















**LIST OF FIGURES**

- 1 CCR UNIT LOCATIONS**
- 2 POTENTIAL FAILURE PATHWAYS – BOTTOM ASH PONDS**
- 3 POTENTIAL FAILURE PATHWAYS – SRH POND**

**LIST OF APPENDICES**

**A**

**1.0**

***INTRODUCTION***

## **2.0**

### ***PROJECT DESCRIPTION***

The Calaveras Power Station is located in Bexar County, Texas, southeast of San Antonio. The Power Station is located immediately adjacent to Calaveras Lake, but there are no towns in proximity to the Power Station as shown in Figure 1. This EAP covers potential emergencies at the following CCR units

It is estimated that approximately 118 acre-feet is the maximum inventory of CCR to be inv( )Tj0.001





**3.4.3**      ***Level 3: Imminent Failure (Emergency)***

Level 3



slumping of the failed section of berm. This is anticipated to be slow enough to

**4.0**            ***GENERAL RESPONSIBILITIES***

**4.1**







## *Figures*





NORTH BOTTOM  
ASH POND



PROFESSIONAL ENVIRONMENT

I hereby certify that I, or an agent under my review, has prepared this Environmental Action Plan

in accordance with the provisions of the Environmental Action Plan Act, R.S. 40:605-607.

The information contained in this EAP is true, correct, and accurate.

Information contained in this EAP is true, correct, and accurate.

12

ENVIRONMENTAL ACTION PLAN

Form EAP-1 (Rev. 1/01)

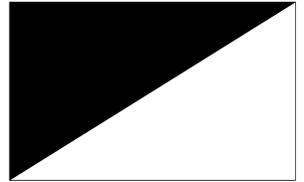
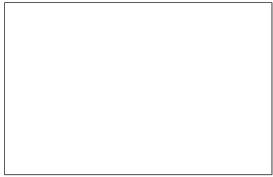
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Date: 11/14/01

94591











CityCentre Four  
840 W. Sam Houston Pkwy N.  
Suite 600  
Houston, Texas 77024

Telephone: +1 281 600 1000  
Fax: +1 281 520 4625  
[www.erm.com](http://www.erm.com)













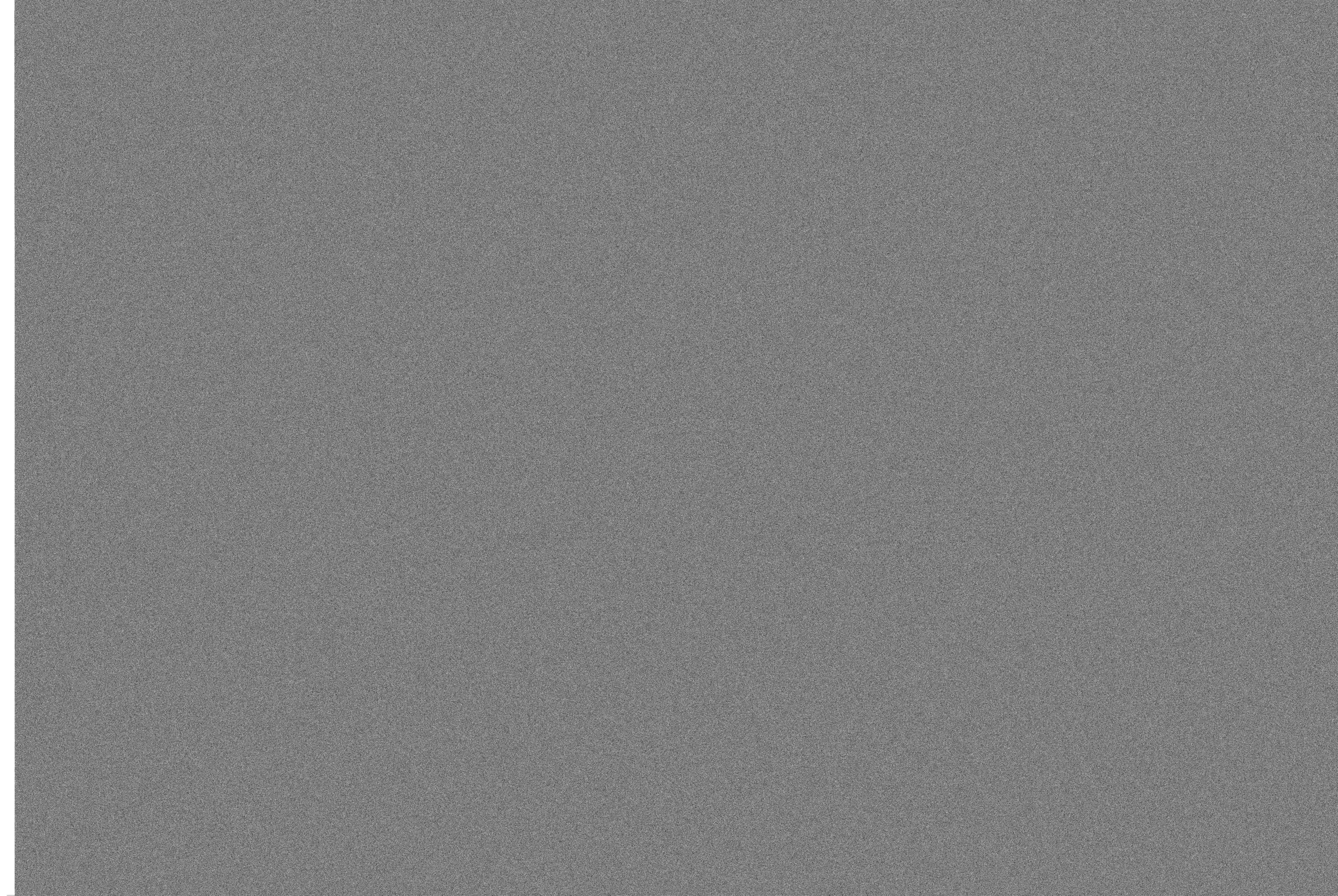
October 17, 2016

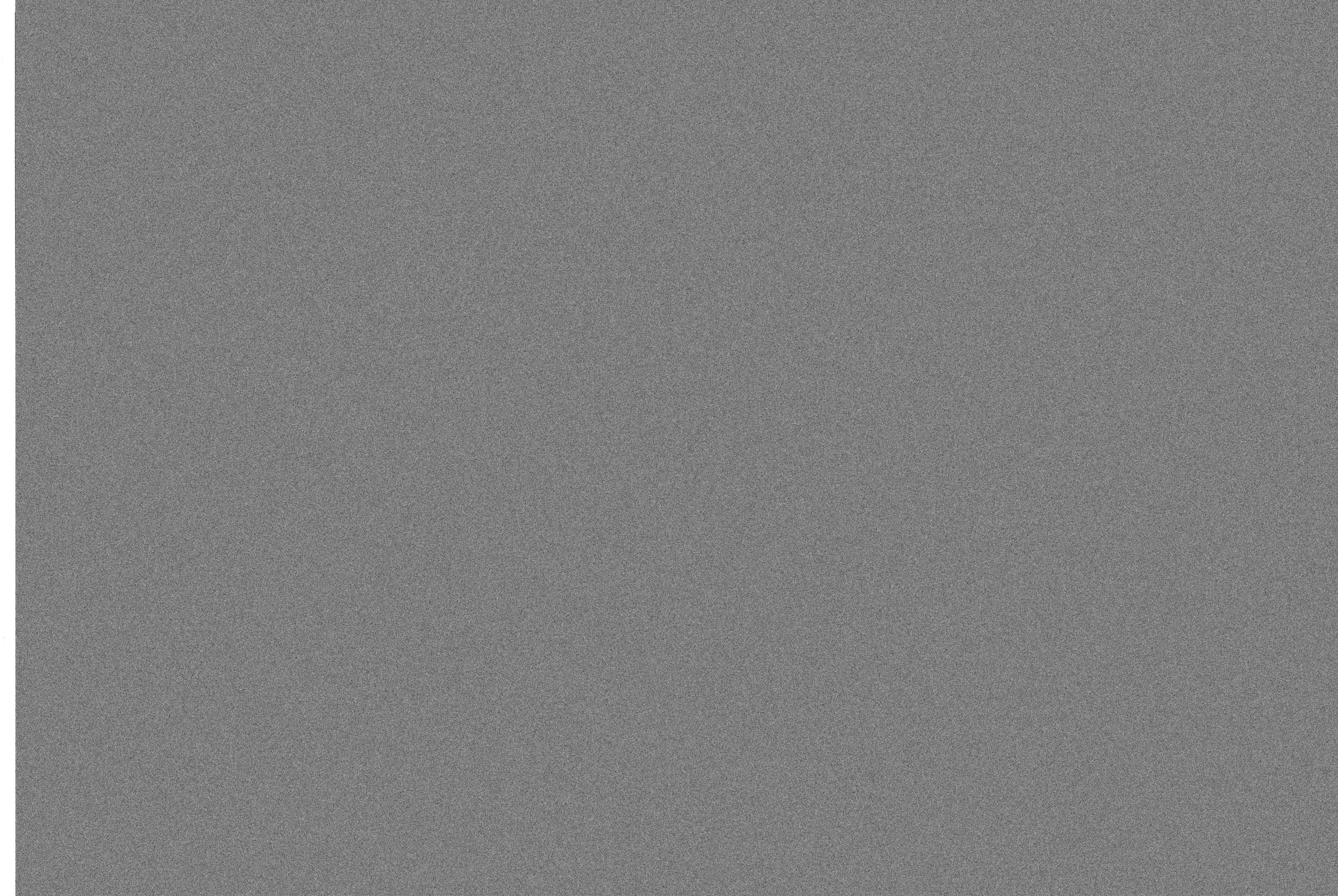


October 17, 2016  
Mr. Malone  
Compilation of Construction History  
Page 6



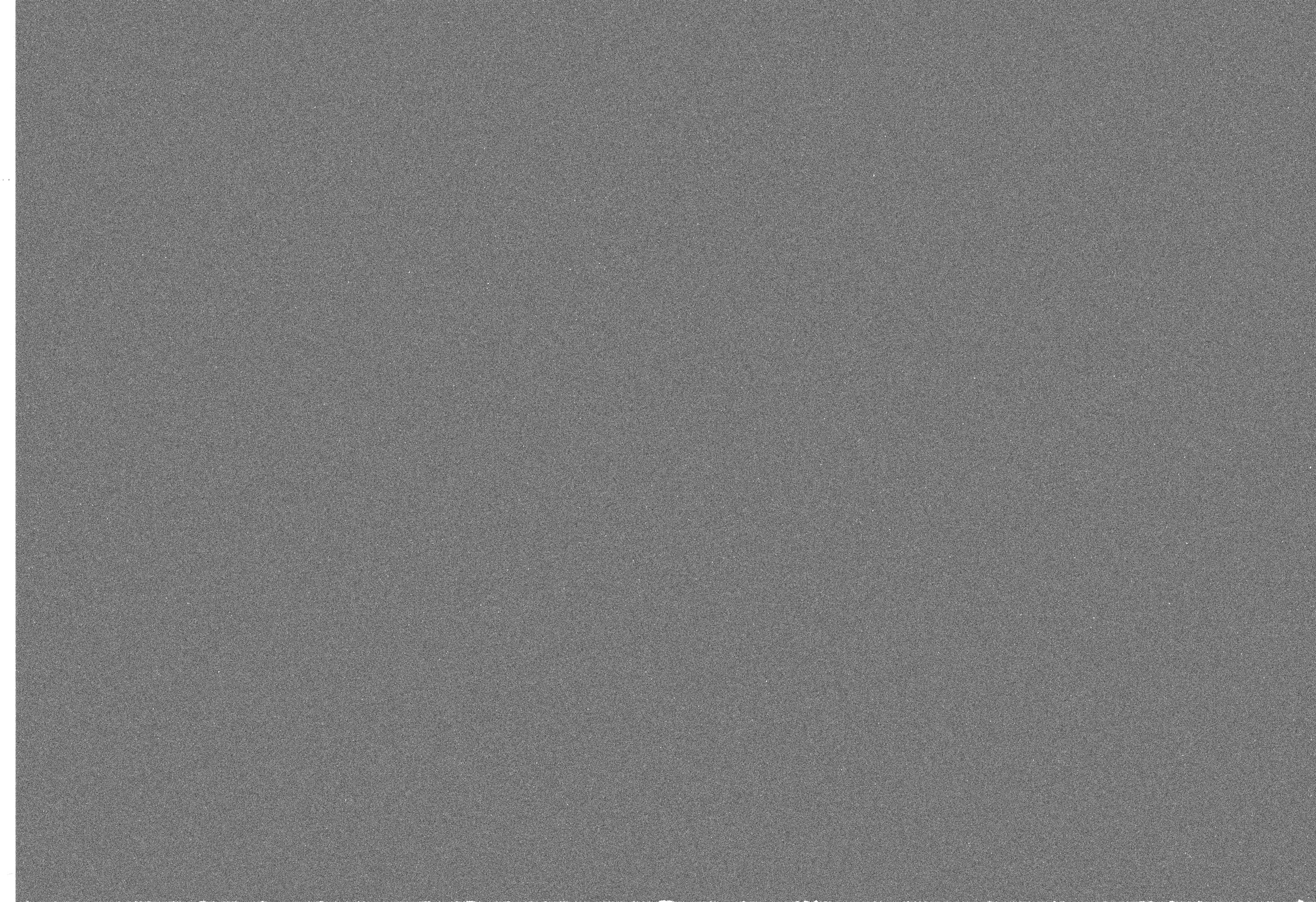


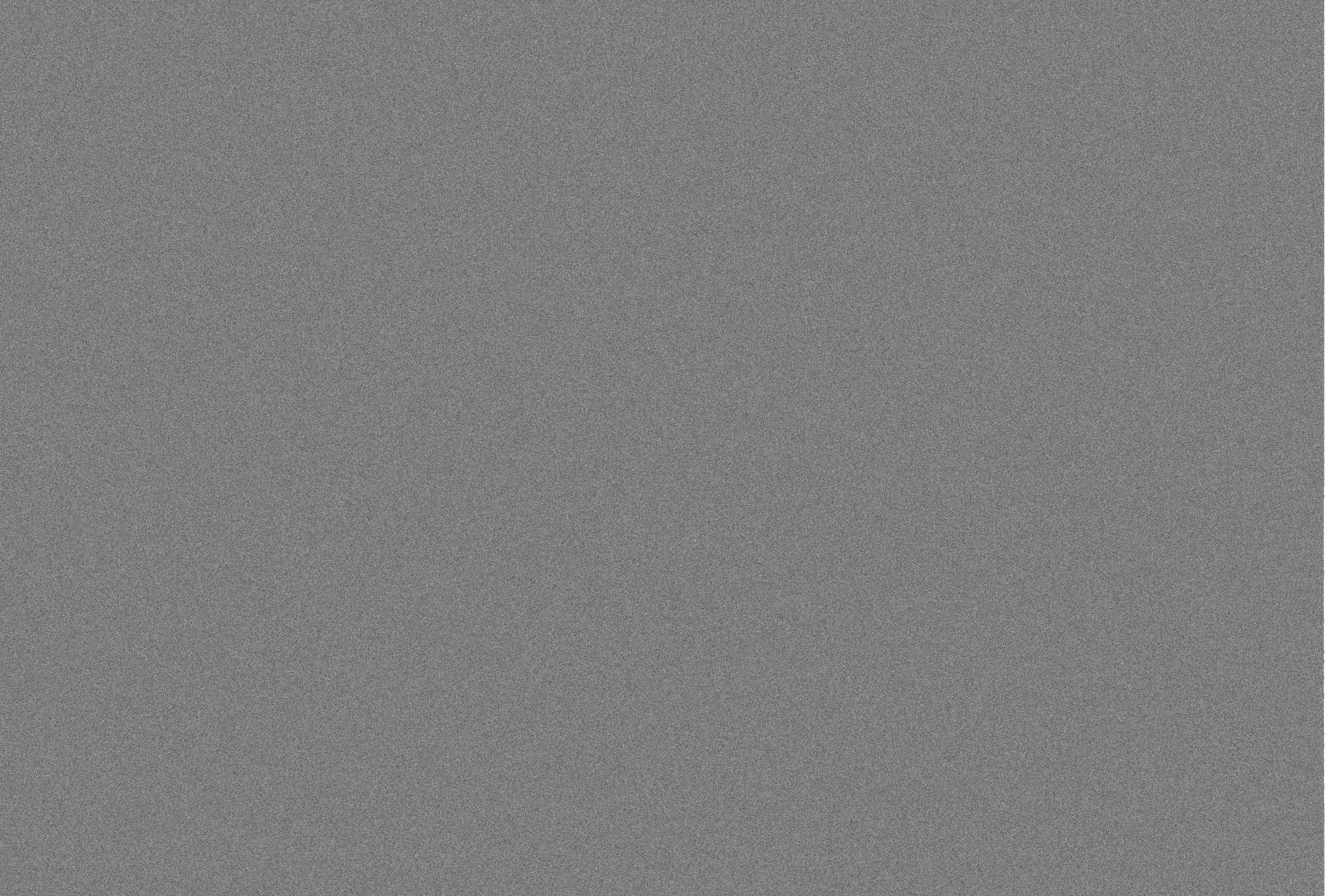
























Sludge Recycle Holding (SRH) Pond (separated into the north pond and south pond by a concrete dividing wall); and

Evaporation Pond (EP).

CPS Energy formerly operated two CCR surface impoundments at the Power Station:

North Bottom Ash Pond (BAP); and

South BAP.

The J.T. Deely Power Plant<sup>3</sup>,ttc



Based on our evaluation of the available information for the operating surface impoundments, the construction, operation, and maintenance of the CCR units are consistent with recognized and generally accepted good engineering practices a









HTS, Inc. Consultants

Phone: 713-692-8379

416 Pickering Street, Houston, TX 77091

Fax: 713-692-8502

www.htshouston.com



July 20, 2016

840 W. Sam Houston Parkway N  
 Suite 600  
 Houston, Texas 77024

Attn: Mr. Chris Cunningham P.E.

Ash Pond Berms - Spruce/Deely Generation Units  
 San Antonio, Texas

Dear Mr. Cunningham:

This letter provides results of the stone stability analyses performed on the 2 sections provided by ERM, Inc. The original geotechnical investigation (report dated May 7, 2014) was performed by [redacted] to provide stability [redacted]

RKC report and the subsail profile defined by Geotechnical Boring No. 7 which is located

to the ground surface on a conservative analysis. The results of these analyses are shown below and in Appendix B.

SECTION	FACTOR OF SAFETY (LONG TERM CONDITION)
Section Along CSA	4.06
Section Along CSB	4.08

The results of the stability analysis using the shear strength parameters are summarized above.

Sincerely,



Senior Engineer

HTS, Inc. Consultants

11/11

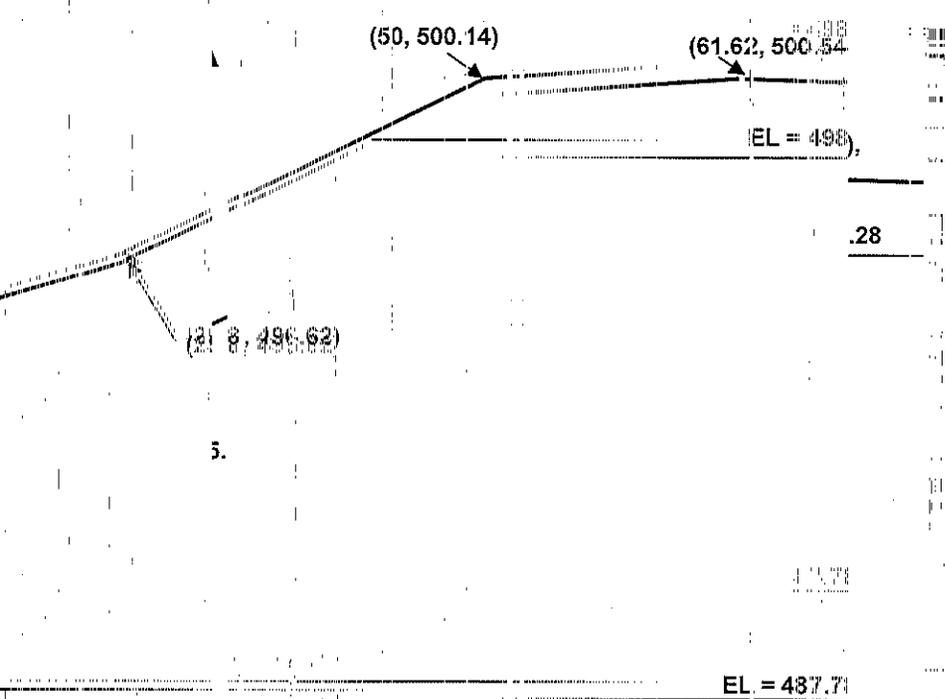
Attachments: Appendix A - Slope Section Configurations

BFM/ba/cg

n:\work\2016\500-349\16-305

**APPENDIX A**

LONG CSA



The drawing is 1/4" = 1' to scale.  
The coordinates are in feet.

Typical  
Slope Stability  
Shear  
Arch Point Elevation  
7/18/16

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Configuration  
Systems - Section  
Operational Stability  
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No. 16



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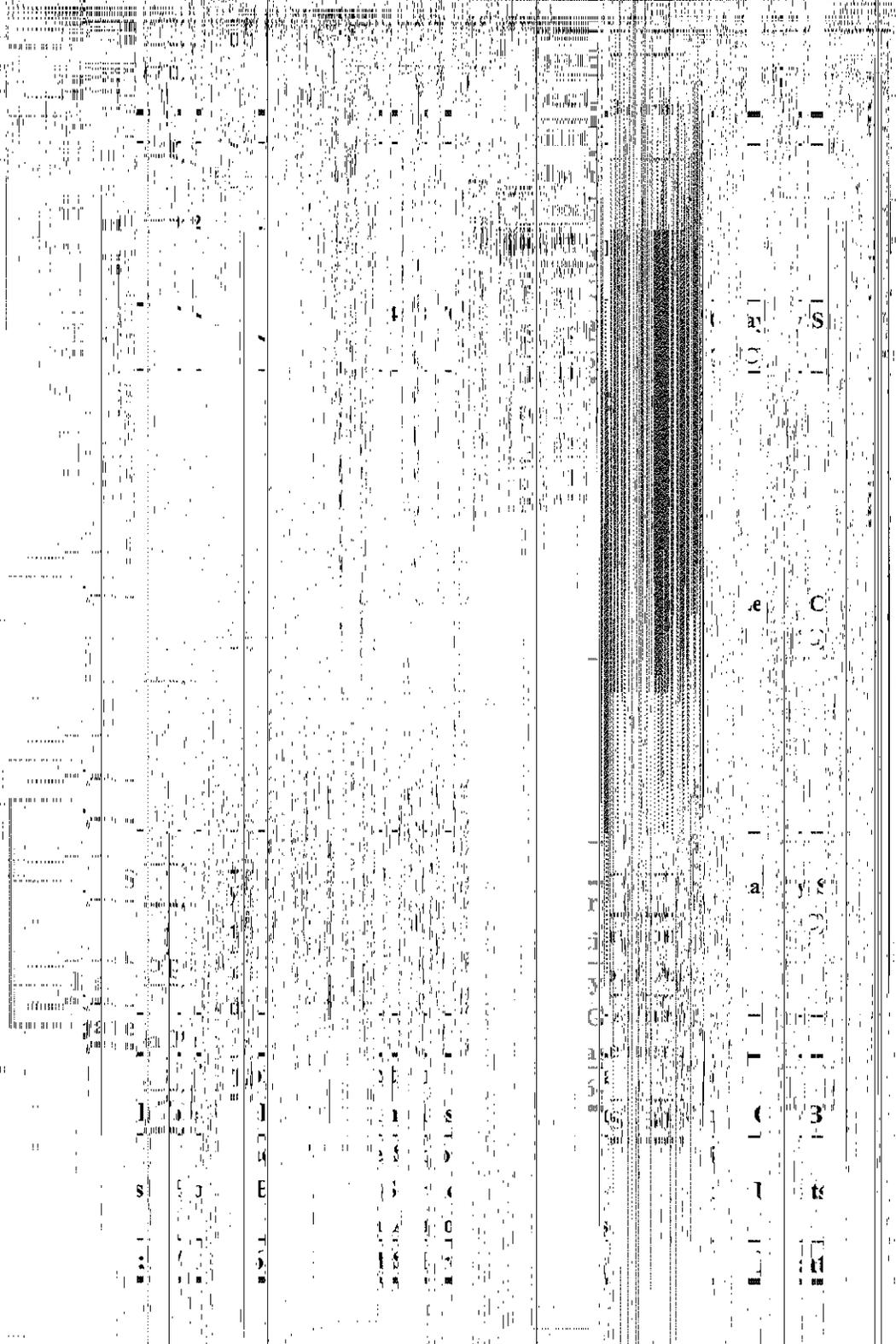
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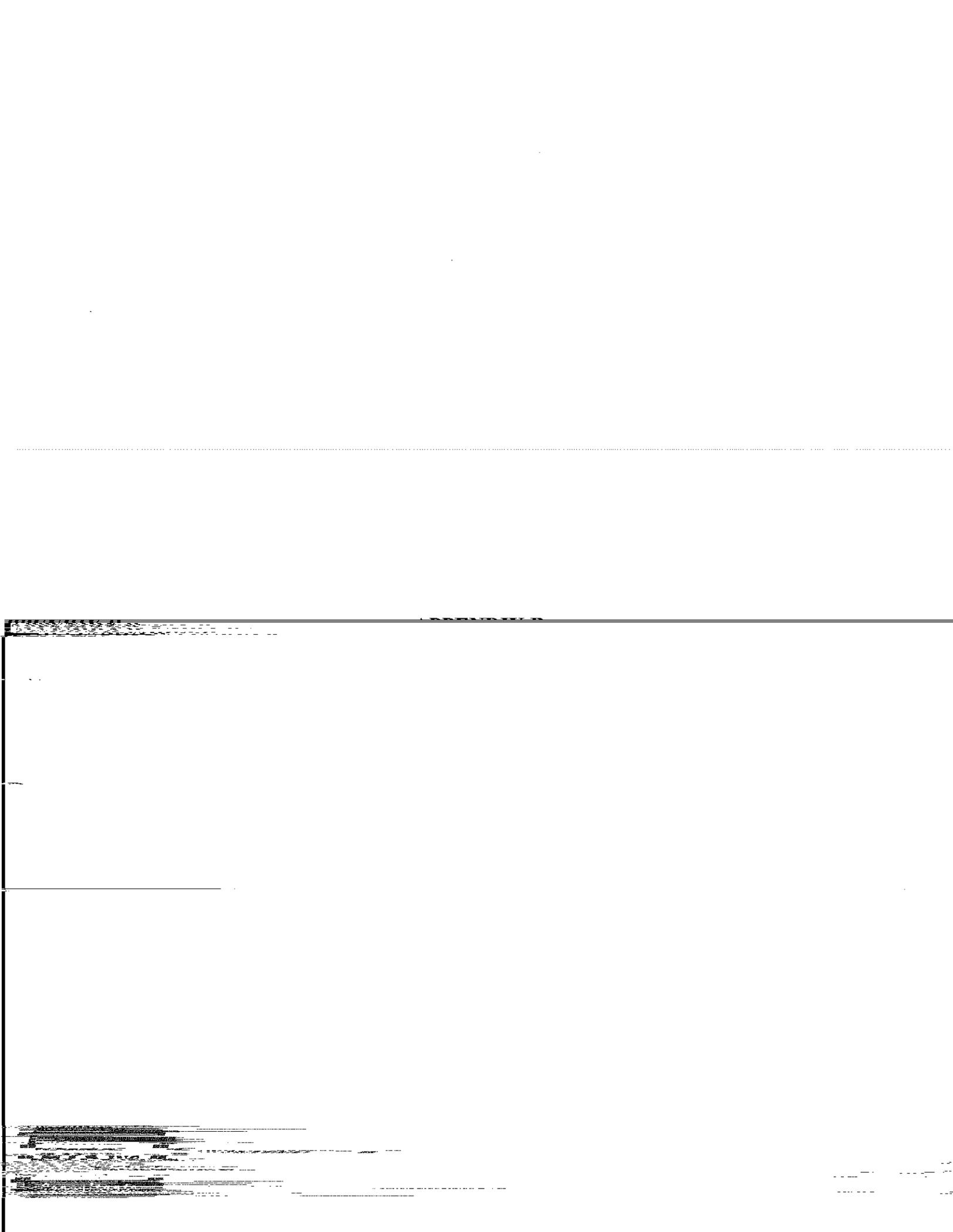
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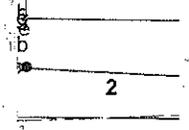
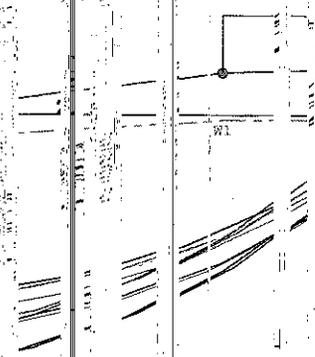
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April 4, 2018  
CPS Energy  
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Page 3

**Environmental  
Resources  
Management**

monitoring wells are being used in monitorinn

April 4, 2018



In addition, the statistical analysis shows that no other Appendix III constituents are elevated above background concentrations. If the elevated boron concentration was associated with a release, other elevated Appendix III constituent concentrations would also be expected (Milligan and Ruane, 1980).

Finally, the concentration of boron within the BAPs was considered with respect to concentrations in the surrounding monitoring wells. During two sampling events in Feb BAPs 2018, grab samples from the influent

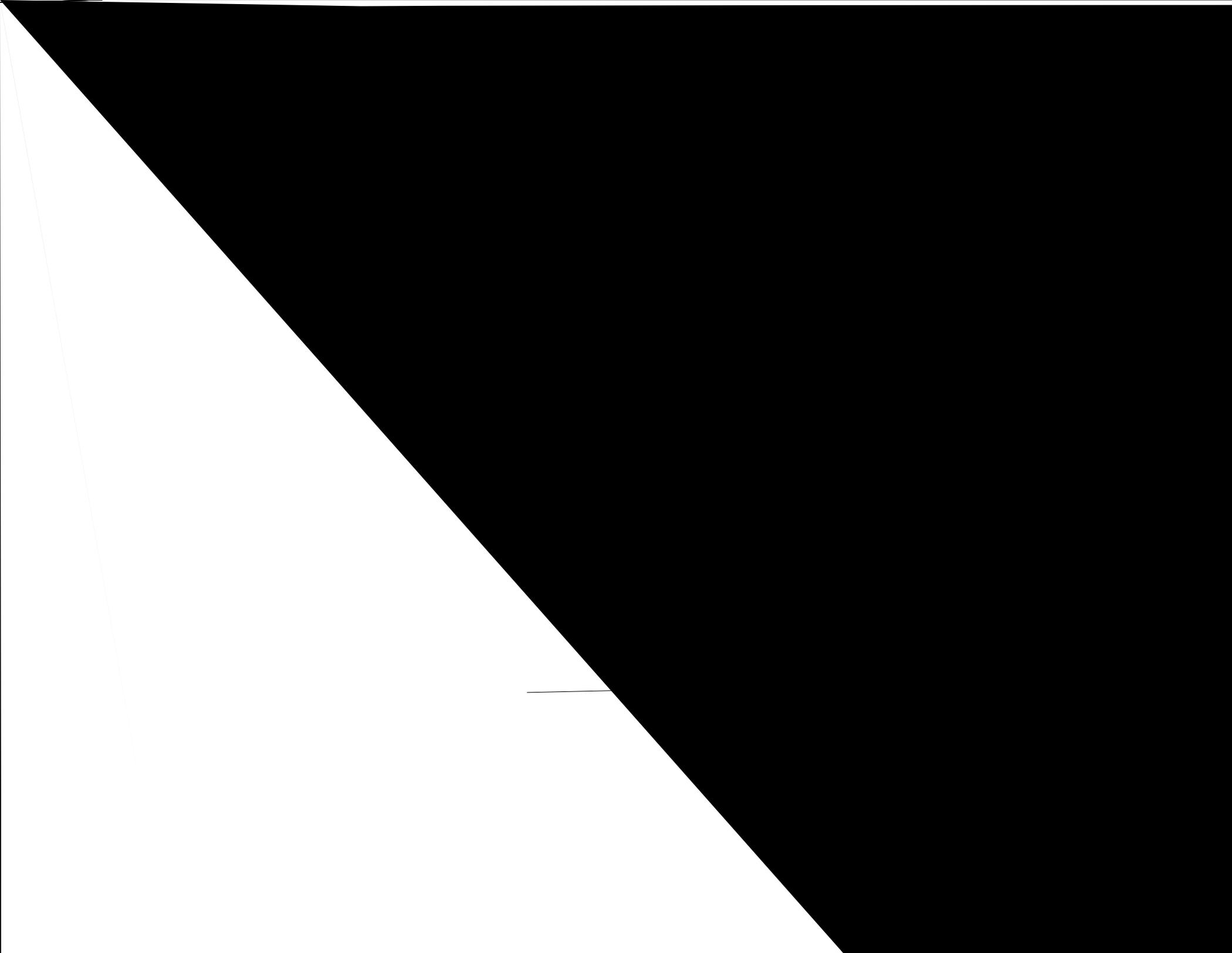














WITNESSETH THAT THE UNDERSIGNED ENGINEER HEREBY CERTIFIES

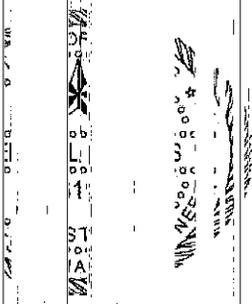
that the above Power Station  
is an Air Pollution Control  
Energy

CERTIFICATE

I hereby certify that the accuracy of the information provided in this  
Demographic Information in accordance with the requirements of 40 C.F.R. 51.101 (2)

*[Handwritten Signature]*  
Jeffery M. August

Texas Registered Professional Engineer No. 80195



FIO

is written  
262 794



**ERM**



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CPS Energy

**CERTIFICATION**

I hereby verify the accuracy of the information provided in this *Written Demonstration* in



Texas Licensed Professional Engineer No. 86195















**WRITTEN ENGINEER'S CONSIDERATION**

**Calaveras Power Station  
San Antonio, Texas  
CPS Energy**

**CERTIFICATION**

I hereby certify that use of the information provided in this Written Engineer's Consideration is in accordance with the provisions of Article 1405, Section 1405.01(a)(2).



A handwritten signature in black ink, appearing to read "Jeffery Bangman".

Texas Licensed Professional Engineer No. 96195













**ATTACHMENT 1 CERTIFICATION**





## **Annual Groundwater**



















## **Tables**

**TOC Elevation**



TABLE 3  
Groundwater Analytical Results Summary  
CPS Energy - Calaveras Power Station  
Bottom Ash Ponds



TABLE 3  
Groundwater Analytical Results Summary  
CPS Energy - Calaveras Power Station  
Bottom Ash Ponds

Constituents	Unit
Boron	mg/L
Calcium	mg/L
Chloride	mg/L
Fluoride	mg/L
Sulfate	mg/L
pH - Field Collected	SU
Total dissolved solids	mg/L
<b>Appendix IV - Assessment Monitoring</b>	
Antimony	mg/L
Arsenic	mg/L



TABLE 3  
 Groundwater Analytical Results Summary  
 CPS Energy - Calaveras Power Station  
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Constituents	Unit
Boron	mg/L
Calcium	mg/L
Chloride	mg/L
Fluoride	mg/L
Sulfate	mg/L
pH - Field Collected	SU
Total dissolved solids	mg/L
<b>Appendix IV - Assessment Monitoring</b>	
Antimony	mg/L
Arsenic	mg/L
Barium	mg/L
Beryllium	mg/L
Cadmium	mg/L
Chromium	mg/L

Berph -rtalbdn (g)0291 -0.0024 T T\*umBeriumg/ L

erumg/228gBer6.1 (m)F0.1 (g) (oun)-7Ci (Ber) T\*6.1 (m)T2T3(Botith4O)TJ adUT1 (m (ES:-3.6 (a)-2.5 (l dis)-12.5 .9539aly)241 Tc T12 Tw T\*1 Tf -(A)27.2 (p1 Tf -:A)27.2 in)TJ adUi Tgr1 (m (d s)-12.12 Tw T\*L)TJ /TT per1 (m ( (C)A)27.2 e s)-12.r1 (m (.30LE 9.0143 Tc 9.0141 ( Analy)277m)T2T3SU:.6 (nd38 Tc T\* Td)TJ -0 (.30LE 9.012 Tc 9.0145 ( Analy)

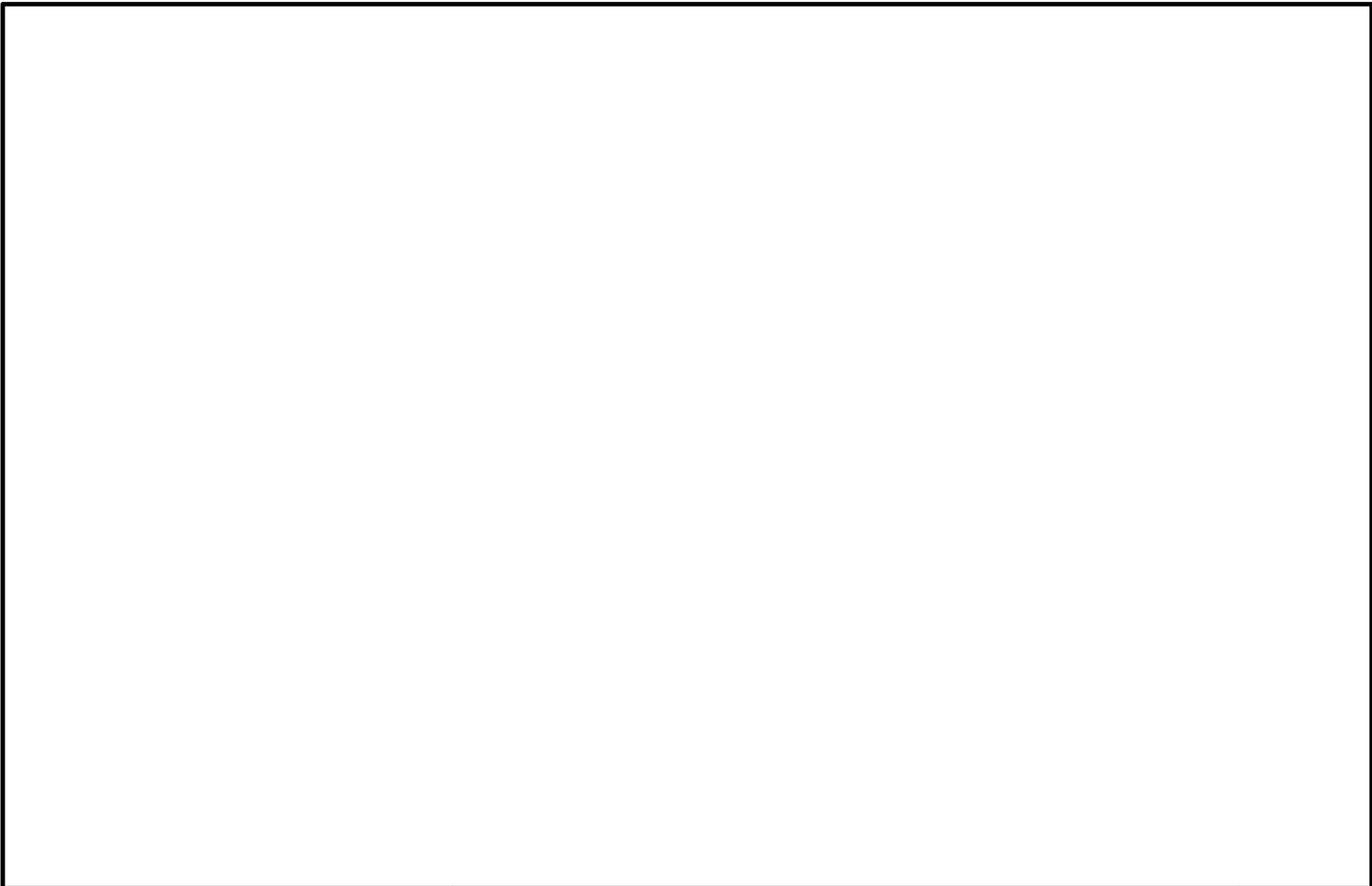


TABLE 3  
Groundwater Analytical Results Summary  
CPS Energy - Calaveras Power Station  
Bottom Ash Ponds

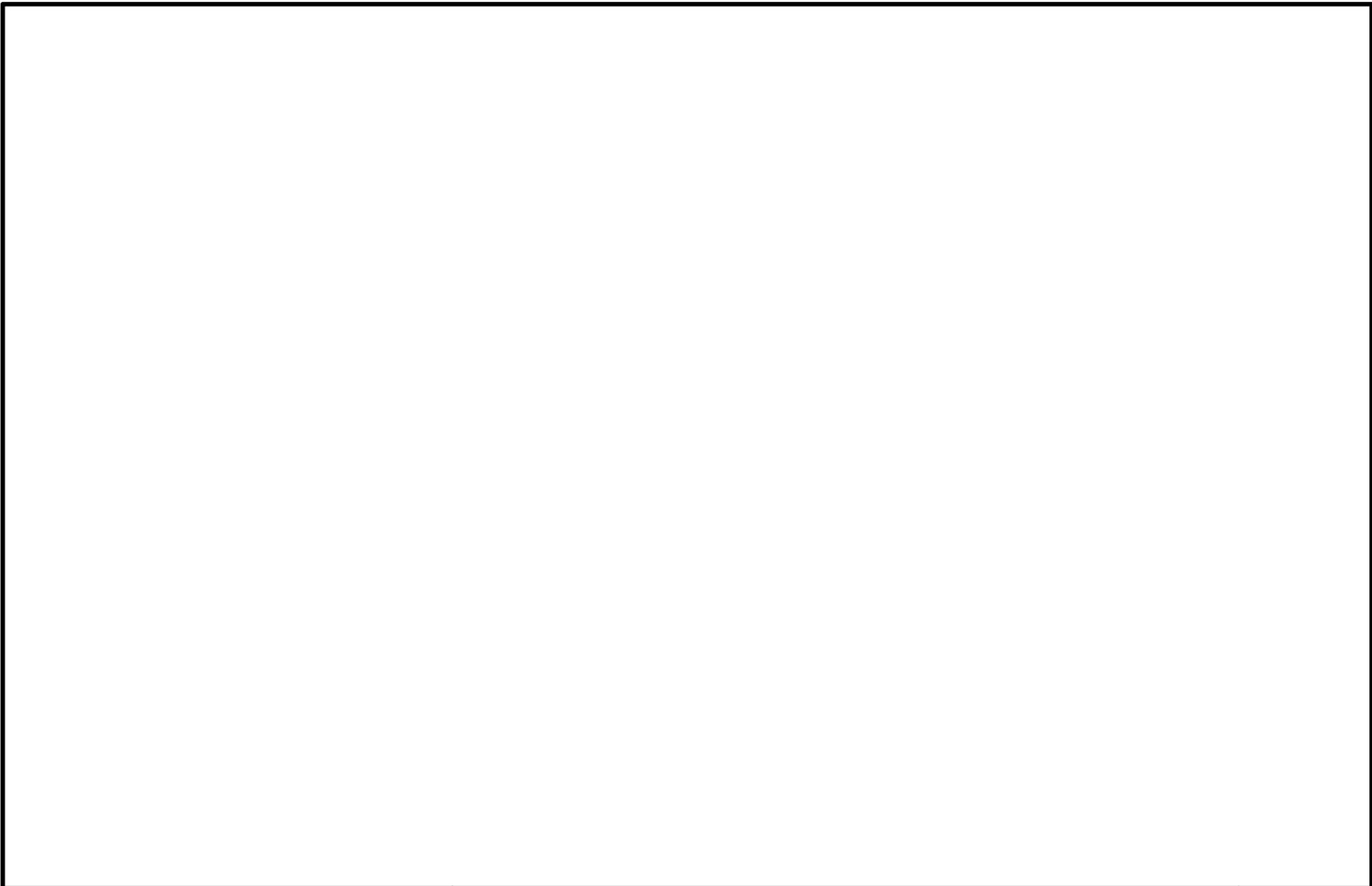
<b>Constituents</b>	<b>Unit</b>
Boron	mg/L
Calcium	mg/L
Chloride	mg/L
Fluoride	mg/L
Sulfate	mg/L
pH - Field Collected	SU

## **Figures**





DESIGN:		
DATE:		



DESIGN:		
DATE:		



# **Statistical Analysis Tables and Figures**

## *Appendix B*

Analyte	N	Num Detects	Percent Detect	DF	KW Statistic	p-value	Conclusion	UPL Type
Boron	28	28	100.00%	1	20.3	<0.001	Significant Difference	Intrawell
Calcium	28	28	100.00%	1	19.5	<0.001	Significant Difference	Intrawell
Chloride	28	28	100.00%	1	0.256	0.613	No Significant Difference	Interwell
Fluoride	28	26	92.86%	1	19.9	<0.001	Significant Difference	Intrawell
pH	28	28	100.00%	1	12.7	<0.001	Significant Difference	Intrawell
Sulfate	28	28	100.00%	1	19.9	<0.001	Significant Difference	Intrawell
Total dissolved solids	28	28	100.00%	1	9.64	0.00191	Significant Difference	Intrawell

NOTES:

Analyte	Well	Units	N	Num Detect	Percent Detect	Min ND	Max ND	Min Detect	Median	Mean	Max Detect	SD	CV	Distribution
Boron	JKS-49	mg/L	14	14	100.00%			2.05	2.83	2.83	3.28	0.339	0.119722997	Normal
Boron	JKS-51	mg/L	14	14	100.00%			0.347	0.512	0.522	0.668	0.0844	0.161632889	Normal
Calcium	JKS-49	mg/L	14	14	100.00%			113	131	134	134.97	11.33803	0.0844	Normal

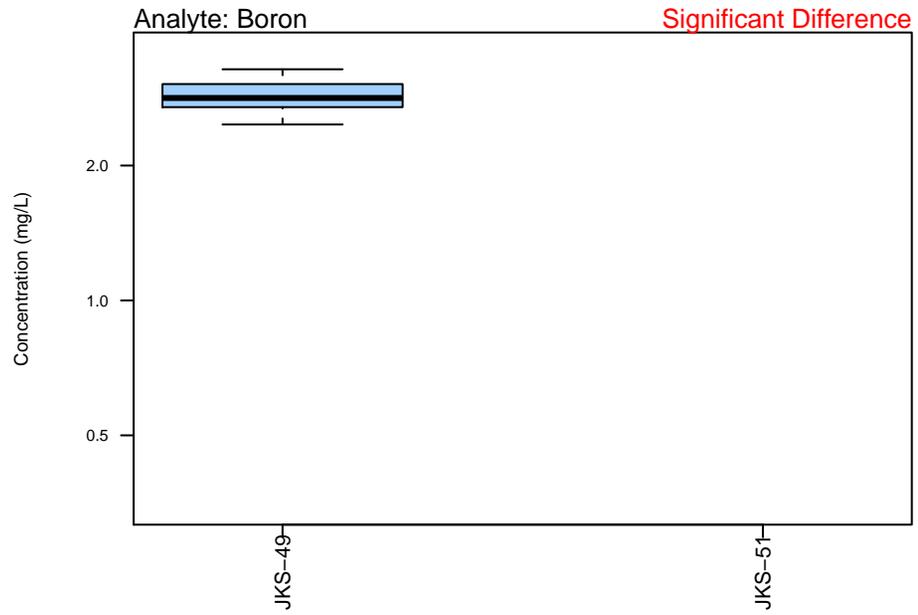
Well

Analyte	UPL Type	Well	N	Num Detects	Percent Detect	p-value	tau	Conclusion
Boron	Intrawell	JKS-49	14	14	100.00%	<0.001	-0.685	Decreasing Trend
	Boron	Intrawell	JKS-49	14	14	14	1008665	Boron



Analyte	Well	LPL	UPL	Units	Recent Date	Observation	Obs > UPL	NotesNotes
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**Appendix B – Figure 1**  
**Unit: Bottom Ash Ponds**  
**Boxplots of Upgradient Wells**





**Appendix B – Figure 2**



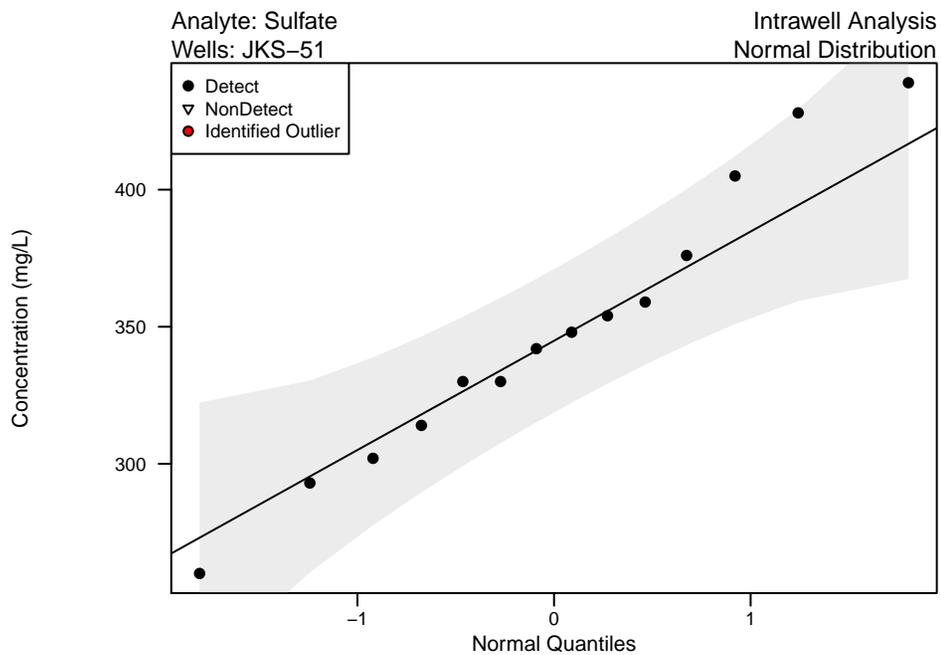
**Appendix B – Figure 2**  
**Unit: Bottom Ash Ponds**  
**QQ Plots of Upgradient Wells**



**Appendix B – Figure 2**  
**Unit: Bottom Ash Ponds**

**Appendix B – Figure 2**  
**Unit: Bottom Alluvium 0.4–25 sulfate**  
**QW1s, QW2s, QW3s, QW4s, QW5s, QW6s, QW7s, QW8s, QW9s, QW10s, QW11s, QW12s, QW13s, QW14s, QW15s, QW16s, QW17s, QW18s, QW19s, QW20s, QW21s, QW22s, QW23s, QW24s, QW25s, QW26s, QW27s, QW28s, QW29s, QW30s, QW31s, QW32s, QW33s, QW34s, QW35s, QW36s, QW37s, QW38s, QW39s, QW40s, QW41s, QW42s, QW43s, QW44s, QW45s, QW46s, QW47s, QW48s, QW49s, QW50s, QW51s, QW52s, QW53s, QW54s, QW55s, QW56s, QW57s, QW58s, QW59s, QW60s, QW61s, QW62s, QW63s, QW64s, QW65s, QW66s, QW67s, QW68s, QW69s, QW70s, QW71s, QW72s, QW73s, QW74s, QW75s, QW76s, QW77s, QW78s, QW79s, QW80s, QW81s, QW82s, QW83s, QW84s, QW85s, QW86s, QW87s, QW88s, QW89s, QW90s, QW91s, QW92s, QW93s, QW94s, QW95s, QW96s, QW97s, QW98s, QW99s, QW100s**

**Intrawell Analysis**  
**Normal Distribution**



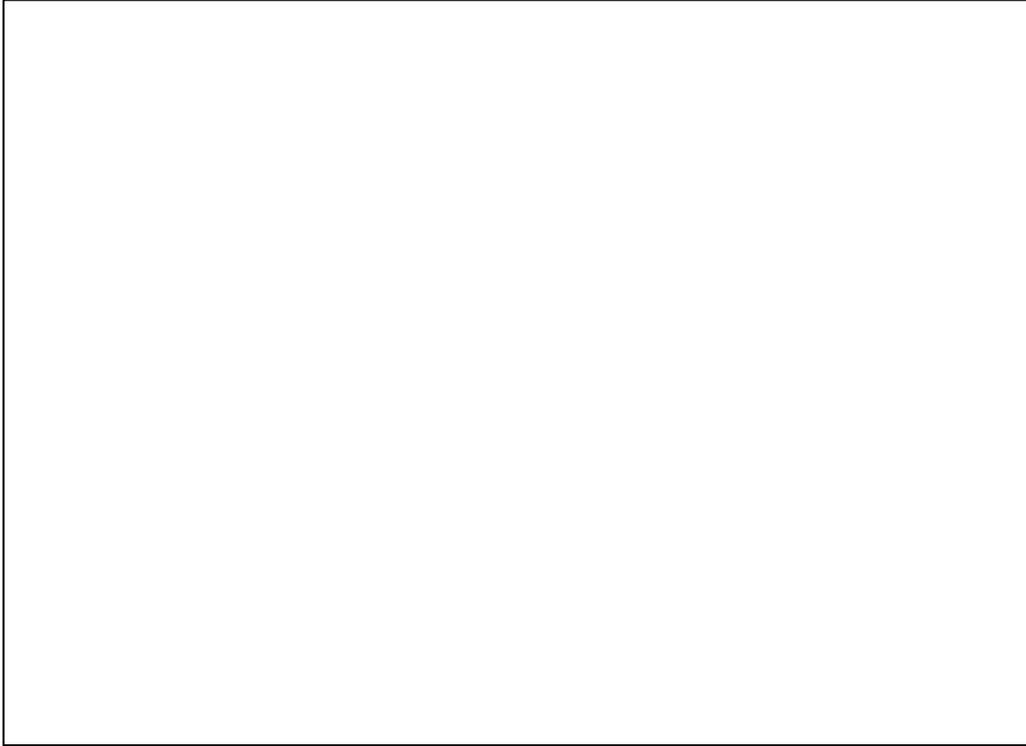
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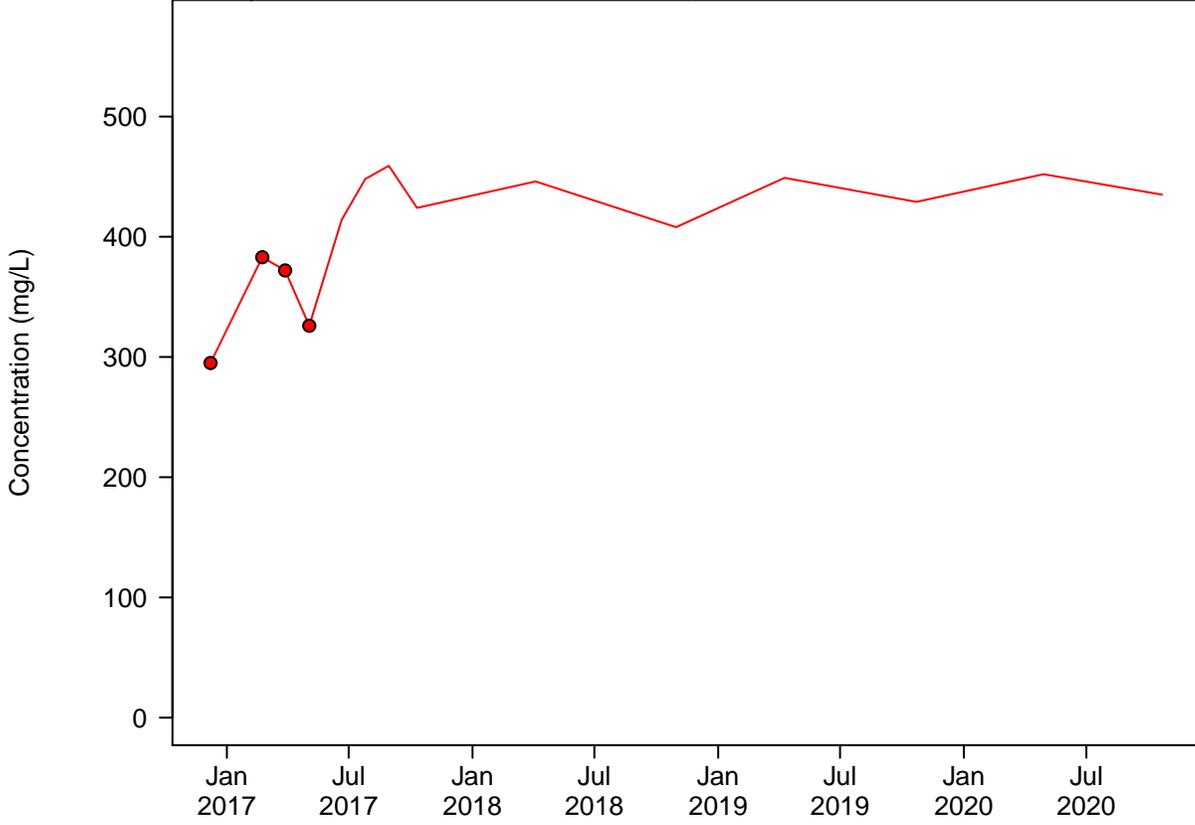
**Appendix B – Figure 3**  
**Unit: Bottom Ash Ponds**  
**Timeseries of Upgradient Wells**

Chemical: Boron



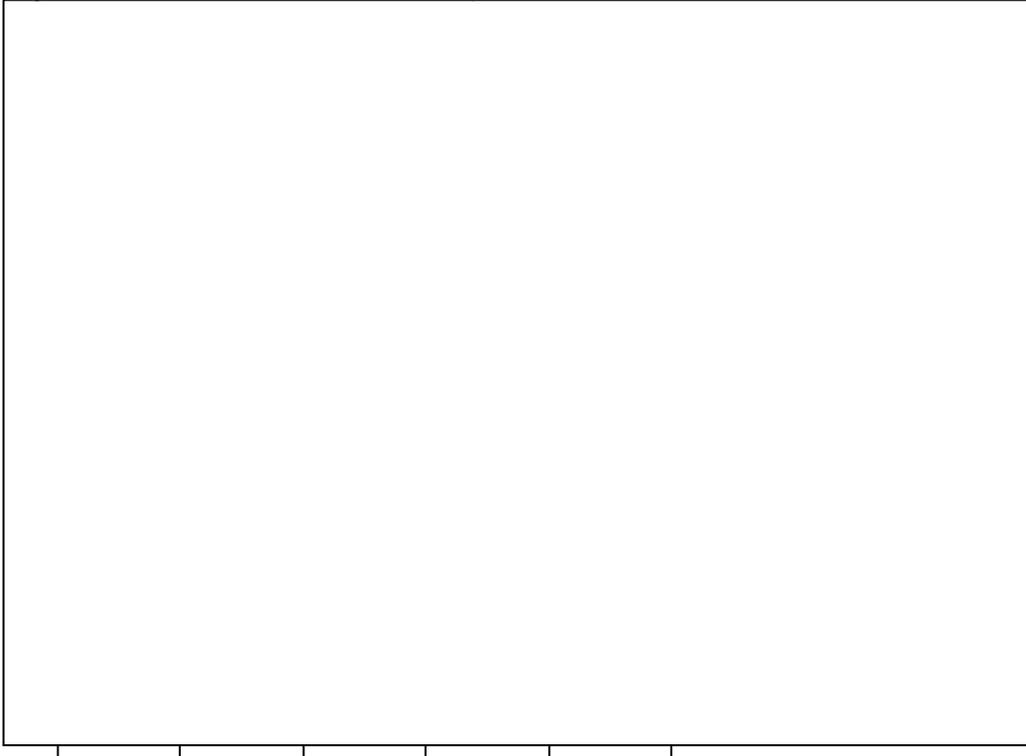
**Appendix B – Figure 3**  
**Unit: Bottom Ash Ponds**  
**Timeseries of Upgradient Wells**

Chemical: Chloride  
No Significant Difference (Interwell Analysis)



**Appendix B – Figure 3**  
**Unit: Bottom Ash Ponds**  
**Timeseries of Upgradient Wells**

Chemical: pH  
Significant Difference (Intrawell Analysis)

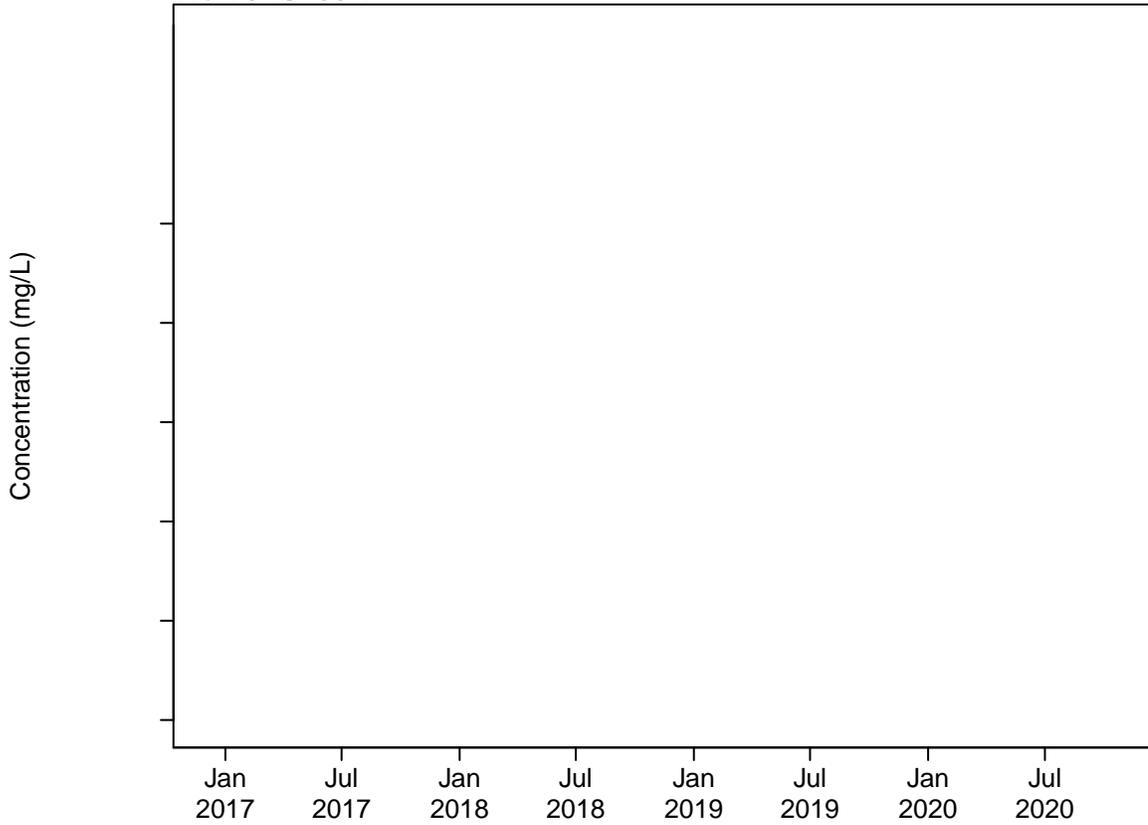


**Appendix B – Figure 3**  
**Unit: Bottom Ash Ponds**

**Appendix B – Figure 4**  
**Unit: Bottom Ash Ponds**  
**Trend Analysis of Downgradient Wells with Exceedances**

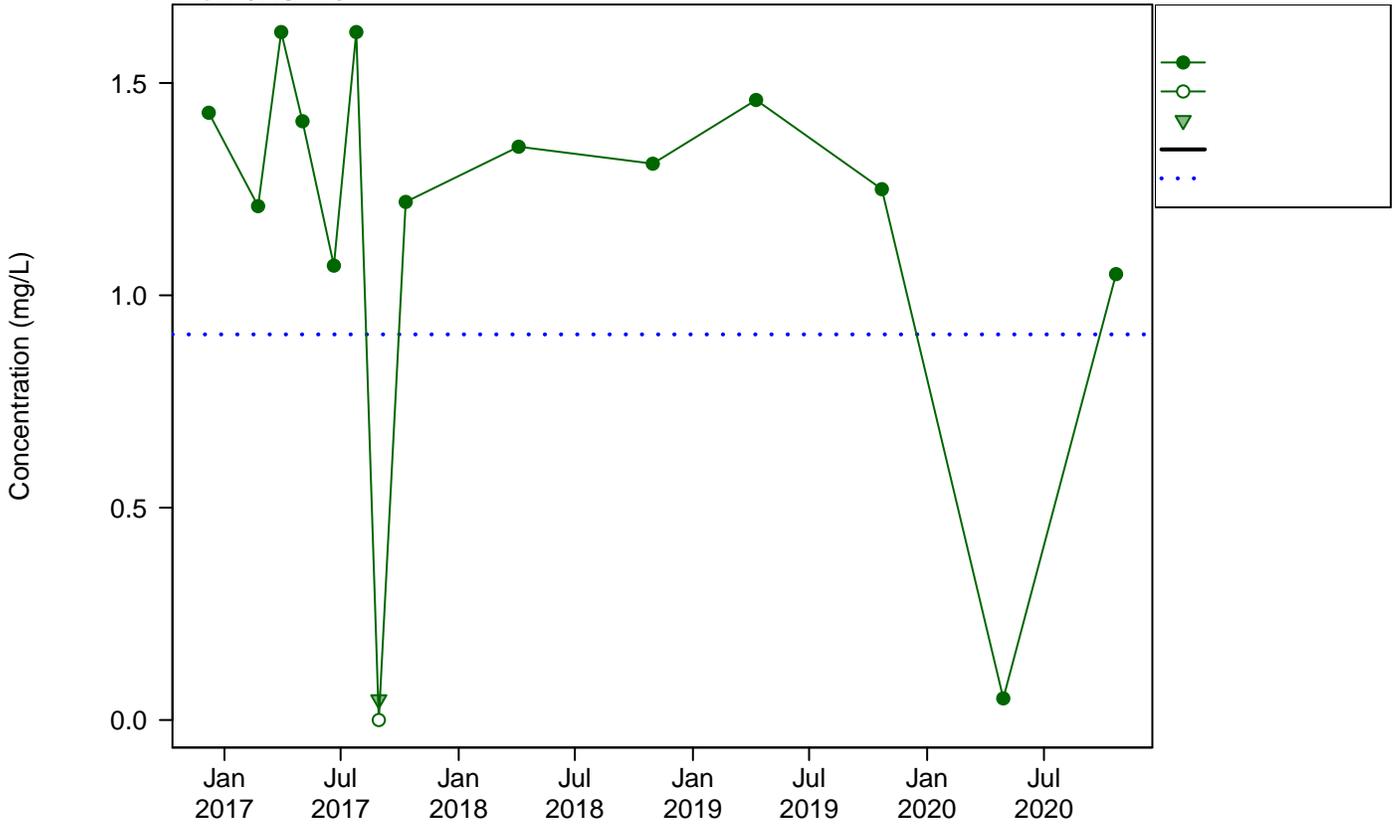
Chemical: Boron

Well: JKS-50R



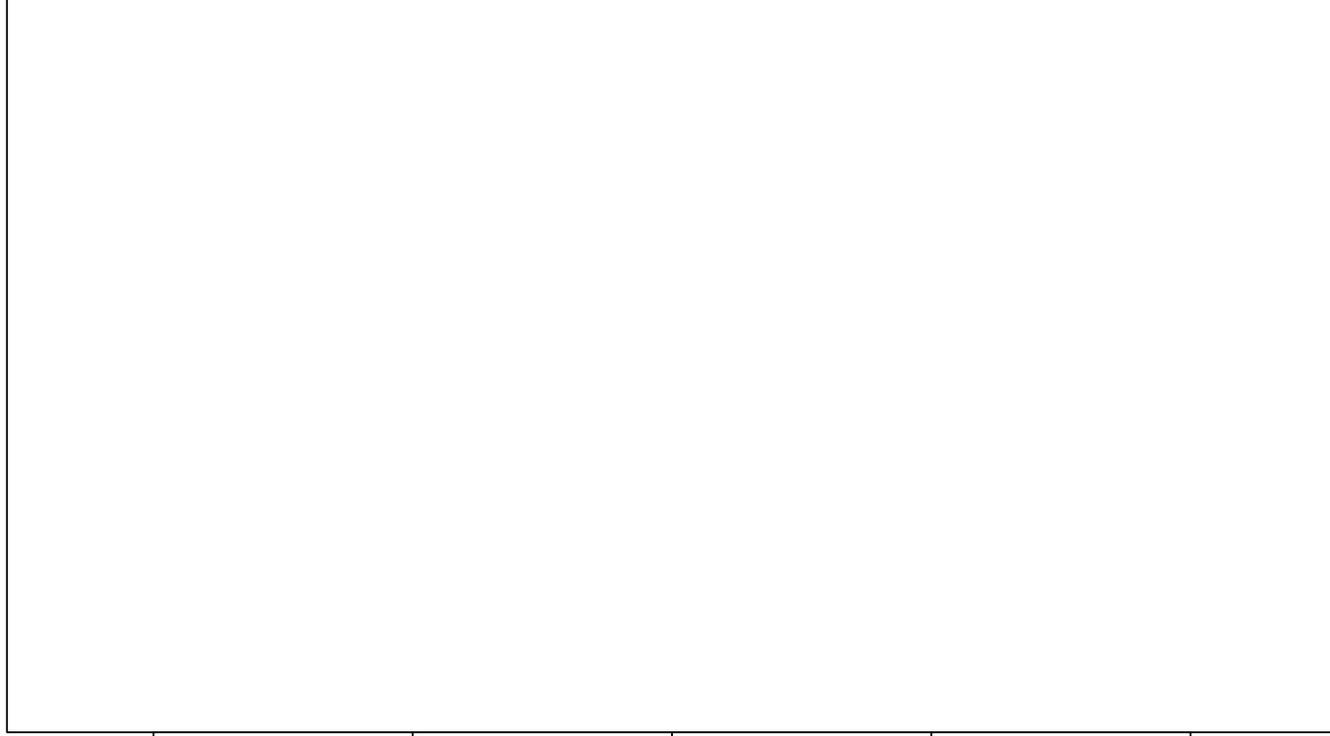
Appendix B – Figure 4  
Unit: Bottom Ash Ponds  
Trend Analysis of Downgradient Wells with Exceedances

Chemical: Fluoride  
Well: JKS-48





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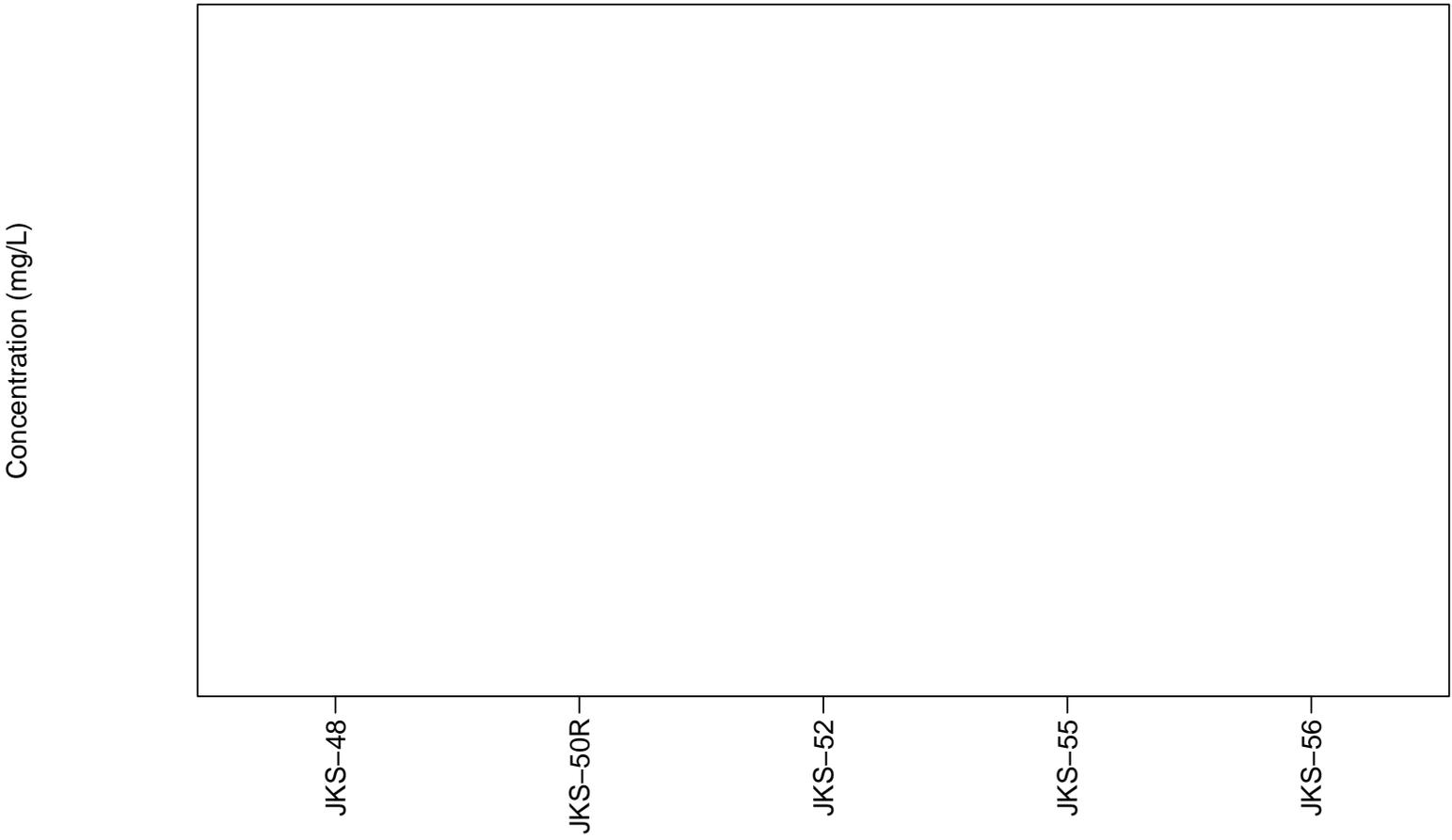
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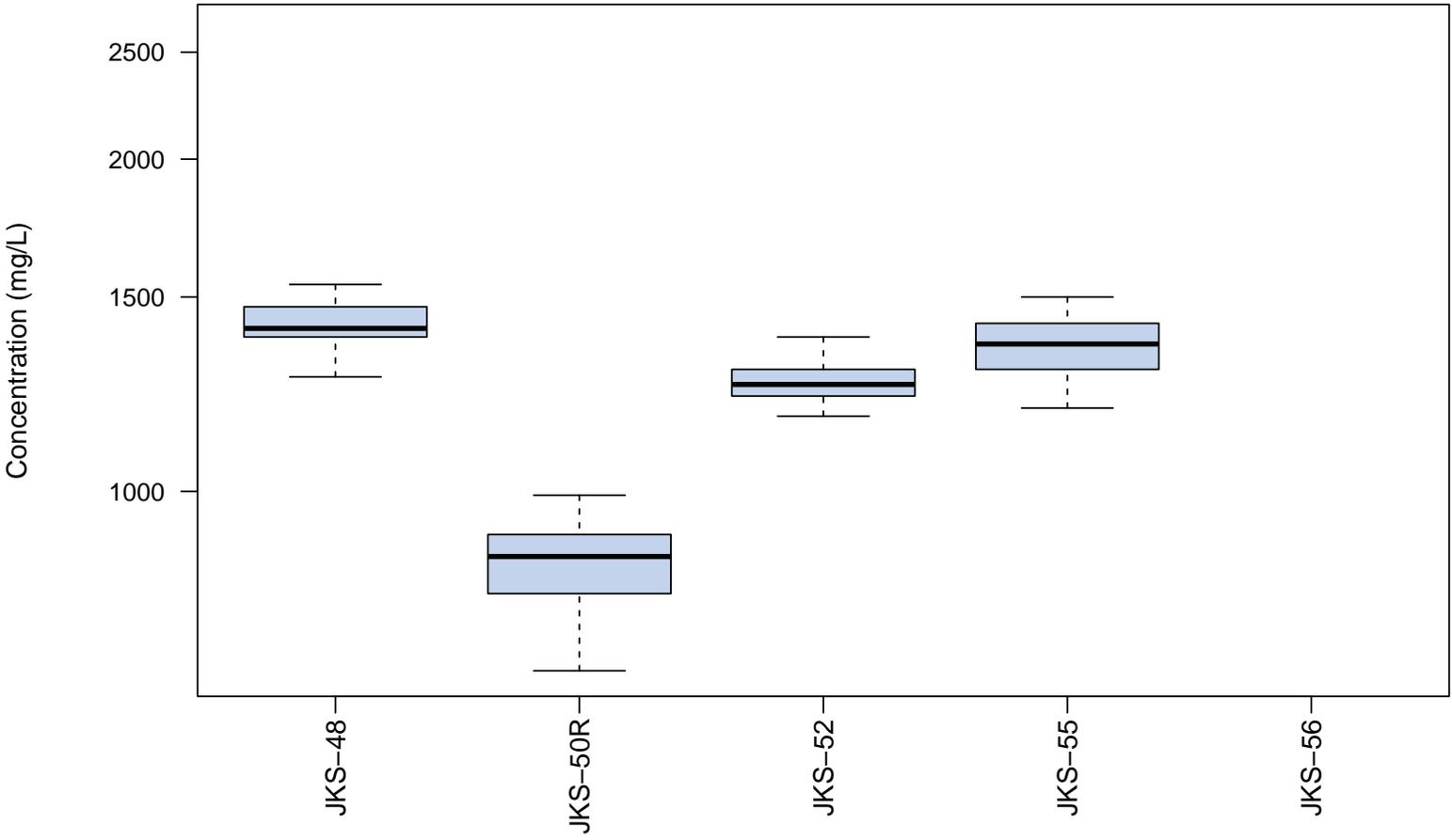




Chemical: Sulfate



Chemical: Total Dissolved Solids













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SRH Pond  
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## **Tables**

**TOC Elevation**

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12/8/16 2/23/17 3/30/17 5/4/17 6/21/17 7/26/17 8/30/17 10/11/17 4/5/18 10/31/18 4/10/19 10/23/19 4/29/20 to 10/21/20

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

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

<b>Constituents</b>	<b>Unit</b>
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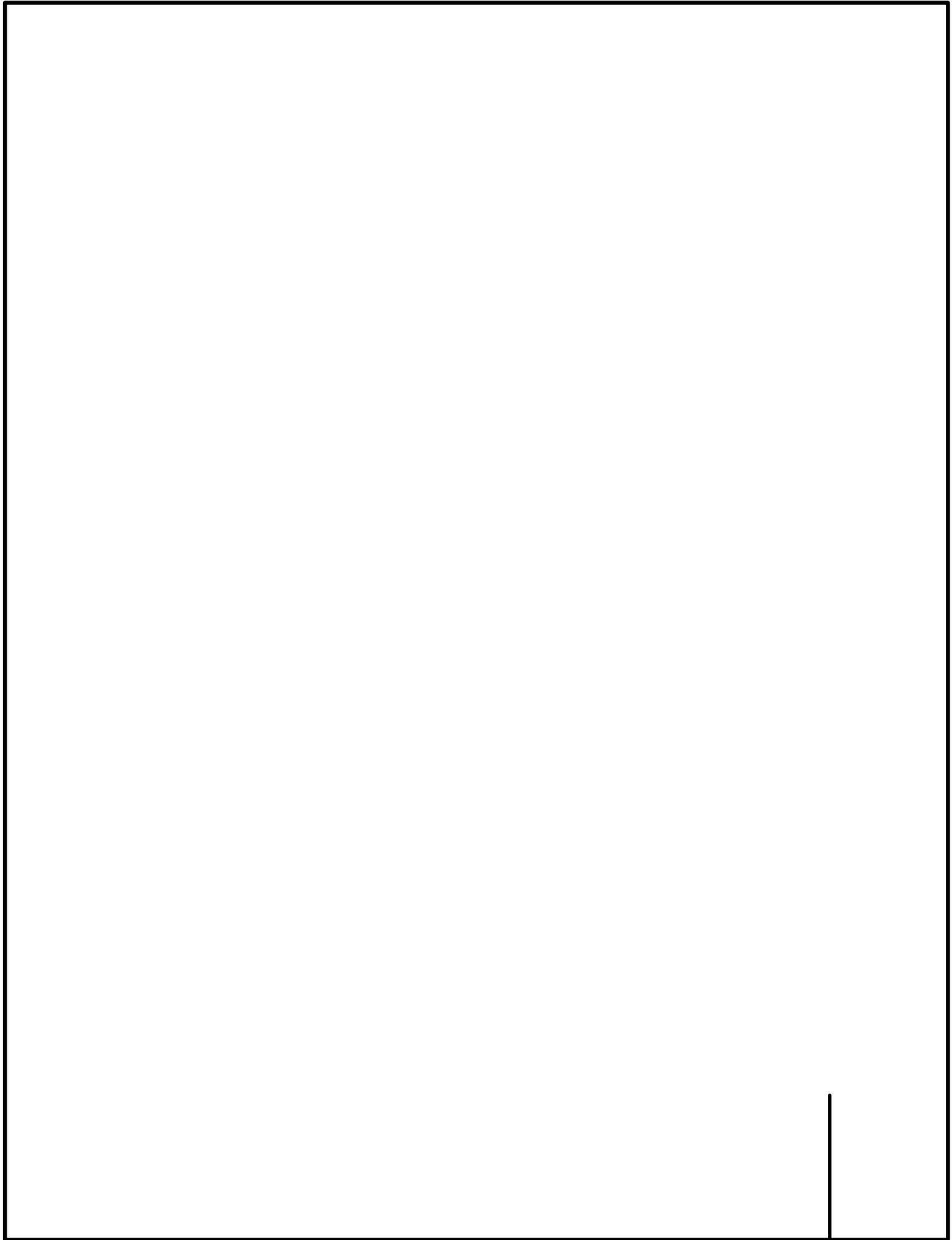
TABLE 3  
Groundwater Analytical Results Summary

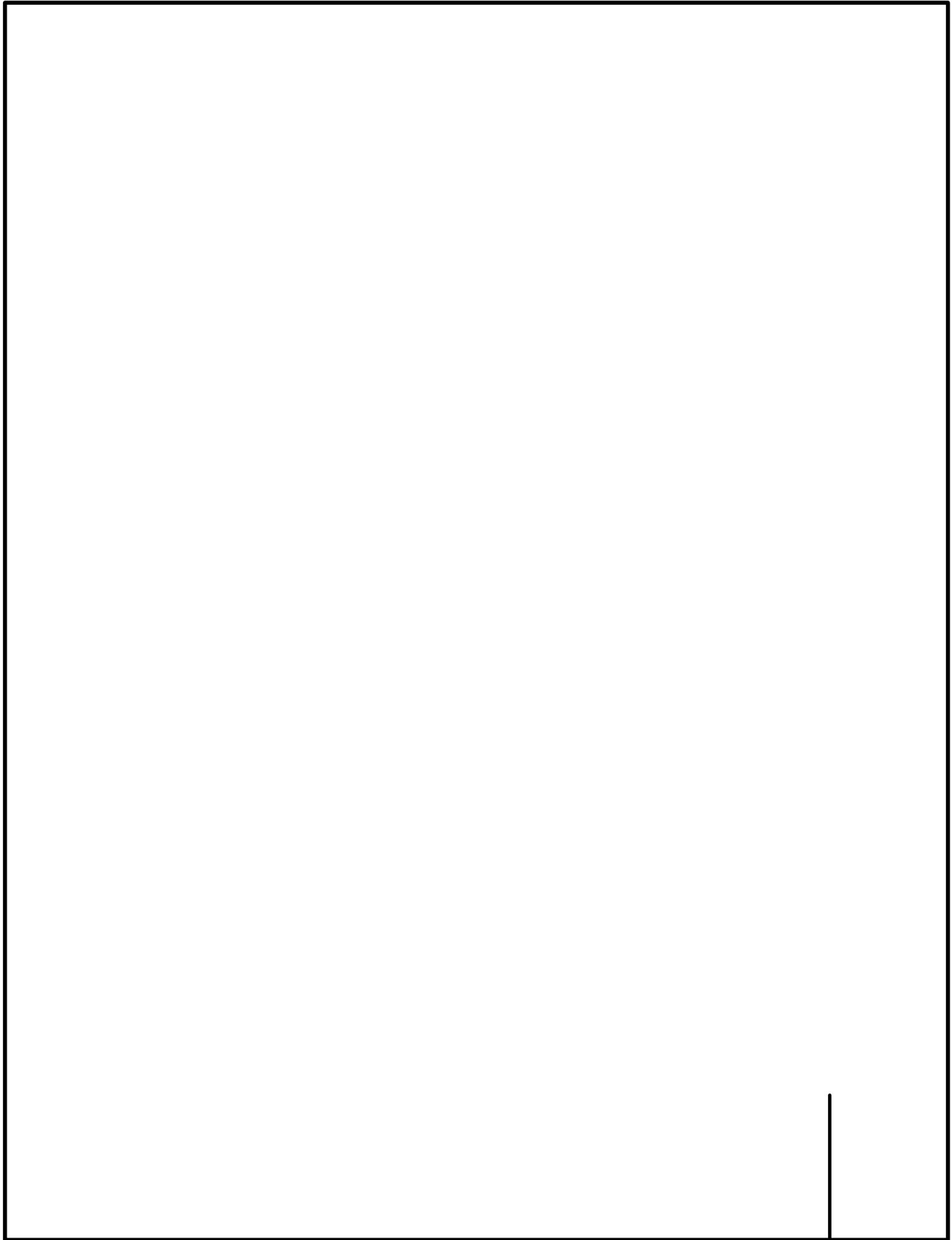


TABLE 3  
Groundwater Analytical Results Summary

## **Figures**







**Laboratory Data Packages**  
*Appendix A*

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





Analyte	Well	Units	N	Num Detects	Percent Detect	Min ND	Max ND	Min Detect	Median	Mean	Max Detect	SD	CV	Distribution
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**Well**

**Sample**

**Date**

**Analyte**

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	0.311	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

Analyte	UPL Type	Trend	Well	N	Num Detects	Percent Detects	LPL	UPL	Units
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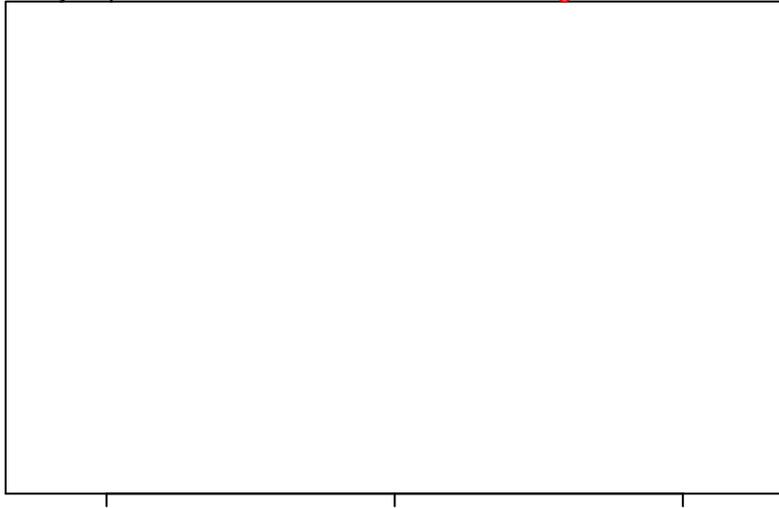
Analyte	Well	LPL	UPL	Units	Recent Date	Observation	Obs > UPL	Notes
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**Appendix B – Figure 1**  
**Unit: Evaporation Pond**  
**Boxplots of Upgradient Wells**

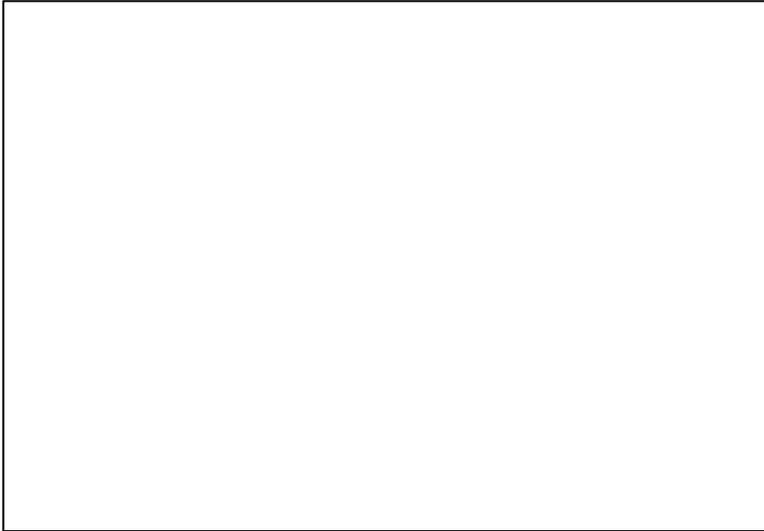
Analyte: pH

Significant Difference



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

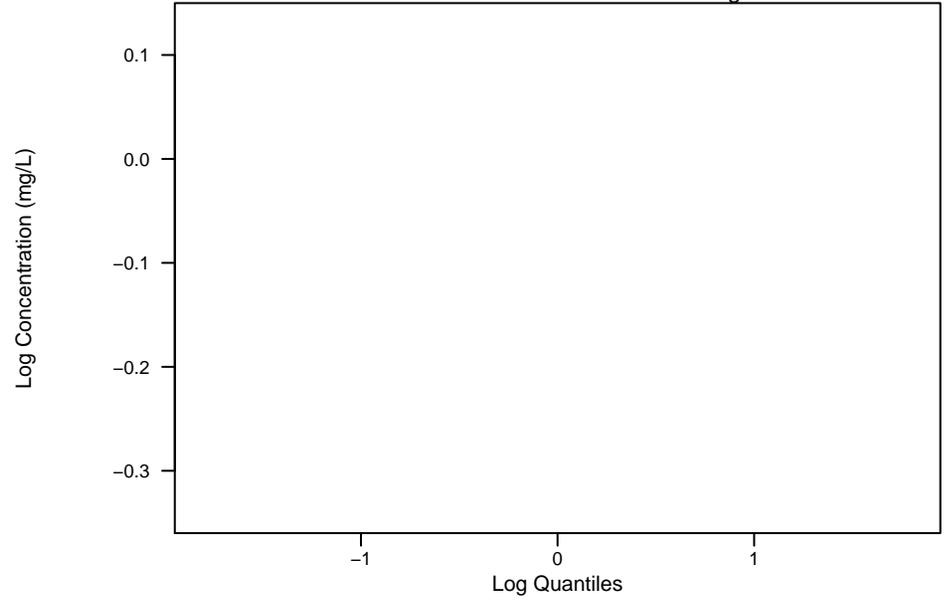
Analyte: Boron



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

Analyte: Boron  
Wells: JKS-64

Intrawell Analysis  
Lognormal Distribution

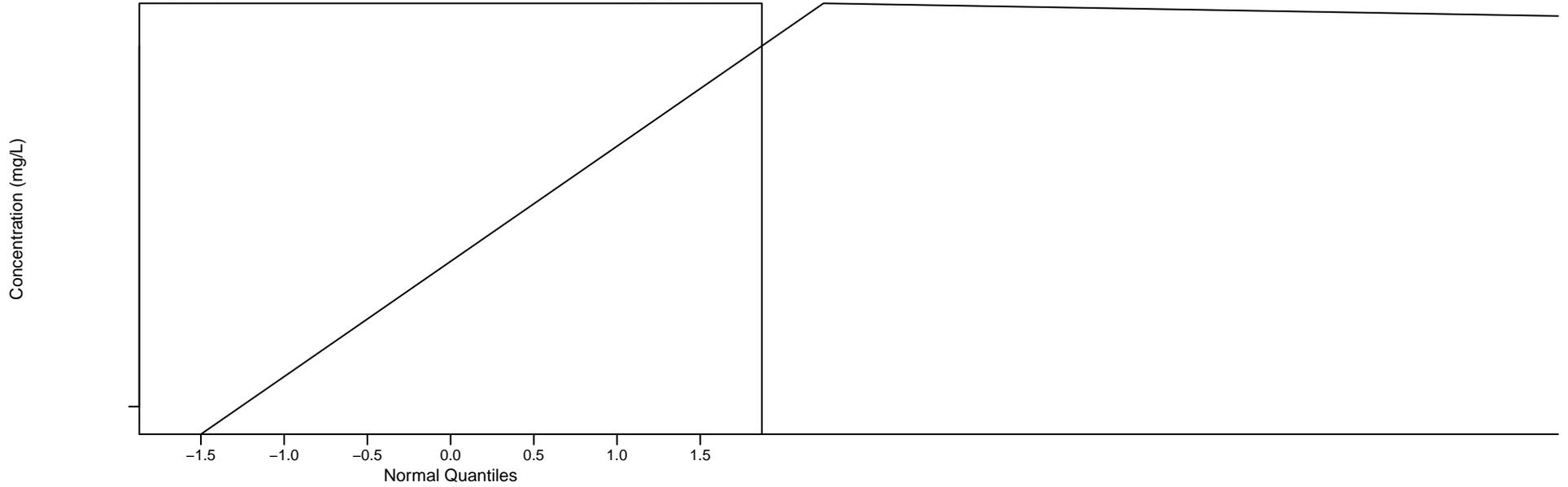


Intentionally left blank,  
not Normal/NDD distribution.

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

Analyte: Calcium  
Wells: JKS-63

Intrawell Analysis  
NDD Distribution



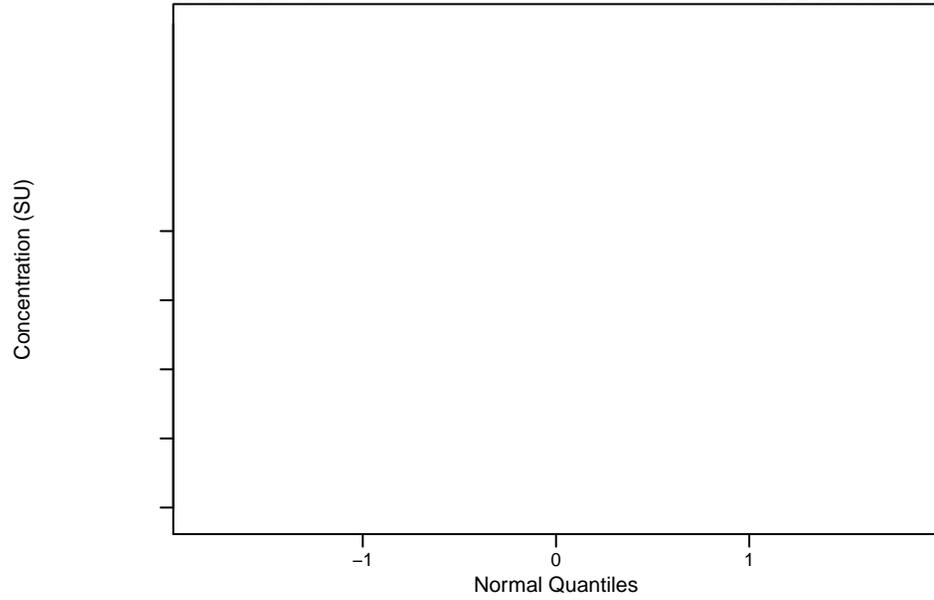


**Appendix B – Figure 2**  
**Unit: Evaporation Pond**  
**QQ Plots of Upgradient Wells**

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

Analyte: pH  
Wells: JKS-47

Intrawell Analysis  
NDD Distribution

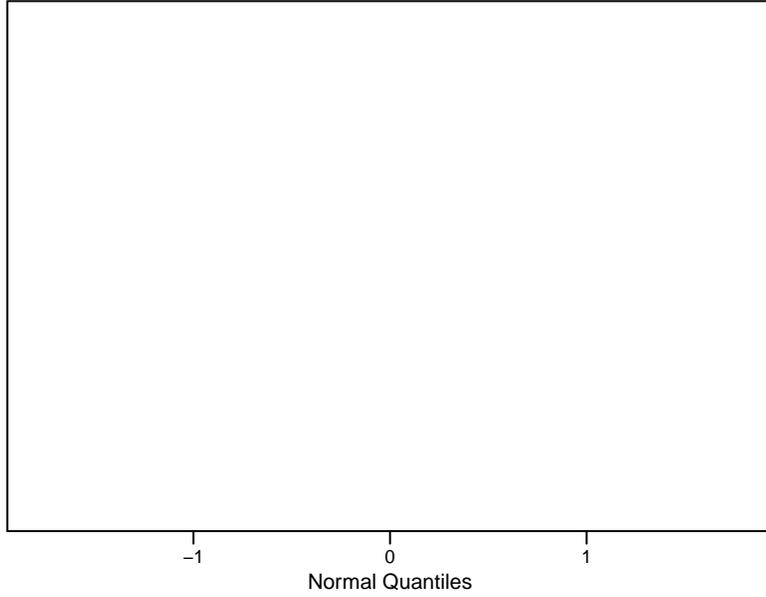


Concentra 43.6 q 1 0 0 1 167.99 316.51 cm 0 0 m 148.

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

Analyte: pH  
Wells: JKS-64

Intrawell Analysis  
NDD Distribution



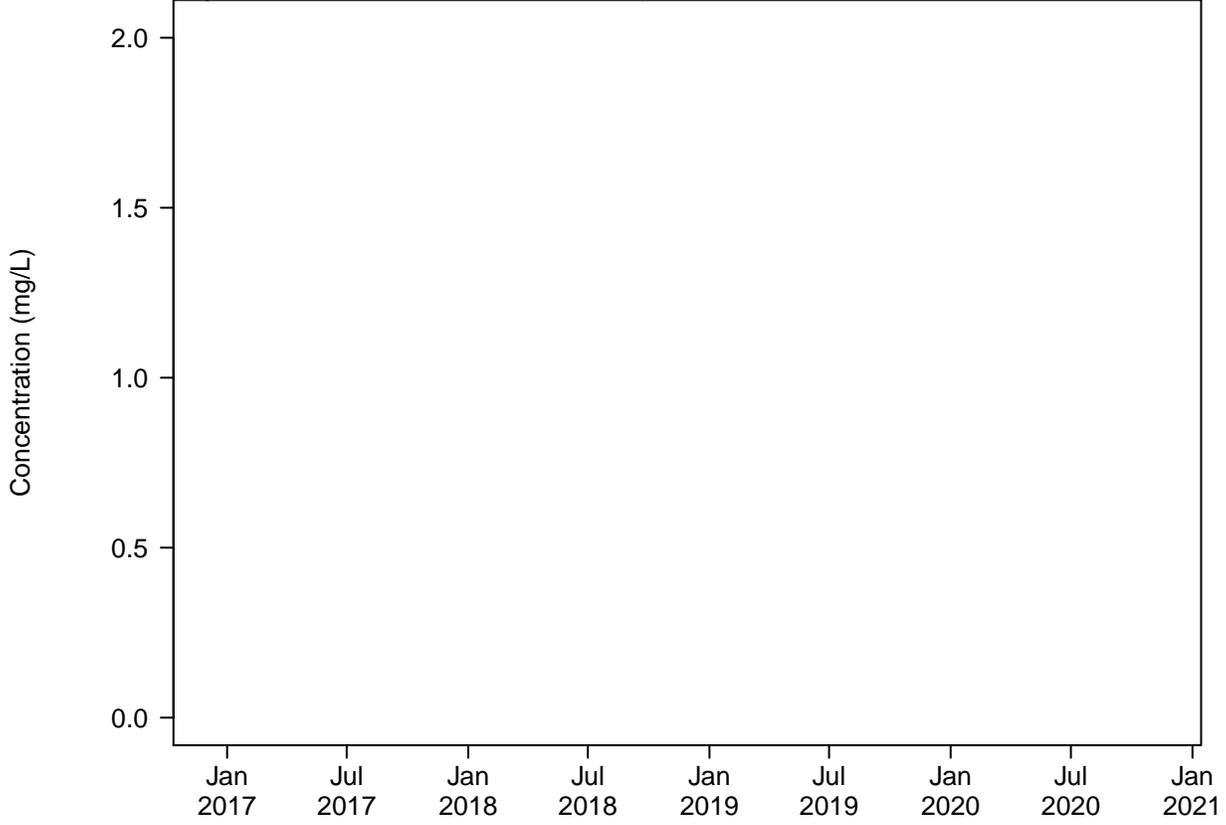
**Appendix B – Figure 2**  
**Unit: Evaporation Pond**  
**QQ Plots of Upgradient Wells**





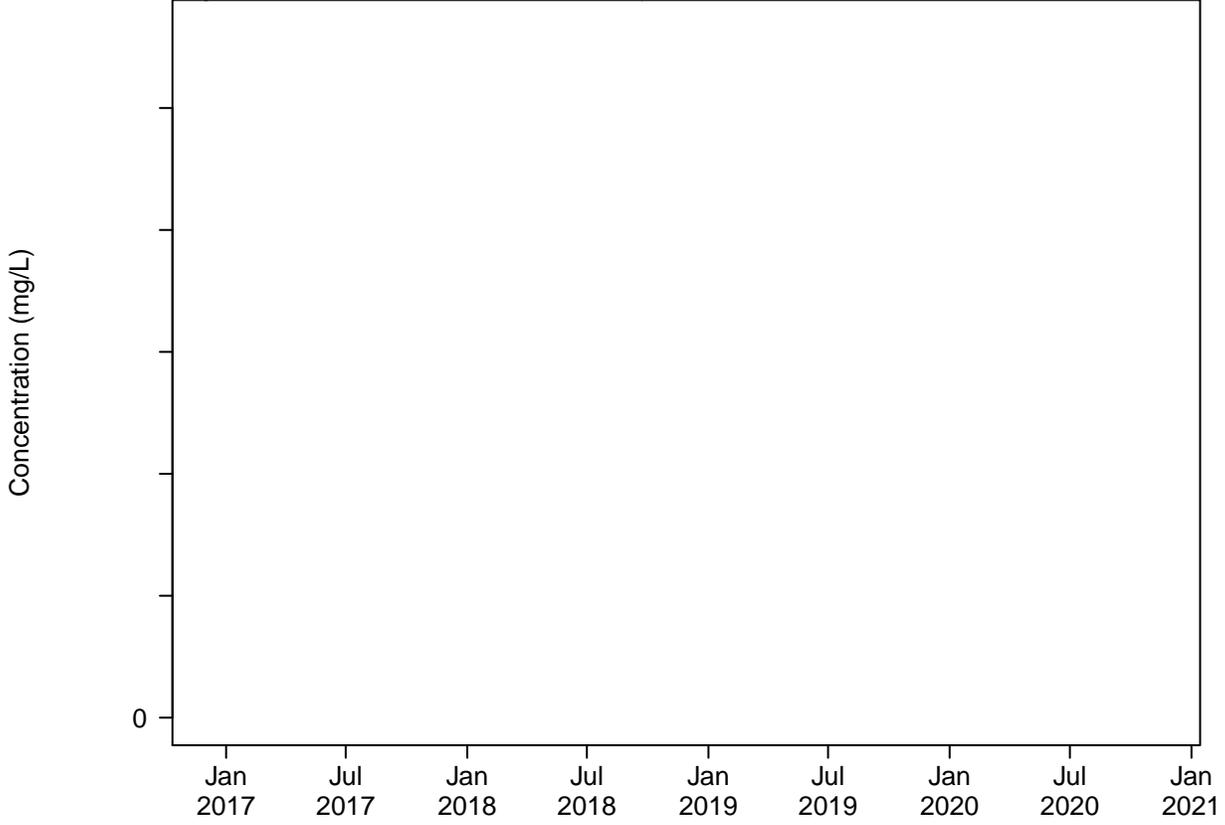
**Appendix B – Figure 3**  
**Unit: Evaporation Pond**  
**Timeseries of Upgradient Wells**

Chemical: Boron  
Significant Difference (Intrawell Analysis)



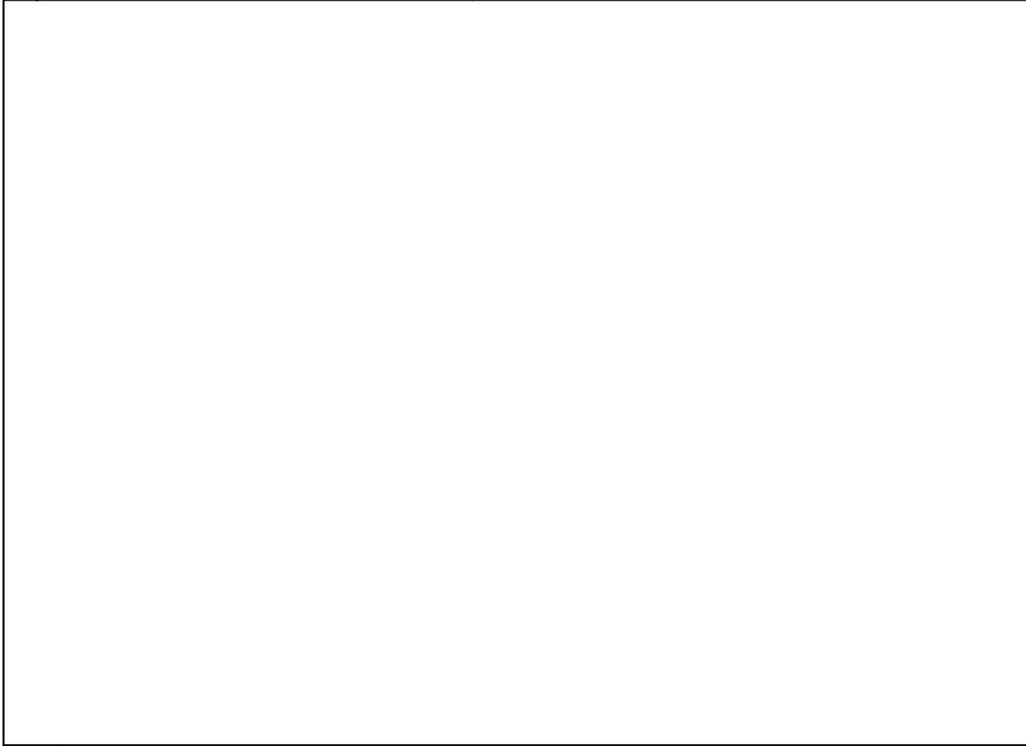
**Appendix B – Figure 3**  
**Unit: Evaporation Pond**  
**Timeseries of Upgradient Wells**

Chemical: Chloride  
Significant Difference (Intrawell Analysis)



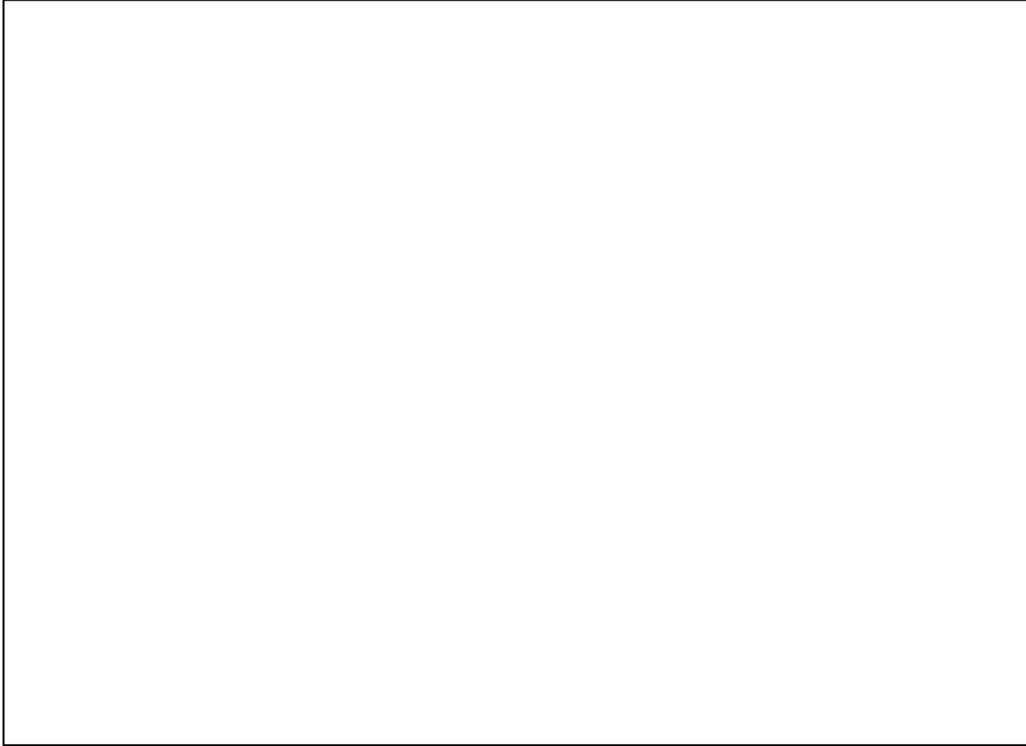
**Appendix B – Figure 3**  
**Unit: Evaporation Pond**  
**Timeseries of Upgradient Wells**

Chemical: pH  
Significant Difference (Intrawell Analysis)



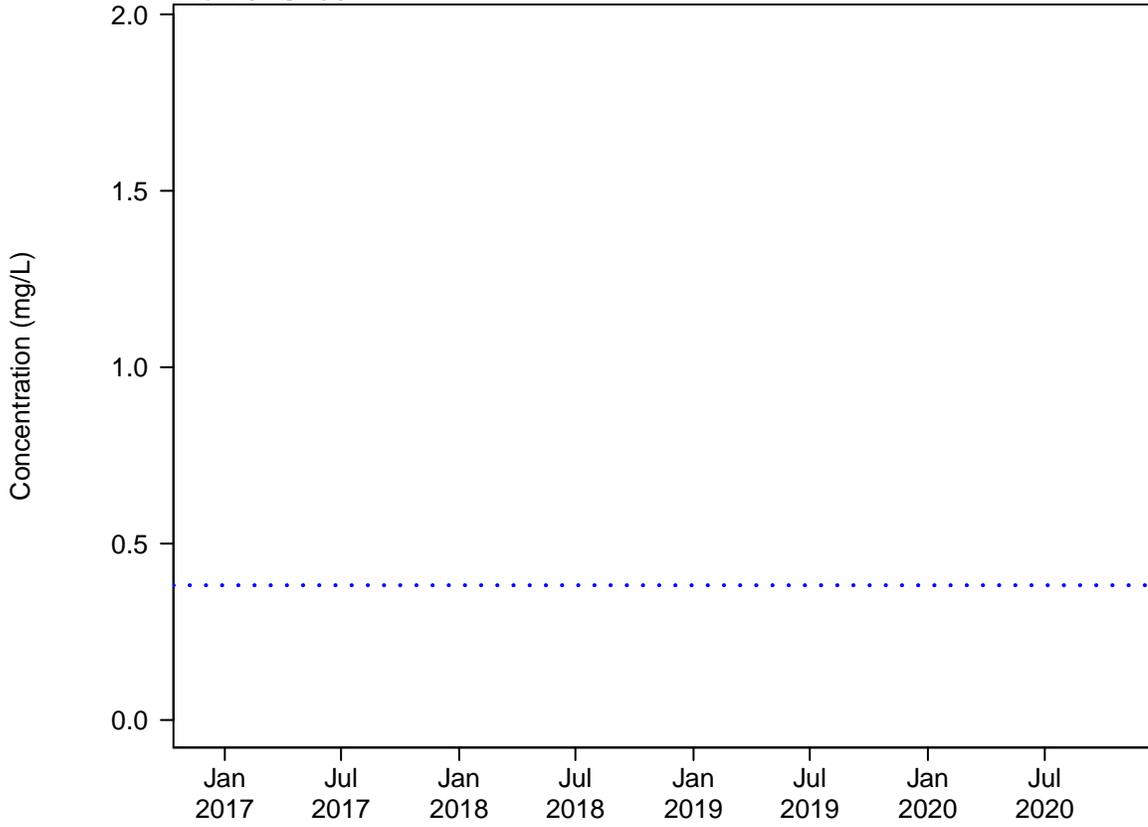
**Appendix B – Figure 3**  
**Unit: Evaporation Pond**  
**Timeseries of Upgradient Wells**

Chemical: Total dissolved solids



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

Chemical: Fluoride  
Well: JKS-36





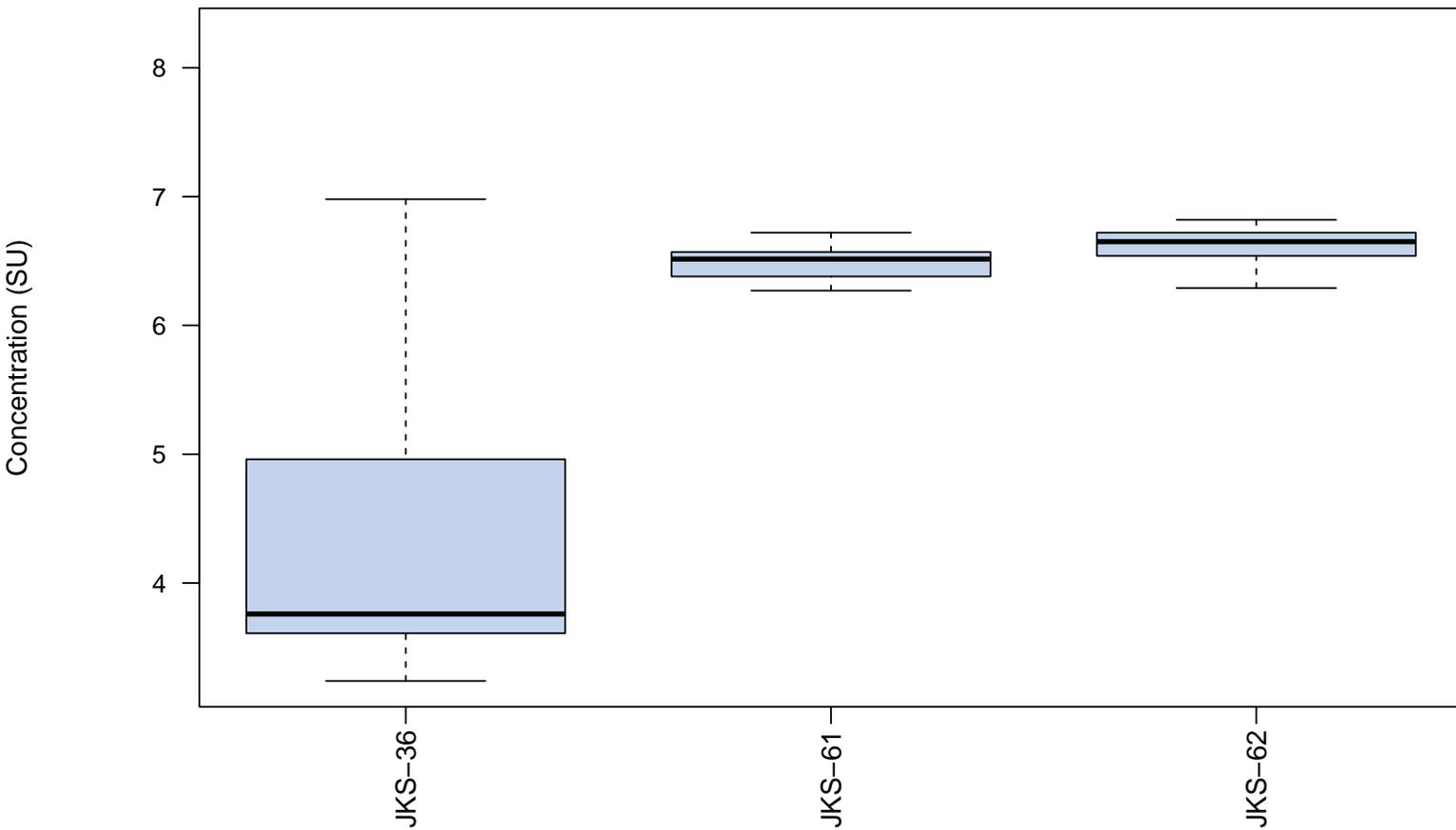








$\hat{\theta}_{\{i\}}^{\{K\}}P$







**April 2020**









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SRH Pond  
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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 A](#) (results (Appendix Table 1) are provided in [Appendix B](#)).





**5.**

## **Tables**

Sampling Event	Sampling Event Dates	TOC Elevation 531.46		TOC Elevation 506.91		TOC Elevation 504.45		TOC Elevation 496.45	
		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	46.83	484.63	19.89	487.02	18.85	485.60	15.67	480.78
2	2/21/17 to 2/23/17	46.64	484.82	18.95	487.96	15.95	488.50	14.12	482.33
3	3/28/17 to 3/30/17	46.52	484.94	18.20	488.71	15.10	489.35	14.12	482.33
4	5/2/17 to 5/4/17	46.35	485.11	18.80	488.11	16.50	487.95	14.94	481.51
5	6/20/17 to 6/21/17	46.64	484.82	20.23	486.68	18.38	486.07	16.46	479.99
6	7/25/17 to 7/26/17	46.38	485.08	21.16	485.75	15.63	488.82	17.80	478.65
7	8/29/17 to 8/30/17	46.73	484.73	19.44	487.47	19.90	484.55	17.77	478.68
8	10/10/17 to 10/11/17	46.50	484.96	21.67	485.24	20.67	483.78	18.00	478.45

			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	10/20/20 to 10/21/20	
JKS-31	Downgradient Monitoring	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Detection
JKS-33	Downgradient Monitoring	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Detection
JKS-45	Upgradient Monitoring	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Detection
JKS-46	Downgradient Monitoring	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Detection
JKS-57	Upgradient Monitoring	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Detection
JKS-60	Downgradient 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.

TABLE 3  
Groundwater Analytical Results Summary  
CPS Energy - Calaveras Power Station  
Fly Ash Landfill

Constituents	Unit	12/6/16	2/23/17	3/28/17	5/3/17	6/20/17	7/25/17	8/29/17	10/10/17	4/4/18	10/30/18	4/10/19	10/23/19	4/28/20	10/21/20
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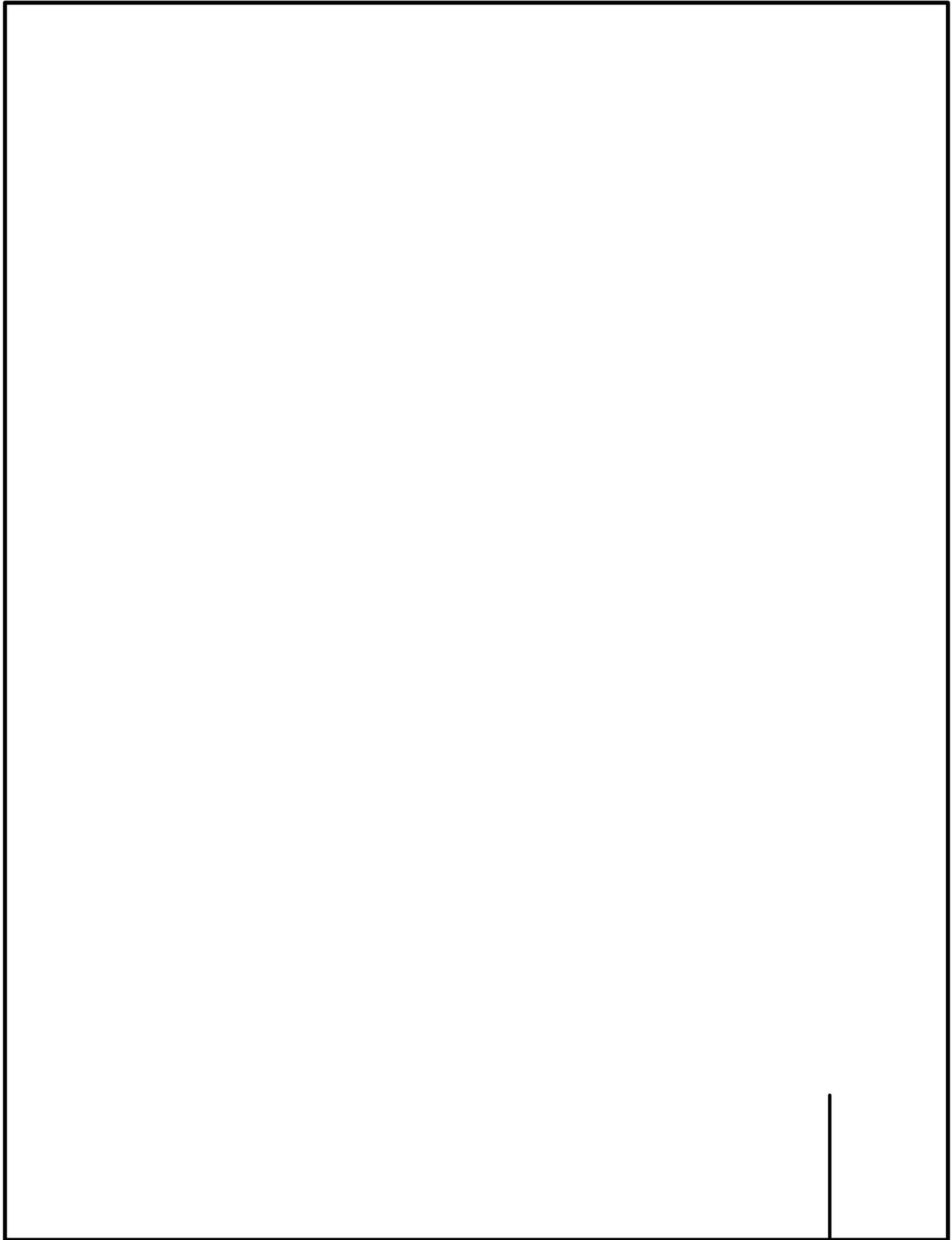


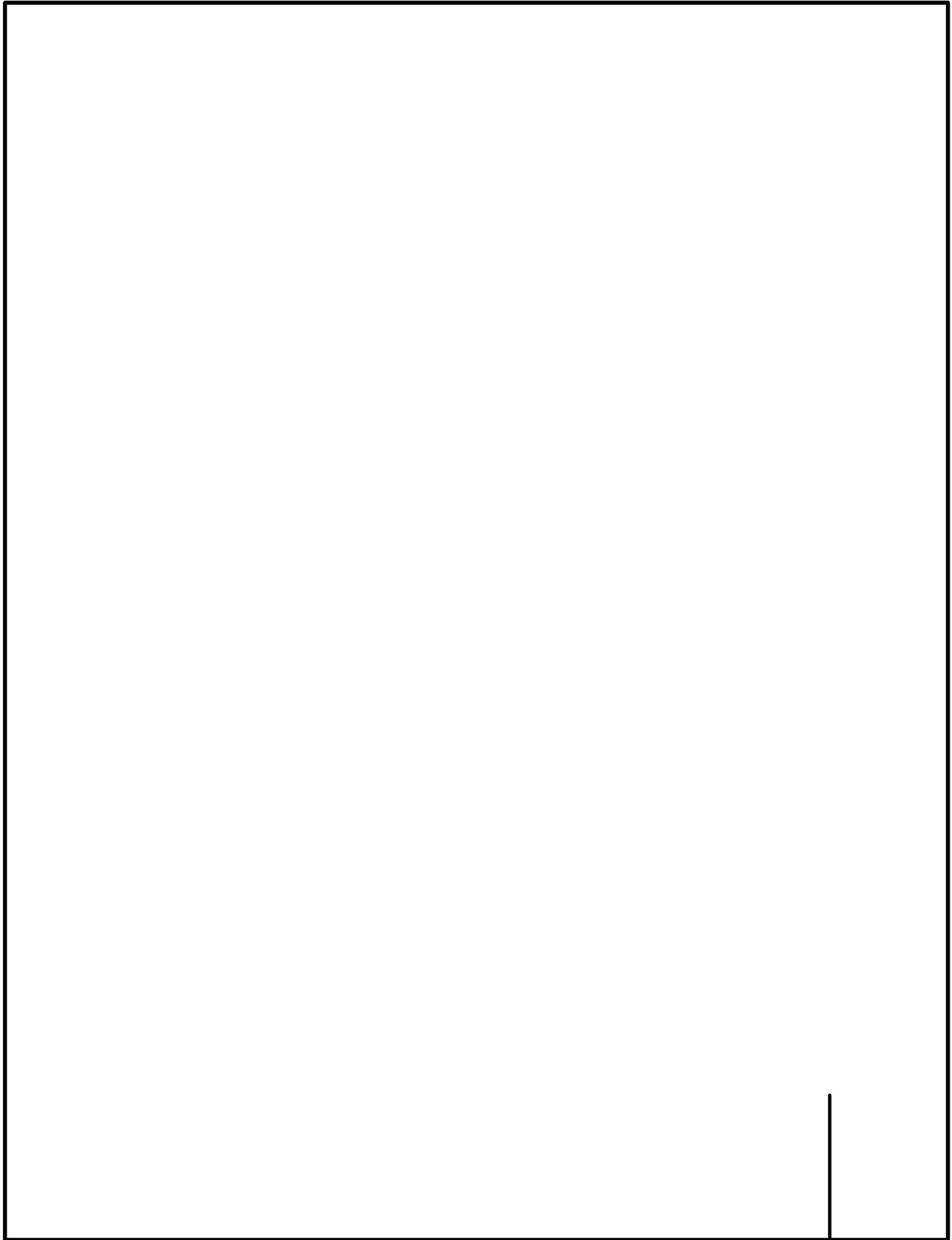
TABLE 3  
 Groundwater Analytical Results Summary  
 CPS Energy - Calaveras Power Station  
 Fly Ash Landfill

Constituents	Unit
<b>Appendix III - Detection Monitoring</b>	
Boron	mg/L
Calcium	mg/L
Chloride	mg/L
Fluoride	mg/L
Sulfate	mg/L
pH - Field Collected	SU
Total dissolved solids	mg/L
Antimony	mg/L
Lead	mg/L
Cadmium	mg/L
Chromium (VI)	mg/L
Copper	mg/L
Iron	mg/L
Manganese	mg/L
Nickel	mg/L
Selenium	mg/L
Silver	mg/L
Vanadium	mg/L
Zinc	mg/L
Barium	mg/L
Beryllium	mg/L
Chromium (III)	mg/L
Cobalt	mg/L
Fluoride (Total)	mg/L
Mercury (Total)	mg/L
Molybdenum	mg/L
Phosphorus (Total)	mg/L
Thallium	mg/L
Uranium	mg/L
Vanadium (Total)	mg/L
Zinc (Total)	mg/L

## Figures









# **Statistical Analysis Tables and Figures**

## *Appendix B*



Analyte	Well	Units	N	Num Detects	Percent
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Well	Sample	Date	Analyte	Units	Detect	Concentration	UPL type	Distribution	Statistical Outlier	Visual Outlier	Normal Distribution Outlier and Visual Outlier	Final Outlier Decision					
31381-013	4/4/2018	Boron	mg/L	TRUE	4.49	Intrawell	NDD	XJKS-57	JKS-57-20200429-CCR	4/28/2020	Boron	mg/L	TRUE	5.97	Intrawell	NDD	X

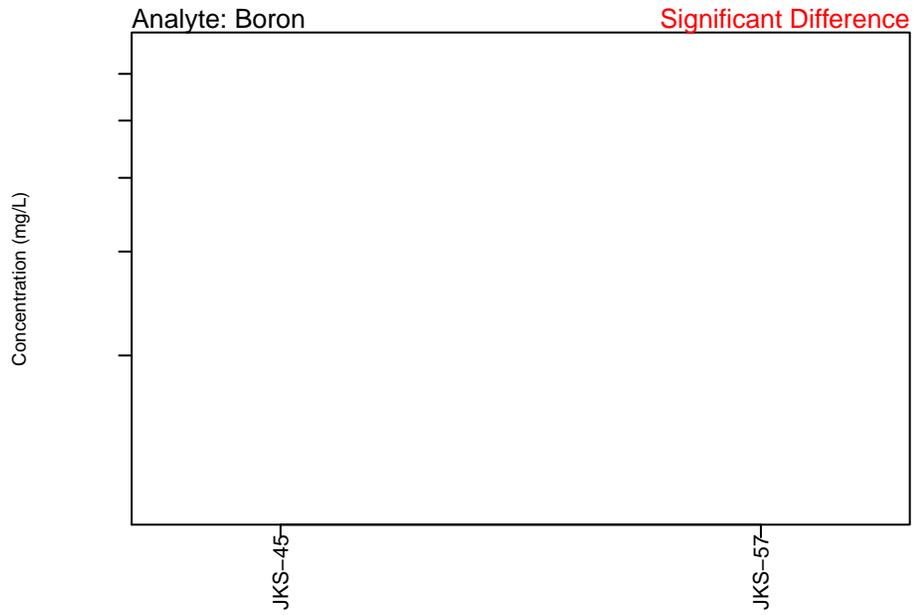


Analyte

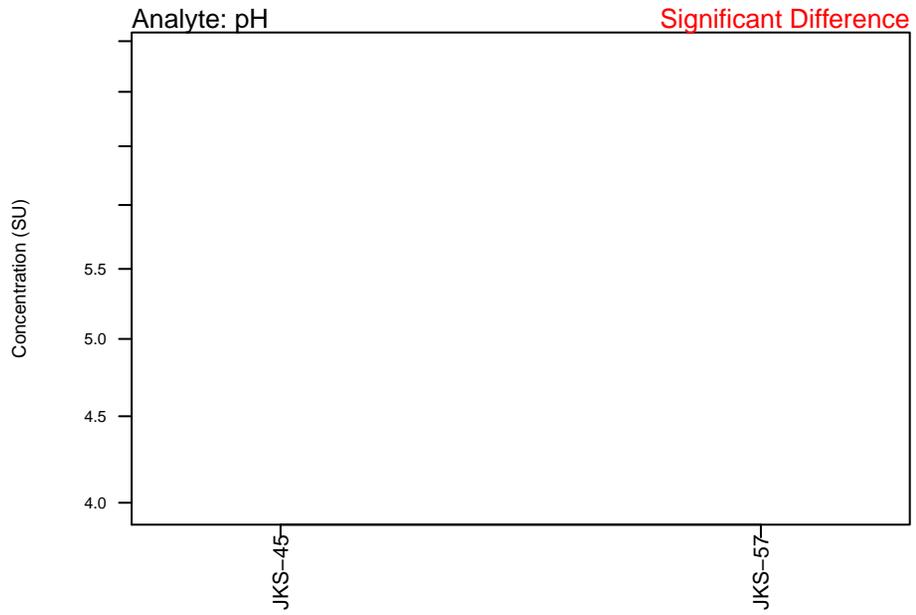
UPL Type

Analyte

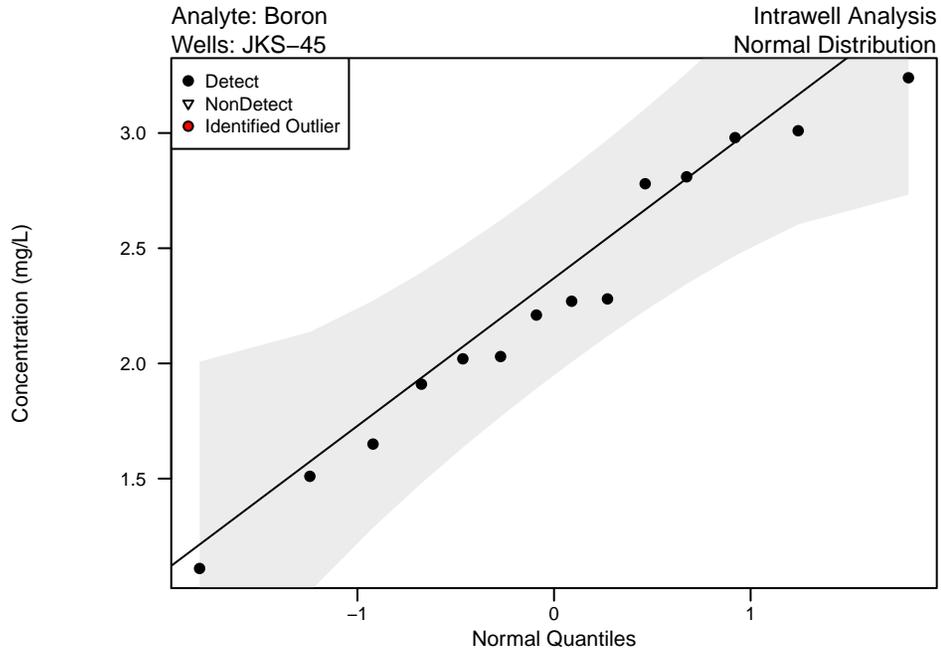
Appendix B – Figure 1  
Unit: Fly Ash Landfill  
Boxplots of Upgradient Wells



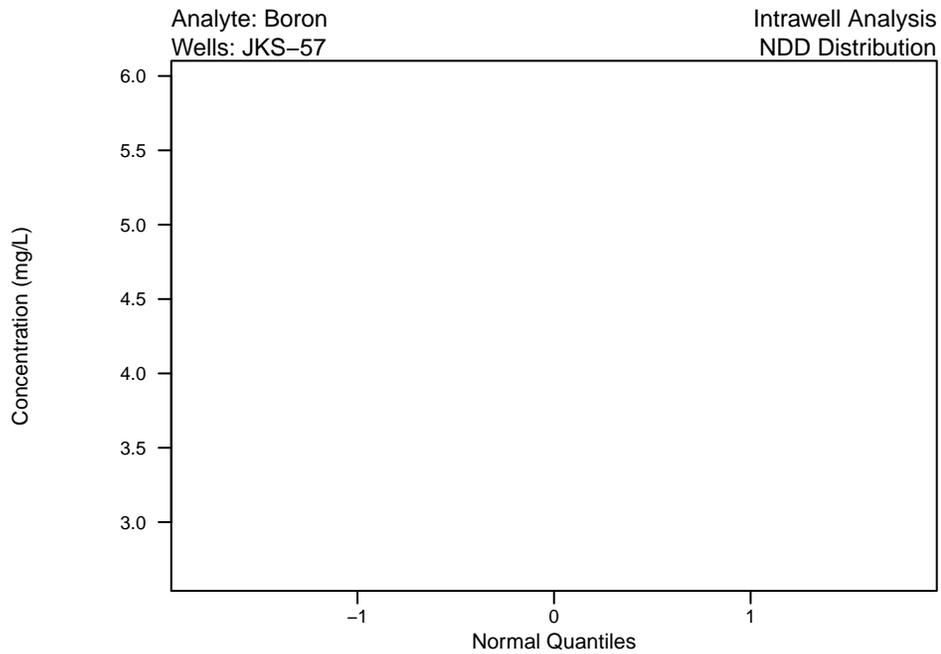
Appendix B – Figure 1  
Unit: Fly Ash Landfill  
Boxplots of Upgradient Wells



Appendix B – Figure 2  
Unit: Fly Ash Landfill  
QQ Plots of Upgradient Wells



Intentionally left blank,  
not Lognormal/NDD distribution.



**Appendix B – Figure 2**

**Appendix B – Figure 2**  
**Unit: Fly Ash Landfill**  
**QQ Plots of Upgradient Wells**

**Appendix B – Figure 2**  
**Unit: Fly Ash Landfill**  
**QQ Plots of Upgradient Wells**

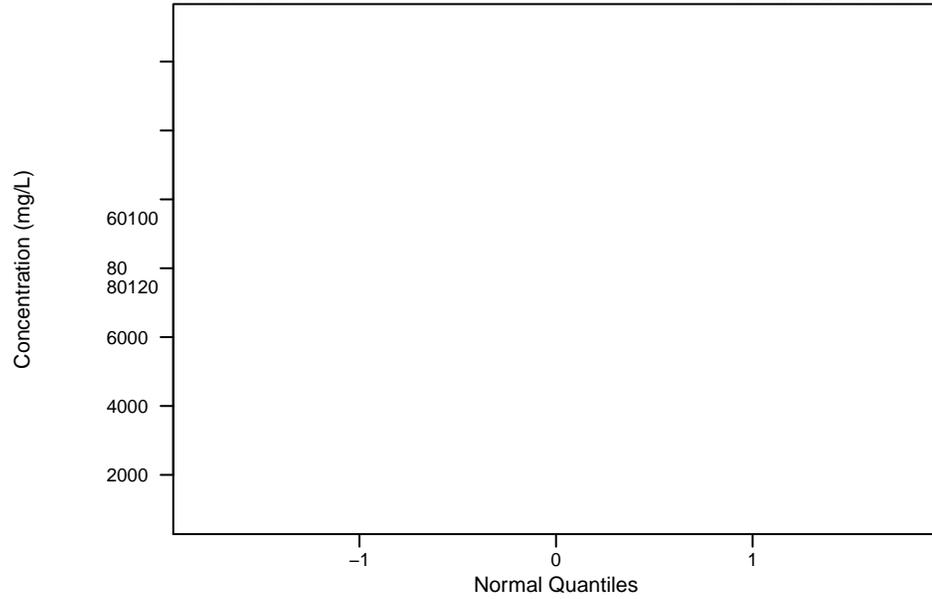




**Appendix B – Figure 2**  
**Unit: Fly Ash Landfill**  
**QQ Plots of Upgradient Wells**

Analyte: Total dissolved solids  
Wells: JKS-57

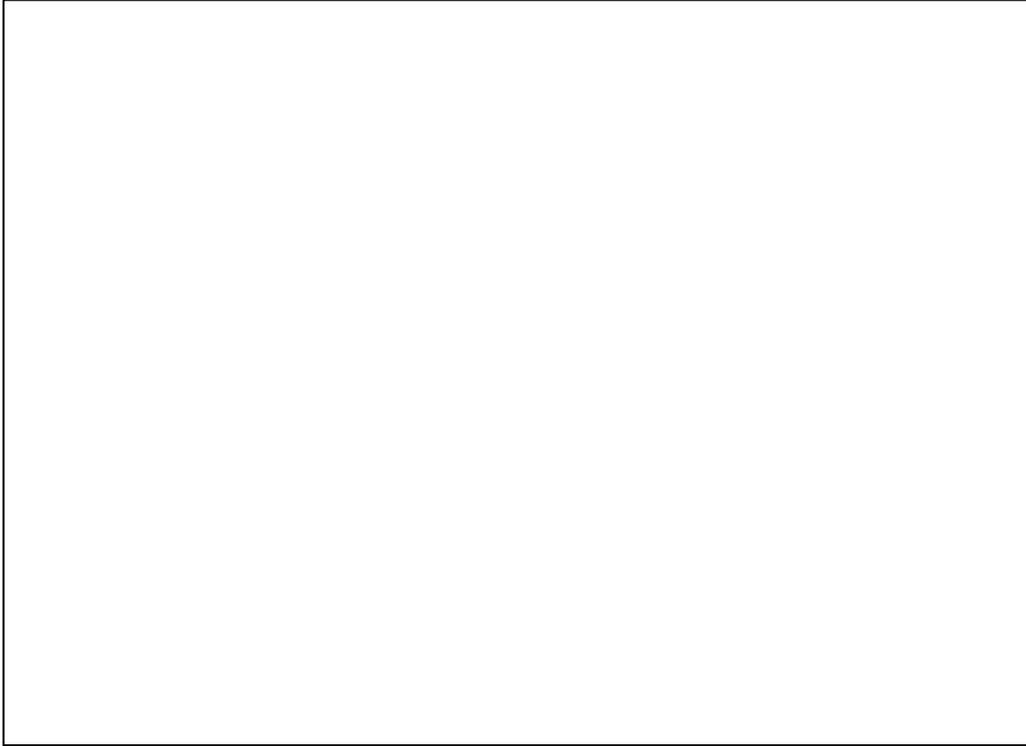
Intrawell Analysis  
Normal Distribution



**Appendix B – Figure 3**  
**Unit: Fly Ash Landfill**  
**Timeseries of Upgradient Wells**

**Appendix B – Figure 3**  
**Unit: Fly Ash Landfill**  
**Timeseries of Upgradient Wells**

Chemical: Chloride

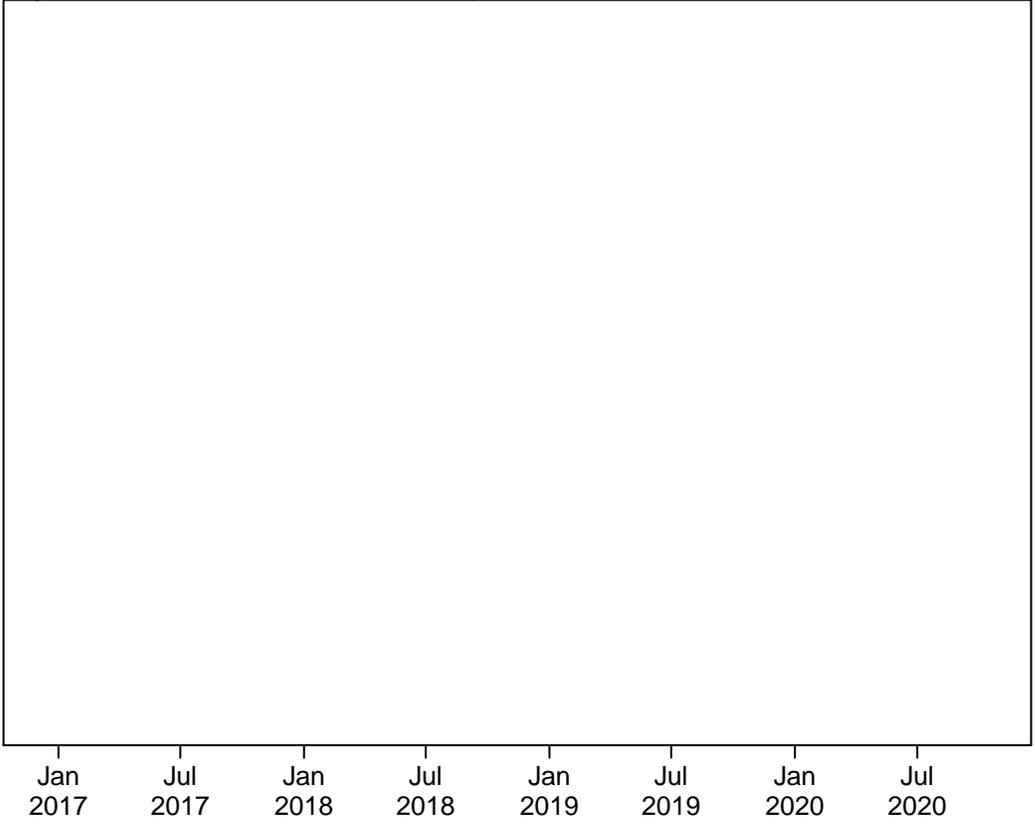


**Appendix B – Figure 3**  
**Unit: Fly Ash Landfill**  
**Timeseries of Upgradient Wells**

**Appendix B – Figure 3**  
**Unit: Fly Ash Landfill**  
**Timeseries of Upgradient Wells**

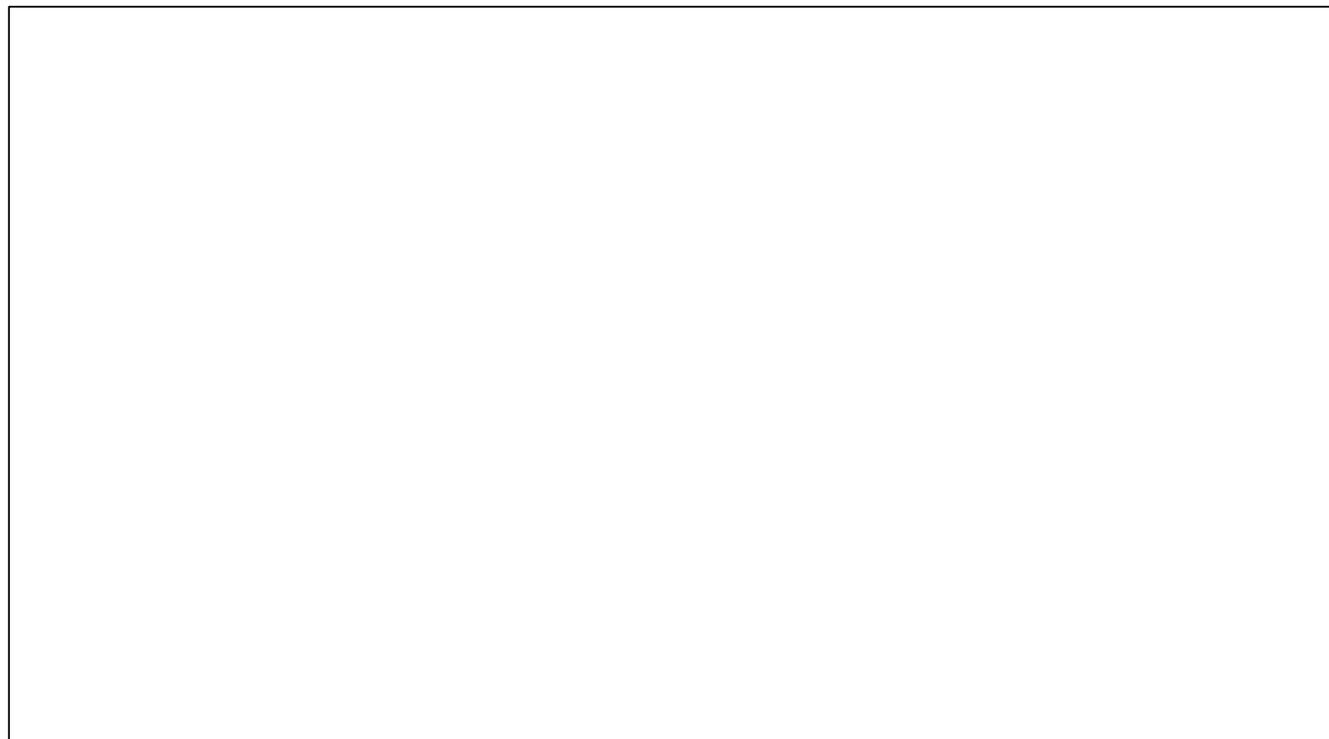
Chemical: Total dissolved solids  
Significant Difference (Intrawell Analysis)

Conced (2020)Td/ne mg/Ls)





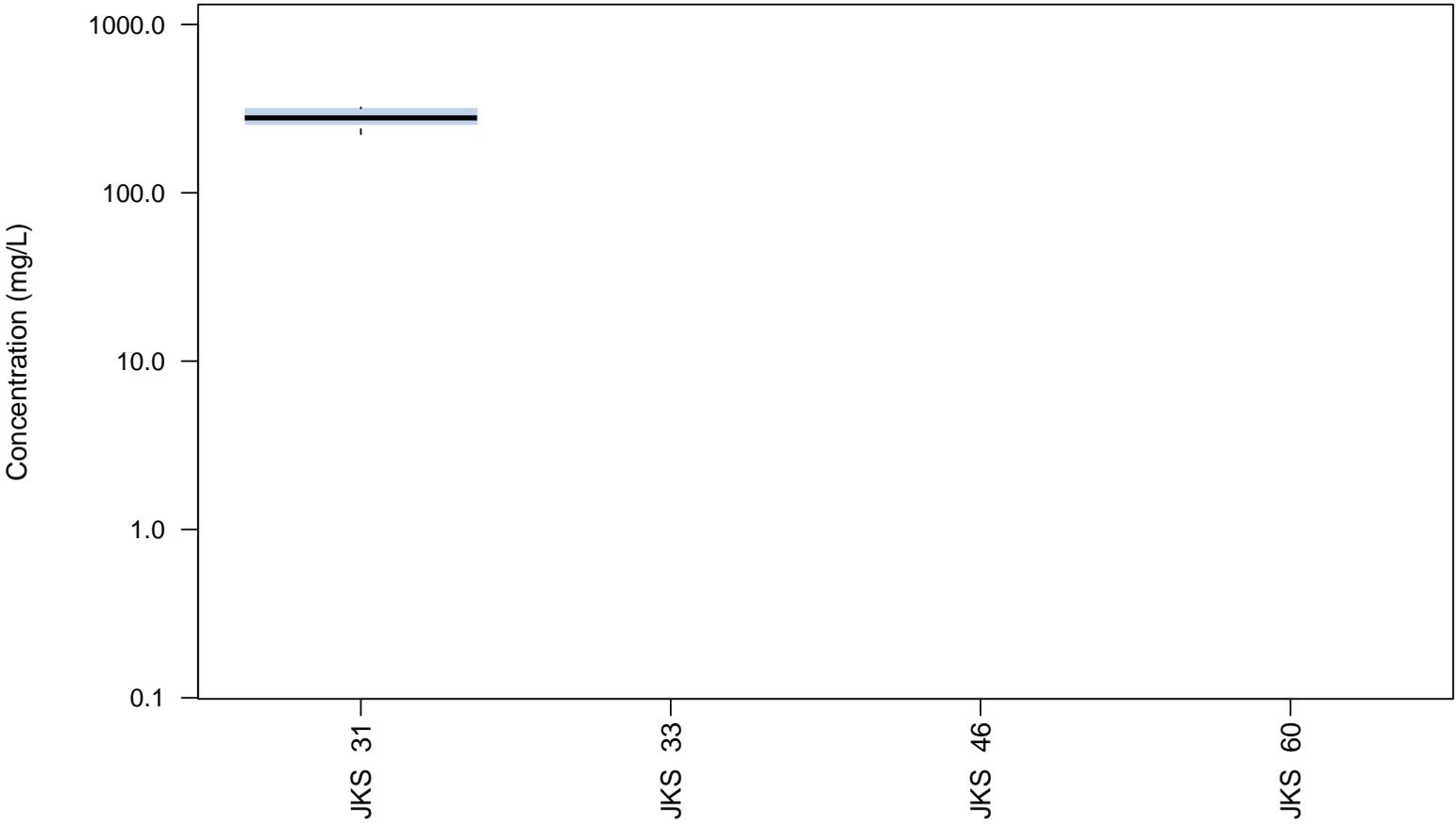
Chemical: Boron



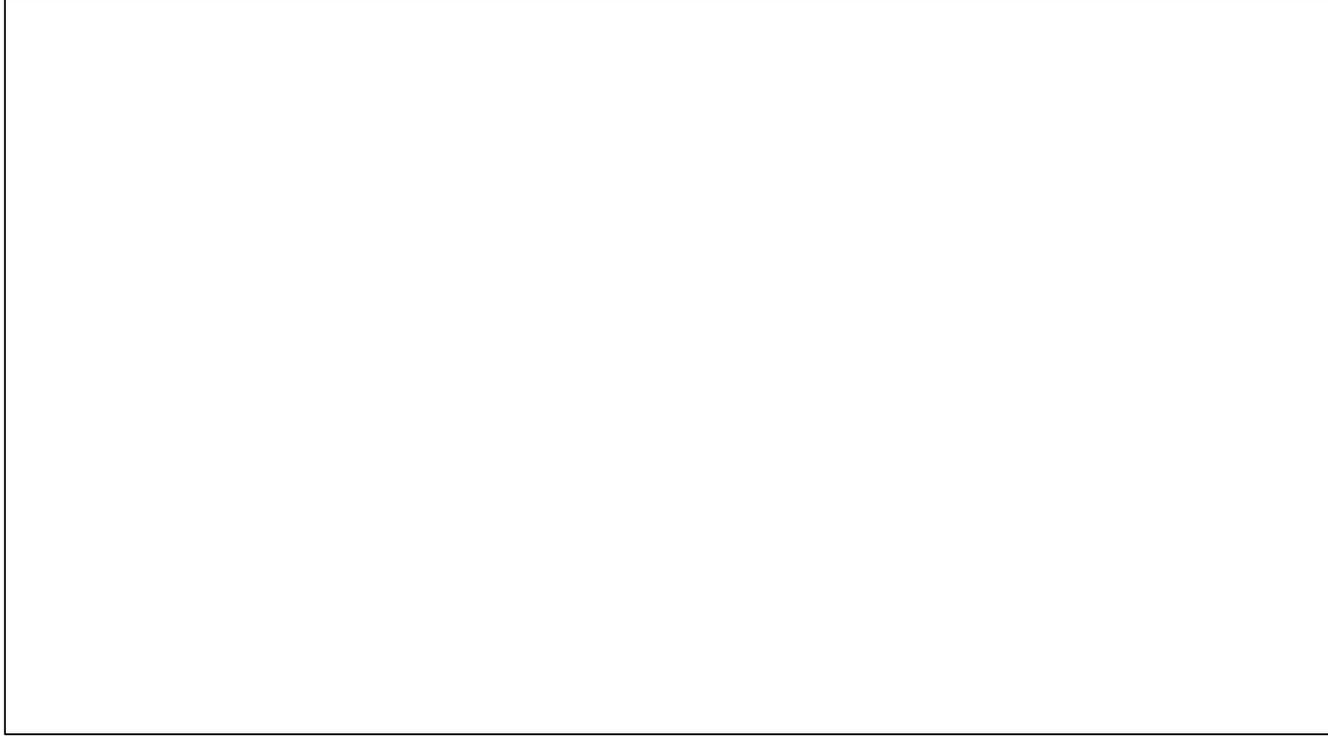
JKS



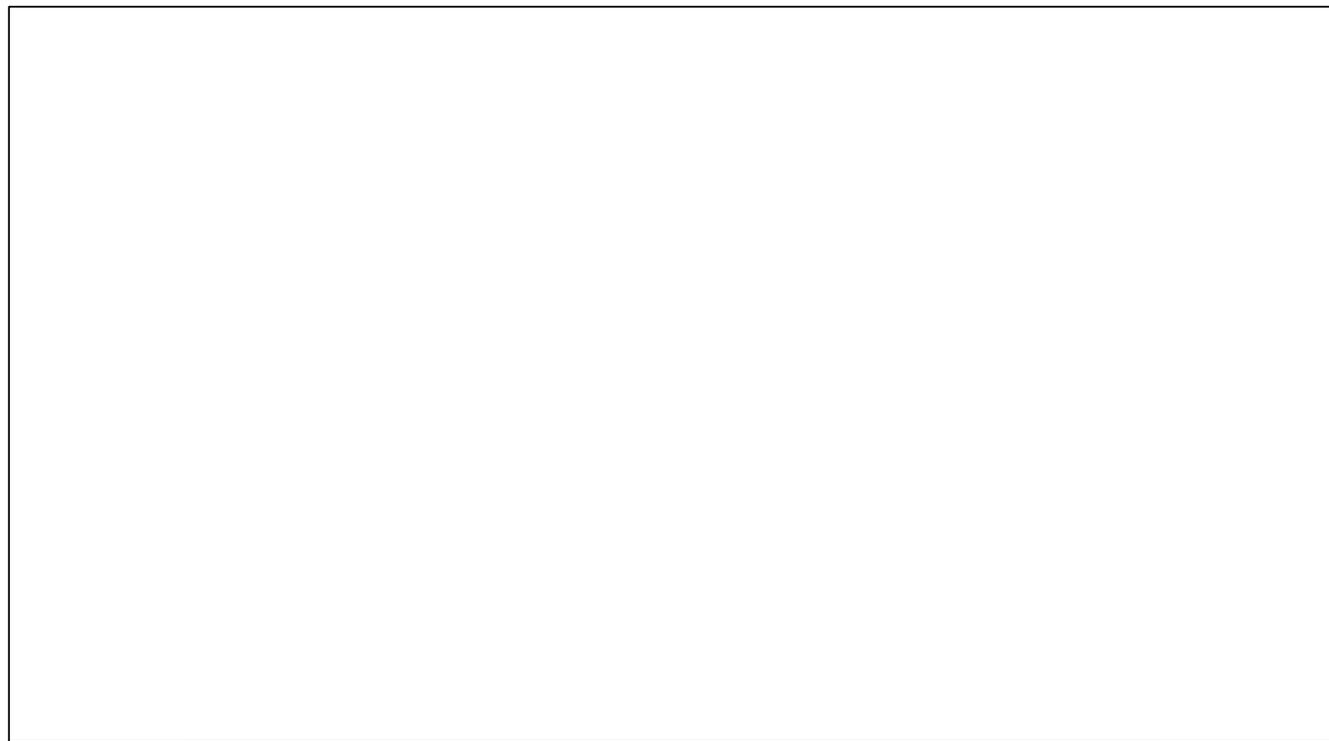
Ó@^ { ä&æ|KÁÓ@| [ !äâ^







Chemical: Sulfate



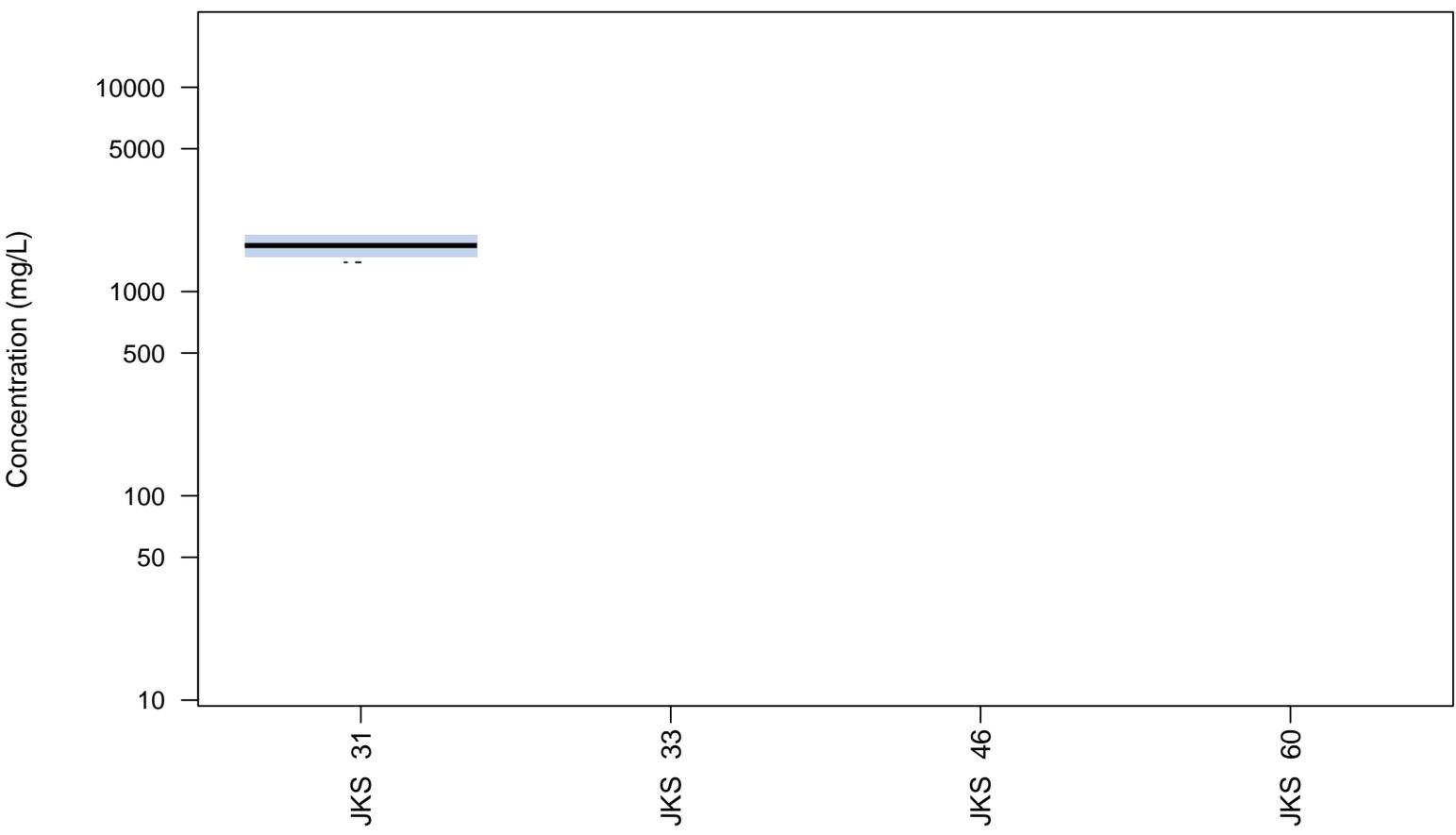
JKS 31

JKS 33

JKS 46

JKS 60

Chemical: Total Dissolved Solids













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## Regulatory Requirement Cross-Reference

**Regulatory  
Citation**

**Requirement (paraphrased)**

**Where Addressed**



The remaining sections of this R



#### 4.4. *CONCLUSIONS*

The downgradient samples collected during the October

## **Tables**



12/6/16 to 2/21/17 to 3/28/17 to 5/2/17 to 6/20/17 to 7/25/17 to 8/29/17 to 10/10/17 to 4/4/18 to 10/30/18 to 4/9/19 to 10/22/19 to 4/28/20 to 10/20/20 to  
12/8/16 2/23/17 3/30/17 5/4/17 6/21/17 7/26/17 8/30/17 10/11/17 4/5/18 10/31/18 4/10/19 10/23/19 4/29/20 10/21/20

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

12/7/16	2/22/17	3/28/17	5/3/17	6/20/17	7/25/17	8/29/17	10/10/17	11/5/17	11/13/17	11/27/17	12/11/17	12/18/17	1/8/18	1/22/18	2/5/18	2/19/18	3/5/18	3/19/18	4/2/18	4/16/18	4/30/18	5/14/18	5/28/18	6/11/18	6/25/18	7/9/18	7/23/18	8/6/18	8/20/18	9/3/18	9/17/18	9/30/18	10/14/18	10/28/18	11/11/18	11/25/18	12/9/18	12/23/18	1/6/19	1/20/19	2/3/19	2/17/19	2/27/19	3/13/19	3/27/19	4/10/19	4/24/19	5/8/19	5/22/19	6/5/19	6/19/19	7/3/19	7/17/19	7/31/19	8/14/19	8/28/19	9/11/19	9/25/19	10/9/19	10/23/19	11/6/19	11/20/19	12/4/19	12/18/19	1/1/20	1/15/20	1/29/20	2/12/20	2/26/20	3/12/20	3/26/20	4/9/20	4/23/20	5/7/20	5/21/20	6/4/20	6/18/20	7/2/20	7/16/20	7/30/20	8/13/20	8/27/20	9/10/20	9/24/20	10/8/20	10/22/20	11/5/20	11/19/20	12/3/20	12/17/20	1/10/21	1/24/21	2/7/21	2/21/21	3/7/21	3/21/21	4/4/21	4/18/21	5/2/21	5/16/21	5/30/21	6/13/21	6/27/21	7/11/21	7/25/21	8/8/21	8/22/21	9/5/21	9/19/21	10/3/21	10/17/21	10/31/21	11/14/21	11/28/21	12/12/21	12/26/21	1/9/22	1/23/22	2/6/22	2/20/22	3/6/22	3/20/22	4/3/22	4/17/22	4/30/22	5/14/22	5/28/22	6/11/22	6/25/22	7/9/22	7/23/22	8/6/22	8/20/22	9/3/22	9/17/22	9/30/22	10/14/22	10/28/22	11/11/22	11/25/22	12/9/22	12/23/22	1/6/23	1/20/23	2/3/23	2/17/23	2/27/23	3/13/23	3/27/23	4/10/23	4/24/23	5/8/23	5/22/23	6/5/23	6/19/23	7/3/23	7/17/23	7/31/23	8/14/23	8/28/23	9/11/23	9/25/23	10/9/23	10/23/23	11/6/23	11/20/23	12/4/23	12/18/23	1/1/24	1/15/24	1/29/24	2/12/24	2/26/24	3/12/24	3/26/24	4/9/24	4/23/24	5/7/24	5/21/24	6/4/24	6/18/24	7/2/24	7/16/24	7/30/24	8/13/24	8/27/24	9/10/24	9/24/24	10/8/24	10/22/24	11/5/24	11/19/24	12/3/24	12/17/24	1/10/25	1/24/25	2/7/25	2/21/25	3/7/25	3/21/25	4/4/25	4/18/25	5/2/25	5/16/25	5/30/25	6/13/25	6/27/25	7/11/25	7/25/25	8/8/25	8/22/25	9/5/25	9/19/25	10/3/25	10/17/25	10/31/25	11/14/25	11/28/25	12/12/25	12/26/25	1/9/26	1/23/26	2/6/26	2/20/26	3/6/26	3/20/26	4/3/26	4/17/26	4/30/26	5/14/26	5/28/26	6/11/26	6/25/26	7/9/26	7/23/26	8/6/26	8/20/26	9/3/26	9/17/26	9/30/26	10/14/26	10/28/26	11/11/26	11/25/26	12/9/26	12/23/26	1/6/27	1/20/27	2/3/27	2/17/27	2/27/27	3/13/27	3/27/27	4/10/27	4/24/27	5/8/27	5/22/27	6/5/27	6/19/27	7/3/27	7/17/27	7/31/27	8/14/27	8/28/27	9/11/27	9/25/27	10/9/27	10/23/27	11/6/27	11/20/27	12/4/27	12/18/27	1/1/28	1/15/28	1/29/28	2/12/28	2/26/28	3/12/28	3/26/28	4/9/28	4/23/28	5/7/28	5/21/28	6/4/28	6/18/28	7/2/28	7/16/28	7/30/28	8/13/28	8/27/28	9/10/28	9/24/28	10/8/28	10/22/28	11/5/28	11/19/28	12/3/28	12/17/28	1/10/29	1/24/29	2/7/29	2/21/29	3/7/29	3/21/29	4/4/29	4/18/29	5/2/29	5/16/29	5/30/29	6/13/29	6/27/29	7/11/29	7/25/29	8/8/29	8/22/29	9/5/29	9/19/29	10/3/29	10/17/29	10/31/29	11/14/29	11/28/29	12/12/29	12/26/29	1/9/30	1/23/30	2/6/30	2/20/30	3/6/30	3/20/30	4/3/30	4/17/30	4/30/30	5/14/30	5/28/30	6/11/30	6/25/30	7/9/30	7/23/30	8/6/30	8/20/30	9/3/30	9/17/30	9/30/30	10/14/30	10/28/30	11/11/30	11/25/30	12/9/30	12/23/30	1/6/31	1/20/31	2/3/31	2/17/31	2/27/31	3/13/31	3/27/31	4/10/31	4/24/31	5/8/31	5/22/31	6/5/31	6/19/31	7/3/31	7/17/31	7/31/31	8/14/31	8/28/31	9/11/31	9/25/31	10/9/31	10/23/31	11/6/31	11/20/31	12/4/31	12/18/31	1/1/32	1/15/32	1/29/32	2/12/32	2/26/32	3/12/32	3/26/32	4/9/32	4/23/32	5/7/32	5/21/32	6/4/32	6/18/32	7/2/32	7/16/32	7/30/32	8/13/32	8/27/32	9/10/32	9/24/32	10/8/32	10/22/32	11/5/32	11/19/32	12/3/32	12/17/32	1/10/33	1/24/33	2/7/33	2/21/33	3/7/33	3/21/33	4/4/33	4/18/33	5/2/33	5/16/33	5/30/33	6/13/33	6/27/33	7/11/33	7/25/33	8/8/33	8/22/33	9/5/33	9/19/33	10/3/33	10/17/33	10/31/33	11/14/33	11/28/33	12/12/33	12/26/33	1/9/34	1/23/34	2/6/34	2/20/34	3/6/34	3/20/34	4/3/34	4/17/34	4/30/34	5/14/34	5/28/34	6/11/34	6/25/34	7/9/34	7/23/34	8/6/34	8/20/34	9/3/34	9/17/34	9/30/34	10/14/34	10/28/34	11/11/34	11/25/34	12/9/34	12/23/34	1/6/35	1/20/35	2/3/35	2/17/35	2/27/35	3/13/35	3/27/35	4/10/35	4/24/35	5/8/35	5/22/35	6/5/35	6/19/35	7/3/35	7/17/35	7/31/35	8/14/35	8/28/35	9/11/35	9/25/35	10/9/35	10/23/35	11/6/35	11/20/35	12/4/35	12/18/35	1/1/36	1/15/36	1/29/36	2/12/36	2/26/36	3/12/36	3/26/36	4/9/36	4/23/36	5/7/36	5/21/36	6/4/36	6/18/36	7/2/36	7/16/36	7/30/36	8/13/36	8/27/36	9/10/36	9/24/36	10/8/36	10/22/36	11/5/36	11/19/36	12/3/36	12/17/36	1/10/37	1/24/37	2/7/37	2/21/37	3/7/37	3/21/37	4/4/37	4/18/37	5/2/37	5/16/37	5/30/37	6/13/37	6/27/37	7/11/37	7/25/37	8/8/37	8/22/37	9/5/37	9/19/37	10/3/37	10/17/37	10/31/37	11/14/37	11/28/37	12/12/37	12/26/37	1/9/38	1/23/38	2/6/38	2/20/38	3/6/38	3/20/38	4/3/38	4/17/38	4/30/38	5/14/38	5/28/38	6/11/38	6/25/38	7/9/38	7/23/38	8/6/38	8/20/38	9/3/38	9/17/38	9/30/38	10/14/38	10/28/38	11/11/38	11/25/38	12/9/38	12/23/38	1/6/39	1/20/39	2/3/39	2/17/39	2/27/39	3/13/39	3/27/39	4/10/39	4/24/39	5/8/39	5/22/39	6/5/39	6/19/39	7/3/39	7/17/39	7/31/39	8/14/39	8/28/39	9/11/39	9/25/39	10/9/39	10/23/39	11/6/39	11/20/39	12/4/39	12/18/39	1/1/40	1/15/40	1/29/40	2/12/40	2/26/40	3/12/40	3/26/40	4/9/40	4/23/40	5/7/40	5/21/40	6/4/40	6/18/40	7/2/40	7/16/40	7/30/40	8/13/40	8/27/40	9/10/40	9/24/40	10/8/40	10/22/40	11/5/40	11/19/40	12/3/40	12/17/40	1/10/41	1/24/41	2/7/41	2/21/41	3/7/41	3/21/41	4/4/41	4/18/41	5/2/41	5/16/41	5/30/41	6/13/41	6/27/41	7/11/41	7/25/41	8/8/41	8/22/41	9/5/41	9/19/41	10/3/41	10/17/41	10/31/41	11/14/41	11/28/41	12/12/41	12/26/41	1/9/42	1/23/42	2/6/42	2/20/42	3/6/42	3/20/42	4/3/42	4/17/42	4/30/42	5/14/42	5/28/42	6/11/42	6/25/42	7/9/42	7/23/42	8/6/42	8/20/42	9/3/42	9/17/42	9/30/42	10/14/42	10/28/42	11/11/42	11/25/42	12/9/42	12/23/42	1/6/43	1/20/43	2/3/43	2/17/43	2/27/43	3/13/43	3/27/43	4/10/43	4/24/43	5/8/43	5/22/43	6/5/43	6/19/43	7/3/43	7/17/43	7/31/43	8/14/43	8/28/43	9/11/43	9/25/43	10/9/43	10/23/43	11/6/43	11/20/43	12/4/43	12/18/43	1/1/44	1/15/44	1/29/44	2/12/44	2/26/44	3/12/44	3/26/44	4/9/44	4/23/44	5/7/44	5/21/44	6/4/44	6/18/44	7/2/44	7/16/44	7/30/44	8/13/44	8/27/44	9/10/44	9/24/44	10/8/44	10/22/44	11/5/44	11/19/44	12/3/44	12/17/44	1/10/45	1/24/45	2/7/45	2/21/45	3/7/45	3/21/45	4/4/45	4/18/45	5/2/45	5/16/45	5/30/45	6/13/45	6/27/45	7/11/45	7/25/45	8/8/45	8/22/45	9/5/45	9/19/45	10/3/45	10/17/45	10/31/45	11/14/45	11/28/45	12/12/45	12/26/45	1/9/46	1/23/46	2/6/46	2/20/46	3/6/46	3/20/46	4/3/46	4/17/46	4/30/46	5/14/46	5/28/46	6/11/46	6/25/46	7/9/46	7/23/46	8/6/46	8/20/46	9/3/46	9/17/46	9/30/46	10/14/46	10/28/46	11/11/46	11/25/46	12/9/46	12/23/46	1/6/47	1/20/47	2/3/47	2/17/47	2/27/47	3/13/47	3/27/47	4/10/47	4/24/47	5/8/47	5/22/47	6/5/47	6/19/47	7/3/47	7/17/47	7/31/47	8/14/47	8/28/47	9/11/47	9/25/47	10/9/47	10/23/47	11/6/47	11/20/47	12/4/47	12/18/47	1/1/48	1/15/48	1/29/48	2/12/48	2/26/48	3/12/48	3/26/48	4/9/48	4/23/48	5/7/48	5/21/48	6/4/48	6/18/48	7/2/48	7/16/48	7/30/48	8/13/48	8/27/48	9/10/48	9/24/48	10/8/48	10/22/48	11/5/48	11/19/48	12/3/48	12/17/48	1/10/49	1/24/49	2/7/49	2/21/49	3/7/49	3/21/49	4/4/49	4/18/49	5/2/49	5/16/49	5/30/49	6/13/49	6/27/49	7/11/49	7/25/49	8/8/49	8/22/49	9/5/49	9/19/49	10/3/49	10/17/49	10/31/49	11/14/49	11/28/49	12/12/49	12/26/49	1/9/50	1/23/50	2/6/50	2/20/50	3/6/50	3/20/50	4/3/50	4/17/50	4/30/50	5/14/50	5/28/50	6/11/50	6/25/50	7/9/50	7/23/50	8/6/50	8/20/50	9/3/50	9/17/50	9/30/50	10/14/50	10/28/50	11/11/50	11/25/50	12/9/50	12/23/50	1/6/51	1/20/51	2/3/51	2/17/51	2/27/51	3/13/51	3/27/51	4/10/51	4/24/51	5/8/51	5/22/51	6/5/51	6/19/51	7/3/51	7/17/51	7/31/51	8/14/51	8/28/51	9/11/51	9/25/51	10/9/51	10/23/51	11/6/51	11/20/51	12/4/51	12/18/51	1/1/52	1/15/52	1/29/52	2/12/52	2/26/52	3/12/52	3/26/52	4/9/52	4/23/52	5/7/52	5/21/52	6/4/52	6/18/52	7/2/52	7/16/52	7/30/52	8/13/52	8/27/52	9/10/52	9/24/52	10/8/52	10/22/52	11/5/52	11/19/52	12/3/52	12/17/52	1/10/53	1/24/53	2/7/53	2/21/53	3/7/53	3/21/53	4/4/53	4/18/53	5/2/53	5/16/53	5/30/53	6/13/53	6/27/53	7/11/53	7/25/53	8/8/53	8/22/53	9/5/53	9/19/53	10/3/53	10/17/53	10/31/53	11/14/53	11/28/53	12/12/53	12/26/53	1/9/54	1/23/54	2/6/54	2/20/54	3/6/54	3/20/54	4/3/54	4/17/54	4/30/54	5/14/54	5/28/54	6/11/54	6/25/54	7/9/54	7/23/54	8/6/54	8/20/54	9/3/54	9/17/54	9/30/54	10/14/54	10/28/54	11/11/54	11/25/54	12/9/54	12/23/54	1/6/55	1/20/55	2/3/55	2/17/55	2/27/55	3/13/55	3/27/55	4/10/55	4/24/55	5/8/55	5/22/55	6/5/55	6/19/55	7/3/55	7/17/55	7/31/55	8/14/55	8/28/55	9/11/55	9/25/55	10/9/55	10/23/55	11/6/55	11/20/55	12/4/55	12/18/55	1/1/56	1/15/56	1/29/56	2/12/56	2/26/56	3/12/56	3/26/56	4/9/56	4/23/56	5/7/56	5/21/56	6/4/56	6/18/56	7/2/56	7/16/56	7/30/56	8/13/56	8/27/56	9/10/56	9/24/56	10/8/56	10/22/56	11/5/56	11/19/56	12/3/56	12/17/56	1/10/57	1/24/57</
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TABLE 3  
Groundwater Analytical Results Summary  
CPS Energy - Calaveras Power Station

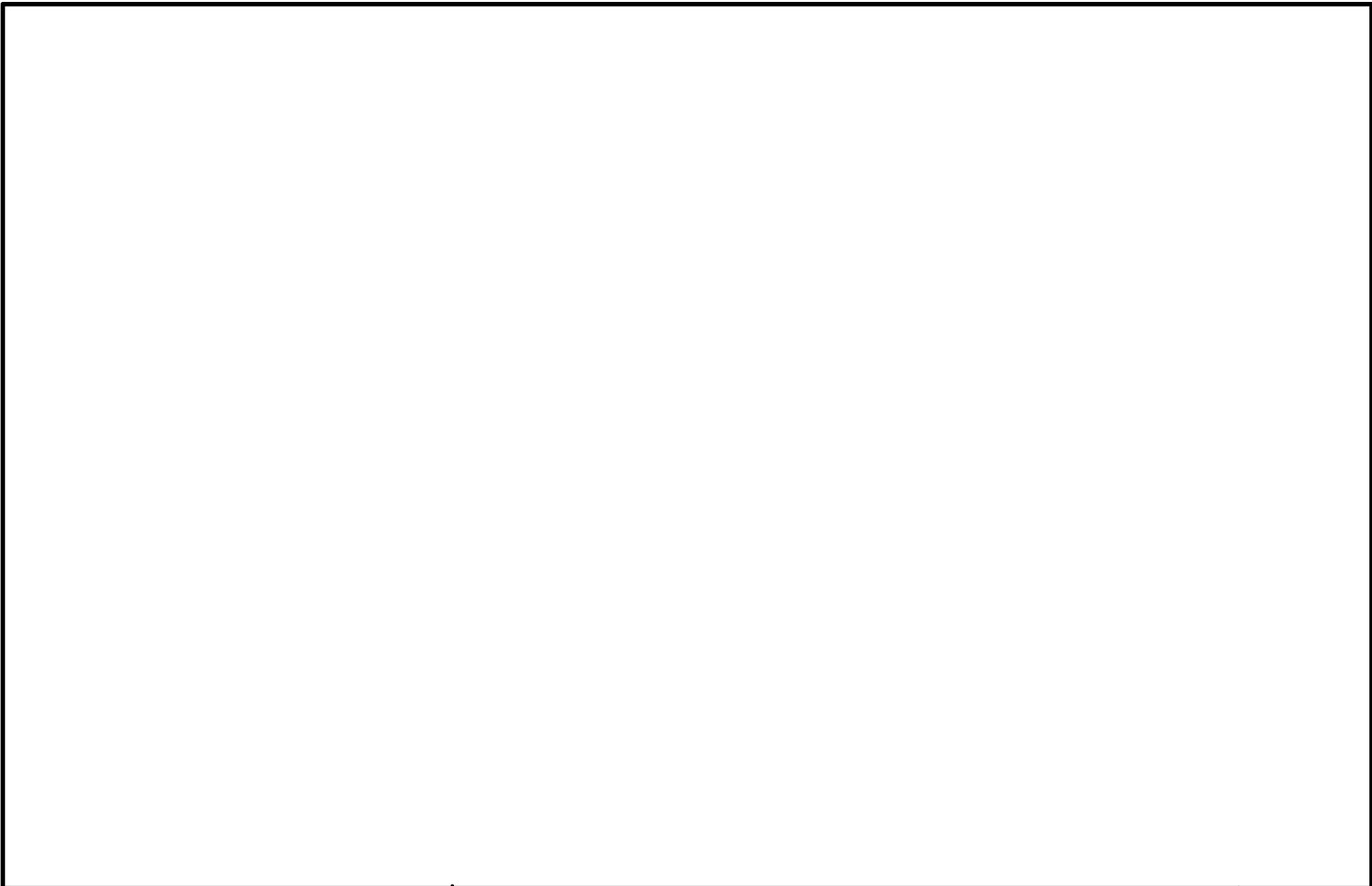
TABLE 3  
Groundwater Analytical Results Summary  
CPS Energy - Calaveras Power Station

TABLE 3  
Groundwater Analytical Results Summary

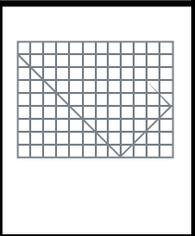
TABLE 3

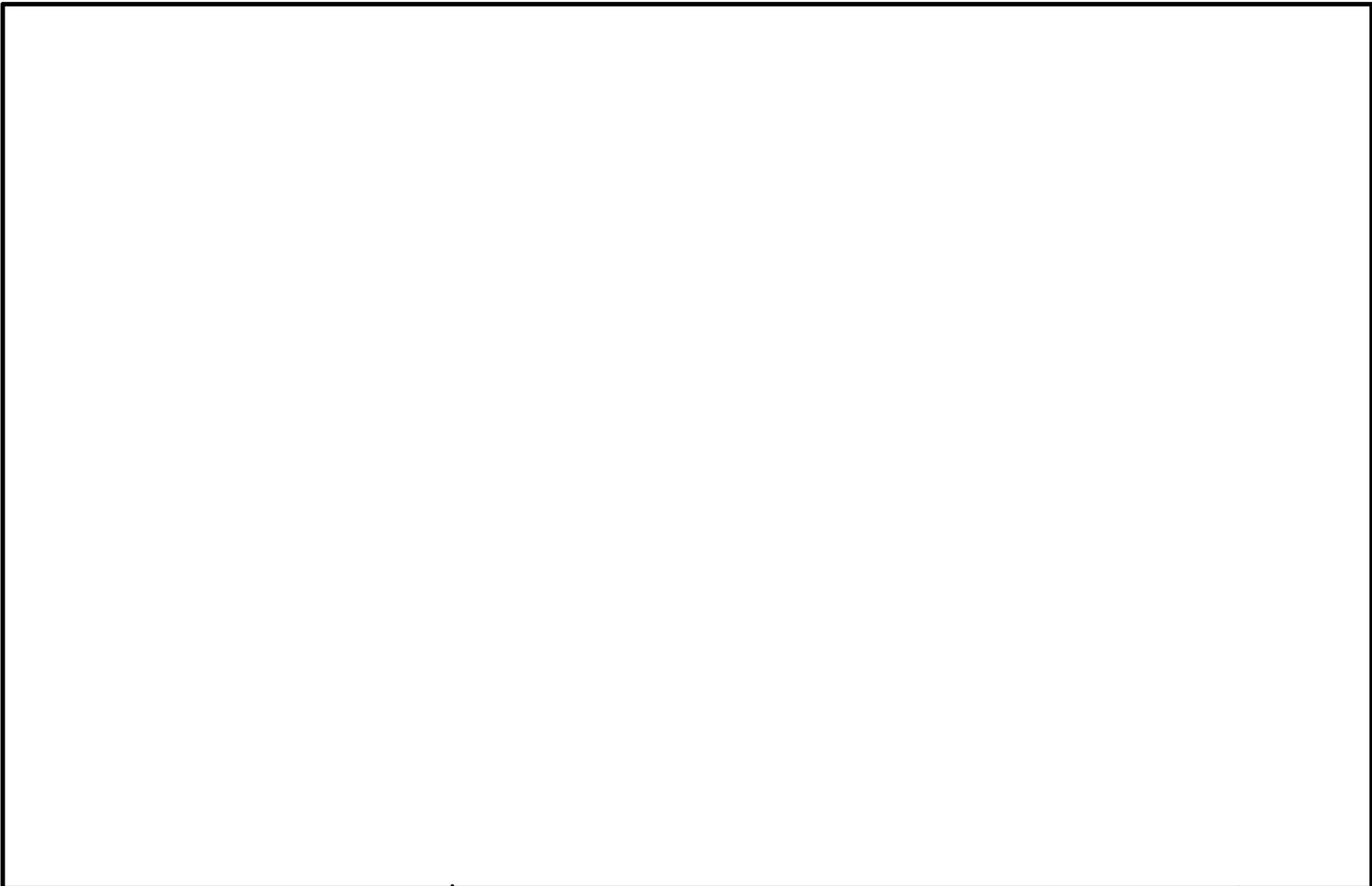
## **Figures**



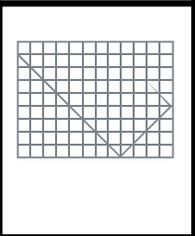


DESIGN:	DRAWN:	CHKD.:
DATE:	SCALE:	REVISION:





DESIGN:	DRAWN:	CHKD.:
DATE:	SCALE:	REVISION:



**Laboratory Data Packages**  
*Appendix A*

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



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

Analyte	N	Num Detects	Percent Detect	DF	KW Statistic	p-value	Conclusion	UPL Type
Boron	28	28	100.00%	1	20.3	<0.001	Significant Difference	Intrawell
Calcium	28	28	100.00%	1	19.5	<0.001	Significant Difference	Intrawell
Chloride	28	28	100.00%	1	0.256	0.613	No Significant Difference	Interwell
Fluoride	28	26	92.86%	1	19.9	<0.001	Significant Difference	Intrawell
pH	28	28	100.00%	1	12.7	<0.001	Significant Difference	Intrawell
Sulfate	28	28	100.00%	1	19.9	<0.001	Significant Difference	Intrawell
Total dissolved solids	28	28	100.00%	1	9.64	0.00191	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.



**Well**

Analyte	UPL Type	Well	N	Num Detects	Percent Detect	p-value	tau	Conclusion
Boron	Intrawell	JKS-49	14	14	100%	<0.001	-0.685	Decreasing Trend
Boron	Intrawell	JKS-51	14	14	100%	0.511	0.133	Stable, No Trend
Calcium	Intrawell	JKS-49	14	14	100%	0.584	-0.11	Stable, No Trend
Calcium	Intrawell	JKS-51	14	14	100%	0.747	0.0769	Stable, No Trend
Chloride	Interwell	JKS-51	28	28	100%	0.00137	0.43	Increasing Trend
Fluoride	Intrawell	JKS-49	14	14	100%	0.233	0.253	Stable, No Trend
Fluoride	Intrawell	JKS-51	14	12	86%	0.826	-0.0442	Stable, No Trend
pH	Intrawell	JKS-49	14	14	100%	0.782	0.0569	Stable, No Trend
pH	Intrawell	JKS-51	14	14	100%	0.518	-0.143	Stable, No Trend
Sulfate	Intrawell	JKS-49	14	14	100%	0.913	-0.0221	Stable, No Trend
Sulfate	Intrawell	JKS-51	14	14	100%	0.1	0.331	Stable, No Trend
Total dissolved solids	Intrawell	JKS-49	14	14	100%	0.546	0.122	Stable, No Trend
Total dissolved solids	Intrawell	JKS-51	14	14	100%	0.441	0.156	Stable, No Trend

**NOTES:**

Non-detects were substituted with a value of zero for trend calculation

Analyte

UPL Type

Trend

Well

N

Analyte

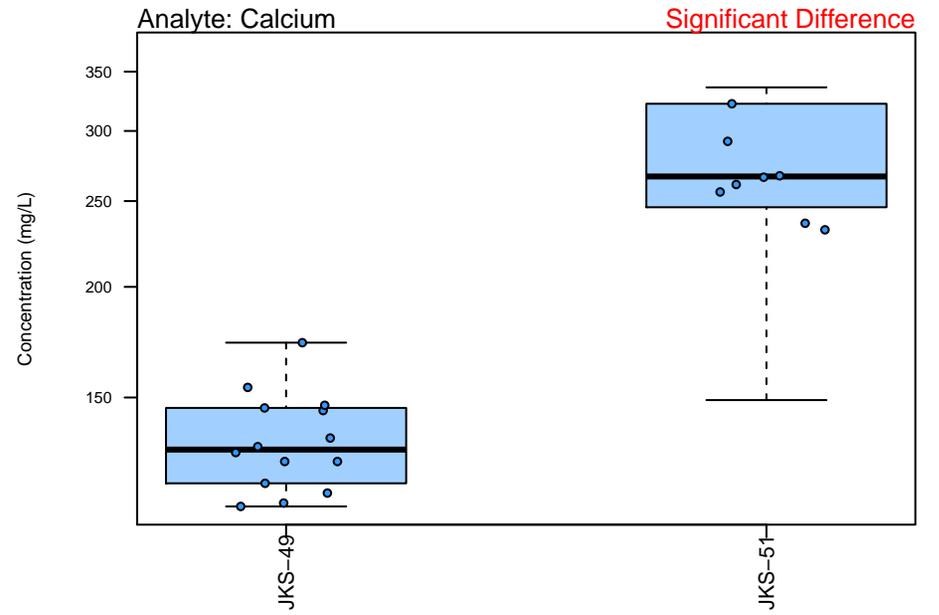
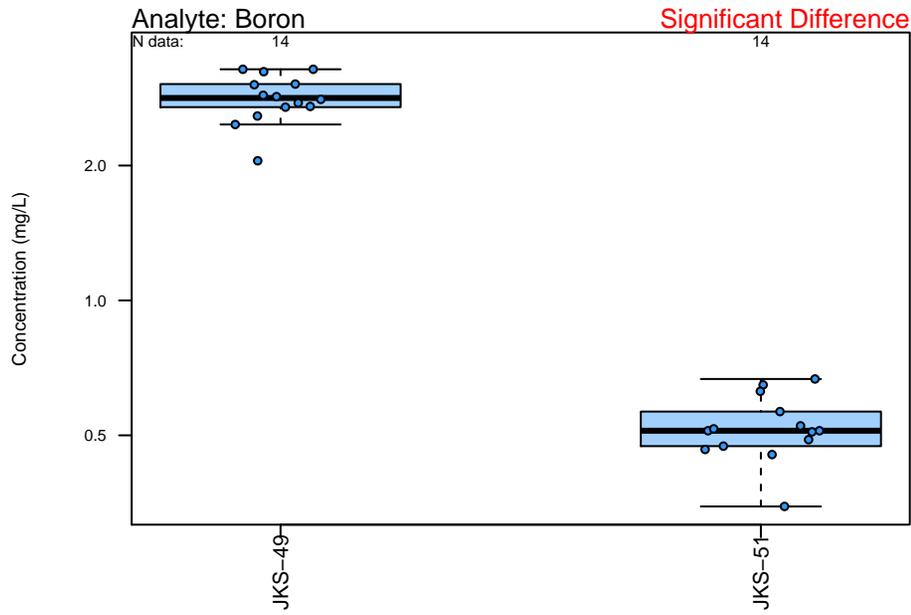
Well

LPL

UPL

Units

Appendix B – Figure 1  
Unit: SRH Pond  
Boxplots of Upgradient Wells



**Appendix B – Figure 1**  
**Unit: SRH Pond**

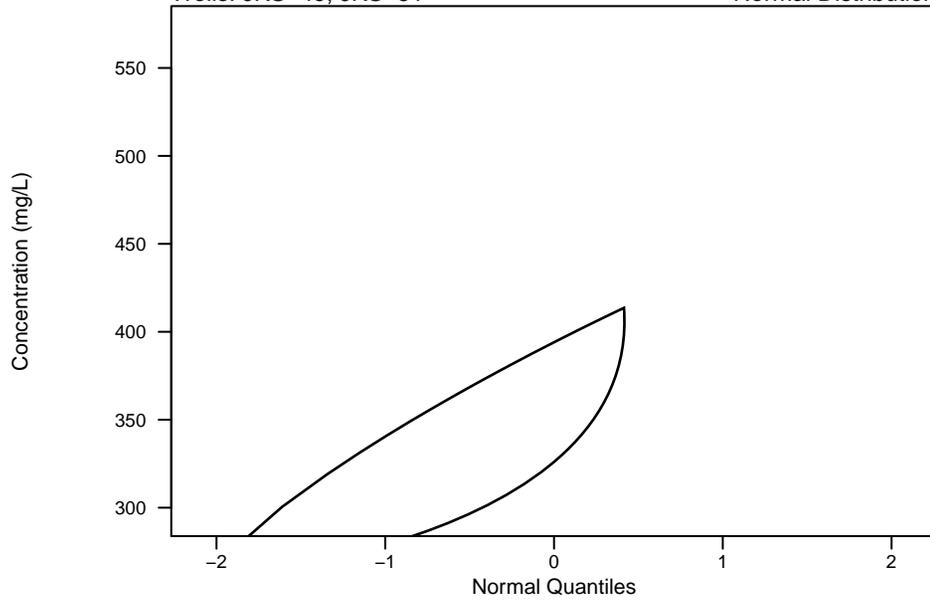




**Appendix B – Figure 2**  
**Unit: SRH Pond**  
**QQ Plots of Upgradient Wells**

Analyte: Chloride  
Wells: JKS-49, JKS-51

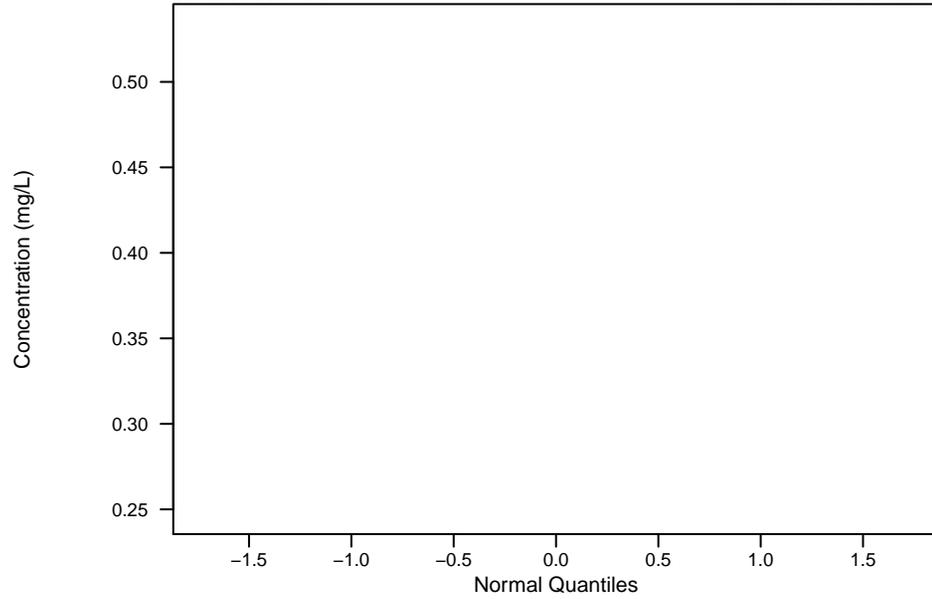
Interwell Analysis  
Normal Distribution



**Appendix B – Figure 2**  
**Unit: SRH Pond**  
**QQ Plots of Upgradient Wells**

Analyte: Fluoride  
Wells: JKS-51

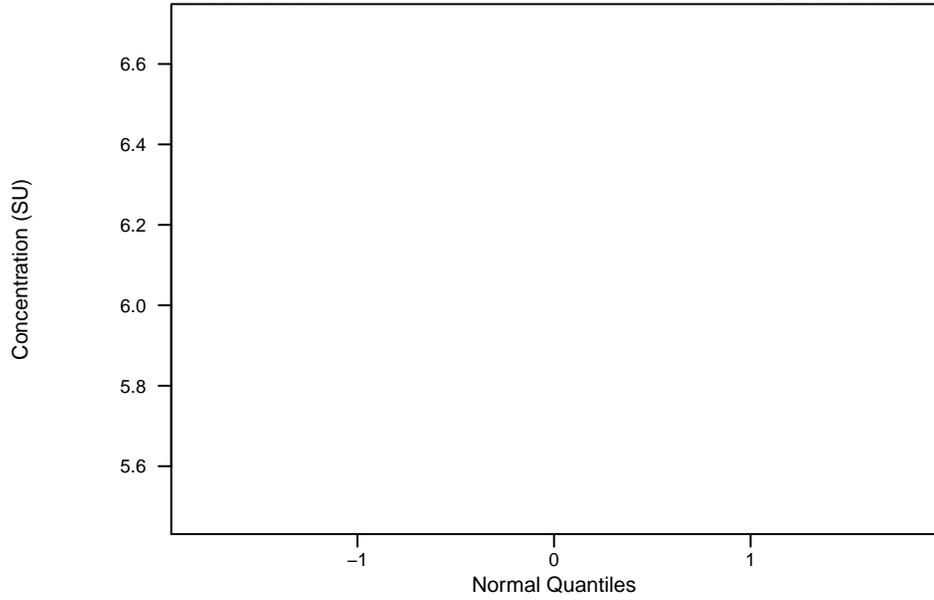
Intrawell Analysis  
Normal Distribution



**Appendix B – Figure 2**  
**Unit: SRH Pond**  
**QQ Plots of Upgradient Wells**

Analyte: pH  
Wells: JKS-51

Intrawell Analysis  
NDD Distribution



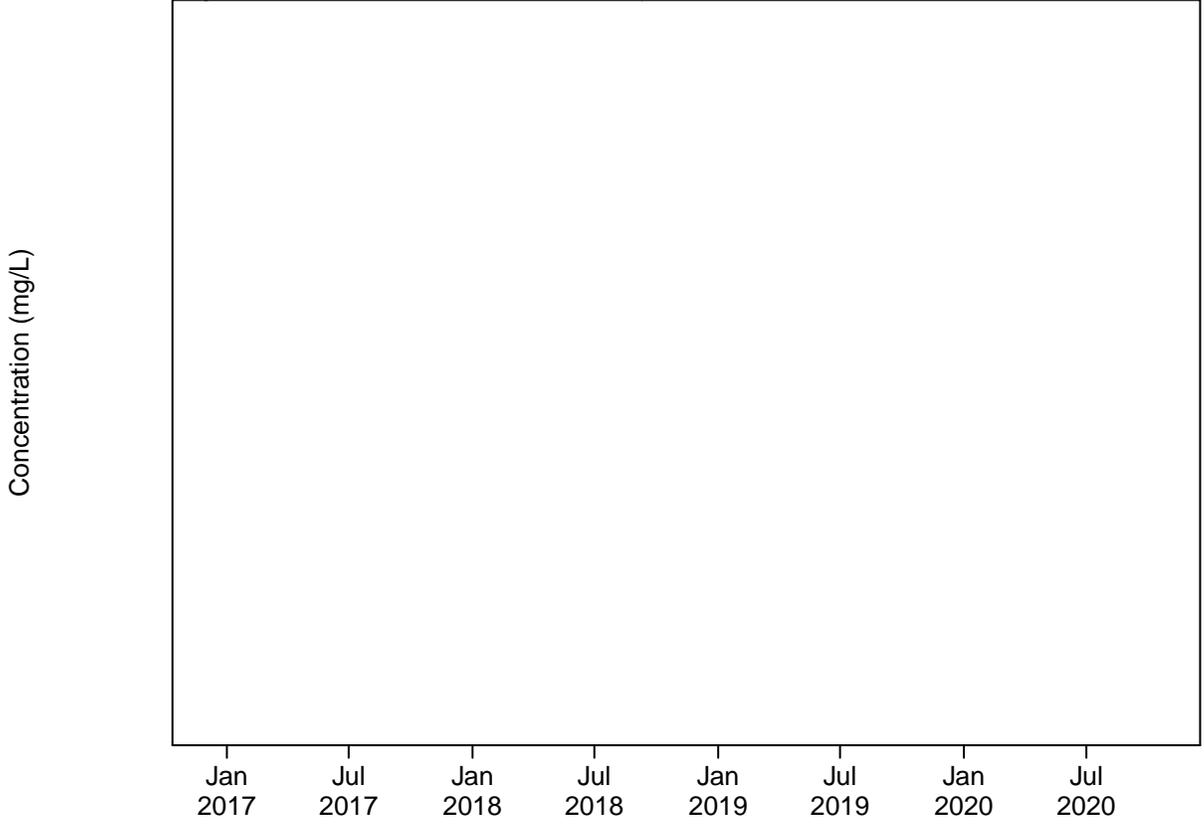
**Appendix B – Figure 2**

**Appendix B – Figure 2**  
**Unit: SRH Pond**  
**QQ Plots of Upgradient Wells**



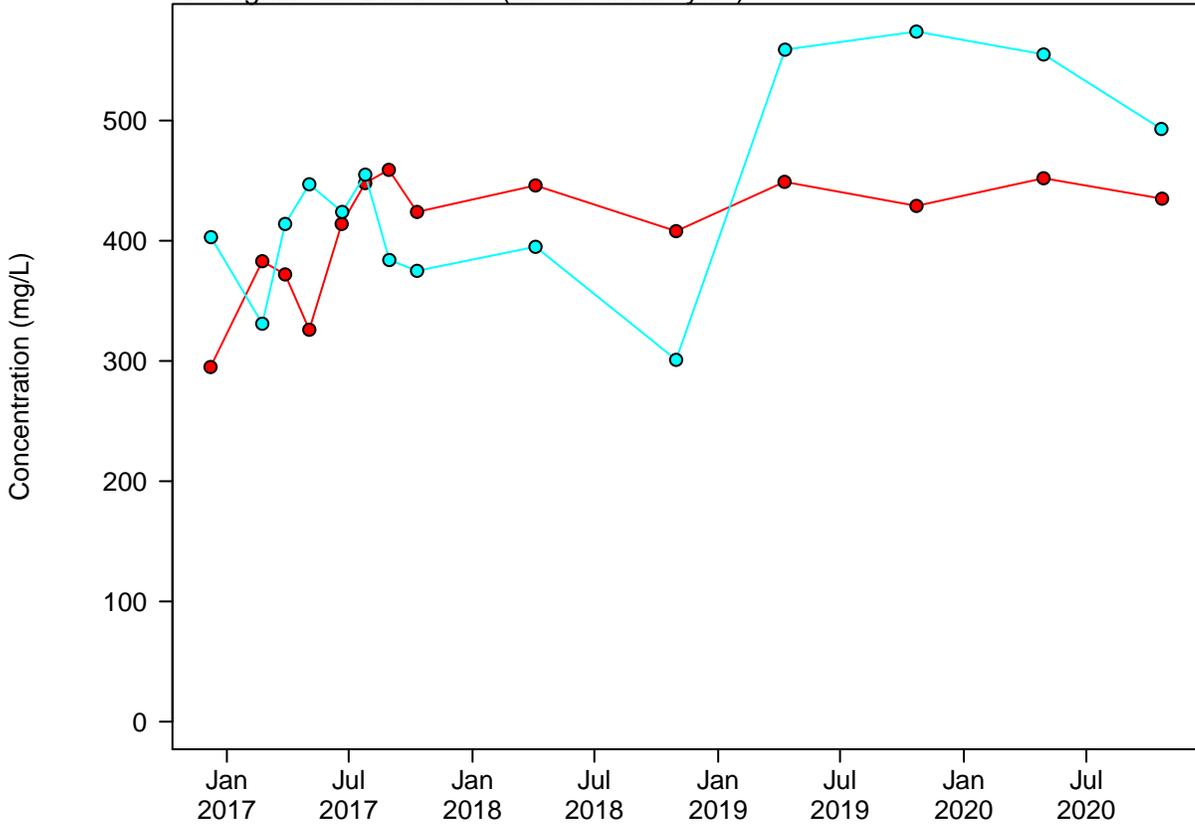
**Appendix B – Figure 3**  
**Unit: SRH Pond**  
**Timeseries of Upgradient Wells**

Chemical: Boron  
Significant Difference (Intrawell Analysis)



Appendix B – Figure 3  
Unit: SRH Pond  
Timeseries of Upgradient Wells

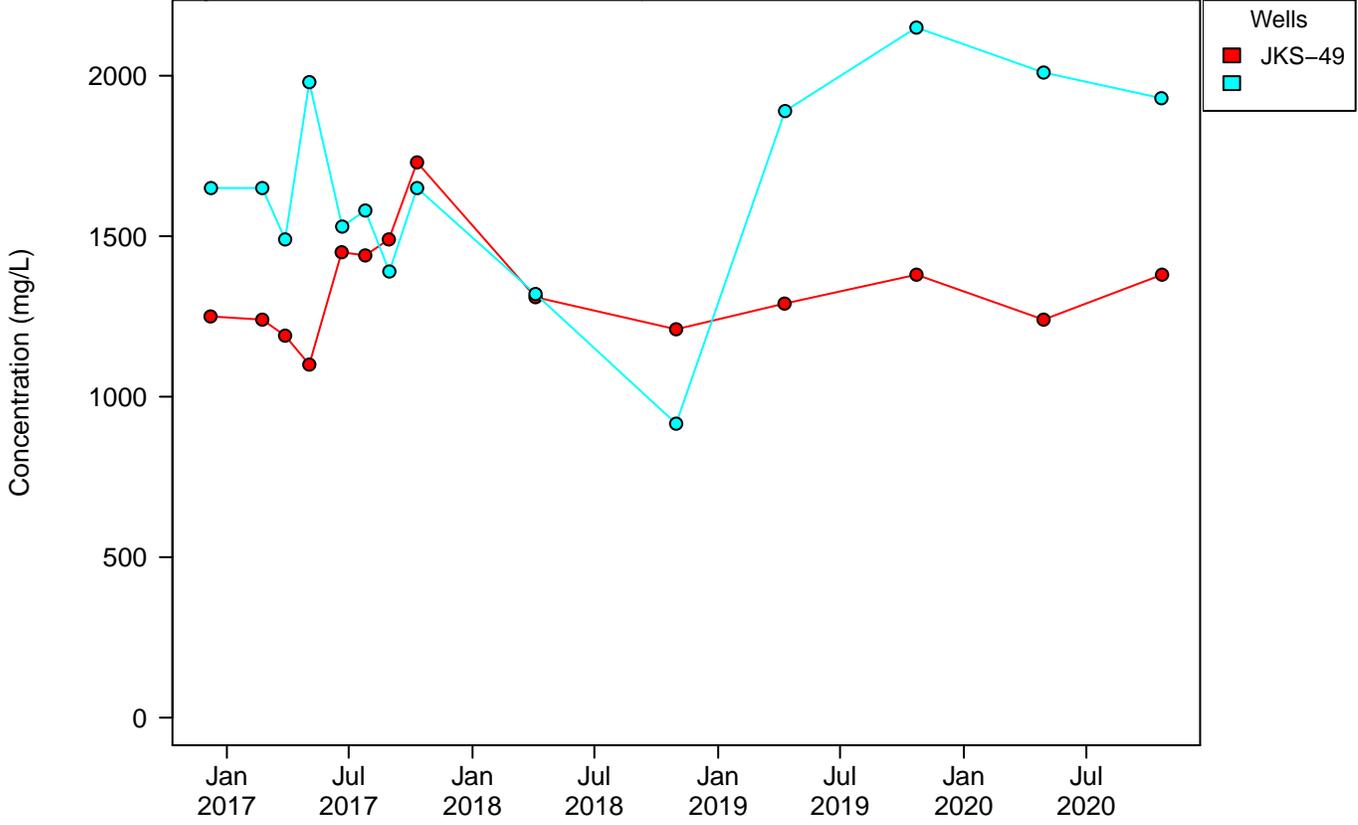
Chemical: Chloride  
No Significant Difference (Interwell Analysis)

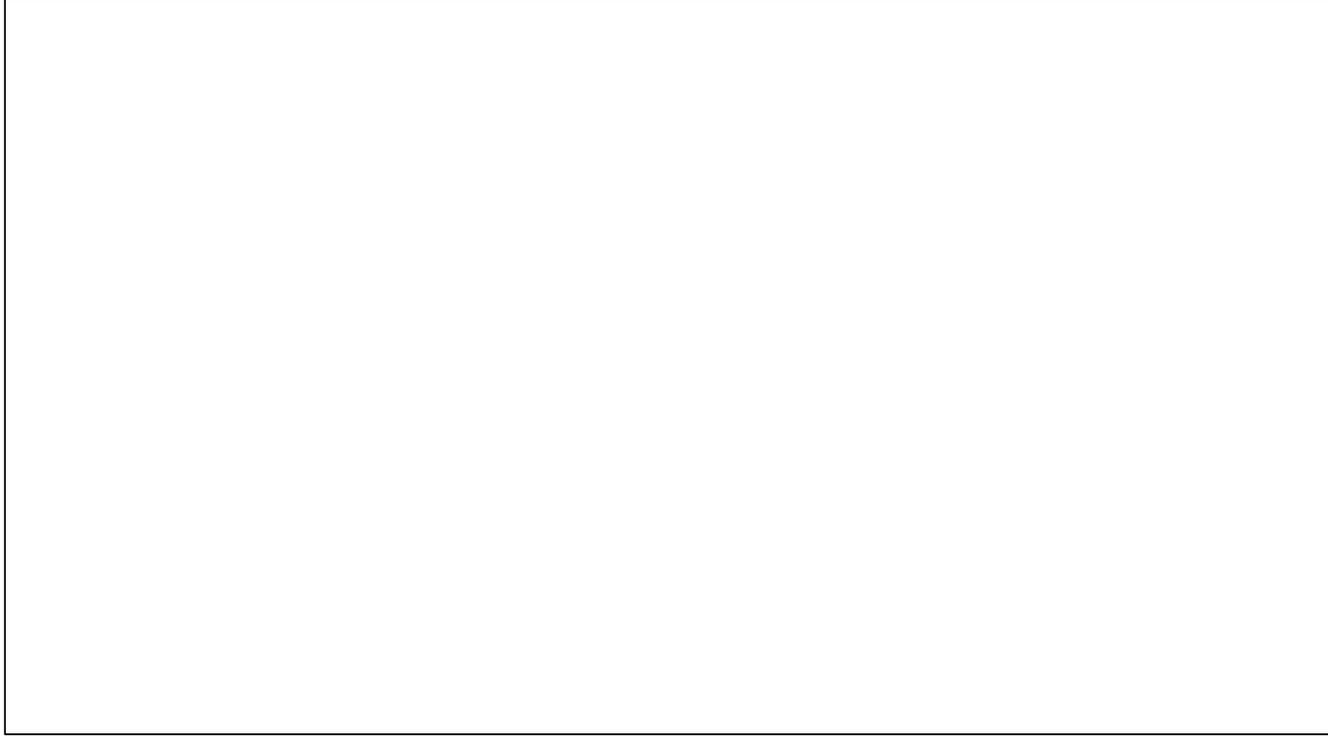




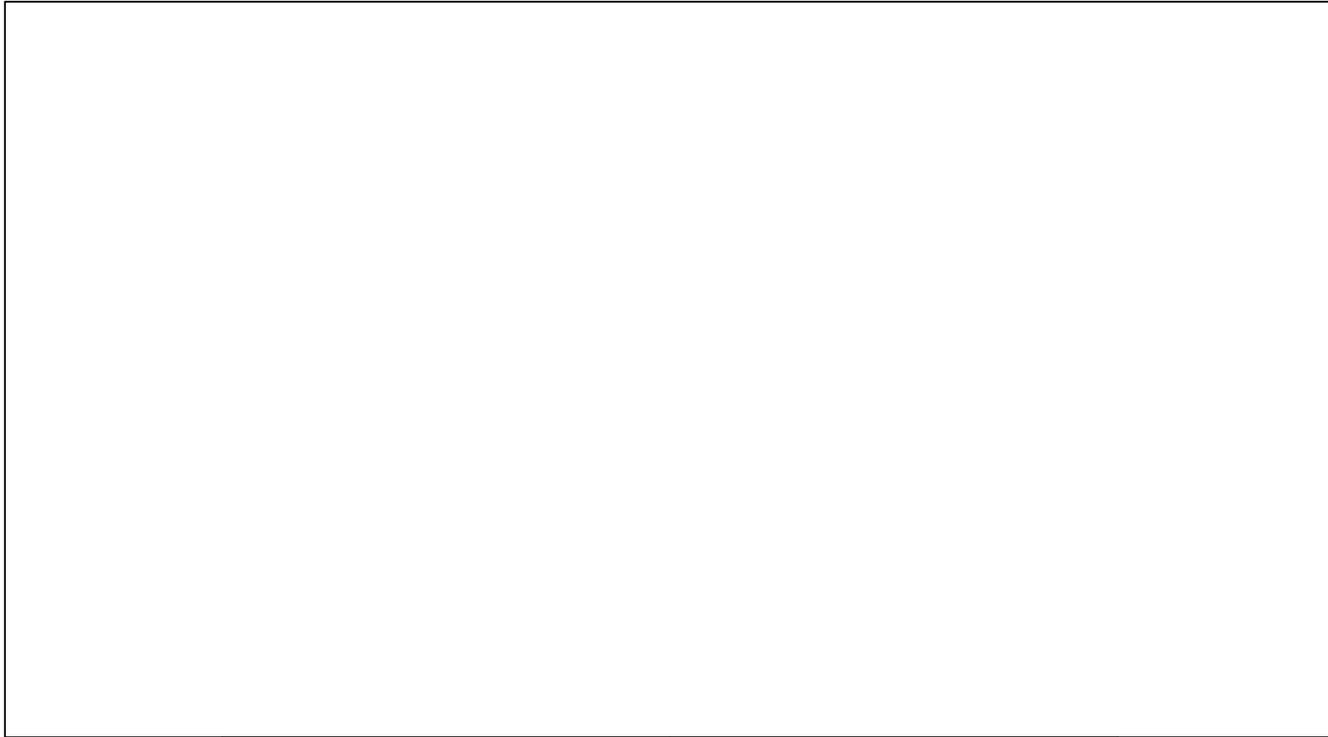
Appendix B – Figure 3  
Unit: SRH Pond  
Timeseries of Upgradient Wells

Chemical: Total dissolved solids  
Significant Difference (Intrawell Analysis)





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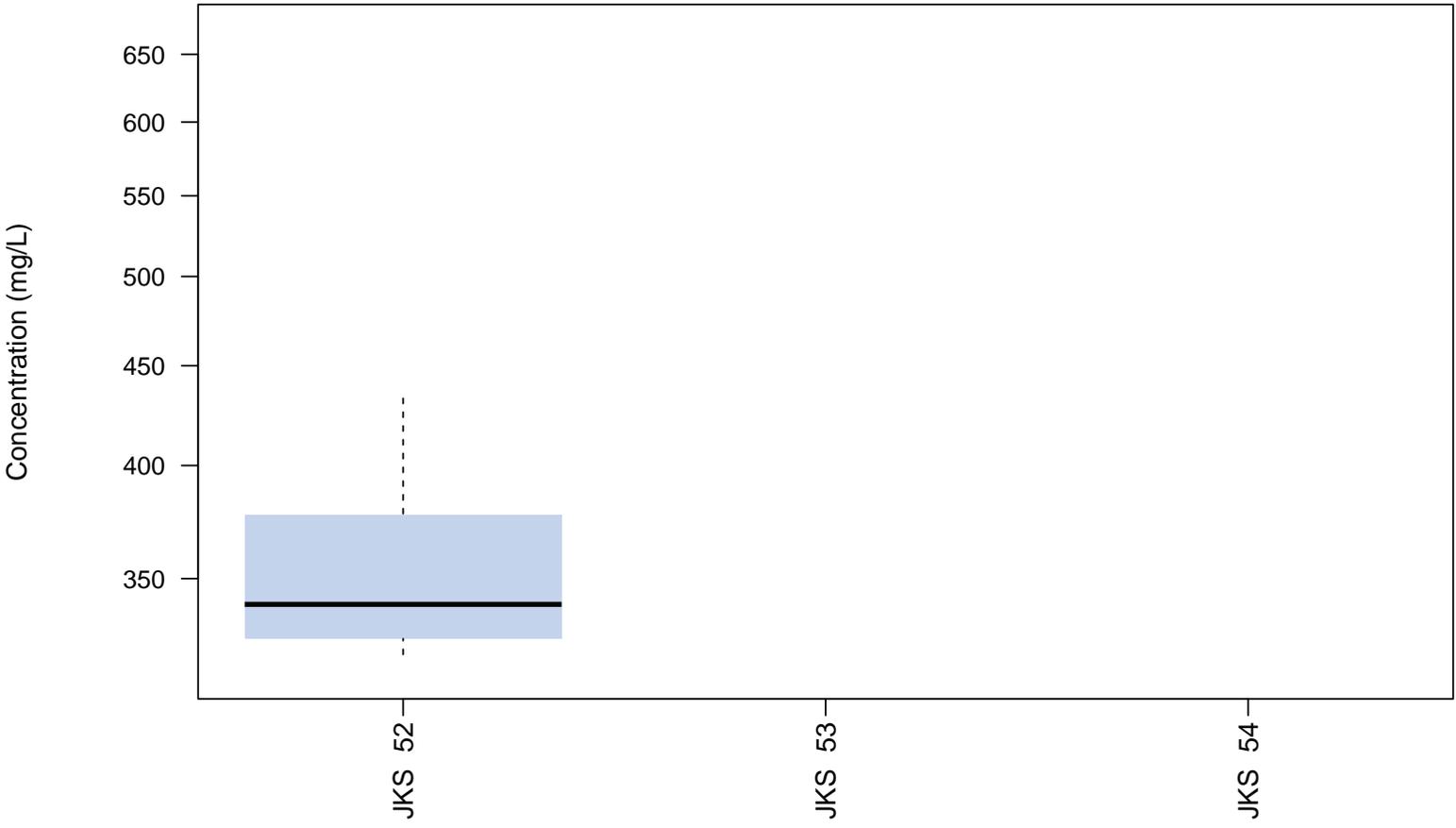


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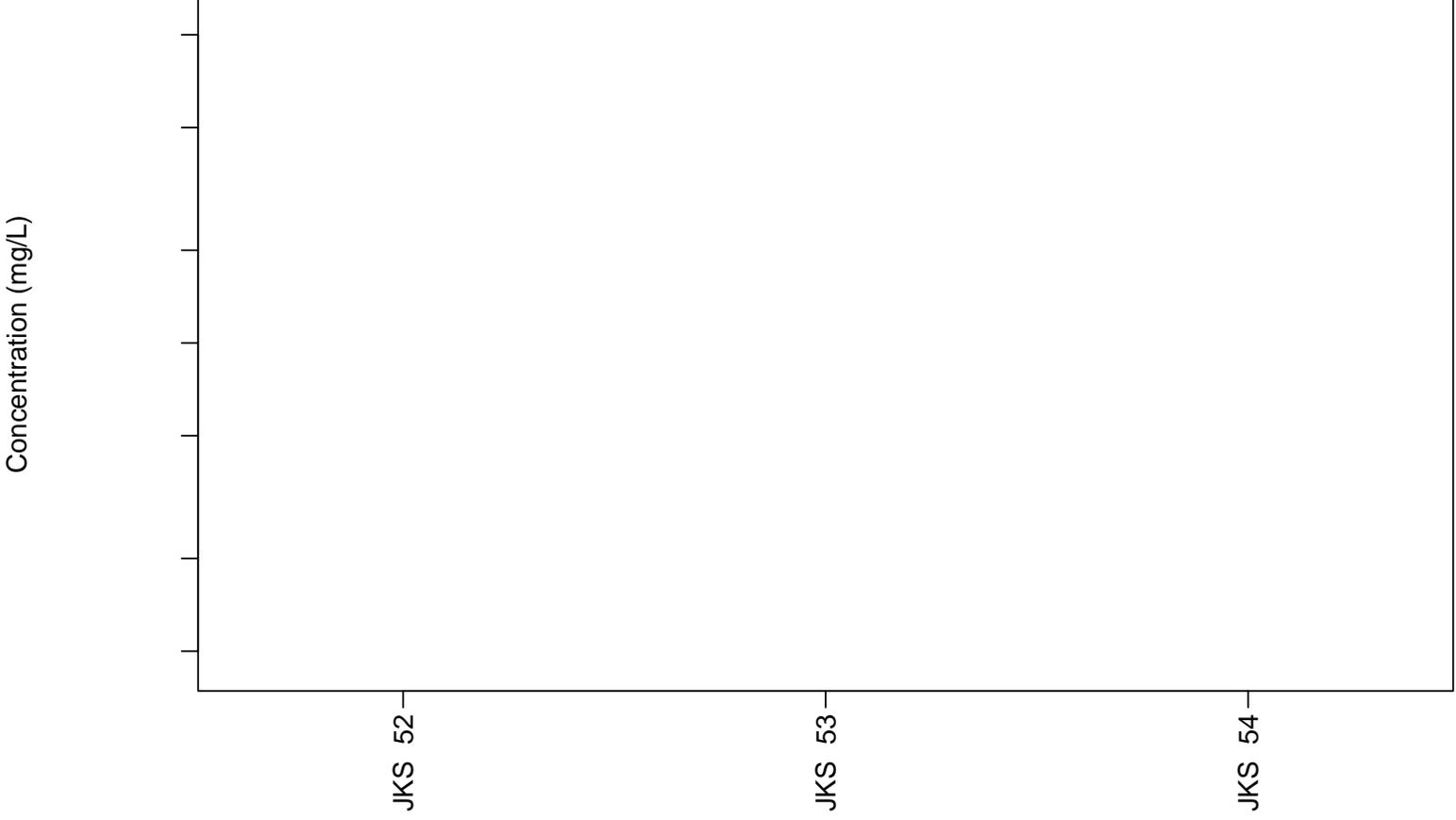
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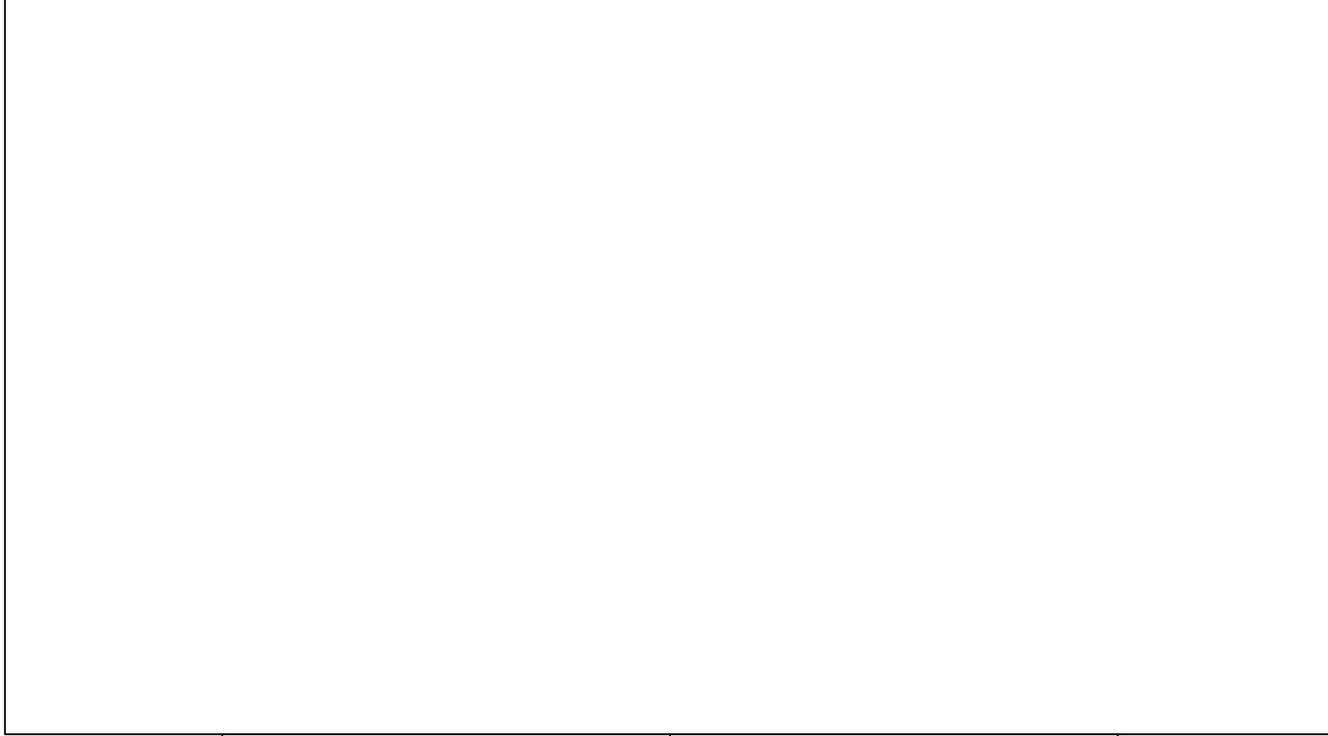
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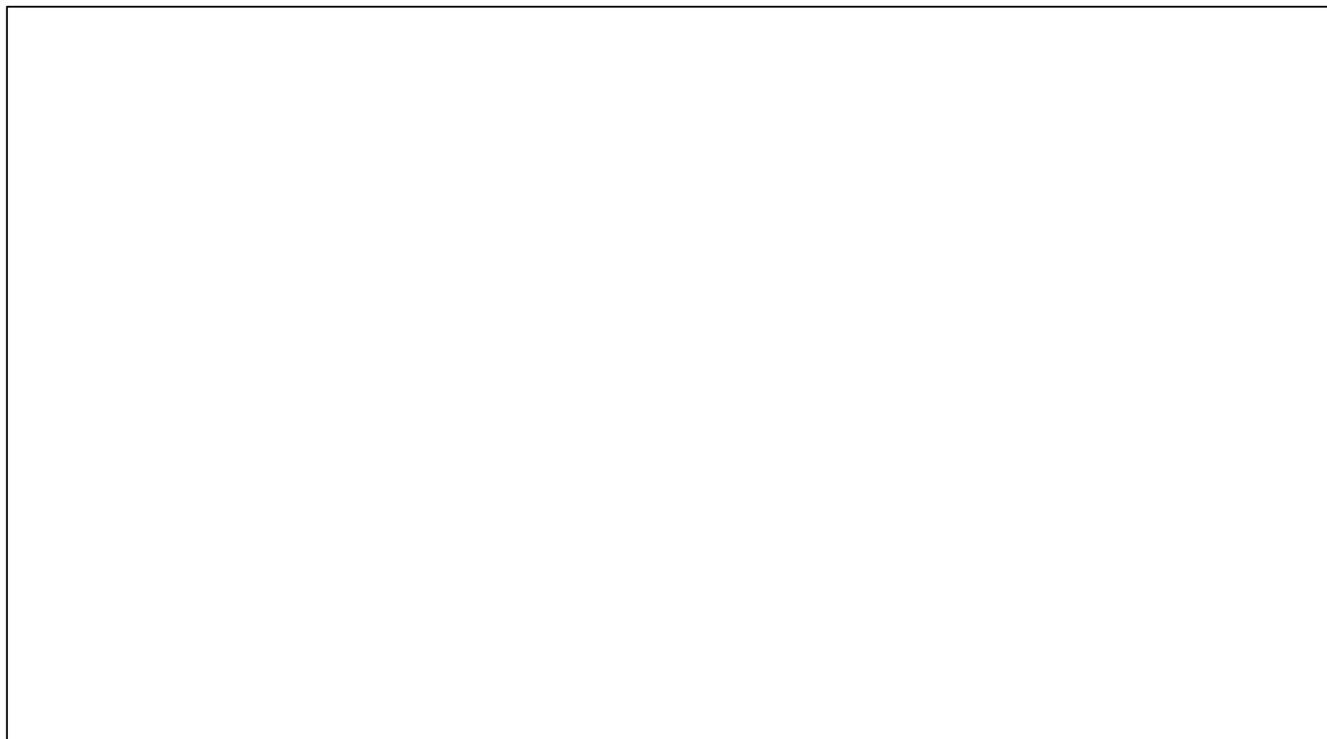


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JKS 52

Chemical: Sulfate



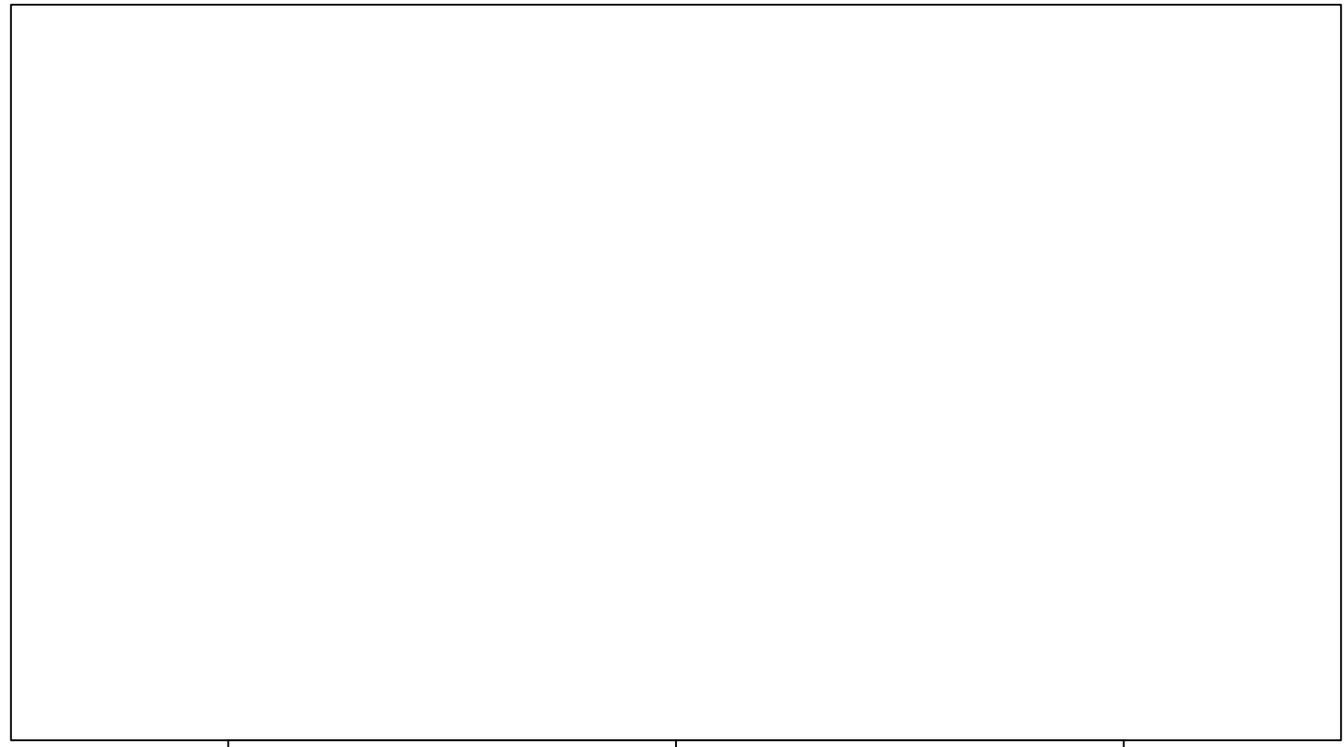
JKS 52

JKS 53

JKS 54

Chemical: Total Dissolved Solids

Concentrmg/L)



JKS 52

JKS 53

JKS 54

**April 2020 Groundwater Sampling Event –  
Calaveras Power Station CCR Units**

*Appendix C*









EP  
Downgradient

EP  
Downgradient

EP  
Downgradient

EP  
Downg



FAL  
Downgradient

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FAL

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SRH Pond  
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Downgradient

SRH Pond  
Downg





# Groundwater Monitoring System





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<b>2.0</b>	<b>BACKGROUND</b>	<b>1</b>
	<b>2.1 SITE DESCRIPTION</b>	<b>1</b>
	<b>2.2 USEPA CCR RULE</b>	<b>1</b>
<b>3.0</b>	<b>SCOPE AND OBJECTIVES</b>	<b>2</b>
<b>4.0</b>	<b>METHODOLOGY</b>	<b>3</b>
	<b>4.1 INITIAL EVALUATION</b>	<b>3</b>
	<b>4.2 HYDROGEOLOGIC INVESTIGATION</b>	<b>3</b>
	4.2.1	







2.





confining/semi-confining unit to document the Atterberg limits and grain size distribution. Samples were containerized, labeled, and transported to the HTS, Inc. Consultants (HTS) laboratory in Houston, Texas. A summary of the geotechnical testing results is provided in **Table 1**. HTS laboratory test results are provided in **Appendix B**.

#### 4.2.3

##### *Surveying*

To better define the water levels and the groundwater flow direction in the

### 5.1.1

#### *Northern CCR Units*

The stratigraphic sequence is generally characterized by approximately 8 feet to 32 feet of unconsolidated material (sands, silts, and low to medium plasticity clays), underlain by a clayey/silty to well-sorted sand (groundwater-bearing unit) approximately 5 to over 25 feet thick, underlain by grey to brown, high plasticity clay (lower confining unit). The ground water bearing unit is at its greatest observed thickness near the so

Visual classifications of the geologic materials described above are consistent with results from the soil materials testing analysis conducted by HTS for samples collected at JKS-48, JKS-53, and JKS-54. The laboratory USCS results classify the groundwater-bearing unit from a silty clayey sand (SC-SM) at JKS-54 to a clayey sand (SC) at JKS-48 and JKS-53. Hydraulic conductivities from cohesive samples collected from the lower confining unit were reported on the order of 10



Evaporation Pond Monitor Well Network

JKS-47	Background Monitoring	Collect sample and measure water elevation	
JKS-63168.12	676.08 Tm	JKS-63168.12 676.08 Tm	JKS-63168.12 676.08











--	--





















0337367

JKS-45

2016-04-04

2016-04-04

2016-04-04



0337367	JKS-45	2016-04-04
Groundwater Investigation	CPS Energy	
Calaveras Power Station - San Antonio	62.00 '	8.25 "
13667132.78'	2186615.40'	528.31 '

47.19 2016-05-31

Strata Core Services, LLC	Joseph Ray
Hollow-Stb A geC	

# JKS-45

0337367

JKS-45

2016-04-04

Groundwater Investigation

CPS Energy

Calaveras Power Station - San Antonio

62.00'

8.25"

N. Coord. 13667132.78' E. Coord. 2186615.40'

528.31'

Ft. MSL

Sch. 40'

Sch. ~~40'~~

47.19

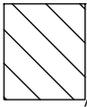
2016-05-31

Strata Core Services, LLC

Joseph Ray

Hollow-Stem Auger

Nick Houtchens



Cohesive sample (Shelby tube) collected from 60'-62' bgs.

Boring terminated at 62' bgs.

0337367	JKS-46	2016-04-05
Groundwater Investigation	CPS Energy	
Calaveras Power Station - San Antonio	30.00 '	8.25 "
13667810.11'	2187972.31'	495.75 '

19.38 2016-05-31

Strata Core Servi

0337367

JKS-46

20-

JKS-4



0337367	JKS-47	2016-04-05
Groundwater Investigation	CPS Energy	
Calaveras Power Station - San Antonio	48.00 '	8.25 "
13665709.79'	2186503.87'	510.28 '

31.37 2016-05-31

Strata Core Services, LLC	Joseph Ray
Hollow-Stbb	
Joseph Ray	

# JKS-47

0337367

JKS-47

2016-04-05

Groundwater Investigation

CPS Energy

Calaveras Power Station - San Antonio

48.00'

8.25"

N. Coord. 13665709.79' E. Coord. 2186503.87'

510.28'

Ft. MSL

31.37

2016-05-31

Strata Core Services, LLC

Joseph Ray

Hollow-Stem Auger

Nick Houtchens

# JKS-48

0337367

JKS-48

2016-04-06

Groundwater Investigation

CPS Energy

Calaveras Power Station - San Antonio

30.00'

8.25"

N. Coord. 13659658.78' E. Coord. 2186490.78'

493.71'

Ft MSL

11.28

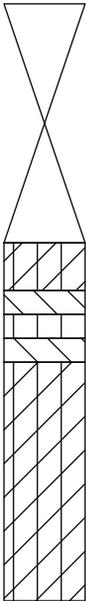
2016-05-31

Strata Core Services, LLC

Joseph Ray

Hollow-Stem Auger

Nick Houtchens



0-5 NO RECOVERY: Previously excavated by hydrovac truck.

CLAYEY SILT: Orangish brown; damp; medium dense to dense; slight to low plasticity.

At 5.5' bgs: Brown band (2" thick).

At 5.75' bgs: Color change to brown; damp to dry; minor clay content; fractures along planar surfaces.

- 5-6 SILTY CLAY: Orangish brown heavily mottled with grey and orange; damp; stiff; medium plasticity; occasional grey and orange silt stringers.
- 6-6.5 SILT: Brownish tan with grey and orange; damp; medium dense; slight plasticity; trace clay.
- 6.5-7
- 7-7.5 SILTY CLAY: Orangish brown heavily mottled with grey and orange; damp; stiff; medium plasticity; occasional grey and orange silt stringers.



0337367

Groundwater Investigation

JKS-49

CPS Energy

2016-04-06

# JKS-50

0337367

JKS-50

2016-04-06

Groundwater Investigation

CPS Energy

Calaveras Power Station - San Antonio

14.00'

8.25"

N. Coord. 13660122.87' E. Coord. 2186836.72'

494.87'

Ft. MSL

11.76

2016-05-31

Strata Core Services, LLC

Joseph Ray

Hollow-Stem Auger

Nick Houtchens



0-5





































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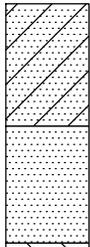
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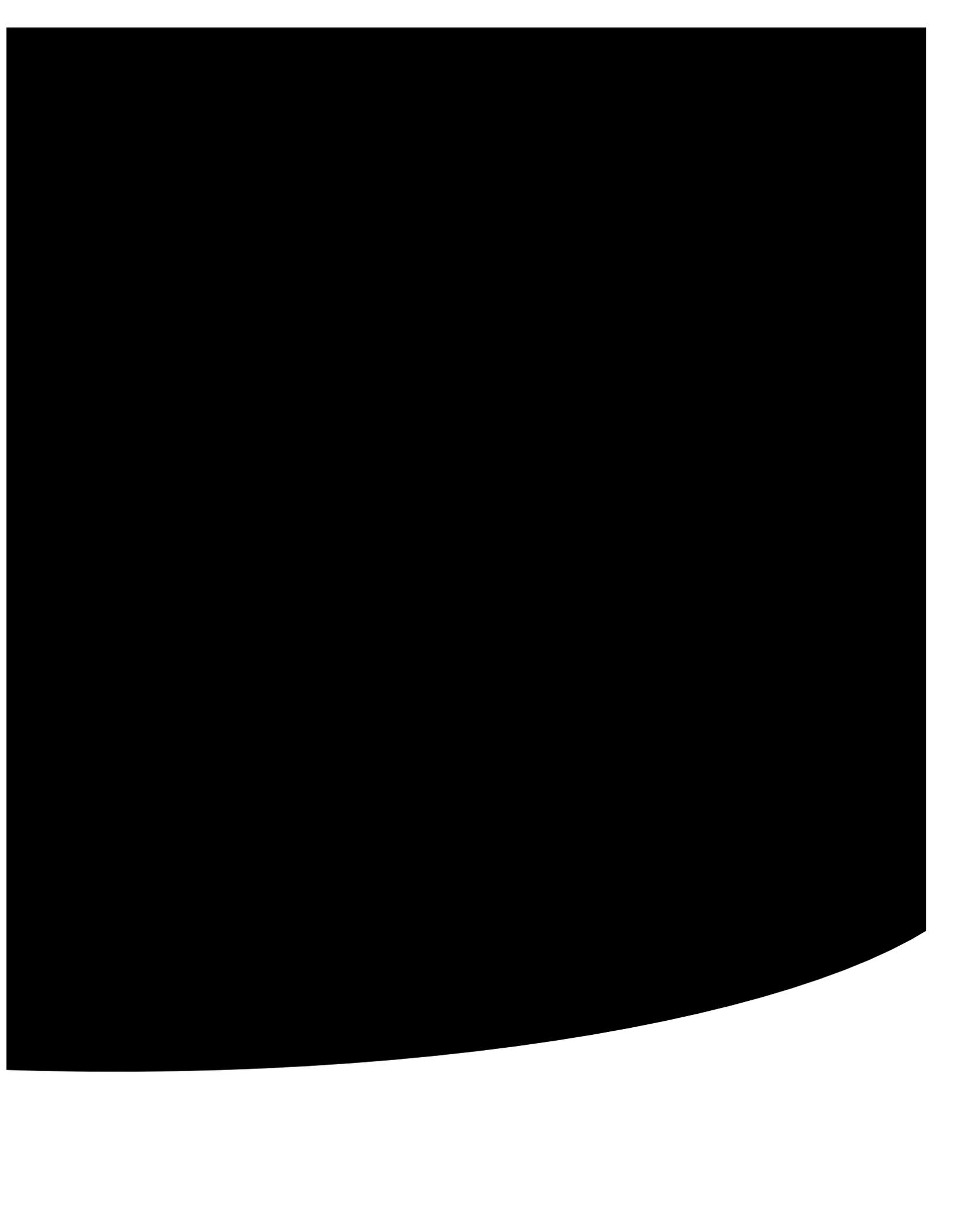
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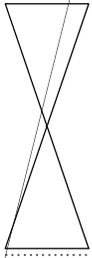
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Calaveras Power Station

# Groundwater Sampling and

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- 5**            **Summary of Groundwater Sample Constituent Groups and Analytical Information**
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- Figure 1**    **Monitor Well Location Map**
- Figure 2**

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- A**
- B**





sampling is done during the active life of the CCR Units and the post-closure period, if applicable.

### Assessment Monitoring















## **5.0**

### ***GROUNDWATER SAMPLING PROCEDURES***

This section of the SAP provides information about purging and sampling



least 3 of the 5 parameters have stabilized for three successive readings. If the minimum three water quality indicator parameters do not stabilize within 45 minutes of low-flow purging, a groundwater analytical sample will be collected from the well.

See Section 9.0 for equipment decontamination procedures, IDW management, and IDW sampling.

## **5.2**

### ***SAMPLE COLLECTION***

Groundwater will be collected from the well and transferred to the appropriate





## **6.0**

### ***SAMPLE PACKING AND SHIPPING***

Samples for chemical analyses will be placed into the correct laboratory-supplied sample containers, labeled appropriately, and immediately placed in a cooler with ice. The field sampler will document the appropriate information on the chain-of-custody form (see Section 3.3 for details). Prior to packing coolers and shipping to the laboratory, the outside surfaces of the sample containers will be cleaned if necessary (by wiping carefully

## **7.0**

### ***ANALYTICAL PROCEDURES***

Groundwater samples collected under the Detection Monitoring Program will be analyzed for the constituents specified in **Table 2**. Groundwater samples collected under the Assessment Monitoring Program will be analyzed for the constituents specified in **Table 2** and **Table 3**. IDW samples (further described in Section 9.0) will be analyzed for the constituents specified in **Table 6**. Analytical parameter classes, container size and type, preservatives, and holding times (before which the analysis must be performed) are listed in **Table 5** and **Table 7**. A NELAC-accredited laboratory will perform the groundwater analyses.

Groundwater analyses will be performed in accordance with the most recent edition of *E*







**9.3*****INVESTIGATION-DERIVED WASTE SAMPLE COLLECTION***

Following the transfer of purge water and decontamination wash water to a temporary DOT-approved 55-gallon drum(s), a sample will be collected in order



---

**Client:** CPS Energy - Calaveras Power Station  
**Site Loc.:** San Antonio, Texas  
**Purpose:**  
**Proj. ID.:**  
**Sampler(s):**  
**Date:**  
**Weather Conditions:**

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**Measuring Point:**

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FORM 2

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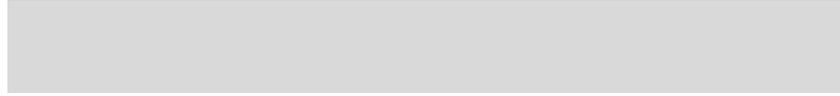


**Environmental Resources Management**  
206 East 9<sup>th</sup> Street, Suite 1700  
Austin, Texas 78701  
Eoth





**TABLE 3**

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**Water Quality Indicator Parameters**

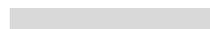
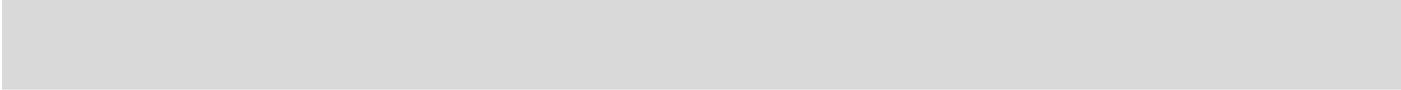


TABLE 6

CONSTITUENTS FOR IDW CHARACTERIZATION AND PROFILING

Groundwater Sampling and Analysis Plan  
CPS Energy - Calaveras Power Station  
San Antonio, Texas

Constituents for IDW Characterization and Profiling
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Lead
Mercury
Nickel
Selenium
Silver

**Laboratory Parameters**

**Lab Method**

**Parameter Group**

**Practical Quantitation  
Limit (PQL) mg/L**

**Container**

# **Figures**









**Groundwater Sampling Field Equipment List**  
*Appendix B*

**Environmental Resources Management**  
206 East 9<sup>th</sup> Street, Suite 1700  
Austin, Texas 78701  
(512) 459-4700











**7.0**

**1.0 INTRODUCTION**

CPS



€ **Inactive CCR surface impoundment m**

**2.0**





### **3.0**

#### ***CCR UNIT CLOSURE PLAN***

The closure concept for this closure plan is to close three surface impoundments (SRH Pond, North BAP, and South BAP) by removal of CCR. The closure procedures will comply with requirements in 40 CFR §257.102(c).

The closure concept for this closure plan is to close one surface impoundment (EP) and the



This section describes a narrative description of closure of the CCR units by either:

- € Closure by removal in accordance with 40 CFR §257.102(c); or
- € Closure in place in accordance with 40 CFR .4 (R)240 Tw 26.286 0 TdfEMC BT1/P ✗MC-

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3.5

*CCR VOLUME ESTIMATE*

As required in 40 CFR §257















7.0











**Event/Activity**

**Estimated  
Schedule**

<b>Event/Activity</b>	<b>Estimated Schedule<sup>(1)</sup></b>
Notification of intent to initiate closure of CCR Unit, per 40 CFR 257.106	<b>June 21, 2020</b>
Detailed design	12 months
Permitting <sup>(2)</sup>	6 months
Contractor bid, selection, and award	8 months
CCR removal <sup>(3)</sup>	2 months
Demolition, decontamination <sup>(4)</sup> , finish grading, and site restoration	5 months
Prepare and submit closure certification report	3 months
<b>Estimated Completion of Closure</b>	<b>June 2023</b>

**NOTES:**6 monthse)34 47491576 monTABLE 238.694.686796 i45TD6 monated Complej -38.6ule

<b>Event/Activity</b>	<b>Estimated Schedule<sup>(1)</sup> When decision is finalized to initiate closure</b>
Notification of intent to initiate closure of CCR Unit, per 40 CFR 257.106	
Detailed design	12 months
Permitting <sup>(2)</sup>	

**Event/Activity**

**Estimated  
Schedule<sup>(1)</sup>**

Notification of intent to initiate closure of CCR Unit, per 40 CFR 257.106



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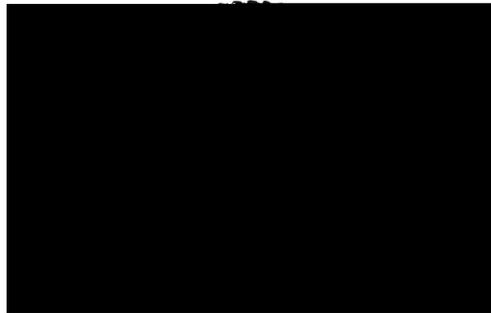
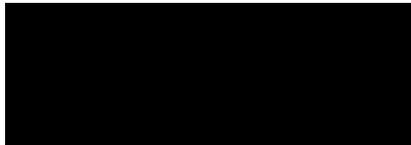
\_\_\_\_\_ County, Texas



Registration No.:  
Registrant: CPS Energy Calaveras Power Station

**Surface Impoundments: Dike Construction**

For each surface impoundment dike, complete the following information:





Registration No.:  
Registrant: CPS Energy Calaveras Power Station

## **Attachment 21 Plat Survey - Metes and Bounds**





























































































































































































































































































































Change in Legal Name (Verifiable with the Texas Secretary of State)

23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>	12940 US HWY 181 SOUTH							
	City	SanAntonio	State	TX	ZIP	78223	ZIP + 4	
24. County								





