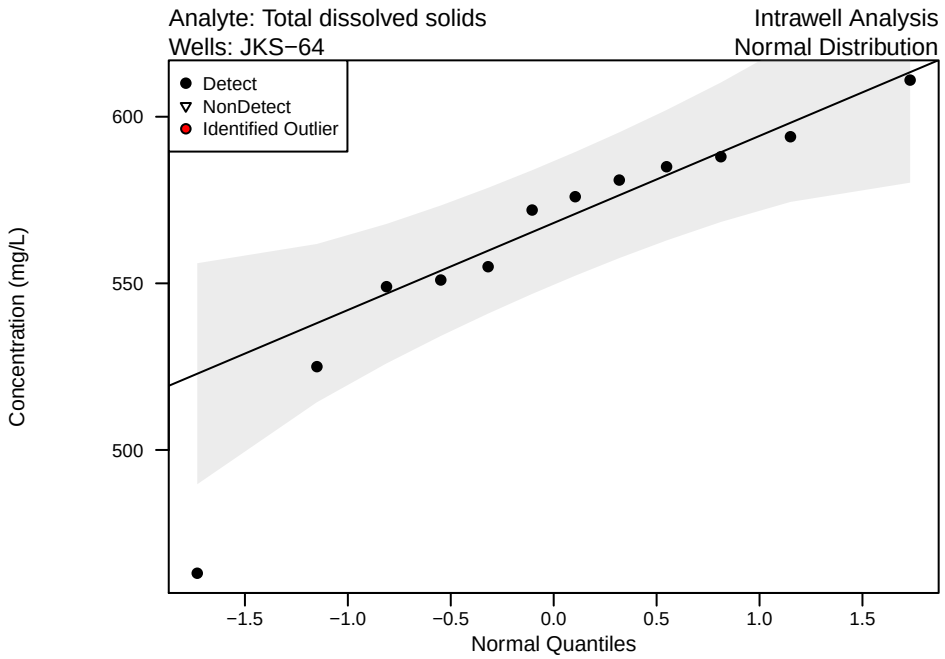
**Appendix B − Figure 2**
**Unit: Evaporation Pond**
**QQ Plots of Upgradient Wells**

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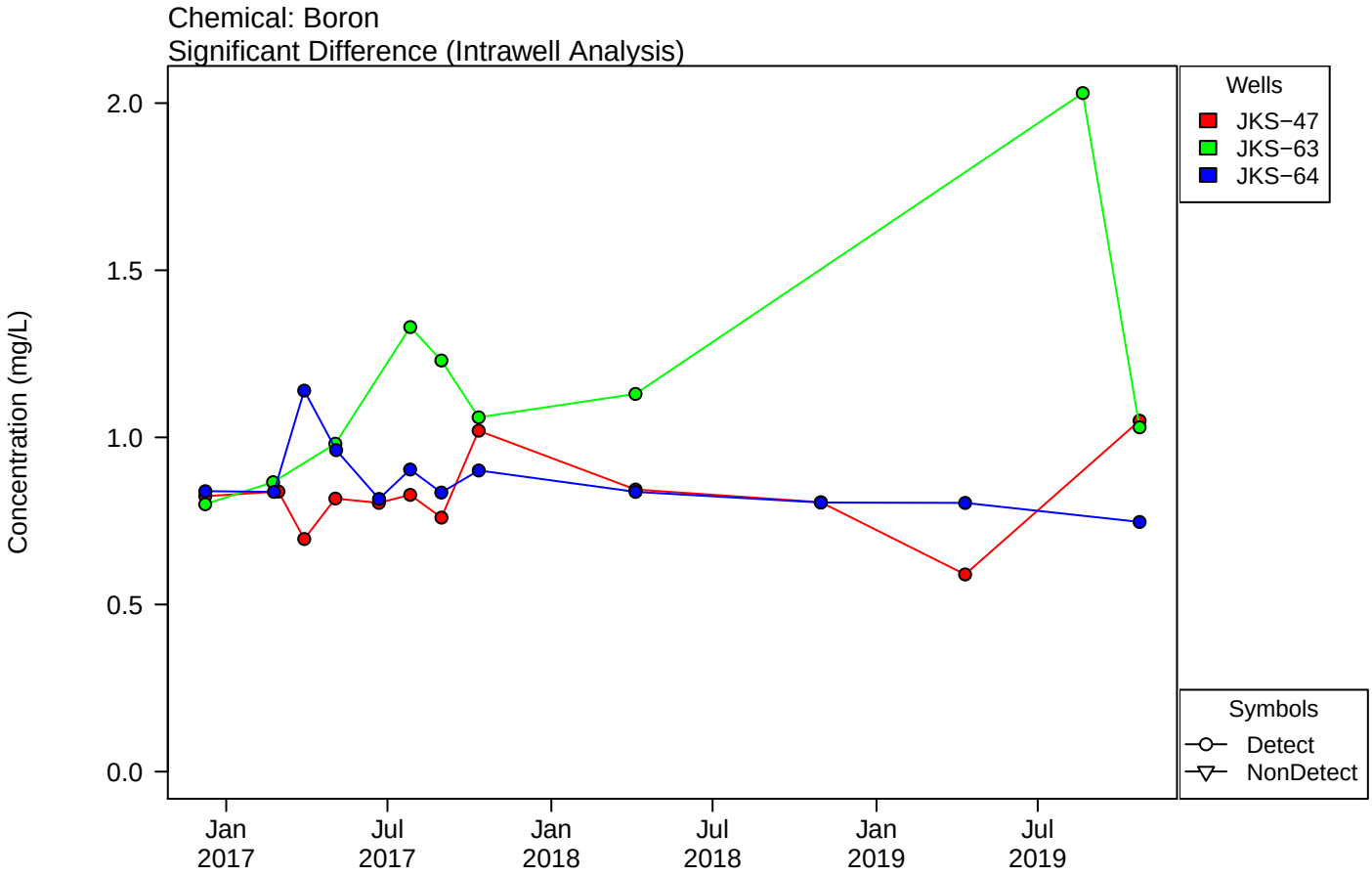
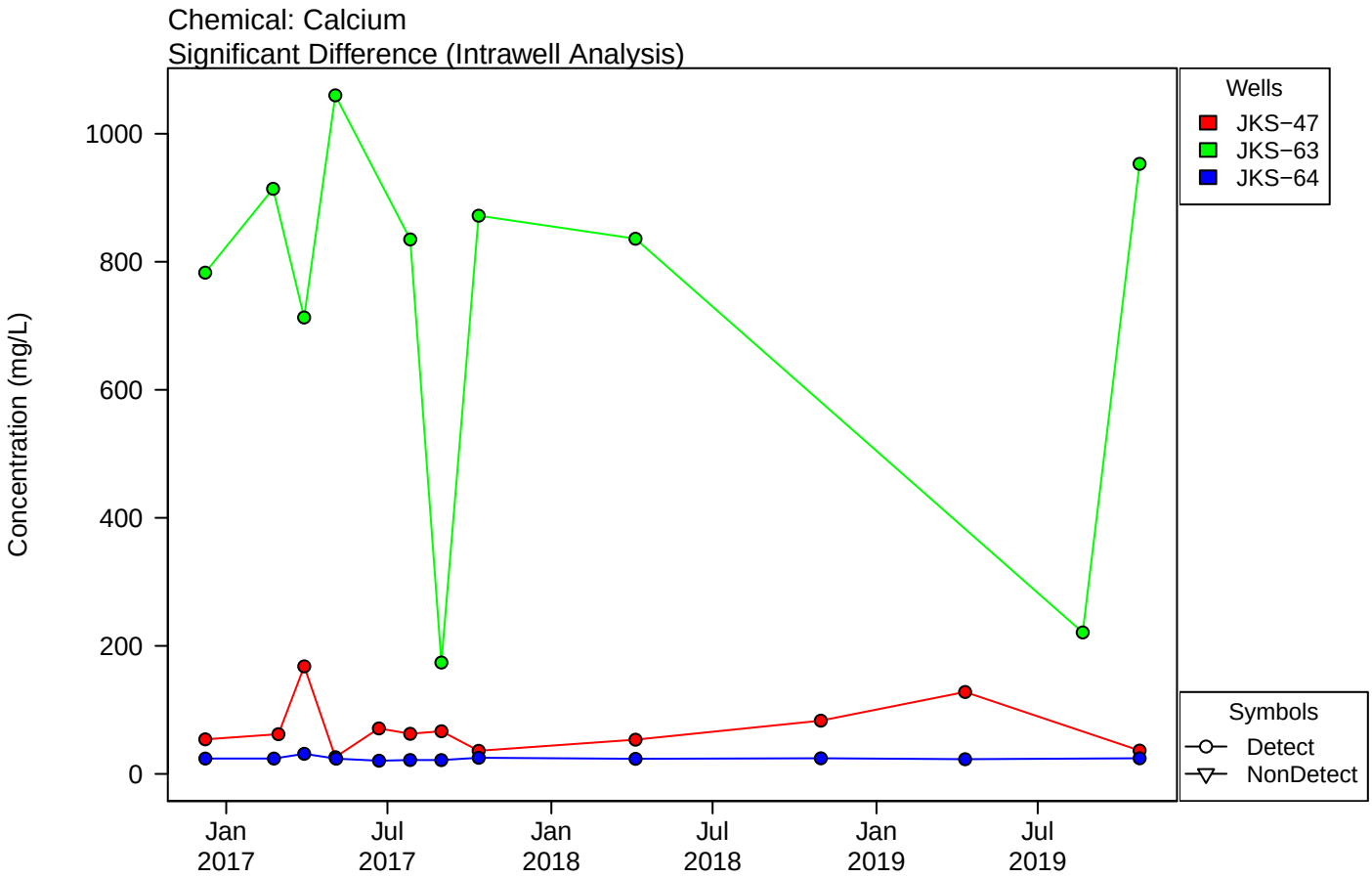
**Appendix B − Figure 3**
**Unit: Evaporation Pond**
**Timeseries of Upgradient Wells**



**Appendix B − Figure 3**
**Unit: Evaporation Pond**
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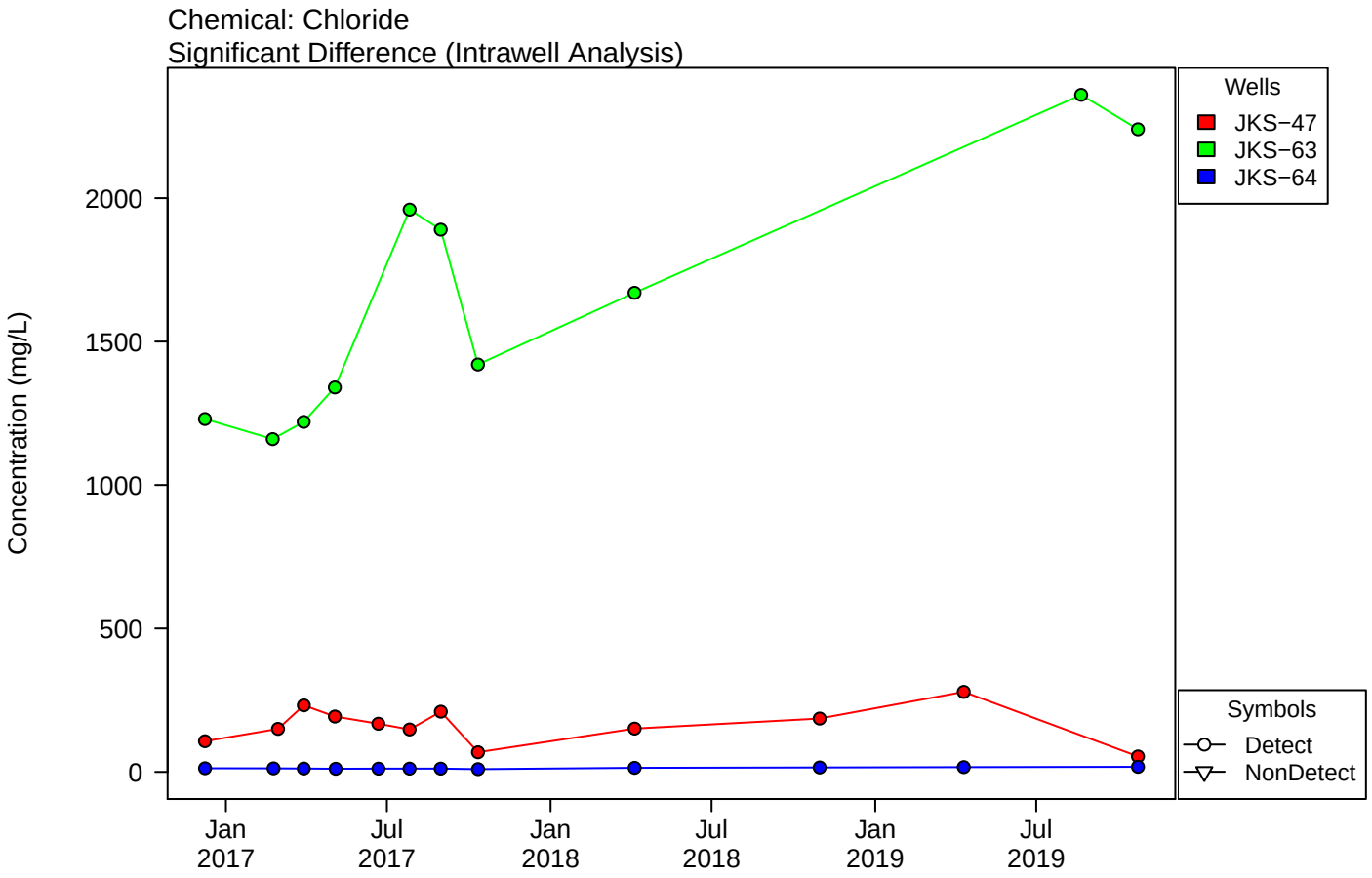


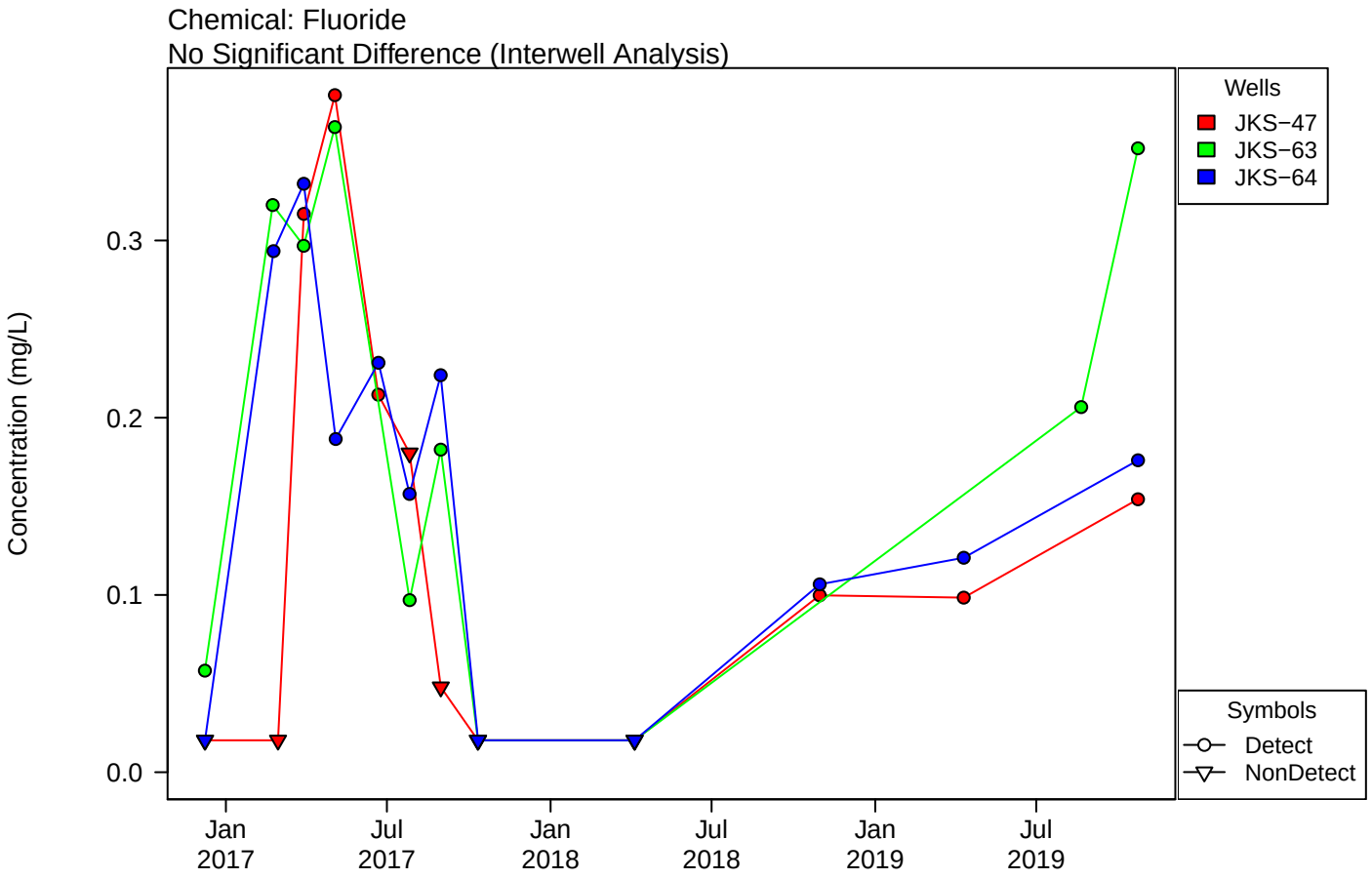

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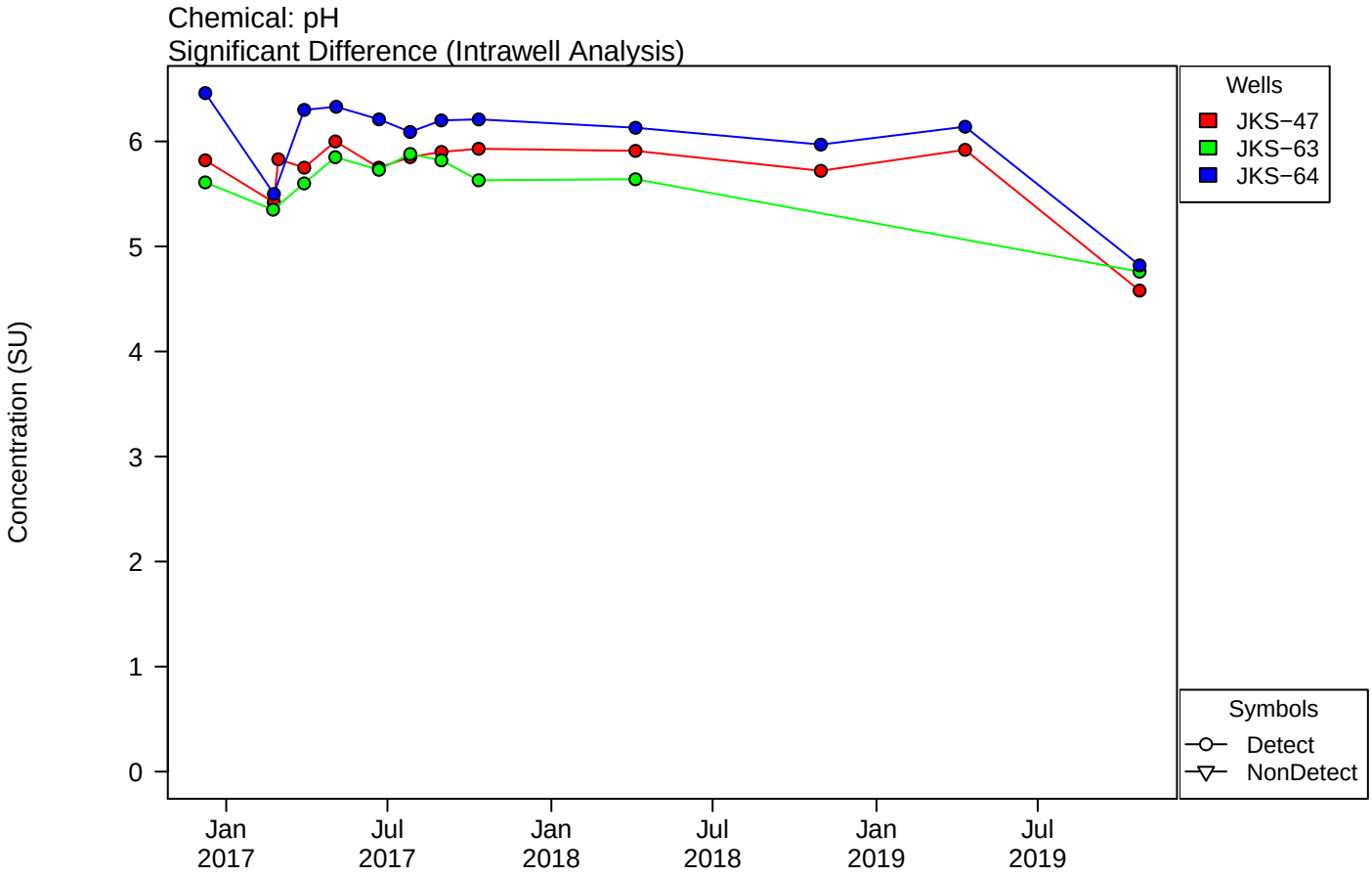
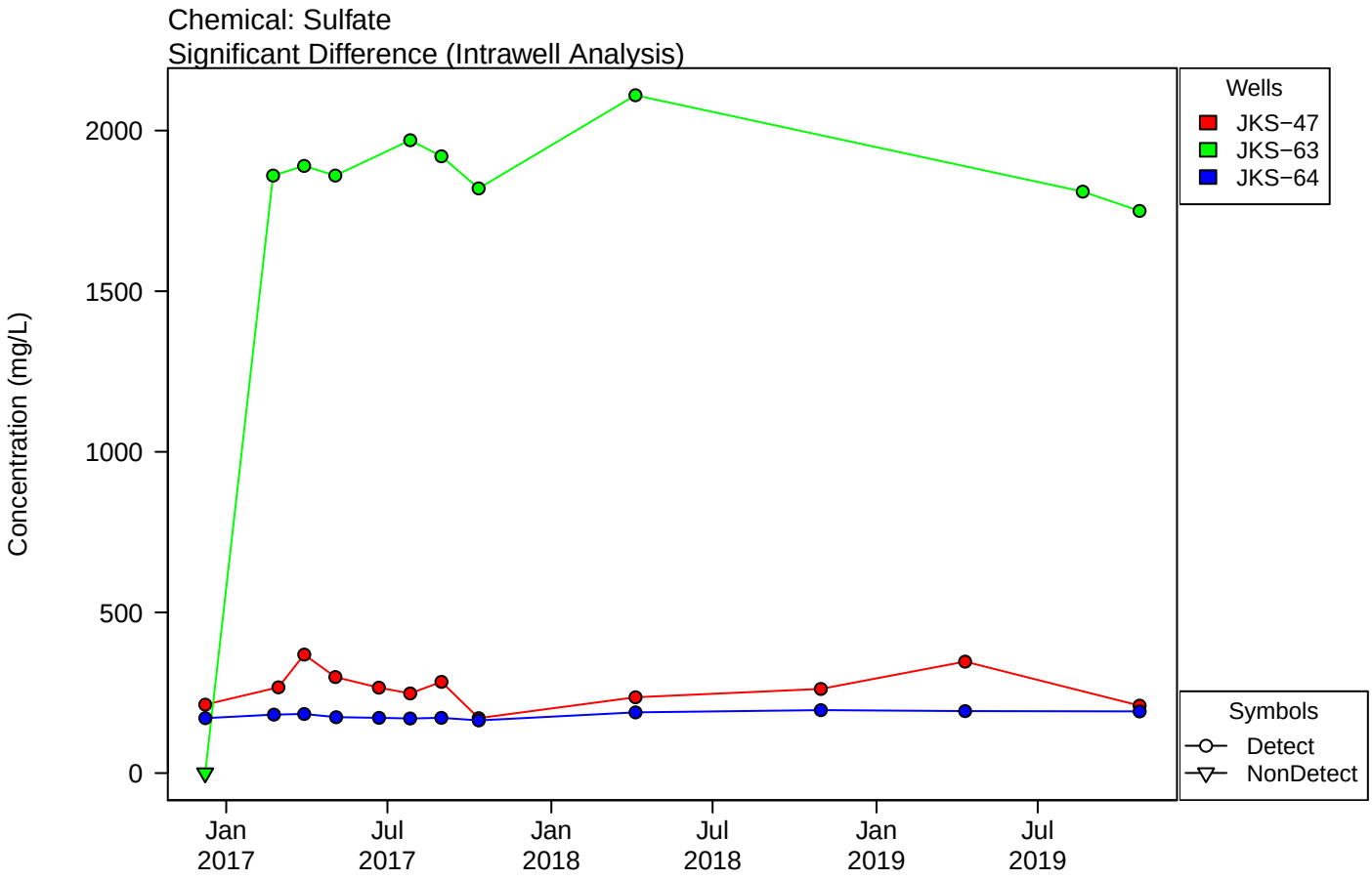
**Timeseries of Upgradient Wells**



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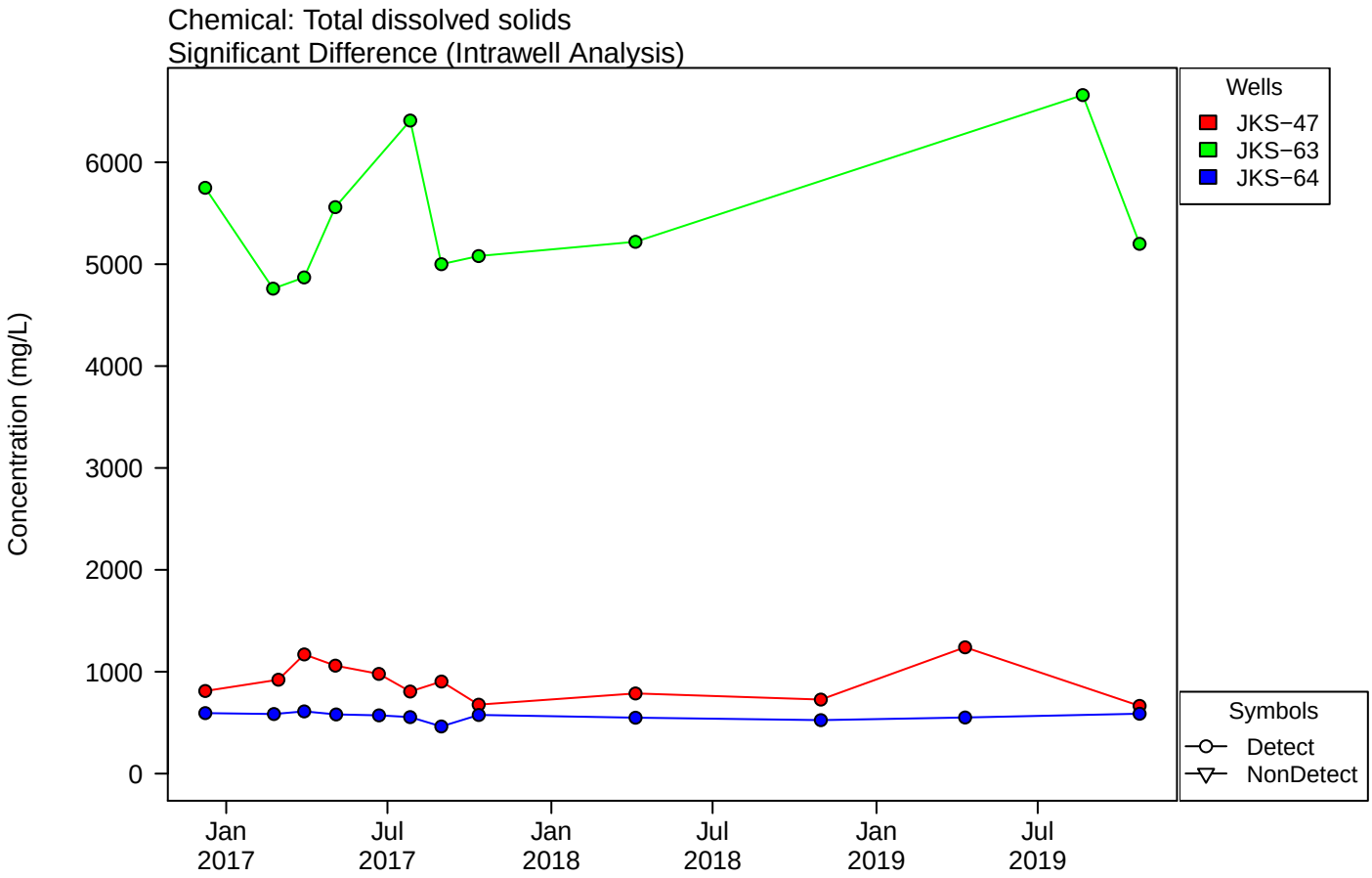
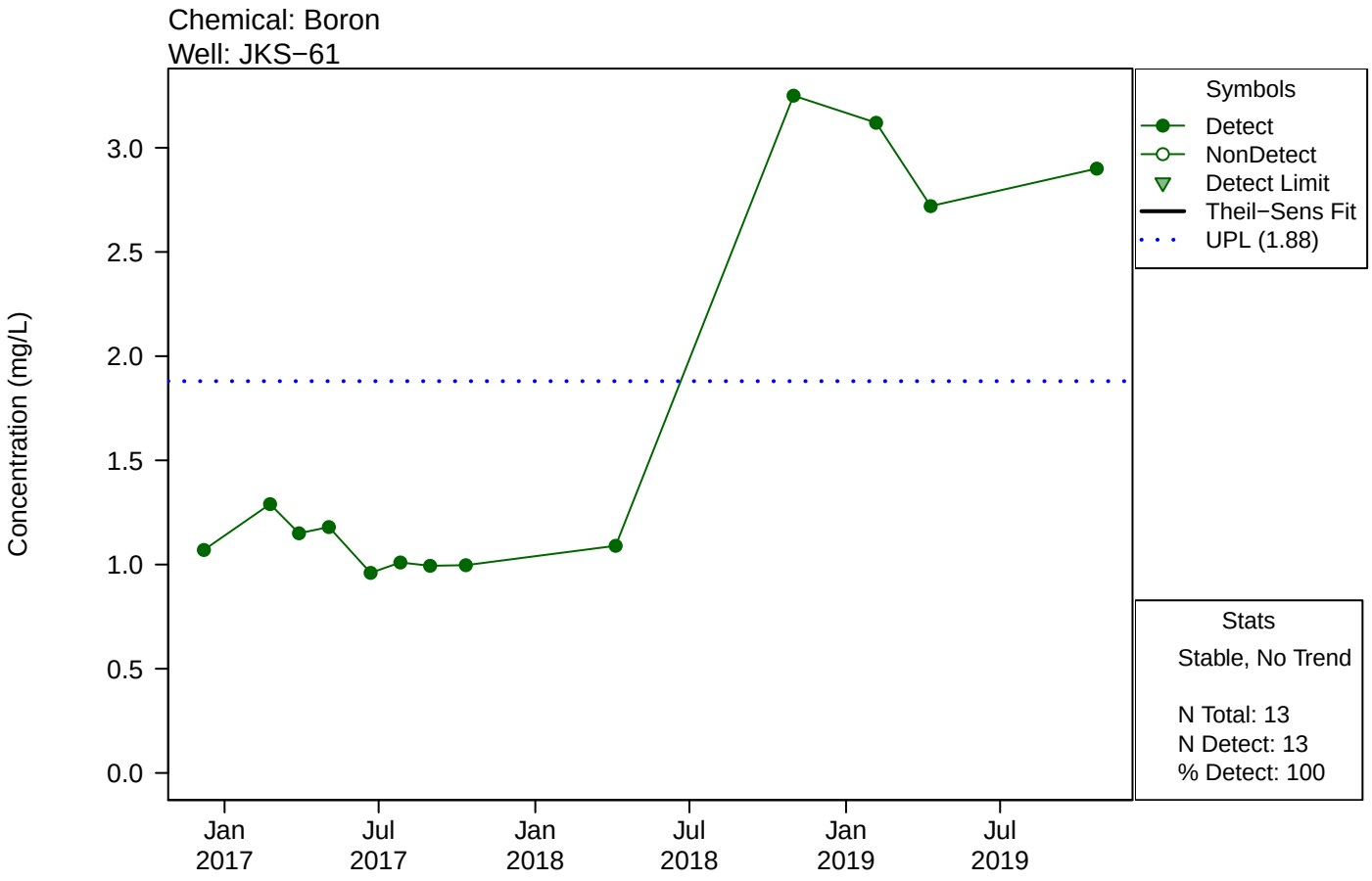
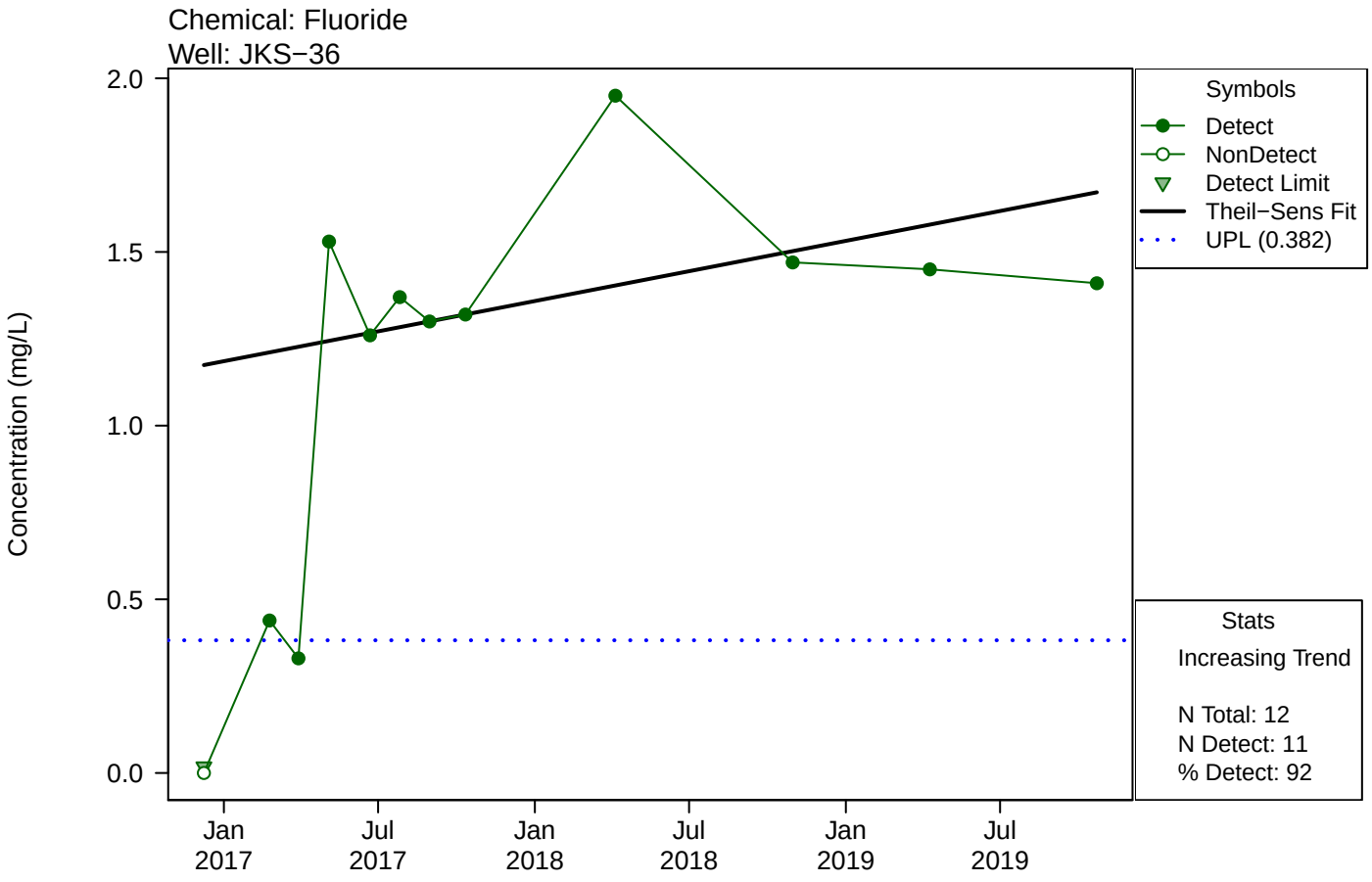


**Appendix B − Figure 4**
**Unit: Evaporation Pond**
**Trend Analysis of Downgradient Wells with Exceedances**



**Appendix B − Figure 4**
**Unit: Evaporation Pond**
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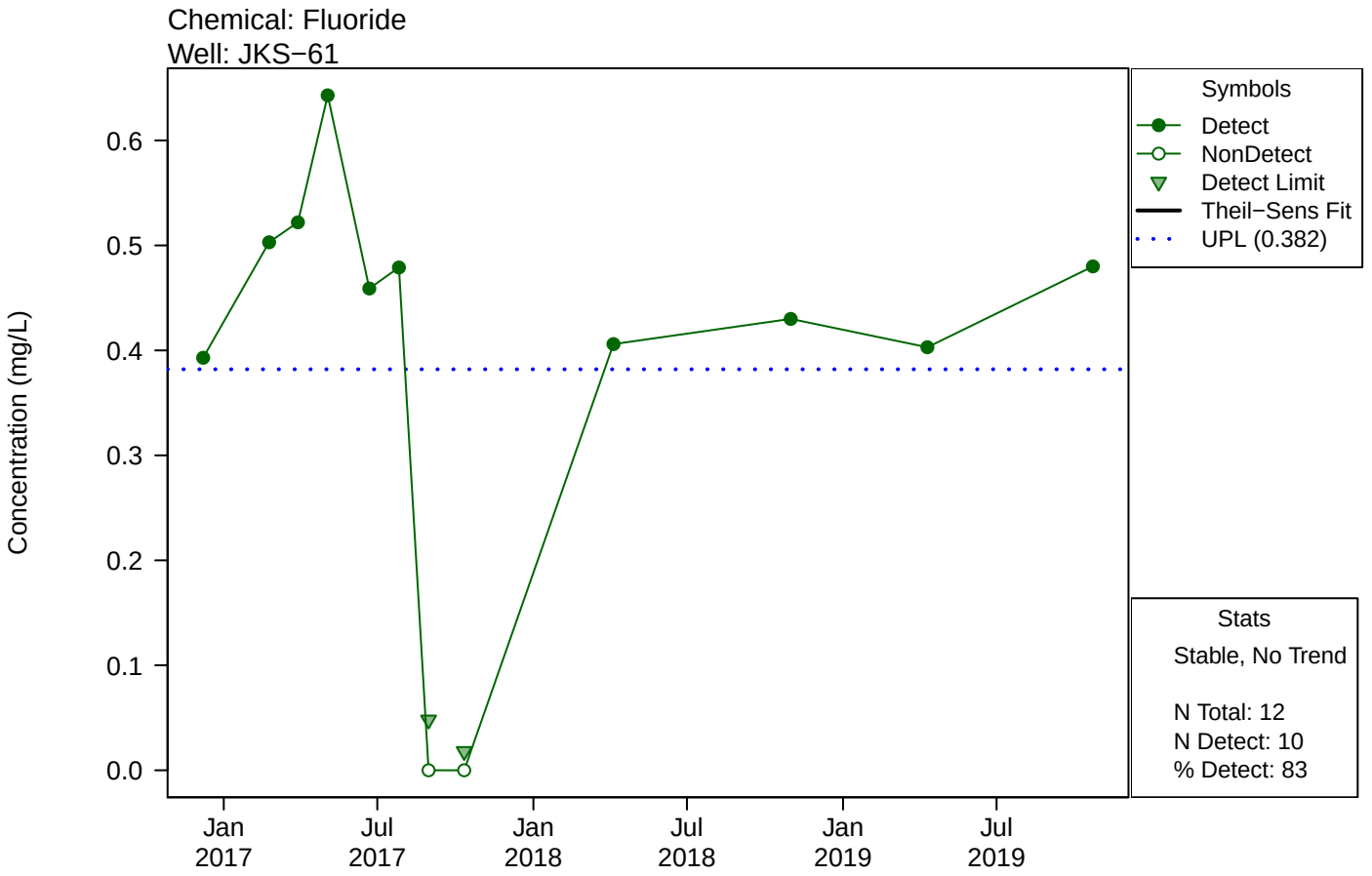


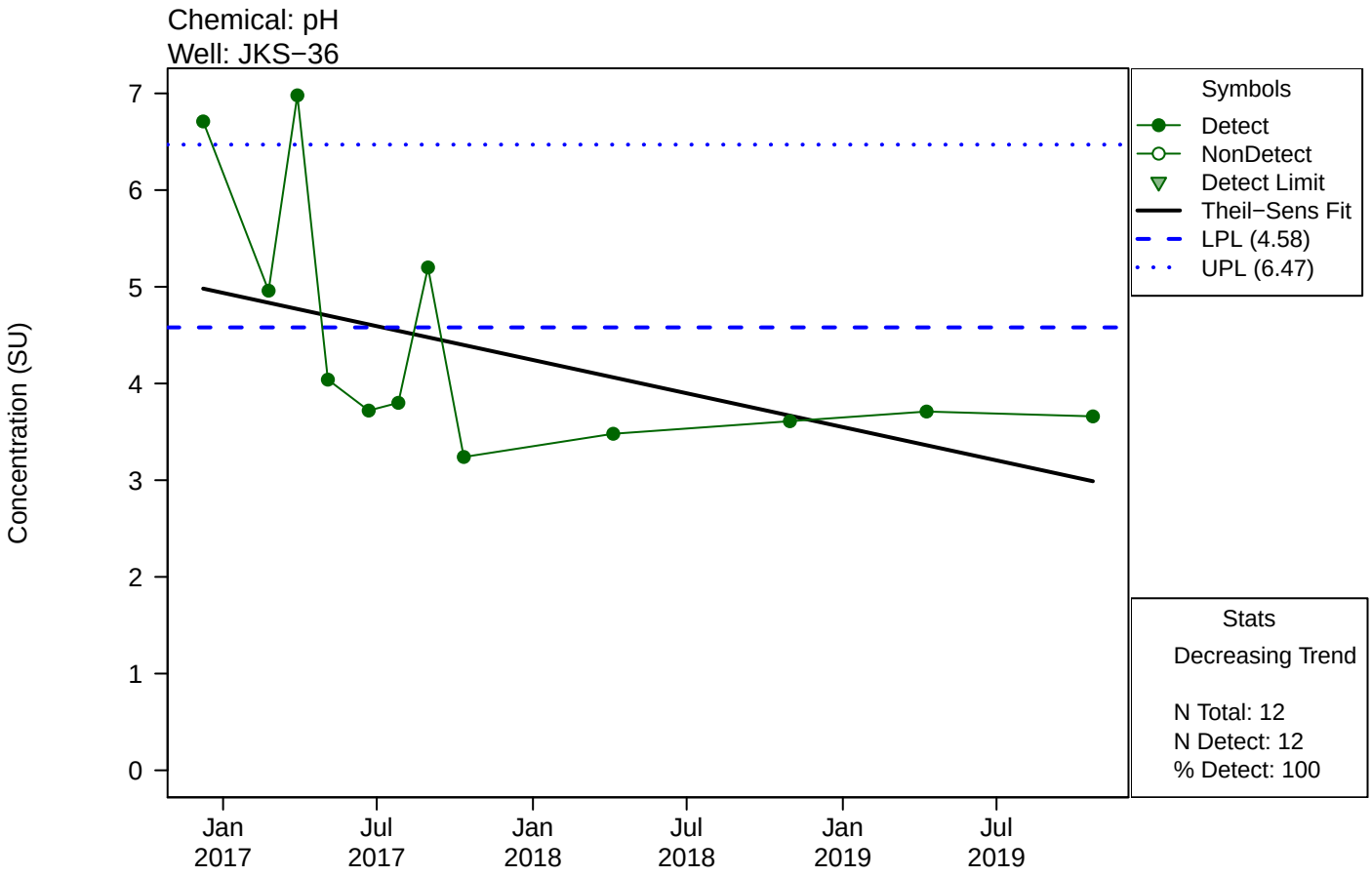

# April 2019 Groundwater Sampling Event – Calaveras Power Station CCR Units

*Appendix C*

**Environmental Resources Management**

CityCentre Four
840 West Sam Houston Pkwy N.
Suite 600
Houston, Texas 77024
(281) 600-1000
(281) 600-1001 (Fax)

July 11, 2019

Mr. Michael Malone
CPS Energy
145 Navarro Street
San Antonio, Texas 78205

Project No. 0503422

Subject: April 2019 Groundwater Sampling Event
Calaveras Power Station CCR Units
San Antonio, Texas

Dear Mr. Malone:

## Introduction

Title 40, Code of Federal Regulations, Part 257 (40 CFR §257) (a.k.a. the Coal Combustion Residual (CCR) Rule) was published in the Federal Register in April 2015 and became effective in October 2015. One of the many requirements of the CCR Rule was for CPS Energy to determine if there are impacts to groundwater from the surface impoundments [Evaporation Pond (EP), Bottom Ash Ponds (BAPs), and Sludge Recycling Holding (SRH) Pond] and the landfill [Fly Ash Landfill (FAL)] that contain CCR at the Calaveras Power Station.

In the initial *Annual Groundwater Monitoring and Corrective Action Report* for each CCR unit, the downgradient monitoring well results from the October 2017 sampling event were compared to Upper Prediction Limits (UPLs) and Lower Prediction Limits (LPLs). UPLs and LPLs were calculated in the respective *Annual Groundwater Monitoring and Corrective Action Reports* for the purpose of determining a potential statistically significant increase (SSI) over background levels. In the second *Annual Groundwater Monitoring and Corrective Action Report* for each CCR unit, the downgradient monitoring well results from the October 2018 sampling event were compared to updated UPLs and LPLs. These updated UPLs and LPLs were recalculated in the respective *Annual Groundwater Monitoring and Corrective Action Reports* using the additional 2018 data. The evaluations of the April 2019 groundwater sample results indicated a potential SSI for a limited number of constituents from the EP, FAL, BAPs, and SRH Pond.

According to the CCR Rule [§257.94(e)], if the owner or operator of a CCR unit determines there is a SSI over background levels for one or more Appendix III constituents, the owner or operator may demonstrate that a source other than the CCR unit caused the SSI over background levels or that the SSI resulted from error in sampling, analysis, statistical evaluation or natural variation in

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groundwater quality. The CCR Rule also indicates that the owner or operator must complete the written demonstration within 90 days of detecting a SSI over the background levels. If a successful demonstration is completed within the 90-day period, the owner or operator may continue with a detection monitoring program.

To address the potential SSIs identified in the initial *Annual Groundwater Monitoring and Corrective Action Reports*, CPS Energy prepared *Written Demonstration – Responses to Potential Statistically Significant Increases (*dated April 4, 2018). To address the potential SSIs identified in the second *Annual Groundwater Monitoring and Corrective Action Reports*, CPS Energy prepared *Written Demonstration – Responses to Potential Statistically Significant Increases (*dated February 27, 2019). Based on the evidence provided in the *Written Demonstrations*, no SSIs over background levels were determined for any of the CPS Energy CCR units (EP, FAL, BAPs, and SRH Pond) and therefore, CPS Energy continued with a detection monitoring program that would include semiannual sampling.

**Sampling Event Summary**

The first semiannual groundwater sampling event for 2019 was conducted on April 9 through April 10. The sampling event included the collection of water level measurements and groundwater samples from all the background and downgradient monitoring wells in the CCR monitoring program. The groundwater samples were analyzed for Appendix III constituents.

For each CCR unit, the downgradient monitoring well results from the April 2019 sampling event were compared to the updated UPLs and LPLs recalculated in their respective second *Annual Groundwater Monitoring and Corrective Action Report*. The April 2019 groundwater sample results for the downgradient monitoring wells in each CCR unit are summarized in Attachment 1.

Although the evaluations of the April 2019 groundwater sample results indicated a potential SSI for a limited number of constituents, with the exception of calcium in JKS-60 associated with the FAL and fluoride in JKS-52 associated with the SRH Pond, the constituents associated with the potential SSIs are the same constituents, detected at similar concentrations, that were previously identified in one or both of the *Written Demonstrations*. The evaluations of the April 2019 groundwater sample results with potential SSIs are summarized below.

**EP –** The constituents associated with potential SSIs include boron in JKS-61; fluoride in JKS-36, JKS-61, and JKS-62; and pH in JKS-36. As previously presented in the *Written Demonstrations*, the concentrations of boron, fluoride, and pH appear to reflect natural variation in groundwater quality in the vicinity of the CCR unit. The reported April 2019 concentrations were within the range of naturally occurring concentrations identified in the *Written Demonstrations*.

**FAL –** The constituents associated with potential SSIs include calcium in JKS-33 and JKS-60; chloride in JKS-33; and pH in JKS-31 and JKS-46. As previously presented in the *Written Demonstrations*, the concentrations of calcium, chloride, and pH appear to reflect natural variation in groundwater quality in the vicinity of the CCR unit. The reported April 2019 concentrations were within the range of naturally occurring concentrations identified in the *Written Demonstrations*.

**BAPs –** The constituents associated with potential SSIs include boron in JKS-50R and JKS-56 and fluoride in JKS-48. As previously presented in the *Written Demonstrations*, the concentrations of boron and fluoride appear to reflect natural variation in groundwater quality in the vicinity of the CCR unit. The reported April 2019 concentrations were within the range of naturally occurring concentrations identified in the *Written Demonstrations*.

**SRH Pond –** The constituent associated with a potential SSI is fluoride in JKS-52. Although a potential SSI of fluoride was not previously presented in the *Written Demonstrations*, the concentrations of fluoride appear to reflect natural variation in groundwater quality in the vicinity of the CCR unit and the reported April 2019 concentration is within the range of naturally occurring concentrations identified in the *Annual Groundwater Monitoring and Corrective Action Reports*. Also note that although the normal groundwater sample collected from JKS-52 indicated a potential SSI of fluoride, a field duplicate sample collected from JKS-52 after the normal sample did not indicate a potential SSI.

## Conclusions

Based on the April 2019 groundwater sample results and the evidence provided in one or both of the *Written Demonstration*s, no SSIs over background levels have been determined for any of the CPS Energy CCR units (EP, FAL, BAPs, and SRH Pond) and therefore, CPS Energy should continue with a detection monitoring program. The second semiannual sampling event should be performed in October 2019.

We appreciate the opportunity to work with you on this project. Please contact me if you should have any questions.

Sincerely,

Environmental Resources Management

Wally Zverina
Principal Consultant

*Attachment 1*
*April 2019 Groundwater Sample Results*

*July 2019*
*Project No. 0503422*
*CPS Energy*

**Environmental Resources Management**
CityCentre Four
840 West Sam Houston Pkwy N. Suite 600
Houston, Texas 77024
(281) 600-1000

April 2019 Groundwater Sample Results
CCR Unit: Evaporation Pond
CPS Energy Calaveras Power Station
San Antonio, TX

| | | | CCR Unit | EP | EP | EP | EP |
|---|---|---|---|---|---|---|---|
| | | | Well Designation | Downgradient | Downgradient | Downgradient | Downgradient |
| | | | Well ID | JKS-36 | JKS-61 | JKS-62 | JKS-62 |
| | | | Sample Date | 4/9/2019 | 4/9/2019 | 4/9/2019 | 4/9/2019 |
| | | | Sample Type Code | N | N | N | FD |
| Chemical | Units | 2017-2018 LPL - EP | 2017-2018 UPL - EP | | | | |
| Boron | mg/L | -- | 1.33 | 0.663 | 2.72 | 0.612 | 0.554 X |
| Calcium | mg/L | -- | 1310 | 315 D | 176 | 205 D | 173 X |
| Chloride | mg/L | -- | 2120 | 285 | 253 | 336 | 329 |
| Fluoride | mg/L | -- | 0.271 | 1.45 | 0.403 J | 0.356 J | 0.349 J |
| pH, Field | SU | 5.36 | 6.63 | 3.71 | 6.52 | 6.29 | 6.29 |
| Sulfate | mg/L | -- | 2110 | 697 | 619 | 191 | 194 |
| Total dissolved solids | mg/L | -- | 6450 | 1520 | 1650 | 1190 | 1300 |

NOTES:

Shaded cell indicates exceedance in either the Upper Prediction Limit (UPL) or the Lower Prediction Limit (LPL) for this CCR unit.
Sample Type Code: N - Normal; FD - Field Duplicate
J - Estimated concentration. Qualified due to high matrix spike % recovery.
X - MS/MSD recoveries were outside of the laboratory contol limts due to possible matrix interference or a concentration of target analyte high enough to affect the recovery of the spike concentration.
D - Sample was diluted due to targets detected over the highest point of the calibration curve or due to matrix interference.

April 2019 Groundwater Sample Results
CCR Unit: Fly Ash Landfill
CPS Energy Calaveras Power Station
San Antonio, TX

| | | | CCR Unit | FAL | FAL | FAL | FAL | FAL |
|---|---|---|---|---|---|---|---|---|
| | | | Well Designation | Downgradient | Downgradient | Downgradient | Downgradient | Downgradient |
| | | | Well ID | JKS-31 | JKS-33 | JKS-46 | JKS-60 | JKS-60 |
| | | | Sample Date | 4/9/2019 | 4/9/2019 | 4/9/2019 | 4/9/2019 | 4/9/2019 |
| | | | Sample Type Code | N | N | N | N | FD |
| Chemical | Units | 2017-2018 LPL - FAL | 2017-2018 UPL - FAL | | | | | |
| Boron | mg/L | -- | 4.22 | 0.557 | 1.13 | 0.997 | 0.405 | 0.375 |
| Calcium | mg/L | -- | 453 | 295 D | 631 | 212 D | 501 D | 506 D |
| Chloride | mg/L | -- | 380 | 322 | 806 | 13.2 | 149 X | 151 |
| Fluoride | mg/L | -- | 5.19 | 0.791 | 1.23 | 2.52 | 0.187 J | 0.187 J |
| pH, Field | SU | 3.98 | 6.73 | 3.56 | 5.98 | 2.85 | 5.93 | 5.93 |
| Sulfate | mg/L | -- | 6370 | 852 | 1640 | 1030 | 968 | 976 |
| Total dissolved solid | mg/L | -- | 11200 | 1660 | 2650 JL | 1550 | 2010 | 2020 |

NOTES:

Shaded cell indicates exceedance in either the Upper Prediction Limit (UPL) or the Lower Prediction Limit (LPL) for this CCR unit.
Sample Type Code: N - Normal; FD - Field Duplicate
D - Sample was diluted due to targets detected over the highest point of the calibration curve or due to matrix interference.
J - Estimated concentration. Qualified due to high matrix spike % recovery.
JL - Estimated concentration biased low - analyzed outside of recommended holding time.
X - MS/MSD recoveries were outside of the laboratory contol limts due to possible matrix interference or a concentration of target analyte high enough to affect the recovery of the spike concentration.

April 2019 Groundwater Sample Results
CCR Unit: Bottom Ash Ponds
CPS Energy Calaveras Power Station
San Antonio, TX

| | | | CCR Unit | BAP | BAP | BAP | BAP | BAP | BAP |
|---|---|---|---|---|---|---|---|---|---|
| | | | Well Designation | Downgradient | Downgradient | Downgradient | Downgradient | Downgradient | Downgradient |
| | | | Well ID | JKS-48 | JKS-50R | JKS-52 | JKS-52 | JKS-55 | JKS-56 |
| | | | Sample Date | 4/9/2019 | 4/9/2019 | 4/9/2019 | 4/9/2019 | 4/9/2019 | 4/9/2019 |
| | | | Sample Type Code | N | N | N | FD | N | N |
| Chemical | Units | 2017-2018 LPL - BAP | 2017-2018 UPL - BAP | | | | | | |
| Boron | mg/L | -- | 2.71 | 2.22 | 5.85 | 1.46 X | 1.62 | 0.74 | 3.85 |
| Calcium | mg/L | -- | 229 | 166 D | 159 D | 195 DX | 188 D | 165 D | 150 D |
| Chloride | mg/L | -- | 484 | 467 | 70 | 336 | 339 | 438 | 81 |
| Fluoride | mg/L | -- | 0.834 | 1.46 | 0.319 J | 0.831 | 0.799 | 0.822 | 0.372 J |
| pH, Field | SU | 5.48 | 7.19 | 7.06 | 6.8 | 6.91 | 6.91 | 6.9 | 6.76 |
| Sulfate | mg/L | -- | 389 | 271 | 168 | 268 | 285 | 168 | 193 |
| Total dissolved solids | mg/L | -- | 1870 | 1420 | 842 | 1170 | 1250 | 1420 | 918 |

NOTES:

Shaded cell indicates exceedance in either the Upper Prediction Limit (UPL) or the Lower Prediction Limit (LPL) for this CCR unit.
Sample Type Code: N - Normal; FD - Field Duplicate
D - Sample was diluted due to targets detected over the highest point of the calibration curve or due to matrix interference.
J - Estimated concentration. Qualified due to high matrix spike % recovery.
X - MS/MSD recoveries were outside of the laboratory contol limts due to possible matrix interference or a concentration of target analyte high enough to affect the recovery of the spike concentration.

April 2019 Groundwater Sample Results
CCR Unit: SRH Pond
CPS Energy Calaveras Power Station
San Antonio, TX

| | | | CCR Unit | SRH Pond | SRH Pond | SRH Pond | SRH Pond |
|---|---|---|---|---|---|---|---|
| | | | Well Designation | Downgradient | Downgradient | Downgradient | Downgradient |
| | | | Well ID | JKS-52 | JKS-52 | JKS-53 | JKS-54 |
| | | | Sample Date | 4/10/2019 | 4/10/2019 | 4/10/2019 | 4/10/2019 |
| | | | Sample Type Code | N | FD | N | N |
| Chemical | Units | 2017-2018 LPL - SRH | 2017-2018 UPL - SRH | | | | |
| Boron | mg/L | -- | 2.71 | 1.46 X | 1.62 | 1.42 | 1.38 |
| Calcium | mg/L | -- | 231 | 195 DX | 188 D | 116 | 117 |
| Chloride | mg/L | -- | 476 | 336 | 339 | 354 | 385 |
| Fluoride | mg/L | -- | 0.816 | 0.831 | 0.799 | 0.27 J | 0.711 |
| pH, Field | SU | 5.48 | 7.19 | 6.91 | 6.91 | 6.6 | 6.75 |
| Sulfate | mg/L | -- | 382 | 268 | 285 | 224 | 309 |
| Total dissolved solids | mg/L | -- | 1830 | 1170 | 1250 | 1150 | 1470 |

NOTES:

Shaded cell indicates exceedance in either the Upper Prediction Limit (UPL) or the Lower Prediction Limit (LPL) for this CCR unit.
Sample Type Code: N - Normal; FD - Field Duplicate
D - Sample was diluted due to targets detected over the highest point of the calibration curve or due to matrix interference.
J - Estimated concentration. Qualified due to high matrix spike % recovery.
X - MS/MSD recoveries were outside of the laboratory contol limts due to possible matrix interference or a concentration of target analyte high enough to affect the recovery of the spike concentration.