

# **2022 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT**

**TWIN OAKS POWER STATION  
COAL COMBUSTION RESIDUALS (CCR) LANDFILL  
ROBERTSON COUNTY, TEXAS**

**January 27, 2023**

**Prepared By:**



**1120 NW Stallings Drive  
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TBPG Firm No. 50027**

# 2022 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

## TWIN OAKS POWER STATION COAL COMBUSTION RESIDUALS (CCR) LANDFILL ROBERTSON COUNTY, TEXAS

January 27, 2023



Michelle K. Transier, P.G.  
Senior Geologist



Prepared by:  
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## Executive Summary

This 2022 Annual Groundwater Monitoring and Corrective Action Report for the Twin Oaks Power Station Coal Combustion Residuals (“CCR”) Landfill (“the “facility”) is prepared in accordance with the requirements of the facility’s Groundwater Sampling and Analysis Plan (“GWSAP”), the state CCR Rules, 30 TAC Chapter 352, and the federal CCR Rule, 40 CFR Part 257, Subpart D. Groundwater monitoring for calendar year 2022 was performed on a semi-annual schedule. This annual report summarizes the groundwater monitoring activities performed through the 2<sup>nd</sup> 2022 semi-annual detection groundwater sampling event for the facility. Semi-annual monitoring events were performed during April and December 2022. The facility maintained a detection monitoring status and program throughout 2022.

Statistical analysis of groundwater monitoring data collected during the April 2022 semi-annual monitoring event indicated unverified (“initial”) intrawell statistical exceedance values for sulfate in monitoring well MW-13 and for boron, calcium, chloride, sulfate, and total dissolved solids (“TDS”) in MW-14. Subsequently, verification resampling, utilizing a 1-of-*m* approach, was conducted on May 31, 2022, June 27-28, 2022, and July 14, 2022. Chloride concentrations in MW-14 were not confirmed. However, the results of the verification resampling confirmed the intrawell statistical exceedance values for sulfate concentrations in monitoring well MW-13 and for boron, calcium, sulfate, and TDS in MW-14. An alternate source/error demonstration (“ASD”) was prepared to address the intrawell statistical exceedance values in MW-13 and MW-14. The ASD was presented in a report dated October 5, 2022. Based on the results, maintenance of the detection monitoring status and program was recommended.

Results of statistical analyses for the December 2022 monitoring event demonstrate intrawell statistical exceedances for boron, calcium, chloride, sulfate, and TDS concentrations in monitoring well MW-14. Review of data indicated the values are likely the result of natural groundwater variation at the facility; however, additional evaluations are underway and will be reported under separate cover. In accordance with applicable regulation and the GWSAP, an ASD will be submitted 90 days from the date a statistically significant increase (“SSI”) was determined. If an ASD cannot be successfully determined, assessment monitoring will be initiated at the next regularly scheduled monitoring event.

It should be noted, this report has been certified by a qualified licensed professional geoscientist and qualified licensed professional engineer in accordance with 30 TAC Chapter 352 and 40 CFR Part 257, Subpart D.

## Introduction

The reporting requirements under the CCR Rule, the relevant CCR Rule citations, and the corresponding location of those required contents in this report are listed below:

- Status of the groundwater monitoring program (§ 257.90(e)): .....Appendix B
- Summary of key actions completed (§ 257.90(e)): ..... p. 1
- Any problems encountered and actions taken to resolve such problems (§ 257.90(e)): ..... p. 2
- Project key activities for the upcoming year (§ 257.90(e)): ..... p. 3
- Map, aerial image, or diagram of CCR Unit and monitoring wells (§ 257.90(e)(1)): . Appendix C

- Identification of new monitoring wells installed or abandoned during the preceding year and narrative description (§ 257.90(e)(2)): ..... Five monitoring wells (MW-18, MW-19, MW-20, MW-21, and MW-22) were installed for groundwater quality evaluations in September 6-8, 2022. It should be noted all five of these wells were installed for investigation purposes and are not part of the CCR Landfill monitoring system as currently permitted. No additional monitoring wells were installed or abandoned at the facility in 2022.
- Summary of groundwater data, wells sampled, date sampled, and whether sample was required under detection or assessment monitoring (§ 257.90(e)(3)): ..... Appendix D and Key Actions Completed and any Problems Encountered section as presented on p.2.
- Narrative discussion of any transition between monitoring programs (§ 257.90(e)(4)):..... p. 2
- Other information as required for inclusion in the annual report (§ 257.90(e)(5)):..... p. 1-5
- An executive summary overview describing the current program status (§ 257.90(e)(6)):..... p. 1

### **Key Actions Completed and any Problems Encountered**

The monitoring network at the Twin Oaks Power Station CCR Landfill includes 8 monitoring wells (upgradient wells MW-7, MW-11, MW-12, and MW-16 and downgradient wells MW-13, MW-14, MW-15, and MW-17). Groundwater monitoring is performed in accordance with the facility’s GWSAP, 30 TAC Chapter 352 Subchapter H, and 40 CFR Part 257, Subpart D. Specific sampling events and dates for calendar year 2022 are summarized in the following table:

#### **Summary of Sampling Events**

Event Date	Monitoring Wells (MW) Sampled	Event Type
April 18, 2022	MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-17	Semi-Annual Detection Monitoring
May 31, 2022	MW-13 and MW-14	Verification Resampling
June 27-28, 2022	MW-14	Verification Resampling
July 14, 2022	MW-14	Verification Resampling
December 6, 2022	MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-17	Semi-Annual Detection Monitoring

No significant problems were encountered during the sampling event in 2022.

### **Detection Monitoring**

Detection monitoring is conducted at the Twin Oaks Power Station CCR Landfill on a semi-annual schedule in accordance with applicable federal and state regulations. Laboratory analysis for detection events include those detection monitoring constituents listed in Table D-1

of the facility’s GWSAP. A table of groundwater analytical results for all monitoring wells sampled during 2022 is included in Appendix D of this report.

### First Semi-Annual Groundwater Monitoring Event (April 2022)

The first semi-annual detection monitoring event was conducted on April 18, 2022. Groundwater samples were obtained from monitoring wells MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-17 for analysis of detection monitoring constituents. Additionally, a duplicate sample was collected at monitoring well MW-11 and analyzed for all detection monitoring constituents. The duplicate sample provided comparable results for all constituents. Intrawell statistical evaluation of data from the April 2022 event, performed in accordance with the provisions of the GWSAP, 30 TAC §352.941, and 40 CFR § 257.94, indicated unverified (“initial”) intrawell statistical exceedances for sulfate in monitoring well MW-13 and for boron, calcium, chloride, sulfate, and total dissolved solids (TDS) in MW-14. Subsequently, verification resampling was conducted on May 31, 2022 for MW-13 and MW-14 and again on June 27-28, 2022 for MW-14, as provided for and in accordance with the GWSAP. The results of verification resampling confirmed the intrawell statistical exceedance values for sulfate in monitoring well MW-13 on June 21, 2022 and for boron, calcium, chloride, sulfate, and total dissolved solids (TDS) in MW-14 on July 8, 2022 and SSIs were determined on July 8, 2022. Statistical evaluation results are included in the 1<sup>st</sup> 2022 Semi-Annual Groundwater Monitoring and Corrective Action Report (Appendix E) dated July 15, 2022. Review of relevant information for the facility indicated the values are likely the result of natural groundwater variation and not a release from the CCR Landfill. In accordance with the facility’s GWSAP, 30 TAC §352.941(c), and 40 CFR 257.94(e)(2), an alternate source demonstration (ASD) was prepared to address the calculated SSIs for MW-13 and MW-14. Notice of the intent to perform an ASD was provided to TCEQ on July 15, 2022.

An ASD was prepared to address the intrawell statistical exceedances. The results of the ASD indicated concentrations responsible for the reported SSIs are attributable to natural groundwater conditions and not a release from the facility. Specifically, the ASD demonstrates groundwater concentrations reported for downgradient monitoring wells MW-13 and MW-14 closely reflect early groundwater data reported for upgradient monitoring well MW-7. Additionally, constituent concentrations responsible for the intrawell SSIs in downgradient wells MW-13 and MW-14 do not exceed the interwell statistical limits determined from the original eight background monitoring events performed for upgradient well MW-7. Based on these results, changes in groundwater concentrations reported for wells MW-13 and MW-14 suggest a natural shift toward upgradient groundwater quality over time and not a release from the landfill. Based on the evaluation, no release from the CCR Landfill is indicated. A copy of the Alternate Source/Error Demonstration report dated October 5, 2022 is included in Appendix E of this report. A summary of the results of statistical evaluation is presented in the table below.

### Summary of Statistical Exceedances for the First Semi-Annual Groundwater Monitoring Event (April 2022)

Well	Constituent	Initial April Event Result (mg/L)	Statistical Limit (mg/L)	Verification Resampling Result (mg/L)			Intrawell Statistical Exceedance Confirmed?	Resolution
				May Event	June Event	July Event		
MW-13	sulfate	200	195.2	360	NS	NS	Yes	Alternate Source/Error Demonstration and Maintain Detection Monitoring
MW-14	boron	0.875	0.6019	0.718	1.64	0.762	Yes	Alternate Source/Error Demonstration and Maintain Detection Monitoring

**Summary of Statistical Exceedances for the First Semi-Annual Groundwater Monitoring Event (April 2022)**

Well	Constituent	Initial April Event Result (mg/L)	Statistical Limit (mg/L)	Verification Resampling Result (mg/L)			Intrawell Statistical Exceedance Confirmed?	Resolution
				May Event	June Event	July Event		
MW-14	calcium	190	141.2	202	211	NS	Yes	Alternate Source/Error Demonstration and Maintain Detection Monitoring
	chloride	457	440.9	464	423	NS	No	Maintain Detection Monitoring
	sulfate	899	841.2	944	933	NS	Yes	Alternate Source/Error Demonstration and Maintain Detection Monitoring
	TDS	2290	1940	2240	2230	2700	Yes	Alternate Source/Error Demonstration and Maintain Detection Monitoring
NS – Not Sampled								

Monitoring wells MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-17 remained in detection monitoring status.

**Second Semi-Annual Groundwater Monitoring Event (December 2022)**

The second semi-annual detection monitoring event was conducted on December 6, 2022. Groundwater samples were obtained from monitoring wells MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-17 for analysis of detection monitoring constituents. Additionally, a duplicate sample was collected at monitoring well MW-11 and analyzed for all detection monitoring constituents. The duplicate sample provided comparable results for all constituents. Intrawell statistical evaluation of data from the December 2022 event, performed in accordance with the provisions of the GWSAP, 30 TAC §352.941, and 40 CFR § 257.94, indicated unverified (“initial”) intrawell statistical exceedances boron, calcium, chloride, sulfate, and TDS in MW-14.

Review of data indicated that the values are likely the result of natural groundwater variation at the facility. In accordance with the facility’s GWSAP, notice of intent to perform an ASD was given to TCEQ on January 27, 2023 and an ASD will be submitted 90 days from the date an SSI was determined, on or before April 27, 2023. If an ASD cannot be successfully determined, assessment monitoring will be initiated at the next regularly scheduled monitoring event. A summary of the results of statistical evaluation is presented in the table below.

**Summary of Statistical Exceedances for the Second Semi-Annual Groundwater Monitoring Event (December 2022)**

Well	Constituent	Initial Result (mg/L)	Statistical Limit (mg/L)	Intrawell Statistical Exceedance?	Recommendation
MW-14	boron	1.30	0.6019	Yes	Alternate Source/Error Demonstration
	calcium	263	141.2	Yes	Alternate Source/Error Demonstration
	chloride	470	440.9	Yes	Alternate Source/Error Demonstration
	sulfate	1080	841.2	Yes	Alternate Source/Error Demonstration
	total dissolved solids	2450	1940	Yes	Alternate Source/Error Demonstration

Monitoring wells MW-7, MW-11, MW-12, MW-13, MW-15, MW-16, and MW-17 remain in detection monitoring status. Monitoring well MW-14 also remain in detection monitoring status pending ASD submittal.

### **Groundwater Elevation, Flow Rate, and Direction**

Water levels were measured in all monitoring wells prior to purging in accordance with the GWSAP. A table summarizing groundwater elevation data collected during the April 2022 detection monitoring event is included in Appendix B. Hydraulic gradient and flow rate calculations, along with a groundwater elevation map showing groundwater flow direction for the December 2022 detection monitoring event, are also included in Appendix C.

### **Project Key Activities for 2023**

Based on the data available at the time of this report, the detection monitoring program currently in place for the Twin Oaks Power Station CCR Landfill meets the requirements of applicable regulations. Therefore, no change to the groundwater monitoring system, monitoring schedule, or monitoring program is proposed. An ASD will be submitted 90 days from the date an SSI was determined. If an ASD cannot be successfully determined, assessment monitoring will be initiated at the next regularly scheduled monitoring event.

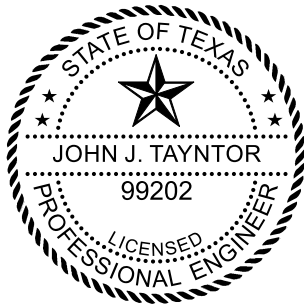


## **Appendix A**

# CERTIFICATION STATEMENT

## COAL COMBUSTION RESIDUALS (CCR) LANDFILL TWIN OAKS POWER STATION ROBERTSON COUNTY, TEXAS

I certify I am a licensed professional engineer in the State of Texas and a *qualified professional engineer* as defined in 40 CFR §257.53. I certify that the groundwater monitoring data and other information presented in the 2022 Annual Groundwater Monitoring and Corrective Action Report, prepared by Hydrex Environmental on behalf of the Twin Oaks Power Station, are appropriate and meet the requirements of 40 CFR Part 257, Subpart D.



A handwritten signature in black ink, appearing to read "J. Tayntor", written over a horizontal line.

John J. Tayntor, P.E.  
Auckland Consulting, LLC  
TBPE Firm Registration No. F-16721

January 27, 2023

Date

## **Appendix B**

## Monitoring Well Network and Program Summary

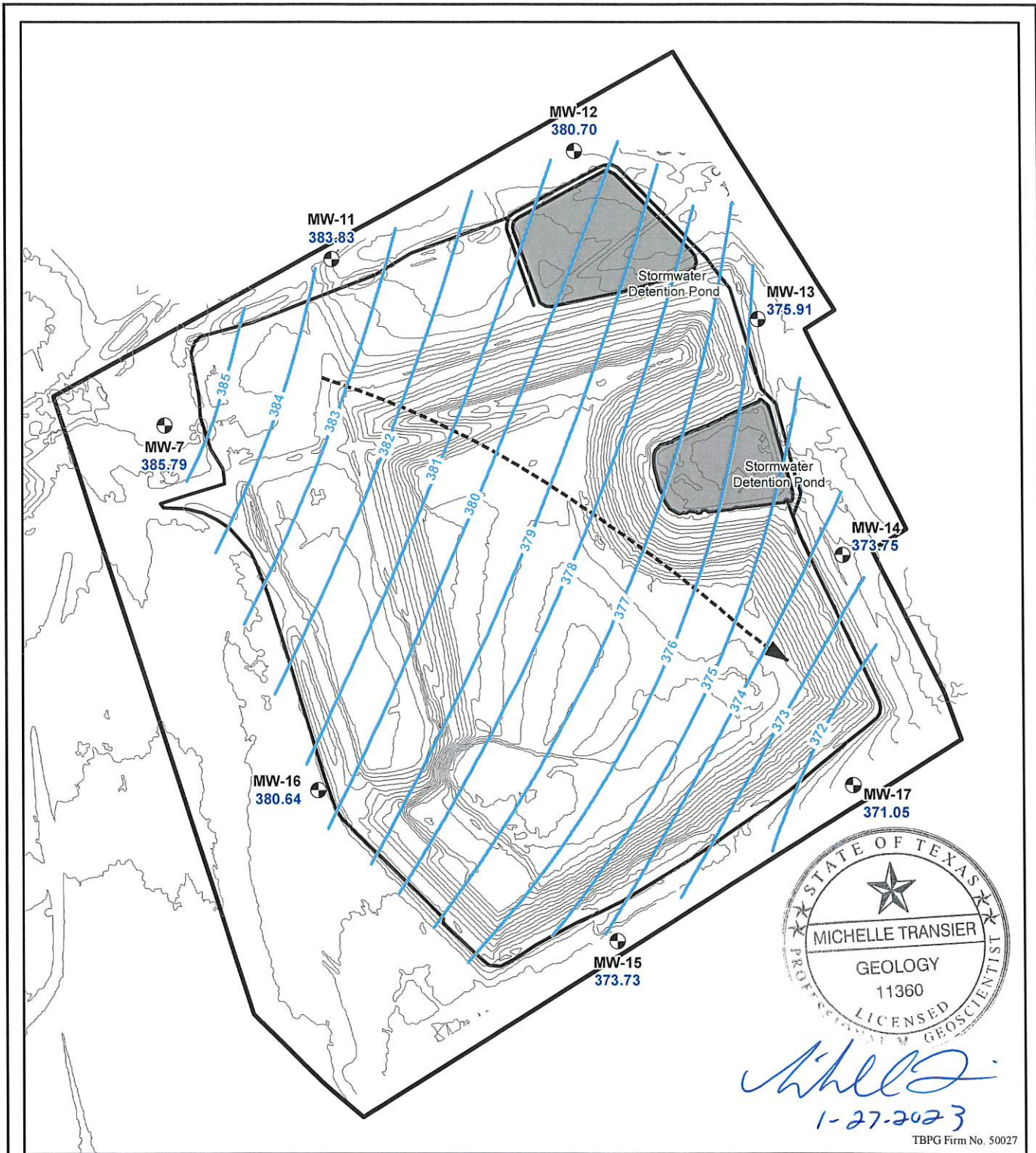
Well ID	Well Designation	Aquifer	2022
			Monitoring Status
MW-7	Upgradient	Uppermost	Detection Monitoring
MW-11	Upgradient	Uppermost	Detection Monitoring
MW-12	Upgradient	Uppermost	Detection Monitoring
MW-13	Downgradient	Uppermost	Detection Monitoring
MW-14	Downgradient	Uppermost	Detection Monitoring
MW-15	Downgradient	Uppermost	Detection Monitoring
MW-16	Upgradient	Uppermost	Detection Monitoring
MW-17	Downgradient	Uppermost	Detection Monitoring

## **Appendix C**

## Groundwater Elevation Summary Table

Twin Oaks Power Station  
Coal Combustion Residuals (CCR) Landfill  
Robertson County, Texas

Well ID	Date	Top of Casing Elevation (ft-amsl)	Depth to Water (ft)	Groundwater Elevation (ft-amsl)
MW-7	4/18/2022	411.60	25.15	386.45
	12/6/2022	411.60	25.81	385.79
MW-11	4/18/2022	406.93	22.40	384.53
	12/6/2022	406.93	23.10	383.83
MW-12	4/18/2022	387.27	5.52	381.75
	12/6/2022	387.27	6.57	380.70
MW-13	4/18/2022	398.32	20.81	377.51
	12/6/2022	398.32	22.41	375.91
MW-14	4/18/2022	394.68	19.65	375.03
	12/6/2022	394.68	20.93	373.75
MW-15	4/18/2022	410.47	35.37	375.10
	12/6/2022	410.47	36.74	373.73
MW-16	4/18/2022	422.54	41.09	381.45
	12/6/2022	422.54	41.90	380.64
MW-17	4/18/2022	405.87	33.10	372.77
	12/6/2022	405.87	34.82	371.05



● Monitor Well  
 -> Approx. Groundwater Flow Direction  
 — 5-ft Ground Surface Contour  
 — Groundwater Contour  
 □ Pond  
 □ Property Boundary  
 385 Groundwater Elevation (Elevation Feet, MSL)



**GROUNDWATER CONTOUR MAP**  
**WATER LEVELS MEASURED (12/6/2022)**

**CCR Landfill**  
**Twin Oaks Power Station**  
**13065 Plant Road**  
**Bremond (Robertson County), Texas 76629**

Map Revised: 1/11/2023 | Project Number: I-14-1007 | GIS Analyst: HLF

Twin Oaks Power Station  
 Coal Combustion Residuals Landfill

### Groundwater Flow Rate Calculations

Approximate hydraulic gradients were calculated based on data presented on the individual groundwater gradient map for the December 2022 monitoring event.

Calculation of hydraulic gradient was performed using the following equation:

$$i = \frac{\Delta h}{\Delta d}$$

Where:  $\Delta h$  = approximate change in hydraulic head between two known points  
 $\Delta d$  = approximate change in distance between two known points along flow paths

Gradient Measurement Line	$\Delta h$ (feet)	$\Delta d$ (feet)	$i$ (feet/feet)	Monitoring Event
from well MW-7 to MW-17	14.74	3370	0.0044	December 2022

### Estimated Flow Rate Calculations

The estimated groundwater flow rate was calculated for each monitoring event using the following formula:

$$v = \frac{ki}{n_e}$$

Where:  $v$  = flow rate  
 $k$  = hydraulic conductivity  
 $i$  = hydraulic gradient (above)  
 $n_e$  = effective porosity

Flow Rate Measurement Line	$k$ (cm/sec)	$n_e$	$i$ (feet/feet)	$v$ (feet/year)	Monitoring Event
from well MW-7 to MW-17	4.85E-03	0.3	0.0044	73.65	December 2022

Note: Hydraulic conductivity ( $k$ ) and effective porosity ( $n_e$ ) values as derived from slug test results conducted March 2016.

Hydrex Environmental  
 TBPG Firm No. 50027



*[Handwritten Signature]*  
 1-27-2023



## **Appendix D**

**Groundwater Monitoring Analytical Results Summary Table**

Well ID	Sampling Date	Boron (mg/L)	Total Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (SU)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Total Antimony (mg/L)	Total Arsenic (mg/L)	Total Barium (mg/L)	Total Beryllium (mg/L)	Total Cadmium (mg/L)	Total Chromium (mg/L)	Total Cobalt (mg/L)	Fluoride (mg/L)	Total Lead (mg/L)	Total Lithium (mg/L)	Total Mercury (mg/L)	Total Molybdenum (mg/L)	Total Selenium (mg/L)	Total Thallium (mg/L)	Radium 226 & 228 (Combined) (pCi/L)
MW-7	04/18/22	0.27	292	277	<0.500	6.5	1010	1940	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-7	12/06/22	0.271	303	260	<0.500	6.5	1030	1920	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-11	04/18/22	0.162	130	140	<0.500	6.6	485	988	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-11	12/06/22	0.169	129	138	<0.500	6.5	469	913	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-12	04/18/22	0.025	16.1	75.9	<0.500	6.5	41	266	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-12	12/06/22	<0.05	20.2	80.2	<0.500	6.3	43.6	262	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-13	04/18/22	0.0483	51.3	101	<0.500	6.3	200	582	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-13	05/31/22	NA	NA	NA	NA	NA	360	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-13	12/06/22	0.0536	35.1	117	<0.500	6.2	110	448	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.1206	59.59	120.1	0.584	4.972-7.724	195.2	631.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	04/18/22	0.875	190	457	<0.500	6.6	899	2290	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	05/31/22	0.718	202	464	NA	NA	944	2240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	06/28/22	1.64	211	423	NA	NA	933	2230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	07/14/22	0.762	NA	NA	NA	NA	NA	2700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	12/06/22	1.3	263	470	<0.500	6.5	1080	2450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.6019	141.2	440.9	0.682	4.924-7.57	841.2	1940	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-15	04/18/22	0.034	27.4	147	<0.500	6.6	44.2	462	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-15	12/06/22	<0.05	27.7	144	<0.500	6.5	39	424	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.06659	37.94	197.6	0.5	4.322-7.577	49.99	482.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-16	04/18/22	0.022	69	273	<0.500	6.6	98.9	796	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-16	12/06/22	<0.05	68	176	<0.500	6.6	130	717	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-17	04/18/22	0.0332	130	611	<0.500	5.9	132	1350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-17	12/06/22	<0.05	73.1	410	<0.500	5.8	53.9	878	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.362	396.5	1728	0.5	3.992-7.76	168	3264	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

\*Background limits are intrawell statistical limits including data collected between June 2016 and June 2021.

## **Laboratory Report(s)**



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Michelle Transier  
Hydrex Environmental  
1120 NW Stallings Drive  
Nacogdoches, Texas 75964

Generated 1/17/2023 10:32:06 AM Revision 1

## JOB DESCRIPTION

Twin Oaks PP

## JOB NUMBER

860-38856-1

# Eurofins Houston

## Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Authorized for release by  
Anita Patel, Project Manager  
[Anita.Patel@et.eurofinsus.com](mailto:Anita.Patel@et.eurofinsus.com)  
(832)776-2275

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Revision 1



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# Definitions/Glossary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

**Job ID: 860-38856-1**

**Laboratory: Eurofins Houston**

## Narrative

**Job Narrative**  
**860-38856-1**

### REVISION

The report being provided is a revision of the original report sent on 12/28/2022. The report (revision 1) is being revised due to the original run had an incorrect integration for Fluoride. After correcting this, the result is below RL. The rerun confirms this.

Report revision history

### **Receipt**

The samples were received on 12/8/2022 10:19 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.0°C

### **Receipt Exceptions**

Did not receive extra sample containers for MS/MSD.

MW-11 (860-38856-1), Dup (860-38856-2), MW-7 (860-38856-3), MW-12 (860-38856-4), MW-16 (860-38856-5), MW-13 (860-38856-6), MW-14 (860-38856-7), MW-15 (860-38856-8) and MW-17 (860-38856-9)

### **HPLC/IC**

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Chloride and Sulfate analytical batch 860-83439 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### **Metals**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### **General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

## Client Sample ID: MW-11

## Lab Sample ID: 860-38856-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	138		0.500	mg/L	1		300.0	Total/NA
Sulfate	469		0.500	mg/L	1		300.0	Total/NA
Boron	0.169		0.0500	mg/L	1		6010B	Total/NA
Calcium	129		10.0	mg/L	50		6010B	Total/NA
Total Dissolved Solids	913		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.5	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	15.7	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: Dup

## Lab Sample ID: 860-38856-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	138		0.500	mg/L	1		300.0	Total/NA
Sulfate	468		0.500	mg/L	1		300.0	Total/NA
Boron	0.169		0.0500	mg/L	1		6010B	Total/NA
Calcium	135		10.0	mg/L	50		6010B	Total/NA
Total Dissolved Solids	893		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.5	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	15.2	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-7

## Lab Sample ID: 860-38856-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	260		0.500	mg/L	1		300.0	Total/NA
Sulfate	1030		5.00	mg/L	10		300.0	Total/NA
Boron	0.271		0.0500	mg/L	1		6010B	Total/NA
Calcium	303		10.0	mg/L	50		6010B	Total/NA
Total Dissolved Solids	1920		20.0	mg/L	1		SM 2540C	Total/NA
pH	6.5	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	15.4	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-12

## Lab Sample ID: 860-38856-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	80.2		0.500	mg/L	1		300.0	Total/NA
Sulfate	43.6		0.500	mg/L	1		300.0	Total/NA
Calcium	20.2		0.200	mg/L	1		6010B	Total/NA
Total Dissolved Solids	262		5.00	mg/L	1		SM 2540C	Total/NA
pH	6.3	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.3	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-16

## Lab Sample ID: 860-38856-5

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	176		0.500	mg/L	1		300.0	Total/NA
Sulfate	130		0.500	mg/L	1		300.0	Total/NA
Calcium	68.0		0.200	mg/L	1		6010B	Total/NA
Total Dissolved Solids	717		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.6	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	15.0	HF		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Houston

# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

## Client Sample ID: MW-13

## Lab Sample ID: 860-38856-6

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	117		0.500	mg/L	1		300.0	Total/NA
Sulfate	110		0.500	mg/L	1		300.0	Total/NA
Boron	0.0536		0.0500	mg/L	1		6010B	Total/NA
Calcium	35.1		0.200	mg/L	1		6010B	Total/NA
Total Dissolved Solids	448		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.2	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	14.6	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-14

## Lab Sample ID: 860-38856-7

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	470		0.500	mg/L	1		300.0	Total/NA
Sulfate	1080		5.00	mg/L	10		300.0	Total/NA
Boron	1.30		0.0500	mg/L	1		6010B	Total/NA
Calcium	263		10.0	mg/L	50		6010B	Total/NA
Total Dissolved Solids	2450		20.0	mg/L	1		SM 2540C	Total/NA
pH	6.5	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	13.5	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-15

## Lab Sample ID: 860-38856-8

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	144		0.500	mg/L	1		300.0	Total/NA
Sulfate	39.0		0.500	mg/L	1		300.0	Total/NA
Calcium	27.7		0.200	mg/L	1		6010B	Total/NA
Total Dissolved Solids	424		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.5	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	14.1	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-17

## Lab Sample ID: 860-38856-9

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	410		0.500	mg/L	1		300.0	Total/NA
Sulfate	53.9		0.500	mg/L	1		300.0	Total/NA
Calcium	73.1		0.200	mg/L	1		6010B	Total/NA
Total Dissolved Solids	878		10.0	mg/L	1		SM 2540C	Total/NA
pH	5.8	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	13.4	HF		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Houston

# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

**Client Sample ID: MW-11**

**Lab Sample ID: 860-38856-1**

Date Collected: 12/06/22 09:11

Matrix: Water

Date Received: 12/08/22 10:19

**Method: MCAWW 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	138		0.500	mg/L			12/27/22 23:50	1
Fluoride	<0.500	U	0.500	mg/L			12/27/22 23:50	1
Sulfate	469		0.500	mg/L			12/27/22 23:50	1

**Method: SW846 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.169		0.0500	mg/L		12/20/22 11:00	12/20/22 23:51	1
Calcium	129		10.0	mg/L		12/20/22 11:00	12/21/22 00:01	50

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	913		10.0	mg/L			12/13/22 19:45	1
pH (SM 4500 H+ B)	6.5	HF		SU			12/14/22 13:37	1
Temperature (SM 4500 H+ B)	15.7	HF		Degrees C			12/14/22 13:37	1

**Client Sample ID: Dup**

**Lab Sample ID: 860-38856-2**

Date Collected: 12/06/22 09:11

Matrix: Water

Date Received: 12/08/22 10:19

**Method: MCAWW 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	138		0.500	mg/L			12/28/22 00:02	1
Fluoride	<0.500	U	0.500	mg/L			12/28/22 00:02	1
Sulfate	468		0.500	mg/L			12/28/22 00:02	1

**Method: SW846 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.169		0.0500	mg/L		12/20/22 11:00	12/20/22 23:54	1
Calcium	135		10.0	mg/L		12/20/22 11:00	12/21/22 00:05	50

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	893		10.0	mg/L			12/13/22 19:45	1
pH (SM 4500 H+ B)	6.5	HF		SU			12/14/22 13:41	1
Temperature (SM 4500 H+ B)	15.2	HF		Degrees C			12/14/22 13:41	1

**Client Sample ID: MW-7**

**Lab Sample ID: 860-38856-3**

Date Collected: 12/06/22 10:04

Matrix: Water

Date Received: 12/08/22 10:19

**Method: MCAWW 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	260		0.500	mg/L			12/28/22 04:11	1
Fluoride	<0.500	U	0.500	mg/L			12/28/22 04:11	1
Sulfate	1030		5.00	mg/L			12/28/22 04:23	10

**Method: SW846 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.271		0.0500	mg/L		12/20/22 11:00	12/21/22 00:16	1
Calcium	303		10.0	mg/L		12/20/22 11:00	12/21/22 00:34	50

Eurofins Houston

# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

**Client Sample ID: MW-7**

**Lab Sample ID: 860-38856-3**

Date Collected: 12/06/22 10:04

Matrix: Water

Date Received: 12/08/22 10:19

## General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1920		20.0	mg/L			12/13/22 19:45	1
pH (SM 4500 H+ B)	6.5	HF		SU			12/14/22 13:43	1
Temperature (SM 4500 H+ B)	15.4	HF		Degrees C			12/14/22 13:43	1

**Client Sample ID: MW-12**

**Lab Sample ID: 860-38856-4**

Date Collected: 12/06/22 10:51

Matrix: Water

Date Received: 12/08/22 10:19

## Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	80.2		0.500	mg/L			12/28/22 00:14	1
Fluoride	<0.500	U	0.500	mg/L			12/28/22 00:14	1
Sulfate	43.6		0.500	mg/L			12/28/22 00:14	1

## Method: SW846 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0500	U	0.0500	mg/L		12/20/22 11:00	12/21/22 00:19	1
Calcium	20.2		0.200	mg/L		12/20/22 11:00	12/21/22 00:19	1

## General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	262		5.00	mg/L			12/13/22 19:45	1
pH (SM 4500 H+ B)	6.3	HF		SU			12/14/22 13:45	1
Temperature (SM 4500 H+ B)	16.3	HF		Degrees C			12/14/22 13:45	1

**Client Sample ID: MW-16**

**Lab Sample ID: 860-38856-5**

Date Collected: 12/06/22 11:27

Matrix: Water

Date Received: 12/08/22 10:19

## Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	176		0.500	mg/L			12/28/22 01:13	1
Fluoride	<0.500	U	0.500	mg/L			12/28/22 01:13	1
Sulfate	130		0.500	mg/L			12/28/22 01:13	1

## Method: SW846 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0500	U	0.0500	mg/L		12/20/22 11:00	12/21/22 00:23	1
Calcium	68.0		0.200	mg/L		12/20/22 11:00	12/21/22 00:23	1

## General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	717		10.0	mg/L			12/13/22 19:45	1
pH (SM 4500 H+ B)	6.6	HF		SU			12/14/22 13:46	1
Temperature (SM 4500 H+ B)	15.0	HF		Degrees C			12/14/22 13:46	1

Eurofins Houston

# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

**Client Sample ID: MW-13**

**Lab Sample ID: 860-38856-6**

Date Collected: 12/06/22 11:59

Matrix: Water

Date Received: 12/08/22 10:19

**Method: MCAWW 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	117		0.500	mg/L			12/28/22 01:25	1
Fluoride	<0.500	U	0.500	mg/L			12/28/22 01:25	1
Sulfate	110		0.500	mg/L			12/28/22 01:25	1

**Method: SW846 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0536		0.0500	mg/L		12/20/22 11:00	12/21/22 00:26	1
Calcium	35.1		0.200	mg/L		12/20/22 11:00	12/21/22 00:26	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	448		10.0	mg/L			12/13/22 19:45	1
pH (SM 4500 H+ B)	6.2	HF		SU			12/14/22 13:50	1
Temperature (SM 4500 H+ B)	14.6	HF		Degrees C			12/14/22 13:50	1

**Client Sample ID: MW-14**

**Lab Sample ID: 860-38856-7**

Date Collected: 12/06/22 12:36

Matrix: Water

Date Received: 12/08/22 10:19

**Method: MCAWW 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	470		0.500	mg/L			12/28/22 04:35	1
Fluoride	<0.500	U	0.500	mg/L			12/28/22 04:35	1
Sulfate	1080		5.00	mg/L			12/28/22 04:47	10

**Method: SW846 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.30		0.0500	mg/L		12/20/22 11:00	12/21/22 00:30	1
Calcium	263		10.0	mg/L		12/20/22 11:00	12/21/22 00:48	50

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	2450		20.0	mg/L			12/13/22 19:45	1
pH (SM 4500 H+ B)	6.5	HF		SU			12/15/22 16:40	1
Temperature (SM 4500 H+ B)	13.5	HF		Degrees C			12/15/22 16:40	1

**Client Sample ID: MW-15**

**Lab Sample ID: 860-38856-8**

Date Collected: 12/06/22 13:26

Matrix: Water

Date Received: 12/08/22 10:19

**Method: MCAWW 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	144		0.500	mg/L			12/28/22 01:37	1
Fluoride	<0.500	U	0.500	mg/L			12/28/22 01:37	1
Sulfate	39.0		0.500	mg/L			12/28/22 01:37	1

**Method: SW846 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0500	U	0.0500	mg/L		12/20/22 11:00	12/21/22 00:58	1
Calcium	27.7		0.200	mg/L		12/20/22 11:00	12/21/22 00:58	1

Eurofins Houston

# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

**Client Sample ID: MW-15**

**Lab Sample ID: 860-38856-8**

Date Collected: 12/06/22 13:26

Matrix: Water

Date Received: 12/08/22 10:19

## General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	424		10.0	mg/L			12/13/22 19:45	1
pH (SM 4500 H+ B)	6.5	HF		SU			12/15/22 16:42	1
Temperature (SM 4500 H+ B)	14.1	HF		Degrees C			12/15/22 16:42	1

**Client Sample ID: MW-17**

**Lab Sample ID: 860-38856-9**

Date Collected: 12/06/22 14:09

Matrix: Water

Date Received: 12/08/22 10:19

## Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	410		0.500	mg/L			12/28/22 01:49	1
Fluoride	<0.500	U	0.500	mg/L			12/28/22 01:49	1
Sulfate	53.9		0.500	mg/L			12/28/22 01:49	1

## Method: SW846 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0500	U	0.0500	mg/L		12/20/22 11:00	12/21/22 01:02	1
Calcium	73.1		0.200	mg/L		12/20/22 11:00	12/21/22 01:02	1

## General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	878		10.0	mg/L			12/13/22 19:45	1
pH (SM 4500 H+ B)	5.8	HF		SU			12/15/22 16:43	1
Temperature (SM 4500 H+ B)	13.4	HF		Degrees C			12/15/22 16:43	1

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 860-83439/3**  
**Matrix: Water**  
**Analysis Batch: 83439**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.500	U	0.500	mg/L			12/27/22 13:52	1
Fluoride	<0.500	U	0.500	mg/L			12/27/22 13:52	1
Sulfate	<0.500	U	0.500	mg/L			12/27/22 13:52	1

**Lab Sample ID: MB 860-83439/48**  
**Matrix: Water**  
**Analysis Batch: 83439**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.500	U	0.500	mg/L			12/27/22 23:03	1
Fluoride	<0.500	U	0.500	mg/L			12/27/22 23:03	1
Sulfate	<0.500	U	0.500	mg/L			12/27/22 23:03	1

**Lab Sample ID: LCS 860-83439/49**  
**Matrix: Water**  
**Analysis Batch: 83439**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.744		mg/L		97	90 - 110
Fluoride	10.0	10.36		mg/L		104	90 - 110
Sulfate	10.0	10.53		mg/L		105	90 - 110

**Lab Sample ID: LCSD 860-83439/50**  
**Matrix: Water**  
**Analysis Batch: 83439**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	10.0	9.709		mg/L		97	90 - 110	0	20
Fluoride	10.0	10.34		mg/L		103	90 - 110	0	20
Sulfate	10.0	10.56		mg/L		106	90 - 110	0	20

**Lab Sample ID: LLCS 860-83439/7**  
**Matrix: Water**  
**Analysis Batch: 83439**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	0.500	0.5447		mg/L		109	50 - 150
Fluoride	0.500	0.4957	J	mg/L		99	50 - 150
Sulfate	0.500	0.3044	J	mg/L		61	50 - 150

**Lab Sample ID: 860-38856-4 MS**  
**Matrix: Water**  
**Analysis Batch: 83439**

**Client Sample ID: MW-12**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	80.2		10.0	87.95	4	mg/L		77	90 - 110
Fluoride	<0.500	U	10.0	9.234		mg/L		91	90 - 110
Sulfate	43.6		10.0	71.59	4	mg/L		280	90 - 110

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 860-38856-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 83439**

**Client Sample ID: MW-12**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	80.2		10.0	87.91	4	mg/L		77	90 - 110	0	20
Fluoride	<0.500	U	10.0	9.246		mg/L		91	90 - 110	0	20
Sulfate	43.6		10.0	71.81	4	mg/L		282	90 - 110	0	20

**Lab Sample ID: MB 860-85995/3**  
**Matrix: Water**  
**Analysis Batch: 85995**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.500	U	0.500	mg/L			01/16/23 15:05	1
Fluoride	<0.500	U	0.500	mg/L			01/16/23 15:05	1
Sulfate	<0.500	U	0.500	mg/L			01/16/23 15:05	1

**Lab Sample ID: LCS 860-85995/4**  
**Matrix: Water**  
**Analysis Batch: 85995**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.513		mg/L		95	90 - 110
Fluoride	10.0	9.576		mg/L		96	90 - 110
Sulfate	10.0	9.277		mg/L		93	90 - 110

**Lab Sample ID: LCSD 860-85995/5**  
**Matrix: Water**  
**Analysis Batch: 85995**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	10.0	9.526		mg/L		95	90 - 110	0	20
Fluoride	10.0	9.590		mg/L		96	90 - 110	0	20
Sulfate	10.0	9.297		mg/L		93	90 - 110	0	20

**Lab Sample ID: LLCS 860-85995/7**  
**Matrix: Water**  
**Analysis Batch: 85995**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	0.500	0.5080		mg/L		102	50 - 150
Fluoride	0.500	0.4530	J	mg/L		91	50 - 150
Sulfate	0.500	0.5403		mg/L		108	50 - 150

## Method: 6010B - Metals (ICP)

**Lab Sample ID: MB 860-82740/1-A**  
**Matrix: Water**  
**Analysis Batch: 82946**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 82740**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0500	U	0.0500	mg/L		12/20/22 11:00	12/20/22 22:54	1
Calcium	<0.200	U	0.200	mg/L		12/20/22 11:00	12/20/22 22:54	1

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# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

## Method: 6010B - Metals (ICP) (Continued)

**Lab Sample ID: LCS 860-82740/2-A**  
**Matrix: Water**  
**Analysis Batch: 82946**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 82740**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	1.040		mg/L		104	80 - 120
Calcium	25.0	25.70		mg/L		103	80 - 120

**Lab Sample ID: LCSD 860-82740/3-A**  
**Matrix: Water**  
**Analysis Batch: 82946**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 82740**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1.00	1.040		mg/L		104	80 - 120	0	20
Calcium	25.0	25.90		mg/L		104	80 - 120	1	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 860-81747/1**  
**Matrix: Water**  
**Analysis Batch: 81747**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5.00	U	5.00	mg/L			12/13/22 19:45	1

**Lab Sample ID: LCS 860-81747/2**  
**Matrix: Water**  
**Analysis Batch: 81747**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	985.0		mg/L		99	80 - 120

**Lab Sample ID: LCSD 860-81747/3**  
**Matrix: Water**  
**Analysis Batch: 81747**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	979.0		mg/L		98	80 - 120	1	10

**Lab Sample ID: LLCS 860-81747/4**  
**Matrix: Water**  
**Analysis Batch: 81747**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	5.00	<5.00	U	mg/L		60	50 - 150

**Lab Sample ID: 860-38856-2 DU**  
**Matrix: Water**  
**Analysis Batch: 81747**

**Client Sample ID: Dup**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	893		915.0		mg/L		2	10

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# QC Sample Results

Client: Hydrex Environmental  
 Project/Site: Twin Oaks PP

Job ID: 860-38856-1

## Method: SM 4500 H+ B - pH

Lab Sample ID: 860-38856-1 DU  
 Matrix: Water  
 Analysis Batch: 81874

Client Sample ID: MW-11  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH	6.5	HF	6.5		SU		0.5	20
Temperature	15.7	HF	15.3		Degrees C		3	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

## HPLC/IC

### Analysis Batch: 83439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-38856-1	MW-11	Total/NA	Water	300.0	
860-38856-2	Dup	Total/NA	Water	300.0	
860-38856-3	MW-7	Total/NA	Water	300.0	
860-38856-3	MW-7	Total/NA	Water	300.0	
860-38856-4	MW-12	Total/NA	Water	300.0	
860-38856-5	MW-16	Total/NA	Water	300.0	
860-38856-6	MW-13	Total/NA	Water	300.0	
860-38856-7	MW-14	Total/NA	Water	300.0	
860-38856-7	MW-14	Total/NA	Water	300.0	
860-38856-8	MW-15	Total/NA	Water	300.0	
860-38856-9	MW-17	Total/NA	Water	300.0	
MB 860-83439/3	Method Blank	Total/NA	Water	300.0	
MB 860-83439/48	Method Blank	Total/NA	Water	300.0	
LCS 860-83439/49	Lab Control Sample	Total/NA	Water	300.0	
LCSD 860-83439/50	Lab Control Sample Dup	Total/NA	Water	300.0	
LLCS 860-83439/7	Lab Control Sample	Total/NA	Water	300.0	
860-38856-4 MS	MW-12	Total/NA	Water	300.0	
860-38856-4 MSD	MW-12	Total/NA	Water	300.0	

### Analysis Batch: 85995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 860-85995/3	Method Blank	Total/NA	Water	300.0	
LCS 860-85995/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 860-85995/5	Lab Control Sample Dup	Total/NA	Water	300.0	
LLCS 860-85995/7	Lab Control Sample	Total/NA	Water	300.0	

## Metals

### Prep Batch: 82740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-38856-1	MW-11	Total/NA	Water	3010A	
860-38856-2	Dup	Total/NA	Water	3010A	
860-38856-3	MW-7	Total/NA	Water	3010A	
860-38856-4	MW-12	Total/NA	Water	3010A	
860-38856-5	MW-16	Total/NA	Water	3010A	
860-38856-6	MW-13	Total/NA	Water	3010A	
860-38856-7	MW-14	Total/NA	Water	3010A	
860-38856-8	MW-15	Total/NA	Water	3010A	
860-38856-9	MW-17	Total/NA	Water	3010A	
MB 860-82740/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-82740/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-82740/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Analysis Batch: 82946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-38856-1	MW-11	Total/NA	Water	6010B	82740
860-38856-1	MW-11	Total/NA	Water	6010B	82740
860-38856-2	Dup	Total/NA	Water	6010B	82740
860-38856-2	Dup	Total/NA	Water	6010B	82740
860-38856-3	MW-7	Total/NA	Water	6010B	82740
860-38856-3	MW-7	Total/NA	Water	6010B	82740

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# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

## Metals (Continued)

### Analysis Batch: 82946 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-38856-4	MW-12	Total/NA	Water	6010B	82740
860-38856-5	MW-16	Total/NA	Water	6010B	82740
860-38856-6	MW-13	Total/NA	Water	6010B	82740
860-38856-7	MW-14	Total/NA	Water	6010B	82740
860-38856-7	MW-14	Total/NA	Water	6010B	82740
860-38856-8	MW-15	Total/NA	Water	6010B	82740
860-38856-9	MW-17	Total/NA	Water	6010B	82740
MB 860-82740/1-A	Method Blank	Total/NA	Water	6010B	82740
LCS 860-82740/2-A	Lab Control Sample	Total/NA	Water	6010B	82740
LCSD 860-82740/3-A	Lab Control Sample Dup	Total/NA	Water	6010B	82740

## General Chemistry

### Analysis Batch: 81747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-38856-1	MW-11	Total/NA	Water	SM 2540C	
860-38856-2	Dup	Total/NA	Water	SM 2540C	
860-38856-3	MW-7	Total/NA	Water	SM 2540C	
860-38856-4	MW-12	Total/NA	Water	SM 2540C	
860-38856-5	MW-16	Total/NA	Water	SM 2540C	
860-38856-6	MW-13	Total/NA	Water	SM 2540C	
860-38856-7	MW-14	Total/NA	Water	SM 2540C	
860-38856-8	MW-15	Total/NA	Water	SM 2540C	
860-38856-9	MW-17	Total/NA	Water	SM 2540C	
MB 860-81747/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-81747/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 860-81747/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
LLCS 860-81747/4	Lab Control Sample	Total/NA	Water	SM 2540C	
860-38856-2 DU	Dup	Total/NA	Water	SM 2540C	

### Analysis Batch: 81874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-38856-1	MW-11	Total/NA	Water	SM 4500 H+ B	
860-38856-2	Dup	Total/NA	Water	SM 4500 H+ B	
860-38856-3	MW-7	Total/NA	Water	SM 4500 H+ B	
860-38856-4	MW-12	Total/NA	Water	SM 4500 H+ B	
860-38856-5	MW-16	Total/NA	Water	SM 4500 H+ B	
860-38856-6	MW-13	Total/NA	Water	SM 4500 H+ B	
860-38856-1 DU	MW-11	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 82140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-38856-7	MW-14	Total/NA	Water	SM 4500 H+ B	
860-38856-8	MW-15	Total/NA	Water	SM 4500 H+ B	
860-38856-9	MW-17	Total/NA	Water	SM 4500 H+ B	

# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

**Client Sample ID: MW-11**  
**Date Collected: 12/06/22 09:11**  
**Date Received: 12/08/22 10:19**

**Lab Sample ID: 860-38856-1**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			83439	12/27/22 23:50	W1N	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		1			82946	12/20/22 23:51	JDM	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		50			82946	12/21/22 00:01	JDM	EET HOU
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	81747	12/13/22 19:45	YGG	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			81874	12/14/22 13:37	TL	EET HOU

**Client Sample ID: Dup**  
**Date Collected: 12/06/22 09:11**  
**Date Received: 12/08/22 10:19**

**Lab Sample ID: 860-38856-2**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			83439	12/28/22 00:02	W1N	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		1			82946	12/20/22 23:54	JDM	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		50			82946	12/21/22 00:05	JDM	EET HOU
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	81747	12/13/22 19:45	YGG	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			81874	12/14/22 13:41	TL	EET HOU

**Client Sample ID: MW-7**  
**Date Collected: 12/06/22 10:04**  
**Date Received: 12/08/22 10:19**

**Lab Sample ID: 860-38856-3**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	0 mL	1.0 mL	83439	12/28/22 04:11	W1N	EET HOU
Total/NA	Analysis	300.0		10	0 mL	1.0 mL	83439	12/28/22 04:23	W1N	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		1			82946	12/21/22 00:16	JDM	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		50			82946	12/21/22 00:34	JDM	EET HOU
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	81747	12/13/22 19:45	YGG	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			81874	12/14/22 13:43	TL	EET HOU

**Client Sample ID: MW-12**  
**Date Collected: 12/06/22 10:51**  
**Date Received: 12/08/22 10:19**

**Lab Sample ID: 860-38856-4**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			83439	12/28/22 00:14	W1N	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		1			82946	12/21/22 00:19	JDM	EET HOU
Total/NA	Analysis	SM 2540C		1	200 mL	200 mL	81747	12/13/22 19:45	YGG	EET HOU

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# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

**Client Sample ID: MW-12**  
**Date Collected: 12/06/22 10:51**  
**Date Received: 12/08/22 10:19**

**Lab Sample ID: 860-38856-4**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 H+ B		1			81874	12/14/22 13:45	TL	EET HOU

**Client Sample ID: MW-16**  
**Date Collected: 12/06/22 11:27**  
**Date Received: 12/08/22 10:19**

**Lab Sample ID: 860-38856-5**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			83439	12/28/22 01:13	W1N	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		1			82946	12/21/22 00:23	JDM	EET HOU
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	81747	12/13/22 19:45	YGG	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			81874	12/14/22 13:46	TL	EET HOU

**Client Sample ID: MW-13**  
**Date Collected: 12/06/22 11:59**  
**Date Received: 12/08/22 10:19**

**Lab Sample ID: 860-38856-6**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			83439	12/28/22 01:25	W1N	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		1			82946	12/21/22 00:26	JDM	EET HOU
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	81747	12/13/22 19:45	YGG	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			81874	12/14/22 13:50	TL	EET HOU

**Client Sample ID: MW-14**  
**Date Collected: 12/06/22 12:36**  
**Date Received: 12/08/22 10:19**

**Lab Sample ID: 860-38856-7**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	0 mL	1.0 mL	83439	12/28/22 04:35	W1N	EET HOU
Total/NA	Analysis	300.0		10	0 mL	1.0 mL	83439	12/28/22 04:47	W1N	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		1			82946	12/21/22 00:30	JDM	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		50			82946	12/21/22 00:48	JDM	EET HOU
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	81747	12/13/22 19:45	YGG	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			82140	12/15/22 16:40	TL	EET HOU

**Client Sample ID: MW-15**  
**Date Collected: 12/06/22 13:26**  
**Date Received: 12/08/22 10:19**

**Lab Sample ID: 860-38856-8**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			83439	12/28/22 01:37	W1N	EET HOU

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# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

**Client Sample ID: MW-15**

**Lab Sample ID: 860-38856-8**

**Date Collected: 12/06/22 13:26**

**Matrix: Water**

**Date Received: 12/08/22 10:19**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		1			82946	12/21/22 00:58	JDM	EET HOU
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	81747	12/13/22 19:45	YGG	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			82140	12/15/22 16:42	TL	EET HOU

**Client Sample ID: MW-17**

**Lab Sample ID: 860-38856-9**

**Date Collected: 12/06/22 14:09**

**Matrix: Water**

**Date Received: 12/08/22 10:19**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			83439	12/28/22 01:49	W1N	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	82740	12/20/22 11:00	MD	EET HOU
Total/NA	Analysis	6010B		1			82946	12/21/22 01:02	JDM	EET HOU
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	81747	12/13/22 19:45	YGG	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			82140	12/15/22 16:43	TL	EET HOU

**Laboratory References:**

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Accreditation/Certification Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

## Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00759	08-04-23
Florida	NELAP	E871002	06-30-23
Louisiana	NELAP	03054	06-30-23
Louisiana (All)	NELAP	03054	06-30-23
Oklahoma	State	1306	08-31-23
Texas	NELAP	T104704215-22-48	06-30-23
Texas	TCEQ Water Supply	T104704215	12-28-25
USDA	US Federal Programs	P330-22-00025	03-02-23

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# Method Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET HOU
6010B	Metals (ICP)	SW846	EET HOU
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET HOU
SM 4500 H+ B	pH	SM	EET HOU
3010A	Preparation, Total Metals	SW846	EET HOU

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Sample Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-38856-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
860-38856-1	MW-11	Water	12/06/22 09:11	12/08/22 10:19
860-38856-2	Dup	Water	12/06/22 09:11	12/08/22 10:19
860-38856-3	MW-7	Water	12/06/22 10:04	12/08/22 10:19
860-38856-4	MW-12	Water	12/06/22 10:51	12/08/22 10:19
860-38856-5	MW-16	Water	12/06/22 11:27	12/08/22 10:19
860-38856-6	MW-13	Water	12/06/22 11:59	12/08/22 10:19
860-38856-7	MW-14	Water	12/06/22 12:36	12/08/22 10:19
860-38856-8	MW-15	Water	12/06/22 13:26	12/08/22 10:19
860-38856-9	MW-17	Water	12/06/22 14:09	12/08/22 10:19

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**Eurofins Xenco, Stafford**  
 4145 Greenbriar Dr  
 Stafford TX 77477  
 Phone (281) 240-4200

**Chain of Custody Record**



NS | Environment Testing  
 America

860-38856 Chain of Custody

439 1

**Client Information**  
 Client Contact: **Seth DuVall** Lab P#: **Bechold, Chad**  
 Phone: **936-568-9451** E-Mail: **Chad.Bechold@eurofins.com**  
 Michelle Transier PWSID: **TX** State or Origin: **TX**

Company: **Hydrex Environmental**  
 Address: **1120 NW Stallings Drive**  
 City: **TAT Requested (days):**  
 State Zip: **TX, 75964**  
 Phone: **936-568-9451 (Tel)**  
 Email: **mtransier@hydrex-inc.com**  
 Project Name: **Twin Oaks PP**  
 Site: **SSON#:**

Due Date Requested:  
 Compliance Project:  Yes  No  
 WO #: **1-14-1007**  
 Project #: **86000207**  
 Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Wet, Solid, Organic)	Field Filtered Sample (Yes or No)	Retention MS/MS (Yes or No)	300_ORGFM_28D Cl, F, & SO4; SM4500_H+ pH	2540C_Calcd TDS	6010B Boron and Calcium	Total Number of Containers	Special Instructions/Note:
MMW-11	12/6/22	0911	G	W	NY	X	X	X	X	3	
Dup	12/6/22	0911	G	W	NY	X	X	X	X	3	
MMW-7	12/6/22	1004	G	W	NY	X	X	X	X	3	
MMW-12	12/6/22	1051	G	W	NY	X	X	X	X	3	
MMW-16	12/6/22	1127	G	W	NY	X	X	X	X	3	
MMW-13	12/6/22	1159	G	W	NY	X	X	X	X	3	Temp: 17 IR ID HOU-343
MMW-14	12/6/22	1236	G	W	NY	X	X	X	X	3	Corrected Temp: 20
MMW-15	12/6/22	1328	G	W	NY	X	X	X	X	3	
MMW-17	12/6/22	1409	G	W	NY	X	X	X	X	3	

**Possible Hazard Identification**  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological

Deliverable Requested I, II, III, IV Other (specify):  
 Empty Kit Relinquished by: **Seth DuVall** Date: **12/7-22** Time: **1330**  
 Relinquished by: **Seth DuVall** Date/Time: **12/7-22 / 1330** Company: **Hydrex**  
 Relinquished by: **FedEx** Date/Time: **12/8/22** Company: **FedEx**

Custody Seals Intact:  Yes  No Custody Seal No. **10:19 Eurofins**

Special Instructions/QC Requirements:  
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For  Months

Received by: **Seth DuVall** Date/Time: **12/7-22 / 1330** Company: **FedEx**  
 Received by: **Seth DuVall** Date/Time: **12/8/22** Company: **FedEx**

Cooler Temperature(s) °C and Other Remarks:



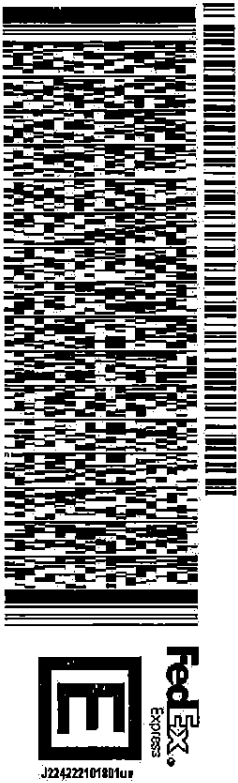
ORIGIN ID: FEKA (936) 568-9451  
 DONNY SMITH  
 HYDREX ENVIRONMENTAL  
 1120 NW STALLINGS DRIVE  
 NACOGDOCHES, TX 75964  
 UNITED STATES US

SHIP DATE: 05DEC22  
 ACT WT: 50.00 LB  
 CAD: 110260796/NINET4530

BILL SENDER

TO SAMPLE CUSTODIAN  
 XENCO  
 4143 GREENBRIAR DR

STAFFORD TX 77477  
 (281) 240-4200 REF: TWIN OAKS  
 NV DEPT:



TRK# 7706 6828 3798  
 0201

TUE - 06 DEC 10:30A  
 PRIORITY OVERNIGHT  
 DSR 77477  
 TX US IAH



581J39A97FE2D

**After printing this label**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number. Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation unless you declare a higher value, pay an additional charge, document your actual loss, and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income, interest, profit, attorney's fees, costs, and other forms of damage, whether direct, incidental, consequential, or special, is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments, and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

## Login Sample Receipt Checklist

Client: Hydrex Environmental

Job Number: 860-38856-1

**Login Number: 38856**  
**List Number: 1**  
**Creator: Torres, Sandra**

**List Source: Eurofins Houston**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	Refer to Job Narrative for details.
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

**December 2022 Event**  
**Results of Statistical Calculations**

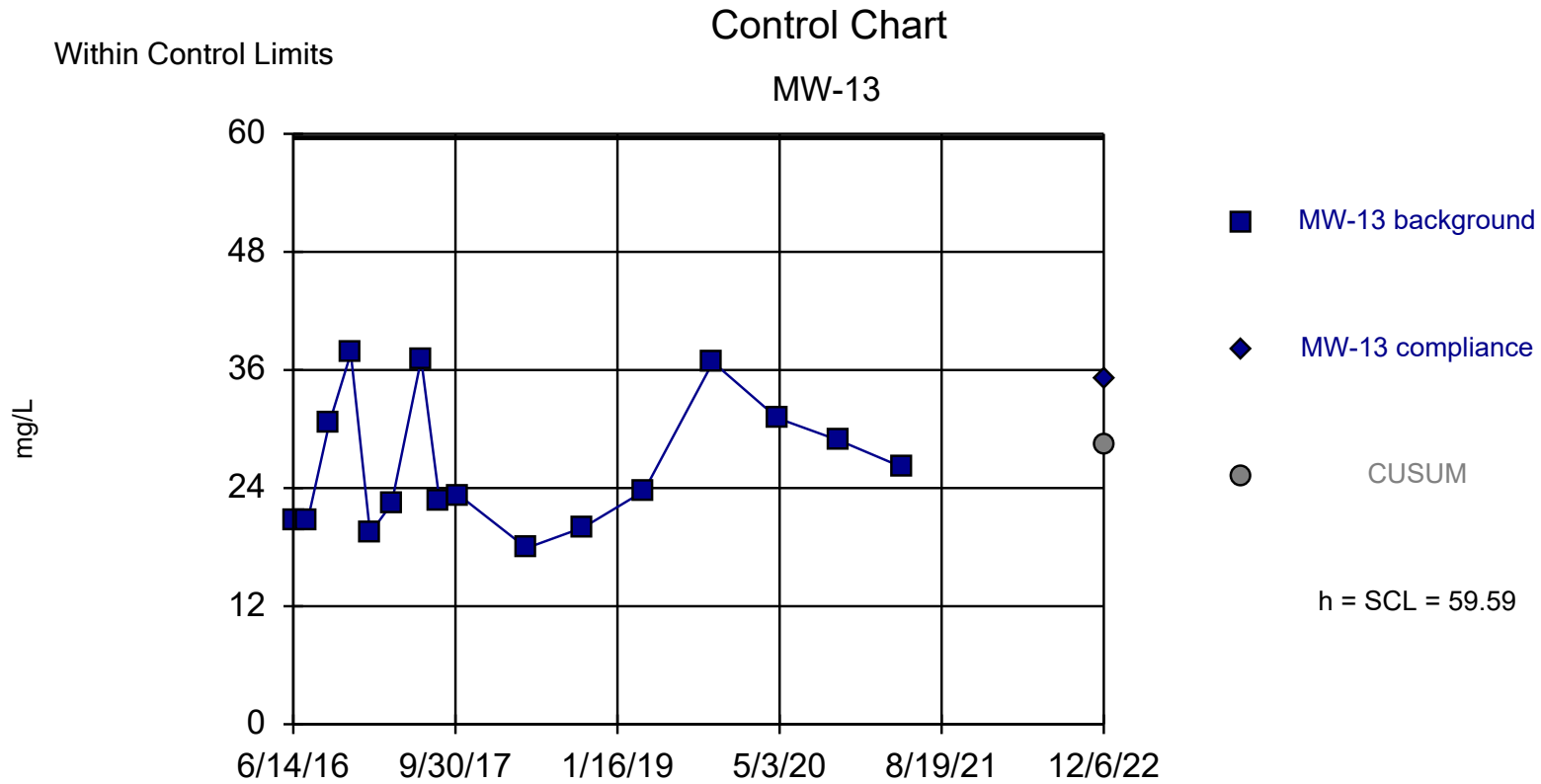
## **Control Charts and Prediction Limits**

# Shewhart-Cusum Control Chart / Rank Sum

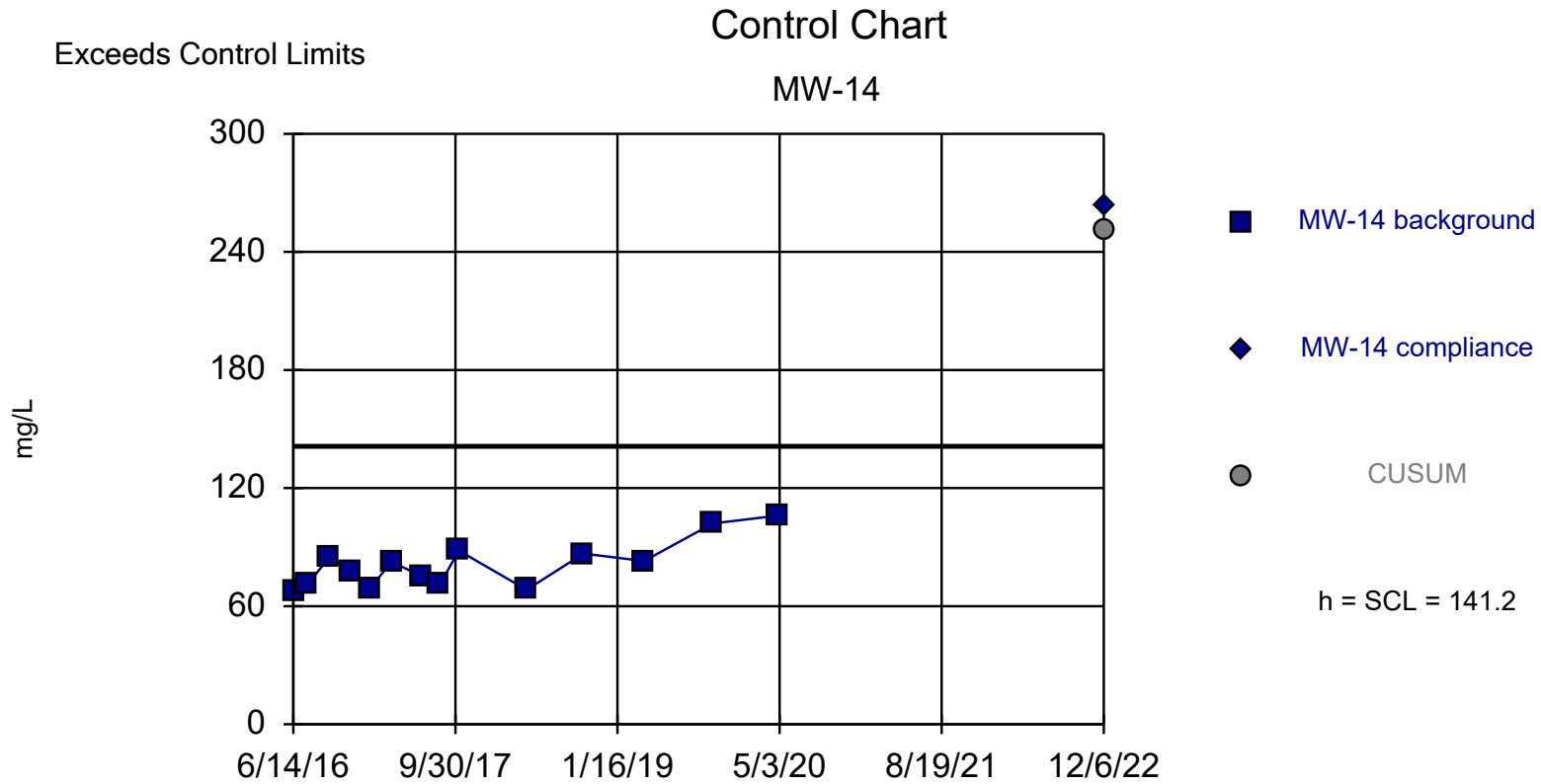
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks    Printed 1/17/2023, 11:47 AM

<u>Constituent</u>	<u>Well</u>	<u>Sig.</u>	<u>h</u>	<u>SCL</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Method</u>
Calcium (mg/L)	MW-13	No	59.59	59.59	16	0	No	Param Intra
Chloride (mg/L)	MW-13	No	120.1	120.1	15	0	No	Param Intra
Fluoride (mg/L)	MW-13	No	PL=...	n/a	16	81.25	No	NP Intra PL (NDs)
pH (SU)	MW-13	No	7.7...	7.7...	16	0	No	Param Intra
Sulfate (mg/L)	MW-13	No	195.2	195.2	16	6.25	No	Param Intra
Total Dissolved Solids (mg/L)	MW-13	No	631.9	631.9	16	0	No	Param Intra
<b>Calcium (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>141.2</b>	<b>141.2</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>Param Intra</b>
<b>Chloride (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>440.9</b>	<b>440.9</b>	<b>15</b>	<b>0</b>	<b>No</b>	<b>Param Intra</b>
Fluoride (mg/L)	MW-14	No	PL=...	n/a	16	75	No	NP Intra PL (NDs)
pH (SU)	MW-14	No	7.5...	7.5...	16	0	x^4	Param Intra
<b>Sulfate (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>841.2</b>	<b>841.2</b>	<b>15</b>	<b>0</b>	<b>sqrt(x)</b>	<b>Param Intra</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>1940</b>	<b>1940</b>	<b>15</b>	<b>0</b>	<b>No</b>	<b>Param Intra</b>
Calcium (mg/L)	MW-15	No	37.94	37.94	16	0	sqrt(x)	Param Intra
Chloride (mg/L)	MW-15	No	197.6	197.6	16	0	No	Param Intra
Fluoride (mg/L)	MW-15	No	PL=0.5	n/a	16	87.5	No	NP Intra PL (NDs)
pH (SU)	MW-15	No	7.5...	7.5...	16	0	x^4	Param Intra
Sulfate (mg/L)	MW-15	No	49.99	49.99	16	0	No	Param Intra
Total Dissolved Solids (mg/L)	MW-15	No	482.6	482.6	16	0	No	Param Intra
Calcium (mg/L)	MW-17	No	396.5	396.5	16	0	No	Param Intra
Chloride (mg/L)	MW-17	No	1728	1728	16	0	No	Param Intra
Fluoride (mg/L)	MW-17	No	PL=0.5	n/a	16	87.5	No	NP Intra PL (NDs)
pH (SU)	MW-17	No	7.7...	7.7...	16	0	No	Param Intra
Sulfate (mg/L)	MW-17	No	168	168	16	6.25	No	Param Intra
Total Dissolved Solids (mg/L)	MW-17	No	3264	3264	16	0	No	Param Intra

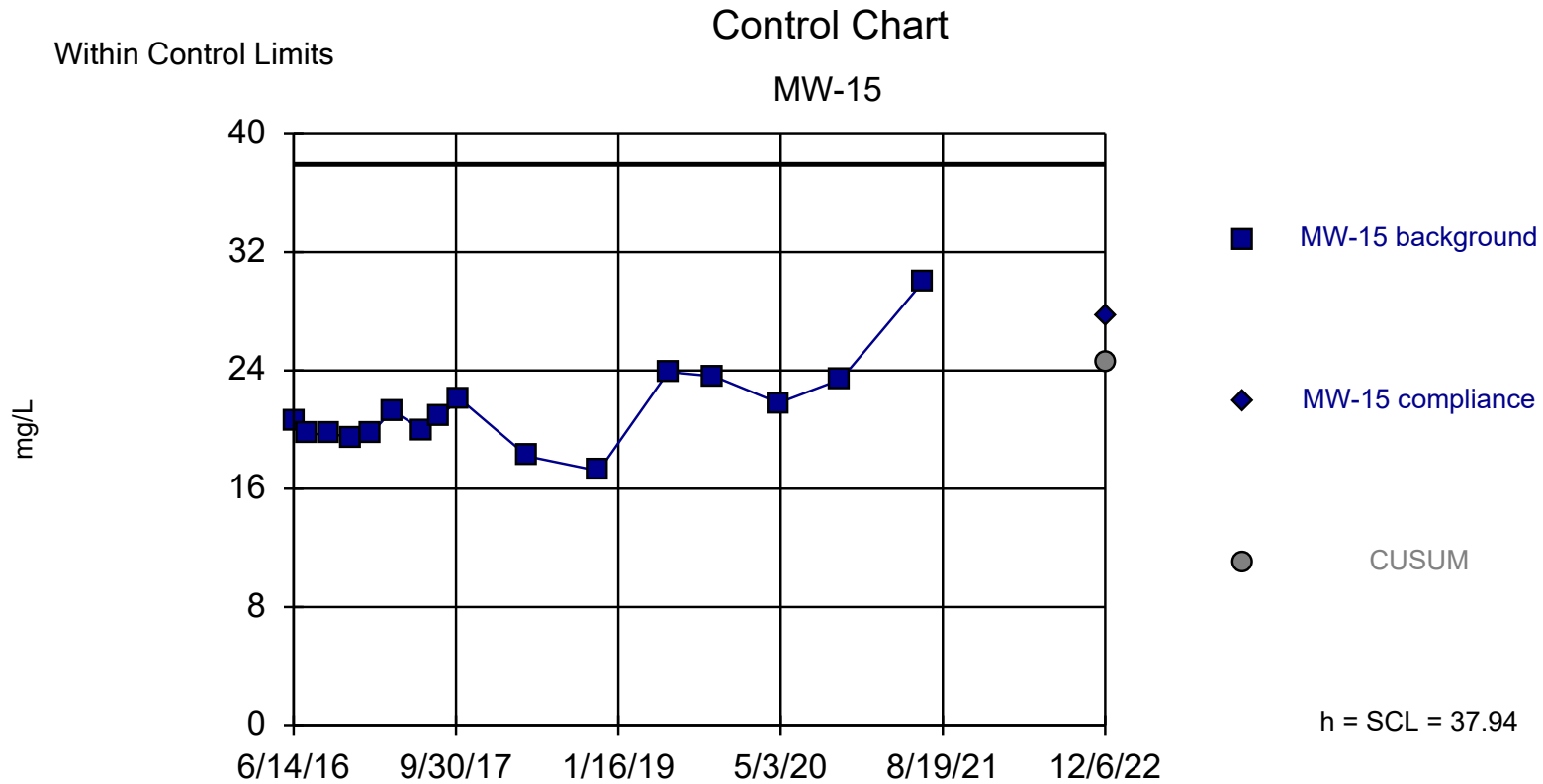




Background Data Summary: Mean=26.18, Std. Dev.=6.682, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8874, critical = 0.887. Report alpha = 0.000138. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

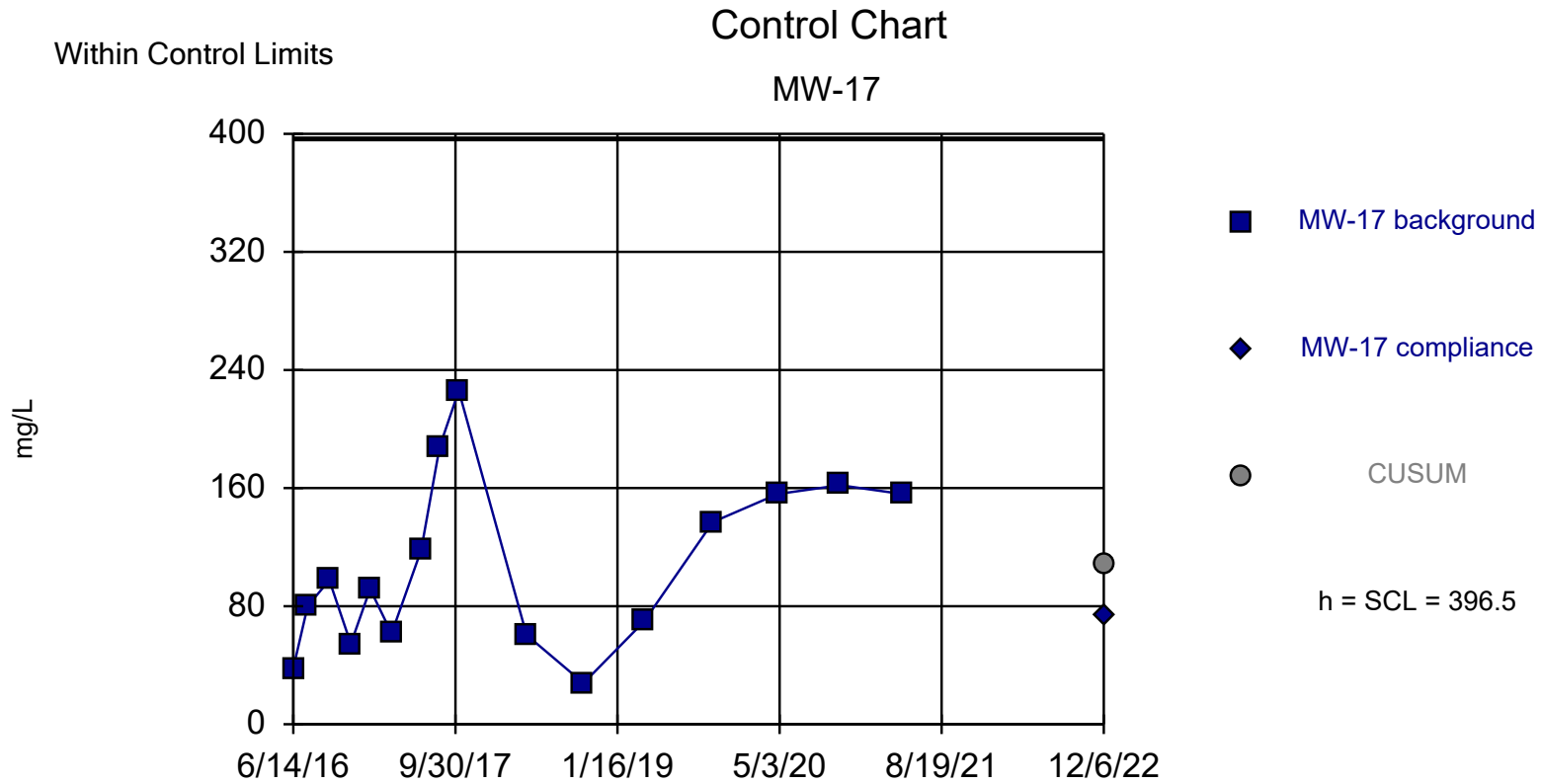


Background Data Summary: Mean=80.96, Std. Dev.=12.04, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8921, critical = 0.874. Report alpha = 0.00017. Dates ending 4/28/2020 used for control stats. Standardized h=5, SCL=5.

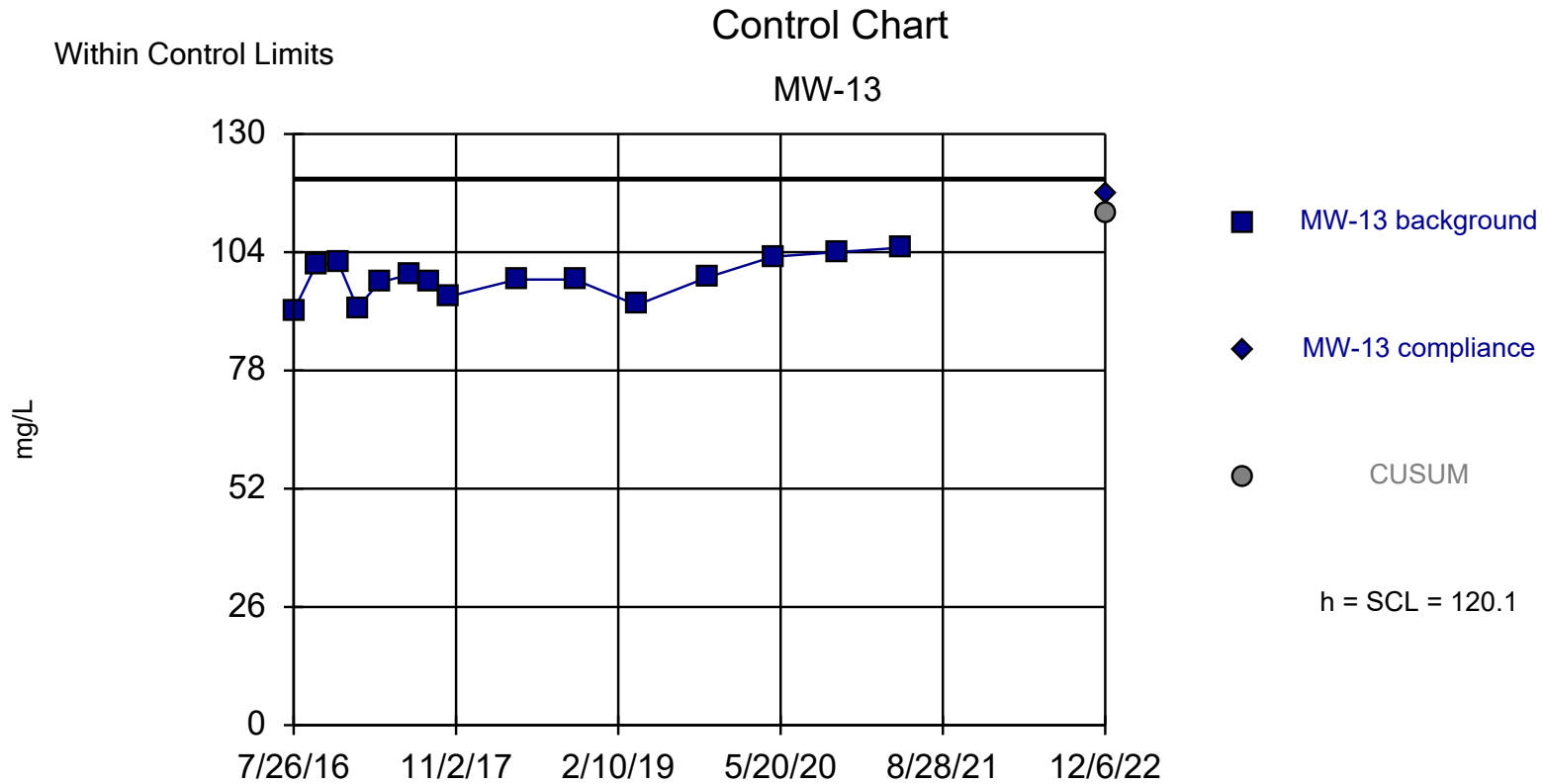


Background Data Summary (based on square root transformation): Mean=4.61, Std. Dev.=0.3099, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8969, critical = 0.887. Report alpha = 0.000102. Dates ending 6/23/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium    Analysis Run 1/17/2023 11:46 AM    View: CC 2022  
 Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks

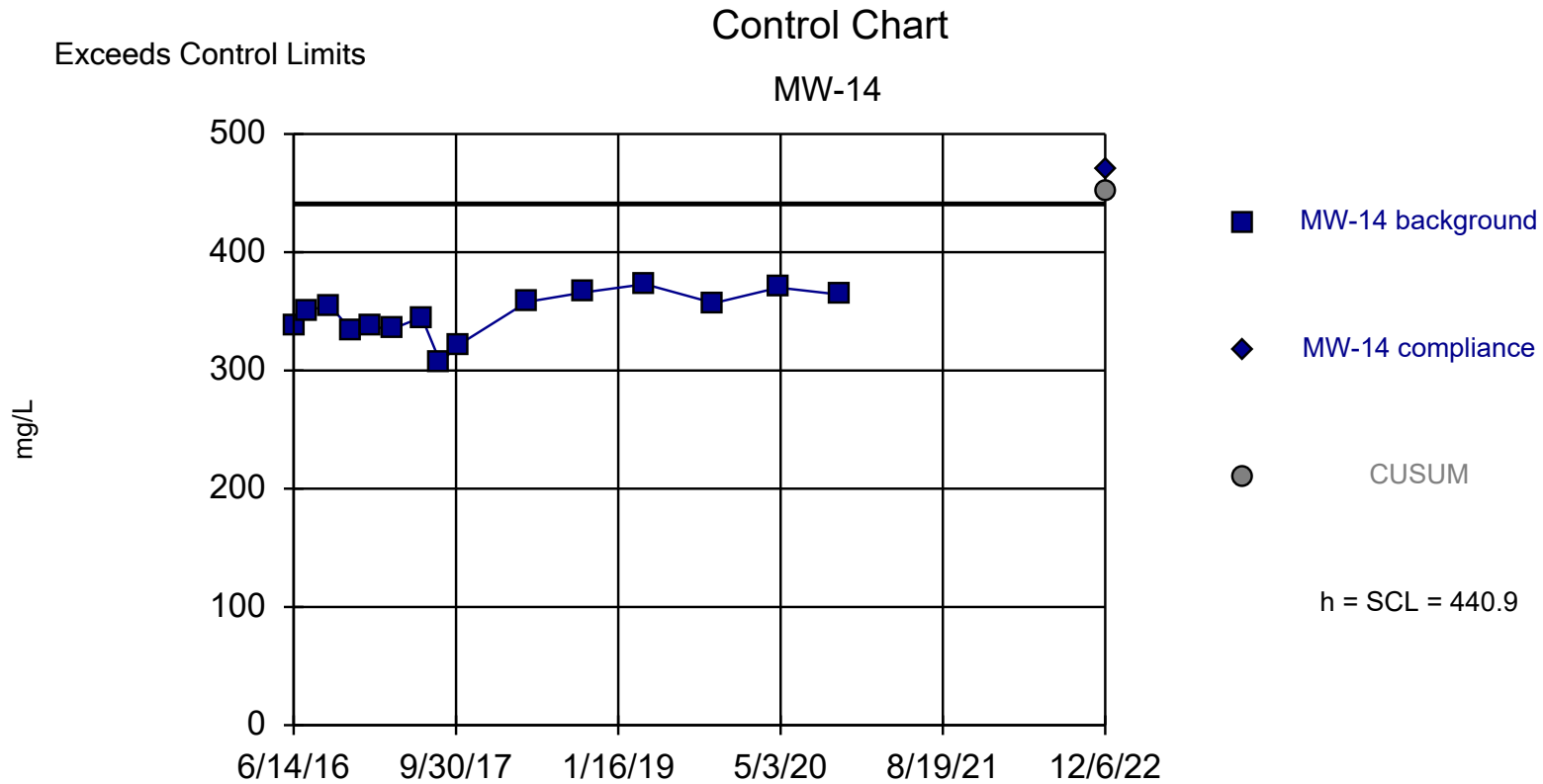


Background Data Summary: Mean=107.8, Std. Dev.=57.75, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9499, critical = 0.887. Report alpha = 0.000102. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.



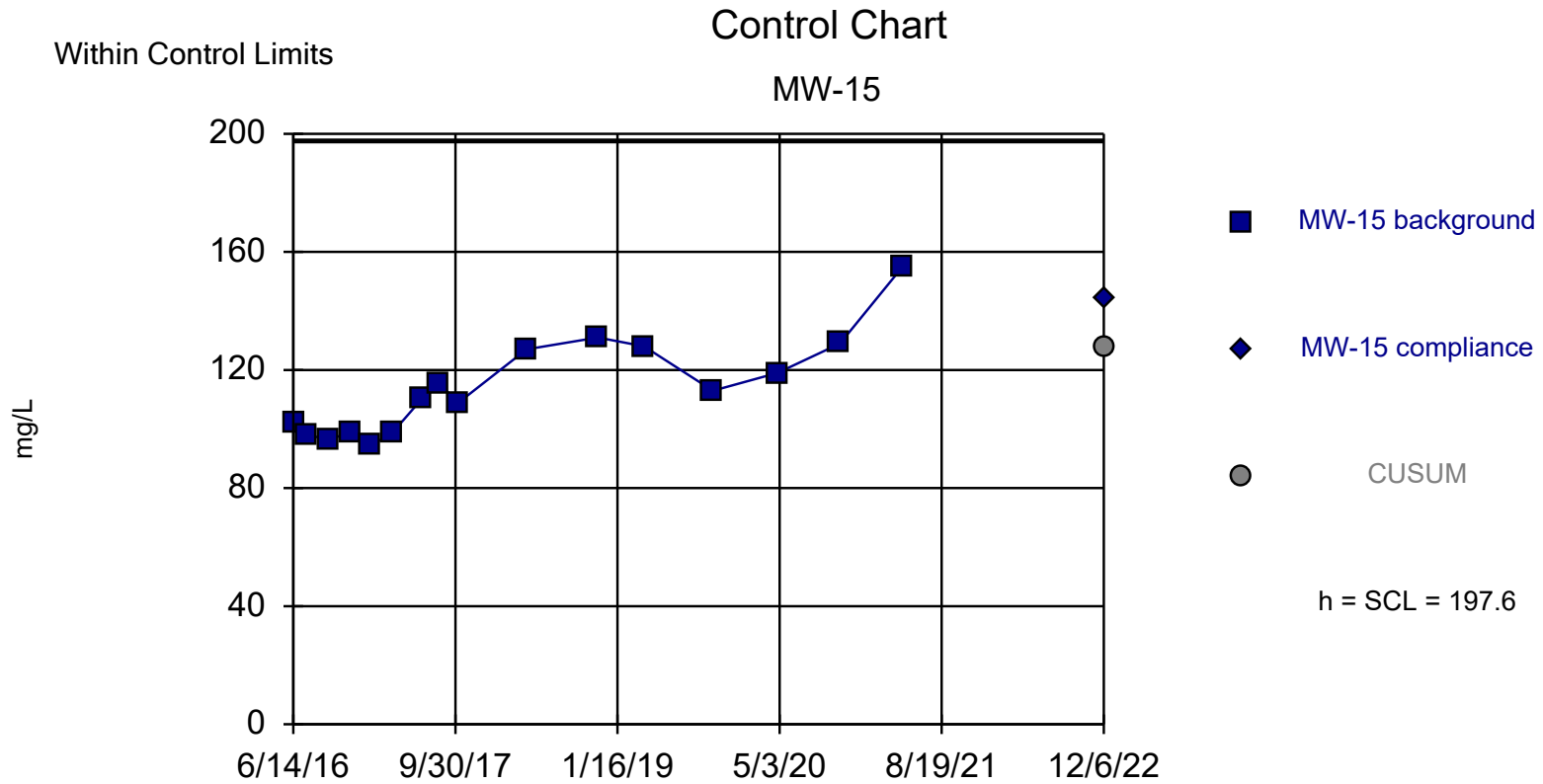
Background Data Summary: Mean=98.18, Std. Dev.=4.38, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9494, critical = 0.881. Report alpha = 0.00011. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 1/17/2023 11:46 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



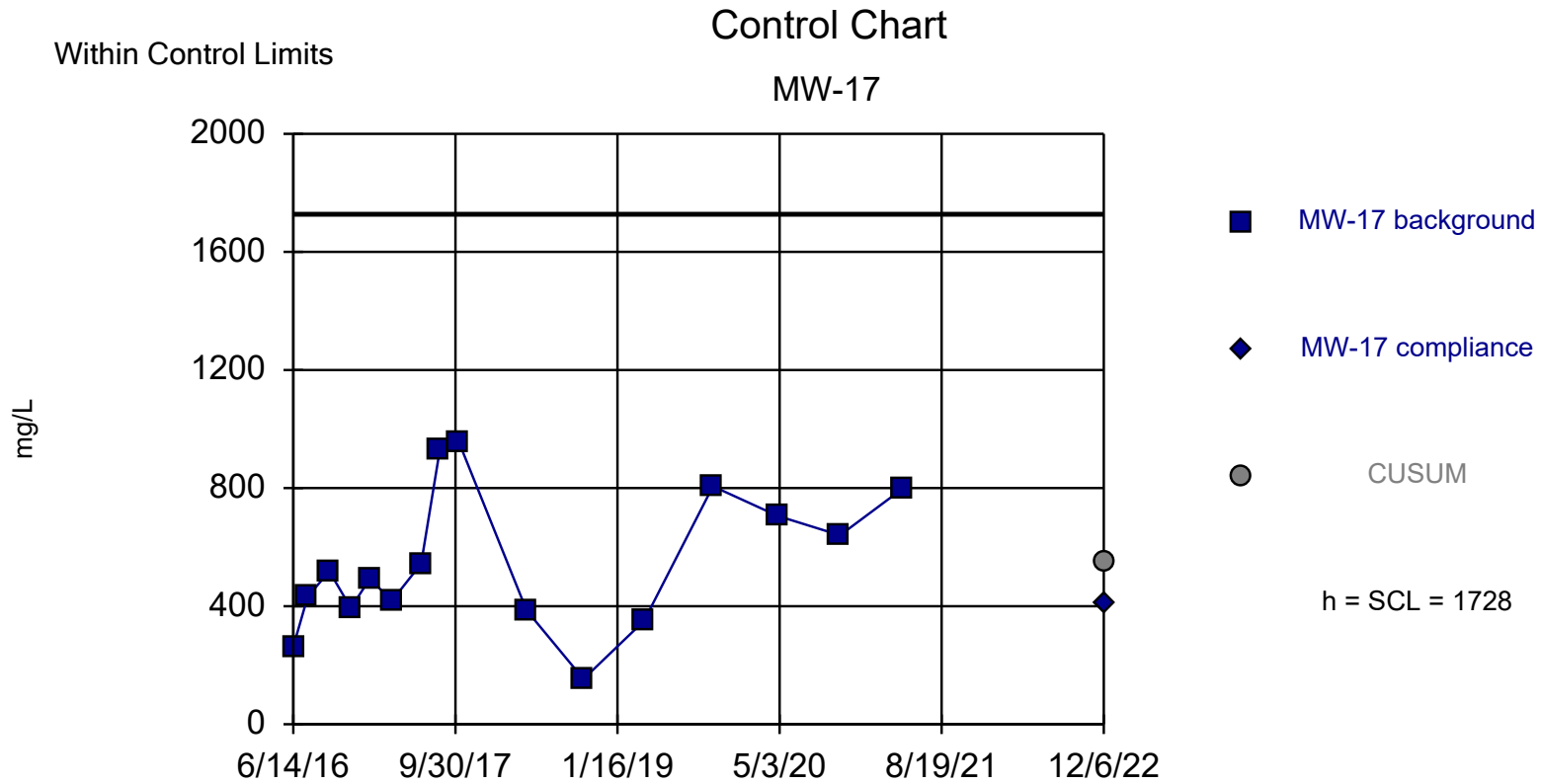
Background Data Summary: Mean=347.4, Std. Dev.=18.7, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9535, critical = 0.881. Report alpha = 0.00011. Dates ending 10/27/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 1/17/2023 11:46 AM View: CC 2022  
 Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=114, Std. Dev.=16.72, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9096, critical = 0.887. Report alpha = 0.000106. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 1/17/2023 11:46 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



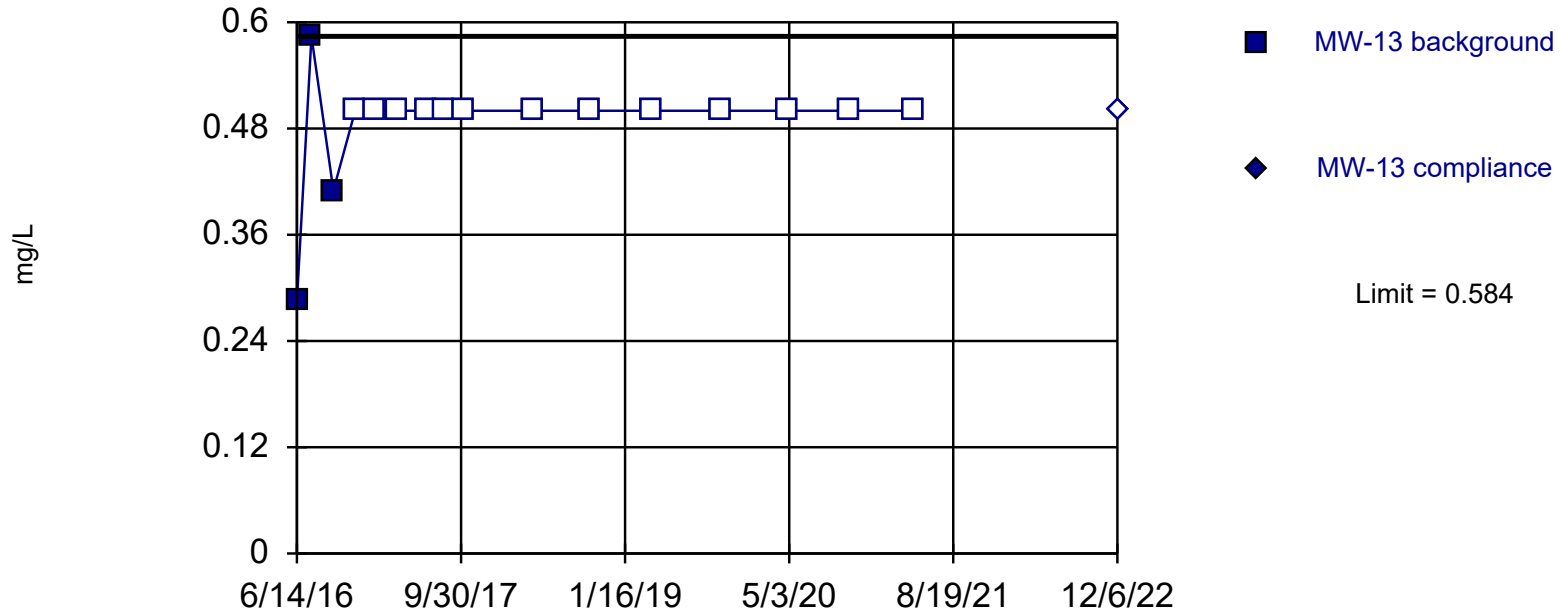
Background Data Summary: Mean=549, Std. Dev.=235.7, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9592, critical = 0.887. Report alpha = 0.000106. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.



Within Limit

### Prediction Limit

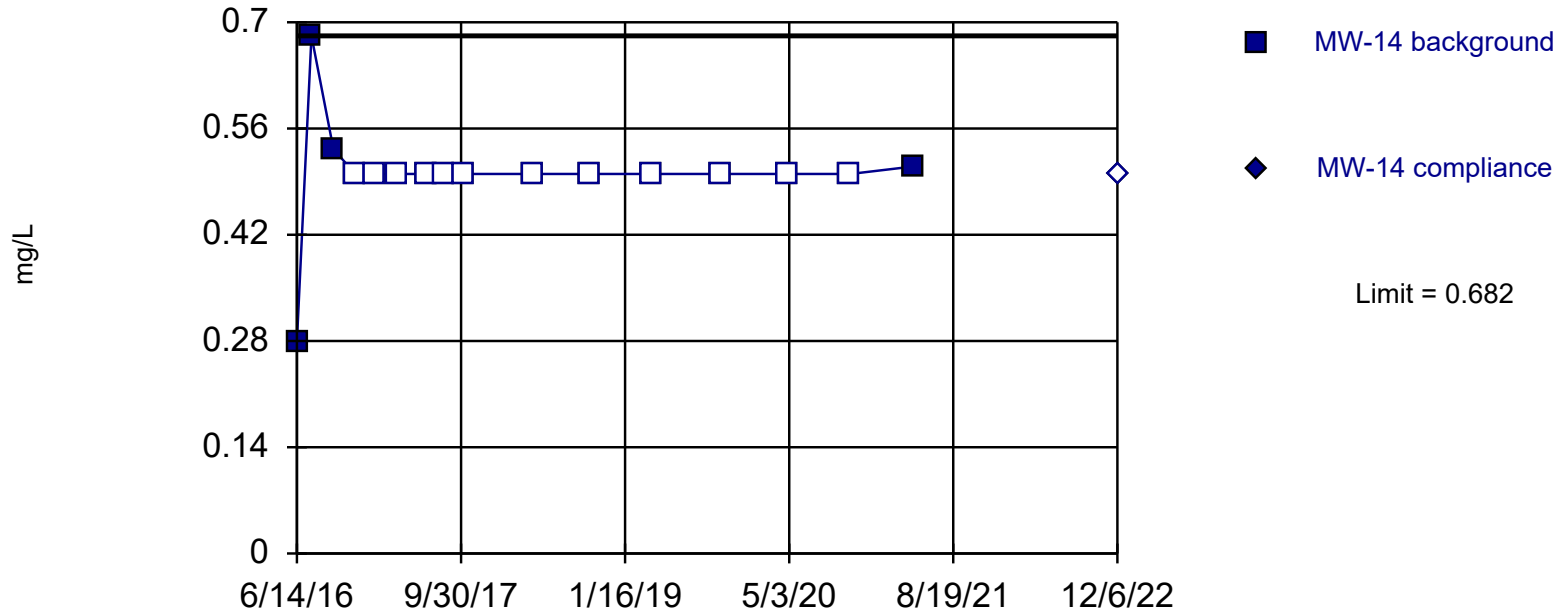
Intrawell Non-parametric



Non-parametric test used in lieu of control chart because non-detects exceed user-adjustable maximum of 50%. Limit is highest of 16 background values. 81.25% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2). Seasonality was not detected with 95% confidence.

Within Limit

## Prediction Limit Intrawell Non-parametric

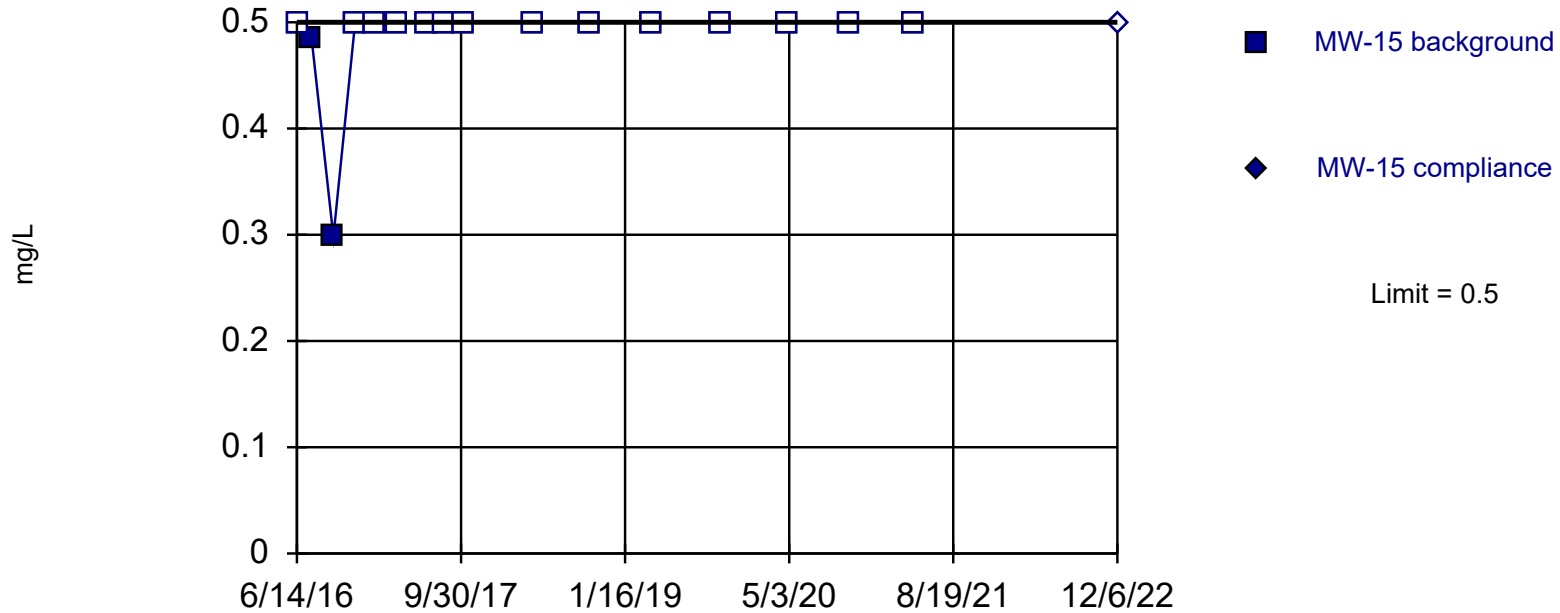


Non-parametric test used in lieu of control chart because non-detects exceed user-adjustable maximum of 50%. Limit is highest of 16 background values. 75% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2). Seasonality was not detected with 95% confidence.

Within Limit

### Prediction Limit

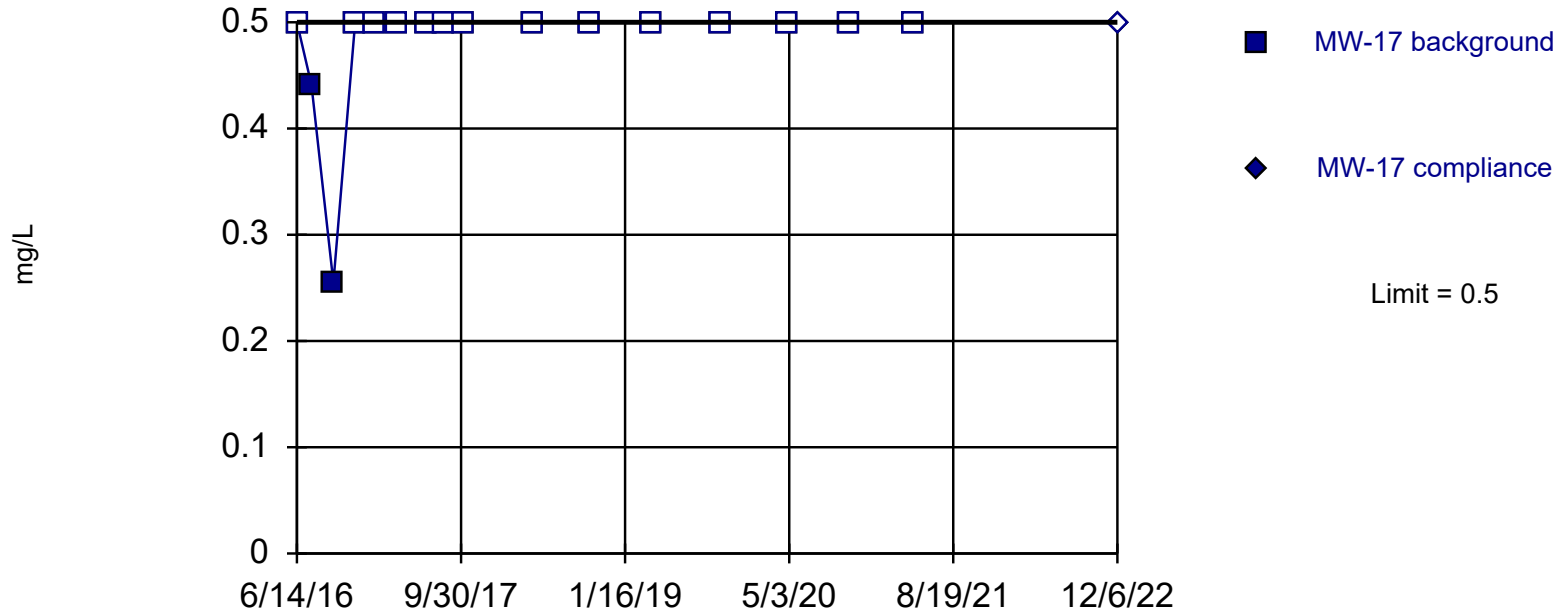
Intrawell Non-parametric



Non-parametric test used in lieu of control chart because non-detects exceed user-adjustable maximum of 50%. Limit is highest of 16 background values. 87.5% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2). Seasonality was not detected with 95% confidence.

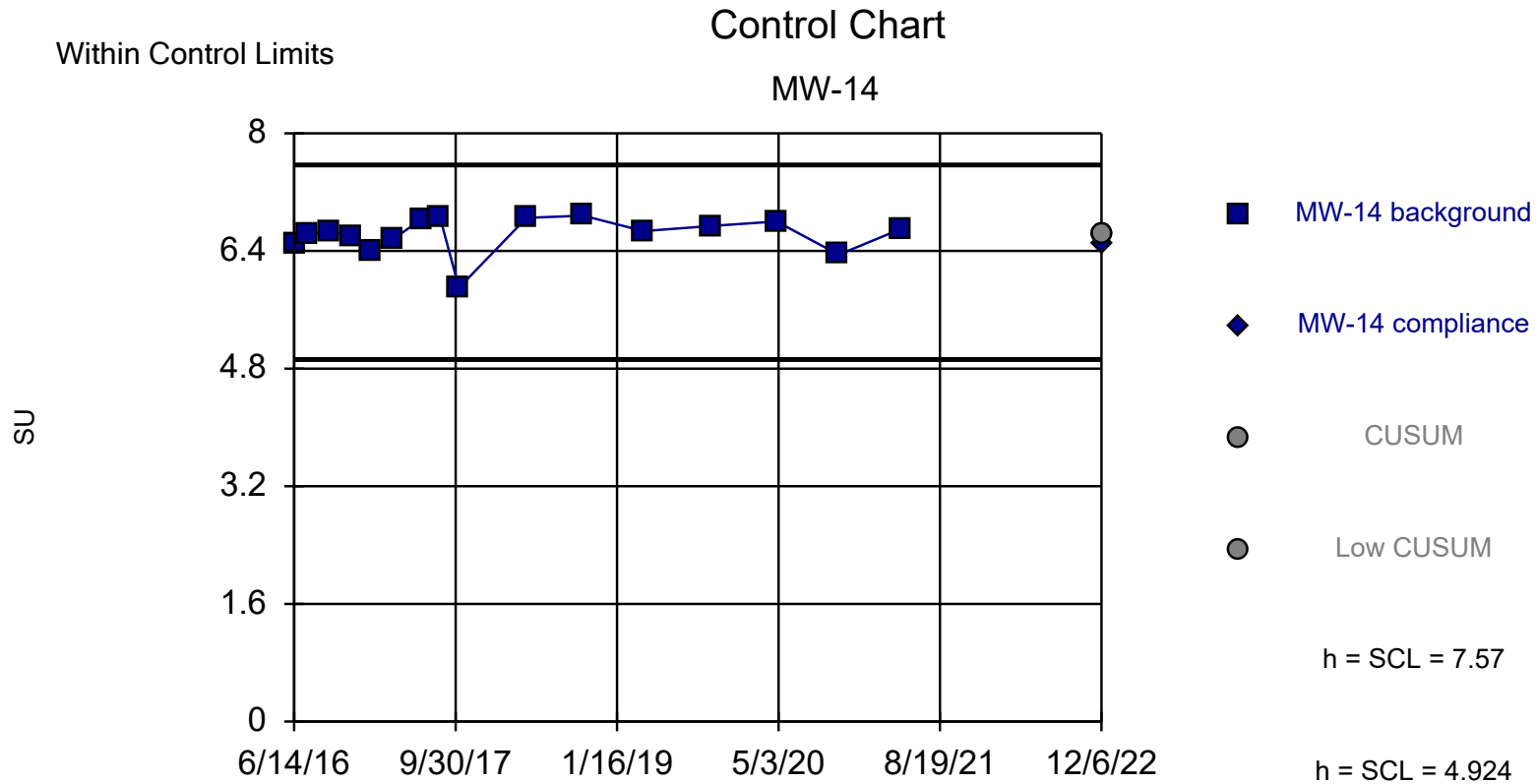
Within Limit

## Prediction Limit Intrawell Non-parametric



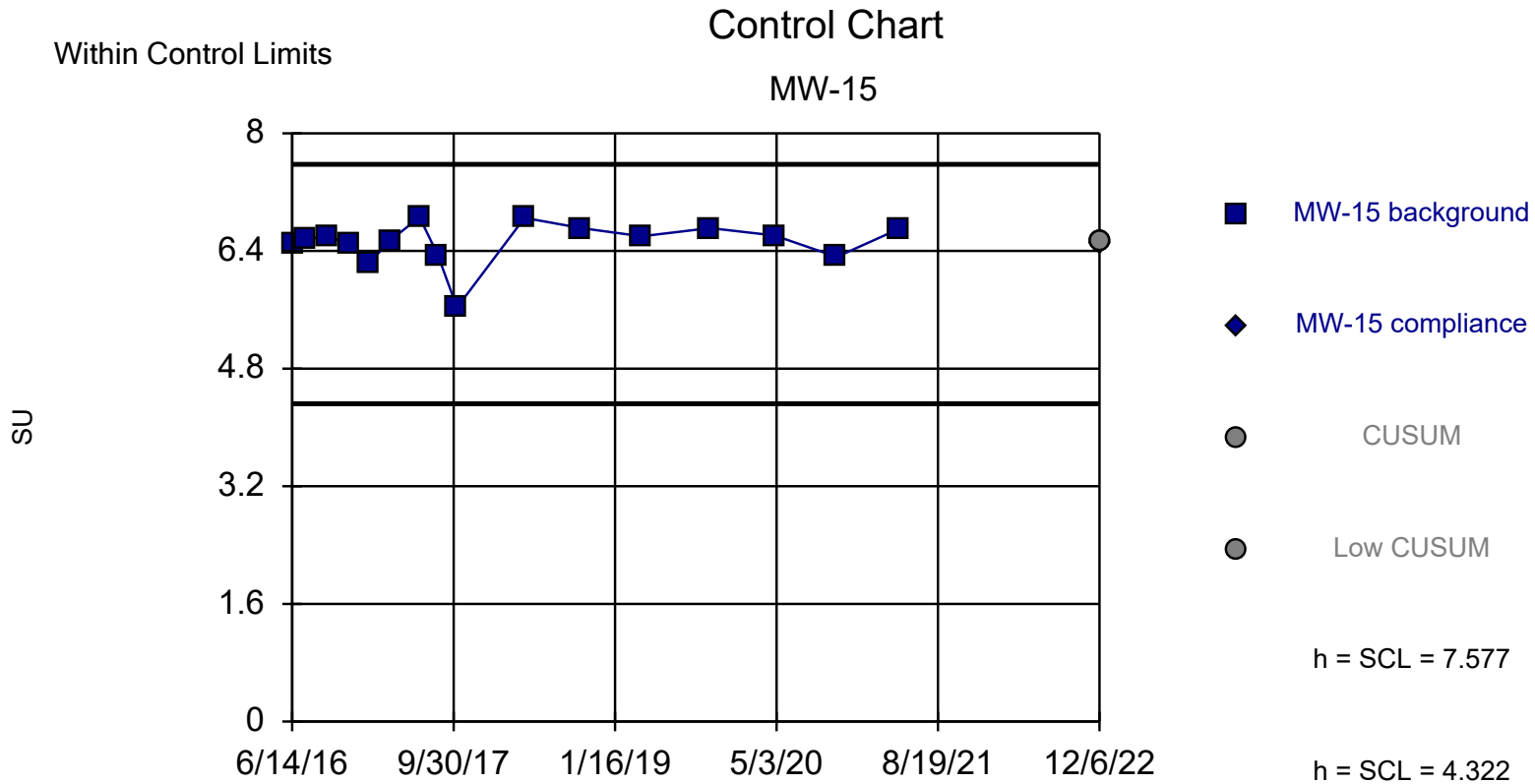
Non-parametric test used in lieu of control chart because non-detects exceed user-adjustable maximum of 50%. Limit is highest of 16 background values. 87.5% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2). Seasonality was not detected with 95% confidence.





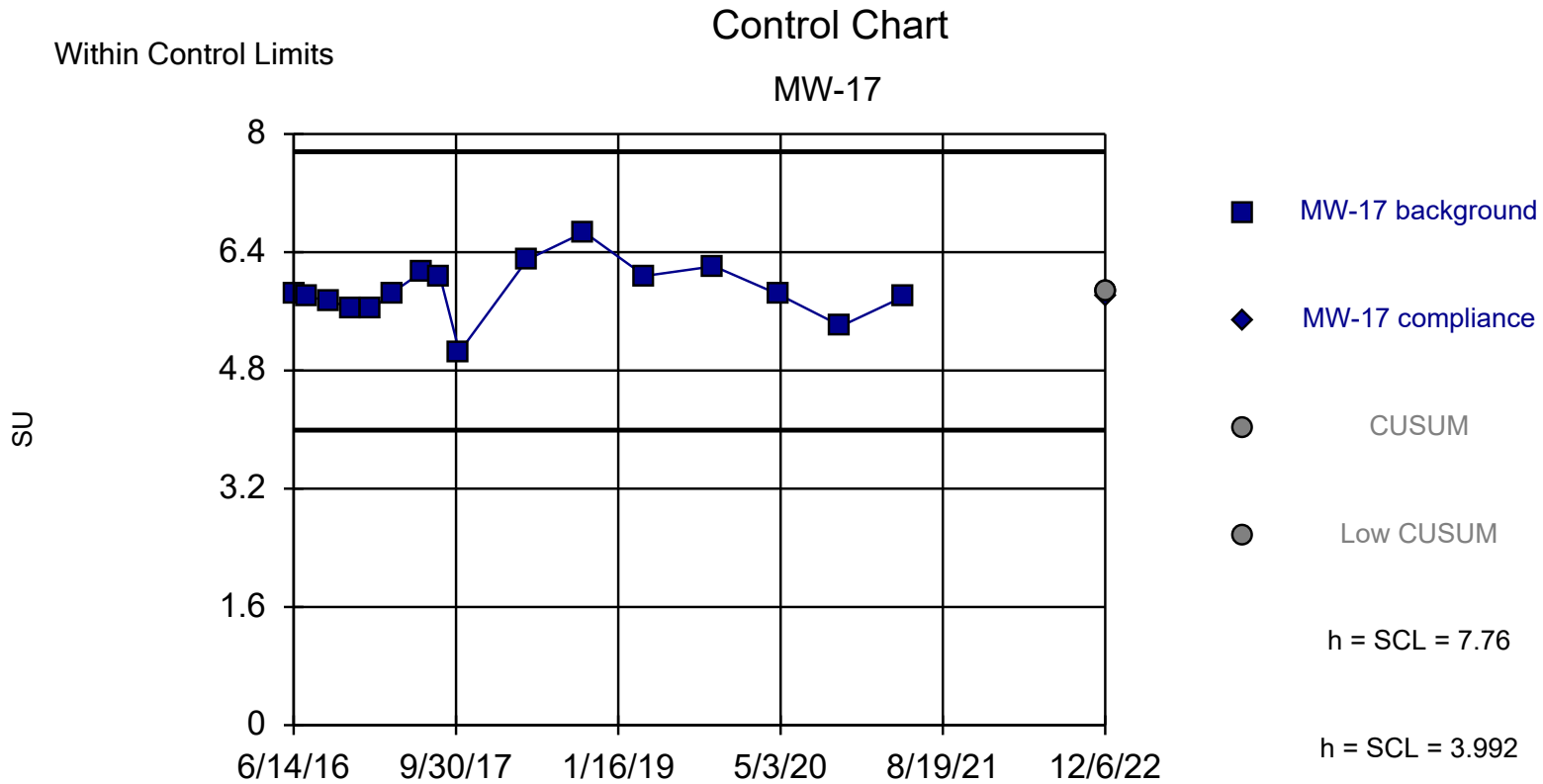
Background Data Summary (based on  $x^4$  transformation): Mean=1936, Std. Dev.=269.6, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8958, critical = 0.887. Report alpha = 0.000106. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: pH Analysis Run 1/17/2023 11:46 AM View: CC 2022  
 Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



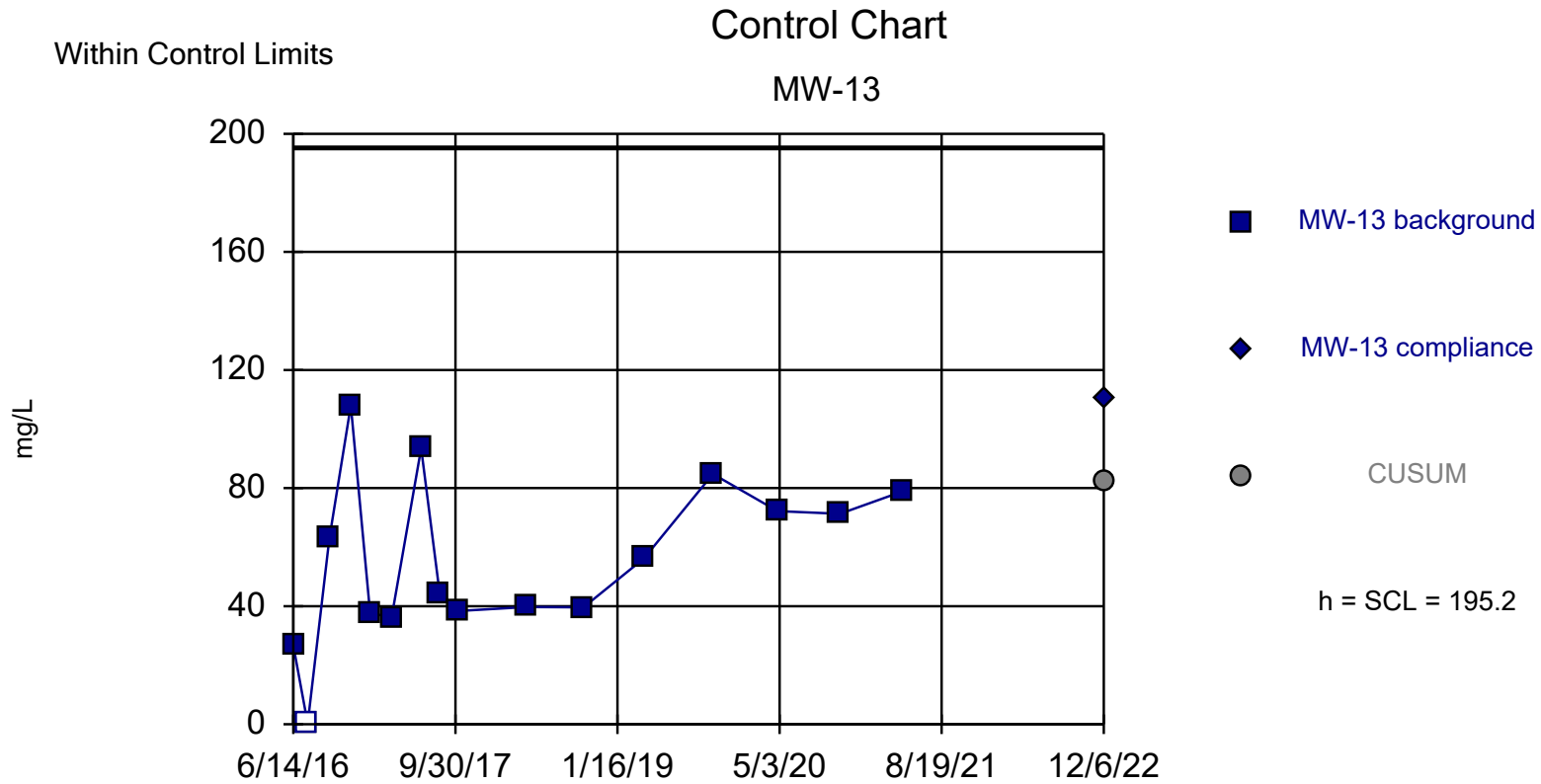
Background Data Summary (based on  $x^4$  transformation): Mean=1823, Std. Dev.=294.8, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8946, critical = 0.887. Report alpha = 0.000106. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: pH   Analysis Run 1/17/2023 11:46 AM   View: CC 2022  
Twin Oaks Power Station CCR LF   Client: Major Oak Power   Data: Twin Oaks

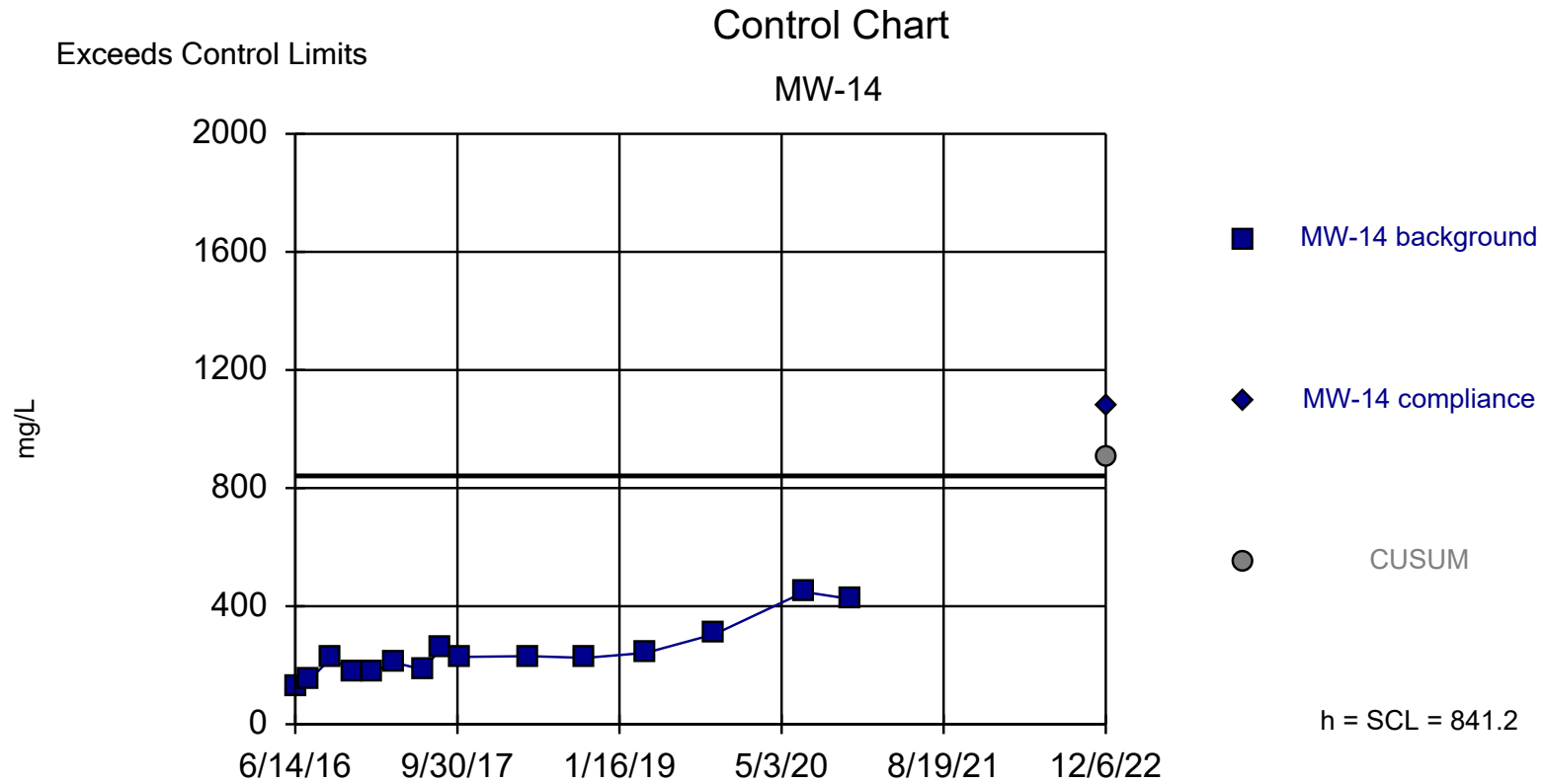


Background Data Summary: Mean=5.876, Std. Dev.=0.3768, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9721, critical = 0.887. Report alpha = 0.000106. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.



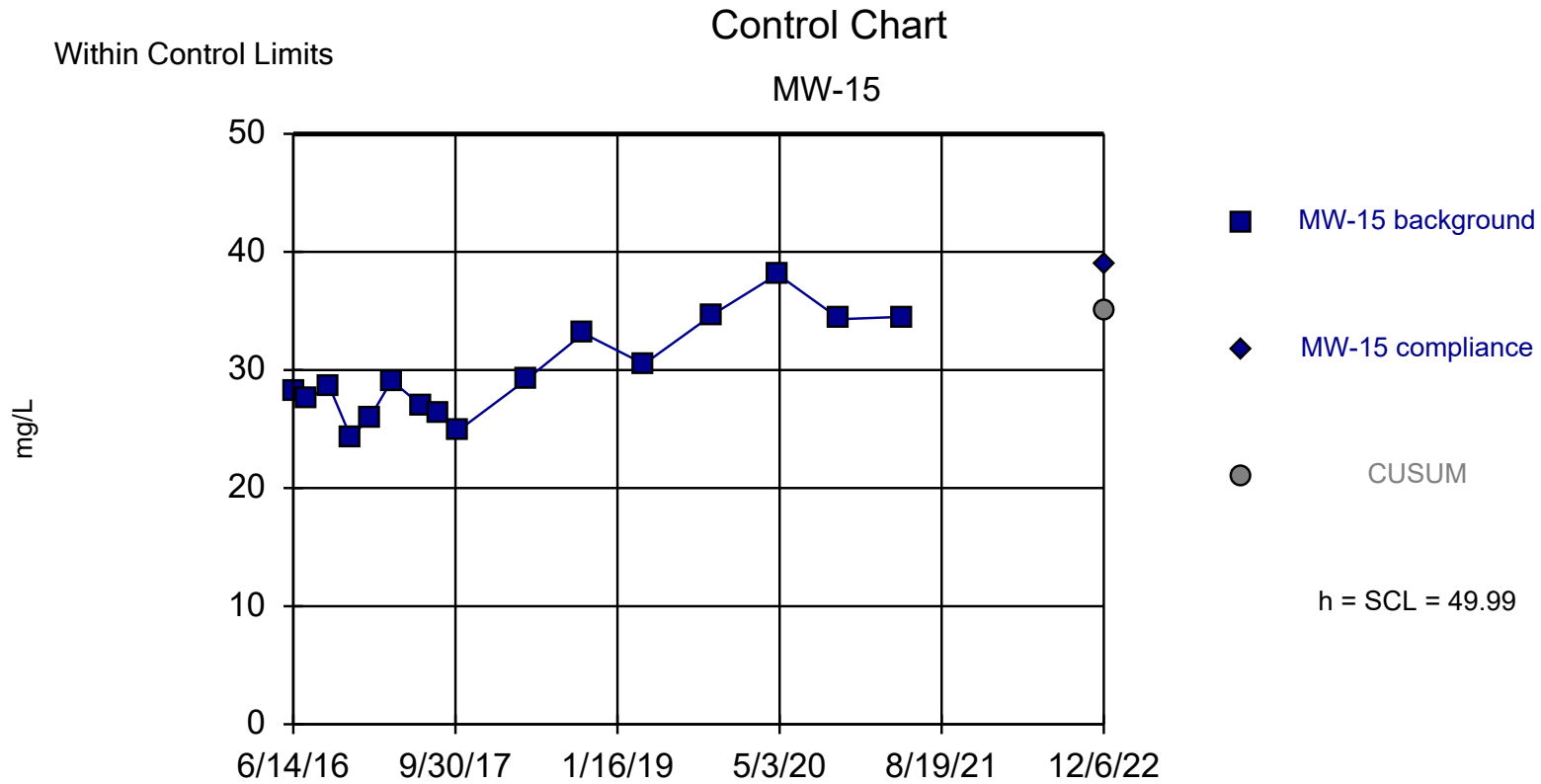


Background Data Summary: Mean=55.67, Std. Dev.=27.91, n=16, 6.25% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.969, critical = 0.887. Report alpha = 0.000106. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

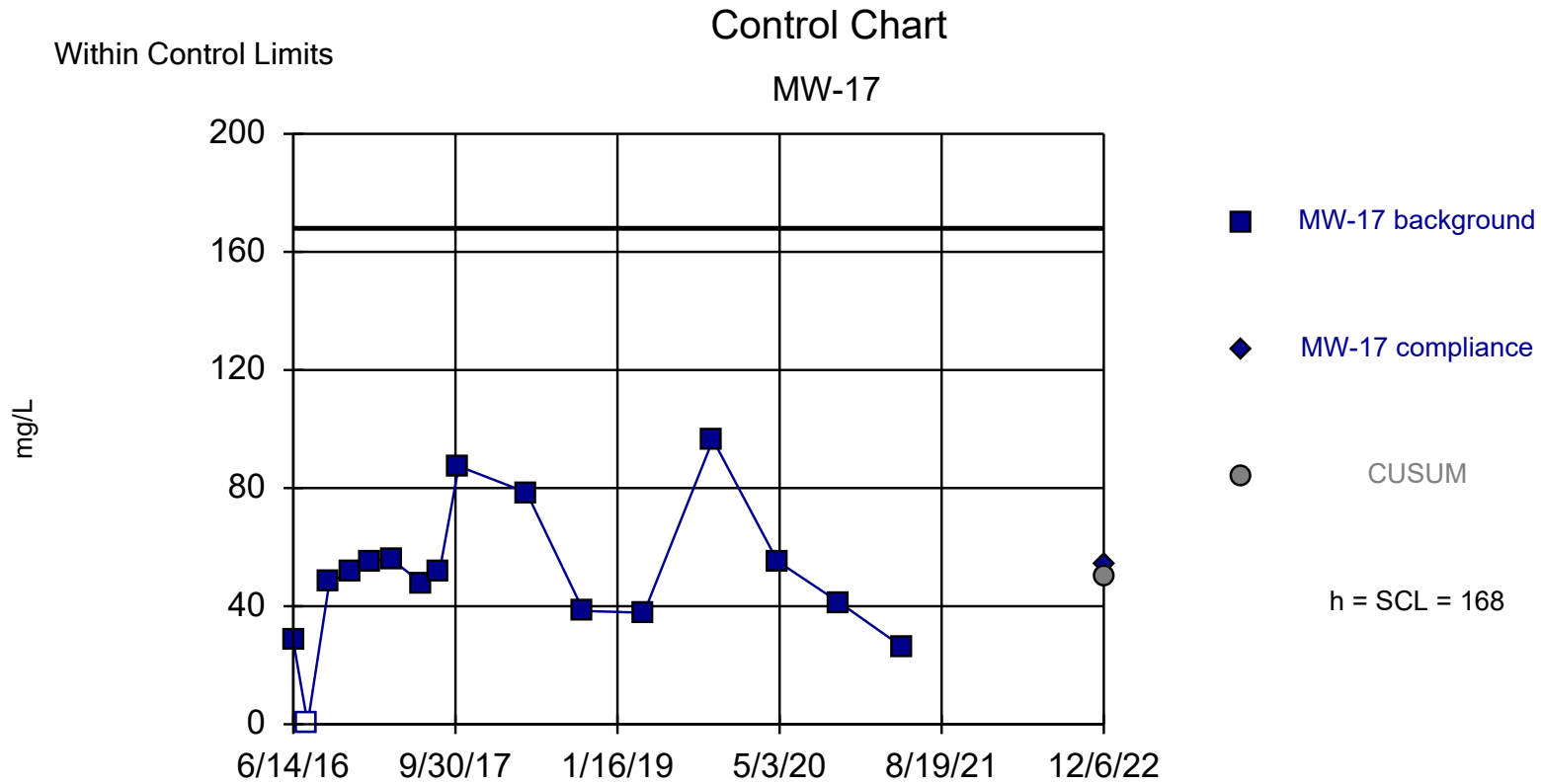


Background Data Summary (based on square root transformation): Mean=15.29, Std. Dev.=2.743, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9051, critical = 0.881. Report alpha = 0.000148. Dates ending 11/23/2020 used for control stats. Standardized h=5, SCL=5.

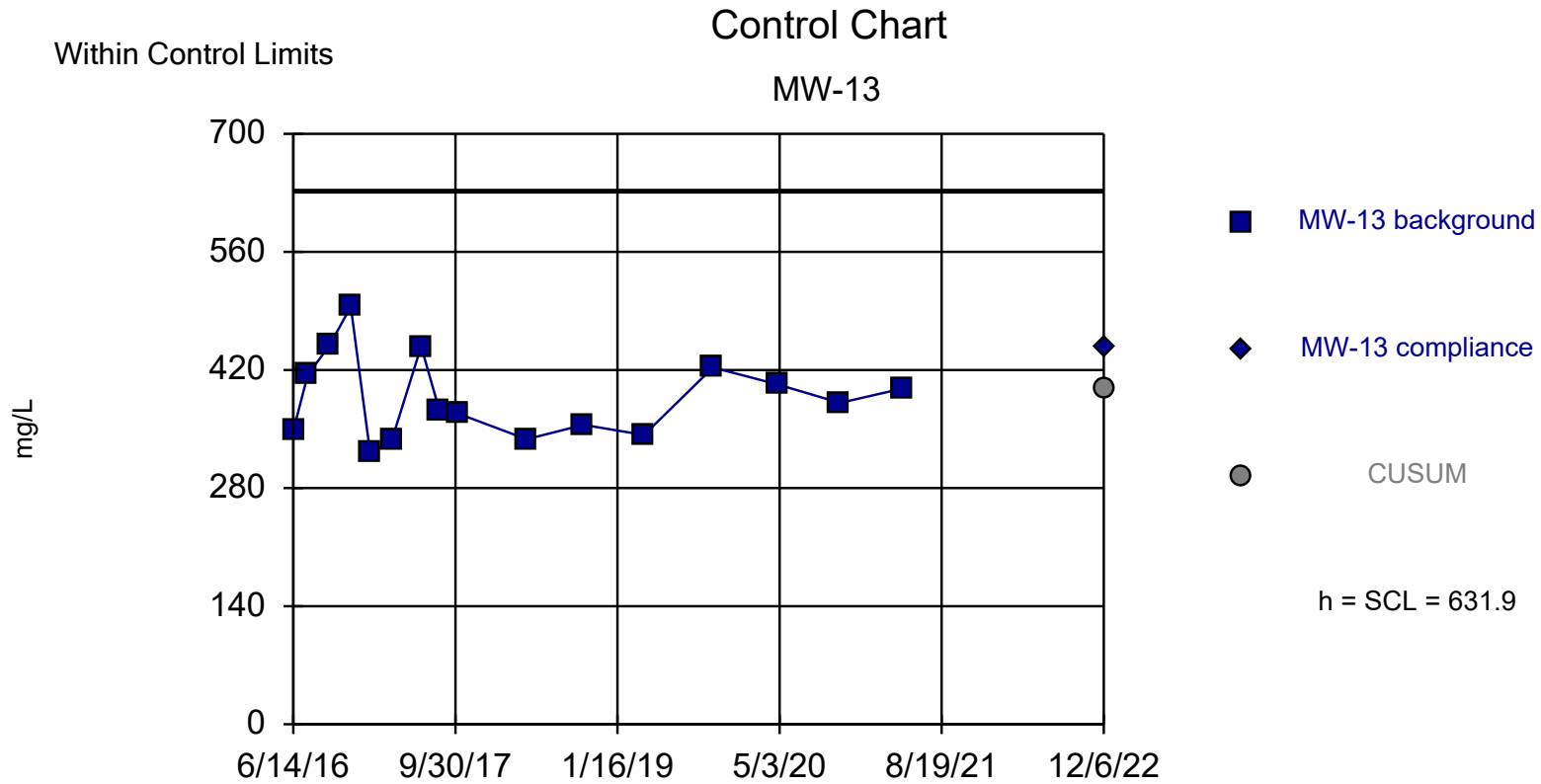
Constituent: Sulfate    Analysis Run 1/17/2023 11:46 AM    View: CC 2022  
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks



Background Data Summary: Mean=29.78, Std. Dev.=4.042, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9351, critical = 0.887. Report alpha = 0.000104. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.



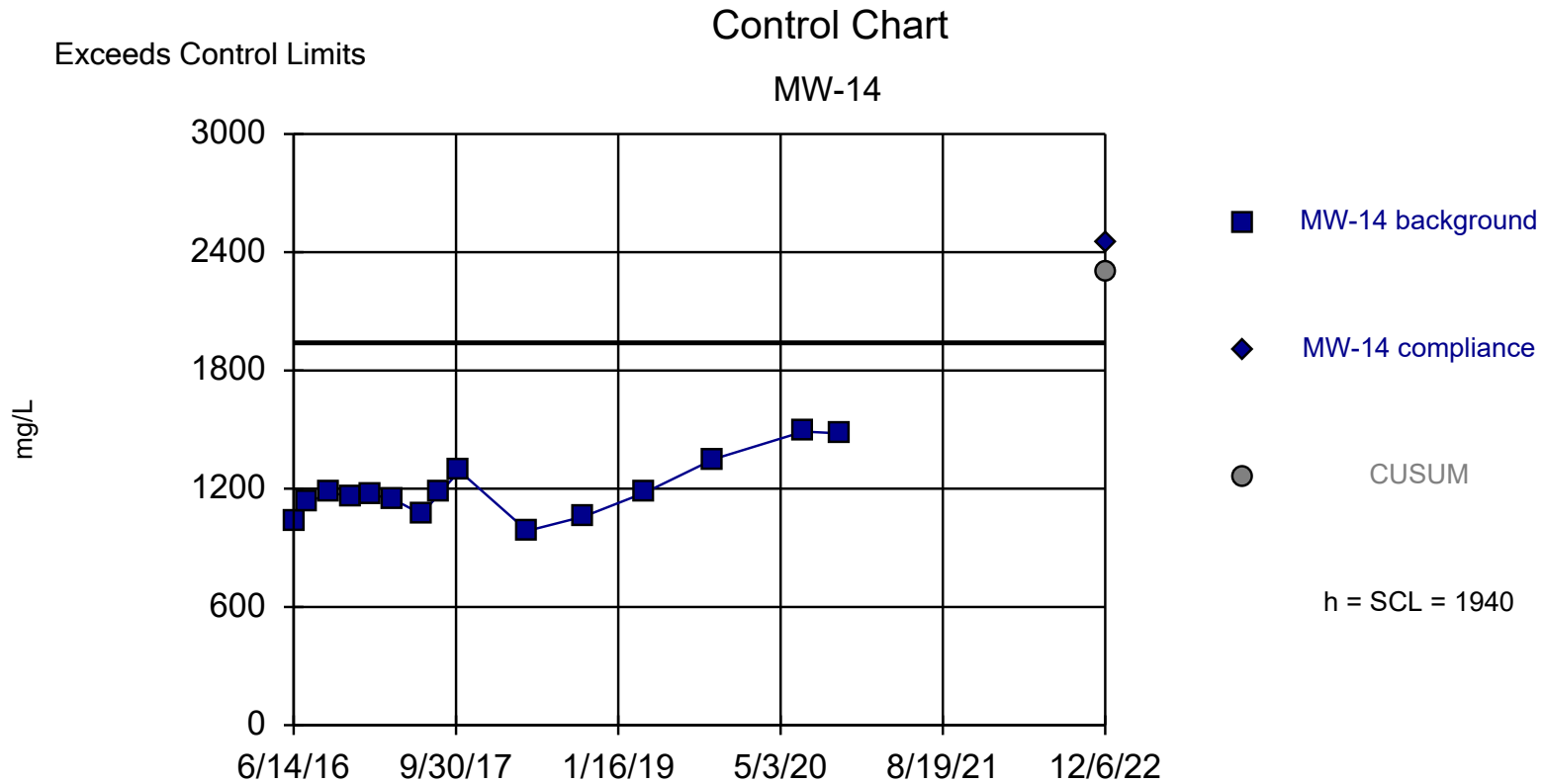
Background Data Summary: Mean=49.99, Std. Dev.=23.6, n=16, 6.25% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9512, critical = 0.887. Report alpha = 0.000104. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.



Background Data Summary: Mean=387, Std. Dev.=48.98, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9431, critical = 0.887. Report alpha = 0.000104. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 1/17/2023 11:46 AM View: CC 2022

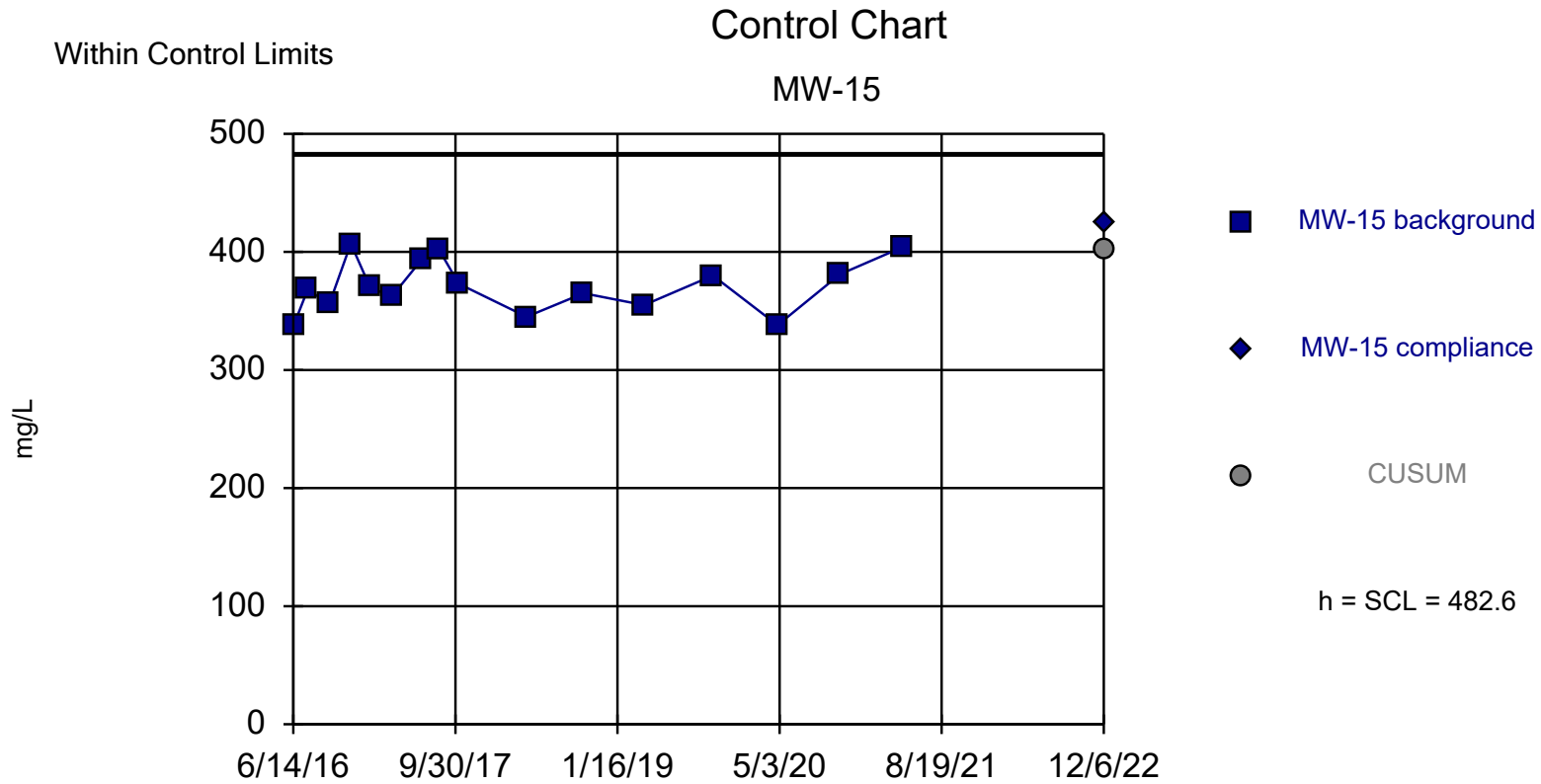
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=1194, Std. Dev.=149.2, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8979, critical = 0.881. Report alpha = 0.00013. Dates ending 10/27/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 1/17/2023 11:46 AM View: CC 2022

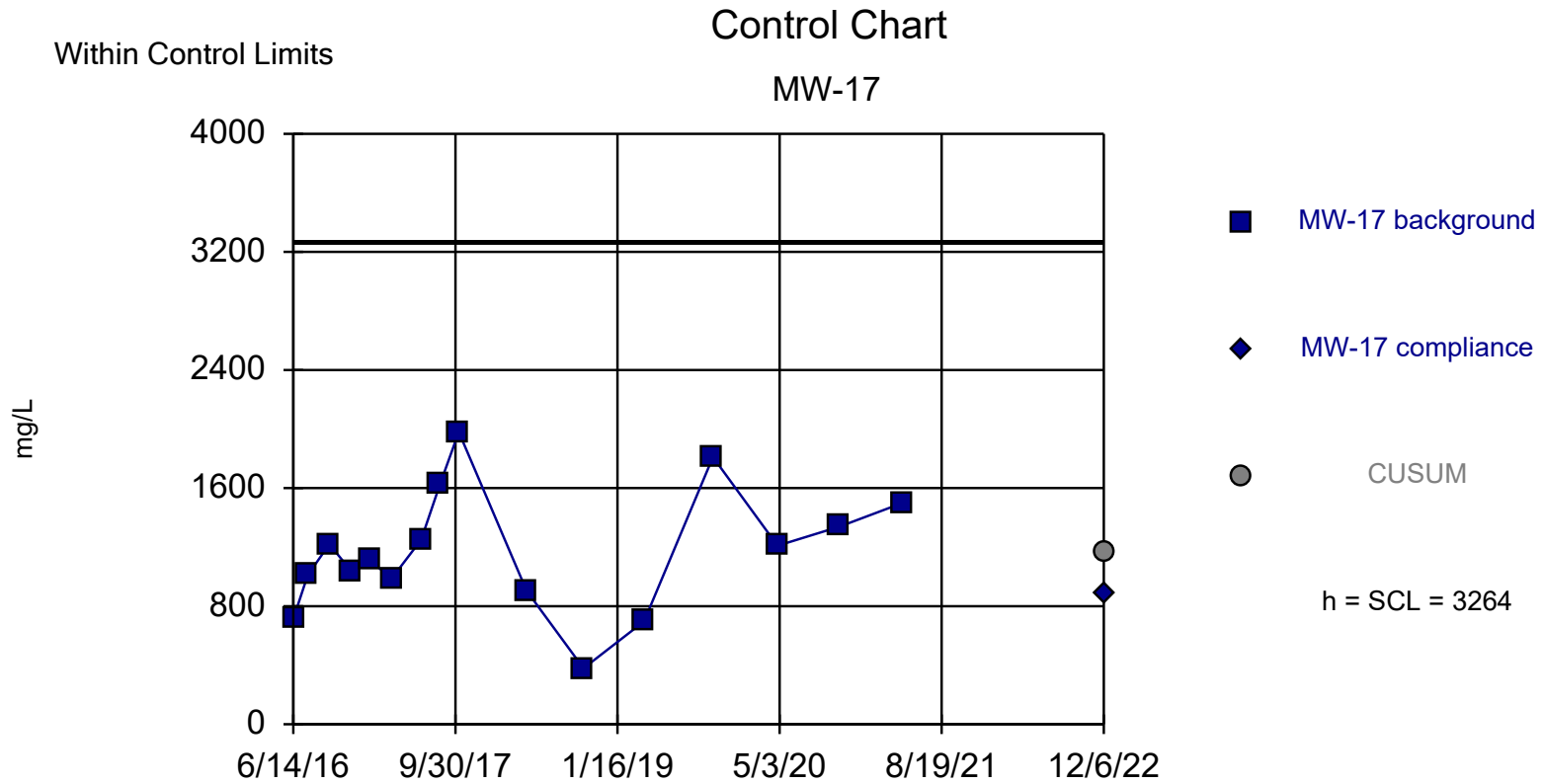
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=370.9, Std. Dev.=22.34, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9549, critical = 0.887. Report alpha = 0.00012. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 1/17/2023 11:46 AM View: CC 2022

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=1173, Std. Dev.=418.2, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9847, critical = 0.887. Report alpha = 0.00012. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 1/17/2023 11:46 AM View: CC 2022

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



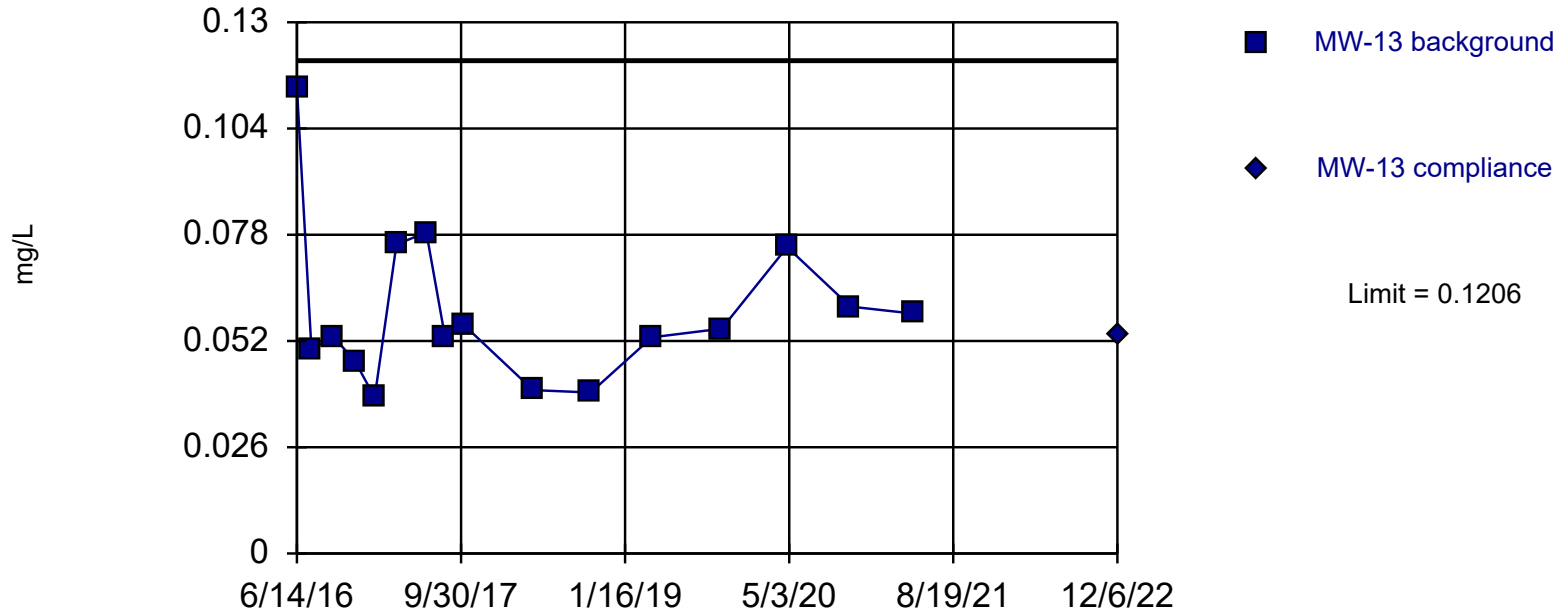
# Prediction Limit

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 1/17/2023, 11:48 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bq N</u>	<u>Bq Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MW-13	0.1206	12/6/2022	0.0536	No	16	0.2406	0.03654	0	sqrt(x)	0.000...	Param Intra 1 of 2
<b>Boron (mg/L)</b>	<b>MW-14</b>	<b>0.6019</b>	<b>12/6/2022</b>	<b>1.3</b>	<b>Yes</b>	<b>15</b>	<b>0.1857</b>	<b>0.1387</b>	<b>0</b>	<b>No</b>	<b>0.000...</b>	<b>Param Intra 1 of 2</b>
Boron (mg/L)	MW-15	0.06659	12/6/2022	0.05ND	No	16	0.04909	0.005995	0	No	0.000...	Param Intra 1 of 2
Boron (mg/L)	MW-17	0.362	12/6/2022	0.05ND	No	15	n/a	n/a	0	n/a	0.007533	NP Intra (normality) ...

Within Limit

### Prediction Limit Intrawell Parametric

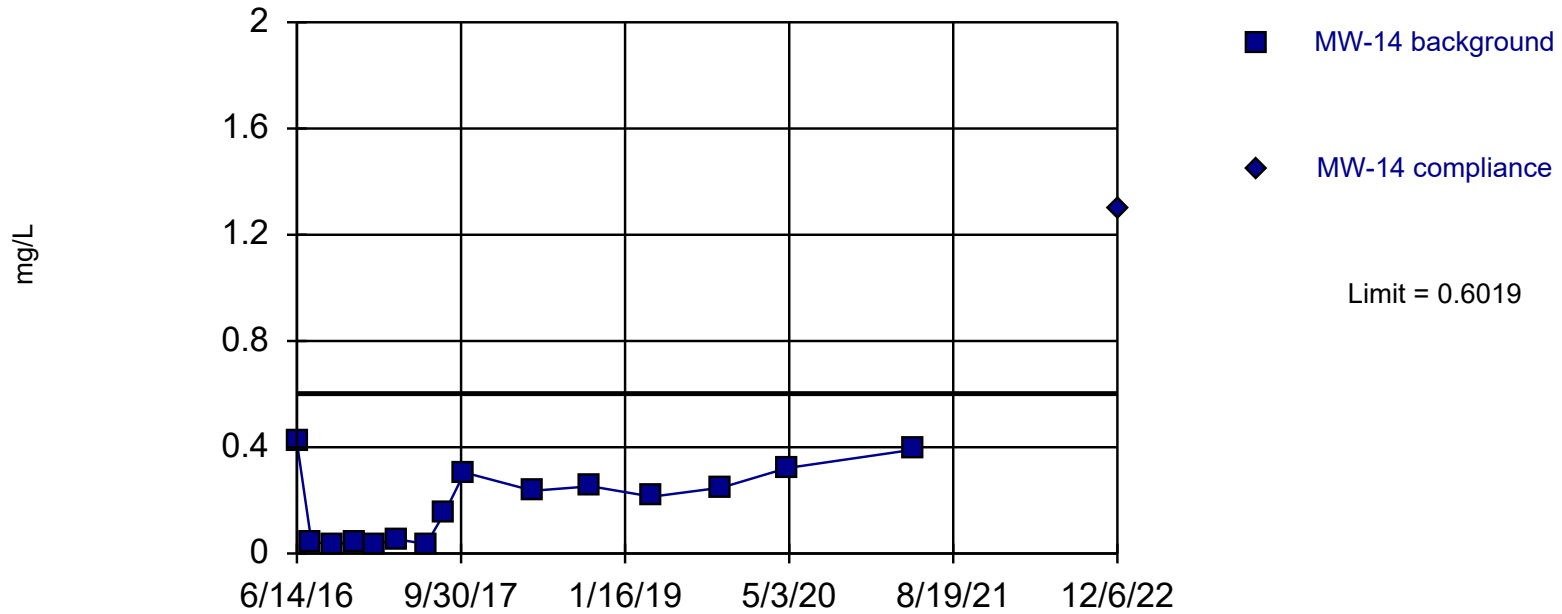


Background Data Summary (based on square root transformation): Mean=0.2406, Std. Dev.=0.03654, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8931, critical = 0.844. Kappa = 2.919 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

Constituent: Boron Analysis Run 1/17/2023 11:48 AM View: PL 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Exceeds Limit

Prediction Limit  
Intrawell Parametric

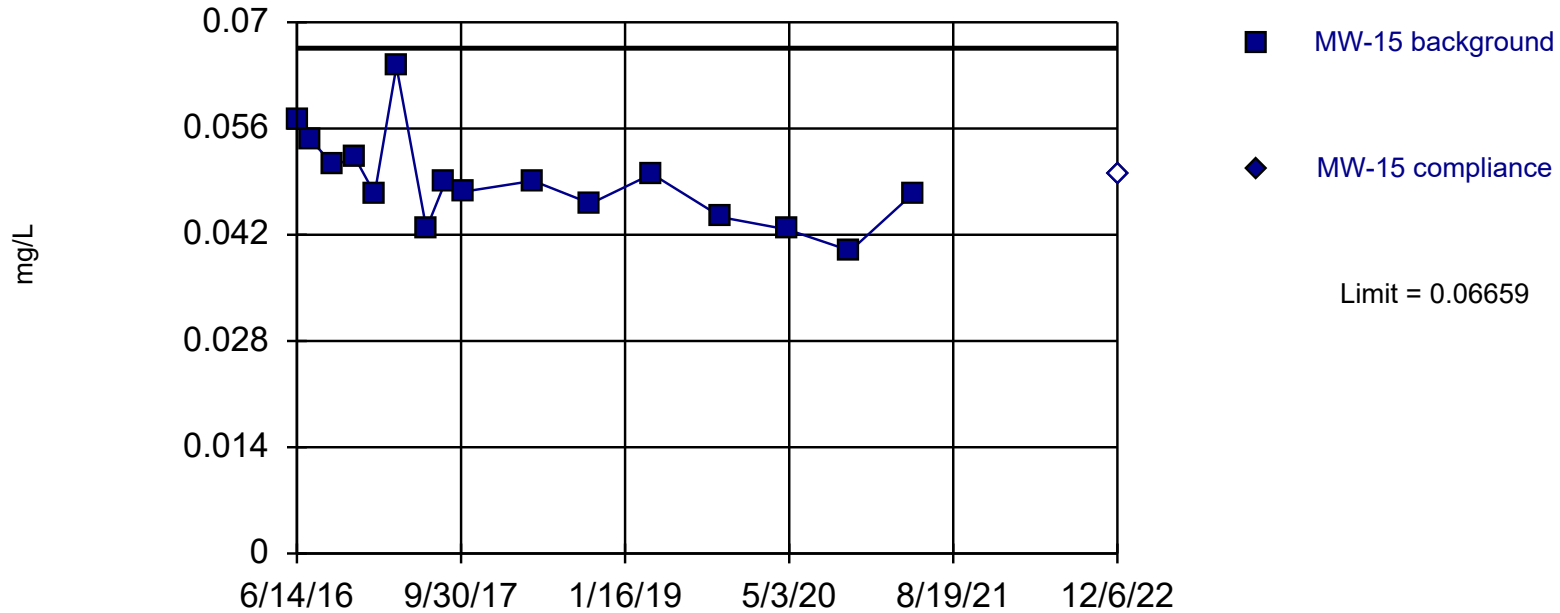


Background Data Summary: Mean=0.1857, Std. Dev.=0.1387, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8773, critical = 0.835. Kappa = 3 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

Constituent: Boron Analysis Run 1/17/2023 11:48 AM View: PL 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Within Limit

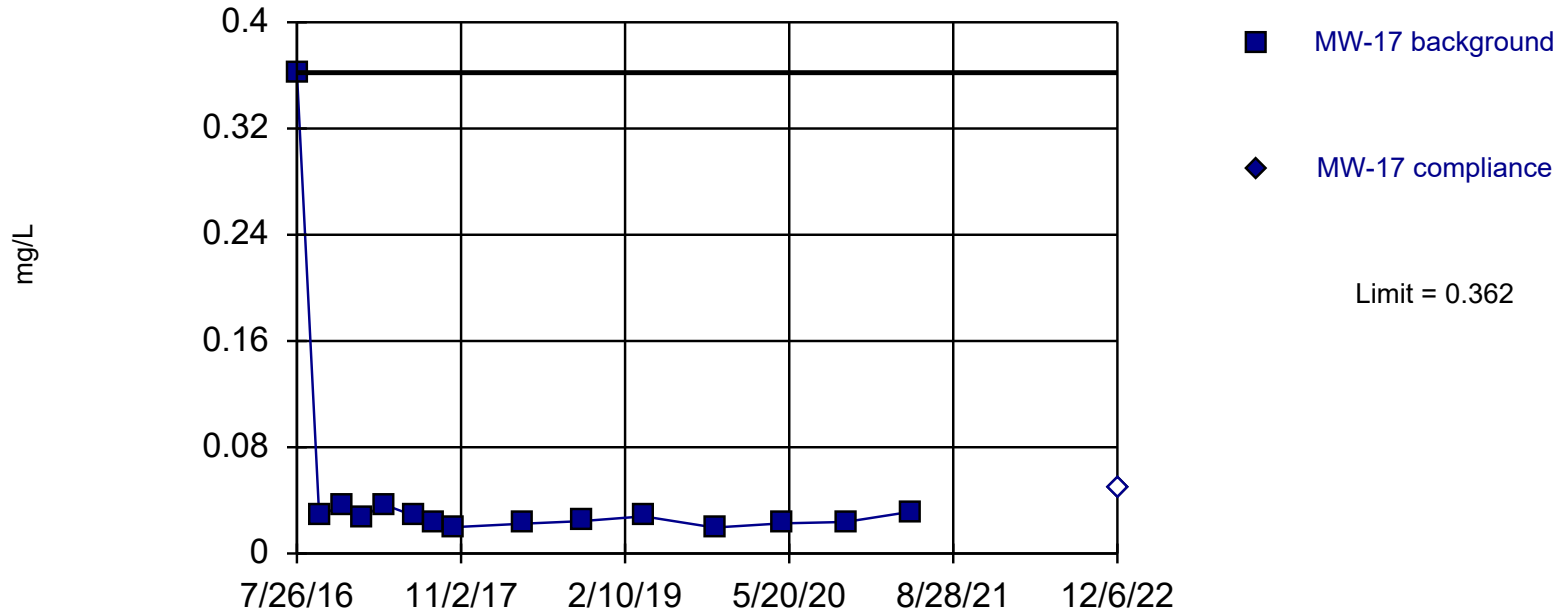
### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.04909, Std. Dev.=0.005995, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9456, critical = 0.844. Kappa = 2.919 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

Within Limit

### Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 15 background values. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2). Seasonality was not detected with 95% confidence.

## **Appendix E**

**1<sup>st</sup> 2022 Semi-Annual Groundwater Monitoring and  
Corrective Action Report**

**1<sup>st</sup> 2022 SEMI-ANNUAL GROUNDWATER  
MONITORING AND CORRECTIVE ACTION  
REPORT**

**TWIN OAKS POWER STATION  
COAL COMBUSTION RESIDUALS (CCR) LANDFILL  
ROBERTSON COUNTY, TEXAS**

**July 15, 2022**

**Prepared By:**



**1120 NW Stallings Drive  
Nacogdoches, Texas 75964  
TBPG Firm No. 50027**



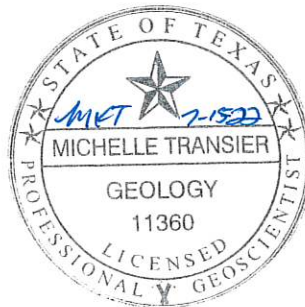
**1<sup>st</sup> 2022 SEMI-ANNUAL GROUNDWATER  
MONITORING AND CORRECTIVE ACTION  
REPORT**

**TWIN OAKS POWER STATION  
COAL COMBUSTION RESIDUALS (CCR) LANDFILL  
ROBERTSON COUNTY, TEXAS**

**July 15, 2022**



Michelle K. Transier, P.G.  
Senior Geologist



**Prepared by:  
Hydrex Environmental  
Nacogdoches, Texas  
TBPG Firm No. 50027**

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June 2022 Event – Results of Statistical Calculation

## Introduction

This 1<sup>st</sup> 2022 Semi-Annual Groundwater Monitoring and Corrective Action Report for the Twin Oaks Power Station Coal Combustion Residuals (“CCR”) Landfill (“the “facility”) is prepared in accordance with the requirements of the facility’s Groundwater Sampling and Analysis Plan (“GWSAP”), the state CCR Rules, 30 TAC Chapter 352, and the federal CCR Rule, 40 CFR Part 257, Subpart D. This semi-annual report summarizes the groundwater monitoring activities performed through the 1<sup>st</sup> 2022 semi-annual detection groundwater sampling event for the facility. The reporting requirements under the CCR Rule, the relevant CCR Rule citations, and the corresponding location of those required contents in this report are listed below:

- Status of the groundwater monitoring program (§ 257.90(e)): .....Appendix B
- Summary of key actions completed (§ 257.90(e)): ..... p. 1
- Any problems encountered and actions taken to resolve such problems (§ 257.90(e)): ..... p. 2
- Project key activities for the upcoming year (§ 257.90(e)): ..... p. 3
- Map, aerial image, or diagram of CCR Unit and monitoring wells (§ 257.90(e)(1)): . Appendix C
- Identification of new monitoring wells installed or abandoned during the preceding year and narrative description (§ 257.90(e)(2)): ..... Not applicable.  
 No monitoring wells have been installed or abandoned at the facility in 2022.
- Summary of groundwater data, wells sampled, date sampled, and whether sample was required under detection or assessment monitoring (§ 257.90(e)(3)): ..... Appendix D
- Narrative discussion of any transition between monitoring programs (§ 257.90(e)(4)):..... p. 2
- Upon completion of the 2<sup>nd</sup> 2022 groundwater sampling event, an annual groundwater monitoring report for 2022 will be prepared by January 31, 2023.

## Key Actions Completed and any Problems Encountered

The monitoring network at the Twin Oaks Power Station CCR Landfill includes 8 monitoring wells (upgradient wells MW-7, MW-11, MW-12, and MW-16 and downgradient wells MW-13, MW-14, MW-15, and MW-17). Groundwater monitoring is performed in accordance with the facility’s GWSAP, 30 TAC Chapter 352 Subchapter H, and 40 CFR Part 257, Subpart D. Specific sampling events and dates for calendar year 2022 are summarized in the following table:

### Summary of Sampling Events

Event Date	Monitoring Wells (MW) Sampled	Event Type
April 18, 2022	MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-17	Semi-Annual Detection Monitoring
May 31, 2022	MW-13 and MW-14	Verification Resampling
June 27-28, 2022	MW-14	Verification Resampling

No significant problems were encountered during the sampling event in 2022.

## Detection Monitoring

Detection monitoring is conducted at the Twin Oaks Power Station CCR Landfill on a semi-annual schedule in accordance with applicable federal and state regulations. Laboratory analysis for detection events include those detection monitoring constituents listed in Table D-1 of the facility’s GWSAP. A table of groundwater analytical results for all monitoring wells sampled during 2022 is included in Appendix D of this report.

### First Semi-Annual Groundwater Monitoring Event (April 2022)

The first semi-annual detection monitoring event was conducted on April 18, 2022. Groundwater samples were obtained from monitoring wells MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-17 for analysis of detection monitoring constituents. Additionally, a duplicate sample was collected at monitoring well MW-11 and analyzed for all detection monitoring constituents. The duplicate sample provided comparable results for all constituents. Intrawell statistical evaluation of data from the April 2022 event, performed in accordance with the provisions of the GWSAP, 30 TAC §352.941, and 40 CFR § 257.94, indicated unverified (“initial”) intrawell statistical exceedances for sulfate in monitoring well MW-13 and for boron, calcium, chloride, sulfate, and total dissolved solids (TDS) in MW-14. Subsequently, verification resampling was conducted on May 31, 2022 for MW-13 and MW-14 and again on June 27-28, 2022 for MW-14, as provided for and in accordance with the GWSAP.

The results of verification resampling confirmed the intrawell statistical exceedance values for sulfate in monitoring well MW-13 on June 21, 2022 and for boron, calcium, chloride, sulfate, and total dissolved solids (TDS) in MW-14 on July 8, 2022 and SSIs were determined on July 8, 2022. Review of data indicated that the values are likely the result of natural groundwater variation at the facility. In accordance with the facility’s GWSAP, notice of intent to perform an alternate source/error demonstration (ASD) was given to TCEQ on July 15, 2022 and an ASD will be submitted 90 days from the date an SSI was determined, on or before October 8<sup>th</sup>, 2022. If an ASD cannot be successfully determined, assessment monitoring will be initiated at the next regularly scheduled monitoring event.

A summary of the results of statistical evaluation is presented in the table below.

### Summary of Statistical Exceedances for the Second Semi-Annual Groundwater Monitoring Event (April 2022)

Well	Constituent	Initial Result (mg/L)	Statistical Limit (mg/L)	Verification Resampling Result (mg/L)	Intrawell Statistical Exceedance Confirmed?	Recommendation
MW-13	sulfate	200	195.2	360	Yes	Alternate Source/Error Demonstration
MW-14	boron	0.875	0.6019	0.718 / 1.64*	Yes	Alternate Source/Error Demonstration
	calcium	190	141.2	202 / 211*	Yes	Alternate Source/Error Demonstration
	chloride	457	440.9	464 / 423*	No	Maintain Detection Monitoring
	sulfate	899	841.2	944 / 933*	Yes	Alternate Source/Error Demonstration
	total dissolved solids	2290	1940	2240 / 2340*	Yes	Alternate Source/Error Demonstration

\*Verification resampling event performed in June.

Monitoring wells MW-7, MW-11, MW-12, MW-13, MW-16, and MW-17 remain in detection monitoring status. Monitoring wells MW13 and MW-14 also remain in detection monitoring status pending ASD submittal.

### **Groundwater Elevation, Flow Rate, and Direction**

Water levels were measured in all monitoring wells prior to purging in accordance with the GWSAP. A table summarizing groundwater elevation data collected during the April 2022 detection monitoring event is included in Appendix B. Hydraulic gradient and flow rate calculations, along with a groundwater elevation map showing groundwater flow direction for the April 2022 detection monitoring event, are also included in Appendix C.

### **Project Key Activities for 2022**

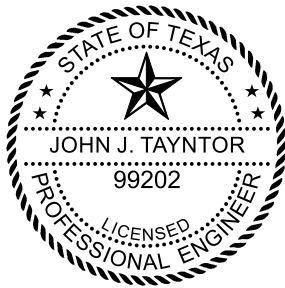
Based on the data available at the time of this report, the detection monitoring program currently in place for the Twin Oaks Power Station CCR Landfill meets the requirements of applicable regulations. Therefore, no change to the groundwater monitoring system, monitoring schedule, or monitoring program is proposed. An ASD will be submitted 90 days from the date an SSI was determined. If an ASD cannot be successfully determined, assessment monitoring will be initiated at the next regularly scheduled monitoring event.

## **Appendix A**

# CERTIFICATION STATEMENT

## COAL COMBUSTION RESIDUALS (CCR) LANDFILL TWIN OAKS POWER STATION ROBERTSON COUNTY, TEXAS

I certify I am a licensed professional engineer in the State of Texas and a *qualified professional engineer* as defined in 40 CFR §257.53. I certify that the groundwater monitoring data and other information presented in the 1<sup>st</sup> 2022 Semi-Annual Groundwater Monitoring and Corrective Action Report, prepared by Hydrex Environmental on behalf of the Twin Oaks Power Station, are appropriate and meet the requirements of 40 CFR Part 257, Subpart D.



A handwritten signature in black ink, appearing to read "J. Tayntor", written over a horizontal line.

John J. Tayntor, P.E.  
Auckland Consulting, LLC  
TBPE Firm Registration No. F-16721

07/15/2022

Date

## **Appendix B**



## Monitoring Well Network and Program Summary

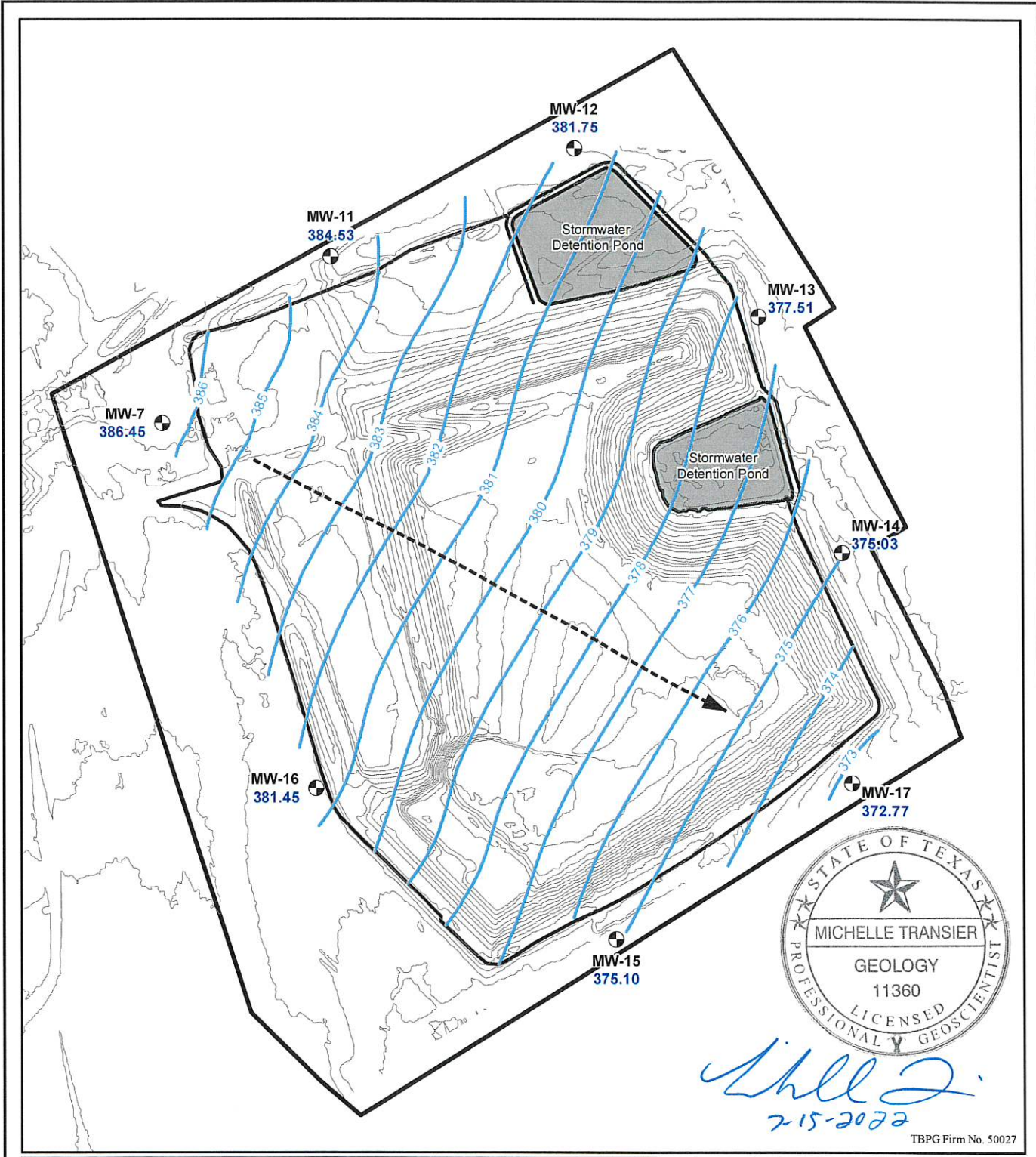
Well ID	Well Designation	Aquifer	2022
			Monitoring Status
MW-7	Upgradient	Uppermost	Detection Monitoring
MW-11	Upgradient	Uppermost	Detection Monitoring
MW-12	Upgradient	Uppermost	Detection Monitoring
MW-13	Downgradient	Uppermost	Detection Monitoring
MW-14	Downgradient	Uppermost	Detection Monitoring
MW-15	Downgradient	Uppermost	Detection Monitoring
MW-16	Upgradient	Uppermost	Detection Monitoring
MW-17	Downgradient	Uppermost	Detection Monitoring

## **Appendix C**

## Groundwater Elevation Summary Table

Twin Oaks Power Station  
Coal Combustion Residuals (CCR) Landfill  
Robertson County, Texas

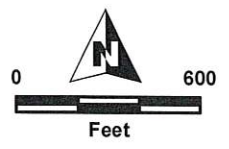
Well ID	Date	Top of Casing Elevation (ft-amsl)	Depth to Water (ft)	Groundwater Elevation (ft-amsl)
MW-7	4/18/2022	411.60	25.15	386.45
MW-11	4/18/2022	406.93	22.40	384.53
MW-12	4/18/2022	387.27	5.52	381.75
MW-13	4/18/2022	398.32	20.81	377.51
MW-14	4/18/2022	394.68	19.65	375.03
MW-15	4/18/2022	410.47	35.37	375.10
MW-16	4/18/2022	422.54	41.09	381.45
MW-17	4/18/2022	405.87	33.10	372.77



*Michelle J. Transier*  
 2-15-2022

TBPG Firm No. 50027

- Monitor Well
- > Approx. Groundwater Flow Direction
- 5-ft Ground Surface Contour
- Groundwater Contour
- Pond
- Property Boundary
- Groundwater Elevation (Elevation Feet, MSL)



**GROUNDWATER CONTOUR MAP**

← WATER LEVELS MEASURED (4/18/2022) →

**CCR Landfill**  
 Twin Oaks Power Station  
 13065 Plant Road  
 Bremond (Robertson County), Texas 76629

Map Revised: 5/10/2022    Project Number: I-14-1007    GIS Analyst: HLF

Twin Oaks Power Station  
 Coal Combustion Residuals Landfill

### Groundwater Flow Rate Calculations

Approximate hydraulic gradients were calculated based on data presented on the individual groundwater gradient map for the April 2022 monitoring event.

Calculation of hydraulic gradient was performed using the following equation:

$$i = \frac{\Delta h}{\Delta d}$$

Where:  $\Delta h$  = approximate change in hydraulic head between two known points  
 $\Delta d$  = approximate change in distance between two known points along flow paths

Gradient Measurement Line	$\Delta h$ (feet)	$\Delta d$ (feet)	$i$ (feet/feet)	Monitoring Event
from well MW-7 to MW-17	13.68	3370	0.0041	April 2022

### Estimated Flow Rate Calculations

The estimated groundwater flow rate was calculated for each monitoring event using the following formula:

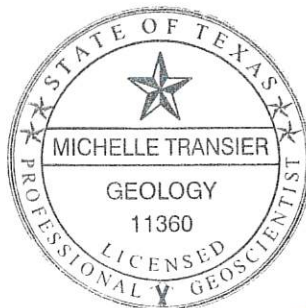
$$v = \frac{ki}{n_e}$$

Where:  $v$  = flow rate  
 $k$  = hydraulic conductivity  
 $i$  = hydraulic gradient (above)  
 $n_e$  = effective porosity

Flow Rate Measurement Line	$k$ (cm/sec)	$n_e$	$i$ (feet/feet)	$v$ (feet/year)	Monitoring Event
from well MW-7 to MW-17	4.85E-03	0.3	0.0041	68.63	April 2022

Note: Hydraulic conductivity ( $k$ ) and effective porosity ( $n_e$ ) values as derived from slug test results conducted March 2016.

Hydrex Environmental  
 TBPG Firm No. 50027



*Michelle Transier*  
 7-15-2022

## **Appendix D**

**Groundwater Monitoring Analytical Results Summary Table**

Well ID	Sampling Date	Boron (mg/L)	Total Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (SU)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Total Antimony (mg/L)	Total Arsenic (mg/L)	Total Barium (mg/L)	Total Beryllium (mg/L)	Total Cadmium (mg/L)	Total Chromium (mg/L)	Total Cobalt (mg/L)	Fluoride (mg/L)	Total Lead (mg/L)	Total Lithium (mg/L)	Total Mercury (mg/L)	Total Molybdenum (mg/L)	Total Selenium (mg/L)	Total Thallium (mg/L)	Radium 226 & 228 (Combined) (pCi/L)
MW-7	04/18/22	0.27	292	277	<0.500	6.5	1010	1940	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-11	04/18/22	0.162	130	140	<0.500	6.6	485	988	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-12	04/18/22	0.025	16.1	75.9	<0.500	6.5	41	266	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-13	04/18/22	0.0483	51.3	101	<0.500	6.3	200	582	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-13	05/31/22	NA	NA	NA	NA	NA	360	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.1206	59.59	120.1	0.584	4.972-7.724	195.2	631.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	04/18/22	0.875	190	457	<0.500	6.6	899	2290	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	05/31/22	0.718	202	464	NA	NA	944	2240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	06/28/22	1.64	211	423	NA	NA	933	2340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.6019	141.2	440.9	0.682	4.924-7.57	841.2	1940	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-15	04/18/22	0.034	27.4	147	<0.500	6.6	44.2	462	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.06659	37.94	197.6	0.5	4.322-7.577	49.99	482.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-16	04/18/22	0.022	69	273	<0.500	6.6	98.9	796	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-17	04/18/22	0.0332	130	611	<0.500	5.9	132	1350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.362	396.5	1728	0.5	3.992-7.76	168	3264	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

\*Background limits are intrawell statistical limits including data collected between June 2016 and June 2021.

## **Laboratory Reports**



## ANALYTICAL REPORT

Eurofins Houston  
4145 Greenbriar Dr  
Stafford, TX 77477  
Tel: (281)240-4200

Laboratory Job ID: 860-24786-1  
Client Project/Site: Twin Oaks PP

For:  
Hydrex Environmental  
1120 NW Stallings Drive  
Nacogdoches, Texas 75964

Attn: Michelle Transier



Authorized for release by:  
5/5/2022 9:20:12 AM

Chad Bechtold, Project Manager  
(813)690-3563  
[Chad.Bechtold@et.eurofinsus.com](mailto:Chad.Bechtold@et.eurofinsus.com)

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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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# Definitions/Glossary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Appendix A

## Laboratory Data Package Cover Page - Page 1 of 4

This data package is for Eurofins Houston job number 860-24786-1 and consists of:

- R1 - Field chain-of-custody documentation;
- R2 - Sample identification cross-reference;
- R3 - Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 - Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 - Test reports/summary forms for blank samples;
- R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- R10 - Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

**Release Statement:** I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Chad Bechtold  
Name (printed)



Signature

5/5/2022  
Date

Project Manager  
Official Title (printed)

# Laboratory Review Checklist: Reportable Data - Page 2 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	5/5/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-24786-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	<b>Chain-of-custody (C-O-C)</b>					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X			R01A
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	<b>Sample and quality control (QC) identification</b>					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	<b>Test reports</b>					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	<b>Surrogate recovery data</b>					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	<b>Test reports/summary forms for blank samples</b>					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	<b>Laboratory control samples (LCS):</b>					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			R07C
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	<b>Analytical duplicate data</b>					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	<b>Method quantitation limits (MQLs):</b>					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	<b>Other problems/anomalies</b>					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

- Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

# Laboratory Review checklist: Supporting Data - Page 3 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	5/5/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-24786-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
S1	OI	<b>Initial calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	<b>Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	<b>Mass spectral tuning</b>					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	<b>Internal standards (IS)</b>					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	<b>Raw data (NELAC Section 5.5.10)</b>					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	<b>Dual column confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	<b>Tentatively identified compounds (TICs)</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	<b>Interference Check Sample (ICS) results</b>					
		Were percent recoveries within method QC limits?	X				
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	<b>Method detection limit (MDL) studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSS?	X				
S11	OI	<b>Proficiency test reports</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	<b>Standards documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	<b>Compound/analyte identification procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	<b>Demonstration of analyst competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	<b>Verification/validation documentation for methods (NELAC Chapter 5)</b>					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	<b>Laboratory standard operating procedures (SOPs)</b>					
		Are laboratory SOPs current and on file for each method performed?	X				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports - Page 4 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	5/5/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-24786-1
Reviewer Name:	Chad Bechtold		

ER # <sup>1</sup>	Description
R01A	The laboratory received the sample Duplicate (860-24786-9) which was not listed on the Chain-of-Custody. The laboratory analyzed this sample for all parameters.
R07C	Method 300.0: The Matrix Spike (MS) [860-24786-2 MS] and Matrix Spike Duplicate (MSD) [860-24786-2 MSD] recoveries for Chloride and Sulfate were outside control limits due to abundance of Chloride and Sulfate present in the native sample 860-24786-2. Method 6010B: Due to the high concentration of calcium, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 860-50159 and analytical batch 860-51521 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).



# Case Narrative

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

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**Job ID: 860-24786-1**

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**Laboratory: Eurofins Houston**

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**Narrative**

**Job Narrative  
860-24786-1**

**Receipt**

The samples were received on 4/20/2022 11:09 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.6°C

**Receipt Exceptions**

The laboratory received the sample Duplicate (860-24786-9) which was not listed on the Chain-of-Custody. The laboratory analyzed this sample for all parameters.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**Metals**

Method 6010B: Due to the high concentration of calcium, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 860-50159 and analytical batch 860-51521 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.





# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Client Sample ID: MW-7

Lab Sample ID: 860-24786-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride - DL	277		5.00	mg/L	10		300.0	Total/NA
Sulfate - DL	1010		5.00	mg/L	10		300.0	Total/NA
Calcium	292		10.0	mg/L	50		6010B	Total/NA
Boron	0.270		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1940		20.0	mg/L	1		SM 2540C	Total/NA
pH	6.5	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	11.9	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-11

Lab Sample ID: 860-24786-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	140		0.500	mg/L	1		300.0	Total/NA
Sulfate	485		0.500	mg/L	1		300.0	Total/NA
Calcium	130		10.0	mg/L	50		6010B	Total/NA
Boron	0.162		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	988		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.6	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	13.0	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-12

Lab Sample ID: 860-24786-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	75.9		0.500	mg/L	1		300.0	Total/NA
Sulfate	41.0		0.500	mg/L	1		300.0	Total/NA
Calcium	16.1		0.200	mg/L	1		6010B	Total/NA
Boron	0.0250		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	266		5.00	mg/L	1		SM 2540C	Total/NA
pH	6.5	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	11.9	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-16

Lab Sample ID: 860-24786-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	273		0.500	mg/L	1		300.0	Total/NA
Sulfate	98.9		0.500	mg/L	1		300.0	Total/NA
Calcium	69.0		0.200	mg/L	1		6010B	Total/NA
Boron	0.0220		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	796		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.6	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	11.5	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-13

Lab Sample ID: 860-24786-5

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	101		0.500	mg/L	1		300.0	Total/NA
Sulfate	200		0.500	mg/L	1		300.0	Total/NA
Calcium	51.3		0.200	mg/L	1		6010B	Total/NA
Boron	0.0483		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	582		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.3	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	11.8	HF		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Houston

# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Client Sample ID: MW-15

## Lab Sample ID: 860-24786-6

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	147		0.500	mg/L	1		300.0	Total/NA
Sulfate	44.2		0.500	mg/L	1		300.0	Total/NA
Calcium	27.4		0.200	mg/L	1		6010B	Total/NA
Boron	0.0340		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	462		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.6	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	12.3	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-14

## Lab Sample ID: 860-24786-7

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride - DL	457		5.00	mg/L	10		300.0	Total/NA
Sulfate - DL	899		5.00	mg/L	10		300.0	Total/NA
Calcium	190		10.0	mg/L	50		6010B	Total/NA
Boron	0.875		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	2290		20.0	mg/L	1		SM 2540C	Total/NA
pH	6.6	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	13.5	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-17

## Lab Sample ID: 860-24786-8

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride - DL	611		5.00	mg/L	10		300.0	Total/NA
Sulfate - DL	132		5.00	mg/L	10		300.0	Total/NA
Calcium	130		10.0	mg/L	50		6010B	Total/NA
Boron	0.0332		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1350		20.0	mg/L	1		SM 2540C	Total/NA
pH	5.9	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	13.3	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: Duplicate

## Lab Sample ID: 860-24786-9

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	142		0.500	mg/L	1		300.0	Total/NA
Sulfate	486		0.500	mg/L	1		300.0	Total/NA
Calcium	127		1.00	mg/L	5		6010B	Total/NA
Boron	0.167		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1070		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.5	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	12.5	HF		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Houston

# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

**Client Sample ID: MW-7**

**Lab Sample ID: 860-24786-1**

Date Collected: 04/18/22 13:46

Matrix: Water

Date Received: 04/20/22 11:09

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.500	U	0.500	mg/L			04/29/22 18:26	1

**Method: 300.0 - Anions, Ion Chromatography - DL**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	277		5.00	mg/L			04/28/22 08:46	10
Sulfate	1010		5.00	mg/L			04/28/22 08:46	10

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	292		10.0	mg/L		04/22/22 09:00	04/28/22 02:47	50

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.270		0.0100	mg/L		04/21/22 08:30	04/25/22 17:37	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1940		20.0	mg/L			04/25/22 14:35	1
pH	6.5	HF		SU			04/29/22 12:15	1
Temperature	11.9	HF		Degrees C			04/29/22 12:15	1

**Client Sample ID: MW-11**

**Lab Sample ID: 860-24786-2**

Date Collected: 04/18/22 14:24

Matrix: Water

Date Received: 04/20/22 11:09

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	140		0.500	mg/L			04/28/22 09:00	1
Fluoride	<0.500	U	0.500	mg/L			04/28/22 09:00	1
Sulfate	485		0.500	mg/L			04/28/22 09:00	1

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	130		10.0	mg/L		04/22/22 09:00	04/28/22 02:50	50

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.162		0.0100	mg/L		04/21/22 08:30	04/25/22 17:40	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	988		10.0	mg/L			04/25/22 14:35	1
pH	6.6	HF		SU			04/29/22 12:16	1
Temperature	13.0	HF		Degrees C			04/29/22 12:16	1

**Client Sample ID: MW-12**

**Lab Sample ID: 860-24786-3**

Date Collected: 04/18/22 15:01

Matrix: Water

Date Received: 04/20/22 11:09

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	75.9		0.500	mg/L			04/28/22 09:41	1

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# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

**Client Sample ID: MW-12**

**Lab Sample ID: 860-24786-3**

Date Collected: 04/18/22 15:01

Matrix: Water

Date Received: 04/20/22 11:09

**Method: 300.0 - Anions, Ion Chromatography (Continued)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.500	U	0.500	mg/L			04/28/22 09:41	1
Sulfate	41.0		0.500	mg/L			04/28/22 09:41	1

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	16.1		0.200	mg/L		04/22/22 09:00	04/22/22 22:28	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0250		0.0100	mg/L		04/21/22 08:30	04/25/22 17:43	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	266		5.00	mg/L			04/25/22 14:35	1
pH	6.5	HF		SU			04/29/22 12:18	1
Temperature	11.9	HF		Degrees C			04/29/22 12:18	1

**Client Sample ID: MW-16**

**Lab Sample ID: 860-24786-4**

Date Collected: 04/18/22 15:39

Matrix: Water

Date Received: 04/20/22 11:09

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	273		0.500	mg/L			04/28/22 09:55	1
Fluoride	<0.500	U	0.500	mg/L			04/28/22 09:55	1
Sulfate	98.9		0.500	mg/L			04/28/22 09:55	1

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	69.0		0.200	mg/L		04/22/22 09:00	04/22/22 22:31	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0220		0.0100	mg/L		04/21/22 08:30	04/25/22 17:46	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	796		10.0	mg/L			04/25/22 14:35	1
pH	6.6	HF		SU			04/29/22 12:19	1
Temperature	11.5	HF		Degrees C			04/29/22 12:19	1

**Client Sample ID: MW-13**

**Lab Sample ID: 860-24786-5**

Date Collected: 04/18/22 16:07

Matrix: Water

Date Received: 04/20/22 11:09

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	101		0.500	mg/L			04/28/22 10:37	1
Fluoride	<0.500	U	0.500	mg/L			04/28/22 10:37	1
Sulfate	200		0.500	mg/L			04/28/22 10:37	1

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# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

**Client Sample ID: MW-13**

**Lab Sample ID: 860-24786-5**

Date Collected: 04/18/22 16:07

Matrix: Water

Date Received: 04/20/22 11:09

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	51.3		0.200	mg/L		04/22/22 09:00	04/22/22 22:35	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0483		0.0100	mg/L		04/21/22 08:30	04/25/22 17:50	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	582		10.0	mg/L			04/25/22 14:35	1
pH	6.3	HF		SU			04/29/22 12:21	1
Temperature	11.8	HF		Degrees C			04/29/22 12:21	1

**Client Sample ID: MW-15**

**Lab Sample ID: 860-24786-6**

Date Collected: 04/18/22 16:44

Matrix: Water

Date Received: 04/20/22 11:09

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	147		0.500	mg/L			04/28/22 10:51	1
Fluoride	<0.500	U	0.500	mg/L			04/28/22 10:51	1
Sulfate	44.2		0.500	mg/L			04/28/22 10:51	1

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	27.4		0.200	mg/L		04/22/22 09:00	04/22/22 22:46	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0340		0.0100	mg/L		04/21/22 08:30	04/25/22 17:53	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	462		10.0	mg/L			04/25/22 14:35	1
pH	6.6	HF		SU			04/29/22 12:23	1
Temperature	12.3	HF		Degrees C			04/29/22 12:23	1

**Client Sample ID: MW-14**

**Lab Sample ID: 860-24786-7**

Date Collected: 04/18/22 17:12

Matrix: Water

Date Received: 04/20/22 11:09

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.500	U	0.500	mg/L			04/29/22 18:40	1

**Method: 300.0 - Anions, Ion Chromatography - DL**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	457		5.00	mg/L			04/28/22 11:05	10
Sulfate	899		5.00	mg/L			04/28/22 11:05	10

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	190		10.0	mg/L		04/22/22 09:00	04/28/22 02:54	50

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# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Client Sample ID: MW-14

Lab Sample ID: 860-24786-7

Date Collected: 04/18/22 17:12

Matrix: Water

Date Received: 04/20/22 11:09

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.875		0.0100	mg/L		04/21/22 08:30	04/25/22 17:56	1

### General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2290		20.0	mg/L			04/25/22 14:35	1
pH	6.6	HF		SU			04/29/22 12:24	1
Temperature	13.5	HF		Degrees C			04/29/22 12:24	1

## Client Sample ID: MW-17

Lab Sample ID: 860-24786-8

Date Collected: 04/18/22 17:45

Matrix: Water

Date Received: 04/20/22 11:09

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.500	U	0.500	mg/L			04/29/22 18:54	1

### Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	611		5.00	mg/L			04/28/22 11:18	10
Sulfate	132		5.00	mg/L			04/28/22 11:18	10

### Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	130		10.0	mg/L		04/22/22 09:00	04/28/22 03:05	50

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0332		0.0100	mg/L		04/21/22 08:30	04/25/22 17:59	1

### General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1350		20.0	mg/L			04/25/22 14:35	1
pH	5.9	HF		SU			04/29/22 12:27	1
Temperature	13.3	HF		Degrees C			04/29/22 12:27	1

## Client Sample ID: Duplicate

Lab Sample ID: 860-24786-9

Date Collected: 04/18/22 00:00

Matrix: Water

Date Received: 04/20/22 11:09

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	142		0.500	mg/L			04/28/22 11:32	1
Fluoride	<0.500	U	0.500	mg/L			04/28/22 11:32	1
Sulfate	486		0.500	mg/L			04/28/22 11:32	1

### Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	127		1.00	mg/L		04/25/22 08:30	05/04/22 05:29	5

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.167		0.0100	mg/L		04/24/22 10:30	04/28/22 19:05	1

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# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

**Client Sample ID: Duplicate**

**Lab Sample ID: 860-24786-9**

Date Collected: 04/18/22 00:00

Matrix: Water

Date Received: 04/20/22 11:09

## General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1070		10.0	mg/L			04/25/22 14:35	1
pH	6.5	HF		SU			04/29/22 12:29	1
Temperature	12.5	HF		Degrees C			04/29/22 12:29	1

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# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 860-50533/13**  
**Matrix: Water**  
**Analysis Batch: 50533**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<0.500	U	0.500	mg/L			04/27/22 17:00	1
Fluoride	<0.500	U	0.500	mg/L			04/27/22 17:00	1
Sulfate	<0.500	U	0.500	mg/L			04/27/22 17:00	1

**Lab Sample ID: MB 860-50533/77**  
**Matrix: Water**  
**Analysis Batch: 50533**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<0.500	U	0.500	mg/L			04/28/22 07:50	1
Fluoride	<0.500	U	0.500	mg/L			04/28/22 07:50	1
Sulfate	<0.500	U	0.500	mg/L			04/28/22 07:50	1

**Lab Sample ID: LCS 860-50533/78**  
**Matrix: Water**  
**Analysis Batch: 50533**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	10.0	10.40		mg/L		104	90 - 110
Sulfate	10.0	9.686		mg/L		97	90 - 110

**Lab Sample ID: LCSD 860-50533/79**  
**Matrix: Water**  
**Analysis Batch: 50533**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	10.0	10.47		mg/L		105	90 - 110	1	20
Sulfate	10.0	9.743		mg/L		97	90 - 110	1	20

**Lab Sample ID: LLCS 860-50533/15**  
**Matrix: Water**  
**Analysis Batch: 50533**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.500	0.4544	J	mg/L		91	50 - 150
Sulfate	0.500	0.4558	J	mg/L		91	50 - 150

**Lab Sample ID: 860-24786-2 MS**  
**Matrix: Water**  
**Analysis Batch: 50533**

**Client Sample ID: MW-11**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
	Result	Qualifier							
Chloride	140		10.0	149.0	4	mg/L		89	90 - 110
Fluoride	<0.500	U	10.0	10.30		mg/L		103	90 - 110
Sulfate	485		10.0	488.4	4	mg/L		32	90 - 110



# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 860-24786-2 MSD

Matrix: Water

Analysis Batch: 50533

Client Sample ID: MW-11

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Chloride	140		10.0	148.6	4	mg/L		85	90 - 110	0	20
Fluoride	<0.500	U	10.0	10.30		mg/L		103	90 - 110	0	20
Sulfate	485		10.0	487.6	4	mg/L		24	90 - 110	0	20

Lab Sample ID: MB 860-50784/25

Matrix: Water

Analysis Batch: 50784

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<0.500	U	0.500	mg/L			04/29/22 01:32	1
Fluoride	<0.500	U	0.500	mg/L			04/29/22 01:32	1
Sulfate	<0.500	U	0.500	mg/L			04/29/22 01:32	1

Lab Sample ID: MB 860-50784/58

Matrix: Water

Analysis Batch: 50784

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<0.500	U	0.500	mg/L			04/29/22 09:10	1
Fluoride	<0.500	U	0.500	mg/L			04/29/22 09:10	1
Sulfate	<0.500	U	0.500	mg/L			04/29/22 09:10	1

Lab Sample ID: LCS 860-50784/59

Matrix: Water

Analysis Batch: 50784

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Chloride	10.0	9.785		mg/L		98	90 - 110
Fluoride	10.0	10.55		mg/L		106	90 - 110
Sulfate	10.0	9.751		mg/L		98	90 - 110

Lab Sample ID: LCSD 860-50784/60

Matrix: Water

Analysis Batch: 50784

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	RPD
		Result	Qualifier				Limits	Limit	
Chloride	10.0	9.619		mg/L		96	90 - 110	2	20
Fluoride	10.0	10.47		mg/L		105	90 - 110	1	20
Sulfate	10.0	9.657		mg/L		97	90 - 110	1	20

Lab Sample ID: LLCS 860-50784/5

Matrix: Water

Analysis Batch: 50784

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LLCS	LLCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Chloride	0.500	0.4937	J	mg/L		99	50 - 150
Fluoride	0.500	0.4570	J	mg/L		91	50 - 150
Sulfate	0.500	0.4496	J	mg/L		90	50 - 150

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Method: 6010B - Metals (ICP)

**Lab Sample ID: MB 860-49920/1-A**  
**Matrix: Water**  
**Analysis Batch: 50227**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 49920**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.200	U	0.200	mg/L		04/22/22 09:00	04/22/22 21:26	1

**Lab Sample ID: LCS 860-49920/2-A**  
**Matrix: Water**  
**Analysis Batch: 50227**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 49920**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	24.09		mg/L		96	80 - 120

**Lab Sample ID: LCSD 860-49920/3-A**  
**Matrix: Water**  
**Analysis Batch: 50227**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 49920**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	25.0	24.08		mg/L		96	80 - 120	0	20

**Lab Sample ID: MB 860-50159/1-A**  
**Matrix: Water**  
**Analysis Batch: 51521**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 50159**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.200	U	0.200	mg/L		04/25/22 08:30	05/04/22 05:04	1

**Lab Sample ID: LCS 860-50159/2-A**  
**Matrix: Water**  
**Analysis Batch: 51521**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 50159**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	26.78		mg/L		107	80 - 120

**Lab Sample ID: LCSD 860-50159/3-A**  
**Matrix: Water**  
**Analysis Batch: 51521**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 50159**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	25.0	26.87		mg/L		107	80 - 120	0	20

**Lab Sample ID: 860-24786-9 MSD**  
**Matrix: Water**  
**Analysis Batch: 51521**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 50159**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	126	E	25.0	149.4	E 4	mg/L		93	75 - 125	1	20

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 860-49725/1-A  
Matrix: Water  
Analysis Batch: 50390

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 49725

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0100	U	0.0100	mg/L		04/21/22 08:30	04/25/22 17:11	1

Lab Sample ID: LCS 860-49725/2-A  
Matrix: Water  
Analysis Batch: 50390

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 49725

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.100	0.09318		mg/L		93	80 - 120

Lab Sample ID: LCSD 860-49725/3-A  
Matrix: Water  
Analysis Batch: 50390

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 49725

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.100	0.09226		mg/L		92	80 - 120	1	20

Lab Sample ID: MB 860-50129/1-A  
Matrix: Water  
Analysis Batch: 50842

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 50129

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0100	U	0.0100	mg/L		04/24/22 10:30	04/28/22 18:40	1

Lab Sample ID: LCS 860-50129/2-A  
Matrix: Water  
Analysis Batch: 50842

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 50129

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.100	0.1076		mg/L		108	80 - 120

Lab Sample ID: LCSD 860-50129/3-A  
Matrix: Water  
Analysis Batch: 50842

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 50129

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.100	0.1061		mg/L		106	80 - 120	1	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 860-50259/1  
Matrix: Water  
Analysis Batch: 50259

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5.00	U	5.00	mg/L			04/25/22 14:35	1

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

**Lab Sample ID: LCS 860-50259/2**  
**Matrix: Water**  
**Analysis Batch: 50259**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	982.0		mg/L		98	80 - 120

**Lab Sample ID: LCSD 860-50259/3**  
**Matrix: Water**  
**Analysis Batch: 50259**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1048		mg/L		105	80 - 120	7	10

**Lab Sample ID: 860-24786-1 DU**  
**Matrix: Water**  
**Analysis Batch: 50259**

**Client Sample ID: MW-7**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1940		1812		mg/L		7	10

## Method: SM 4500 H+ B - pH

**Lab Sample ID: 860-24786-9 DU**  
**Matrix: Water**  
**Analysis Batch: 50962**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.5	HF	6.5		SU		0.2	20
Temperature	12.5	HF	12.6		Degrees C		0.8	20

# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## HPLC/IC

### Analysis Batch: 50533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-1 - DL	MW-7	Total/NA	Water	300.0	
860-24786-2	MW-11	Total/NA	Water	300.0	
860-24786-3	MW-12	Total/NA	Water	300.0	
860-24786-4	MW-16	Total/NA	Water	300.0	
860-24786-5	MW-13	Total/NA	Water	300.0	
860-24786-6	MW-15	Total/NA	Water	300.0	
860-24786-7 - DL	MW-14	Total/NA	Water	300.0	
860-24786-8 - DL	MW-17	Total/NA	Water	300.0	
860-24786-9	Duplicate	Total/NA	Water	300.0	
MB 860-50533/13	Method Blank	Total/NA	Water	300.0	
MB 860-50533/77	Method Blank	Total/NA	Water	300.0	
LCS 860-50533/78	Lab Control Sample	Total/NA	Water	300.0	
LCSD 860-50533/79	Lab Control Sample Dup	Total/NA	Water	300.0	
LLCS 860-50533/15	Lab Control Sample	Total/NA	Water	300.0	
860-24786-2 MS	MW-11	Total/NA	Water	300.0	
860-24786-2 MSD	MW-11	Total/NA	Water	300.0	

### Analysis Batch: 50784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-1	MW-7	Total/NA	Water	300.0	
860-24786-7	MW-14	Total/NA	Water	300.0	
860-24786-8	MW-17	Total/NA	Water	300.0	
MB 860-50784/25	Method Blank	Total/NA	Water	300.0	
MB 860-50784/58	Method Blank	Total/NA	Water	300.0	
LCS 860-50784/59	Lab Control Sample	Total/NA	Water	300.0	
LCSD 860-50784/60	Lab Control Sample Dup	Total/NA	Water	300.0	
LLCS 860-50784/5	Lab Control Sample	Total/NA	Water	300.0	

## Metals

### Prep Batch: 49725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-1	MW-7	Total/NA	Water	3010A	
860-24786-2	MW-11	Total/NA	Water	3010A	
860-24786-3	MW-12	Total/NA	Water	3010A	
860-24786-4	MW-16	Total/NA	Water	3010A	
860-24786-5	MW-13	Total/NA	Water	3010A	
860-24786-6	MW-15	Total/NA	Water	3010A	
860-24786-7	MW-14	Total/NA	Water	3010A	
860-24786-8	MW-17	Total/NA	Water	3010A	
MB 860-49725/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-49725/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-49725/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Prep Batch: 49920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-1	MW-7	Total/NA	Water	3010A	
860-24786-2	MW-11	Total/NA	Water	3010A	
860-24786-3	MW-12	Total/NA	Water	3010A	
860-24786-4	MW-16	Total/NA	Water	3010A	
860-24786-5	MW-13	Total/NA	Water	3010A	

# QC Association Summary

Client: Hydrex Environmental  
 Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Metals (Continued)

### Prep Batch: 49920 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-6	MW-15	Total/NA	Water	3010A	
860-24786-7	MW-14	Total/NA	Water	3010A	
860-24786-8	MW-17	Total/NA	Water	3010A	
MB 860-49920/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-49920/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-49920/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Prep Batch: 50129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-9	Duplicate	Total/NA	Water	3010A	
MB 860-50129/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-50129/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-50129/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Prep Batch: 50159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-9	Duplicate	Total/NA	Water	3010A	
MB 860-50159/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-50159/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-50159/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
860-24786-9 MSD	Duplicate	Total/NA	Water	3010A	

### Analysis Batch: 50227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-3	MW-12	Total/NA	Water	6010B	49920
860-24786-4	MW-16	Total/NA	Water	6010B	49920
860-24786-5	MW-13	Total/NA	Water	6010B	49920
860-24786-6	MW-15	Total/NA	Water	6010B	49920
MB 860-49920/1-A	Method Blank	Total/NA	Water	6010B	49920
LCS 860-49920/2-A	Lab Control Sample	Total/NA	Water	6010B	49920
LCSD 860-49920/3-A	Lab Control Sample Dup	Total/NA	Water	6010B	49920

### Analysis Batch: 50390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-1	MW-7	Total/NA	Water	6020A	49725
860-24786-2	MW-11	Total/NA	Water	6020A	49725
860-24786-3	MW-12	Total/NA	Water	6020A	49725
860-24786-4	MW-16	Total/NA	Water	6020A	49725
860-24786-5	MW-13	Total/NA	Water	6020A	49725
860-24786-6	MW-15	Total/NA	Water	6020A	49725
860-24786-7	MW-14	Total/NA	Water	6020A	49725
860-24786-8	MW-17	Total/NA	Water	6020A	49725
MB 860-49725/1-A	Method Blank	Total/NA	Water	6020A	49725
LCS 860-49725/2-A	Lab Control Sample	Total/NA	Water	6020A	49725
LCSD 860-49725/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	49725

### Analysis Batch: 50766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-1	MW-7	Total/NA	Water	6010B	49920
860-24786-2	MW-11	Total/NA	Water	6010B	49920
860-24786-7	MW-14	Total/NA	Water	6010B	49920

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# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Metals (Continued)

### Analysis Batch: 50766 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-8	MW-17	Total/NA	Water	6010B	49920

### Analysis Batch: 50842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-9	Duplicate	Total/NA	Water	6020A	50129
MB 860-50129/1-A	Method Blank	Total/NA	Water	6020A	50129
LCS 860-50129/2-A	Lab Control Sample	Total/NA	Water	6020A	50129
LCSD 860-50129/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	50129

### Analysis Batch: 51521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-9	Duplicate	Total/NA	Water	6010B	50159
MB 860-50159/1-A	Method Blank	Total/NA	Water	6010B	50159
LCS 860-50159/2-A	Lab Control Sample	Total/NA	Water	6010B	50159
LCSD 860-50159/3-A	Lab Control Sample Dup	Total/NA	Water	6010B	50159
860-24786-9 MSD	Duplicate	Total/NA	Water	6010B	50159

## General Chemistry

### Analysis Batch: 50259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-1	MW-7	Total/NA	Water	SM 2540C	
860-24786-2	MW-11	Total/NA	Water	SM 2540C	
860-24786-3	MW-12	Total/NA	Water	SM 2540C	
860-24786-4	MW-16	Total/NA	Water	SM 2540C	
860-24786-5	MW-13	Total/NA	Water	SM 2540C	
860-24786-6	MW-15	Total/NA	Water	SM 2540C	
860-24786-7	MW-14	Total/NA	Water	SM 2540C	
860-24786-8	MW-17	Total/NA	Water	SM 2540C	
860-24786-9	Duplicate	Total/NA	Water	SM 2540C	
MB 860-50259/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-50259/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 860-50259/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
860-24786-1 DU	MW-7	Total/NA	Water	SM 2540C	

### Analysis Batch: 50962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-24786-1	MW-7	Total/NA	Water	SM 4500 H+ B	
860-24786-2	MW-11	Total/NA	Water	SM 4500 H+ B	
860-24786-3	MW-12	Total/NA	Water	SM 4500 H+ B	
860-24786-4	MW-16	Total/NA	Water	SM 4500 H+ B	
860-24786-5	MW-13	Total/NA	Water	SM 4500 H+ B	
860-24786-6	MW-15	Total/NA	Water	SM 4500 H+ B	
860-24786-7	MW-14	Total/NA	Water	SM 4500 H+ B	
860-24786-8	MW-17	Total/NA	Water	SM 4500 H+ B	
860-24786-9	Duplicate	Total/NA	Water	SM 4500 H+ B	
860-24786-9 DU	Duplicate	Total/NA	Water	SM 4500 H+ B	

# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

**Client Sample ID: MW-7**

**Lab Sample ID: 860-24786-1**

Date Collected: 04/18/22 13:46

Matrix: Water

Date Received: 04/20/22 11:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0	DL	10			50533	04/28/22 08:46	ANP	XEN STF
Total/NA	Analysis	300.0		1			50784	04/29/22 18:26	WP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49920	04/22/22 09:00	MD	XEN STF
Total/NA	Analysis	6010B		50			50766	04/28/22 02:47	AV	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49725	04/21/22 08:30	MD	XEN STF
Total/NA	Analysis	6020A		1			50390	04/25/22 17:37	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	50259	04/25/22 14:35	MCA	XEN STF
Total/NA	Analysis	SM 4500 H+ B		1			50962	04/29/22 12:15	TL	XEN STF

**Client Sample ID: MW-11**

**Lab Sample ID: 860-24786-2**

Date Collected: 04/18/22 14:24

Matrix: Water

Date Received: 04/20/22 11:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			50533	04/28/22 09:00	ANP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49920	04/22/22 09:00	MD	XEN STF
Total/NA	Analysis	6010B		50			50766	04/28/22 02:50	AV	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49725	04/21/22 08:30	MD	XEN STF
Total/NA	Analysis	6020A		1			50390	04/25/22 17:40	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	50259	04/25/22 14:35	MCA	XEN STF
Total/NA	Analysis	SM 4500 H+ B		1			50962	04/29/22 12:16	TL	XEN STF

**Client Sample ID: MW-12**

**Lab Sample ID: 860-24786-3**

Date Collected: 04/18/22 15:01

Matrix: Water

Date Received: 04/20/22 11:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			50533	04/28/22 09:41	ANP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49920	04/22/22 09:00	MD	XEN STF
Total/NA	Analysis	6010B		1			50227	04/22/22 22:28	AV	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49725	04/21/22 08:30	MD	XEN STF
Total/NA	Analysis	6020A		1			50390	04/25/22 17:43	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	200 mL	200 mL	50259	04/25/22 14:35	MCA	XEN STF
Total/NA	Analysis	SM 4500 H+ B		1			50962	04/29/22 12:18	TL	XEN STF

**Client Sample ID: MW-16**

**Lab Sample ID: 860-24786-4**

Date Collected: 04/18/22 15:39

Matrix: Water

Date Received: 04/20/22 11:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			50533	04/28/22 09:55	ANP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49920	04/22/22 09:00	MD	XEN STF
Total/NA	Analysis	6010B		1			50227	04/22/22 22:31	AV	XEN STF



# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Client Sample ID: MW-16

Lab Sample ID: 860-24786-4

Date Collected: 04/18/22 15:39

Matrix: Water

Date Received: 04/20/22 11:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	49725	04/21/22 08:30	MD	XEN STF
Total/NA	Analysis	6020A		1			50390	04/25/22 17:46	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	50259	04/25/22 14:35	MCA	XEN STF
Total/NA	Analysis	SM 4500 H+ B		1			50962	04/29/22 12:19	TL	XEN STF

## Client Sample ID: MW-13

Lab Sample ID: 860-24786-5

Date Collected: 04/18/22 16:07

Matrix: Water

Date Received: 04/20/22 11:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			50533	04/28/22 10:37	ANP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49920	04/22/22 09:00	MD	XEN STF
Total/NA	Analysis	6010B		1			50227	04/22/22 22:35	AV	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49725	04/21/22 08:30	MD	XEN STF
Total/NA	Analysis	6020A		1			50390	04/25/22 17:50	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	50259	04/25/22 14:35	MCA	XEN STF
Total/NA	Analysis	SM 4500 H+ B		1			50962	04/29/22 12:21	TL	XEN STF

## Client Sample ID: MW-15

Lab Sample ID: 860-24786-6

Date Collected: 04/18/22 16:44

Matrix: Water

Date Received: 04/20/22 11:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			50533	04/28/22 10:51	ANP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49920	04/22/22 09:00	MD	XEN STF
Total/NA	Analysis	6010B		1			50227	04/22/22 22:46	AV	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49725	04/21/22 08:30	MD	XEN STF
Total/NA	Analysis	6020A		1			50390	04/25/22 17:53	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	50259	04/25/22 14:35	MCA	XEN STF
Total/NA	Analysis	SM 4500 H+ B		1			50962	04/29/22 12:23	TL	XEN STF

## Client Sample ID: MW-14

Lab Sample ID: 860-24786-7

Date Collected: 04/18/22 17:12

Matrix: Water

Date Received: 04/20/22 11:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0	DL	10			50533	04/28/22 11:05	ANP	XEN STF
Total/NA	Analysis	300.0		1			50784	04/29/22 18:40	WP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49920	04/22/22 09:00	MD	XEN STF
Total/NA	Analysis	6010B		50			50766	04/28/22 02:54	AV	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49725	04/21/22 08:30	MD	XEN STF
Total/NA	Analysis	6020A		1			50390	04/25/22 17:56	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	50259	04/25/22 14:35	MCA	XEN STF
Total/NA	Analysis	SM 4500 H+ B		1			50962	04/29/22 12:24	TL	XEN STF

Eurofins Houston

# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

**Client Sample ID: MW-17**

**Lab Sample ID: 860-24786-8**

**Date Collected: 04/18/22 17:45**

**Matrix: Water**

**Date Received: 04/20/22 11:09**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0	DL	10			50533	04/28/22 11:18	ANP	XEN STF
Total/NA	Analysis	300.0		1			50784	04/29/22 18:54	WP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49920	04/22/22 09:00	MD	XEN STF
Total/NA	Analysis	6010B		50			50766	04/28/22 03:05	AV	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	49725	04/21/22 08:30	MD	XEN STF
Total/NA	Analysis	6020A		1			50390	04/25/22 17:59	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	50259	04/25/22 14:35	MCA	XEN STF
Total/NA	Analysis	SM 4500 H+ B		1			50962	04/29/22 12:27	TL	XEN STF

**Client Sample ID: Duplicate**

**Lab Sample ID: 860-24786-9**

**Date Collected: 04/18/22 00:00**

**Matrix: Water**

**Date Received: 04/20/22 11:09**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			50533	04/28/22 11:32	ANP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	50159	04/25/22 08:30	MD	XEN STF
Total/NA	Analysis	6010B		5			51521	05/04/22 05:29	AV	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	50129	04/24/22 10:30	MD	XEN STF
Total/NA	Analysis	6020A		1			50842	04/28/22 19:05	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	50259	04/25/22 14:35	MCA	XEN STF
Total/NA	Analysis	SM 4500 H+ B		1			50962	04/29/22 12:29	TL	XEN STF

**Laboratory References:**

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Accreditation/Certification Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

## Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	21-038-0	08-04-22
Florida	NELAP	E871002	06-30-22
Louisiana	NELAP	03054	06-30-22
Oklahoma	State	2021-168	08-31-22
Texas	NELAP	T104704215-21-44	06-30-22
Texas	TCEQ Water Supply	T104704215	06-30-22
USDA	US Federal Programs	P330-22-00025	03-02-23

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# Method Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	XEN STF
6010B	Metals (ICP)	SW846	XEN STF
6020A	Metals (ICP/MS)	SW846	XEN STF
SM 2540C	Solids, Total Dissolved (TDS)	SM	XEN STF
SM 4500 H+ B	pH	SM	XEN STF
3010A	Preparation, Total Metals	SW846	XEN STF

**Protocol References:**

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200



# Sample Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-24786-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
860-24786-1	MW-7	Water	04/18/22 13:46	04/20/22 11:09
860-24786-2	MW-11	Water	04/18/22 14:24	04/20/22 11:09
860-24786-3	MW-12	Water	04/18/22 15:01	04/20/22 11:09
860-24786-4	MW-16	Water	04/18/22 15:39	04/20/22 11:09
860-24786-5	MW-13	Water	04/18/22 16:07	04/20/22 11:09
860-24786-6	MW-15	Water	04/18/22 16:44	04/20/22 11:09
860-24786-7	MW-14	Water	04/18/22 17:12	04/20/22 11:09
860-24786-8	MW-17	Water	04/18/22 17:45	04/20/22 11:09
860-24786-9	Duplicate	Water	04/18/22 00:00	04/20/22 11:09

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# Chain of Custody Record

<b>Client Information</b>		Lab P/N: Bechtold, Chad		Carrier Tracking No(s): 800-8825-439.1			
Client Contact: Michelle Transier		E-Mail: chad.bechtold@eurofins.com		Page: Page 1 of 1			
Company: Hydrex Environmental		PWSID:		Job #:			
Address: 1120 NW Stallings Drive		Due Date Requested:		Preservation Codes:			
City: Nacogdoches		TAT Requested (days):		A HCl			
State, Zip: TX, 75964		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		B NaOH			
Phone: 936-568-9451 (Tel)		PO #: I-14-1007		C Asst02			
Email: mtransier@hydrex-inc.com		WO #: I-14-1007		D Nitric Acid			
Project Name: Twin Oaks PP		Project #: 86000207		E NaHSO4			
Site:		SSOW#:		F MeOH			
				G Amchlor			
				H Ascorbic Acid			
				I Ice			
				J DI Water			
				K EDTA			
				L EDA			
				Other:			
				M Hexane			
				N None			
				O Na2O2			
				P Na2O4S			
				Q Na2SO3			
				R Na2SO3			
				S H2SO4			
				T TSP Dodecalhydrate			
				U Acetate			
				V MCAA			
				W pH 4-5			
				Z other (specify)			
				Total Number of containers			
				Special Instructions/Note:			
				 860-24786 Chain of Custody  Temp: 2.5 IR ID: HOU-332 C/F: -0.9 Corrected Temp: 1.6			
Sample Identification		Field Filtered Sample (Yes or No)				300_ORGM_28D Cl, F, & SO4; SM4500_H+ PH	
MW 7		G W				N D N	
MW 11		G W				X X X	
MW 12		G W				X X X	
MW 16		G W				X X X	
MW 13		G W				X X X	
MW 15		G W				X X X	
MW 14		G W				X X X	
MW 17		G W				X X X	
				2540C, Cold TDS			
				6020A Boron; 6010B Calcium			
				Matrix (Newark, Special, Overstall)			
				Sample Type (C=Comp, G=grab)			
				Sample Time			
				Sample Date			
				Preservation Code:			
				Possible Hazard Identification			
				<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			
				Deliverable Requested: I, II, III, IV Other (specify)			
				Empty Kit Relinquished by			
				Date/Time: 11-19-22 10:00			
				Date/Time: 11-19-22 11:09			
				Date/Time: 11-19-22 11:09			
				Company: Hydrex			
				Company: Red Ex			
				Company: Red Ex			
				Cooler Temperature(s) °C and Other Remarks: 90			



## Login Sample Receipt Checklist

Client: Hydrex Environmental

Job Number: 860-24786-1

**Login Number: 24786**

**List Source: Eurofins Houston**

**List Number: 1**

**Creator: Milone, Jeancarlo**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Extra sample not on the COC
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	




## ANALYTICAL REPORT

Eurofins Houston  
4145 Greenbriar Dr  
Stafford, TX 77477  
Tel: (281)240-4200

Laboratory Job ID: 860-27143-1  
Client Project/Site: Twin Oaks PP

For:  
Hydrex Environmental  
1120 NW Stallings Drive  
Nacogdoches, Texas 75964

Attn: Michelle Transier



Authorized for release by:  
6/21/2022 4:20:09 PM

Chad Bechtold, Project Manager  
(813)690-3563  
[Chad.Bechtold@et.eurofinsus.com](mailto:Chad.Bechtold@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Definitions/Glossary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Appendix A

## Laboratory Data Package Cover Page - Page 1 of 4

This data package is for Eurofins Houston job number 860-27143-1 and consists of:

- R1 - Field chain-of-custody documentation;
- R2 - Sample identification cross-reference;
- R3 - Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 - Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 - Test reports/summary forms for blank samples;
- R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- R10 - Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

**Release Statement:** I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Chad Bechtold  
Name (printed)



Signature

6/21/2022  
Date

Project Manager  
Official Title (printed)

# Laboratory Review Checklist: Reportable Data - Page 2 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	6/21/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-27143-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	<b>Chain-of-custody (C-O-C)</b>					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	<b>Sample and quality control (QC) identification</b>					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	<b>Test reports</b>					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	<b>Surrogate recovery data</b>					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	<b>Test reports/summary forms for blank samples</b>					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	<b>Laboratory control samples (LCS):</b>					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	<b>Analytical duplicate data</b>					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	<b>Method quantitation limits (MQLs):</b>					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	<b>Other problems/anomalies</b>					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

- Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

# Laboratory Review checklist: Supporting Data - Page 3 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	6/21/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-27143-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
S1	OI	<b>Initial calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	<b>Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	<b>Mass spectral tuning</b>					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	<b>Internal standards (IS)</b>					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	<b>Raw data (NELAC Section 5.5.10)</b>					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	<b>Dual column confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	<b>Tentatively identified compounds (TICs)</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	<b>Interference Check Sample (ICS) results</b>					
		Were percent recoveries within method QC limits?	X				
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	<b>Method detection limit (MDL) studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSS?	X				
S11	OI	<b>Proficiency test reports</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	<b>Standards documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	<b>Compound/analyte identification procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	<b>Demonstration of analyst competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	<b>Verification/validation documentation for methods (NELAC Chapter 5)</b>					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	<b>Laboratory standard operating procedures (SOPs)</b>					
		Are laboratory SOPs current and on file for each method performed?	X				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports - Page 4 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	6/21/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-27143-1
Reviewer Name:	Chad Bechtold		

ER # <sup>1</sup>	Description
	<ol style="list-style-type: none"><li>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</li><li>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</li><li>3. NA = Not applicable;</li><li>4. NR = Not reviewed;</li><li>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</li></ol>

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# Case Narrative

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

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**Job ID: 860-27143-1**

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**Laboratory: Eurofins Houston**

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**Narrative**

**Job Narrative**  
**860-27143-1**

**Receipt**

The samples were received on 6/1/2022 10:36 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**Metals**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Client Sample ID: MW-13

## Lab Sample ID: 860-27143-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	360		0.500	mg/L	1		300.0	Total/NA

## Client Sample ID: MW-14

## Lab Sample ID: 860-27143-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	464		0.500	mg/L	1		300.0	Total/NA
Sulfate - DL	944		5.00	mg/L	10		300.0	Total/NA
Calcium	202		10.0	mg/L	50		6010B	Total/NA
Boron	0.718		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	2240		20.0	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Houston



# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

**Client Sample ID: MW-13**  
Date Collected: 05/31/22 12:05  
Date Received: 06/01/22 10:36

**Lab Sample ID: 860-27143-1**  
Matrix: Water

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	360		0.500	mg/L			06/04/22 01:30	1

**Client Sample ID: MW-14**  
Date Collected: 05/31/22 11:21  
Date Received: 06/01/22 10:36

**Lab Sample ID: 860-27143-2**  
Matrix: Water

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	464		0.500	mg/L			06/04/22 01:43	1

**Method: 300.0 - Anions, Ion Chromatography - DL**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	944		5.00	mg/L			06/04/22 01:56	10

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	202		10.0	mg/L		06/14/22 10:00	06/18/22 12:25	50

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.718		0.0100	mg/L		06/10/22 10:23	06/10/22 17:46	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2240		20.0	mg/L			06/06/22 13:40	1

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 860-55642/3**  
**Matrix: Water**  
**Analysis Batch: 55642**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.500	U	0.500	mg/L			06/03/22 19:42	1
Sulfate	<0.500	U	0.500	mg/L			06/03/22 19:42	1

**Lab Sample ID: LCS 860-55642/6**  
**Matrix: Water**  
**Analysis Batch: 55642**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.615		mg/L		96	90 - 110
Sulfate	10.0	9.635		mg/L		96	90 - 110

**Lab Sample ID: LCSD 860-55642/7**  
**Matrix: Water**  
**Analysis Batch: 55642**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	10.0	9.539		mg/L		95	90 - 110	1	20
Sulfate	10.0	9.611		mg/L		96	90 - 110	0	20

**Lab Sample ID: LLCS 860-55642/5**  
**Matrix: Water**  
**Analysis Batch: 55642**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	0.500	0.5387		mg/L		108	50 - 150
Sulfate	0.500	0.5033		mg/L		101	50 - 150

## Method: 6010B - Metals (ICP)

**Lab Sample ID: MB 860-56819/1-A**  
**Matrix: Water**  
**Analysis Batch: 57486**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 56819**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.200	U	0.200	mg/L		06/14/22 10:00	06/17/22 12:04	1

**Lab Sample ID: LCS 860-56819/2-A**  
**Matrix: Water**  
**Analysis Batch: 57486**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 56819**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	26.90		mg/L		108	80 - 120

**Lab Sample ID: LCSD 860-56819/3-A**  
**Matrix: Water**  
**Analysis Batch: 57486**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 56819**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	25.0	27.02		mg/L		108	80 - 120	0	20

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# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 860-27143-2 MS  
Matrix: Water  
Analysis Batch: 57486

Client Sample ID: MW-14  
Prep Type: Total/NA  
Prep Batch: 56819

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	191	E	25.0	213.6	E 4	mg/L		93	75 - 125

Lab Sample ID: 860-27143-2 MSD  
Matrix: Water  
Analysis Batch: 57486

Client Sample ID: MW-14  
Prep Type: Total/NA  
Prep Batch: 56819

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Calcium	191	E	25.0	213.6	E 4	mg/L		92	75 - 125	0	20

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 860-56418/1-A  
Matrix: Water  
Analysis Batch: 56535

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 56418

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0100	U	0.0100	mg/L		06/10/22 10:22	06/10/22 17:13	1

Lab Sample ID: LCS 860-56418/2-A  
Matrix: Water  
Analysis Batch: 56535

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 56418

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.100	0.09617		mg/L		96	80 - 120

Lab Sample ID: LCSD 860-56418/3-A  
Matrix: Water  
Analysis Batch: 56535

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 56418

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Boron	0.100	0.1036		mg/L		104	80 - 120	7	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 860-55769/1  
Matrix: Water  
Analysis Batch: 55769

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5.00	U	5.00	mg/L			06/06/22 13:40	1

Lab Sample ID: LCS 860-55769/2  
Matrix: Water  
Analysis Batch: 55769

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1033		mg/L		103	80 - 120

# QC Sample Results

Client: Hydrex Environmental  
 Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

**Lab Sample ID: LCSD 860-55769/3**  
**Matrix: Water**  
**Analysis Batch: 55769**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	966.0		mg/L		97	80 - 120	7	10

**Lab Sample ID: LLCS 860-55769/4**  
**Matrix: Water**  
**Analysis Batch: 55769**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	5.00	5.000		mg/L		100	50 - 150		

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# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## HPLC/IC

### Analysis Batch: 55642

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-1	MW-13	Total/NA	Water	300.0	
860-27143-2	MW-14	Total/NA	Water	300.0	
860-27143-2 - DL	MW-14	Total/NA	Water	300.0	
MB 860-55642/3	Method Blank	Total/NA	Water	300.0	
LCS 860-55642/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 860-55642/7	Lab Control Sample Dup	Total/NA	Water	300.0	
LLCS 860-55642/5	Lab Control Sample	Total/NA	Water	300.0	

## Metals

### Prep Batch: 56418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-2	MW-14	Total/NA	Water	3010A	
MB 860-56418/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-56418/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-56418/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Analysis Batch: 56535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-2	MW-14	Total/NA	Water	6020A	56418
MB 860-56418/1-A	Method Blank	Total/NA	Water	6020A	56418
LCS 860-56418/2-A	Lab Control Sample	Total/NA	Water	6020A	56418
LCSD 860-56418/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	56418

### Prep Batch: 56819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-2	MW-14	Total/NA	Water	3010A	
MB 860-56819/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-56819/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-56819/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
860-27143-2 MS	MW-14	Total/NA	Water	3010A	
860-27143-2 MSD	MW-14	Total/NA	Water	3010A	

### Analysis Batch: 57486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 860-56819/1-A	Method Blank	Total/NA	Water	6010B	56819
LCS 860-56819/2-A	Lab Control Sample	Total/NA	Water	6010B	56819
LCSD 860-56819/3-A	Lab Control Sample Dup	Total/NA	Water	6010B	56819
860-27143-2 MS	MW-14	Total/NA	Water	6010B	56819
860-27143-2 MSD	MW-14	Total/NA	Water	6010B	56819

### Analysis Batch: 57661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-2	MW-14	Total/NA	Water	6010B	56819

## General Chemistry

### Analysis Batch: 55769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-2	MW-14	Total/NA	Water	SM 2540C	
MB 860-55769/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-55769/2	Lab Control Sample	Total/NA	Water	SM 2540C	

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# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## General Chemistry (Continued)

### Analysis Batch: 55769 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 860-55769/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
LLCS 860-55769/4	Lab Control Sample	Total/NA	Water	SM 2540C	

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# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

**Client Sample ID: MW-13**

**Date Collected: 05/31/22 12:05**

**Date Received: 06/01/22 10:36**

**Lab Sample ID: 860-27143-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			55642	06/04/22 01:30	ANP	XEN STF

**Client Sample ID: MW-14**

**Date Collected: 05/31/22 11:21**

**Date Received: 06/01/22 10:36**

**Lab Sample ID: 860-27143-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			55642	06/04/22 01:43	ANP	XEN STF
Total/NA	Analysis	300.0	DL	10			55642	06/04/22 01:56	ANP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	56819	06/14/22 10:00	MD	XEN STF
Total/NA	Analysis	6010B		50			57661	06/18/22 12:25	AV	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	56418	06/10/22 10:23	PB	XEN STF
Total/NA	Analysis	6020A		1			56535	06/10/22 17:46	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	55769	06/06/22 13:40	JM	XEN STF

**Laboratory References:**

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Accreditation/Certification Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	21-038-0	08-04-22
Florida	NELAP	E871002	06-30-22
Louisiana	NELAP	03054	06-30-22
Oklahoma	State	2021-168	08-31-22
Texas	NELAP	T104704215-21-44	06-30-22
Texas	TCEQ Water Supply	T104704215	06-30-22
USDA	US Federal Programs	P330-22-00025	03-02-23

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# Method Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	XEN STF
6010B	Metals (ICP)	SW846	XEN STF
6020A	Metals (ICP/MS)	SW846	XEN STF
SM 2540C	Solids, Total Dissolved (TDS)	SM	XEN STF
3010A	Preparation, Total Metals	SW846	XEN STF

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Sample Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
860-27143-1	MW-13	Water	05/31/22 12:05	06/01/22 10:36
860-27143-2	MW-14	Water	05/31/22 11:21	06/01/22 10:36

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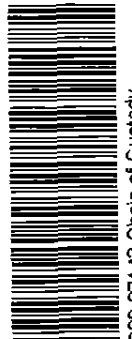
12

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# Chain of Custody Record

<b>Client Information</b>		Lab Pk: Bechtold, Chad		Carrier Tracking No(s): 860-10541-3665.1					
Client Contact: Michelle Transfer		E-Mail: Chad.Bechtold@et.eurofins.com		Page: Page 1 of 1					
Company: Hydrex Environmental		PWSID:		Job #:					
Address: 1120 NW Stallings Drive		Due Date Requested:		Analysis Requested					
City: Waco, Texas		TAT Requested (days):		Total Number of Containers: <input checked="" type="checkbox"/>					
State, Zip: TX, 75964		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		Preservation Codes: A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDTA Z other (specify)					
Phone: 936-568-9451 (Tel)		PO #: 1-14-1007		M Hexane N None O AsHClO2 P Na2O4S Q Na2SO3 R Na2S2O3 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W PH 4-5 Y Trizma Z other (specify)					
Email: mtransfer@hydrex-inc.com		WO #: 1-14-1007		Special Instructions/Note:					
Project Name: Twin Oaks PP		Project #: 86000207		Temp: 27 IR ID:HOU-323 C/F: -0.9 Corrected Temp: 1.8					
Site:		SSOW#:							
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/sl, I=Inorganic, A=Air)	Field Filtered Sample (Yes or No)	300 DRGM_28D Sulfate	300 DRGM_28D Chloride & Sulfate	6020A Boron: 6010B Calcium	2640C Calc TDS
MW 13	5-31-22	1205	G	W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MW 14	5-31-22	1121	G	W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 860-27143 Chain of Custody									
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I II III, IV Other (specify):						Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Date/Time:		Date/Time:		Date/Time:		Date/Time:	
Relinquished by: <i>W Smith</i>		5-31-22 1345		Company: Hydrex		Received by: <i>RedEx</i>		Date/Time: 5-31-22	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time: 6/1/22 1036	
Relinquished by:		Date/Time:		Company:		Received by: <i>YORDS</i>		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:					



# Login Sample Receipt Checklist

Client: Hydrex Environmental

Job Number: 860-27143-1

**Login Number: 27143**

**List Number: 1**

**Creator: Rubio, Yuri**

**List Source: Eurofins Houston**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	


## ANALYTICAL REPORT

Eurofins Houston  
4145 Greenbriar Dr  
Stafford, TX 77477  
Tel: (281)240-4200

Laboratory Job ID: 860-28742-1  
Client Project/Site: Twin Oaks PP

For:  
Hydrex Environmental  
1120 NW Stallings Drive  
Nacogdoches, Texas 75964

Attn: Michelle Transier



Authorized for release by:  
7/8/2022 12:56:46 PM

Chad Bechtold, Project Manager  
(813)690-3563  
[Chad.Bechtold@et.eurofinsus.com](mailto:Chad.Bechtold@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Definitions/Glossary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Appendix A

## Laboratory Data Package Cover Page - Page 1 of 4

This data package is for Eurofins Houston job number 860-28742-1 and consists of:

- R1 - Field chain-of-custody documentation;
- R2 - Sample identification cross-reference;
- R3 - Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 - Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 - Test reports/summary forms for blank samples;
- R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- R10 - Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

**Release Statement:** I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Chad Bechtold  
Name (printed)



Signature

7/8/2022  
Date

Project Manager  
Official Title (printed)



# Laboratory Review Checklist: Reportable Data - Page 2 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	7/8/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-28742-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	<b>Chain-of-custody (C-O-C)</b>					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	<b>Sample and quality control (QC) identification</b>					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	<b>Test reports</b>					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	<b>Surrogate recovery data</b>					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	<b>Test reports/summary forms for blank samples</b>					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	<b>Laboratory control samples (LCS):</b>					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	<b>Analytical duplicate data</b>					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	<b>Method quantitation limits (MQLs):</b>					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	<b>Other problems/anomalies</b>					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?		X			R10B
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

- Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

# Laboratory Review checklist: Supporting Data - Page 3 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	7/8/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-28742-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
S1	OI	<b>Initial calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	<b>Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	<b>Mass spectral tuning</b>					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	<b>Internal standards (IS)</b>					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	<b>Raw data (NELAC Section 5.5.10)</b>					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	<b>Dual column confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	<b>Tentatively identified compounds (TICs)</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	<b>Interference Check Sample (ICS) results</b>					
		Were percent recoveries within method QC limits?	X				
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	<b>Method detection limit (MDL) studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSS?	X				
S11	OI	<b>Proficiency test reports</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	<b>Standards documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	<b>Compound/analyte identification procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	<b>Demonstration of analyst competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	<b>Verification/validation documentation for methods (NELAC Chapter 5)</b>					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	<b>Laboratory standard operating procedures (SOPs)</b>					
		Are laboratory SOPs current and on file for each method performed?	X				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports - Page 4 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	7/8/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-28742-1
Reviewer Name:	Chad Bechtold		

ER # <sup>1</sup>	Description
R10B	Method 6020A: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-14 (860-28742-1). Elevated reporting limits (RLs) are provided.
	<ol style="list-style-type: none"> <li>Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</li> <li>O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</li> <li>NA = Not applicable;</li> <li>NR = Not reviewed;</li> <li>ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</li> </ol>

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# Case Narrative

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

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**Job ID: 860-28742-1**

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**Laboratory: Eurofins Houston**

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**Narrative**

**Job Narrative**  
**860-28742-1**

**Receipt**

The sample was received on 6/29/2022 10:19 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.6°C

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**Metals**

Method 6020A: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-14 (860-28742-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

**Client Sample ID: MW-14**

**Lab Sample ID: 860-28742-1**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	423		5.00	mg/L	10		300.0	Total/NA
Sulfate	933		5.00	mg/L	10		300.0	Total/NA
Calcium	211		10.0	mg/L	50		6010B	Total/NA
Boron	1.64		0.100	mg/L	10		6020A	Total/NA
Total Dissolved Solids	2340		20.0	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Houston

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# Client Sample Results

Client: Hydrex Environmental  
 Project/Site: Twin Oaks PP

Job ID: 860-28742-1

**Client Sample ID: MW-14**  
 Date Collected: 06/28/22 07:45  
 Date Received: 06/29/22 10:19

**Lab Sample ID: 860-28742-1**  
 Matrix: Water

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	423		5.00	mg/L			07/02/22 14:46	10
Sulfate	933		5.00	mg/L			07/02/22 14:46	10

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	211		10.0	mg/L		07/01/22 10:00	07/07/22 13:15	50

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.64		0.100	mg/L		07/02/22 10:45	07/07/22 00:30	10

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2340		20.0	mg/L			07/03/22 16:03	1

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# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 860-59487/3  
Matrix: Water  
Analysis Batch: 59487

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<0.500	U	0.500	mg/L			07/01/22 15:11	1
Sulfate	<0.500	U	0.500	mg/L			07/01/22 15:11	1

Lab Sample ID: MB 860-59487/76  
Matrix: Water  
Analysis Batch: 59487

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<0.500	U	0.500	mg/L			07/02/22 07:26	1
Sulfate	<0.500	U	0.500	mg/L			07/02/22 07:26	1

Lab Sample ID: LCS 860-59487/77  
Matrix: Water  
Analysis Batch: 59487

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.329	mg/L		93	90 - 110	

Lab Sample ID: LCSD 860-59487/78  
Matrix: Water  
Analysis Batch: 59487

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	10.0	9.364	mg/L		94	90 - 110	0	20	

Lab Sample ID: LLCS 860-59487/5  
Matrix: Water  
Analysis Batch: 59487

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	0.500	0.5061	mg/L		101	50 - 150	

## Method: 6010B - Metals (ICP)

Lab Sample ID: MB 860-59428/1-A  
Matrix: Water  
Analysis Batch: 59884

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 59428

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Calcium	<0.200	U	0.200	mg/L		07/01/22 10:00	07/05/22 19:34	1

Lab Sample ID: LCS 860-59428/2-A  
Matrix: Water  
Analysis Batch: 59884

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 59428

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

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# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCSD 860-59428/3-A  
Matrix: Water  
Analysis Batch: 59884

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 59428

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	25.0	24.78		mg/L		99	80 - 120	0	20

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 860-59583/1-A  
Matrix: Water  
Analysis Batch: 60082

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 59583

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0100	U	0.0100	mg/L		07/02/22 10:45	07/07/22 00:13	1

Lab Sample ID: LCS 860-59583/2-A  
Matrix: Water  
Analysis Batch: 60082

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 59583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.100	0.08663		mg/L		87	80 - 120

Lab Sample ID: LCSD 860-59583/3-A  
Matrix: Water  
Analysis Batch: 60082

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 59583

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.100	0.09161		mg/L		92	80 - 120	6	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 860-59635/1  
Matrix: Water  
Analysis Batch: 59635

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5.00	U	5.00	mg/L			07/03/22 16:03	1

Lab Sample ID: LCS 860-59635/2  
Matrix: Water  
Analysis Batch: 59635

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1027		mg/L		103	80 - 120

Lab Sample ID: LCSD 860-59635/3  
Matrix: Water  
Analysis Batch: 59635

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1051		mg/L		105	80 - 120	2	10



# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LLCS 860-59635/4

Matrix: Water

Analysis Batch: 59635

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	5.00	6.000		mg/L		120	50 - 150

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# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## HPLC/IC

### Analysis Batch: 59487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	300.0	
MB 860-59487/3	Method Blank	Total/NA	Water	300.0	
MB 860-59487/76	Method Blank	Total/NA	Water	300.0	
LCS 860-59487/77	Lab Control Sample	Total/NA	Water	300.0	
LCSD 860-59487/78	Lab Control Sample Dup	Total/NA	Water	300.0	
LLCS 860-59487/5	Lab Control Sample	Total/NA	Water	300.0	

## Metals

### Prep Batch: 59428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	3010A	
MB 860-59428/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-59428/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-59428/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Prep Batch: 59583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	3010A	
MB 860-59583/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-59583/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-59583/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Analysis Batch: 59884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 860-59428/1-A	Method Blank	Total/NA	Water	6010B	59428
LCS 860-59428/2-A	Lab Control Sample	Total/NA	Water	6010B	59428
LCSD 860-59428/3-A	Lab Control Sample Dup	Total/NA	Water	6010B	59428

### Analysis Batch: 60082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	6020A	59583
MB 860-59583/1-A	Method Blank	Total/NA	Water	6020A	59583
LCS 860-59583/2-A	Lab Control Sample	Total/NA	Water	6020A	59583
LCSD 860-59583/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	59583

### Analysis Batch: 60122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	6010B	59428

## General Chemistry

### Analysis Batch: 59635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	SM 2540C	
MB 860-59635/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-59635/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 860-59635/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
LLCS 860-59635/4	Lab Control Sample	Total/NA	Water	SM 2540C	

Eurofins Houston

# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

**Client Sample ID: MW-14**

**Lab Sample ID: 860-28742-1**

**Date Collected: 06/28/22 07:45**

**Matrix: Water**

**Date Received: 06/29/22 10:19**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	0 mL	1.0 mL	59487	07/02/22 14:46	ANP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	59428	07/01/22 10:00	MD	XEN STF
Total/NA	Analysis	6010B		50			60122	07/07/22 13:15	DP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	59583	07/02/22 10:45	MD	XEN STF
Total/NA	Analysis	6020A		10			60082	07/07/22 00:30	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	59635	07/03/22 16:03	ADL	XEN STF

**Laboratory References:**

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200



# Accreditation/Certification Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	21-038-0	08-04-22
Florida	NELAP	E871002	06-30-23
Louisiana	NELAP	03054	06-30-23
Oklahoma	State	2021-168	08-31-22
Texas	NELAP	T104704215-22-46	06-30-23
Texas	TCEQ Water Supply	T104704215	12-31-22
USDA	US Federal Programs	P330-22-00025	03-02-23

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# Method Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	XEN STF
6010B	Metals (ICP)	SW846	XEN STF
6020A	Metals (ICP/MS)	SW846	XEN STF
SM 2540C	Solids, Total Dissolved (TDS)	SM	XEN STF
3010A	Preparation, Total Metals	SW846	XEN STF

**Protocol References:**

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200



# Sample Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
860-28742-1	MW-14	Water	06/28/22 07:45	06/29/22 10:19

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**Eurofins Xenco, Stafford**  
 4147 Greenbriar Dr  
 Stafford, TX 77477  
 Phone (281) 240-4200

Temp. **0.6** IR ID: HOU-323  
 C/F -0.0  
 Corrected Temp: **0.6**



**eurofins** | Environment Testing  
 America

860-28742 Chain of Custody

CC No:

Page: 1 of 1

7/8/2022

Client Information  
 Client Contact: Michelle Transfer  
 Phone: 936-568-9451

Lab P.M.: Chad Bechtold, Chad  
 E-Mail: chad.bechtold@eurofinset.com

Job #:

Company: Hydrex Environmental  
 Address: 1120 NW Stallings Drive  
 City: Nacogdoches  
 State, Zip: TX, 75964  
 Phone: 936-568-9451 (Tel)  
 Email: mtransfer@hydrex-inc.com  
 Project Name: Twin Oaks PP  
 Size:

Due Date Requested:  
 TAT Requested (days): **RUSH 5 DAYS**  
 Compliance Project:  Yes  No  
 PO #: 1-14-1007  
 WQ #: 1-14-1007  
 Project #: 86000207  
 SSOW#:

Analysis Requested  
 Field Filtered Sample (Yes or No):  Yes  No  
 Chloride   
 Sulfate   
 Barium   
 Calcium   
 TDS   
 Total Number of Containers: 3

Preservation Codes:  
 A HCL  
 B NaOH  
 C Zn Acetate  
 D Nitric Acid  
 E NaHSO4  
 F MeOH  
 G Amthlor  
 H Ascorbic Acid  
 I Ice  
 J DI Water  
 K EDTA  
 L EDA  
 M Hexane  
 N None  
 O ASNAC2  
 P Na2CO3  
 Q Na2SO3  
 R Na2S2O3  
 S H2SO4  
 T TSP Dodecylhydrate  
 U Acetone  
 V MCAA  
 W pH 4.5  
 Z other (specify)  
 Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=unknown)	Analysis Requested							Special Instructions/Note
					Field Filtered Sample (Yes or No)	Chloride	Sulfate	Barium	Calcium	TDS	Total Number of Containers	
MMW-14	06/08/02	0705	G	W	N	X	X	X	X	X	3	

**Possible Hazard Identification**  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological  
 Deliverable Requested: I II, III IV Other (specify)

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
 Special Instructions/QC Requirements:

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: **W. B. Smith** Date/Time: **6/8/02 1115** Company: **Hydrex**  
 Relinquished by: **FedEx** Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Custody Seats Intact:  Yes  No Custody Seal No. \_\_\_\_\_  
 Received by: **FedEx** Date/Time: **6/18/02 1115** Company: **FedEx**  
 Received by: **Sally Jones** Date/Time: **6/29/02 1019** Company: **Eurofins**  
 Cooler Temperature(s) °C and Other Remarks:

## Login Sample Receipt Checklist

Client: Hydrex Environmental

Job Number: 860-28742-1

**Login Number: 28742**

**List Number: 1**

**Creator: Torres, Sandra**

**List Source: Eurofins Houston**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	





**April 2022 Event**  
**Results of Statistical Calculations**

## **Control Charts and Prediction Limits**

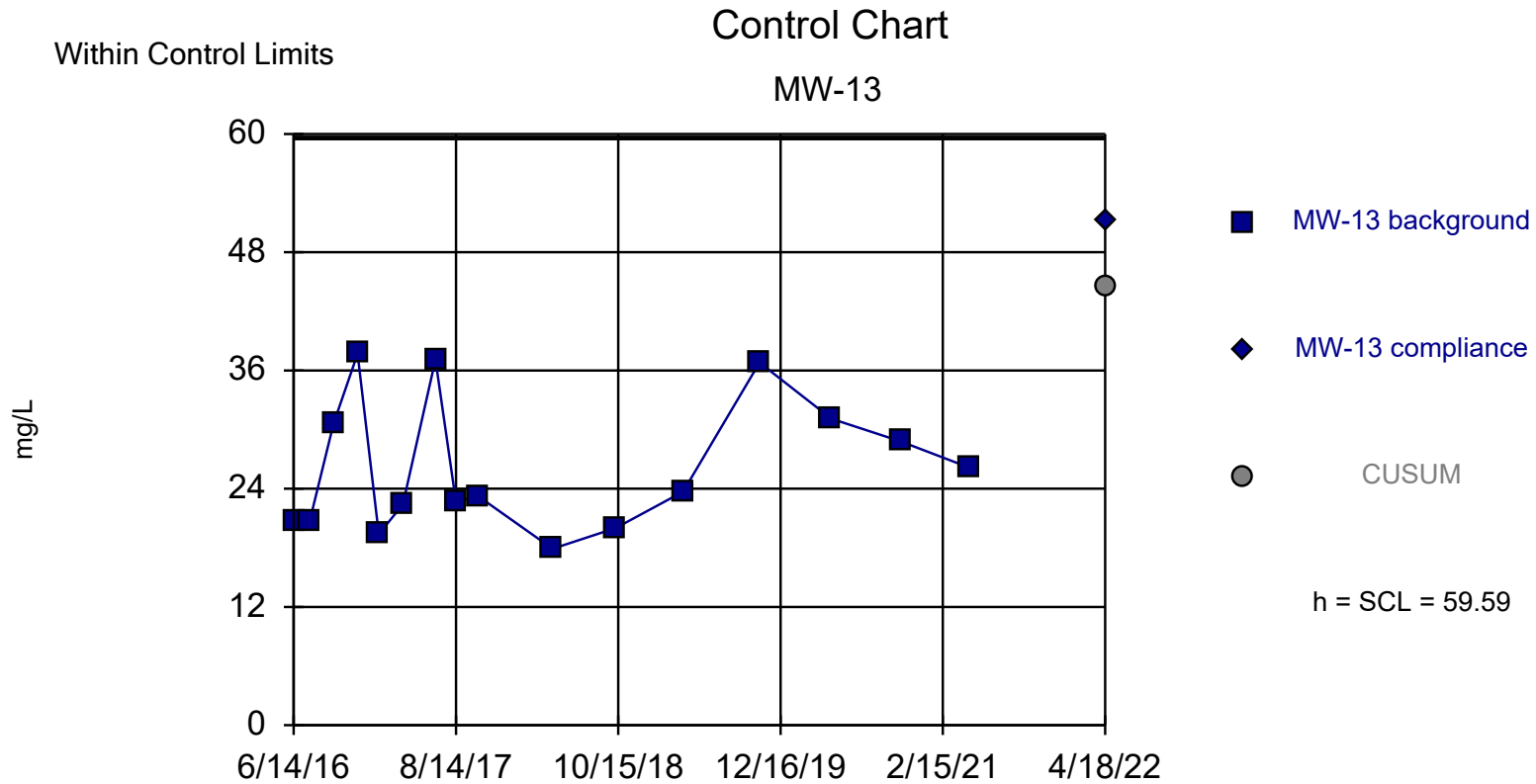
## List of Statistical Acronyms and Abbreviations

<b>Acronym</b>	<b>Description</b>
%ND	Percent Non-Detect
Bg	Background
CUSUM	Cumulative Sum
Deseas	Deseasonalized
h	Control Limit to which the Cumulative Sum Values are compared
Intra	Intrawell
N	Number (Number of Background Measurements)
n	Number (Number of Background Measurements)
NP	Non-Parametric
Observ.	Observed
Param	Parametric
PL	Prediction Limit
SCL	Shewhart Control Limit
Sig.	Significant
Std. Dev.	Standard Deviation
Upper Lim.	Upper Limit

# Shewhart-Cusum Control Chart / Rank Sum

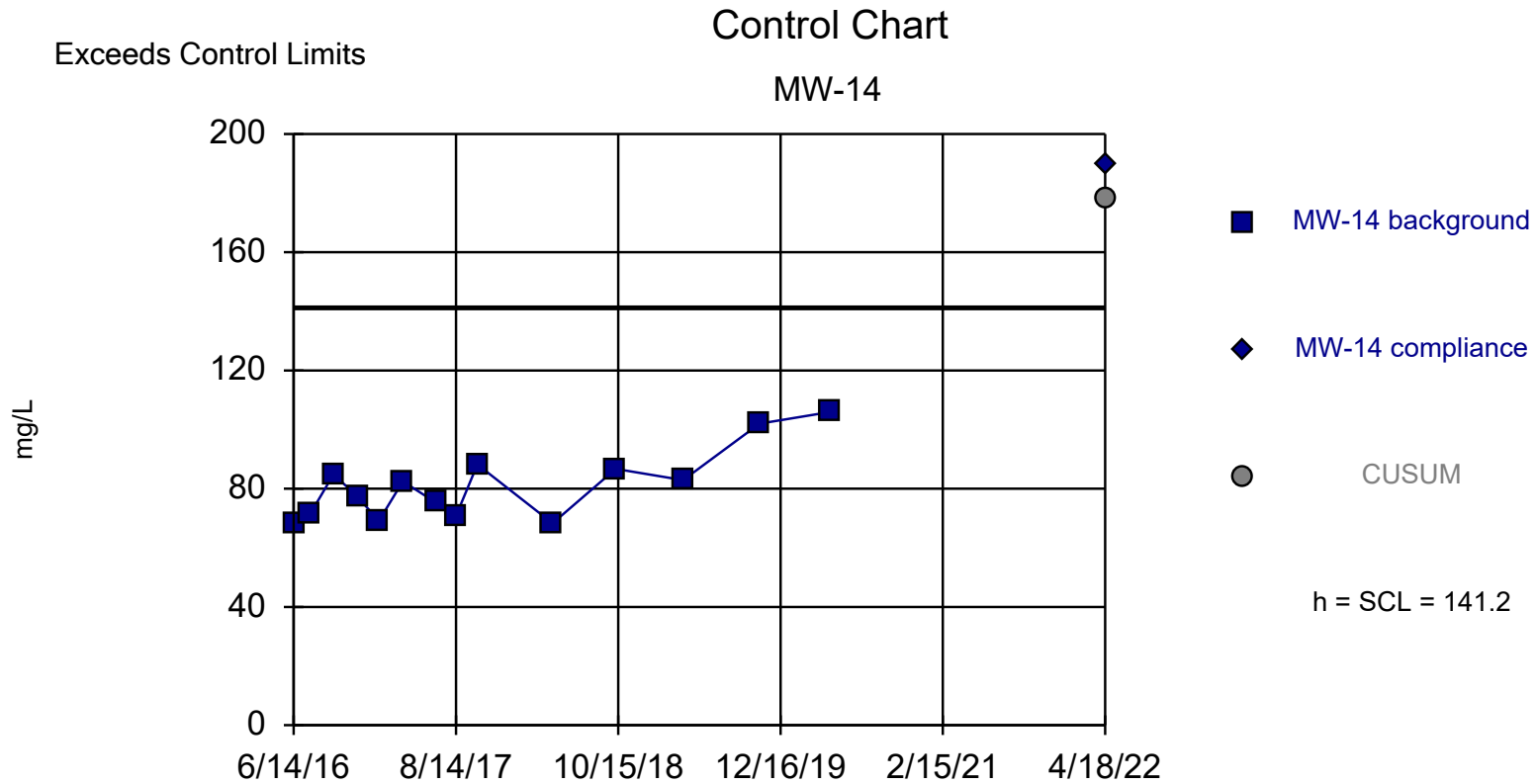
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks    Printed 7/8/2022, 11:54 AM

<u>Constituent</u>	<u>Well</u>	<u>Sig.</u>	<u>h</u>	<u>SCL</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Method</u>
Calcium (mg/L)	MW-13	No	59.59	59.59	16	0	No	Param Intra
Chloride (mg/L)	MW-13	No	120.1	120.1	15	0	No	Param Intra
Fluoride (mg/L)	MW-13	No	PL=...	n/a	16	81.25	No	NP Intra PL (NDs) Deseas
pH (SU)	MW-13	No	7.7...	7.7...	16	0	No	Param Intra
<b>Sulfate (mg/L)</b>	<b>MW-13</b>	<b>Yes</b>	<b>195.2</b>	<b>195.2</b>	<b>16</b>	<b>6.25</b>	<b>No</b>	<b>Param Intra</b>
Total Dissolved Solids (mg/L)	MW-13	No	631.9	631.9	16	0	No	Param Intra
<b>Calcium (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>141.2</b>	<b>141.2</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>Param Intra</b>
<b>Chloride (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>440.9</b>	<b>440.9</b>	<b>15</b>	<b>0</b>	<b>No</b>	<b>Param Intra</b>
Fluoride (mg/L)	MW-14	No	PL=...	n/a	16	75	No	NP Intra PL (NDs) Deseas
pH (SU)	MW-14	No	7.5...	7.5...	16	0	x^4	Param Intra
<b>Sulfate (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>841.2</b>	<b>841.2</b>	<b>15</b>	<b>0</b>	<b>sqrt(x)</b>	<b>Param Intra</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>1940</b>	<b>1940</b>	<b>15</b>	<b>0</b>	<b>No</b>	<b>Param Intra</b>
Calcium (mg/L)	MW-15	No	37.94	37.94	16	0	sqrt(x)	Param Intra
Chloride (mg/L)	MW-15	No	197.6	197.6	16	0	No	Param Intra
Fluoride (mg/L)	MW-15	No	PL=...	n/a	16	87.5	No	NP Intra PL (NDs) Deseas
pH (SU)	MW-15	No	7.5...	7.5...	16	0	x^4	Param Intra
Sulfate (mg/L)	MW-15	No	49.99	49.99	16	0	No	Param Intra
Total Dissolved Solids (mg/L)	MW-15	No	482.6	482.6	16	0	No	Param Intra
Calcium (mg/L)	MW-17	No	396.5	396.5	16	0	No	Param Intra
Chloride (mg/L)	MW-17	No	1728	1728	16	0	No	Param Intra
Fluoride (mg/L)	MW-17	No	PL=...	n/a	16	87.5	No	NP Intra PL (NDs) Deseas
pH (SU)	MW-17	No	7.7...	7.7...	16	0	No	Param Intra
Sulfate (mg/L)	MW-17	No	168	168	16	6.25	No	Param Intra
Total Dissolved Solids (mg/L)	MW-17	No	3264	3264	16	0	No	Param Intra



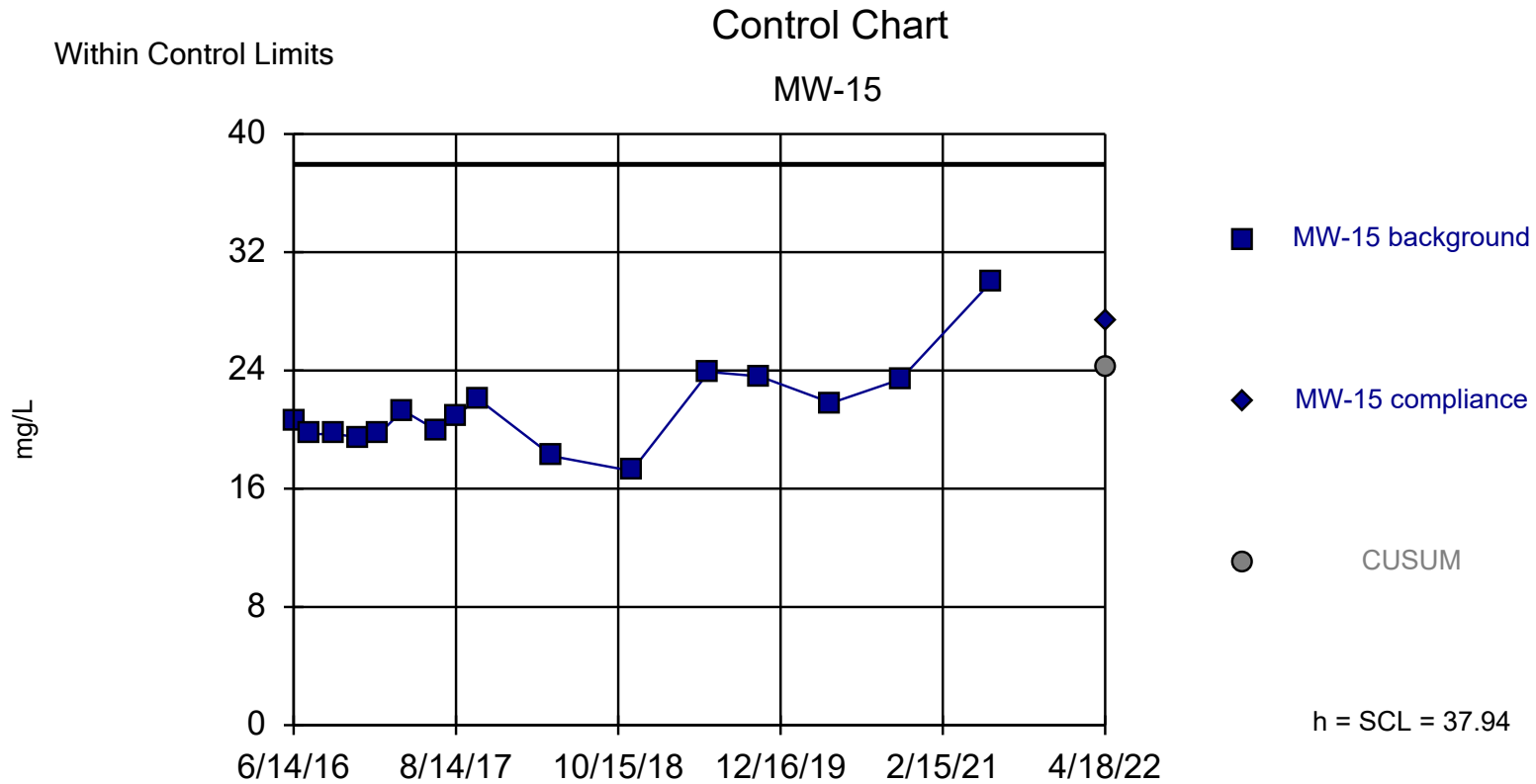
Background Data Summary: Mean=26.18, Std. Dev.=6.682, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8874, critical = 0.887. Report alpha = 0.000102. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium Analysis Run 7/8/2022 11:53 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



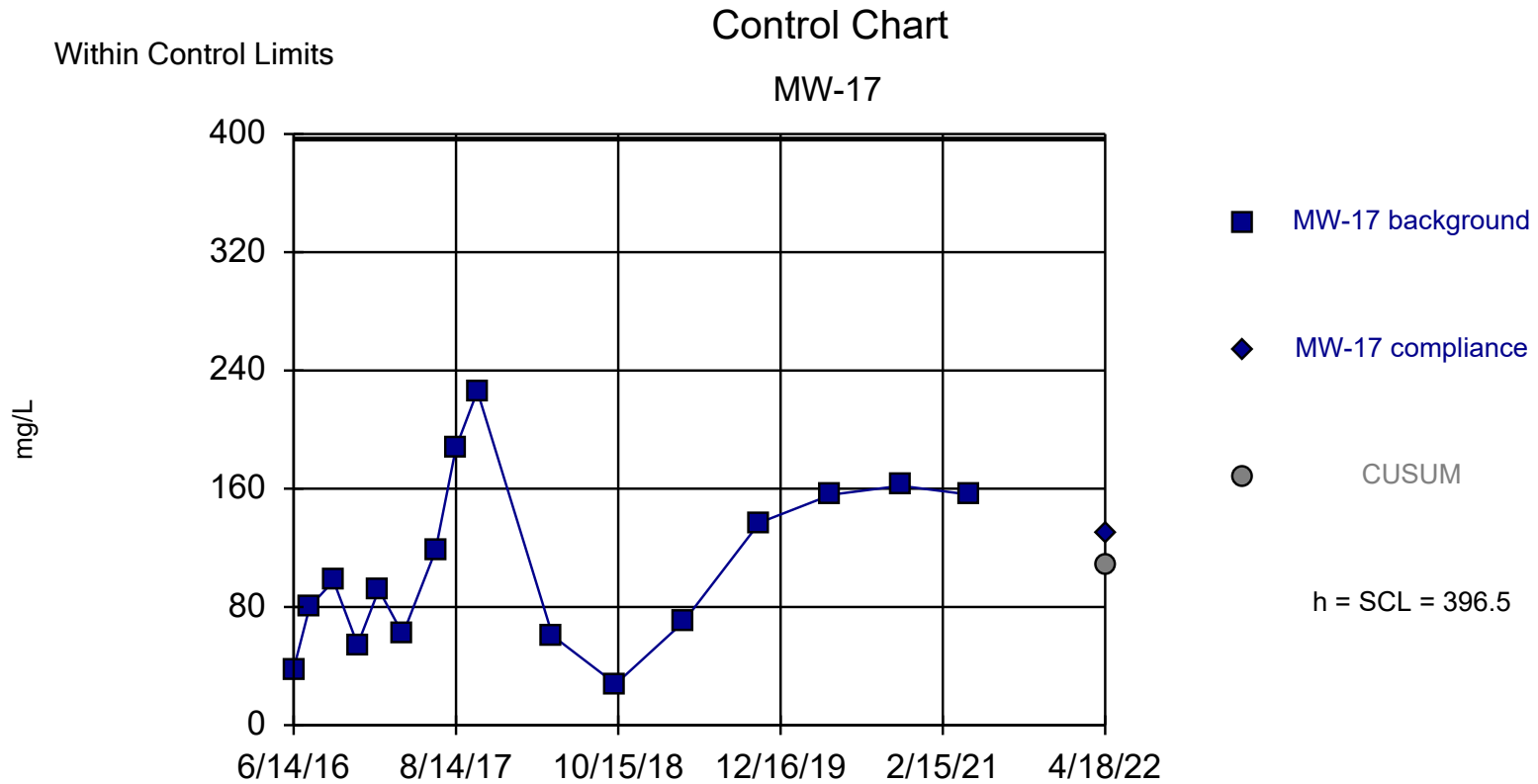
Background Data Summary: Mean=80.96, Std. Dev.=12.04, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8921, critical = 0.874. Report alpha = 0.000172. Dates ending 4/28/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium Analysis Run 7/8/2022 11:53 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary (based on square root transformation): Mean=4.61, Std. Dev.=0.3099, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8969, critical = 0.887. Report alpha = 0.000104. Dates ending 6/23/2021 used for control stats. Standardized h=5, SCL=5.

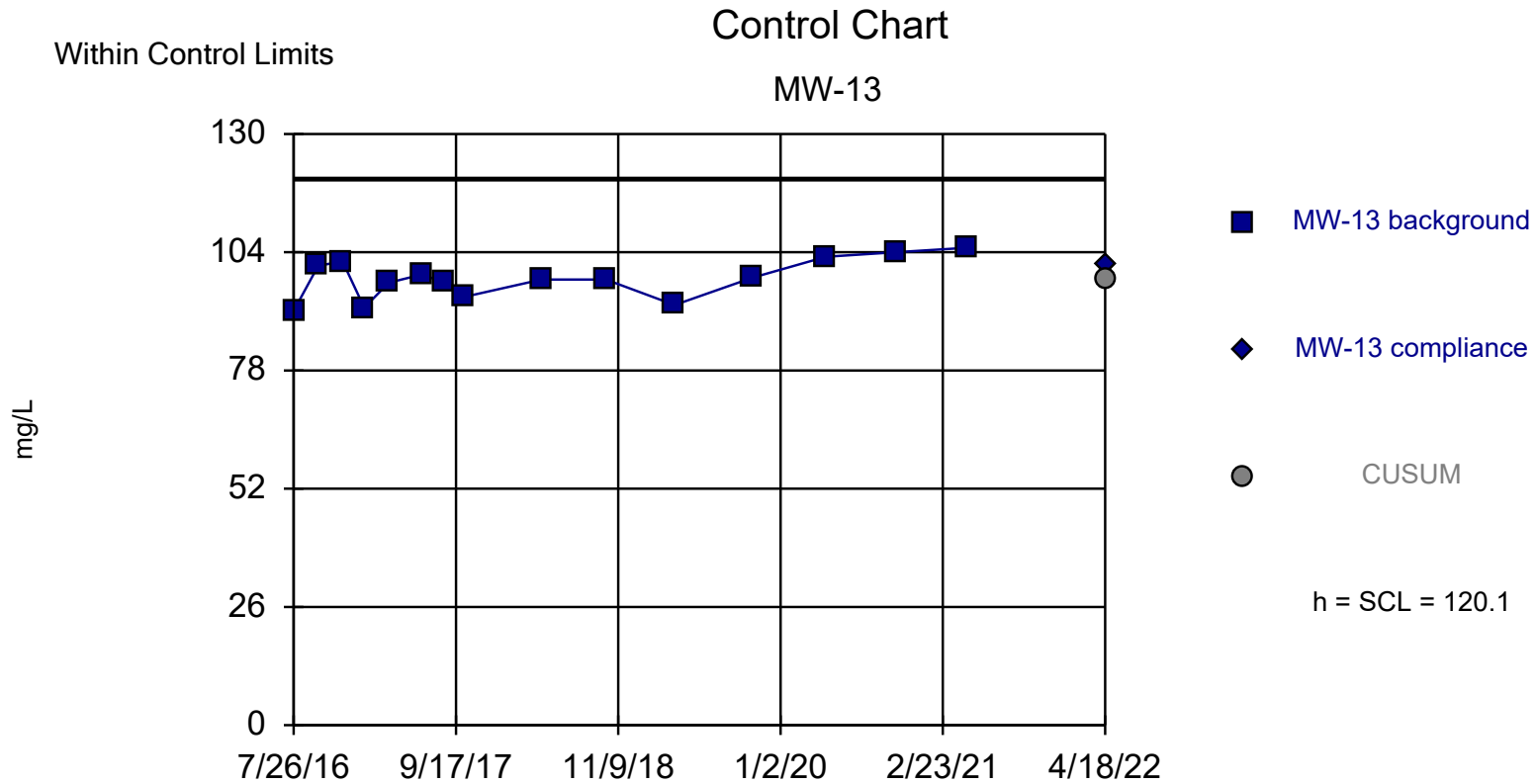
Constituent: Calcium Analysis Run 7/8/2022 11:53 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=107.8, Std. Dev.=57.75, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9499, critical = 0.887. Report alpha = 0.000104. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

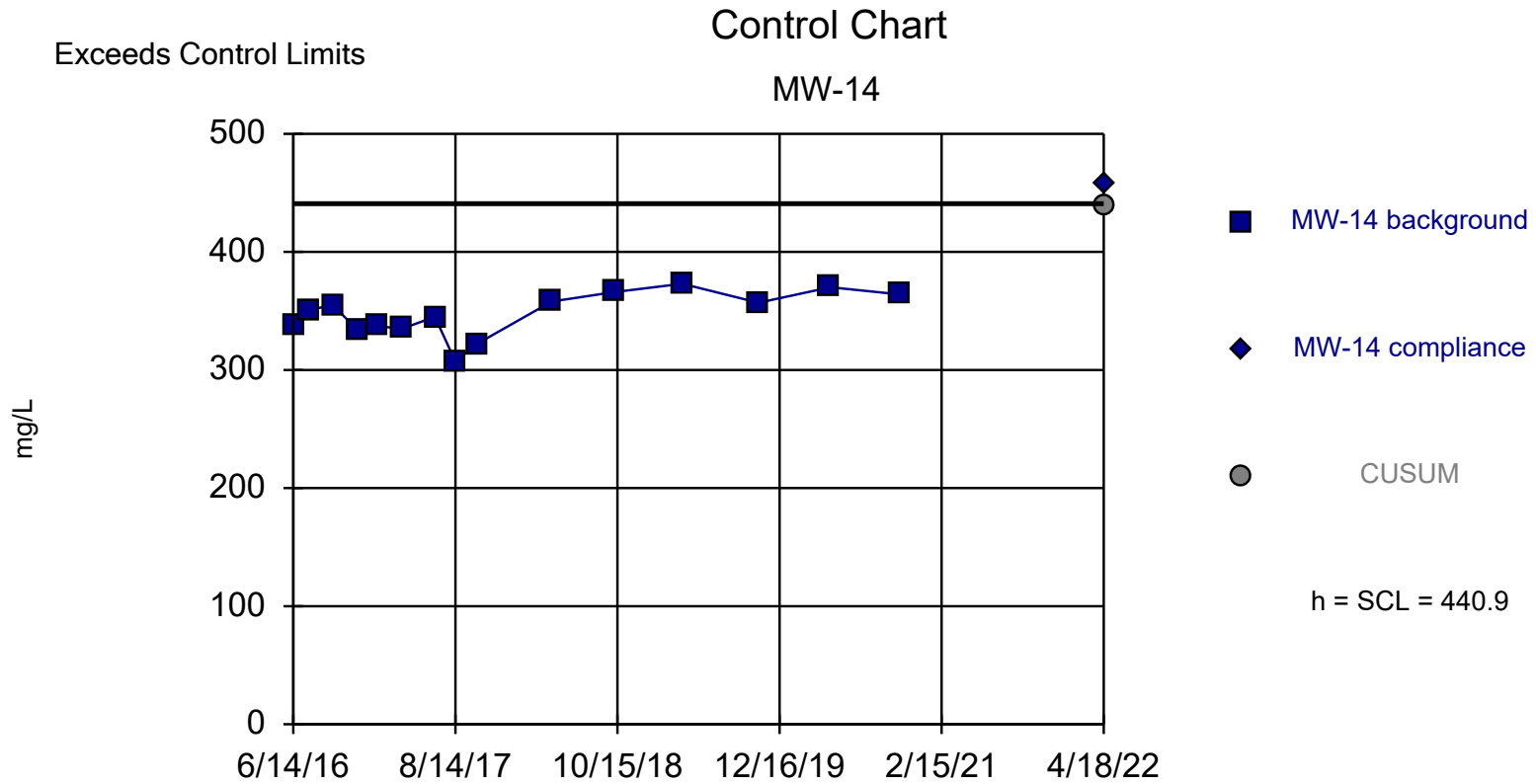
Constituent: Calcium Analysis Run 7/8/2022 11:53 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks





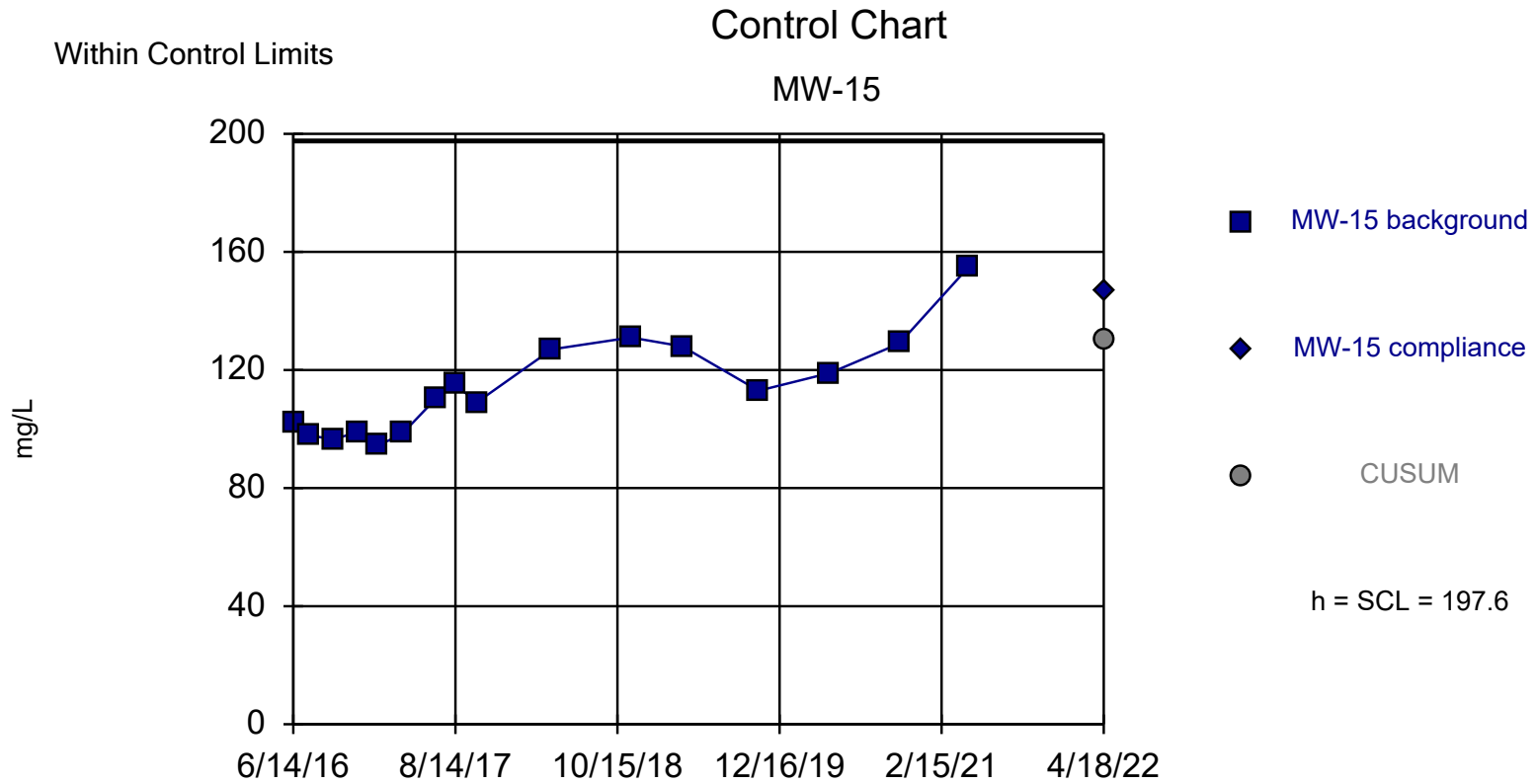
Background Data Summary: Mean=98.18, Std. Dev.=4.38, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9494, critical = 0.881. Report alpha = 0.000154. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 7/8/2022 11:53 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



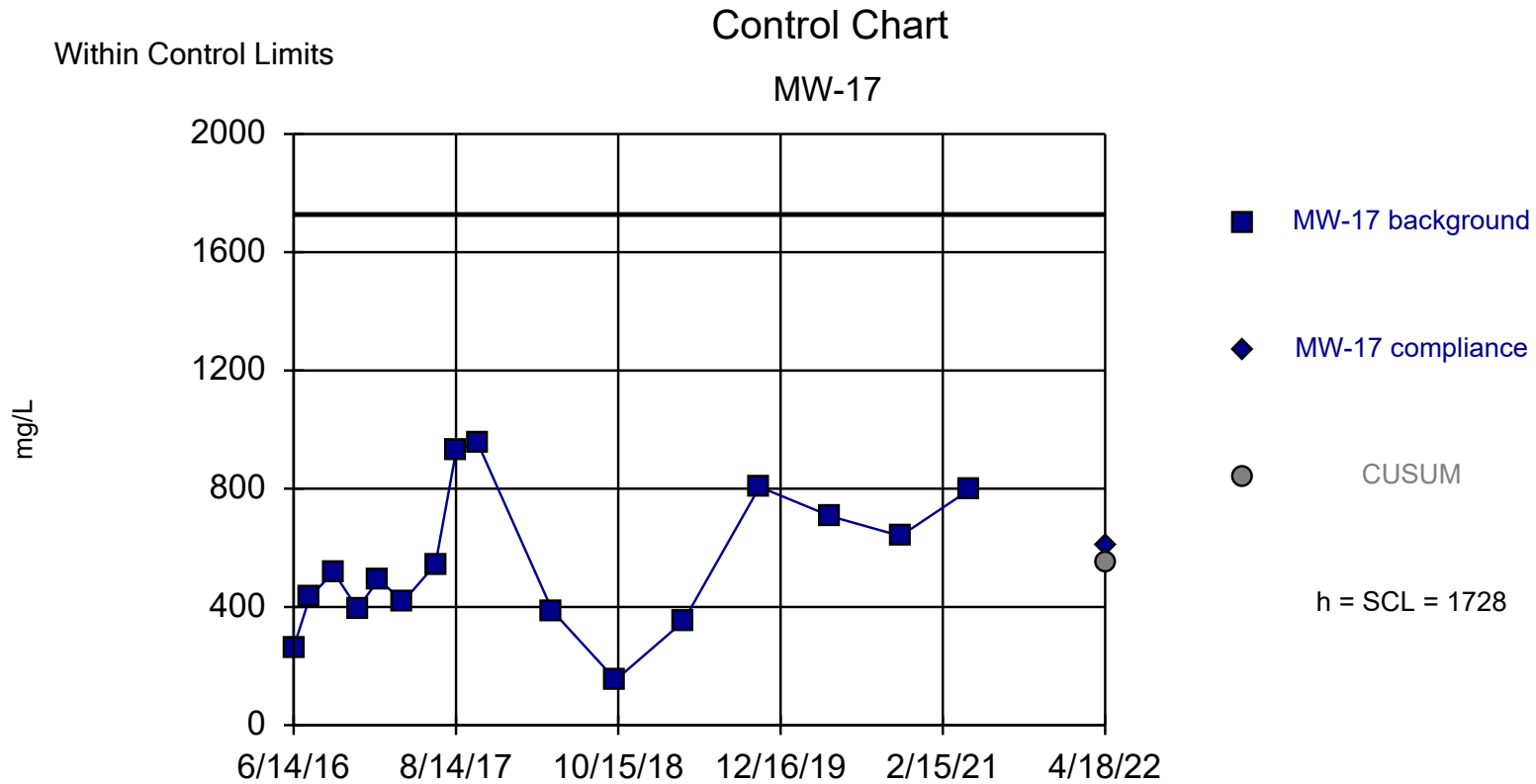
Background Data Summary: Mean=347.4, Std. Dev.=18.7, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9535, critical = 0.881. Report alpha = 0.000154. Dates ending 10/27/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 7/8/2022 11:53 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=114, Std. Dev.=16.72, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9096, critical = 0.887. Report alpha = 0.000116. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride    Analysis Run 7/8/2022 11:53 AM    View: CC 2022  
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks



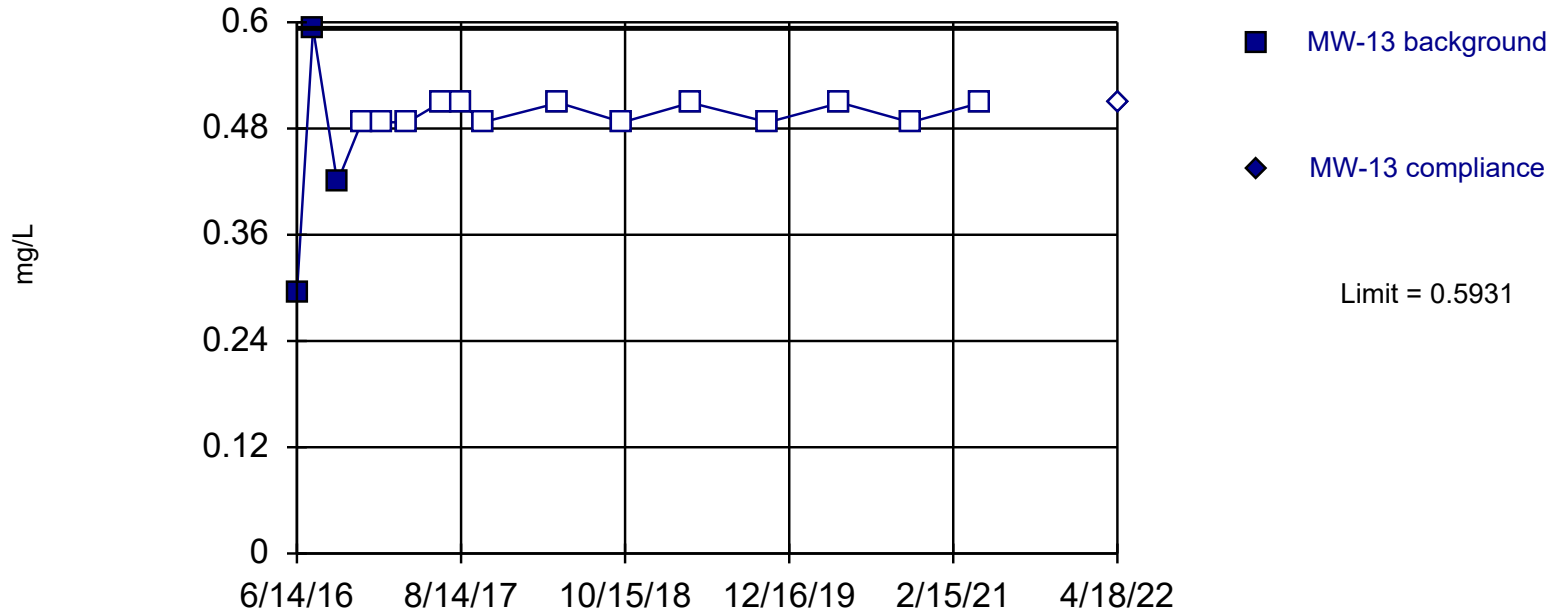
Background Data Summary: Mean=549, Std. Dev.=235.7, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9592, critical = 0.887. Report alpha = 0.000116. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 7/8/2022 11:53 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Within Limit

## Prediction Limit

Intrawell Non-parametric

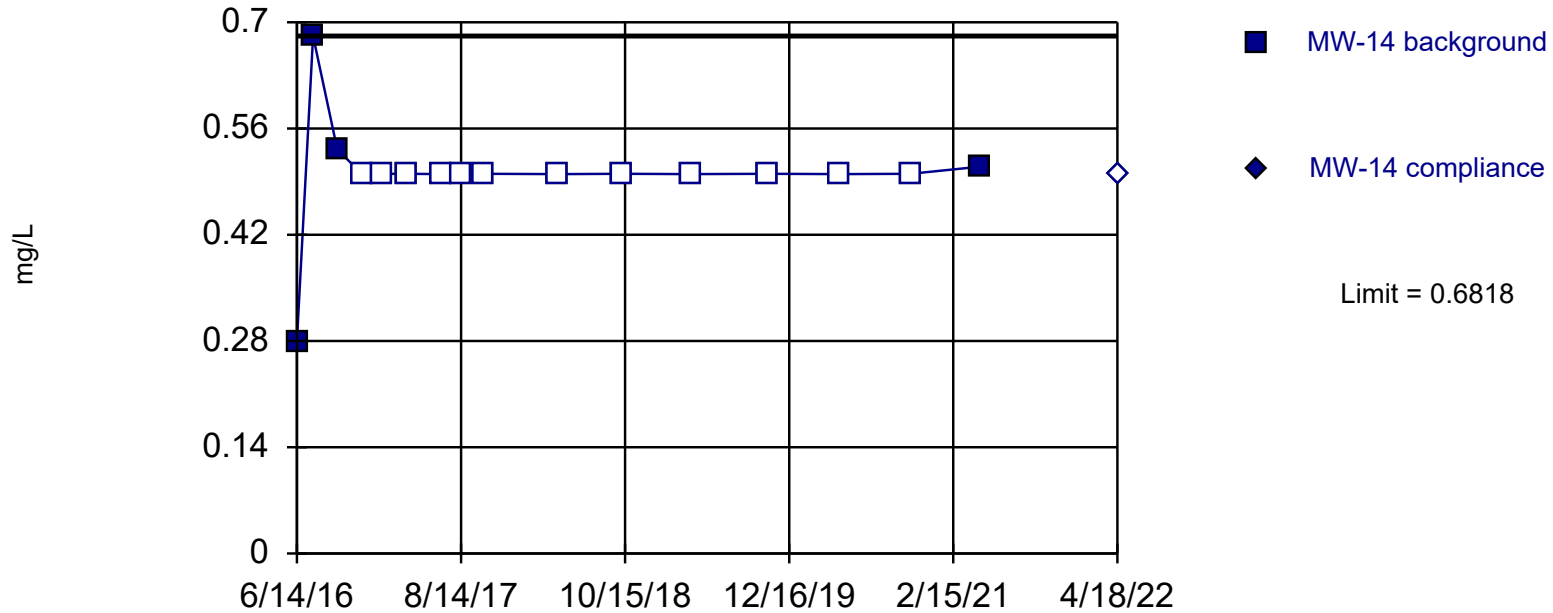


Non-parametric test used in lieu of control chart because non-detects exceed user-adjustable maximum of 50%. Limit is highest of 16 background values. 81.25% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2). Data were deseasonalized. Data were deseasonalized.

Constituent: Fluoride Analysis Run 7/8/2022 11:53 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Within Limit

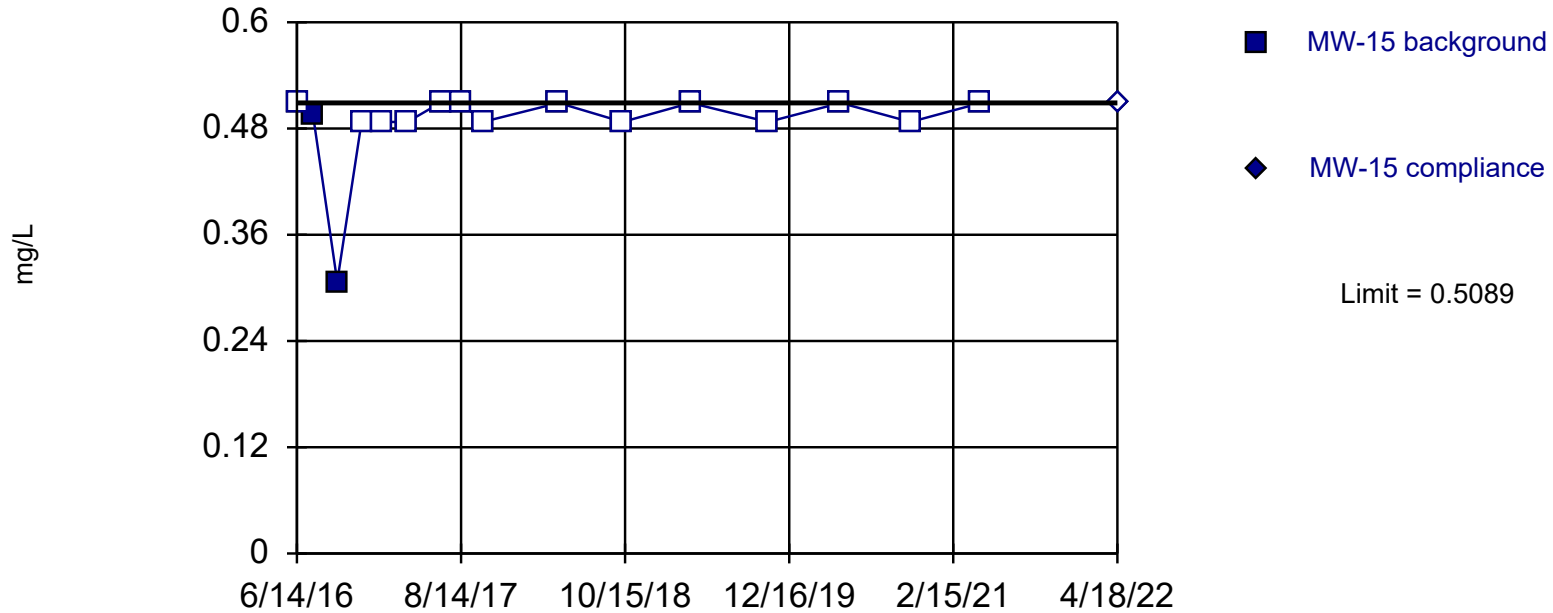
### Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of control chart because non-detects exceed user-adjustable maximum of 50%. Limit is highest of 16 background values. 75% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2). Data were deseasonalized. Data were deseasonalized.

Within Limit

### Prediction Limit Intrawell Non-parametric

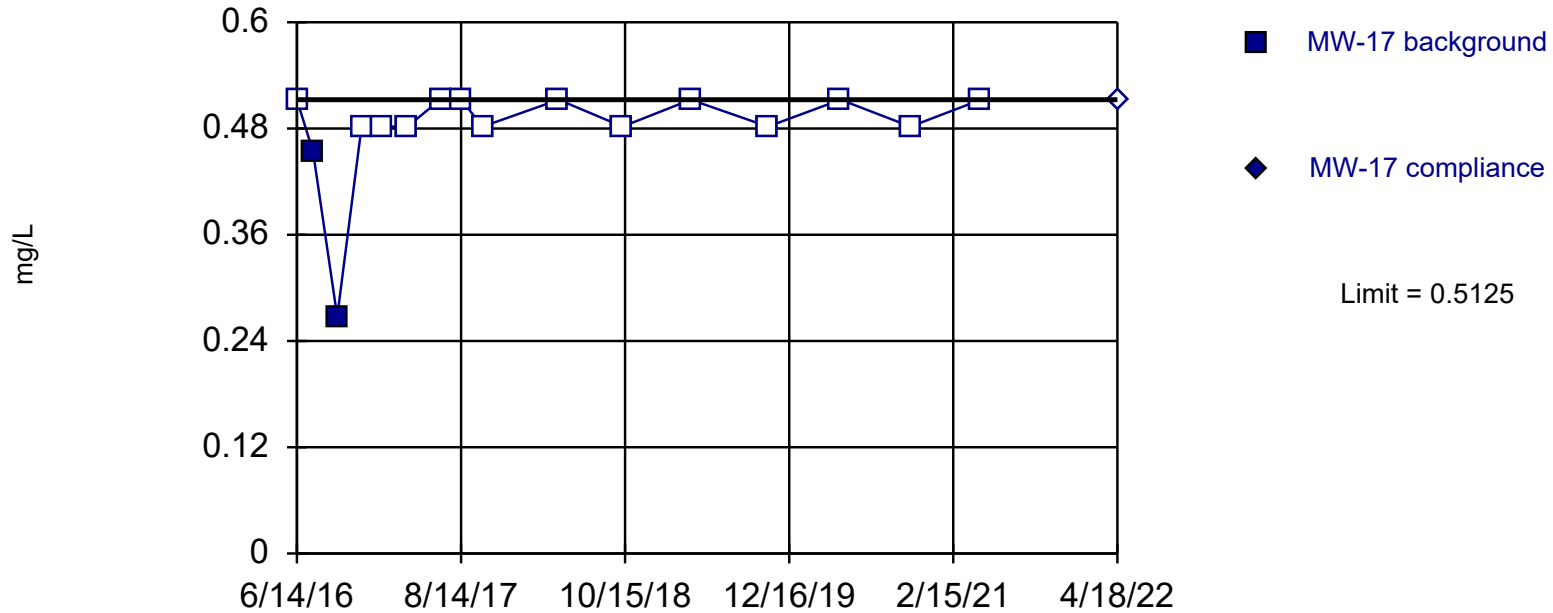


Non-parametric test used in lieu of control chart because non-detects exceed user-adjustable maximum of 50%. Limit is highest of 16 background values. 87.5% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2). Data were deseasonalized. Data were deseasonalized.

Constituent: Fluoride Analysis Run 7/8/2022 11:53 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

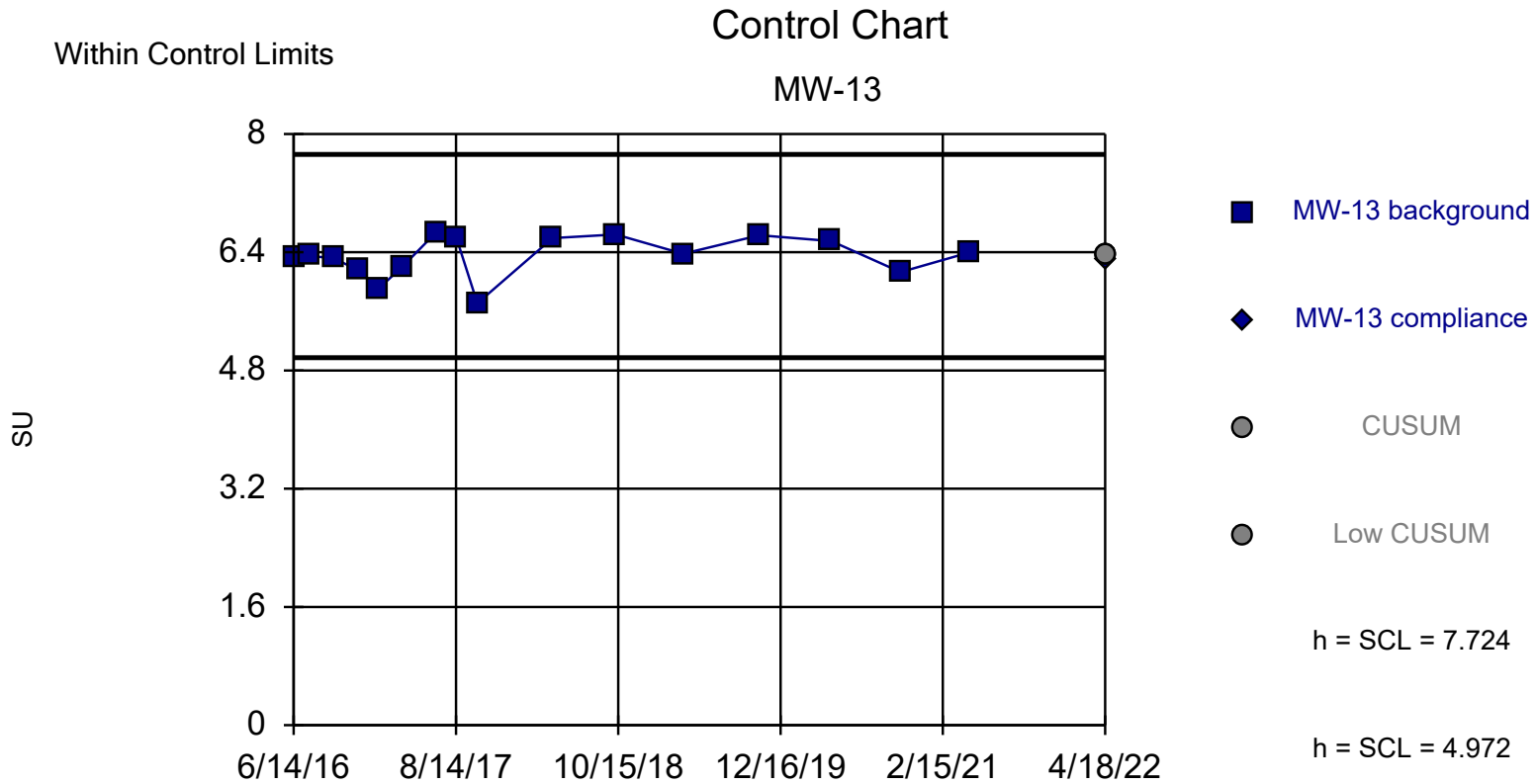
Within Limit

### Prediction Limit Intrawell Non-parametric



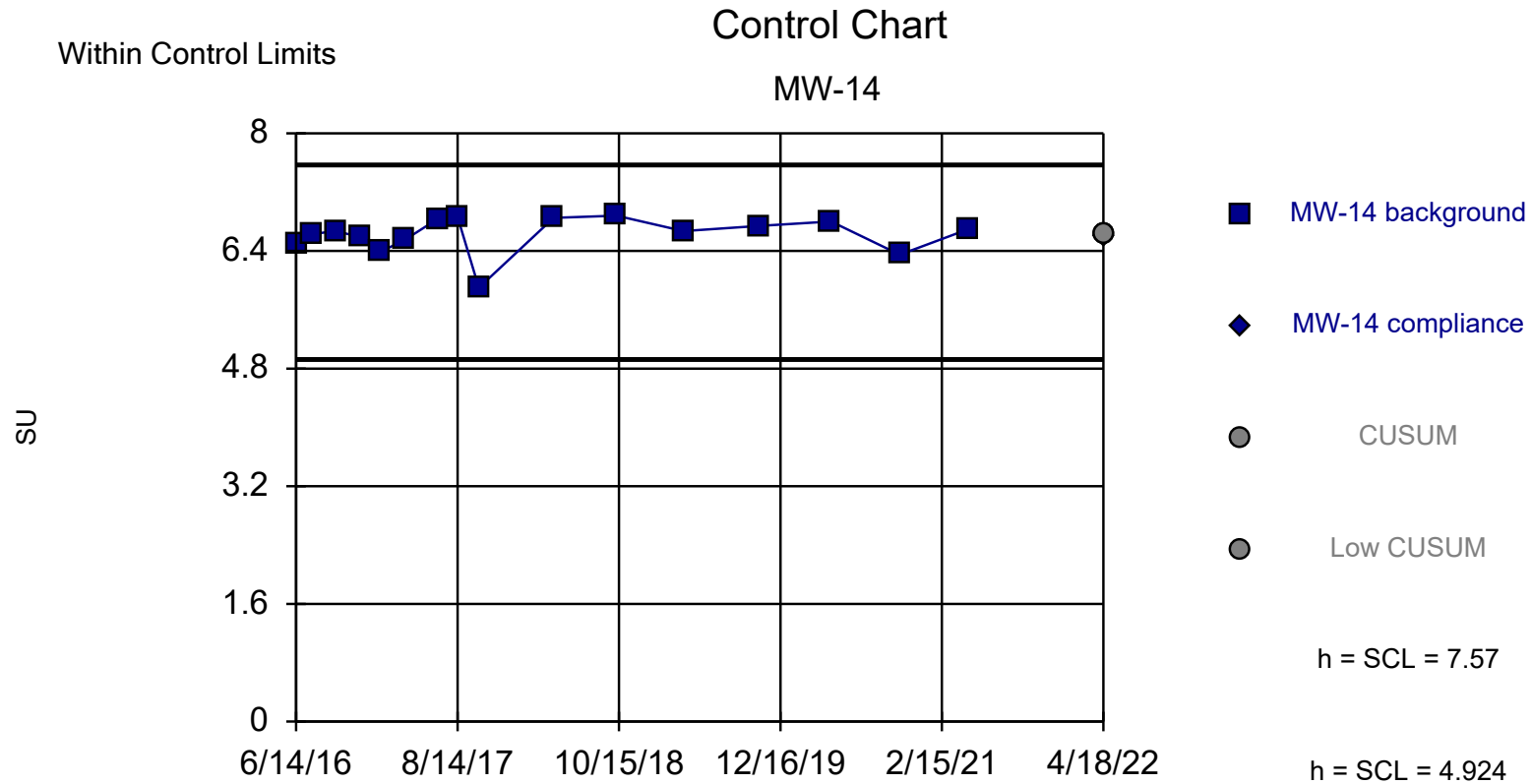
Non-parametric test used in lieu of control chart because non-detects exceed user-adjustable maximum of 50%. Limit is highest of 16 background values. 87.5% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2). Data were deseasonalized. Data were deseasonalized.





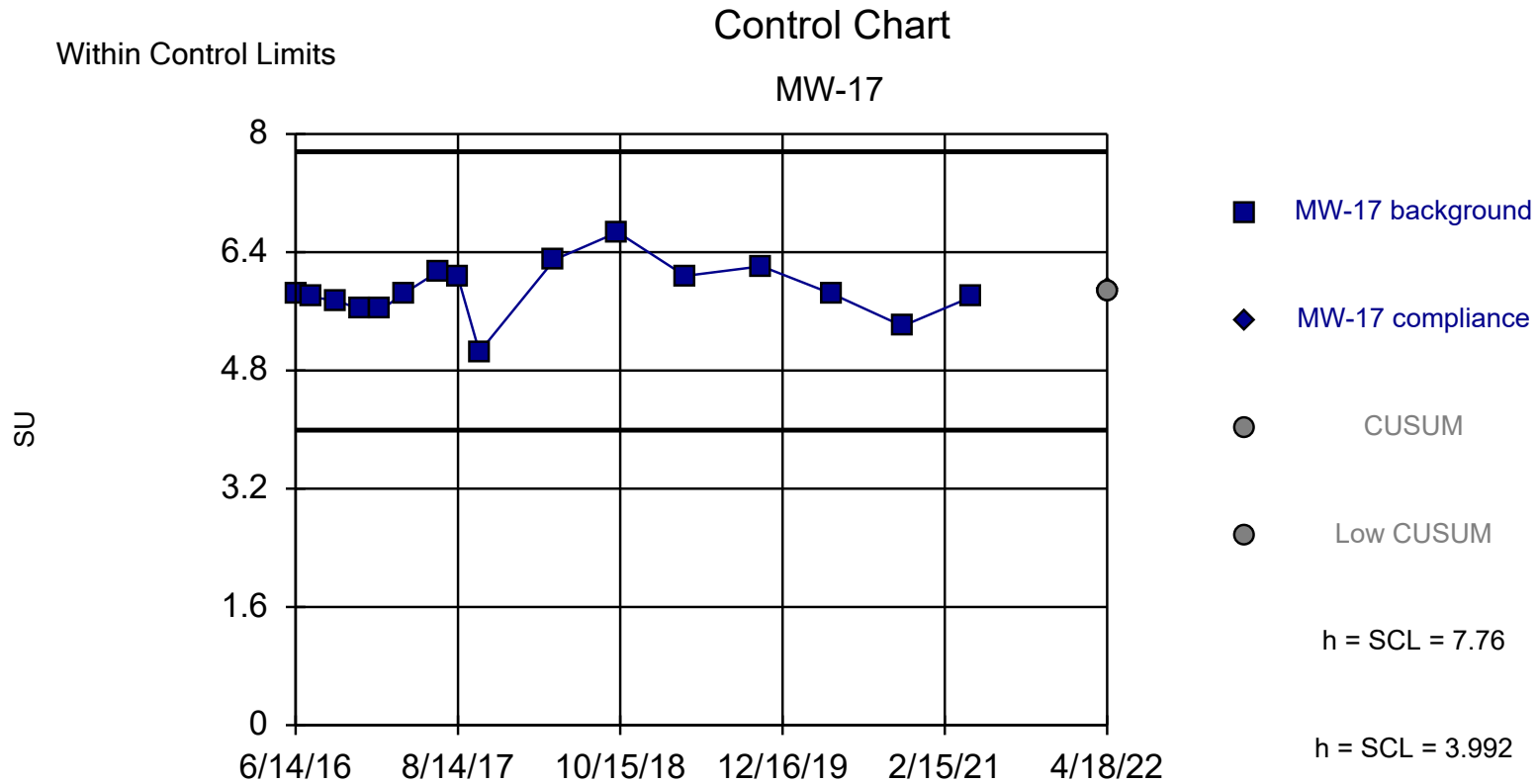
Background Data Summary: Mean=6.348, Std. Dev.=0.2752, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9107, critical = 0.887. Report alpha = 0.000116. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: pH    Analysis Run 7/8/2022 11:53 AM    View: CC 2022  
 Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks



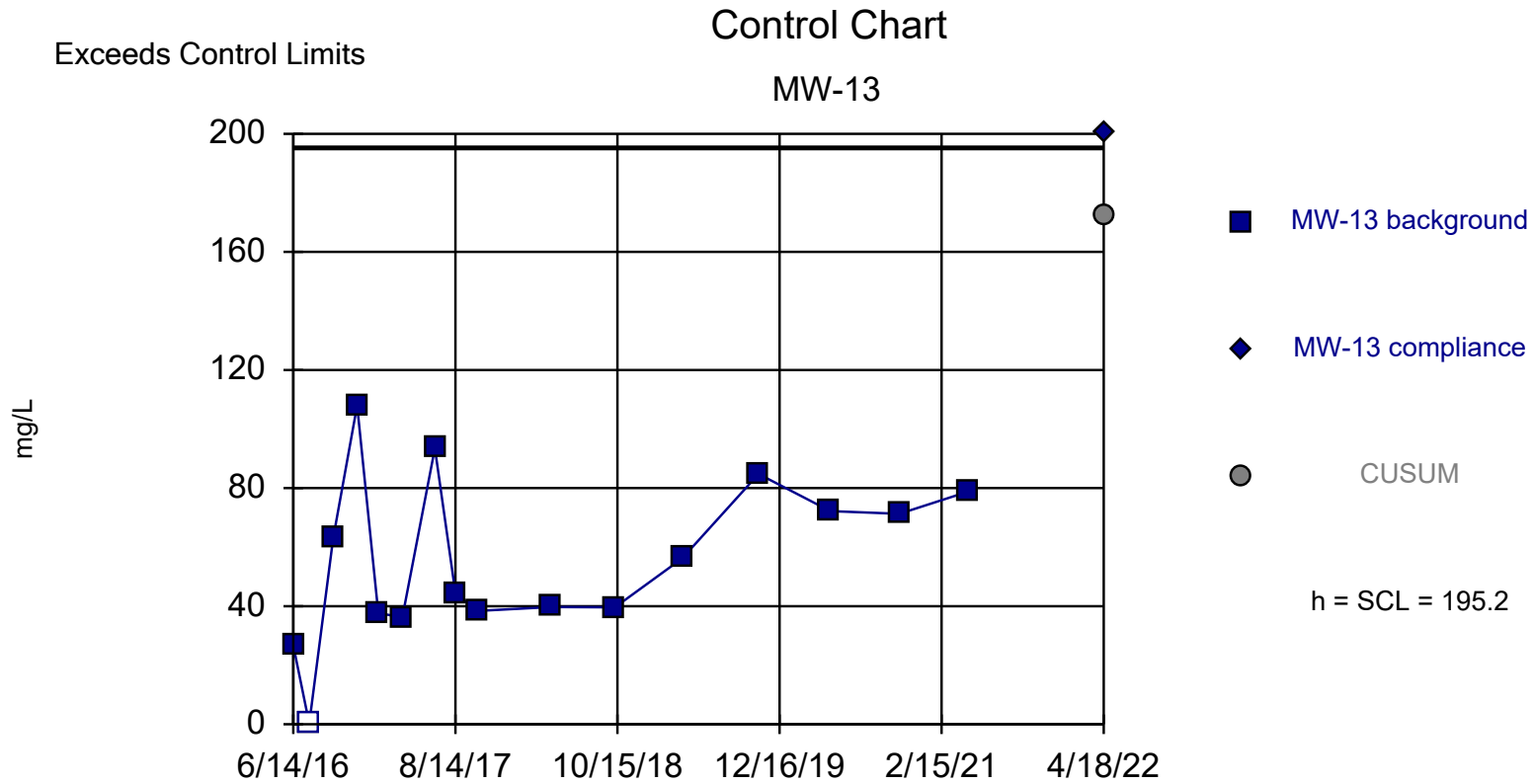
Background Data Summary (based on  $x^4$  transformation): Mean=1936, Std. Dev.=269.6,  $n=16$ . Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @ $\alpha = 0.05$ , calculated = 0.8958, critical = 0.887. Report  $\alpha = 0.000116$ . Dates ending 4/28/2021 used for control stats. Standardized  $h=5$ , SCL=5.



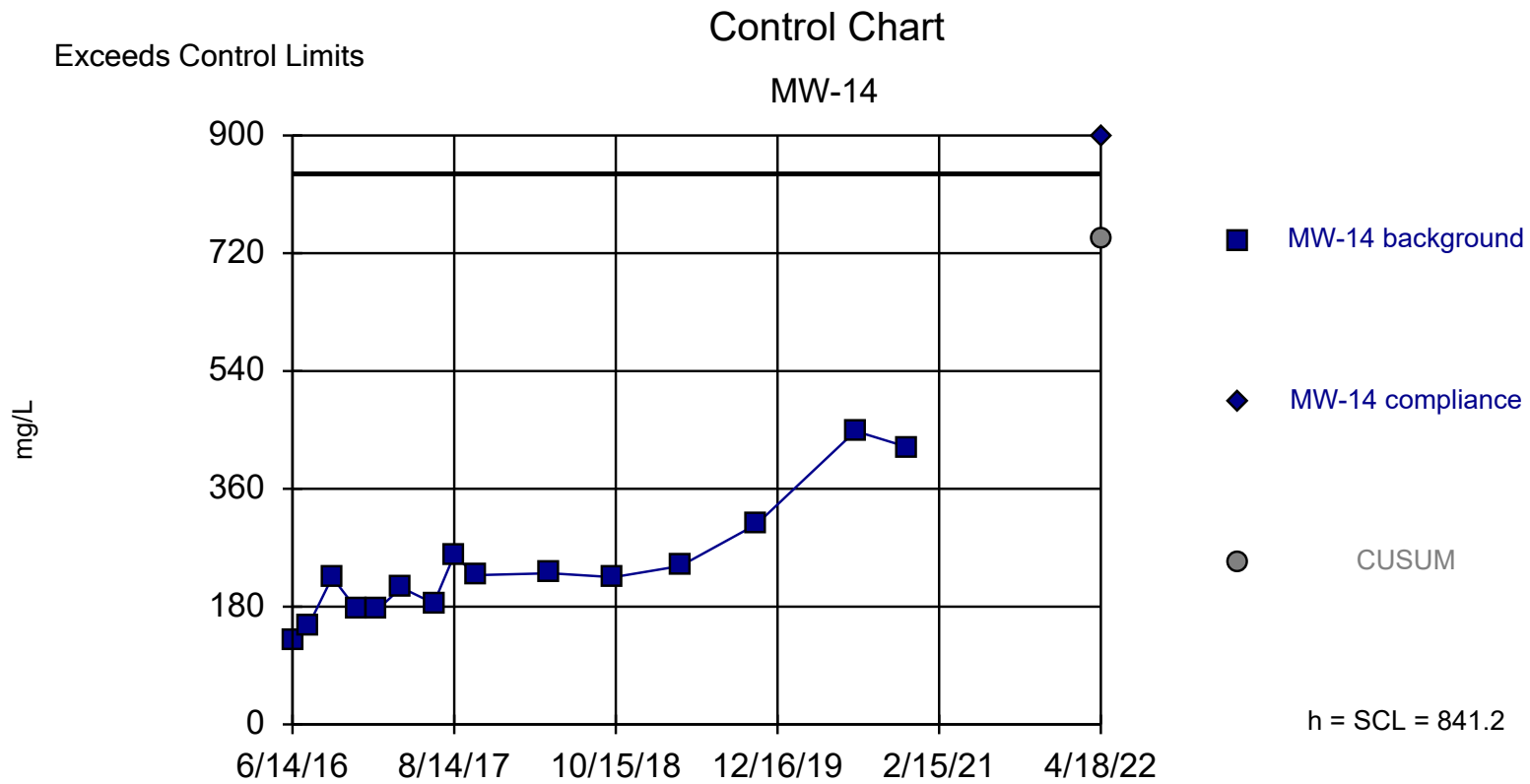


Background Data Summary: Mean=5.876, Std. Dev.=0.3768, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9721, critical = 0.887. Report alpha = 0.000116. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: pH    Analysis Run 7/8/2022 11:53 AM    View: CC 2022  
 Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks

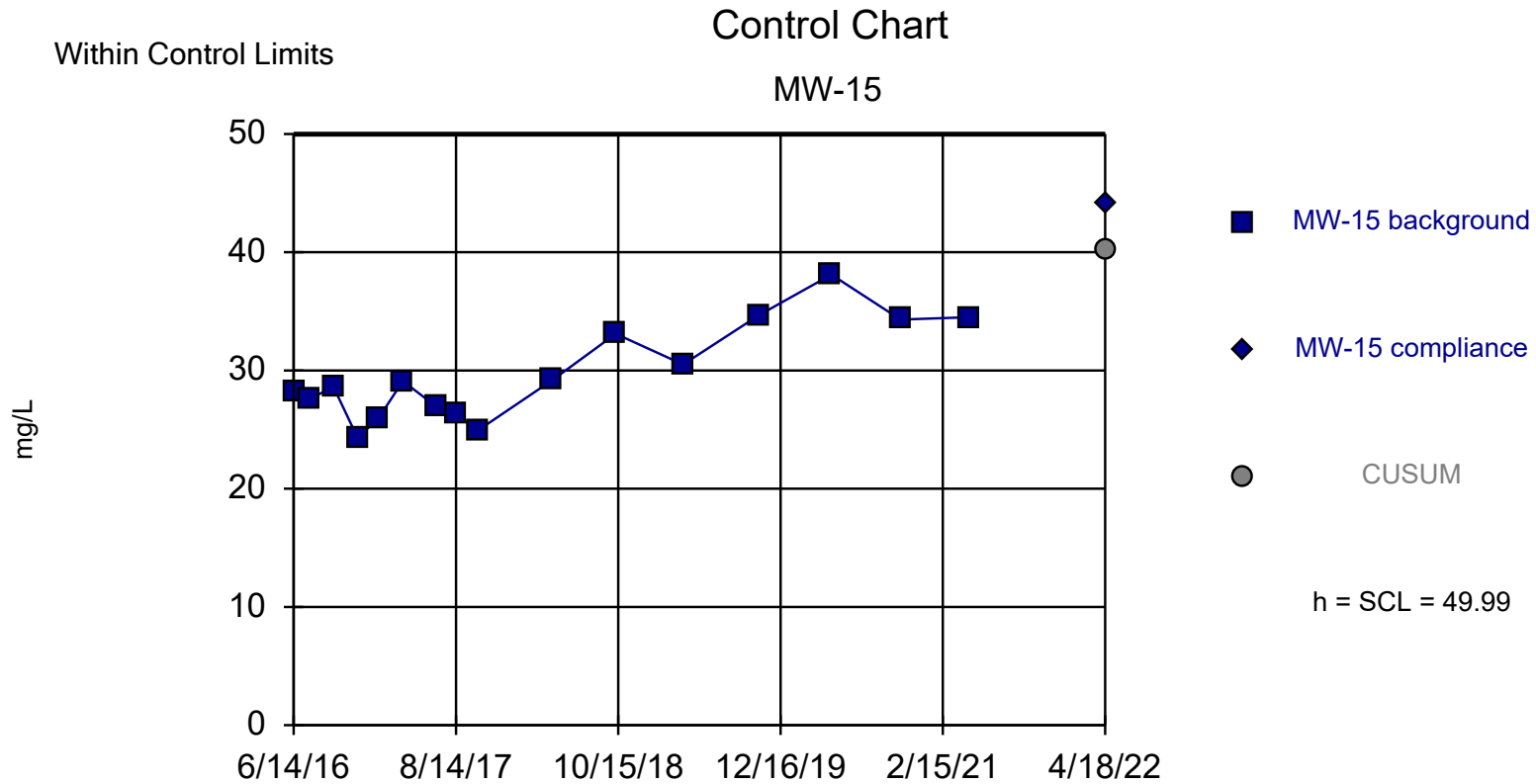


Background Data Summary: Mean=55.67, Std. Dev.=27.91, n=16, 6.25% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.969, critical = 0.887. Report alpha = 0.000116. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.



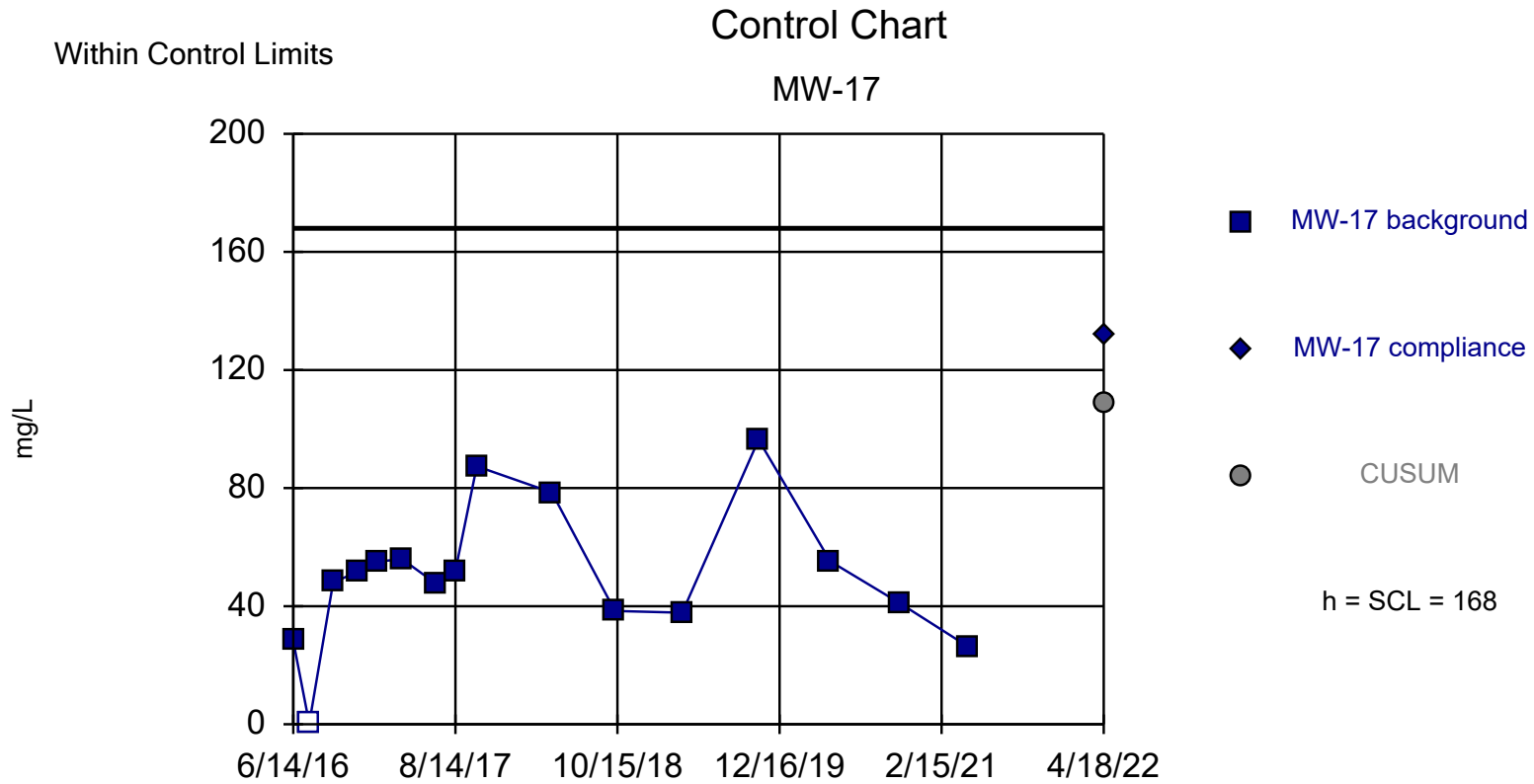
Background Data Summary (based on square root transformation): Mean=15.29, Std. Dev.=2.743, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9051, critical = 0.881. Report alpha = 0.000126. Dates ending 11/23/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate    Analysis Run 7/8/2022 11:53 AM    View: CC 2022  
 Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks



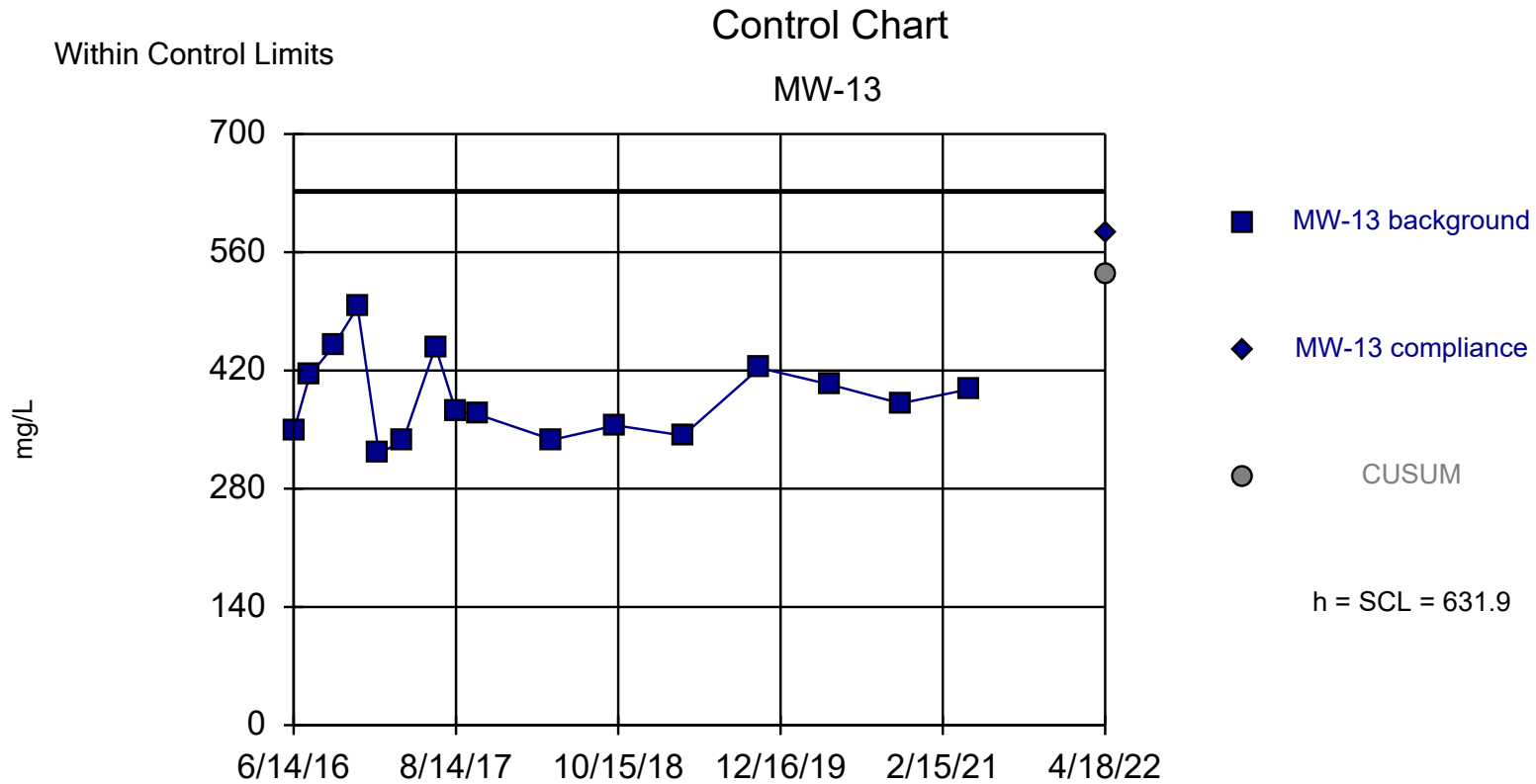
Background Data Summary: Mean=29.78, Std. Dev.=4.042, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9351, critical = 0.887. Report alpha = 0.000104. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate    Analysis Run 7/8/2022 11:53 AM    View: CC 2022  
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks



Background Data Summary: Mean=49.99, Std. Dev.=23.6, n=16, 6.25% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9512, critical = 0.887. Report alpha = 0.000104. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

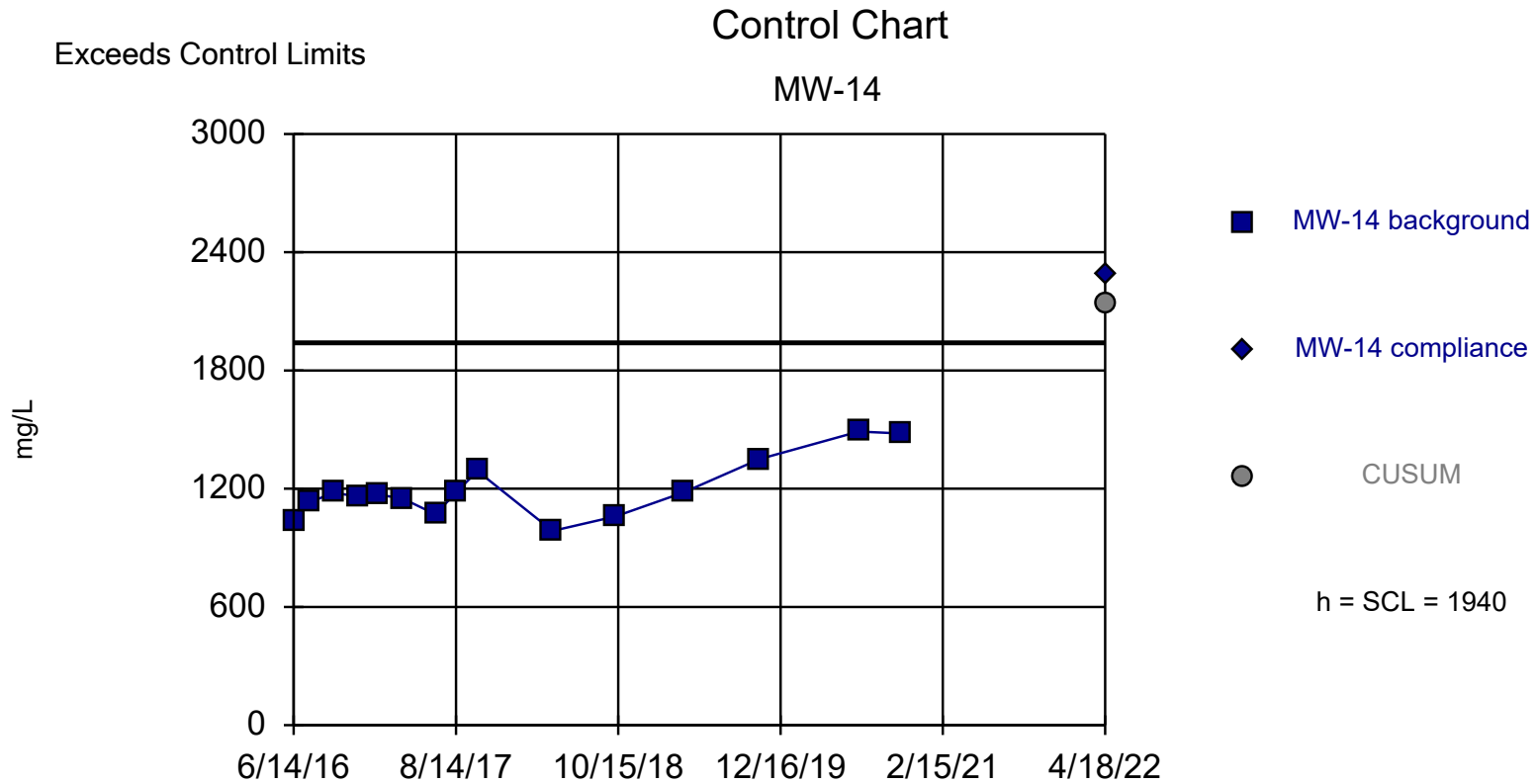




Background Data Summary: Mean=387, Std. Dev.=48.98, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9431, critical = 0.887. Report alpha = 0.000104. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/8/2022 11:53 AM View: CC 2022

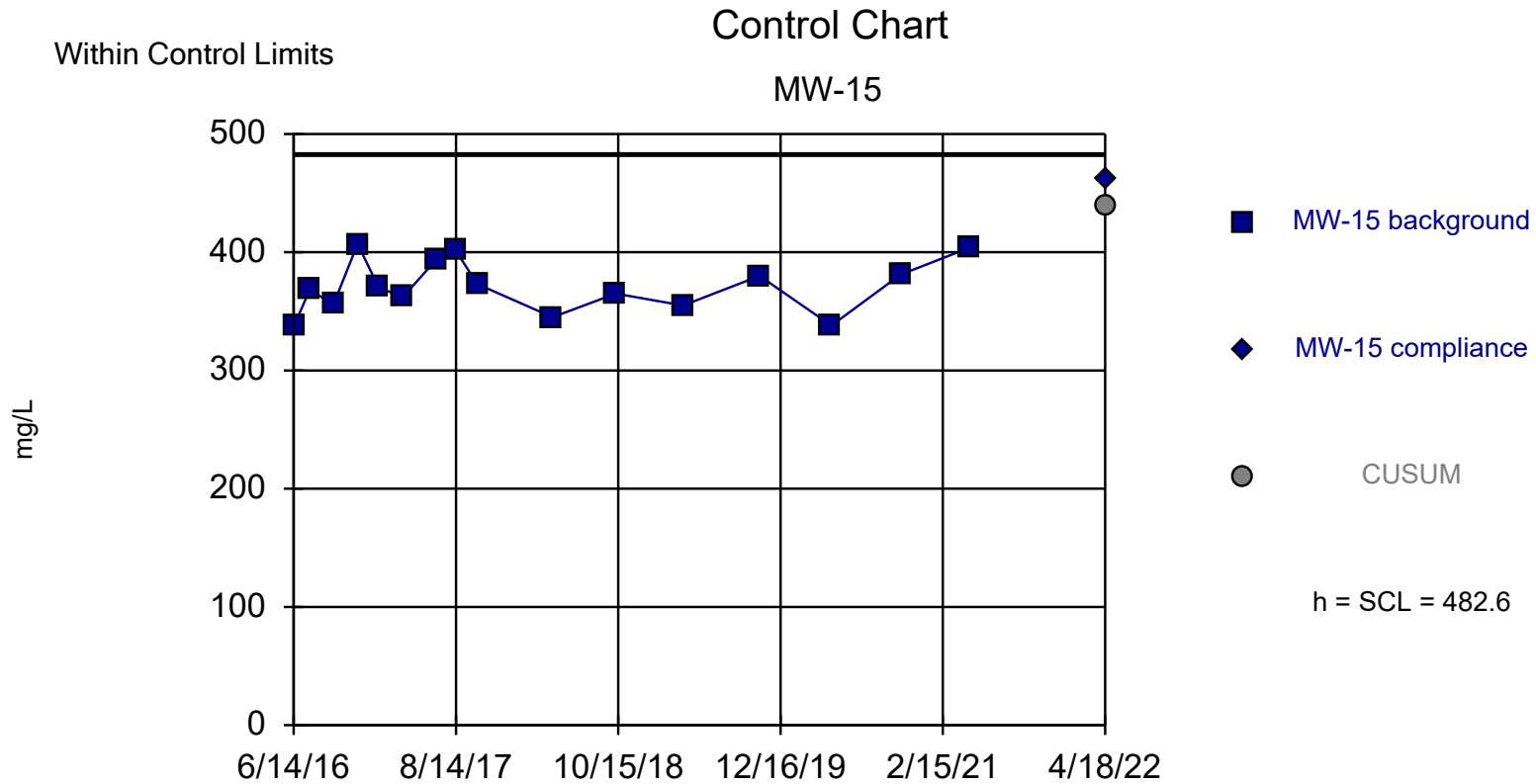
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=1194, Std. Dev.=149.2, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8979, critical = 0.881. Report alpha = 0.000162. Dates ending 10/27/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/8/2022 11:53 AM View: CC 2022

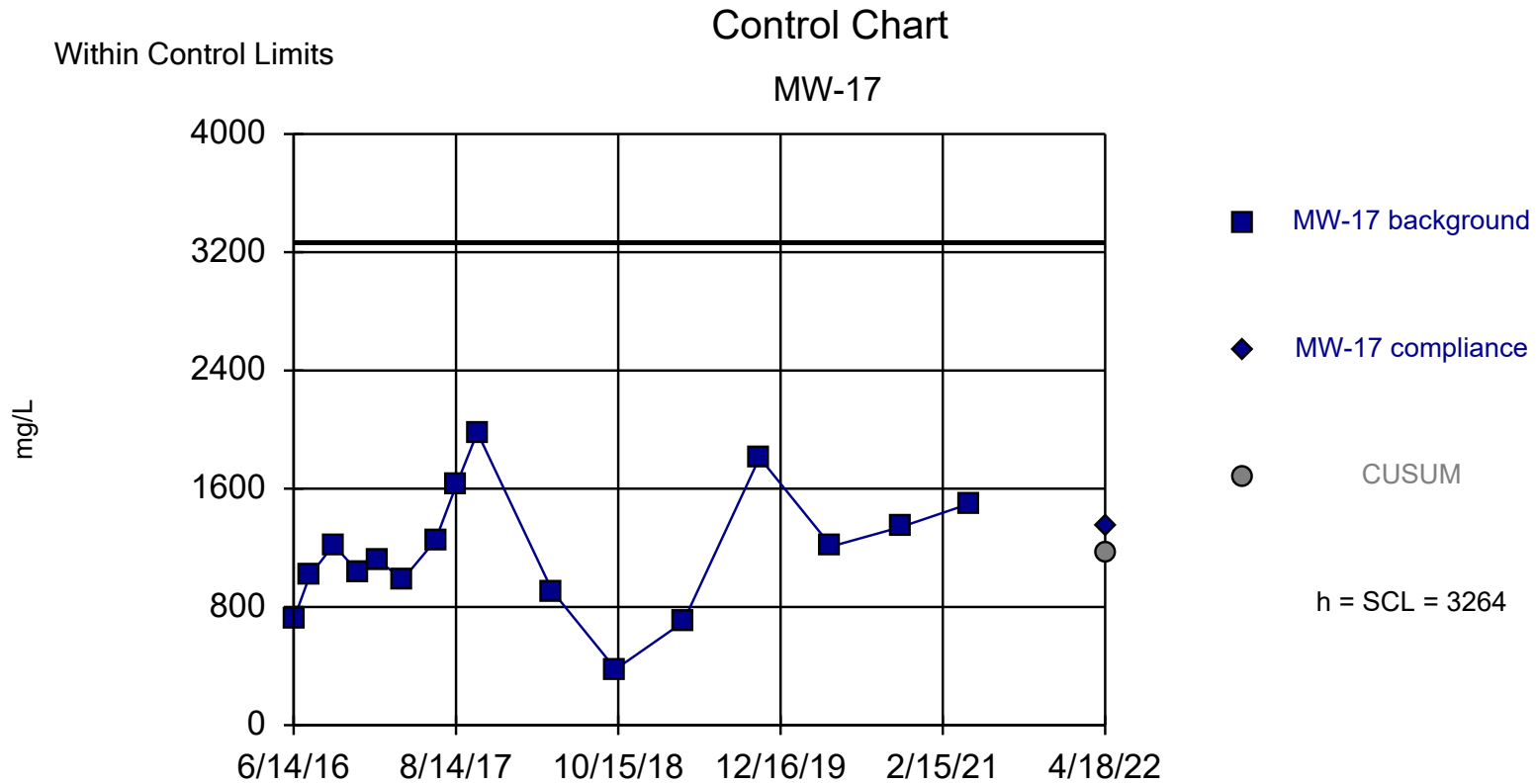
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=370.9, Std. Dev.=22.34, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9549, critical = 0.887. Report alpha = 0.000106. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/8/2022 11:53 AM View: CC 2022

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=1173, Std. Dev.=418.2, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9847, critical = 0.887. Report alpha = 0.000106. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/8/2022 11:53 AM View: CC 2022

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

# Prediction Limit

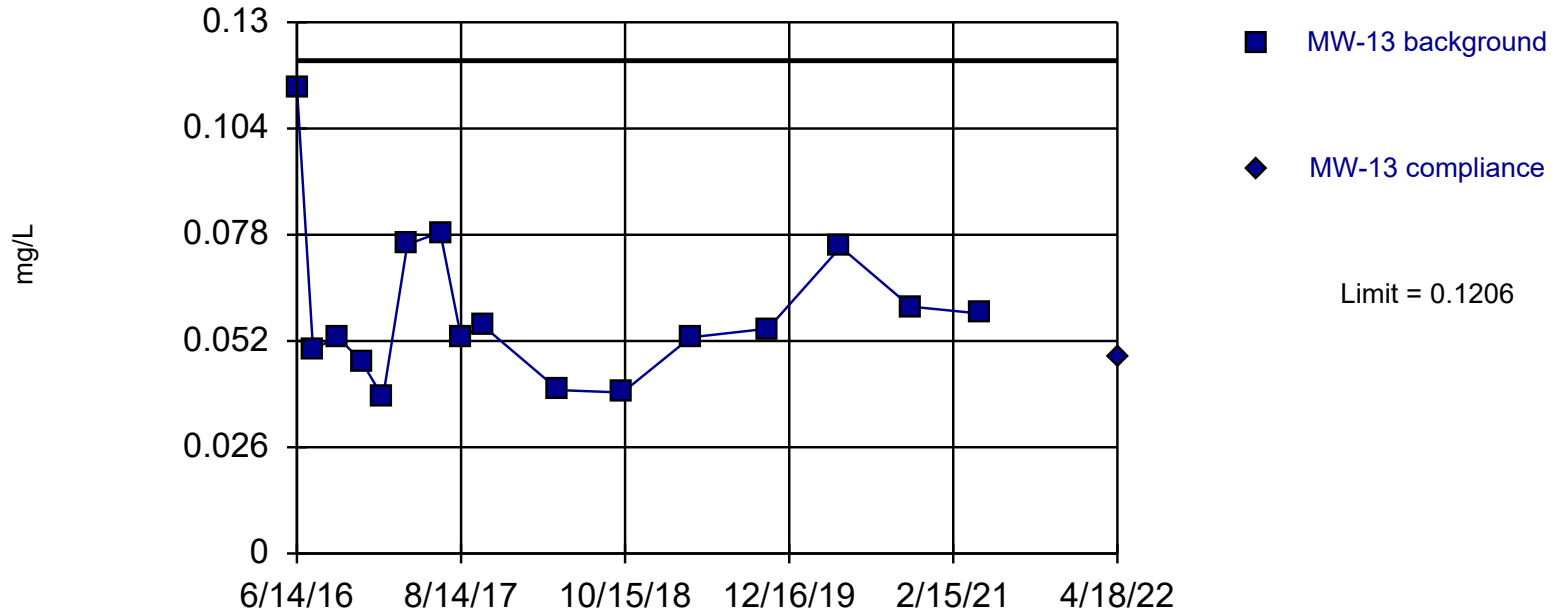
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 7/8/2022, 12:02 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Obsrv.</u>	<u>Sig.</u>	<u>Bq N</u>	<u>Bq Wells</u>	<u>Bq Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MW-13	0.1206	4/18/2022	0.0483	No	16	n/a	0.2406	0.03654	0	sqrt(x)	0.000...	Param Intra 1 of 2
<b>Boron (mg/L)</b>	<b>MW-14</b>	<b>0.6019</b>	<b>4/18/2022</b>	<b>0.875</b>	<b>Yes</b>	<b>15</b>	<b>n/a</b>	<b>0.1857</b>	<b>0.1387</b>	<b>0</b>	<b>No</b>	<b>0.000...</b>	<b>Param Intra 1 of 2</b>
Boron (mg/L)	MW-15	0.06659	4/18/2022	0.034	No	16	n/a	0.04909	0.005995	0	No	0.000...	Param Intra 1 of 2
Boron (mg/L)	MW-17	0.362	4/18/2022	0.0332	No	15	n/a	n/a	n/a	0	n/a	0.007533NP	Intra (normality) ...

Within Limit

Prediction Limit

Intrawell Parametric

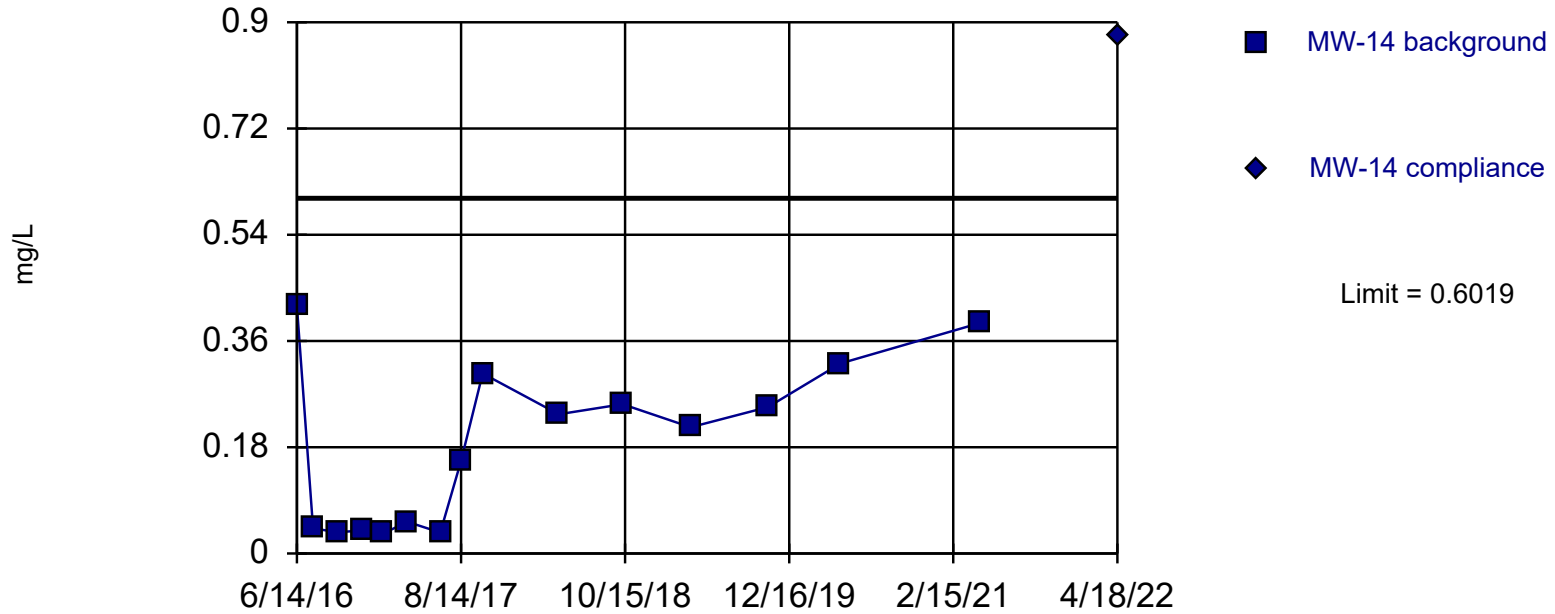


Background Data Summary (based on square root transformation): Mean=0.2406, Std. Dev.=0.03654, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8931, critical = 0.844. Kappa = 2.919 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

Constituent: Boron Analysis Run 7/8/2022 12:01 PM View: PL 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Exceeds Limit

### Prediction Limit Intrawell Parametric

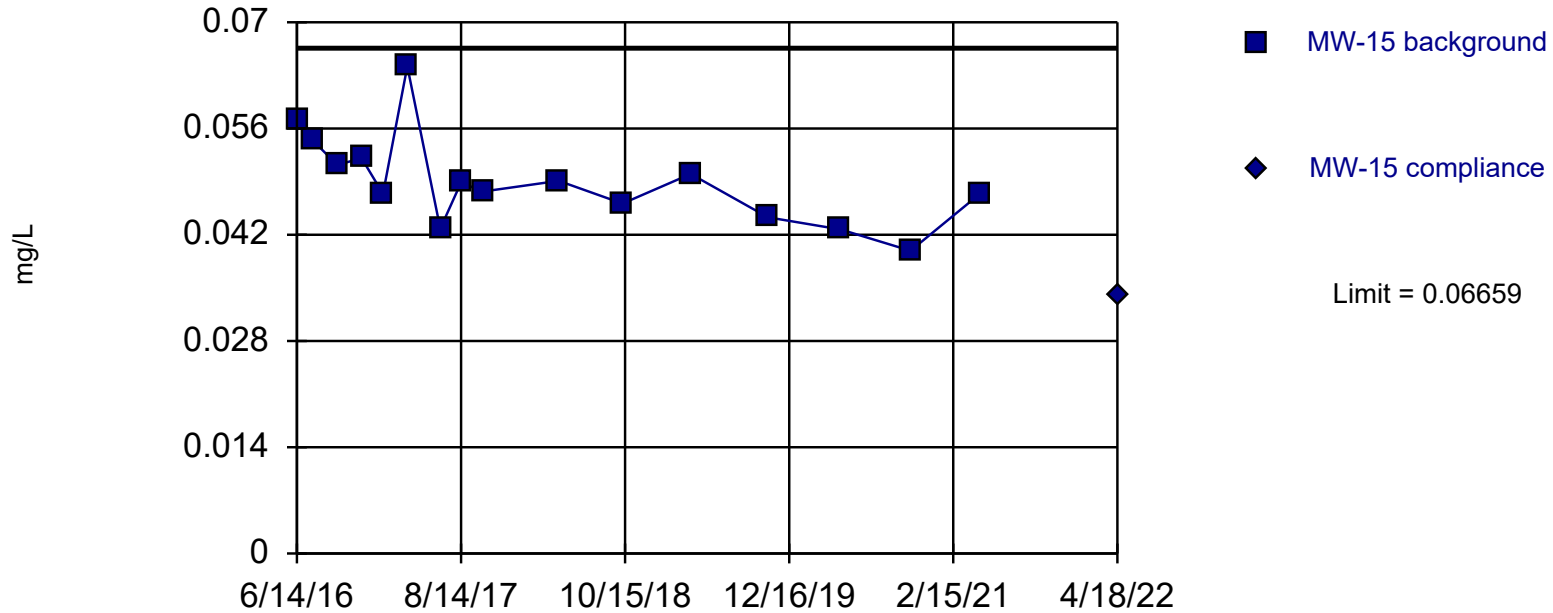


Background Data Summary: Mean=0.1857, Std. Dev.=0.1387, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8773, critical = 0.835. Kappa = 3 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

Constituent: Boron Analysis Run 7/8/2022 12:01 PM View: PL 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Within Limit

### Prediction Limit Intrawell Parametric

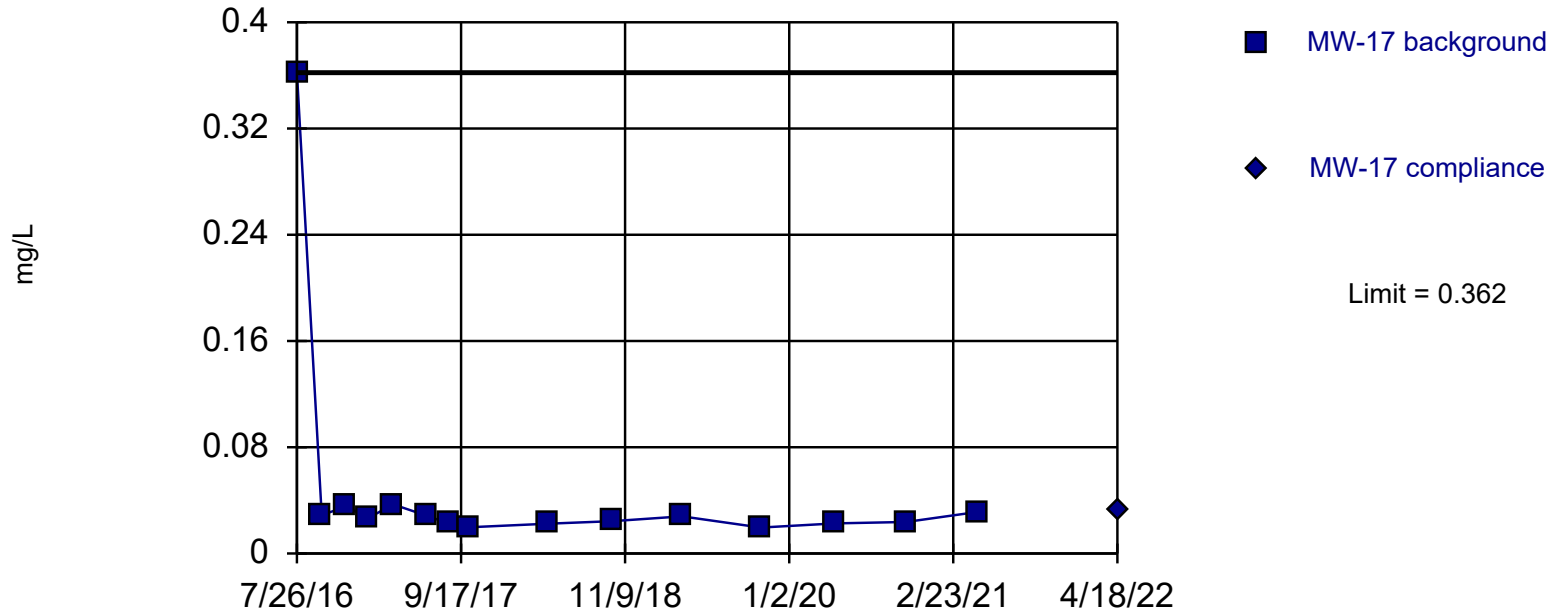


Background Data Summary: Mean=0.04909, Std. Dev.=0.005995, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9456, critical = 0.844. Kappa = 2.919 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.



Within Limit

### Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 15 background values. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2). Seasonality was not detected with 95% confidence.

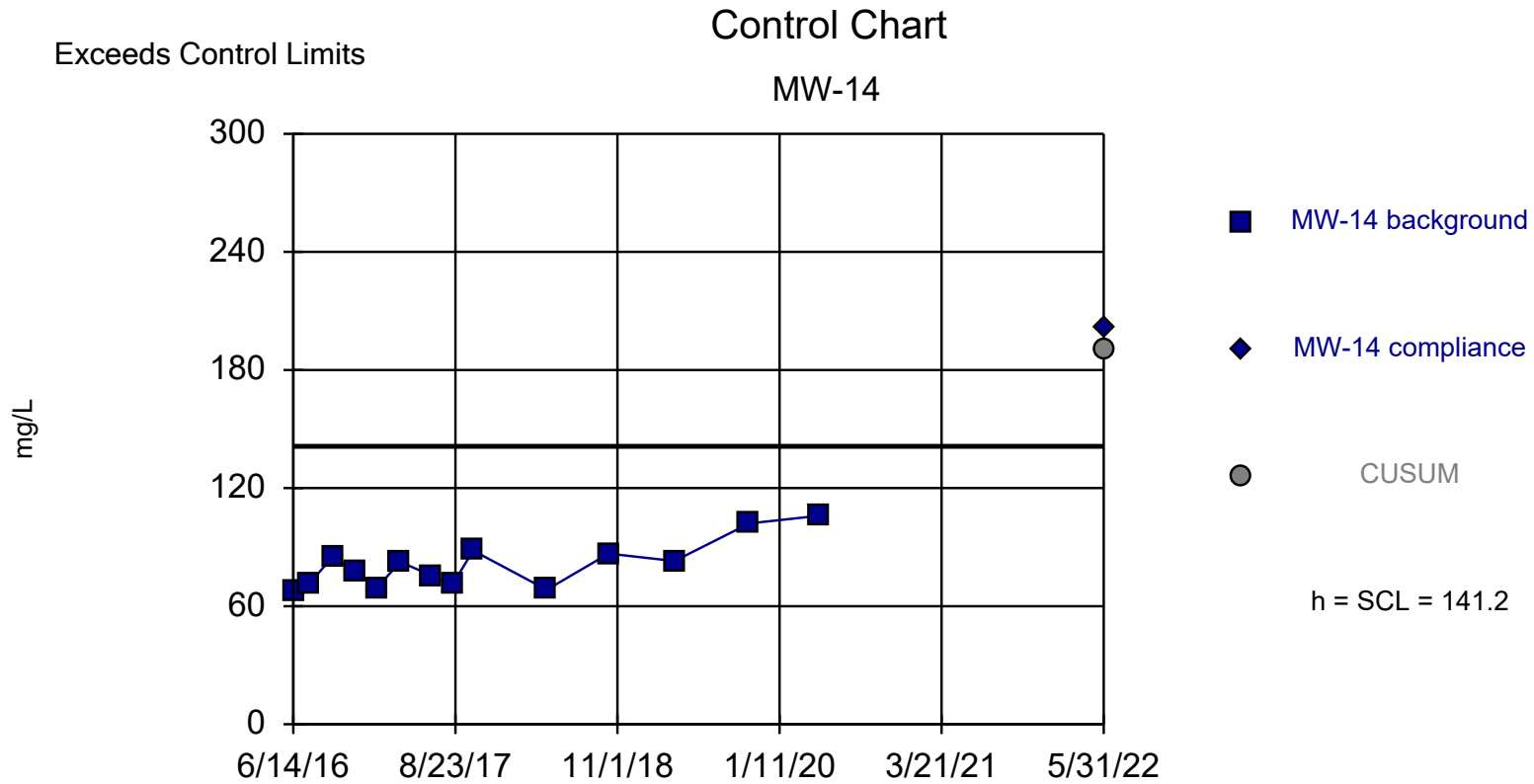
**May 2022 Event**  
**Results of Statistical Calculations**

## **Control Charts and Prediction Limits**

# Shewhart-Cusum Control Chart / Rank Sum

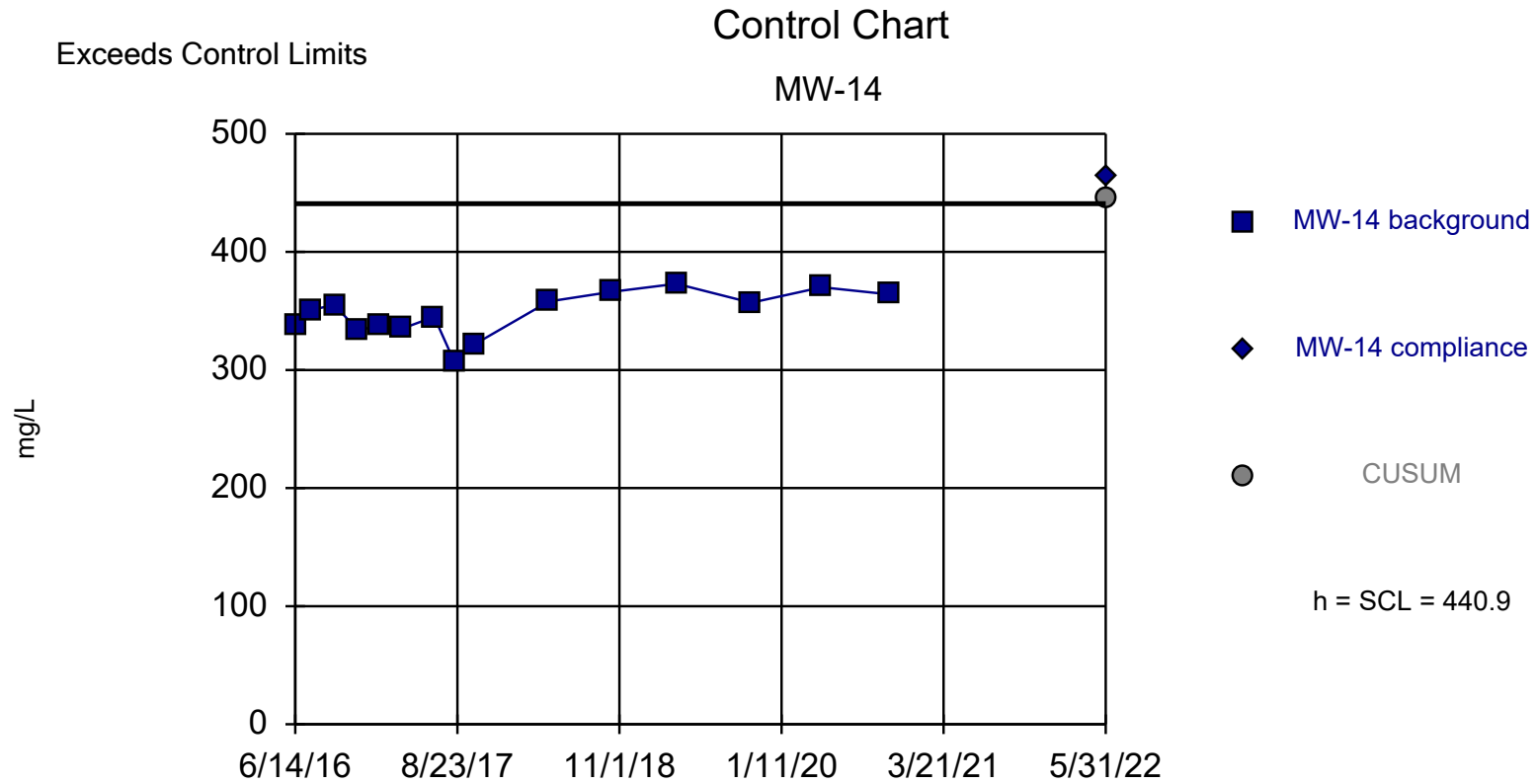
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks    Printed 7/8/2022, 12:04 PM

<u>Constituent</u>	<u>Well</u>	<u>Sig.</u>	<u>h</u>	<u>SCL</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Method</u>
Sulfate (mg/L)	MW-13	Yes	195.2	195.2	16	6.25	No	Param Intra
Calcium (mg/L)	MW-14	Yes	141.2	141.2	14	0	No	Param Intra
Chloride (mg/L)	MW-14	Yes	440.9	440.9	15	0	No	Param Intra
Sulfate (mg/L)	MW-14	Yes	841.2	841.2	15	0	sqrt(x)	Param Intra
Total Dissolved Solids (mg/L)	MW-14	Yes	1940	1940	15	0	No	Param Intra



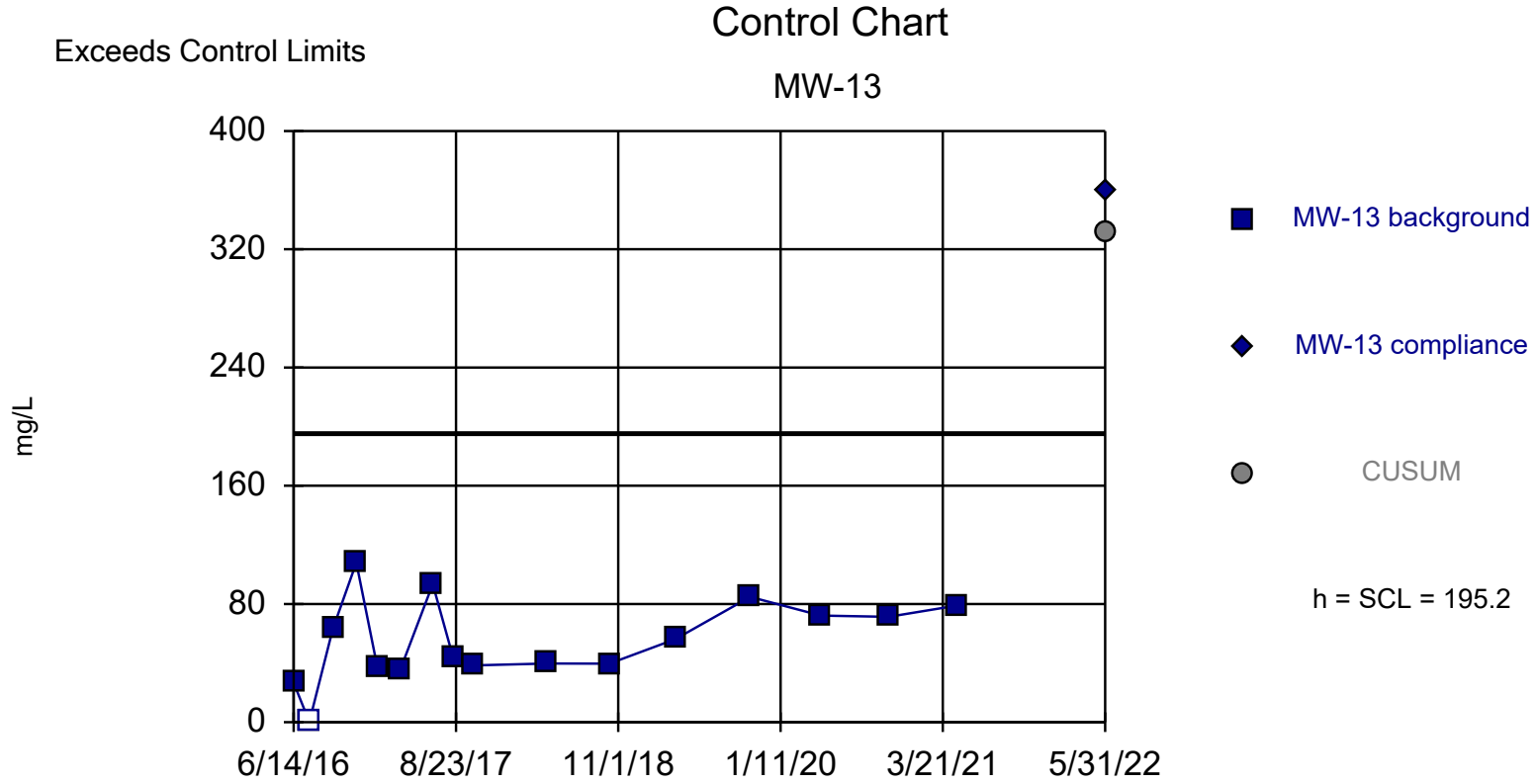
Background Data Summary: Mean=80.96, Std. Dev.=12.04, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8921, critical = 0.874. Report alpha = 0.000212. Dates ending 4/28/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium Analysis Run 7/8/2022 12:03 PM View: CC VRS  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

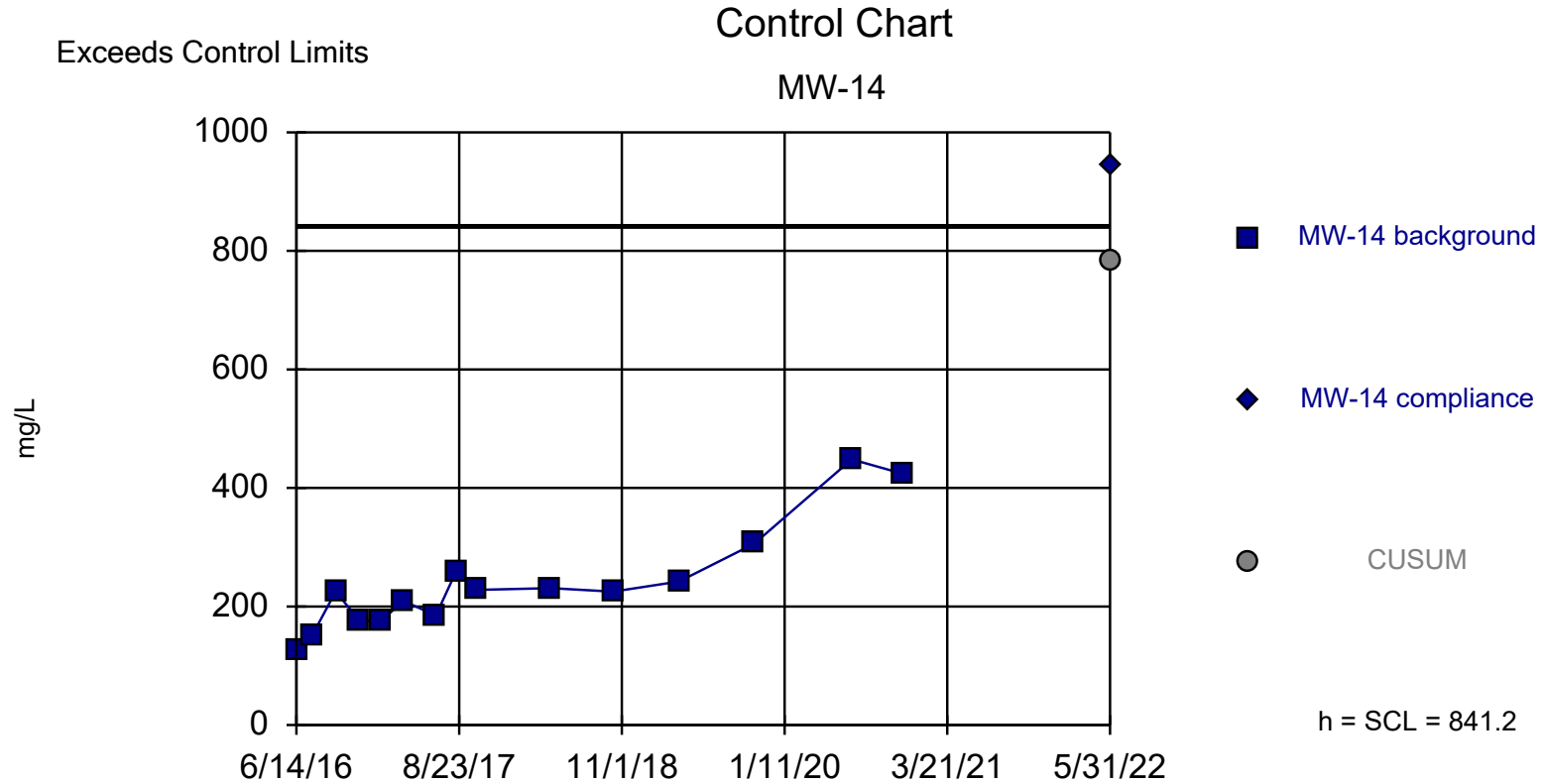


Background Data Summary: Mean=347.4, Std. Dev.=18.7, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9535, critical = 0.881. Report alpha = 0.000138. Dates ending 10/27/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 7/8/2022 12:03 PM View: CC VRS  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



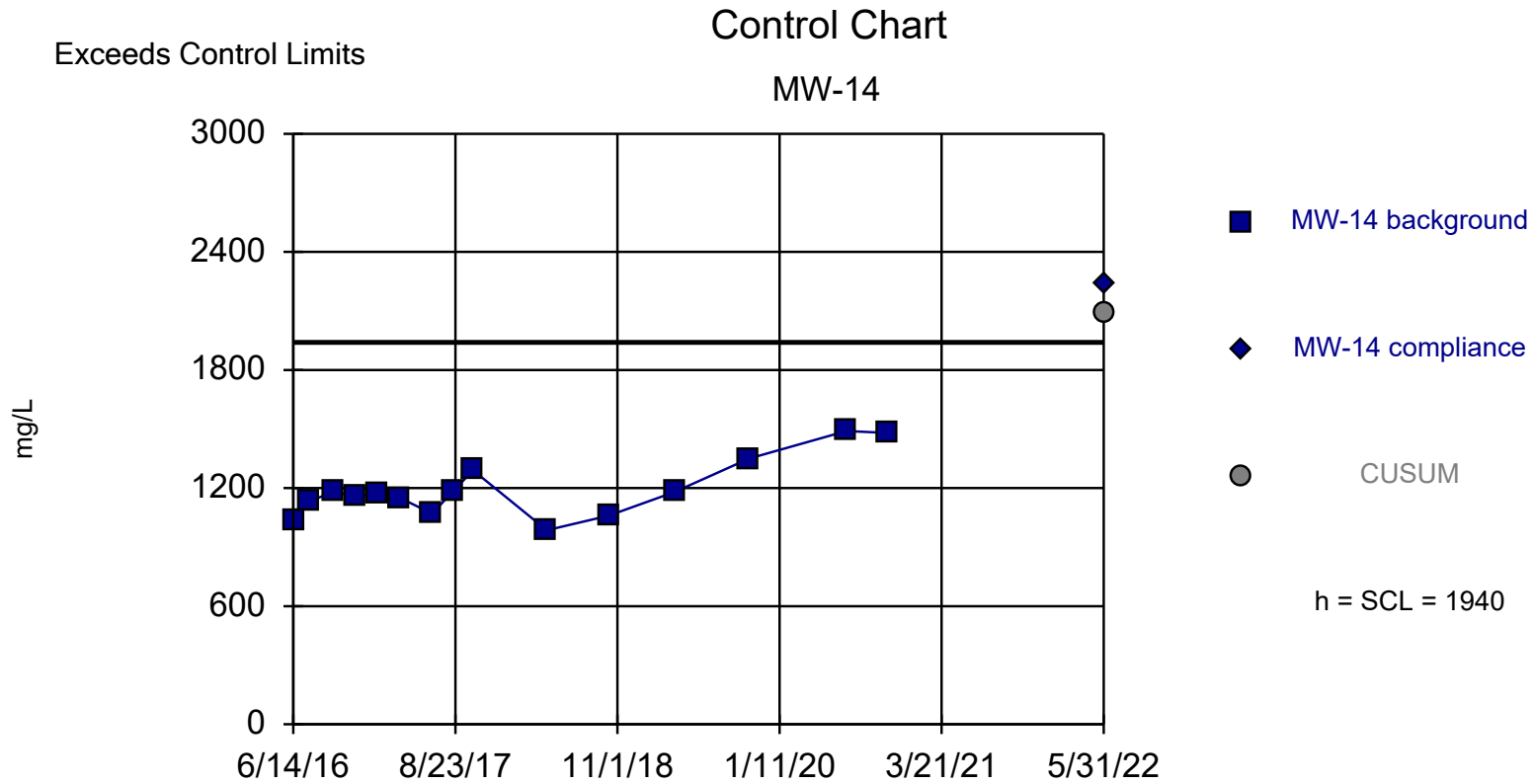
Background Data Summary: Mean=55.67, Std. Dev.=27.91, n=16, 6.25% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.969, critical = 0.887. Report alpha = 0.0001. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.



Background Data Summary (based on square root transformation): Mean=15.29, Std. Dev.=2.743, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9051, critical = 0.881. Report alpha = 0.000132. Dates ending 11/23/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate    Analysis Run 7/8/2022 12:03 PM    View: CC VRS  
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks





Background Data Summary: Mean=1194, Std. Dev.=149.2, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8979, critical = 0.881. Report alpha = 0.000132. Dates ending 10/27/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/8/2022 12:03 PM View: CC VRS  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

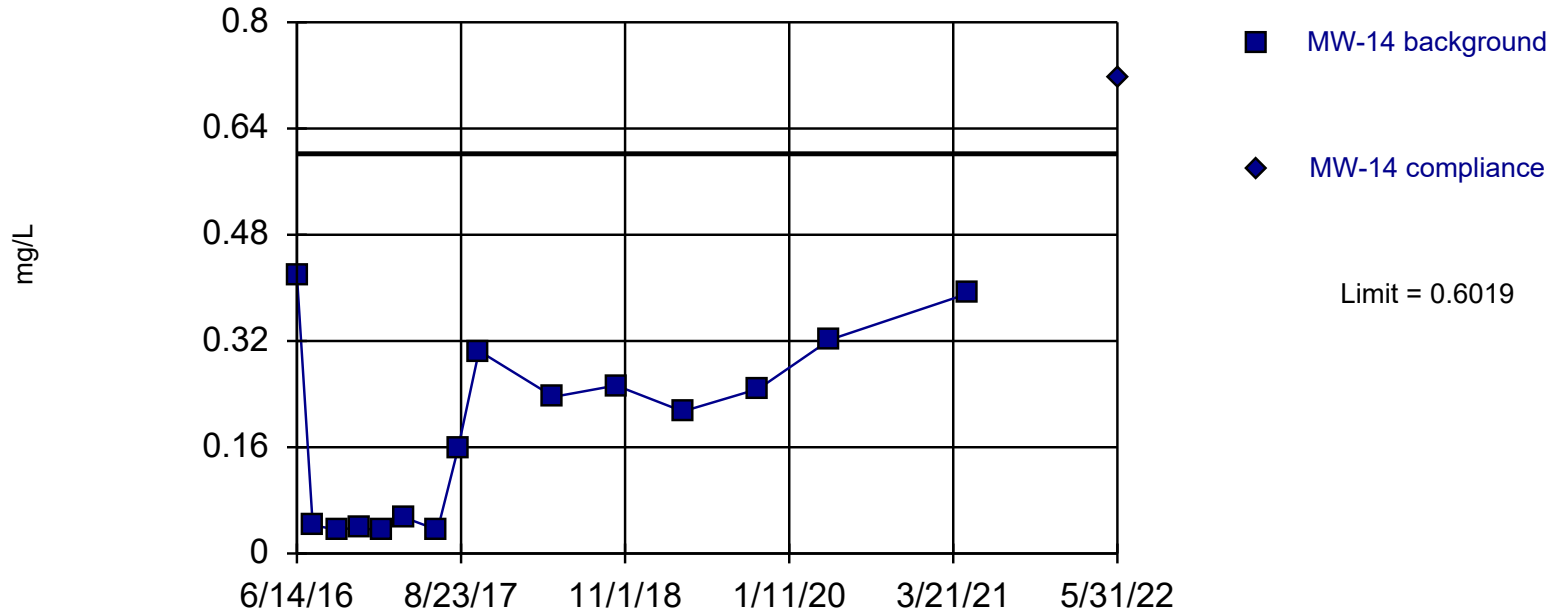
# Prediction Limit

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 7/8/2022, 12:02 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bq N</u>	<u>Bq Wells</u>	<u>Bq Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MW-14	0.6019	5/31/2022	0.718	Yes	15	n/a	0.1857	0.1387	0	No	0.000...	Param Intra 1 of 2

Exceeds Limit

### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.1857, Std. Dev.=0.1387, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8773, critical = 0.835. Kappa = 3 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

Constituent: Boron Analysis Run 7/8/2022 12:02 PM View: PL VRS  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

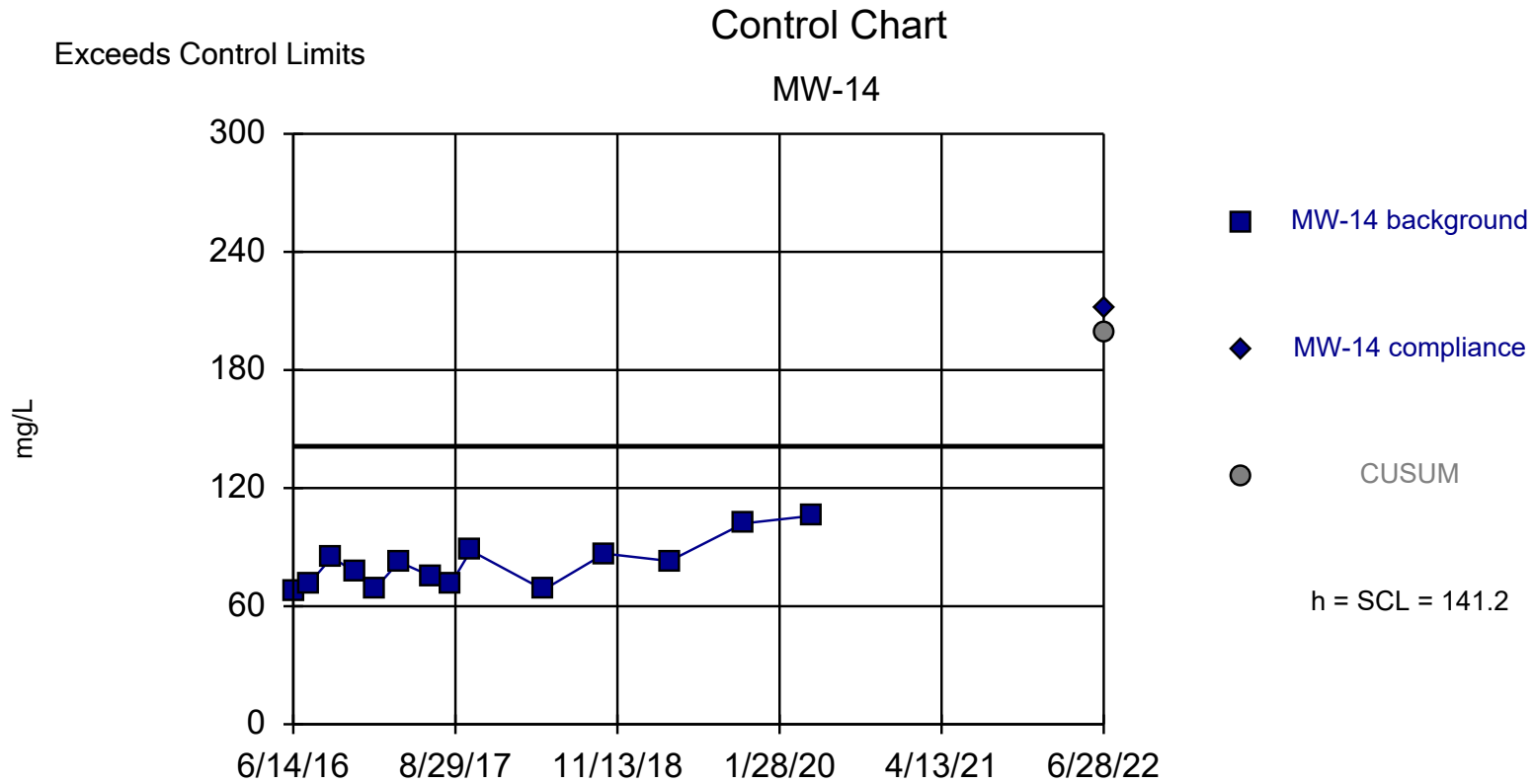
**June 2022 Event**  
**Results of Statistical Calculations**

## **Control Charts and Prediction Limits**

# Shewhart-Cusum Control Chart / Rank Sum

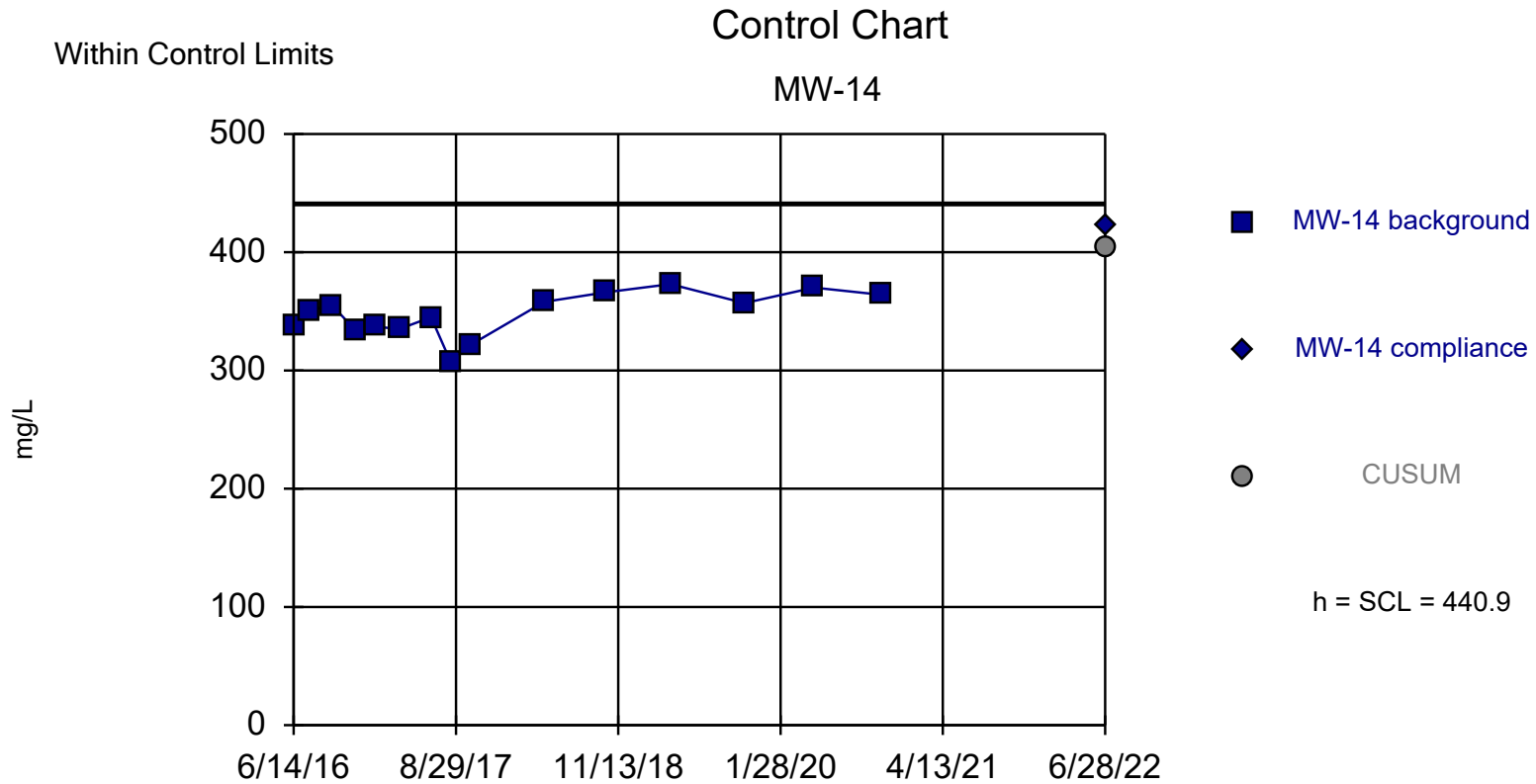
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks    Printed 7/8/2022, 1:43 PM

<u>Constituent</u>	<u>Well</u>	<u>Sig.</u>	<u>h</u>	<u>SCL</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Method</u>
<b>Calcium (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>141.2</b>	<b>141.2</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>Param Intra</b>
Chloride (mg/L)	MW-14	No	440.9	440.9	15	0	No	Param Intra
<b>Sulfate (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>841.2</b>	<b>841.2</b>	<b>15</b>	<b>0</b>	<b>sqrt(x)</b>	<b>Param Intra</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>1940</b>	<b>1940</b>	<b>15</b>	<b>0</b>	<b>No</b>	<b>Param Intra</b>



Background Data Summary: Mean=80.96, Std. Dev.=12.04, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8921, critical = 0.874. Report alpha = 0.000204. Dates ending 4/28/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium Analysis Run 7/8/2022 1:42 PM View: CC VRS MW-14 Only  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

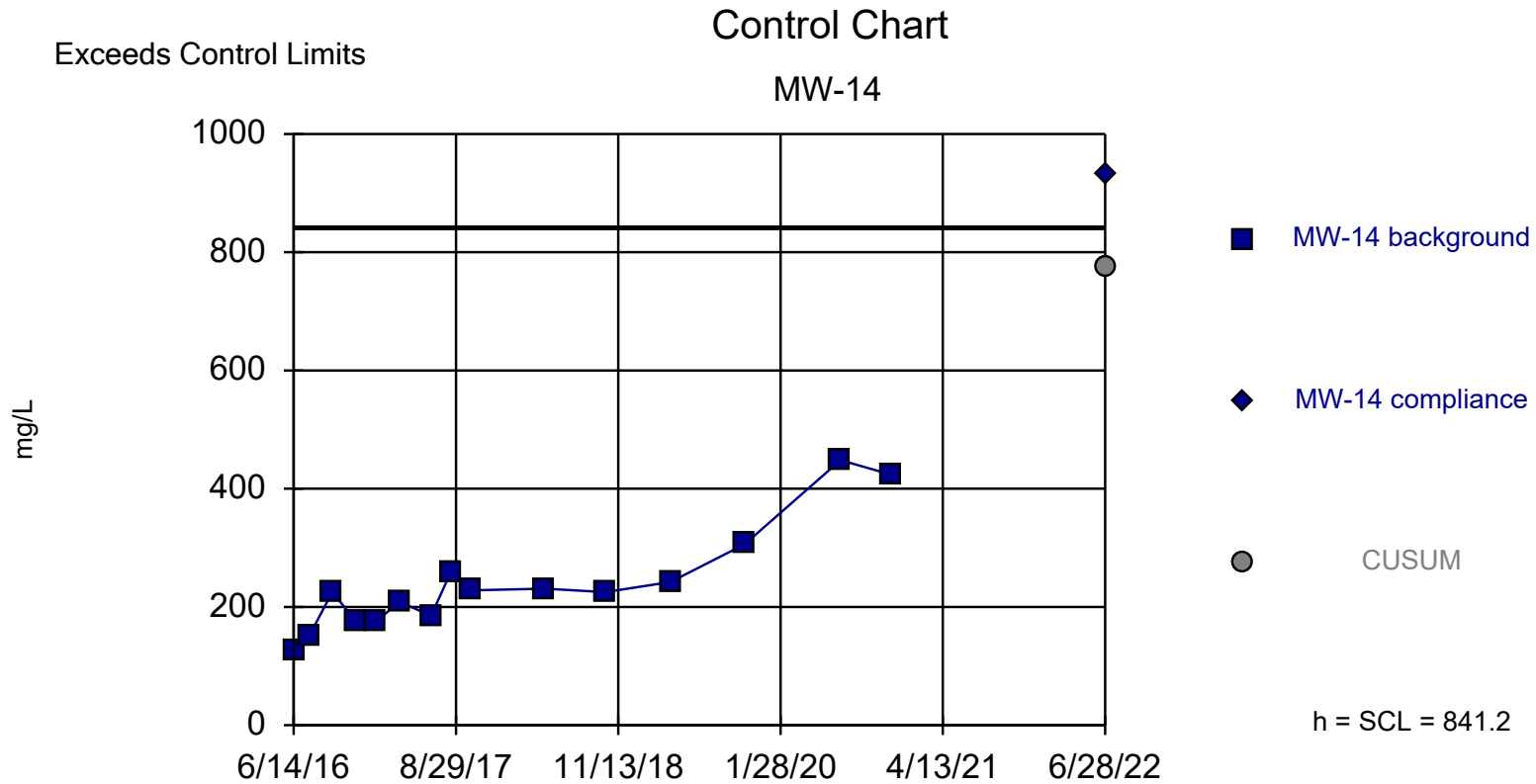


Background Data Summary: Mean=347.4, Std. Dev.=18.7, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9535, critical = 0.881. Report alpha = 0.000124. Dates ending 10/27/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 7/8/2022 1:42 PM View: CC VRS MW-14 Only

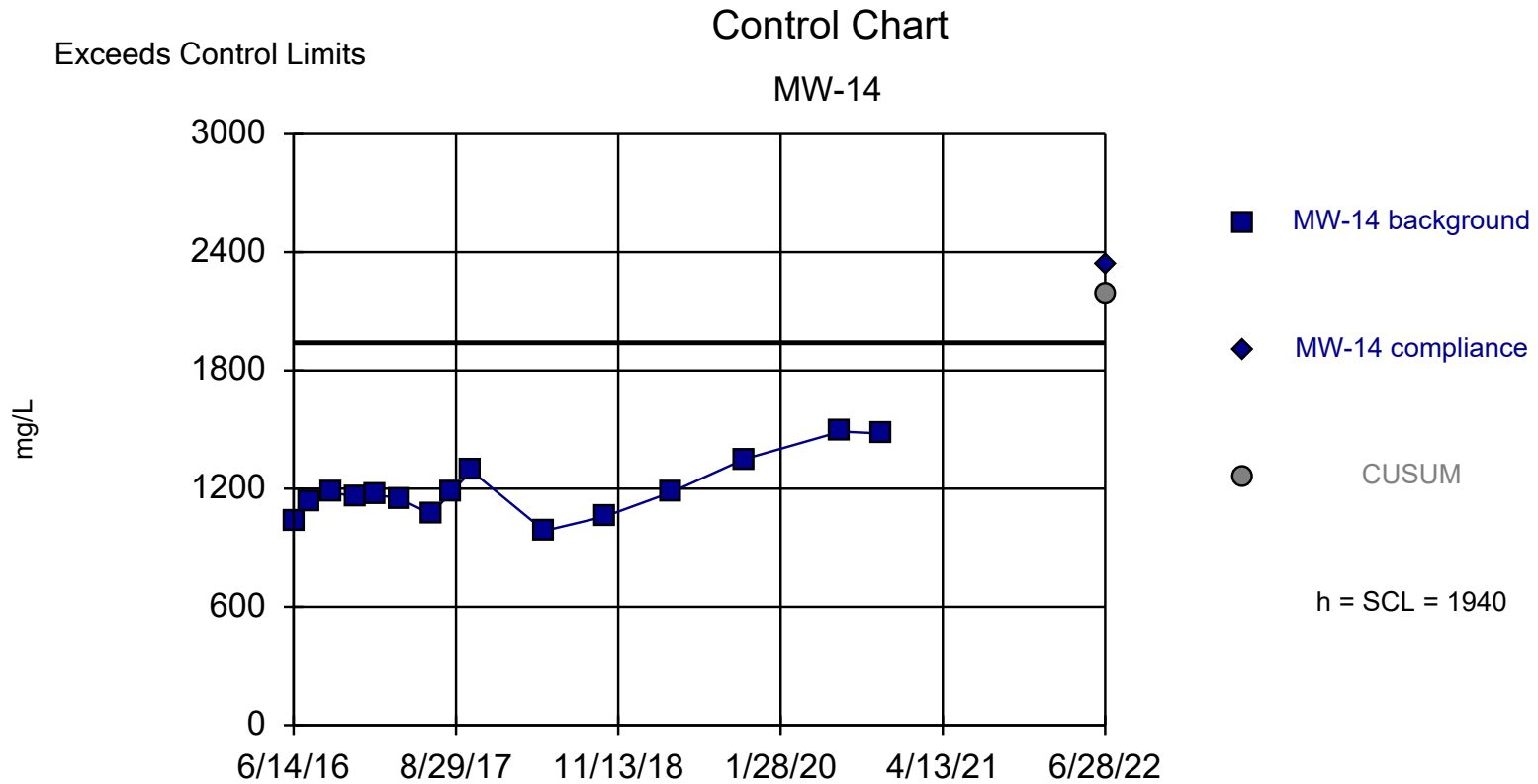
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks





Background Data Summary (based on square root transformation): Mean=15.29, Std. Dev.=2.743, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9051, critical = 0.881. Report alpha = 0.000124. Dates ending 11/23/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate    Analysis Run 7/8/2022 1:42 PM    View: CC VRS MW-14 Only  
 Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks



Background Data Summary: Mean=1194, Std. Dev.=149.2, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8979, critical = 0.881. Report alpha = 0.000124. Dates ending 10/27/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids    Analysis Run 7/8/2022 1:42 PM    View: CC VRS MW-14 Only  
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks

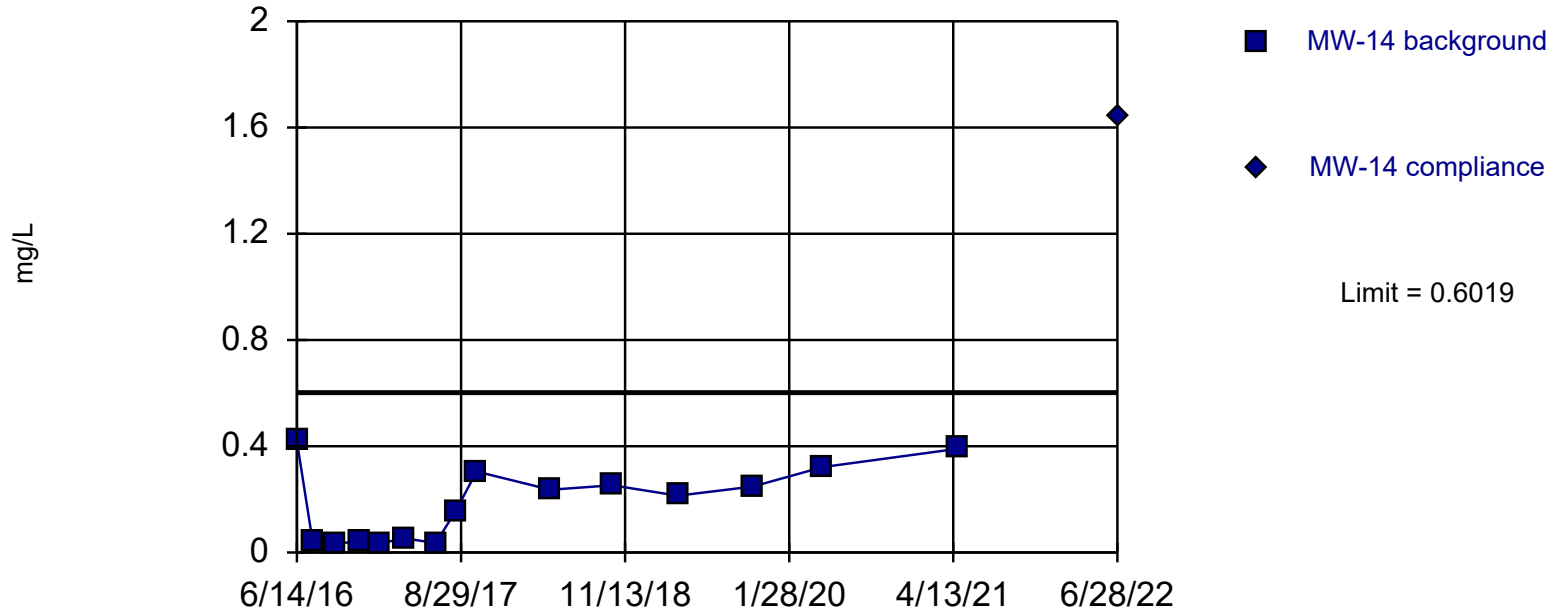
# Prediction Limit

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 7/8/2022, 1:44 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bq N</u>	<u>Bq Wells</u>	<u>Bq Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MW-14	0.6019	6/28/2022	1.64	Yes	15	n/a	0.1857	0.1387	0	No	0.000...	Param Intra 1 of 2

Exceeds Limit

### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.1857, Std. Dev.=0.1387, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8773, critical = 0.835. Kappa = 3 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

Constituent: Boron Analysis Run 7/8/2022 1:44 PM View: PL VRS  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

**October 5, 2022**

**Alternate Source/Error Demonstration**

October 5, 2022

MC-130  
Industrial and Hazardous Waste Permits Section  
Coal Combustion Residuals Program  
Waste Permits Division  
Texas Commission on Environmental Quality  
P. O. Box 13087  
Austin, Texas 78711-3087

**Re: Alternate Source/Error Demonstration  
Twin Oaks Power Station Coal Combustion Residuals Landfill  
13065 Plant Road, Bremond (Robertson County), Texas  
CCR Registration No. CCR112  
TCEQ SWR No. 37677; EPA ID No. TXD987997988  
Customer No. CN604670034; Regulated Entity No. RN100226570**

To Whom It May Concern:

**Hydrex Environmental** is pleased to submit the accompanying Alternate Source/Error Demonstration report for the above-referenced project. As required by 30 TAC §352 Subchapter K, please be advised that the accompanying report is being placed in the operating record and sent via electronic submission to [ihwper@tceq.texas.gov](mailto:ihwper@tceq.texas.gov) for the above-referenced facility. Should you have any questions, please contact me at (936) 568-9451.

Sincerely,  
**Hydrex Environmental**  
TBPG Firm No. 50027



Michelle K. Transier, P.G.  
Senior Geologist

**Distribution:**

- (Original + Disc) MC-130  
Industrial and Hazardous Waste Permits  
Coal Combustion Residuals Program  
Waste Permits Division  
Texas Commission on Environmental Quality  
P. O. Box 13087  
Austin, Texas 78711-3087
- (1) Mr. Eddy Young  
Environmental Manager  
Twin Oaks Power Station  
13065 Plant Road  
Bremond, Texas 76629  
(E-copy)
- (1) Mr. John J. Tayntor, P.E.  
Auckland Consulting, LLC  
P.O. Box 8155  
Jacksonville, Texas 75766  
(E-copy)
- (1) Hydrex Environmental  
(E-copy)

# **ALTERNATE SOURCE/ERROR DEMONSTRATION**

**TWIN OAKS POWER STATION  
COAL COMBUSTION RESIDUALS (CCR) LANDFILL  
ROBERTSON COUNTY, TEXAS**

**October 5, 2022**

**Prepared By:**



**1120 NW Stallings Drive  
Nacogdoches, Texas 75964  
TBPG Firm No. 50027**



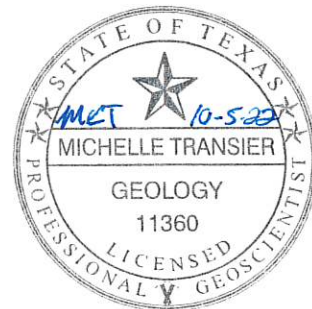
# ALTERNATE SOURCE/ERROR DEMONSTRATION

## TWIN OAKS POWER STATION COAL COMBUSTION RESIDUALS (CCR) LANDFILL ROBERTSON COUNTY, TEXAS

October 5, 2022



Michelle K. Transier, P.G.  
Senior Geologist



Leonell N. Scarborough, P.G.  
Senior Hydrogeologist



Prepared by:  
Hydrex Environmental  
Nacogdoches, Texas  
TBPG Firm No. 50027

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**Introduction** ..... 2

    Summary of Verification Resampling Results ..... 2

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    Statistical Reevaluation ..... 4

        Summary of Interwell Statistical Results ..... 5

    Evaluation of Total Dissolved Solids ..... 5

**Recommendation** ..... 7

**References** ..... 8

**Appendices**

**Appendix A – Signed and Sealed Report Certification by Professional Engineer**

Certification Statement

**Appendix B – Figures**

Figure 1 – Site Map

Figure 2 – Geology Map

Figure 3 – Groundwater Contour Map – September 2022

**Appendix C – Laboratory Data Packages**

May 2022 Analytical Report

June 2022 Analytical Report

July 2022 Analytical Report

September 2022 Analytical Reports

**Appendix D – Statistical Evaluation Data**

Stiff Plot Comparisons

Intrawell Shewhart-Cusum Control Chart / Rank Sum

Intrawell Prediction Limit

Interwell Shewhart-Cusum Control Chart / Rank Sum

Interwell Prediction Limit

Trend Test

**Appendix E – Monitoring Well Installation Documentation**

Monitoring Well Boring Logs

State of Texas Well Reports

## Executive Summary

This Alternate Source/Error Demonstration (“ASD”) report for the Twin Oaks Power Station Coal Combustion Residuals (“CCR”) Landfill (the “facility”) is prepared in accordance with the requirements of the facility’s Groundwater Sampling and Analysis Plan (“GWSAP”), Texas state CCR Rules, 30 TAC Chapter 352, and the federal CCR Rule, 40 CFR Part 257, Subpart D. In addition, this report summarizes groundwater monitoring activities, verification resampling, and other evaluations associated with statistically significant increases (“SSIs”) determined for monitoring wells MW-13 and MW-14 during the 1<sup>st</sup> semi-annual monitoring event of 2022.

The results of this ASD indicate concentrations responsible for the reported SSIs are attributable to natural groundwater conditions and not a release from the facility. Specifically, this ASD shows how groundwater concentrations reported for downgradient monitoring wells MW-13 and MW-14 closely reflect early groundwater data reported for upgradient monitoring well MW-7. Additionally, this ASD demonstrates constituent concentrations responsible for the intrawell SSIs in downgradient wells MW-13 and MW-14 do not exceed the interwell statistical limits determined from the original eight background monitoring events performed for upgradient well MW-7. Based on these results, changes in groundwater concentrations reported for wells MW-13 and MW-14 suggest a natural shift toward upgradient groundwater quality over time and not a release from the landfill. Furthermore, based on groundwater flow direction and rate, it is expected that groundwater conditions reported for downgradient wells MW-13 and MW-14 will continue to move toward those historically reported for well MW-7.

This ASD has been certified by a qualified licensed professional geoscientist and qualified licensed professional engineer within 90 days (October 8, 2022) of determining the SSIs in accordance with 30 TAC §352.941(c)(2), 40 CFR §257.93(h)(2), and 40 CFR §257.94(e)(2). SSIs for monitoring wells MW-13 and MW-14 were determined on July 8, 2022, based on statistical evaluations included with the 1<sup>st</sup> 2022 semi-annual sampling event. Notice of the intent to perform this ASD was provided to TCEQ on July 15, 2022. The calculated SSIs and the timeline for completion of an ASD were documented in the 1<sup>st</sup> 2022 Semi-Annual Groundwater Monitoring and Corrective Action Report dated July 15, 2022.

## Introduction

Statistical evaluation of data from the April 2022 event indicated unverified (“initial”) intrawell statistical exceedance values for sulfate in monitoring well MW-13 and for boron, calcium, chloride, sulfate, and total dissolved solids (“TDS”) in MW-14. Subsequently, verification resampling, utilizing a 1-of-*m* approach, was conducted on May 31, 2022, June 27-28, 2022, and July 14, 2022 as provided for and in accordance with the GWSAP. Sample results discussed herein were unfiltered results per 40 CFR §257.93. A summary of the verification resampling results is presented below.

### Summary of Verification Resampling Results

Well	Constituent	Initial April Event Result (mg/L)	Statistical Limit (mg/L)	Verification Resampling Result (mg/L)			Intrawell Statistical Exceedance Confirmed?	Recommended Action
				May Event	June Event	July Event		
MW-13	sulfate	200	195.2	360	NS	NS	Yes	Alternate Source/Error Demonstration
MW-14	boron	0.875	0.6019	0.718	1.64	0.762	Yes	Alternate Source/Error Demonstration
	calcium	190	141.2	202	211	NS	Yes	Alternate Source/Error Demonstration
	chloride	457	440.9	464	423	NS	No	Maintain Detection Monitoring
	sulfate	899	841.2	944	933	NS	Yes	Alternate Source/Error Demonstration
	TDS	2290	1940	2240	2230	2700	Yes	Alternate Source/Error Demonstration
NS – Not Sampled								

Statistical reevaluation was performed in accordance with the GWSAP, 30 TAC §352.931, 40 CFR §257.93(h)(1), and EPA Unified Guidance methodologies. The results of the verification resampling confirmed the intrawell statistical exceedance values for sulfate concentrations in monitoring well MW-13 and for boron, calcium, sulfate, and TDS in MW-14. A review of relevant information for the facility indicates the values are likely the result of natural shift in groundwater quality and not a release from the CCR Landfill. In accordance with the facility’s GWSAP, 30 TAC §352.941(c), and 40 CFR §257.94(e)(2), this ASD has been prepared to address the calculated SSIs for MW-13 and MW-14 and is included herein.

### **Alternate Source/Error Demonstration**

Evaluation of data performed as part of this ASD indicates the values responsible for the reported SSIs are most likely the result of natural groundwater variation and not a release from the facility. Specifically, the groundwater data collected from monitoring wells MW-13 and MW-14 show changes over time that reflect the geochemical characteristics and concentrations reported for upgradient well MW-7. This correlation in groundwater quality indicates groundwater passing through MW-7 has a direct influence on the groundwater quality reported for wells MW-13 and MW-14. Based on this evaluation, the intrawell SSIs reported were further evaluated as described herein.

#### **Site Geology**

Twin Oaks Power Station CCR Landfill site lies within the outcrop area of the Simsboro Sand and Calvert Bluff Member (Appendix B – Figure 2). The Simsboro Sand and Calvert Bluff Formations are both Units within the Rockdale Formation subdivision of the Wilcox Group. The Rockdale Formation is composed of non-marine strata of the Wilcox Group. The Calvert Bluff member is a series of clay and lignite beds, is composed of gray sand, dense lignitic beds ranging from 1 to 9 feet thick, and dark gray carbonaceous clays found typically in beds or lentils (Sellards 2012). The Simsboro Sand is approximately a 3-mile-wide outcrop ranging from 250 to 300 feet thick and is composed of a gray sand, lentils of blue-gray clay, and lignite (Sellards 2012). Lignite is a defining characteristic of the Rockdale formation. Lignites of the Rockdale Formation are found in thicker seams and more widespread than in any other geologic formation in Texas (Sellards 2012). Occurring in layers and lenses, lignite within the study area is black and compact. Sulfate and organic materials coupled with a low-oxygen and low energy environment provides for deposition conducive to sulfate reduction. Consequently, metal sulfides and metal sulfide complexes are concentrated in these sediments. Summarized data from the U.S. Department of the Interior, Bureau of Mines shows that the Wilcox Group contains a suite of detectable metals in a wide range of concentrations (Ward 1982).

Boring logs indicate subsurface soils at the facility consist predominantly of clay, sandy clay, and silty sand. Based on available facility data and as seen in previously submitted cross-sections included with the GWSAP, the subsurface geology at the site has been divided into three distinct units, Unit III (a lower confining clay unit), Unit II (an uppermost groundwater-bearing unit), and Unit I (an upper confining clay unit). Data collected for the facility indicate Unit III is present beneath the entire facility at varying depths and acts as a lower confining unit for Unit II. As such, the elevation of the top of Unit III is variable across the site and is coincident with the bottom of Unit II. Overlying Unit III is the uppermost groundwater-bearing unit (Unit II). Consisting of predominantly fine-grained quartz sand and silt with lesser amounts of clay, the large sand bodies within Unit II appear to be hydraulically interconnected based on groundwater data. More clay-rich zones of Unit II, present in laterally discontinuous lenses, have been further subdivided into Unit IIA. Borings indicate the elevation of the top of Unit II varies across the site tending to deepen toward the east and southeast. The thickness of Unit II ranges from 5 – 32 feet. Unit I overlies Unit II and is present across the facility. Unit I occurs from the surface to variable depths of up to approximately 20 feet below ground surface (“bgs”). Unit I consists of clay and minor amount of sand and silt. Reduced permeability for Unit I commonly results in locally confined conditions as Unit II deepens toward the east and southeast. Additionally, the low permeability Unit I materials present in at the

surface and in the shallow subsurface act to impede potential migration of surface contaminants downward toward the uppermost groundwater bearing unit.

### **Supplemental Sampling and Drilling Activities**

Five monitoring wells (MW-18, MW-19, MW-20, MW-21, and MW-22) were installed for groundwater quality evaluations. It should be noted these wells were installed for investigation purposes and are not part of the CCR Landfill monitoring system as currently permitted. Drilling and sampling activities took place between September 6 and 8, 2022. All drilling activities were performed by a Texas-licensed driller. All drilling operations were performed by a Texas-licensed driller. Soils encountered during the completion of the drilling activities were continuously sampled. Upon collection, each soil sample was logged by a geologist familiar with the geology of the area. Soils were field classified in general conformance with the Unified Soil Classification System (“USCS”). Geological services were performed under the supervision of a Professional Geoscientist licensed in Texas. Copies of monitoring well boring logs and State of Texas Well Reports are provided in Appendix E. A map showing the locations of these wells is included as Figure 1 of Appendix B. Based on their upgradient locations, data collected from these wells can be used to more thoroughly evaluate upgradient groundwater quality and natural variability in groundwater concentrations.

Following installation, each well was developed prior to groundwater sampling. Well development activities consisted of removal of naturally occurring fines by surge block, hand bailing, and over pumping techniques. The development activities continued until the water extracted from each well was approximately 20 NTUs or less. Each monitoring well was sampled immediately following completion of development. The groundwater samples were preserved in accordance with the requirements of the analytical methodology and hand delivered to the testing laboratory for analysis. Analytical results from the sampling of these wells are included in Appendix C. Review of results indicate varying concentrations of boron, calcium, chloride, sulfate, and TDS, further demonstrating the naturally variability in upgradient groundwater conditions.

### **Statistical Reevaluation**

Intrawell statistical exceedances reported for sulfate concentrations in monitoring well MW-13 and for boron, calcium, sulfate, and TDS concentration in MW-14 were reevaluated based on the observed upgradient groundwater conditions. TDS is further discussed below. Statistical reevaluation of the reported concentrations included use of interwell statistical procedures employing previously collected background data from upgradient well MW-7. Monitoring well MW-7 is located upgradient of the CCR landfill and is considered unaffected by CCR waste disposal activities. Monitoring well MW-7 was chosen for use in the statistical reevaluation based on its upgradient location with respect to monitoring wells MW-13 and MW-14 and the groundwater flow direction observed for the facility (Appendix B – Figure 3).

Interwell prediction limit and control chart evaluations utilized the original eight background data points collected for boron, calcium, and sulfate data from upgradient monitoring well MW-7. Data from the original eight background monitoring events performed for upgradient well MW-7 were used as they more closely reflect expected current groundwater conditions in downgradient monitoring wells MW-13 and MW-14 based on known groundwater flow direction and rate. More specifically, groundwater flow rate and direction data indicate groundwater passing through upgradient well MW-7

flows toward downgradient wells MW-13 and MW-14 at rates ranging from approximately 55 to 77 feet per year. Based on these data, historical groundwater data collected from MW-7 is expected to be most representative of expected current groundwater conditions at wells MW-13 and MW-14.

Confirmation of this connected groundwater quality relationship is most easily observable through evaluation of a series stiff plots created using historical data from each well. Stiff plots can be used to develop a fingerprint of groundwater quality at each well. As presented on the stiff plots included in Appendix D, groundwater quality present at MW-14 has changed over time to more closely match historical conditions found at MW-7. The stiff plot “fingerprint” for MW-14 clearly depicts a steady change in groundwater quality toward those concentrations reported for MW-7. Based on the flow direction at the site, it is expected that downgradient monitoring well MW-14 would have groundwater quality similar to historical conditions at MW-7. Based on these considerations it is reasonable to statistically compare historical data from MW-7 to groundwater data collected for wells MW-13 and MW-14.

The results of the interwell statistical reevaluation indicate recent sulfate concentrations reported for well MW-13 and boron, calcium, and sulfate concentrations reported for MW-14 fall within the statistically determined background concentrations developed from historical data collected from upgradient monitoring well MW-7. Sulfate concentration data from MW-13 and boron, calcium, and sulfate concentration data from MW-14 were further evaluated for statistically significant increasing trends. Concentrations reported for the last 7 events (April 2019 – April 2022) demonstrate no statistically significant increasing trends for sulfate data in MW-13 and boron, calcium, and sulfate data in MW-14. A summary of the interwell statistical analyses performed is presented below. The results of statistical evaluations are included in Appendix D of this ASD.

**Summary of Interwell Statistical Results**

Well	Constituent	Initial April Event Result (mg/L)	Final Verification Resampling Result (mg/L)	Intrawell Statistical Limit (mg/L)	Interwell Statistical Limit (mg/L)	Site-wide Data Range (mg/L)	Statistical Exceedance Confirmed?	Recommended Action
MW-13	sulfate	200	360	195.2	1107	24.3 - 1550	No	Maintain Detection Monitoring
MW-14	boron	0.875	0.762	0.6019	0.7844	0.0195 – 0.762	No	Maintain Detection Monitoring
	calcium	190	211	141.2	338.8	15.4 - 326	No	Maintain Detection Monitoring
	sulfate	899	933	841.2	1107	24.3 - 1550	No	Maintain Detection Monitoring

Based on the results of statistical reevaluation, changes in groundwater concentrations reported for sulfate in well MW-13 and for boron, calcium, and sulfate in well MW-14 suggest a natural shift toward upgradient groundwater quality over time and not a release from the landfill. Furthermore, based on groundwater flow direction and rate, it is expected that groundwater conditions reported for downgradient wells MW-13 and MW-14 will continue to move toward those historically reported for MW-7.

**Evaluation of Total Dissolved Solids in MW-14**

Results of the April 2022 groundwater monitoring event also indicated an intrawell statistical exceedance for TDS concentrations in MW-14. Verification monitoring events

performed for MW-14 confirmed the originally reported TDS concentration and therefore, the SSI in MW-14. Further evaluation of TDS data from MW-14 shows no indication that TDS values are the result of a release from the facility. Instead, the reported TDS concentrations are most likely derived from the natural shift of groundwater quality determined to be the source for the other SSIs reported in MW-14 for the April 2022 event.

TDS is a cumulative constituent, representing the sum of all chemicals (organic and inorganic) dissolved within the groundwater sample. When the component values that make up TDS concentrations increase, the TDS concentrations should also increase. As groundwater in MW-14 shifts to more closely reflect groundwater conditions in upgradient MW-7, concentrations of reported constituents in MW-14 have been shown to increase. As these component concentrations increase in MW-14, so should the cumulative TDS concentrations. This scenario is corroborated in the data reported for MW-14. The TDS increases noted for MW-14 are directly related to the TDS component concentrations increases and therefore, to the natural source for the TDS component increases. Additionally, TDS values reported for MW-14 fall within the ranges historically reported for the wells around the site. TDS data range from values less than 250 mg/L reported in wells MW-22 and MW-12 to over 2800 mg/L historically reported for well MW-11.

TDS concentrations reported for MW-14 result from cumulative constituent concentrations that are directly related to a natural shift in groundwater quality and fall within the ranges of TDS data collected for the facility. Therefore, TDS concentrations reported for MW-14 are considered to have resulted from this natural source and not a release from the landfill.



### **Recommendations**

Data provided within this ASD have shown for sulfate in monitoring well MW-13 and for boron, calcium, chloride, sulfate, and TDS in MW-14 result from a shift toward upgradient groundwater conditions occurring within the uppermost groundwater-bearing unit. Based on this evaluation, no release from the CCR Landfill is indicated. Therefore, no change to the detection monitoring status of monitoring wells MW-13 and MW-14 is recommended and the site requests to maintain a detection monitoring status.

## References

Barnes, V.E., 1981 Geologic Atlas of Texas, Austin Sheet, Bureau of Economic Geology, The University of Texas at Austin.

Barnes, V.E., 1979 Geologic Atlas of Texas, Waco Sheet, Bureau of Economic Geology, The University of Texas at Austin.

Gibbons, R. D., 1994, Statistical Methods for Groundwater Monitoring.

Sellards, E.H., Adkins, W.S., and Plummer, F.B., 1912, The Geology of Texas Volume 1 Stratigraphy, Bureau of Economic Geology Bulletin No. 3232, The University of Texas at Austin.

U.S. Environmental Protection Agency, March 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance.

Ward, A.E., 1982 Evaluation of Lignite Resources at Proposed Black Cypress and Marshall Reservoir Sites, Cass, Marion, Harrison, Gregg and Upshur Counties, Texas, United States Department of the Interior, Bureau of Mines.

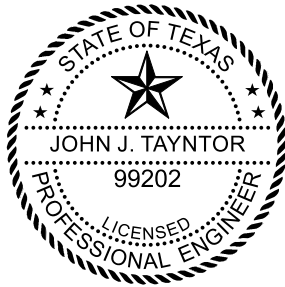
## **Appendix A**

**Signed and Sealed Certification by Professional  
Engineer**

# CERTIFICATION STATEMENT

## COAL COMBUSTION RESIDUALS (CCR) LANDFILL TWIN OAKS POWER STATION ROBERTSON COUNTY, TEXAS

I certify I am a licensed professional engineer in the State of Texas and a *qualified professional engineer* as defined in 40 CFR §257.53. I certify that the groundwater monitoring data presented in the Alternate Source/Error Demonstration report, prepared by Hydrex Environmental on behalf of the Twin Oaks Power Station, are appropriate and meet the requirements of 40 CFR Part 257, Subpart D.



A handwritten signature in black ink, appearing to read "J. Tayntor", written over a horizontal line.

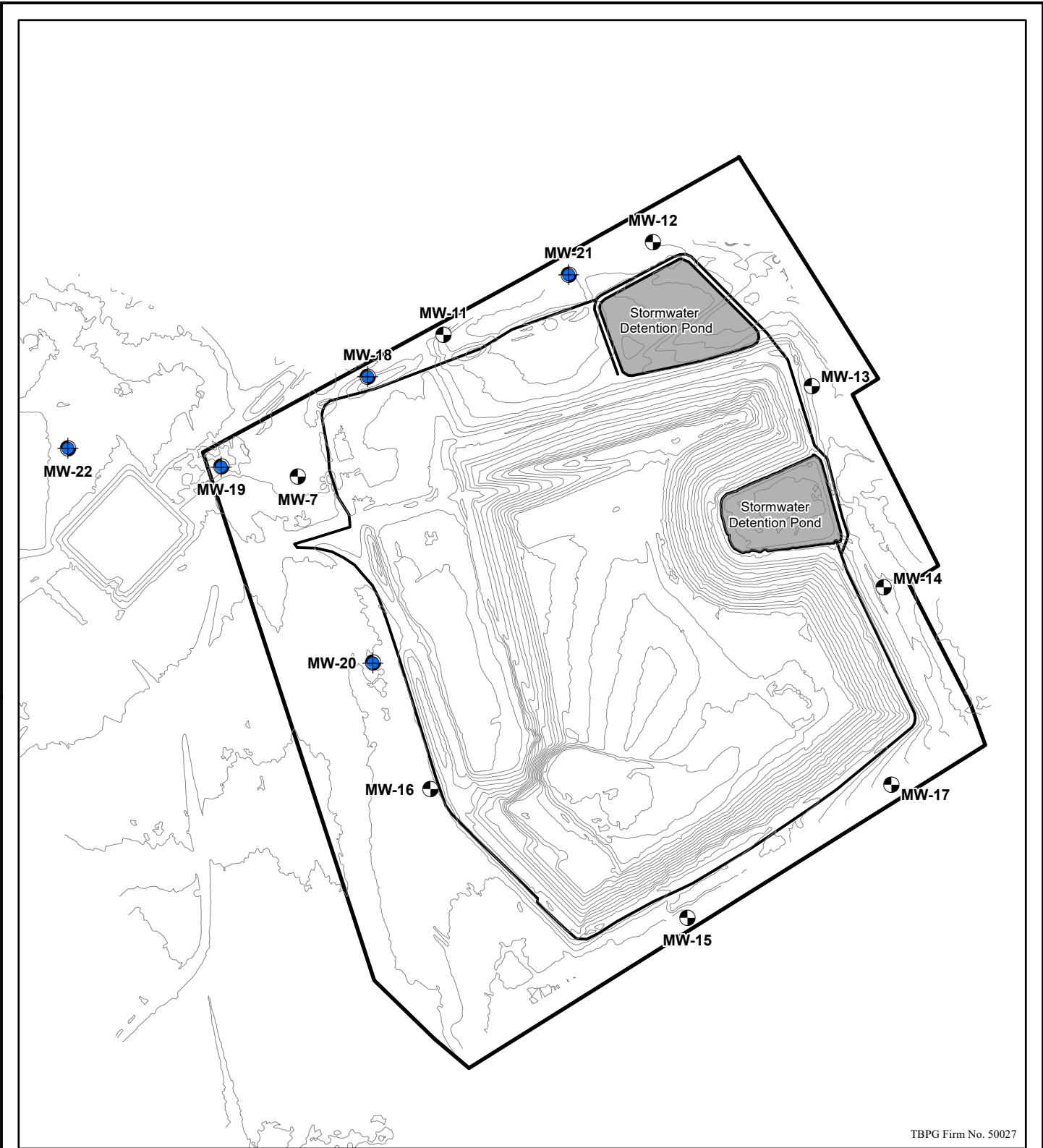
John J. Tayntor, P.E.  
Auckland Consulting, LLC  
TBPE Firm Registration No. F-16721

10/05/2022

\_\_\_\_\_  
Date

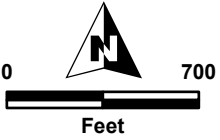
## **Appendix B**

### **Figures**



TBPG Firm No. 50027

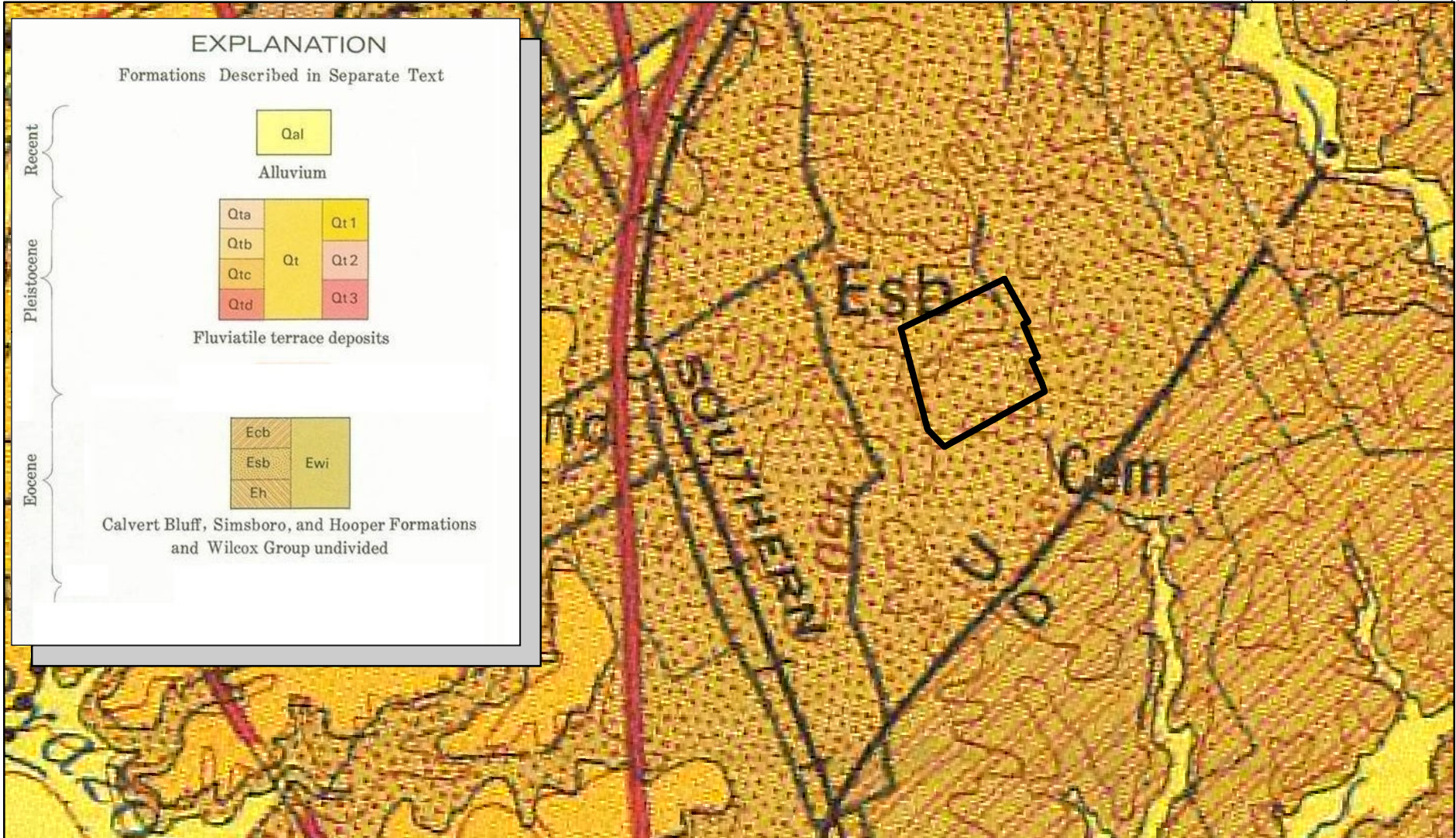
	Investigative Monitor Well		5-ft Ground Surface Contour
	CCR Landfill Monitor Well		Property Boundary
	Pond		



**Hydrex**  
ENVIRONMENTAL  
1120 NW Stallings Drive  
Nacogdoches, Texas 75964  
(936) 568-9451

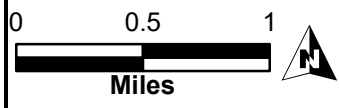
← **FIGURE 1** →  
**SITE MAP**

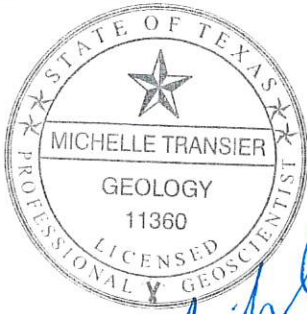
<b>CCR Landfill</b> <b>Twin Oaks Power Station</b> <b>13065 Plant Road</b> <b>Bremond (Robertson County), Texas 76629</b>		
Map Revised: 10/4/2022	Project Number: I-14-1007	GIS Analyst: JLD



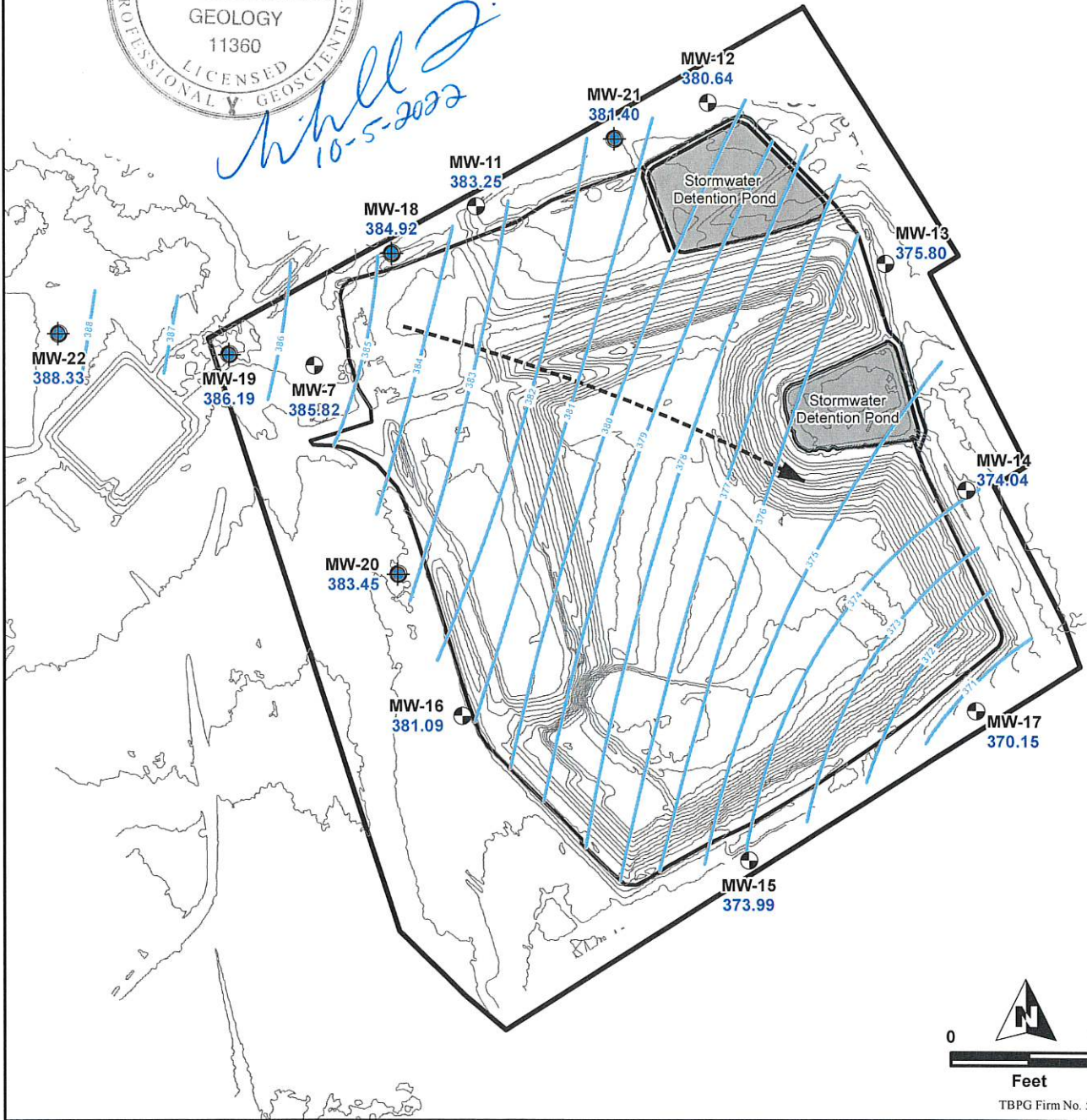
CCR Landfill Boundary

FIGURE 2  
GEOLOGY MAP





*Michelle J.*  
10-5-2022



TBPG Firm No. 50027

- Investigative Monitor Well
  - CCR Landfill Monitor Well
  - Pond
  - Approx. Groundwater Flow Direction
  - Groundwater Contour
  - 5-ft Ground Surface Contour
  - Property Boundary
- 385 Groundwater Elevation (Elevation Feet, MSL)

Note: Water Levels Measured (9/9/2022)



← FIGURE 3 →  
 GROUNDWATER CONTOUR MAP

**CCR Landfill**  
**Twin Oaks Power Station**  
**13065 Plant Road**  
**Bremond (Robertson County), Texas 76629**

Map Revised: 10/4/2022	Project Number: I-14-1007	GIS Analyst: JLD
------------------------	---------------------------	------------------



**Appendix C**  
**Laboratory Data Packages**


## ANALYTICAL REPORT

Eurofins Houston  
4145 Greenbriar Dr  
Stafford, TX 77477  
Tel: (281)240-4200

Laboratory Job ID: 860-27143-1  
Client Project/Site: Twin Oaks PP

For:  
Hydrex Environmental  
1120 NW Stallings Drive  
Nacogdoches, Texas 75964

Attn: Michelle Transier



Authorized for release by:  
6/21/2022 4:20:09 PM

Chad Bechtold, Project Manager  
(813)690-3563  
[Chad.Bechtold@et.eurofinsus.com](mailto:Chad.Bechtold@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Definitions/Glossary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Appendix A

## Laboratory Data Package Cover Page - Page 1 of 4

This data package is for Eurofins Houston job number 860-27143-1 and consists of:

- R1 - Field chain-of-custody documentation;
- R2 - Sample identification cross-reference;
- R3 - Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 - Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 - Test reports/summary forms for blank samples;
- R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- R10 - Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

**Release Statement:** I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Chad Bechtold  
Name (printed)



Signature

6/21/2022  
Date

Project Manager  
Official Title (printed)

# Laboratory Review Checklist: Reportable Data - Page 2 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	6/21/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-27143-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	<b>Chain-of-custody (C-O-C)</b>					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	<b>Sample and quality control (QC) identification</b>					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	<b>Test reports</b>					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	<b>Surrogate recovery data</b>					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	<b>Test reports/summary forms for blank samples</b>					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	<b>Laboratory control samples (LCS):</b>					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	<b>Analytical duplicate data</b>					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	<b>Method quantitation limits (MQLs):</b>					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	<b>Other problems/anomalies</b>					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

- Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

# Laboratory Review checklist: Supporting Data - Page 3 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	6/21/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-27143-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
S1	OI	<b>Initial calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	<b>Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	<b>Mass spectral tuning</b>					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	<b>Internal standards (IS)</b>					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	<b>Raw data (NELAC Section 5.5.10)</b>					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	<b>Dual column confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	<b>Tentatively identified compounds (TICs)</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	<b>Interference Check Sample (ICS) results</b>					
		Were percent recoveries within method QC limits?	X				
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	<b>Method detection limit (MDL) studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSS?	X				
S11	OI	<b>Proficiency test reports</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	<b>Standards documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	<b>Compound/analyte identification procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	<b>Demonstration of analyst competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	<b>Verification/validation documentation for methods (NELAC Chapter 5)</b>					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	<b>Laboratory standard operating procedures (SOPs)</b>					
		Are laboratory SOPs current and on file for each method performed?	X				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports - Page 4 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	6/21/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-27143-1
Reviewer Name:	Chad Bechtold		

ER # <sup>1</sup>	Description
	<ol style="list-style-type: none"><li>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</li><li>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</li><li>3. NA = Not applicable;</li><li>4. NR = Not reviewed;</li><li>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</li></ol>

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# Case Narrative

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

---

**Job ID: 860-27143-1**

---

**Laboratory: Eurofins Houston**

---

**Narrative**

**Job Narrative**  
**860-27143-1**

**Receipt**

The samples were received on 6/1/2022 10:36 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**Metals**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Client Sample ID: MW-13

## Lab Sample ID: 860-27143-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	360		0.500	mg/L	1		300.0	Total/NA

## Client Sample ID: MW-14

## Lab Sample ID: 860-27143-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	464		0.500	mg/L	1		300.0	Total/NA
Sulfate - DL	944		5.00	mg/L	10		300.0	Total/NA
Calcium	202		10.0	mg/L	50		6010B	Total/NA
Boron	0.718		0.0100	mg/L	1		6020A	Total/NA
Total Dissolved Solids	2240		20.0	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

**Client Sample ID: MW-13**  
Date Collected: 05/31/22 12:05  
Date Received: 06/01/22 10:36

**Lab Sample ID: 860-27143-1**  
Matrix: Water

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	360		0.500	mg/L			06/04/22 01:30	1

**Client Sample ID: MW-14**  
Date Collected: 05/31/22 11:21  
Date Received: 06/01/22 10:36

**Lab Sample ID: 860-27143-2**  
Matrix: Water

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	464		0.500	mg/L			06/04/22 01:43	1

**Method: 300.0 - Anions, Ion Chromatography - DL**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	944		5.00	mg/L			06/04/22 01:56	10

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	202		10.0	mg/L		06/14/22 10:00	06/18/22 12:25	50

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.718		0.0100	mg/L		06/10/22 10:23	06/10/22 17:46	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2240		20.0	mg/L			06/06/22 13:40	1

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 860-55642/3  
Matrix: Water  
Analysis Batch: 55642

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.500	U	0.500	mg/L			06/03/22 19:42	1
Sulfate	<0.500	U	0.500	mg/L			06/03/22 19:42	1

Lab Sample ID: LCS 860-55642/6  
Matrix: Water  
Analysis Batch: 55642

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.615		mg/L		96	90 - 110
Sulfate	10.0	9.635		mg/L		96	90 - 110

Lab Sample ID: LCSD 860-55642/7  
Matrix: Water  
Analysis Batch: 55642

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	10.0	9.539		mg/L		95	90 - 110	1	20
Sulfate	10.0	9.611		mg/L		96	90 - 110	0	20

Lab Sample ID: LLCS 860-55642/5  
Matrix: Water  
Analysis Batch: 55642

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	0.500	0.5387		mg/L		108	50 - 150
Sulfate	0.500	0.5033		mg/L		101	50 - 150

## Method: 6010B - Metals (ICP)

Lab Sample ID: MB 860-56819/1-A  
Matrix: Water  
Analysis Batch: 57486

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 56819

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.200	U	0.200	mg/L		06/14/22 10:00	06/17/22 12:04	1

Lab Sample ID: LCS 860-56819/2-A  
Matrix: Water  
Analysis Batch: 57486

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 56819

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	26.90		mg/L		108	80 - 120

Lab Sample ID: LCSD 860-56819/3-A  
Matrix: Water  
Analysis Batch: 57486

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 56819

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	25.0	27.02		mg/L		108	80 - 120	0	20

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# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 860-27143-2 MS  
Matrix: Water  
Analysis Batch: 57486

Client Sample ID: MW-14  
Prep Type: Total/NA  
Prep Batch: 56819

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	191	E	25.0	213.6	E 4	mg/L		93	75 - 125

Lab Sample ID: 860-27143-2 MSD  
Matrix: Water  
Analysis Batch: 57486

Client Sample ID: MW-14  
Prep Type: Total/NA  
Prep Batch: 56819

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Calcium	191	E	25.0	213.6	E 4	mg/L		92	75 - 125	0	20

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 860-56418/1-A  
Matrix: Water  
Analysis Batch: 56535

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 56418

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0100	U	0.0100	mg/L		06/10/22 10:22	06/10/22 17:13	1

Lab Sample ID: LCS 860-56418/2-A  
Matrix: Water  
Analysis Batch: 56535

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 56418

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.100	0.09617		mg/L		96	80 - 120

Lab Sample ID: LCSD 860-56418/3-A  
Matrix: Water  
Analysis Batch: 56535

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 56418

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Boron	0.100	0.1036		mg/L		104	80 - 120	7	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 860-55769/1  
Matrix: Water  
Analysis Batch: 55769

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5.00	U	5.00	mg/L			06/06/22 13:40	1

Lab Sample ID: LCS 860-55769/2  
Matrix: Water  
Analysis Batch: 55769

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1033		mg/L		103	80 - 120

# QC Sample Results

Client: Hydrex Environmental  
 Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

**Lab Sample ID: LCSD 860-55769/3**  
**Matrix: Water**  
**Analysis Batch: 55769**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	966.0		mg/L		97	80 - 120	7	10

**Lab Sample ID: LLCS 860-55769/4**  
**Matrix: Water**  
**Analysis Batch: 55769**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	5.00	5.000		mg/L		100	50 - 150		

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# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## HPLC/IC

### Analysis Batch: 55642

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-1	MW-13	Total/NA	Water	300.0	
860-27143-2	MW-14	Total/NA	Water	300.0	
860-27143-2 - DL	MW-14	Total/NA	Water	300.0	
MB 860-55642/3	Method Blank	Total/NA	Water	300.0	
LCS 860-55642/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 860-55642/7	Lab Control Sample Dup	Total/NA	Water	300.0	
LLCS 860-55642/5	Lab Control Sample	Total/NA	Water	300.0	

## Metals

### Prep Batch: 56418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-2	MW-14	Total/NA	Water	3010A	
MB 860-56418/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-56418/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-56418/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Analysis Batch: 56535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-2	MW-14	Total/NA	Water	6020A	56418
MB 860-56418/1-A	Method Blank	Total/NA	Water	6020A	56418
LCS 860-56418/2-A	Lab Control Sample	Total/NA	Water	6020A	56418
LCSD 860-56418/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	56418

### Prep Batch: 56819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-2	MW-14	Total/NA	Water	3010A	
MB 860-56819/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-56819/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-56819/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
860-27143-2 MS	MW-14	Total/NA	Water	3010A	
860-27143-2 MSD	MW-14	Total/NA	Water	3010A	

### Analysis Batch: 57486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 860-56819/1-A	Method Blank	Total/NA	Water	6010B	56819
LCS 860-56819/2-A	Lab Control Sample	Total/NA	Water	6010B	56819
LCSD 860-56819/3-A	Lab Control Sample Dup	Total/NA	Water	6010B	56819
860-27143-2 MS	MW-14	Total/NA	Water	6010B	56819
860-27143-2 MSD	MW-14	Total/NA	Water	6010B	56819

### Analysis Batch: 57661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-2	MW-14	Total/NA	Water	6010B	56819

## General Chemistry

### Analysis Batch: 55769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-27143-2	MW-14	Total/NA	Water	SM 2540C	
MB 860-55769/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-55769/2	Lab Control Sample	Total/NA	Water	SM 2540C	

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# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## General Chemistry (Continued)

### Analysis Batch: 55769 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 860-55769/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
LLCS 860-55769/4	Lab Control Sample	Total/NA	Water	SM 2540C	

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# Lab Chronicle

Client: Hydrex Environmental  
 Project/Site: Twin Oaks PP

Job ID: 860-27143-1

**Client Sample ID: MW-13**

**Date Collected: 05/31/22 12:05**

**Date Received: 06/01/22 10:36**

**Lab Sample ID: 860-27143-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			55642	06/04/22 01:30	ANP	XEN STF

**Client Sample ID: MW-14**

**Date Collected: 05/31/22 11:21**

**Date Received: 06/01/22 10:36**

**Lab Sample ID: 860-27143-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			55642	06/04/22 01:43	ANP	XEN STF
Total/NA	Analysis	300.0	DL	10			55642	06/04/22 01:56	ANP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	56819	06/14/22 10:00	MD	XEN STF
Total/NA	Analysis	6010B		50			57661	06/18/22 12:25	AV	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	56418	06/10/22 10:23	PB	XEN STF
Total/NA	Analysis	6020A		1			56535	06/10/22 17:46	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	55769	06/06/22 13:40	JM	XEN STF

**Laboratory References:**

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Accreditation/Certification Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

## Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	21-038-0	08-04-22
Florida	NELAP	E871002	06-30-22
Louisiana	NELAP	03054	06-30-22
Oklahoma	State	2021-168	08-31-22
Texas	NELAP	T104704215-21-44	06-30-22
Texas	TCEQ Water Supply	T104704215	06-30-22
USDA	US Federal Programs	P330-22-00025	03-02-23

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# Method Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	XEN STF
6010B	Metals (ICP)	SW846	XEN STF
6020A	Metals (ICP/MS)	SW846	XEN STF
SM 2540C	Solids, Total Dissolved (TDS)	SM	XEN STF
3010A	Preparation, Total Metals	SW846	XEN STF

**Protocol References:**

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200



# Sample Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-27143-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
860-27143-1	MW-13	Water	05/31/22 12:05	06/01/22 10:36
860-27143-2	MW-14	Water	05/31/22 11:21	06/01/22 10:36

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# Chain of Custody Record

<b>Client Information</b>		Lab Pk: Bechtold, Chad		Carrier Tracking No(s): 860-10541-3665.1	
Michelle Transfer		E-Mail: Chad.Bechtold@et.eurofins.com		Page: Page 1 of 1	
Company: Hydrex Environmental		PWSID:		Job #:	
Address: 1120 NW Stallings Drive		Due Date Requested:		Analysis Requested	
City: Waco, Texas		TAT Requested (days):		Total Number of Containers: <input checked="" type="checkbox"/>	
State, Zip: TX, 76794		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		Preservation Codes: A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other	
Phone: 936-568-9451 (Tel)		PO #: 1-14-1007		M Hexane N None O AsHClO2 P Na2O4S Q Na2SO3 R Na2S2O3 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W PH 4-5 Y Trizma Z other (specify)	
Email: mtransfer@hydrex-inc.com		WO #: 1-14-1007		Special Instructions/Note:	
Project Name: Twin Oaks PP		Project #: 86000207		Temp: 27 IR ID:HOU-323 C/F: -0.9 Corrected Temp: 1.8	
Site:		SSOW#:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
<b>Sample Identification</b>		Sample Date		Special Instructions/OC Requirements:	
MW 13		5-31-22 1205		Empty Kit Relinquished by: _____	
AAW14		5-31-22 1121		Relinquished by: W Smith	
Matrix (W=water, S=sulfid, O=water, A=air)		Sample Type (C=Comp, G=grab)		Relinquished by: _____	
W		G		Relinquished by: _____	
W		G		Relinquished by: _____	
300 DRGM_28D Sulfate		N		Relinquished by: _____	
300 DRGM_28D Chloride & Sulfate		N		Relinquished by: _____	
6020A Boron: 6010B Calcium		N		Relinquished by: _____	
2640C Calc TDS		N		Relinquished by: _____	
Field Filtered Sample (Yes or No)		X		Relinquished by: _____	
Field Filtration Method (Yes or No)		X		Relinquished by: _____	
Sampler: Wks Smith		Date: 5-31-22		Relinquished by: _____	
Client Contact: Michelle Transfer		Date: 5-31-22		Relinquished by: _____	
Lab Pk: Bechtold, Chad		Date: 5-31-22		Relinquished by: _____	
E-Mail: Chad.Bechtold@et.eurofins.com		Date: 5-31-22		Relinquished by: _____	
Carrier Tracking No(s): 860-10541-3665.1		Date: 5-31-22		Relinquished by: _____	
Page: Page 1 of 1		Date: 5-31-22		Relinquished by: _____	
Job #:		Date: 5-31-22		Relinquished by: _____	
Analysis Requested		Date: 5-31-22		Relinquished by: _____	
Total Number of Containers: <input checked="" type="checkbox"/>		Date: 5-31-22		Relinquished by: _____	
Preservation Codes:		Date: 5-31-22		Relinquished by: _____	
A HCL		Date: 5-31-22		Relinquished by: _____	
B NaOH		Date: 5-31-22		Relinquished by: _____	
C Zn Acetate		Date: 5-31-22		Relinquished by: _____	
D Nitric Acid		Date: 5-31-22		Relinquished by: _____	
E NaHSO4		Date: 5-31-22		Relinquished by: _____	
F MeOH		Date: 5-31-22		Relinquished by: _____	
G Amchlor		Date: 5-31-22		Relinquished by: _____	
H Ascorbic Acid		Date: 5-31-22		Relinquished by: _____	
I Ice		Date: 5-31-22		Relinquished by: _____	
J DI Water		Date: 5-31-22		Relinquished by: _____	
K EDTA		Date: 5-31-22		Relinquished by: _____	
L EDA		Date: 5-31-22		Relinquished by: _____	
Other		Date: 5-31-22		Relinquished by: _____	
Special Instructions/Note:		Date: 5-31-22		Relinquished by: _____	
Temp: 27 IR ID:HOU-323		Date: 5-31-22		Relinquished by: _____	
C/F: -0.9		Date: 5-31-22		Relinquished by: _____	
Corrected Temp: 1.8		Date: 5-31-22		Relinquished by: _____	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Date: 5-31-22		Relinquished by: _____	
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Date: 5-31-22		Relinquished by: _____	
Special Instructions/OC Requirements:		Date: 5-31-22		Relinquished by: _____	
Empty Kit Relinquished by: _____		Date: 5-31-22		Relinquished by: _____	
Relinquished by: W Smith		Date: 5-31-22		Relinquished by: _____	
Relinquished by: _____		Date: 5-31-22		Relinquished by: _____	
Relinquished by: _____		Date: 5-31-22		Relinquished by: _____	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Date: 5-31-22		Relinquished by: _____	
Custody Seal No. _____		Date: 5-31-22		Relinquished by: _____	
Cooler Temperature(s) °C and Other Remarks:		Date: 5-31-22		Relinquished by: _____	
Method of Shipment:		Date: 5-31-22		Relinquished by: _____	
Receiver: _____		Date: 5-31-22		Relinquished by: _____	
Company: _____		Date: 5-31-22		Relinquished by: _____	
Receiver: _____		Date: 5-31-22		Relinquished by: _____	
Company: _____		Date: 5-31-22		Relinquished by: _____	
Receiver: _____		Date: 5-31-22		Relinquished by: _____	
Company: _____		Date: 5-31-22		Relinquished by: _____	



# Login Sample Receipt Checklist

Client: Hydrex Environmental

Job Number: 860-27143-1

**Login Number: 27143**

**List Number: 1**

**Creator: Rubio, Yuri**

**List Source: Eurofins Houston**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	


## ANALYTICAL REPORT

Eurofins Houston  
4145 Greenbriar Dr  
Stafford, TX 77477  
Tel: (281)240-4200

Laboratory Job ID: 860-28742-1  
Client Project/Site: Twin Oaks PP

For:  
Hydrex Environmental  
1120 NW Stallings Drive  
Nacogdoches, Texas 75964

Attn: Michelle Transier



Authorized for release by:  
7/8/2022 12:56:46 PM

Chad Bechtold, Project Manager  
(813)690-3563  
[Chad.Bechtold@et.eurofinsus.com](mailto:Chad.Bechtold@et.eurofinsus.com)

### LINKS

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results through



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Definitions/Glossary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Appendix A

## Laboratory Data Package Cover Page - Page 1 of 4

This data package is for Eurofins Houston job number 860-28742-1 and consists of:

- R1 - Field chain-of-custody documentation;
- R2 - Sample identification cross-reference;
- R3 - Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 - Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 - Test reports/summary forms for blank samples;
- R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- R10 - Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

**Release Statement:** I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Chad Bechtold  
Name (printed)



Signature

7/8/2022  
Date

Project Manager  
Official Title (printed)

# Laboratory Review Checklist: Reportable Data - Page 2 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	7/8/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-28742-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	<b>Chain-of-custody (C-O-C)</b>					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	<b>Sample and quality control (QC) identification</b>					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	<b>Test reports</b>					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	<b>Surrogate recovery data</b>					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	<b>Test reports/summary forms for blank samples</b>					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	<b>Laboratory control samples (LCS):</b>					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	<b>Analytical duplicate data</b>					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	<b>Method quantitation limits (MQLs):</b>					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	<b>Other problems/anomalies</b>					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?		X			R10B
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

- Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

# Laboratory Review checklist: Supporting Data - Page 3 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	7/8/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-28742-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
S1	OI	<b>Initial calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	<b>Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	<b>Mass spectral tuning</b>					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	<b>Internal standards (IS)</b>					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	<b>Raw data (NELAC Section 5.5.10)</b>					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	<b>Dual column confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	<b>Tentatively identified compounds (TICs)</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	<b>Interference Check Sample (ICS) results</b>					
		Were percent recoveries within method QC limits?	X				
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	<b>Method detection limit (MDL) studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSS?	X				
S11	OI	<b>Proficiency test reports</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	<b>Standards documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	<b>Compound/analyte identification procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	<b>Demonstration of analyst competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	<b>Verification/validation documentation for methods (NELAC Chapter 5)</b>					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	<b>Laboratory standard operating procedures (SOPs)</b>					
		Are laboratory SOPs current and on file for each method performed?	X				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports - Page 4 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	7/8/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-28742-1
Reviewer Name:	Chad Bechtold		

ER # <sup>1</sup>	Description
R10B	Method 6020A: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-14 (860-28742-1). Elevated reporting limits (RLs) are provided.
	<ol style="list-style-type: none"> <li>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</li> <li>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</li> <li>3. NA = Not applicable;</li> <li>4. NR = Not reviewed;</li> <li>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</li> </ol>

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# Case Narrative

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

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**Job ID: 860-28742-1**

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**Laboratory: Eurofins Houston**

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**Narrative**

**Job Narrative**  
**860-28742-1**

**Receipt**

The sample was received on 6/29/2022 10:19 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.6°C

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**Metals**

Method 6020A: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-14 (860-28742-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

**Client Sample ID: MW-14**

**Lab Sample ID: 860-28742-1**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	423		5.00	mg/L	10		300.0	Total/NA
Sulfate	933		5.00	mg/L	10		300.0	Total/NA
Calcium	211		10.0	mg/L	50		6010B	Total/NA
Boron	1.64		0.100	mg/L	10		6020A	Total/NA
Total Dissolved Solids	2340		20.0	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Houston



# Client Sample Results

Client: Hydrex Environmental  
 Project/Site: Twin Oaks PP

Job ID: 860-28742-1

**Client Sample ID: MW-14**  
 Date Collected: 06/28/22 07:45  
 Date Received: 06/29/22 10:19

**Lab Sample ID: 860-28742-1**  
 Matrix: Water

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	423		5.00	mg/L			07/02/22 14:46	10
Sulfate	933		5.00	mg/L			07/02/22 14:46	10

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	211		10.0	mg/L		07/01/22 10:00	07/07/22 13:15	50

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.64		0.100	mg/L		07/02/22 10:45	07/07/22 00:30	10

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2340		20.0	mg/L			07/03/22 16:03	1





# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 860-59487/3**  
**Matrix: Water**  
**Analysis Batch: 59487**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<0.500	U	0.500	mg/L			07/01/22 15:11	1
Sulfate	<0.500	U	0.500	mg/L			07/01/22 15:11	1

**Lab Sample ID: MB 860-59487/76**  
**Matrix: Water**  
**Analysis Batch: 59487**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<0.500	U	0.500	mg/L			07/02/22 07:26	1
Sulfate	<0.500	U	0.500	mg/L			07/02/22 07:26	1

**Lab Sample ID: LCS 860-59487/77**  
**Matrix: Water**  
**Analysis Batch: 59487**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.329	mg/L		93	90 - 110	

**Lab Sample ID: LCSD 860-59487/78**  
**Matrix: Water**  
**Analysis Batch: 59487**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	10.0	9.364	mg/L		94	90 - 110	0	20	

**Lab Sample ID: LLCS 860-59487/5**  
**Matrix: Water**  
**Analysis Batch: 59487**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	0.500	0.5061	mg/L		101	50 - 150	

## Method: 6010B - Metals (ICP)

**Lab Sample ID: MB 860-59428/1-A**  
**Matrix: Water**  
**Analysis Batch: 59884**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 59428**

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Calcium	<0.200	U	0.200	mg/L		07/01/22 10:00	07/05/22 19:34	1

**Lab Sample ID: LCS 860-59428/2-A**  
**Matrix: Water**  
**Analysis Batch: 59884**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 59428**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

Eurofins Houston

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCSD 860-59428/3-A  
Matrix: Water  
Analysis Batch: 59884

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 59428

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	25.0	24.78		mg/L		99	80 - 120	0	20

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 860-59583/1-A  
Matrix: Water  
Analysis Batch: 60082

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 59583

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0100	U	0.0100	mg/L		07/02/22 10:45	07/07/22 00:13	1

Lab Sample ID: LCS 860-59583/2-A  
Matrix: Water  
Analysis Batch: 60082

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 59583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.100	0.08663		mg/L		87	80 - 120

Lab Sample ID: LCSD 860-59583/3-A  
Matrix: Water  
Analysis Batch: 60082

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 59583

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.100	0.09161		mg/L		92	80 - 120	6	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 860-59635/1  
Matrix: Water  
Analysis Batch: 59635

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5.00	U	5.00	mg/L			07/03/22 16:03	1

Lab Sample ID: LCS 860-59635/2  
Matrix: Water  
Analysis Batch: 59635

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1027		mg/L		103	80 - 120

Lab Sample ID: LCSD 860-59635/3  
Matrix: Water  
Analysis Batch: 59635

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1051		mg/L		105	80 - 120	2	10

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LLCS 860-59635/4  
Matrix: Water  
Analysis Batch: 59635

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	5.00	6.000		mg/L		120	50 - 150

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# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## HPLC/IC

### Analysis Batch: 59487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	300.0	
MB 860-59487/3	Method Blank	Total/NA	Water	300.0	
MB 860-59487/76	Method Blank	Total/NA	Water	300.0	
LCS 860-59487/77	Lab Control Sample	Total/NA	Water	300.0	
LCSD 860-59487/78	Lab Control Sample Dup	Total/NA	Water	300.0	
LLCS 860-59487/5	Lab Control Sample	Total/NA	Water	300.0	

## Metals

### Prep Batch: 59428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	3010A	
MB 860-59428/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-59428/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-59428/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Prep Batch: 59583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	3010A	
MB 860-59583/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-59583/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-59583/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Analysis Batch: 59884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 860-59428/1-A	Method Blank	Total/NA	Water	6010B	59428
LCS 860-59428/2-A	Lab Control Sample	Total/NA	Water	6010B	59428
LCSD 860-59428/3-A	Lab Control Sample Dup	Total/NA	Water	6010B	59428

### Analysis Batch: 60082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	6020A	59583
MB 860-59583/1-A	Method Blank	Total/NA	Water	6020A	59583
LCS 860-59583/2-A	Lab Control Sample	Total/NA	Water	6020A	59583
LCSD 860-59583/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	59583

### Analysis Batch: 60122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	6010B	59428

## General Chemistry

### Analysis Batch: 59635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-28742-1	MW-14	Total/NA	Water	SM 2540C	
MB 860-59635/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-59635/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 860-59635/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
LLCS 860-59635/4	Lab Control Sample	Total/NA	Water	SM 2540C	

# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

**Client Sample ID: MW-14**

**Lab Sample ID: 860-28742-1**

**Date Collected: 06/28/22 07:45**

**Matrix: Water**

**Date Received: 06/29/22 10:19**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	0 mL	1.0 mL	59487	07/02/22 14:46	ANP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	59428	07/01/22 10:00	MD	XEN STF
Total/NA	Analysis	6010B		50			60122	07/07/22 13:15	DP	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	59583	07/02/22 10:45	MD	XEN STF
Total/NA	Analysis	6020A		10			60082	07/07/22 00:30	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	59635	07/03/22 16:03	ADL	XEN STF

**Laboratory References:**

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200



# Accreditation/Certification Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

## Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	21-038-0	08-04-22
Florida	NELAP	E871002	06-30-23
Louisiana	NELAP	03054	06-30-23
Oklahoma	State	2021-168	08-31-22
Texas	NELAP	T104704215-22-46	06-30-23
Texas	TCEQ Water Supply	T104704215	12-31-22
USDA	US Federal Programs	P330-22-00025	03-02-23

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# Method Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	XEN STF
6010B	Metals (ICP)	SW846	XEN STF
6020A	Metals (ICP/MS)	SW846	XEN STF
SM 2540C	Solids, Total Dissolved (TDS)	SM	XEN STF
3010A	Preparation, Total Metals	SW846	XEN STF

**Protocol References:**

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

XEN STF = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200



# Sample Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-28742-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
860-28742-1	MW-14	Water	06/28/22 07:45	06/29/22 10:19

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**Eurofins Xenco, Stafford**  
 4147 Greenbriar Dr  
 Stafford, TX 77477  
 Phone (281) 240-4200

Temp. **0.6** IR ID: HOU-323  
 C/F -0.0  
 Corrected Temp: **0.6**



**eurofins** | Environment Testing  
 America

860-28742 Chain of Custody

CC No:

Page: 1 of 1

Job #: **1115**

Company: **FedEx**

Date: **6/29/22**

Time: **1019**

**Client Information**  
 Client Contact: **Michelle Tranter**  
 Company: **Hydrex Environmental**  
 Address: **1120 NW Stallings Drive**  
 City: **Nacogdoches**  
 State, Zip: **TX, 75964**  
 Phone: **936-568-9451 (Tel)**  
 Email: **mtranter@hydrex-inc.com**  
 Project Name: **Twin Oaks PP**  
 Size: **SSOW#:**

Sampler: **WDS Smith**  
 Phone: **936-568-9451**  
 PWSID:

Lab P.M.: **Bechtold, Chad**  
 E-Mail: **chad.bechtold@eurofinset.com**

**Due Date Requested:**  
 TAT Requested (days): **RUSH 5 DAYS**  
 Compliance Project:  Yes  No

PO #: **1-14-1007**  
 WQ #: **1-14-1007**  
 Project #: **86000207**  
 SSSW#:

**Analysis Requested**

Preservation Codes:  
 A HCL  
 B NaOH  
 C Zn Acetate  
 D Nitric Acid  
 E NaHSO4  
 F MeOH  
 G Amchlor  
 H Ascorbic Acid  
 I Ice  
 J DI Water  
 K EDTA  
 L EDA  
 M Hexane  
 N None  
 O ASNAC2  
 P Na2CO3  
 Q Na2SO3  
 R Na2S2O3  
 S H2SO4  
 T TSP Dodecylhydrate  
 U Acetone  
 V MCAA  
 W pH 4-5  
 Z other (specify)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=unknown)	Field Filtered Sample (Yes or No)		Analysis Requested							Total Number of containers	Special Instructions/Note
					Preservation Code	Field Filtered	Chloride	Sulfate	Baron	Calcium	TDS				
MMW-14	06/08/22	0705	G	W	N	X	X	X	X	X	X	X	3		

**Possible Hazard Identification**  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological  
 Deliverable Requested: I II, III IV Other (specify)

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

**Special Instructions/QC Requirements:**

**Empty Kit Relinquished by:** \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_

**Relinquished by:** **WDS Smith** Date/Time: **6/29/22 1115** Company: **Hydrex** Received by: **FedEx** Date/Time: **6/29/22 1019** Company: **Eurofins**

**Relinquished by:** **FedEx** Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_ Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

**Custody Seats Intact:**  Yes  No **Custody Seal No.** \_\_\_\_\_ Cooler Temperature(s) °C and Other Remarks: \_\_\_\_\_

## Login Sample Receipt Checklist

Client: Hydrex Environmental

Job Number: 860-28742-1

**Login Number: 28742**

**List Number: 1**

**Creator: Torres, Sandra**

**List Source: Eurofins Houston**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	



## ANALYTICAL REPORT

Eurofins Houston  
4147 Greenbriar Dr  
Stafford, TX 77477  
Tel: (281)240-4200

Laboratory Job ID: 860-29672-1  
Client Project/Site: Twin Oaks PP

For:  
Hydrex Environmental  
1120 NW Stallings Drive  
Nacogdoches, Texas 75964

Attn: Michelle Transier



Authorized for release by:  
7/25/2022 5:05:52 PM

Chad Bechtold, Project Manager  
(813)690-3563  
[Chad.Bechtold@et.eurofinsus.com](mailto:Chad.Bechtold@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Definitions/Glossary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-29672-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-29672-1

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**Job ID: 860-29672-1**

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**Laboratory: Eurofins Houston**

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**Narrative**

**Job Narrative  
860-29672-1**

**Receipt**

The sample was received on 7/15/2022 12:17 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 23.4°C

**Metals**

Method 6020A: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-14 (860-29672-1). Elevated reporting limits (RLs) are provided.

Method 6020A: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-14 (860-29672-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-29672-1

**Client Sample ID: MW-14**

**Lab Sample ID: 860-29672-1**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.762		0.0100	mg/L	1		6020A	Total/NA
Boron, Dissolved	1.03		0.500	mg/L	50		6020A	Dissolved
Total Dissolved Solids	2700		20.0	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

Client: Hydrex Environmental  
 Project/Site: Twin Oaks PP

Job ID: 860-29672-1

**Client Sample ID: MW-14**  
 Date Collected: 07/14/22 10:11  
 Date Received: 07/15/22 12:17

**Lab Sample ID: 860-29672-1**  
 Matrix: Water

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.762		0.0100	mg/L		07/16/22 10:45	07/18/22 18:13	1

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron, Dissolved	1.03		0.500	mg/L		07/20/22 08:30	07/20/22 22:03	50

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2700		20.0	mg/L			07/20/22 12:09	1





# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-29672-1

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 860-61259/1-A**  
**Matrix: Water**  
**Analysis Batch: 61564**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 61259**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0100	U	0.0100	mg/L		07/16/22 10:45	07/18/22 17:42	1

**Lab Sample ID: LCS 860-61259/2-A**  
**Matrix: Water**  
**Analysis Batch: 61564**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 61259**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.100	0.09388		mg/L		94	80 - 120

**Lab Sample ID: LCSD 860-61259/3-A**  
**Matrix: Water**  
**Analysis Batch: 61564**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 61259**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.100	0.09580		mg/L		96	80 - 120	2	20

**Lab Sample ID: MB 860-61673/1-A**  
**Matrix: Water**  
**Analysis Batch: 61932**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 61673**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron, Dissolved	<0.0100	U	0.0100	mg/L		07/20/22 08:30	07/20/22 22:54	1

**Lab Sample ID: LCS 860-61673/2-A**  
**Matrix: Water**  
**Analysis Batch: 61932**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 61673**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron, Dissolved	0.100	0.09984		mg/L		100	80 - 120

**Lab Sample ID: LCSD 860-61673/3-A**  
**Matrix: Water**  
**Analysis Batch: 61932**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 61673**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron, Dissolved	0.100	0.1030		mg/L		103	80 - 120	3	20

**Lab Sample ID: MB 860-61475/1-B**  
**Matrix: Water**  
**Analysis Batch: 61932**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**  
**Prep Batch: 61673**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron, Dissolved	<0.0100	U	0.0100	mg/L		07/20/22 08:30	07/20/22 21:51	1

**Lab Sample ID: LCS 860-61475/2-B**  
**Matrix: Water**  
**Analysis Batch: 61932**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**  
**Prep Batch: 61673**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron, Dissolved	0.100	0.1002		mg/L		100	80 - 120

Eurofins Houston

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-29672-1

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: LCSD 860-61475/3-B  
Matrix: Water  
Analysis Batch: 61932

Client Sample ID: Lab Control Sample Dup  
Prep Type: Dissolved  
Prep Batch: 61673

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron, Dissolved	0.100	0.1021		mg/L		102	80 - 120	2	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 860-61739/1  
Matrix: Water  
Analysis Batch: 61739

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5.00	U	5.00	mg/L			07/20/22 12:09	1

Lab Sample ID: LCS 860-61739/2  
Matrix: Water  
Analysis Batch: 61739

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1045		mg/L		105	80 - 120

Lab Sample ID: LCSD 860-61739/3  
Matrix: Water  
Analysis Batch: 61739

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1010		mg/L		101	80 - 120	3	10

Lab Sample ID: LLCS 860-61739/4  
Matrix: Water  
Analysis Batch: 61739

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	5.00	<5.00	U	mg/L		70	50 - 150

# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-29672-1

## Metals

### Prep Batch: 61259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-29672-1	MW-14	Total/NA	Water	3010A	
MB 860-61259/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-61259/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-61259/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Filtration Batch: 61475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-29672-1	MW-14	Dissolved	Water	Filtration	
MB 860-61475/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 860-61475/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 860-61475/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	

### Analysis Batch: 61564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-29672-1	MW-14	Total/NA	Water	6020A	61259
MB 860-61259/1-A	Method Blank	Total/NA	Water	6020A	61259
LCS 860-61259/2-A	Lab Control Sample	Total/NA	Water	6020A	61259
LCSD 860-61259/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	61259

### Prep Batch: 61673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-29672-1	MW-14	Dissolved	Water	3010A	61475
MB 860-61475/1-B	Method Blank	Dissolved	Water	3010A	61475
MB 860-61673/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-61475/2-B	Lab Control Sample	Dissolved	Water	3010A	61475
LCS 860-61673/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-61475/3-B	Lab Control Sample Dup	Dissolved	Water	3010A	61475
LCSD 860-61673/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

### Analysis Batch: 61932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-29672-1	MW-14	Dissolved	Water	6020A	61673
MB 860-61475/1-B	Method Blank	Dissolved	Water	6020A	61673
MB 860-61673/1-A	Method Blank	Total/NA	Water	6020A	61673
LCS 860-61475/2-B	Lab Control Sample	Dissolved	Water	6020A	61673
LCS 860-61673/2-A	Lab Control Sample	Total/NA	Water	6020A	61673
LCSD 860-61475/3-B	Lab Control Sample Dup	Dissolved	Water	6020A	61673
LCSD 860-61673/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	61673

## General Chemistry

### Analysis Batch: 61739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-29672-1	MW-14	Total/NA	Water	SM 2540C	
MB 860-61739/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-61739/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 860-61739/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
LLCS 860-61739/4	Lab Control Sample	Total/NA	Water	SM 2540C	

# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-29672-1

**Client Sample ID: MW-14**

**Lab Sample ID: 860-29672-1**

**Date Collected: 07/14/22 10:11**

**Matrix: Water**

**Date Received: 07/15/22 12:17**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dil Factor</u>	<u>Initial Amount</u>	<u>Final Amount</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Dissolved	Filtration	Filtration			250 mL	250 mL	61475	07/18/22 12:00	PB	XEN STF
Dissolved	Prep	3010A			50 mL	50 mL	61673	07/20/22 08:30	MD	XEN STF
Dissolved	Analysis	6020A		50			61932	07/20/22 22:03	SHZ	XEN STF
Total/NA	Prep	3010A			50 mL	50 mL	61259	07/16/22 10:45	MD	XEN STF
Total/NA	Analysis	6020A		1			61564	07/18/22 18:13	SHZ	XEN STF
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	61739	07/20/22 12:09	ADL	XEN STF

**Laboratory References:**

XEN STF = Eurofins Houston, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Accreditation/Certification Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-29672-1

## Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	21-038-0	08-04-22
Florida	NELAP	E871002	06-30-23
Louisiana	NELAP	03054	06-30-23
Oklahoma	State	2021-168	08-31-22
Texas	NELAP	T104704215-22-47	06-30-23
Texas	TCEQ Water Supply	T104704215	12-31-22
USDA	US Federal Programs	P330-22-00025	03-02-23

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- 14

# Method Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-29672-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	XEN STF
SM 2540C	Solids, Total Dissolved (TDS)	SM	XEN STF
3010A	Preparation, Total Metals	SW846	XEN STF
Filtration	Sample Filtration	None	XEN STF

#### Protocol References:

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

XEN STF = Eurofins Houston, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Sample Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-29672-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
860-29672-1	MW-14	Water	07/14/22 10:11	07/15/22 12:17

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**Eurofins Xenco, Stafford**  
 4147 Greenbriar Dr  
 Stafford, TX 77477  
 Phone (281) 240-4200

# Chain of Custody Record

**eurofins** | Environment Testing  
 Americas

<b>Client Information</b> Client Contact: Michelle Transier Company: Hydrex Environmental Address: 1120 NW Stallings Drive City: Macomb, TX State, Zip: TX, 75864 Phone: 936-568-9451 (Tel) Email: mtransier@hydrex-inc.com Project Name: Twin Oaks PP Site:		Lab PM: Bechtold, Chad E-Mail: chad.bechtold@eurofins.com PWSID:	
Sampler: Seth D. King Phone: 936-568-9451 Due Date Requested: 7/17 Requested (days): <b>RUSH 3 DAYS</b> Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No PO #: 1-14-1007 WO #: 1-14-1007 Project #: 86000207 SSOW#:		Carrier Tracking No(s): State of Origin: Page: Page 1 of 1 Job #:	
<b>Sample Identification</b> MW-14 Sample Date: 07-14-22 Sample Time: 1011 Sample Type (C=Comp, G=grab): G Matrix (Wet, Swell, Overheat, Int-Tissue, A-Alt): W		<b>Analysis Requested</b> Total Number of Containers: 3 Lab filter 0.45 micron Special Instructions/Note:	
<b>Sample Identification</b> Temp: IR ID:HOU-339 C/F: 1.4 <b>24.8</b> Corrected Temp: <b>23.4</b>		Preservation Codes: A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Z other (specify) Other:	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I, II, III, IV Other (specify)		<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:	
Empty Kit Relinquished by: S. D. King Relinquished by: S. D. King Relinquished by: S. D. King Relinquished by: S. D. King		Method of Shipment: Received by: Fedex Date/Time: 07-14-22 1430 Company: Fedex Received by: S. D. King Date/Time: 7/15/22 1617 Company: EA Received by: S. D. King Date/Time:	
Custody Seals Intact: <input checked="" type="checkbox"/> Custody Seal No.		Cooler Temperature(s) °C and Other Remarks:	





# Login Sample Receipt Checklist

Client: Hydrex Environmental

Job Number: 860-29672-1

**Login Number: 29672**

**List Number: 1**

**Creator: Milone, Jeancarlo**

**List Source: Eurofins Houston**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	No ice per client request.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

## ANALYTICAL REPORT

Eurofins Houston  
4145 Greenbriar Dr  
Stafford, TX 77477  
Tel: (281)240-4200

Laboratory Job ID: 860-32955-1  
Client Project/Site: Twin Oaks PP

For:  
Hydrex Environmental  
1120 NW Stallings Drive  
Nacogdoches, Texas 75964

Attn: Michelle Transier



Authorized for release by:  
9/23/2022 9:22:01 AM

Chad Bechtold, Project Manager  
(813)690-3563  
[Chad.Bechtold@et.eurofinsus.com](mailto:Chad.Bechtold@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Definitions/Glossary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Appendix A

## Laboratory Data Package Cover Page - Page 1 of 4

This data package is for Eurofins Houston job number 860-32955-1 and consists of:

- R1 - Field chain-of-custody documentation;
- R2 - Sample identification cross-reference;
- R3 - Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 - Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 - Test reports/summary forms for blank samples;
- R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- R10 - Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

**Release Statement:** I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Chad Bechtold

Name (printed)



Signature

9/23/2022

Date

Project Manager

Official Title (printed)

# Laboratory Review Checklist: Reportable Data - Page 2 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	9/23/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-32955-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	<b>Chain-of-custody (C-O-C)</b>					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	<b>Sample and quality control (QC) identification</b>					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	<b>Test reports</b>					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	<b>Surrogate recovery data</b>					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	<b>Test reports/summary forms for blank samples</b>					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	<b>Laboratory control samples (LCS):</b>					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			R07C
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	<b>Analytical duplicate data</b>					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	<b>Method quantitation limits (MQLs):</b>					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	<b>Other problems/anomalies</b>					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

- Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

# Laboratory Review checklist: Supporting Data - Page 3 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	9/23/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-32955-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
S1	OI	<b>Initial calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	<b>Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	<b>Mass spectral tuning</b>					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	<b>Internal standards (IS)</b>					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	<b>Raw data (NELAC Section 5.5.10)</b>					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	<b>Dual column confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	<b>Tentatively identified compounds (TICs)</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	<b>Interference Check Sample (ICS) results</b>					
		Were percent recoveries within method QC limits?	X				
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	<b>Method detection limit (MDL) studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSS?	X				
S11	OI	<b>Proficiency test reports</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	<b>Standards documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	<b>Compound/analyte identification procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	<b>Demonstration of analyst competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	<b>Verification/validation documentation for methods (NELAC Chapter 5)</b>					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	<b>Laboratory standard operating procedures (SOPs)</b>					
		Are laboratory SOPs current and on file for each method performed?	X				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports - Page 4 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	9/23/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-32955-1
Reviewer Name:	Chad Bechtold		

ER # <sup>1</sup>	Description
R07C	<p>Method 300.0: 860-32955-1 MS failed the recovery criteria for the following analyte(s): Chloride, Sulfate. Matrix interference is suspected.</p> <p>Method 300.0: 860-32955-1 MSD failed the recovery criteria for the following analyte(s): Chloride, Sulfate. Matrix interference is suspected.</p> <p>Method 6010B: Due to the high concentration of Calcium, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 860-68824 and analytical batch 860-68977 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.</p>
	<ol style="list-style-type: none"> <li>Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</li> <li>O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</li> <li>NA = Not applicable;</li> <li>NR = Not reviewed;</li> <li>ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</li> </ol>





# Case Narrative

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

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**Job ID: 860-32955-1**

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**Laboratory: Eurofins Houston**

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**Narrative**

**Job Narrative  
860-32955-1**

**Receipt**

The samples were received on 9/9/2022 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.5°C

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**Metals**

Method 6010B: Due to the high concentration of Calcium, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 860-68824 and analytical batch 860-68977 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

## Client Sample ID: MW-18

Lab Sample ID: 860-32955-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	116		0.500	mg/L	1		300.0	Total/NA
Sulfate	335		0.500	mg/L	1		300.0	Total/NA
Calcium	113		10.0	mg/L	50		6010B	Total/NA
Boron	0.157		0.0500	mg/L	1		6010B	Total/NA
Total Dissolved Solids	802		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.9	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	14.7	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-20

Lab Sample ID: 860-32955-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	155		0.500	mg/L	1		300.0	Total/NA
Sulfate	308		0.500	mg/L	1		300.0	Total/NA
Calcium	79.5		10.0	mg/L	50		6010B	Total/NA
Boron	0.205		0.0500	mg/L	1		6010B	Total/NA
Total Dissolved Solids	780		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.6	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	15.4	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-21

Lab Sample ID: 860-32955-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	133		0.500	mg/L	1		300.0	Total/NA
Sulfate	177		0.500	mg/L	1		300.0	Total/NA
Calcium	43.9		0.200	mg/L	1		6010B	Total/NA
Total Dissolved Solids	529		10.0	mg/L	1		SM 2540C	Total/NA
pH	6.3	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.4	HF		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Houston

# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

**Client Sample ID: MW-18**

**Lab Sample ID: 860-32955-1**

Date Collected: 09/07/22 13:50

Matrix: Water

Date Received: 09/09/22 10:20

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	116		0.500	mg/L			09/22/22 14:46	1
Fluoride	<0.500	U	0.500	mg/L			09/22/22 14:46	1
Sulfate	335		0.500	mg/L			09/22/22 14:46	1

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	113		10.0	mg/L		09/13/22 11:20	09/13/22 20:36	50
Boron	0.157		0.0500	mg/L		09/13/22 11:20	09/13/22 20:18	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	802		10.0	mg/L			09/12/22 10:39	1
pH	6.9	HF		SU			09/13/22 13:13	1
Temperature	14.7	HF		Degrees C			09/13/22 13:13	1

**Client Sample ID: MW-20**

**Lab Sample ID: 860-32955-2**

Date Collected: 09/07/22 10:40

Matrix: Water

Date Received: 09/09/22 10:20

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	155		0.500	mg/L			09/22/22 15:21	1
Fluoride	<0.500	U	0.500	mg/L			09/22/22 15:21	1
Sulfate	308		0.500	mg/L			09/22/22 15:21	1

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	79.5		10.0	mg/L		09/13/22 11:20	09/13/22 22:31	50
Boron	0.205		0.0500	mg/L		09/13/22 11:20	09/13/22 20:47	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	780		10.0	mg/L			09/12/22 10:39	1
pH	6.6	HF		SU			09/13/22 13:14	1
Temperature	15.4	HF		Degrees C			09/13/22 13:14	1

**Client Sample ID: MW-21**

**Lab Sample ID: 860-32955-3**

Date Collected: 09/07/22 16:10

Matrix: Water

Date Received: 09/09/22 10:20

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	133		0.500	mg/L			09/22/22 15:33	1
Fluoride	<0.500	U	0.500	mg/L			09/22/22 15:33	1
Sulfate	177		0.500	mg/L			09/22/22 15:33	1

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	43.9		0.200	mg/L		09/13/22 11:20	09/13/22 20:51	1
Boron	<0.0500	U	0.0500	mg/L		09/13/22 11:20	09/13/22 20:51	1

# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

**Client Sample ID: MW-21**  
Date Collected: 09/07/22 16:10  
Date Received: 09/09/22 10:20

**Lab Sample ID: 860-32955-3**  
Matrix: Water

## General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	529		10.0	mg/L			09/12/22 10:39	1
pH	6.3	HF		SU			09/13/22 13:16	1
Temperature	16.4	HF		Degrees C			09/13/22 13:16	1

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# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 860-70205/3**  
**Matrix: Water**  
**Analysis Batch: 70205**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<0.500	U	0.500	mg/L			09/22/22 13:46	1
Fluoride	<0.500	U	0.500	mg/L			09/22/22 13:46	1
Sulfate	<0.500	U	0.500	mg/L			09/22/22 13:46	1

**Lab Sample ID: LCS 860-70205/6**  
**Matrix: Water**  
**Analysis Batch: 70205**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	10.0	10.59		mg/L		106	90 - 110
Sulfate	10.0	9.033		mg/L		90	90 - 110

**Lab Sample ID: LCSD 860-70205/7**  
**Matrix: Water**  
**Analysis Batch: 70205**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	10.0	10.64		mg/L		106	90 - 110	0	20
Sulfate	10.0	9.109		mg/L		91	90 - 110	1	20

**Lab Sample ID: LLCS 860-70205/5**  
**Matrix: Water**  
**Analysis Batch: 70205**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.500	0.4554	J	mg/L		91	50 - 150
Sulfate	0.500	0.5233		mg/L		105	50 - 150

**Lab Sample ID: 860-32955-1 MS**  
**Matrix: Water**  
**Analysis Batch: 70205**

**Client Sample ID: MW-18**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	<0.500	U	10.0	10.44		mg/L		103	90 - 110
Sulfate	335		10.0	329.0	4	mg/L		-59	90 - 110

**Lab Sample ID: 860-32955-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 70205**

**Client Sample ID: MW-18**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	<0.500	U	10.0	10.52		mg/L		104	90 - 110	1	20
Sulfate	335		10.0	331.2	4	mg/L		-37	90 - 110	1	20

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

## Method: 6010B - Metals (ICP)

Lab Sample ID: MB 860-68824/1-A  
Matrix: Water  
Analysis Batch: 68977

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 68824

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.200	U	0.200	mg/L		09/13/22 11:20	09/13/22 20:06	1
Boron	<0.0500	U	0.0500	mg/L		09/13/22 11:20	09/13/22 20:06	1

Lab Sample ID: LCS 860-68824/2-A  
Matrix: Water  
Analysis Batch: 68977

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 68824

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	24.10		mg/L		96	80 - 120
Boron	1.00	0.9780		mg/L		98	80 - 120

Lab Sample ID: LCSD 860-68824/3-A  
Matrix: Water  
Analysis Batch: 68977

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 68824

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	25.0	24.20		mg/L		97	80 - 120	0	20
Boron	1.00	0.9790		mg/L		98	80 - 120	0	20

Lab Sample ID: 860-32955-1 MS  
Matrix: Water  
Analysis Batch: 68977

Client Sample ID: MW-18  
Prep Type: Total/NA  
Prep Batch: 68824

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	117	E	25.0	135.0	E 4	mg/L		72	75 - 125
Boron	0.157		1.00	1.130		mg/L		97	75 - 125

Lab Sample ID: 860-32955-1 MSD  
Matrix: Water  
Analysis Batch: 68977

Client Sample ID: MW-18  
Prep Type: Total/NA  
Prep Batch: 68824

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	117	E	25.0	136.0	E 4	mg/L		76	75 - 125	1	20
Boron	0.157		1.00	1.140		mg/L		98	75 - 125	1	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 860-68647/1  
Matrix: Water  
Analysis Batch: 68647

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5.00	U	5.00	mg/L			09/12/22 10:39	1

Lab Sample ID: LCS 860-68647/2  
Matrix: Water  
Analysis Batch: 68647

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	962.0		mg/L		96	80 - 120

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# QC Sample Results

Client: Hydrex Environmental  
 Project/Site: Twin Oaks PP

Job ID: 860-32955-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

**Lab Sample ID: LCSD 860-68647/3**  
**Matrix: Water**  
**Analysis Batch: 68647**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	966.0		mg/L		97	80 - 120	0	10

**Lab Sample ID: LLCS 860-68647/4**  
**Matrix: Water**  
**Analysis Batch: 68647**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	5.00	<5.00	U	mg/L		90	50 - 150		

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# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

## HPLC/IC

### Analysis Batch: 70205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32955-1	MW-18	Total/NA	Water	300.0	
860-32955-2	MW-20	Total/NA	Water	300.0	
860-32955-3	MW-21	Total/NA	Water	300.0	
MB 860-70205/3	Method Blank	Total/NA	Water	300.0	
LCS 860-70205/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 860-70205/7	Lab Control Sample Dup	Total/NA	Water	300.0	
LLCS 860-70205/5	Lab Control Sample	Total/NA	Water	300.0	
860-32955-1 MS	MW-18	Total/NA	Water	300.0	
860-32955-1 MSD	MW-18	Total/NA	Water	300.0	

## Metals

### Prep Batch: 68824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32955-1	MW-18	Total/NA	Water	3010A	
860-32955-2	MW-20	Total/NA	Water	3010A	
860-32955-3	MW-21	Total/NA	Water	3010A	
MB 860-68824/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-68824/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-68824/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
860-32955-1 MS	MW-18	Total/NA	Water	3010A	
860-32955-1 MSD	MW-18	Total/NA	Water	3010A	

### Analysis Batch: 68977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32955-1	MW-18	Total/NA	Water	6010B	68824
860-32955-1	MW-18	Total/NA	Water	6010B	68824
860-32955-2	MW-20	Total/NA	Water	6010B	68824
860-32955-2	MW-20	Total/NA	Water	6010B	68824
860-32955-3	MW-21	Total/NA	Water	6010B	68824
MB 860-68824/1-A	Method Blank	Total/NA	Water	6010B	68824
LCS 860-68824/2-A	Lab Control Sample	Total/NA	Water	6010B	68824
LCSD 860-68824/3-A	Lab Control Sample Dup	Total/NA	Water	6010B	68824
860-32955-1 MS	MW-18	Total/NA	Water	6010B	68824
860-32955-1 MSD	MW-18	Total/NA	Water	6010B	68824

## General Chemistry

### Analysis Batch: 68647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32955-1	MW-18	Total/NA	Water	SM 2540C	
860-32955-2	MW-20	Total/NA	Water	SM 2540C	
860-32955-3	MW-21	Total/NA	Water	SM 2540C	
MB 860-68647/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-68647/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 860-68647/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
LLCS 860-68647/4	Lab Control Sample	Total/NA	Water	SM 2540C	

### Analysis Batch: 68854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32955-1	MW-18	Total/NA	Water	SM 4500 H+ B	
860-32955-2	MW-20	Total/NA	Water	SM 4500 H+ B	

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# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

## General Chemistry (Continued)

### Analysis Batch: 68854 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32955-3	MW-21	Total/NA	Water	SM 4500 H+ B	

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# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

## Client Sample ID: MW-18

Lab Sample ID: 860-32955-1

Date Collected: 09/07/22 13:50

Matrix: Water

Date Received: 09/09/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			70205	09/22/22 14:46	WP	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	68824	09/13/22 11:20	MD	EET HOU
Total/NA	Analysis	6010B		1			68977	09/13/22 20:18	DP	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	68824	09/13/22 11:20	MD	EET HOU
Total/NA	Analysis	6010B		50			68977	09/13/22 20:36	DP	EET HOU
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	68647	09/12/22 10:39	MCA	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			68854	09/13/22 13:13	TL	EET HOU

## Client Sample ID: MW-20

Lab Sample ID: 860-32955-2

Date Collected: 09/07/22 10:40

Matrix: Water

Date Received: 09/09/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			70205	09/22/22 15:21	WP	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	68824	09/13/22 11:20	MD	EET HOU
Total/NA	Analysis	6010B		1			68977	09/13/22 20:47	DP	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	68824	09/13/22 11:20	MD	EET HOU
Total/NA	Analysis	6010B		50			68977	09/13/22 22:31	DP	EET HOU
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	68647	09/12/22 10:39	MCA	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			68854	09/13/22 13:14	TL	EET HOU

## Client Sample ID: MW-21

Lab Sample ID: 860-32955-3

Date Collected: 09/07/22 16:10

Matrix: Water

Date Received: 09/09/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			70205	09/22/22 15:33	WP	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	68824	09/13/22 11:20	MD	EET HOU
Total/NA	Analysis	6010B		1			68977	09/13/22 20:51	DP	EET HOU
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	68647	09/12/22 10:39	MCA	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			68854	09/13/22 13:16	TL	EET HOU

**Laboratory References:**

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Accreditation/Certification Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

## Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00759	08-04-23
Florida	NELAP	E871002	06-30-23
Louisiana	NELAP	03054	06-30-23
Oklahoma	State	1306	08-31-23
Texas	NELAP	T104704215-22-47	06-30-23
Texas	TCEQ Water Supply	T104704215	12-31-22
USDA	US Federal Programs	P330-22-00025	03-02-23

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# Method Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET HOU
6010B	Metals (ICP)	SW846	EET HOU
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET HOU
SM 4500 H+ B	pH	SM	EET HOU
3010A	Preparation, Total Metals	SW846	EET HOU

**Protocol References:**

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200



# Sample Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32955-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
860-32955-1	MW-18	Water	09/07/22 13:50	09/09/22 10:20
860-32955-2	MW-20	Water	09/07/22 10:40	09/09/22 10:20
860-32955-3	MW-21	Water	09/07/22 16:10	09/09/22 10:20

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# Chain of Custody Record

<b>Client Information</b>		Sampler: <u>Uziel Rendon</u>		Lab P/N: <u>Bechtold, Chad</u>		COC No:					
Client Contact: <u>Michelle Transier</u>		Phone: <u>936-568-9451</u>		E-Mail: <u>chad.bechtold@eurofins.com</u>		Page: <u>Page 1 of 1</u>					
Company: <u>Hydrex Environmental</u>		Address: <u>1120 NW Stallings Drive</u>		City: <u>Nacogdoches</u>		State of Origin: <u>TX</u>					
City: <u>Nacogdoches</u>		State: <u>TX</u>		Zip: <u>75964</u>		Job #:					
Phone: <u>936-568-9451 (Tel)</u>		PO #: <u>I-14-1007</u>		TAT Requested (days): <u>RUSH</u>		Preservation Codes:					
Email: <u>mtransier@hydrex-inc.com</u>		W/O #: <u>I-14-1007</u>		Compliance Project: <u>Δ Yes Δ No</u>		A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Z other (specify)					
Project Name: <u>Twin Oaks PP</u>		Project #: <u>86000207</u>		SSOW#:		Special Instructions/Note:					
Site:		Due Date Requested:		Analysis Requested		Temp: <u>1.2</u> IR ID:HOU-343 C/F: <u>+0.3</u> Corrected Temp: <u>1.5</u>					
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, B=BI-Tissue, A=Air)	Chloride	Fluoride	Sulfate	Boron	Calcium	TDS	pH
MW-18	9/7/22	1350	G	W	X	X	X	X	X	X	X
MW-20	9/7/22	1040	G	W	X	X	X	X	X	X	X
MW-21	9/7/22	1610	G	W	X	X	X	X	X	X	X
 860-32955 Chain of Custody											
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological											
Deliverable Requested: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/> Other (specify)											
Empty Kit: Relinquished by: _____ Date: _____ Method of Shipment: _____											
Relinquished by: <u>Lajin Rendon</u> Date/Time: <u>9/9/22</u> Company: <u>Hydrex</u>											
Relinquished by: <u>JCRS</u> Date/Time: <u>9/9/22 1020</u> Company: _____											
Relinquished by: _____ Date/Time: _____ Company: _____											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Δ <input type="checkbox"/> No <input type="checkbox"/> Δ <input type="checkbox"/> No <input type="checkbox"/> Δ <input type="checkbox"/> No											
Custody Seal No. _____											



## Login Sample Receipt Checklist

Client: Hydrex Environmental

Job Number: 860-32955-1

**Login Number: 32955**

**List Number: 1**

**Creator: Rubio, Yuri**

**List Source: Eurofins Houston**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	




## ANALYTICAL REPORT

Eurofins Houston  
4145 Greenbriar Dr  
Stafford, TX 77477  
Tel: (281)240-4200

Laboratory Job ID: 860-32956-1  
Client Project/Site: Twin Oaks PP

For:  
Hydrex Environmental  
1120 NW Stallings Drive  
Nacogdoches, Texas 75964

Attn: Michelle Transier



Authorized for release by:  
9/23/2022 9:26:56 AM

Chad Bechtold, Project Manager  
(813)690-3563  
[Chad.Bechtold@et.eurofinsus.com](mailto:Chad.Bechtold@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Definitions/Glossary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Appendix A

## Laboratory Data Package Cover Page - Page 1 of 4

This data package is for Eurofins Houston job number 860-32956-1 and consists of:

- R1 - Field chain-of-custody documentation;
- R2 - Sample identification cross-reference;
- R3 - Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 - Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 - Test reports/summary forms for blank samples;
- R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- R10 - Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

**Release Statement:** I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Chad Bechtold

Name (printed)



Signature

9/23/2022

Date

Project Manager

Official Title (printed)

# Laboratory Review Checklist: Reportable Data - Page 2 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	9/23/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-32956-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	<b>Chain-of-custody (C-O-C)</b>					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	<b>Sample and quality control (QC) identification</b>					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	<b>Test reports</b>					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	<b>Surrogate recovery data</b>					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	<b>Test reports/summary forms for blank samples</b>					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	<b>Laboratory control samples (LCS):</b>					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			R07C
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	<b>Analytical duplicate data</b>					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	<b>Method quantitation limits (MQLs):</b>					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	<b>Other problems/anomalies</b>					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

- Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

# Laboratory Review checklist: Supporting Data - Page 3 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	9/23/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-32956-1
Reviewer Name:	Chad Bechtold		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
S1	OI	<b>Initial calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	<b>Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	<b>Mass spectral tuning</b>					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	<b>Internal standards (IS)</b>					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	<b>Raw data (NELAC Section 5.5.10)</b>					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	<b>Dual column confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	<b>Tentatively identified compounds (TICs)</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	<b>Interference Check Sample (ICS) results</b>					
		Were percent recoveries within method QC limits?	X				
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	<b>Method detection limit (MDL) studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSS?	X				
S11	OI	<b>Proficiency test reports</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	<b>Standards documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	<b>Compound/analyte identification procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	<b>Demonstration of analyst competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	<b>Verification/validation documentation for methods (NELAC Chapter 5)</b>					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	<b>Laboratory standard operating procedures (SOPs)</b>					
		Are laboratory SOPs current and on file for each method performed?	X				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports - Page 4 of 4

Laboratory Name:	Eurofins Houston	LRC Date:	9/23/2022
Project Name:	Twin Oaks PP	Laboratory Job Number:	860-32956-1
Reviewer Name:	Chad Bechtold		

ER # <sup>1</sup>	Description
R07C	Method 6010B: Due to the high concentration of Calcium, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 860-69578 and analytical batch 860-69693 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.
	<ol style="list-style-type: none"> <li>Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</li> <li>O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</li> <li>NA = Not applicable;</li> <li>NR = Not reviewed;</li> <li>ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</li> </ol>

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# Case Narrative

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

---

**Job ID: 860-32956-1**

---

**Laboratory: Eurofins Houston**

---

**Narrative**

**Job Narrative**  
**860-32956-1**

**Receipt**

The samples were received on 9/9/2022 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.5°C

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**Metals**

Method 6010B: Due to the high concentration of Calcium, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 860-69578 and analytical batch 860-69693 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Detection Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

## Client Sample ID: MW-19

Lab Sample ID: 860-32956-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	215		0.500	mg/L	1		300.0	Total/NA
Fluoride	0.661		0.500	mg/L	1		300.0	Total/NA
Sulfate - DL	831		5.00	mg/L	10		300.0	Total/NA
Calcium	270		10.0	mg/L	50		6010B	Total/NA
Boron	0.286		0.0500	mg/L	1		6010B	Total/NA
Total Dissolved Solids	1590		20.0	mg/L	1		SM 2540C	Total/NA
pH	6.8	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.1	HF		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-22

Lab Sample ID: 860-32956-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chloride	68.4		0.500	mg/L	1		300.0	Total/NA
Sulfate	18.9		0.500	mg/L	1		300.0	Total/NA
Calcium	11.3		0.200	mg/L	1		6010B	Total/NA
Total Dissolved Solids	213		5.00	mg/L	1		SM 2540C	Total/NA
pH	6.2	HF		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.2	HF		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Houston



# Client Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

**Client Sample ID: MW-19**

**Lab Sample ID: 860-32956-1**

Date Collected: 09/08/22 09:15

Matrix: Water

Date Received: 09/09/22 10:20

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	215		0.500	mg/L			09/22/22 16:09	1
Fluoride	0.661		0.500	mg/L			09/22/22 16:09	1

**Method: 300.0 - Anions, Ion Chromatography - DL**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	831		5.00	mg/L			09/22/22 18:00	10

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	270		10.0	mg/L		09/19/22 09:30	09/19/22 15:34	50
Boron	0.286		0.0500	mg/L		09/19/22 09:30	09/19/22 15:12	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1590		20.0	mg/L			09/14/22 16:18	1
pH	6.8	HF		SU			09/16/22 15:07	1
Temperature	18.1	HF		Degrees C			09/16/22 15:07	1

**Client Sample ID: MW-22**

**Lab Sample ID: 860-32956-2**

Date Collected: 09/08/22 10:40

Matrix: Water

Date Received: 09/09/22 10:20

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	68.4		0.500	mg/L			09/22/22 16:21	1
Fluoride	<0.500	U	0.500	mg/L			09/22/22 16:21	1
Sulfate	18.9		0.500	mg/L			09/22/22 16:21	1

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	11.3		0.200	mg/L		09/19/22 09:30	09/19/22 15:30	1
Boron	<0.0500	U	0.0500	mg/L		09/19/22 09:30	09/19/22 15:30	1

**General Chemistry**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	213		5.00	mg/L			09/14/22 16:18	1
pH	6.2	HF		SU			09/16/22 15:09	1
Temperature	18.2	HF		Degrees C			09/16/22 15:09	1

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 860-70205/3  
Matrix: Water  
Analysis Batch: 70205

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<0.500	U	0.500	mg/L			09/22/22 13:46	1
Fluoride	<0.500	U	0.500	mg/L			09/22/22 13:46	1
Sulfate	<0.500	U	0.500	mg/L			09/22/22 13:46	1

Lab Sample ID: LCS 860-70205/6  
Matrix: Water  
Analysis Batch: 70205

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Chloride	10.0	9.558		mg/L		96	90 - 110
Fluoride	10.0	10.59		mg/L		106	90 - 110
Sulfate	10.0	9.033		mg/L		90	90 - 110

Lab Sample ID: LCSD 860-70205/7  
Matrix: Water  
Analysis Batch: 70205

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
		Result	Qualifier						
Chloride	10.0	9.595		mg/L		96	90 - 110	0	20
Fluoride	10.0	10.64		mg/L		106	90 - 110	0	20
Sulfate	10.0	9.109		mg/L		91	90 - 110	1	20

Lab Sample ID: LLCS 860-70205/5  
Matrix: Water  
Analysis Batch: 70205

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LLCS	LLCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Chloride	0.500	0.4966	J	mg/L		99	50 - 150
Fluoride	0.500	0.4554	J	mg/L		91	50 - 150
Sulfate	0.500	0.5233		mg/L		105	50 - 150

## Method: 6010B - Metals (ICP)

Lab Sample ID: MB 860-69578/1-A  
Matrix: Water  
Analysis Batch: 69693

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 69578

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Calcium	<0.200	U	0.200	mg/L		09/19/22 09:30	09/19/22 14:53	1
Boron	<0.0500	U	0.0500	mg/L		09/19/22 09:30	09/19/22 14:53	1

Lab Sample ID: LCS 860-69578/2-A  
Matrix: Water  
Analysis Batch: 69693

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 69578

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Calcium	25.0	24.30		mg/L		97	80 - 120
Boron	1.00	0.9810		mg/L		98	80 - 120

Eurofins Houston

# QC Sample Results

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

## Method: 6010B - Metals (ICP) (Continued)

**Lab Sample ID: LCSD 860-69578/3-A**  
**Matrix: Water**  
**Analysis Batch: 69693**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 69578**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Calcium	25.0	24.20		mg/L		97	80 - 120	0		20
Boron	1.00	0.9810		mg/L		98	80 - 120	0		20

**Lab Sample ID: 860-32956-1 MS**  
**Matrix: Water**  
**Analysis Batch: 69693**

**Client Sample ID: MW-19**  
**Prep Type: Total/NA**  
**Prep Batch: 69578**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec		Limit
									Limits	RPD	
Calcium	267	E	25.0	278.0	E 4	mg/L		44	75 - 125		
Boron	0.286		1.00	1.300		mg/L		101	75 - 125		

**Lab Sample ID: 860-32956-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 69693**

**Client Sample ID: MW-19**  
**Prep Type: Total/NA**  
**Prep Batch: 69578**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec		Limit
									Limits	RPD	
Calcium	267	E	25.0	279.0	E 4	mg/L		48	75 - 125	0	20
Boron	0.286		1.00	1.300		mg/L		101	75 - 125	0	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 860-69063/1**  
**Matrix: Water**  
**Analysis Batch: 69063**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Total Dissolved Solids	<5.00	U	5.00	mg/L			09/14/22 16:18	1

**Lab Sample ID: LCS 860-69063/2**  
**Matrix: Water**  
**Analysis Batch: 69063**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec		Limit
							Limits	RPD	
Total Dissolved Solids	1000	938.0		mg/L		94	80 - 120		

**Lab Sample ID: LCSD 860-69063/3**  
**Matrix: Water**  
**Analysis Batch: 69063**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		Limit
							Limits	RPD	
Total Dissolved Solids	1000	945.0		mg/L		95	80 - 120	1	10

# QC Association Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

## HPLC/IC

### Analysis Batch: 70205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32956-1	MW-19	Total/NA	Water	300.0	
860-32956-1 - DL	MW-19	Total/NA	Water	300.0	
860-32956-2	MW-22	Total/NA	Water	300.0	
MB 860-70205/3	Method Blank	Total/NA	Water	300.0	
LCS 860-70205/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 860-70205/7	Lab Control Sample Dup	Total/NA	Water	300.0	
LLCS 860-70205/5	Lab Control Sample	Total/NA	Water	300.0	

## Metals

### Prep Batch: 69578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32956-1	MW-19	Total/NA	Water	3010A	
860-32956-2	MW-22	Total/NA	Water	3010A	
MB 860-69578/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-69578/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-69578/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
860-32956-1 MS	MW-19	Total/NA	Water	3010A	
860-32956-1 MSD	MW-19	Total/NA	Water	3010A	

### Analysis Batch: 69693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32956-1	MW-19	Total/NA	Water	6010B	69578
860-32956-1	MW-19	Total/NA	Water	6010B	69578
860-32956-2	MW-22	Total/NA	Water	6010B	69578
MB 860-69578/1-A	Method Blank	Total/NA	Water	6010B	69578
LCS 860-69578/2-A	Lab Control Sample	Total/NA	Water	6010B	69578
LCSD 860-69578/3-A	Lab Control Sample Dup	Total/NA	Water	6010B	69578
860-32956-1 MS	MW-19	Total/NA	Water	6010B	69578
860-32956-1 MSD	MW-19	Total/NA	Water	6010B	69578

## General Chemistry

### Analysis Batch: 69063

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32956-1	MW-19	Total/NA	Water	SM 2540C	
860-32956-2	MW-22	Total/NA	Water	SM 2540C	
MB 860-69063/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 860-69063/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 860-69063/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

### Analysis Batch: 69426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-32956-1	MW-19	Total/NA	Water	SM 4500 H+ B	
860-32956-2	MW-22	Total/NA	Water	SM 4500 H+ B	

# Lab Chronicle

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

**Client Sample ID: MW-19**

**Lab Sample ID: 860-32956-1**

**Date Collected: 09/08/22 09:15**

**Matrix: Water**

**Date Received: 09/09/22 10:20**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			70205	09/22/22 16:09	WP	EET HOU
Total/NA	Analysis	300.0	DL	10			70205	09/22/22 18:00	WP	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	69578	09/19/22 09:30	MD	EET HOU
Total/NA	Analysis	6010B		1			69693	09/19/22 15:12	DP	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	69578	09/19/22 09:30	MD	EET HOU
Total/NA	Analysis	6010B		50			69693	09/19/22 15:34	DP	EET HOU
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	69063	09/14/22 16:18	MCA	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			69426	09/16/22 15:07	TL	EET HOU

**Client Sample ID: MW-22**

**Lab Sample ID: 860-32956-2**

**Date Collected: 09/08/22 10:40**

**Matrix: Water**

**Date Received: 09/09/22 10:20**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			70205	09/22/22 16:21	WP	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	69578	09/19/22 09:30	MD	EET HOU
Total/NA	Analysis	6010B		1			69693	09/19/22 15:30	DP	EET HOU
Total/NA	Analysis	SM 2540C		1	200 mL	200 mL	69063	09/14/22 16:18	MCA	EET HOU
Total/NA	Analysis	SM 4500 H+ B		1			69426	09/16/22 15:09	TL	EET HOU

**Laboratory References:**

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Accreditation/Certification Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

## Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00759	08-04-23
Florida	NELAP	E871002	06-30-23
Louisiana	NELAP	03054	06-30-23
Oklahoma	State	1306	08-31-23
Texas	NELAP	T104704215-22-47	06-30-23
Texas	TCEQ Water Supply	T104704215	12-31-22
USDA	US Federal Programs	P330-22-00025	03-02-23

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# Method Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET HOU
6010B	Metals (ICP)	SW846	EET HOU
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET HOU
SM 4500 H+ B	pH	SM	EET HOU
3010A	Preparation, Total Metals	SW846	EET HOU

**Protocol References:**

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200



# Sample Summary

Client: Hydrex Environmental  
Project/Site: Twin Oaks PP

Job ID: 860-32956-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
860-32956-1	MW-19	Water	09/08/22 09:15	09/09/22 10:20
860-32956-2	MW-22	Water	09/08/22 10:40	09/09/22 10:20

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<b>Client Information</b> Client Contact: Michelle Transier Phone: 936-568-9451 E-Mail: chad.bechtold@eurofinset.com State of Origin: TX		Lab Pkt: Bechtold Chad Carrier Tracking No(s): Page: 1 of 1 Job #:	
Company: Hydrex Environmental Address: 1120 NW Stallings Drive City: Nacogdoches State, Zip: TX, 75964 Phone: 936-568-9451 (Tel) Email: mtransier@hydrex-inc.com Project Name: Twin Oaks PP Site:		PWSID: Due Date Requested: TAT Requested (days): <b>Standard</b> Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: I-14-1007 WO #: I-14-1007 Project #: 86000207 SSOW#:	
<b>Sample Identification</b> MW-19 MW-22 860-32956 Chain of Custody		Matrix (W=Water, S=Soil, G=Grab, O=Other) Sample Type (C=Comp, G=Grab) Sample Date Sample Time Preservation Code	
Sample Date: 9/8/22 Sample Time: 0915 Matrix: W		Sample Date: 9/8/22 Sample Time: 1040 Matrix: W	
Field Filled Sample (Yes or No)		Total Number of Containers	
Chloride Fluoride Sulfate Boron Calcium TDS PH		Analysis Requested	
Preservation Codes: A HCL    M Hexane B NaOH    N None C Zn Acetate    O AsNaO2 D Nitric Acid    P Na2O4S E NaHSO4    Q Na2SO3 F MeOH    R Na2S2O3 G Amchlor    S H2SO4 H Ascorbic Acid    T TSP Dodecahydrate I Ice    U Acetone J DI Water    V MCAA K EDTA    W pH 4-5 L EDA    Z other (specify) Other:			
Special Instructions/Note: HOLD RESULTS UNTIL CONFIRMED WITH HYDREX Temp: 1.2 IR IDHOU-343 C/F +0.3 Corrected Temp: 1.5			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV Other (specify)			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Date/Time: 9/9/22	
Relinquished by: Uziel Rendon		Date/Time: 9/9/22	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.	



## Login Sample Receipt Checklist

Client: Hydrex Environmental

Job Number: 860-32956-1

Login Number: 32956

List Number: 1

Creator: Rubio, Yuri

List Source: Eurofins Houston

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

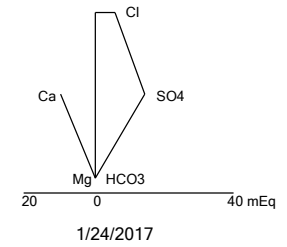
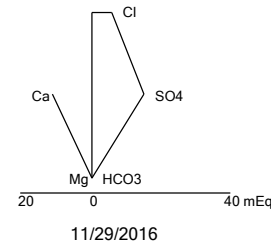
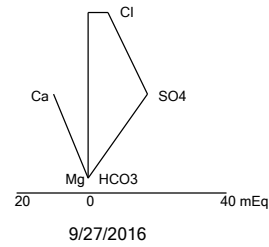
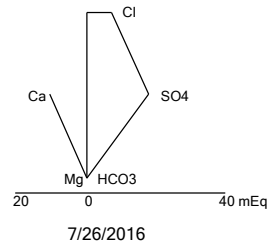
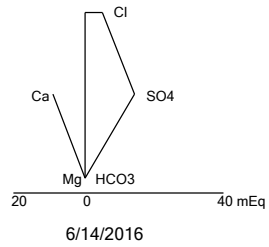
## **Appendix D**

### **Statistical Evaluation Data**

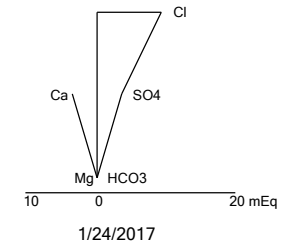
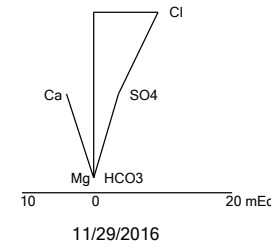
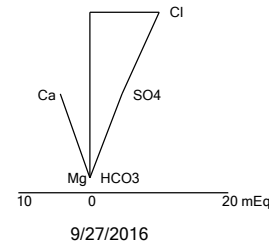
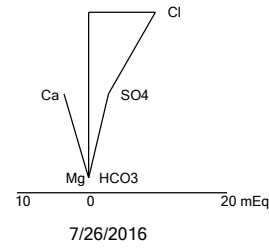
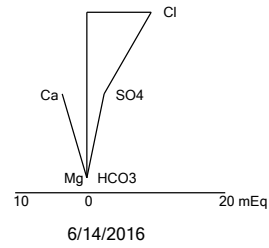
# Stiff Plot Comparisons

Monitor Wells MW-7, MW-13, and MW-14  
Twin Oaks CCR Landfill (June 2016 - January 2017)

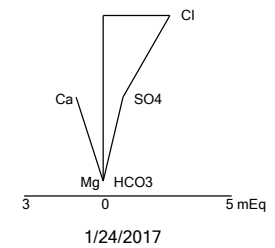
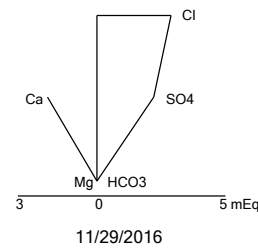
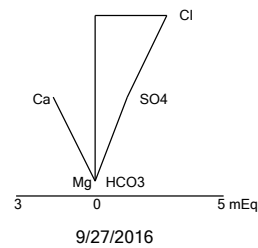
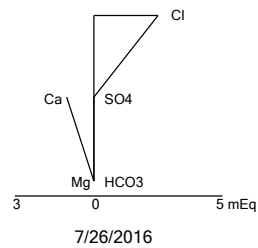
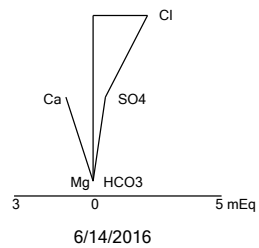
## Monitor Well MW-7



## Monitor Well MW-14



## Monitor Well MW-13

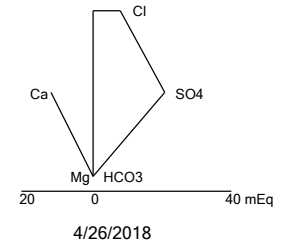
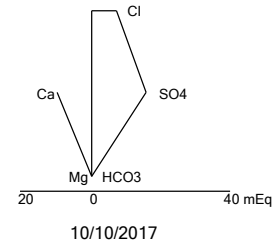
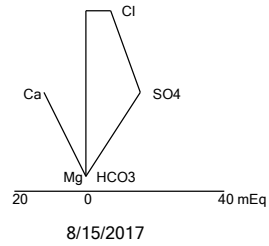
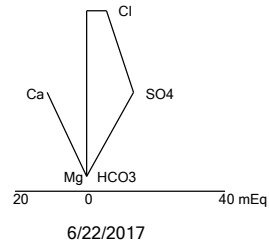
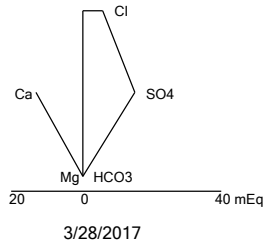


Where applicable verification resampling results have replace original concentrations.

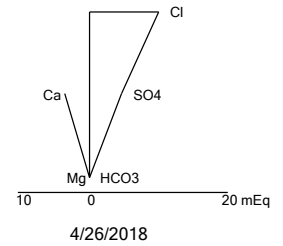
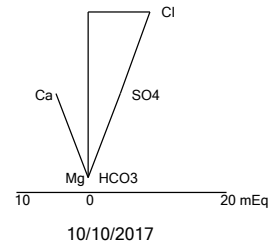
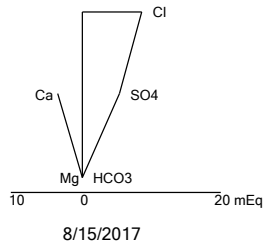
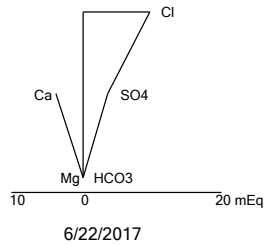
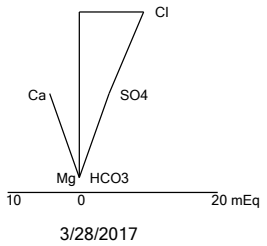
# Stiff Plot Comparisons

## Monitor Wells MW-7, MW-13, and MW-14 Twin Oaks CCR Landfill (March 2017 - April 2018)

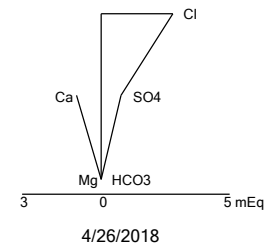
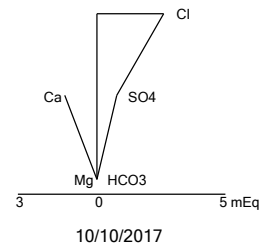
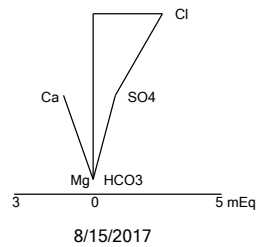
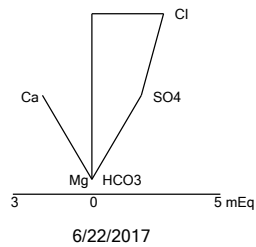
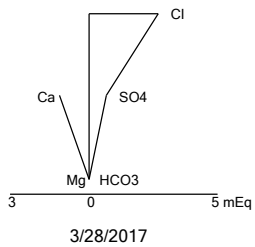
### Monitor Well MW-7



### Monitor Well MW-14



### Monitor Well MW-13

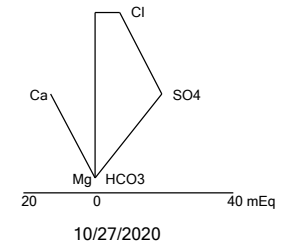
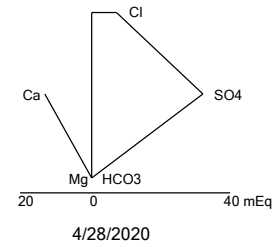
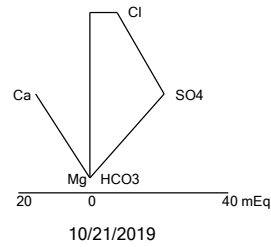
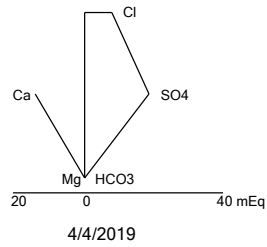
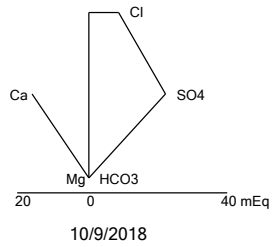


Where applicable verification resampling results have replace original concentrations.

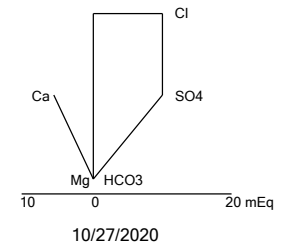
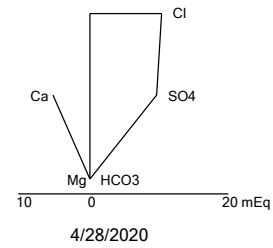
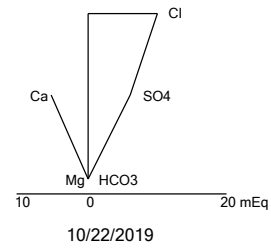
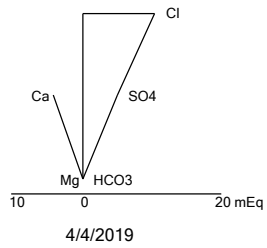
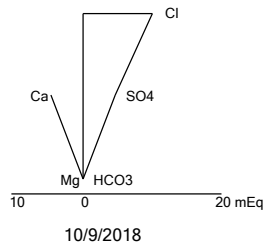
# Stiff Plot Comparisons

Monitor Wells MW-7, MW-13, and MW-14  
Twin Oaks CCR Landfill (October 2018 - October 2020)

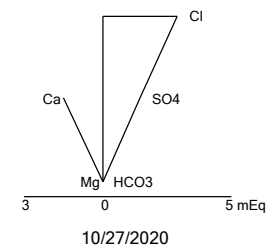
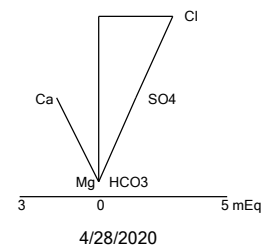
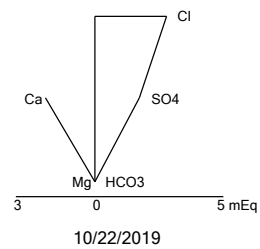
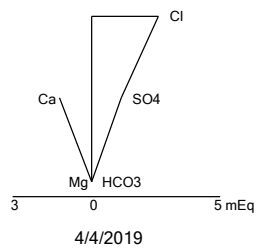
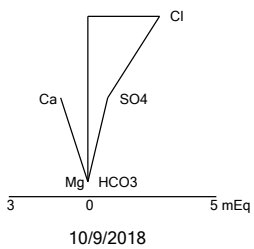
### Monitor Well MW-7



### Monitor Well MW-14



### Monitor Well MW-13

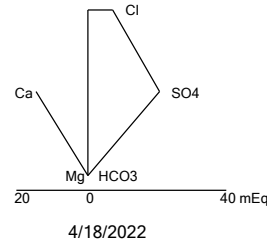
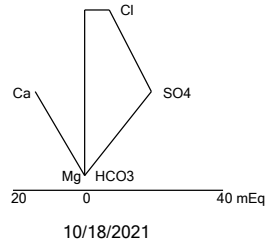
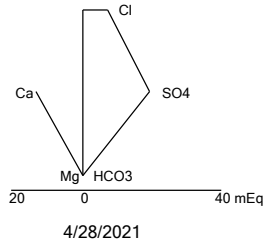


Where applicable verification resampling results have replace original concentrations.

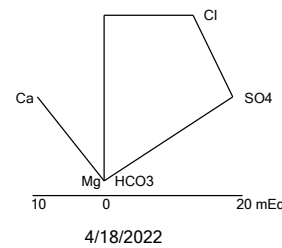
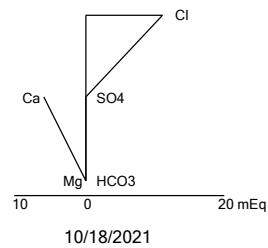
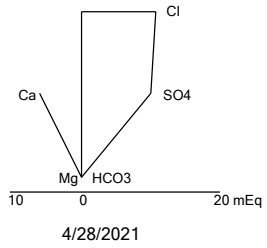
# Stiff Plot Comparisons

Monitor Wells MW-7, MW-13, and MW-14  
Twin Oaks CCR Landfill (April 2021 - April 2022)

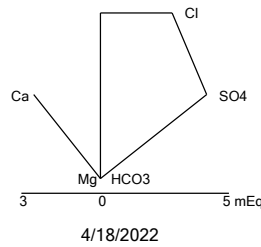
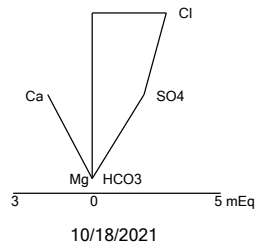
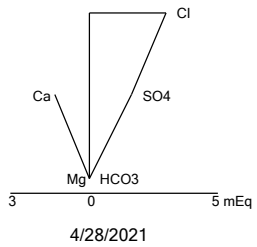
### Monitor Well MW-7



### Monitor Well MW-14



### Monitor Well MW-13



Where applicable verification resampling results have replace original concentrations.

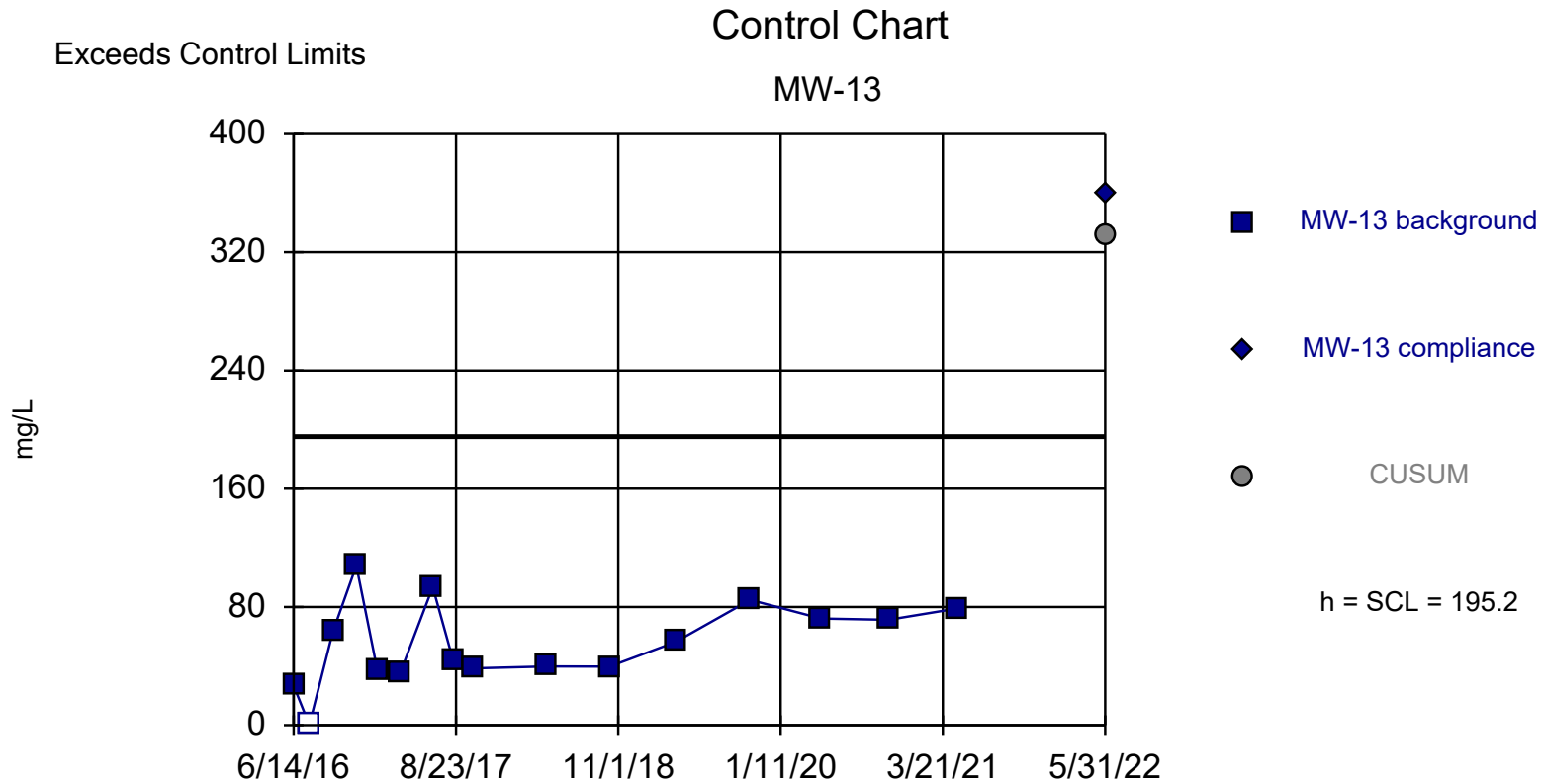
# Shewhart-Cusum Control Chart / Rank Sum

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 9/23/2022, 1:51 PM

Constituent  
Sulfate (mg/L)

<u>Well</u>	<u>Sig.</u>	<u>h</u>	<u>SCL</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Method</u>
MW-13	Yes	195.2	195.2	16	6.25	No	Param Intra





Background Data Summary: Mean=55.67, Std. Dev.=27.91, n=16, 6.25% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.969, critical = 0.887. Report alpha = 0.000082. Dates ending 4/28/2021 used for control stats. Standardized h=5, SCL=5.

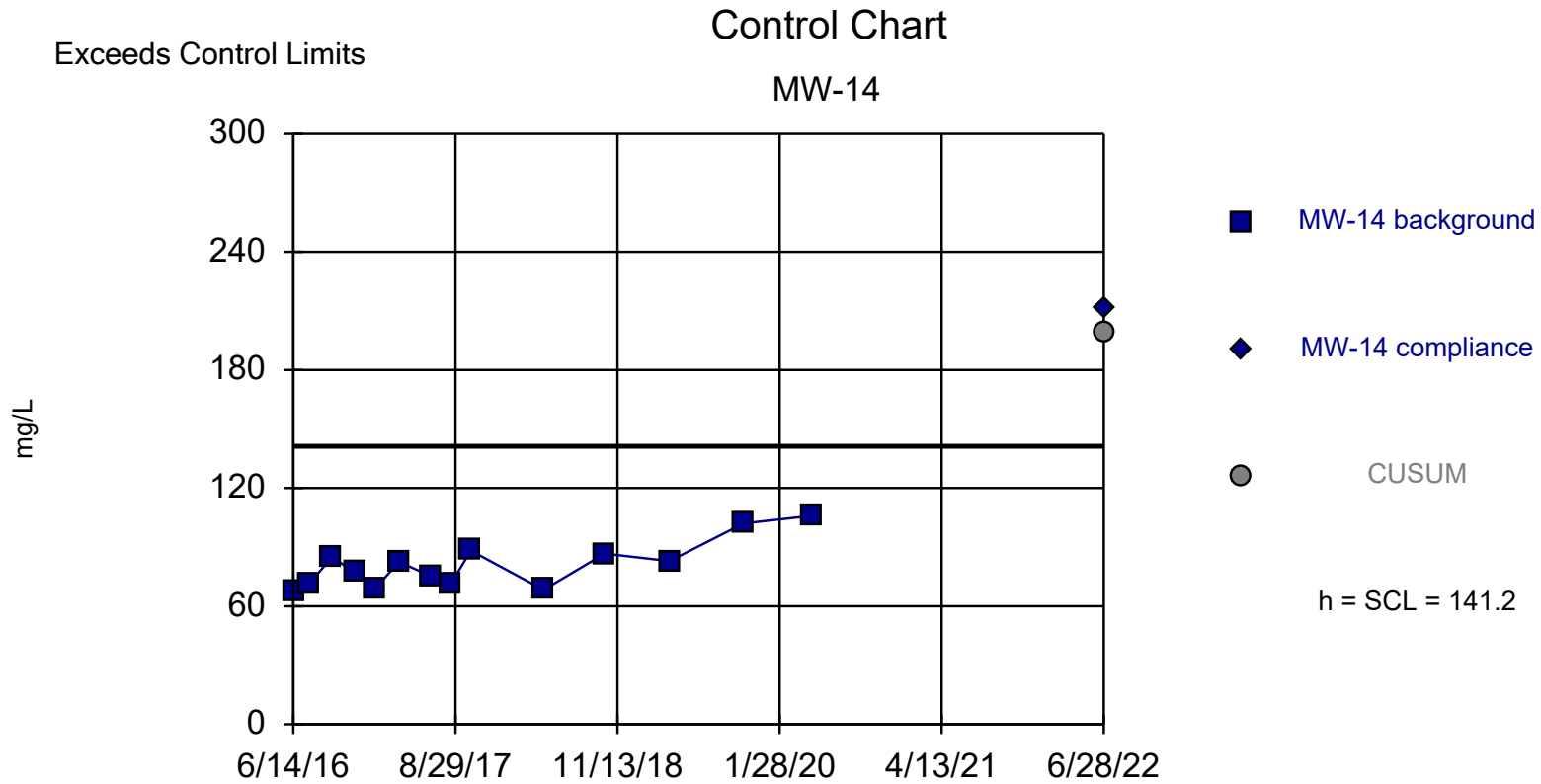
Constituent: Sulfate Analysis Run 9/23/2022 1:50 PM View: CC 2022

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

# Shewhart-Cusum Control Chart / Rank Sum

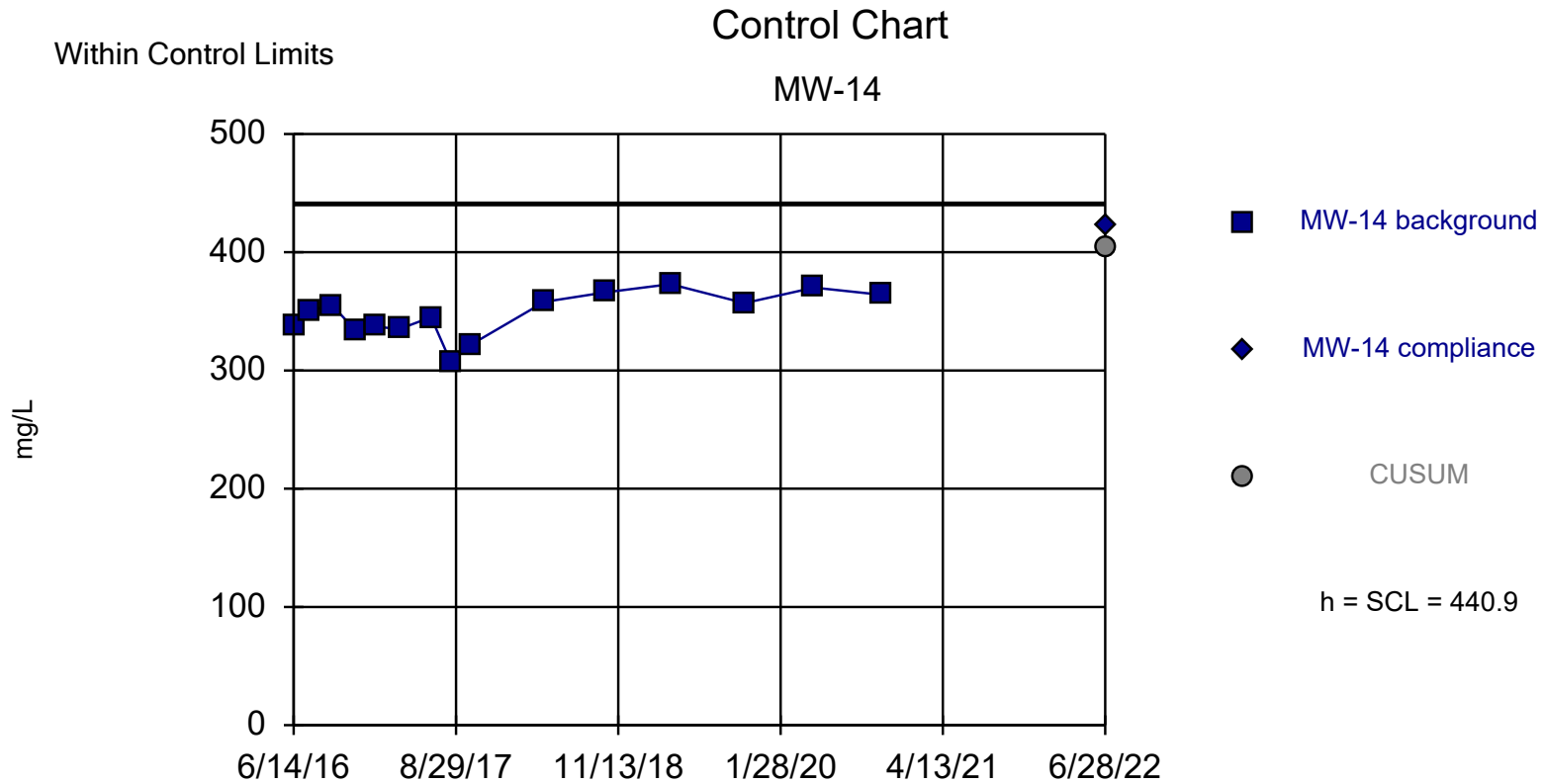
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks    Printed 9/23/2022, 1:52 PM

<u>Constituent</u>	<u>Well</u>	<u>Sig.</u>	<u>h</u>	<u>SCL</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Method</u>
<b>Calcium (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>141.2</b>	<b>141.2</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>Param Intra</b>
Chloride (mg/L)	MW-14	No	440.9	440.9	15	0	No	Param Intra
<b>Sulfate (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>841.2</b>	<b>841.2</b>	<b>15</b>	<b>0</b>	<b>sqrt(x)</b>	<b>Param Intra</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-14</b>	<b>Yes</b>	<b>1940</b>	<b>1940</b>	<b>15</b>	<b>0</b>	<b>No</b>	<b>Param Intra</b>



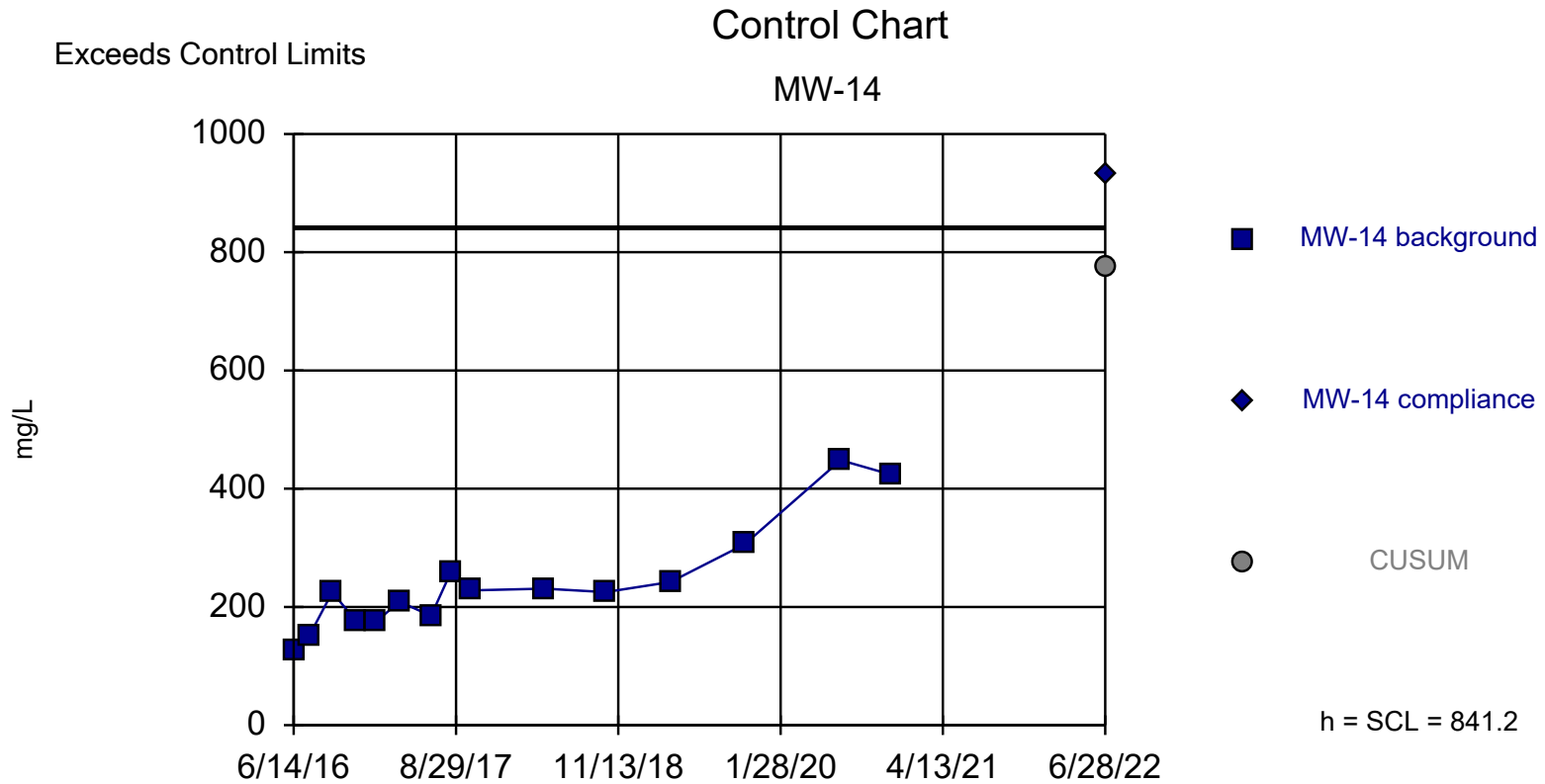
Background Data Summary: Mean=80.96, Std. Dev.=12.04, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8921, critical = 0.874. Report alpha = 0.000158. Dates ending 4/28/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium    Analysis Run 9/23/2022 1:51 PM    View: CC 2022  
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks



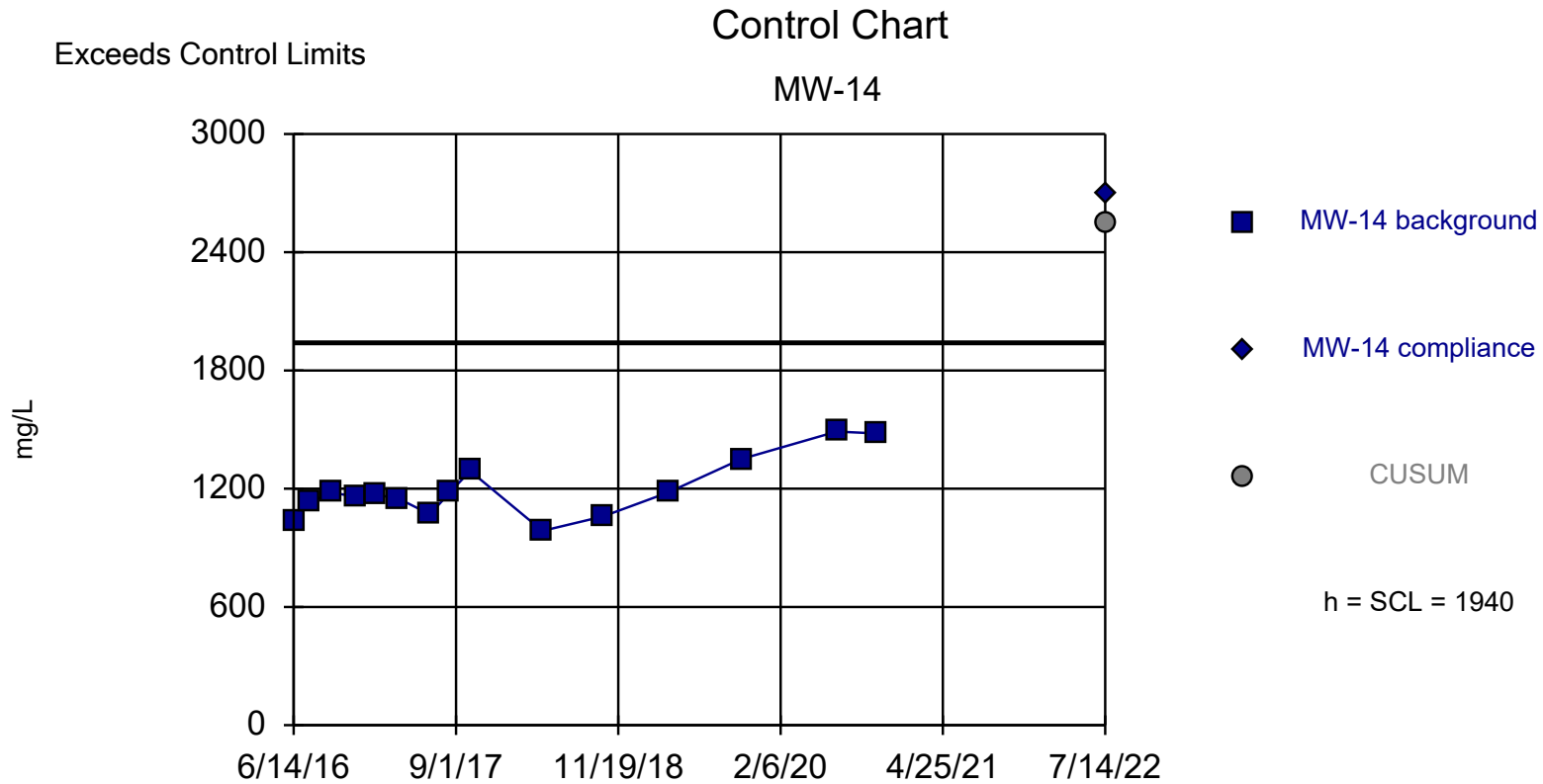
Background Data Summary: Mean=347.4, Std. Dev.=18.7, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9535, critical = 0.881. Report alpha = 0.000122. Dates ending 10/27/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride    Analysis Run 9/23/2022 1:51 PM    View: CC 2022  
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks



Background Data Summary (based on square root transformation): Mean=15.29, Std. Dev.=2.743, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9051, critical = 0.881. Report alpha = 0.000122. Dates ending 11/23/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate    Analysis Run 9/23/2022 1:51 PM    View: CC 2022  
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks



Background Data Summary: Mean=1194, Std. Dev.=149.2, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8979, critical = 0.881. Report alpha = 0.000122. Dates ending 10/27/2020 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 9/23/2022 1:51 PM View: CC 2022

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

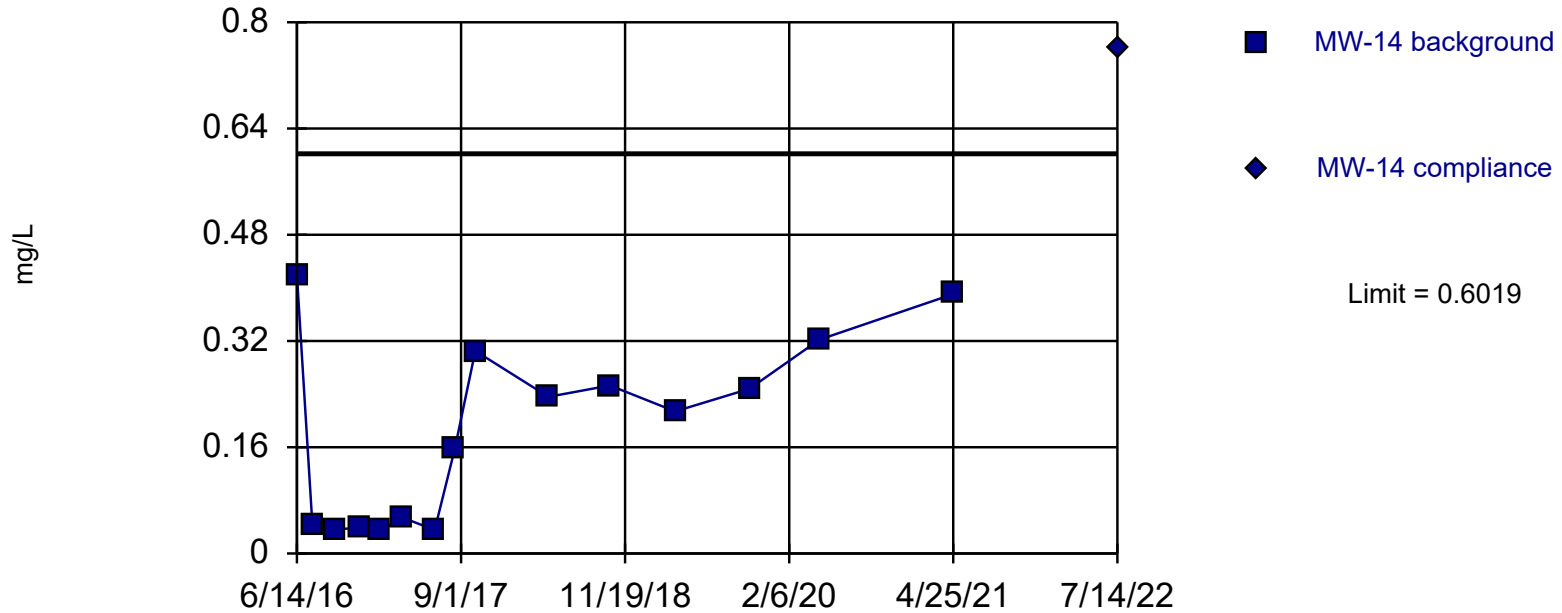
# Prediction Limit

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 9/23/2022, 1:53 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bq N</u>	<u>Bq Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MW-14	0.6019	7/14/2022	0.762	Yes	15	0.1857	0.1387	0	No	0.000...	Param Intra 1 of 2

Exceeds Limit

### Prediction Limit Intrawell Parametric



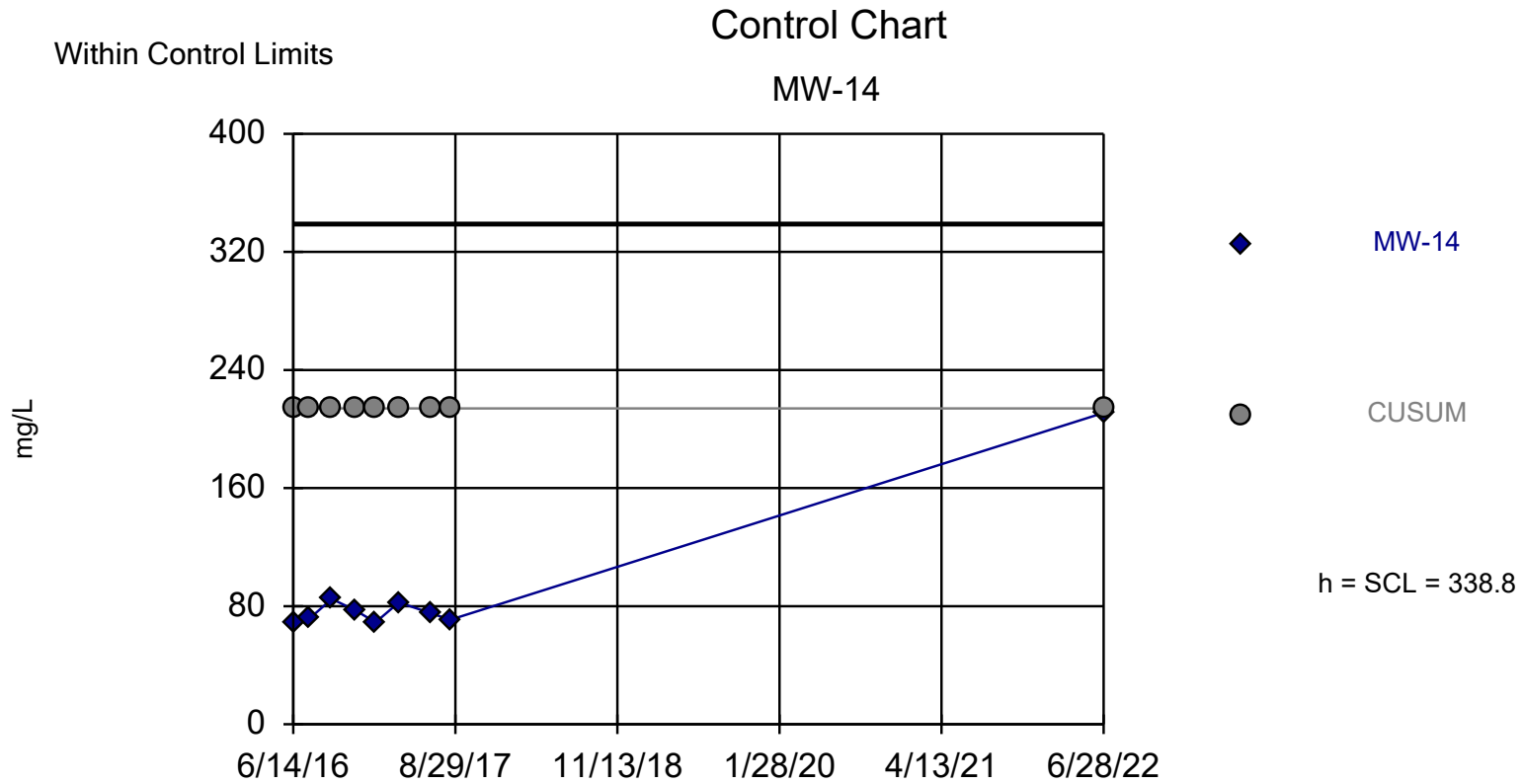
Background Data Summary: Mean=0.1857, Std. Dev.=0.1387, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8773, critical = 0.835. Kappa = 3 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.



# Shewhart-Cusum Control Chart / Rank Sum

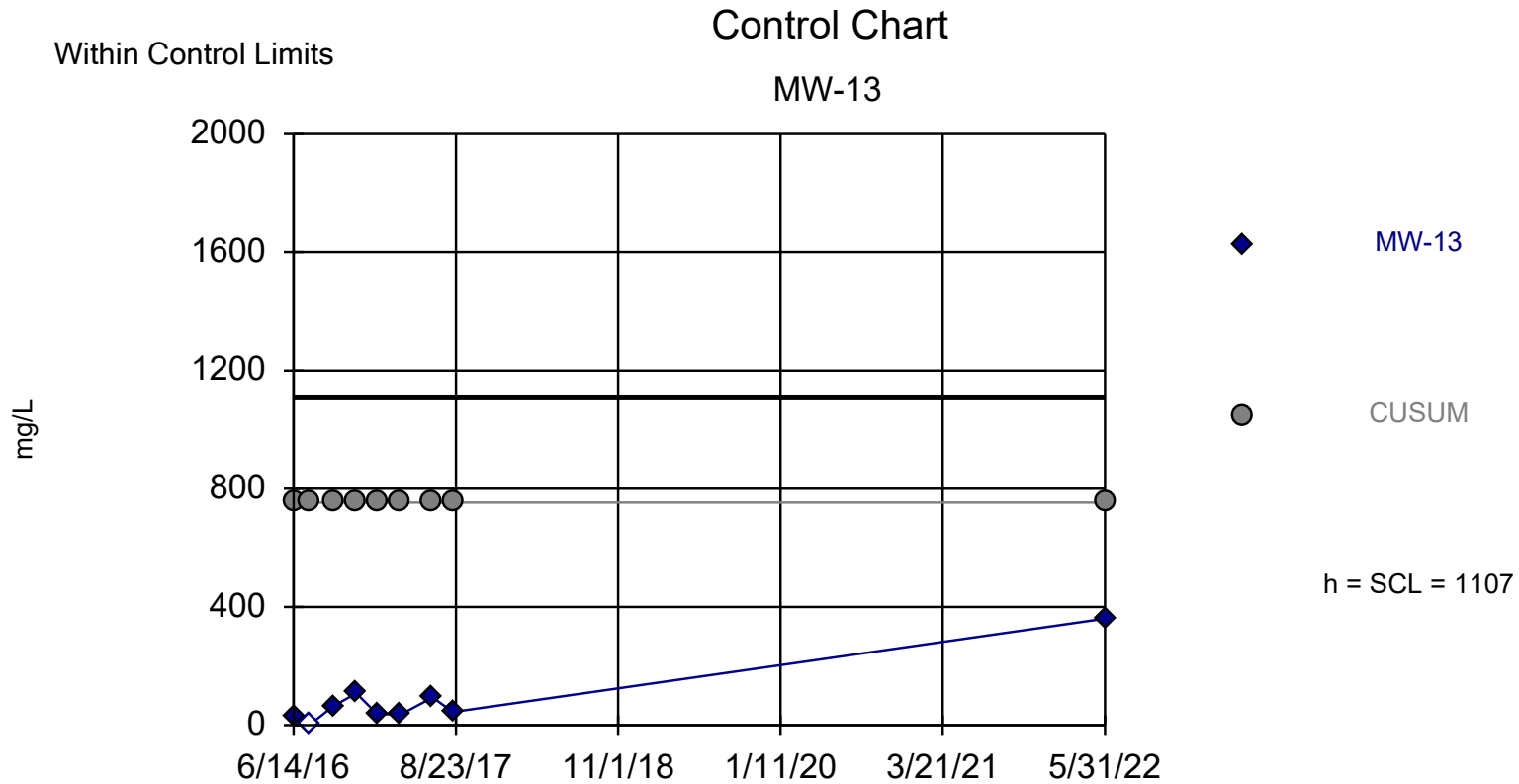
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks    Printed 9/26/2022, 2:34 PM

<u>Constituent</u>	<u>Well</u>	<u>Sig.</u>	<u>h</u>	<u>SCL</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Method</u>
Sulfate (mg/L)	MW-13	No	1107	1107	8	0	No	Param Inter
Calcium (mg/L)	MW-14	No	338.8	338.8	8	0	No	Param Inter
Sulfate (mg/L)	MW-14	No	1107	1107	8	0	No	Param Inter

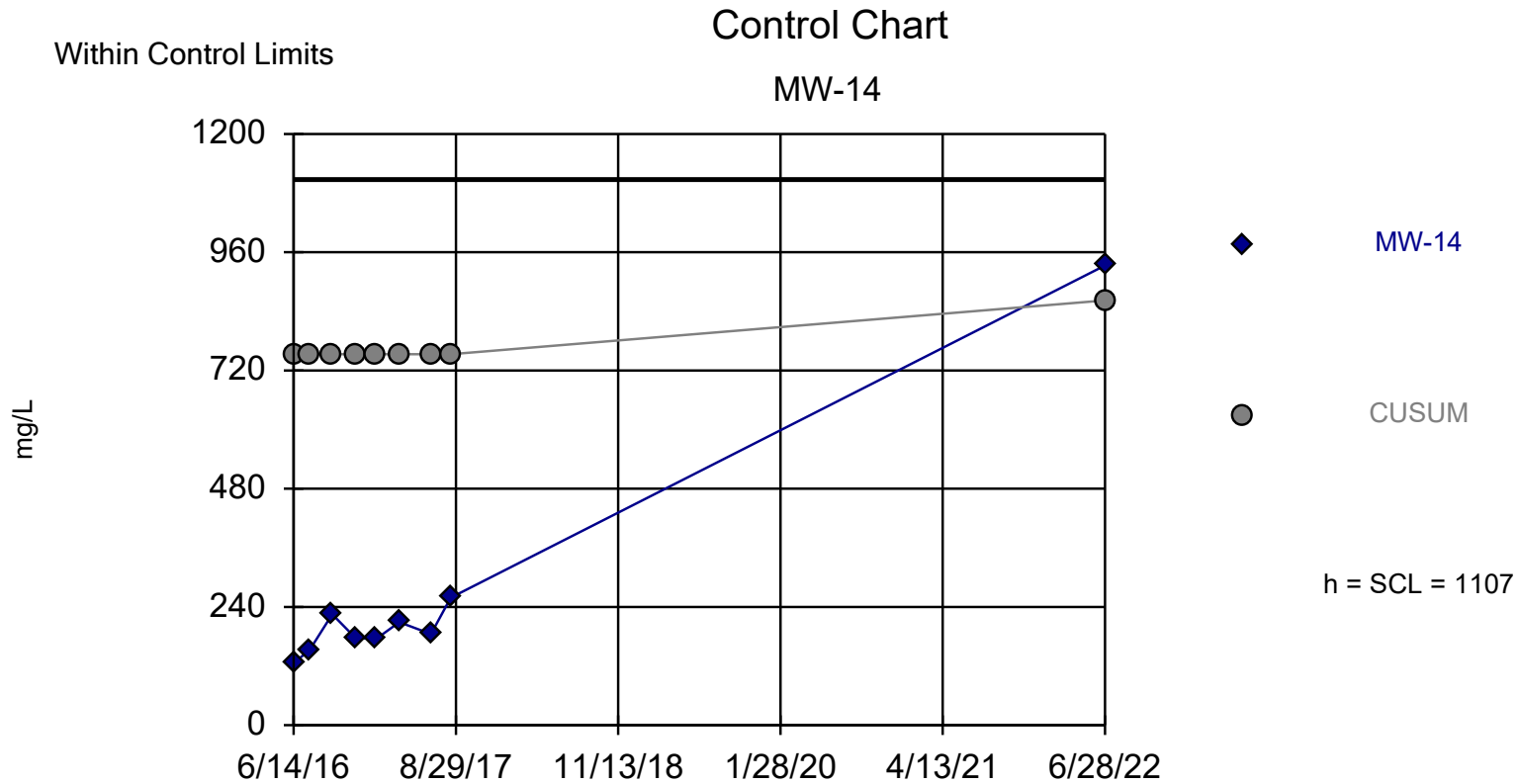


Background Data Summary: Mean=214, Std. Dev.=24.96, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9433, critical = 0.818. Report alpha = 0.008256. Control stats constructed using data from MW-7. Standardized h=5, SCL=5.

Constituent: Calcium    Analysis Run 9/26/2022 2:34 PM    View: CC 2022  
Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks



Background Data Summary: Mean=753.1, Std. Dev.=70.85, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9175, critical = 0.818. Report alpha = 0.008256. Control stats constructed using data from MW-7. Standardized h=5, SCL=5.



Background Data Summary: Mean=753.1, Std. Dev.=70.85, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9175, critical = 0.818. Report alpha = 0.008256. Control stats constructed using data from MW-7. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 9/26/2022 2:34 PM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

# Prediction Limit

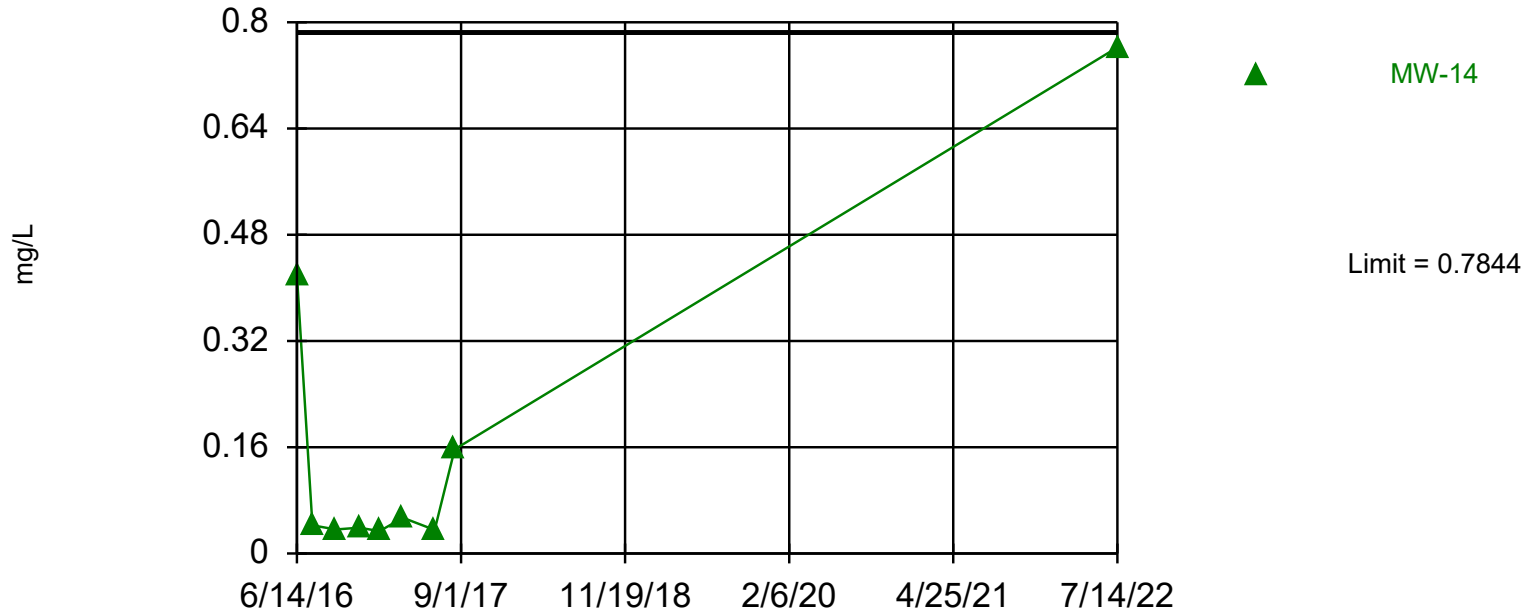
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 9/26/2022, 2:33 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bq N</u>	<u>Bq Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MW-14	0.7844	7/14/2022	0.762	No	8	0.5672	0.08217	0	sqrt(x)	0.000...	Param Inter 1 of 2

Within Limit

Prediction Limit

Interwell Parametric



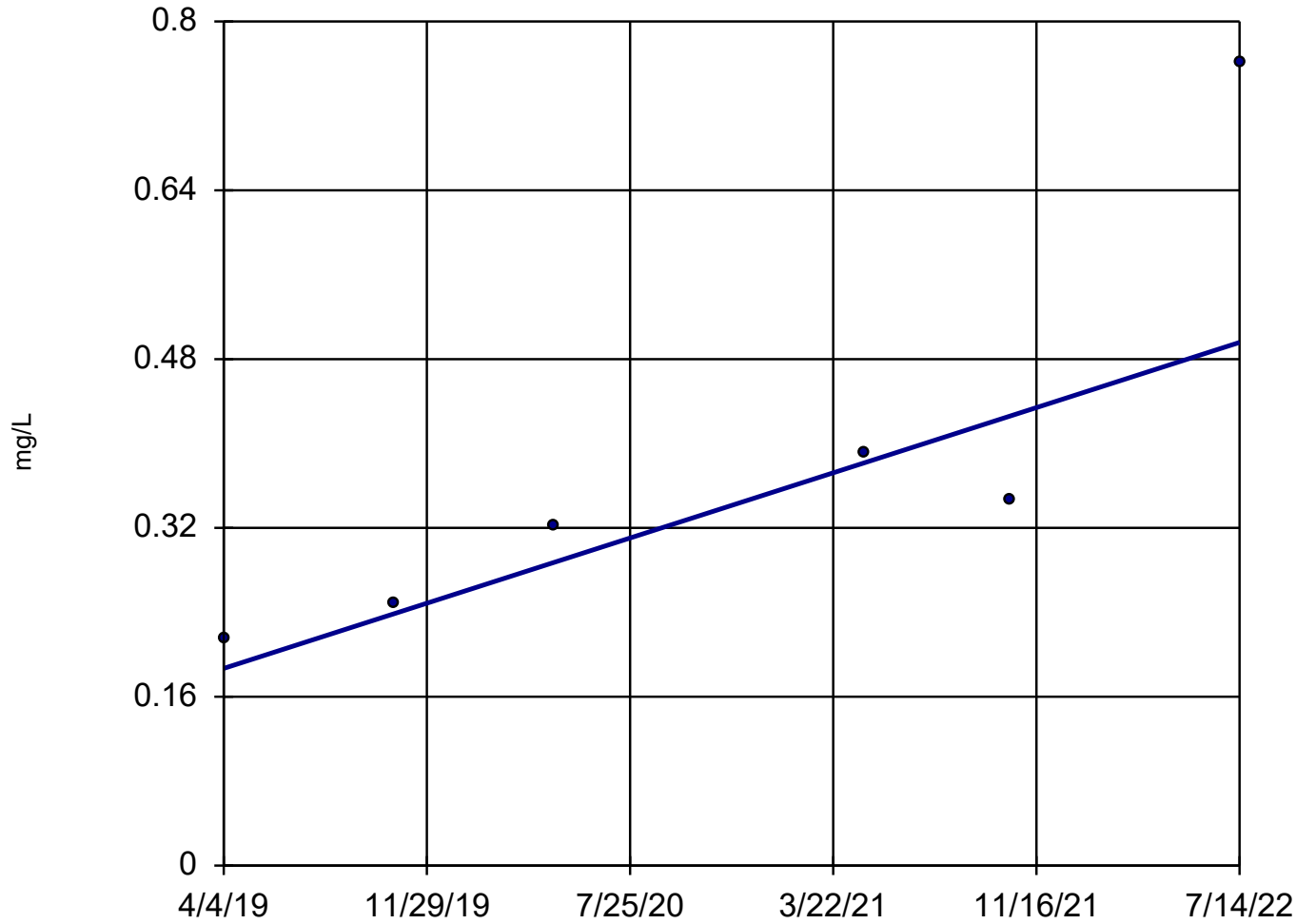
# Trend Test

Twin Oaks Power Station CCR LF    Client: Major Oak Power    Data: Twin Oaks    Printed 9/26/2022, 10:19 AM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Sulfate (mg/L)	MW-13	16.83	13	17	No	7	0	n/a	n/a	0.02	NP
Boron (mg/L)	MW-14	0.09421	13	13	No	6	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MW-14	28.15	10	10	No	5	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-14	116.2	5	13	No	6	16.67	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-14	244.9	13	13	No	6	0	n/a	n/a	0.02	NP
Boron (mg/L)	MW-7 (bg)	-0.01899	-14	-17	No	7	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MW-7 (bg)	0	0	17	No	7	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-7 (bg)	12.59	3	17	No	7	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-7 (bg)	0	0	17	No	7	0	n/a	n/a	0.02	NP

# Sen's Slope Estimator

MW-14



n = 6  
Slope = 0.09421  
units per year.  
Mann-Kendall  
statistic = 13  
critical = 13  
Trend not sig-  
nificant at 98%  
confidence level  
( $\alpha = 0.01$  per  
tail).

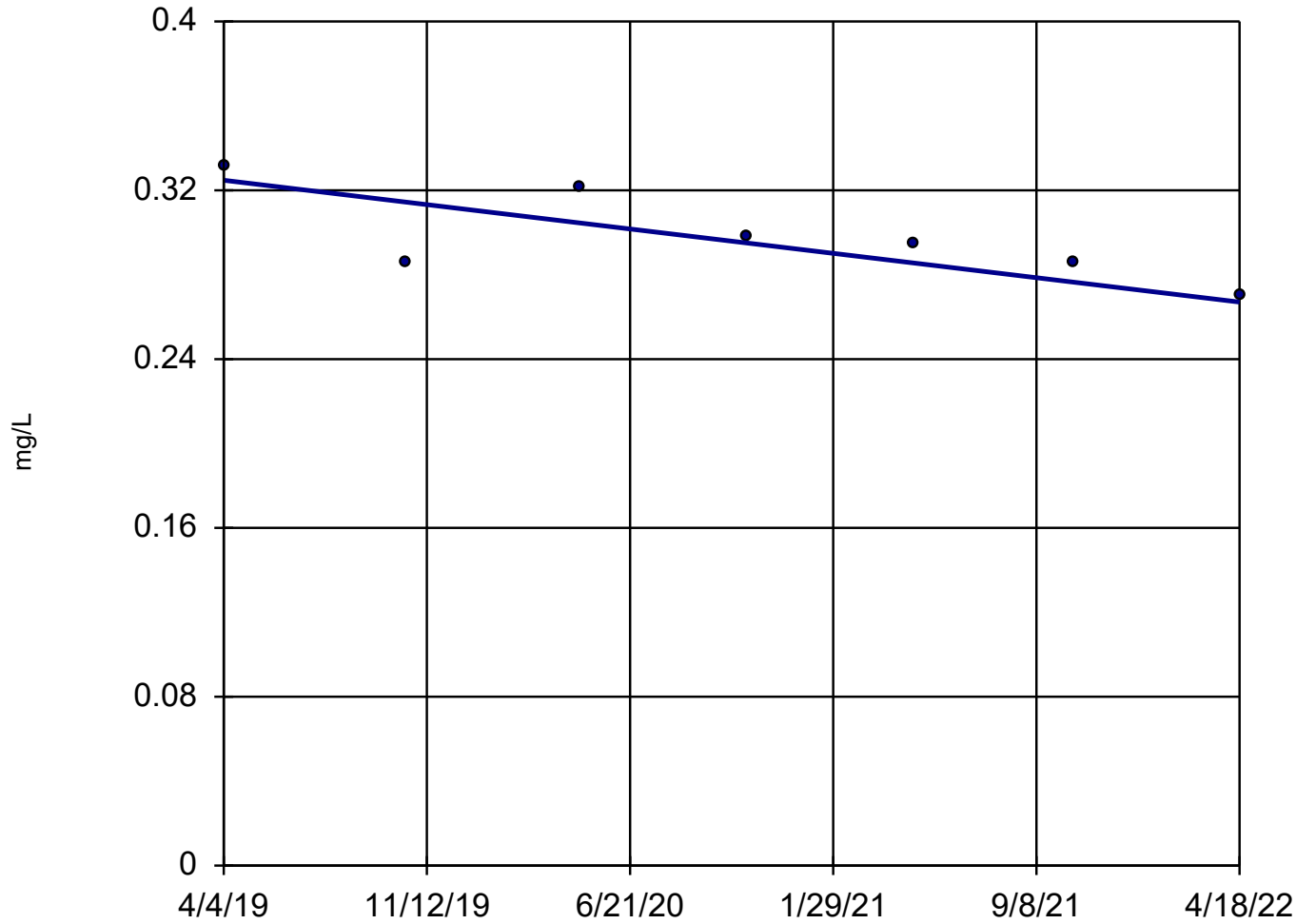
Constituent: Boron Analysis Run 9/26/2022 10:18 AM View: CC 2022

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



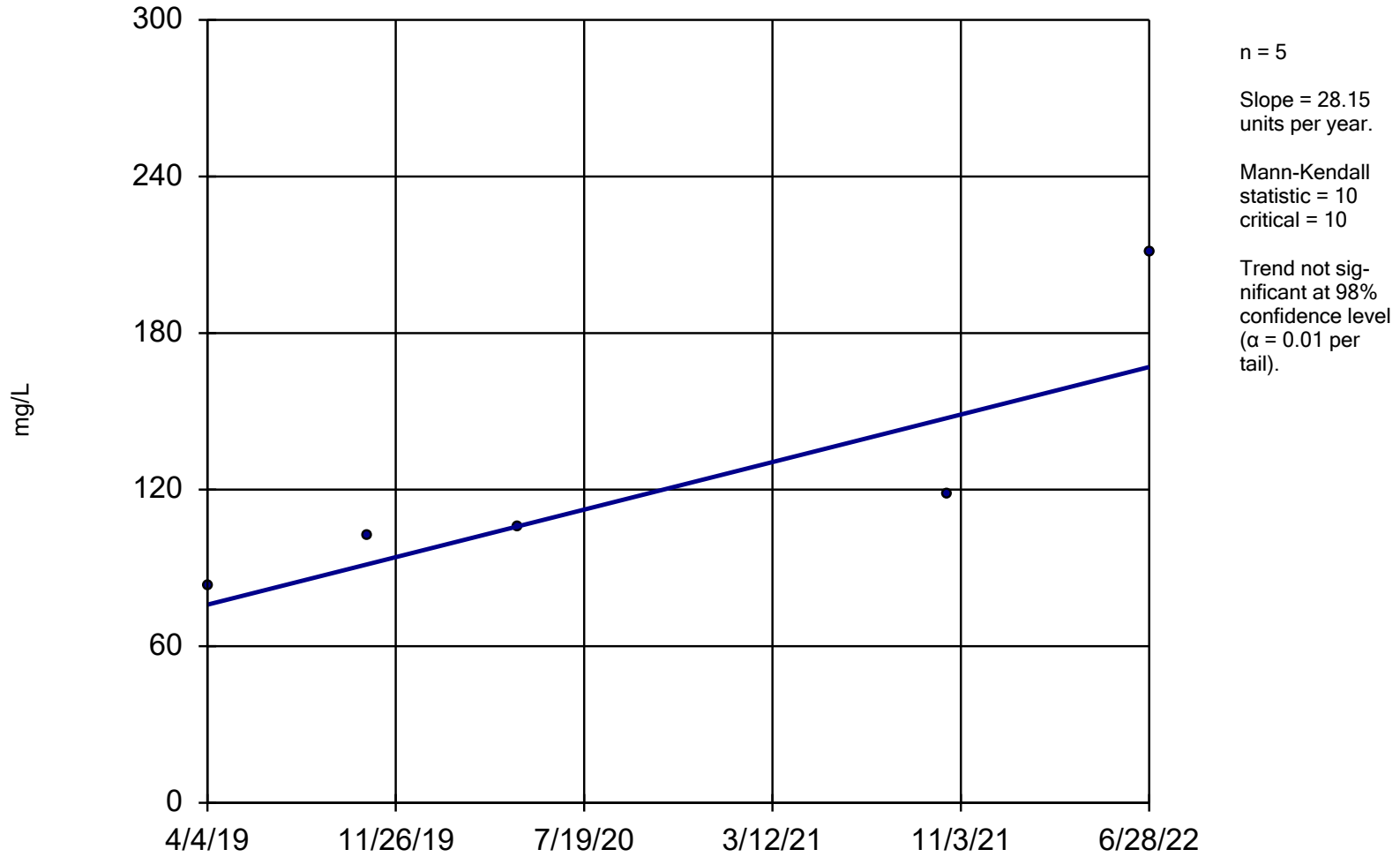
### Sen's Slope Estimator

MW-7 (bg)



n = 7  
Slope = -0.01899  
units per year.  
Mann-Kendall  
statistic = -14  
critical = -17  
Trend not sig-  
nificant at 98%  
confidence level  
( $\alpha = 0.01$  per  
tail).

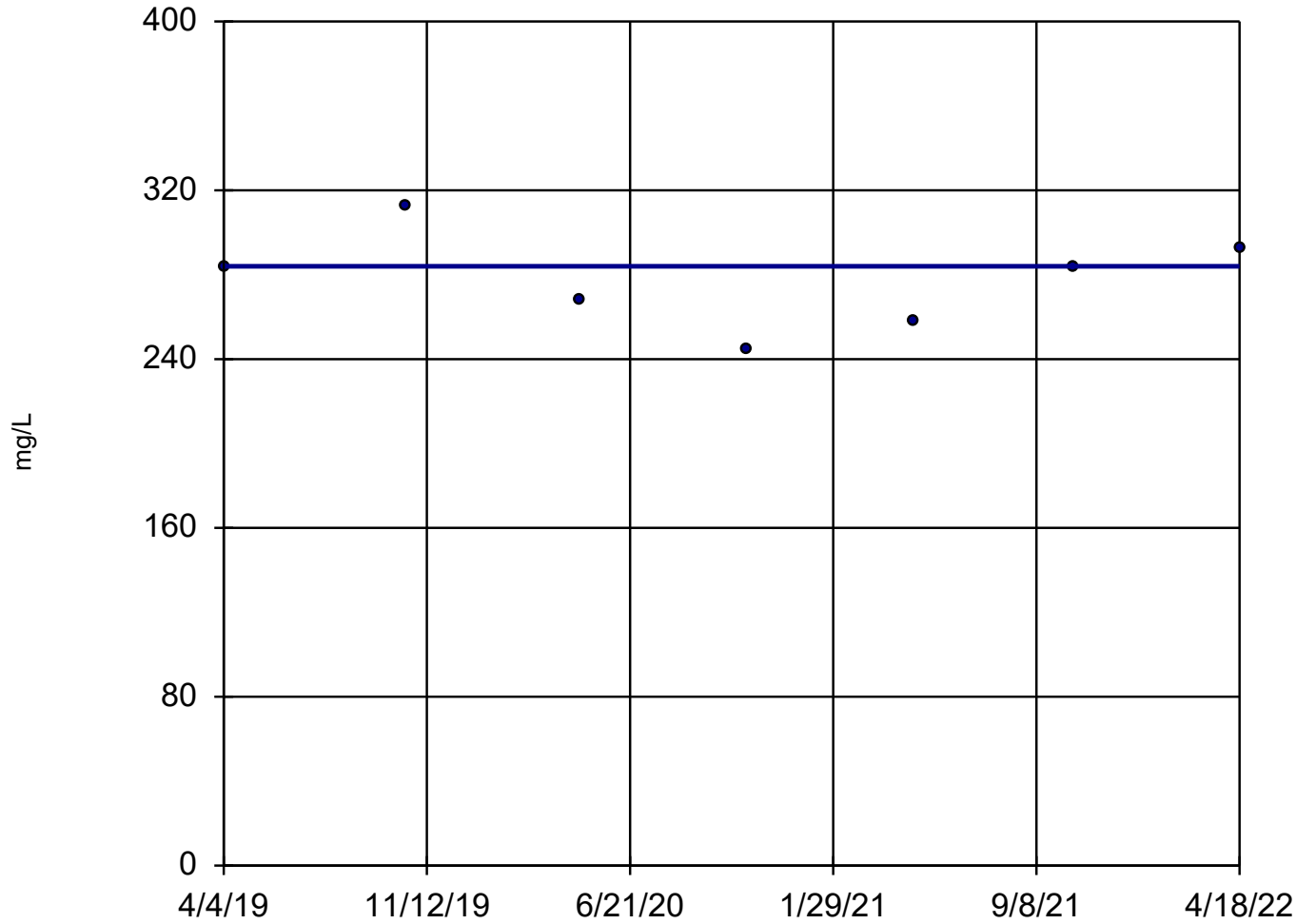
## Sen's Slope Estimator MW-14



Constituent: Calcium Analysis Run 9/26/2022 10:18 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

### Sen's Slope Estimator

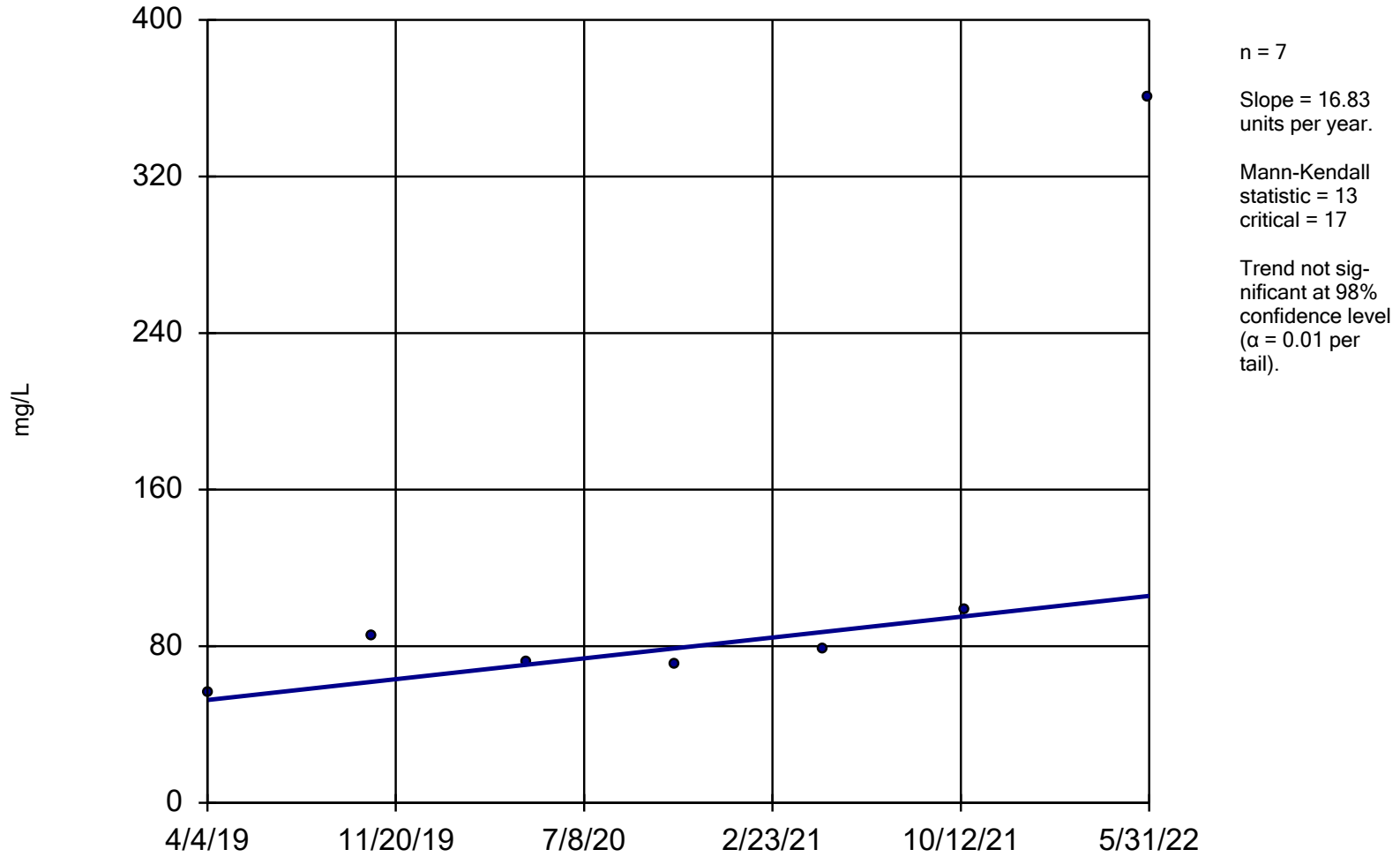
MW-7 (bg)



n = 7  
Slope = 0  
units per year.  
Mann-Kendall  
statistic = 0  
critical = 17  
Trend not sig-  
nificant at 98%  
confidence level  
( $\alpha = 0.01$  per  
tail).

Constituent: Calcium Analysis Run 9/26/2022 10:18 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

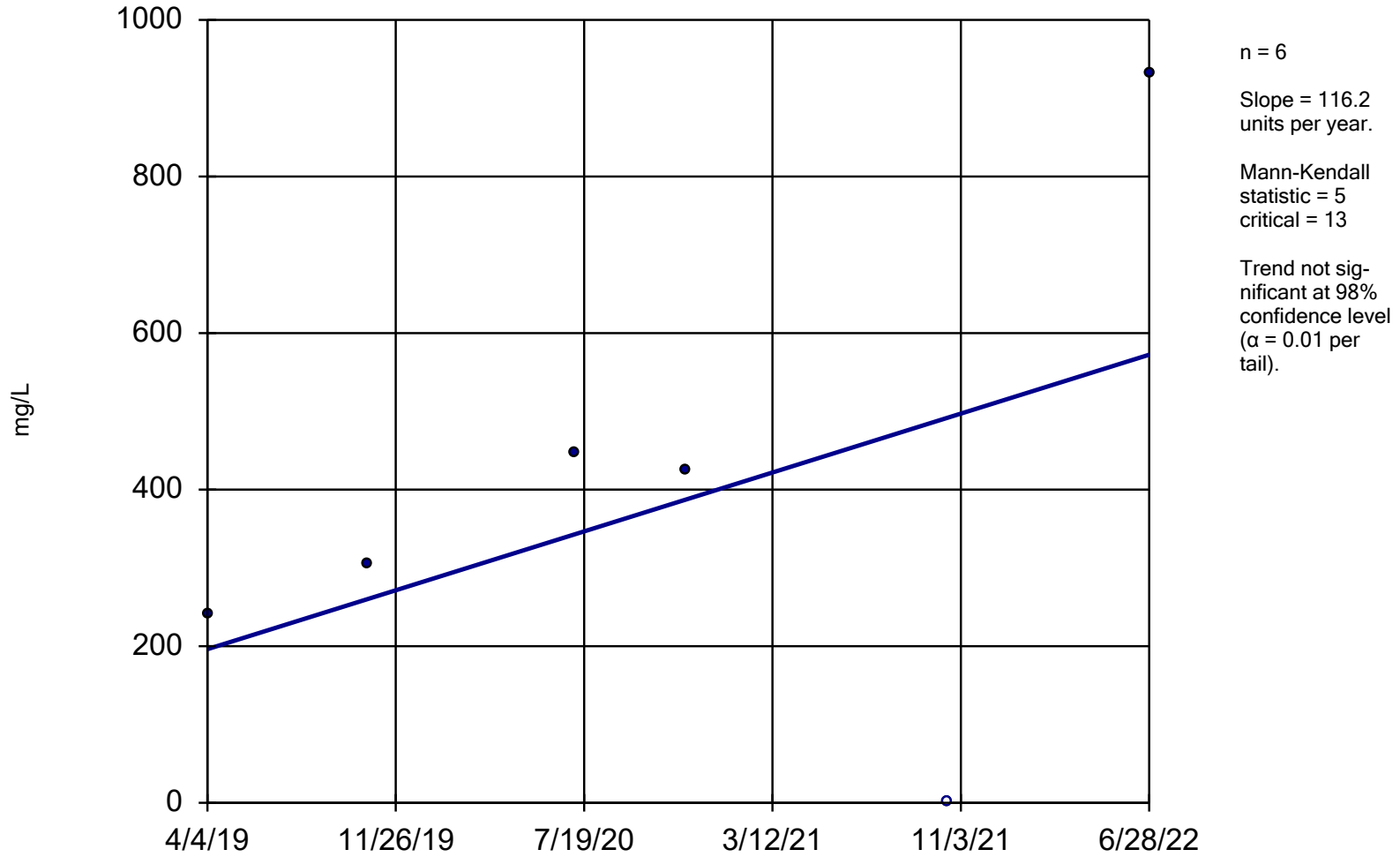
## Sen's Slope Estimator MW-13



Constituent: Sulfate Analysis Run 9/26/2022 10:19 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

## Sen's Slope Estimator

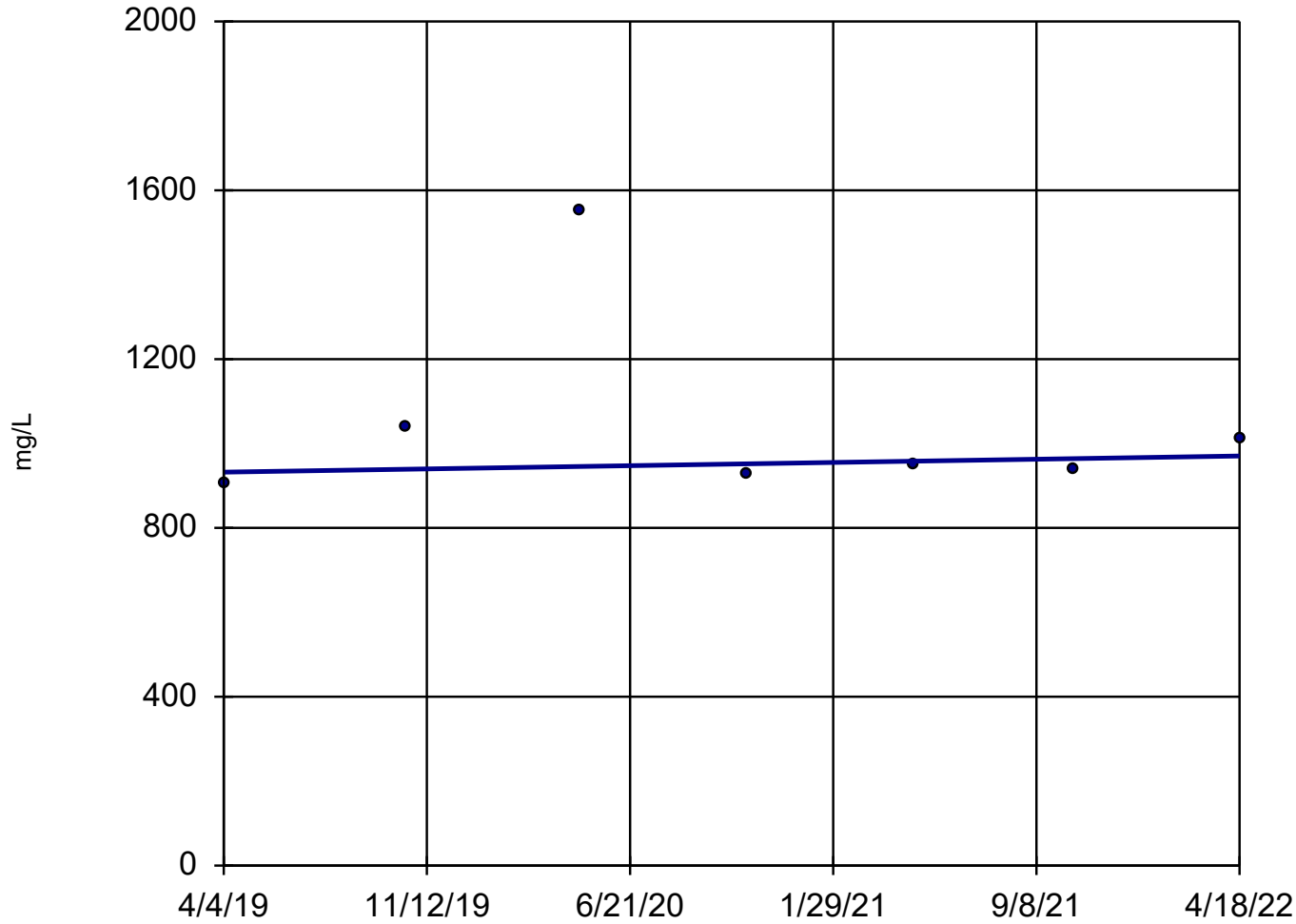
MW-14



Constituent: Sulfate Analysis Run 9/26/2022 10:19 AM View: CC 2022  
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

## Sen's Slope Estimator

MW-7 (bg)



n = 7

Slope = 12.59  
units per year.

Mann-Kendall  
statistic = 3  
critical = 17

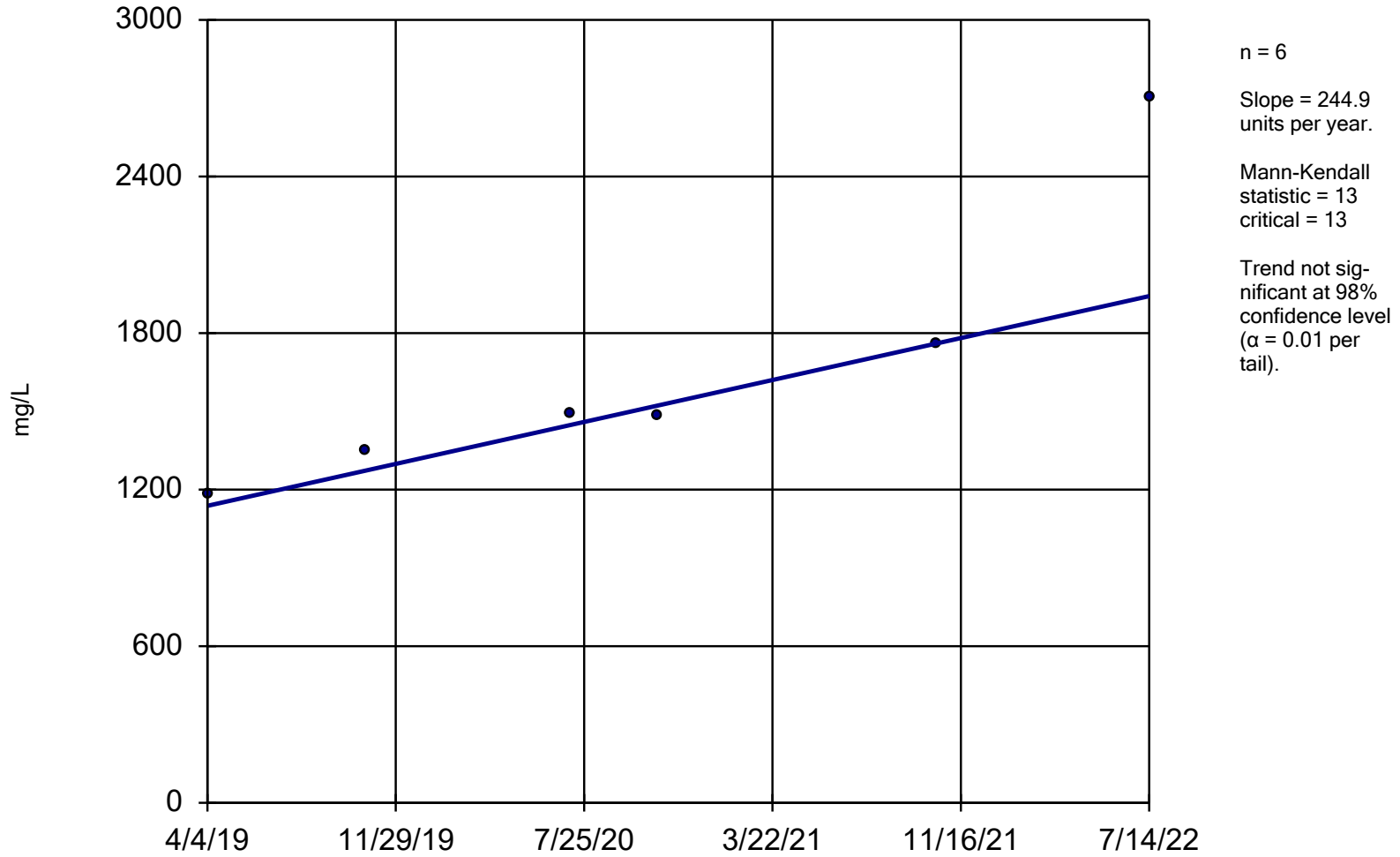
Trend not sig-  
nificant at 98%  
confidence level  
( $\alpha = 0.01$  per  
tail).

Constituent: Sulfate Analysis Run 9/26/2022 10:19 AM View: CC 2022

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

# Sen's Slope Estimator

MW-14

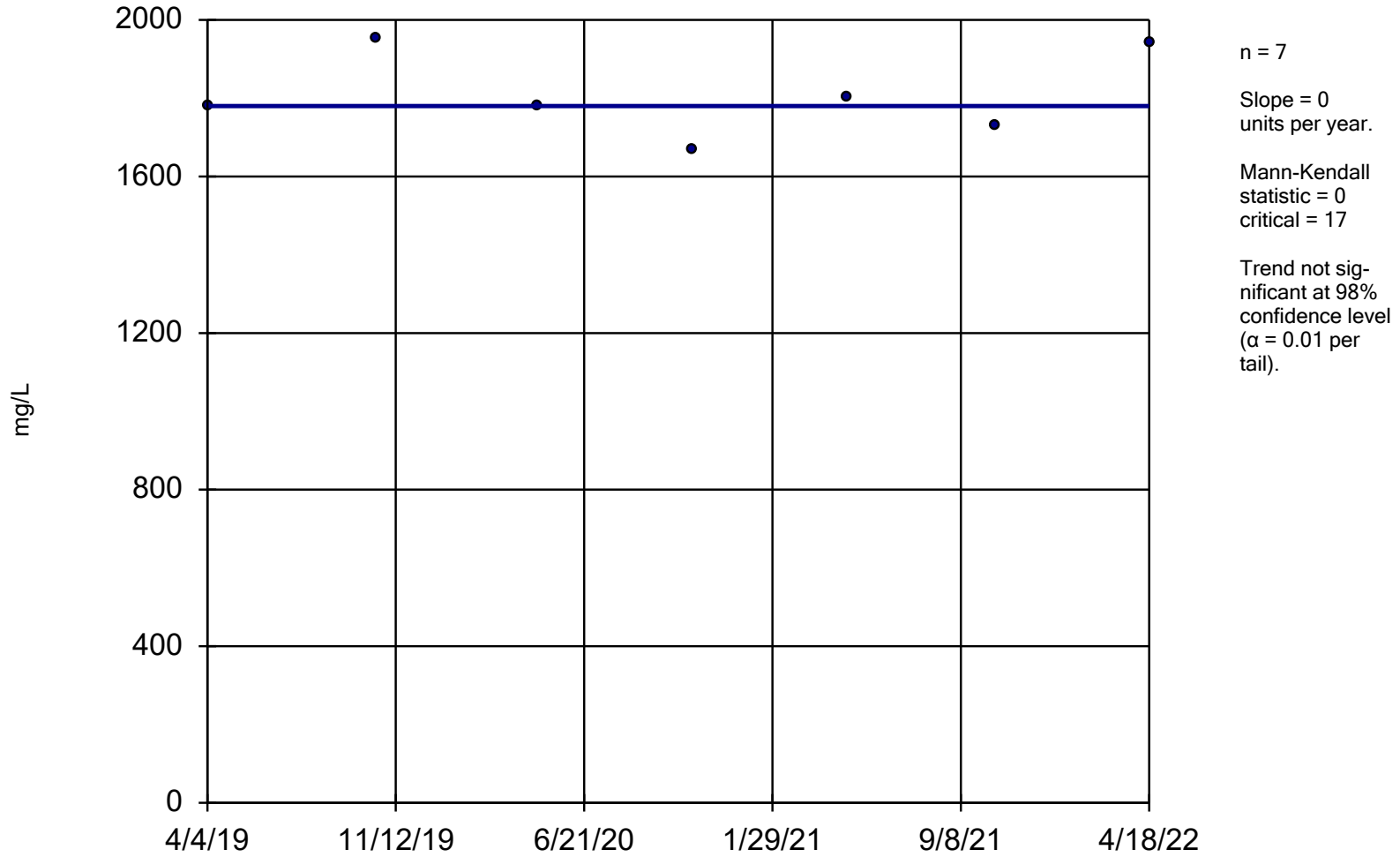


Constituent: Total Dissolved Solids Analysis Run 9/26/2022 10:19 AM View: CC 2022

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

### Sen's Slope Estimator

MW-7 (bg)



Constituent: Total Dissolved Solids Analysis Run 9/26/2022 10:19 AM View: CC 2022

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



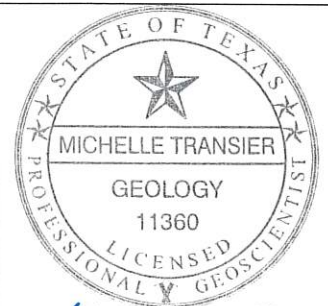
## **Appendix E**

### **Monitoring Well Installation Documentation**



# Monitor Well Log

Monitor Well No. **MW-18**



*Michelle Transier*  
10-5-2022

## PROJECT INFORMATION

PROJECT: Twin Oaks CCR Landfill  
 PROJECT NO.: I-14-1007  
 LOGGED BY: Uziel Rendon  
 SUPERVISING PG: Michelle K. Transier, P.G.  
 DRILLING COMPLETION: 9/6/2022  
 DEVELOPMENT: 9/7/2022  
 SITE LOCATION: 13065 Plant Road, Bremond, TX  
 WELL OWNER: Twin Oaks Power Plant

## DRILLING INFORMATION

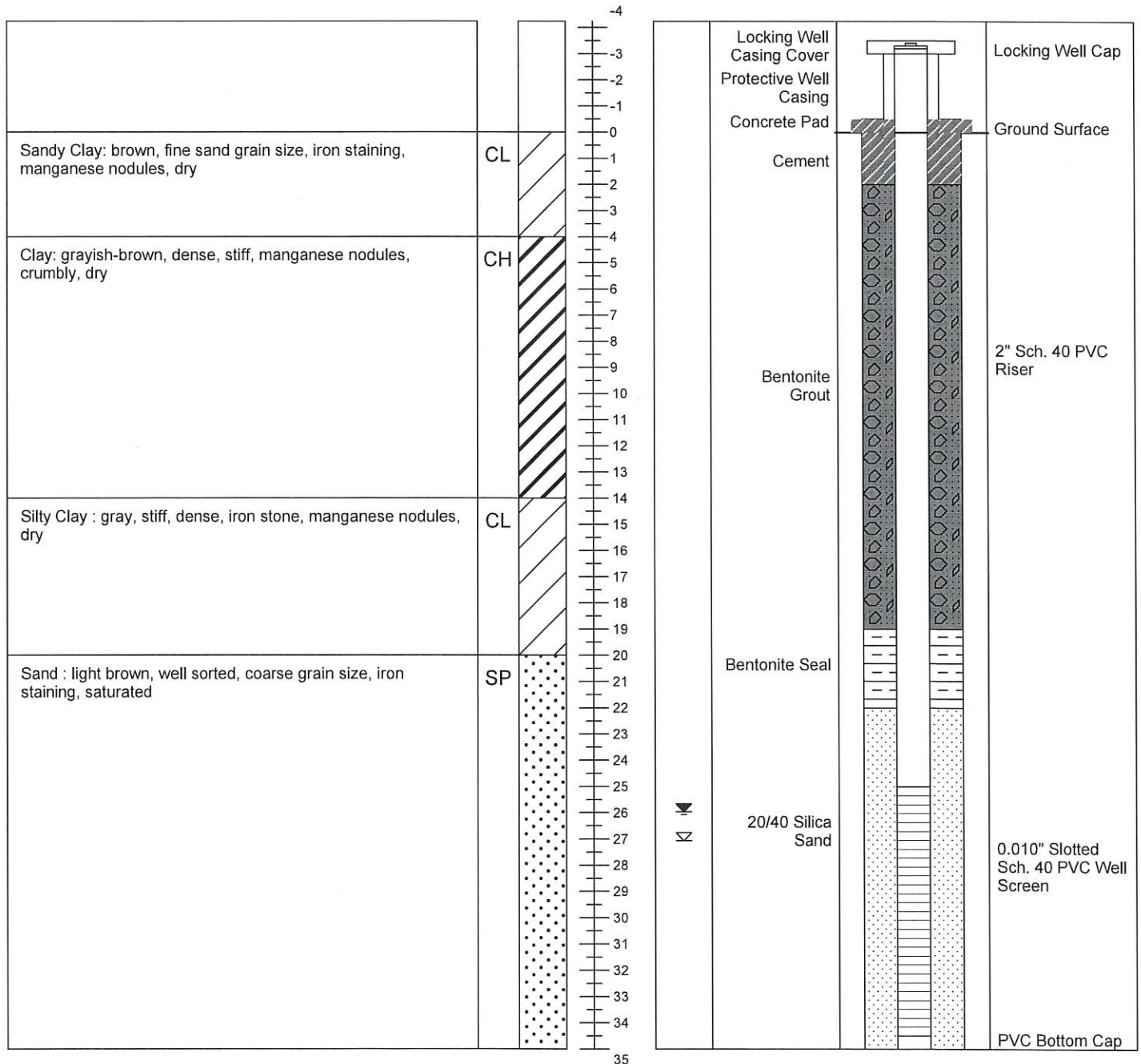
DRILLER: L. Bruce Milton  
 DRILLER'S LICENSE NO.: 4926  
 RIG TYPE: CME-75  
 METHOD OF DRILLING: Hollow Stem Auger  
 SAMPLING METHODS: Split Core  
 TOP OF CASING ELEV. 410.88'  
 HOLE DIAMETER: 8.25"  
 LATITUDE: 31.05574314° LONGITUDE: -96.41208612°

☹ Water level after completion

☹ Water level while drilling

TBPG Firm No. 50027

DESCRIPTION	USCS	SOIL SYMBOLS	DEPTH	WATER LEVEL	WELL CONSTRUCTION
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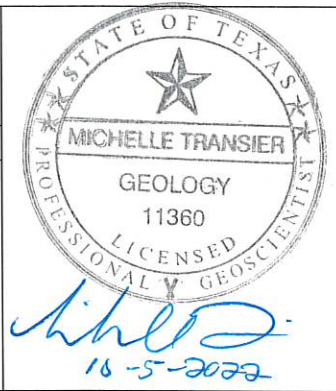


NOTES: USCS descriptors not laboratory verified.



# Monitor Well Log

Monitor Well No. **MW-19**



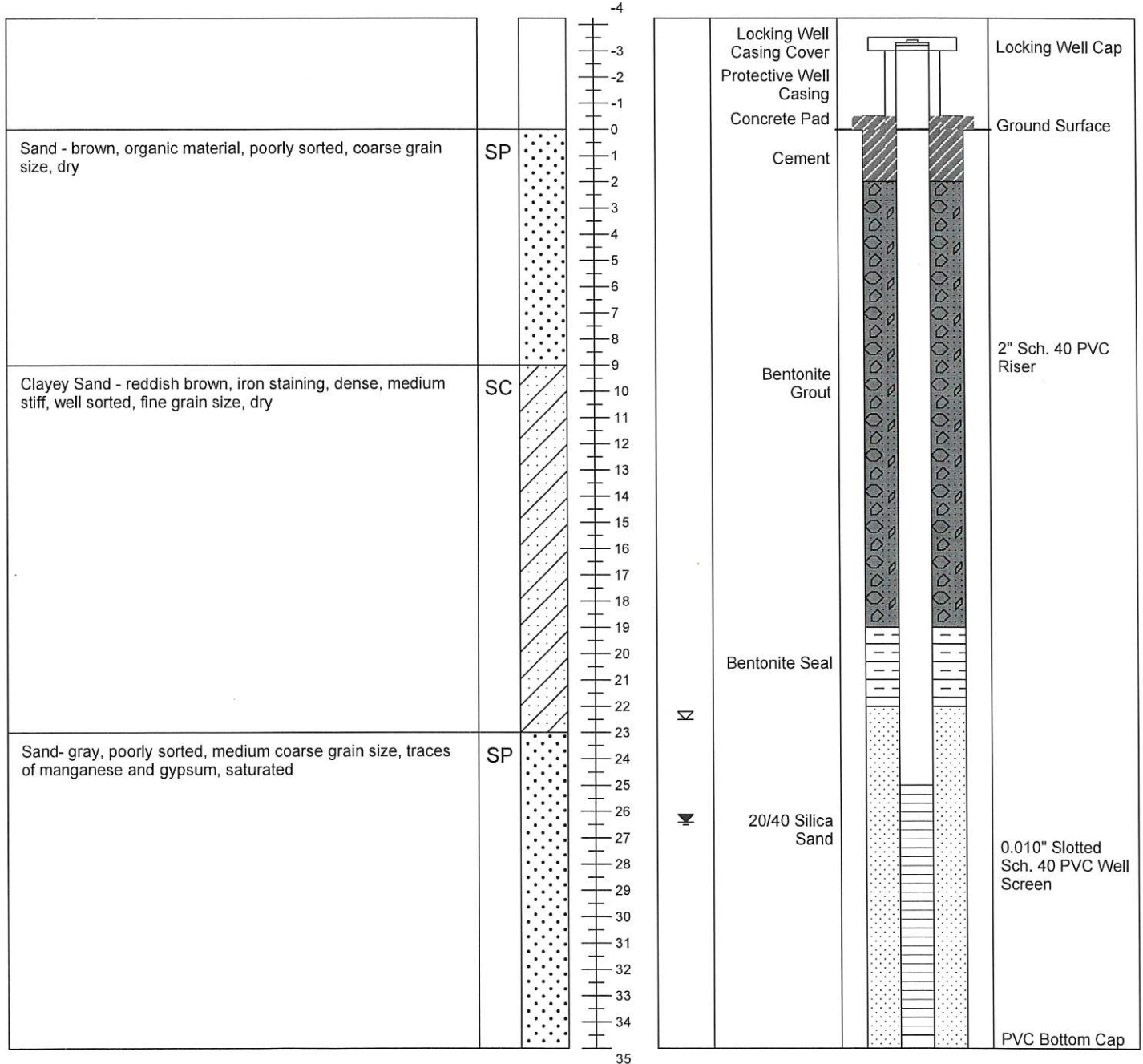
PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	Twin Oaks CCR Landfill	DRILLER:	L. Bruce Milton
PROJECT NO.:	I-14-1007	DRILLER'S LICENSE NO.:	4926
LOGGED BY:	Uziel Rendon	RIG TYPE:	CME-75
SUPERVISING PG:	Michelle K. Transier, P.G.	METHOD OF DRILLING:	Hollow Stem Auger
DRILLING COMPLETION:	9/7/2022	SAMPLING METHODS:	Split Core
DEVELOPMENT:	9/8/2022	TOP OF CASING ELEV.	417.33'
SITE LOCATION:	13065 Plant Road, Bremond, TX	HOLE DIAMETER:	8.25"
WELL OWNER:	Twin Oaks Power Plant	LATITUDE:	31.05515046°
		LONGITUDE:	-96.41301379°

☹ Water level after completion

☹ Water level while drilling

TBPG Firm No. 50027

DESCRIPTION	USCS	SOIL SYMBOLS	DEPTH	WATER LEVEL	WELL CONSTRUCTION



NOTES: USCS descriptors not laboratory verified.



# Monitor Well Log

Monitor Well No. **MW-20**



## PROJECT INFORMATION

PROJECT: Twin Oaks CCR Landfill  
 PROJECT NO.: I-14-1007  
 LOGGED BY: Uziel Rendon  
 SUPERVISING PG: Michelle K Transier, P.G.  
 DRILLING COMPLETION: 9/6/2022  
 DEVELOPMENT: 9/7/2022  
 SITE LOCATION: 13065 Plant Road, Bremond, TX  
 WELL OWNER: Twin Oaks Power Plant

## DRILLING INFORMATION

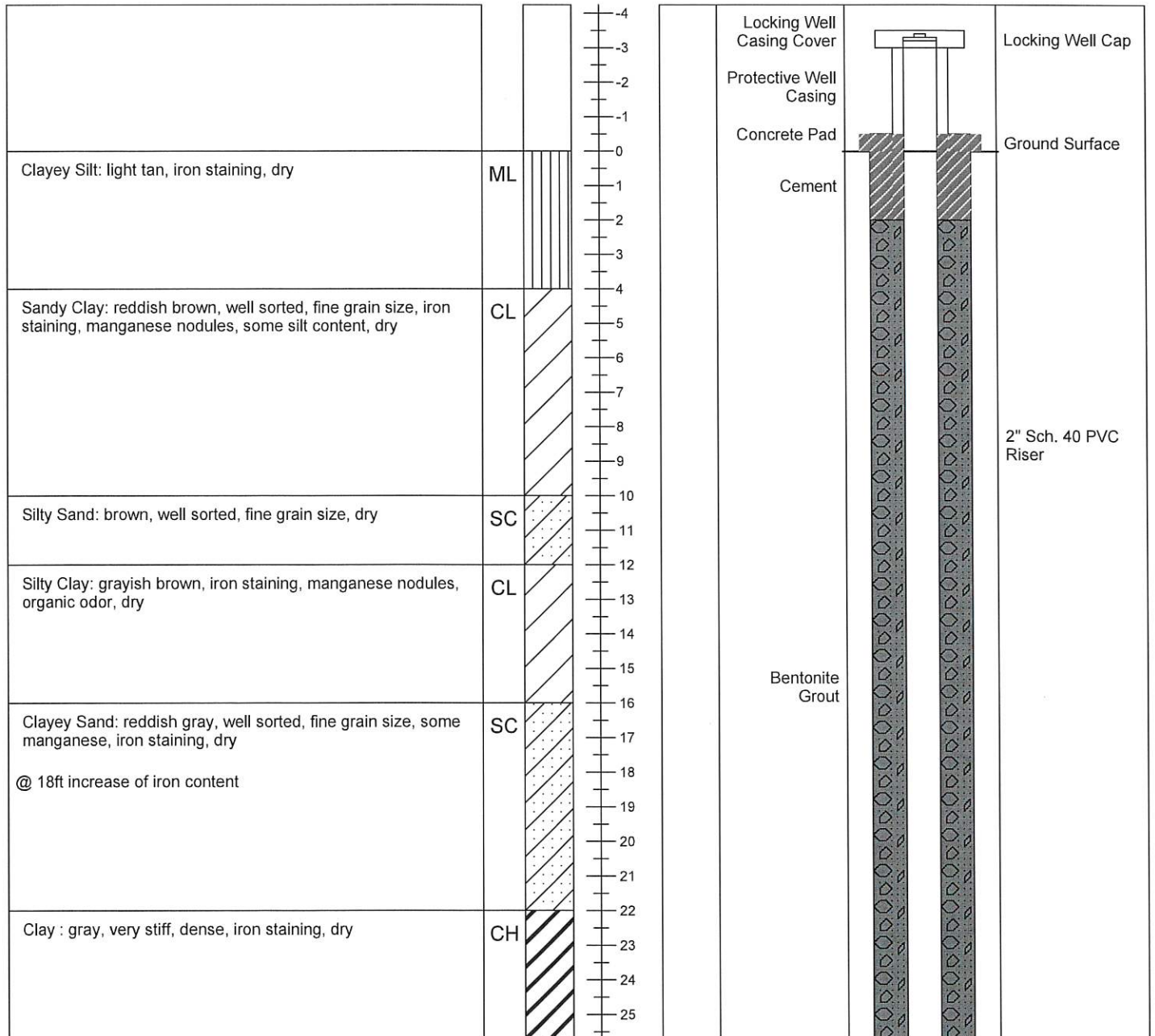
DRILLER: L. Bruce Milton  
 DRILLER'S LICENSE NO.: 4926  
 RIG TYPE: CME-75  
 METHOD OF DRILLING: Hollow Stem Auger  
 SAMPLING METHODS: Split Core  
 TOP OF CASING ELEV. 423.19'  
 HOLE DIAMETER: 8.25"  
 LATITUDE: 31.05431705° LONGITUDE: -96.41208995°

☹ Water level after completion

☹ Water level while drilling

TBPG Firm No. 50027

DESCRIPTION	USCS	SOIL SYMBOLS	DEPTH	WATER LEVEL	WELL CONSTRUCTION



NOTES: USCS descriptors not laboratory verified.



# Monitor Well Log

Monitor Well No. **MW-20**

## PROJECT INFORMATION

## DRILLING INFORMATION

PROJECT: Twin Oaks CCR Landfill  
 PROJECT NO.: I-14-1007  
 LOGGED BY: Uziel Rendon  
 SUPERVISING PG: Michelle K Transier, P.G.  
 DRILLING COMPLETION: 9/6/2022  
 DEVELOPMENT: 9/7/2022  
 SITE LOCATION: 13065 Plant Road, Bremond, TX  
 WELL OWNER: Twin Oaks Power Plant

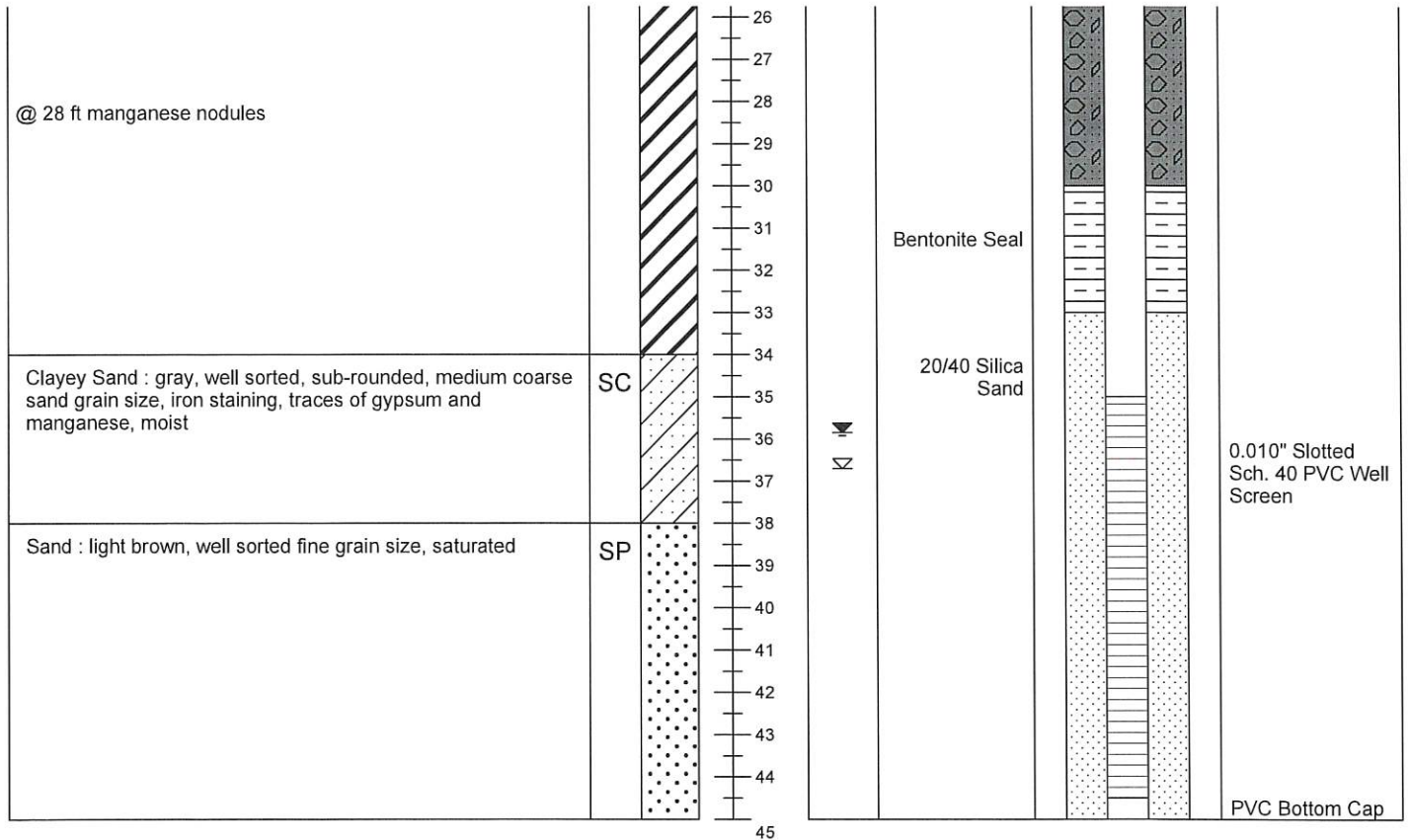
DRILLER: L. Bruce Milton  
 DRILLER'S LICENSE NO.: 4926  
 RIG TYPE: CME-75  
 METHOD OF DRILLING: Hollow Stem Auger  
 SAMPLING METHODS: Split Core  
 TOP OF CASING ELEV.: 423.19'  
 HOLE DIAMETER: 8.25"  
 LATITUDE: 31.05431705° LONGITUDE: -96.41208995°

Water level after completion

Water level while drilling

TBPG Firm No. 50027

DESCRIPTION	USCS	SOIL SYMBOLS	DEPTH	WATER LEVEL	WELL CONSTRUCTION





# Monitor Well Log

Monitor Well No. MW-21



## PROJECT INFORMATION

## DRILLING INFORMATION

PROJECT: Twin Oaks CCR Landfill  
 PROJECT NO.: I-14-1007  
 LOGGED BY: Uziel Rendon  
 SUPERVISING PG: Michelle K. Transier, P.G.  
 DRILLING COMPLETION: 9/7/2022  
 DEVELOPMENT: 9/7/2022  
 SITE LOCATION: 13065 Plant Road, Bremond, TX  
 WELL OWNER: Twin Oaks Power Plant

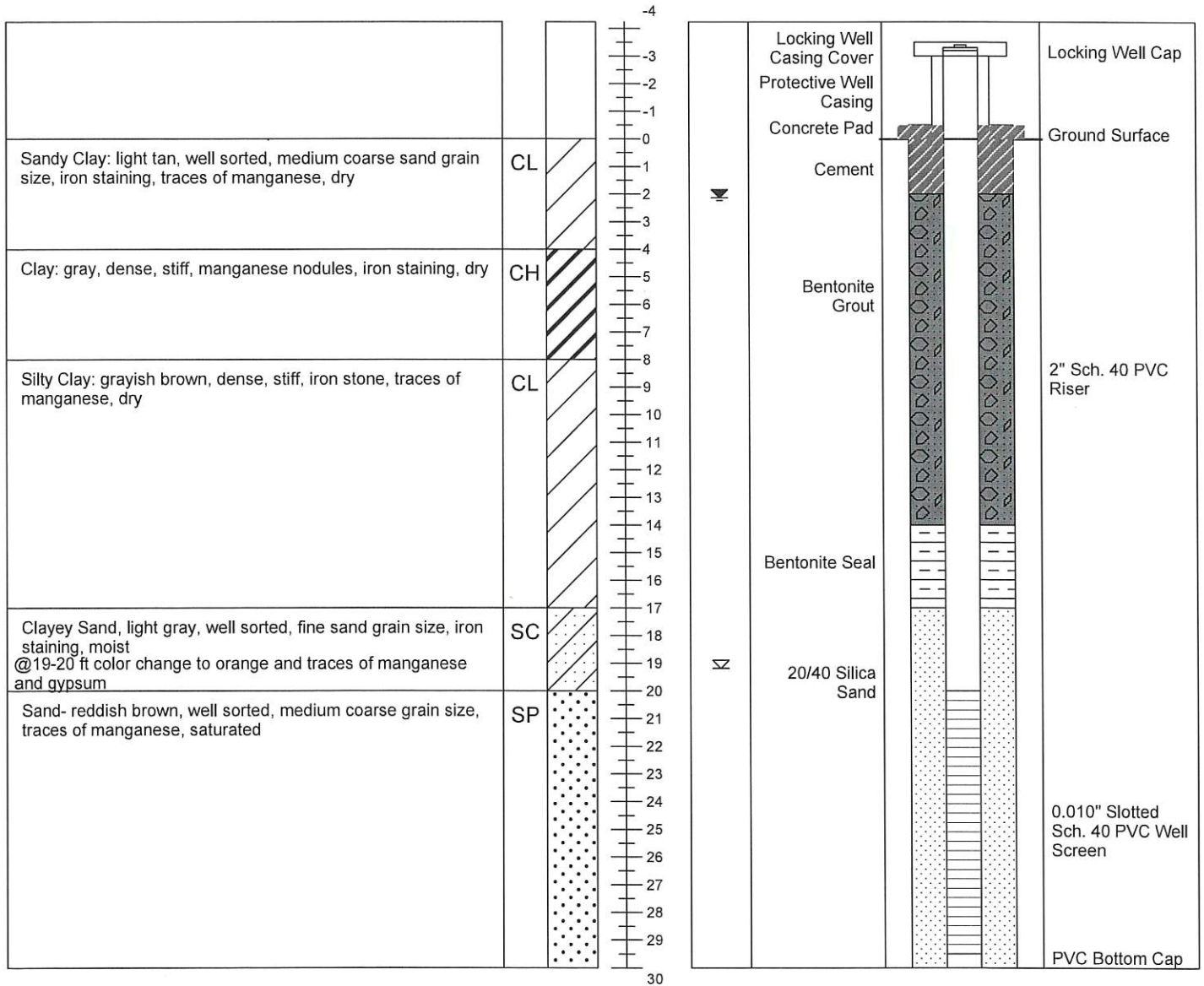
DRILLER: L. Bruce Milton  
 DRILLER'S LICENSE NO.: 4926  
 RIG TYPE: CME-75  
 METHOD OF DRILLING: Hollow Stem Auger  
 SAMPLING METHODS: Split Core  
 TOP OF CASING ELEV.: 387.52'  
 HOLE DIAMETER: 8.25"  
 LATITUDE: 31.06023101° LONGITUDE: -96.41090925°

Water level after completion

Water level while drilling

TBPG Firm No. 50027

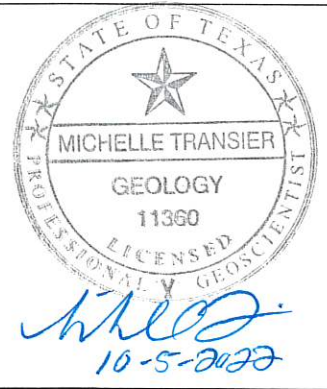
DESCRIPTION	USCS	SOIL SYMBOLS	DEPTH	WATER LEVEL	WELL CONSTRUCTION
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# Monitor Well Log

Monitor Well No. MW-22



PROJECT INFORMATION	
PROJECT:	Twin Oaks CCR Landfill
PROJECT NO.:	I-14-1007
LOGGED BY:	Uziel Rendon
SUPERVISING PG:	Michelle K. Transier, P.G.
DRILLING COMPLETION:	9/8/2022
DEVELOPMENT:	9/8/2022
SITE LOCATION:	13065 Plant Road, Bremond, TX
WELL OWNER:	Twin Oaks Power Plant

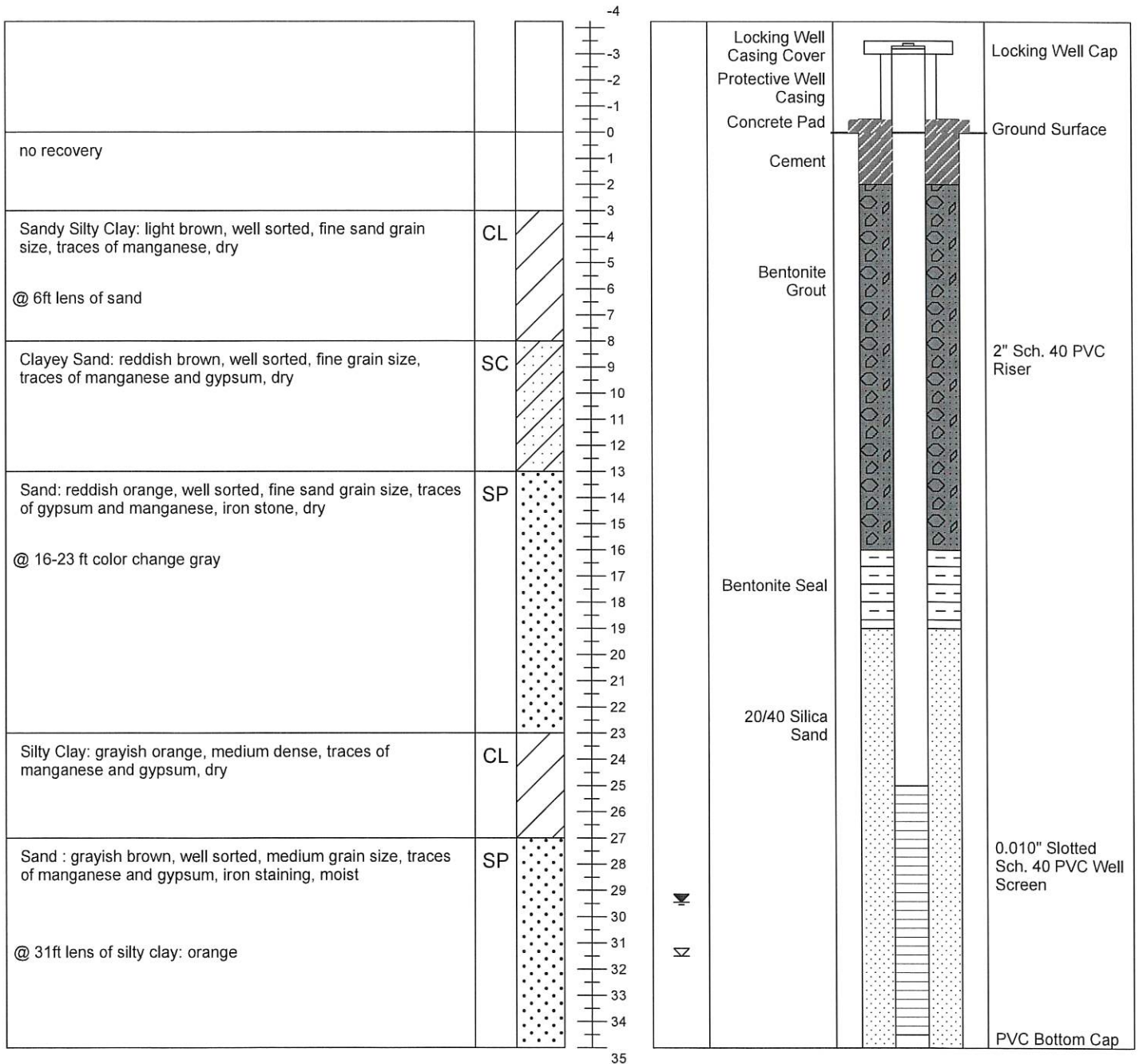
DRILLING INFORMATION	
DRILLER:	L. Bruce Milton
DRILLER'S LICENSE NO.:	4926
RIG TYPE:	CME-75
METHOD OF DRILLING:	Hollow Stem Auger
SAMPLING METHODS:	Split Core
TOP OF CASING ELEV.	421.71'
HOLE DIAMETER:	8.25"
LATITUDE:	31.05541823°
LONGITUDE:	-96.41383061°

Water level after completion

Water level while drilling

TBPG Firm No. 50027

DESCRIPTION	USCS	SOIL SYMBOLS	DEPTH	WATER LEVEL	WELL CONSTRUCTION
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NOTES: USCS descriptors not laboratory verified.

## STATE OF TEXAS WELL REPORT for Tracking #619552

Owner: <b>Twin Oaks Power Plant</b>	Owner Well #: <b>MW-18</b>
Address: <b>13065 Plant Road Bremond, TX 76629</b>	Grid #: <b>39-59-2</b>
Well Location: <b>13065 Plant Road Bremond, TX 76629</b>	Latitude: <b>31° 05' 58" N</b>
Well County: <b>Robertson</b>	Longitude: <b>096° 41' 22" W</b>
	Elevation: <b>No Data</b>
Type of Work: <b>New Well</b>	
	Proposed Use: <b>Monitor</b>

Drilling Start Date: **9/6/2022**      Drilling End Date: **9/6/2022**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	<b>8.25</b>	<b>0</b>	<b>35</b>

Drilling Method: **Hollow Stem Auger**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
Filter Pack Intervals:	<b>22</b>	<b>35</b>	<b>Sand</b>	<b>20/40</b>

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	<b>0</b>	<b>19</b>	<b>Cement 1 Bags/Sacks</b>
	<b>19</b>	<b>22</b>	<b>Bentonite 1 Bags/Sacks</b>

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

**Surface Completion by Driller**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**



Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
<b>No Data</b>	<b>No Data</b>

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEST DRILLING SERVICES, INC.**

**P.O. BOX 70822  
Houston, TX 77270**

Driller Name: **L. Bruce Milton**

License Number: **4926**

Comments: **No Data**

Lithology:  
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:  
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
<b>0</b>	<b>4</b>	<b>SANDY, drk. brown</b>
<b>4</b>	<b>10</b>	<b>SANDY CLAY, reddish brown</b>
<b>10</b>	<b>22</b>	<b>SILTY CLAY, brownish</b>
<b>22</b>	<b>35</b>	<b>SAND, lt. brown</b>

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
<b>2</b>	<b>Riser</b>	<b>New Plastic (PVC)</b>	<b>40</b>	<b>0</b>	<b>25</b>
<b>2</b>	<b>Screen</b>	<b>New Plastic (PVC)</b>	<b>40 0.010</b>	<b>25</b>	<b>35</b>

**IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY**

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**Texas Department of Licensing and Regulation  
P.O. Box 12157  
Austin, TX 78711  
(512) 334-5540**

## STATE OF TEXAS WELL REPORT for Tracking #619551

Owner: <b>Twin Oaks Power Plant</b>	Owner Well #: <b>MW-19</b>
Address: <b>13065 Plant Road Bremond, TX 76629</b>	Grid #: <b>39-59-2</b>
Well Location: <b>13065 Plant Road Bremond, TX 76629</b>	Latitude: <b>31° 05' 52" N</b>
Well County: <b>Robertson</b>	Longitude: <b>096° 41' 31" W</b>
	Elevation: <b>No Data</b>
Type of Work: <b>New Well</b>	
	Proposed Use: <b>Monitor</b>

Drilling Start Date: **9/7/2022**

Drilling End Date: **9/7/2022**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	<b>8.25</b>	<b>0</b>	<b>35</b>

Drilling Method: **Hollow Stem Auger**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
Filter Pack Intervals:	<b>22</b>	<b>35</b>	<b>Sand</b>	<b>20/40</b>

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	<b>0</b>	<b>19</b>	<b>Cement 1 Bags/Sacks</b>
	<b>19</b>	<b>22</b>	<b>Bentonite 1 Bags/Sacks</b>

Seal Method: **Tremie**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

**Surface Completion by Driller**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:	<i>Strata Depth (ft.)</i>	<i>Water Type</i>
	<b>No Data</b>	<b>No Data</b>

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEST DRILLING SERVICES, INC.**

**P.O. BOX 70822  
Houston, TX 77270**

Driller Name: **L. Bruce Milton**

License Number: **4926**

Comments: **No Data**

Lithology:  
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:  
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
<b>0</b>	<b>9</b>	<b>SAND, brown</b>
<b>9</b>	<b>23</b>	<b>CLAYEY SAND, reddish brown</b>
<b>23</b>	<b>35</b>	<b>SAND, gray</b>

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
<b>2</b>	<b>Riser</b>	<b>New Plastic (PVC)</b>	<b>40</b>	<b>0</b>	<b>25</b>
<b>2</b>	<b>Screen</b>	<b>New Plastic (PVC)</b>	<b>40 0.010</b>	<b>25</b>	<b>35</b>

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**Texas Department of Licensing and Regulation  
P.O. Box 12157  
Austin, TX 78711  
(512) 334-5540**

## STATE OF TEXAS WELL REPORT for Tracking #619549

Owner: <b>Twin Oaks Power Plant</b>	Owner Well #: <b>MW-20</b>
Address: <b>13065 Plant Road Bremond, TX 76629</b>	Grid #: <b>39-59-2</b>
Well Location: <b>13065 Plant Road Bremond, TX 76629</b>	Latitude: <b>31° 05' 44" N</b>
Well County: <b>Robertson</b>	Longitude: <b>096° 41' 22" W</b>
	Elevation: <b>No Data</b>
Type of Work: <b>New Well</b>	
Proposed Use: <b>Monitor</b>	

Drilling Start Date: **9/6/2022**      Drilling End Date: **9/6/2022**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	<b>8.25</b>	<b>0</b>	<b>45</b>

Drilling Method: **Hollow Stem Auger**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	<b>33</b>	<b>45</b>	<b>Sand</b>	<b>20/40</b>

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks &amp; material)</i>
Annular Seal Data:	<b>0</b>	<b>30</b>	<b>Cement 1 Bags/Sacks</b>
	<b>30</b>	<b>33</b>	<b>Bentonite 1 Bags/Sacks</b>

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

**Surface Completion by Driller**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:	<i>Strata Depth (ft.)</i>	<i>Water Type</i>
	<b>No Data</b>	<b>No Data</b>

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEST DRILLING SERVICES, INC.**

**P.O. BOX 70822  
Houston, TX 77270**

Driller Name: **L. Bruce Milton**

License Number: **4926**

Comments: **No Data**

Lithology:  
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:  
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
<b>0</b>	<b>15</b>	<b>SANDY CLAY, reddish brown</b>
<b>15</b>	<b>30</b>	<b>SILTY CLAY, reddish orange</b>
<b>30</b>	<b>35</b>	<b>SANDY CLAY, lt. brown</b>
<b>35</b>	<b>45</b>	<b>SAND, lt. brown</b>

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
<b>2</b>	<b>Riser</b>	<b>New Plastic (PVC)</b>	<b>40</b>	<b>0</b>	<b>35</b>
<b>2</b>	<b>Screen</b>	<b>New Plastic (PVC)</b>	<b>40 0.010</b>	<b>35</b>	<b>45</b>

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P.O. Box 12157  
Austin, TX 78711  
(512) 334-5540**

## STATE OF TEXAS WELL REPORT for Tracking #619537

Owner: <b>Twin Oaks Power Plant</b>	Owner Well #: <b>MW-21</b>
Address: <b>13065 Plant Road Bremond, TX 76629</b>	Grid #: <b>39-59-2</b>
Well Location: <b>13065 Plant Road Bremond, TX 76629</b>	Latitude: <b>31° 06' 03" N</b>
Well County: <b>Robertson</b>	Longitude: <b>096° 41' 10" W</b>
	Elevation: <b>No Data</b>
Type of Work: <b>New Well</b>	
Proposed Use: <b>Monitor</b>	

Drilling Start Date: **9/7/2022**

Drilling End Date: **9/7/2022**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	<b>8.25</b>	<b>0</b>	<b>30</b>

Drilling Method: **Hollow Stem Auger**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	<b>17</b>	<b>30</b>	<b>Sand</b>	<b>20/40</b>

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks &amp; material)</i>
Annular Seal Data:	<b>0</b>	<b>14</b>	<b>Cement 1 Bags/Sacks</b>
	<b>14</b>	<b>17</b>	<b>Bentonite 1 Bags/Sacks</b>

Seal Method: **Tremie**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

**Surface Completion by Driller**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:	<i>Strata Depth (ft.)</i>	<i>Water Type</i>
	<b>No Data</b>	<b>No Data</b>

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEST DRILLING SERVICES, INC.**

**P.O. BOX 70822  
Houston, TX 77270**

Driller Name: **L. Bruce Milton**

License Number: **4926**

Comments: **No Data**

Lithology:  
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:  
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
<b>0</b>	<b>5</b>	<b>CLAYEY SAND, lt. brown</b>
<b>5</b>	<b>19</b>	<b>SILTY CLAY, brown</b>
<b>19</b>	<b>30</b>	<b>SAND, reddish brown</b>

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
<b>2</b>	<b>Riser</b>	<b>New Plastic (PVC)</b>	<b>40</b>	<b>0</b>	<b>20</b>
<b>2</b>	<b>Screen</b>	<b>New Plastic (PVC)</b>	<b>40 0.010</b>	<b>20</b>	<b>30</b>

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P.O. Box 12157  
Austin, TX 78711  
(512) 334-5540**

## STATE OF TEXAS WELL REPORT for Tracking #619536

Owner: <b>Twin Oaks Power Plant</b>	Owner Well #: <b>MW-22</b>
Address: <b>13065 Plant Road Bremond, TX 76629</b>	Grid #: <b>39-59-2</b>
Well Location: <b>13065 Plant Road Bremond, TX 76629</b>	Latitude: <b>31° 05' 55" N</b>
Well County: <b>Robertson</b>	Longitude: <b>096° 41' 39" W</b>
	Elevation: <b>No Data</b>
Type of Work: <b>New Well</b>	
Proposed Use: <b>Monitor</b>	

Drilling Start Date: **9/8/2022**      Drilling End Date: **9/8/2022**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	<b>8.25</b>	<b>0</b>	<b>35</b>

Drilling Method: **Hollow Stem Auger**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	<b>19</b>	<b>35</b>	<b>Sand</b>	<b>20/40</b>

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks &amp; material)</i>
Annular Seal Data:	<b>0</b>	<b>16</b>	<b>Cement 1 Bags/Sacks</b>
	<b>16</b>	<b>19</b>	<b>Bentonite 1 Bags/Sacks</b>

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

**Surface Completion by Driller**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**



Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
<b>No Data</b>	<b>No Data</b>

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEST DRILLING SERVICES, INC.**

**P.O. BOX 70822  
Houston, TX 77270**

Driller Name: **L. Bruce Milton**

License Number: **4926**

Comments: **No Data**

Lithology:  
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:  
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
<b>0</b>	<b>9</b>	<b>SANDY CLAY, reddish brown</b>
<b>9</b>	<b>19</b>	<b>CLAYEY SAND, gray</b>
<b>19</b>	<b>35</b>	<b>SAND, lt. brown</b>

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
<b>2</b>	<b>Riser</b>	<b>New Plastic (PVC)</b>	<b>40</b>	<b>0</b>	<b>25</b>
<b>2</b>	<b>Screen</b>	<b>New Plastic (PVC)</b>	<b>40 0.010</b>	<b>25</b>	<b>35</b>

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