2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

TWIN OAKS POWER STATION

COAL COMBUSTION RESIDUALS (CCR) LANDFILL

ROBERTSON COUNTY, TEXAS

January 27, 2021

Prepared By:

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

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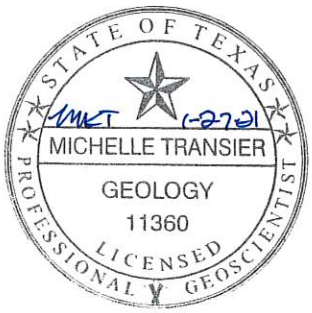
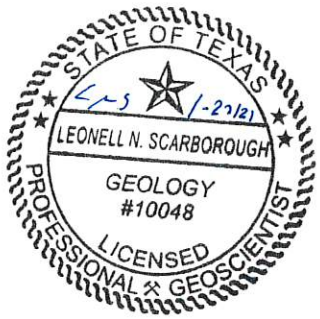


Michelle K. Transier, P.G.
Geologist



Leonell N. Scarborough, P.G.
Senior Hydrogeologist

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

Contents

Appendices

Introduction

This 2020 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 annual report summarizes the groundwater monitoring activities performed through the 2nd 2020 semi-annual detection groundwater sampling event for the facility. The annual 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. 2-3
- Project key activities for the upcoming year (§ 257.90(e)): .....p. 4
- 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 2020.
- 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. 2-3

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 2020 are summarized in the following table:

Summary of Sampling Events

Event Date	Monitoring Wells (MW) Sampled	Event Type
April 28, 2020	MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-17	Semi-Annual Detection Monitoring
July 9, 2020	MW-14	Verification Resampling
October 27, 2020	MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-17	Semi-Annual Detection Monitoring
November 23, 2020	MW-14	Verification Resampling

No significant problems were encountered during the sampling event in 2020.

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 2020 is included in Appendix D of this report.

First Semi-Annual Groundwater Monitoring Event (April 2020)

The first semi-annual detection monitoring event was conducted on April 28, 2020. 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 2020 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 and total dissolved solids (TDS) in monitor well MW-14. Subsequently, verification resampling was conducted on July 9, 2020, as provided for and in accordance with the GWSAP. Statistical reevaluation was performed in accordance with the GWSAP, 40 CFR §257.93(h)(1), and the United States Environmental Protection Agency (EPA) Unified Guidance methodologies. The results of verification resampling did not confirm the initial intrawell statistical exceedance value for TDS in MW-14. However, the results of verification resampling confirmed the intrawell statistical exceedance value for sulfate in MW-14 on July 17, 2020 and a statistically significant increase (SSI) was determined on July 21, 2020. Statistical evaluation results are included in the 1st 2020 Semi-Annual Groundwater Monitoring and Corrective Action Report (Appendix D) dated July 27, 2020.

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 SSI for MW-14. Notice of the intent to perform an ASD was provided to TCEQ on July 23, 2020. Based on observed variability, monitoring well MW-14 was reevaluated using interwell control chart techniques as provided in EPA Unified Guidance. Control chart evaluation utilized sulfate data from upgradient monitoring wells MW-7, MW-11, MW-12, and MW-16. The results of the interwell statistical reevaluation indicate the sulfate concentrations reported for monitoring well MW-14 fall within the statistically determined limit of concentrations developed for upgradient monitoring wells. Sulfate concentration data from MW-14 were further evaluated for statistically significant increasing trends. No statistically increasing trends were noted for the sulfate data in MW-14. Based on this evaluation, no release from the CCR Landfill is indicated. A copy of the Alternate Source/Error Demonstration report dated July 27, 2020 is included in Appendix D 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 2020)

Well	Constituent	Initial Result (mg/L)	Verification Resampling Result (mg/L)	Intrawell Statistical Limit (mg/L)	Interwell Statistical Limit (mg/L)	Site-wide Sulfate Data Range (mg/L)	Statistical Exceedance Confirmed?	Resolution
MW-14	sulfate	467	448	401.3	1550	24.3 - 1550	No	Maintain Detection Monitoring
MW-14	TDS	1680	1490	1541	N/A	N/A	No	Maintain Detection Monitoring

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 (October 2020)

The second semi-annual detection monitoring event was conducted on October 27, 2020. 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 October 2020 event, performed in accordance with the provisions of the GWSAP, 30 TAC §352.941, and 40 CFR § 257.94, indicated an unverified ("initial") intrawell statistical exceedance for sulfate in monitor well MW-14. Subsequently, verification resampling was conducted on November 23, 2020, as provided for and in accordance with the GWSAP. The results of verification resampling confirmed the intrawell statistical exceedance value for sulfate in MW-14 on December 4, 2020 and an SSI was determined on December 15, 2020. 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 13, 2021 and an ASD will be submitted 90 days from the date an SSI was determined.

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 (October 2020)

Well	Constituent	Initial Result (mg/L)	Statistical Limit (mg/L)	Verification Result (mg/L)	Intrawell Statistical Exceedance Confirmed?	Recommendation
MW-14	sulfate	493	401.3	424	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 MW14 also remains in detection monitoring status as determined by the ASD included in Appendix E.

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 2020 detection

monitoring events is included in Appendix C. Hydraulic gradient and flow rate calculations, along with groundwater elevation maps showing groundwater flow direction for the April and October 2020 detection monitoring events, are also included in Appendix C.

Project Key Activities for 2021

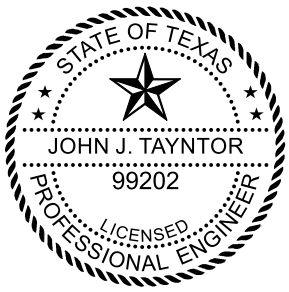
Based on the data available at the time of this report, the detection monitoring program currently in place for the Twin Oaks Power Station CCR Landfill meets the requirements of applicable regulations. An ASD, performed within 90 days of the December 15, 2020 SSI determination, is included in Appendix E. No change to the groundwater monitoring system, monitoring schedule, or monitoring program is proposed.

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 2020 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.



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

January 27, 2021

Date

Appendix B

Monitoring Well Network and Program Summary

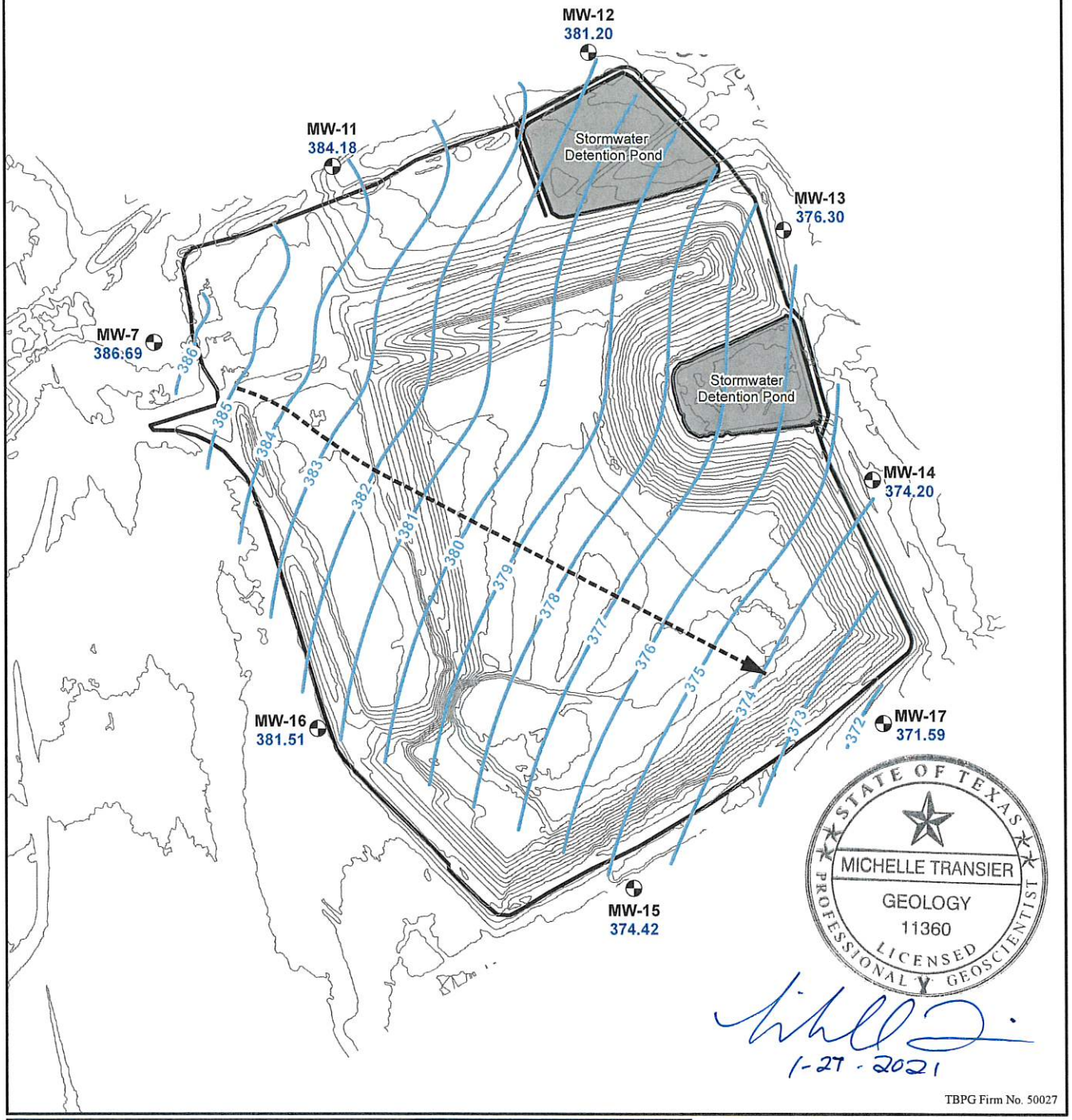
Well ID	Well Designation	Aquifer	2020 Monitoring Status
MW-7	Upgradient	Uppermost	Detection Monitoring
MW-11	Upgradient	Uppermost	Detection Monitoring
MW-12	Upgradient	Uppermost	Detection Monitoring
MW-13	Downgradient	Uppermost	Detection Monitoring
MW-14	Downgradient	Uppermost	Detection Monitoring
MW-15	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	4/28/2020	411.60	24.39	387.21
	10/27/2020	411.60	24.91	386.69
MW-11	4/28/2020	406.93	21.90	385.03
	10/27/2020	406.93	22.75	384.18
MW-12	4/28/2020	387.27	5.19	382.08
	10/27/2020	387.27	6.07	381.20
MW-13	4/28/2020	398.32	21.85	376.47
	10/27/2020	398.32	22.02	376.30
MW-14	4/28/2020	394.68	19.40	375.28
	10/27/2020	394.68	20.48	374.20
MW-15	4/28/2020	410.47	35.22	375.25
	10/27/2020	410.47	36.05	374.42
MW-16	4/28/2020	422.54	40.82	381.72
	10/27/2020	422.54	41.03	381.51
MW-17	4/28/2020	405.87	33.10	372.77
	10/27/2020	405.87	34.28	371.59



Hydrex ENVIRONMENTAL
1120 NW Stallings Drive
Nacogdoches, Texas 75964
(936) 568-9451

GROUNDWATER CONTOUR MAP

WATER LEVELS MEASURED
10/27/2020

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

Map Revised: 12/16/2020	Project Number: I-14-1007	GIS Analyst: SAS

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 October 2020 monitoring event.

Calculation of hydraulic gradient was performed using the following equation:

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

Where: Δh = approximate change in hydraulic head between two known points
Δd = approximate change in distance between two known points along flow paths

Gradient Measurement Line	Δh (feet)	Δd (feet)	i (feet/feet)	Monitoring Event
from well MW-7 to MW-17	15.10	3370	0.0045	October 2020

Estimated Flow Rate Calculations

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

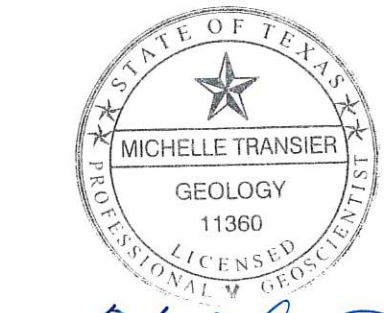
$$v = \frac{ki}{n_e}$$

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	0.0045	75.32	October 2020

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



1-27-2021

Appendix D

Groundwater Monitoring Analytical Results Summary Table

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

		Detection Monitoring Constituents (Appendix III)							Assessment Monitoring Constituents (Appendix IV)														
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	04/28/20	0.322	268	274	<0.500	6.42	1550	1780	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-7	10/27/20	0.298	245	262	<0.500	6.06	930	1670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-11	04/28/20	0.14	137	185	<0.500	6.42	606	1170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-11	10/27/20	0.147	142	184	<0.500	6.07	621	1120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-12	04/28/20	0.0304	16.9	76.9	<0.500	6.47	43.4	275	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-12	10/27/20	0.028	18.6	76.5	<0.500	6.20	40.5	283	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-13	04/28/20	0.075	31.1	103	<0.500	6.55	72.2	403	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-13	10/27/20	0.0604	28.8	104	<0.500	6.13	71.3	381	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.1382	37.7	119.4	0.584	4.847-7.797	193.1	660.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	04/28/20	0.322	106	370	<0.500	6.80	467	1680	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	07/09/20	NA	NA	NA	NA	NA	448	1490	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	10/27/20	0.497	112	364	<0.500	6.35	493	1480	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	11/23/20	NA	NA	NA	NA	NA	424	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.5796	115.2	436.5	0.682	4.951-7.714	401.3	1541	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-15	04/28/20	0.0427	21.8	119	<0.500	6.61	38.1	338	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-15	10/27/20	0.0399	23.4	129	<0.500	6.32	34.3	381	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.06917	28.93	175.8	0.5	4.356-7.747	40.2	476.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-16	04/28/20	0.0257	87.1	371	<0.500	6.53	129	960	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-16	10/27/20	0.0243	45.7	198	<0.500	6.33	87.5	598	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-17	04/28/20	0.0227	156	706	<0.500	5.83	55.2	1210	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-17	10/27/20	0.0237	162	640	<0.500	5.40	41.1	1340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.362	555.1	1678	0.5	3.887-7.908	160.2	3191	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

*Background limits are intrawell statistcal limits including data collected between June 2016 and June 2019.

NA - Not Applicable

Laboratory Reports

Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to

Eurofins Xenco, LLC - Houston

4147 Greenbriar Drive
Stafford, TX 77477-3907

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Certificate Number: T104704215-20-38
Effective Date: 9/1/2020
Expiration Date: 6/30/2021

Executive Director Texas Commission on Environmental Quality

eurofins | Environment Testing Xenco

Analytical Report 676321

for

Hydrex Environmental

Project Manager: Michelle Transier

Twin Oaks PP

I-14-1007

11.09.2020

Collected By: Client

4147 Greenbriar Dr.
Stafford, TX 77477

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)

11.09.2020

Project Manager: **Michelle Transier**
Hydrex Environmental
1120 NW Stallings Dr
Nacogdoches, TX 75964

Reference: Eurofins Xenco, LLC Report No(s): **676321**
Twin Oaks PP
Project Address:

Michelle Transier:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 676321. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 676321 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Chad A. Bechtold

Chad Bechtold
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Sample Cross Reference 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-7	W	10.27.2020 13:18		676321-001
MW-11	W	10.27.2020 13:55		676321-002
MW-16	W	10.27.2020 14:47		676321-003
MW-12	W	10.27.2020 15:22		676321-004
MW-13	W	10.27.2020 15:52		676321-005
MW-15	W	10.27.2020 16:27		676321-006
MW-14	W	10.27.2020 16:57		676321-007
MW-17	W	10.27.2020 17:27		676321-008
DUP	W	10.27.2020 13:55		676321-009

CASE NARRATIVE SUMMARY

eurofins | Environment Testing Xenco

Client Name: ***Hydrex Environmental***

Project Name: ***Twin Oaks PP***

Project ID:	*I-14-1007*	*Report Date:*	*11.09.2020*
Work Order Number:	*676321*	*Date Received:*	*10.29.2020*

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. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

pH analysis should be performed immediately. Per client request the laboratory performed pH analysis. The results were qualified with a "K".

Chad Bechtold
Project Manager

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-7** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-001 Date Collected: 10.27.2020 13:18

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P

Tech: JYM

Analyst: JYM Date Prep: 10.30.2020 10:03 % Moisture:

Seq Number: 3141094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**262**	0.500	mg/L	10.30.2020 11:24		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	10.30.2020 11:24	U	1
Sulfate	14808-79-8	**930**	5.00	mg/L	10.30.2020 11:49	D	10

Analytical Method: TDS by SM2540C

Tech: YAV

Analyst: YAV % Moisture:

Seq Number: 3141288

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1670**	5.00	mg/L	11.03.2020 10:00		1

Analytical Method: pH by SM4500-H

Tech: DTN

Analyst: DTN % Moisture:

Seq Number: 3141247

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.06**		SU	11.03.2020 13:20	K	1
Temperature	TEMP	**19.9**		Deg C	11.03.2020 13:20	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.03.2020 09:00 % Moisture:

Seq Number: 3141310

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.298**	0.0100	mg/L	11.03.2020 16:37		1

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-7** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-001 Date Collected: 10.27.2020 13:18

Analytical Method: Calcium by Method 6010C Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.02.2020 09:05 % Moisture:

Seq Number: 3141213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**245**	10.0	mg/L	11.02.2020 21:58	DX	50

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-11** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-002 Date Collected: 10.27.2020 13:55

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P

Tech: JYM

Analyst: JYM Date Prep: 10.30.2020 10:03 % Moisture:

Seq Number: 3141094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**184**	0.500	mg/L	10.30.2020 12:02		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	10.30.2020 12:02	U	1
Sulfate	14808-79-8	**621**	5.00	mg/L	10.30.2020 21:50	D	10

Analytical Method: TDS by SM2540C

Tech: YAV

Analyst: YAV % Moisture:

Seq Number: 3141288

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1120**	5.00	mg/L	11.03.2020 10:00		1

Analytical Method: pH by SM4500-H

Tech: DTN

Analyst: DTN % Moisture:

Seq Number: 3141247

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.07**		SU	11.03.2020 13:20	K	1
Temperature	TEMP	**20.1**		Deg C	11.03.2020 13:20	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.03.2020 09:00 % Moisture:

Seq Number: 3141310

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.147**	0.0100	mg/L	11.03.2020 16:17		1

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-11** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-002 Date Collected: 10.27.2020 13:55

Analytical Method: Calcium by Method 6010C Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.02.2020 09:05 % Moisture:

Seq Number: 3141213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**142**	10.0	mg/L	11.02.2020 22:31	D	50

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-16** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-003 Date Collected: 10.27.2020 14:47

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P

Tech: JYM

Analyst: JYM Date Prep: 10.30.2020 10:03 % Moisture:

Seq Number: 3141094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**198**	0.500	mg/L	10.30.2020 12:15		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	10.30.2020 12:15	U	1
Sulfate	14808-79-8	**87.5**	0.500	mg/L	10.30.2020 12:15		1

Analytical Method: TDS by SM2540C

Tech: YAV

Analyst: YAV % Moisture:

Seq Number: 3141288

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**598**	5.00	mg/L	11.03.2020 10:00		1

Analytical Method: pH by SM4500-H

Tech: DTN

Analyst: DTN % Moisture:

Seq Number: 3141247

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.33**		SU	11.03.2020 13:20	K	1
Temperature	TEMP	**20.0**		Deg C	11.03.2020 13:20	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.03.2020 09:00 % Moisture:

Seq Number: 3141310

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.0243**	0.0100	mg/L	11.03.2020 16:40		1

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id:	**MW-16**	Matrix:	Ground Water	Date Received:	10.29.2020 09:30
Lab Sample Id:	676321-003	Date Collected:	10.27.2020 14:47		
Analytical Method:	Calcium by Method 6010C			Prep Method:	SW3010A
Tech:	MLI				
Analyst:	DEP	Date Prep:	11.02.2020 09:05	% Moisture:	
Seq Number:	3141213				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**45.7**	0.200	mg/L	11.02.2020 22:14		1

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-12** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-004 Date Collected: 10.27.2020 15:22

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P

Tech: JYM

Analyst: JYM Date Prep: 10.30.2020 10:03 % Moisture:

Seq Number: 3141094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**76.5**	0.500	mg/L	10.30.2020 12:53		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	10.30.2020 12:53	U	1
Sulfate	14808-79-8	**40.5**	0.500	mg/L	10.30.2020 12:53		1

Analytical Method: TDS by SM2540C

Tech: YAV

Analyst: YAV % Moisture:

Seq Number: 3141288

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**283**	5.00	mg/L	11.03.2020 10:00		1

Analytical Method: pH by SM4500-H

Tech: DTN

Analyst: DTN % Moisture:

Seq Number: 3141247

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.20**		SU	11.03.2020 13:20	K	1
Temperature	TEMP	**20.0**		Deg C	11.03.2020 13:20	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.03.2020 09:00 % Moisture:

Seq Number: 3141310

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.0280**	0.0100	mg/L	11.03.2020 16:43		1

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-12** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-004 Date Collected: 10.27.2020 15:22

Analytical Method: Calcium by Method 6010C Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.02.2020 09:05 % Moisture:

Seq Number: 3141213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**18.3**	0.200	mg/L	11.02.2020 22:19		1

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-13** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-005 Date Collected: 10.27.2020 15:52

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P

Tech: JYM

Analyst: JYM Date Prep: 10.30.2020 10:03 % Moisture:

Seq Number: 3141094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**104**	0.500	mg/L	10.30.2020 13:31		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	10.30.2020 13:31	U	1
Sulfate	14808-79-8	**71.3**	0.500	mg/L	10.30.2020 13:31		1

Analytical Method: TDS by SM2540C

Tech: YAV

Analyst: YAV % Moisture:

Seq Number: 3141288

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**381**	5.00	mg/L	11.03.2020 10:00		1

Analytical Method: pH by SM4500-H

Tech: DTN

Analyst: DTN % Moisture:

Seq Number: 3141247

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.13**		SU	11.03.2020 13:20	K	1
Temperature	TEMP	**20.1**		Deg C	11.03.2020 13:20	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.03.2020 09:00 % Moisture:

Seq Number: 3141310

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.0604**	0.0100	mg/L	11.03.2020 16:46		1

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-13** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-005 Date Collected: 10.27.2020 15:52

Analytical Method: Calcium by Method 6010C Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.02.2020 09:05 % Moisture:

Seq Number: 3141213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**28.8**	0.200	mg/L	11.02.2020 22:23		1

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-15** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-006 Date Collected: 10.27.2020 16:27

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P

Tech: JYM

Analyst: JYM Date Prep: 10.30.2020 10:03 % Moisture:

Seq Number: 3141094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**129**	0.500	mg/L	10.30.2020 14:09		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	10.30.2020 14:09	U	1
Sulfate	14808-79-8	**34.3**	0.500	mg/L	10.30.2020 14:09		1

Analytical Method: TDS by SM2540C

Tech: YAV

Analyst: YAV % Moisture:

Seq Number: 3141288

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**381**	5.00	mg/L	11.03.2020 10:00		1

Analytical Method: pH by SM4500-H

Tech: DTN

Analyst: DTN % Moisture:

Seq Number: 3141247

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.32**		SU	11.03.2020 13:20	K	1
Temperature	TEMP	**20.2**		Deg C	11.03.2020 13:20	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.03.2020 09:00 % Moisture:

Seq Number: 3141310

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.0399**	0.0100	mg/L	11.03.2020 16:49		1

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Twin Oaks PP

Sample Id:	**MW-15**	Matrix:	Ground Water	Date Received:	10.29.2020 09:30
Lab Sample Id:	676321-006	Date Collected:	10.27.2020 16:27		
Analytical Method:	Calcium by Method 6010C			Prep Method:	SW3010A
Tech:	MLI				
Analyst:	DEP	Date Prep:	11.02.2020 09:05	% Moisture:	
Seq Number:	3141213				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**23.4**	0.200	mg/L	11.02.2020 22:27		1

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-14** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-007 Date Collected: 10.27.2020 16:57

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P

Tech: JYM

Analyst: JYM Date Prep: 10.30.2020 10:03 % Moisture:

Seq Number: 3141094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**364**	0.500	mg/L	10.30.2020 20:45		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	10.30.2020 20:45	U	1
Sulfate	14808-79-8	**493**	5.00	mg/L	10.30.2020 21:01	D	10

Analytical Method: TDS by SM2540C

Tech: YAV

Analyst: YAV % Moisture:

Seq Number: 3141288

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1480**	5.00	mg/L	11.03.2020 10:00		1

Analytical Method: pH by SM4500-H

Tech: DTN

Analyst: DTN % Moisture:

Seq Number: 3141247

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.35**		SU	11.03.2020 13:20	K	1
Temperature	TEMP	**20.1**		Deg C	11.03.2020 13:20	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.03.2020 09:00 % Moisture:

Seq Number: 3141310

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.497**	0.0500	mg/L	11.03.2020 16:57		5

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id:	**MW-14**	Matrix:	Ground Water	Date Received:	10.29.2020 09:30
Lab Sample Id:	676321-007	Date Collected:	10.27.2020 16:57		
Analytical Method:	Calcium by Method 6010C			Prep Method:	SW3010A
Tech:	MLI				
Analyst:	DEP	Date Prep:	11.02.2020 09:05	% Moisture:	
Seq Number:	3141213				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**112**	10.0	mg/L	11.02.2020 23:21	D	50

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-17** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-008 Date Collected: 10.27.2020 17:27

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P

Tech: JYM

Analyst: JYM Date Prep: 10.30.2020 10:03 % Moisture:

Seq Number: 3141094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**640**	5.00	mg/L	11.02.2020 11:09	D	10
Fluoride	16984-48-8	<0.500	0.500	mg/L	10.30.2020 21:17	U	1
Sulfate	14808-79-8	**41.1**	0.500	mg/L	10.30.2020 21:17		1

Analytical Method: TDS by SM2540C

Tech: YAV

Analyst: YAV % Moisture:

Seq Number: 3141288

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1340**	5.00	mg/L	11.03.2020 10:00		1

Analytical Method: pH by SM4500-H

Tech: DTN

Analyst: DTN % Moisture:

Seq Number: 3141247

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**5.40**		SU	11.03.2020 13:20	K	1
Temperature	TEMP	**20.0**		Deg C	11.03.2020 13:20	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.03.2020 09:00 % Moisture:

Seq Number: 3141310

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.0237**	0.0100	mg/L	11.03.2020 16:51		1

Certificate of Analytical Results 676321

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-17** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-008 Date Collected: 10.27.2020 17:27

Analytical Method: Calcium by Method 6010C Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.02.2020 09:05 % Moisture:

Seq Number: 3141213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**162**	10.0	mg/L	11.02.2020 23:26	D	50

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Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **DUP** Matrix: Ground Water Date Received:10.29.2020 09:30

Lab Sample Id: 676321-009 Date Collected: 10.27.2020 13:55

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P

Tech: JYM

Analyst: JYM Date Prep: 10.30.2020 10:03 % Moisture:

Seq Number: 3141094

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**183**	0.500	mg/L	10.30.2020 21:34		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	10.30.2020 21:34	U	1
Sulfate	14808-79-8	**621**	5.00	mg/L	11.02.2020 11:22	D	10

Analytical Method: TDS by SM2540C

Tech: YAV

Analyst: YAV % Moisture:

Seq Number: 3141288

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1250**	5.00	mg/L	11.03.2020 10:00		1

Analytical Method: pH by SM4500-H

Tech: DTN

Analyst: DTN % Moisture:

Seq Number: 3141247

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.13**		SU	11.03.2020 13:20	K	1
Temperature	TEMP	**20.1**		Deg C	11.03.2020 13:20	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A

Tech: MLI

Analyst: DEP Date Prep: 11.03.2020 09:00 % Moisture:

Seq Number: 3141310

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.152**	0.0100	mg/L	11.03.2020 16:54		1

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Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id:	**DUP**	Matrix:	Ground Water	Date Received:	10.29.2020 09:30
Lab Sample Id:	676321-009	Date Collected:	10.27.2020 13:55		
Analytical Method:	Calcium by Method 6010C			Prep Method:	SW3010A
Tech:	MLI				
Analyst:	DEP	Date Prep:	11.02.2020 09:05	% Moisture:	
Seq Number:	3141213				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**145**	10.0	mg/L	11.02.2020 23:30	D	50

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Twin Oaks PP

Analytical Method: **Cl, F, & SO4 by EPA 300.0** Prep Method: E300P
Seq Number: 3141094 Matrix: Water Date Prep: 10.30.2020
MB Sample Id: 7714212-1-BLK LCS Sample Id: 7714212-1-BKS LCSD Sample Id: 7714212-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	10.1	101	10.2	102	90-110	1	20	mg/L	10.30.2020 10:20	
Fluoride	<0.500	10.0	10.4	104	10.4	104	90-110	0	20	mg/L	10.30.2020 10:20	
Sulfate	<0.500	10.0	10.1	101	10.1	101	90-110	0	20	mg/L	10.30.2020 10:20	

Analytical Method: **Cl, F, & SO4 by EPA 300.0** Prep Method: E300P
Seq Number: 3141094 Matrix: Ground Water Date Prep: 10.30.2020
Parent Sample Id: 676321-004 MS Sample Id: 676321-004 S MSD Sample Id: 676321-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	76.5	10.0	85.9	94	85.7	92	90-110	0	20	mg/L	10.30.2020 13:06	
Fluoride	<0.500	10.0	10.6	106	10.6	106	90-110	0	20	mg/L	10.30.2020 13:06	
Sulfate	40.5	10.0	50.3	98	50.2	97	90-110	0	20	mg/L	10.30.2020 13:06	

Analytical Method: **Cl, F, & SO4 by EPA 300.0** Prep Method: E300P
Seq Number: 3141094 Matrix: Ground Water Date Prep: 10.30.2020
Parent Sample Id: 676321-005 MS Sample Id: 676321-005 S MSD Sample Id: 676321-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	104	10.0	113	90	114	100	90-110	1	20	mg/L	10.30.2020 13:44	
Fluoride	<0.500	10.0	10.7	107	10.8	108	90-110	1	20	mg/L	10.30.2020 13:44	
Sulfate	71.3	10.0	81.1	98	81.1	98	90-110	0	20	mg/L	10.30.2020 13:44	

Analytical Method: **TDS by SM2540C**
Seq Number: 3141288 Matrix: Water
MB Sample Id: 3141288-1-BLK LCS Sample Id: 3141288-1-BKS LCSD Sample Id: 3141288-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	1000	100	1000	100	80-120	0	10	mg/L	11.03.2020 10:00	

Analytical Method: **TDS by SM2540C**
Seq Number: 3141288 Matrix: Ground Water
Parent Sample Id: 676277-001 MD Sample Id: 676277-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	492	508	3	10	mg/L	11.03.2020 10:00	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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Twin Oaks PP

Analytical Method: **TDS by SM2540C**
Seq Number: 3141288 Matrix: Ground Water
Parent Sample Id: 676277-011 MD Sample Id: 676277-011 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	668	663	1	10	mg/L	11.03.2020 10:00	

Analytical Method: **pH by SM4500-H**
Seq Number: 3141247 Matrix: Liquid
Parent Sample Id: 676242-001 MD Sample Id: 676242-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
pH	0.980	0.990	1	20	SU	11.03.2020 13:20	
Temperature	19.8	19.8	0	20	Deg C	11.03.2020 13:20	

Analytical Method: **pH by SM4500-H**
Seq Number: 3141247 Matrix: Ground Water
Parent Sample Id: 676321-009 MD Sample Id: 676321-009 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
pH	6.13	6.10	0	20	SU	11.03.2020 13:20	
Temperature	20.1	20.1	0	20	Deg C	11.03.2020 13:20	

Analytical Method: **Boron by Method 6020A** Prep Method: SW3010A
Seq Number: 3141310 Matrix: Water Date Prep: 11.03.2020
MB Sample Id: 7714395-1-BLK LCS Sample Id: 7714395-1-BKS LCSD Sample Id: 7714395-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.0100	0.100	0.0889	89	0.0907	91	80-120	2	20	mg/L	11.03.2020 16:11	

Analytical Method: **Boron by Method 6020A** Prep Method: SW3010A
Seq Number: 3141310 Matrix: Ground Water Date Prep: 11.03.2020
Parent Sample Id: 676321-002 MS Sample Id: 676321-002 S MSD Sample Id: 676321-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	0.147	0.100	0.241	94	0.239	92	75-125	1	20	mg/L	11.03.2020 16:20	

Analytical Method: **Calcium by Method 6010C** Prep Method: SW3010A
Seq Number: 3141213 Matrix: Water Date Prep: 11.02.2020
MB Sample Id: 7714326-1-BLK LCS Sample Id: 7714326-1-BKS LCSD Sample Id: 7714326-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.200	25.0	24.4	98	24.6	98	75-125	1	20	mg/L	11.02.2020 21:28	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

QC Summary 676321

Hydrex Environmental

Twin Oaks PP

Analytical Method: **Calcium by Method 6010C** Prep Method: SW3010A

Seq Number: 3141213 Matrix: Ground Water Date Prep: 11.02.2020

Parent Sample Id: 676321-001 MS Sample Id: 676321-001 S MSD Sample Id: 676321-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	254	25.0	269	60	272	72	75-125	1	20	mg/L	11.02.2020 21:41	X

MS/MSD Percent Recovery [D] = 100*(C-A) / B

Relative Percent Difference RPD = 200* | (C-E) / (C+E) |

LCS/LCSD Recovery [D] = 100 * (C) / [B]

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample

A = Parent Result

C = MS/LCS Result

E = MSD/LCSD Result

MS = Matrix Spike

B = Spike Added

D = MSD/LCSD % Rec

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Attachment A Laboratory Data Package Cover Page

Project Name: **Twin Oaks PP** Laboratory Number: **676321**

This Data package consists of : Laboratory Batch No(s): **7714326, 3141288, 7714212, 3141247, 7714**

This signature page, the laboratory review checklist, and the following reportable data:

[X] R1 Field chain-of-custody documentation;

[X] R2 Sample identification cross-reference;

[X] R3 Test reports (analytical data sheets) for each environmental sample that includes:
a) Items consistent with NELAC 5
b) dilution factors,
c) preparation methods,
d) cleanup methods, and
e) if required for the project, tentatively identified compounds (TICs).

[X] R4 Surrogate Recovery data including:
a) Calculated recovery (%R), and
b) The laboratory's surrogate QC limits.

[X] R5 Test reports/summary forms for blank samples;

[X] 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.

[X] 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

[X] R8 Laboratory anaytical 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.

[X] R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;

[X] R10 Other problems or anomalies.

[X] Exception Report for every "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.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC 25.6 and was last inspection by [ ] TCEQ or [ ] _____ on (enter date of last inspection). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The offical signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Chad Bechtold	Chad A. Bechtold	**Project Manager**	**11092020**
Name (Printed)	Signature	Official Title (printed)	Date

A1

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	EUROFINS XENCO, LLC	LRC Date :	11092020
Project Name:	Twin Oaks PP	Laboratory Job Number :	676321
Reviewer Name:	CBE	Batch Number(s) :	7714326, 3141288, 7714212, 3141247, 7714395

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (COC)**					
		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	**Sample and Quality Control (QC) Identification**					
		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	**Test Reports**					
		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 soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, were TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency ?	X				
		Were method blanks taken through the entire analytical procedure, including preparation and, if applicable, cleanup procedures ?	X				
		Were Blank Concentrations <MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		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 the QC limits?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data**					
		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 the laboratory QC limits?			X		
R8	OI	**Analytical Duplicate Data**					
		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	**Method Quantitation Limits (MQLs)**					
		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	**Other Problems/Anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	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				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	EUROFINS XENCO, LLC	LRC Date :	11092020
Project Name:	Twin Oaks PP	Laboratory Job Number :	676321
Reviewer Name:	CBE	Batch Number(s) :	7714326, 3141288, 7714212, 3141247, 7714395

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		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 the 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	**Initial and Continuing Calibration Verification (ICCV and CCV) and continuing calibration blank (**					
		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	**Mass Spectral Tuning**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal Standard (IS)**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw Data (NELAC 5.5.10)**					
		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	**Dual Column Confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs)**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial Dilutions, Post Digestions Spikes, and Method of Standard Additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method Detection Limit (MDL) Studies**					
		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	**Proficiency Test Reports**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		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	**Verification/Validation Documentation for Methods (NELAC Chapter 5)**					
		Are all methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs)**					
		Are laboratory SOPs current and on file for each method performed?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted to the TCEQ-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).

Attachment A (cont'd): Laboratory Review Checklist: Exception Reports

Laboratory Name:	EUROFINS XENCO, LLC	LRC Date:	11092020
Project Name:	Twin Oaks PP	Laboratory Job Number:	676321
Reviewer Name:	CBE	Batch Number(s) :	7714326, 3141288, 7714212, 3141247, 7714395

ER# [1]	DESCRIPTION

1 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No is checked on the LRC).

Chain of Custody

Work Order No: 6763211

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Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300, San Antonio, TX (210) 509-3334
Midland, TX (432) 704-5440, EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199, Phoenix, AZ (480) 355-0900
Tampa, FL (813) 620-2000, Tallahassee, FL (850) 756-0747, Delray Beach, FL (561) 689-6701
Atlanta, GA (770) 449-8800

www.xenco.com Page _____ of _____

Project Manager:	Michelle Transier	Bill to: (if different)	
Company Name:	Hydrex Envrionmental	Company Name:	
Address:	1120 NW Stallings Dr	Address:	
City, State ZIP:	Nacogdoches, TX 75964	City, State ZIP:	
Phone:	936-568-9451	Email:	mtransier@hydrex-inc.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/US ☐ TRR ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Twin Oaks PP	Turn Around	
Project Number:		Routine: ☐	
Project Location		Rush: ☐	
Sampler's Name:		Due Date:	
PO #:			

SAMPLE RECEIPT Temp Blank: Yes (No) Wet Ice: (Yes) No

Temperature (°C):		Thermometer ID	
Received Intact:	(Yes) No	Temp:	IR ID:HOU-203
Cooler Custody Seals:	(Yes) No N/A	C/F:+0.1	0.6
Sample Custody Seals:	Yes (No) N/A	Corrected Temp:	0.7

ANALYSIS REQUEST

Preservative Codes

HNO3: HN
H2S04: H2
HCL: HL
None: NO
NaOH: Na
MeOH: Me
Zn Acetate+ NaOH: Zn

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers/Preservative Code	300.0 - Chloride, Fluoride, Sulfate	SM2540C - TDS	pH	6020A - Boron and 6010C - Calcium	Sample Comments
MW-7	GW	10-27-20	1318		3	X	X	X	X	
MW-11	GW	10-27-20	1355		3	X	X	X	X	
MW-16	GW	10-27-20	1447		3	X	X	X	X	
MW-12	GW	10-27-20	1522		3	X	X	X	X	
MW-13	GW	10-27-20	1552		3	X	X	X	X	
MW-15	GW	10-27-20	1627		3	X	X	X	X	
MW-19	GW	10-27-20	1657		3	X	X	X	X	
MW-17	GW	10-27-20	1727		3	X	X	X	X	
Dup	GW	10-27-20	1355		3	X	X	X	X	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010:** 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	T. Agnew	Fed EX	10.28.20 1400	2 FedEX	G.o.R	10.29.20 09:30
3				4		
5				6		

Revised Date101419 Rev. 2019.1

Final 1.000

ORIGIN ID:LFKA (936) 568-9451
DONNY SMITH
HYDREX ENVIRONMENTAL
1120 NW STALLINGS DRIVE

NACOGDOCHES, TX 75964
UNITED STATES US

SHIP DATE: 23OCT20
ACTWGT: 30.00 LB
CAD: 110260796/INET4280

BILL SENDER

TO **SAMPLE CUSTODIAN**
XENCO
4143 GREENBRIAR DR

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

568J2/A27E/B766

FedEx Express

J2020200807O1uv

MON - 26 OCT 10:30A
PRIORITY OVERNIGHT

TRK# 7718 8448 3770
0201

DSR
77477
IAH
TX-US

B5 SGRA

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 ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Hydrex Environmental

Date/ Time Received: 10.29.2020 09.30.00 AM

Work Order #: 676321

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : HOU-203

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.7
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**Yes**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**No**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: Gladis

PH Device/Lot#: 10BDH0601

Checklist completed by: G. Rubio
Gladis Rubio-Arias
Date: 10.29.2020

Checklist reviewed by: Chad A. Bechtold
Chad Bechtold
Date: 10.30.2020

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Analytical Report 678973

for

Hydrex Environmental

Project Manager: Michelle Transier

Twin Oaks PP

I-14-1007

12.04.2020

Collected By: Client

4147 Greenbriar Dr.
Stafford, TX 77477

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)

12.04.2020

Project Manager: **Michelle Transier**
Hydrex Environmental
1120 NW Stallings Dr
Nacogdoches, TX 75964

Reference: Eurofins Xenco, LLC Report No(s): **678973**
Twin Oaks PP
Project Address:

Michelle Transier:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 678973. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 678973 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Chad A. Bechtold

Chad Bechtold
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Sample Cross Reference 678973

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-14	W	11.23.2020 11:30		678973-001

CASE NARRATIVE SUMMARY

eurofins | Environment Testing Xenco

Client Name: ***Hydrex Environmental***

Project Name: ***Twin Oaks PP***

Project ID:	*I-14-1007*	*Report Date:*	*12.04.2020*
Work Order Number:	*678973*	*Date Received:*	*11.24.2020*

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. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

Chad Bechtold
Project Manager

Certificate of Analytical Results 678973

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-14** Matrix: Ground Water Date Received:11.24.2020 09:30

Lab Sample Id: 678973-001 Date Collected: 11.23.2020 11:30

Analytical Method: Sulfate by EPA 300.0 Prep Method: E300P

Tech: JYM

Analyst: JYM Date Prep: 11.25.2020 08:20 % Moisture:

Seq Number: 3143351

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sulfate	14808-79-8	**424**	5.00	mg/L	11.25.2020 14:15	D	10

QC Summary 678973

Hydrex Environmental

Twin Oaks PP

Analytical Method: **Sulfate by EPA 300.0** Prep Method: E300P
Seq Number: 3143351 Matrix: Water Date Prep: 11.25.2020
MB Sample Id: 7715931-1-BLK LCS Sample Id: 7715931-1-BKS LCSD Sample Id: 7715931-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Sulfate	<0.500	10.0	10.2	102	10.2	102	90-110	0	20	mg/L	11.25.2020 07:59	

Analytical Method: **Sulfate by EPA 300.0** Prep Method: E300P
Seq Number: 3143351 Matrix: Water Date Prep: 11.25.2020
Parent Sample Id: 678965-001 MS Sample Id: 678965-001 S MSD Sample Id: 678965-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Sulfate	106	10.0	114	80	114	80	90-110	0	20	mg/L	11.25.2020 10:51	X

Analytical Method: **Sulfate by EPA 300.0** Prep Method: E300P
Seq Number: 3143351 Matrix: Water Date Prep: 11.25.2020
Parent Sample Id: 678997-001 MS Sample Id: 678997-001 S MSD Sample Id: 678997-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Sulfate	626	200	868	121	869	122	90-110	0	20	mg/L	11.25.2020 09:45	X

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Attachment A Laboratory Data Package Cover Page

Project Name: **Twin Oaks PP** Laboratory Number: **678973**

This Data package consists of : Laboratory Batch No(s): **7715931**

This signature page, the laboratory review checklist, and the following reportable data:

[X] R1 Field chain-of-custody documentation;

[X] R2 Sample identification cross-reference;

[X] R3 Test reports (analytical data sheets) for each environmental sample that includes:
- a) Items consistent with NELAC 5
- b) dilution factors,
- c) preparation methods,
- d) cleanup methods, and
- e) if required for the project, tentatively identified compounds (TICs).

[X] R4 Surrogate Recovery data including:
- a) Calculated recovery (%R), and
- b) The laboratory's surrogate QC limits.

[X] R5 Test reports/summary forms for blank samples;

[X] 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.

[X] 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

[X] R8 Laboratory anaytical 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.

[X] R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;

[X] R10 Other problems or anomalies.

[X] Exception Report for every "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.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC 25.6 and was last inspection by [ ] TCEQ or [ ] _____ on (enter date of last inspection). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The offical signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Chad Bechtold	Chad A. Bechtold	**Project Manager**	**12042020**
Name (Printed)	Signature	Official Title (printed)	Date

A1

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	EUROFINS XENCO, LLC	LRC Date :	12042020
Project Name:	Twin Oaks PP	Laboratory Job Number :	678973
Reviewer Name:	CBE	Batch Number(s) :	7715931

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (COC)**					
		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	**Sample and Quality Control (QC) Identification**					
		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	**Test Reports**					
		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 soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, were TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency ?	X				
		Were method blanks taken through the entire analytical procedure, including preparation and, if applicable, cleanup procedures ?	X				
		Were Blank Concentrations <MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		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 the QC limits?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data**					
		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			1
		Were MS/MSD RPDs within the laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		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	**Method Quantitation Limits (MQLs)**					
		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	**Other Problems/Anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	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				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	EUROFINS XENCO, LLC	LRC Date :	12042020
Project Name:	Twin Oaks PP	Laboratory Job Number :	678973
Reviewer Name:	CBE	Batch Number(s) :	7715931

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		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 the 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	**Initial and Continuing Calibration Verification (ICCV and CCV) and continuing calibration blank (**					
		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	**Mass Spectral Tuning**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal Standard (IS)**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw Data (NELAC 5.5.10)**					
		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	**Dual Column Confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs)**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial Dilutions, Post Digestions Spikes, and Method of Standard Additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method Detection Limit (MDL) Studies**					
		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	**Proficiency Test Reports**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		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	**Verification/Validation Documentation for Methods (NELAC Chapter 5)**					
		Are all methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs)**					
		Are laboratory SOPs current and on file for each method performed?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted to the TCEQ-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).

Attachment A (cont'd): Laboratory Review Checklist: Exception Reports

Laboratory Name: EUROFINS XENCO, LLC	LRC Date: 12042020
Project Name: Twin Oaks PP	Laboratory Job Number: 678973
Reviewer Name: CBE	Batch Number(s) : 7715931

ER# [1]	DESCRIPTION
1	Method 300.0 Batch 3143351 Lab Sample ID 678997-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Sulfate recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 678973-001. The Laboratory Control Sample for Sulfate is within laboratory Control Limits; therefore, the data was accepted.

1 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No is checked on the LRC).

Chain of Custody

eurofins | Xenco

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300, San Antonio, TX (210) 509-3334
Midland, TX (432) 704-5440, EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199, Phoenix, AZ (480) 355-0900
Tampa, FL (813) 620-2000, Tallahassee, FL (850) 756-0747, Delray Beach, FL (561) 689-6701
Atlanta, GA (770) 449-8800

Work Order No: 678973

www.xenco.com Page _____ of _____

Project Manager:	Michelle Transier	Bill to: (if different)	
Company Name:	Hydrex Envrionmental	Company Name:	
Address:	1120 NW Stallings Dr	Address:	
City, State ZIP:	Nacogdoches, TX 75964	City, State ZIP:	
Phone:	936-568-9451	Email:	mtransier@hydrex-inc.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/US ☐ TRR ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Twin Oaks PP	Turn Around	
Project Number:		Routine: ☐	
Project Location		Rush: ☐	
Sampler's Name:		Due Date:	
PO #:			

SAMPLE RECEIPT				
Temperature (°C):	Temp Blank:	Yes No	Wet Ice:	Yes No
Received Intact:	Yes No			
Cooler Custody Seals:	Yes No N/A			
Sample Custody Seals:	Yes No N/A	Total Containers:		

Temp: 3.3 IR ID:HOU-188
C/F:+0.1
Corrected Temp: 3.4

ANALYSIS REQUEST

Preservative Codes

HNO3: HN
H2S04: H2
HCL: HL
None: NO
NaOH: Na
MeOH: Me
Zn Acetate+ NaOH: Zn

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers/Preservative Code	300.0 - Sulfate	Sample Comments
MW-14		11/23/20	1130		1	X	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010:** 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	FEDEX	11/23/20	2 Hydrex		11/24/20 9:30
3			4		
5			6		

Revised Date101419 Rev. 2019.1

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

SHIP DATE: 18NOV20
ACTWGT: 15.00 LB
CAD: 110260796/INET4280

BILL SENDER

TO **SAMPLE CUSTODIAN**
XENCO
4143 GREENBRIAR DR
STAFFORD TX 77477
(281) 240-4200
INV:
PO:
REF TWIN OAKS
DEPT:

J2020200714O1uv

FedEx Express

56BJ5/BAB9/B766

TRK# 0201 **7721 2213 6271**

THU - 19 NOV 10:30A
PRIORITY OVERNIGHT

DSR
77477
IAH
TX-US

AB SGRA

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 ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Hydrex Environmental

Date/ Time Received: 11.24.2020 09.30.00 AM

Work Order #: 678973

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : HOU-188

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.4
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**No**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: TOL

PH Device/Lot#: 10BDH0601

Checklist completed by: Lisandra Torres Date: 11.24.2020

Checklist reviewed by: Chad Bechtold Date: 11.30.2020

October 2020 Event

Results of Statistical Calculations

Control Charts and Prediction Limits

Shewhart-Cusum Control Chart / Rank Sum

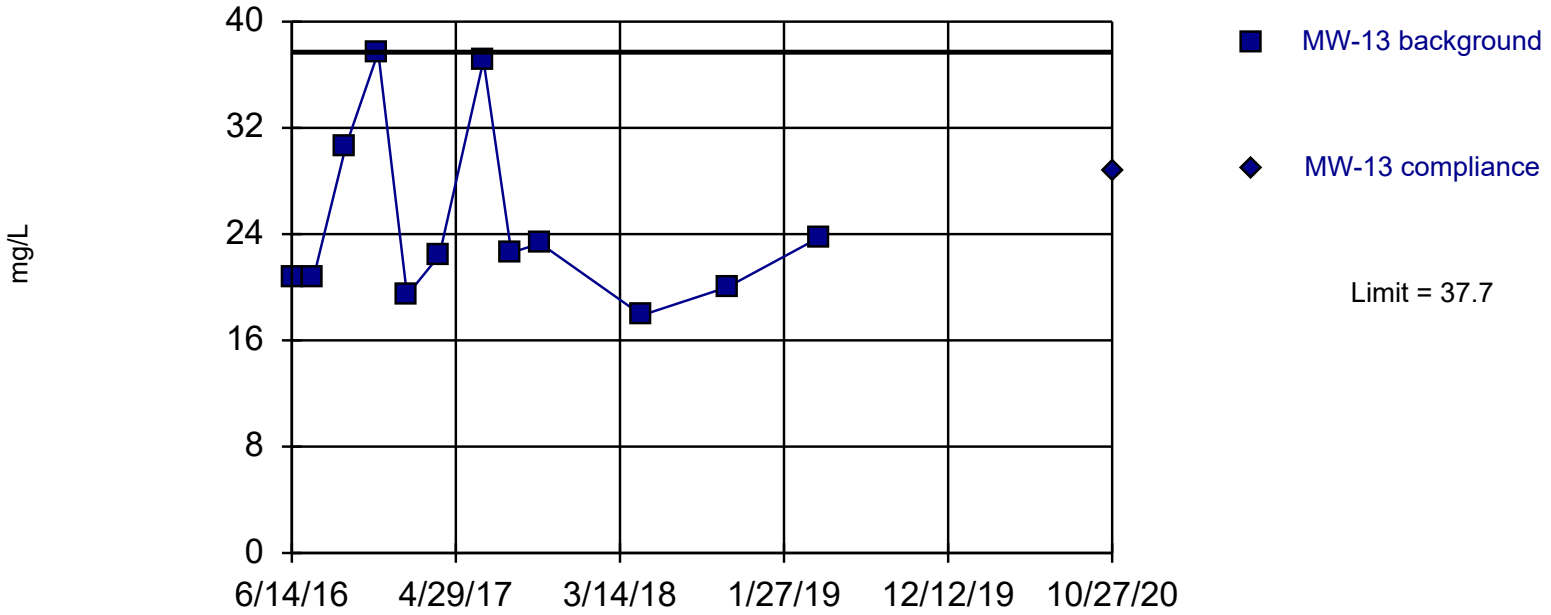
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 11/11/2020, 10:16 AM

Constituent	Well	Sig.	h	SCL	N	%NDs	Transform	Method
Calcium (mg/L)	MW-13	No	PL=...	n/a	12	0	No	NP Intra PL (normality)
Chloride (mg/L)	MW-13	No	119.4	119.4	12	0	x^3	Param Intra
Fluoride (mg/L)	MW-13	No	PL=...	n/a	12	75	No	NP Intra PL (NDs)
pH (SU)	MW-13	No	7.5...	7.5...	12	0	No	Param Intra
Sulfate (mg/L)	MW-13	No	193.1	193.1	12	8.333	No	Param Intra
Total Dissolved Solids (mg/L)	MW-13	No	660.3	660.3	12	0	No	Param Intra
Calcium (mg/L)	MW-14	No	115.2	115.2	12	0	No	Param Intra
Chloride (mg/L)	MW-14	No	436.5	436.5	12	0	No	Param Intra
Fluoride (mg/L)	MW-14	No	PL=...	n/a	12	75	No	NP Intra PL (NDs)
pH (SU)	MW-14	No	7.7...	7.7...	12	0	x^3	Param Intra
Sulfate (mg/L)	**MW-14**	**Yes**	**401.3**	**401.3**	**12**	**0**	**No**	**Param Intra**
Total Dissolved Solids (mg/L)	MW-14	No	1541	1541	12	0	No	Param Intra
Calcium (mg/L)	MW-15	No	28.93	28.93	12	0	No	Param Intra
Chloride (mg/L)	MW-15	No	175.8	175.8	12	0	No	Param Intra
Fluoride (mg/L)	MW-15	No	PL=0.5	n/a	12	83.33	No	NP Intra PL (NDs)
pH (SU)	MW-15	No	7.7...	7.7...	12	0	x^3	Param Intra
Sulfate (mg/L)	MW-15	No	40.2	40.2	12	0	No	Param Intra
Total Dissolved Solids (mg/L)	MW-15	No	476.9	476.9	12	0	No	Param Intra
Calcium (mg/L)	MW-17	No	555.1	555.1	12	0	sqrt(x)	Param Intra
Chloride (mg/L)	MW-17	No	1678	1678	12	0	No	Param Intra
Fluoride (mg/L)	MW-17	No	PL=0.5	n/a	12	83.33	No	NP Intra PL (NDs)
pH (SU)	MW-17	No	7.9...	7.9...	12	0	No	Param Intra
Sulfate (mg/L)	MW-17	No	160.2	160.2	12	8.333	No	Param Intra
Total Dissolved Solids (mg/L)	MW-17	No	3191	3191	12	0	No	Param Intra

Within Limit

Prediction Limit

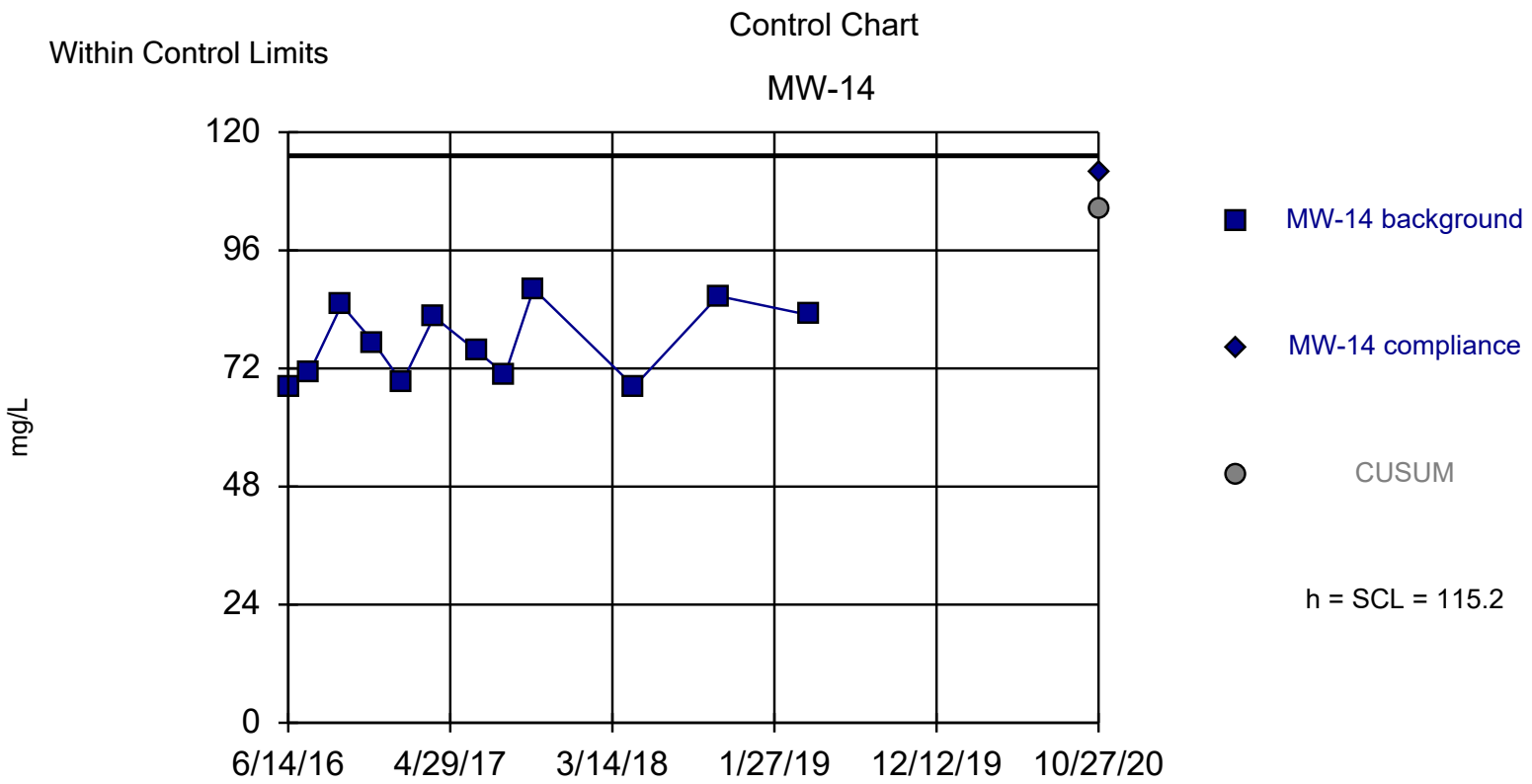
Intrawell Non-parametric



Non-parametric test used in lieu of control chart because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 12 background values. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Calcium Analysis Run 11/11/2020 10:14 AM

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

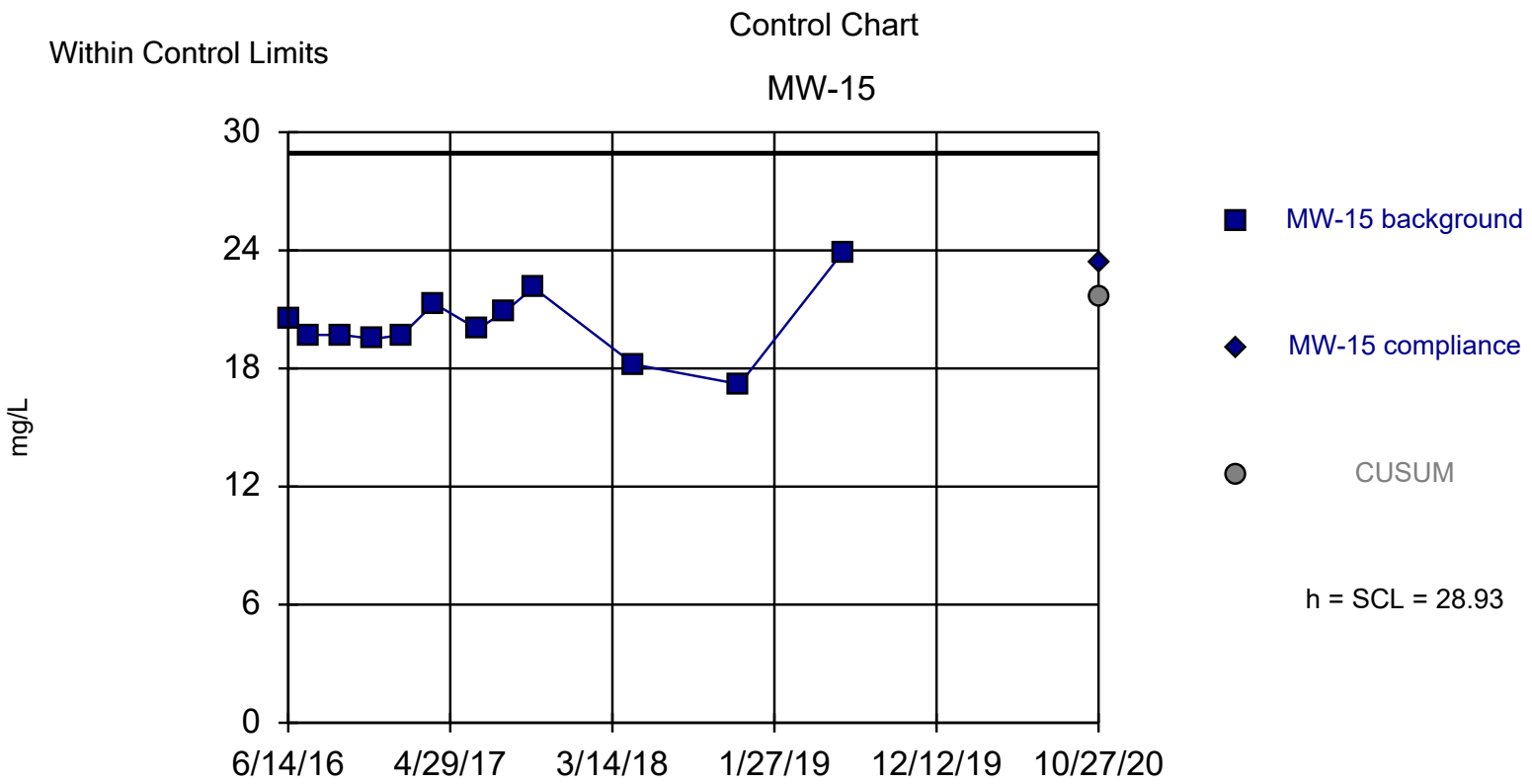


Background Data Summary: Mean=77.12, Std. Dev.=7.621, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8903, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium Analysis Run 11/11/2020 10:14 AM

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

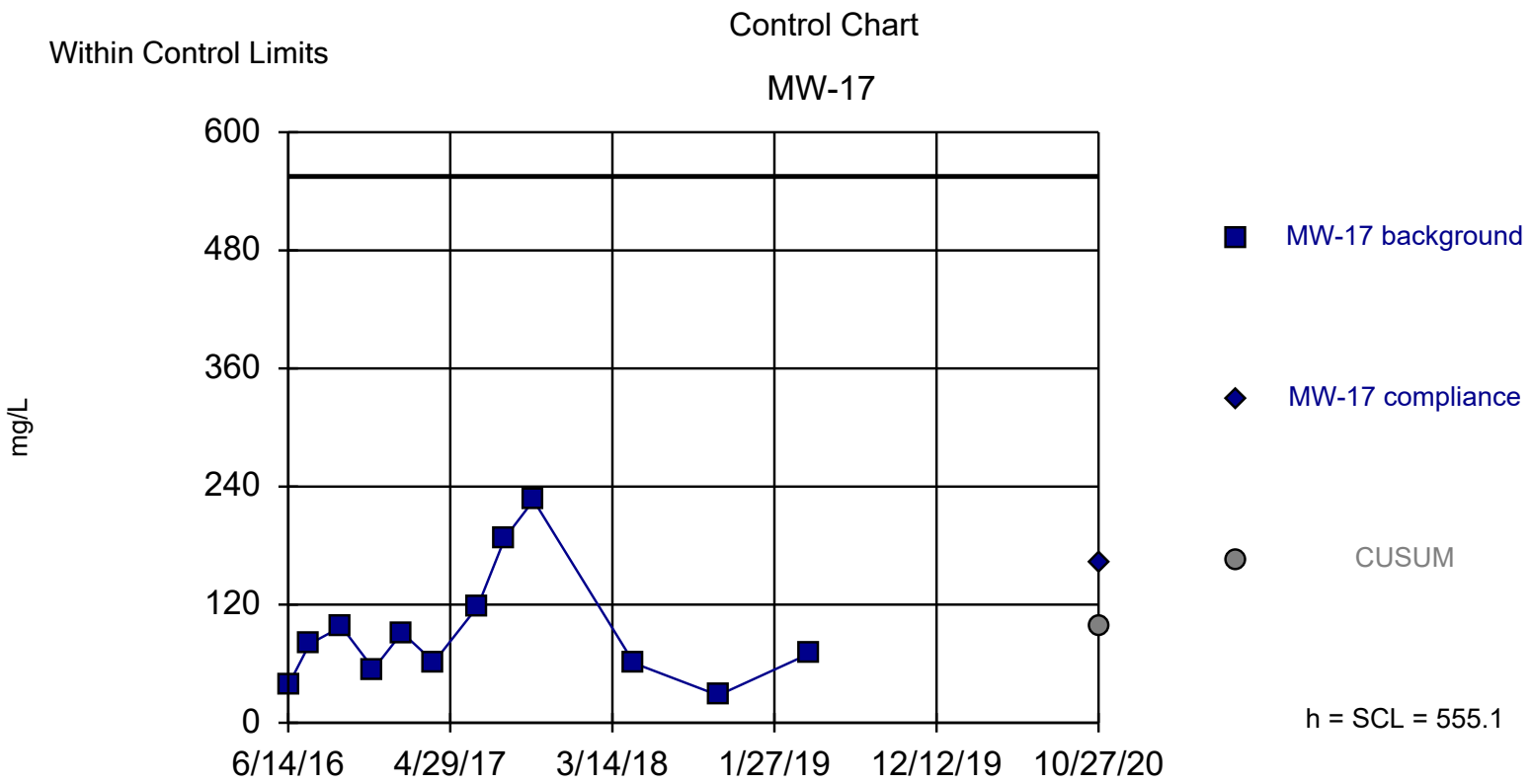
Within Control Limits



Background Data Summary: Mean=20.23, Std. Dev.=1.742, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9604, critical = 0.859. Report alpha = 0.000296. Dates ending 6/11/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium Analysis Run 11/11/2020 10:14 AM

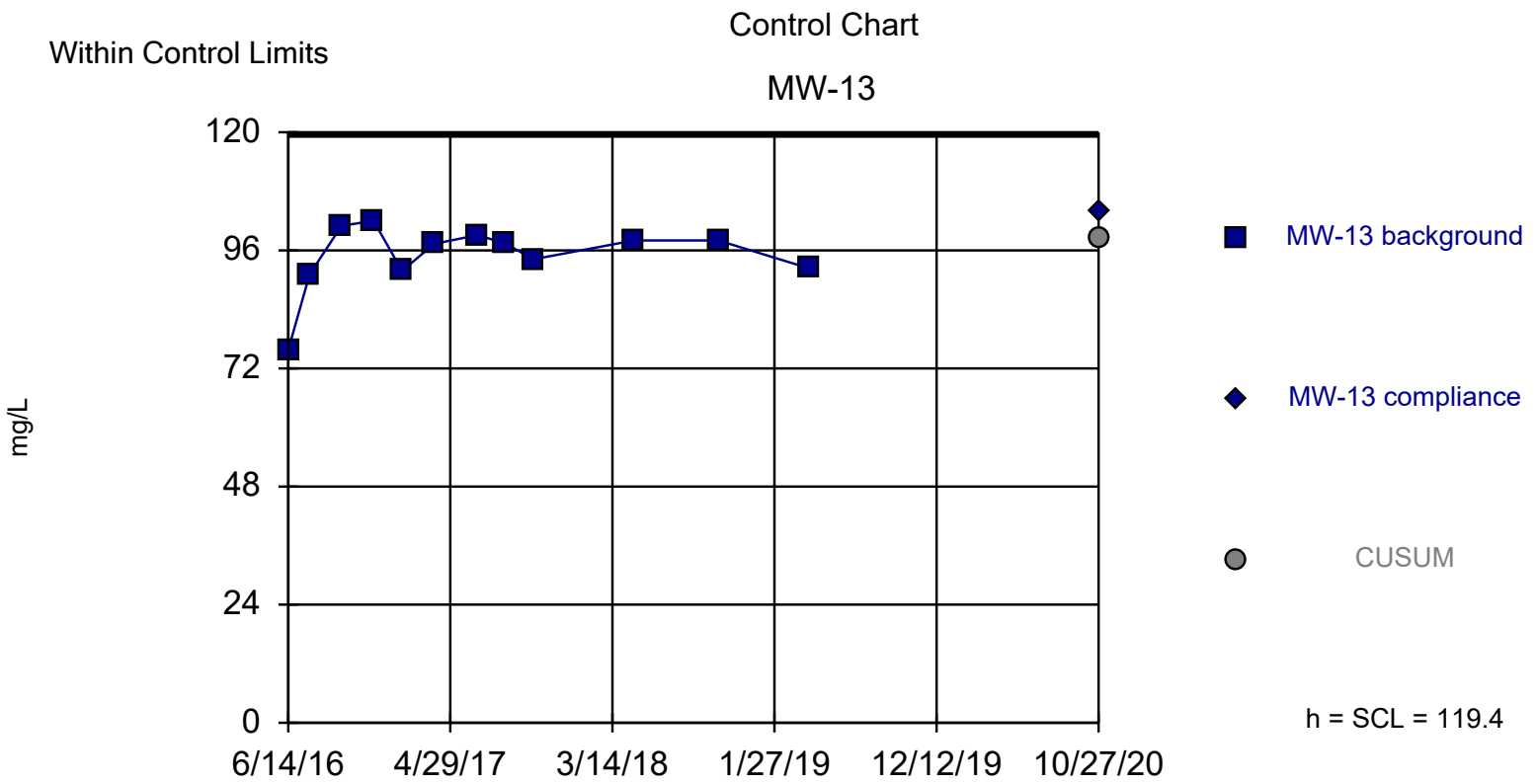
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary (based on square root transformation): Mean=9.233, Std. Dev.=2.865, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9332, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium Analysis Run 11/11/2020 10:14 AM

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

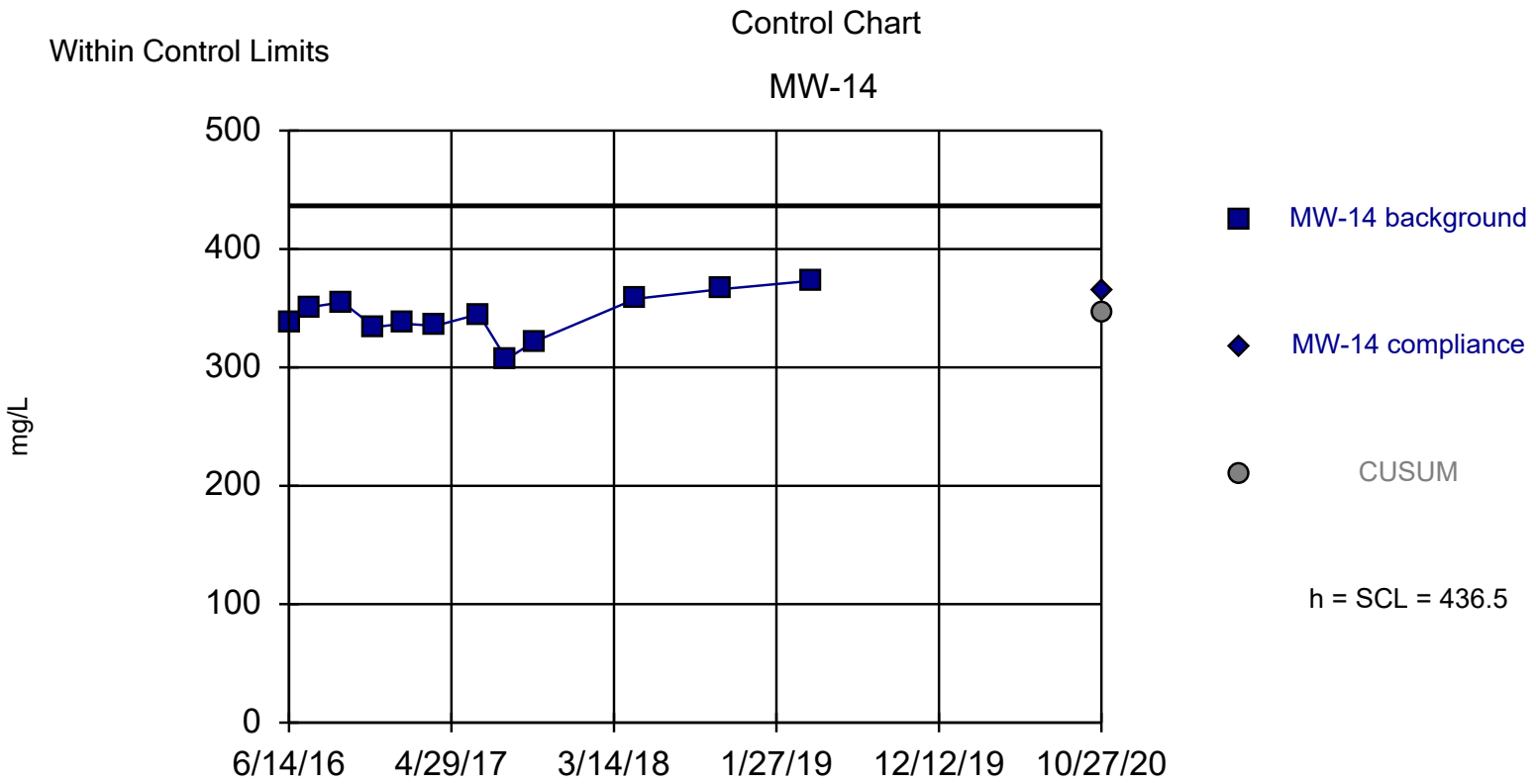


Background Data Summary (based on cube transformation): Mean=865191, Std. Dev.=167087, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8621, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 11/11/2020 10:14 AM

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

Within Control Limits

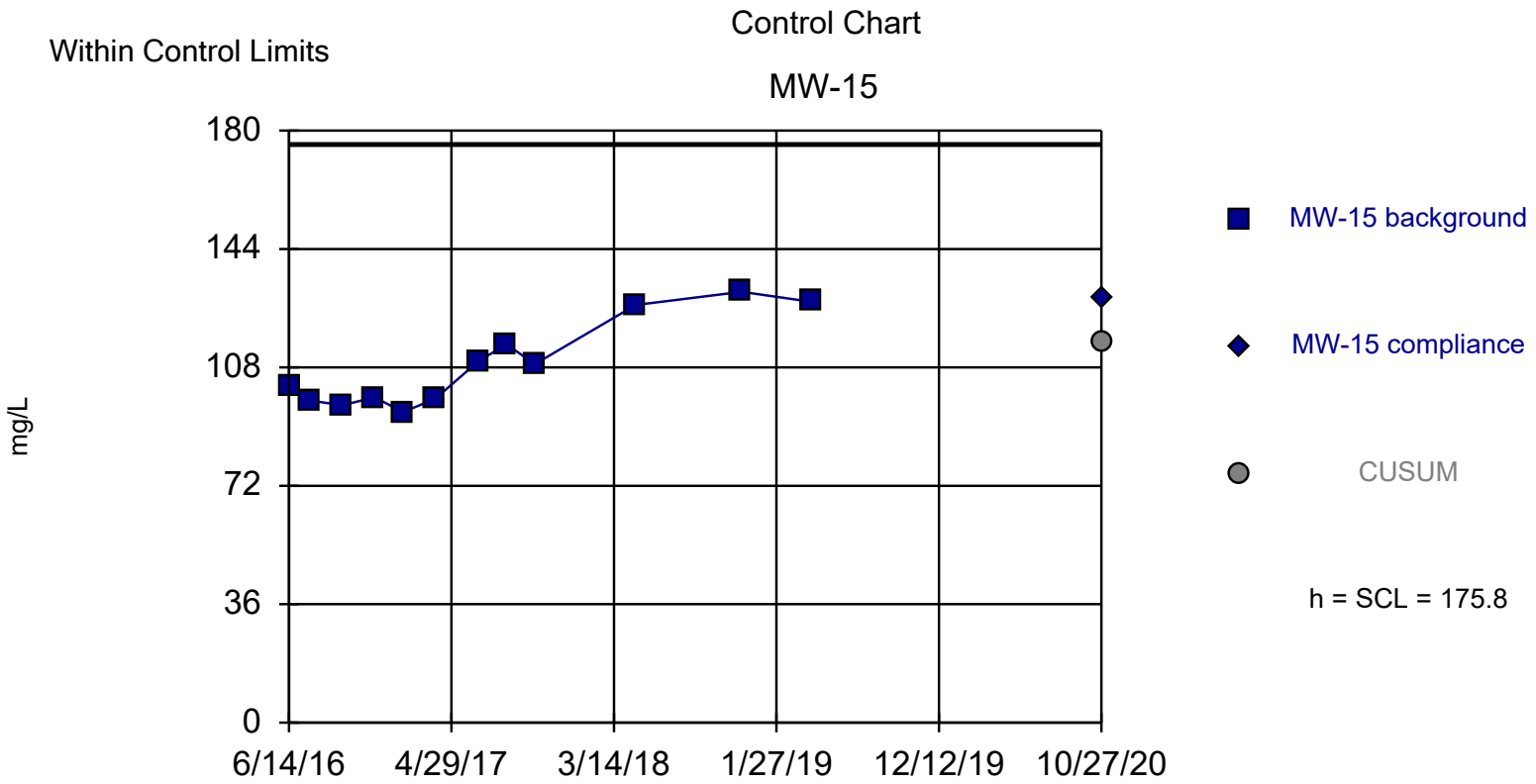


Background Data Summary: Mean=343.3, Std. Dev.=18.63, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9777, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 11/11/2020 10:14 AM

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

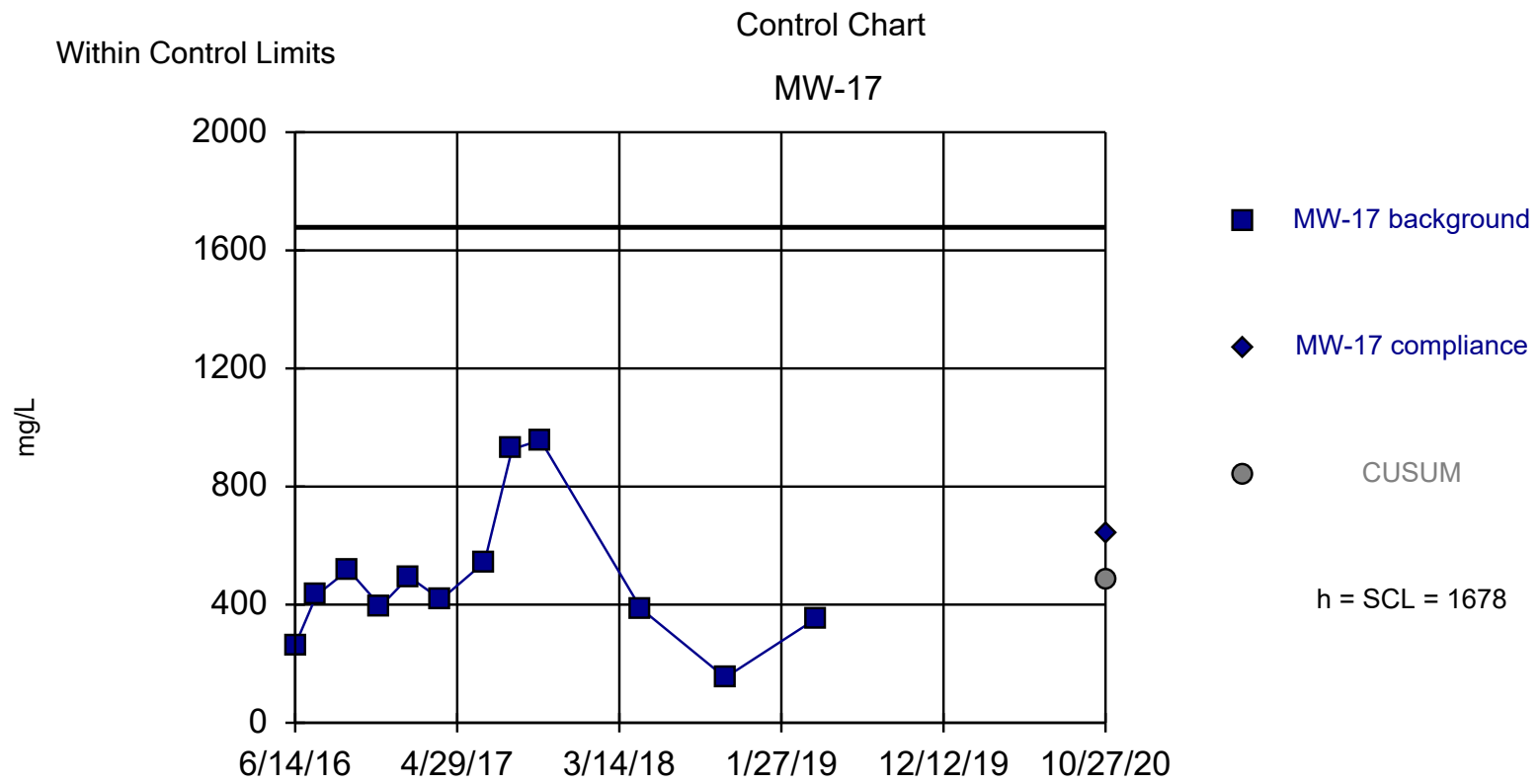
Within Control Limits



Background Data Summary: Mean=109, Std. Dev.=13.36, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8656, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 11/11/2020 10:14 AM

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



Background Data Summary: Mean=486.2, Std. Dev.=238.4, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8683, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 11/11/2020 10:14 AM

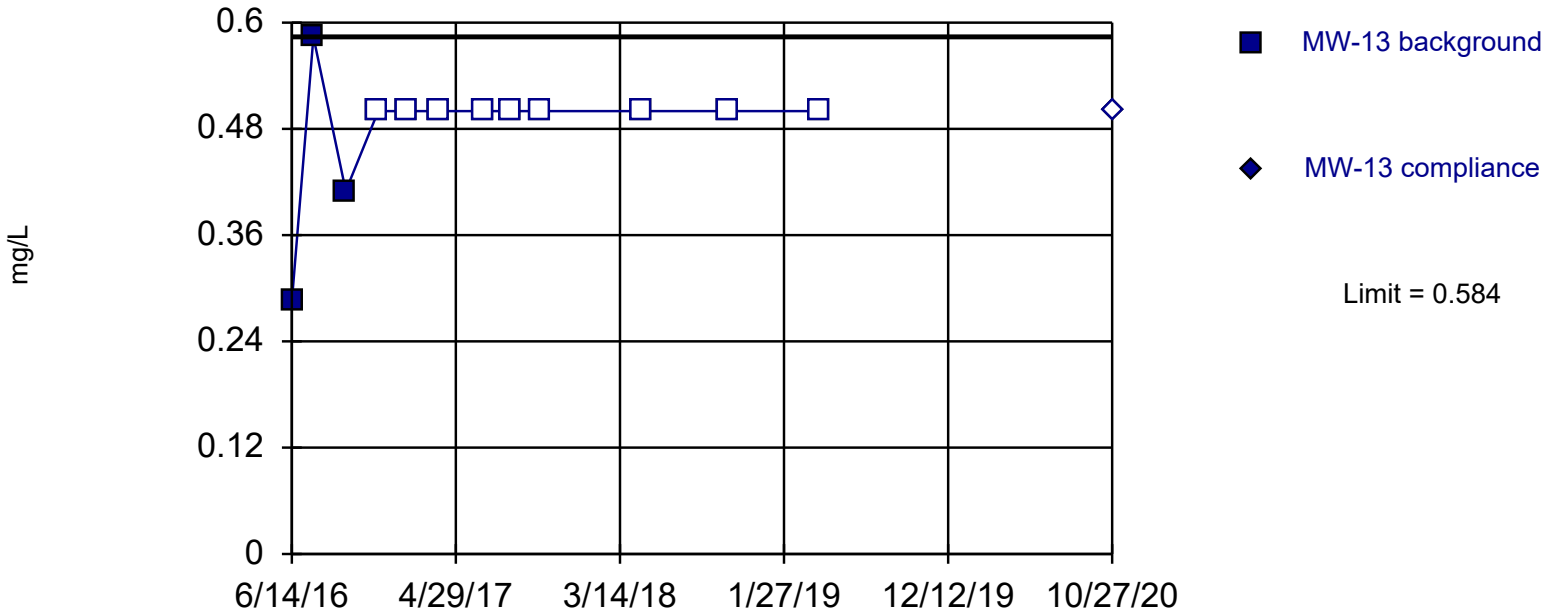
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Hollow symbols indicate censored values.

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 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Fluoride Analysis Run 11/11/2020 10:14 AM

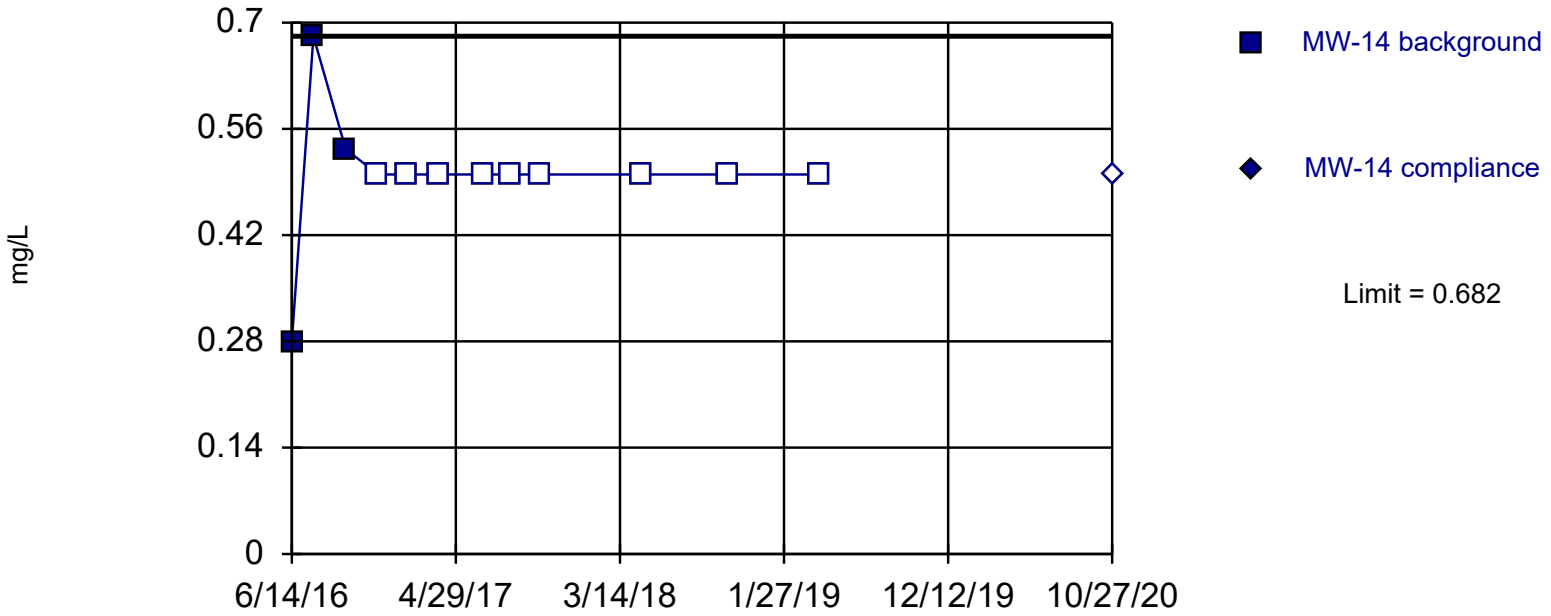
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Hollow symbols indicate censored values.

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 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Fluoride Analysis Run 11/11/2020 10:14 AM

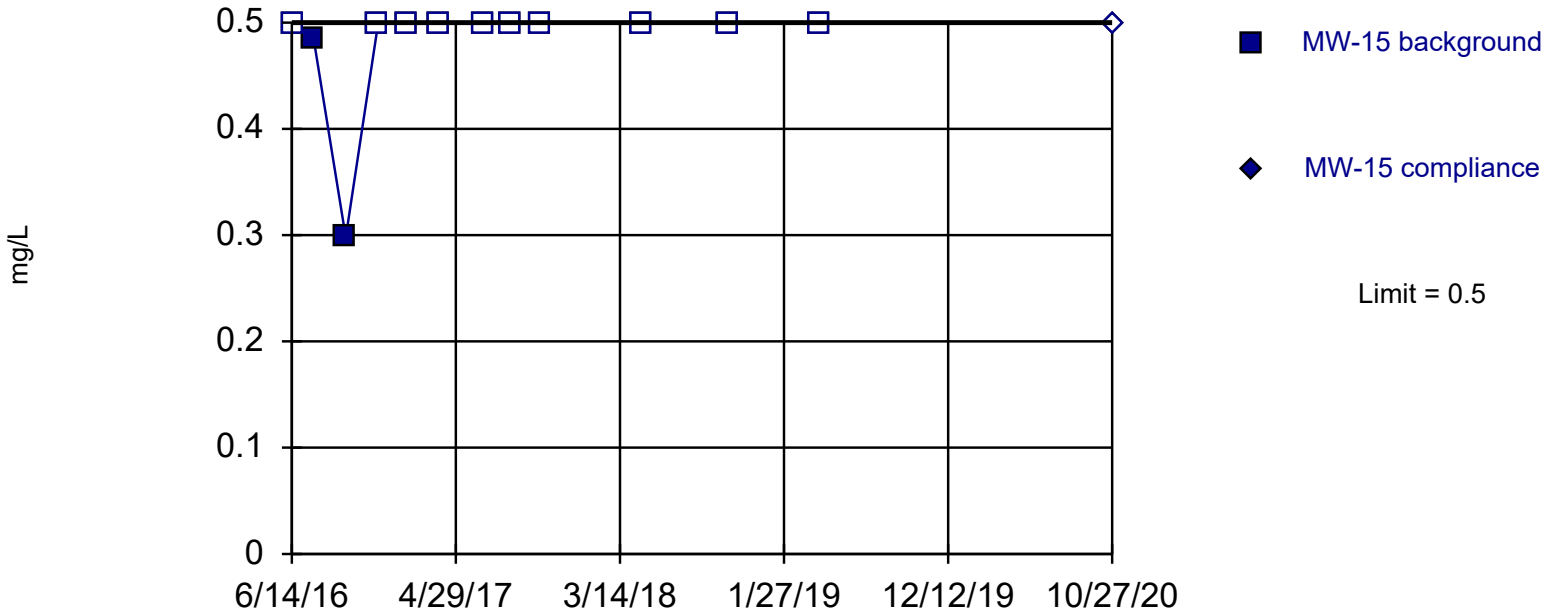
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Hollow symbols indicate censored values.

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 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Fluoride Analysis Run 11/11/2020 10:14 AM

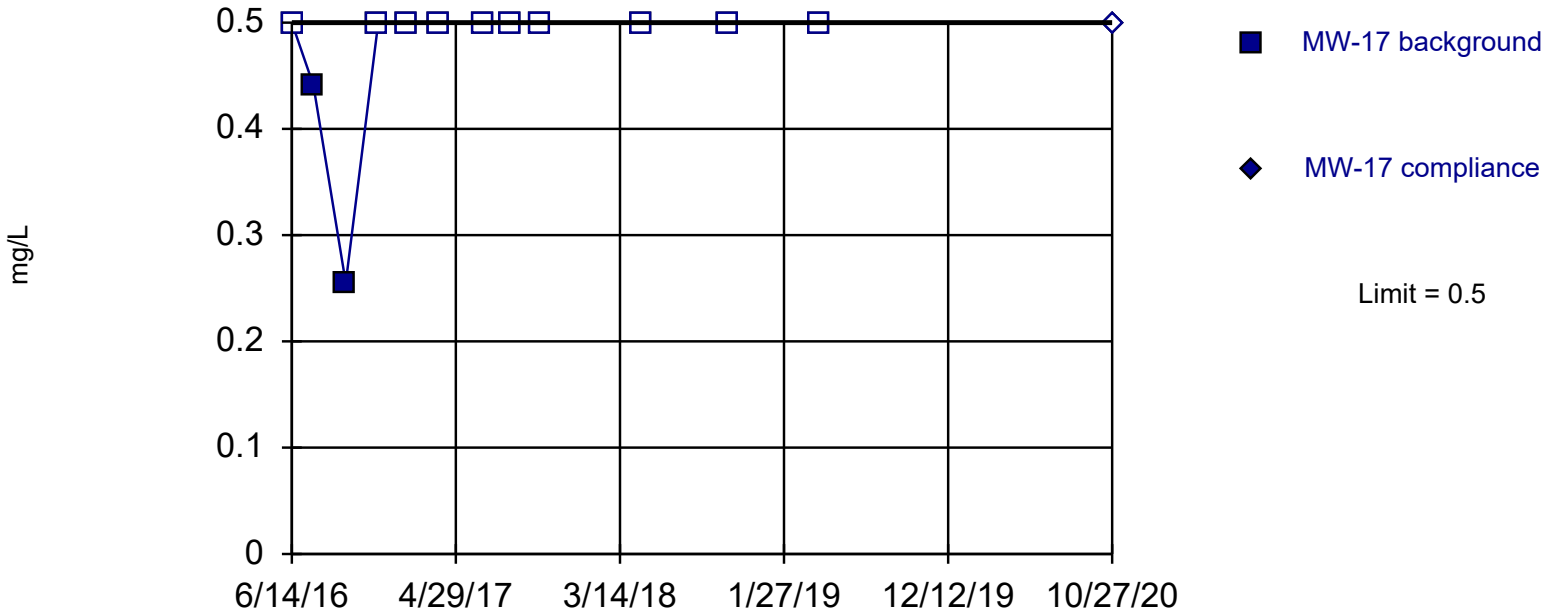
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric

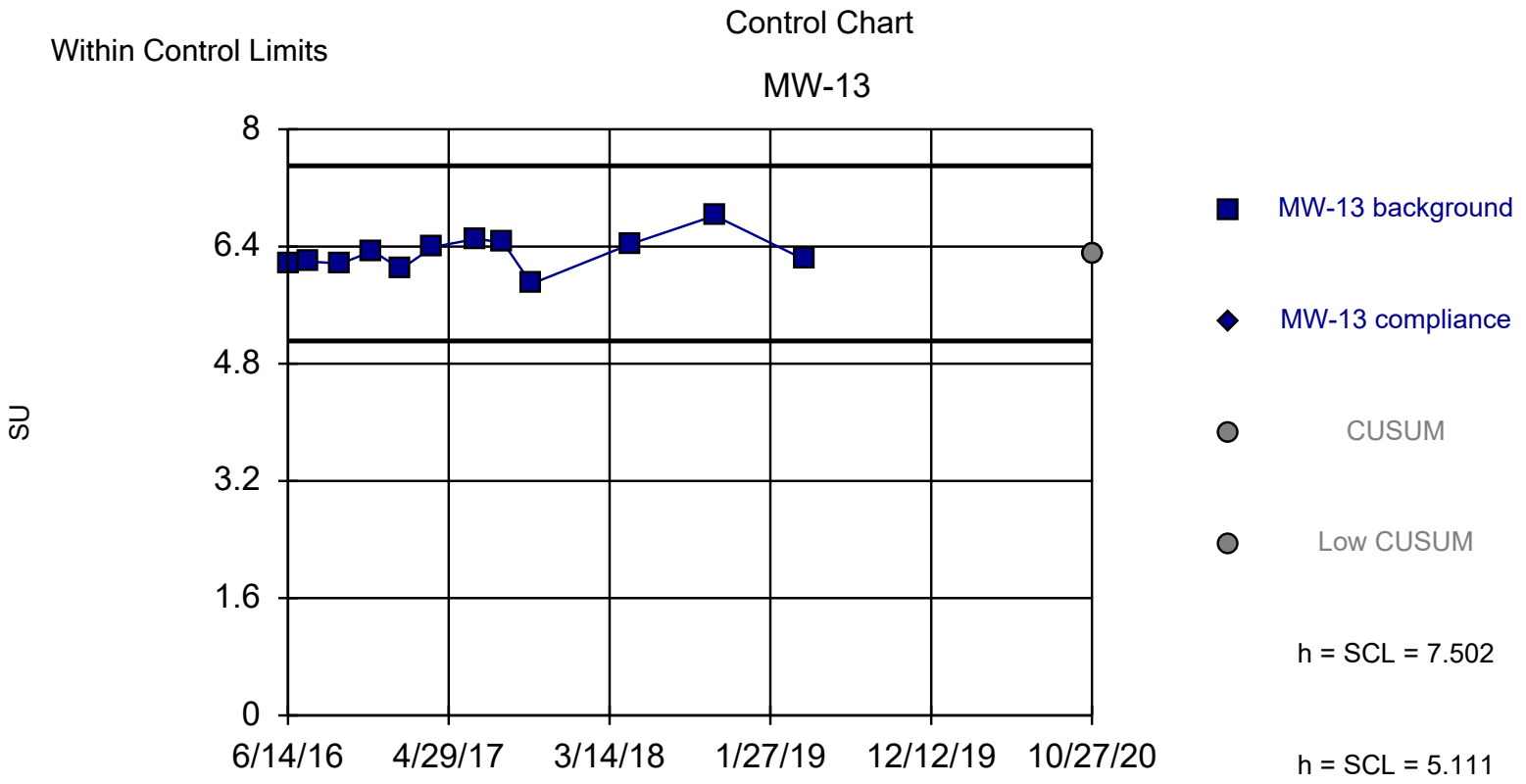


Non-parametric test used in lieu of control chart because non-detects exceed user-adjustable maximum of 50%. Limit is highest of 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Fluoride Analysis Run 11/11/2020 10:14 AM

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

Within Control Limits

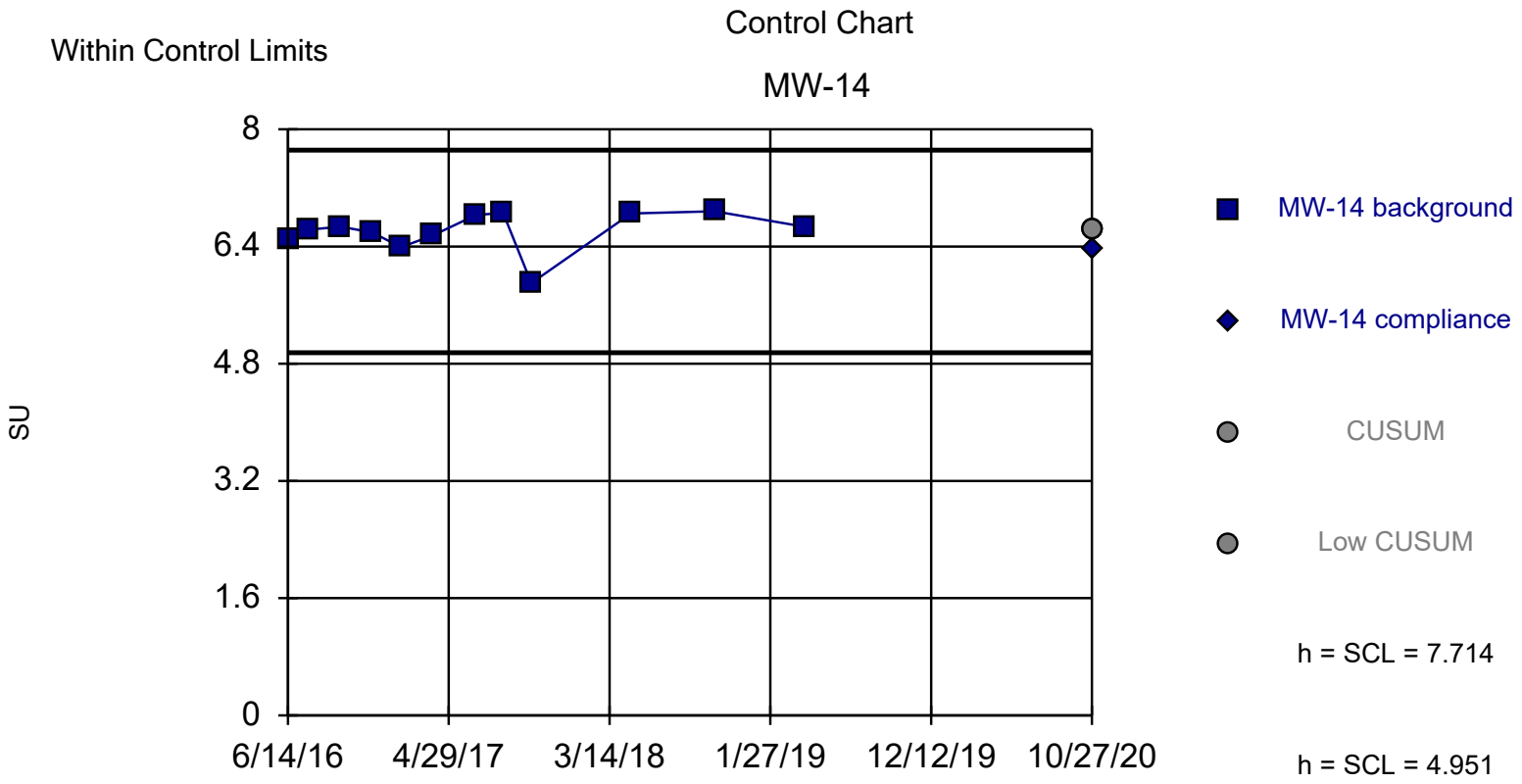


Background Data Summary: Mean=6.307, Std. Dev.=0.2392, n=12. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9658, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: pH Analysis Run 11/11/2020 10:14 AM

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

Within Control Limits

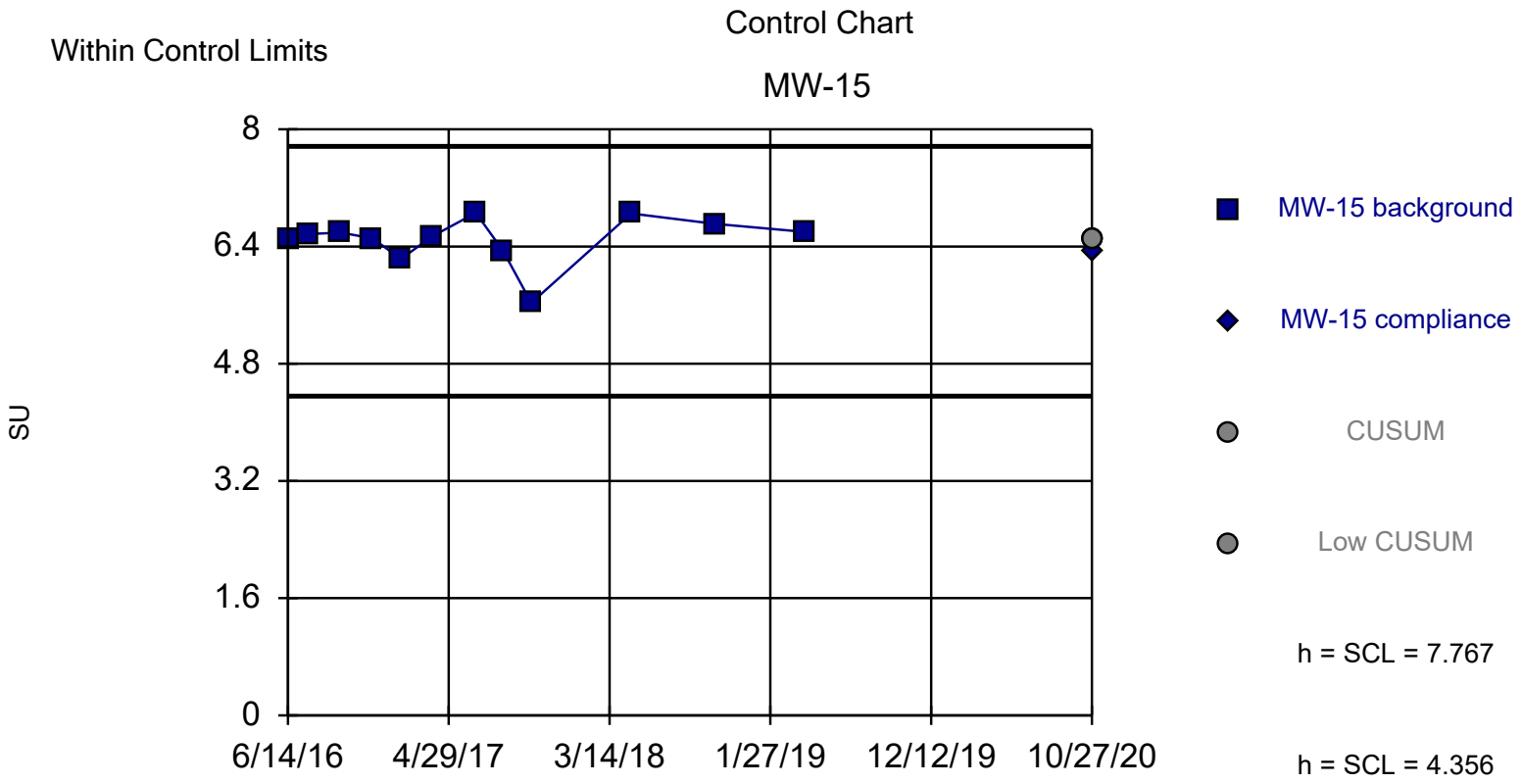


Background Data Summary (based on cube transformation): Mean=290.2, Std. Dev.=33.78, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8656, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: pH Analysis Run 11/11/2020 10:14 AM

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

Within Control Limits

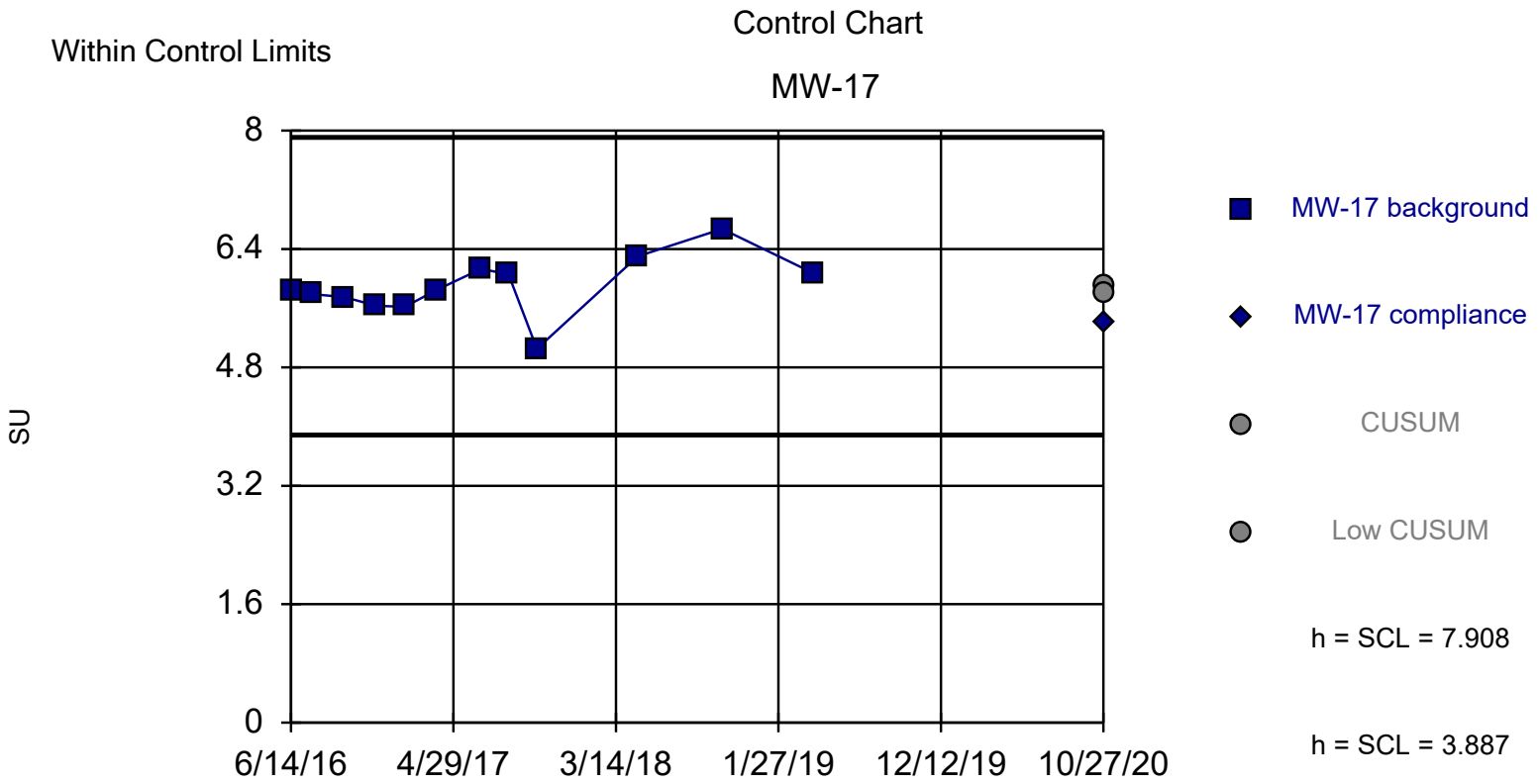


Background Data Summary (based on cube transformation): Mean=275.6, Std. Dev.=38.59, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8778, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: pH Analysis Run 11/11/2020 10:14 AM

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

Within Control Limits

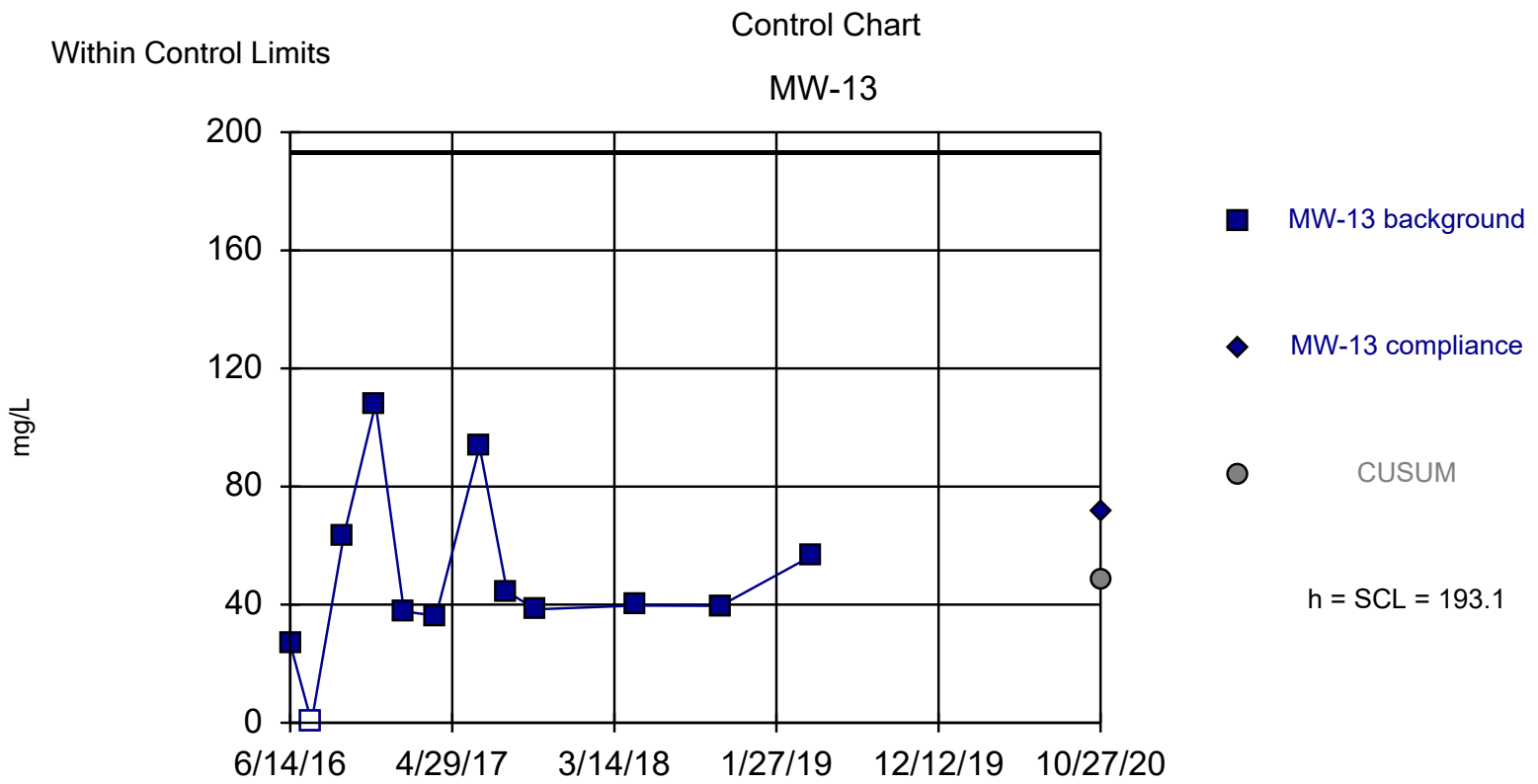


Background Data Summary: Mean=5.898, Std. Dev.=0.4021, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.962, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: pH Analysis Run 11/11/2020 10:14 AM

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

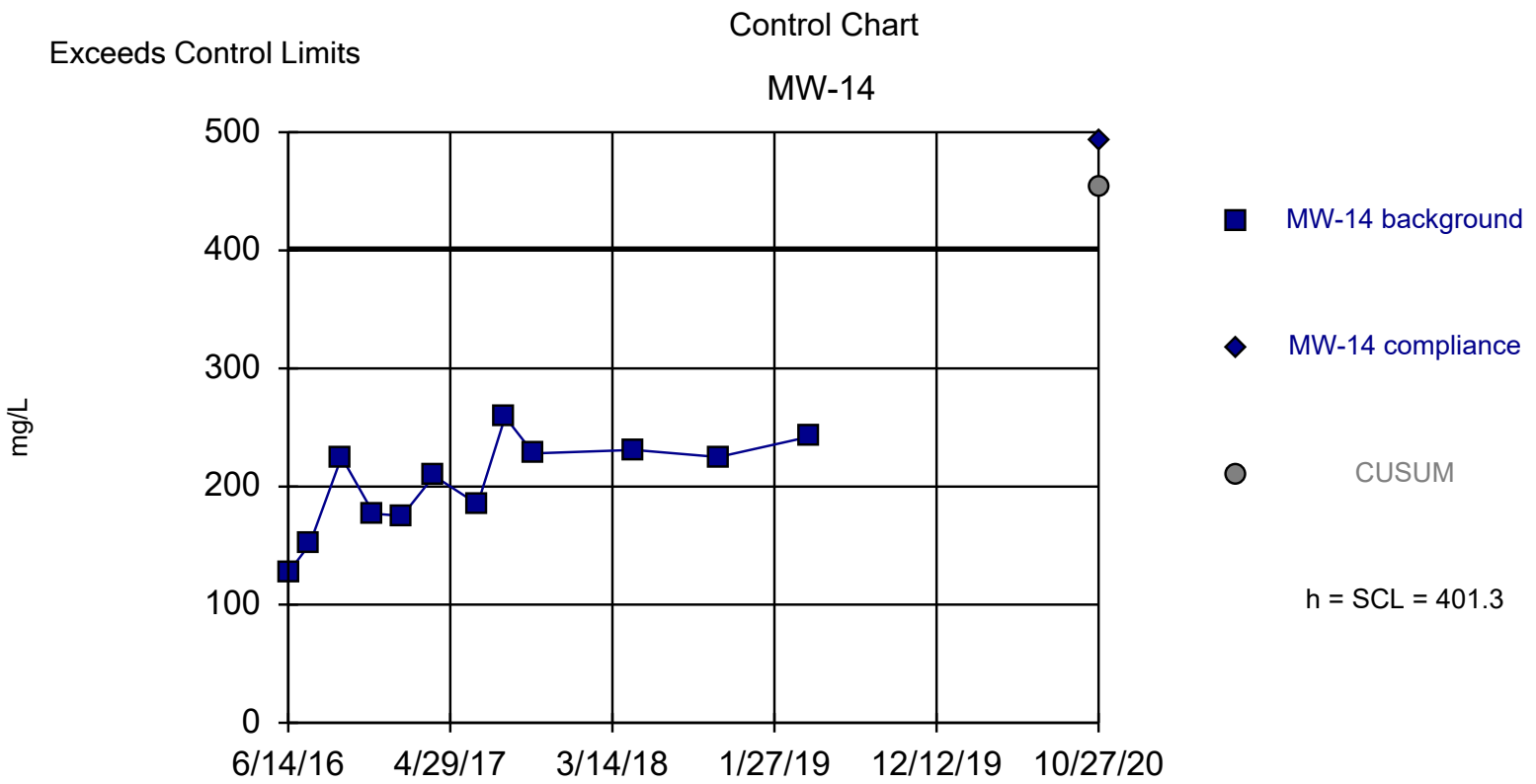
Hollow symbols indicate censored values.



Background Data Summary: Mean=48.63, Std. Dev.=28.89, n=12, 8.333% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9015, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 11/11/2020 10:14 AM

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

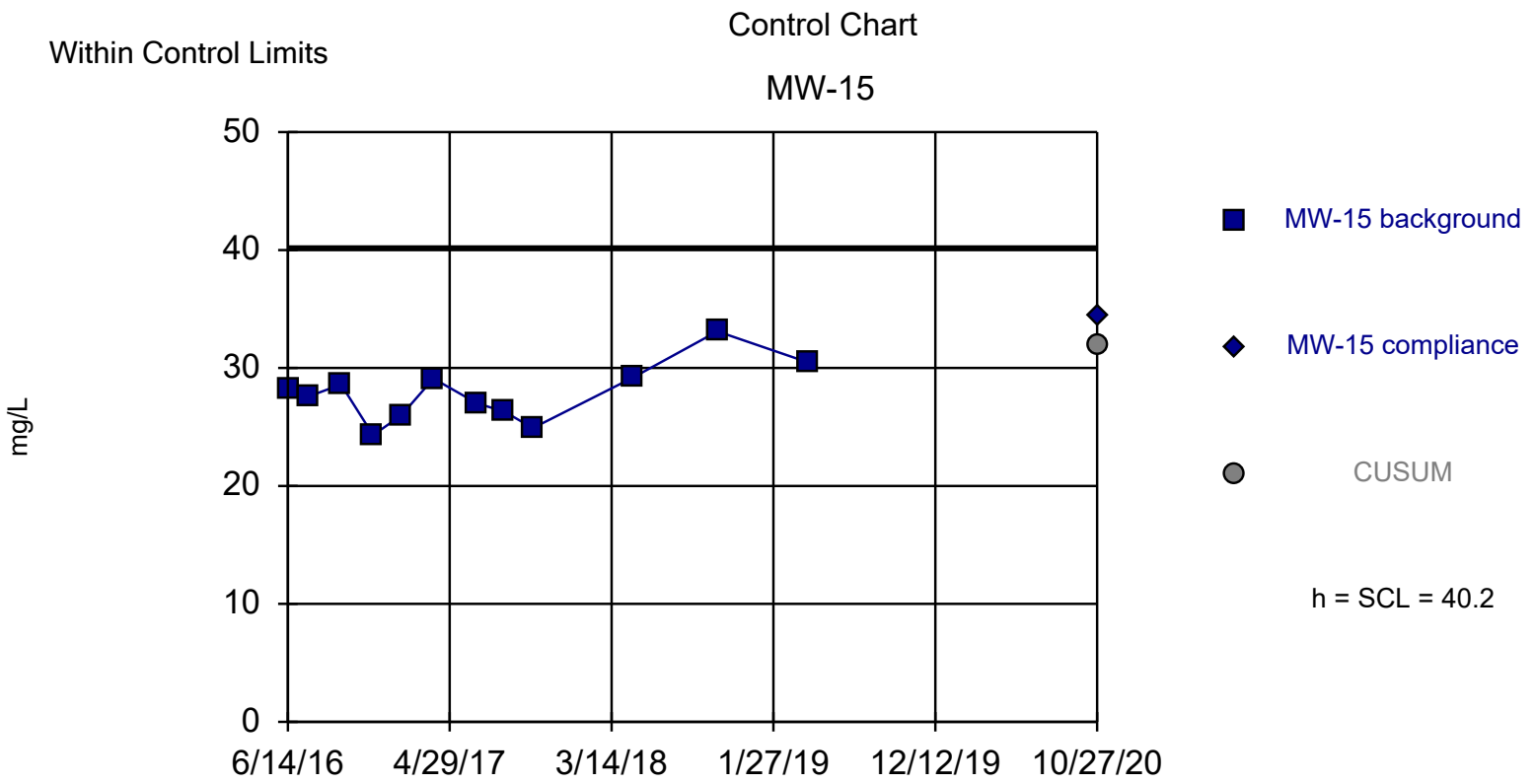


Background Data Summary: Mean=202.8, Std. Dev.=39.7, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9442, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 11/11/2020 10:14 AM

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

Within Control Limits

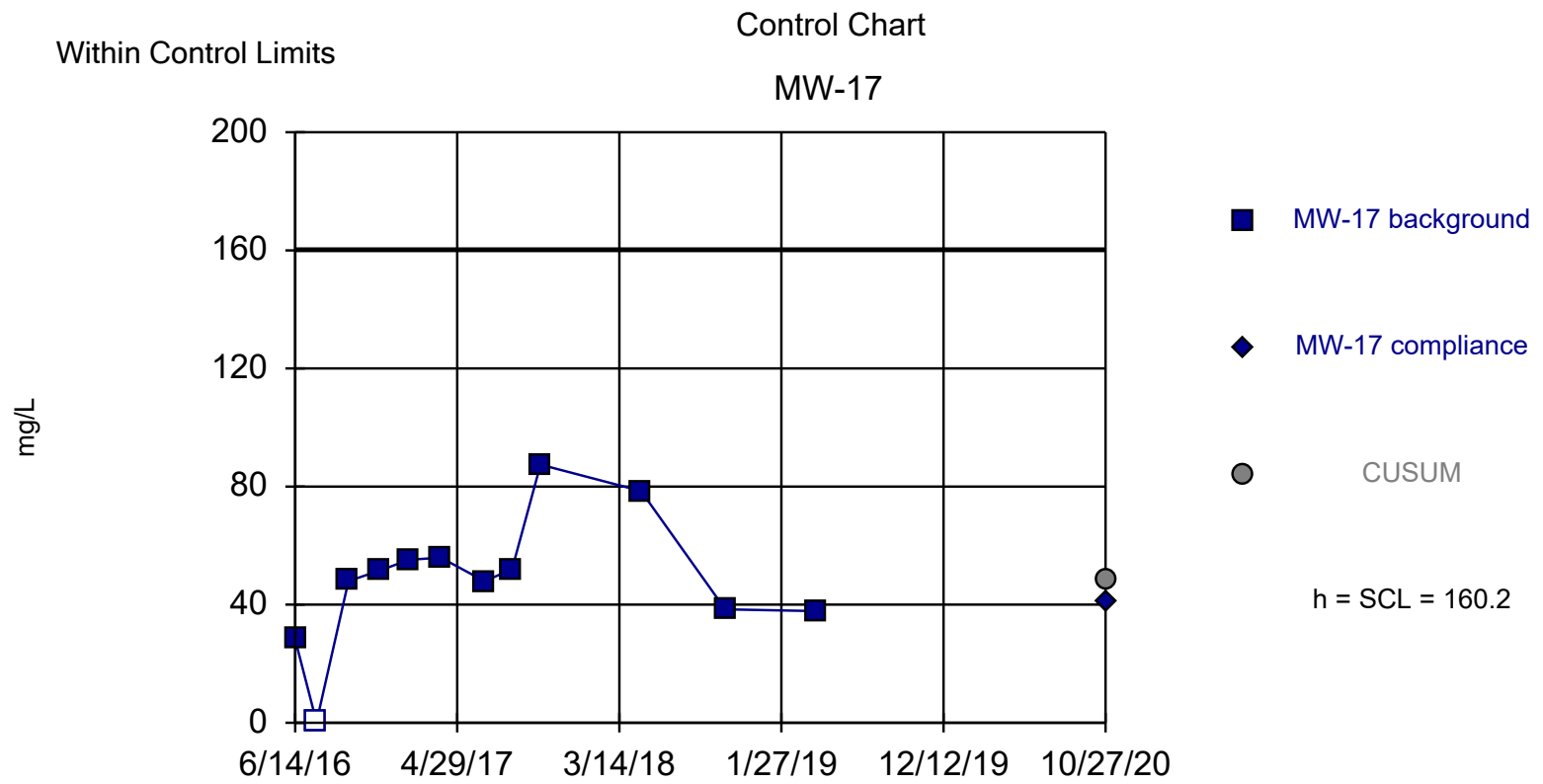


Background Data Summary: Mean=27.9, Std. Dev.=2.459, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9717, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 11/11/2020 10:14 AM

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

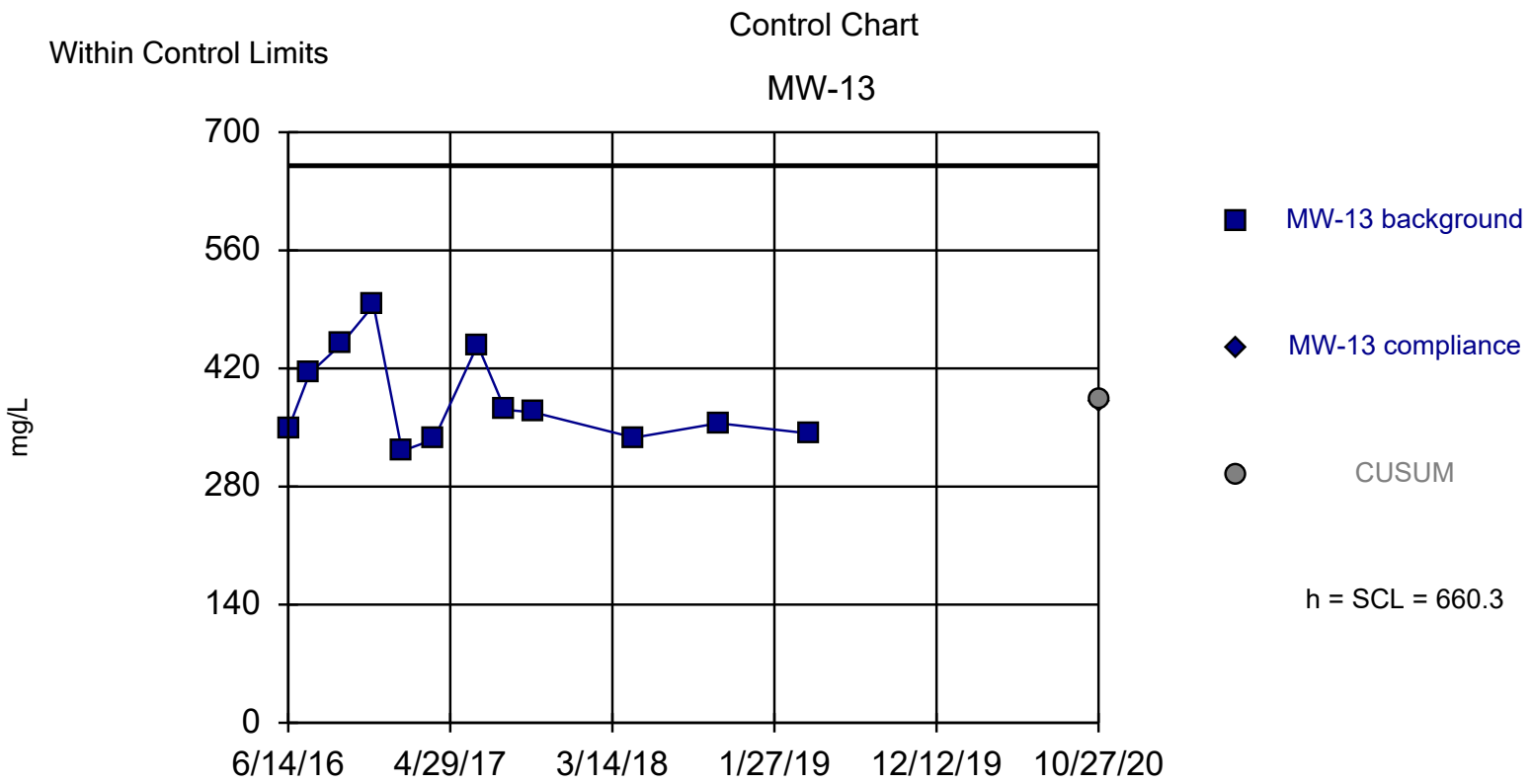
Hollow symbols indicate censored values.



Background Data Summary: Mean=48.43, Std. Dev.=22.35, n=12, 8.333% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9396, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 11/11/2020 10:14 AM

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

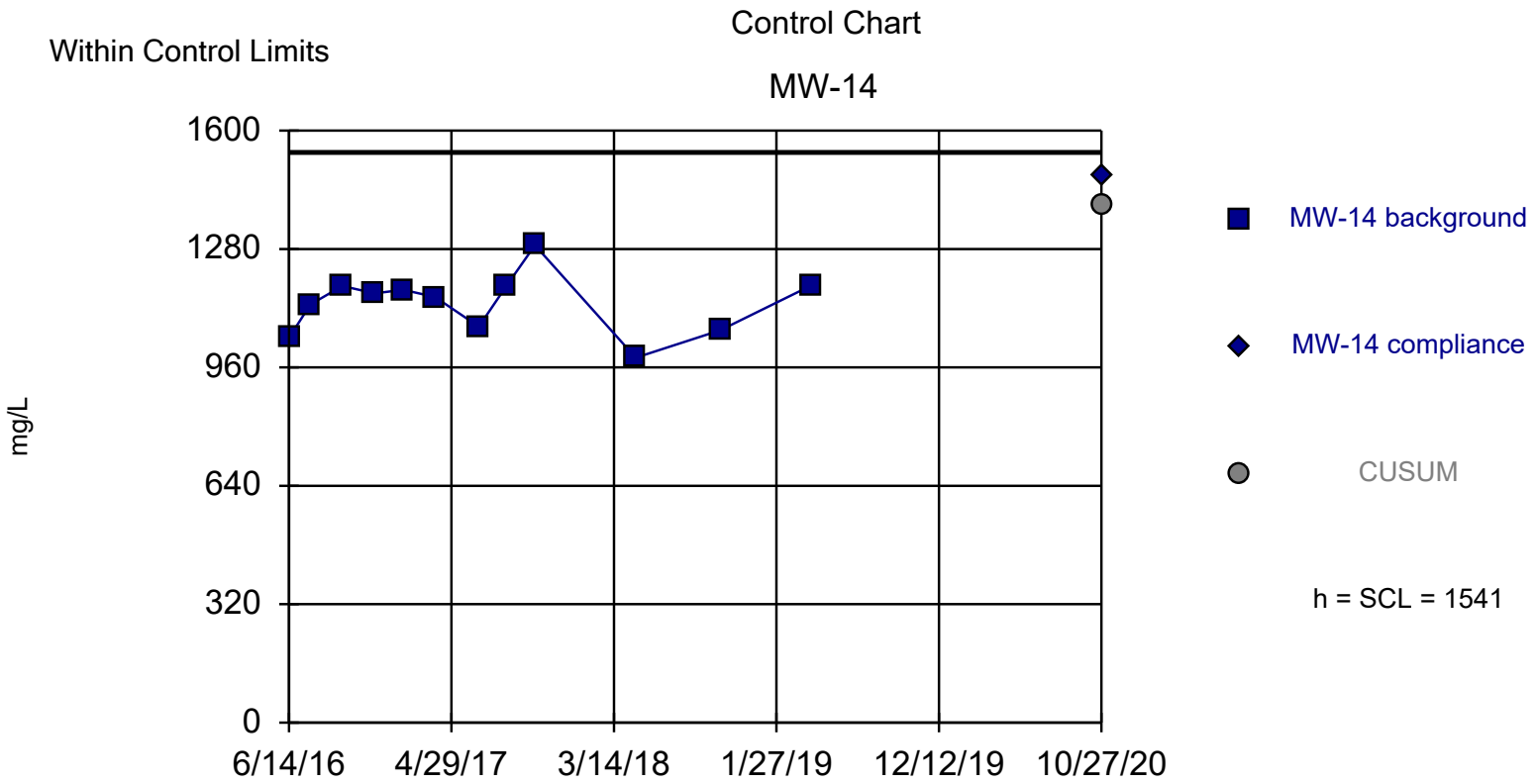


Background Data Summary: Mean=382.3, Std. Dev.=55.61, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8686, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 11/11/2020 10:14 AM

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

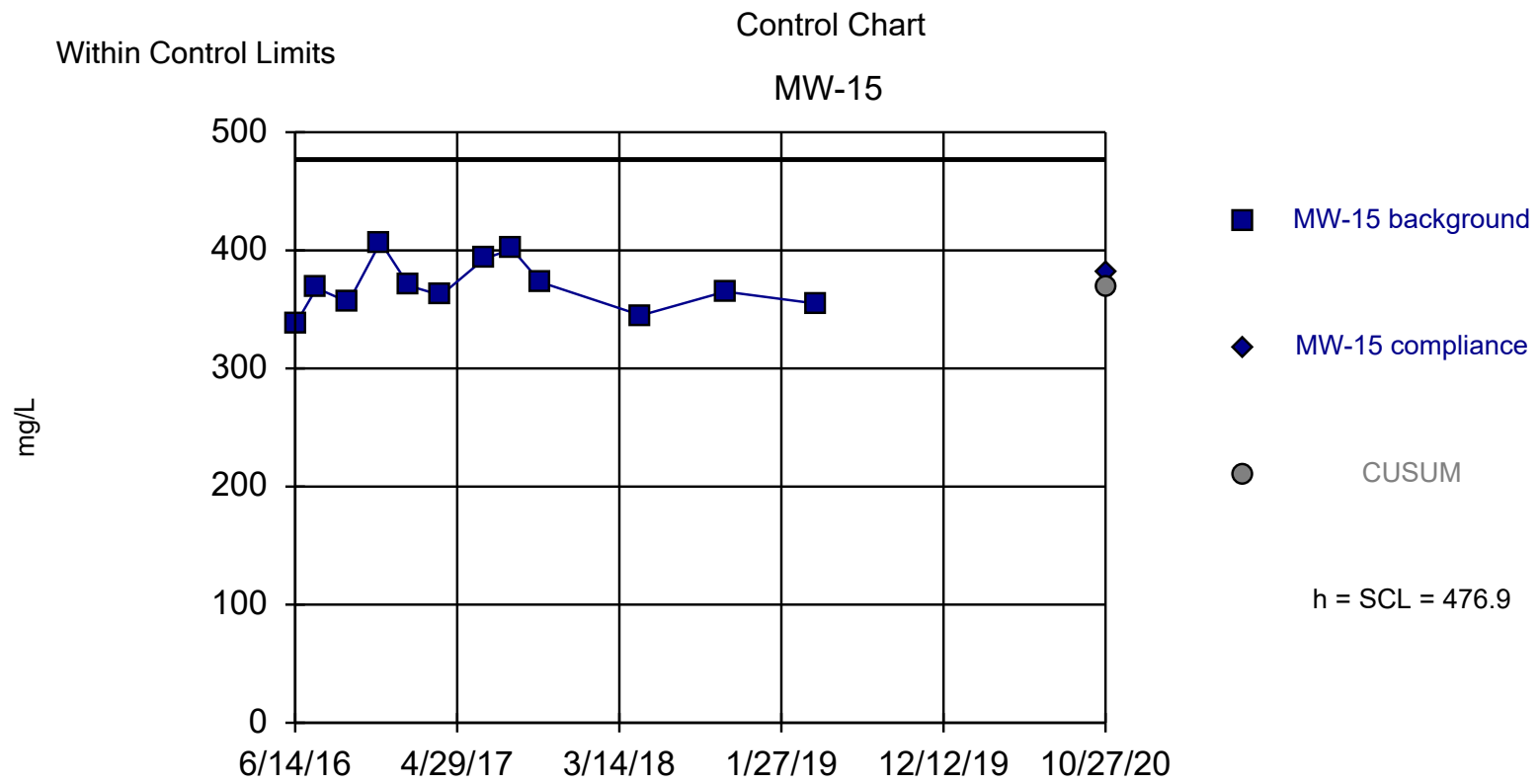
Within Control Limits



Background Data Summary: Mean=1133, Std. Dev.=81.59, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9416, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 11/11/2020 10:14 AM

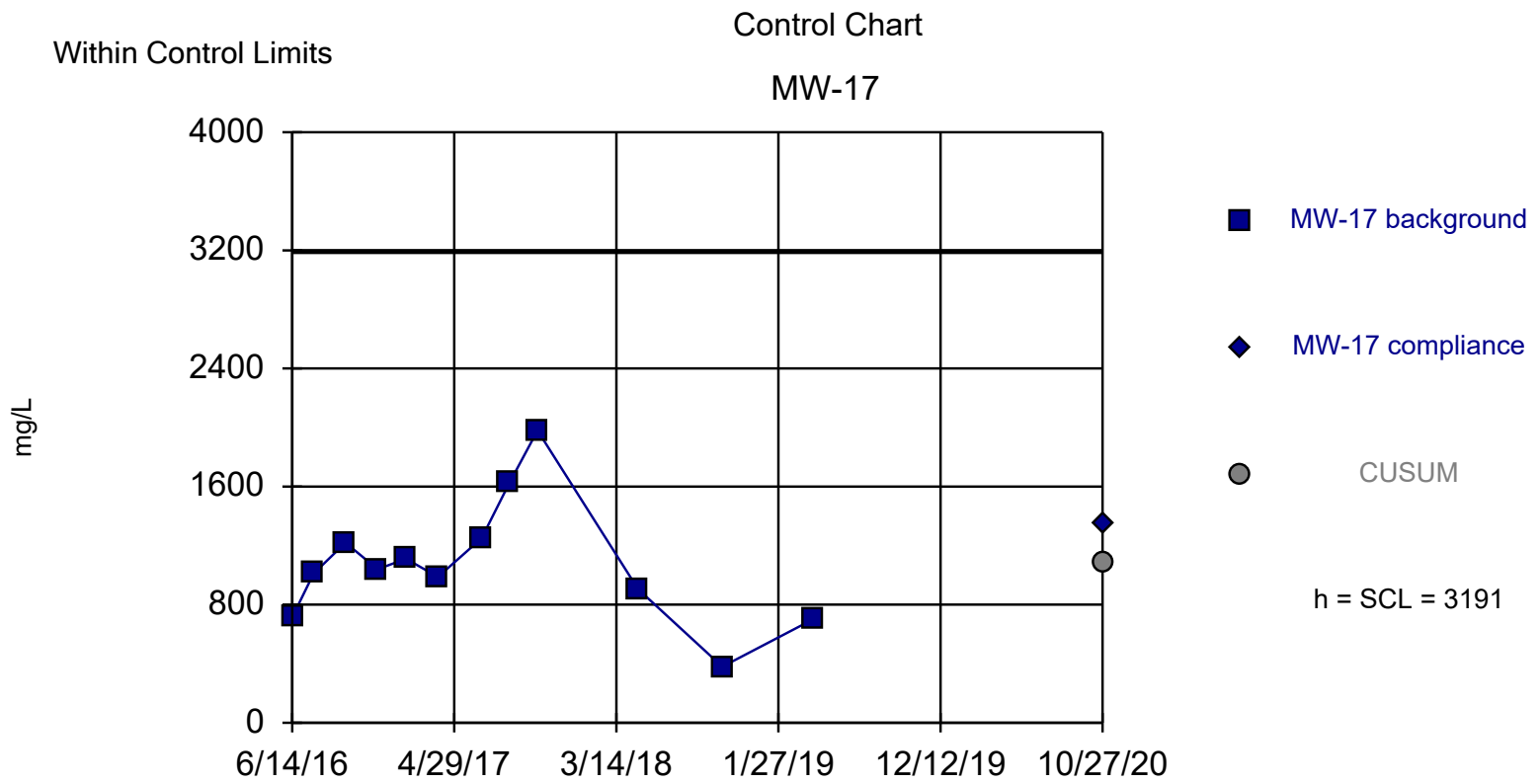
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=369.3, Std. Dev.=21.51, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9458, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 11/11/2020 10:14 AM

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



Background Data Summary: Mean=1076, Std. Dev.=423, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9554, critical = 0.859. Report alpha = 0.000296. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 11/11/2020 10:14 AM

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

Prediction Limit

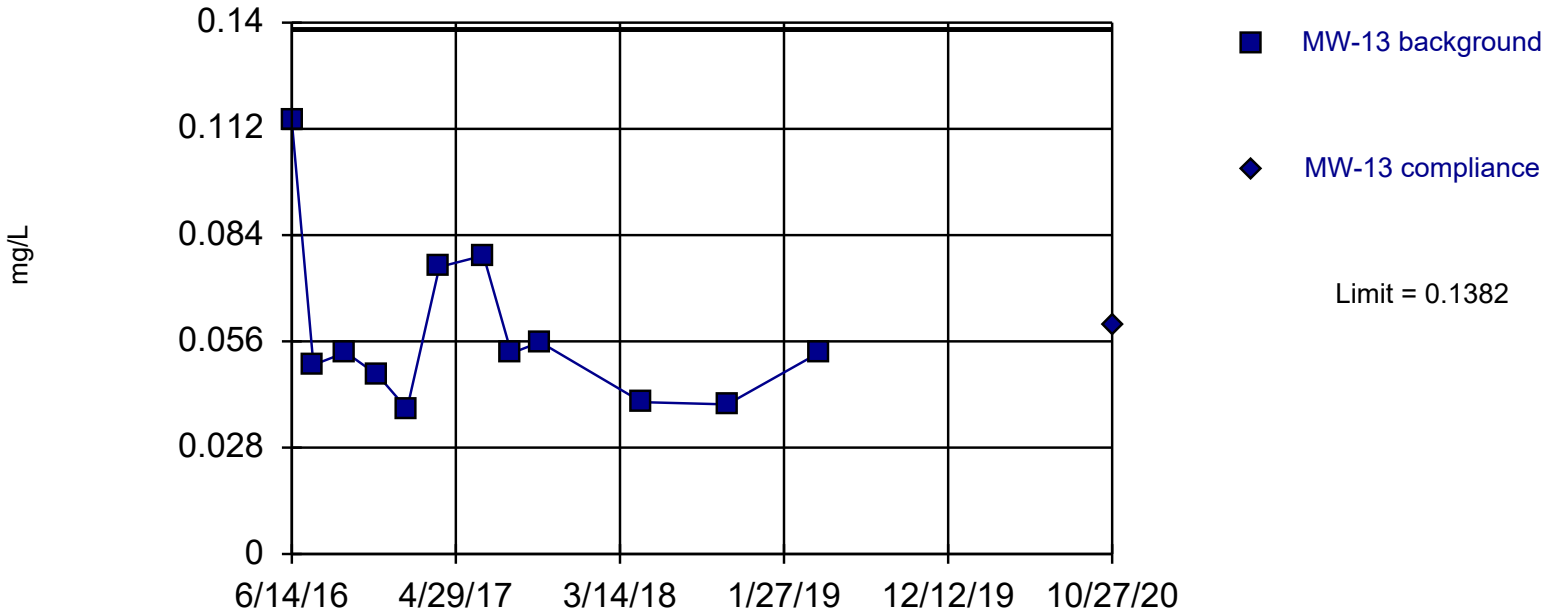
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 11/11/2020, 10:19 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	MW-13	0.1382	n/a	10/27/2020	0.0604	No	12	0	sqrt(x)	0.000...	Param Intra 1 of 2
Boron (mg/L)	MW-14	0.5796	n/a	10/27/2020	0.497	No	12	0	No	0.000...	Param Intra 1 of 2
Boron (mg/L)	MW-15	0.06917	n/a	10/27/2020	0.0399	No	12	0	No	0.000...	Param Intra 1 of 2
Boron (mg/L)	MW-17	0.362	n/a	10/27/2020	0.0237	No	11	0	n/a	0.01276	NP Intra (normality) ...

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=0.2378, Std. Dev.=0.0413, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8518, critical = 0.805. Kappa = 3.243 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

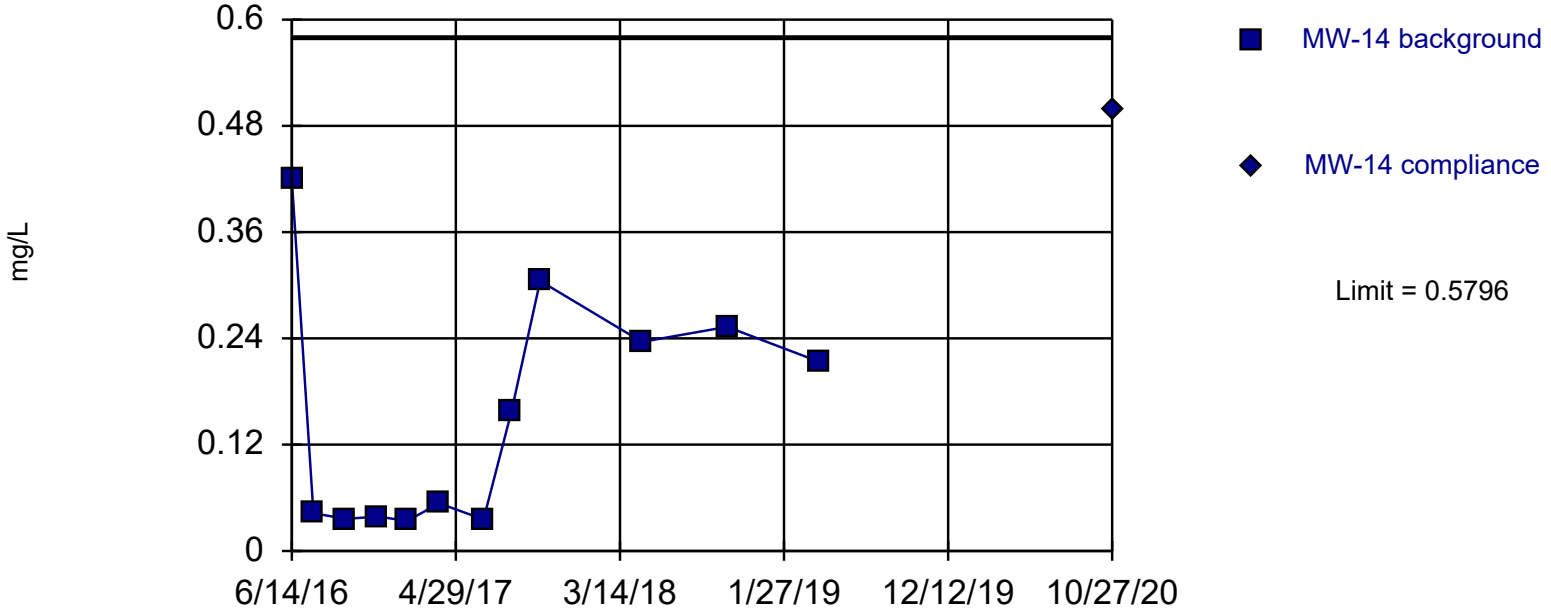
Constituent: Boron Analysis Run 11/11/2020 10:19 AM

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

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.152, Std. Dev.=0.1319, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8434, critical = 0.805. Kappa = 3.243 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

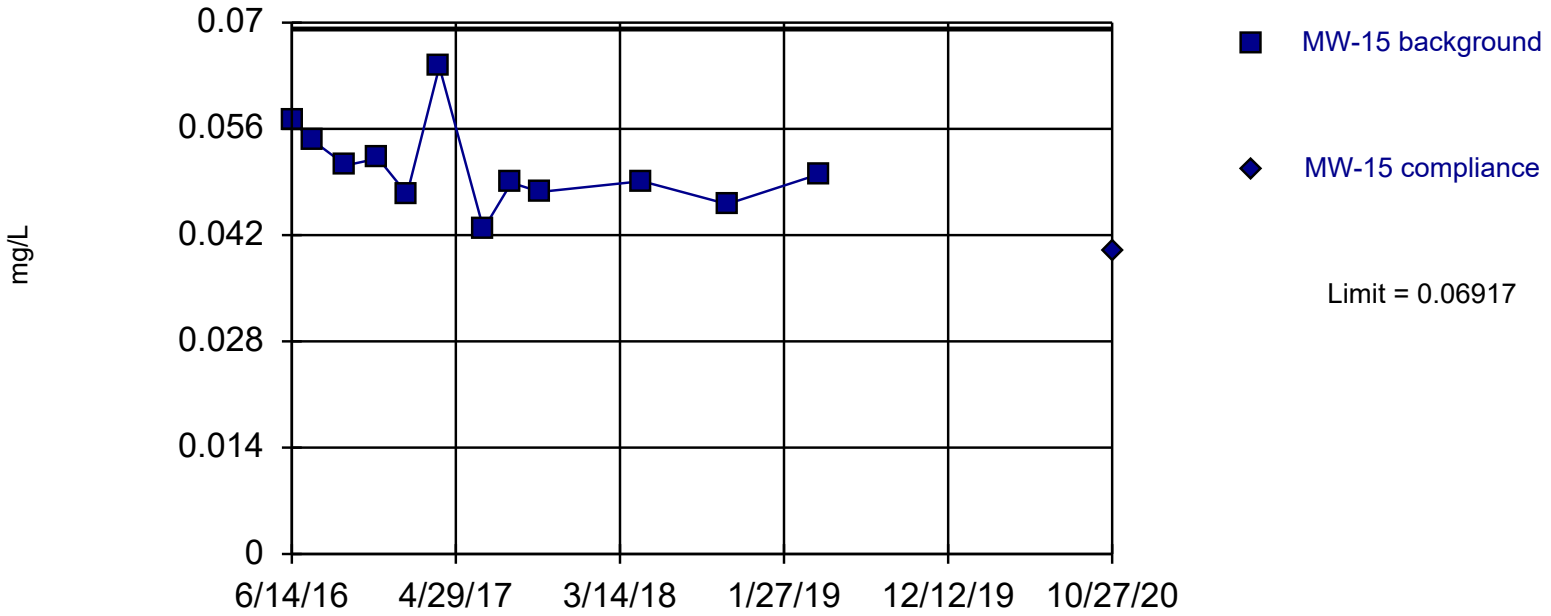
Constituent: Boron Analysis Run 11/11/2020 10:19 AM

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

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.05092, Std. Dev.=0.005627, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9255, critical = 0.805. Kappa = 3.243 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

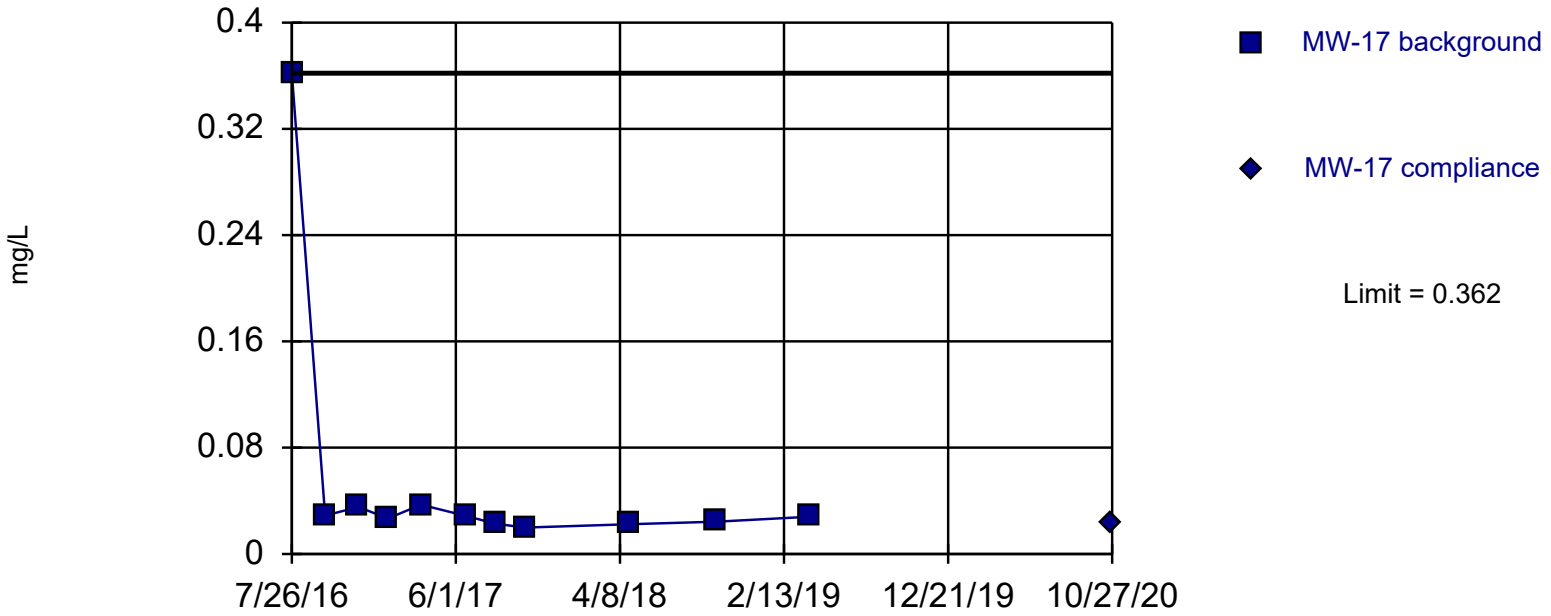
Constituent: Boron Analysis Run 11/11/2020 10:19 AM

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 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 11 background values. Well-constituent pair annual alpha = 0.02537. Individual comparison alpha = 0.01276 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Boron Analysis Run 11/11/2020 10:19 AM

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

November 2020 Event

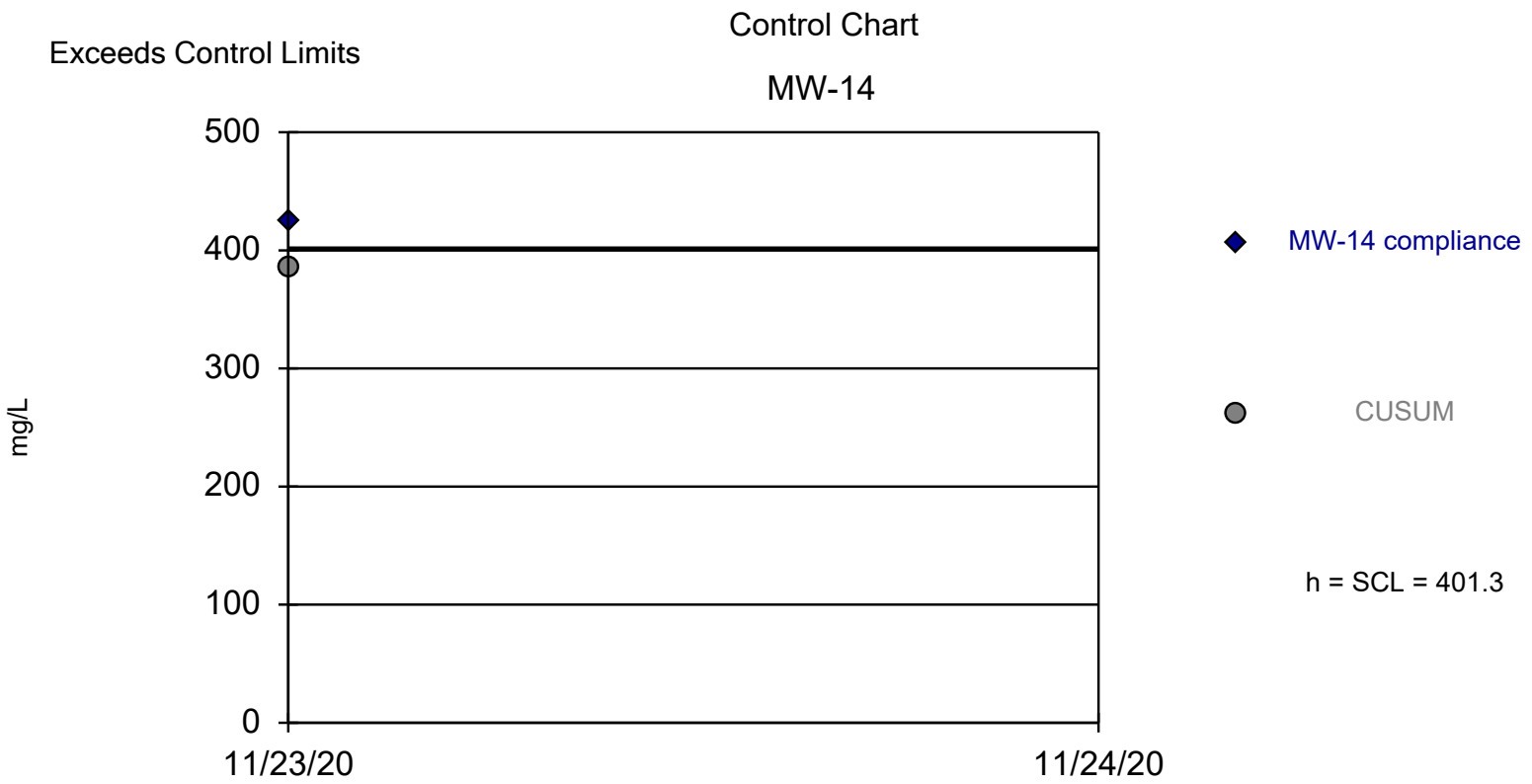
Results of Statistical Calculations

Control Charts

Shewhart-Cusum Control Chart / Rank Sum

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 12/15/2020, 4:32 PM

Constituent	Well	Sig.	h	SCL	N	%NDs	Transform	Method
Sulfate (mg/L)	**MW-14**	**Yes**	**401.3**	**401.3**	**12**	**0**	**No**	**Param Intra**



Background Data Summary: Mean=202.8, Std. Dev.=39.7, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9442, critical = 0.859. Report alpha = 0.000272. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 12/15/2020 4:31 PM

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

Appendix E

1st 2020 Semi-Annual Groundwater Monitoring and Corrective Action Report

1st 2020 SEMI-ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

TWIN OAKS POWER STATION

COAL COMBUSTION RESIDUALS (CCR) LANDFILL

ROBERTSON COUNTY, TEXAS

July 27, 2020

Prepared By:

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

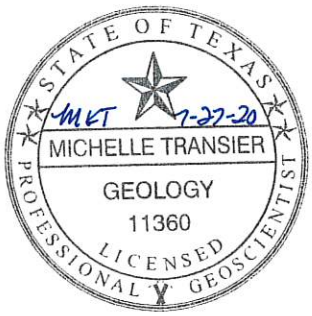
1st 2020 SEMI-ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

TWIN OAKS POWER STATION

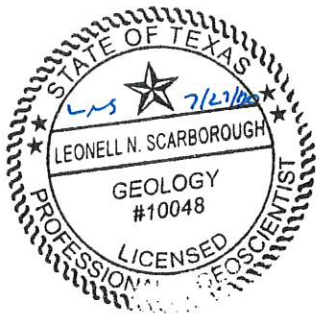
COAL COMBUSTION RESIDUALS (CCR) LANDFILL

ROBERTSON COUNTY, TEXAS

July 27, 2020



Michelle K. Transier, P.G.
Geologist



Leonell N. Scarborough, P.G.
Senior Hydrogeologist

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

Contents

Appendices

Introduction

This 1st 2020 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"), 30 TAC §352 Subchapter H, and the federal CCR Rule, 40 CFR Part 257, Subpart D. This semi-annual report summarizes the groundwater monitoring activities performed through the 1st 2020 semi-annual detection groundwater sampling event for the facility. The annual 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. 2
- 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 2020.
- 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 2nd 2020 groundwater sampling event, an annual groundwater monitoring report for 2020 will be prepared by January 31, 2021.

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 §352 Subchapter H, and 40 CFR Part 257, Subpart D. Specific sampling events and dates for calendar year 2020 are summarized in the following table:

Summary of Sampling Events

Event Date	Monitoring Wells (MW) Sampled	Event Type
April 28, 2020	MW-7, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-17	Semi-Annual Detection Monitoring
July 9, 2020	MW-14	Verification Resampling

No significant problems were encountered during the sampling event in 2020.

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 2020 is included in Appendix C of this report.

First Semi-Annual Groundwater Monitoring Event (April 2020)

The first semi-annual detection monitoring event was conducted on April 28, 2020. 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 2020 event, performed in accordance with the provisions of the GWSAP, 30 TAC §352.941, and 40 CFR § 257.94, indicated unverified ("initial") statistical exceedances for sulfate and total dissolved solids (TDS) in monitor well MW-14. Subsequently, verification resampling was conducted on July 9, 2020, as provided for and in accordance with the GWSAP. The results of verification resampling did not confirm the initial intrawell statistical exceedance value for TDS in MW-14. However, the results of verification resampling confirmed the intrawell statistical exceedance value for sulfate in MW-14 on July 17, 2020 and an SSI was determined on July 21, 2020. 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, correspondence detailing an alternate source/error demonstration (ASD) will be submitted within the specified timeline.

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 2020)

Well	Constituent	Initial Result (mg/L)	Statistical Limit (mg/L)	Verification Result (mg/L)	Intrawell Statistical Exceedance Confirmed?	Recommendation
MW-14	sulfate	467	401.3	448	Yes	Alternate Source/Error Demonstration
	TDS	1680	1541	1490	No	Maintain Detection Monitoring

Monitoring wells MW-7, MW-11, MW-12, MW-13, MW-15, MW-16, and MW-17 remain in detection monitoring status. Monitoring well MW14 also remains in detection monitoring status pending the outcome of the ASD.

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 2020 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 2020 detection monitoring event, are also included in Appendix B.

Project Key Activities for 2020

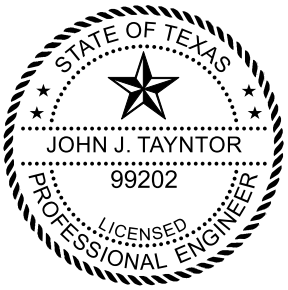
Based on the data available at the time of this report, the detection monitoring program currently in place for the Twin Oaks Power Station CCR Landfill meets the requirements of applicable regulations. Therefore, no change to the groundwater monitoring system, monitoring schedule, or monitoring program is proposed.

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 presented in the 1st 2020 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.



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

July 24, 2020

Date

Appendix B

Monitoring Well Network and Program Summary

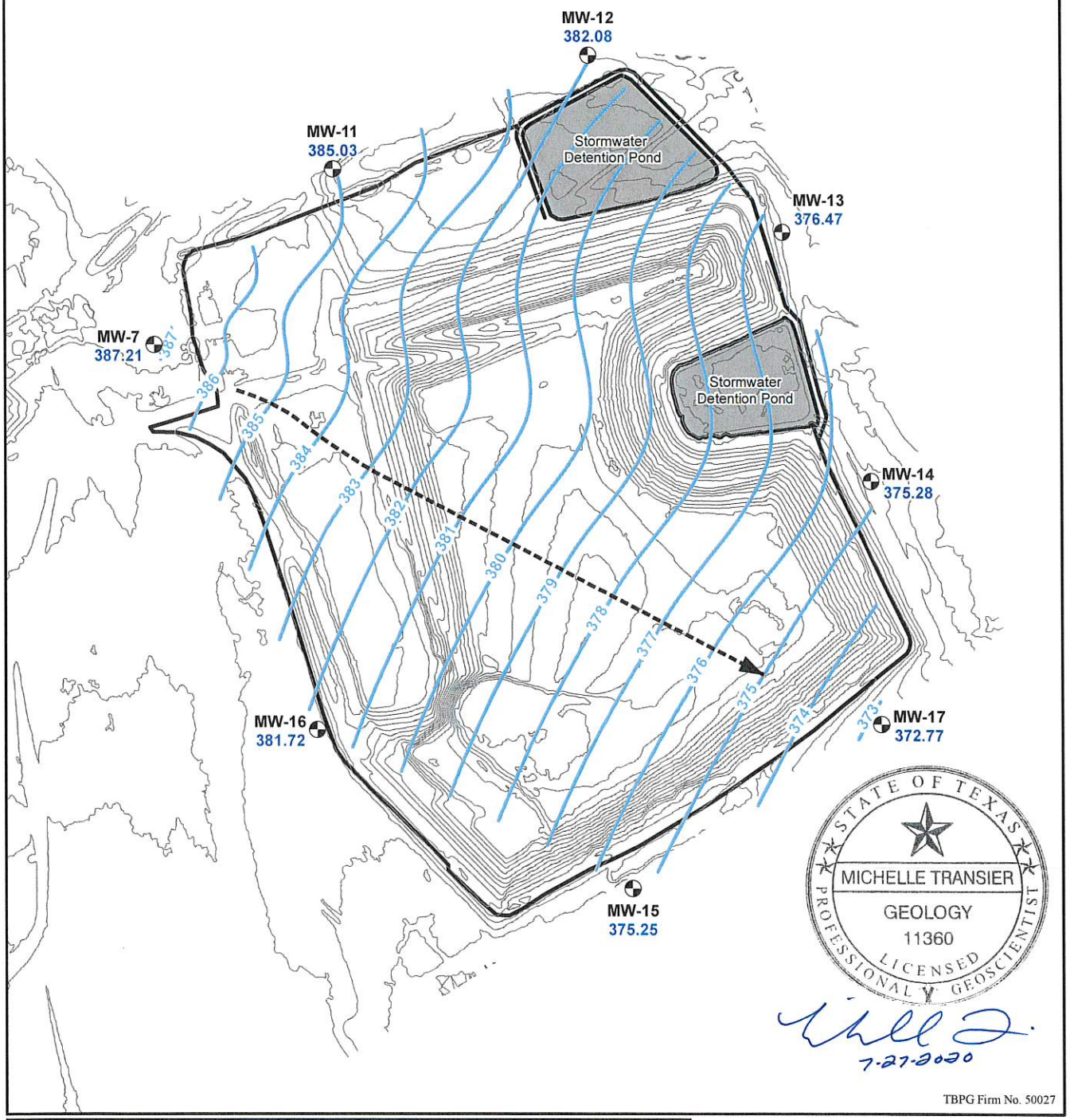
Well ID	Well Designation	Aquifer	2020 Monitoring Status
MW-7	Upgradient	Uppermost	Detection Monitoring
MW-11	Upgradient	Uppermost	Detection Monitoring
MW-12	Upgradient	Uppermost	Detection Monitoring
MW-13	Downgradient	Uppermost	Detection Monitoring
MW-14	Downgradient	Uppermost	Detection Monitoring
MW-15	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	4/28/2020	411.60	24.39	387.21
MW-11	4/28/2020	406.93	21.90	385.03
MW-12	4/28/2020	387.27	5.19	382.08
MW-13	4/28/2020	398.32	21.85	376.47
MW-14	4/28/2020	394.68	19.40	375.28
MW-15	4/28/2020	410.47	35.22	375.25
MW-16	4/28/2020	422.54	40.82	381.72
MW-17	4/28/2020	405.87	33.10	372.77



Monitor Well
Approx. Groundwater Flow Direction
Groundwater Contour
Pond
5-ft Ground Surface Contour
Access Road/ Perimeter Berm
385 Groundwater Elevation (Elevation Feet, MSL)

N
0 600
Feet

Hydrex ENVIRONMENTAL
1120 NW Stallings Drive
Nacogdoches, Texas 75964
(936) 560-9451

GROUNDWATER CONTOUR MAP

WATER LEVELS MEASURED
04/28/2020

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

Map Revised: 07/01/2020	Project Number: I-14-1007	GIS Analyst: NCF

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 2020 monitoring event.

Calculation of hydraulic gradient was performed using the following equation:

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

Where: Δh = approximate change in hydraulic head between two known points
Δd = approximate change in distance between two known points along flow paths

Gradient Measurement Line	Δh (feet)	Δd (feet)	i (feet/feet)	Monitoring Event
from well MW-7 to MW-17	14.44	3370	0.0043	April 2020

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	0.0043	71.97	April 2020

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

7-27-2020

Appendix D

Groundwater Monitoring Analytical Results Summary Table

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

		Detection Monitoring Constituents (Appendix III)							Assessment Monitoring Constituents (Appendix IV)														
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	04/28/20	0.322	268	274	<0.500	6.42	1550	1780	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-11	04/28/20	0.14	137	185	<0.500	6.42	606	1170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-12	04/28/20	0.0304	16.9	76.9	<0.500	6.47	43.4	275	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-13	04/28/20	0.075	31.1	103	<0.500	6.55	72.2	403	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.1382	37.7	119.4	0.584	4.847-7.797	193.1	660.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	04/28/20	0.322	106	370	<0.500	6.80	467	1680	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	07/09/20	NA	NA	NA	NA	NA	448	1490	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.5796	115.2	436.5	0.682	4.951-7.714	401.3	1541	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-15	04/28/20	0.0427	21.8	119	<0.500	6.61	38.1	338	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.06917	28.93	175.8	0.5	4.356-7.747	40.2	476.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-16	04/28/20	0.0257	87.1	371	<0.500	6.53	129	960	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-17	04/28/20	0.0227	156	706	<0.500	5.83	55.2	1210	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Limits*		0.362	555.1	1678	0.5	3.887-7.908	160.2	3191	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

*Background limits are intrawell statistcal limits including data collected between June 2016 and July 2019.

NA - Not Applicable

Laboratory Reports

eurofins | Environment Testing Xenco

Analytical Report 660223

for

Hydrex Environmental

Project Manager: Michelle Transier

Twin Oaks PP

I-14-1007

07.24.2020

Collected By: Client

4147 Greenbriar Dr.
Stafford, TX 77477

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

07.24.2020

Project Manager: **Michelle Transier**
Hydrex Environmental
1120 NW Stallings Dr
Nacogdoches, TX 75964

Reference: Eurofins Xenco, LLC Report No(s): **660223**
Twin Oaks PP
Project Address:

Michelle Transier:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 660223. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 660223 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Chad A. Bechtold

Chad Bechtold
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Sample Cross Reference 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-7	W	04.28.2020 12:42		660223-001
MW-11	W	04.28.2020 13:12		660223-002
MW-12	W	04.28.2020 13:48		660223-003
MW-13	W	04.28.2020 14:56		660223-004
MW-14	W	04.28.2020 15:22		660223-005
MW-15	W	04.28.2020 16:07		660223-006
MW-16	W	04.28.2020 14:20		660223-007
MW-17	W	04.28.2020 16:35		660223-008
Duplicate	W	04.28.2020 13:12		660223-009

CASE NARRATIVE SUMMARY

eurofins | Environment Testing Xenco

Client Name: ***Hydrex Environmental***

Project Name: ***Twin Oaks PP***

Project ID:	*I-14-1007*	*Report Date:*	*07.24.2020*
Work Order Number:	*660223*	*Date Received:*	*04.30.2020*

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. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

pH should be analyzed immediately. Per client request the laboratory performed pH analysis. The results were qualified with a "K".

Report Revision: The report format was revised.

Chad Bechtold
Project Manager

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-7** Matrix: Water Date Received:04.30.2020 09:30
Lab Sample Id: 660223-001 Date Collected: 04.28.2020 12:42

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P
Tech: JYM % Moisture:
Analyst: JYM Date Prep: 05.01.2020 10:30
Seq Number: 3124832

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**274**	0.500	mg/L	05.01.2020 14:32		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	05.01.2020 14:32	U	1
Sulfate	14808-79-8	**1550**	5.00	mg/L	05.01.2020 14:44	D	10

Analytical Method: TDS by SM2540C
Tech: YAV % Moisture:
Analyst: YAV
Seq Number: 3125125

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1780**	5.00	mg/L	05.05.2020 13:00		1

Analytical Method: pH by SM4500-H
Tech: KBU % Moisture:
Analyst: KBU
Seq Number: 3124764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.42**		SU	05.01.2020 11:48	K	1
Temperature	TEMP	**25.8**		Deg C	05.01.2020 11:48	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A
Tech: MLI % Moisture:
Analyst: DEP Date Prep: 05.04.2020 10:05
Seq Number: 3125006

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.322**	0.0100	mg/L	05.04.2020 21:18		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-7**
Lab Sample Id: 660223-001

Matrix: Water
Date Collected: 04.28.2020 12:42

Date Received:04.30.2020 09:30

Analytical Method: Calcium by Method 6010B
Tech: MLI
Analyst: DEP
Seq Number: 3124875

Date Prep: 05.01.2020 10:00

Prep Method: SW3010A
% Moisture:

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**268**	10.0	mg/L	05.01.2020 19:41	D	50

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-11** Matrix: Water Date Received:04.30.2020 09:30
Lab Sample Id: 660223-002 Date Collected: 04.28.2020 13:12

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P
Tech: JYM % Moisture:
Analyst: JYM Date Prep: 05.01.2020 10:30
Seq Number: 3124832

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**185**	0.500	mg/L	05.01.2020 14:56		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	05.01.2020 14:56	U	1
Sulfate	14808-79-8	**606**	5.00	mg/L	05.01.2020 16:56	D	10

Analytical Method: TDS by SM2540C
Tech: YAV % Moisture:
Analyst: YAV
Seq Number: 3125125

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1170**	5.00	mg/L	05.05.2020 13:00		1

Analytical Method: pH by SM4500-H
Tech: KBU % Moisture:
Analyst: KBU
Seq Number: 3124764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.42**		SU	05.01.2020 11:48	K	1
Temperature	TEMP	**25.8**		Deg C	05.01.2020 11:48	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A
Tech: MLI % Moisture:
Analyst: DEP Date Prep: 05.04.2020 10:05
Seq Number: 3125006

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.140**	0.0100	mg/L	05.04.2020 21:21		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-11**
Lab Sample Id: 660223-002

Matrix: Water
Date Collected: 04.28.2020 13:12

Date Received:04.30.2020 09:30

Analytical Method: Calcium by Method 6010B
Tech: MLI
Analyst: DEP
Seq Number: 3124875

Date Prep: 05.01.2020 10:00

Prep Method: SW3010A
% Moisture:

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**137**	10.0	mg/L	05.01.2020 19:45	D	50

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-12** Matrix: Water Date Received:04.30.2020 09:30
Lab Sample Id: 660223-003 Date Collected: 04.28.2020 13:48

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P
Tech: JYM % Moisture:
Analyst: JYM Date Prep: 05.01.2020 10:30
Seq Number: 3124832

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**76.9**	0.500	mg/L	05.01.2020 15:08		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	05.01.2020 15:08	U	1
Sulfate	14808-79-8	**43.4**	0.500	mg/L	05.01.2020 15:08		1

Analytical Method: TDS by SM2540C
Tech: YAV % Moisture:
Analyst: YAV
Seq Number: 3125125

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**275**	5.00	mg/L	05.05.2020 13:00		1

Analytical Method: pH by SM4500-H
Tech: KBU % Moisture:
Analyst: KBU
Seq Number: 3124764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.47**		SU	05.01.2020 11:48	K	1
Temperature	TEMP	**25.9**		Deg C	05.01.2020 11:48	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A
Tech: MLI % Moisture:
Analyst: DEP Date Prep: 05.04.2020 10:05
Seq Number: 3125006

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.0304**	0.0100	mg/L	05.04.2020 21:24		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-12**
Lab Sample Id: 660223-003

Matrix: Water
Date Collected: 04.28.2020 13:48

Date Received:04.30.2020 09:30

Analytical Method: Calcium by Method 6010B
Tech: MLI
Analyst: DEP
Seq Number: 3124875

Date Prep: 05.01.2020 10:00

Prep Method: SW3010A
% Moisture:

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**16.9**	0.200	mg/L	05.01.2020 19:28		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-13** Matrix: Water Date Received:04.30.2020 09:30
Lab Sample Id: 660223-004 Date Collected: 04.28.2020 14:56

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P
Tech: JYM % Moisture:
Analyst: JYM Date Prep: 05.01.2020 10:30
Seq Number: 3124832

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**103**	0.500	mg/L	05.01.2020 15:20		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	05.01.2020 15:20	U	1
Sulfate	14808-79-8	**72.2**	0.500	mg/L	05.01.2020 15:20		1

Analytical Method: TDS by SM2540C
Tech: YAV % Moisture:
Analyst: YAV
Seq Number: 3125125

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**403**	5.00	mg/L	05.05.2020 13:00		1

Analytical Method: pH by SM4500-H
Tech: KBU % Moisture:
Analyst: KBU
Seq Number: 3124764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.55**		SU	05.01.2020 11:48	K	1
Temperature	TEMP	**25.7**		Deg C	05.01.2020 11:48	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A
Tech: MLI % Moisture:
Analyst: DEP Date Prep: 05.04.2020 10:05
Seq Number: 3125006

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.0750**	0.0100	mg/L	05.04.2020 21:27		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-13**
Lab Sample Id: 660223-004

Matrix: Water
Date Collected: 04.28.2020 14:56

Date Received:04.30.2020 09:30

Analytical Method: Calcium by Method 6010B
Tech: MLI
Analyst: DEP
Seq Number: 3124875

Date Prep: 05.01.2020 10:00

Prep Method: SW3010A
% Moisture:

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**31.1**	0.200	mg/L	05.01.2020 19:33		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-14** Matrix: Water Date Received:04.30.2020 09:30
Lab Sample Id: 660223-005 Date Collected: 04.28.2020 15:22

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P
Tech: JYM % Moisture:
Analyst: JYM Date Prep: 05.01.2020 10:30
Seq Number: 3124832

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**370**	0.500	mg/L	05.01.2020 15:32		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	05.01.2020 15:32	U	1
Sulfate	14808-79-8	**467**	5.00	mg/L	05.01.2020 17:44	D	10

Analytical Method: TDS by SM2540C
Tech: YAV % Moisture:
Analyst: YAV
Seq Number: 3125125

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1680**	5.00	mg/L	05.05.2020 13:00		1

Analytical Method: pH by SM4500-H
Tech: KBU % Moisture:
Analyst: KBU
Seq Number: 3124764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.80**		SU	05.01.2020 11:48	K	1
Temperature	TEMP	**25.2**		Deg C	05.01.2020 11:48	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A
Tech: MLI % Moisture:
Analyst: DEP Date Prep: 05.04.2020 10:05
Seq Number: 3125006

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.322**	0.0100	mg/L	05.04.2020 21:30		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-14**
Lab Sample Id: 660223-005

Matrix: Water
Date Collected: 04.28.2020 15:22

Date Received:04.30.2020 09:30

Analytical Method: Calcium by Method 6010B
Tech: MLI
Analyst: DEP
Seq Number: 3124875

Date Prep: 05.01.2020 10:00

Prep Method: SW3010A
% Moisture:

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**106**	10.0	mg/L	05.01.2020 19:58	D	50

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-15** Matrix: Water Date Received:04.30.2020 09:30
Lab Sample Id: 660223-006 Date Collected: 04.28.2020 16:07

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P
Tech: JYM % Moisture:
Analyst: JYM Date Prep: 05.01.2020 10:30
Seq Number: 3124832

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**119**	0.500	mg/L	05.01.2020 15:44		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	05.01.2020 15:44	U	1
Sulfate	14808-79-8	**38.1**	0.500	mg/L	05.01.2020 15:44		1

Analytical Method: TDS by SM2540C
Tech: YAV % Moisture:
Analyst: YAV
Seq Number: 3125125

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**338**	5.00	mg/L	05.05.2020 13:00		1

Analytical Method: pH by SM4500-H
Tech: KBU % Moisture:
Analyst: KBU
Seq Number: 3124764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.61**		SU	05.01.2020 11:48	K	1
Temperature	TEMP	**23.8**		Deg C	05.01.2020 11:48	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A
Tech: MLI % Moisture:
Analyst: DEP Date Prep: 05.04.2020 10:05
Seq Number: 3125006

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.0427**	0.0100	mg/L	05.04.2020 21:33		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-15**
Lab Sample Id: 660223-006

Matrix: Water
Date Collected: 04.28.2020 16:07

Date Received:04.30.2020 09:30

Analytical Method: Calcium by Method 6010B
Tech: MLI
Analyst: DEP
Seq Number: 3124875

Prep Method: SW3010A
% Moisture:

Date Prep: 05.01.2020 10:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**21.8**	0.200	mg/L	05.03.2020 16:11		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-16** Matrix: Water Date Received:04.30.2020 09:30
Lab Sample Id: 660223-007 Date Collected: 04.28.2020 14:20

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P
Tech: JYM % Moisture:
Analyst: JYM Date Prep: 05.01.2020 10:30
Seq Number: 3124832

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**371**	0.500	mg/L	05.01.2020 15:56		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	05.01.2020 15:56	U	1
Sulfate	14808-79-8	**129**	0.500	mg/L	05.01.2020 15:56		1

Analytical Method: TDS by SM2540C
Tech: YAV % Moisture:
Analyst: YAV
Seq Number: 3125125

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**960**	5.00	mg/L	05.05.2020 13:00		1

Analytical Method: pH by SM4500-H
Tech: KBU % Moisture:
Analyst: KBU
Seq Number: 3124764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.53**		SU	05.01.2020 11:48	K	1
Temperature	TEMP	**24.6**		Deg C	05.01.2020 11:48	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A
Tech: MLI % Moisture:
Analyst: DEP Date Prep: 05.04.2020 10:05
Seq Number: 3125006

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.0257**	0.0100	mg/L	05.04.2020 21:36		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-16**
Lab Sample Id: 660223-007

Matrix: Water
Date Collected: 04.28.2020 14:20

Date Received:04.30.2020 09:30

Analytical Method: Calcium by Method 6010B
Tech: MLI
Analyst: DEP
Seq Number: 3124875

Date Prep: 05.01.2020 10:00

Prep Method: SW3010A
% Moisture:

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**87.1**	10.0	mg/L	05.03.2020 16:32	D	50

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-17** Matrix: Water Date Received:04.30.2020 09:30
Lab Sample Id: 660223-008 Date Collected: 04.28.2020 16:35

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P
Tech: JYM % Moisture:
Analyst: JYM Date Prep: 05.01.2020 10:30
Seq Number: 3124832

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**706**	5.00	mg/L	05.01.2020 17:56	D	10
Fluoride	16984-48-8	<0.500	0.500	mg/L	05.01.2020 16:08	U	1
Sulfate	14808-79-8	**55.2**	0.500	mg/L	05.01.2020 16:08		1

Analytical Method: TDS by SM2540C
Tech: YAV % Moisture:
Analyst: YAV
Seq Number: 3125125

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1210**	5.00	mg/L	05.05.2020 13:00		1

Analytical Method: pH by SM4500-H
Tech: KBU % Moisture:
Analyst: KBU
Seq Number: 3124764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**5.83**		SU	05.01.2020 11:48	K	1
Temperature	TEMP	**25.7**		Deg C	05.01.2020 11:48	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A
Tech: MLI % Moisture:
Analyst: DEP Date Prep: 05.04.2020 10:05
Seq Number: 3125006

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.0227**	0.0100	mg/L	05.04.2020 21:39		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **MW-17**
Lab Sample Id: 660223-008

Matrix: Water
Date Collected: 04.28.2020 16:35

Date Received:04.30.2020 09:30

Analytical Method: Calcium by Method 6010B
Tech: MLI
Analyst: DEP
Seq Number: 3124875

Date Prep: 05.01.2020 10:00

Prep Method: SW3010A
% Moisture:

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**156**	10.0	mg/L	05.03.2020 16:37	D	50

Certificate of Analytical Results 660223

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Twin Oaks PP

Sample Id: **Duplicate** Matrix: Water Date Received:04.30.2020 09:30
Lab Sample Id: 660223-009 Date Collected: 04.28.2020 13:12

Analytical Method: Cl, F, & SO4 by EPA 300.0 Prep Method: E300P
Tech: JYM % Moisture:
Analyst: JYM Date Prep: 05.01.2020 10:30
Seq Number: 3124832

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**186**	0.500	mg/L	05.01.2020 16:44		1
Fluoride	16984-48-8	<0.500	0.500	mg/L	05.01.2020 16:44	U	1
Sulfate	14808-79-8	**629**	5.00	mg/L	05.01.2020 17:20	D	10

Analytical Method: TDS by SM2540C
Tech: YAV % Moisture:
Analyst: YAV
Seq Number: 3125125

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1120**	5.00	mg/L	05.05.2020 13:00		1

Analytical Method: pH by SM4500-H
Tech: KBU % Moisture:
Analyst: KBU
Seq Number: 3124764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
pH	12408-02-5	**6.39**		SU	05.01.2020 11:48	K	1
Temperature	TEMP	**25.4**		Deg C	05.01.2020 11:48	K	1

Analytical Method: Boron by Method 6020A Prep Method: SW3010A
Tech: MLI % Moisture:
Analyst: DEP Date Prep: 05.04.2020 10:05
Seq Number: 3125006

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	**0.144**	0.0100	mg/L	05.04.2020 21:41		1

Certificate of Analytical Results 660223

Hydrex Environmental, Nacogdoches, TX

Twin Oaks PP

Sample Id: **Duplicate**
Lab Sample Id: 660223-009

Matrix: Water
Date Collected: 04.28.2020 13:12

Date Received:04.30.2020 09:30

Analytical Method: Calcium by Method 6010B
Tech: MLI
Analyst: DEP
Seq Number: 3124875

Prep Method: SW3010A
% Moisture:

Date Prep: 05.01.2020 10:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**131**	10.0	mg/L	05.03.2020 16:41	D	50

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Analytical Method: Cl, F, & SO4 by EPA 300.0 — Prep Method: E300P
Seq Number: 3124832 — Matrix: Water — Date Prep: 05.01.2020
MB Sample Id: 7702483-1-BLK — LCS Sample Id: 7702483-1-BKS — LCSD Sample Id: 7702483-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	9.96	100	9.99	100	90-110	0	20	mg/L	05.01.2020 08:51	
Fluoride	<0.500	10.0	10.4	104	10.5	105	90-110	1	20	mg/L	05.01.2020 08:51	
Sulfate	<0.500	10.0	10.0	100	10.2	102	90-110	2	20	mg/L	05.01.2020 08:51	

Analytical Method: Cl, F, & SO4 by EPA 300.0 — Prep Method: E300P
Seq Number: 3124832 — Matrix: Water — Date Prep: 05.01.2020
Parent Sample Id: 660223-003 — MS Sample Id: 660223-003 S — MSD Sample Id: 660223-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	76.9	10.0	86.5	96	86.5	96	90-110	0	20	mg/L	05.01.2020 17:08	
Fluoride	<0.500	10.0	11.0	110	11.0	110	90-110	0	20	mg/L	05.01.2020 17:08	
Sulfate	43.4	10.0	54.0	106	54.0	106	90-110	0	20	mg/L	05.01.2020 17:08	

Analytical Method: Cl, F, & SO4 by EPA 300.0 — Prep Method: E300P
Seq Number: 3124832 — Matrix: Water — Date Prep: 05.01.2020
Parent Sample Id: 660383-001 — MS Sample Id: 660383-001 S — MSD Sample Id: 660383-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	213	10.0	219	60	219	60	90-110	0	20	mg/L	05.01.2020 11:17	X
Fluoride	0.210	10.0	10.8	106	10.8	106	90-110	0	20	mg/L	05.01.2020 11:17	
Sulfate	136	10.0	145	90	145	90	90-110	0	20	mg/L	05.01.2020 11:17	

Analytical Method: TDS by SM2540C
Seq Number: 3125125 — Matrix: Water
MB Sample Id: 3125125-1-BLK — LCS Sample Id: 3125125-1-BKS — LCSD Sample Id: 3125125-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	943	94	966	97	80-120	2	10	mg/L	05.05.2020 13:00	

Analytical Method: TDS by SM2540C
Seq Number: 3125125 — Matrix: Waste Water
Parent Sample Id: 660110-001 — MD Sample Id: 660110-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	5100	5060	1	10	mg/L	05.05.2020 13:00	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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Analytical Method: **TDS by SM2540C**
Seq Number: 3125125 Matrix: Water
Parent Sample Id: 660223-009 MD Sample Id: 660223-009 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1120	1160	4	10	mg/L	05.05.2020 13:00	

Analytical Method: **pH by SM4500-H**
Seq Number: 3124764 Matrix: Waste Water
Parent Sample Id: 660119-001 MD Sample Id: 660119-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
pH	7.91	7.92	0	20	SU	05.01.2020 11:48	
Temperature	24.3	24.1	1	20	Deg C	05.01.2020 11:48	

Analytical Method: **pH by SM4500-H**
Seq Number: 3124764 Matrix: Water
Parent Sample Id: 660223-009 MD Sample Id: 660223-009 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
pH	6.39	6.40	0	20	SU	05.01.2020 11:48	
Temperature	25.4	25.8	2	20	Deg C	05.01.2020 11:48	

Analytical Method: **Boron by Method 6020A** Prep Method: SW3010A
Seq Number: 3125006 Matrix: Water Date Prep: 05.04.2020
MB Sample Id: 7702610-1-BLK LCS Sample Id: 7702610-1-BKS LCSD Sample Id: 7702610-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.0100	0.100	0.0886	89	0.0897	90	80-120	1	20	mg/L	05.04.2020 20:52	

Analytical Method: **Boron by Method 6020A** Prep Method: SW3010A
Seq Number: 3125006 Matrix: Ground Water Date Prep: 05.04.2020
Parent Sample Id: 660299-001 MS Sample Id: 660299-001 S MSD Sample Id: 660299-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	0.121	0.100	0.207	86	0.205	84	75-125	1	20	mg/L	05.04.2020 21:01	

Analytical Method: **Calcium by Method 6010B** Prep Method: SW3010A
Seq Number: 3124875 Matrix: Water Date Prep: 05.01.2020
MB Sample Id: 7702503-1-BLK LCS Sample Id: 7702503-1-BKS LCSD Sample Id: 7702503-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.200	25.0	24.0	96	24.1	96	75-125	0	20	mg/L	05.01.2020 17:48	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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Analytical Method: **Calcium by Method 6010B** Prep Method: SW3010A

Seq Number: 3124875 Matrix: Water Date Prep: 05.01.2020

Parent Sample Id: 660264-001 MS Sample Id: 660264-001 S MSD Sample Id: 660264-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	59.6	25.0	82.7	92	82.7	92	75-125	0	20	mg/L	05.01.2020 18:00	

MS/MSD Percent Recovery [D] = 100*(C-A) / B

Relative Percent Difference RPD = 200* | (C-E) / (C+E) |

LCS/LCSD Recovery [D] = 100 * (C) / [B]

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample

A = Parent Result

C = MS/LCS Result

E = MSD/LCSD Result

MS = Matrix Spike

B = Spike Added

D = MSD/LCSD % Rec

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Attachment A Laboratory Data Package Cover Page

Project Name: **Twin Oaks PP** Laboratory Number: **660223**

This Data package consists of : Laboratory Batch No(s): **7702503, 3125125, 7702483, 3124764, 7702**

This signature page, the laboratory review checklist, and the following reportable data:

[X] R1 Field chain-of-custody documentation;

[X] R2 Sample identification cross-reference;

[X] R3 Test reports (analytical data sheets) for each environmental sample that includes:
- a) Items consistent with NELAC 5
- b) dilution factors,
- c) preparation methods,
- d) cleanup methods, and
- e) if required for the project, tentatively identified compounds (TICs).

[X] R4 Surrogate Recovery data including:
- a) Calculated recovery (%R), and
- b) The laboratory's surrogate QC limits.

[X] R5 Test reports/summary forms for blank samples;

[X] 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.

[X] 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

[X] R8 Laboratory anaytical 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.

[X] R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;

[X] R10 Other problems or anomalies.

[X] Exception Report for every "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.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC 25.6 and was last inspection by [ ] TCEQ or [ ] _____ on (enter date of last inspection). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The offical signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Chad Bechtold	Chad A. Bechtold	**Project Manager**	**07242020**
Name (Printed)	Signature	Official Title (printed)	Date

A1

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	EUROFINS XENCO, LLC	LRC Date :	07242020
Project Name:	Twin Oaks PP	Laboratory Job Number :	660223
Reviewer Name:	CBE	Batch Number(s) :	7702503, 3125125, 7702483, 3124764, 7702610

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (COC)**					
		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	**Sample and Quality Control (QC) Identification**					
		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	**Test Reports**					
		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 soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, were TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency ?	X				
		Were method blanks taken through the entire analytical procedure, including preparation and, if applicable, cleanup procedures ?	X				
		Were Blank Concentrations <MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		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 the QC limits?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data**					
		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			1
		Were MS/MSD RPDs within the laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		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	**Method Quantitation Limits (MQLs)**					
		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	**Other Problems/Anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	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				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	EUROFINS XENCO, LLC	LRC Date :	07242020
Project Name:	Twin Oaks PP	Laboratory Job Number :	660223
Reviewer Name:	CBE	Batch Number(s) :	7702503, 3125125, 7702483, 3124764, 7702610

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		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 the 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	**Initial and Continuing Calibration Verification (ICCV and CCV) and continuing calibration blank (**					
		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	**Mass Spectral Tuning**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal Standard (IS)**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw Data (NELAC 5.5.10)**					
		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	**Dual Column Confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs)**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial Dilutions, Post Digestions Spikes, and Method of Standard Additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method Detection Limit (MDL) Studies**					
		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	**Proficiency Test Reports**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		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	**Verification/Validation Documentation for Methods (NELAC Chapter 5)**					
		Are all methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs)**					
		Are laboratory SOPs current and on file for each method performed?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted to the TCEQ-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).

Attachment A (cont'd): Laboratory Review Checklist: Exception Reports

Laboratory Name: EUROFINS XENCO, LLC	LRC Date: 07242020
Project Name: Twin Oaks PP	Laboratory Job Number: 660223
Reviewer Name: CBE	Batch Number(s) : 7702503, 3125125, 7702483, 3124764, 7702610

ER# [1]	DESCRIPTION
1	Method 300.0 Batch 3124832 The non-client batch Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries for Chloride were below control limits. However, the Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) recoveries met acceptance criteria.

1 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No is checked on the LRC).

Chain of Custody

Work Order No: 600223

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300, San Antonio, TX (210) 509-3334
Midland, TX (432) 704-5440, EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199, Phoenix, AZ (480) 355-0900
Tampa, FL (813) 620-2000, Tallahassee, FL (850) 756-0747, Delray Beach, FL (561) 689-6701
Atlanta, GA (770) 449-8800
www.xenco.com

Project Manager:	Michelle Transier	Bill to: (if different)	
Company Name:	Hydrex Envrionmental	Company Name:	
Address:	1120 NW Stallings Dr	Address:	
City, State ZIP:	Nacogdoches, TX 75964	City, State ZIP:	
Phone:	936-568-9451 Email:	mtransier@hydrex-inc.com	

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfield ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level I ☐ Level ☐ PST/US ☐ TRR ☐ Level ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Twin Oaks PP	Turn Around	
Project Number:	I-14-1007	Routine: ☐	
Project Location		Rush: ☐	
Sampler's Name:		Due Date:	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Temperature (°C):	3.8	Thermometer ID	
Received Intact:	Yes No	HCL-008	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	+0.2
Sample Custody Seals:	Yes No N/A	Total Containers:	30

Preservative Codes

HNO3: HN
H2S04: H2
HCL: HL
None: NO
NaOH: Na
MeOH: Me
Zn Acetate+ NaOH: Zn

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers/Preservative Code	Method 6010C - Calcium	Method 6020A - Boron	EPA 300.0 - Chloride, Fluoride, and Sulfate	pH by SM4500-H	SM2540C - TDS	Sample Comments
MW-7		4/28/20	1242			X	X	X	X	X	
MW-11			1312			X	X	X	X	X	
MW-12			1348			X	X	X	X	X	
MW-13			1456			X	X	X	X	X	
MW-14			1533			X	X	X	X	X	
MW-15			1602			X	X	X	X	X	
MW-16			1420			X	X	X	X	X	
MW-17			1635			X	X	X	X	X	
Duplicate			1312			X	X	X	X	X	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	FedEx	4/29/20 1600	2 FEDEX	1 Lejia Minor	4.30.2020 09:30
3			4		
5			6		

CUSTODY SEAL

Date: 4/29/20

Signature:

ENVIRONMENTAL SAMPLING SUPPLY
www.essvial.com 800-233-8425

ORIGIN ID:LFKA (936) 568-9451
DONNY SMITH
HYDREX ENVIRONMENTAL
1120 NW STALLINGS DRIVE

NACOGDOCHES, TX 75964
UNITED STATES US

SHIP DATE: 23APR20
ACTWGT: 25.00 LB
CAD: 110260796/INET4

BILL SENDER

TO SAMPLE CUSTODIAN
XENCO
4143 GREENBRIAR DR

STAFFORD TX 77477
(281) 240-4200
REF TWIN OAKS
INV
PO
DEPT

FRI - 24 APR
PRIORITY OVE

TRK# 7703 0796 0616
0201

AB SGRA

TX-US

CUSTODY SEAL

Date: 4/29/20

Signature:

ENVIRONMENTAL SAMPLING SUPPLY
www.essvial.com 800-233-8425

ORIGIN ID:LFKA (936) 568-9451
DONNY SMITH
HYDREX ENVIRONMENTAL
1120 NW STALLINGS DRIVE

NACOGDOCHES, TX 75964
UNITED STATES US

SHIP DATE: 27APR20
ACTWGT: 50.00 LB
CAD: 110260796/INET4220

BILL SENDER

TO SAMPLE CUSTODIAN
XENCO
4143 GREENBRIAR DR

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

TUE - 28 A
PRIORITY O

TRK# 7703 2633 6919
0201

AB SGRA

TX

FedEx Ship Manager - Print Your Label(s)

4/27/2020

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Hydrex Environmental

Date/ Time Received: 04.30.2020 09.30.00 AM

Work Order #: 660223

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : HOU-068

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.8
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**Yes**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**No**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: LSR

PH Device/Lot#: 10BDH0891

Checklist completed by: Lesia Minor — Date: 04.30.2020

Checklist reviewed by: Chad Bechtold — Date: 05.04.2020

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Analytical Report 666916

for

Hydrex Environmental

Project Manager: Michelle Transier

Twin Oaks VRS

I-14-1007

07.24.2020

Collected By: Client

4147 Greenbriar Dr.
Stafford, TX 77477

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

07.24.2020

Project Manager: **Michelle Transier**
Hydrex Environmental
1120 NW Stallings Dr
Nacogdoches, TX 75964

Reference: Eurofins Xenco, LLC Report No(s): **666916**
Twin Oaks VRS
Project Address:

Michelle Transier:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 666916. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 666916 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Chad A. Bechtold

Chad Bechtold
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Sample Cross Reference 666916

Hydrex Environmental, Nacogdoches, TX

Twin Oaks VRS

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-14	W	07.09.2020 13:37		666916-001

CASE NARRATIVE SUMMARY

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Client Name: ***Hydrex Environmental***

Project Name: ***Twin Oaks VRS***

Project ID:	*I-14-1007*	*Report Date:*	*07.24.2020*
Work Order Number:	*666916*	*Date Received:*	*07.10.2020*

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. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

Report Revision: The laboratory supplied Chain of Custody had Ammonia listed instead of Sulfate. Per client request the laboratory performed Sulfate anaylsis by Method 300.0. The Ammonia results were removed from the report since they were not needed or requested for the sample kit.

Report Revision: The report format was changed.

Chad Bechtold
Project Manager

Certificate of Analytical Results 666916

Hydrex Environmental, Nacogdoches, TX

Twin Oaks VRS

Sample Id: **MW-14** Matrix: Water Date Received:07.10.2020 09:45

Lab Sample Id: 666916-001 Date Collected: 07.09.2020 13:37

Analytical Method: Sulfate by EPA 300.0 Prep Method: E300P

Tech: JYM % Moisture:

Analyst: JYM Date Prep: 07.17.2020 08:19

Seq Number: 3131912

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sulfate	14808-79-8	**448**	10.0	mg/L	07.17.2020 09:53	D	20

Analytical Method: TDS by SM2540C

Tech: YAV % Moisture:

Analyst: YAV

Seq Number: 3131749

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**1490**	5.00	mg/L	07.15.2020 13:00		1

Hydrex Environmental

Twin Oaks VRS

Analytical Method: **Sulfate by EPA 300.0** Prep Method: E300P
Seq Number: 3131912 Matrix: Water Date Prep: 07.17.2020
MB Sample Id: 7707517-1-BLK LCS Sample Id: 7707517-1-BKS LCSD Sample Id: 7707517-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Sulfate	<0.500	10.0	10.4	104	10.4	104	90-110	0	20	mg/L	07.17.2020 08:15	

Analytical Method: **Sulfate by EPA 300.0** Prep Method: E300P
Seq Number: 3131912 Matrix: Water Date Prep: 07.17.2020
Parent Sample Id: 666916-001 MS Sample Id: 666916-001 S MSD Sample Id: 666916-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Sulfate	448	200	661	107	662	107	90-110	0	20	mg/L	07.17.2020 10:03	

Analytical Method: **TDS by SM2540C**
Seq Number: 3131749 Matrix: Water
MB Sample Id: 3131749-1-BLK LCS Sample Id: 3131749-1-BKS LCSD Sample Id: 3131749-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	959	96	964	96	80-120	1	10	mg/L	07.15.2020 13:00	

Analytical Method: **TDS by SM2540C**
Seq Number: 3131749 Matrix: Water
Parent Sample Id: 667049-001 MD Sample Id: 667049-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	2680	2630	2	10	mg/L	07.15.2020 13:00	

Analytical Method: **TDS by SM2540C**
Seq Number: 3131749 Matrix: Water
Parent Sample Id: 667144-001 MD Sample Id: 667144-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1520	1550	2	10	mg/L	07.15.2020 13:00	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Attachment A Laboratory Data Package Cover Page

Project Name: **Twin Oaks VRS** Laboratory Number: **666916**

This Data package consists of : Laboratory Batch No(s): **3131749, 7707517, 7707493**

This signature page, the laboratory review checklist, and the following reportable data:

[X] R1 Field chain-of-custody documentation;

[X] R2 Sample identification cross-reference;

[X] R3 Test reports (analytical data sheets) for each environmental sample that includes:
- a) Items consistent with NELAC 5
- b) dilution factors,
- c) preparation methods,
- d) cleanup methods, and
- e) if required for the project, tentatively identified compounds (TICs).

[X] R4 Surrogate Recovery data including:
- a) Calculated recovery (%R), and
- b) The laboratory's surrogate QC limits.

[X] R5 Test reports/summary forms for blank samples;

[X] 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.

[X] 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

[X] R8 Laboratory anaytical 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.

[X] R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;

[X] R10 Other problems or anomalies.

[X] Exception Report for every "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.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC 25.6 and was last inspection by [ ] TCEQ or [ ] _____ on (enter date of last inspection). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The offical signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Chad Bechtold	Chad A. Bechtold	**Project Manager**	**07242020**
Name (Printed)	Signature	Official Title (printed)	Date

A1

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	EUROFINS XENCO, LLC	LRC Date :	07242020
Project Name:	Twin Oaks VRS	Laboratory Job Number :	666916
Reviewer Name:	CBE	Batch Number(s) :	3131749, 7707517, 7707493

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (COC)**					
		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	**Sample and Quality Control (QC) Identification**					
		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	**Test Reports**					
		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 soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, were TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency ?	X				
		Were method blanks taken through the entire analytical procedure, including preparation and, if applicable, cleanup procedures ?	X				
		Were Blank Concentrations <MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		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 the QC limits?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data**					
		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 the laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		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	**Method Quantitation Limits (MQLs)**					
		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	**Other Problems/Anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	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				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	EUROFINS XENCO, LLC	LRC Date :	07242020
Project Name:	Twin Oaks VRS	Laboratory Job Number :	666916
Reviewer Name:	CBE	Batch Number(s) :	3131749, 7707517, 7707493

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		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 the 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	**Initial and Continuing Calibration Verification (ICCV and CCV) and continuing calibration blank (**					
		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	**Mass Spectral Tuning**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal Standard (IS)**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw Data (NELAC 5.5.10)**					
		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	**Dual Column Confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs)**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial Dilutions, Post Digestions Spikes, and Method of Standard Additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method Detection Limit (MDL) Studies**					
		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	**Proficiency Test Reports**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		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	**Verification/Validation Documentation for Methods (NELAC Chapter 5)**					
		Are all methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs)**					
		Are laboratory SOPs current and on file for each method performed?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted to the TCEQ-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).

Attachment A (cont'd): Laboratory Review Checklist: Exception Reports

Laboratory Name: EUROFINS XENCO, LLC	LRC Date: 07242020
Project Name: Twin Oaks VRS	Laboratory Job Number: 666916
Reviewer Name: CBE	Batch Number(s) : 3131749, 7707517, 7707493

ER# [1]	DESCRIPTION

1 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No is checked on the LRC).

Chain of Custody

Work Order No: 0606916

eurofins | Xenco

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300, San Antonio, TX (210) 509-3334
Midland, TX (432) 704-5440, EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199, Phoenix, AZ (480) 355-0900
Tampa, FL (813) 620-2000, Tallahassee, FL (850) 756-0747, Delray Beach, FL (561) 689-6701
Atlanta, GA (770) 449-8800

www.xenco.com Page _____ of _____

Project Manager:	Michelle Transier	Bill to: (if different)	
Company Name:	Hydrex Envrionmental	Company Name:	
Address:	1120 NW Stallings Dr	Address:	
City, State ZIP:	Nacogdoches, TX 75964	City, State ZIP:	
Phone:	936-568-9451	Email:	mtransier@hydrex-inc.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/US ☐ TRR ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Twin Oaks VRS	Turn Around	
Project Number:		Routine: ☐	
Project Location		Rush: ☐	
Sampler's Name:		Due Date:	
PO #:			

SAMPLE RECEIPT

Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):		Thermometer ID	
Received Intact:	(Yes) No	Temp: 1.4	IR ID:HOU-068
Cooler Custody Seals:	(Yes) No N/A	C/F:+0.2	
Sample Custody Seals:	Yes (No) N/A	Corrected Temp: 1.6	

ANALYSIS REQUEST

Preservative Codes

HNO3: HN
H2S04: H2
HCL: HL
None: NO
NaOH: Na
MeOH: Me
Zn Acetate+ NaOH: Zn

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers/Preservative Code	Method 350.1 - Ammonia	SM2540C - TDS	Sample Comments
MW-14	W	07-09-20	1337			X	X	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Seth Owen/Hydrex	Fedex	1745/07-09-20	FedEx	J. Munoz Lesia Munoz	7.10.20 09:45
3			4		
5			6		

Revised Date101419 Rev. 2019.1

ORIGIN ID:LFKA (936) 568-9451
DONNY SMITH
HYDREX ENVIRONMENTAL
1120 NW STALLINGS DRIVE

NACOGDOCHES, TX 75964
UNITED STATES US

SHIP DATE: 07JUL20
ACTWGT: 10.00 LB
CAD: 110260796/INET4220

BILL SENDER

TO SAMPLE CUSTODIAN
XENCO
4143 GREENBRIAR DR

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

56BJ2/17B7/FE4A

FedEx Express

J201120042401uv

WED - 08 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7708 8704 1890

DSR
77477
IAH

AB SGRA

TX-US

CUSTODY SEAL
Date 07-09-20
Signature Seth DuVall

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Hydrex Environmental

Date/ Time Received: 07.10.2020 09.45.00 AM

Work Order #: 666916

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : HOU-068

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.6
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**Yes**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**No**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: LSR PH Device/Lot#: 10BDH0891

Checklist completed by: Lesia Minor Date: 07.10.2020
Lesia Minor

Checklist reviewed by: Chad A. Bechtold Date: 07.13.2020
Chad Bechtold

April 2020 Event

Results of Statistical Calculations

Control Charts and Prediction Limits

Shewhart-Cusum Control Chart / Rank Sum

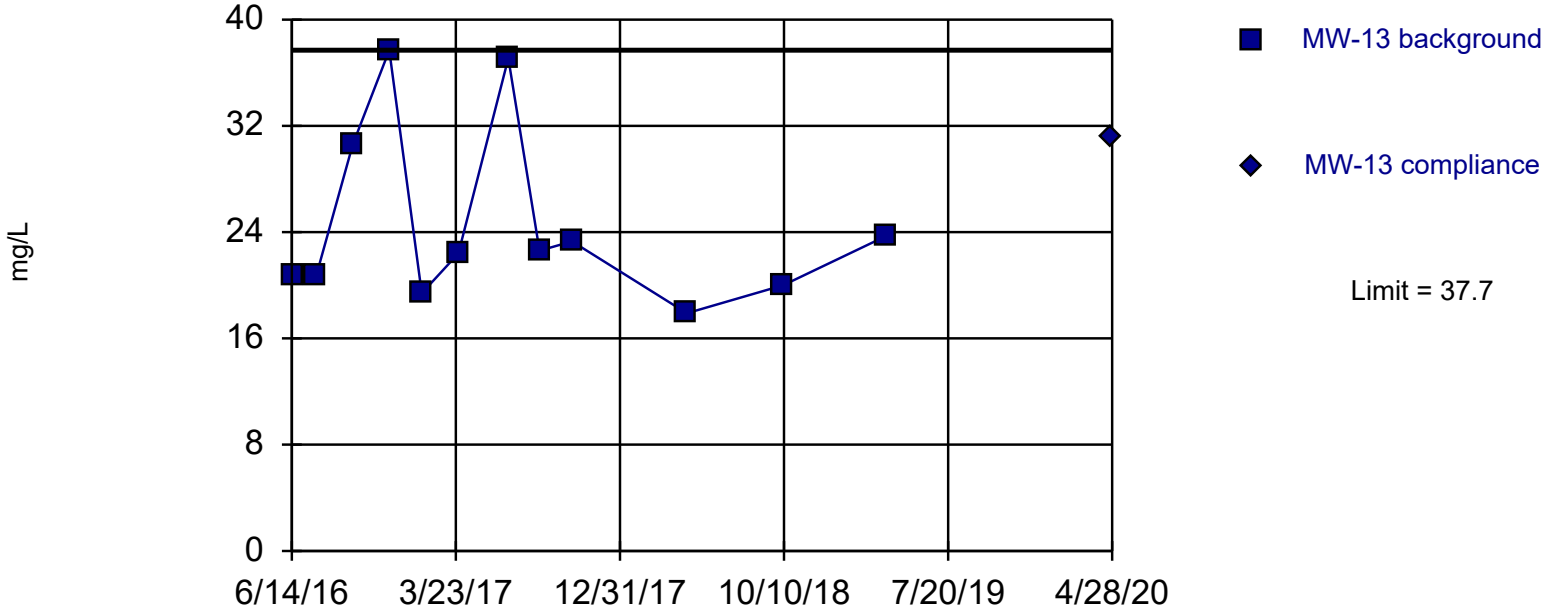
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 7/2/2020, 10:02 AM

Constituent	Well	Sig.	h	SCL	N	%NDs	Transform	Method
Calcium (mg/L)	MW-13	No	PL=...	n/a	12	0	No	NP Intra PL (normality)
Chloride (mg/L)	MW-13	No	119.4	119.4	12	0	x^3	Param Intra
Fluoride (mg/L)	MW-13	No	PL=...	n/a	12	75	No	NP Intra PL (NDs)
pH (SU)	MW-13	No	7.7...	7.7...	12	0	No	Param Intra
Sulfate (mg/L)	MW-13	No	193.1	193.1	12	8.333	No	Param Intra
Total Dissolved Solids (mg/L)	MW-13	No	660.3	660.3	12	0	No	Param Intra
Calcium (mg/L)	MW-14	No	115.2	115.2	12	0	No	Param Intra
Chloride (mg/L)	MW-14	No	436.5	436.5	12	0	No	Param Intra
Fluoride (mg/L)	MW-14	No	PL=...	n/a	12	75	No	NP Intra PL (NDs)
pH (SU)	MW-14	No	7.7...	7.7...	12	0	x^3	Param Intra
Sulfate (mg/L)	**MW-14**	**Yes**	**401.3**	**401.3**	**12**	**0**	**No**	**Param Intra**
Total Dissolved Solids (mg/L)	**MW-14**	**Yes**	**1541**	**1541**	**12**	**0**	**No**	**Param Intra**
Calcium (mg/L)	MW-15	No	28.93	28.93	12	0	No	Param Intra
Chloride (mg/L)	MW-15	No	175.8	175.8	12	0	No	Param Intra
Fluoride (mg/L)	MW-15	No	PL=0.5	n/a	12	83.33	No	NP Intra PL (NDs)
pH (SU)	MW-15	No	7.7...	7.7...	12	0	x^3	Param Intra
Sulfate (mg/L)	MW-15	No	40.2	40.2	12	0	No	Param Intra
Total Dissolved Solids (mg/L)	MW-15	No	476.9	476.9	12	0	No	Param Intra
Calcium (mg/L)	MW-17	No	555.1	555.1	12	0	sqrt(x)	Param Intra
Chloride (mg/L)	MW-17	No	1678	1678	12	0	No	Param Intra
Fluoride (mg/L)	MW-17	No	PL=0.5	n/a	12	83.33	No	NP Intra PL (NDs)
pH (SU)	MW-17	No	7.9...	7.9...	12	0	No	Param Intra
Sulfate (mg/L)	MW-17	No	160.2	160.2	12	8.333	No	Param Intra
Total Dissolved Solids (mg/L)	MW-17	No	3191	3191	12	0	No	Param Intra

Within Limit

Prediction Limit

Intrawell Non-parametric

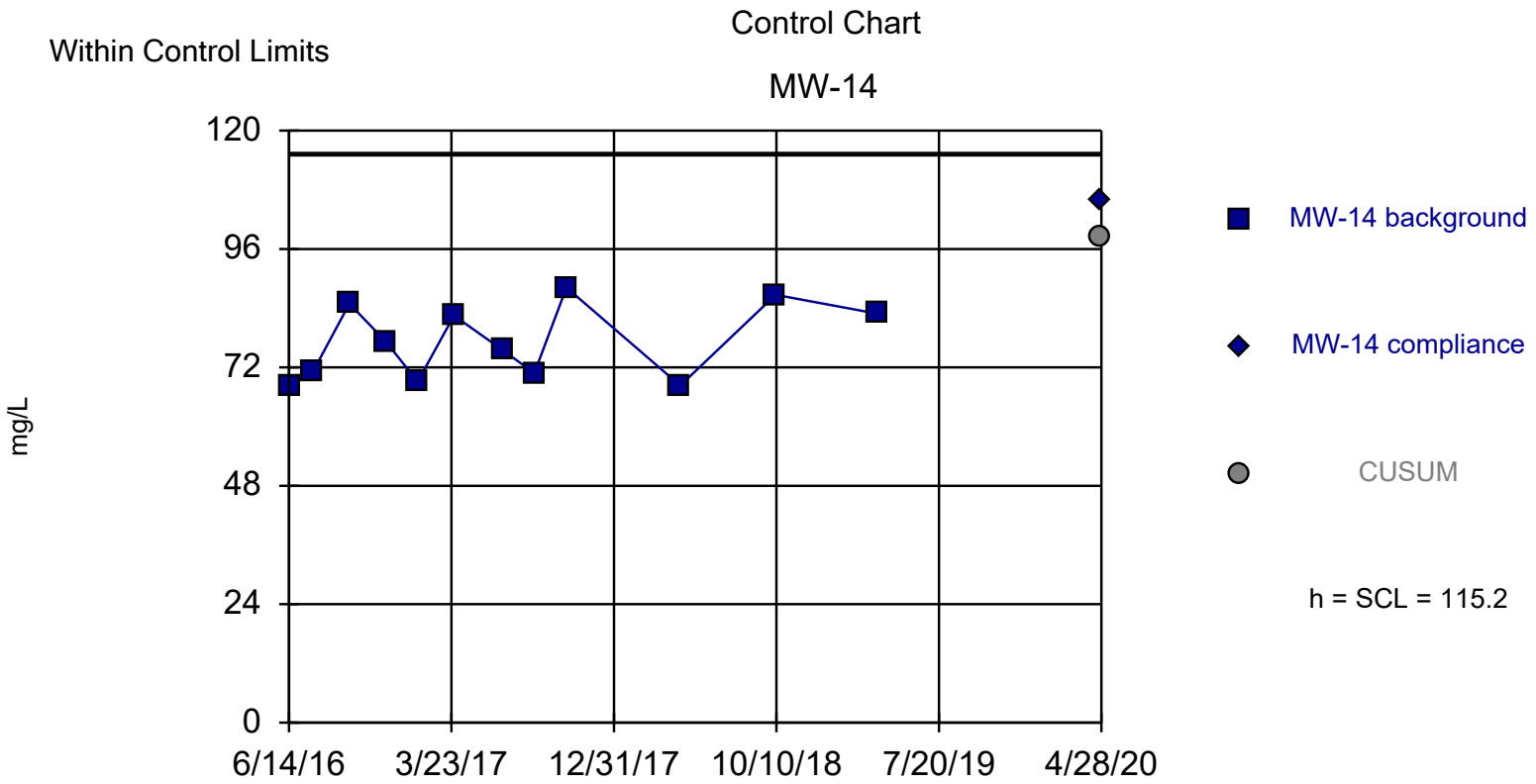


Non-parametric test used in lieu of control chart because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 12 background values. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Calcium Analysis Run 7/2/2020 9:59 AM

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

Within Control Limits

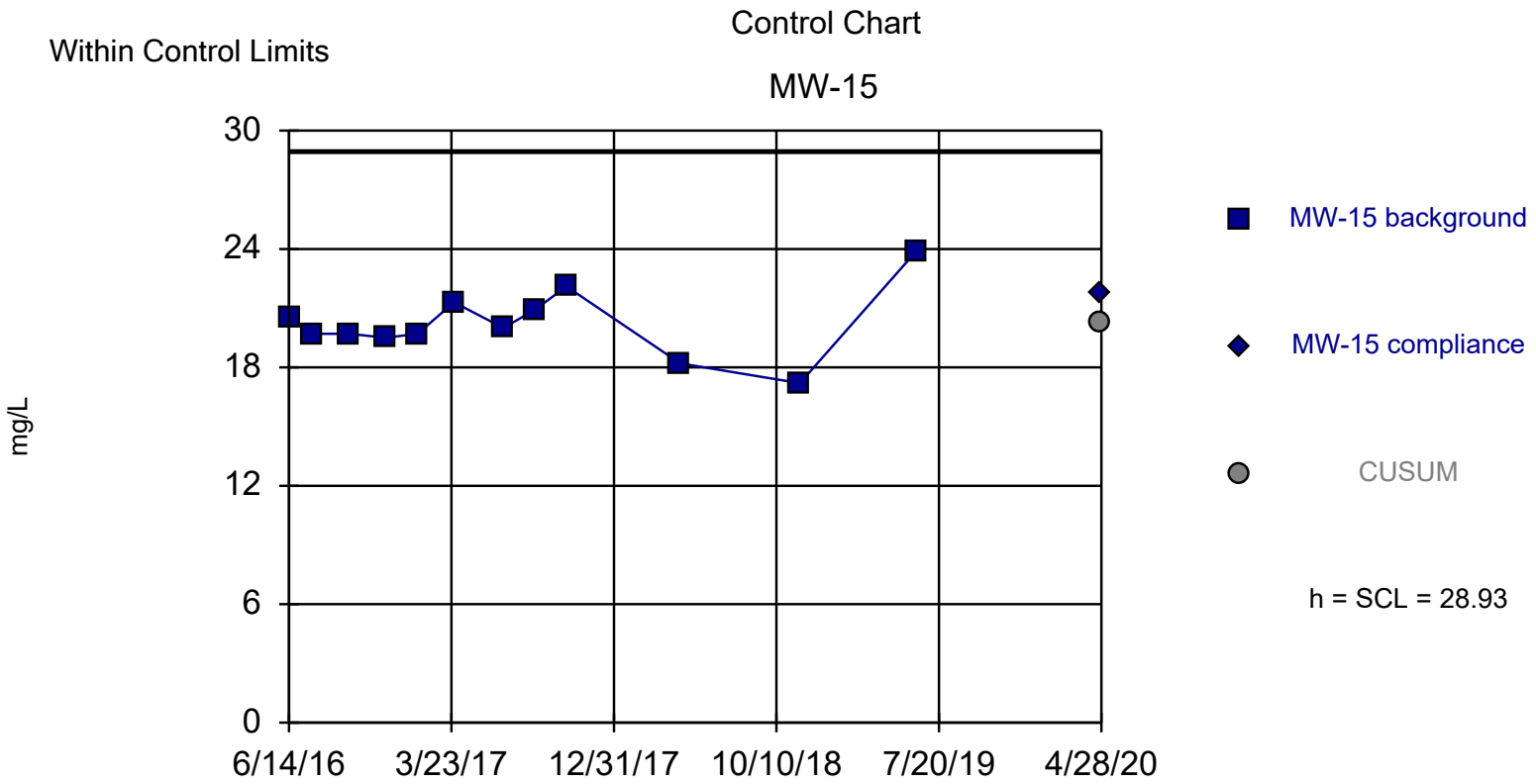


Background Data Summary: Mean=77.12, Std. Dev.=7.621, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8903, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium Analysis Run 7/2/2020 9:59 AM

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

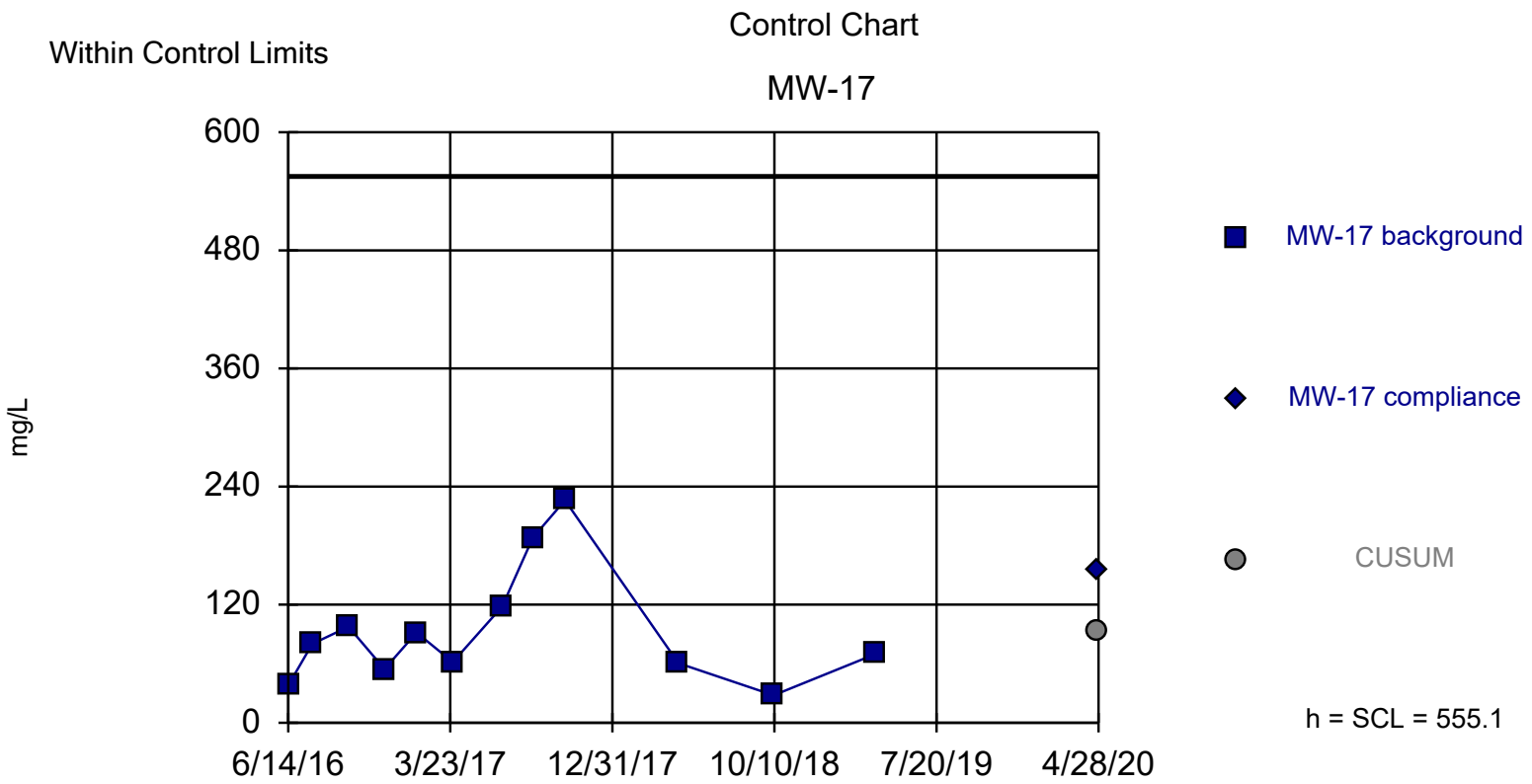
Within Control Limits



Background Data Summary: Mean=20.23, Std. Dev.=1.742, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9604, critical = 0.859. Report alpha = 0.000262. Dates ending 6/11/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium Analysis Run 7/2/2020 9:59 AM

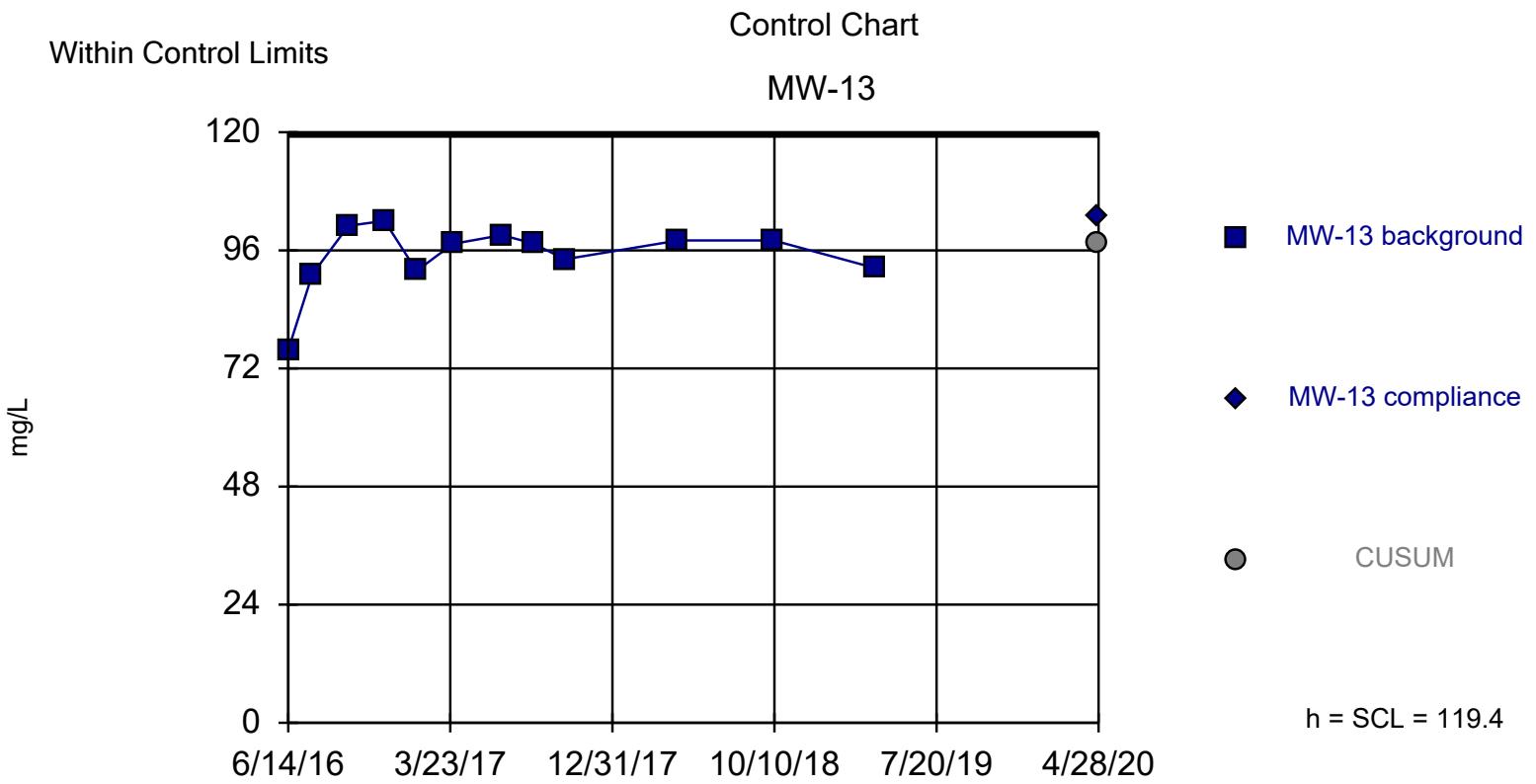
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary (based on square root transformation): Mean=9.233, Std. Dev.=2.865, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9332, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Calcium Analysis Run 7/2/2020 9:59 AM

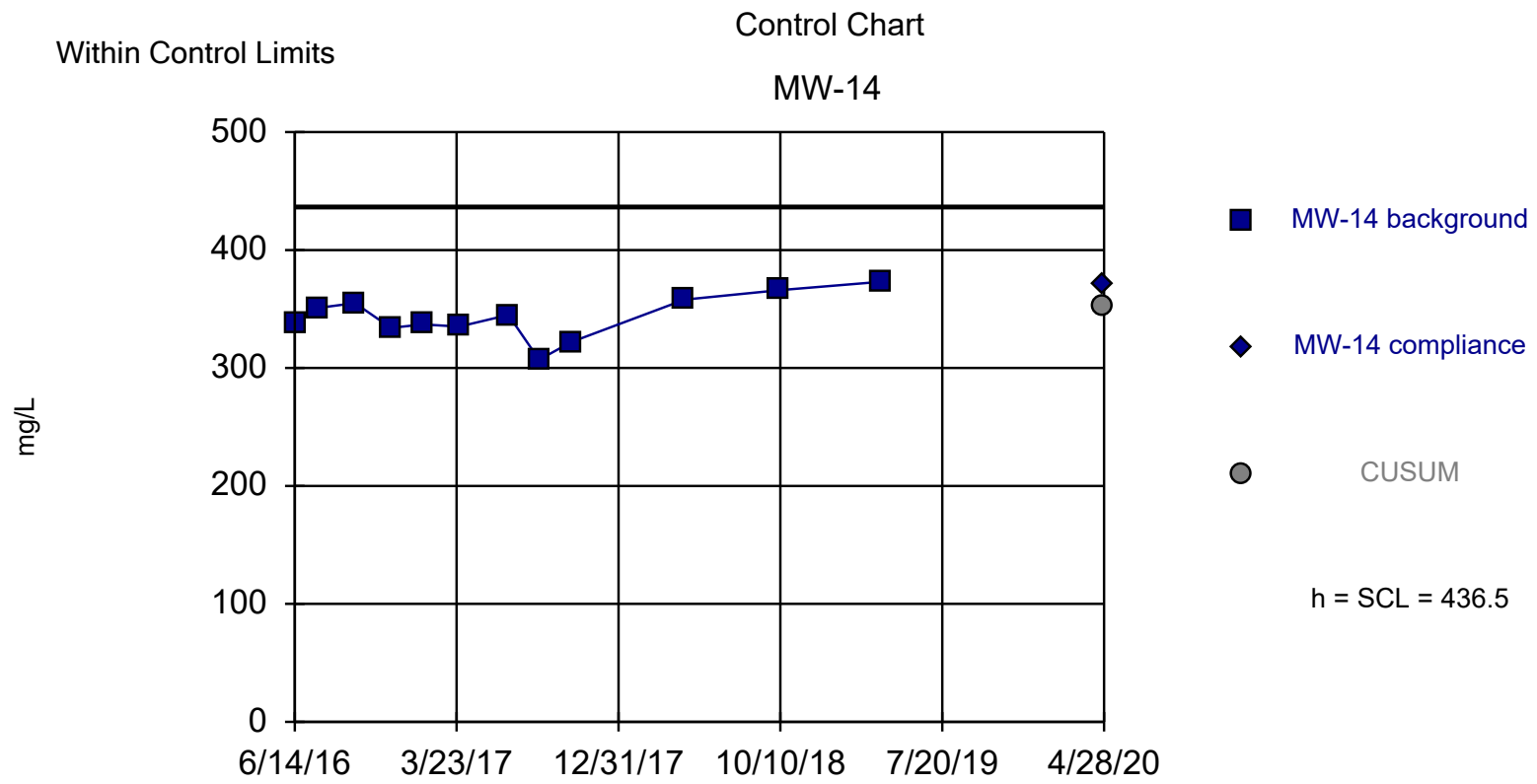
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary (based on cube transformation): Mean=865191, Std. Dev.=167087, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8621, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 7/2/2020 9:59 AM

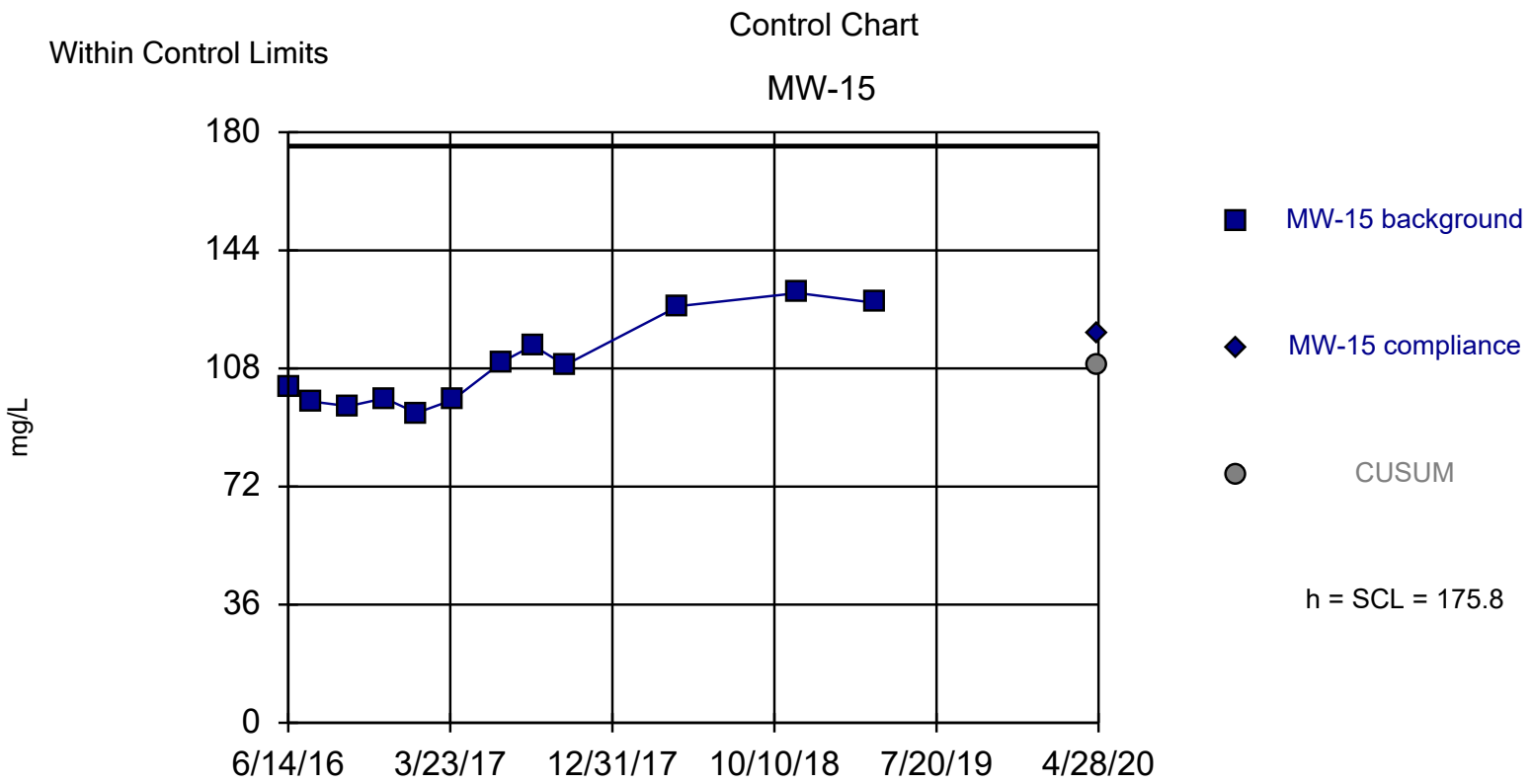
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=343.3, Std. Dev.=18.63, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9777, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 7/2/2020 9:59 AM

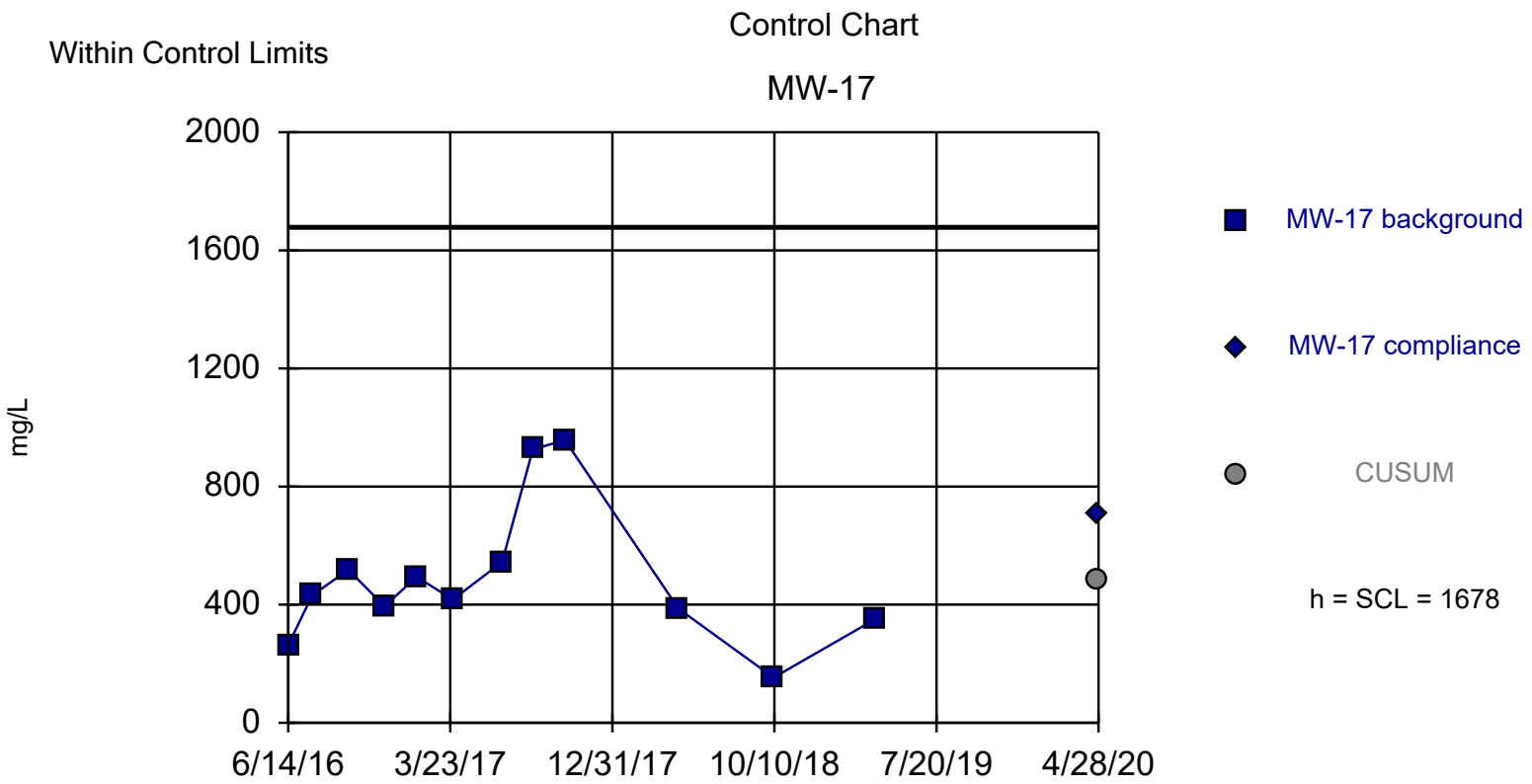
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=109, Std. Dev.=13.36, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8656, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 7/2/2020 9:59 AM

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



Background Data Summary: Mean=486.2, Std. Dev.=238.4, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8683, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 7/2/2020 9:59 AM

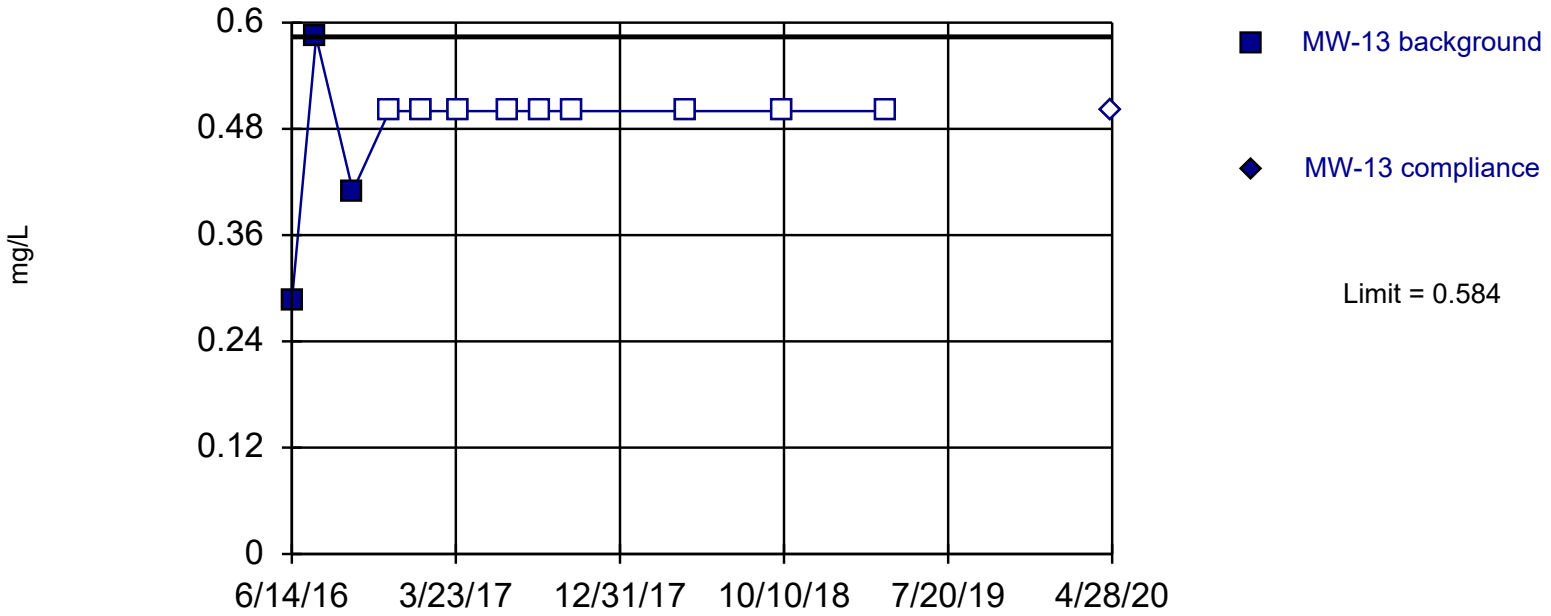
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Sanitas™ v.9.6.25 Software licensed to Hydrex Environmental. UG
Hollow symbols indicate censored values.

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 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Fluoride Analysis Run 7/2/2020 9:59 AM

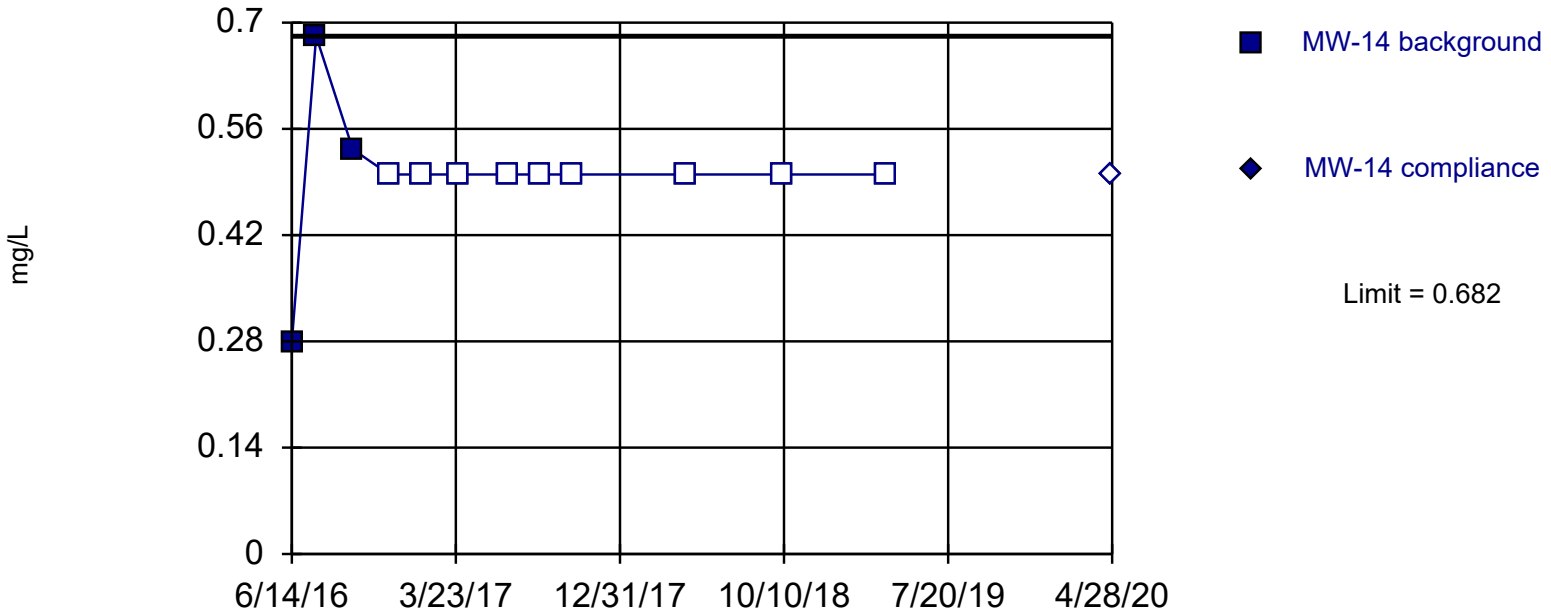
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Hollow symbols indicate censored values.

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 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Fluoride Analysis Run 7/2/2020 9:59 AM

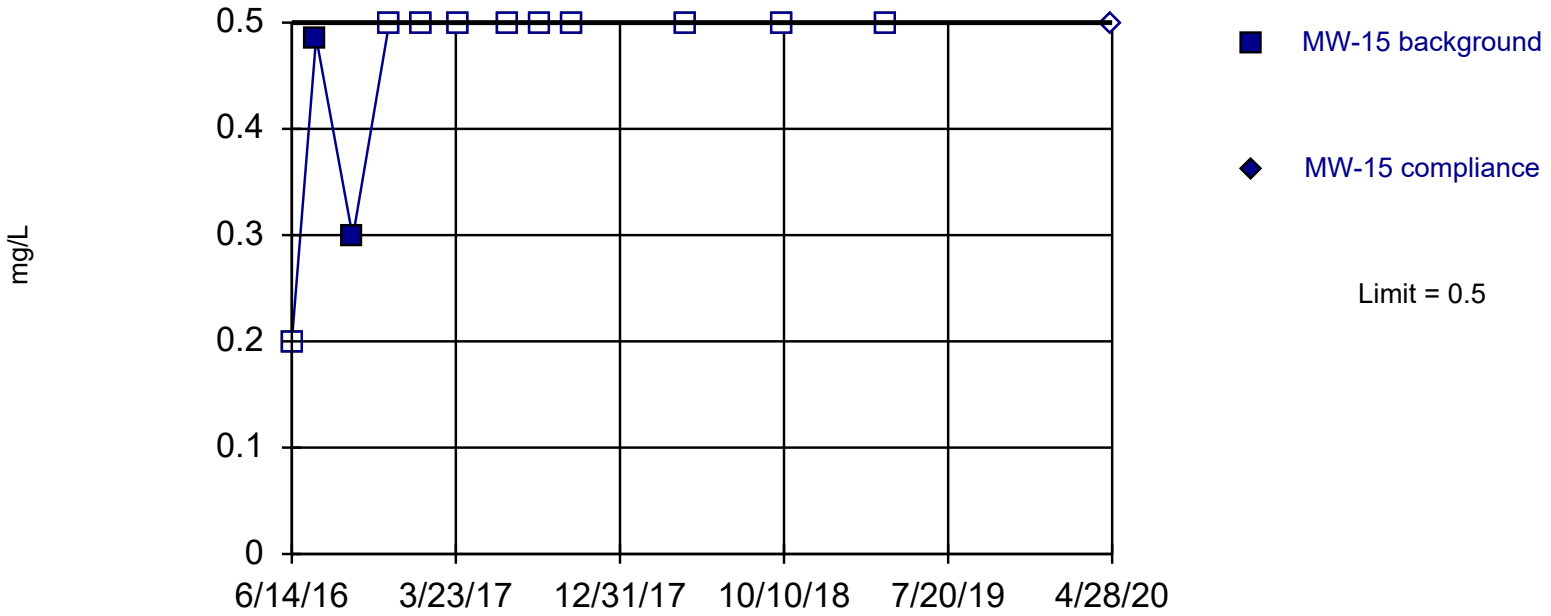
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Hollow symbols indicate censored values.

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 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Fluoride Analysis Run 7/2/2020 9:59 AM

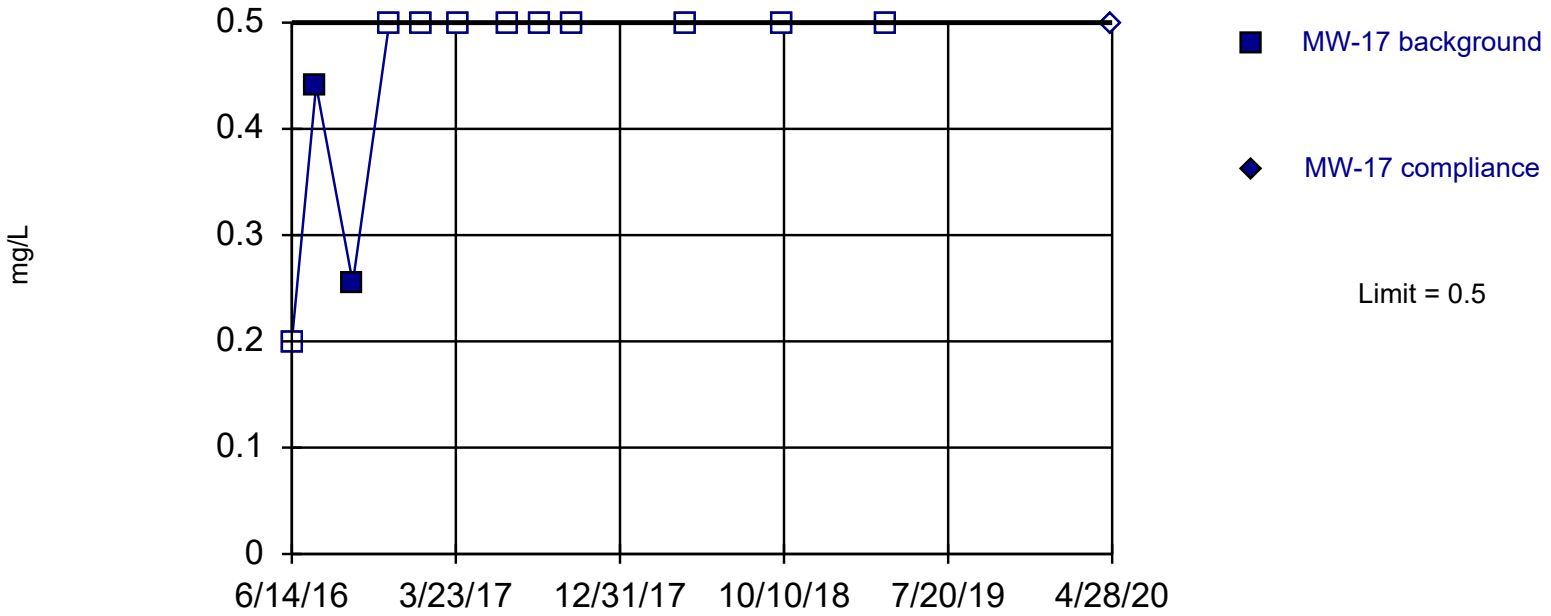
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric

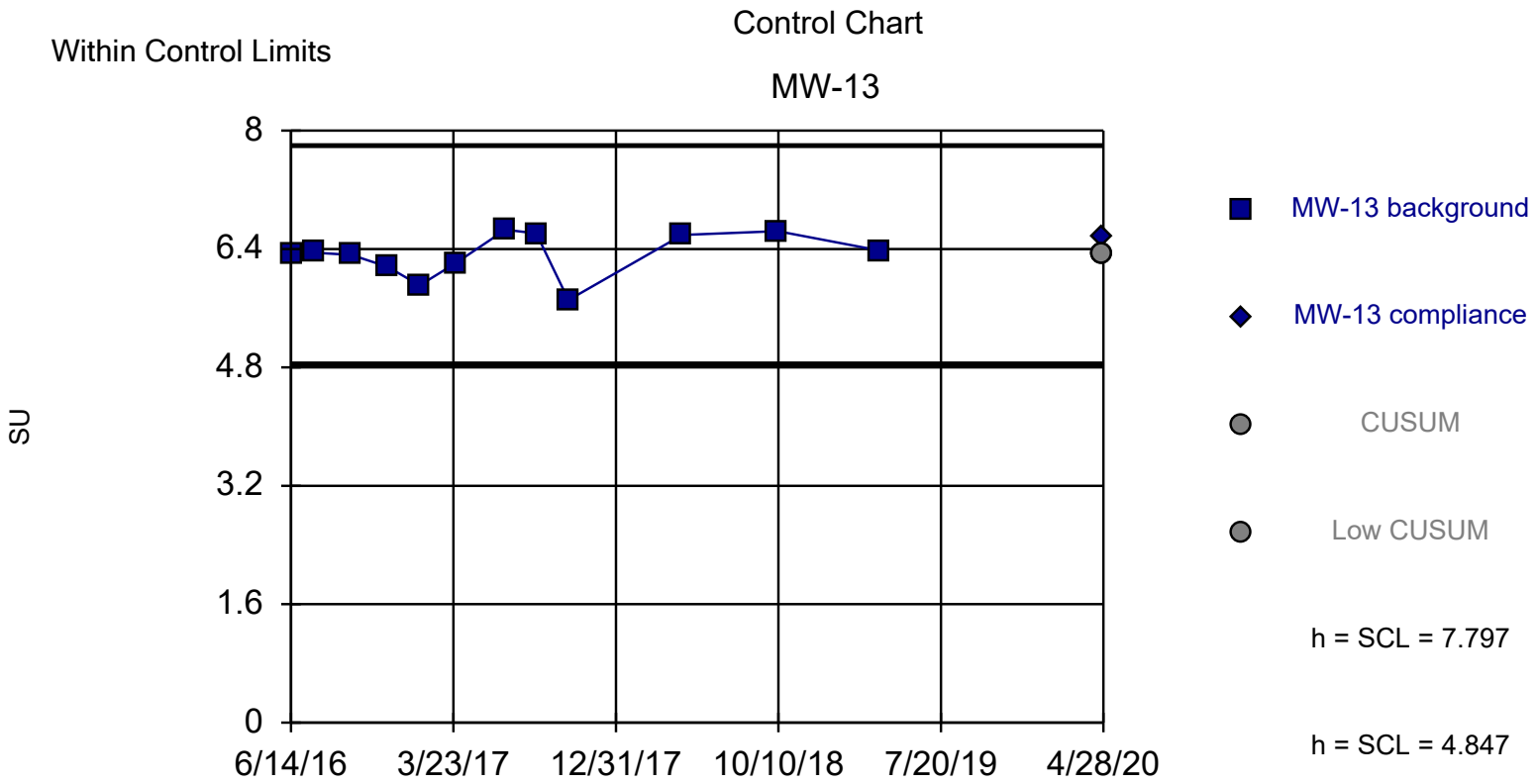


Non-parametric test used in lieu of control chart because non-detects exceed user-adjustable maximum of 50%. Limit is highest of 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Fluoride Analysis Run 7/2/2020 9:59 AM

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

Within Control Limits

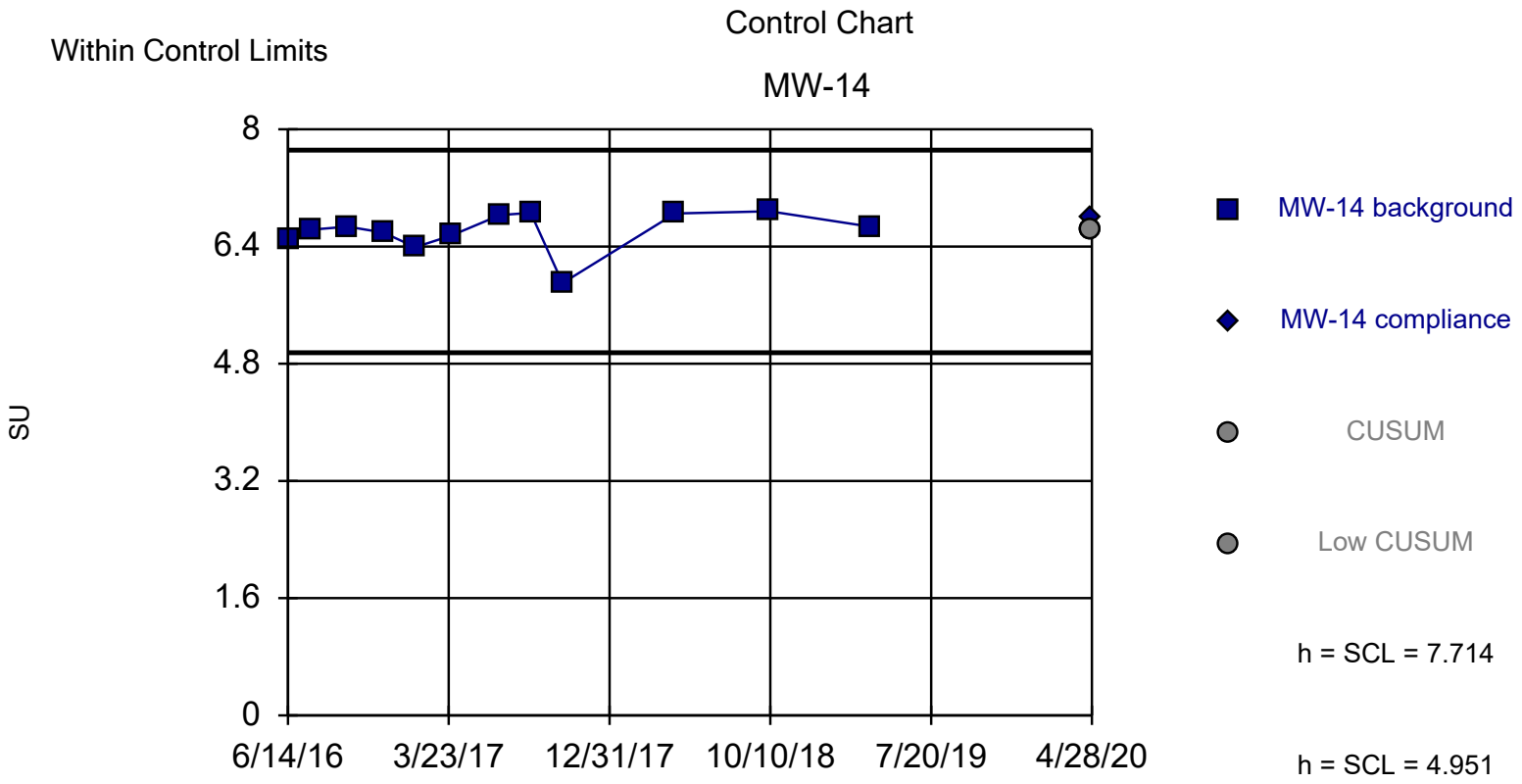


Background Data Summary: Mean=6.322, Std. Dev.=0.295, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9135, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: pH Analysis Run 7/2/2020 9:59 AM

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

Within Control Limits

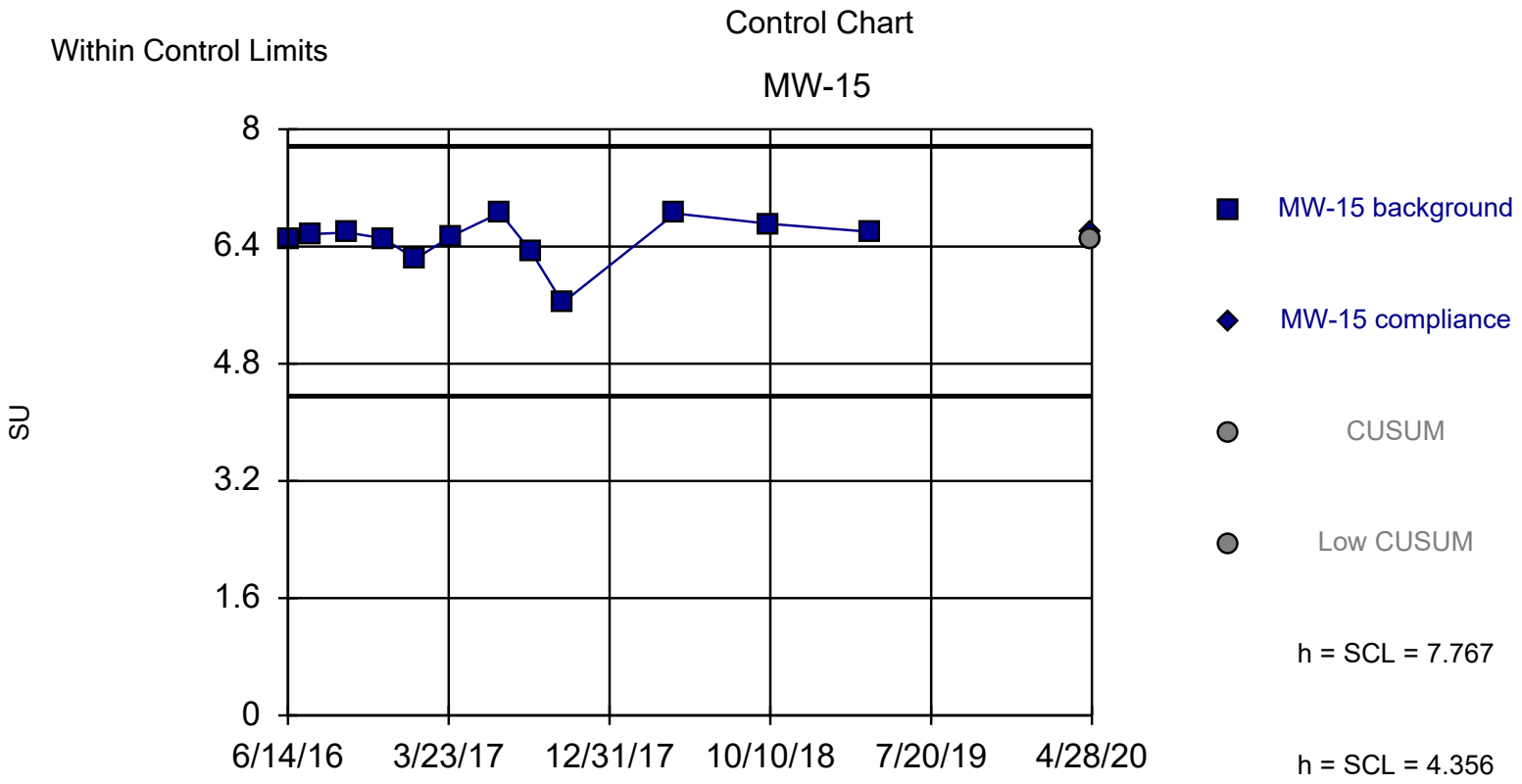


Background Data Summary (based on cube transformation): Mean=290.2, Std. Dev.=33.78, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8656, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: pH Analysis Run 7/2/2020 9:59 AM

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

Within Control Limits

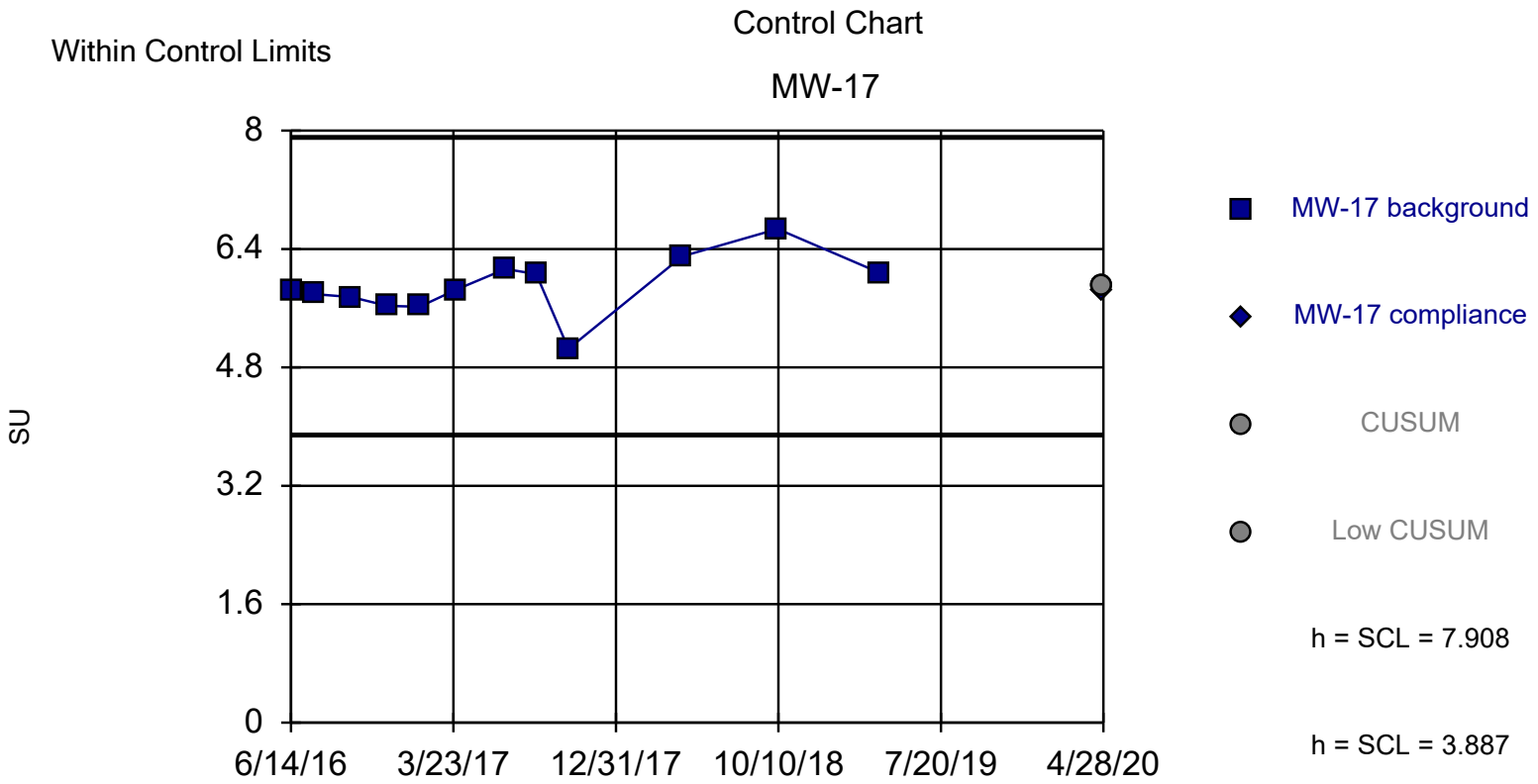


Background Data Summary (based on cube transformation): Mean=275.6, Std. Dev.=38.59, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8778, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: pH Analysis Run 7/2/2020 9:59 AM

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

Within Control Limits

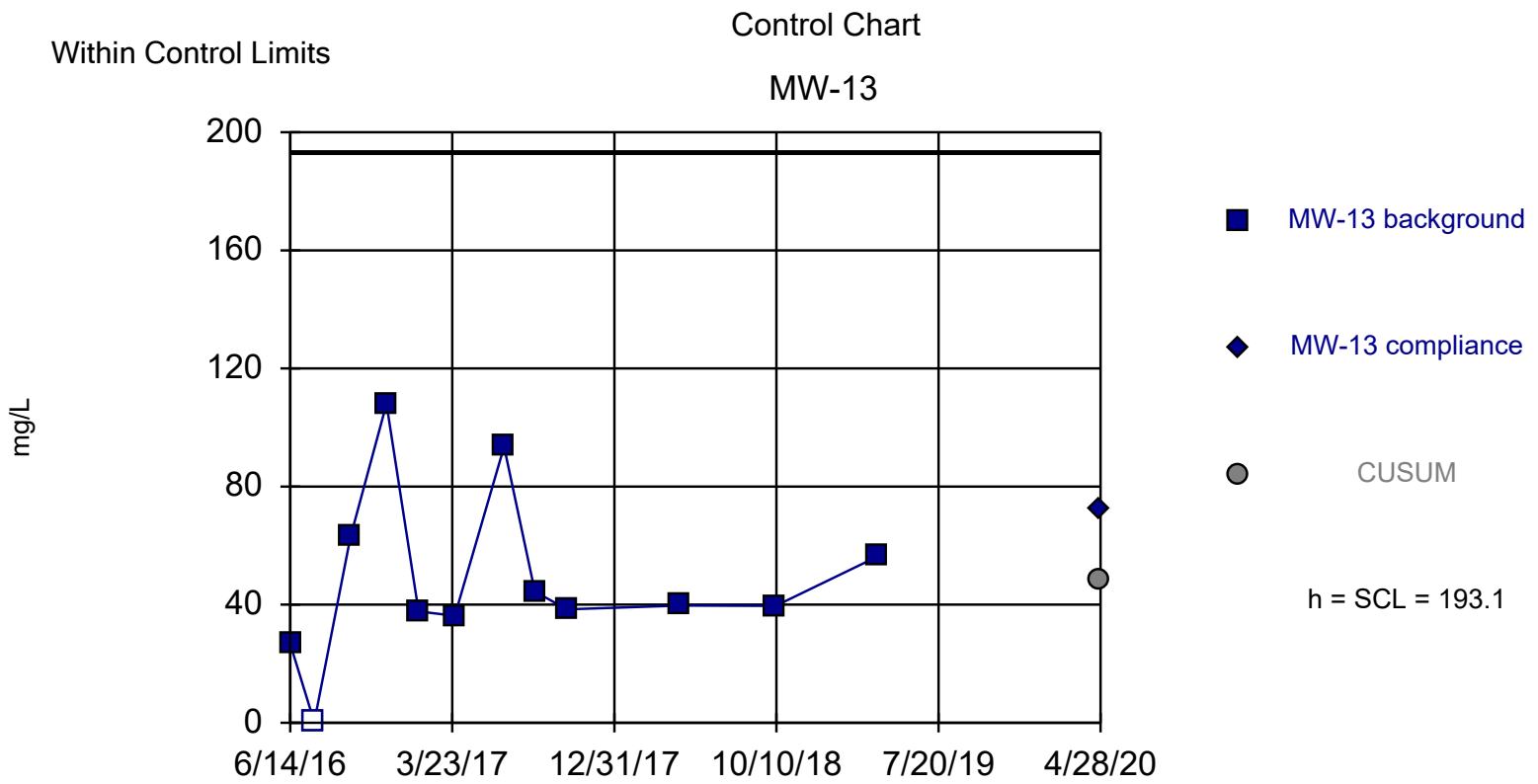


Background Data Summary: Mean=5.898, Std. Dev.=0.4021, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.962, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: pH Analysis Run 7/2/2020 9:59 AM

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

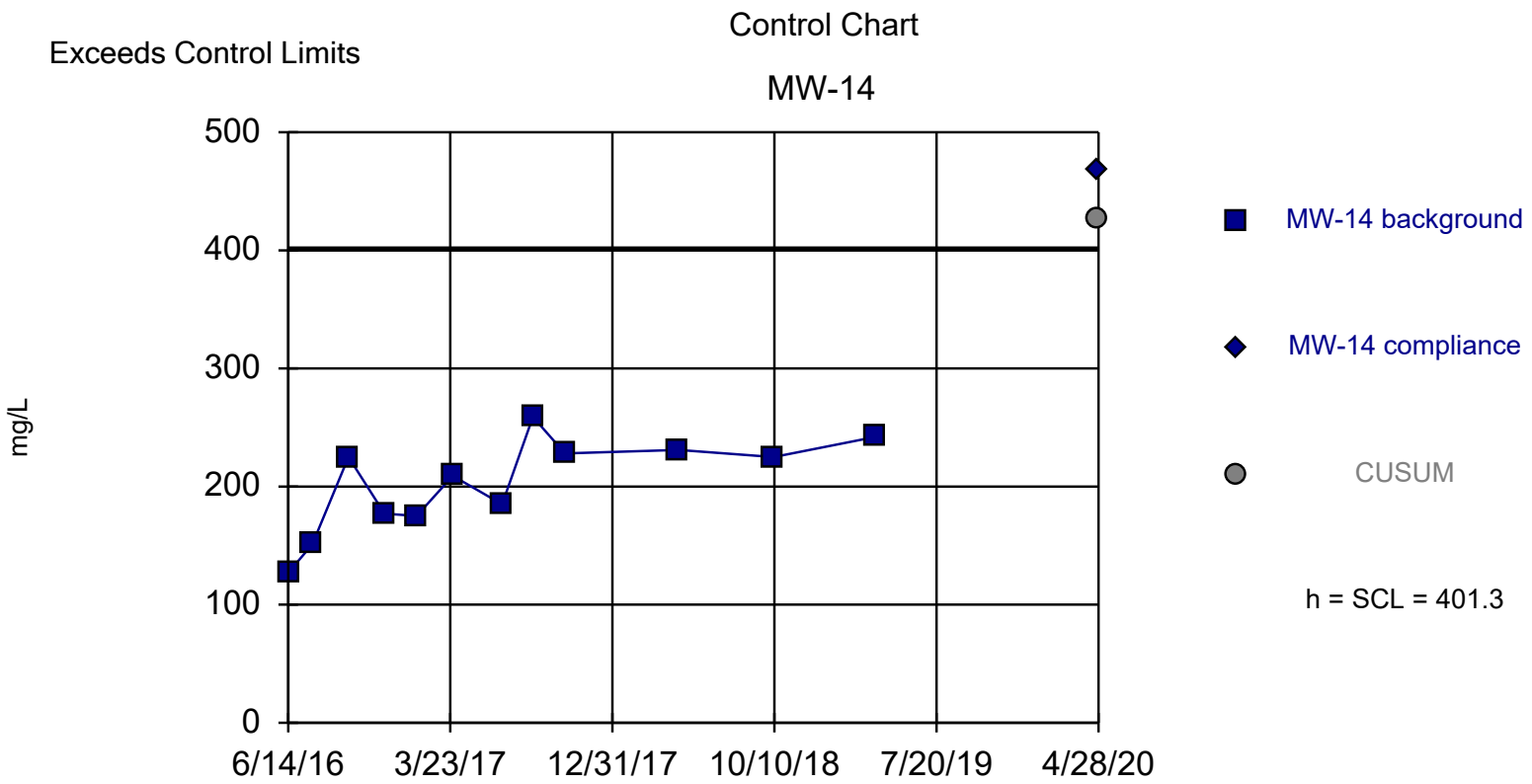
Hollow symbols indicate censored values.



Background Data Summary: Mean=48.63, Std. Dev.=28.89, n=12, 8.333% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9015, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 7/2/2020 9:59 AM

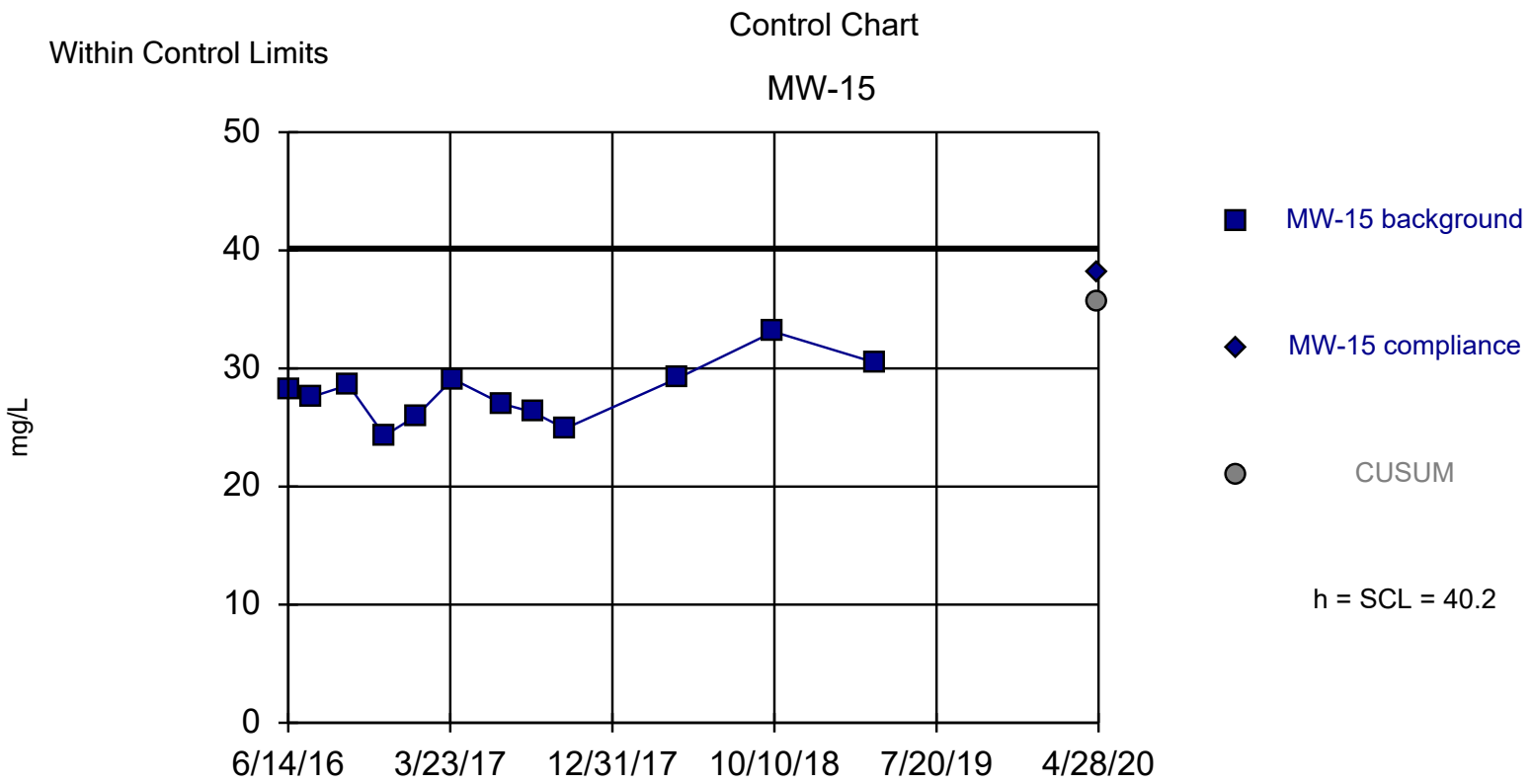
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=202.8, Std. Dev.=39.7, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9442, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 7/2/2020 9:59 AM

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

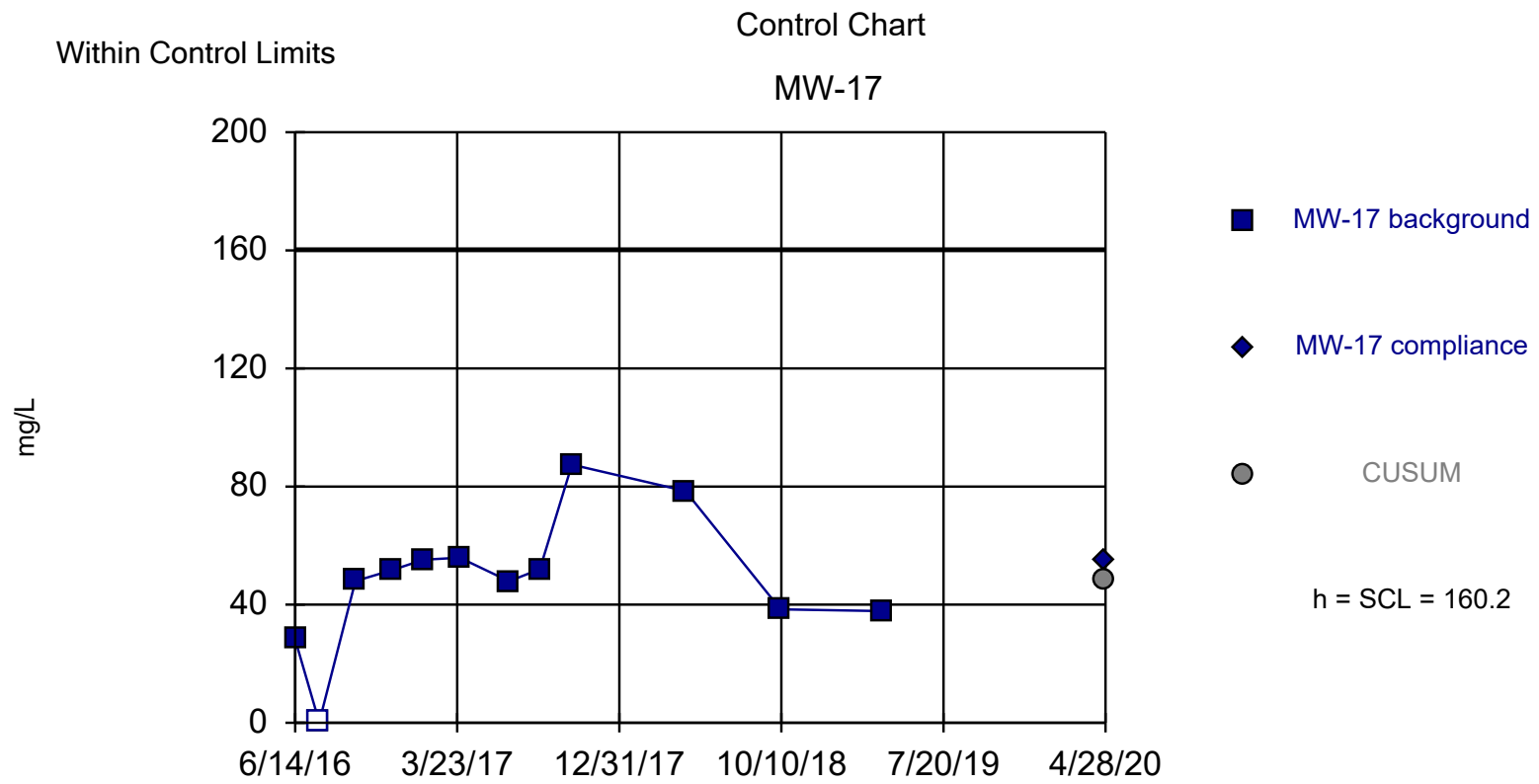


Background Data Summary: Mean=27.9, Std. Dev.=2.459, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9717, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 7/2/2020 9:59 AM

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

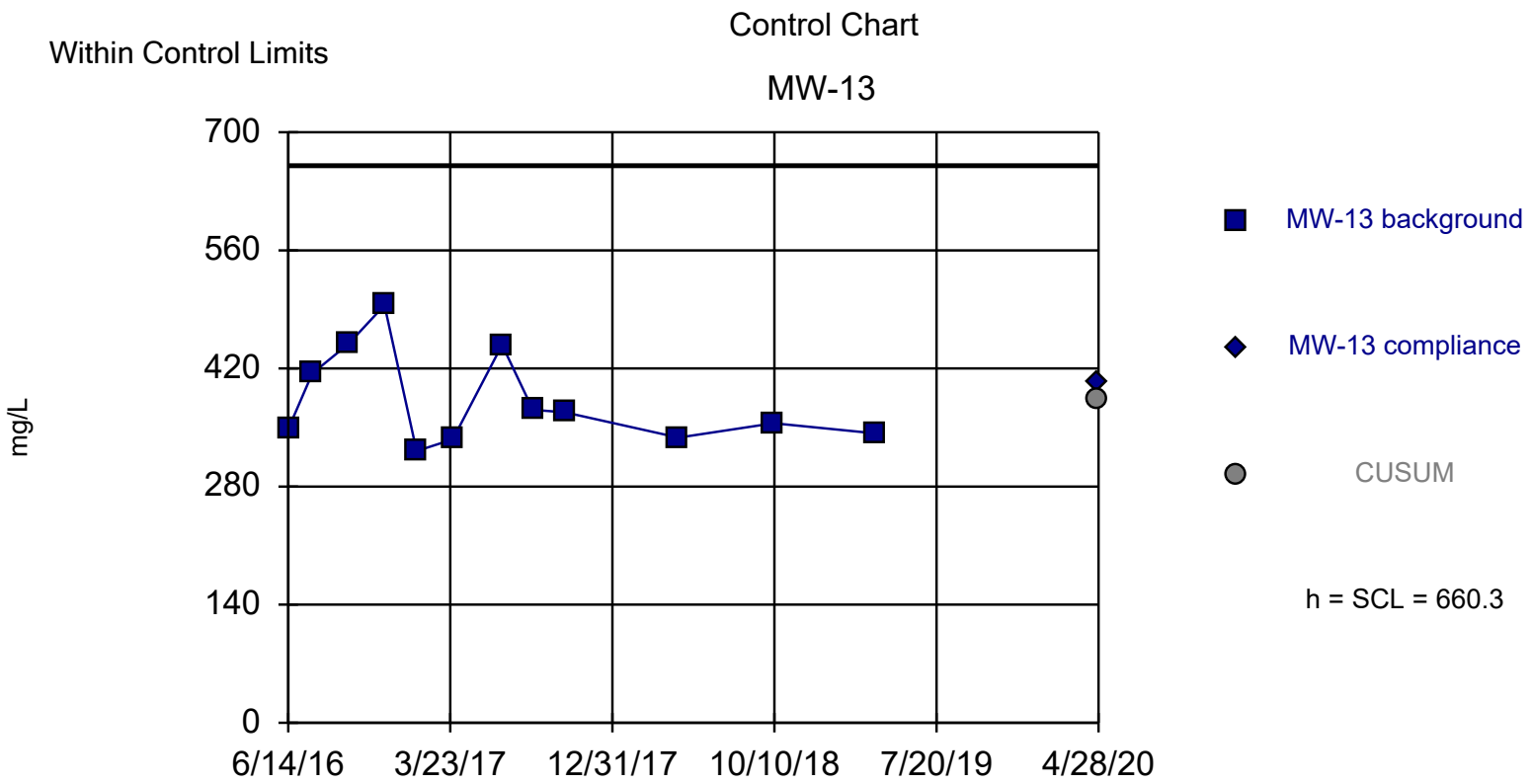
Hollow symbols indicate censored values.



Background Data Summary: Mean=48.43, Std. Dev.=22.35, n=12, 8.333% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9396, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 7/2/2020 9:59 AM

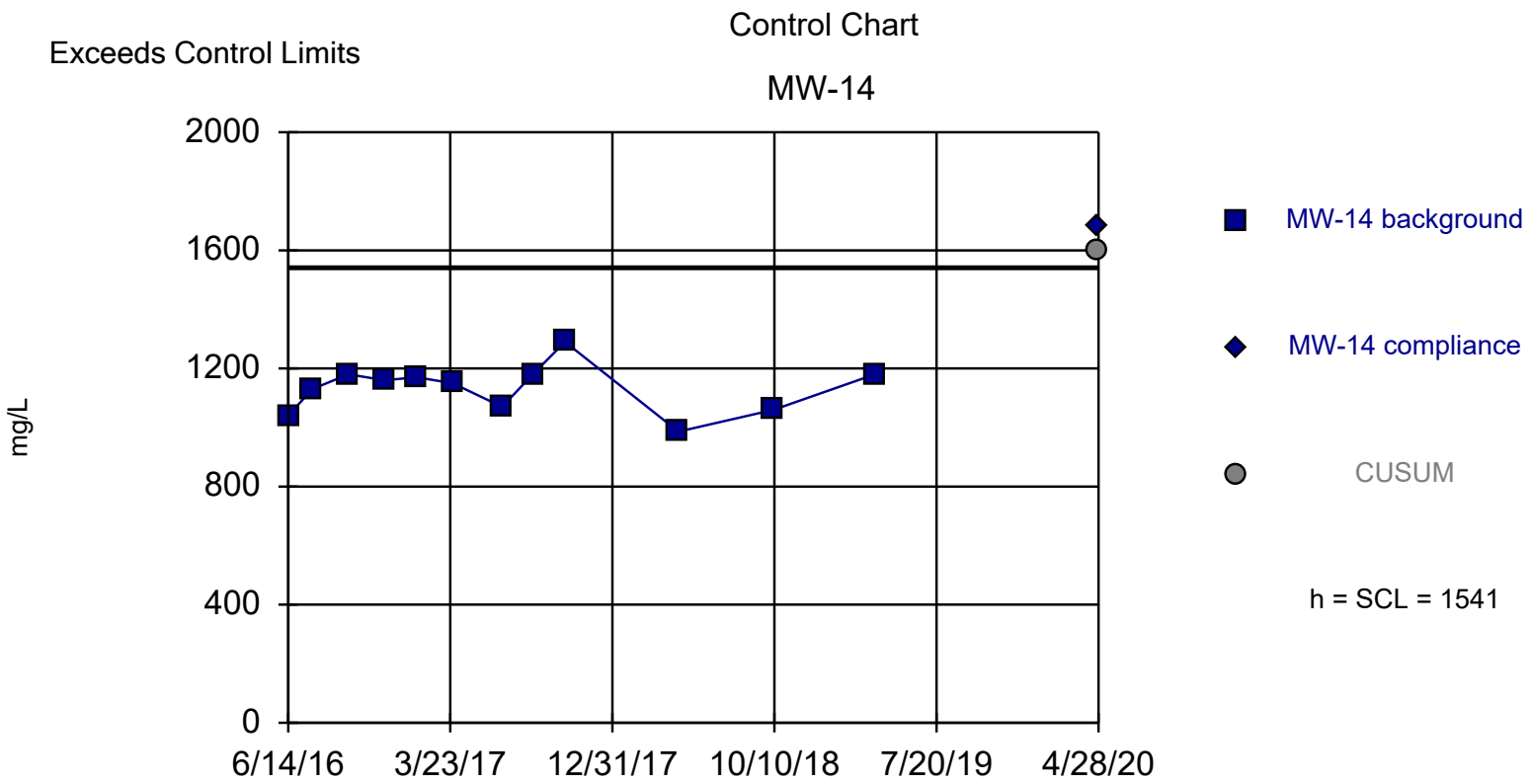
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=382.3, Std. Dev.=55.61, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8686, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/2/2020 9:59 AM

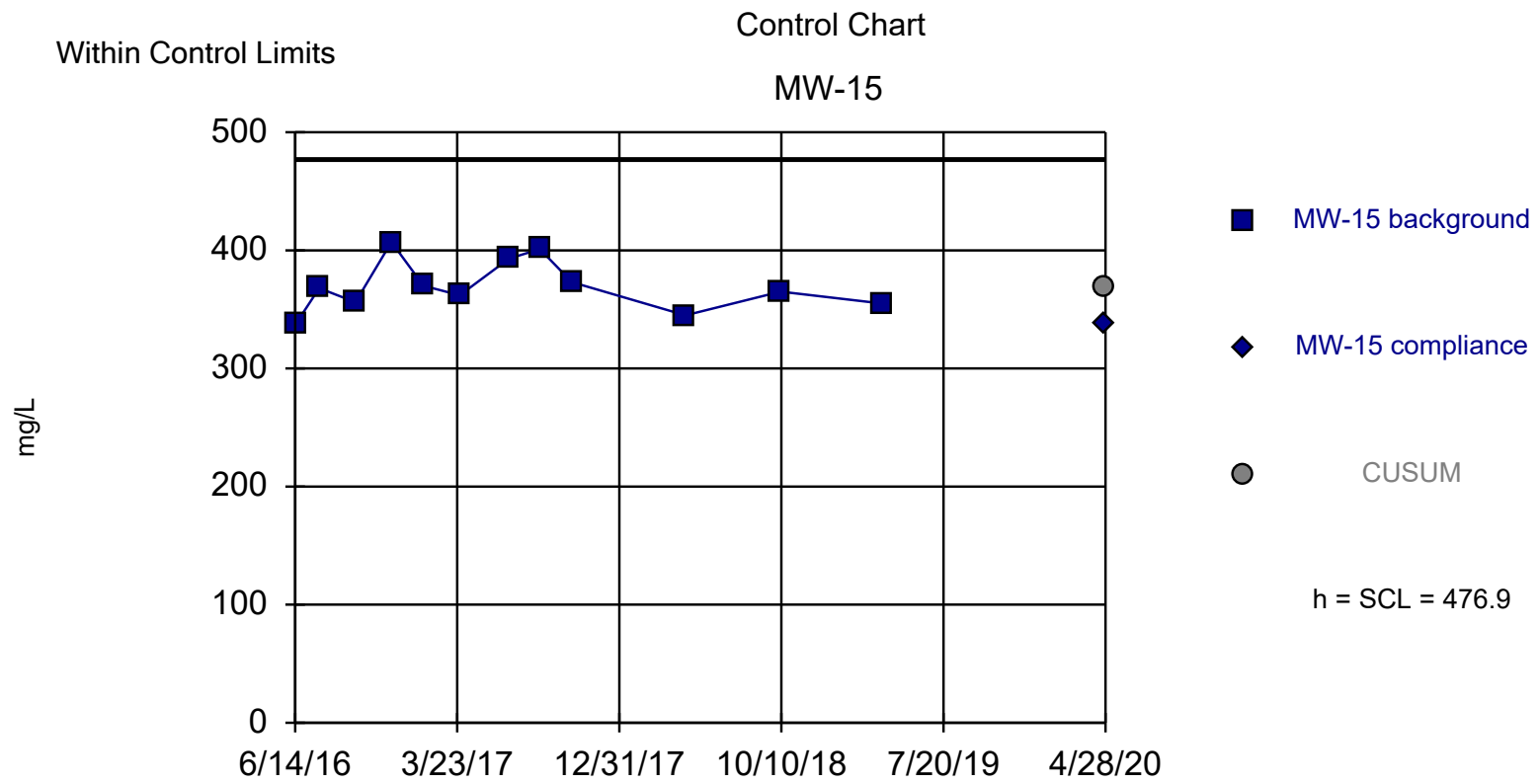
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=1133, Std. Dev.=81.59, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9416, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/2/2020 10:00 AM

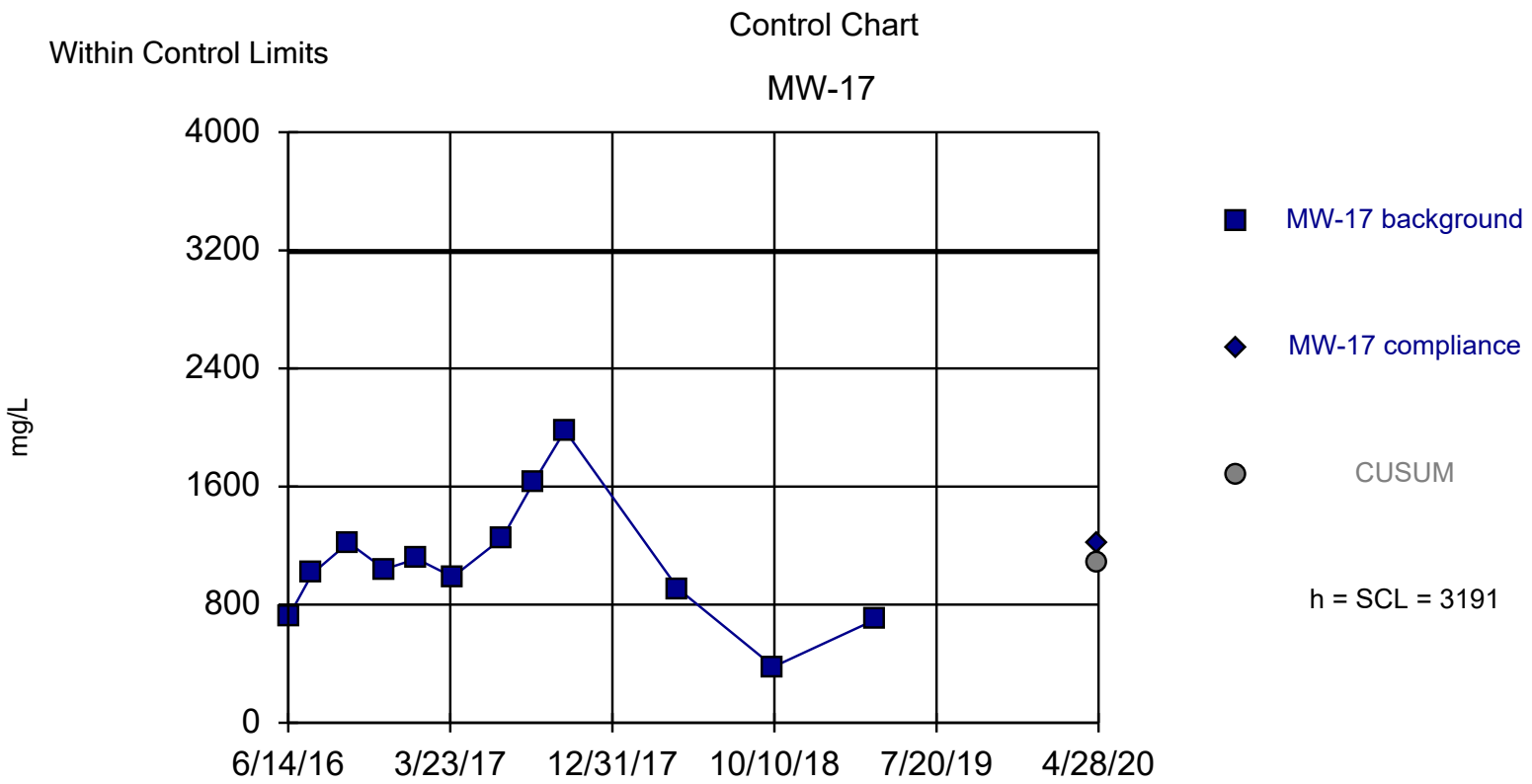
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks



Background Data Summary: Mean=369.3, Std. Dev.=21.51, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9458, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/2/2020 10:00 AM

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



Background Data Summary: Mean=1076, Std. Dev.=423, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9554, critical = 0.859. Report alpha = 0.000262. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/2/2020 10:00 AM

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

Prediction Limit

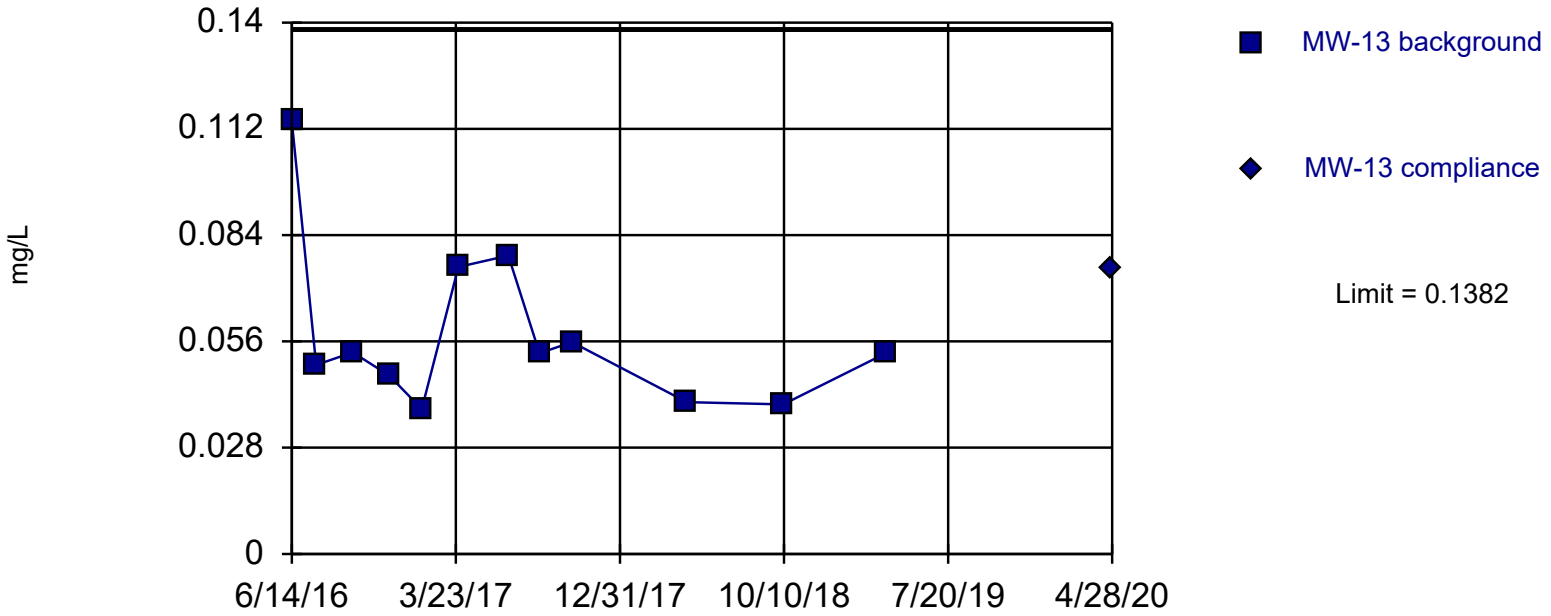
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 7/2/2020, 10:03 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	MW-13	0.1382	n/a	4/28/2020	0.075	No	12	0	sqrt(x)	0.000...	Param Intra 1 of 2
Boron (mg/L)	MW-14	0.5796	n/a	4/28/2020	0.322	No	12	0	No	0.000...	Param Intra 1 of 2
Boron (mg/L)	MW-15	0.06917	n/a	4/28/2020	0.0427	No	12	0	No	0.000...	Param Intra 1 of 2
Boron (mg/L)	MW-17	0.362	n/a	4/28/2020	0.0227	No	11	0	n/a	0.01276	NP Intra (normality) ...

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=0.2378, Std. Dev.=0.0413, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8518, critical = 0.805. Kappa = 3.243 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

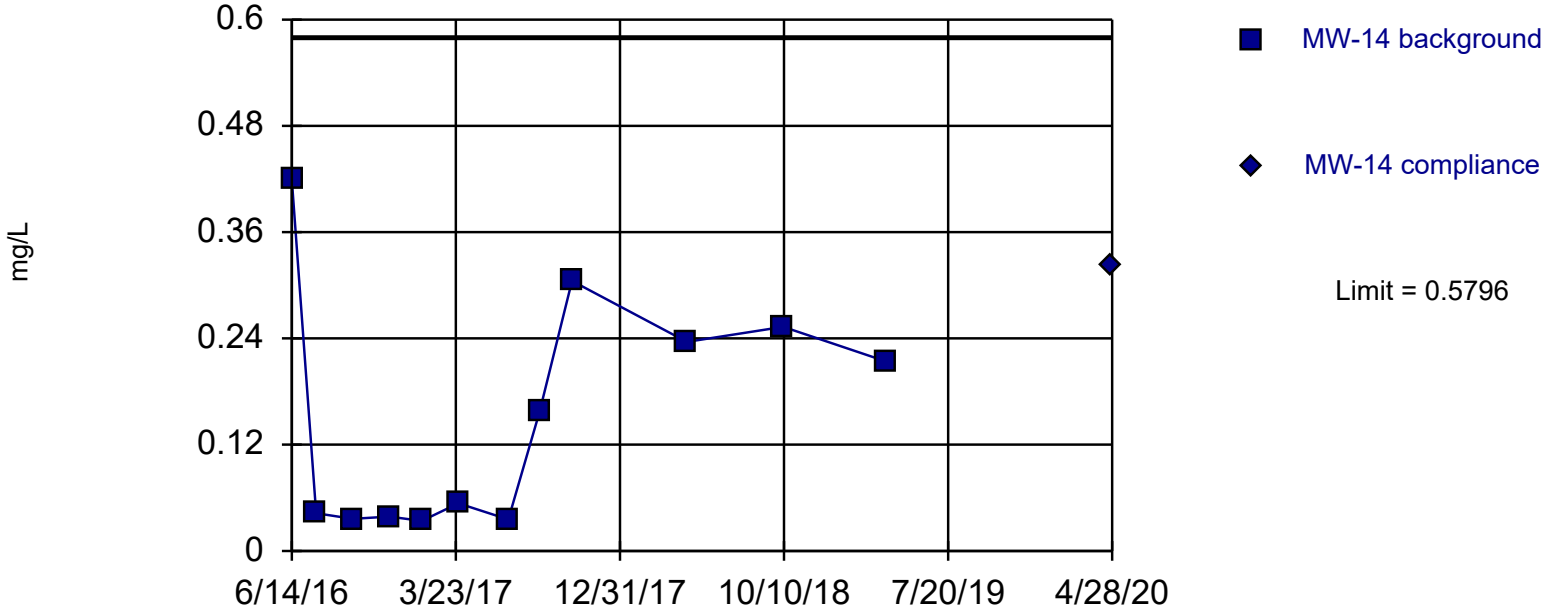
Constituent: Boron Analysis Run 7/2/2020 10:02 AM

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

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.152, Std. Dev.=0.1319, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8434, critical = 0.805. Kappa = 3.243 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

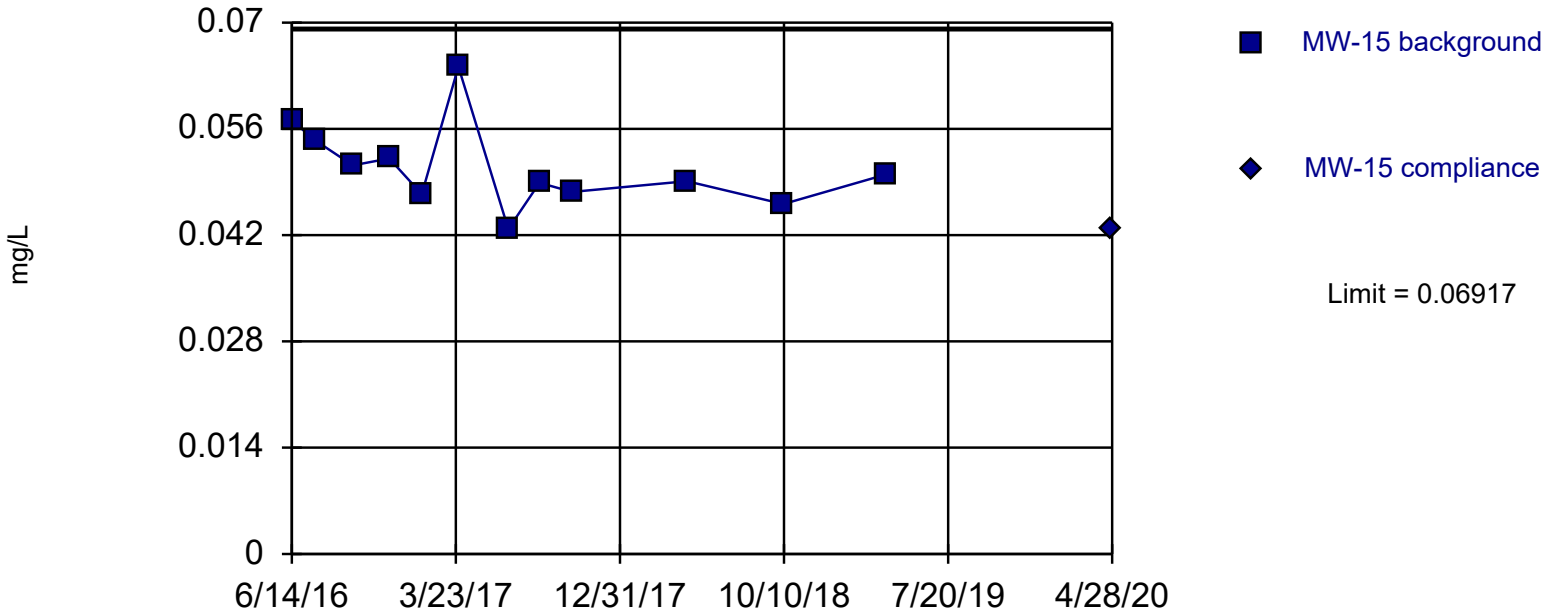
Constituent: Boron Analysis Run 7/2/2020 10:02 AM

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

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.05092, Std. Dev.=0.005627, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9255, critical = 0.805. Kappa = 3.243 (c=15, w=21, 1 of 2, event alpha = 0.05132). Report alpha = 0.0001672.

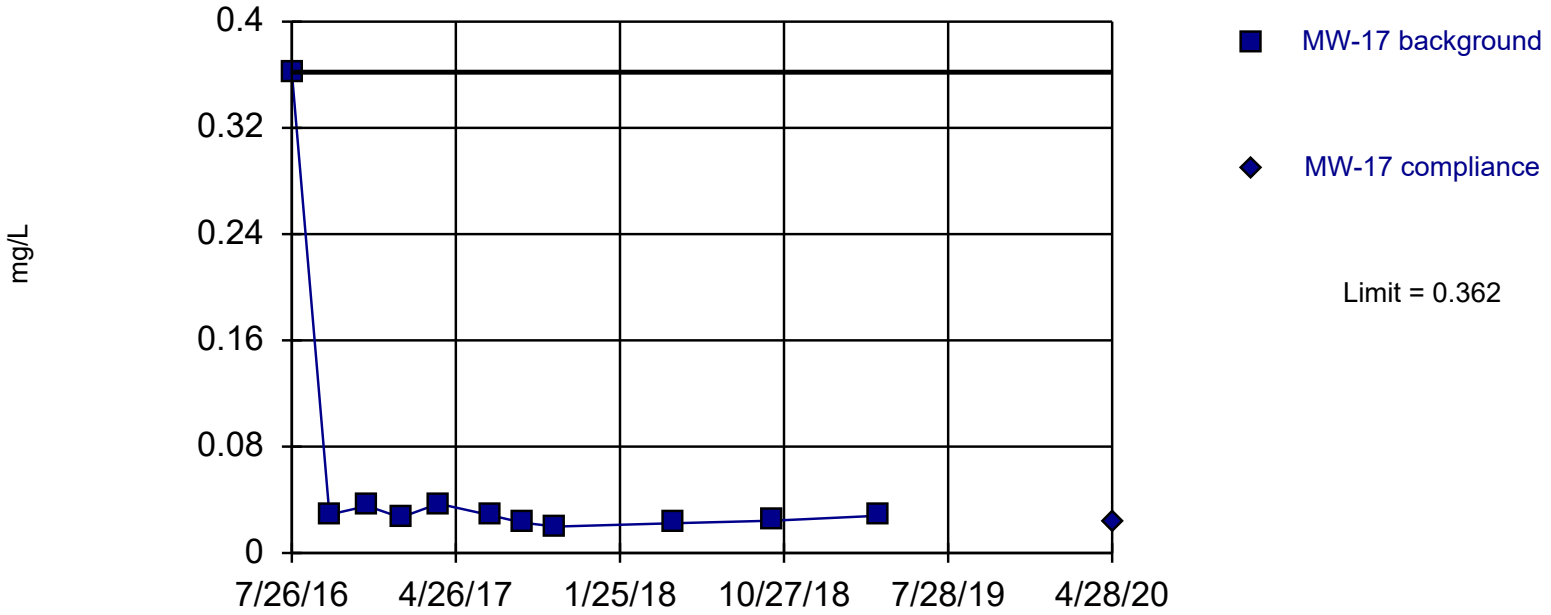
Constituent: Boron Analysis Run 7/2/2020 10:02 AM

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 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 11 background values. Well-constituent pair annual alpha = 0.02537. Individual comparison alpha = 0.01276 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Boron Analysis Run 7/2/2020 10:03 AM

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

July 2020 Event

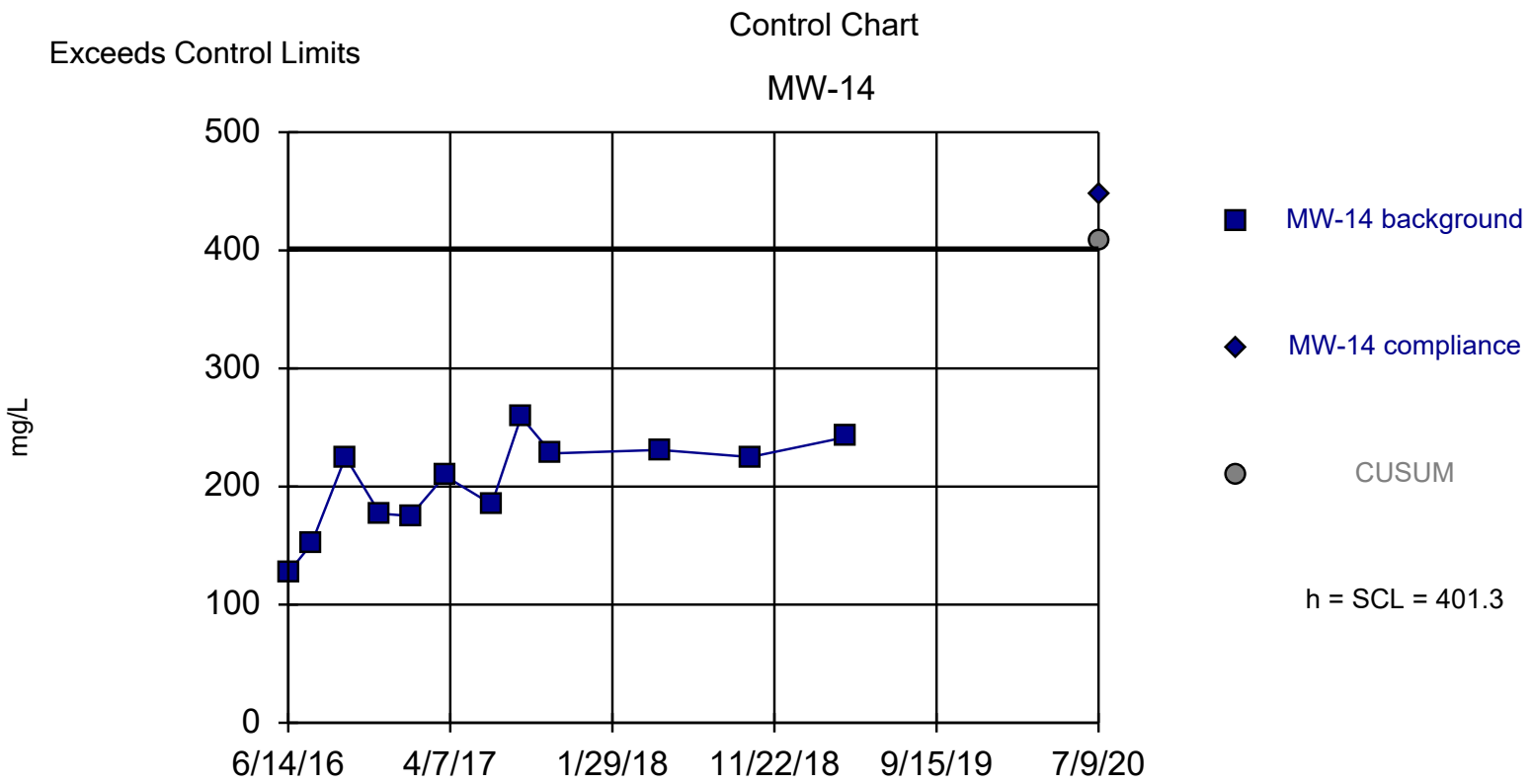
Results of Statistical Calculations

Control Charts

Shewhart-Cusum Control Chart / Rank Sum

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 7/20/2020, 8:09 AM

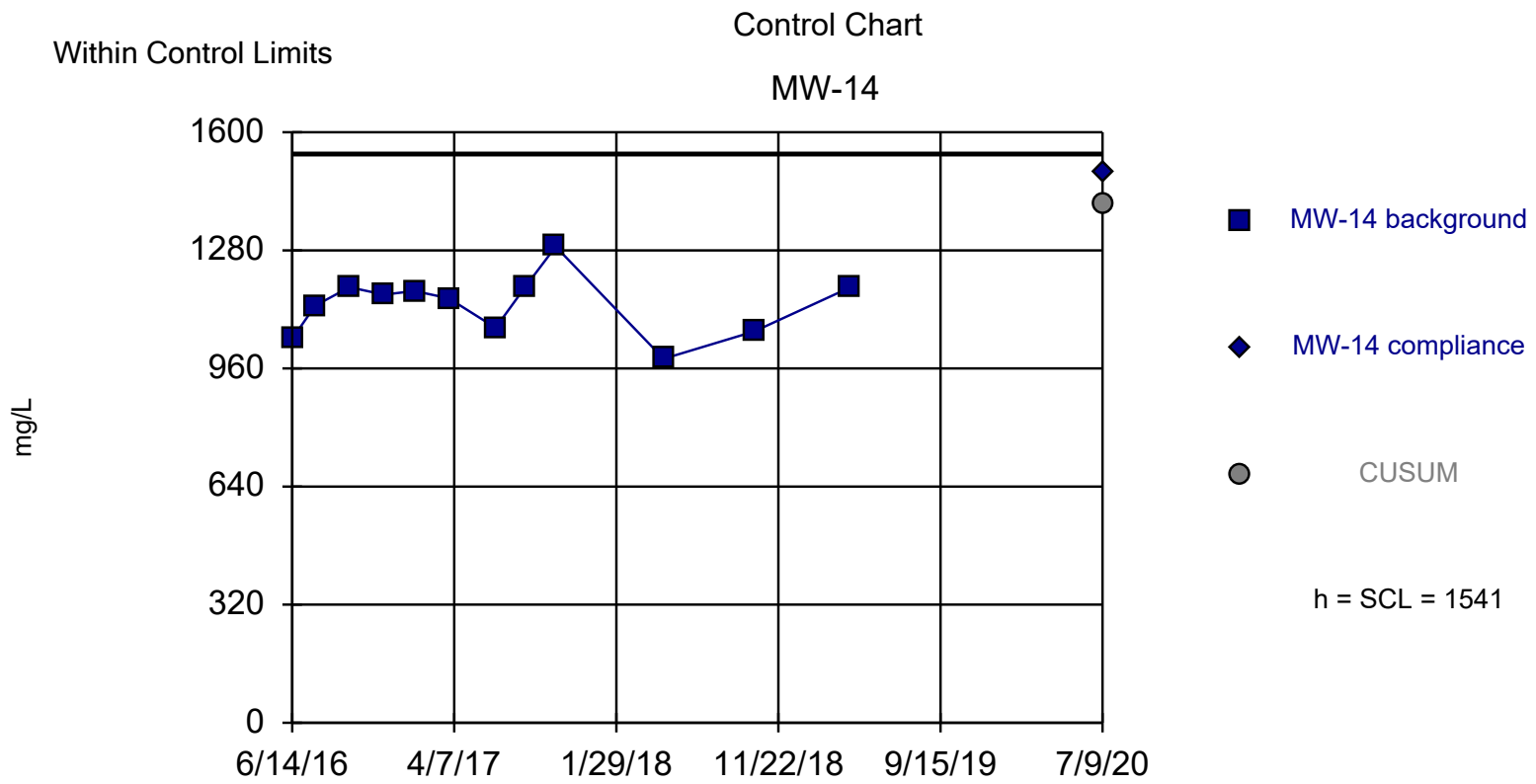
Constituent	Well	Sig.	h	SCL	N	%NDs	Transform	Method
Sulfate (mg/L)	**MW-14**	**Yes**	**401.3**	**401.3**	**12**	**0**	**No**	**Param Intra**
Total Dissolved Solids (mg/L)	MW-14	No	1541	1541	12	0	No	Param Intra



Background Data Summary: Mean=202.8, Std. Dev.=39.7, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9442, critical = 0.859. Report alpha = 0.000278. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 7/20/2020 8:08 AM

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



Background Data Summary: Mean=1133, Std. Dev.=81.59, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9416, critical = 0.859. Report alpha = 0.000278. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/20/2020 8:08 AM

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

July 27, 2020

Alternate Source/Error Demonstration

ALTERNATE SOURCE/ERROR DEMONSTRATION

TWIN OAKS POWER STATION

COAL COMBUSTION RESIDUALS (CCR) LANDFILL

ROBERTSON COUNTY, TEXAS

July 27, 2020

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

July 27, 2020

Michelle K. Transier, P.G.
Geologist

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

Contents

Appendices

Introduction

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"), 30 TAC §352 Subchapter H, and the federal CCR Rule, 40 CFR Part 257, Subpart D. This report summarizes the groundwater monitoring activities performed for the verification resampling event for the facility and the evaluations demonstrating that a calculated statistically significant increase ("SSI") in sulfate in monitoring well MW-14 is attributable to natural variation in groundwater quality. This ASD has been certified by a qualified licensed professional geoscientist and qualified licensed professional engineer within 90 days of determining an SSI in sulfate in MW-14 in accordance with 30 TAC §352.941(c)(2), 40 CFR Part 257.93(h)(2), and 40 CFR Part 257.94(e)(2). An SSI for sulfate in MW-14 was determined on July 21, 2020 based on statistical evaluations of the sulfate concentrations observed in the 1st 2020 semi-annual sampling event. The calculated SSI and the timeline for completion of an ASD were documented in the 1st 2020 Semi-Annual Groundwater Monitoring and Corrective Action Report dated July 27, 2020.

Statistical evaluation of data from the April 2020 event indicated unverified ("initial") intrawell statistical exceedance values for sulfate and total dissolved solids (TDS) concentrations in monitoring well MW-14. Subsequently, verification resampling, utilizing a 1-of-*m* approach, was conducted on July 9, 2020 as provided for and in accordance with the GWSAP. A summary of the verification resampling results is presented below.

Summary of Verification Resampling Results

Well	Constituent	Initial Result (mg/L)	Statistical Limit (mg/L)	Verification Resampling Result (mg/L)	Intrawell Statistical Exceedance Confirmed?	Recommended Action
MW-14	sulfate	467	401.3	448	Yes	Alternate Source/Error Demonstration
	TDS	1680	1541	1490	No	Maintain Detection Monitoring

Statistical reevaluation was performed in accordance with the GWSAP, 30 TAC §352.931, 40 CFR Part 257.93(h)(1), and EPA Unified Guidance methodologies. The results of verification resampling did not confirm the initial intrawell statistical exceedance value for TDS in MW-14. However, the results of the verification resampling confirmed the intrawell statistical exceedance value for sulfate concentrations in monitoring well MW-14 on July 17, 2020 and an SSI was determined on July 21, 2020. A review of relevant information for the facility indicates 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 ASD has been prepared to address the calculated SSI for MW-14.

Alternate Source/Error Demonstration

Statistical evaluations confirmed an intrawell statistical exceedance value for sulfate concentrations in monitoring well MW-14 during the July 2020 verification resampling

event. Review of sulfate data for the facility indicates significant spatial variability in reported sulfate concentrations. Based on this observed variability, monitoring well MW-14 was reevaluated using interwell control chart techniques as provided in EPA Unified Guidance. Control chart evaluation utilized sulfate data from upgradient monitoring wells MW-7, MW-11, MW-12, and MW-16. These wells are located upgradient of the CCR Landfill and considered unaffected by waste disposal activities. The results of the interwell statistical reevaluation indicate the sulfate concentrations reported for monitoring well MW-14 fall within the statistically determined limit of concentrations developed for upgradient monitoring wells. Sulfate concentration data from MW-14 were further evaluated for statistically significant increasing trends. No statistically increasing trends were noted for the sulfate data in MW-14.

Based on this evaluation no release from the CCR Landfill is indicated based on the sulfate concentrations reported for MW-14. Instead, the sulfate concentrations in MW-14 result from variability in groundwater quality not caused by the CCR Landfill as evidenced by data from upgradient wells. Therefore, no change to the detection monitoring status of monitoring well MW-14 is necessary and the site maintains a detection monitoring status. A summary of relevant data is presented below.

Summary of Data Relevant to Alternate Source/Error Demonstration

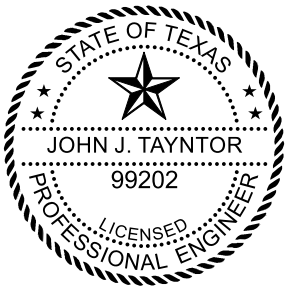
Well	Constituent	Initial Result (mg/L)	Verification Resampling Result (mg/L)	Intrawell Statistical Limit (mg/L)	Interwell Statistical Limit (mg/L)	Site-wide Sulfate Data Range (mg/L)	Statistical Exceedance Confirmed?	Recommended Action
MW-14	sulfate	467	448	401.3	1550	24.3 - 1550	No	Maintain Detection Monitoring

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 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.

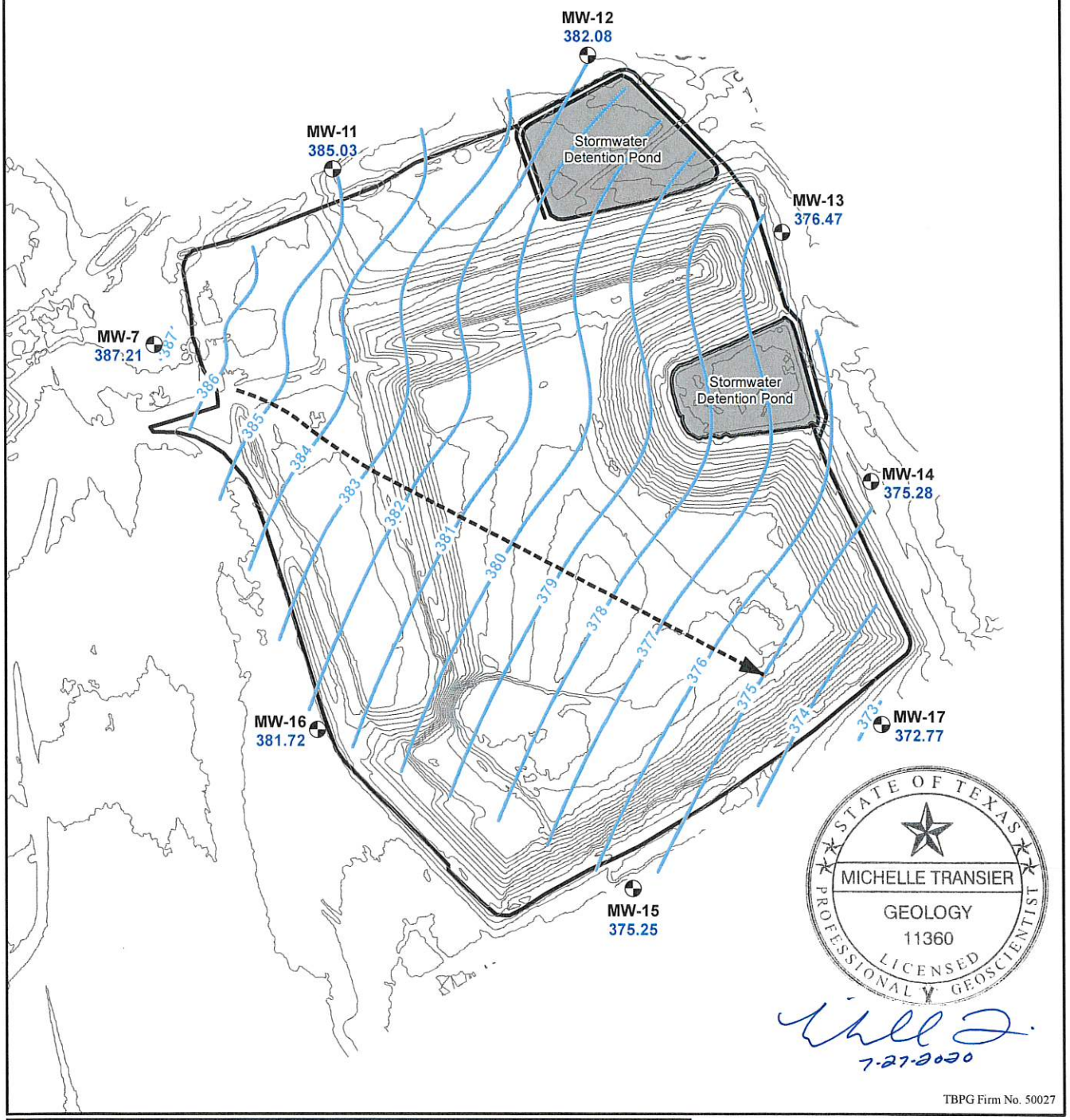


John J. Tayntor, P.E.
Auckland Consulting, LLC
TBPE Firm Registration No. F-16721

07/27/2020

Date

Appendix B



Monitor Well
Approx. Groundwater Flow Direction
Groundwater Contour
Pond
5-ft Ground Surface Contour
Access Road/ Perimeter Berm
385 Groundwater Elevation (Elevation Feet, MSL)

N
0 600
Feet

Hydrex ENVIRONMENTAL
1120 NW Stallings Drive
Nacogdoches, Texas 75964
(936) 560-9451

GROUNDWATER CONTOUR MAP

WATER LEVELS MEASURED
04/28/2020

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

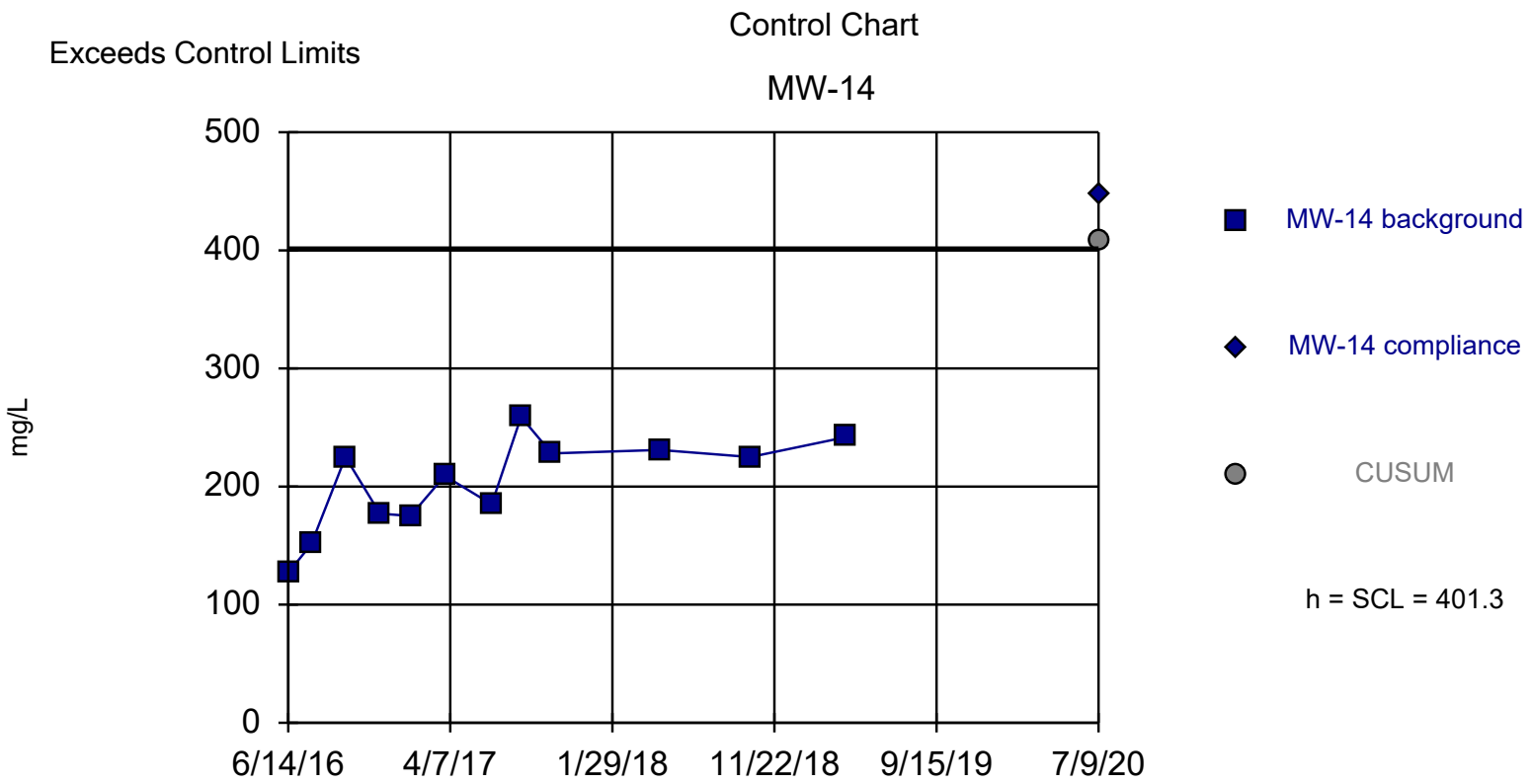
Map Revised: 07/01/2020	Project Number: I-14-1007	GIS Analyst: NCF

Appendix C

Shewhart-Cusum Control Chart / Rank Sum

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 7/20/2020, 8:09 AM

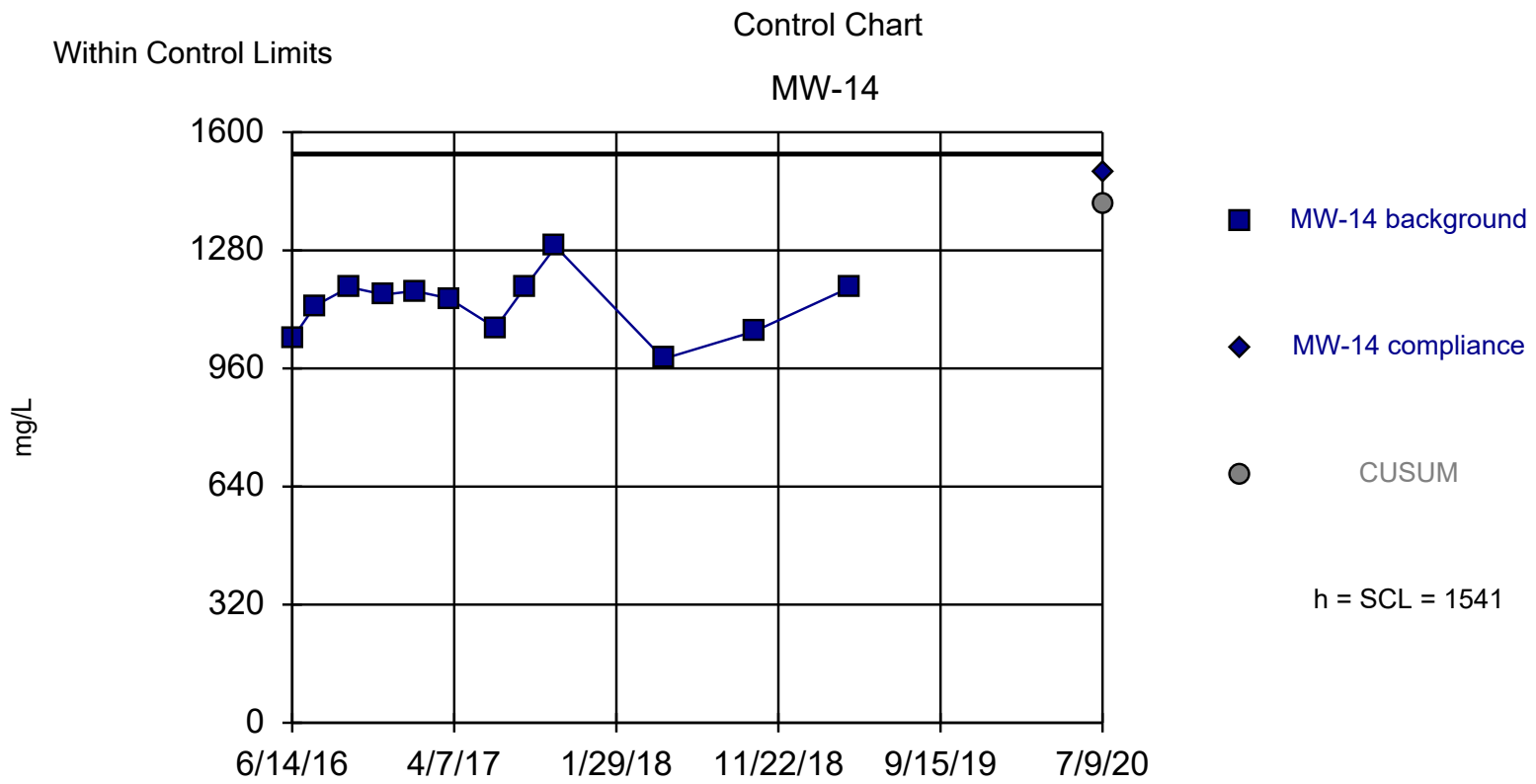
Constituent	Well	Sig.	h	SCL	N	%NDs	Transform	Method
Sulfate (mg/L)	**MW-14**	**Yes**	**401.3**	**401.3**	**12**	**0**	**No**	**Param Intra**
Total Dissolved Solids (mg/L)	MW-14	No	1541	1541	12	0	No	Param Intra



Background Data Summary: Mean=202.8, Std. Dev.=39.7, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9442, critical = 0.859. Report alpha = 0.000278. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 7/20/2020 8:08 AM

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



Background Data Summary: Mean=1133, Std. Dev.=81.59, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9416, critical = 0.859. Report alpha = 0.000278. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Total Dissolved Solids Analysis Run 7/20/2020 8:08 AM

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

Prediction Limit

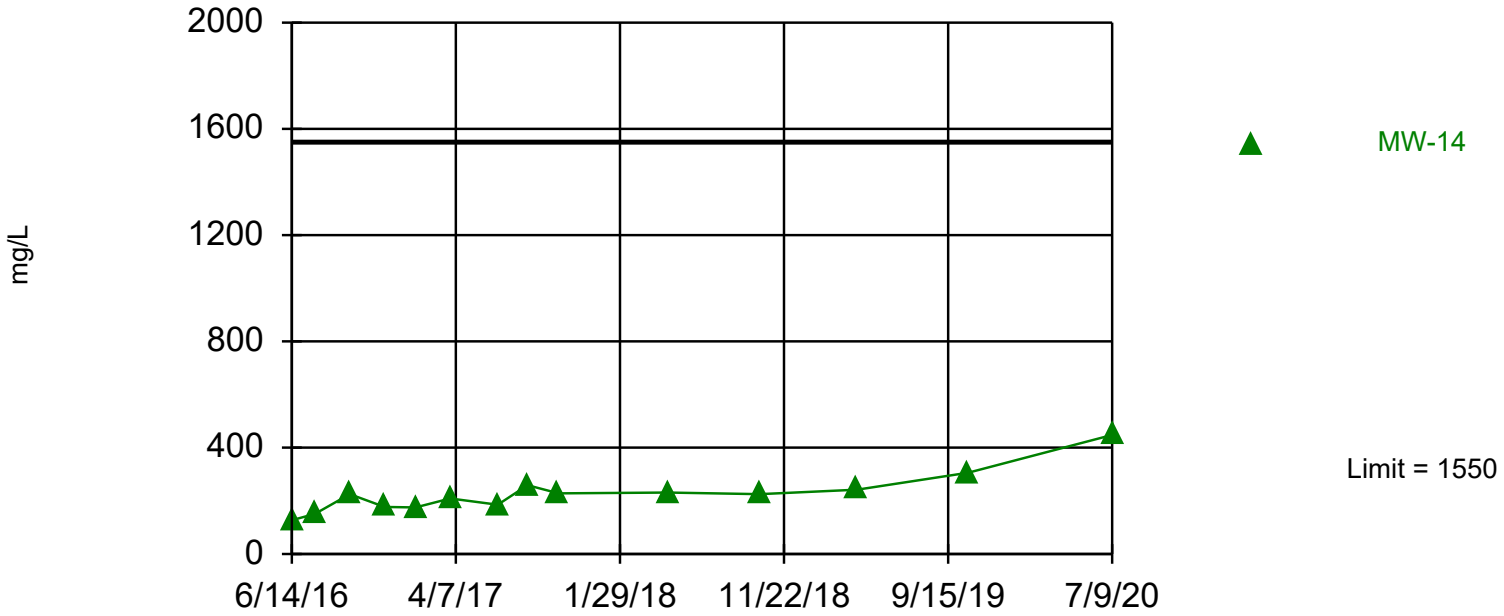
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 7/21/2020, 3:45 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Sulfate (mg/L)	MW-14	1550	n/a	7/9/2020	448	No	56	0	n/a	0.000585	NP Inter (normality) ...

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 56 background values. Annual per-constituent alpha = 0.02428. Individual comparison alpha = 0.000585 (1 of 2). Assumes 20 future values. Seasonality was not detected with 95% confidence.

Constituent: Sulfate Analysis Run 7/21/2020 3:44 PM

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

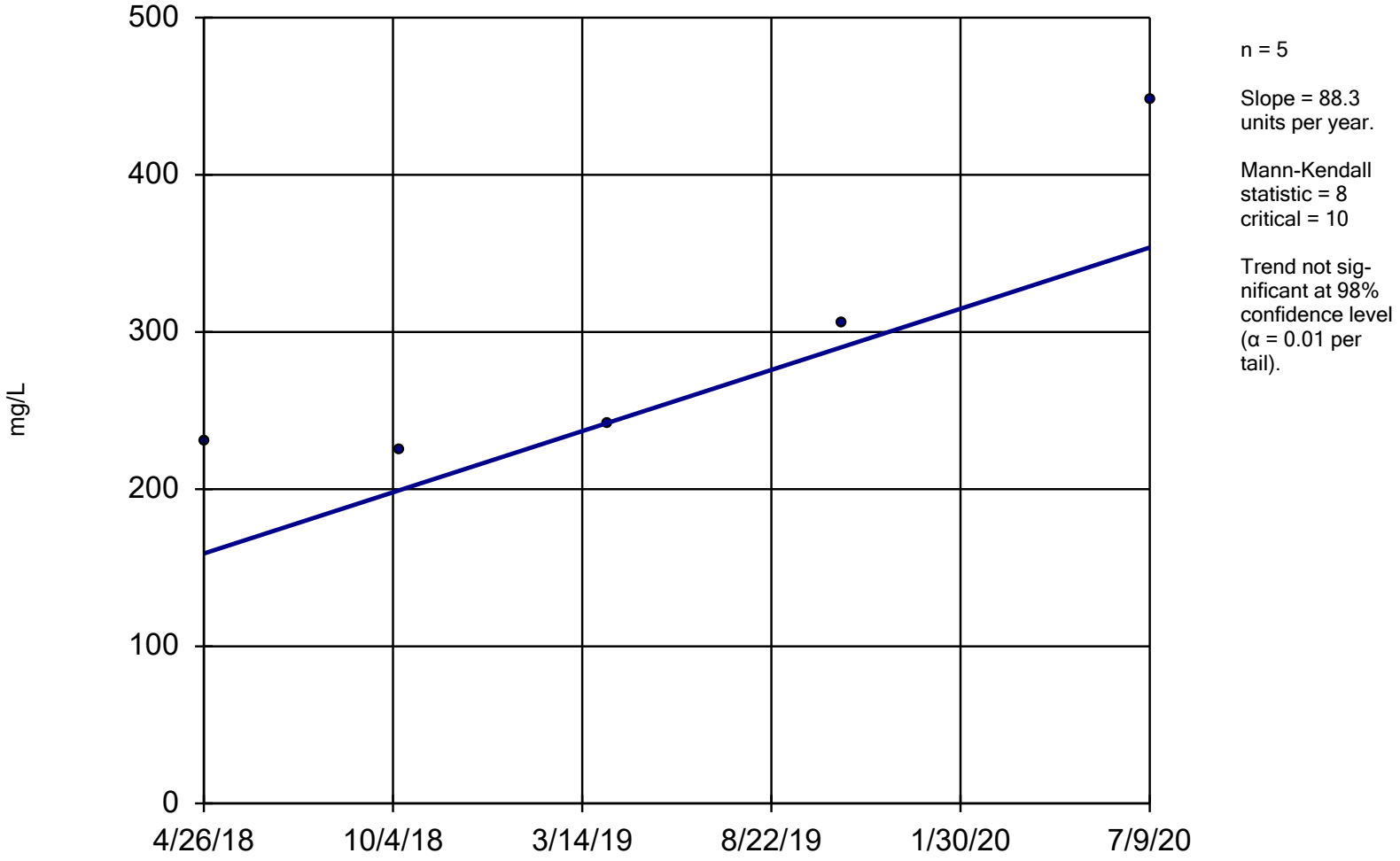
Trend Test

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 7/20/2020, 9:05 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Sulfate (mg/L)	MW-14	88.3	8	10	No	5	0	n/a	n/a	0.02	NP

Sen's Slope Estimator

MW-14



n = 5

Slope = 88.3 units per year.

Mann-Kendall statistic = 8
critical = 10

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 7/20/2020 9:05 AM

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

January 27, 2021

Alternate Source/Error Demonstration

ALTERNATE SOURCE/ERROR DEMONSTRATION

TWIN OAKS POWER STATION

COAL COMBUSTION RESIDUALS (CCR) LANDFILL

ROBERTSON COUNTY, TEXAS

January 27, 2021

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

January 27, 2021

Michelle K. Transier, P.G.
Geologist

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

Contents

Appendices

Introduction

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"), the state CCR Rules, 30 TAC Chapter 352, and the federal CCR Rule, 40 CFR Part 257, Subpart D. This report summarizes the groundwater monitoring activities performed for the verification resampling event for the facility and the evaluations demonstrating that a calculated statistically significant increase ("SSI") in sulfate in monitoring well MW-14 is attributable to natural variation in groundwater quality. This ASD has been certified by a qualified licensed professional geoscientist and qualified licensed professional engineer within 90 days of determining an SSI in sulfate in MW-14 in accordance with 30 TAC §352.941(c)(2), 40 CFR §257.93(h)(2), and 40 CFR §257.94(e)(2). An SSI for sulfate in MW-14 was determined on December 15, 2020 based on statistical evaluations of the sulfate concentrations observed in the 2nd 2020 semi-annual sampling event. Notice of the intent to perform this ASD was provided to TCEQ on January 13, 2021. The calculated SSI and the timeline for completion of an ASD were documented in the 2020 Annual Groundwater Monitoring and Corrective Action Report dated January 27, 2021.

Statistical evaluation of data from the October 2020 event indicated an unverified ("initial") intrawell statistical exceedance value for sulfate concentrations in monitoring well MW-14. Subsequently, verification resampling, utilizing a 1-of-*m* approach, was conducted on November 23, 2020 as provided for and in accordance with the GWSAP. A summary of the verification resampling results is presented below.

Summary of Verification Resampling Results

Well	Constituent	Initial Result (mg/L)	Statistical Limit (mg/L)	Verification Resampling Result (mg/L)	Intrawell Statistical Exceedance Confirmed?	Recommended Action
MW-14	sulfate	493	401.3	424	Yes	Alternate Source/Error Demonstration

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 value for sulfate concentrations in monitoring well MW-14 on December 4, 2020 and an SSI was determined on December 15, 2020. A review of relevant information for the facility indicates 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 ASD has been prepared to address the calculated SSI for MW-14.

Alternate Source/Error Demonstration

Statistical evaluations confirmed an intrawell statistical exceedance value for sulfate concentrations in monitoring well MW-14 during the November 2020 verification resampling event. Review of sulfate data for the facility indicates significant spatial variability in reported sulfate concentrations. Based on this observed variability,

monitoring well MW-14 was reevaluated using interwell control chart techniques as provided in EPA Unified Guidance. Control chart evaluation utilized sulfate data from upgradient monitoring wells MW-7, MW-11, MW-12, and MW-16. These wells are located upgradient of the CCR Landfill and considered unaffected by CCR waste disposal activities. The results of the interwell statistical reevaluation indicate the sulfate concentrations reported for monitoring well MW-14 fall within the statistically determined limit of concentrations developed for upgradient monitoring wells. Sulfate concentration data from MW-14 were further evaluated for statistically significant increasing trends. No statistically increasing trends were noted for the sulfate data in MW-14.

Based on this evaluation, no release from the CCR Landfill is indicated. Instead, the sulfate concentrations in MW-14 result from natural variability in groundwater quality not caused by the CCR Landfill as evidenced by data from upgradient wells. Therefore, no change to the detection monitoring status of monitoring well MW-14 is necessary and the site maintains a detection monitoring status. A summary of relevant data is presented below.

Summary of Data Relevant to Alternate Source/Error Demonstration

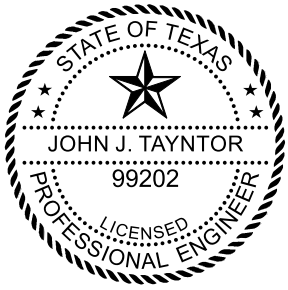
Well	Constituent	Initial Result (mg/L)	Verification Resampling Result (mg/L)	Intrawell Statistical Limit (mg/L)	Interwell Statistical Limit (mg/L)	Site-wide Sulfate Data Range (mg/L)	Statistical Exceedance Confirmed?	Recommended Action
MW-14	sulfate	493	424	401.3	1550	24.3 - 1550	No	Maintain Detection Monitoring

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 Alternate Source/Error Demonstration report, prepared by Hydrex Environmental on behalf of the Twin Oaks Power Station, are accurate and meet the requirements of 40 CFR Part 257, Subpart D.

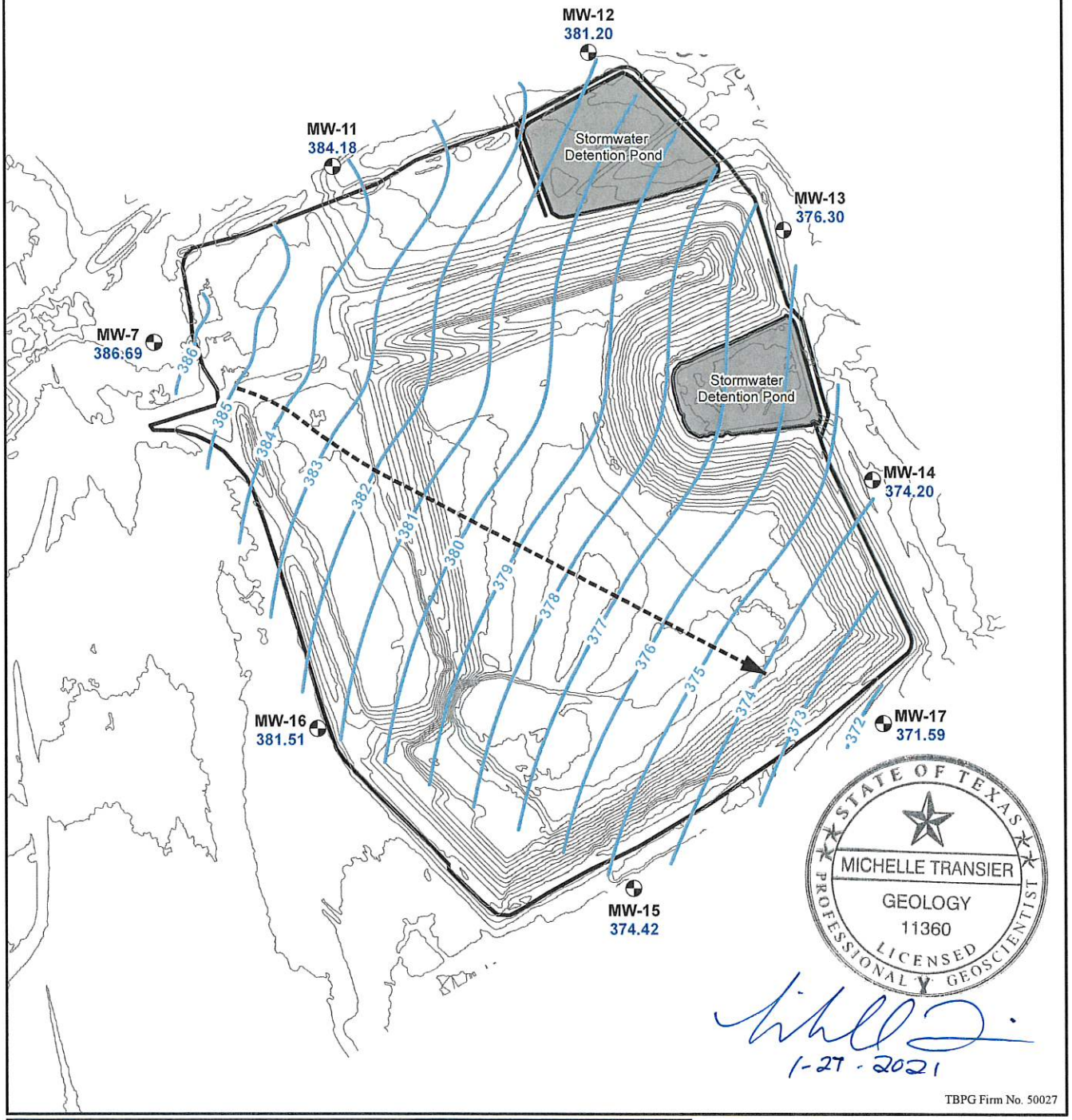


John J. Tayntor, P.E.
Auckland Consulting, LLC
TBPE Firm Registration No. F-16721

January 27, 2021

Date

Appendix B



Hydrex ENVIRONMENTAL
1120 NW Stallings Drive
Nacogdoches, Texas 75964
(936) 568-9451

GROUNDWATER CONTOUR MAP

WATER LEVELS MEASURED
10/27/2020

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

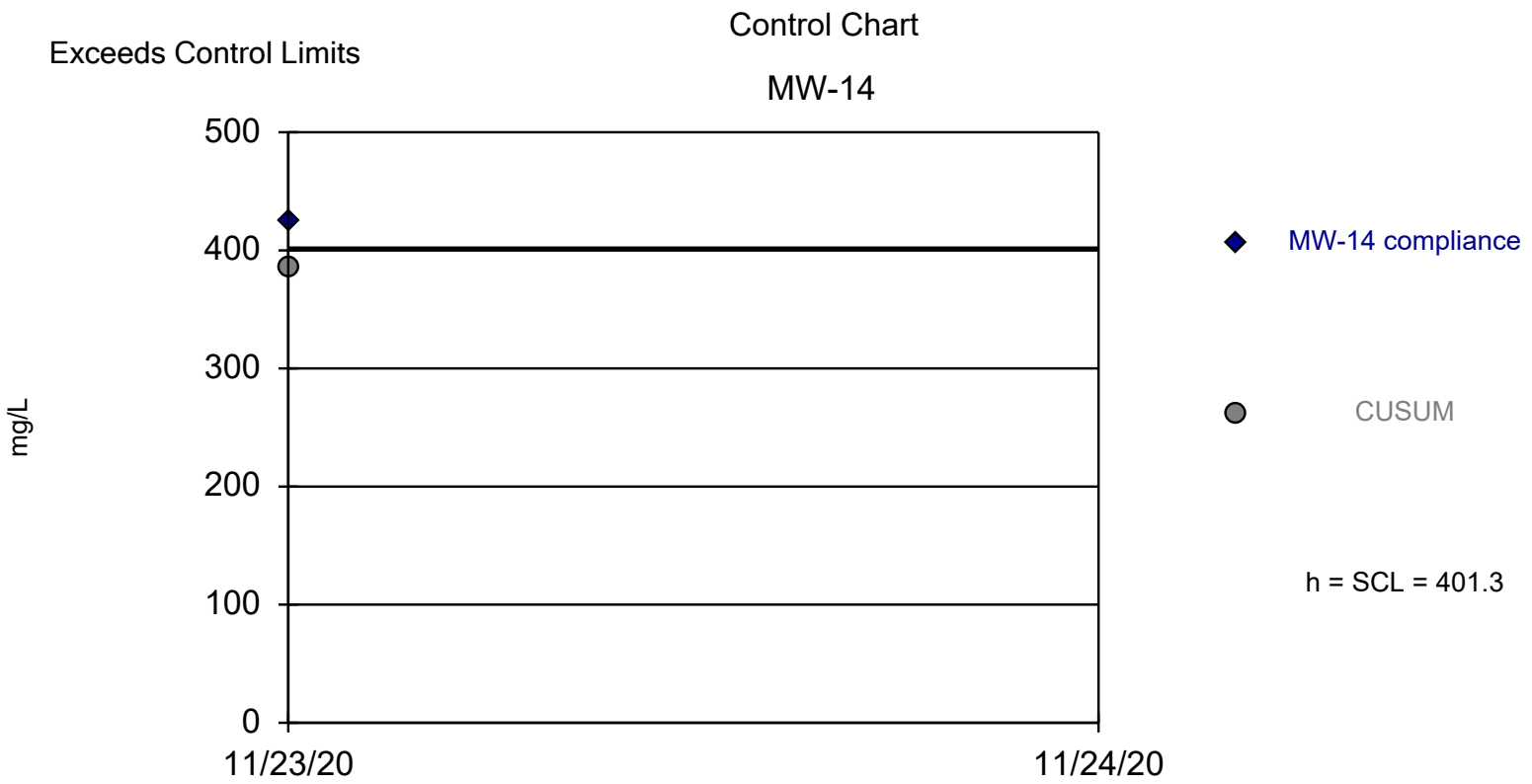
Map Revised: 12/16/2020	Project Number: I-14-1007	GIS Analyst: SAS

Appendix C

Shewhart-Cusum Control Chart / Rank Sum

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 12/15/2020, 4:32 PM

Constituent	Well	Sig.	h	SCL	N	%NDs	Transform	Method
Sulfate (mg/L)	**MW-14**	**Yes**	**401.3**	**401.3**	**12**	**0**	**No**	**Param Intra**



Background Data Summary: Mean=202.8, Std. Dev.=39.7, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9442, critical = 0.859. Report alpha = 0.000272. Dates ending 4/4/2019 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 12/15/2020 4:31 PM

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

Shewhart-Cusum Control Chart / Rank Sum

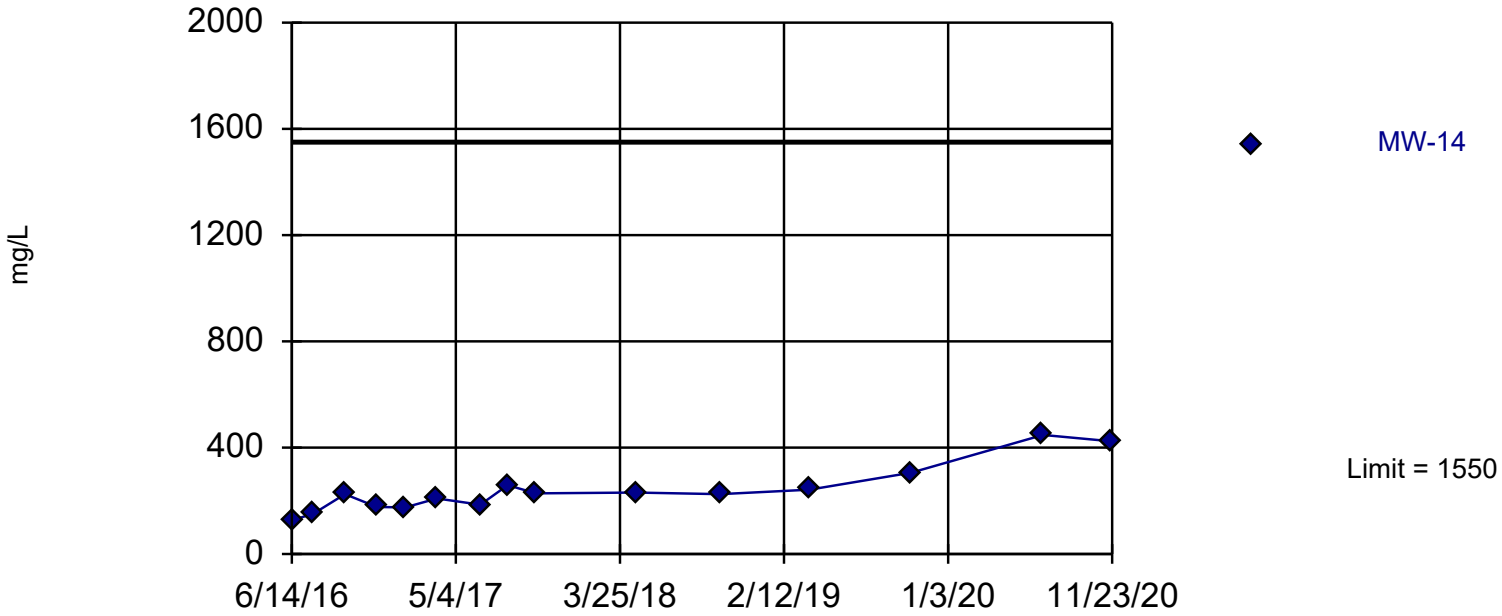
Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 12/15/2020, 4:41 PM

Constituent	Well	Sig.	h	SCL	N	%NDs	Transform	Method
Sulfate (mg/L)	MW-14	No	PL=...	n/a	60	0	No	NP Inter PL (normality)

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of interwell control chart because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 60 background values. Annual per-constituent alpha = 0.02096. Individual comparison alpha = 0.0005043 (1 of 2). Most recent point compared to limit. Assumes 20 future values. Seasonality was not detected with 95% confidence.

Constituent: Sulfate Analysis Run 12/15/2020 4:35 PM

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

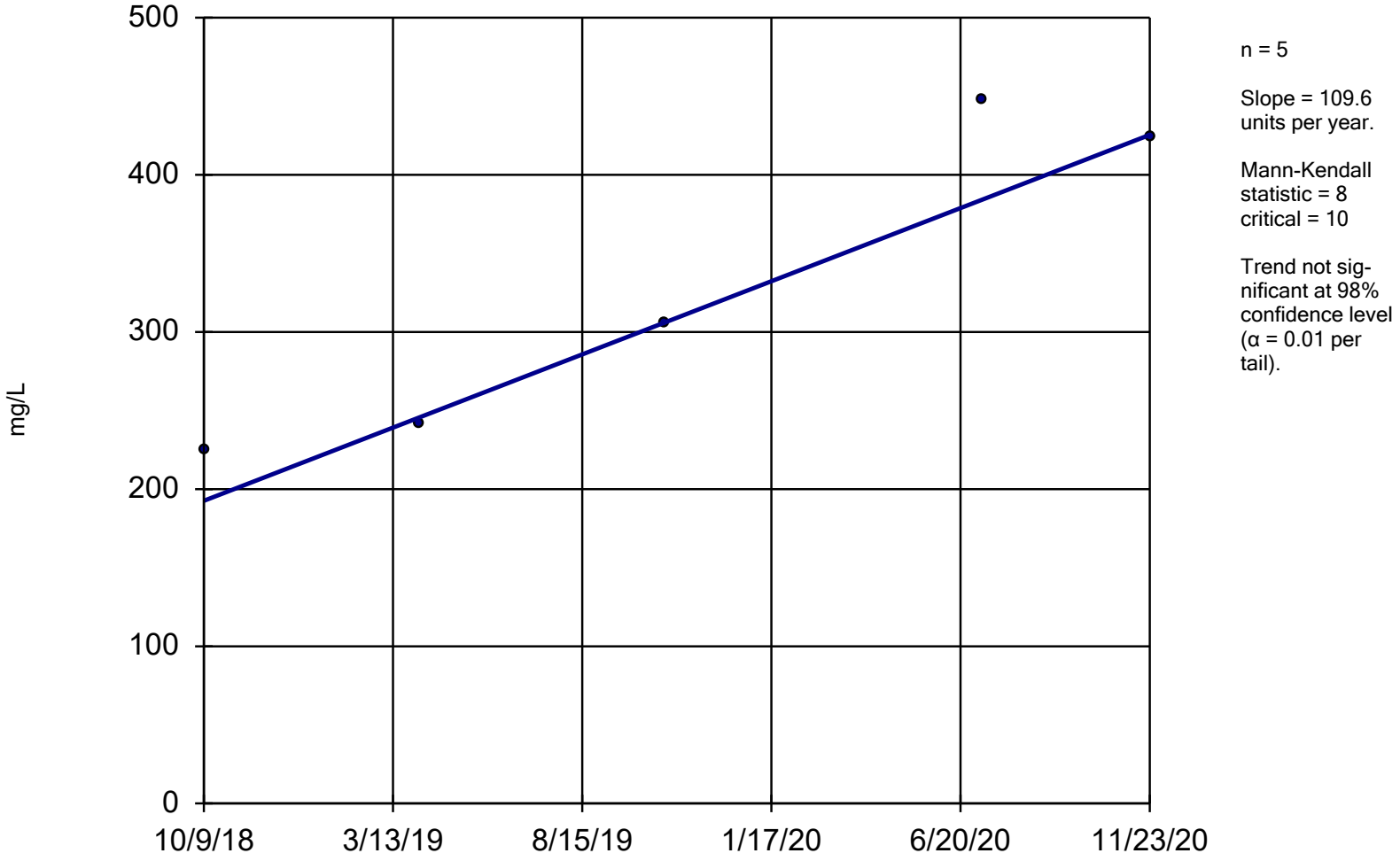
Trend Test

Twin Oaks Power Station CCR LF Client: Major Oak Power Data: Twin Oaks Printed 12/15/2020, 4:34 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Sulfate (mg/L)	MW-14	109.6	8	10	No	5	0	n/a	n/a	0.02	NP

Sen's Slope Estimator

MW-14



n = 5

Slope = 109.6 units per year.

Mann-Kendall statistic = 8
critical = 10

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 12/15/2020 4:34 PM

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