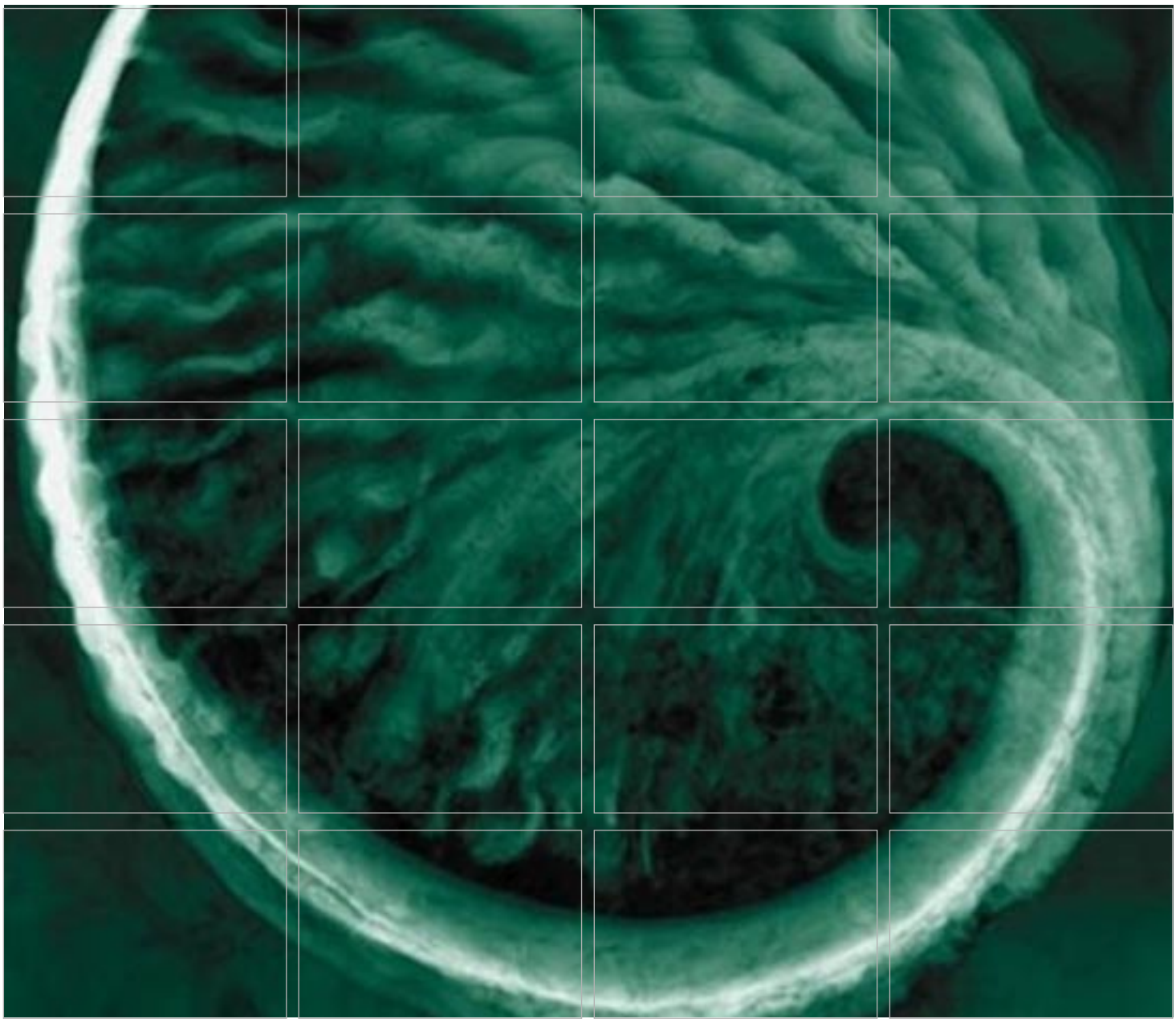

Annual Groundwater Monitoring and Corrective Action Report

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

January 2021

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Calaveras Power Station – Evaporation Pond

Annual Groundwater Monitoring and Corrective Action Report

January 2021

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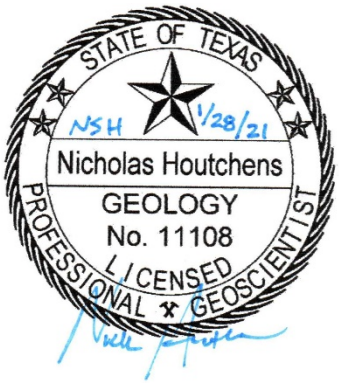

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1. CURRENT STATUS SUMMARY

As required in Title 40, Code of Federal Regulations, §257.90, this section provides an overview of the current status of the groundwater monitoring and corrective action program for the Evaporation Pond located at the CPS Energy Calaveras Power Station:

- At the start of the 2020 annual reporting period, the Evaporation Pond was operating under the detection monitoring program, as defined in §257.94;
- At the end of the 2020 annual reporting period, the Evaporation Pond was operating under the detection monitoring program, as defined in §257.94;
- At this time, there was no confirmed statistically significant increase over background for one or more constituents listed in Appendix III pursuant to §257.94(e);
- An assessment monitoring program was not required or initiated for the Evaporation Pond;
- A remedy was not required or selected pursuant to §257.97 during the 2020 annual reporting period; and
- No remedial activities were initiated or are ongoing pursuant to §257.98 during the 2020 annual reporting period.

2. 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 2020 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	Sections 1 and 3
§257.90(e)	Summarize key actions completed	Section 3
§257.90(e)	Describe any problems encountered and actions to resolve problems	Section 3
§257.90(e)	Key activities for upcoming year	Section 5
§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 3
§257.90(e)(3)	Summary of groundwater data, monitoring wells and dates sampled, and whether sample was required under detection or assessment monitoring	Sections 3 and 4, Tables 1 through 3, and Figure 2
§257.90(e)(4)	Narrative discussion of any transition between monitoring programs	Section 5

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.

3. 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 previously reported in the *2019 Groundwater Monitoring and Corrective Action Report*, monitoring well JKS-63R was installed in May 2019 to replace upgradient monitoring well JKS-63, which had become blocked with tree roots in the well casing. 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 monitoring wells JKS-62 and JKS-63R. Groundwater samples were not collected from JKS-62 or JKS-63R during the October 2020 monitoring event due to blockages in the well casings. Upon further inspection of both wells, it was discovered that tree rootlets had entered both well casings which prevented sample collection. The tree rootlets were cleared from each well casing and a groundwater sample was collected from JKS-62 and JKS-63R in November 2020.

3.1. 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 surfaces for the April and October 2020 monitoring events are shown on Figure 2A and Figure 2B, respectively. For both sampling events, groundwater upgradient of the Evaporation Pond appears to flow southeast from a potential groundwater divide (generally located west of the CCR unit) and northeast from the Closed Landfills (located south of the CCR unit) towards the CCR unit. Downgradient of the Evaporation Pond, groundwater appears to flow generally east towards Calaveras Lake. The horizontal gradient for both the April and October 2020 events was approximately 0.003 feet/foot. A non-proportional change in water levels was observed at JKS-36 during the 2020 monitoring events. Groundwater monitoring networks that exhibit a substantially flat gradient are more likely to experience differences in groundwater flow direction. The potentiometric surface elevations will continue to be monitored and a water level study will be initiated in 2021.

3.2. 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. No data gaps were identified during the 2020 semi-annual groundwater monitoring events.

3.3. DATA QUALITY

ERM reviewed field and laboratory documentation to assess the validity, reliability and usability of the analytical results. Samples were sent to San Antonio Testing Laboratory, 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.

4. 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 2020 sampling results. Note the April 2020 sampling results were evaluated as discussed in the *April 2020 Groundwater Sampling Event – Calaveras Power Station CCR Units* (ERM, 2020) provided in Appendix C.

4.1. 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.

4.2. 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.

4.2.1. 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);
- Three well-analyte combinations follow a log-normal distribution; and
- Seven well-analyte combinations have no discernible distribution.

4.2.2. 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 six 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 six values were considered valid and were retained for upper prediction limit (UPL) calculations.

4.2.3. 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:
    - Four well-analyte combinations had an increasing trend;
    - Two well-analyte combinations had a decreasing trend; and
    - 13 well-analyte combinations had no trend (i.e., concentrations were stable over time).

4.3. 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 six 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 13 well-analyte combinations were found to have no 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 2020 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	--	1.90	mg/L
Intrawell	Calcium	--	1,060	mg/L
Intrawell	Chloride	--	3,200	mg/L
Interwell	Fluoride	--	0.382	mg/L
Intrawell	pH	4.58	6.21	SU
Intrawell	Sulfate	--	2,120	mg/L
Intrawell	TDS	--	8,330	mg/L

4.4. CONCLUSIONS

The downgradient samples collected during the October 2020 monitoring event were used for compliance comparisons. All downgradient wells were less than the UPLs and greater than the LPLs for pH with the following exceptions shown in the table below. 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.

Downgradient UPL Exceedances

Analyte	Well	LPL	UPL	Sample Date	Value	Unit
Fluoride	JKS-36	--	0.382	2020-10-21	1.07	mg/L
pH	JKS-36	4.58	6.21	2020-10-21	3.98	SU
pH	JKS-61	4.58	6.21	2020-10-21	6.57	SU
pH	JKS-62	4.58	6.21	2020-11-17	6.55	SU

Additionally, each downgradient well-analyte pair had a Wilcoxon Rank Sum test comparing if their median is greater than the UPL or less than the LPL for pH. This nonparametric, rank-based test was used as an additional line of evidence for downgradient well compliance. Specific well-analyte pairs are of interest if: (1) there is a recent exceedance of the UPL, but historic concentrations place the median less than the UPL, or (2) there is not a recent exceedance of the UPL, but historic concentrations place the median greater than the UPL. All downgradient wells had medians less than the UPLs and greater than the LPLs for pH with the following exceptions shown in the table below. Full downgradient results are provided in Appendix B, Table 6, with boxplots in Appendix B, Figure 5.

Downgradient Median Exceedances

Analyte	Well
Fluoride	JKS-36
pH	JKS-61
pH	JKS-62

All initial exceedances of the UPL 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, and if the well-analyte combination median is greater than the UPL, the well-analyte combination will be declared a statistically significant increase (SSI) above background. Any wells with re-testing results at or less than the UPL will be considered in compliance and will not require further action. Any resampling results will be reported in the subsequent *Written Demonstration*.

5. 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.

6. REFERENCES

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

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 (5)	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
13	4/28/20 to 4/29/20	30.60	483.03	(3)	(3)	39.36	482.91	25.15	482.69
14	10/20/20 to 10/21/20	31.28	482.35	(3)	(3)	40.25 (6)	482.02	25.88	481.96

		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
13	4/28/20 to 4/29/20	25.45	482.96	23.74	481.77	27.78	482.06
14	10/20/20 to 10/21/20	26.03	482.38	24.60	480.91	29.10 (6)	480.74

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.
(5) JKS-63R water level was initially measured on 8/20/19.
(6) JKS-62 and JKS-63R were gauged on 11/17/20, due to a blockage encountered in the well casing during Event 14 (October 2020).

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

CCR Unit	Well ID	Well Function	Number of Samples Collected in 2016 - 2020	2016 - 2020 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	4/28/20 to 4/29/20	10/20/2020 to 10/21/20	
Evaporation Pond	JKS-36	Downgradient Monitoring	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Detection
	JKS-47	Upgradient Monitoring	14	X	(1)	X	X	X	X	X	X	X	X	X	X	X	X	Detection
	JKS-61	Downgradient Monitoring	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Detection
	JKS-62	Downgradient Monitoring	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X (6)	Detection
	JKS-63	Upgradient Monitoring	8	X	X	X	X	(2)	X	X	X	X	(3)	(3)	(3)	(3)	(3)	Detection
	JKS-63R	Upgradient Monitoring	4	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4) (5)	X	X	X (6)	Detection
	JKS-64	Upgradient Monitoring	14	X	X	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.
(5) JKS-63R was initially sampled on 8/20/19.
(6) JKS-62 and JKS-63R were sampled on 11/17/20. Samples were not collected during the October 2020 sampling event due to blockages in the well casings.

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	4/29/20	10/21/20
	Task	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14
Constituents	Unit	Dec 2016	Feb 2017	Mar 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Oct 2017	Apr 2018	Oct 2018	Apr 2019	Oct 2019	Apr 2020	Oct 2020
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	0.800	0.904
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	43.1	28.4
Chloride	mg/L	107	150	232 D	193	168	148 JH	210 D	68.5	151	186	279	53.9 X	107	60.9
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	0.163	0.161
Sulfate	mg/L	213 D	267 D	369 D	299	266 D	248 JH	284 D	171	236	262	347	210 X	257	195
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	5.87	5.88
Total dissolved solids	mg/L	811	922	1170	1060	979	806 JH	904	677	787	727	1240	665	772	782
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	4/29/20	11/17/20
	Task	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14
Constituents	Unit	Dec 2016	Feb 2017	Mar 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Oct 2017	Apr 2018	Oct 2018	Apr 2019	Oct 2019	Apr 2020	Nov 2020
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	0.950	1.12
Calcium	mg/L	783	914	713	1060	(1)	835	174	872	836	(2)	221	953 D	952	1050
Chloride	mg/L	1230 D	1160 D	1220 D	1340	(1)	1960 JHD	1890 D	1420	1670	(2)	2360 D	2240	2530	2830
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	0.018 U	0.018 U
Sulfate	mg/L	0.0460 U	1860 D	1890 D	1860	(1)	1970 D	1920 D	1820	2110	(2)	1810 D	1750 D	1810	2120
pH - Field Collected	SU	5.61	5.35	5.60	5.85	(1)	5.88	5.82	5.63	5.64	(2)	--	4.76	5.83	5.79
Total dissolved solids	mg/L	5750	4760	4870	5560	(1)	6410	5000	5080	5220	(2)	6660	5200	7240	8190
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	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	NR	NR
Barium	mg/L	0.0626	0.0540	0.0336	0.0316	(1)	0.0294	0.0258	0.0222	NR	NR	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	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	NR	NR
Chromium	mg/L	1.49	0.735	0.371	0.114	(1)	0.0742	0.0584	0.0130	NR	NR	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	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	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	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	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	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	NR	NR
Selenium	mg/L	0.0188	0.0210	0.0257	0.0188	(1)	0.0288	0.0318	0.0244	NR	NR	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	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	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	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	4/29/20	10/21/20
	Task	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14
Constituents	Unit	Dec 2016	Feb 2017	Mar 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Oct 2017	Apr 2018	Oct 2018	Apr 2019	Oct 2019	Apr 2020	Oct 2020
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	0.711	0.735
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	20.3	20.4
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	18.2	16.0
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	0.143	0.101
Sulfate	mg/L	171	182	184	174	172	170 JH	172	164	189	196	193	192 X	209	212
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	5.86	5.96
Total dissolved solids	mg/L	594	585	611	581	572	555 JH	463	576	549	525	551	588	569	664
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	4/29/20	10/21/20
	Task	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14
Constituents	Unit	Dec 2016	Feb 2017	Mar 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Oct 2017	Apr 2018	Oct 2018	Apr 2019	Oct 2019	Apr 2020	Oct 2020
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	0.459	0.456
Calcium	mg/L	69.7	165	147	282	247	255 JHX	241	289	281	311 D	315 D	265 D	175	259
Chloride	mg/L	14.5	199 D	37.0	355	364 D	379 JHD	319 D	328	347 X	313	285	274	63.3	319
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	1.18	1.07
Sulfate	mg/L	49.2	409 D	271 D	726	731 D	775 JHD	707 D	741	816 X	946	697	756 D	189	890
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	3.42	3.98
Total dissolved solids	mg/L	368	1010	591	1610	1820	1700 JH	1220	1770	1650	1630	1520	1600	1790	1930
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	4/29/20	10/21/20
	Task	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14
Constituents	Unit	Dec 2016	Feb 2017	Mar 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Oct 2017	Apr 2018	Oct 2018	Apr 2019	Oct 2019	Apr 2020	Oct 2020
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	1.82	1.82
Calcium	mg/L	134	95.9	155	113	115	107 JH	105	135	171	197 D	176	168 D	154	172
Chloride	mg/L	198	158	162	168	193	190 JH	218 D	210	285	213	253	248	312	281
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	0.494	0.366
Sulfate	mg/L	401 D	377 JD	382 D	388	408 D	390 JHD	385 D	401	562	548	619	548 D	604	533
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	6.27	6.57
Total dissolved solids	mg/L	1400	1180	1190	1260	1430	1290 JH	1170	1280	1620	514	1650	1790	1870	2000
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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-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	4/29/20	11/17/20
	Task	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14
Constituents	Unit	Dec 2016	Feb 2017	Mar 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Oct 2017	Apr 2018	Oct 2018	Apr 2019	Oct 2019	Apr 2020	Nov 2020
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	0.484	0.537
Calcium	mg/L	155	152	220	156	150	134 JH	150	158	160	161 D	205 D	151 D	122	144
Chloride	mg/L	257 D	279 DX	279 D	278	291 D	260 JHD	281 D	241	312	279	336	276	284	284
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	0.331	0.295
Sulfate	mg/L	190	187	193	188	184	181 JH	188 D	175	200	183	191	183	190	212
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	6.54	6.55
Total dissolved solids	mg/L	1120	1170	1140	1100	1080	976 JH	1080	1080	1110	956	1190	1160	1100	1040
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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.

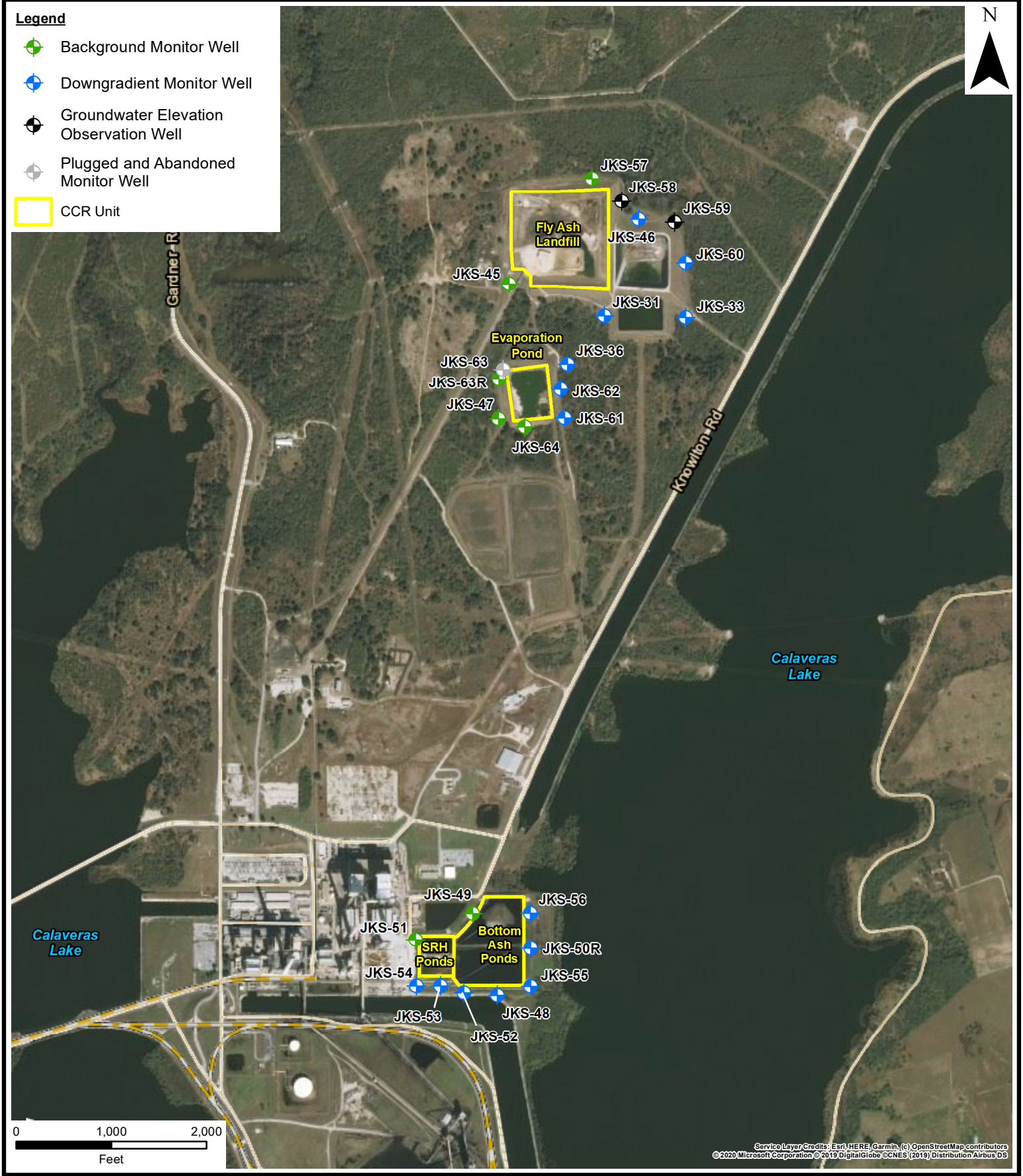
H: Bias in sample result likely to be high.

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

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DATE:	1/17/2020	SCALE:	AS SHOWN	REVISION:	0

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

ERM

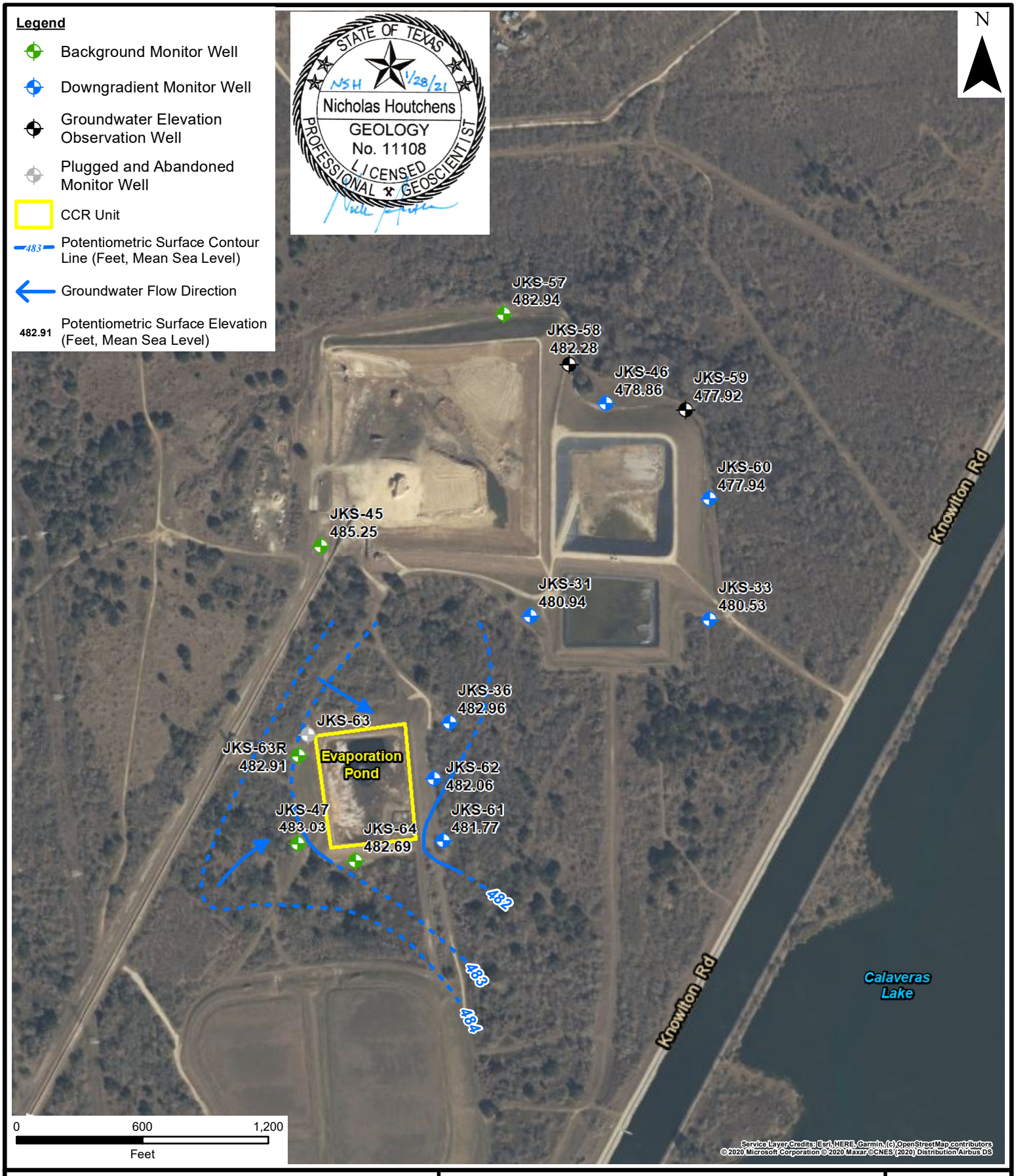

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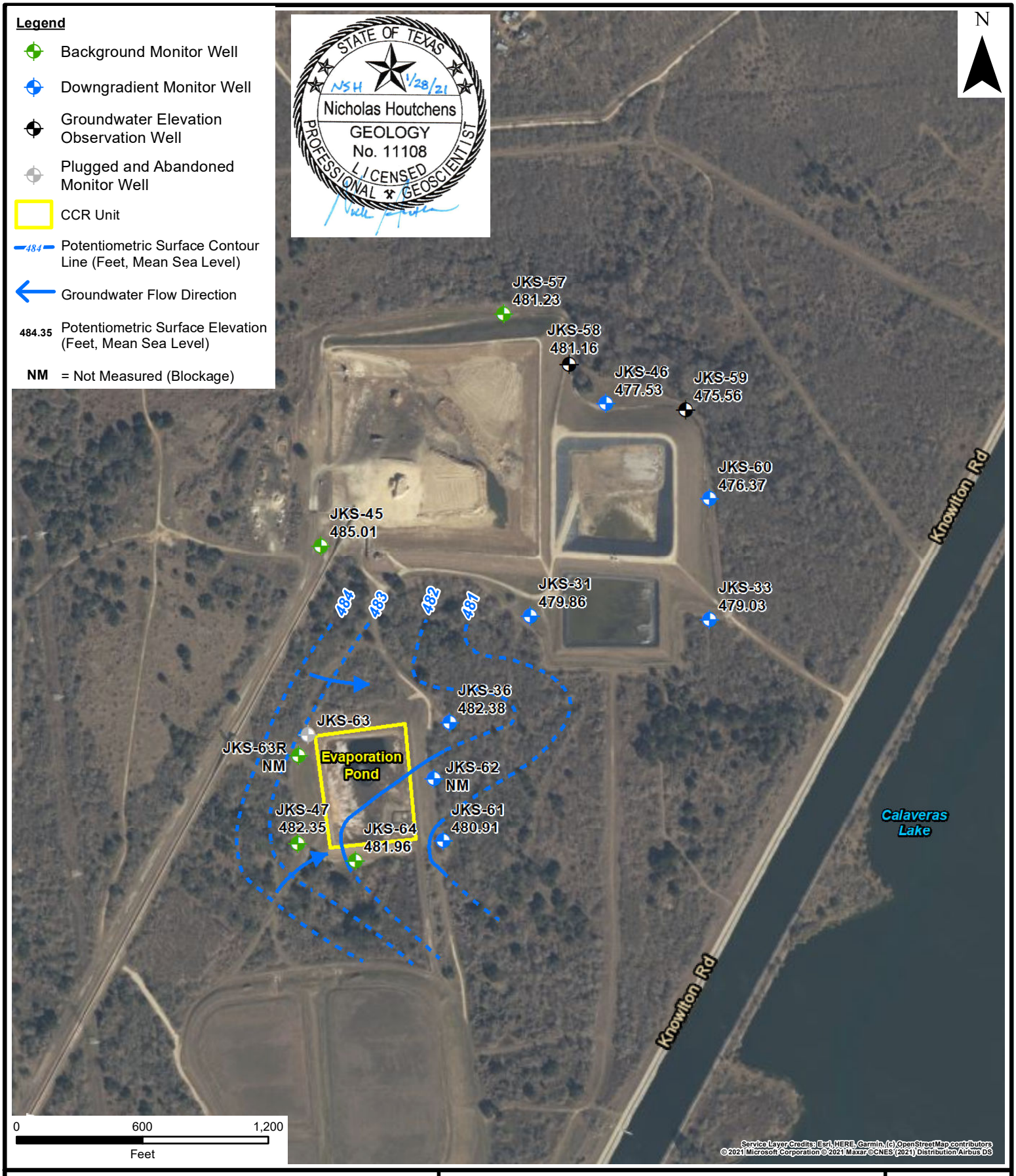
FIGURE 2A
POTENTIOMETRIC SURFACE MAP - APRIL 2020
Evaporation Pond CCR Unit
CPS Energy - Calaveras Power Station
San Antonio, Texas

ERM



Environmental Resources Management

DESIGN:	NH	DRAWN:	LSC	CHKD.:	WZ
DATE:	1/22/2021	SCALE:	AS SHOWN	REVISION:	3

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FIGURE 2B
POTENTIOMETRIC SURFACE MAP - OCTOBER 2020
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	39	39	100.00%	2	12.7	0.00176	Significant Difference	Intrawell
Calcium	40	40	100.00%	2	34.2	<0.001	Significant Difference	Intrawell
Chloride	40	40	100.00%	2	34.6	<0.001	Significant Difference	Intrawell
Fluoride	40	27	67.50%	2	0.289	0.866	No Significant Difference	Interwell
pH	41	41	100.00%	2	15.3	<0.001	Significant Difference	Intrawell
Sulfate	40	39	97.50%	2	24.2	<0.001	Significant Difference	Intrawell
Total dissolved solids	40	40	100.00%	2	34.6	<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	14	14	100.00%			0.59	0.82	0.827	1.05	0.115	0.13943233	Normal
Boron	JKS-63	mg/L	11	11	100.00%			0.8	1.06	1.14	2.03	0.333	0.29220418	Lognormal
Boron	JKS-64	mg/L	14	14	100.00%			0.711	0.836	0.848	1.14	0.108	0.12718512	Lognormal
Calcium	JKS-47	mg/L	14	14	100.00%			26.2	58	65.7	168	39.4	0.59984232	Lognormal
Calcium	JKS-63	mg/L	12	12	100.00%			174	854	780	1060	290	0.37217927	NDD
Calcium	JKS-64	mg/L	14	14	100.00%			20.3	23.7	23.5	31.4	2.81	0.11991249	NDD
Chloride	JKS-47	mg/L	14	14	100.00%			53.9	150	151	279	66.8	0.44205264	Normal
Chloride	JKS-63	mg/L	12	12	100.00%			1160	1780	1820	2830	570	0.31301683	Normal
Chloride	JKS-64	mg/L	14	14	100.00%			9.63	12.6	13.6	18.2	2.75	0.2025478	Normal
Fluoride	Pooled	mg/L	40	27	67.50%	0.009	0.18	0.0573	0.148	0.149	0.382	0.116	0.78039246	NDD
pH	JKS-47	SU	15	15	100.00%			4.58	5.85	5.74	6	0.349	0.06072719	NDD
pH	JKS-63	SU	12	12	100.00%			4.76	5.68	5.62	5.88	0.31	0.05516597	NDD
pH	JKS-64	SU	14	14	100.00%			4.82	6.14	6.01	6.46	0.416	0.06911982	NDD
Sulfate	JKS-47	mg/L	14	14	100.00%			171	260	259	369	54.9	0.21213909	Normal
Sulfate	JKS-63	mg/L	12	11	91.67%	0.023	0.023	1750	1860	1740	2120	561	0.32178096	NDD
Sulfate	JKS-64	mg/L	14	14	100.00%			164	183	184	212	14.9	0.08075078	Normal
Total dissolved solids	JKS-47	mg/L	14	14	100.00%			665	808	879	1240	177	0.2019093	Normal
Total dissolved solids	JKS-63	mg/L	12	12	100.00%			4760	5390	5830	8190	1080	0.18471415	Normal
Total dissolved solids	JKS-64	mg/L	14	14	100.00%			463	574	570	664	45	0.07888675	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-47	JKS-47-20201021-CCR	10/21/2020	Boron	mg/L	TRUE	0.904	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	Lognormal	X	X	X		X		
JKS-47	JKS-47549681-004	3/29/2017	Calcium	mg/L	TRUE	168	Intrawell	Lognormal	X	X	X				
JKS-47	JKS47620699-005	4/10/2019	Calcium	mg/L	TRUE	128	Intrawell	Lognormal	X	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-47549681-004	3/29/2017	Fluoride	mg/L	TRUE	0.315	Interwell	NDD	X						
JKS-47	JKS-47552352-008	5/3/2017	Fluoride	mg/L	TRUE	0.382	Interwell	NDD	X						
JKS-47	JKS 47555913-009	6/21/2017	Fluoride	mg/L	TRUE	0.213	Interwell	NDD	X						
JKS-63	JKS-63547064-005	2/22/2017	Fluoride	mg/L	TRUE	0.32	Interwell	NDD	X						
JKS-63	JKS-63549681-007	3/29/2017	Fluoride	mg/L	TRUE	0.297	Interwell	NDD	X						
JKS-63	JKS-63552352-009	5/3/2017	Fluoride	mg/L	TRUE	0.364	Interwell	NDD	X						
JKS-63	JKS-63561592-006	8/30/2017	Fluoride	mg/L	TRUE	0.182	Interwell	NDD	X						
JKS-63	63R001	8/20/2019	Fluoride	mg/L	TRUE	0.206	Interwell	NDD	X						
JKS-63	JKS-63R005	10/23/2019	Fluoride	mg/L	TRUE	0.352	Interwell	NDD	X						
JKS-64	JKS-64547201-002	2/23/2017	Fluoride	mg/L	TRUE	0.294	Interwell	NDD	X						
JKS-64	JKS-64549681-009	3/29/2017	Fluoride	mg/L	TRUE	0.332	Interwell	NDD	X						
JKS-64	JKS-64552439-003	5/4/2017	Fluoride	mg/L	TRUE	0.188	Interwell	NDD	X						
JKS-64	JKS 64555913-007	6/21/2017	Fluoride	mg/L	TRUE	0.231	Interwell	NDD	X						
JKS-64	JKS-64561592-005	8/30/2017	Fluoride	mg/L	TRUE	0.224	Interwell	NDD	X						
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	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-47	JKS-47549681-004	3/29/2017	Total dissolved solids	mg/L	TRUE	1170	Intrawell	Normal		X					
JKS-64	JKS-64-20201021-CCR	10/21/2020	Total dissolved solids	mg/L	TRUE	664	Intrawell	Normal	X	X	X	X	X	X	0

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	14	14	100.00%	0.667	0.0989	Stable, No Trend
Boron	Intrawell	JKS-63	11	11	100.00%	0.359	0.236	Stable, No Trend
Boron	Intrawell	JKS-64	14	14	100.00%	0.001	-0.663	Decreasing Trend
Calcium	Intrawell	JKS-47	14	14	100.00%	0.518	-0.143	Stable, No Trend
Calcium	Intrawell	JKS-63	12	12	100.00%	0.311	0.242	Stable, No Trend
Calcium	Intrawell	JKS-64	14	14	100.00%	0.17	-0.278	Stable, No Trend
Chloride	Intrawell	JKS-47	14	14	100.00%	0.324	-0.199	Stable, No Trend
Chloride	Intrawell	JKS-63	12	12	100.00%	<0.001	0.758	Increasing Trend
Chloride	Intrawell	JKS-64	14	14	100.00%	0.0283	0.442	Increasing Trend
Fluoride	Interwell	JKS-47, JKS-63, JKS-64	40	27	67.50%	0.217	-0.141	Stable, No Trend
pH	Intrawell	JKS-47	15	15	100.00%	0.428	0.153	Stable, No Trend
pH	Intrawell	JKS-63	12	12	100.00%	0.545	0.152	Stable, No Trend
pH	Intrawell	JKS-64	14	14	100.00%	0.0117	-0.508	Decreasing Trend
Sulfate	Intrawell	JKS-47	14	14	100.00%	0.193	-0.275	Stable, No Trend
Sulfate	Intrawell	JKS-63	12	11	91.67%	0.679	0.0923	Stable, No Trend
Sulfate	Intrawell	JKS-64	14	14	100.00%	0.0158	0.486	Increasing Trend
Total dissolved solids	Intrawell	JKS-47	14	14	100.00%	0.0617	-0.385	Stable, No Trend
Total dissolved solids	Intrawell	JKS-63	12	12	100.00%	0.0311	0.485	Increasing Trend
Total dissolved solids	Intrawell	JKS-64	14	14	100.00%	0.388	-0.187	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	14	14	100.00%		1.06	mg/L	None	No	0.0025	Param Intra 1 of 2		
Boron	Intrawell	Stable, No Trend	JKS-63	11	11	100.00%		1.9	mg/L	None	ln(x)	0.0025	Param Intra 1 of 2		X
Boron	Intrawell	Decreasing Trend	JKS-64	14	14	100.00%		0.937	mg/L	None	No	0.0025	NP Detrended UPL		
Calcium	Intrawell	Stable, No Trend	JKS-47	14	14	100.00%		168	mg/L	None	ln(x)	0.0025	Param Intra 1 of 2		
Calcium	Intrawell	Stable, No Trend	JKS-63	12	12	100.00%		1060	mg/L	None	No	0.0108	NP Intra (normality) 1 of 2		X
Calcium	Intrawell	Stable, No Trend	JKS-64	14	14	100.00%		31.4	mg/L	None	No	0.00861	NP Intra (normality) 1 of 2		
Chloride	Intrawell	Stable, No Trend	JKS-47	14	14	100.00%		287	mg/L	None	No	0.0025	Param Intra 1 of 2		
Chloride	Intrawell	Increasing Trend	JKS-63	12	12	100.00%		3200	mg/L	None	No	0.0025	NP Detrended UPL		X
Chloride	Intrawell	Increasing Trend	JKS-64	14	14	100.00%		20.9	mg/L	None	No	0.0025	NP Detrended UPL		
Fluoride	Interwell	Stable, No Trend	JKS-47, JKS-63, JKS-64	40	27	67.50%		0.382	mg/L	None	No	0.00115	NP Inter (normality) 1 of 2		X
pH	Intrawell	Stable, No Trend	JKS-47	15	15	100.00%	4.58	6	SU	None	No	0.0151	NP Intra (normality) 1 of 2	X	
pH	Intrawell	Stable, No Trend	JKS-63	12	12	100.00%	4.76	5.88	SU	None	No	0.0216	NP Intra (normality) 1 of 2		
pH	Intrawell	Decreasing Trend	JKS-64	14	14	100.00%	4.84	6.21	SU	None	No	0.0172	NP Detrended UPL		X
Sulfate	Intrawell	Stable, No Trend	JKS-47	14	14	100.00%		371	mg/L	None	No	0.0025	Param Intra 1 of 2		
Sulfate	Intrawell	Stable, No Trend	JKS-63	12	11	91.67%		2120	mg/L	None	No	0.0108	NP Intra (normality) 1 of 2		X
Sulfate	Intrawell	Increasing Trend	JKS-64	14	14	100.00%		219	mg/L	None	No	0.0025	NP Detrended UPL		
Total dissolved solids	Intrawell	Stable, No Trend	JKS-47	14	14	100.00%		1240	mg/L	None	No	0.0025	Param Intra 1 of 2		
Total dissolved solids	Intrawell	Increasing Trend	JKS-63	12	12	100.00%		8330	mg/L	None	No	0.0025	NP Detrended UPL		X
Total dissolved solids	Intrawell	Stable, No Trend	JKS-64	14	14	100.00%		662	mg/L	None	No	0.0025	Param Intra 1 of 2		

NOTES:

Non-detects 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
RL: Reporting Limit
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.

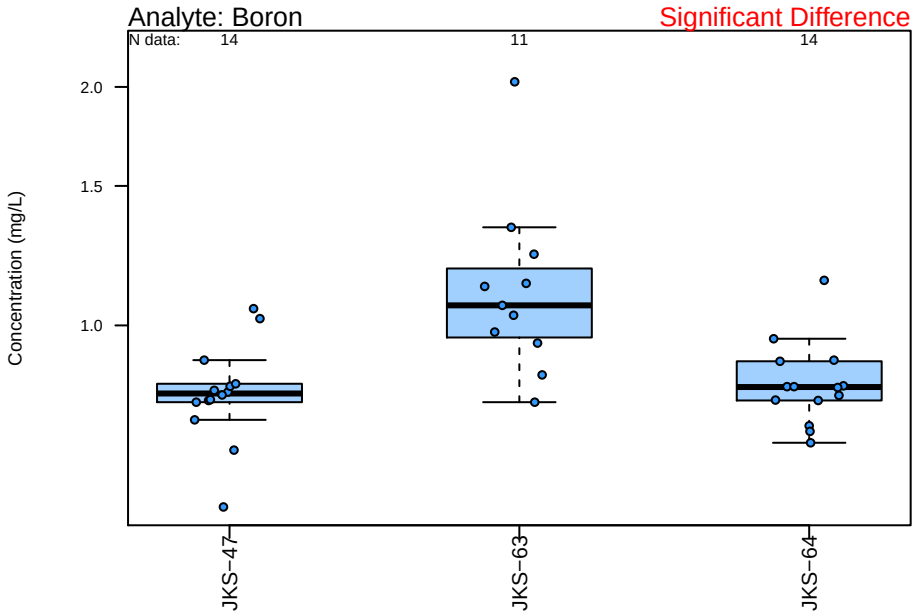
APPENDIX B - TABLE 6
Comparisons of Downgradient Wells to UPLs
Calaveras Power Station
Evaporation Pond

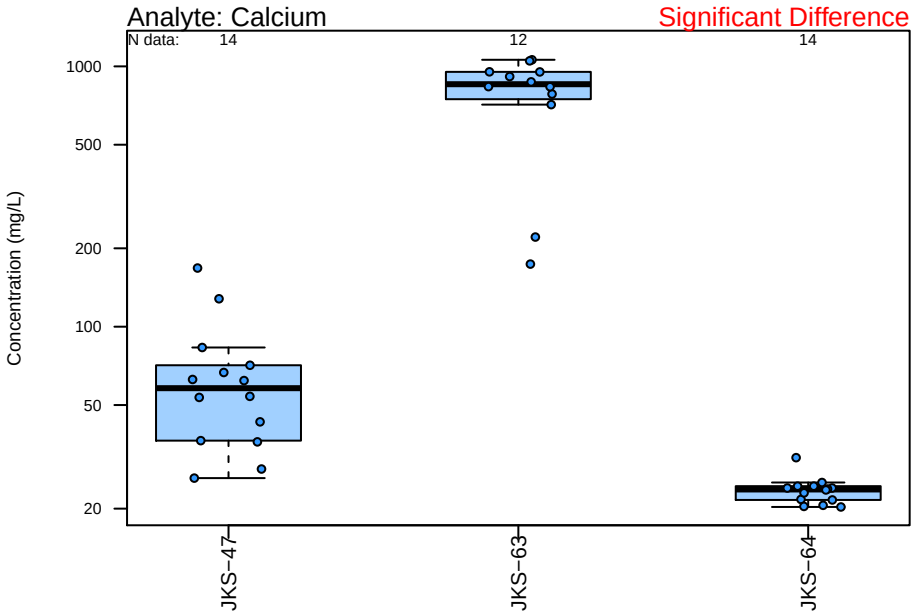
Analyte	Well	LPL	UPL	Units	Recent Date	Observation	Obs > UPL	Notes	Mann Kendall p-value	Mann Kendall tau	WRS p-value	WRS Conclusion	Exceed Median	Overall Conclusion
Boron	JKS-36		1.9	mg/L	10/21/2020	0.456					1	NS		No Exceedance
Boron	JKS-61		1.9	mg/L	10/21/2020	1.82					0.884	NS		No Exceedance
Boron	JKS-62		1.9	mg/L	11/17/2020	0.537					1	NS		No Exceedance
Calcium	JKS-36		1060	mg/L	10/21/2020	259					1	NS		No Exceedance
Calcium	JKS-61		1060	mg/L	10/21/2020	172					1	NS		No Exceedance
Calcium	JKS-62		1060	mg/L	11/17/2020	144					1	NS		No Exceedance
Chloride	JKS-36		3200	mg/L	10/21/2020	319					1	NS		No Exceedance
Chloride	JKS-61		3200	mg/L	10/21/2020	281					1	NS		No Exceedance
Chloride	JKS-62		3200	mg/L	11/17/2020	284					1	NS		No Exceedance
Fluoride	JKS-36		0.382	mg/L	10/21/2020	1.07	X	Trend Test: Stable, No Trend	0.279	0.231	<0.001	***	X	Both Exceedance
Fluoride	JKS-61		0.382	mg/L	10/21/2020	0.366					0.0765	NS		No Exceedance
Fluoride	JKS-62		0.382	mg/L	11/17/2020	0.295					0.998	NS		No Exceedance
pH	JKS-36	4.58	6.21	SU	10/21/2020	3.98	X	Trend Test: Decreasing Trend	0.0264	-0.451	0.108	NS		UPL Exceedance
pH	JKS-61	4.58	6.21	SU	10/21/2020	6.57	X	Trend Test: Stable, No Trend	0.125	-0.309	0.00716	**	X	Both Exceedance
pH	JKS-62	4.58	6.21	SU	11/17/2020	6.55	X	Trend Test: Stable, No Trend	0.0617	-0.385	0.00537	**	X	Both Exceedance
Sulfate	JKS-36		2120	mg/L	10/21/2020	890					1	NS		No Exceedance
Sulfate	JKS-61		2120	mg/L	10/21/2020	553					1	NS		No Exceedance
Sulfate	JKS-62		2120	mg/L	11/17/2020	212					1	NS		No Exceedance
Total dissolved solids	JKS-36		8330	mg/L	10/21/2020	1930					1	NS		No Exceedance
Total dissolved solids	JKS-61		8330	mg/L	10/21/2020	2000					1	NS		No Exceedance
Total dissolved solids	JKS-62		8330	mg/L	11/17/2020	1040					1	NS		No Exceedance

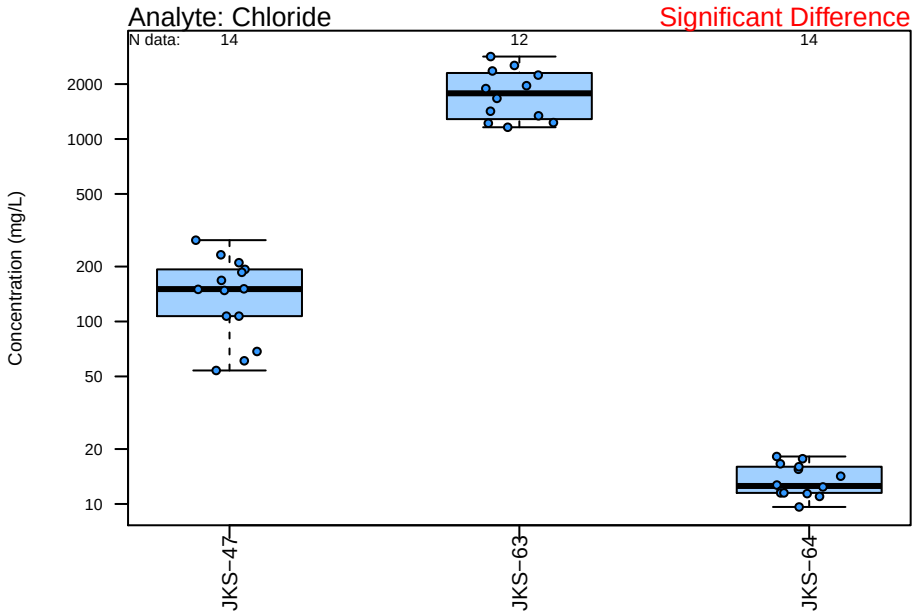
NOTES:

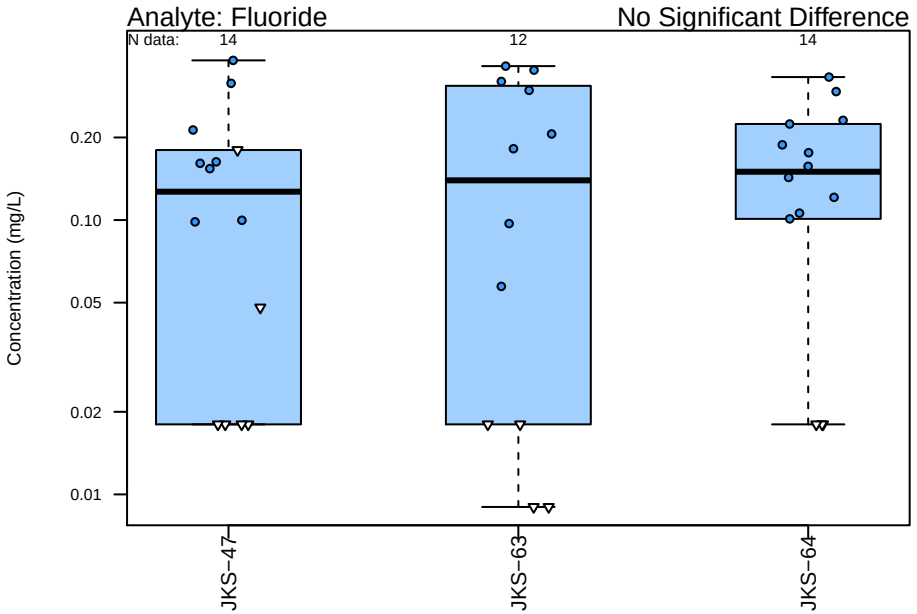
Non-detects were substituted with a value of zero for trend calculations
UPL: Upper Prediction Limit
ND: Not detected
SU: Standard units
tau: Kendall's tau statistic
Obs > UPL: Exceed 'X' indicates that the most recent observed value is higher than the UPL (or out of range of the LPL and UPL in the case 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).
WRS: Wilcoxon Rank Sum test comparing if median of downgradient well is larger than the UPL (for pH, also checks if median is less than LPL)
WRS p-value: A one-sided p-value describing the probability of the H0 (UPL/LPL) being true (a=0.05)
Overall: UPL Exceedance - most recent sampling event exceeds the UPL, but median of the well is not greater than UPL
Overall: WRS Exceedance - most recent sampling event does not exceed the UPL, but median of the well is greater than UPL
Overall: Both Exceedance - most recent sampling event exceeds the UPL and median of the well is larger than the UPL

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

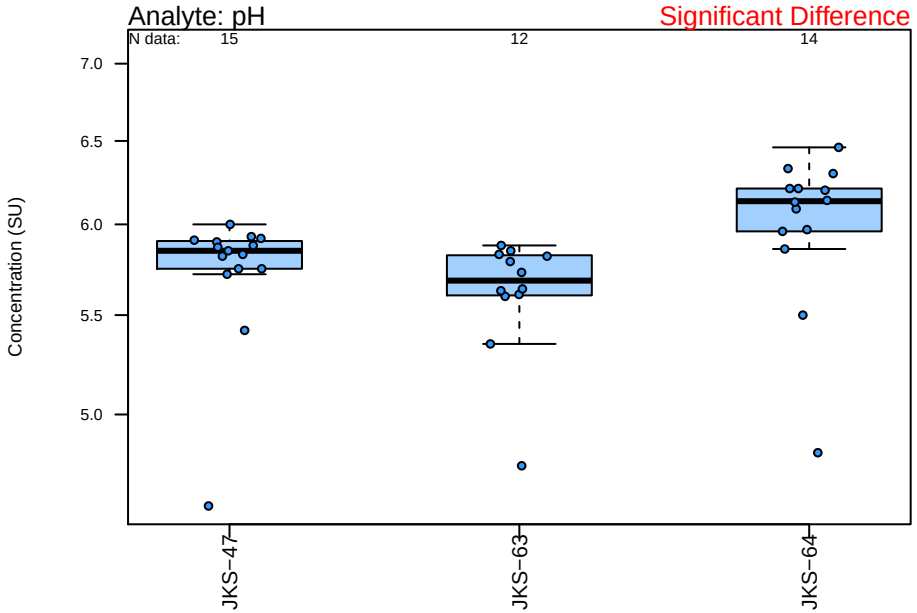


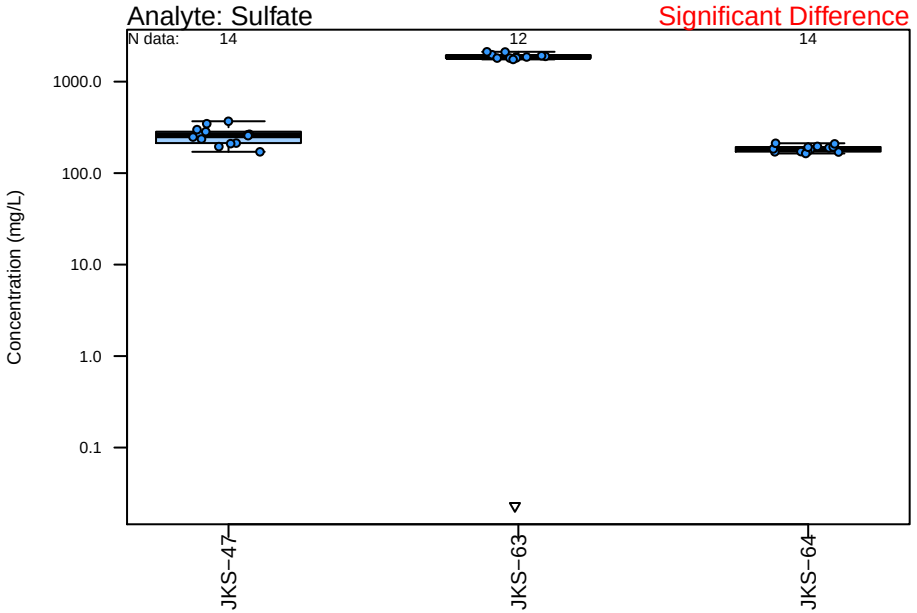


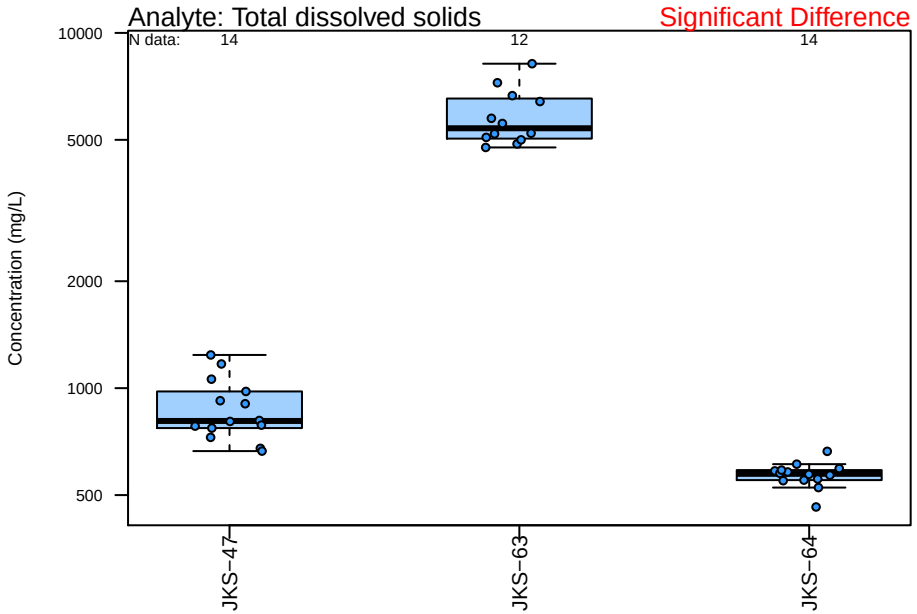




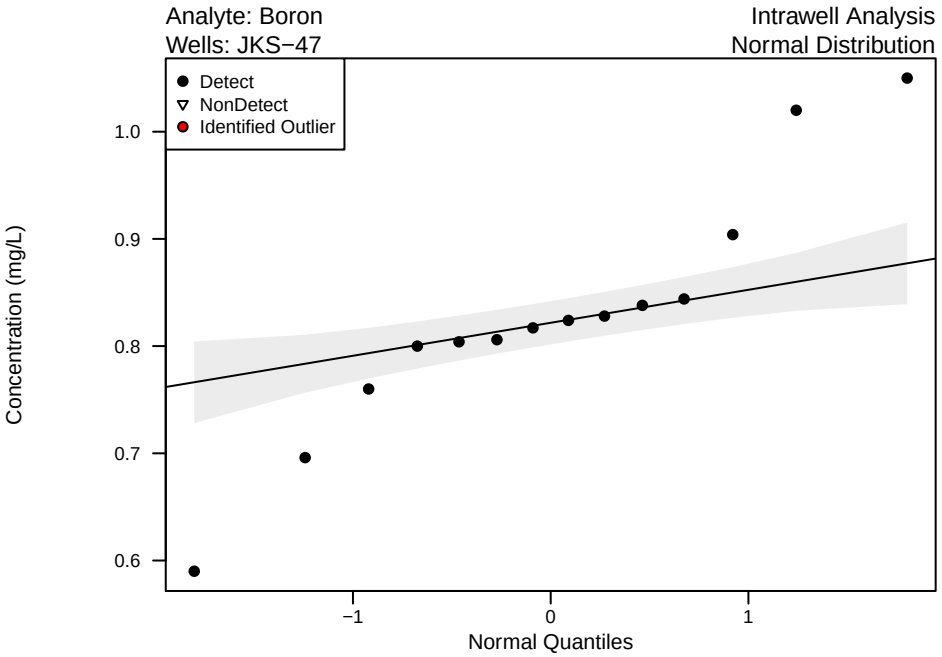
Appendix B − Figure 1
Unit: Evaporation Pond
Boxplots of Upgradient Wells







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



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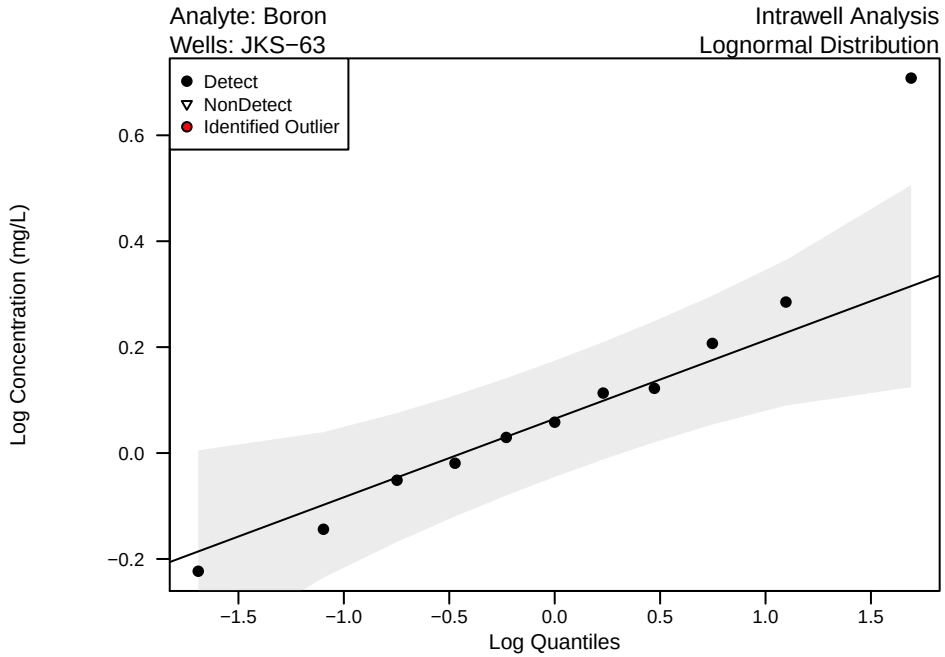
not Normal/NDD distribution.



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

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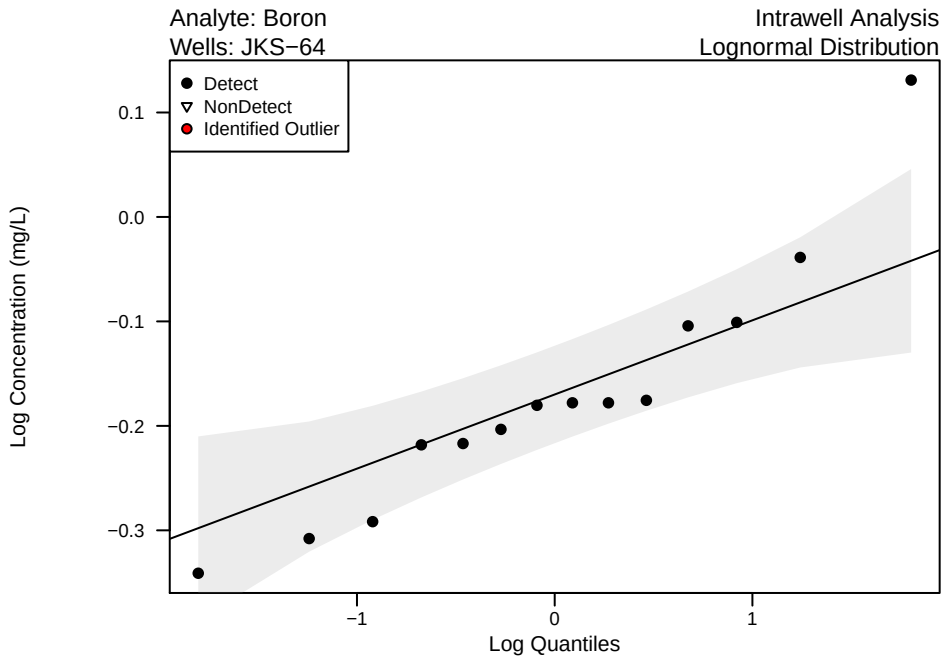

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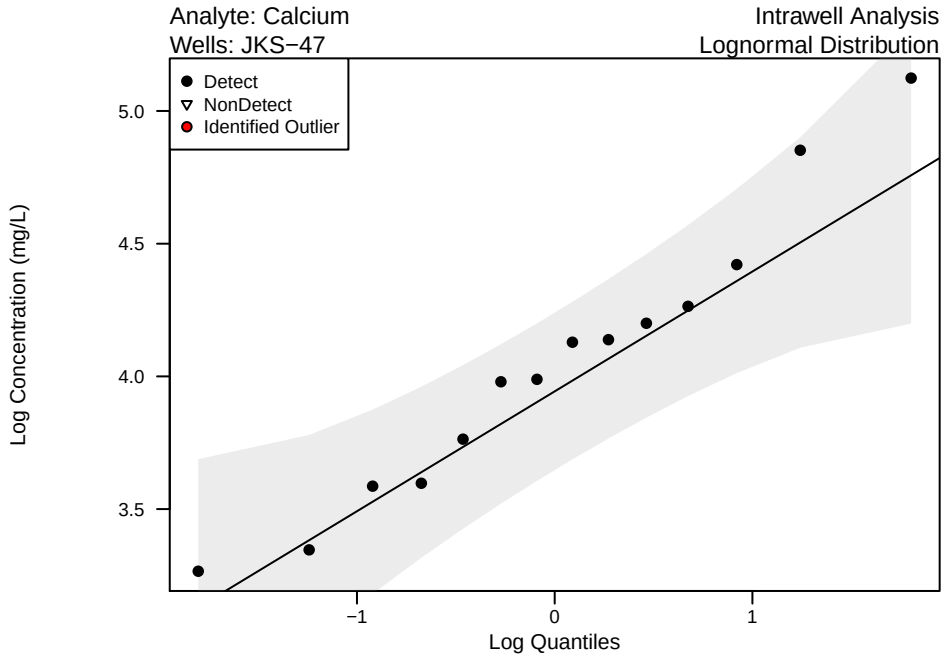
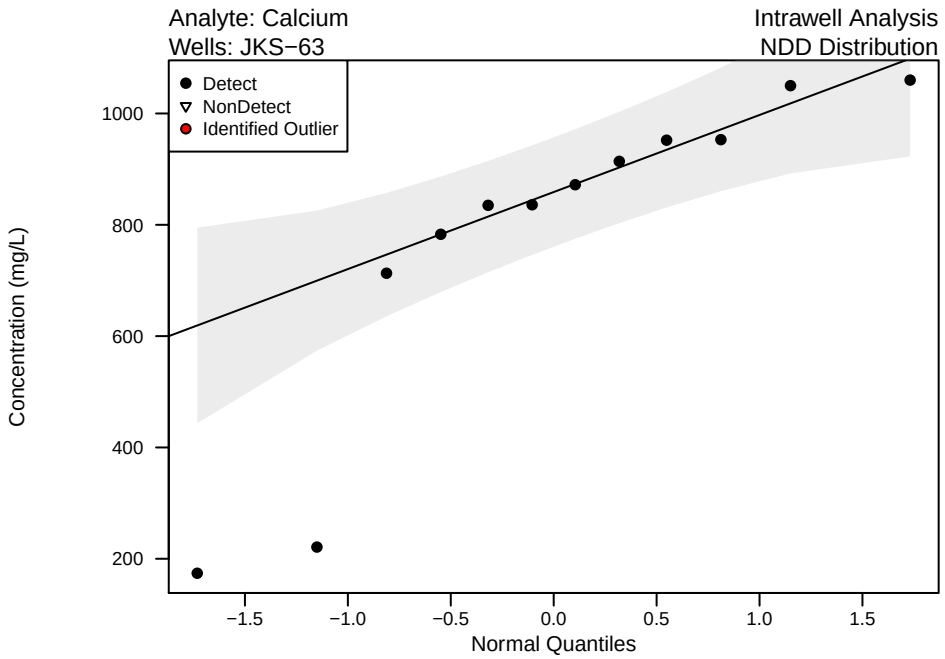
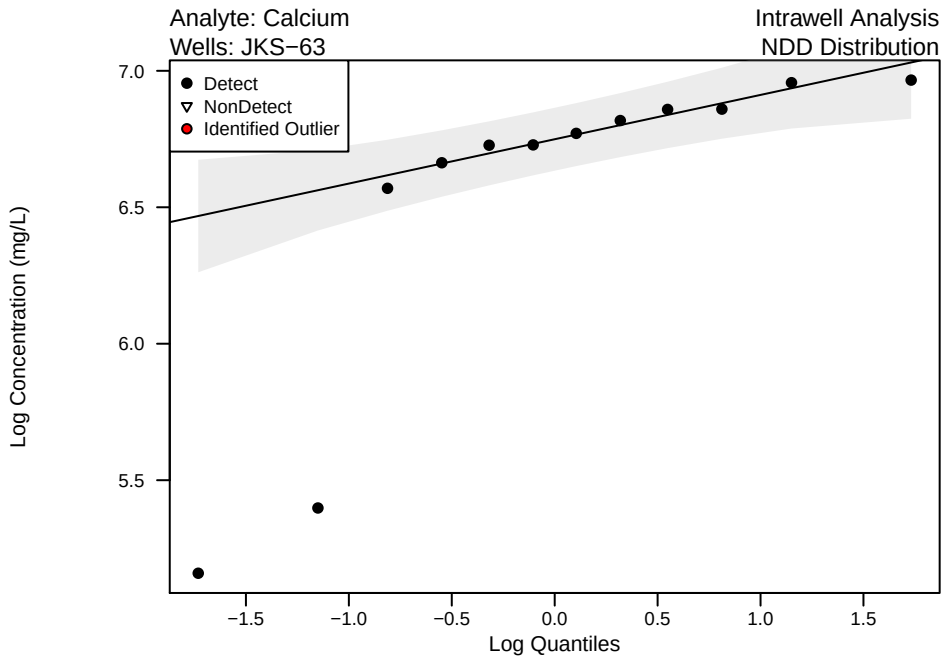
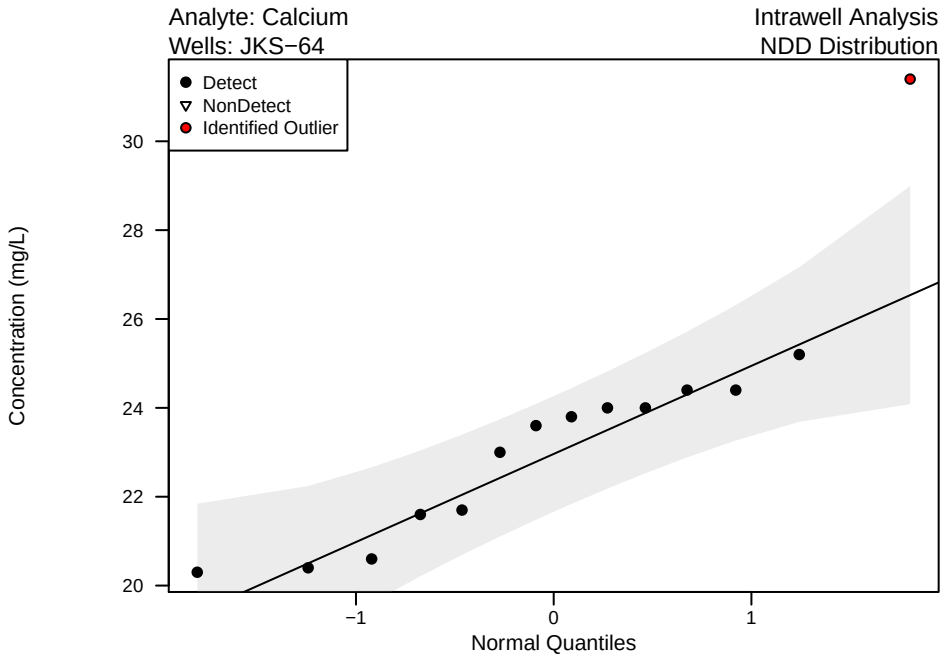
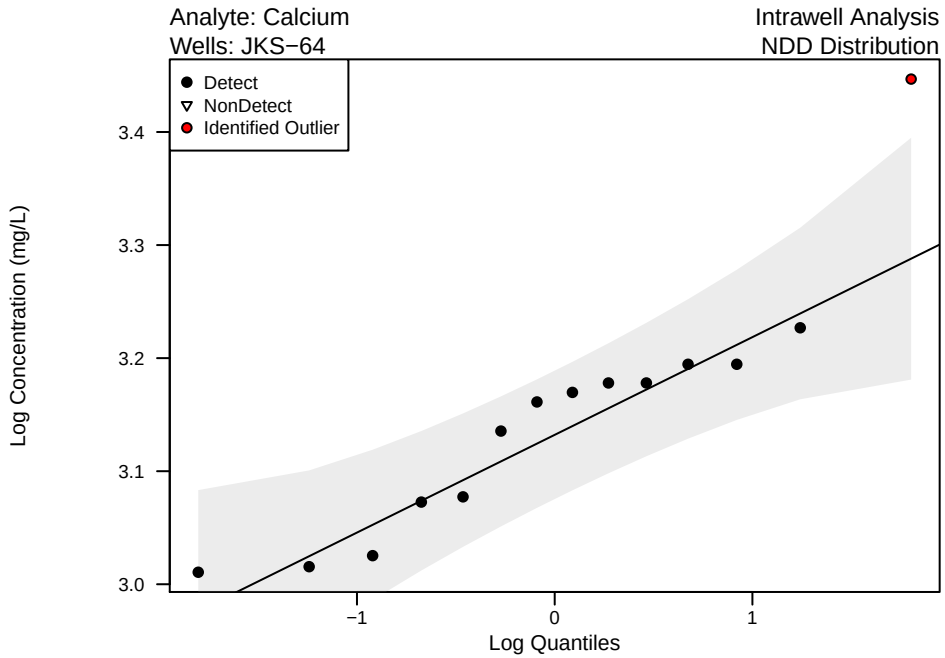


Appendix B − Figure 2
Unit: Evaporation Pond
QQ Plots of Upgradient Wells

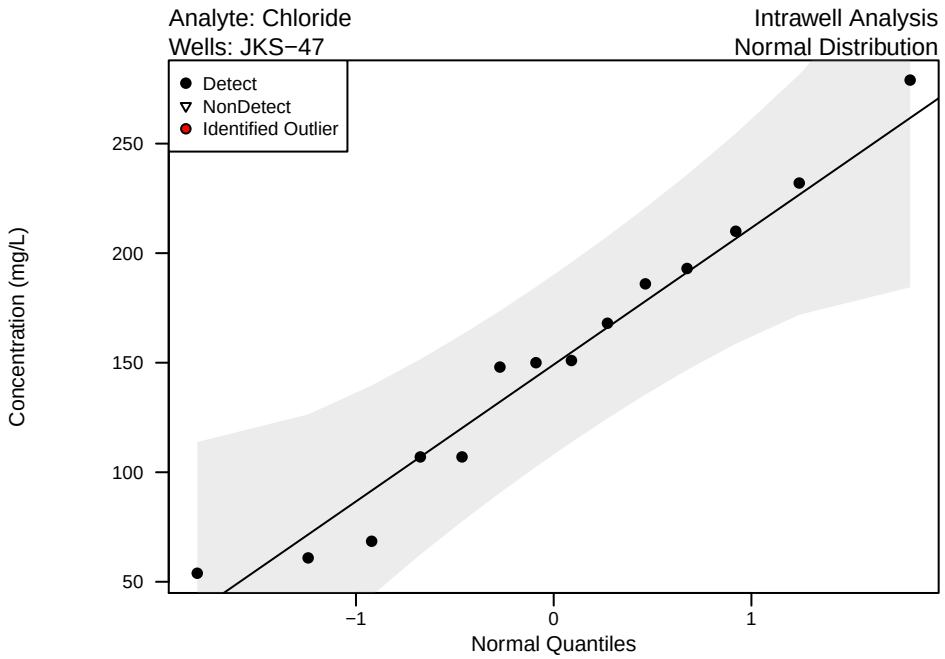








Appendix B − Figure 2
Unit: Evaporation Pond
QQ Plots of Upgradient Wells



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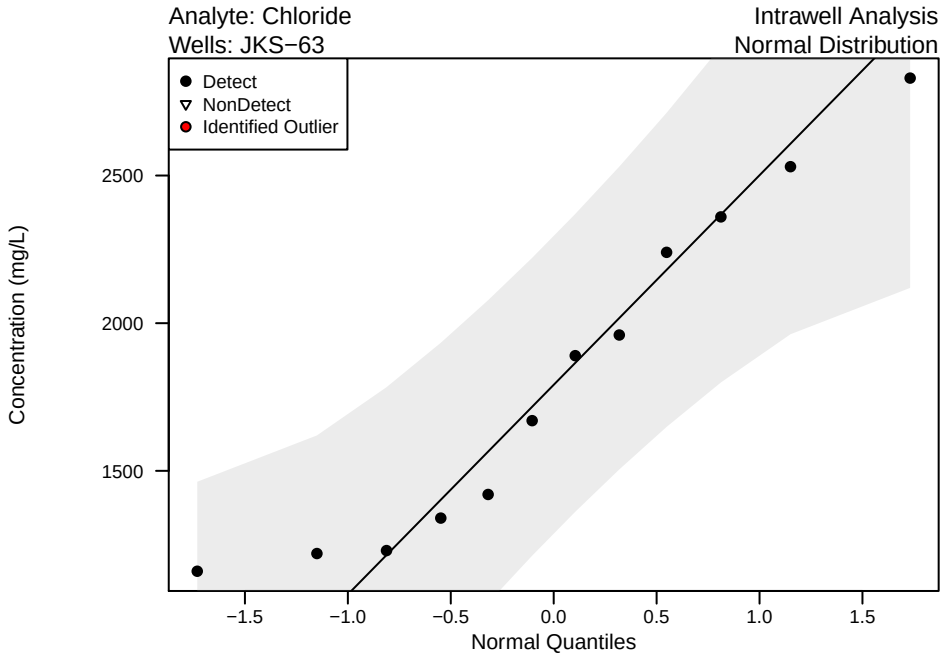

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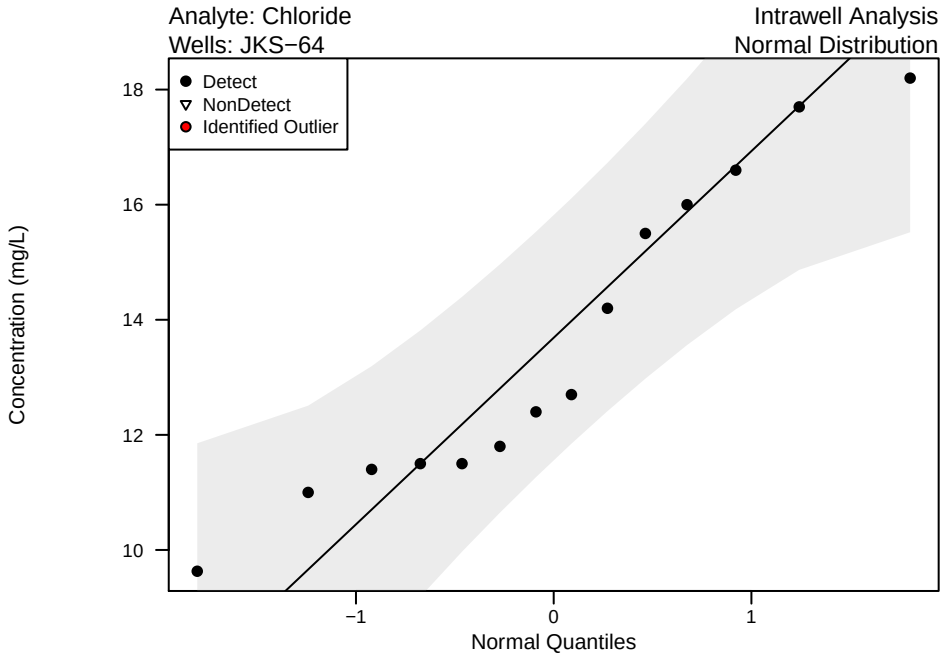
Appendix B − Figure 2
Unit: Evaporation Pond
QQ Plots of Upgradient Wells



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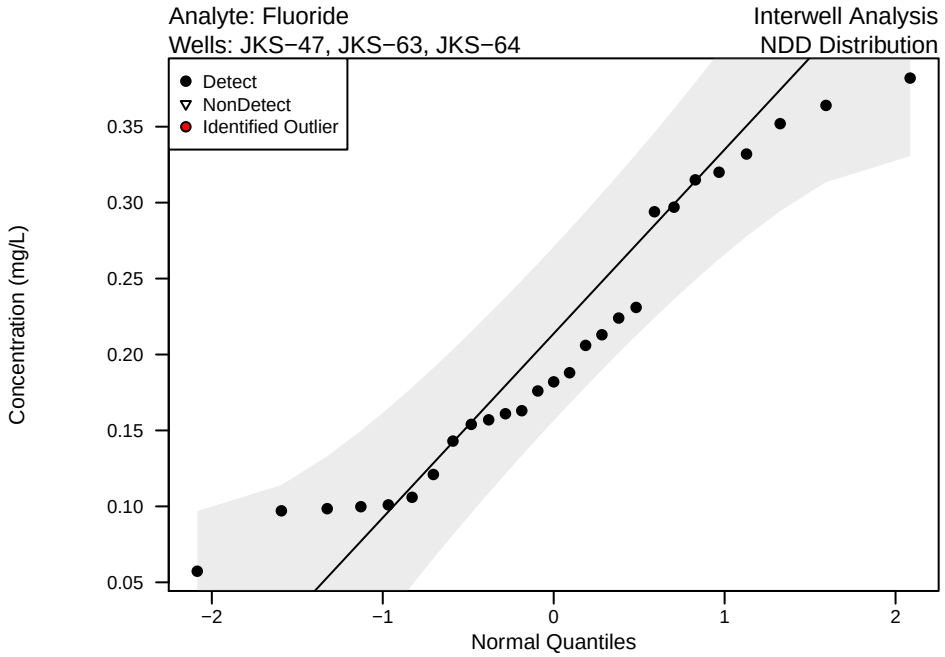
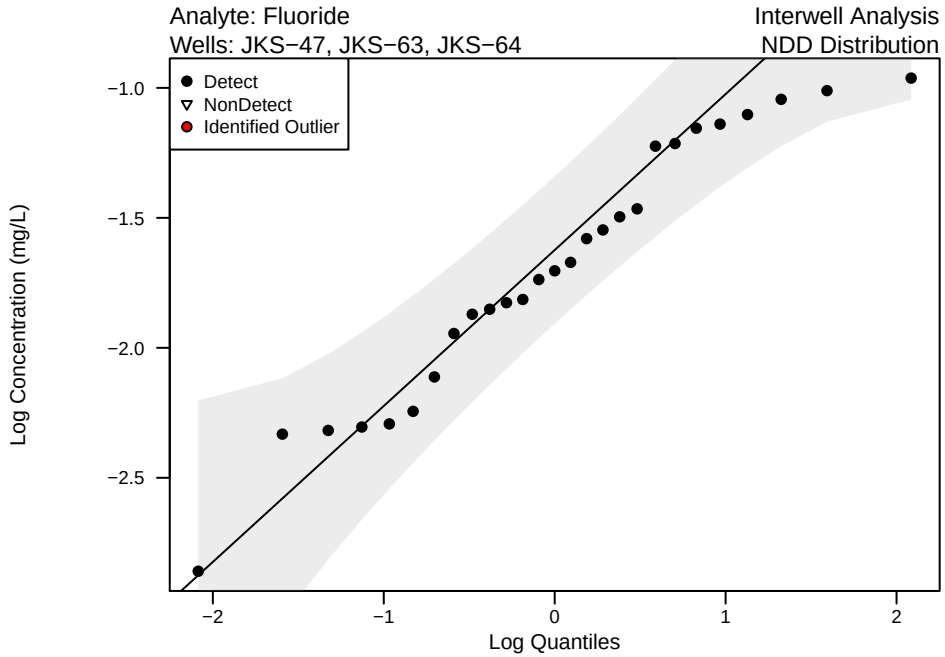
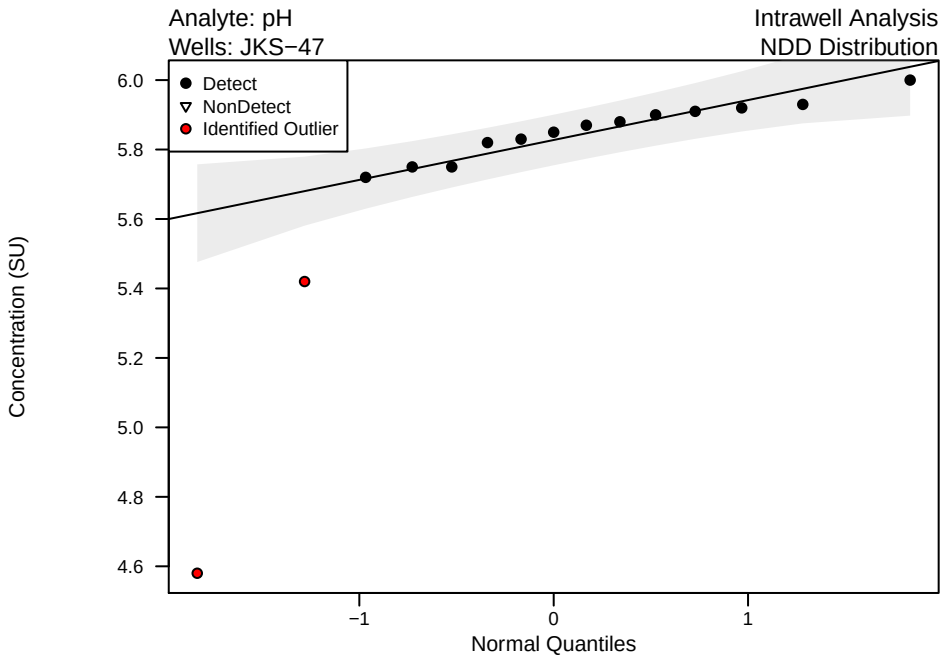
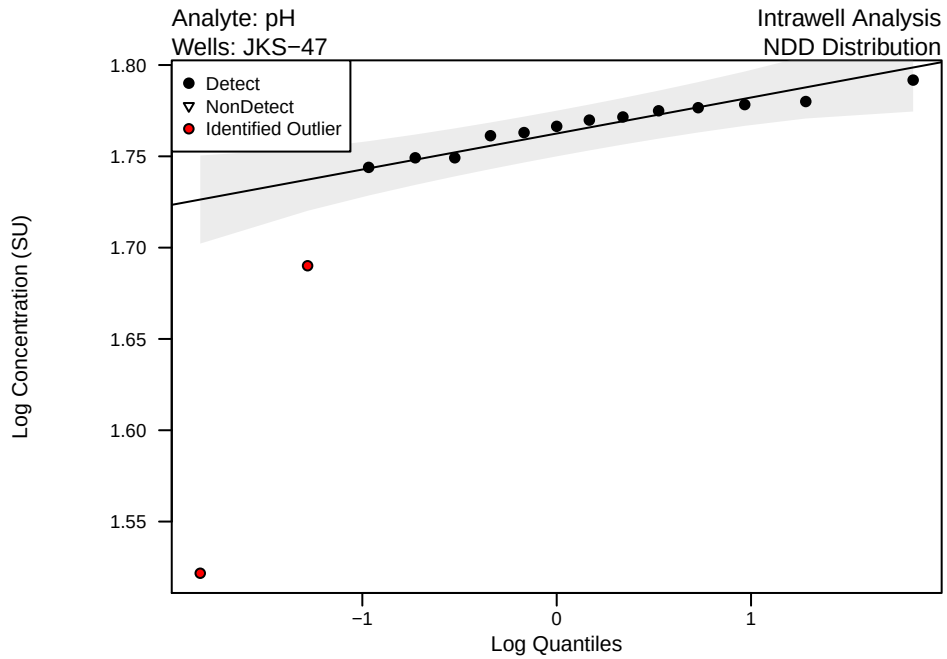
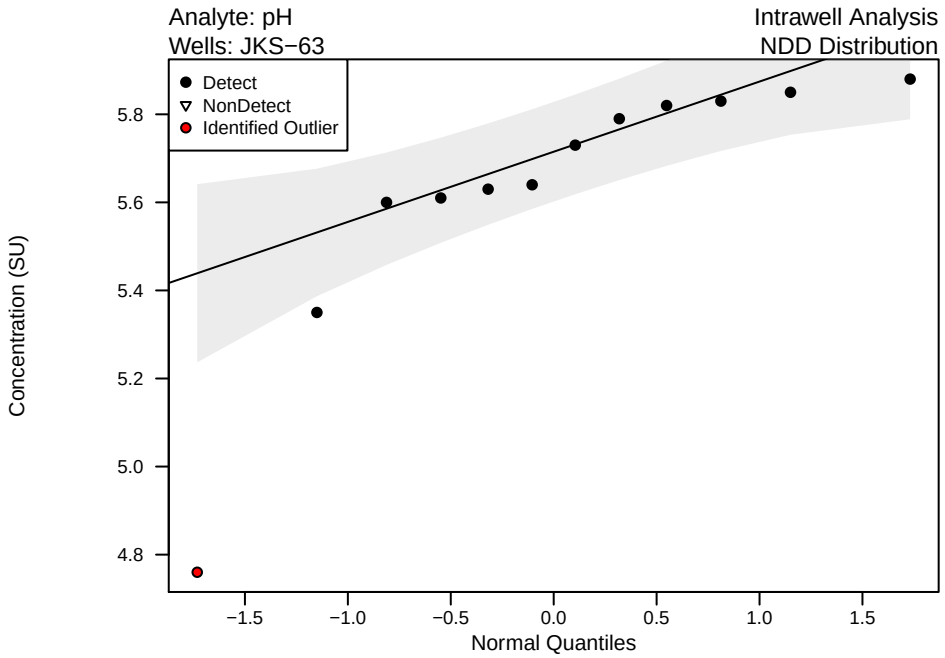


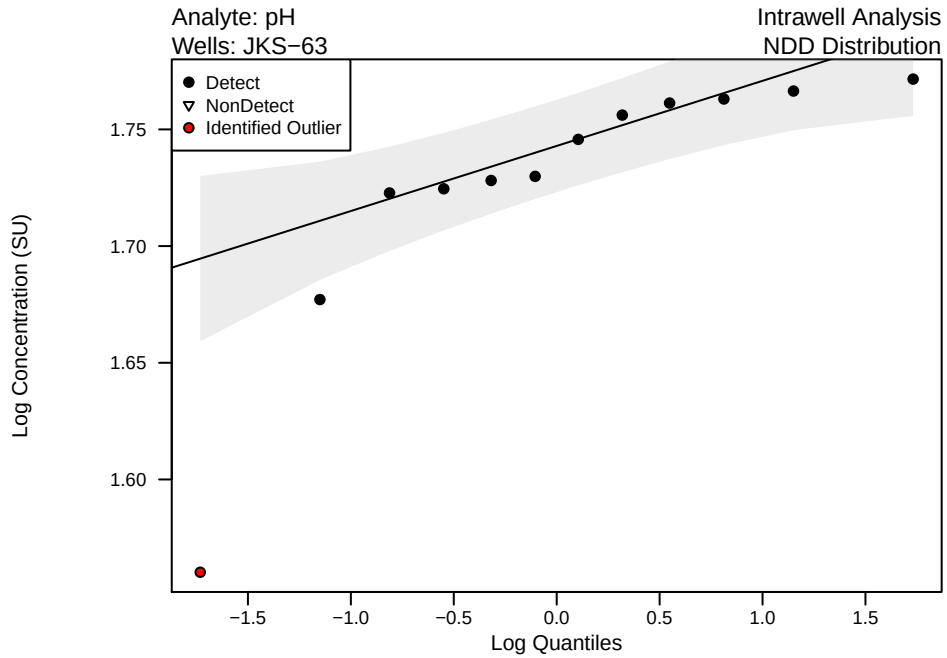


Appendix B − Figure 2
Unit: Evaporation Pond
QQ Plots of Upgradient Wells

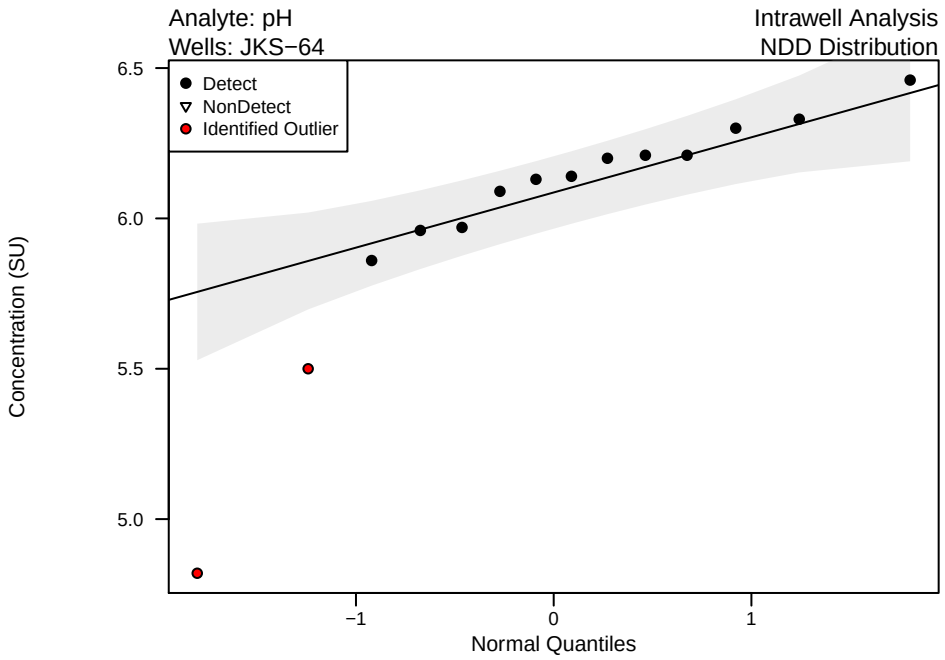


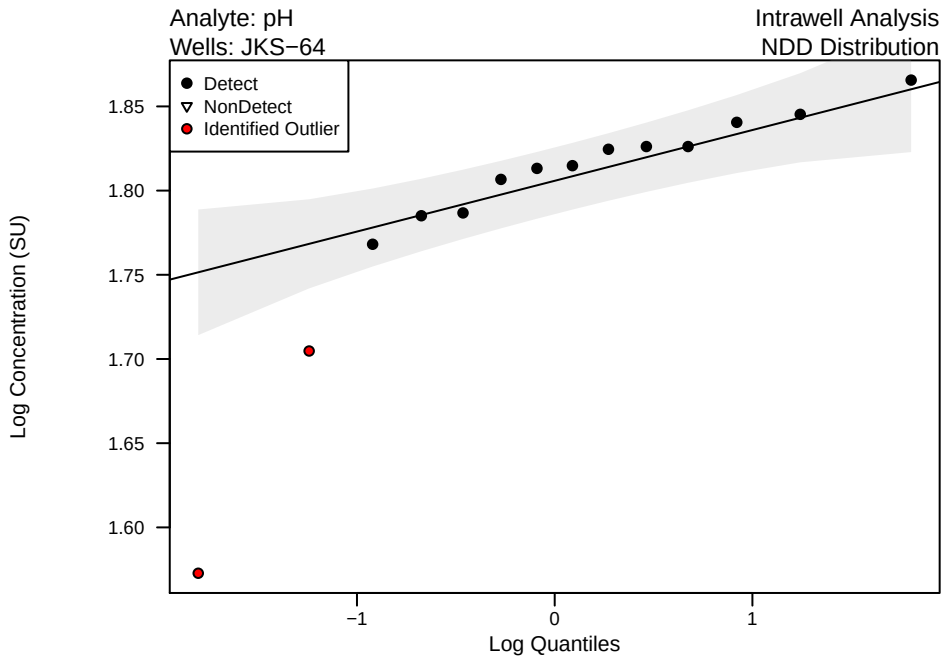


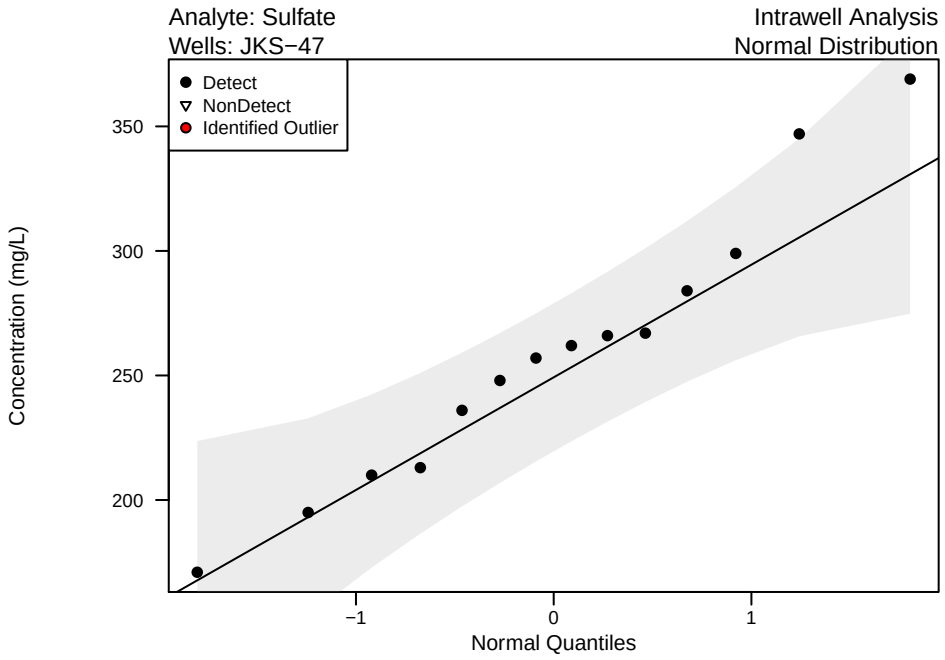




Appendix B − Figure 2
Unit: Evaporation Pond
QQ Plots of Upgradient Wells







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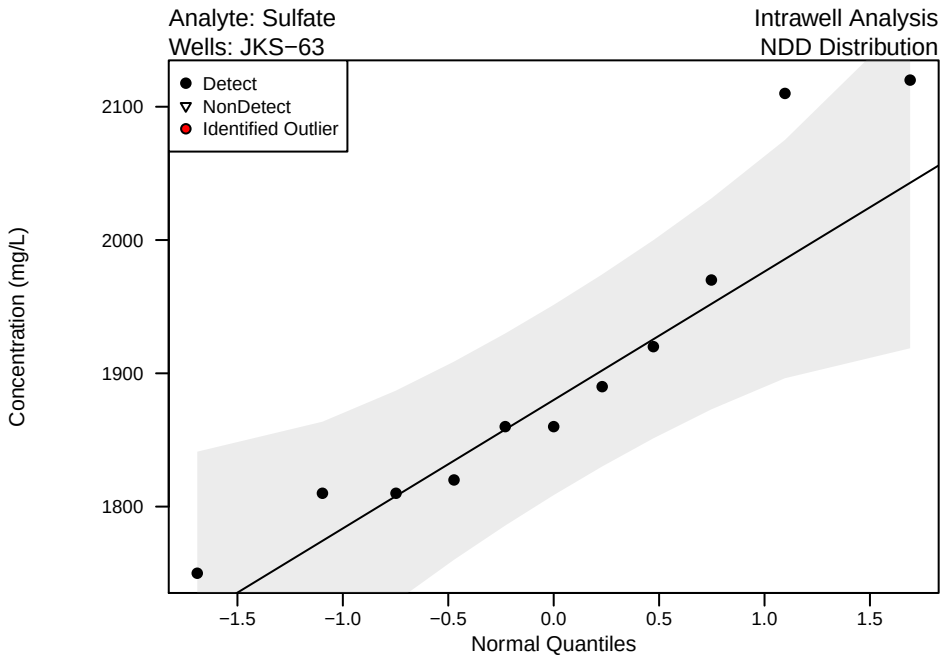
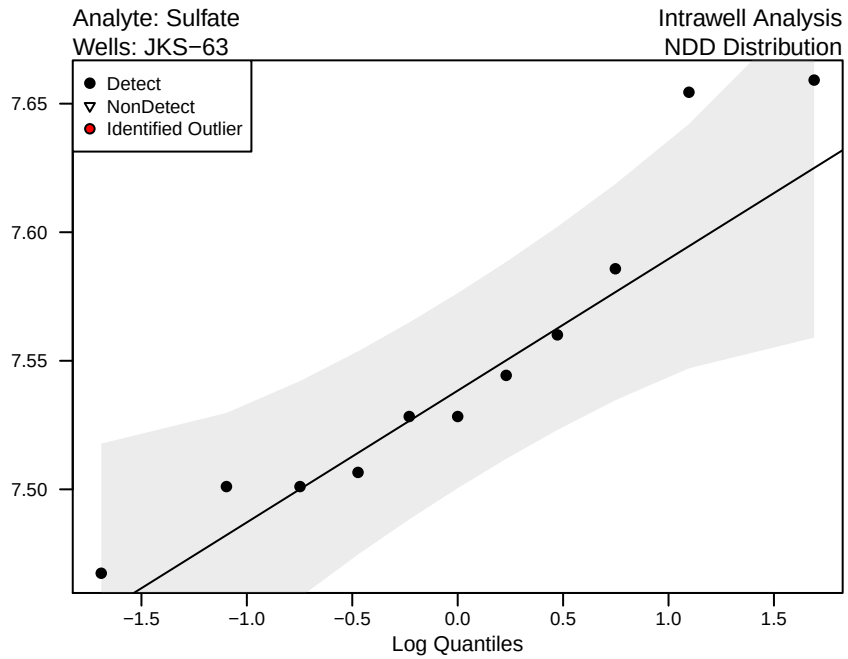
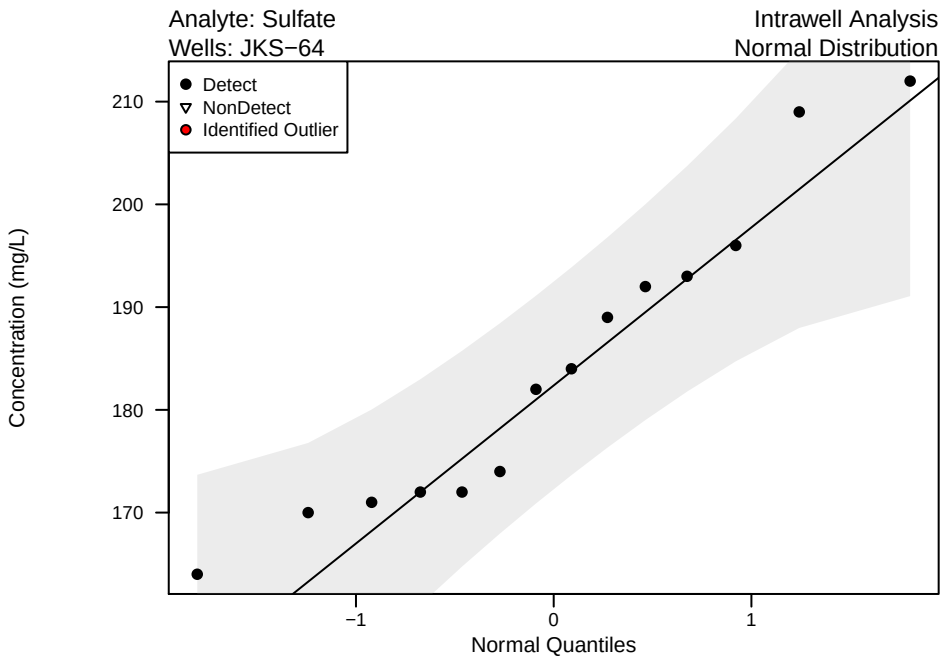
not Lognormal/NDD distribution.

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







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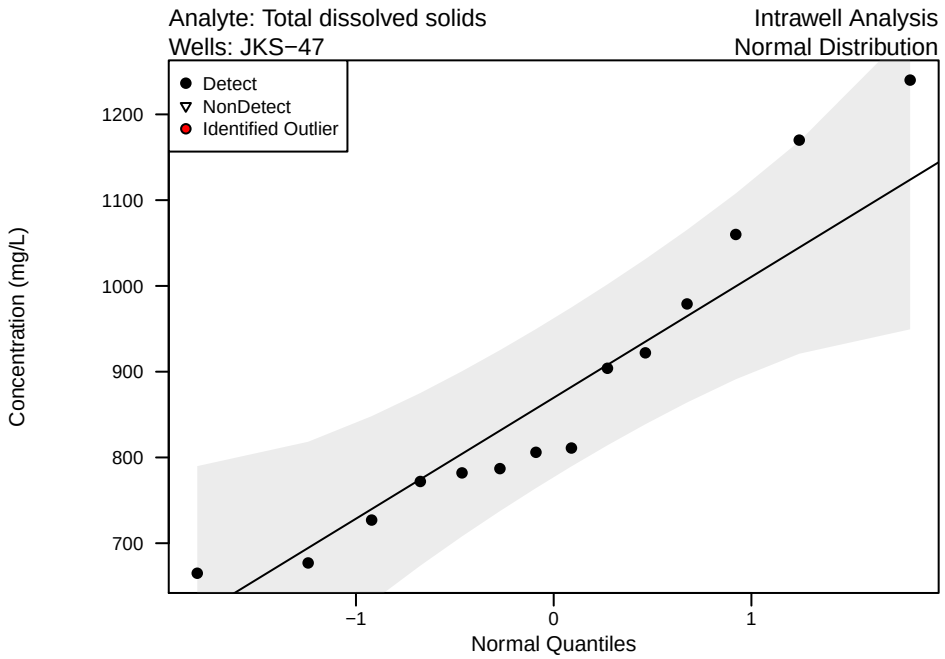
not Lognormal/NDD distribution.

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



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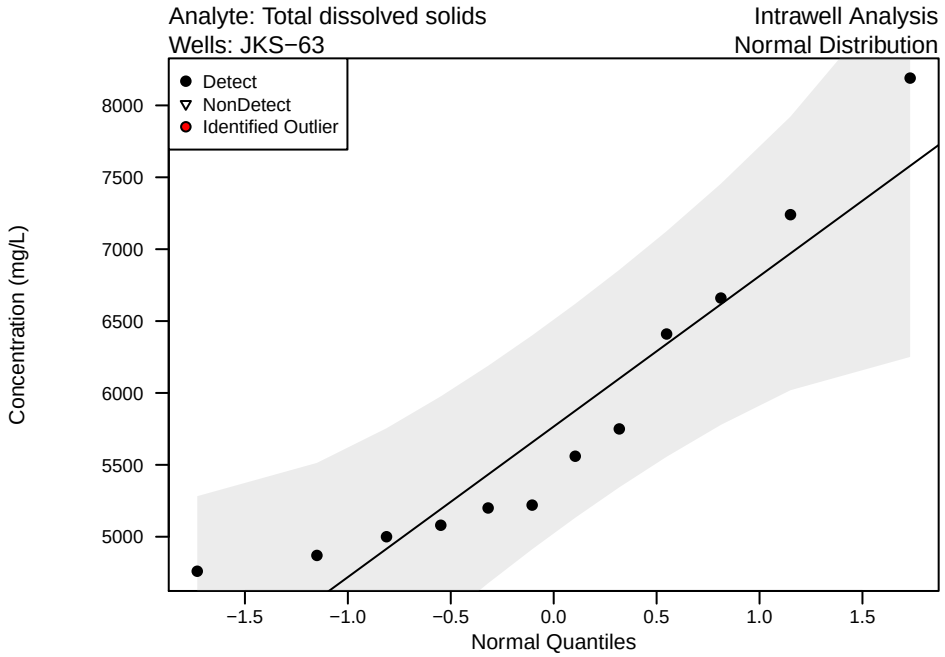

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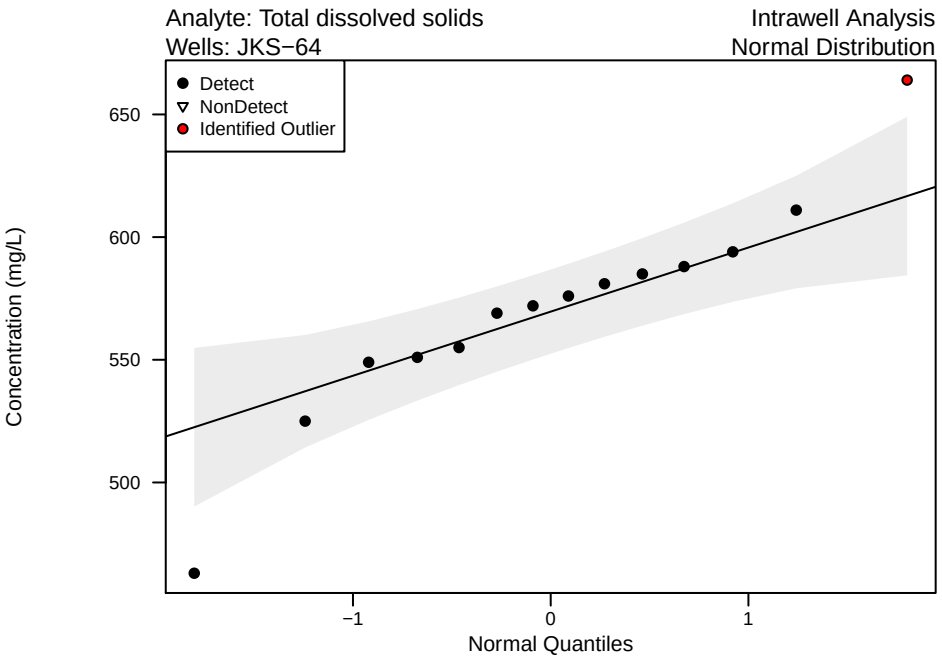
Appendix B − Figure 2
Unit: Evaporation Pond
QQ Plots of Upgradient Wells



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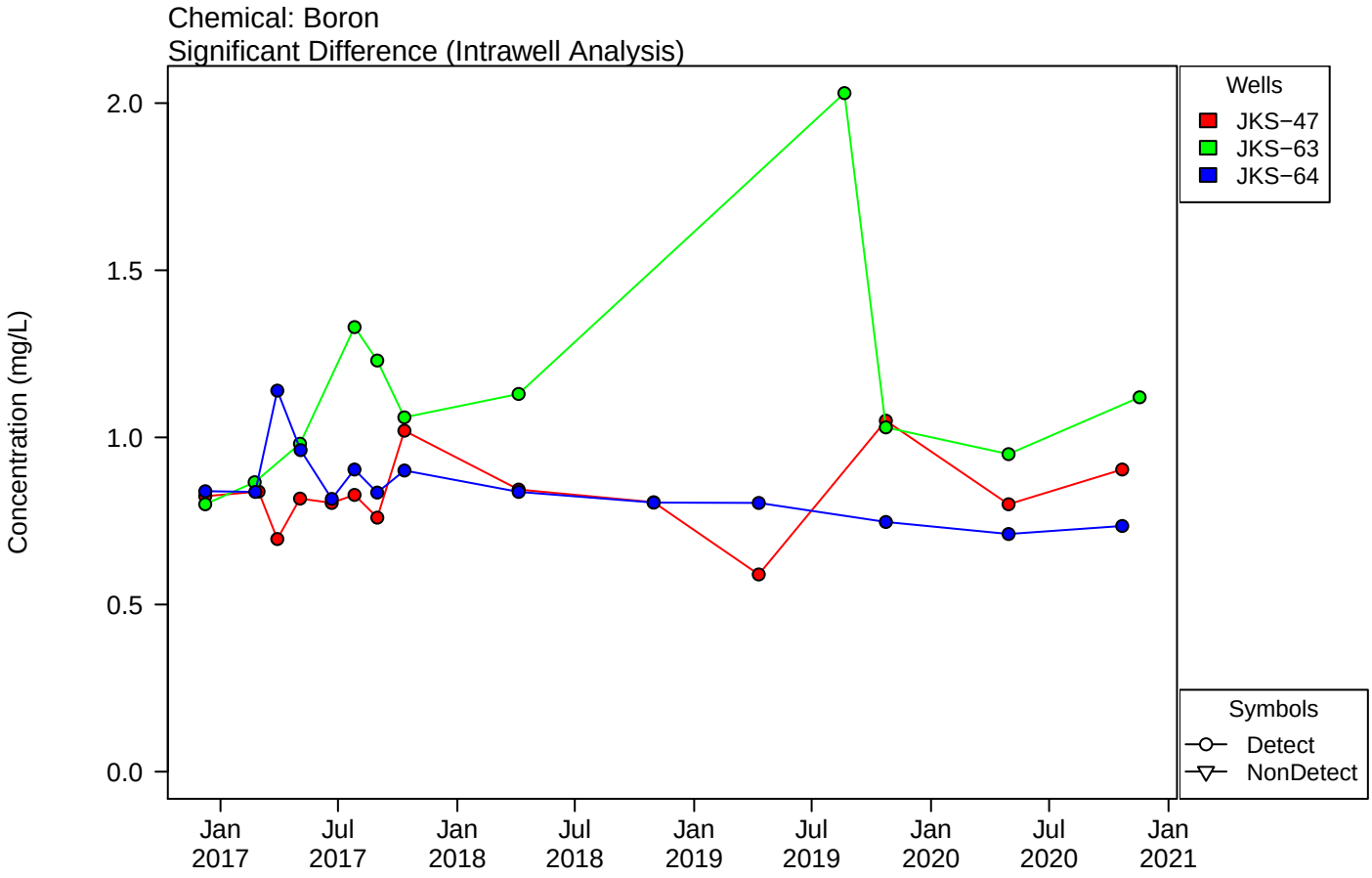
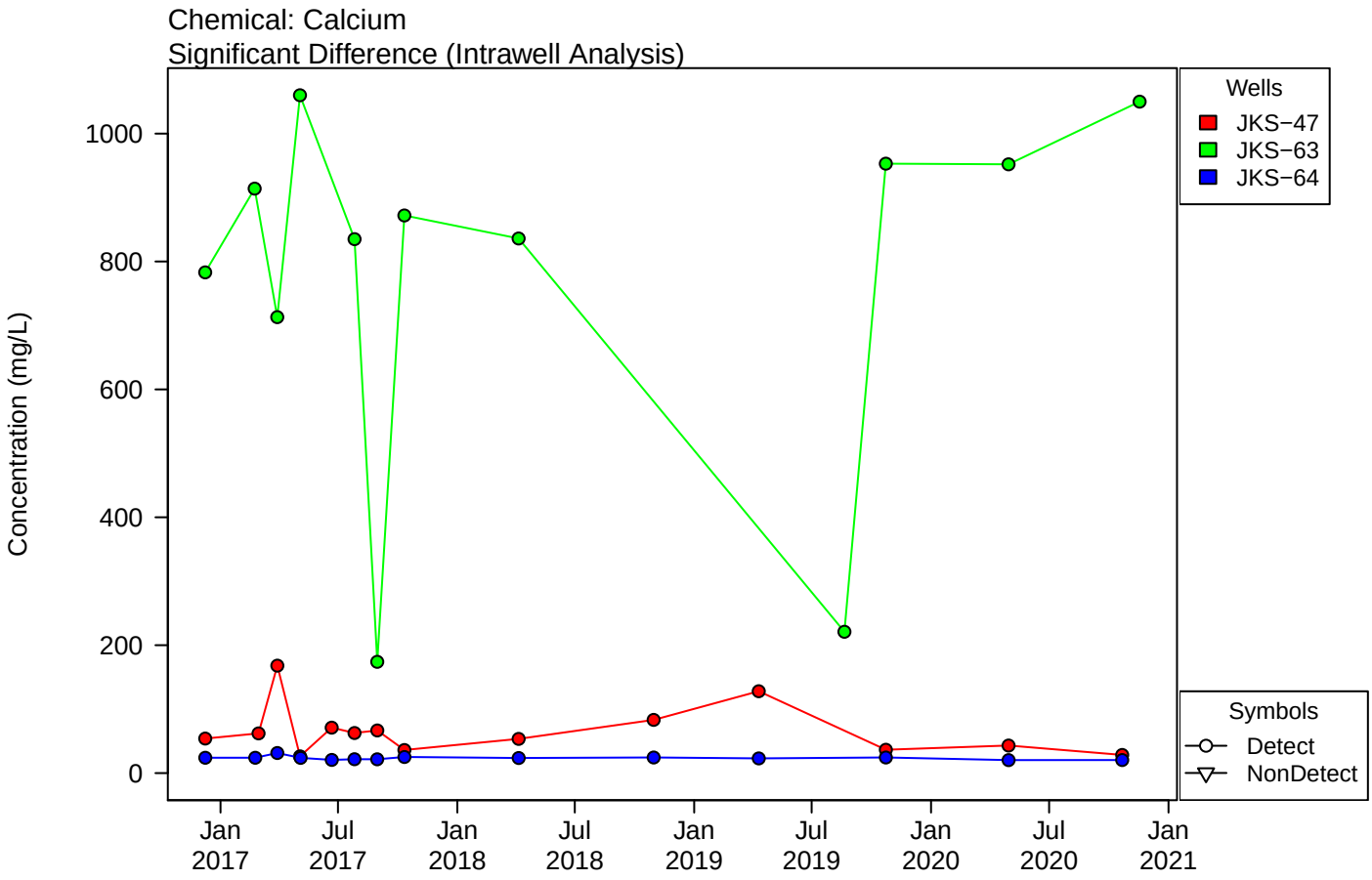
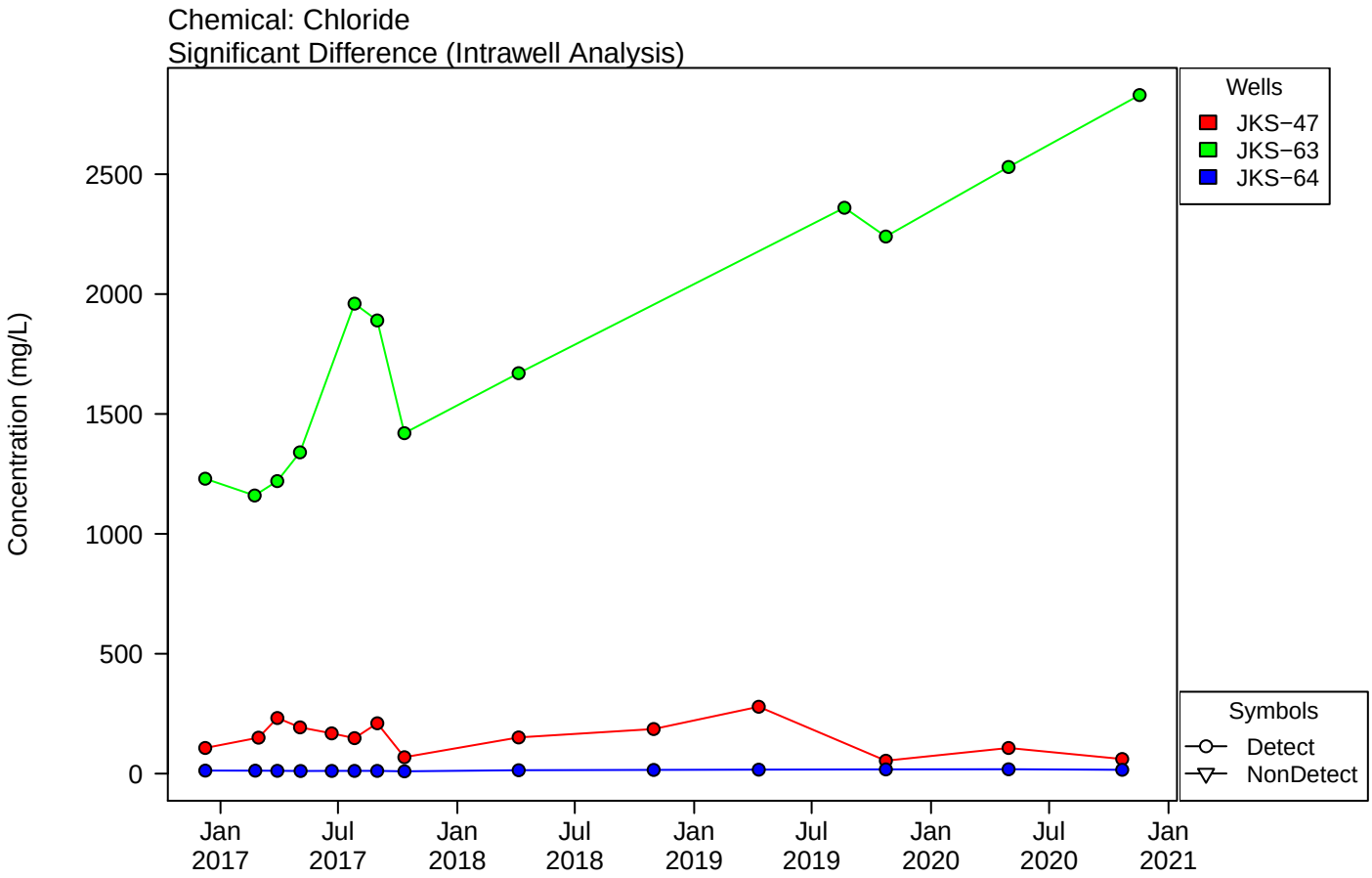
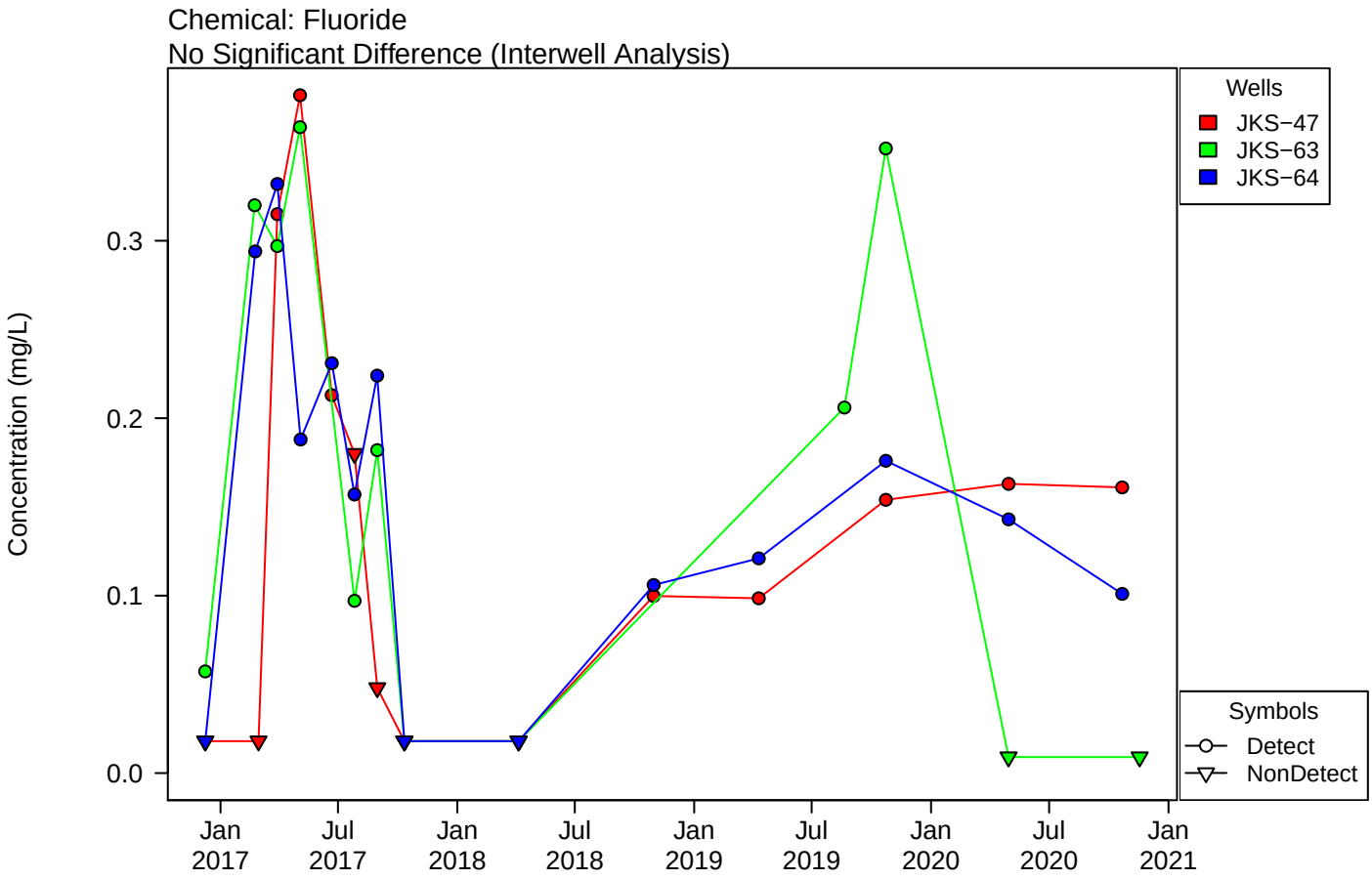
Appendix B − Figure 3
Unit: Evaporation Pond
Timeseries of Upgradient Wells



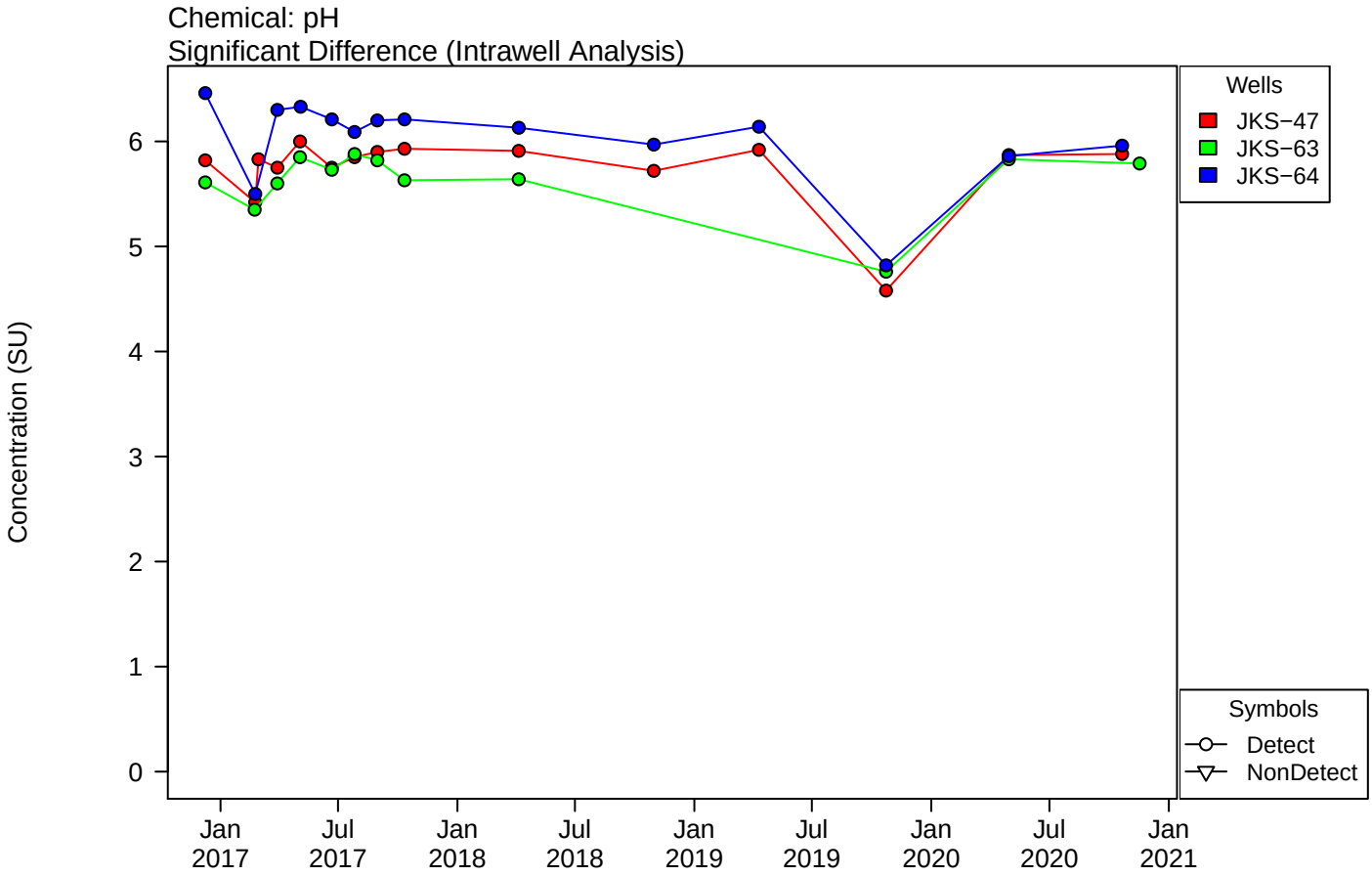


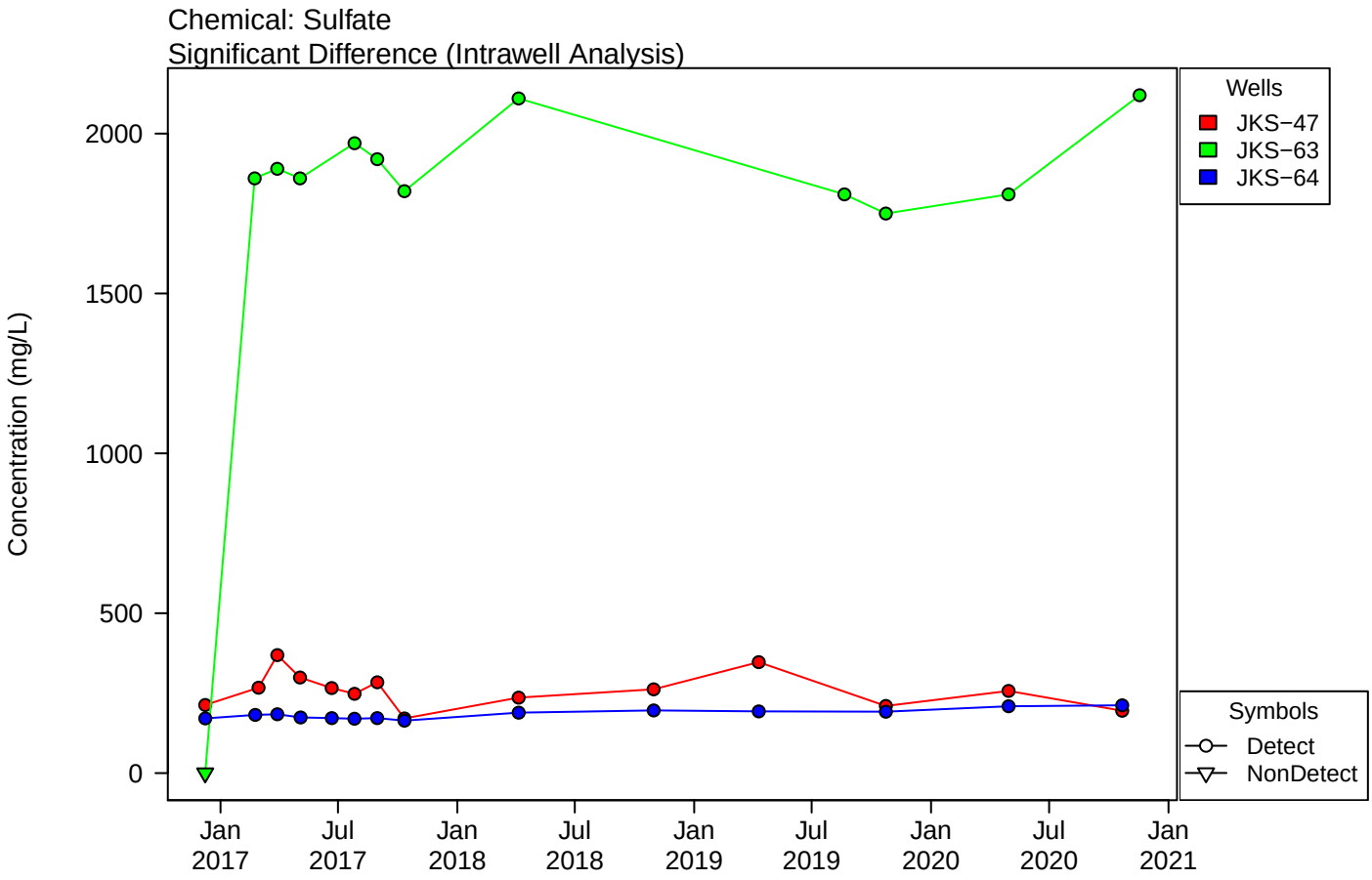
Appendix B − Figure 3
Unit: Evaporation Pond
Timeseries of Upgradient Wells



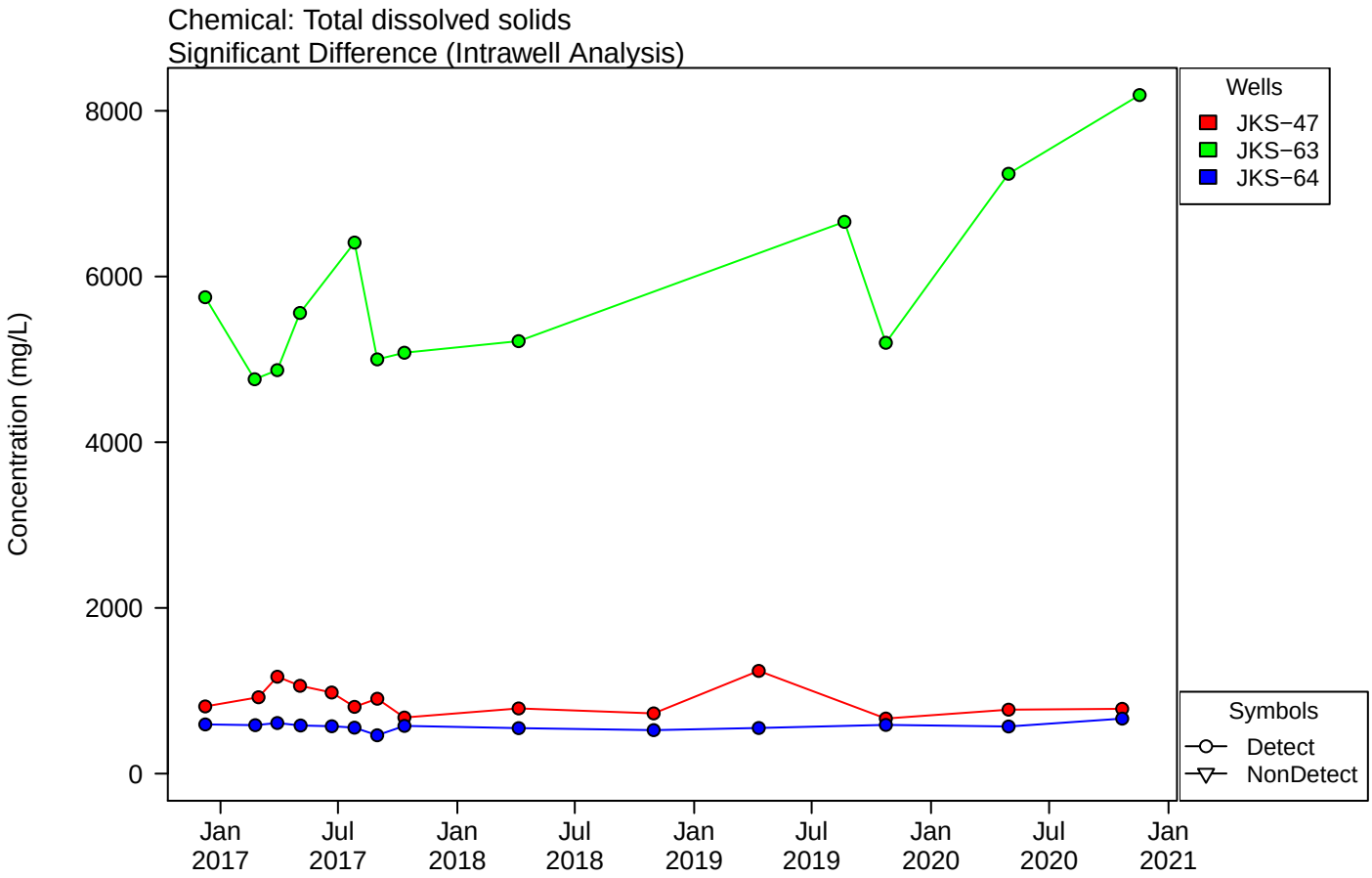


Appendix B − Figure 3
Unit: Evaporation Pond
Timeseries of Upgradient Wells

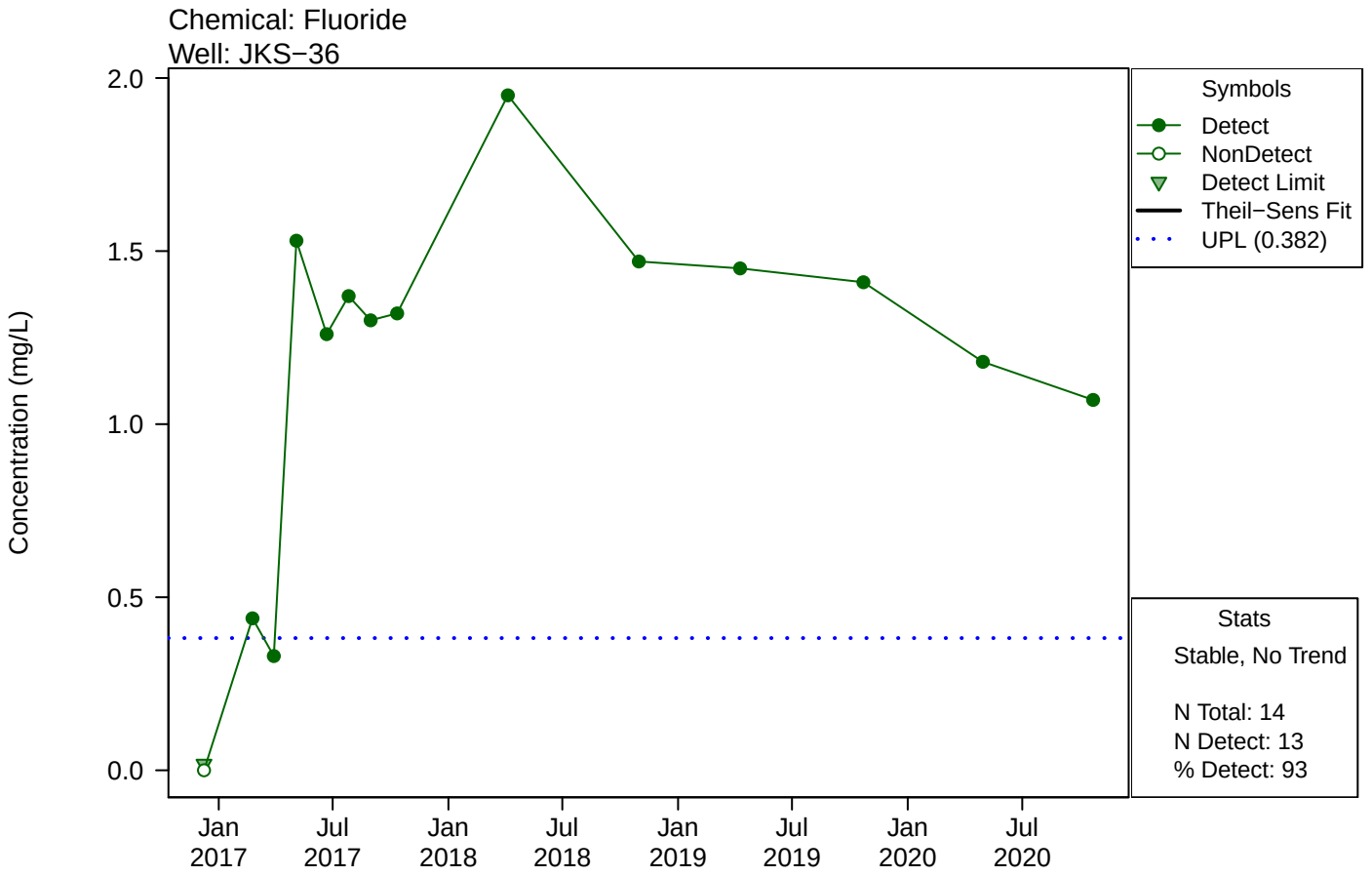


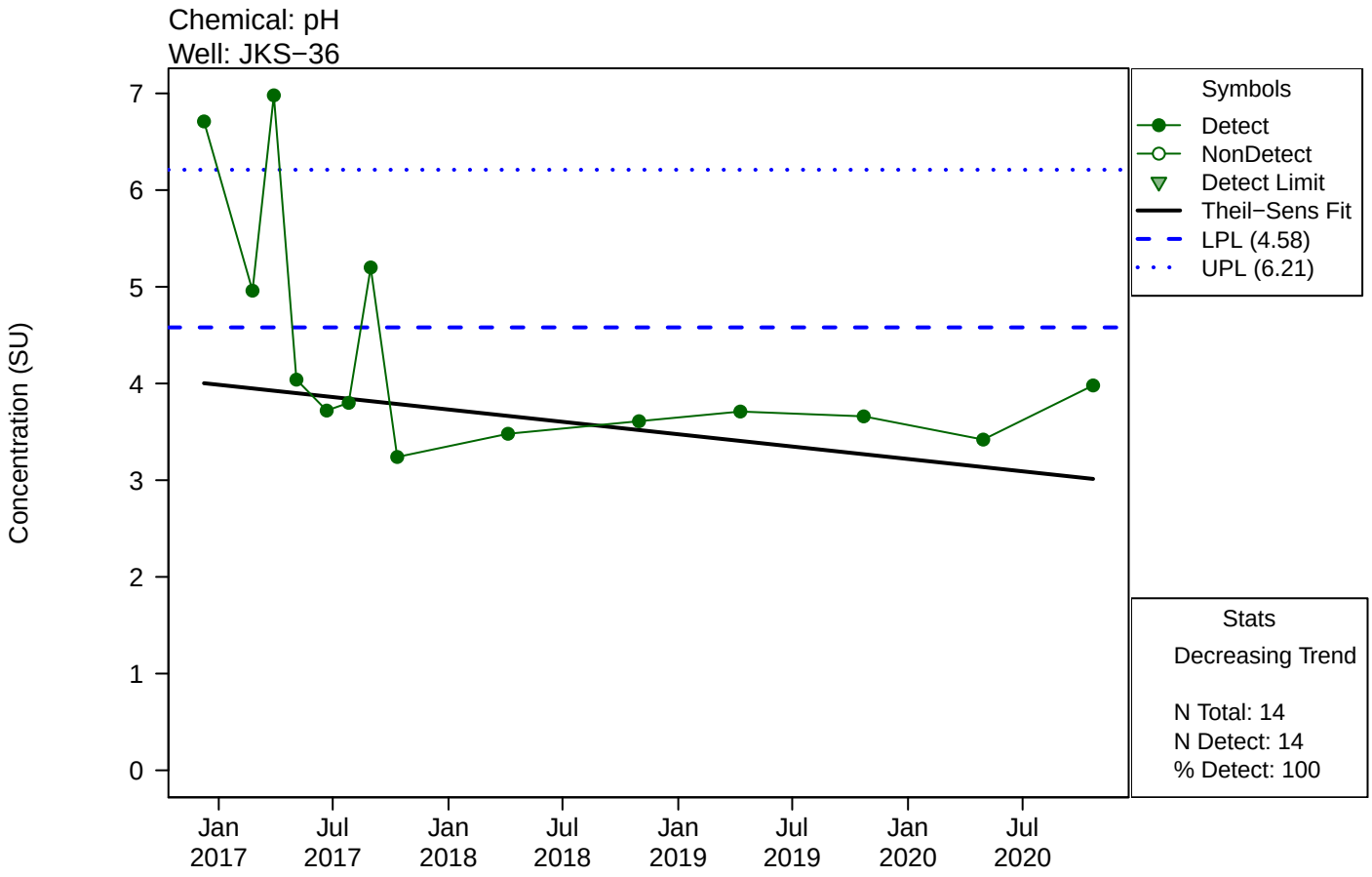


Appendix B − Figure 3
Unit: Evaporation Pond
Timeseries of Upgradient Wells



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





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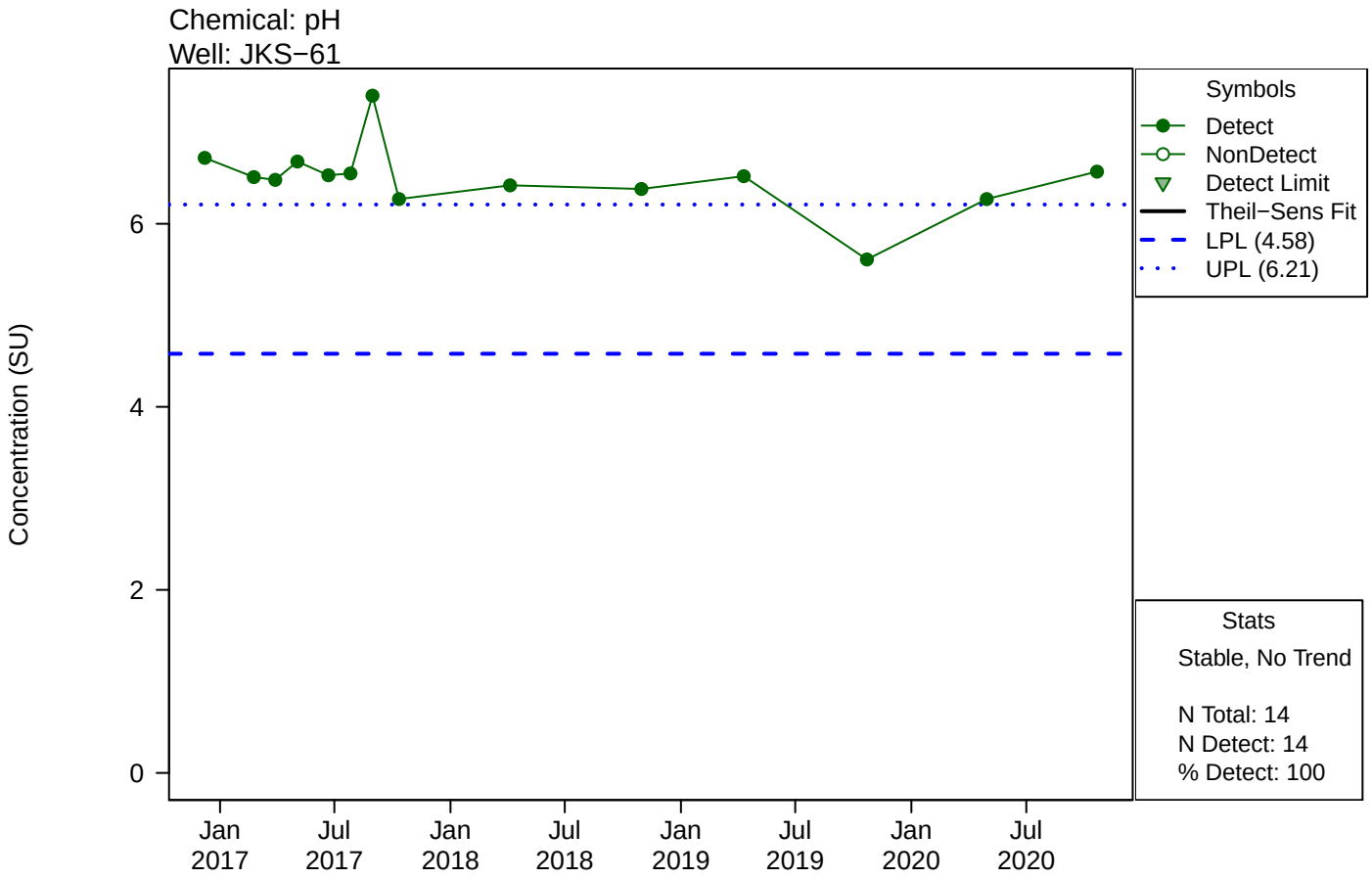
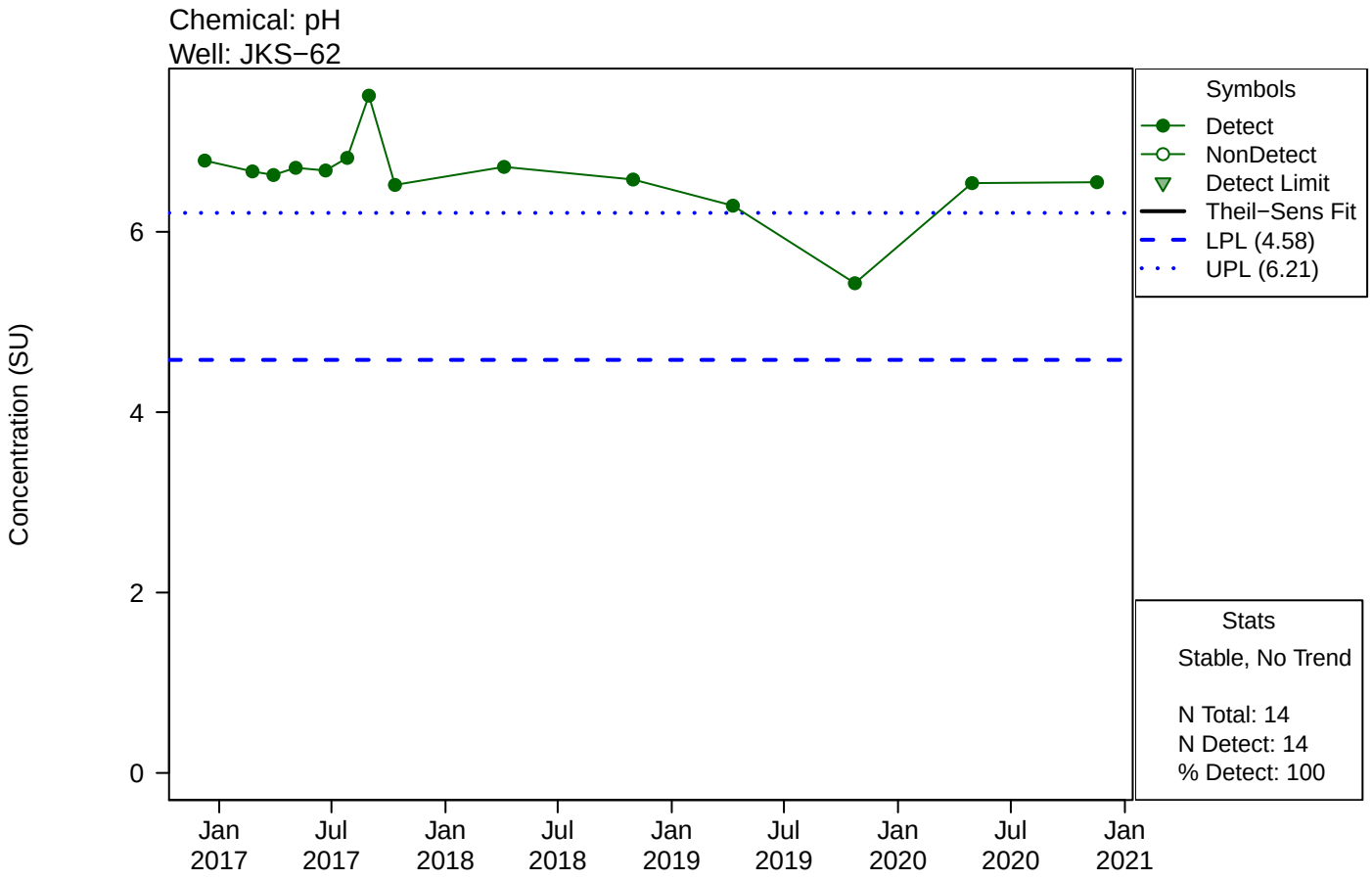
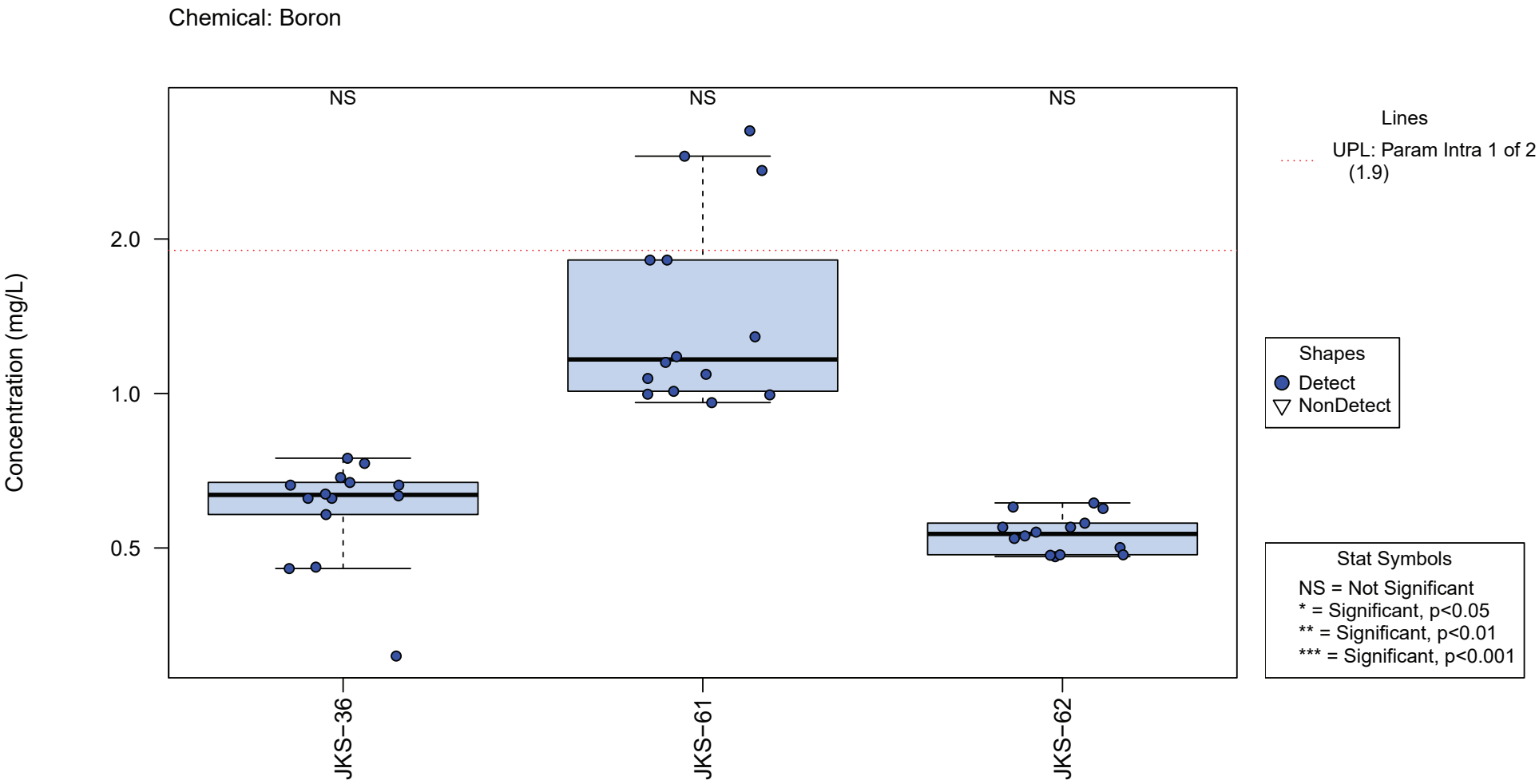
Unit: Evaporation Pond
Trend Analysis of Downgradient Wells with Exceedances

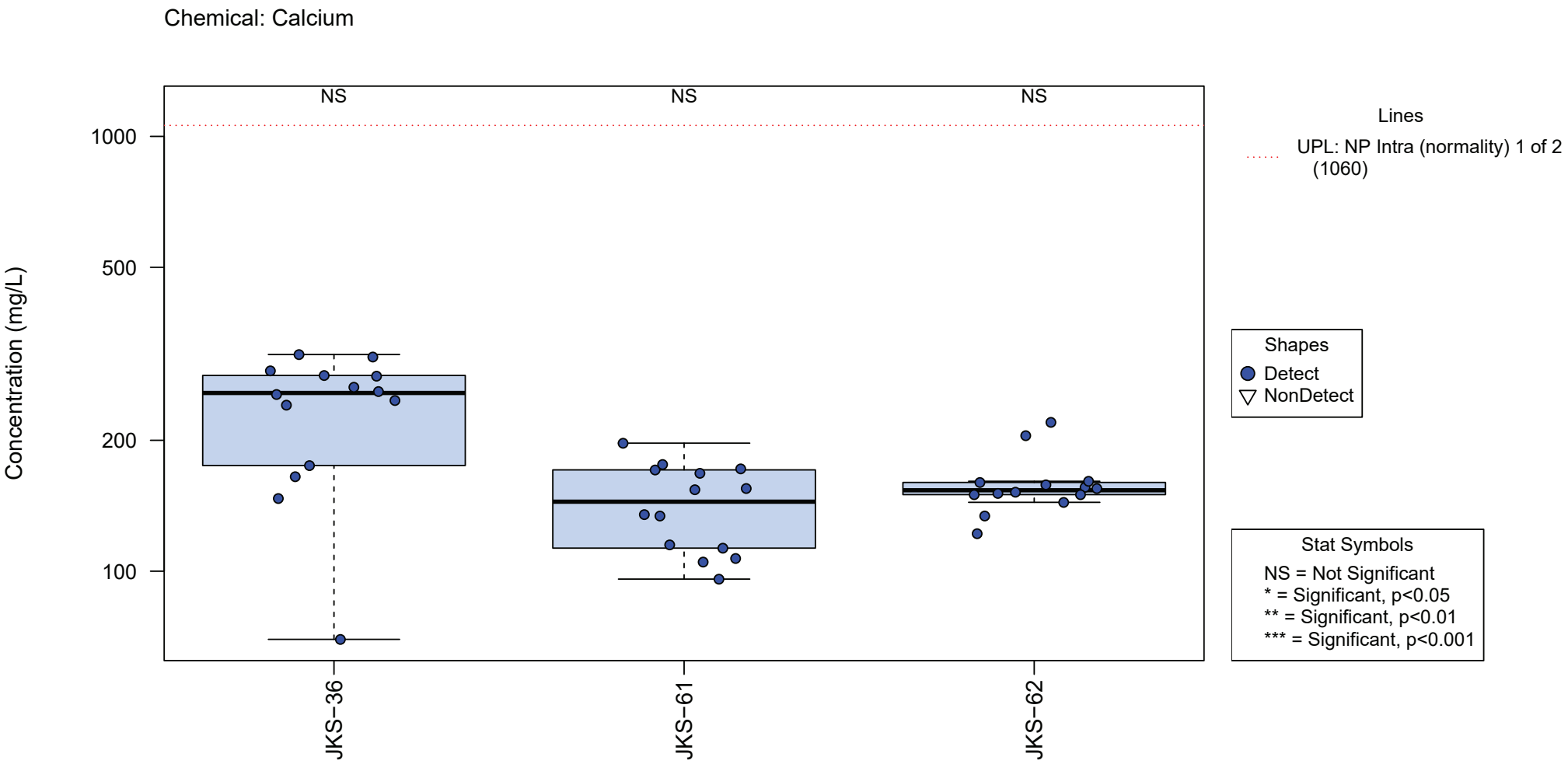




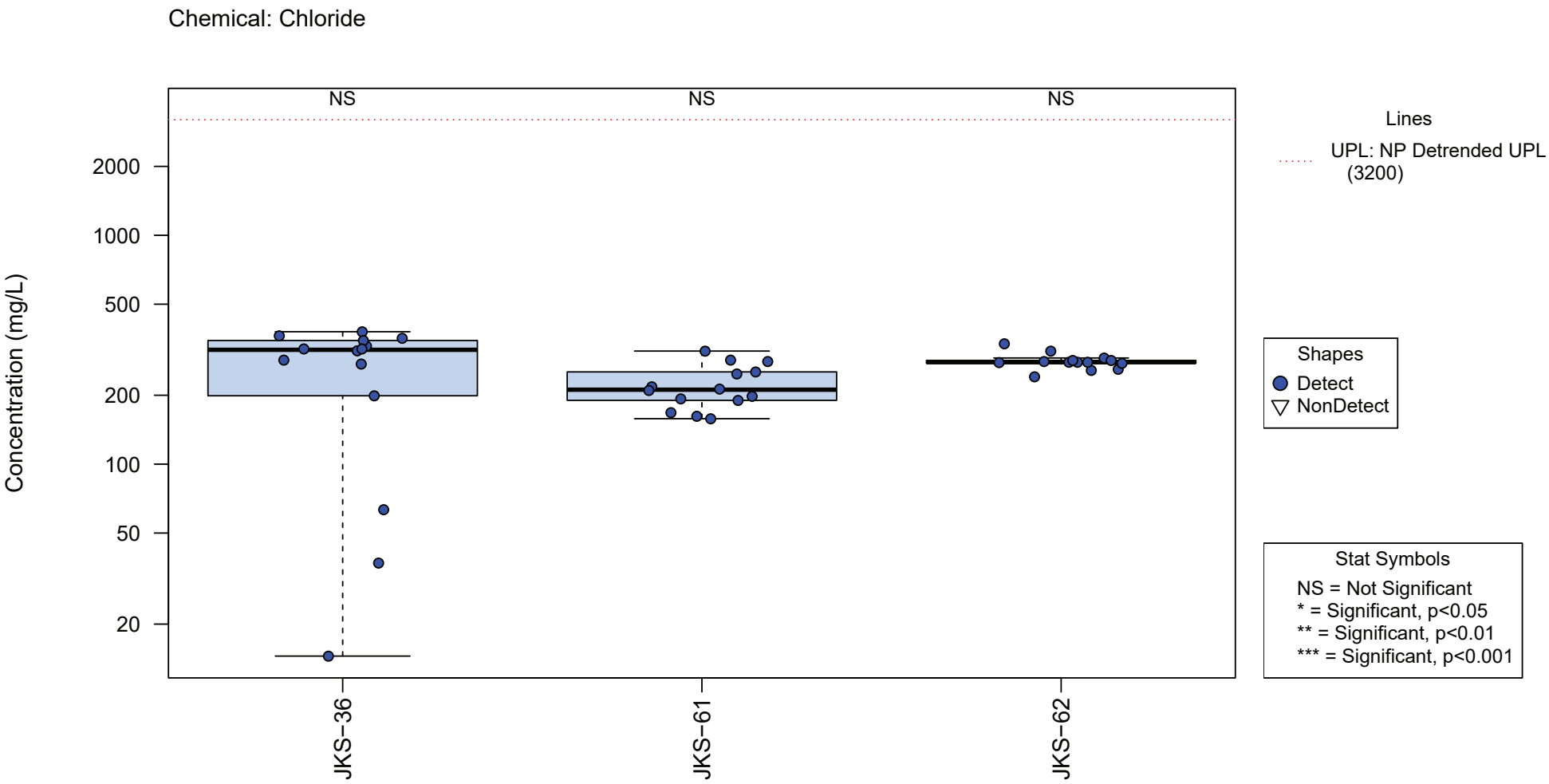
Appendix B - Figure 5
Unit: Evaporation Pond
Boxplots of Downgradient Wells



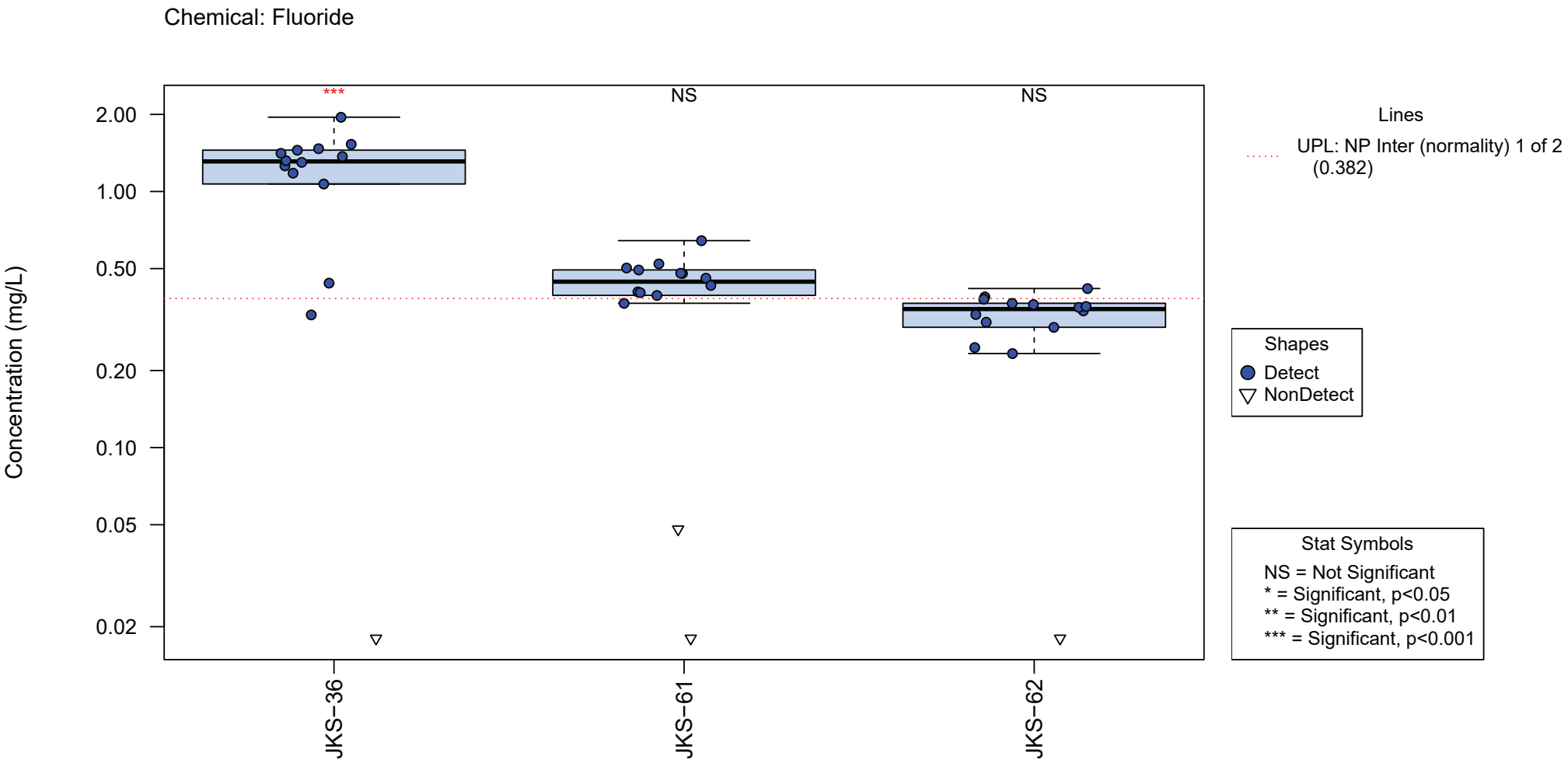
Appendix B - Figure 5
Unit: Evaporation Pond
Boxplots of Downgradient Wells



Appendix B - Figure 5
Unit: Evaporation Pond
Boxplots of Downgradient Wells



Appendix B - Figure 5
Unit: Evaporation Pond
Boxplots of Downgradient Wells



Appendix B - Figure 5
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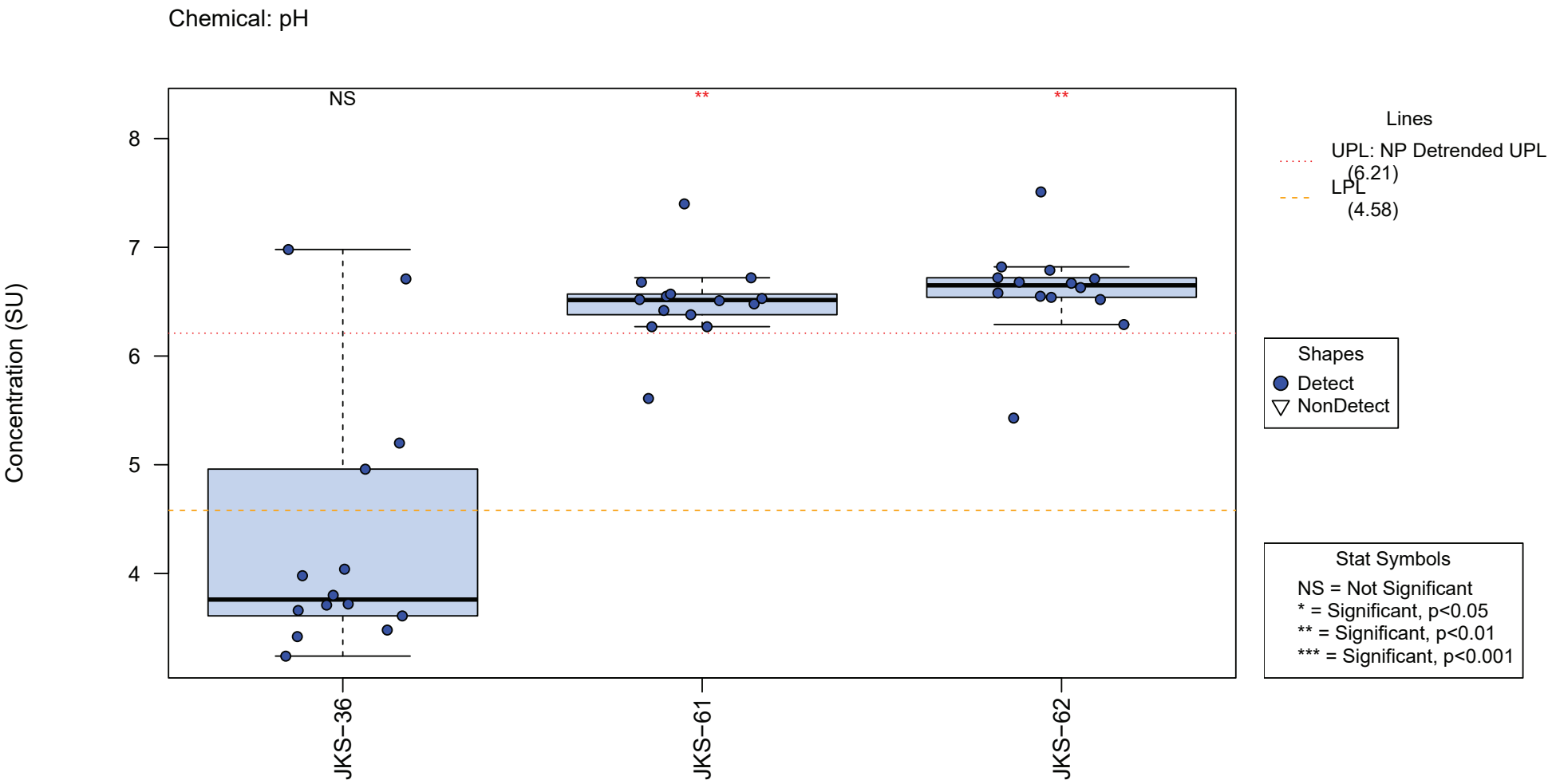
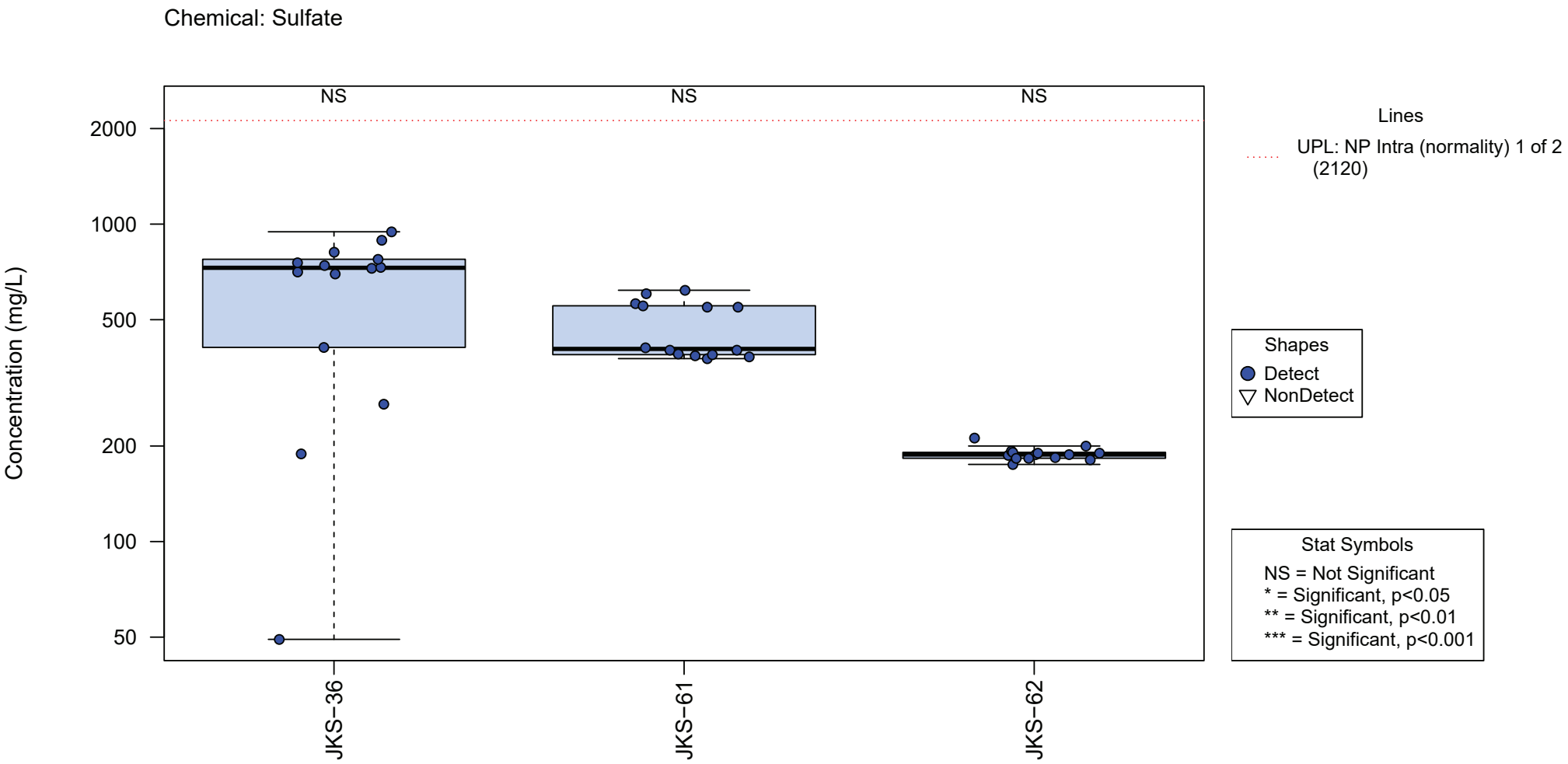
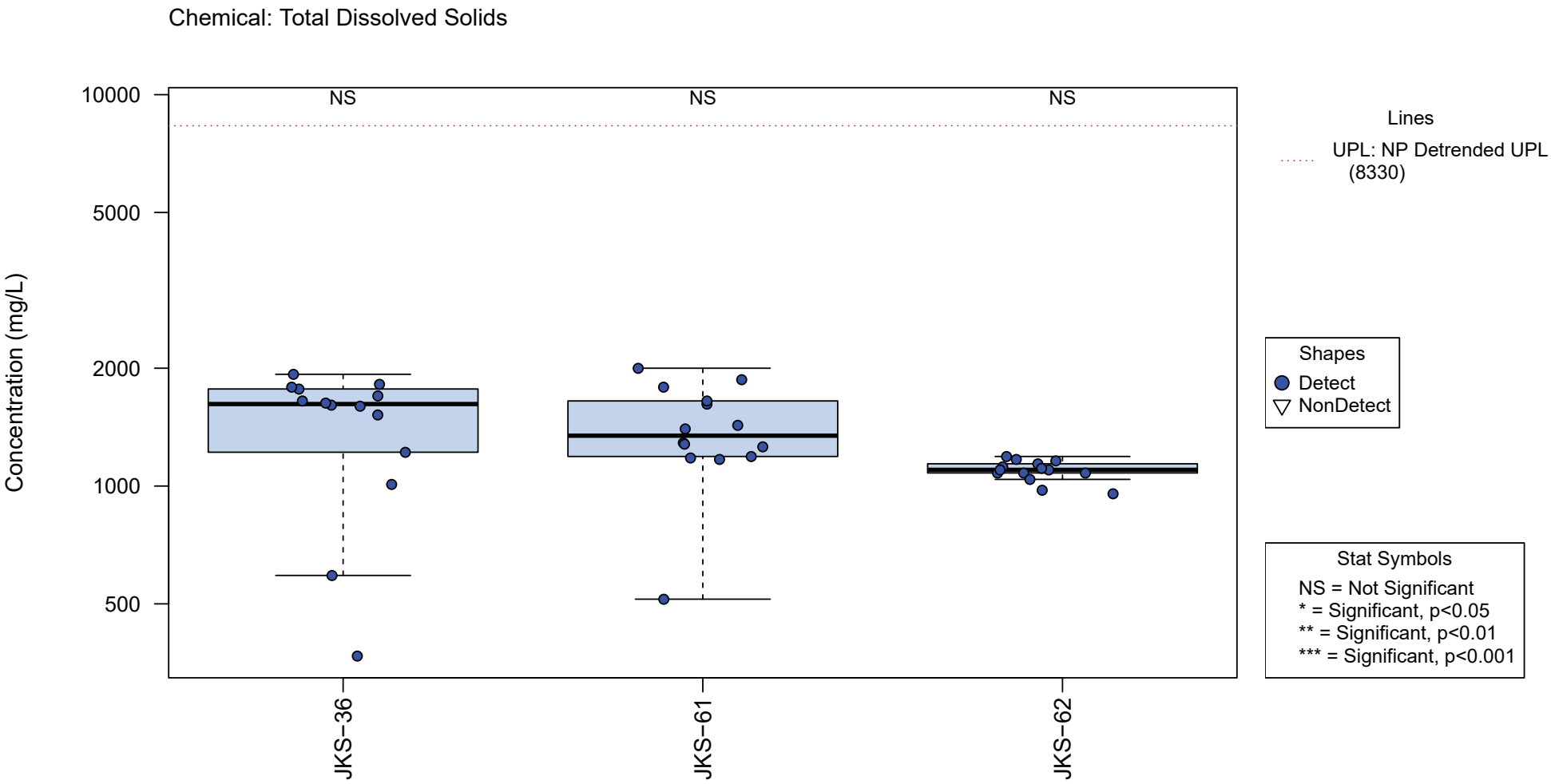
Boxplots of Downgradient Wells



Appendix B - Figure 5
Unit: Evaporation Pond
Boxplots of Downgradient Wells



Appendix B - Figure 5
Unit: Evaporation Pond
Boxplots of Downgradient Wells



April 2020 Groundwater Sampling Event – Calaveras Power Station CCR Units

Appendix C

ERM

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September 25, 2020

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

Reference: Project No. 0503422\A10320

Subject: April 2020 Groundwater Sampling Event and August 2020 Resampling 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 *2017 Annual Groundwater Monitoring and Corrective Action Report* for each CCR unit, the downgradient monitoring well results from the October 2016 sampling event were compared to Upper Prediction Limits (UPLs) and Lower Prediction Limits (LPLs). UPLs and LPLs were calculated in the *Annual Groundwater Monitoring and Corrective Action Reports* for the purpose of determining a potential statistically significant increase (SSI) over background levels. In the subsequent *2018* and *2019 Annual Groundwater Monitoring and Corrective Action Reports* for each CCR unit, the downgradient monitoring well results from the October 2017 and October 2018 sampling events 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 data collected from the previous year. The evaluations of the April and August 2020 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 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.

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To address the potential SSIs identified in the previous three *Annual Groundwater Monitoring and Corrective Action Reports*, CPS Energy prepared three *Written Demonstrations – Responses to Potential Statistically Significant Increases* (dated April 4, 2018; February 27, 2019; and April 27, 2020; respectively). 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 Events Summary

The first semiannual groundwater sampling event for 2020 was conducted on April 28 through April 29, 2020. 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. Monitoring wells were gauged and then sampled by CPS Energy using low flow sampling techniques during the sampling event. The groundwater samples were analyzed for Appendix III constituents. A resampling event of JKS-54 only was conducted on August 24, 2020.

For each CCR unit, the downgradient monitoring well results from the April and August 2020 sampling events were compared to the updated UPLs and LPLs recalculated in their respective *2019 Annual Groundwater Monitoring and Corrective Action Report*. The April and August 2020 groundwater sample results for the downgradient monitoring wells in each CCR unit are summarized in Attachment 1.

Although the evaluations of the April and August 2020 groundwater sample results indicate a potential SSI for a limited number of constituents, with the exception of sulfate in JKS-54 associated with the SRH Pond, the constituents associated with the potential SSIs are the same constituents, detected at similar concentrations, which were previously identified in one or all of the *Written Demonstrations*. The evaluations of the April and August 2020 groundwater sample results with potential SSIs are summarized below.

EP – The constituents associated with potential SSIs include fluoride in JKS-36 and JKS-61; and pH in JKS-36 and JKS-62. As previously presented in the *Written Demonstrations*, the concentrations of fluoride and pH appear to reflect natural variation in groundwater quality in the vicinity of the CCR unit. The reported April 2020 concentrations were within the range of naturally occurring concentrations identified in the *Written Demonstrations*.

FAL – The constituent associated with a potential SSI is pH in JKS-31 and JKS-46. As previously presented in the *Written Demonstrations*, the concentrations of pH appear to reflect natural variation in groundwater quality in the vicinity of the CCR unit. The reported April 2020 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-52 and JKS-55. 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 2020 concentrations were within the range of naturally occurring concentrations identified in the *Written Demonstrations*.

SRH Pond – The constituents associated with potential SSIs include fluoride in JKS-52 and JKS-54; and sulfate in JKS-54. As previously noted in the *April 2019 Groundwater Sampling Report*, the concentrations of fluoride appear to reflect natural variation in groundwater quality in the vicinity of the CCR unit and the reported April 2020 concentrations are within the range of naturally occurring concentrations identified in the *Annual Groundwater Monitoring and Corrective Action Reports*. Although a potential SSI of sulfate was not previously presented in the *Written Demonstrations*, the concentrations of sulfate in JKS-54 appear to reflect natural variation in groundwater quality in the vicinity of the CCR unit. While the concentration reported in the April 2020 sampling event (443 mg/L) was the highest concentration reported in JKS-54, the concentration reported in the August 2020 resampling event (425 mg/L) is within the range of concentrations reported in upgradient monitoring well JKS-51 over the previous three sampling events (405 to 439 mg/L).

Conclusions

Based on the April and August 2020 groundwater sample results and the evidence provided in one or all of the *Written Demonstrations*, 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 2020.

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

Sincerely,

Environmental Resources Management

Walter Zverina

Walter Zverina
Principal Consultant

ATTACHMENT 1 APRIL AND AUGUST 2020 GROUNDWATER SAMPLE RESULTS

September 2020
Project No. 0503422

April 2020 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-61	JKS-62
			Sample Date	4/29/2020	4/29/2020	4/29/2020	4/29/2020
			Sample Type Code	N	N	FD	N
Constituent	Units	2019 LPL - EP	2019 UPL - EP				
Boron	mg/L	--	1.88	0.459	1.82	1.85	0.484
Calcium	mg/L	--	1,300	175	154	157	122
Chloride	mg/L	--	2,780	63.3	312	317	284
Fluoride	mg/L	--	0.382	1.18	0.494	0.549	0.331
pH, Field	SU	4.58	6.47	3.42	6.27	6.27	6.54
Sulfate	mg/L	--	2,110	189	604	608	190
Total dissolved solids	mg/L	--	6,660	1,790	1,870	1,870	1,100

NOTES:

Shaded results either exceed of the Upper Prediction Limit (UPL) or are below the Lower Prediction Limit (LPL) for this CCR unit.
Sample Type Code: N - Normal; FD - Field Duplicate
J: Analyte detected above method (sample) detection limit but below method quantitation limit.

April 2020 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-46	JKS-60
			Sample Date	4/28/2020	4/28/2020	4/28/2020	4/28/2020	4/28/2020
			Sample Type Code	N	N	N	FD	N
Constituent	Units	2019 LPL - FAL	2019 UPL - FAL					
Boron	mg/L	--	4.29	0.429	1.18	0.864	0.806	0.325
Calcium	mg/L	--	583	171 J	573 J	143 J	133 J	530 J
Chloride	mg/L	--	841	272	756	17.9	19.2	168
Fluoride	mg/L	--	4.86	1.00	1.68	1.61 J	2.44 J	0.188
pH, Field	SU	3.98	6.73	3.70	6.30	3.10	3.10	6.61
Sulfate	mg/L	--	7,630	877	1,620	1,180	1,240	1,280
Total dissolved solids	mg/L	--	11,900	1,890	4,370	1,970	1,780	3,180

NOTES:

Shaded results either exceed of the Upper Prediction Limit (UPL) or are below the Lower Prediction Limit (LPL) for this CCR unit.
Sample Type Code: N - Normal; FD - Field Duplicate
J: Analyte detected above method (sample) detection limit but below method quantitation limit.

April 2020 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	4/28/2020	4/28/2020	4/28/2020	4/28/2020	4/28/2020	4/28/2020
			Sample Type Code	N	N	N	FD	N	N
Constituent	Units	2019 LPL - BAP	2019 UPL - BAP						
Boron	mg/L	--	2.40	2.36	5.52	2.05	2.16	0.779	3.55
Calcium	mg/L	--	368	130 J	126 J	174 J	180 J	137 J	103 J
Chloride	mg/L	--	608	485	102	433	430	452	101
Fluoride	mg/L	--	0.847	0.051 JH	0.510	0.908	0.952	1.01	0.552
pH, Field	SU	5.48	7.31	6.89	6.65	6.83	6.83	6.81	6.72
Sulfate	mg/L	--	431	206	194	315	313	177	138
Total dissolved solids	mg/L	--	2,240	1,400	918	1,470	1,420	1,350	904

NOTES:

Shaded results either exceed of the Upper Prediction Limit (UPL) or are below the Lower Prediction Limit (LPL) for this CCR unit.
Sample Type Code: N - Normal; FD - Field Duplicate
H: Bias in sample result likely to be high.
J: Analyte detected above method (sample) detection limit but below method quantitation limit.

April and August 2020 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	SRH Pond
			Well Designation	Downgradient	Downgradient	Downgradient	Downgradient	Downgradient
			Well ID	JKS-52	JKS-52	JKS-53	JKS-54	JKS-54
			Sample Date	4/28/2020	4/28/2020	4/28/2020	4/28/2020	8/24/2020
			Sample Type Code	N	FD	N	N	R
Constituent	Units	2019 LPL - SRH	2019 UPL - SRH					
Boron	mg/L	--	2.40	2.05	2.16	1.43	1.23	NA
Calcium	mg/L	--	357	174 J	180 J	114 J	118 J	NA
Chloride	mg/L	--	608	433	430	381	380	NA
Fluoride	mg/L	--	0.831	0.908	0.952	0.428	0.861	0.579
pH, Field	SU	5.48	7.31	6.83	6.83	6.67	6.76	NA
Sulfate	mg/L	--	421	315	313	244	443	425
Total dissolved solids	mg/L	--	2,180	1,470	1,420	1,160	1,570	NA

NOTES:

Shaded results either exceed of the Upper Prediction Limit (UPL) or are below the Lower Prediction Limit (LPL) for this CCR unit.
Sample Type Code: N - Normal; FD - Field Duplicate; R - Resample
J: Analyte detected above method (sample) detection limit but below method quantitation limit.
NA: Not analyzed for this constituent