



**2018 Annual Groundwater Monitoring Report:**

**W.A Parish Generating Station, Thompsons, Texas**

*Solid Waste Disposal Area (SWMU 001) CCR Multiunit  
Air Preheater Pond (SWMU 021)  
FDG Emergency Pond (SWMU 020)*

**January 31, 2019**

*Prepared For  
NRG Texas Power, LLC  
Thompsons, Texas*

A handwritten signature in black ink, appearing to read "Tony Dworaczyk".

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Senior Project Manager

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Senior Client Service Manager

*TRC Environmental Corporation | NRG Texas Power, LLC  
2018 Annual Groundwater Monitoring Report*

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# Executive Summary

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Pursuant to 40 Code of Federal Regulations (CFR) Part §257.90(e) and (f) of the Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities, Final Rule (CCR Rule), the owner or operator of an existing coal combustion residuals (CCR) unit must prepare an annual groundwater monitoring and corrective action report (Annual Report) no later than January 31, 2019, addressing the preceding calendar year (2018). The Annual Report must “document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year”.

TRC Environmental Corporation (TRC) has prepared this Annual Report for the Solid Waste Disposal Area (SWDA, SWMU 001) multiunit, which includes Landfill Cell 1C, Landfill Cell 2A, Landfill Cell 2B, and Landfill Cell 3; the FGD Emergency Pond (E Pond, SWMU 020); and the Air Preheater Pond (APH Pond, SWMU 021) at the W. A Parish Electric Generating Station (Station) on behalf of NRG Texas Power, LLC (NRG) in accordance with §257.90(e) of the CCR Rule. This Annual Report provides the information specified in §257.90(e), including a summary of samples collected, field and laboratory analytical data, potentiometric surface maps, and determination of groundwater flow direction and average groundwater gradient for the May and October 2018 semi-annual detection monitoring events. Furthermore, pursuant to §257.94(e)(2), this Annual Report provides the alternative source demonstrations (ASDs) that successfully addressed potential statistically significant increases (SSIs) above background for the first semi-annual detection monitoring event (October 2017) for the SWDA multiunit, the E Pond, and the APH Pond. As a result, the three CCR units remained in detection monitoring.

During 2018, the following issues were encountered in the CCR groundwater monitoring program for the Station as follows:

- The previously selected statistical method for evaluation of groundwater monitoring data was revised;
  - The initial selection of background and downgradient groundwater monitoring wells for the four individual SWDA landfill cell (Cell 1C, Cell 2A, Cell 2B, and Cell 3) groundwater monitoring systems was determined not to be optimal and was modified by incorporating the four landfill cells into a single CCR multiunit and revising the monitoring wells used for the SWDA CCR multiunit groundwater monitoring network; and
  - The initial groundwater monitoring system for the APH Pond used only MW-62 to monitor upgradient, background groundwater quality; the groundwater monitoring

system has been revised to include two additional existing, upgradient monitoring wells (MW-39 and MW-40) to more representatively monitor upgradient background groundwater quality.

In addition to resolving the above-noted issues encountered in the groundwater monitoring program during 2018, the following key actions were completed:

- Pursuant to 40 Code of Federal Regulations (CFR) Part §257.90(e) and (f) of the Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities, Final Rule (CCR Rule), the facility prepared the 2017 annual groundwater monitoring and corrective action report (Annual Report), placed the report in the facility's Operating Record on January 31, 2018, and placed the report on the facility's public CCR website on March 2, 2018.
- Collection of semi-annual detection monitoring samples for the SWDA multiunit, the E Pond, and the APH Pond, which were analyzed for the Appendix III, Part 257 of the CCR Rule detection monitoring parameters;
- Preparation of groundwater potentiometric surface maps, determination of the direction of groundwater flow, and calculation of average groundwater flow velocities for both semi-annual detection monitoring events during 2018 for the SWDA multiunit, the E Pond, and the APH Pond;
- Performance of statistical analysis for the first (October 2017) and second (May 2018) semi-annual detection monitoring events;
- Identification of SSIs above background for the SWDA multiunit, the E Pond, and the APH Pond for the first and second semi-annual detection monitoring events;
- Completion of written ASDs successfully evaluating the first semi-annual detection monitoring event SSIs for the SWDA multiunit, the E Pond, and the APH Pond, allowing the Station to remain in detection monitoring during 2018;
- Modification of the surface groundwater monitoring well completions for the wells at the E Pond by converting the flush mount completions to stick up completions with protective locking covers; and
- Certification of revised Groundwater Monitoring Network and Statistical Methods by a Texas professional engineer (P.E.) based on completion of the above-noted key actions.

No corrective action activities were performed at the SWDA multiunit, the E Pond, or the APH Pond, pursuant to the CCR Rule during 2018.

Looking ahead to 2019, key activities projected for 2019 are as follows:

- Completion of the 2018 annual groundwater monitoring and corrective action report (Annual Report), placed the report in the facility's Operating Record by January 31, 2019, and placed the report on the facility's public CCR website by March 2, 2019.
- Performance of statistical analysis of the third and fourth semi-annual detection monitoring events (October 2018 and April 2019 sampling) to identify potential SSIs over background for Appendix III parameters;
- Preparation of ASD(s) to evaluate SSIs over background for the second semi-annual detection monitoring event (May 2018 sampling event);
- If required, preparation of ASD(s) to evaluate SSIs over background for the third semi-annual detection monitoring event (October 2018); and
- Performance of the fourth and fifth semi-annual detection monitoring events, which are targeted for April and October 2019, and will include:
  - Preparation of groundwater potentiometric surface maps, determination of groundwater flow direction, and calculation of average groundwater gradient.

# Section 1

## Introduction

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### 1.1 CCR Program Summary

On April 17, 2015, the United States Environmental Protection Agency (USEPA) published the final rule establishing criteria for the management of Coal Combustion Residuals (CCR) under Subtitle D of the Resource Conservation and Recovery Act (RCRA; the CCR Rule). The CCR Rule applies to the NRG Texas Power, LLC (NRG) Solid Waste Disposal Area multiunit (SWMU 001) which includes Landfill Cell 1C, Landfill Cell 2A, Landfill Cell 2B, and Landfill Cell 3), the FGD Emergency Pond (E Pond, SWMU 020), and the Air Preheater Pond (APH Pond, SWMU 021) CCR units at the W.A. Parish Electric Generating Station (Station).

Pursuant to §257.90(e) and (f) of the CCR Rule, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report (Annual Report) for the CCR units addressing the preceding calendar year. The Annual Report must “document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year”. TRC Environmental Corporation (TRC) has prepared this Annual Report for the SWDA multiunit, the E Pond, and the APH Pond on behalf of NRG Texas Power, LLC in accordance with §257.90(e).

Pursuant to §257.90(f) of the CCR Rule, the owner or operator must comply with the recordkeeping requirements of §257.106(h), the notification requirements of §257.106(h), and the maintenance of a publicly accessible CCR Web site requirements of §257.107(h).

### 1.2 Station Overview

The W.A. Parish Station is located in Thompsons, Texas (Figure 1-1). The Station is adjacent to Smithers Lake with the electricity generating portion located on the southeastern shore (location of the E Pond and the APH Pond) and the solid waste disposal areas (SWDA) multiunit located along the northeastern shore (Figure 1-2). The spent coal fuels or CCR have been classified by the Texas Commission on Environmental Quality (TCEQ) as a Class II Nonhazardous waste and consist of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge. The Station has three active CCR Units that are managed pursuant to the CCR Rule:

- SWDA multiunit (SWMU 001), which includes Landfill Cell 1C, Landfill Cell 2A, Landfill Cell 2B, and Landfill Cell 3;

- E Pond (SWMU 020); and
- APH Pond (SWMU 021).

All four landfill cells are constructed on native clay soils and are generally constructed of berms with vegetated exterior slopes and the inside slopes and crests of the berms are surfaced with stabilized CCR to control vegetation and act as an erosion protection layer. CCR management and stormwater control activities performed at the CCR landfill cells are described below.

### **Landfill Cell 1C.**

Landfill Cell 1C receives nonmarketable CCR, which are trucked from the Station. Storm water is directed to an incised storm water collection pond in the western portion of Cell 1C. The storm water is then transferred for discharge from this pond to TPDES Outfall 004.

### **Landfill Cell 2A**

A pug mill is located at Cell 2A and is commonly referred to as the “Pug Mill Area”. Storm water is directed to the southwestern portion of Cell 2A, where it is then transferred for discharge from this pond to TPDES Outfall 004.

### **Landfill Cell 2B**

Landfill Cell 2B receives marketable CCR, which is trucked from the Station. Storm water is directed to an incised storm water collection pond in the southern portion of Cell 2B. The storm water discharge from this pond is then transferred for discharge from this pond to TPDES Outfall 004.

### **Landfill Cell 3**

Landfill Cell 3 receives bottom ash, which is trucked from the Station. Storm water is directed to an incised storm water collection pond in the western portion of Cell 3. The storm water discharge from this pond is then transferred for discharge from this pond to TPDES Outfall 004.

A description of both CCR impoundments at the Station, including CCR management and stormwater control activities performed are described below:

### **FGD Emergency Pond (E Pond, SWMU 020)**

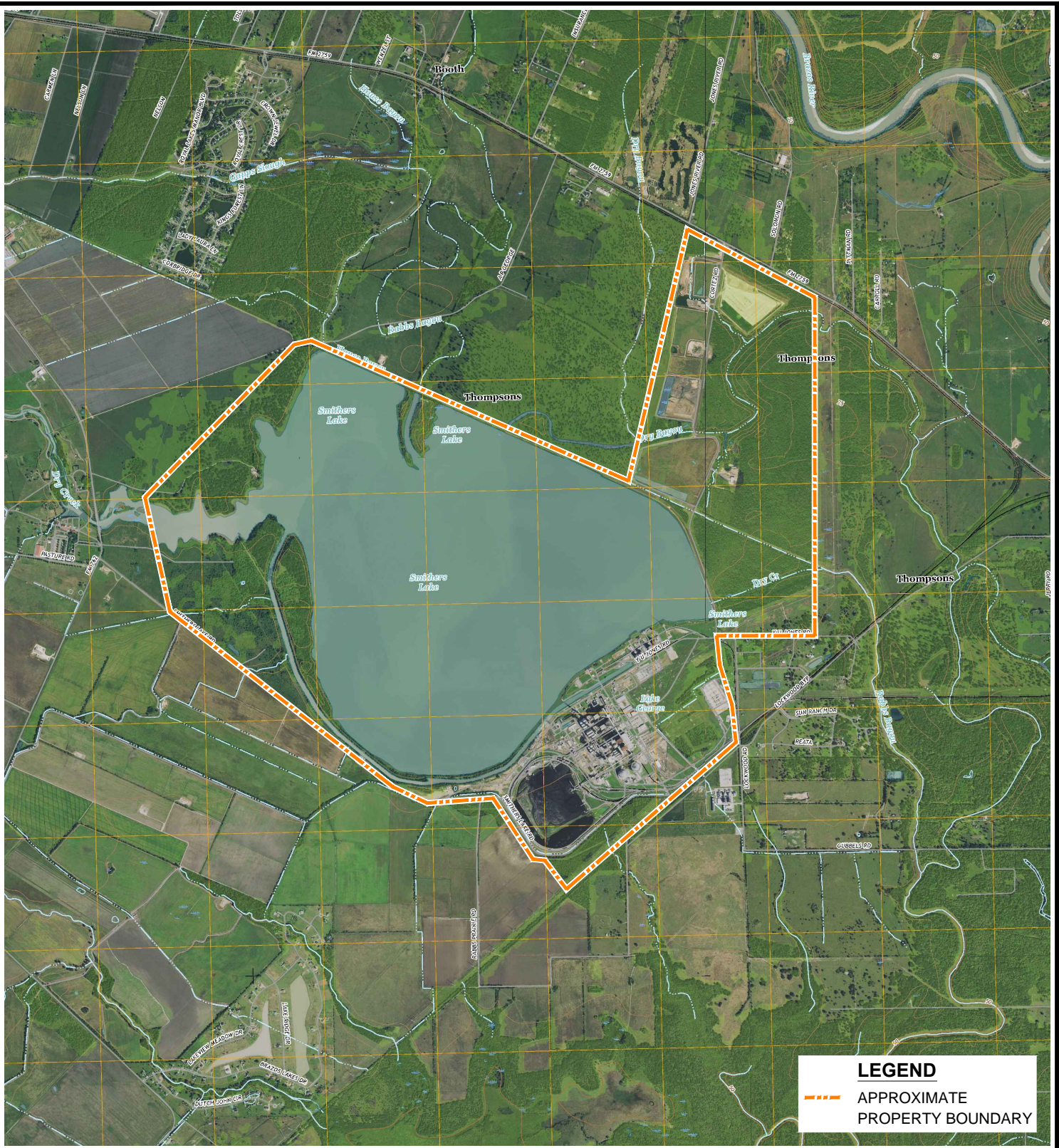
The E Pond is located in the central portion of the Station as shown on Figure 1-2. The dimensions of the E Pond are approximately 200 feet by 110 feet and the aerial extent is

approximately 0.5 acres. The E Pond is lined with a minimum of two feet of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  centimeters per second (cm/sec) (Sargent & Lundy 2016), which was certified by a Texas P.E. The E Pond receives storm water runoff from the FGD dewatering area and also blowdown from the FGD system. This impoundment may also receive the contents of an FGD process vessel when the FGD system is not in operation.

#### **Air Preheater Pond (APH Pond, SWMU 021)**

The APH Pond is located in the southwestern portion of the Station as shown on Figure 1-2. The APH Pond comprises an area of approximately 1.2 acres and has a total storage capacity of approximately 3.7 acre-feet. The APH Pond is lined with a minimum of two feet of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec (Sargent & Lundy 2016), which was certified by a Texas P.E. The APH Pond receives effluent from air preheater wash and boiler cleaning wash, which consists of fly ash or economizer ash particles and water.

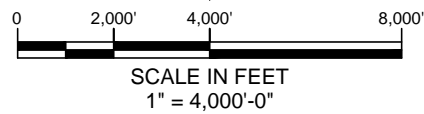




REFERENCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLES  
 MISSOURI CITY, TEXAS (2016) / SMITHERS LAKE, TEXAS (2016) /  
 SUGAR LAND, TEXAS (2016) / THOMPSONS, TEXAS (2016)



**TEXAS**  
 QUADRANGLE LOCATION



PROJECT:		<b>NRG TEXAS POWER, LLC</b> W.A. Parish Station Thompsons, Texas	
TITLE: <b>SITE LOCATION MAP</b>			
DRAWN BY:	O. Fonseca	PROJECT No.:	294645.0000.0000
CHECKED BY:	T. Dworaczyk	<b>FIGURE 1-1</b>	
APPROVED BY:	T. Dworaczyk		
DATE:	January 2019	10550 Richmond Ave., Suite 210 Houston, TX 77042 Phone: 713.244.1000	
FILE:	Fig 1-1 - NRG-WAParishStation - Site Location Map.dwg		





IMAGERY SOURCE: Google Earth (10/28/2017)



0 900' 1,800'  
SCALE IN FEET  
1" = 1,800'-0"

F.M. 2759 - THOMPSONS RD.

CELL 1C

CELL 2B

SWDA

PUG MILL

CELL 3

CORTEZ RD.

SMITHERS LAKE

FGD  
EMERGENCY  
POND

W. JONES RD.

AIR  
PREHEATER  
POND

SMITHERS LAKE RD.

**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- SOLID WASTE DISPOSAL AREA

PROJECT: **NRG TEXAS POWER, LLC  
W.A. Parish Station  
Thompsons, Texas**

TITLE: **CCR UNITS LOCATION MAP**

DRAWN BY: O. Fonseka	PROJECT No.: 294645.0000.0000
CHECKED BY: T. Dworaczyk	<b>FIGURE 1-2</b>
APPROVED BY: T. Dworaczyk	
DATE: January 2019	



10550 Richmond Ave.  
Suite 210  
Houston, TX 77042  
Phone: 713.244.1000

FILE: Fig 1-2 - NRG-WAParishStation - CCR Units Location Map.dwg

HOU M:\ACAD-TRC\DRAFTING\Clients\Name - K-L-M-N-ON\NRG\W.A. Parish Station - Thompsons-TX\2019 - CCR-Report\ Fig 1-2 - NRG-WAParishStation - CCR Units Location Map.dwg 01/30/19

# Section 2

## Groundwater Monitoring

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### 2.1 Groundwater Monitoring Networks

This section describes the groundwater monitoring networks now in place for the SWDA multiunit, the E Pond, and the APH Pond CCR units at the Station.

#### 2.1.1 SWDA Multiunit

Four individual groundwater monitoring well networks were established in 2016, one for each of the four landfill cells at the SWDA. The monitoring wells for each of the four groundwater monitoring networks are identified in Table 2-1 below and were certified by a Texas P.E. under §257.91(f) on October 17, 2017. The direction of groundwater flow beneath the four landfill cells at the SWDA is primarily to the northeast towards the Brazos River at a gradient ranging from 0.0060 feet per foot (ft/ft) to 0.0061 ft/ft.

The four landfill cells are located adjacent to each other and are hydraulically cross-gradient or downgradient of each other. One or two upgradient, background groundwater monitoring wells were identified for each of the four landfill cells under the CCR Rule in 2016. Upon further evaluation during 2018 of the detection monitoring network used to establish the baseline and background detection monitoring performed during 2016 and 2017, it was determined that these monitoring wells did not fully represent upgradient, background groundwater quality at the SWDA, in particular, based on the large aerial extent of the SWDA and the heterogeneous lithology of Stratum DA-2 beneath the SWDA (*i.e.*, varying clay and silt content).

**Table 2-1**  
**Original Groundwater Monitoring System for SWDA CCR- Cells**

CCR UNIT	UPGRADIENT WELLS	DOWNGRADIENT WELLS
Cell 1C	MW-47, MW-48	MW-19, MW-49, MW-50, MW51, MW-52, MW-67
Cell 2B	MW-53	MW-35, MW-54, MW-55, MW-56, MW-65, MW-68
Cell 3	MW-28D, MW-42	MW-44, MW-45, MW-46
Cell 2A-Pug Mill	MW-23, MW-43	MW-57, MW-58, MW-59, MW-66



Per §257.91(d) of the CCR Rule, NRG may establish a multiunit groundwater monitoring system for a CCR unit such as the SWDA when the multiunit meets the criteria provided in 257.91(d)(1). Therefore, based on an evaluation during 2018, the four landfill cells at the SWDA were merged into a single CCR multiunit pursuant to the CCR Rule. The upgradient background and downgradient groundwater monitoring wells selected for the SWDA CCR multiunit are identified in Table 2-2. All six monitoring wells that are located hydraulically upgradient of the SWDA were designated as upgradient background wells for the SWDA CCR multiunit. The downgradient wells were selected based on their location along the SWDA boundary relative to groundwater flow and a well-spacing consistent with the upgradient wells. The SWDA CCR multiunit monitoring well network is shown on the groundwater potentiometric surface map prepared by TRC for the first semi-annual detection monitoring event (October 2017) (Figure 2).

**Table 2-2  
SWDA Multiunit Monitoring Well Network**

UPGRADIENT WELLS	DOWNGRADIENT WELLS
MW-23, MW-28D, MW-42, MW-43, MW-47, MW-48	MW-44, MW-46, MW-50, MW-52, MW-54, MW-55, MW-65, MW-58

No monitoring wells were installed or decommissioned as part of the CCR groundwater monitoring system for the SWDA multiunit during 2018.

### **2.1.2 E Pond**

The groundwater monitoring system for the E Pond consists of five monitoring wells (MW-36, MW-37, MW-38, MW-60, and MW-61) screened into the uppermost aquifer both hydraulically upgradient and downgradient of the E Pond (see Figure 2-2). Wells MW-36 and MW-60 are located hydraulically upgradient of the E Pond and monitor background quality in the uppermost aquifer. The remaining three wells (MW-37, MW-38, and MW-61,) are located downgradient of the E Pond and monitor the quality of groundwater in the uppermost aquifer passing beneath the waste boundary of the E Pond.

No monitoring wells were installed or decommissioned as part of the CCR groundwater monitoring system for the E Pond during 2018. In September 2018, the monitoring wells at the E Pond were converted from flush mount completions to stick ups with 4-inch by 4-inch by 5-foot aluminum locking protective stick up covers.

### **2.1.3 APH Pond**

Upon further evaluation during 2018 based on the results of the baseline, background groundwater detection monitoring performed during 2016 and 2017, the groundwater monitoring system for the APH Pond was revised to more adequately represent the natural range of background groundwater quality. The initial groundwater monitoring system had consisted of one upgradient, background monitoring well (MW-62). The groundwater monitoring network was revised during 2018 to better represent groundwater flow by including two additional existing upgradient, background monitoring wells (MW-39 and MW-40).

No monitoring wells were installed or decommissioned as part of the CCR groundwater monitoring system for the APH Pond during 2018.

## **2.2 Semi-Annual Detection Monitoring Sampling**

Semi-annual groundwater quality samples were collected from the SWDA multiunit, the E Pond, and the APH Pond CCR monitoring well networks in accordance with §257.93, Groundwater sampling and analysis requirements, and §257.94, Detection monitoring program. Sample collection was performed during May and October 2018.

Prior to sample collection, each well was visually inspected for conditions that could potentially affect the validity of the analytical results. The results of the inspection were documented on a Water Sample Log. No deficiencies in well construction were noted during either semi-annual detection monitoring event.

Groundwater samples were analyzed for parameters pursuant to §257.94(a) (Appendix III, Part 257 of the CCR Rule). Additionally, field parameters (pH, temperature, specific conductivity, and turbidity) were obtained for all monitoring wells.

### **2.2.1 Groundwater Flow Direction and Gradient**

Static groundwater elevations were measured during the May and October 2018 semi-annual detection monitoring events. These measurements are provided in Table 2-3 for the SWDA multiunit, E Pond, and APH Pond. Groundwater potentiometric surface maps were developed for the May and October 2018 semi-annual detection monitoring events to evaluate groundwater flow directions and to calculate groundwater flow rates. The potentiometric surface maps are provided in Figures 2-4 and 2-7 for the SWDA multiunit, in Figures 2-5 and 2-8 for the APH Pond, and in Figures 2-6 and 2-9 for the E Pond.

## **SWDA Multiunit**

Groundwater elevation data collected during the semi-annual monitoring events show that groundwater is typically encountered at depths ranging from 11.40 (MW-46) to 27.88 (MW-50) feet below the top of casing (btoc) at the SWDA (SWMU 001), with the overall direction of groundwater flow beneath and in the vicinity of the SWDA (SWMU 001) to the northeast. The average calculated groundwater gradient ranged from 0.0060 ft/ft to 0.0061 ft/ft at the SWDA (SWMU 001).

## **E Pond**

Groundwater is typically encountered at depths ranging from 3.99 (MW-60) to 11.37 (MW-61) feet btoc at the E Pond (SWMU 020), with the overall direction of groundwater flow beneath and in the vicinity of the E Pond (SWMU 020) to the southwest. The average calculated groundwater gradient ranged from 0.0593 ft/ft to 0.0669 ft/ft at the E Pond.

## **APH Pond**

Groundwater is typically encountered at depths ranging from 7.15 (MW-41) to 11.12 (MW-62) feet btoc at the APH Pond, with the overall direction of groundwater flow beneath and in the vicinity of the APH Pond to the south. The average calculated groundwater gradient ranged from 0.0103 ft/ft to 0.0113 ft/ft at the APH Pond.

### **2.2.2 Data Summary**

Field personnel performed the sampling in May 2018 and Hydrologic Monitoring Inc. (HMI) performed field sampling in October 2018 under contract to TRC in accordance with §257.93, Groundwater sampling and analysis requirements, and §257.94, Detection monitoring program. The samples were analyzed by TestAmerica located in Houston, Texas, which is a TCEQ certified laboratory (TCEQ ID T104704223-18-23). Static water elevation data were collected at all CCR monitoring well locations (see Figures 2-1 and 2-2). Groundwater samples were collected from the background monitoring wells and the downgradient monitoring wells for laboratory analysis for the Appendix III, Part 257 of the CCR Rule detection monitoring parameters, and for field parameters. The following table lists the CCR Units and the wells that were sampled.

CCR UNIT	UPGRADIENT WELLS	DOWNGRADIENT WELLS
SWDA Multiunit	MW-23, MW-28D, MW-42, MW-43, MW-47, MW-48	MW-44, MW-46, MW-50, MW-52, MW-54, MW-55, MW-58, MW-65
E Pond	MW-36, MW-60	MW-37, MW-38, MW-61
APH Pond	MW-39, MW-40, MW-62	MW-41, MW-63, MW-64

Field and laboratory analytical data are included in Appendices A and B. Table 2-3 provides static water elevation data and Table 2-4 provides a summary of the semi-annual detection monitoring analytical data.

### 2.2.3 Data Quality Review

Upon receipt from the laboratory, data from both semi-annual detection monitoring events were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. TRC concluded that the data were complete and usable for the purposes of the CCR monitoring program. Data quality review information is provided in Appendix C.

**Table 2-3**  
**Summary of Groundwater Elevation Data**  
**May and October 2018**  
**WA Parish Electric Generating Station - Thompsons, Texas**

Monitor Well ID	Measurement Date	Top of Casing (ft. MSL)	Depth to Water (ft.)	Groundwater Elevation (ft. MSL)
<b>Air Pre-Heater Pond</b>				
MW-39	5/9/2018	70.27	8.71	61.56
	10/29/2018	70.27	8.01	62.26
MW-40	5/9/2018	71.67	9.92	61.75
	10/29/2018	71.67	8.87	62.80
MW-41	5/9/2018	69.18	8.12	61.06
	10/29/2018	69.18	7.15	62.03
MW-62	5/9/2018	72.59	11.12	61.47
	10/29/2018	72.59	10.34	62.25
MW-63	5/9/2018	70.35	9.27	61.08
	10/29/2018	70.35	8.71	61.64
MW-64	5/9/2018	70.00	9.09	60.91
	10/29/2018	70.00	8.01	61.99
<b>Solid Waste Disposal Area</b>				
MW-19	5/7/2018	66.36	21.95	44.41
MW-23	5/8/2018	65.47	12.41	53.06
	10/29/2018	65.47	14.31	51.16
MW-28D	5/8/2018	70.37	17.32	53.05
	10/29/2018	70.37	19.05	51.32
MW-35	5/7/2018	64.29	17.24	47.05
MW-42	5/8/2018	65.88	12.78	53.10
	10/29/2018	65.88	14.63	51.25
MW-43	5/8/2018	66.67	14.32	52.35
	10/29/2018	66.67	16.63	50.04
MW-44	5/8/2018	64.42	12.23	52.19
	10/29/2018	64.42	14.21	50.21
MW-45	5/8/2018	64.31	12.10	52.21
MW-46	5/8/2018	64.15	11.40	52.75
	10/29/2018	64.15	13.17	50.98
MW-47	5/3/2018	70.40	19.37	51.03
	10/29/2018	70.40	21.94	48.46
MW-48	5/2/2018	65.89	15.89	50.00
	10/29/2018	65.89	18.65	47.24
MW-49	5/2/2018	72.05	24.14	47.91
MW-50	5/2/2018	71.27	24.99	46.28
	10/29/2018	71.27	27.88	43.39
MW-52	5/3/2018	67.91	18.16	49.75
	10/29/2018	67.91	20.66	47.25
MW-53	5/7/2018	64.29	13.96	50.33
MW-54	5/7/2018	68.29	21.99	46.30
	10/29/2018	68.29	24.59	43.70
MW-55	5/4/2018	69.34	22.10	47.24
	10/29/2018	69.34	24.71	44.63
MW-56	5/4/2018	67.81	22.06	45.75
MW-57	5/8/2018	64.03	12.50	51.53
MW-58	5/7/2018	65.40	14.49	50.91
	10/29/2018	65.40	16.76	48.64

**Table 2-3**  
**Summary of Groundwater Elevation Data**  
**May and October 2018**  
**WA Parish Electric Generating Station - Thompsons, Texas**

<b>Monitor Well ID</b>	<b>Measurement Date</b>	<b>Top of Casing (ft. MSL)</b>	<b>Depth to Water (ft.)</b>	<b>Groundwater Elevation (ft. MSL)</b>
MW-59	5/8/2018	75.47	23.80	51.67
MW-65	5/4/2018	66.65	19.51	47.14
	10/29/2018	66.65	22.17	44.48
MW-66	5/7/2018	66.86	15.82	51.04
MW-67	5/3/2018	66.62	17.20	49.42
MW-68	5/4/2018	65.22	17.05	48.17
<b>FDG Emergency Pond</b>				
MW-36	5/11/2018	71.31	5.09	66.22
	10/29/2018	73.81	7.51	66.30
MW-37	5/11/2018	71.27	8.60	62.67
	10/29/2018	74.17	11.30	62.87
MW-38	5/11/2018	70.69	8.02	62.67
	10/29/2018	73.68	10.95	62.73
MW-60	5/11/2018	70.80	3.99	66.81
	10/29/2018	72.90	6.31	66.59
MW-61	5/11/2018	71.21	8.95	62.26
	10/29/2018	74.49	11.37	63.12



**Table 2-4**  
**Summary of Groundwater Monitoring Data**  
**May and October 2018**  
**WA Parish Electric Generating Station - Thompsons, Texas**

			Appendix III Analytes						
			Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved
Analyte Unit			mg/L	mg/L	mg/L	mg/L	su	mg/L	mg/L
Well ID	Duplicate	Sample Date							
<b>Air Pre-Heater Pond</b>									
MW-39	N	5/9/2018	0.274	310	724	0.491 J	6.78	201	2440
	FD	5/9/2018	0.292	308	736	0.458 J	6.78	202	2290
	N	10/29/2018	0.141	234	874	< 3.01 U	6.78	295	2000
MW-40	N	5/9/2018	0.101	308	582	< 0.301 U	6.62	59.8	2240
	N	10/29/2018	0.118	236	678	< 1.50 U	6.54	90.9	1070
MW-41	N	5/9/2018	0.0920 J	197	391	0.305 J	6.79	54.5	1340
	N	10/29/2018	<0.0700 U	168	461	1.22 J	6.84	74.0	1160
MW-62	N	5/9/2018	0.0902 J	214	509	0.396 J	6.83	78.7	1690
	N	10/29/2018	0.0819 J	277	566	< 1.50 U	6.70	116	1420
MW-63	N	5/9/2018	0.123	306	401	0.230 J	6.78	347	1730
	N	10/29/2018	0.0996 J	294	452	< 1.50 U	6.63	505 [JL]	1570
MW-64	N	5/9/2018	0.110	252	446	0.322 J	6.67	45.1	1730
	N	10/29/2018	0.0934 J	207	512 [JL]	1.24 J	6.60	50.0	1680
<b>Solid Waste Disposal Area</b>									
MW-19	N	5/7/2018	1.38	273	471	0.394 J	7.26	440	2050
MW-23	N	5/8/2018	0.196	422	1120	< 0.301 U	11.50	240	2080
	N	10/29/2018	0.168	405	1290	< 6.01 U	11.61	678	3350
MW-28D	N	5/8/2018	0.105	183	399	0.287	10.33	53.0	1910
	N	10/29/2018	0.163	97.8	142	0.774 J	6.98	101	1240
MW-35	N	5/7/2018	0.311	140	234	0.292 J	7.08	56.5	898
MW-42	N	5/8/2018	0.611	173	297	0.506	7.05	645	2200
	N	10/29/2018	0.604	191	335	1.66 J	6.93	833	1810
MW-43	N	5/8/2018	0.487	89.2	199	0.631	7.17	72.7	934
	N	10/29/2018	0.424	73.0	258	< 0.601 U	6.92	80.9	756
MW-44	N	5/8/2018	0.262	155	377	0.416	7.01	161	1650
	N	10/29/2018	0.240	159	690	< 1.50 U	7.03	369	1230
	FD	10/29/2018	0.231	193	476	< 1.50 U	n/a	256	1330
MW-45	N	5/8/2018	0.442	378	890	< 0.601 U	6.94	513	4640
MW-46	N	5/8/2018	0.168	167	223	0.266 J	11.69	68.4	938
	N	10/29/2018	0.169	118	245	< 0.601 U	7.10	126	760
MW-47	N	5/3/2018	0.286	30.0 [JL]	262	0.631	7.07	65.8	1080
	N	10/29/2018	0.348	105	339	< 1.20 U	7.25	95.5	964
MW-48	N	5/2/2018	0.633	74.6	291	0.708	7.15	74.2	1220
	N	10/29/2018	0.572	62.8	428	< 1.20 U	7.31	111	998
MW-49	N	5/2/2018	0.346	36.5	359	0.620	6.95	85.8	1300
MW-50	N	5/2/2018	0.269	34.4	318	0.617	7.06	88.7	1180
	N	10/29/2018	0.243	139 b^	414 [JL]	< 1.20 U	6.68	123	1020
MW-52	N	5/3/2018	0.406	78.5	567	0.588	7.51	317	2410
	N	10/29/2018	0.370	372	846	< 3.01 U	7.30	499	2320

**Table 2-4**  
**Summary of Groundwater Monitoring Data**  
**May and October 2018**  
**WA Parish Electric Generating Station - Thompsons, Texas**

			Appendix III Analytes						
			Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved
Analyte Unit			mg/L	mg/L	mg/L	mg/L	su	mg/L	mg/L
Well ID	Duplicate	Sample Date							
MW-53	N	5/7/2018	0.504	156	432	0.643 J	6.99	99.2	1480
MW-54	N	5/7/2018	0.380	96.1	355	0.518	7.15	88.5	972
	FD	5/7/2018	0.245	108	222	0.460	7.15	71.0	970
MW-55	N	10/29/2018	0.265	115	249	< 1.20 U	7.57	79.7	700
	N	5/4/2018	0.195	51.6	472	0.540	11.42	38.8	1810
	N	10/29/2018	0.221	178	607	< 1.20 U	12.57	53.3	1660
MW-56	N	5/4/2018	0.819	28.1	400	0.975	6.97	168	1580
MW-57	N	5/8/2018	0.215	106	192	0.489	7.11	51.4	884
MW-58	N	5/7/2018	0.370	119	296	0.532	7.07	83.8	1120
	N	10/29/2018	0.270	115	322 [JL]	< 1.20 U	6.73	91.6	878
MW-59	N	5/8/2018	0.572	117	503	0.606	7.28	186	1680
MW-65	N	5/4/2018	0.250	48.1	163	0.510	7.02	569	1780
	N	10/29/2018	0.296	207	225	< 1.50 U	7.47	636	1590
MW-66	N	5/7/2018	0.341	99.3	229	0.604	7.08	68.7	994
MW-67	N	5/3/2018	0.210	26.4	250	< 3.01 U	7.12	67.2	912
MW-68	N	5/4/2018	0.262	32.5	219	0.547	7.08	232	1320
<b>FGD Emergency Pond</b>									
MW-36	N	5/11/2018	< 0.0700 U	270	277	0.503	6.65	422	1520
	N	10/29/2018	< 0.0700 U	218	307	1.32 J	6.70	562	1400
	FD	10/29/2018	< 0.0700 U	276	306	< 1.20 U	6.70	505	1330
MW-37	N	5/11/2018	0.398	255	244	0.332 J	6.53	762	1970
	N	10/29/2018	0.308	191	262	1.53 J	6.78	894	1760
MW-38	N	5/11/2018	2.62	986	192	1.18 J	7.26	1280	2470
	N	10/29/2018	3.20	224	470	3.27 J	7.04	1500	2430
MW-60	N	5/11/2018	0.134	251	278	< 0.301 U	6.43	170	1320
	N	10/29/2018	0.0894 J	214	355	1.21 J	6.39	213	1270
MW-61	N	5/11/2018	1.43	324	138 [JL]	< 0.601 U[JL]	6.63	1300	2650
	N	10/29/2018	1.50	465	106	1.56 J	6.91	1210	2160

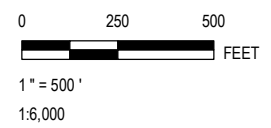
**Notes:**

- FD Field duplicate
- N Normal sample
- J Concentration is an estimated value. Result is less than the method quantitation limit but  $\geq$  to the method detection limit.
- U Analyte was not detected at or above the method detection limit.
- ^ Instrument related QC is outside acceptance limits.
- b The compound was found in the blank and sample.
- [JL] Qualified during the data usability assessment as detected at an estimated concentration with low bias.
- [JH] Qualified during the data usability assessment as detected at an estimated concentration with high bias.
- [UJL] Qualified during the data usability assessment as non-detect with low bias.



**LEGEND**

- MULTIUNIT DOWNGRADEMENT MONITORING WELL
- MULTIUNIT UPGRADIENT MONITORING WELL



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PROJECT:

**NRG TEXAS POWER, LLC  
 W.A. PARISH STATION  
 THOMPSONS, TEXAS**

TITLE:

**SOLID WASTE DISPOSAL AREA  
 GROUNDWATER MONITORING NETWORK**

DRAWN BY:

S.RAY

CHECKED BY:

A. ELJURI

APPROVED BY:

J. SPEER

DATE:

JANUARY 2019

PROJ. NO.:

294645.0000.0000

FILE:

294645\_2-1.mxd

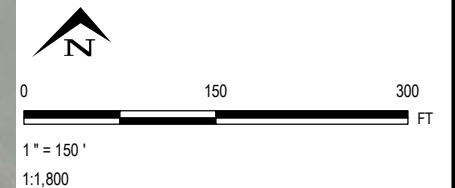
**FIGURE 2-1**





- Legend**
- MULTIUNIT DOWNGRAIDENT MONITORING WELL
  - MULTIUNIT UPGRADIENT MONITORING WELL

AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).




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PROJECT: **NRG TEXAS POWER, LLC  
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 THOMPSONS, TEXAS**

TITLE: **FGD EMERGENCY POND  
 GROUNDWATER MONITORING NETWORK**

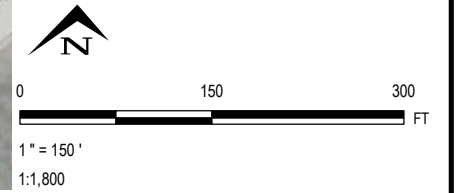
DRAWN BY: S. RAY  
 CHECKED BY: A. ELJURI  
 APPROVED BY: J. SPEER  
 DATE: JANUARY 2019  
 PROJ. NO.: 294645.0000.0000  
 FILE: 294645\_2-2.mxd

**FIGURE 2-2**



- Legend**
- MULTIUNIT DOWNGRAIDENT MONITORING WELL
  - MULTIUNIT UPGRADIENT MONITORING WELL

AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).



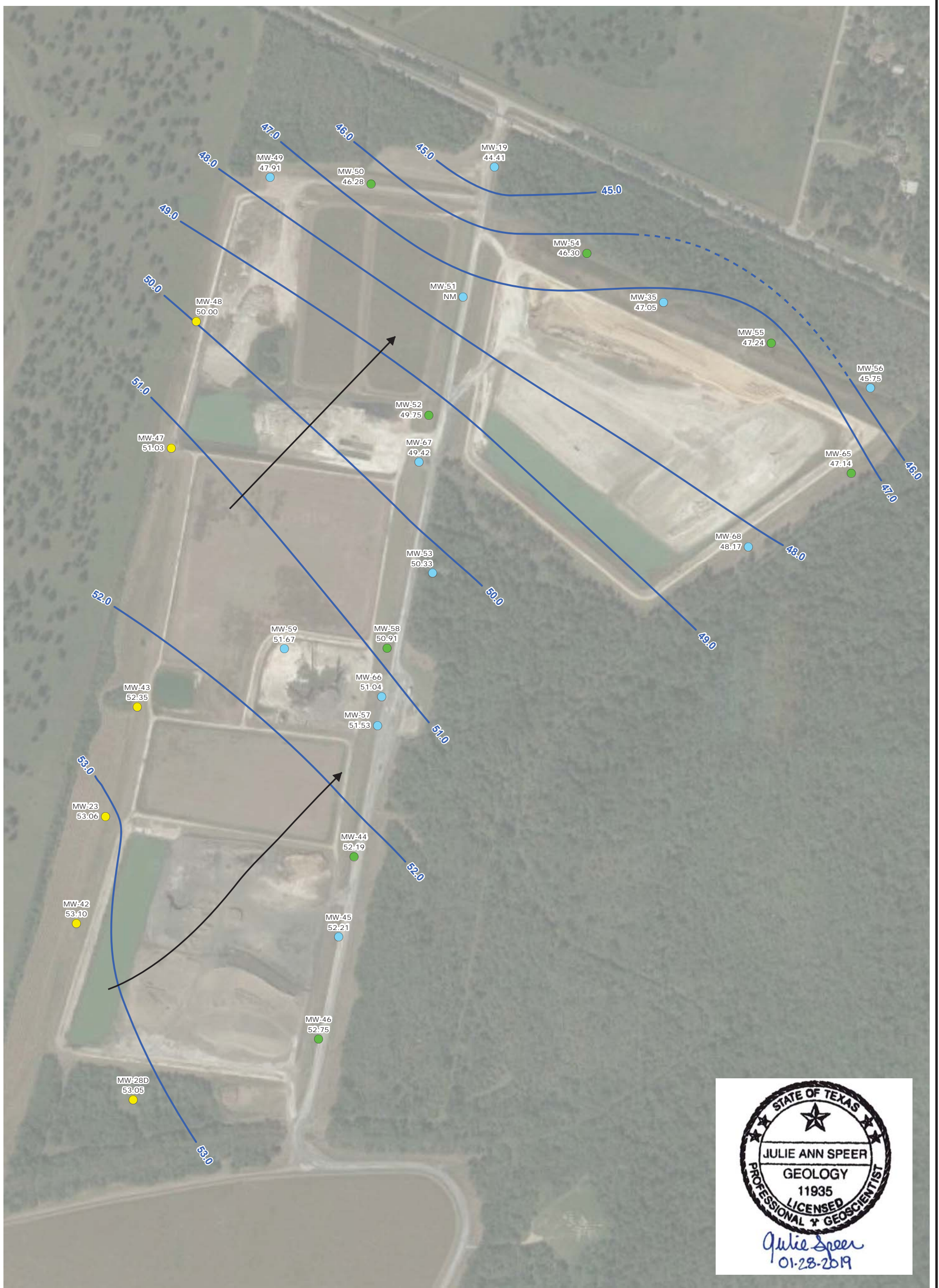

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TITLE:	<b>AIR PREHEATER POND GROUNDWATER MONITORING NETWORK</b>

DRAWN BY:	S. RAY
CHECKED BY:	A. ELJURI
APPROVED BY:	J. SPEER
DATE:	JANUARY 2019
PROJ. NO.:	294645.0000.0000
FILE:	294645_2-3.mxd
<b>FIGURE 2-3</b>	

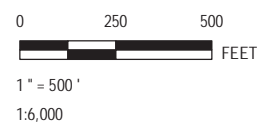




**LEGEND**

- MONITORING WELL
- CCR MULTIUNIT DOWNGRADIENT MONITORING WELL
- CCR MULTIUNIT UPGRADIENT MONITORING WELL
- 53.05 GROUNDWATER ELEVATION (FT MSL)
- GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)
- GROUNDWATER FLOW DIRECTION

NOTE:  
 GROUNDWATER ELEVATIONS MEASURED BY TRC ENVIRONMENTAL CORPORATION (TRC) ON MAY 2 TO 4 AND 7 TO 8, 2018.



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PROJECT:

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 THOMPSONS, TEXAS**

TITLE:

**SOLID WASTE DISPOSAL AREA,  
 GROUNDWATER POTENTIOMETRIC SURFACE MAP – MAY 2018**

DRAWN BY:

S. RAY

CHECKED BY:

J. SPEER

APPROVED BY:

J. SPEER

DATE:

JANUARY 2019

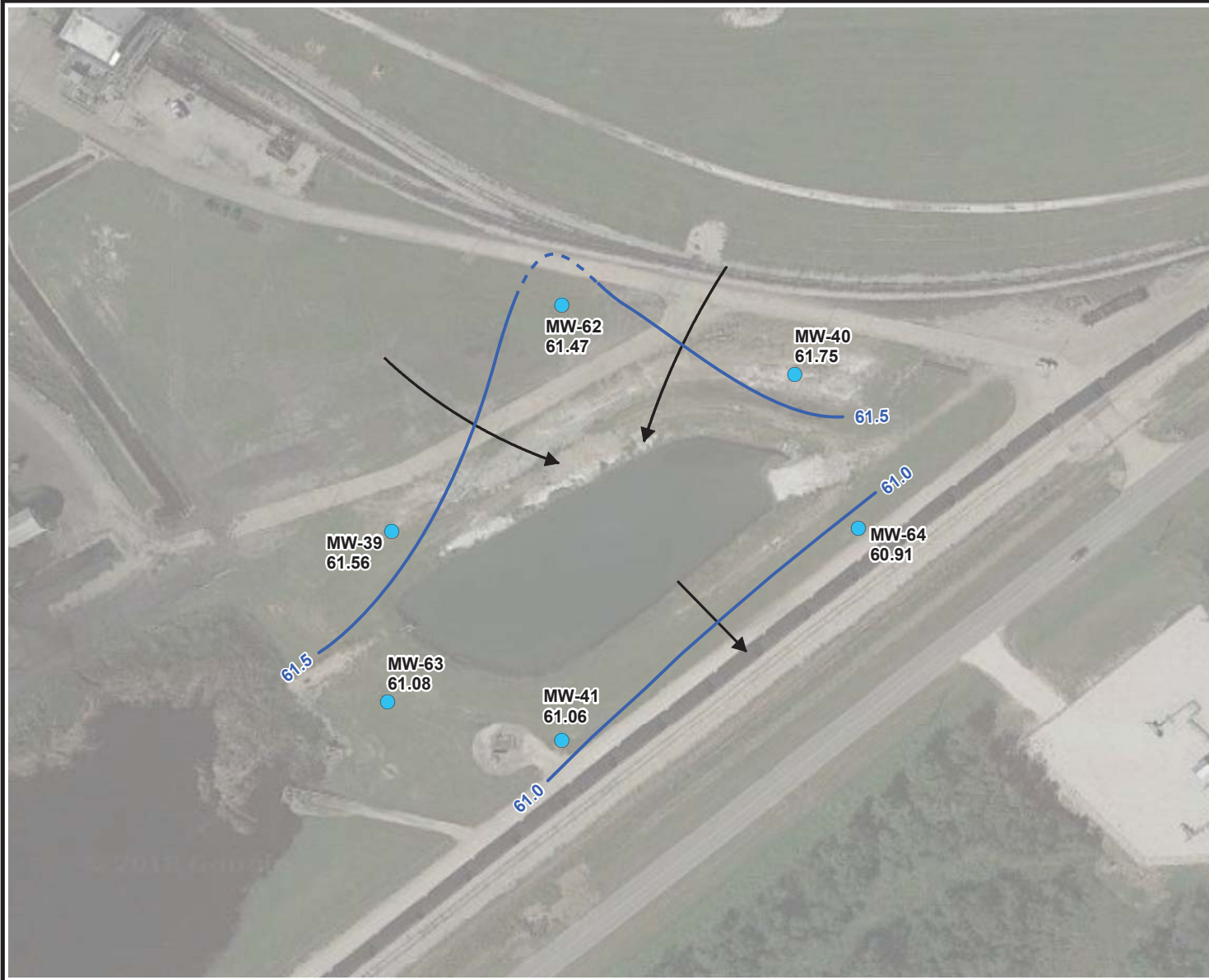
PROJ. NO.:

294645.0000.0000

FILE:

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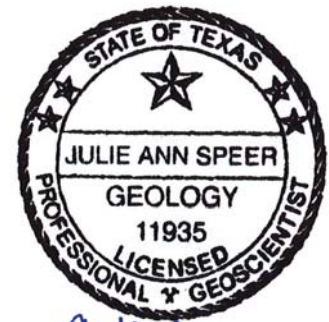
**FIGURE 2-4**



**LEGEND**

- MONITORING WELL
- 61.75 — GROUNDWATER ELEVATION (FT MSL)
- - - GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)
- ← GROUNDWATER FLOW DIRECTION

NOTE:  
GROUNDWATER ELEVATIONS MEASURED BY TRC ENVIRONMENTAL CORPORATION (TRC) ON MAY 9, 2018.



*Julie Speer*  
01-28-2019

AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).



1" = 150'  
1:1,800



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PROJECT:

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W.A. PARISH STATION  
THOMPSONS, TEXAS**

TITLE:

**AIR PREHEATER POND  
GROUNDWATER POTENTIOMETRIC SURFACE MAP – MAY 2018**

DRAWN BY:

S. RAY

CHECKED BY:

A. ELJURI

APPROVED BY:

J. SPEER

DATE:

JANUARY 2019

PROJ. NO.:

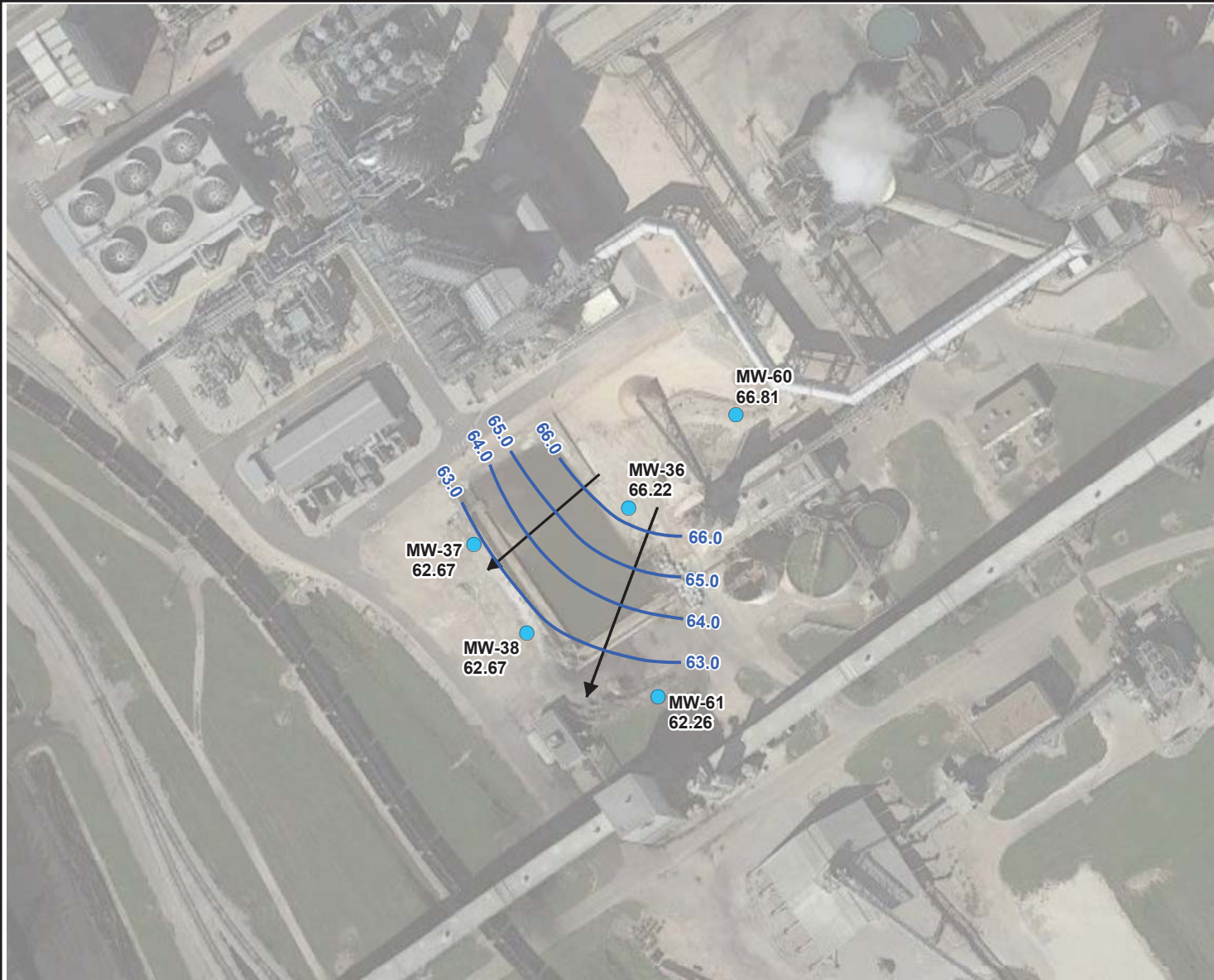
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FILE:

294645\_2-5.mxd

**FIGURE 2-5**





**LEGEND**

- MONITORING WELL
- 66.81 GROUNDWATER ELEVATION (FT MSL)
- GROUNDWATER ELEVATION CONTOUR (FT MSL)
- ← GROUNDWATER FLOW DIRECTION

NOTE:  
GROUNDWATER ELEVATIONS MEASURED BY TRC ENVIRONMENTAL CORPORATION (TRC) ON MAY 11, 2018.



AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).



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THOMPSONS, TEXAS**

TITLE:

**FGD EMERGENCY POND,  
GROUNDWATER POTENTIOMETRIC SURFACE MAP – MAY 2018**

DRAWN BY:

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CHECKED BY:

J. SPEER

APPROVED BY:

J. SPEER

DATE:

JANUARY 2019

PROJ. NO.:

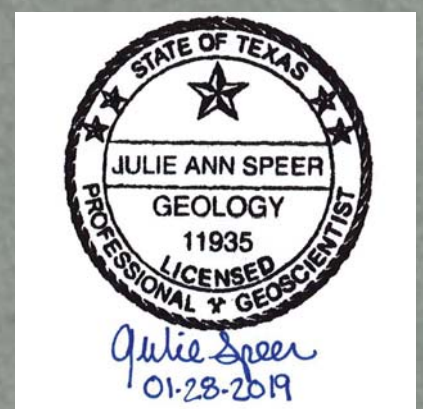
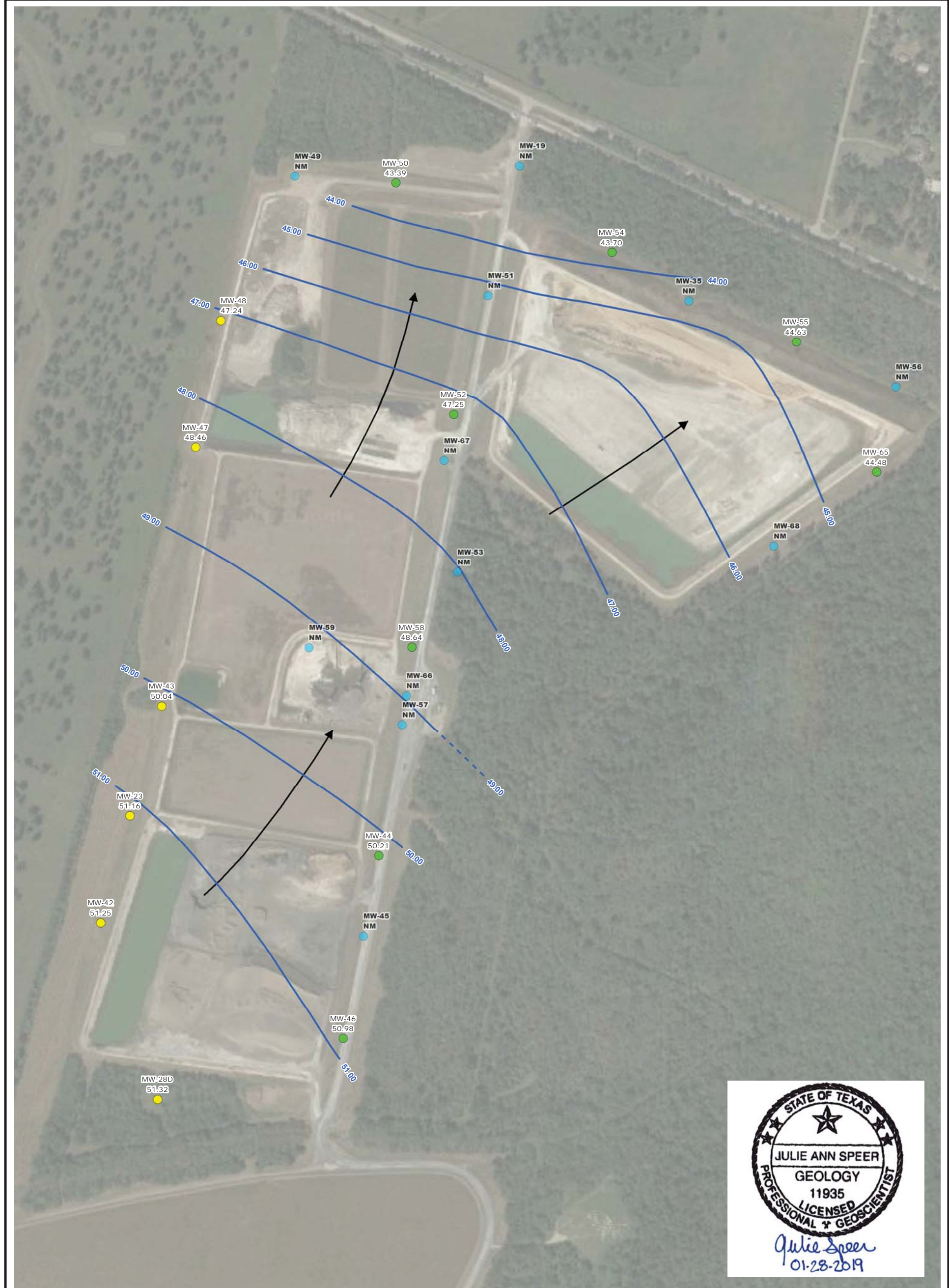
294645.0000.0000

FILE:

294645\_2-6.mxd

**FIGURE 2-6**



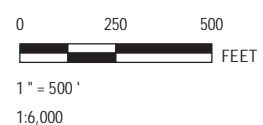


**LEGEND**

- MONITORING WELL
- CCR MULTIUNIT DOWNGRADIENT MONITORING WELL
- CCR MULTIUNIT UPGRADIENT MONITORING WELL

- 51.32 GROUNDWATER ELEVATION (FT MSL)
- GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)
- ← GROUNDWATER FLOW DIRECTION
- NM NOT MEASURED

NOTE: GROUNDWATER ELEVATION CONTOURS INTERPRETED BY TRC BASED ON GROUNDWATER ELEVATIONS MEASURED BY HYDROLOGIC MONITORING (HMI) ON OCTOBER 29, 2018.



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 THOMPSONS, TEXAS**

TITLE:

**SOLID WASTE DISPOSAL AREA  
 GROUNDWATER POTENTIOMETRIC SURFACE MAP – OCTOBER 2018**

DRAWN BY:

S.RAY

CHECKED BY:

J. SPEER

APPROVED BY:

J. SPEER

DATE:

JANUARY 2019

PROJ. NO.:

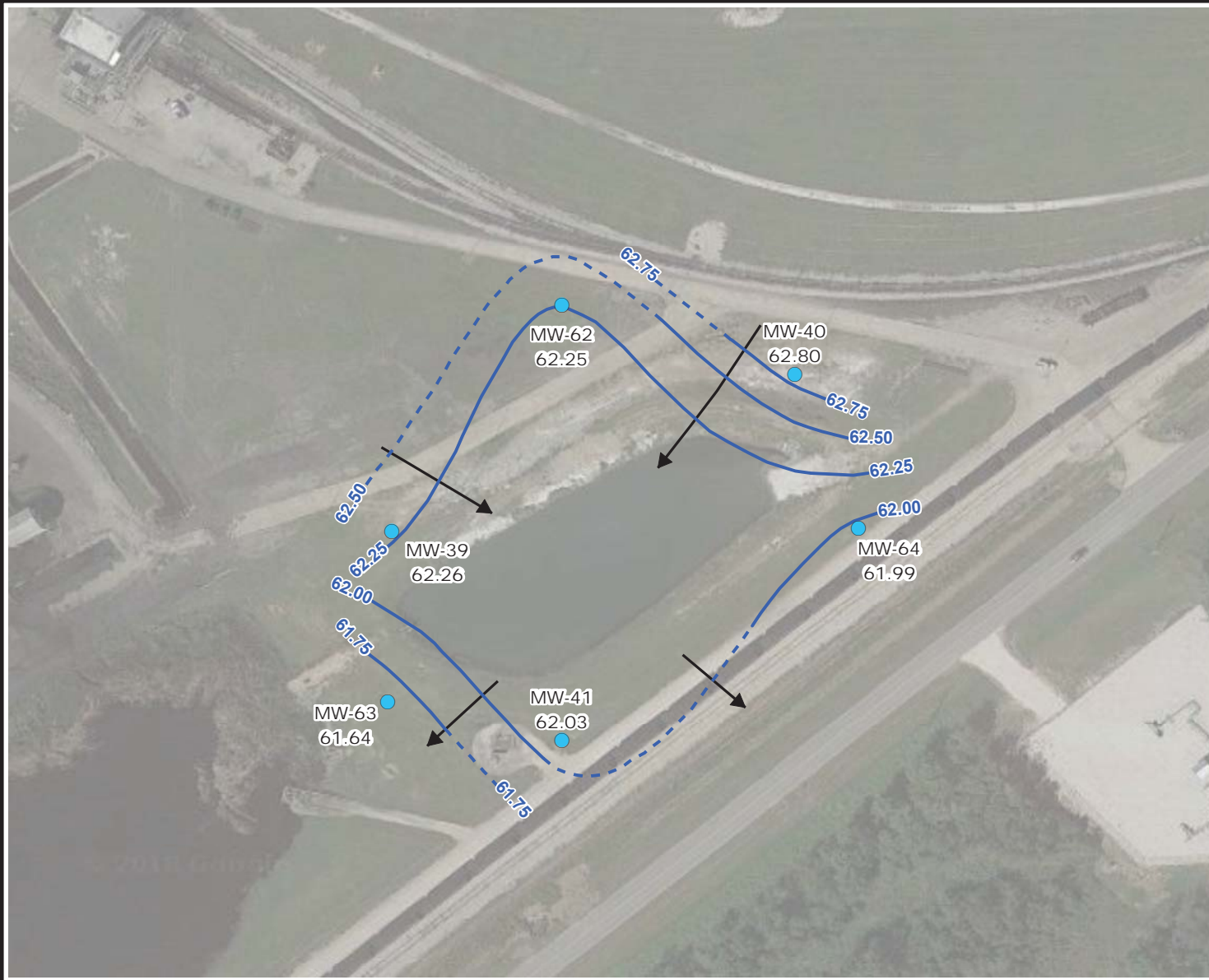
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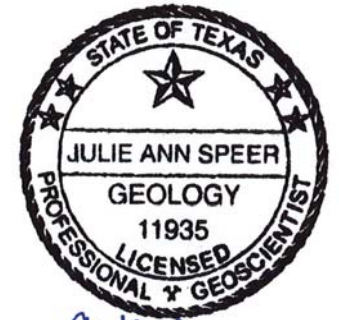
**FIGURE 2-7**





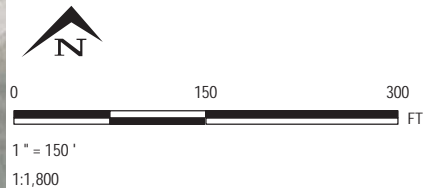
- LEGEND**
- MONITORING WELL
  - 62.80 GROUNDWATER ELEVATION (FT MSL)
  - GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)
  - ← GROUNDWATER FLOW DIRECTION

NOTE:  
GROUNDWATER ELEVATION CONTOURS INTERPRETED BY TRC BASED ON GROUNDWATER ELEVATIONS MEASURED BY HYDROLOGIC MONITORING (HMI) ON OCTOBER 29, 2018.



*Julie Speer*  
01-28-2019

AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).

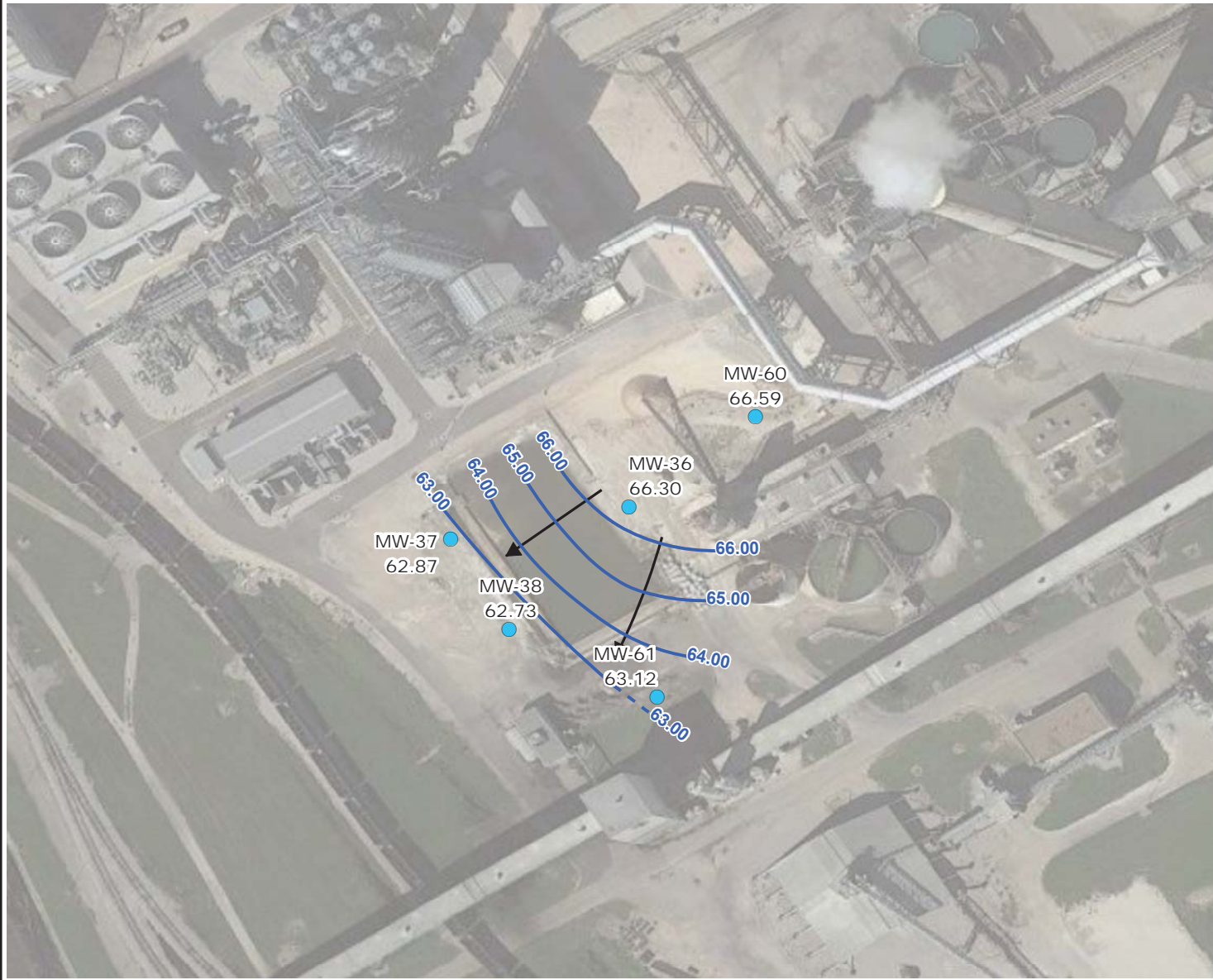



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TITLE:	<b>AIR PREHEATER POND GROUNDWATER POTENTIOMETRIC SURFACE MAP – OCTOBER 2018</b>

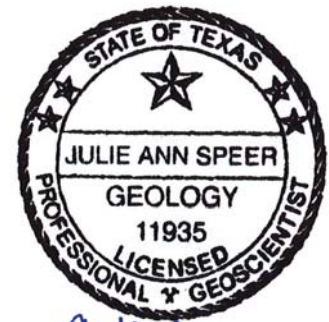
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CHECKED BY:	J. SPEER
APPROVED BY:	J. SPEER
DATE:	JANUARY 2019
PROJ. NO.:	294645.0000.0000
FILE:	294645_2-8.mxd
<b>FIGURE 2-8</b>	



**LEGEND**

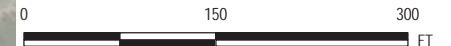
- MONITORING WELL
- 66.59 GROUNDWATER ELEVATION (FT MSL)
- GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)
- ← GROUNDWATER FLOW DIRECTION

NOTE:  
GROUNDWATER ELEVATION CONTOURS INTERPRETED BY TRC BASED ON GROUNDWATER ELEVATIONS MEASURED BY HYDROLOGIC MONITORING (HMI) ON OCTOBER 29, 2018.



*Julie Speer*  
01-28-2019

AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).



1" = 150'  
1:1,800



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PROJECT: **NRG TEXAS POWER, LLC  
W.A. PARISH STATION  
THOMPSONS, TEXAS**

TITLE: **FGD EMERGENCY POND  
GROUNDWATER POTENTIOMETRIC SURFACE MAP – OCTOBER 2018**

DRAWN BY:	S. RAY
CHECKED BY:	J. SPEER
APPROVED BY:	J. SPEER
DATE:	JANUARY 2019
PROJ. NO.:	294645.0000.0000
FILE:	294645_2-9.mxd

**FIGURE 2-9**

# Section 3

## Status of Groundwater Monitoring and Corrective Action Program

---

### 3.1 Semi-Annual Detection Monitoring Summary

This Annual Report provides the monitoring data for the semi-annual detection monitoring sampling performed during May and October 2018 for the SWDA multiunit, the E Pond, and the APH Pond. Previous monitoring data was provided in the 2017 Annual Report. Based on the data and results of the monitoring activities, the status of the groundwater monitoring and corrective action program at the Station, problems encountered, actions to resolve the problems, and key actions completed during 2018 are summarized in the following subsections.

### 3.2 Problems Encountered and Resolution

During 2018, the following problems were encountered for the SWDA multiunit, the E Pond, and the APH Pond:

- The previously selected statistical method for evaluation of groundwater monitoring data was revised;
  - The initial selection of background and downgradient groundwater monitoring wells for the four individual SWDA landfill cells (Cell 1C, Cell 2A, Cell 2B, and Cell 3) groundwater monitoring systems was determined not to be optimal and was modified by incorporating the four landfill cells into a single CCR multiunit and revising the monitoring wells used for the SWDA CCR multiunit groundwater monitoring network; and The initial groundwater monitoring system for the APH Pond used only MW-62 to monitor upgradient, background groundwater quality; the groundwater monitoring system has been revised to add two additional existing, upgradient monitoring wells (MW-39 and MW-40) to more representatively monitor upgradient background groundwater quality.

### 3.3 Key Actions Completed

In addition to resolving the above-noted problems encountered in the groundwater monitoring program during 2018, the following key actions were completed:

- Pursuant to 40 Code of Federal Regulations (CFR) Part §257.90(e) and (f) of the Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities, Final Rule (CCR Rule), the facility prepared the 2017 annual groundwater

monitoring and corrective action report, placed the report in the facility's Operating Record on January 31, 2018, and placed the report on the facility's public CCR website March 2, 2018.

- Semi-annual detection monitoring samples were collected for the SWDA multiunit, the E Pond, and the APH Pond and analyzed for the Appendix III, Part 257 of the CCR Rule detection monitoring parameters;
- Groundwater potentiometric surface maps were prepared, direction of groundwater flow was determined, and average groundwater flow velocities were calculated for both semi-annual detection monitoring events for the SWDA multiunit, the E Pond, and the APH Pond;
- Performance of statistical analysis for the first (October 2017) and second (May 2018) semi-annual detection monitoring events;
- Identification of SSIs above background for the SWDA, the E Pond, and the APH Pond for the first and second semi-annual detection monitoring events;
- Completion of written ASDs successfully evaluating the first semi-annual detection monitoring event SSIs for the SWDA multiunit, the E Pond, and the APH Pond, allowing the Station to remain in detection monitoring during 2018;
- Modification of the surface groundwater monitoring well completions for the wells at the E Pond by converting the flush mount completions to stick up completions with protective locking covers.;

Certification of revised Groundwater Monitoring Network and Statistical Methods by a Texas P.E. based on completing the above-noted key actions. No corrective action activities were required or performed at the SWDA multiunit, the E Pond, or the APH Pond during 2018.

### **3.4 Monitoring Wells Installed or Decommissioned**

No groundwater monitoring wells were installed or decommissioned as part of the CCR groundwater monitoring system for the SWDA multiunit, the E Pond, or the APH Pond during 2018.

# Section 4

## Statistically Significant Increases

---

This 2018 Annual Report addresses statistically significant increases (SSIs) above background that were determined for groundwater samples collected during the first semi-annual detection monitoring event (October 2017) and the second semi-annual detection monitoring event (May 2018).

### 4.1 Initial Detection Monitoring Event (October 2017)

The results of the statistical evaluation for the first semi-annual detection monitoring event were reported on March 1, 2018. The statistical analysis was conducted in accordance with the *Statistical Analysis Plan* (ERM 2017) using prediction limits per §257.93(f)(3) for the groundwater monitoring networks certified on October 17, 2017. As discussed in Section 3.2 of this Annual Report, several of the groundwater monitoring well networks were revised and the statistical method was revised for all of the CCR Units to tolerance limits per §257.93(f)(3) during 2018. The Alternate Source Demonstration (ASD) presented in Section 5 of this Annual Report and provided as Appendix E identifies the initial SSIs for the first semi-annual detection monitoring event reported on March 1, 2018.

#### 4.1.1 SWDA Multiunit

Following revision of the statistical method and groundwater monitoring system for the SWDA multiunit, statistical analysis of the first semi-annual detection monitoring results for the SWDA multiunit was conducted. The results are summarized in Table 4-1. Two SSIs were identified for the October 2017 sampling event. In accordance with §257.94(e)(2), an ASD was performed to evaluate the initially identified SSIs and the revised SSIs as discussed in Section 5.

**Table 4-1**  
**SSIs Identified Based on Revised Statistical Evaluation - SWDA Multiunit**  
**October 2017 Detection Monitoring Event**

ANALYTE	WELL	LTL	UTL	SAMPLE DATE	VALUE	UNIT
Boron	MW-44	NA	1.1	2017-10-10	1.27	mg/L
pH	MW-55	6.9	10.6	2017-10-09	11.78	SU

mg/L= milligrams per liter  
LTL – Lower Tolerance Limit

SU = Standard Units  
UTL – Upper Tolerance Limit

N/A = Not Applicable



#### 4.1.2 E Pond

Following revision of the statistical method, statistical analysis of the first semi-annual detection monitoring results for the E Pond was conducted. The results are summarized in Table 4-2. Ten SSIs were identified for the October 2017 sampling event. In accordance with §257.94(e)(2), an ASD was performed to evaluate the initially identified SSIs and the revised SSIs as discussed in Section 5.

**Table 4-2  
SSIs Identified Based on Updated Statistical Evaluation – E Pond  
October 2017 Detection Monitoring Event**

ANALYTE	WELL	LTL	UTL	SAMPLE DATE	VALUE	UNIT
Boron	MW-37	N/A	0.160	2017-10-09	0.296	mg/L
Boron	MW-38	N/A	0.160	2017-10-09	1.38	mg/L
Boron	MW-61	N/A	0.160	2017-10-09	1.11	mg/L
Calcium	MW-38	N/A	301	2017-10-09	655	mg/L
Calcium	MW-61	N/A	301	2017-10-09	335	mg/L
pH	MW-38	6.4	7.1	2017-10-09	7.93	SU
Sulfate	MW-38	N/A	1,070	2017-10-09	1,520	mg/L
Sulfate	MW-61	N/A	1,070	2017-10-09	1,300	mg/L
TDS	MW-38	N/A	1,958	2017-10-09	2,210	mg/L
TDS	MW-61	N/A	1,958	2017-10-09	2,660	mg/L

mg/L= milligrams per liter  
LTL – Lower Tolerance Limit

SU = Standard Units  
UTL – Upper Tolerance Limit

N/A = Not Applicable

#### 4.1.3 APH Pond

Following revision of the statistical method and groundwater monitoring system for the APH Pond, statistical analysis of the first semi-annual detection monitoring results for the APH Pond was conducted. No SSIs were identified for the October 2017 sampling event.

### 4.2 Second Detection Monitoring Event (May 2018)

The second semi-annual detection monitoring event was conducted in May 2018. The statistical analyses of the analytical results for Appendix III parameters based on the revised statistical method and CCR groundwater monitoring systems are summarized in the following subsections.

#### 4.2.1 SWDA Multiunit

Statistical analysis of the second semi-annual detection monitoring results for the SWDA multiunit was completed on October 25, 2018. The results are summarized in Table 4-3. Two SSIs were identified for the downgradient monitoring wells for the May 2018 sampling event. Three additional SSI were identified for upgradient monitoring well MW-23. In accordance with §257.94(e)(2), The facility conducted an ASD to demonstrate that a source other than the CCR unit caused the SSIs over background levels for a constituent or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

**Table 4-3  
SSIs Identified for the SWDA Multiunit  
May 2018 Detection Monitoring Event**

ANALYTE	WELL	LTL	UTL	SAMPLE DATE	VALUE	UNIT
<b>DOWNGRADIENT MONITORING WELLS</b>						
pH	MW-46	6.9	10.6	2018-05-08	11.69	SU
pH	MW-55	6.9	10.6	2018-05-04	11.42	SU
<b>UPGRADIENT MONITORING WELLS</b>						
Calcium	MW-23	N/A	313	2018-05-08	422	mg/L
Chloride	MW-23	N/A	992	2018-05-08	1120	mg/L
pH	MW-23	6.9	10.6	2018-05-08	11.5	SU

mg/L= milligrams per liter  
LTL – Lower Tolerance Limit

SU = Standard Units  
UTL – Upper Tolerance Limit

N/A = Not Applicable

#### 4.2.2 E Pond

Statistical analysis of the second semi-annual detection monitoring results for the E Pond was completed on October 25, 2018. The results are summarized in Table 4-4. Eleven SSIs were identified for the May 2018 sampling event. In accordance with §257.94(e)(2), the facility conducted an ASD to demonstrate that a source other than the CCR unit caused the SSIs over background levels for a constituent or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.



**Table 4-4  
SSIs Identified for the E Pond  
May 2018 Detection Monitoring Event**

ANALYTE	WELL	LTL	UTL	SAMPLE DATE	VALUE	UNIT
Boron	MW-37	N/A	0.16	2018-05-11	0.398	mg/L
Total Dissolved Solids	MW-37	N/A	1,958	2018-05-11	1,970	mg/L
Boron	MW-38	N/A	0.16	2018-05-11	2.62	mg/L
Calcium	MW-38	N/A	301	2018-05-11	986	mg/L
pH	MW-38	6.4	7.1	2018-05-11	7.26	SU
Sulfate	MW-38	N/A	1,070	2018-05-11	1,280	mg/L
Total Dissolved Solids	MW-38	N/A	1,958	2018-05-11	2,470	mg/L
Boron	MW-61	N/A	0.16	2018-05-11	1.43	mg/L
Calcium	MW-61	N/A	301	2018-05-11	324	mg/L
Sulfate	MW-61	N/A	1,070	2018-05-11	1,300	mg/L
Total Dissolved Solids	MW-61	N/A	1,958	2018-05-11	2,650	mg/L

mg/L= milligrams per liter  
LTL – Lower Tolerance Limit

SU = Standard Units  
UTL – Upper Tolerance Limit

N/A = Not Applicable

### 4.2.3 APH Pond

Statistical analysis of the second semi-annual detection monitoring results for the APH Pond was completed on October 25, 2018. The results are summarized in Table 4-5. No SSIs were identified for the May 2018 sampling event. However, the boron concentration in upgradient monitoring well MW-39 exceeded the baseline upper tolerance limit (UTL). The facility conducted an ASD to demonstrate that a source other than the CCR unit caused the SSIs over background levels for a constituent or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

# Section 5

## Alternative Source Demonstrations

---

As discussed above in Subsection 4.1 of this Annual Report, potential SSIs above background levels were initially identified at the SWDA Multiunit, the E Pond, and the APH Pond for the first semi-annual detection monitoring event conducted in October 2017.

Pursuant to §257.94(e)(2), the owner or operator may demonstrate that a source other than the CCR unit caused the SSI(s) over background levels for a constituent or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Therefore, to evaluate the SSIs and to determine whether an ASD could be successfully demonstrated, ASDs were conducted and certified by a Texas P.E. in July 2018. The ASD process successfully demonstrated alternate sources for the SWDA Multiunit, the E Pond, and the APH Pond. Therefore, detection monitoring was continued for the SWDA multiunit, the E Pond, and the APH Pond for the second and third semi-annual detection monitoring event in May and October 2018.

The ASD documents for the SWDA multiunit, the E Pond, and the APH Pond are included in Appendix E and are summarized in the following sections.

### 5.1 SWDA Multiunit

The initial statistical evaluation of the first semi-annual detection monitoring data for the SWDA multiunit was reported on March 1, 2018, where based on the October 17, 2017 groundwater monitoring network and statistical method and groundwater monitoring system certifications and 31 potential SSIs were identified. The ASD determined that the groundwater monitoring system initially established for the four individual Landfill cells did not adequately represent the range of groundwater quality passing the upgradient limit of the CCR units. Therefore, the four landfill cells at the SWDA were merged into a single, CCR multiunit and the CCR groundwater monitoring system was revised. Furthermore, as per §257.93(f), an alternate statistical method was identified and established for the October 2017 semi-annual detection monitoring data. Based on the revised groundwater monitoring system for a CCR multiunit and revised statistical method, the potential SSIs were evaluated and two SSI were identified. Both SSIs were then evaluated within an ASD and no SSIs were identified. As a result, the SWDA multiunit remained in detection monitoring.

## **5.2 E Pond**

The initial statistical evaluation of the first semi-annual detection monitoring data for the E Pond was reported on March 1, 2018, where based on the October 17, 2017 groundwater monitoring network and statistical method and groundwater monitoring system certifications and 10 SSIs were identified. As per §257.93(f), an alternate statistical method was identified and established for the October 2017 semi-annual detection monitoring data. Based on the revised statistical method, the potential SSIs were evaluated in an ASD and no SSIs were identified. As a result, the E Pond remained in detection monitoring.

## **5.3 APH Pond**

The initial statistical evaluation of the first semi-annual detection monitoring data for the APH Pond was reported on March 1, 2018, where based on the October 17, 2017 groundwater monitoring network and statistical method and groundwater monitoring system certifications and seven SSIs were identified. As discussed previously, two additional existing upgradient background groundwater monitoring wells were added into the groundwater monitoring network. Furthermore, as per §257.93(f), an alternate statistical method was identified and established for the October 2017 semi-annual detection monitoring data. Based on the revised statistical method, the potential SSIs were evaluated in an ASD and no SSIs were identified. As a result, the APH Pond remained in detection monitoring.

## Section 6

# Projected Key Activities for 2019

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Looking ahead to 2019, key activities projected for 2019 are as follows:

- Completion of the 2018 annual groundwater monitoring and corrective action report (Annual Report), placing the report into the facility's Operating Record by January 31, 2019, and posting the Annual Report on the facility's public CCR website by March 2, 2019.
- Performance of statistical analysis of the third and fourth semi-annual detection monitoring events (October 2018 and April 2019 sampling) to identify potential SSIs over background for all Appendix III parameters;
- Preparation of ASD(s) to evaluate SSIs over background for the second semi-annual detection monitoring event (May 2018);
- If required, preparation of ASD(s) to evaluate SSIs over background for the third semi-annual detection monitoring event (October 2018); and
- Performance of the fourth and fifth semi-annual detection monitoring events, which are targeted for April and October 2019, and will include:
  - Preparation of groundwater potentiometric surface maps, determination of groundwater flow direction, and calculation of average groundwater gradient.

# Section 7

## References

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Federal Register, Vol. 80 No. 74, April 17, 2015, 40 CFR Parts 257 and 261, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule

ERM, Sampling and Analysis Plan, October 2017, W.A. Parish Electric Generating Station, Thompsons, Texas

ERM, CCR Statistical Analysis Plan, October 2017, W.A. Parish Electric Generating Station, Thompsons, Texas

# Appendix A

## Detection Monitoring Data (May 2018)

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*TRC Environmental Corporation | NRG Texas Power, LLC*

*2018 Annual Groundwater Monitoring Report*

*S:\NRG\W.A. PARISH\2. REPORTS\2018 ANNUAL REPORT\FINAL REPORT\2018 W A PARISH ANNUAL GW REPORT\_2019 TD 1-29-19.DOCX*

*January 31, 2019*



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Houston  
6310 Rothway Street  
Houston, TX 77040  
Tel: (713)690-4444

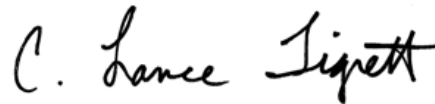
TestAmerica Job ID: 600-165461-2

Client Project/Site: TRC-Texas W. A. Parish App III  
Revision: 1

For:

TRC Solutions, Inc.  
10550 Richmond Avenue  
Suite 210  
Houston, Texas 77042

Attn: Andrew Clayton



Authorized for release by:  
7/27/2018 8:44:28 AM

C. Lance Tigrett, Project Manager II  
(713)690-4444  
[lance.tigrett@testamericainc.com](mailto:lance.tigrett@testamericainc.com)

### LINKS

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results through  
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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

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

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

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# Case Narrative

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Job ID: 600-165461-2**

**Laboratory: TestAmerica Houston**

## Narrative

**Job Narrative  
600-165461-2**

## Comments

No additional comments.

## Receipt

The samples were received on 5/4/2018 4:57 PM, 5/8/2018 2:06 PM, 5/9/2018 12:43 PM, 5/10/2018 1:05 PM and 5/11/2018 4:34 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 12 coolers at receipt time were 0.6° C, 1.9° C, 3.2° C, 3.2° C, 3.9° C, 3.9° C, 4.4° C, 4.4° C, 4.9° C, 5.1° C, 11.4° C and 17.7° C.

## Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. No collection date is listed. Samples logged in per information listed on the sample containers.

The following samples were received at the laboratory outside the required temperature criteria: MW-36 (600-165817-1), MW-61 (600-165817-2), MW-38 (600-165817-3), MW-37 (600-165817-4) and MW-60 (600-165817-5). The samples are considered acceptable since they were collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

*All applicable analytical narratives can be found in the TRRP Checklist section of this report.*

# Appendix A

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

This data package is for TestAmerica Houston job number 600-165461-2 and consists of:

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

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

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

Taylor Bruzzio, for C. Lance Tigrett

Name (printed)



Signature

6/13/2018

Date

Project Manager II

Official Title (printed)

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

Laboratory Name:	TestAmerica Houston	LRC Date:	6/13/2018
Project Name:	TRC-Texas W. A. Parish App III	Laboratory Job Number:	600-165461-2
Reviewer Name:	Taylor Bruzzio, for C. Lance Tigrett		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	<b>Chain-of-custody (C-O-C)</b>					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X			R01A
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	<b>Sample and quality control (QC) identification</b>					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	<b>Test reports</b>					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	<b>Surrogate recovery data</b>					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	<b>Test reports/summary forms for blank samples</b>					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	<b>Laboratory control samples (LCS):</b>					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			R07C
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	<b>Analytical duplicate data</b>					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	<b>Method quantitation limits (MQLs):</b>					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	<b>Other problems/anomalies</b>					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?		X			R10B
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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

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

Laboratory Name:	TestAmerica Houston	LRC Date:	6/13/2018
Project Name:	TRC-Texas W. A. Parish App III	Laboratory Job Number:	600-165461-2
Reviewer Name:	Taylor Bruzzio, for C. Lance Tigrett		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
S1	OI	<b>Initial calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	<b>Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	<b>Mass spectral tuning</b>					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	<b>Internal standards (IS)</b>					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	<b>Raw data (NELAC Section 5.5.10)</b>					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	<b>Dual column confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	<b>Tentatively identified compounds (TICs)</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	<b>Interference Check Sample (ICS) results</b>					
		Were percent recoveries within method QC limits?	X				
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?		X			S09A
S10	OI	<b>Method detection limit (MDL) studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSS?	X				
S11	OI	<b>Proficiency test reports</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	<b>Standards documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	<b>Compound/analyte identification procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	<b>Demonstration of analyst competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	<b>Verification/validation documentation for methods (NELAC Chapter 5)</b>					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	<b>Laboratory standard operating procedures (SOPs)</b>					
		Are laboratory SOPs current and on file for each method performed?	X				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							



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

Laboratory Name:	TestAmerica Houston	LRC Date:	6/13/2018
Project Name:	TRC-Texas W. A. Parish App III	Laboratory Job Number:	600-165461-2
Reviewer Name:	Taylor Bruzzio, for C. Lance Tigrett		

ER # <sup>1</sup>	Description
R01A	<p>The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. No collection date is listed. Samples logged in per information listed on the sample containers.</p> <p>The following samples were received at the laboratory outside the required temperature criteria: MW-36 (600-165817-1), MW-61 (600-165817-2), MW-38 (600-165817-3), MW-37 (600-165817-4) and MW-60 (600-165817-5). The samples are considered acceptable since they were collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.</p> <p>Method 6020: The following samples for metals were received unpreserved and were preserved upon receipt to the laboratory: MW-63 (600-165751-4). Regulatory documents require a 24-hour waiting period from the time of the addition of the acid preservative to the time of digestion.</p>
R07C	<p>Method 300.0: Due to the high concentration of target analytes, samples 600-165461-1 MS/MSD, 600-165817-2 MS/MSD and 600-165604-1 MS/MSD could not be evaluated for accuracy. The associated laboratory control sample (LCS) met acceptance criteria.</p> <p>Method 300.0: 600-166588-A-1 MS/MSD failed the recovery criteria for the following analyte: Chloride. Matrix interference is suspected.</p> <p>Method 6020: Due to the high concentration of target analytes, samples 600-165751-5 MS/MSD and 600-165831-E-9-B MS/MSD could not be evaluated for accuracy. The associated laboratory control sample (LCS) met acceptance criteria.</p> <p>Method 6020: 600-165461-7 MS/MSD failed the recovery criteria for the following analytes: Boron and Calcium. Matrix interference is suspected.</p>
R10B	<p>Method 300.0: The following samples were diluted due to the nature of the sample matrix: Dup-2 (600-165751-3), MW-63 (600-165751-4), MW-41 (600-165751-5), MW-61 (600-165817-2), MW-38 (600-165817-3), MW-37 (600-165817-4), MW-19 (600-165604-1), MW-35 (600-165604-2), MW-53 (600-165604-3), MW-40 (600-165751-1), MW-39 (600-165751-2), MW-64 (600-165751-6), MW-62 (600-165751-7), MW-23 (600-165670-5), MW-46 (600-165670-9) and MW-45 (600-165670-10). Elevated reporting limits (RLs) are provided.</p>
S09A	<p>Method 6020: The serial dilution performed for the following sample associated with batch 560-150858 was outside control limits for Calcium (29%): (600-165461-E-7-A SD).</p> <p>Method 6020: The serial dilution performed for the following sample associated with batch 560-150911 was outside control limit for Calcium (22%): (600-165670-E-1-A SD).</p> <p>Method 6020: The serial dilution performed for the following sample associated with batch 560-150911 was outside control limits for Barium (25%): (600-165670-E-1-A SD).</p>
	<ol style="list-style-type: none"> <li>Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</li> <li>O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</li> <li>NA = Not applicable;</li> <li>NR = Not reviewed;</li> <li>ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</li> </ol>

**Matrix:** Water  
**Method:** 6020  
**Prep Method:** 3010A  
**Date Analyzed:** 2/9/2018  
**Job #:** MDLV 560-147826/3  
**TALS Batch:** 148035  
**Units:** ug/L

Analyte	Instrument #	MDL	DCS Spike	Measured Result	MQL
Ag	Micpms	0.941	1.250	1.436	5
Al	Micpms	50.000	125.000	233.300	100
As	Micpms	1.090	1.250	2.268	5
B	Micpms	70.000	25.000	27.420	100
Ba	Micpms	0.810	1.250	2.191	5
Be	Micpms	1.240	1.250	1.094	4
Ca	Micpms	198.000	125.000	187.400	500
Cd	Micpms	0.854	1.250	1.374	2
Co	Micpms	1.360	1.250	1.377	5
Cr	Micpms	1.400	1.250	1.313	5
Cu	Micpms	2.000	1.250	6.419	10
Fe	Micpms	101.000	125.000	148.600	250
K	Micpms	407.000	125.000	205.800	1000
Li	Micpms	2.260	1.250	2.671	5
Mg	Micpms	113.000	125.000	163.800	500
Mn	Micpms	11.600	12.500	14.670	50
Mo	Micpms	1.400	1.250	0.650	5
Na	Micpms	727.000	250.000	354.900	1000
Ni	Micpms	2.170	1.250	1.967	5
P	Micpms	100.000	50.000	17.140	250
Pb	Micpms	0.733	2.500	2.226	5
Sb	Micpms	1.610	1.250	1.178	5
Se	Micpms	1.080	1.250	1.955	5
Sn	Micpms	5.080	1.250	46.360	25
Sr	Micpms	0.768	1.250	1.661	5
Ti	Micpms	1.530	1.250	1.674	5
Tl	Micpms	0.693	0.500	0.283	2
U	Micpms	0.940	1.250	1.257	5
V	Micpms	1.440	1.250	0.699	5
Zn	Micpms	3.550	12.500	5.015	25

**Matrix:** Water  
**Method:** EPA 300; SW-846 9056  
**Date Analyzed:** 1/5/2018  
**Job #:** 600-159126  
**TALS Batch:** 229011  
**Units:** mg/L

Analyte	Instrument #	MDL	DCS Spike	Measured Result	MLQ
Bromide	CHWC11	0.101	0.200	0.647	0.4
Chloride	CHWC11	0.053	0.400	0.655	0.4
Fluoride	CHWC11	0.060	0.200	0.197	0.2
Nitrate as N	CHWC11	0.025	0.200	0.359	0.2
Nitrite as N	CHWC11	0.030	0.200	0.234	0.2
Sulfate	CHWC11	0.096	0.400	1.771	0.5



**Matrix:** Water  
**Method:** SM 2540C  
**Date Analyzed:** 1/6/2018  
**Job #:** 600-159126  
**TALS Batch:** 229073  
**Units:** mg/L

Analyte	Instrument #	MDL	DCS Spike	Measured Result	MQL
Total Dissolved Solids	NOEQUIP	10.000	9.900	10.000	10

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

# Method Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL HOU
6020	Metals (ICP/MS)	SW846	TAL CC
9040B	pH	SW846	TAL HOU
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL HOU
3010A	Preparation, Total Metals	SW846	TAL CC

#### Protocol References:

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

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

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

#### Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

# Sample Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-165461-1	MW-48	Water	05/02/18 13:42	05/04/18 16:57
600-165461-2	MW-49	Water	05/02/18 12:35	05/04/18 16:57
600-165461-3	MW-50	Water	05/02/18 11:30	05/04/18 16:57
600-165461-4	Field Blank	Water	05/02/18 14:00	05/04/18 16:57
600-165461-5	MW-47	Water	05/03/18 09:20	05/04/18 16:57
600-165461-6	MW-52	Water	05/03/18 14:12	05/04/18 16:57
600-165461-7	MW-67	Water	05/03/18 12:15	05/04/18 16:57
600-165461-8	MW-55	Water	05/04/18 14:08	05/04/18 16:57
600-165461-9	MW-56	Water	05/04/18 12:42	05/04/18 16:57
600-165461-10	MW-65	Water	05/04/18 11:10	05/04/18 16:57
600-165461-11	MW-68	Water	05/04/18 09:20	05/04/18 16:57
600-165604-1	MW-19	Water	05/07/18 12:30	05/08/18 14:06
600-165604-2	MW-35	Water	05/07/18 09:30	05/08/18 14:06
600-165604-3	MW-53	Water	05/07/18 13:50	05/08/18 14:06
600-165604-4	MW-54	Water	05/07/18 10:55	05/08/18 14:06
600-165604-5	MW-58	Water	05/07/18 15:50	05/08/18 14:06
600-165604-6	MW-66	Water	05/07/18 17:00	05/08/18 14:06
600-165604-7	Dup-1	Water	05/07/18 00:00	05/08/18 14:06
600-165670-1	MW-57	Water	05/08/18 07:35	05/09/18 12:43
600-165670-2	MW-59	Water	05/08/18 08:25	05/09/18 12:43
600-165670-3	MW-43	Water	05/08/18 09:40	05/09/18 12:43
600-165670-4	MW-44	Water	05/08/18 10:58	05/09/18 12:43
600-165670-5	MW-23	Water	05/08/18 12:05	05/09/18 12:43
600-165670-6	MW-42	Water	05/08/18 13:00	05/09/18 12:43
600-165670-7	MW-28D	Water	05/08/18 14:08	05/09/18 12:43
600-165670-8	Field Blank-2	Water	05/08/18 14:55	05/09/18 12:43
600-165670-9	MW-46	Water	05/08/18 15:25	05/09/18 12:43
600-165670-10	MW-45	Water	05/08/18 16:45	05/09/18 12:43
600-165751-1	MW-40	Water	05/09/18 08:45	05/10/18 13:05
600-165751-2	MW-39	Water	05/09/18 09:50	05/10/18 13:05
600-165751-3	Dup-2	Water	05/09/18 00:00	05/10/18 13:05
600-165751-4	MW-63	Water	05/09/18 11:20	05/10/18 13:05
600-165751-5	MW-41	Water	05/09/18 13:00	05/10/18 13:05
600-165751-6	MW-64	Water	05/09/18 13:23	05/10/18 13:05
600-165751-7	MW-62	Water	05/09/18 16:05	05/10/18 13:05
600-165817-1	MW-36	Water	05/11/18 08:20	05/11/18 16:34
600-165817-2	MW-61	Water	05/11/18 09:48	05/11/18 16:34
600-165817-3	MW-38	Water	05/11/18 11:10	05/11/18 16:34
600-165817-4	MW-37	Water	05/11/18 12:20	05/11/18 16:34
600-165817-5	MW-60	Water	05/11/18 13:25	05/11/18 16:34

TestAmerica Houston



# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-48**  
**Date Collected: 05/02/18 13:42**  
**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-1**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	291		40.0	5.34	mg/L			05/15/18 11:24	100
Fluoride	0.708		0.400	0.120	mg/L			05/16/18 18:37	2
Sulfate	74.2		50.0	9.57	mg/L			05/15/18 11:24	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	74.6		0.500	0.198	mg/L		05/09/18 12:16	05/10/18 21:54	1
Boron	0.633		0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 21:54	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.9	HF	0.01	0.01	SU			05/11/18 20:49	1
Total Dissolved Solids	1220		20.0	20.0	mg/L			05/08/18 11:03	1

**Client Sample ID: MW-49**  
**Date Collected: 05/02/18 12:35**  
**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-2**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	359		40.0	5.34	mg/L			05/15/18 12:18	100
Fluoride	0.620		0.400	0.120	mg/L			05/16/18 19:31	2
Sulfate	85.8		50.0	9.57	mg/L			05/15/18 12:18	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	36.5		0.500	0.198	mg/L		05/09/18 12:16	05/10/18 22:00	1
Boron	0.346		0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 22:00	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/11/18 20:56	1
Total Dissolved Solids	1300		20.0	20.0	mg/L			05/08/18 11:03	1

**Client Sample ID: MW-50**  
**Date Collected: 05/02/18 11:30**  
**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-3**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	318		40.0	5.34	mg/L			05/15/18 12:36	100
Fluoride	0.617		0.400	0.120	mg/L			05/16/18 19:49	2
Sulfate	88.7		50.0	9.57	mg/L			05/15/18 12:36	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	34.4		0.500	0.198	mg/L		05/09/18 12:16	05/10/18 22:05	1
Boron	0.269		0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 22:05	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-50**  
**Date Collected: 05/02/18 11:30**  
**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-3**  
**Matrix: Water**

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/11/18 21:00	1
Total Dissolved Solids	1180		20.0	20.0	mg/L			05/08/18 11:03	1

**Client Sample ID: Field Blank**  
**Date Collected: 05/02/18 14:00**  
**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-4**  
**Matrix: Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0927	J	0.400	0.0534	mg/L			05/15/18 13:29	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/15/18 13:29	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/15/18 13:29	1

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.198	U	0.500	0.198	mg/L		05/09/18 12:16	05/10/18 22:11	1
Boron	0.0700	U	0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 22:11	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.8	HF	0.01	0.01	SU			05/11/18 21:04	1
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			05/08/18 11:03	1

**Client Sample ID: MW-47**  
**Date Collected: 05/03/18 09:20**  
**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-5**  
**Matrix: Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	262		40.0	5.34	mg/L			05/15/18 12:53	100
Fluoride	0.631		0.400	0.120	mg/L			05/16/18 20:07	2
Sulfate	65.8		50.0	9.57	mg/L			05/15/18 12:53	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	30.0		0.500	0.198	mg/L		05/09/18 12:16	05/10/18 22:16	1
Boron	0.286		0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 22:16	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/11/18 21:07	1
Total Dissolved Solids	1080		20.0	20.0	mg/L			05/08/18 11:03	1

**Client Sample ID: MW-52**  
**Date Collected: 05/03/18 14:12**  
**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-6**  
**Matrix: Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	567		80.0	10.7	mg/L			05/15/18 13:11	200
Fluoride	0.588		0.400	0.120	mg/L			05/16/18 20:25	2

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-52**

**Date Collected: 05/03/18 14:12**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-6**

**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	317		100	19.1	mg/L			05/15/18 13:11	200

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	78.5		0.500	0.198	mg/L		05/09/18 12:16	05/10/18 22:21	1
Boron	0.406		0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 22:21	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.9	HF	0.01	0.01	SU			05/11/18 21:11	1
Total Dissolved Solids	2410		20.0	20.0	mg/L			05/08/18 11:03	1

**Client Sample ID: MW-67**

**Date Collected: 05/03/18 12:15**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-7**

**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	250		20.0	2.67	mg/L			05/15/18 14:26	50
Fluoride	3.01	U	10.0	3.01	mg/L			05/15/18 14:26	50
Sulfate	67.2		25.0	4.79	mg/L			05/15/18 14:26	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	26.4		0.500	0.198	mg/L		05/09/18 12:16	05/10/18 21:03	1
Boron	0.210		0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 21:03	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/11/18 21:15	1
Total Dissolved Solids	912		20.0	20.0	mg/L			05/08/18 11:03	1

**Client Sample ID: MW-55**

**Date Collected: 05/04/18 14:08**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-8**

**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	472		40.0	5.34	mg/L			05/15/18 15:21	100
Fluoride	0.540		0.400	0.120	mg/L			05/16/18 20:43	2
Sulfate	38.8		1.00	0.191	mg/L			05/16/18 20:43	2

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	51.6		0.500	0.198	mg/L		05/09/18 12:16	05/10/18 22:27	1
Boron	0.195		0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 22:27	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	11.2	HF	0.01	0.01	SU			05/11/18 21:18	1
Total Dissolved Solids	1810		20.0	20.0	mg/L			05/08/18 11:03	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Client Sample ID: MW-56

Date Collected: 05/04/18 12:42

Date Received: 05/04/18 16:57

## Lab Sample ID: 600-165461-9

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	400		40.0	5.34	mg/L			05/15/18 15:39	100
Fluoride	0.975		0.400	0.120	mg/L			05/16/18 21:36	2
Sulfate	168		50.0	9.57	mg/L			05/15/18 15:39	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	28.1		0.500	0.198	mg/L		05/09/18 12:16	05/10/18 23:03	1
Boron	0.819		0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 23:03	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/11/18 21:21	1
Total Dissolved Solids	1580		20.0	20.0	mg/L			05/08/18 11:03	1

## Client Sample ID: MW-65

Date Collected: 05/04/18 11:10

Date Received: 05/04/18 16:57

## Lab Sample ID: 600-165461-10

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	163		40.0	5.34	mg/L			05/15/18 15:56	100
Fluoride	0.510		0.400	0.120	mg/L			05/16/18 21:54	2
Sulfate	569		50.0	9.57	mg/L			05/15/18 15:56	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	48.1		0.500	0.198	mg/L		05/09/18 12:16	05/10/18 23:08	1
Boron	0.250		0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 23:08	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/11/18 21:25	1
Total Dissolved Solids	1780		20.0	20.0	mg/L			05/08/18 11:03	1

## Client Sample ID: MW-68

Date Collected: 05/04/18 09:20

Date Received: 05/04/18 16:57

## Lab Sample ID: 600-165461-11

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	219		40.0	5.34	mg/L			05/15/18 16:14	100
Fluoride	0.547		0.400	0.120	mg/L			05/16/18 22:12	2
Sulfate	232		50.0	9.57	mg/L			05/15/18 16:14	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	32.5		0.500	0.198	mg/L		05/09/18 12:16	05/10/18 23:13	1
Boron	0.262		0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 23:13	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-68**  
Date Collected: 05/04/18 09:20  
Date Received: 05/04/18 16:57

**Lab Sample ID: 600-165461-11**  
Matrix: Water

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/11/18 21:32	1
Total Dissolved Solids	1320		20.0	20.0	mg/L			05/08/18 11:03	1

**Client Sample ID: MW-19**  
Date Collected: 05/07/18 12:30  
Date Received: 05/08/18 14:06

**Lab Sample ID: 600-165604-1**  
Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	471		40.0	5.34	mg/L			05/30/18 18:59	100
Fluoride	0.394	J	1.00	0.301	mg/L			05/31/18 18:55	5
Sulfate	440		50.0	9.57	mg/L			05/30/18 18:59	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	273		0.500	0.198	mg/L		05/16/18 11:50	05/17/18 17:14	1
Boron	1.38		0.100	0.0700	mg/L		05/16/18 11:50	05/17/18 17:14	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.9	HF	0.01	0.01	SU			05/16/18 16:21	1
Total Dissolved Solids	2050		20.0	20.0	mg/L			05/10/18 11:03	1

**Client Sample ID: MW-35**  
Date Collected: 05/07/18 09:30  
Date Received: 05/08/18 14:06

**Lab Sample ID: 600-165604-2**  
Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	234		20.0	2.67	mg/L			05/30/18 19:53	50
Fluoride	0.292	J	0.400	0.120	mg/L			05/31/18 19:49	2
Sulfate	56.5		25.0	4.79	mg/L			05/30/18 19:53	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	140		0.500	0.198	mg/L		05/16/18 11:50	05/17/18 17:20	1
Boron	0.311		0.100	0.0700	mg/L		05/16/18 11:50	05/17/18 17:20	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.9	HF	0.01	0.01	SU			05/16/18 16:25	1
Total Dissolved Solids	898		20.0	20.0	mg/L			05/10/18 11:03	1

**Client Sample ID: MW-53**  
Date Collected: 05/07/18 13:50  
Date Received: 05/08/18 14:06

**Lab Sample ID: 600-165604-3**  
Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	432		40.0	5.34	mg/L			05/30/18 21:40	100
Fluoride	0.643	J	1.00	0.301	mg/L			05/31/18 20:07	5

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-53**  
**Date Collected: 05/07/18 13:50**  
**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-3**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	99.2		50.0	9.57	mg/L			05/30/18 21:40	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	156		0.500	0.198	mg/L		05/16/18 11:50	05/17/18 17:25	1
Boron	0.504		0.100	0.0700	mg/L		05/16/18 11:50	05/17/18 17:25	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/16/18 16:29	1
Total Dissolved Solids	1480		20.0	20.0	mg/L			05/10/18 11:03	1

**Client Sample ID: MW-54**  
**Date Collected: 05/07/18 10:55**  
**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-4**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	355		20.0	2.67	mg/L			05/30/18 21:58	50
Fluoride	0.518		0.400	0.120	mg/L			05/31/18 20:25	2
Sulfate	88.5		25.0	4.79	mg/L			05/30/18 21:58	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	96.1		0.500	0.198	mg/L		05/16/18 11:50	05/17/18 17:31	1
Boron	0.380		0.100	0.0700	mg/L		05/16/18 11:50	05/17/18 17:31	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.9	HF	0.01	0.01	SU			05/16/18 16:33	1
Total Dissolved Solids	972		20.0	20.0	mg/L			05/10/18 11:03	1

**Client Sample ID: MW-58**  
**Date Collected: 05/07/18 15:50**  
**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-5**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	296		20.0	2.67	mg/L			05/30/18 22:16	50
Fluoride	0.532		0.400	0.120	mg/L			05/31/18 21:18	2
Sulfate	83.8		25.0	4.79	mg/L			05/30/18 22:16	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	119		0.500	0.198	mg/L		05/16/18 11:50	05/17/18 18:27	1
Boron	0.370		0.100	0.0700	mg/L		05/16/18 11:50	05/17/18 18:27	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.9	HF	0.01	0.01	SU			05/16/18 16:36	1
Total Dissolved Solids	1120		20.0	20.0	mg/L			05/10/18 11:03	1

TestAmerica Houston



# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Client Sample ID: MW-66

Date Collected: 05/07/18 17:00

Date Received: 05/08/18 14:06

## Lab Sample ID: 600-165604-6

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	229		20.0	2.67	mg/L			05/30/18 22:34	50
Fluoride	0.604		0.400	0.120	mg/L			05/31/18 21:36	2
Sulfate	68.7		25.0	4.79	mg/L			05/30/18 22:34	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	99.3		0.500	0.198	mg/L		05/16/18 11:50	05/17/18 18:33	1
Boron	0.341		0.100	0.0700	mg/L		05/16/18 11:50	05/17/18 18:33	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.9	HF	0.01	0.01	SU			05/16/18 16:40	1
Total Dissolved Solids	994		20.0	20.0	mg/L			05/12/18 09:55	1

## Client Sample ID: Dup-1

Date Collected: 05/07/18 00:00

Date Received: 05/08/18 14:06

## Lab Sample ID: 600-165604-7

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	222		20.0	2.67	mg/L			05/30/18 22:52	50
Fluoride	0.460		0.400	0.120	mg/L			05/31/18 21:54	2
Sulfate	71.0		25.0	4.79	mg/L			05/30/18 22:52	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	108		0.500	0.198	mg/L		05/16/18 11:50	05/17/18 18:38	1
Boron	0.245		0.100	0.0700	mg/L		05/16/18 11:50	05/17/18 18:38	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.9	HF	0.01	0.01	SU			05/16/18 16:44	1
Total Dissolved Solids	970		20.0	20.0	mg/L			05/12/18 09:55	1

## Client Sample ID: MW-57

Date Collected: 05/08/18 07:35

Date Received: 05/09/18 12:43

## Lab Sample ID: 600-165670-1

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	192		20.0	2.67	mg/L			05/21/18 16:24	50
Fluoride	0.489		0.200	0.0601	mg/L			05/21/18 15:27	1
Sulfate	51.4		25.0	4.79	mg/L			05/21/18 16:24	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	106		0.500	0.198	mg/L		05/11/18 11:00	05/11/18 18:16	1
Boron	0.215		0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 18:16	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Client Sample ID: MW-57

Date Collected: 05/08/18 07:35

Date Received: 05/09/18 12:43

## Lab Sample ID: 600-165670-1

Matrix: Water

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.01	0.01	SU			05/11/18 22:00	1
Total Dissolved Solids	884		20.0	20.0	mg/L			05/12/18 09:55	1

## Client Sample ID: MW-59

Date Collected: 05/08/18 08:25

Date Received: 05/09/18 12:43

## Lab Sample ID: 600-165670-2

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	503		40.0	5.34	mg/L			05/21/18 20:53	100
Fluoride	0.606		0.400	0.120	mg/L			05/21/18 20:35	2
Sulfate	186		50.0	9.57	mg/L			05/21/18 20:53	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	117		0.500	0.198	mg/L		05/11/18 11:00	05/11/18 18:38	1
Boron	0.572		0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 18:38	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.01	0.01	SU			05/11/18 22:03	1
Total Dissolved Solids	1680		20.0	20.0	mg/L			05/12/18 09:55	1

## Client Sample ID: MW-43

Date Collected: 05/08/18 09:40

Date Received: 05/09/18 12:43

## Lab Sample ID: 600-165670-3

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	199		20.0	2.67	mg/L			05/21/18 21:28	50
Fluoride	0.631		0.200	0.0601	mg/L			05/21/18 21:11	1
Sulfate	72.7		25.0	4.79	mg/L			05/21/18 21:28	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	89.2		0.500	0.198	mg/L		05/11/18 11:00	05/11/18 18:43	1
Boron	0.487		0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 18:43	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/11/18 22:14	1
Total Dissolved Solids	934		20.0	20.0	mg/L			05/12/18 09:55	1

## Client Sample ID: MW-44

Date Collected: 05/08/18 10:58

Date Received: 05/09/18 12:43

## Lab Sample ID: 600-165670-4

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	377		40.0	5.34	mg/L			05/21/18 22:40	100
Fluoride	0.416		0.400	0.120	mg/L			05/21/18 22:22	2

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-44**  
**Date Collected: 05/08/18 10:58**  
**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-4**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	161		50.0	9.57	mg/L			05/21/18 22:40	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	155		0.500	0.198	mg/L		05/11/18 11:00	05/11/18 18:49	1
Boron	0.262		0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 18:49	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.7	HF	0.01	0.01	SU			05/11/18 22:21	1
Total Dissolved Solids	1650		20.0	20.0	mg/L			05/12/18 09:55	1

**Client Sample ID: MW-23**  
**Date Collected: 05/08/18 12:05**  
**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-5**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1120		100	13.4	mg/L			05/21/18 23:52	250
Fluoride	0.301	U	1.00	0.301	mg/L			05/21/18 23:34	5
Sulfate	240		125	23.9	mg/L			05/21/18 23:52	250

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	422		0.500	0.198	mg/L		05/11/18 11:00	05/11/18 19:25	1
Boron	0.196		0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 19:25	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	11.3	HF	0.01	0.01	SU			05/11/18 22:24	1
Total Dissolved Solids	2080		20.0	20.0	mg/L			05/12/18 09:55	1

**Client Sample ID: MW-42**  
**Date Collected: 05/08/18 13:00**  
**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-6**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	297		40.0	5.34	mg/L			05/22/18 01:03	100
Fluoride	0.506		0.400	0.120	mg/L			05/22/18 00:45	2
Sulfate	645		50.0	9.57	mg/L			05/22/18 01:03	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	173		0.500	0.198	mg/L		05/11/18 11:00	05/11/18 19:30	1
Boron	0.611		0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 19:30	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/11/18 22:28	1
Total Dissolved Solids	2200		20.0	20.0	mg/L			05/12/18 09:55	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Client Sample ID: MW-28D

Date Collected: 05/08/18 14:08

Date Received: 05/09/18 12:43

## Lab Sample ID: 600-165670-7

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	399		20.0	2.67	mg/L			05/22/18 01:39	50
Fluoride	0.287		0.200	0.0601	mg/L			05/22/18 01:21	1
Sulfate	53.0		25.0	4.79	mg/L			05/22/18 01:39	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	183		0.500	0.198	mg/L		05/11/18 11:00	05/11/18 19:36	1
Boron	0.105		0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 19:36	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	10.0	HF	0.01	0.01	SU			05/11/18 22:32	1
Total Dissolved Solids	1910		20.0	20.0	mg/L			05/12/18 09:55	1

## Client Sample ID: Field Blank-2

Date Collected: 05/08/18 14:55

Date Received: 05/09/18 12:43

## Lab Sample ID: 600-165670-8

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.123	J	0.400	0.0534	mg/L			05/22/18 09:56	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/22/18 09:56	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/22/18 09:56	1

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.198	U	0.500	0.198	mg/L		05/11/18 11:00	05/11/18 19:42	1
Boron	0.0700	U	0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 19:42	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.1	HF	0.01	0.01	SU			05/11/18 22:35	1
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			05/12/18 09:55	1

## Client Sample ID: MW-46

Date Collected: 05/08/18 15:25

Date Received: 05/09/18 12:43

## Lab Sample ID: 600-165670-9

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	223		40.0	5.34	mg/L			05/22/18 11:45	100
Fluoride	0.266	J	0.400	0.120	mg/L			05/22/18 11:27	2
Sulfate	68.4		1.00	0.191	mg/L			05/22/18 11:27	2

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	167		0.500	0.198	mg/L		05/11/18 11:00	05/11/18 19:47	1
Boron	0.168		0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 19:47	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-46**

**Date Collected: 05/08/18 15:25**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-9**

**Matrix: Water**

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	11.7	HF	0.01	0.01	SU			05/11/18 22:38	1
Total Dissolved Solids	938		20.0	20.0	mg/L			05/12/18 09:55	1

**Client Sample ID: MW-45**

**Date Collected: 05/08/18 16:45**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-10**

**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	890		100	13.4	mg/L			05/22/18 12:21	250
Fluoride	0.601	U	2.00	0.601	mg/L			05/22/18 12:03	10
Sulfate	513		125	23.9	mg/L			05/22/18 12:21	250

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	378		0.500	0.198	mg/L		05/11/18 11:00	05/11/18 19:52	1
Boron	0.442		0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 19:52	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.01	0.01	SU			05/11/18 22:42	1
Total Dissolved Solids	4640		40.0	40.0	mg/L			05/12/18 09:55	1

**Client Sample ID: MW-40**

**Date Collected: 05/09/18 08:45**

**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-1**

**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	582		40.0	5.34	mg/L			05/30/18 23:10	100
Fluoride	0.301	U	1.00	0.301	mg/L			05/31/18 22:12	5
Sulfate	59.8		50.0	9.57	mg/L			05/30/18 23:10	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	308		0.500	0.198	mg/L		05/14/18 10:00	05/14/18 23:09	1
Boron	0.101		0.100	0.0700	mg/L		05/14/18 10:00	05/14/18 23:09	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.5	HF	0.01	0.01	SU			05/11/18 22:46	1
Total Dissolved Solids	2240		20.0	20.0	mg/L			05/16/18 10:50	1

**Client Sample ID: MW-39**

**Date Collected: 05/09/18 09:50**

**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-2**

**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	724		80.0	10.7	mg/L			05/31/18 22:30	200
Fluoride	0.491	J	1.00	0.301	mg/L			06/01/18 13:42	5

TestAmerica Houston



# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Client Sample ID: MW-39

Date Collected: 05/09/18 09:50

Date Received: 05/10/18 13:05

## Lab Sample ID: 600-165751-2

Matrix: Water

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	201		100	19.1	mg/L			05/31/18 22:30	200

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	310		0.500	0.198	mg/L		05/14/18 10:00	05/14/18 23:15	1
Boron	0.274		0.100	0.0700	mg/L		05/14/18 10:00	05/14/18 23:15	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.5	HF	0.01	0.01	SU			05/11/18 22:49	1
Total Dissolved Solids	2440		20.0	20.0	mg/L			05/16/18 10:50	1

## Client Sample ID: Dup-2

Date Collected: 05/09/18 00:00

Date Received: 05/10/18 13:05

## Lab Sample ID: 600-165751-3

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	736		80.0	10.7	mg/L			05/31/18 22:48	200
Fluoride	0.458	J	1.00	0.301	mg/L			06/01/18 14:36	5
Sulfate	202		100	19.1	mg/L			05/31/18 22:48	200

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	308		0.500	0.198	mg/L		05/14/18 10:00	05/14/18 23:20	1
Boron	0.292		0.100	0.0700	mg/L		05/14/18 10:00	05/14/18 23:20	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.5	HF	0.01	0.01	SU			05/11/18 22:56	1
Total Dissolved Solids	2290		20.0	20.0	mg/L			05/16/18 10:50	1

## Client Sample ID: MW-63

Date Collected: 05/09/18 11:20

Date Received: 05/10/18 13:05

## Lab Sample ID: 600-165751-4

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	401		40.0	5.34	mg/L			06/01/18 01:11	100
Fluoride	0.230	J	0.400	0.120	mg/L			06/01/18 14:54	2
Sulfate	347		50.0	9.57	mg/L			06/01/18 01:11	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	306		0.500	0.198	mg/L		05/21/18 08:30	05/21/18 14:17	1
Boron	0.123		0.100	0.0700	mg/L		05/21/18 08:30	05/21/18 14:17	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.01	0.01	SU			05/11/18 23:04	1
Total Dissolved Solids	1730		20.0	20.0	mg/L			05/16/18 10:50	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Client Sample ID: MW-41

Date Collected: 05/09/18 13:00

Date Received: 05/10/18 13:05

## Lab Sample ID: 600-165751-5

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	391		40.0	5.34	mg/L			05/31/18 23:42	100
Fluoride	0.305	J	0.400	0.120	mg/L			06/01/18 15:12	2
Sulfate	54.5		50.0	9.57	mg/L			05/31/18 23:42	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	197		0.500	0.198	mg/L		05/14/18 10:00	05/14/18 22:16	1
Boron	0.0920	J	0.100	0.0700	mg/L		05/14/18 10:00	05/14/18 22:16	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.7	HF	0.01	0.01	SU			05/11/18 23:07	1
Total Dissolved Solids	1340		20.0	20.0	mg/L			05/16/18 10:50	1

## Client Sample ID: MW-64

Date Collected: 05/09/18 13:23

Date Received: 05/10/18 13:05

## Lab Sample ID: 600-165751-6

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	446		40.0	5.34	mg/L			06/01/18 01:29	100
Fluoride	0.322	J	0.400	0.120	mg/L			06/01/18 13:06	2
Sulfate	45.1		1.00	0.191	mg/L			06/01/18 13:06	2

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	252		0.500	0.198	mg/L		05/14/18 10:00	05/14/18 23:26	1
Boron	0.110		0.100	0.0700	mg/L		05/14/18 10:00	05/14/18 23:26	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.01	0.01	SU			05/11/18 23:11	1
Total Dissolved Solids	1730		20.0	20.0	mg/L			05/16/18 10:50	1

## Client Sample ID: MW-62

Date Collected: 05/09/18 16:05

Date Received: 05/10/18 13:05

## Lab Sample ID: 600-165751-7

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	509		40.0	5.34	mg/L			06/01/18 01:47	100
Fluoride	0.396	J	1.00	0.301	mg/L			06/01/18 13:24	5
Sulfate	78.7		50.0	9.57	mg/L			06/01/18 01:47	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	214		0.500	0.198	mg/L		05/14/18 10:00	05/14/18 23:31	1
Boron	0.0902	J	0.100	0.0700	mg/L		05/14/18 10:00	05/14/18 23:31	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-62**  
**Date Collected: 05/09/18 16:05**  
**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-7**  
**Matrix: Water**

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.7	HF	0.01	0.01	SU			05/11/18 23:15	1
Total Dissolved Solids	1690		20.0	20.0	mg/L			05/16/18 10:50	1

**Client Sample ID: MW-36**  
**Date Collected: 05/11/18 08:20**  
**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-1**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	277		40.0	5.34	mg/L			06/01/18 02:05	100
Fluoride	0.503		0.400	0.120	mg/L			06/01/18 15:29	2
Sulfate	422		50.0	9.57	mg/L			06/01/18 02:05	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	270		0.500	0.198	mg/L		05/16/18 11:05	05/17/18 21:00	1
Boron	0.0700	U	0.100	0.0700	mg/L		05/16/18 11:05	05/17/18 21:00	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.01	0.01	SU			05/22/18 12:45	1
Total Dissolved Solids	1520		20.0	20.0	mg/L			05/17/18 13:18	1

**Client Sample ID: MW-61**  
**Date Collected: 05/11/18 09:48**  
**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-2**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	138		40.0	5.34	mg/L			06/01/18 02:23	100
Fluoride	0.601	U	2.00	0.601	mg/L			06/01/18 15:47	10
Sulfate	1300		50.0	9.57	mg/L			06/01/18 02:23	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	324		0.500	0.198	mg/L		05/16/18 11:05	05/17/18 21:06	1
Boron	1.43		0.100	0.0700	mg/L		05/16/18 11:05	05/17/18 21:06	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.01	0.01	SU			05/22/18 12:49	1
Total Dissolved Solids	2650		20.0	20.0	mg/L			05/17/18 13:18	1

**Client Sample ID: MW-38**  
**Date Collected: 05/11/18 11:10**  
**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-3**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	192		40.0	5.34	mg/L			06/01/18 02:41	100
Fluoride	1.18	J	2.00	0.601	mg/L			06/01/18 16:41	10

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-38**  
**Date Collected: 05/11/18 11:10**  
**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-3**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1280		50.0	9.57	mg/L			06/01/18 02:41	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	986		5.00	1.98	mg/L		05/16/18 11:05	05/21/18 12:53	10
Boron	2.62		0.100	0.0700	mg/L		05/16/18 11:05	05/17/18 21:11	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.8	HF	0.01	0.01	SU			05/22/18 12:52	1
Total Dissolved Solids	2470		20.0	20.0	mg/L			05/17/18 13:18	1

**Client Sample ID: MW-37**  
**Date Collected: 05/11/18 12:20**  
**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-4**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	244		40.0	5.34	mg/L			06/01/18 02:59	100
Fluoride	0.332	J	1.00	0.301	mg/L			06/01/18 16:59	5
Sulfate	762		50.0	9.57	mg/L			06/01/18 02:59	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	255		0.500	0.198	mg/L		05/16/18 11:05	05/17/18 21:17	1
Boron	0.398		0.100	0.0700	mg/L		05/16/18 11:05	05/17/18 21:17	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.01	0.01	SU			05/22/18 12:56	1
Total Dissolved Solids	1970		20.0	20.0	mg/L			05/17/18 13:18	1

**Client Sample ID: MW-60**  
**Date Collected: 05/11/18 13:25**  
**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-5**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	278		40.0	5.34	mg/L			06/01/18 17:17	100
Fluoride	0.301	U	1.00	0.301	mg/L			06/01/18 18:11	5
Sulfate	170		50.0	9.57	mg/L			06/01/18 17:17	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	251		0.500	0.198	mg/L		05/16/18 11:05	05/17/18 21:22	1
Boron	0.134		0.100	0.0700	mg/L		05/16/18 11:05	05/17/18 21:22	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.5	HF	0.01	0.01	SU			05/22/18 13:00	1
Total Dissolved Solids	1320		20.0	20.0	mg/L			05/17/18 13:18	1

TestAmerica Houston

# Definitions/Glossary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result is greater than the UQL and the concentration is an estimated value.
N1	MS, MSD: Spike recovery exceeds upper or lower control limits.
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.

### Metals

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
N1	MS, MSD: Spike recovery exceeds upper or lower control limits.
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
U	Analyte was not detected at or above the SDL.

## Glossary

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

TestAmerica Houston



# QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 600-238428/4**

**Matrix: Water**

**Analysis Batch: 238428**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/15/18 10:23	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/15/18 10:23	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/15/18 10:23	1

**Lab Sample ID: LCS 600-238428/5**

**Matrix: Water**

**Analysis Batch: 238428**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	18.60		mg/L		93	90 - 110
Fluoride	7.50	7.217		mg/L		96	90 - 110
Sulfate	20.0	18.51		mg/L		93	90 - 110

**Lab Sample ID: 600-165461-1 MS**

**Matrix: Water**

**Analysis Batch: 238428**

**Client Sample ID: MW-48**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	291		1000	1157		mg/L		87	80 - 120
Fluoride	6.01	U	200	174.3		mg/L		87	80 - 120
Sulfate	74.2		1000	963.0		mg/L		89	80 - 120

**Lab Sample ID: 600-165461-1 MSD**

**Matrix: Water**

**Analysis Batch: 238428**

**Client Sample ID: MW-48**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	291		1000	1167		mg/L		88	80 - 120	1	20
Fluoride	6.01	U	200	171.8		mg/L		86	80 - 120	1	20
Sulfate	74.2		1000	971.6		mg/L		90	80 - 120	1	20

**Lab Sample ID: 600-165461-7 MS**

**Matrix: Water**

**Analysis Batch: 238428**

**Client Sample ID: MW-47 MS**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250		500	688.7		mg/L		88	80 - 120
Fluoride	3.01	U	100	81.43		mg/L		81	80 - 120
Sulfate	67.2		500	513.0		mg/L		89	80 - 120

**Lab Sample ID: 600-165461-7 MSD**

**Matrix: Water**

**Analysis Batch: 238428**

**Client Sample ID: MW-47 MSD**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	250		500	691.2		mg/L		88	80 - 120	0	20
Fluoride	3.01	U	100	81.01		mg/L		81	80 - 120	1	20
Sulfate	67.2		500	517.9		mg/L		90	80 - 120	1	20

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: MB 600-238627/4**  
**Matrix: Water**  
**Analysis Batch: 238627**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/16/18 18:01	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/16/18 18:01	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/16/18 18:01	1

**Lab Sample ID: LCS 600-238627/5**  
**Matrix: Water**  
**Analysis Batch: 238627**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.28		mg/L		96	90 - 110
Fluoride	7.50	7.359		mg/L		98	90 - 110
Sulfate	20.0	19.20		mg/L		96	90 - 110

**Lab Sample ID: 600-165461-1 MS**  
**Matrix: Water**  
**Analysis Batch: 238627**

**Client Sample ID: MW-48**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	429	E	20.0	408.3	E 4	mg/L		-103	80 - 120
Fluoride	0.708		4.00	3.780	N1	mg/L		77	80 - 120
Sulfate	91.2	E	20.0	103.3	E 4	mg/L		61	80 - 120

**Lab Sample ID: 600-165461-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 238627**

**Client Sample ID: MW-48**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	429	E	20.0	411.0	E 4	mg/L		-89	80 - 120	1	20
Fluoride	0.708		4.00	3.791	N1	mg/L		77	80 - 120	0	20
Sulfate	91.2	E	20.0	103.8	E 4	mg/L		63	80 - 120	0	20

**Lab Sample ID: MB 600-238910/34**  
**Matrix: Water**  
**Analysis Batch: 238910**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/21/18 21:46	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/21/18 21:46	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/21/18 21:46	1

**Lab Sample ID: MB 600-238910/4**  
**Matrix: Water**  
**Analysis Batch: 238910**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/21/18 12:46	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/21/18 12:46	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/21/18 12:46	1

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: LCS 600-238910/35**  
**Matrix: Water**  
**Analysis Batch: 238910**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.42		mg/L		97	90 - 110
Fluoride	7.50	7.148		mg/L		95	90 - 110
Sulfate	20.0	19.30		mg/L		97	90 - 110

**Lab Sample ID: LCS 600-238910/5**  
**Matrix: Water**  
**Analysis Batch: 238910**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.12		mg/L		96	90 - 110
Fluoride	7.50	7.159		mg/L		95	90 - 110
Sulfate	20.0	18.93		mg/L		95	90 - 110

**Lab Sample ID: 600-165670-5 MS**  
**Matrix: Water**  
**Analysis Batch: 238910**

**Client Sample ID: MW-23**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1120		2500	3200		mg/L		83	80 - 120
Fluoride	15.0	U	500	451.9		mg/L		90	80 - 120
Sulfate	240		2500	2689		mg/L		98	80 - 120

**Lab Sample ID: 600-165670-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 238910**

**Client Sample ID: MW-23**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chloride	1120		2500	3217		mg/L		84	80 - 120	1	20
Fluoride	15.0	U	500	460.4		mg/L		92	80 - 120	2	20
Sulfate	240		2500	2701		mg/L		98	80 - 120	0	20

**Lab Sample ID: MB 600-238978/4**  
**Matrix: Water**  
**Analysis Batch: 238978**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/22/18 09:14	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/22/18 09:14	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/22/18 09:14	1

**Lab Sample ID: LCS 600-238978/5**  
**Matrix: Water**  
**Analysis Batch: 238978**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.38		mg/L		97	90 - 110
Fluoride	7.50	7.158		mg/L		95	90 - 110
Sulfate	20.0	19.29		mg/L		96	90 - 110

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: 600-165670-8 MS**  
**Matrix: Water**  
**Analysis Batch: 238978**

**Client Sample ID: Field Blank-2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	0.123	J	10.0	8.772		mg/L		86	80 - 120
Fluoride	0.0601	U	2.00	2.007		mg/L		100	80 - 120
Sulfate	0.0957	U	10.0	9.860		mg/L		99	80 - 120

**Lab Sample ID: 600-165670-8 MSD**  
**Matrix: Water**  
**Analysis Batch: 238978**

**Client Sample ID: Field Blank-2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	0.123	J	10.0	8.889		mg/L		88	80 - 120	1	20
Fluoride	0.0601	U	2.00	2.022		mg/L		101	80 - 120	1	20
Sulfate	0.0957	U	10.0	9.950		mg/L		99	80 - 120	1	20

**Lab Sample ID: MB 600-239490/34**  
**Matrix: Water**  
**Analysis Batch: 239490**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/30/18 19:17	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/30/18 19:17	1

**Lab Sample ID: MB 600-239490/4**  
**Matrix: Water**  
**Analysis Batch: 239490**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/30/18 10:19	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/30/18 10:19	1

**Lab Sample ID: LCS 600-239490/35**  
**Matrix: Water**  
**Analysis Batch: 239490**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.78		mg/L		99	90 - 110
Sulfate	20.0	19.62		mg/L		98	90 - 110

**Lab Sample ID: LCS 600-239490/5**  
**Matrix: Water**  
**Analysis Batch: 239490**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.69		mg/L		98	90 - 110
Sulfate	20.0	19.50		mg/L		97	90 - 110

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: 600-165604-2 MS**

**Matrix: Water**

**Analysis Batch: 239490**

**Client Sample ID: MW-35**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	234		500	676.4		mg/L		89	80 - 120
Sulfate	56.5		500	542.6		mg/L		97	80 - 120

**Lab Sample ID: 600-165604-2 MSD**

**Matrix: Water**

**Analysis Batch: 239490**

**Client Sample ID: MW-35**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	234		500	670.7		mg/L		87	80 - 120	1	20
Sulfate	56.5		500	536.7		mg/L		96	80 - 120	1	20

**Lab Sample ID: MB 600-239599/34**

**Matrix: Water**

**Analysis Batch: 239599**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/31/18 23:06	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/31/18 23:06	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/31/18 23:06	1

**Lab Sample ID: MB 600-239599/4**

**Matrix: Water**

**Analysis Batch: 239599**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/31/18 10:55	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/31/18 10:55	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/31/18 10:55	1

**Lab Sample ID: LCS 600-239599/35**

**Matrix: Water**

**Analysis Batch: 239599**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.85		mg/L		99	90 - 110
Fluoride	7.50	7.335		mg/L		98	90 - 110
Sulfate	20.0	19.64		mg/L		98	90 - 110

**Lab Sample ID: LCS 600-239599/5**

**Matrix: Water**

**Analysis Batch: 239599**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.69		mg/L		98	90 - 110
Fluoride	7.50	7.228		mg/L		96	90 - 110
Sulfate	20.0	19.50		mg/L		98	90 - 110

TestAmerica Houston



# QC Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: 600-165604-1 MS**  
**Matrix: Water**  
**Analysis Batch: 239599**

**Client Sample ID: MW-19**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	597	E	50.0	599.0	E 4	mg/L		4	80 - 120
Fluoride	0.394	J	10.0	7.825	N1	mg/L		74	80 - 120
Sulfate	508	E	50.0	518.8	E 4	mg/L		21	80 - 120

**Lab Sample ID: 600-165604-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 239599**

**Client Sample ID: MW-19**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	597	E	50.0	597.8	E 4	mg/L		2	80 - 120	0	20
Fluoride	0.394	J	10.0	7.812	N1	mg/L		74	80 - 120	0	20
Sulfate	508	E	50.0	518.2	E 4	mg/L		20	80 - 120	0	20

**Lab Sample ID: 600-165751-5 MS**  
**Matrix: Water**  
**Analysis Batch: 239599**

**Client Sample ID: MW-41 MS**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	391		1000	1292		mg/L		90	80 - 120
Fluoride	6.01	U	200	182.0		mg/L		91	80 - 120
Sulfate	54.5		1000	1043		mg/L		99	80 - 120

**Lab Sample ID: 600-165751-5MSD**  
**Matrix: Water**  
**Analysis Batch: 239599**

**Client Sample ID: MW-41 MSD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	391		1000	1267		mg/L		88	80 - 120	2	20
Fluoride	6.01	U	200	182.3		mg/L		91	80 - 120	0	20
Sulfate	54.5		1000	1030		mg/L		98	80 - 120	1	20

**Lab Sample ID: MB 600-239692/4**  
**Matrix: Water**  
**Analysis Batch: 239692**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			06/01/18 11:01	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			06/01/18 11:01	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			06/01/18 11:01	1

**Lab Sample ID: LCS 600-239692/5**  
**Matrix: Water**  
**Analysis Batch: 239692**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.51		mg/L		98	90 - 110
Fluoride	7.50	7.130		mg/L		95	90 - 110
Sulfate	20.0	19.31		mg/L		97	90 - 110

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: 600-165817-2 MS**  
**Matrix: Water**  
**Analysis Batch: 239692**

**Client Sample ID: MW-61**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	152		100	127.6	N1	mg/L		-25	80 - 120
Fluoride	0.601	U	20.0	0.601	U N1	mg/L		0	80 - 120
Sulfate	2000	E	100	1612	E 4	mg/L		-386	80 - 120

**Lab Sample ID: 600-165817-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 239692**

**Client Sample ID: MW-61**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	152		100	126.0	N1	mg/L		-26	80 - 120	1	20
Fluoride	0.601	U	20.0	0.601	U N1	mg/L		0	80 - 120	NC	20
Sulfate	2000	E	100	1597	E 4	mg/L		-401	80 - 120	1	20

**Lab Sample ID: 600-166588-A-1 MS**  
**Matrix: Water**  
**Analysis Batch: 239692**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	564		500	700.7	N1	mg/L		27	80 - 120
Fluoride	3.01	U	100	87.06		mg/L		87	80 - 120
Sulfate	43.8		500	469.1		mg/L		85	80 - 120

**Lab Sample ID: 600-166588-A-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 239692**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	564		500	704.5	N1	mg/L		28	80 - 120	1	20
Fluoride	3.01	U	100	87.90		mg/L		88	80 - 120	1	20
Sulfate	43.8		500	491.9		mg/L		90	80 - 120	5	20

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

**Lab Sample ID: MB 560-150764/1-A**  
**Matrix: Water**  
**Analysis Batch: 150858**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 150764**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.198	U	0.500	0.198	mg/L		05/09/18 12:16	05/10/18 20:58	1
Boron	0.0700	U	0.100	0.0700	mg/L		05/09/18 12:16	05/10/18 20:58	1

**Lab Sample ID: LCS 560-150764/2-A**  
**Matrix: Water**  
**Analysis Batch: 150858**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 150764**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	25.0	25.02		mg/L		100	80 - 120
Boron	0.250	0.2515		mg/L		101	80 - 120

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: 600-165461-7 MS**

**Matrix: Water**  
**Analysis Batch: 150858**

**Client Sample ID: MW-47 MS**

**Prep Type: Total/NA**  
**Prep Batch: 150764**

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Calcium	26.4		25.0	36.40	N1	mg/L		40	80 - 120
Boron	0.210		0.250	0.5283	N1	mg/L		127	80 - 120

**Lab Sample ID: 600-165461-7 MSD**

**Matrix: Water**  
**Analysis Batch: 150858**

**Client Sample ID: MW-47 MSD**

**Prep Type: Total/NA**  
**Prep Batch: 150764**

Analyte	Sample	Sample	Spike	MSD MSD		Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Calcium	26.4		25.0	37.43	N1	mg/L		44	80 - 120	3	20
Boron	0.210		0.250	0.5382	N1	mg/L		131	80 - 120	2	20

**Lab Sample ID: MB 560-150857/1-A**

**Matrix: Water**  
**Analysis Batch: 150911**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**  
**Prep Batch: 150857**

Analyte	MB MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Calcium	0.198	U	0.500	0.198	mg/L		05/11/18 11:00	05/11/18 18:11	1
Boron	0.0700	U	0.100	0.0700	mg/L		05/11/18 11:00	05/11/18 18:11	1

**Lab Sample ID: LCS 560-150857/2-A**

**Matrix: Water**  
**Analysis Batch: 150911**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**  
**Prep Batch: 150857**

Analyte	Spike	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Calcium	25.0	24.96		mg/L		100	80 - 120
Boron	0.250	0.2431		mg/L		97	80 - 120

**Lab Sample ID: 600-165670-1 MS**

**Matrix: Water**  
**Analysis Batch: 150911**

**Client Sample ID: MW-57**

**Prep Type: Total/NA**  
**Prep Batch: 150857**

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Calcium	106		25.0	131.6		mg/L		104	80 - 120
Boron	0.215		0.250	0.4614		mg/L		99	80 - 120

**Lab Sample ID: 600-165670-1 MSD**

**Matrix: Water**  
**Analysis Batch: 150911**

**Client Sample ID: MW-57**

**Prep Type: Total/NA**  
**Prep Batch: 150857**

Analyte	Sample	Sample	Spike	MSD MSD		Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Calcium	106		25.0	129.8		mg/L		96	80 - 120	1	20
Boron	0.215		0.250	0.4700		mg/L		102	80 - 120	2	20

**Lab Sample ID: MB 560-150912/1-A**

**Matrix: Water**  
**Analysis Batch: 150967**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**  
**Prep Batch: 150912**

Analyte	MB MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Calcium	0.198	U	0.500	0.198	mg/L		05/14/18 10:00	05/14/18 22:11	1

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: MB 560-150912/1-A**  
**Matrix: Water**  
**Analysis Batch: 150967**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 150912**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0700	U	0.100	0.0700	mg/L		05/14/18 10:00	05/14/18 22:11	1

**Lab Sample ID: LCS 560-150912/2-A**  
**Matrix: Water**  
**Analysis Batch: 150967**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 150912**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Calcium	25.0	27.47		mg/L		110	80 - 120
Boron	0.250	0.2735		mg/L		109	80 - 120

**Lab Sample ID: 600-165751-5 MS**  
**Matrix: Water**  
**Analysis Batch: 150967**

**Client Sample ID: MW-41 MS**  
**Prep Type: Total/NA**  
**Prep Batch: 150912**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Calcium	197		25.0	228.5	4	mg/L		127	80 - 120
Boron	0.0920	J	0.250	0.3514		mg/L		104	80 - 120

**Lab Sample ID: 600-165751-5MSD**  
**Matrix: Water**  
**Analysis Batch: 150967**

**Client Sample ID: MW-41 MSD**  
**Prep Type: Total/NA**  
**Prep Batch: 150912**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	185		25.0	225.3	4	mg/L		162	80 - 120	1	20
Boron	0.0892	J	0.250	0.3593		mg/L		108	80 - 120	2	20

**Lab Sample ID: MB 560-151020/1-A**  
**Matrix: Water**  
**Analysis Batch: 151139**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 151020**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.198	U	0.500	0.198	mg/L		05/16/18 11:05	05/17/18 19:25	1
Boron	0.0700	U	0.100	0.0700	mg/L		05/16/18 11:05	05/17/18 19:25	1

**Lab Sample ID: LCS 560-151020/2-A**  
**Matrix: Water**  
**Analysis Batch: 151139**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 151020**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Calcium	25.0	25.64		mg/L		103	80 - 120
Boron	0.250	0.2846		mg/L		114	80 - 120

**Lab Sample ID: 600-165918-E-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 151139**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 151020**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Calcium	13.9		25.0	39.45		mg/L		102	80 - 120
Boron	0.0700	U	0.250	0.2963		mg/L		119	80 - 120

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: 600-165918-E-1-C MSD**

**Matrix: Water**  
**Analysis Batch: 151139**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**  
**Prep Batch: 151020**

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Calcium	13.9		25.0	39.35		mg/L		102	80 - 120	0	20	
Boron	0.0700	U	0.250	0.2984		mg/L		119	80 - 120	1	20	

**Lab Sample ID: MB 560-151021/1-A**

**Matrix: Water**  
**Analysis Batch: 151054**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**  
**Prep Batch: 151021**

Analyte	MB MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Calcium	0.198	U	0.500	0.198	mg/L		05/16/18 11:50	05/16/18 19:53	1
Boron	0.0700	U	0.100	0.0700	mg/L		05/16/18 11:50	05/16/18 19:53	1

**Lab Sample ID: LCS 560-151021/2-A**

**Matrix: Water**  
**Analysis Batch: 151054**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**  
**Prep Batch: 151021**

Analyte	Spike	LCS LCS		Unit	D	%Rec	%Rec.	Limits
		Added	Result					
Calcium	25.0	24.30		mg/L		97	80 - 120	
Boron	0.250	0.2324		mg/L		93	80 - 120	

**Lab Sample ID: 600-165831-E-9-B MS**

**Matrix: Water**  
**Analysis Batch: 151054**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**  
**Prep Batch: 151021**

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Calcium	180		25.0	205.4	4	mg/L		100	80 - 120	
Boron	1.34		0.250	1.673	4	mg/L		135	80 - 120	

**Lab Sample ID: 600-165831-E-9-C MSD**

**Matrix: Water**  
**Analysis Batch: 151054**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**  
**Prep Batch: 151021**

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Calcium	180		25.0	180.5	4	mg/L		0.8	80 - 120	13	20	
Boron	1.34		0.250	1.603	4	mg/L		107	80 - 120	4	20	

**Lab Sample ID: MB 560-151129/1-A**

**Matrix: Water**  
**Analysis Batch: 151159**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**  
**Prep Batch: 151129**

Analyte	MB MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Calcium	0.198	U	0.500	0.198	mg/L		05/21/18 08:30	05/21/18 13:09	1
Boron	0.0700	U	0.100	0.0700	mg/L		05/21/18 08:30	05/21/18 13:09	1

**Lab Sample ID: LCS 560-151129/2-A**

**Matrix: Water**  
**Analysis Batch: 151159**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**  
**Prep Batch: 151129**

Analyte	Spike	LCS LCS		Unit	D	%Rec	%Rec.	Limits
		Added	Result					
Calcium	25.0	26.08		mg/L		104	80 - 120	

TestAmerica Houston



# QC Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: LCS 560-151129/2-A**  
**Matrix: Water**  
**Analysis Batch: 151159**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 151129**  
**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Boron	0.250	0.2543		mg/L		102	80 - 120

**Lab Sample ID: 600-165718-B-4-C MS**  
**Matrix: Water**  
**Analysis Batch: 151159**

**Client Sample ID: Matrix Spike**  
**Prep Type: Dissolved**  
**Prep Batch: 151129**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Calcium	60.4		25.0	78.29		mg/L		72	80 - 120
Boron	0.388		0.250	0.6400		mg/L		101	80 - 120

**Lab Sample ID: 600-165718-B-4-D MSD**  
**Matrix: Water**  
**Analysis Batch: 151159**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Dissolved**  
**Prep Batch: 151129**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	60.4		25.0	83.97		mg/L		94	80 - 120	7	20
Boron	0.388		0.250	0.6493		mg/L		105	80 - 120	1	20

## Method: 9040B - pH

**Lab Sample ID: LCS 600-238460/1**  
**Matrix: Water**  
**Analysis Batch: 238460**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
pH	7.00	7.1		SU		101	99 - 101

**Lab Sample ID: LCS 600-238460/26**  
**Matrix: Water**  
**Analysis Batch: 238460**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
pH	7.00	7.1		SU		101	99 - 101

**Lab Sample ID: 600-165461-1 DU**  
**Matrix: Water**  
**Analysis Batch: 238460**

**Client Sample ID: MW-48**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH	7.9	HF	8.0		SU		0.6	1

**Lab Sample ID: 600-165461-11 DU**  
**Matrix: Water**  
**Analysis Batch: 238460**

**Client Sample ID: MW-68**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH	7.8	HF	7.8		SU		0.6	1

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Method: 9040B - pH (Continued)

**Lab Sample ID: 600-165670-3 DU**  
**Matrix: Water**  
**Analysis Batch: 238460**

**Client Sample ID: MW-43**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH	7.8	HF	7.8		SU		0.4	1

**Lab Sample ID: 600-165751-3 DU**  
**Matrix: Water**  
**Analysis Batch: 238460**

**Client Sample ID: Dup-2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH	7.5	HF	7.5		SU		0.3	1

**Lab Sample ID: LCS 600-238686/1**  
**Matrix: Water**  
**Analysis Batch: 238686**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

**Lab Sample ID: 600-165882-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 238686**

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH	8.1		8.1		SU		0.6	1

**Lab Sample ID: LCS 600-239043/1**  
**Matrix: Water**  
**Analysis Batch: 239043**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.1		SU		101	99 - 101

**Lab Sample ID: 600-166006-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 239043**

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH	7.8		7.9		SU		0.3	1

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

**Lab Sample ID: MB 600-238037/1**  
**Matrix: Water**  
**Analysis Batch: 238037**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			05/08/18 11:03	1

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

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

**Lab Sample ID: LCS 600-238037/2**  
**Matrix: Water**  
**Analysis Batch: 238037**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1800	1761		mg/L		98	90 - 110

**Lab Sample ID: 600-165389-A-5 DU**  
**Matrix: Water**  
**Analysis Batch: 238037**

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	561		560.0		mg/L		0.2	10

**Lab Sample ID: MB 600-238224/25**  
**Matrix: Water**  
**Analysis Batch: 238224**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			05/10/18 11:03	1

**Lab Sample ID: LCS 600-238224/26**  
**Matrix: Water**  
**Analysis Batch: 238224**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1800	1761		mg/L		98	90 - 110

**Lab Sample ID: 600-165544-B-4 DU**  
**Matrix: Water**  
**Analysis Batch: 238224**

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	564		561.0		mg/L		0.5	10

**Lab Sample ID: MB 600-238387/1**  
**Matrix: Water**  
**Analysis Batch: 238387**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			05/12/18 09:55	1

**Lab Sample ID: LCS 600-238387/2**  
**Matrix: Water**  
**Analysis Batch: 238387**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1800	1743		mg/L		97	90 - 110

**Lab Sample ID: 600-165697-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 238387**

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	575		573.0		mg/L		0.3	10

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Lab Sample ID: MB 600-238644/25**  
**Matrix: Water**  
**Analysis Batch: 238644**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			05/16/18 10:50	1

**Lab Sample ID: LCS 600-238644/26**  
**Matrix: Water**  
**Analysis Batch: 238644**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1800	1797		mg/L		100	90 - 110

**Lab Sample ID: 600-165751-3 DU**  
**Matrix: Water**  
**Analysis Batch: 238644**

**Client Sample ID: Dup-2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	2290		2282		mg/L		0.2	10

**Lab Sample ID: MB 600-238757/25**  
**Matrix: Water**  
**Analysis Batch: 238757**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			05/17/18 13:18	1

**Lab Sample ID: LCS 600-238757/26**  
**Matrix: Water**  
**Analysis Batch: 238757**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1800	1799		mg/L		100	90 - 110

**Lab Sample ID: 600-165817-2 DU**  
**Matrix: Water**  
**Analysis Batch: 238757**

**Client Sample ID: MW-61**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	2650		2556		mg/L		3	10

TestAmerica Houston

# Unadjusted Detection Limits

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Method: 300.0 - Anions, Ion Chromatography

Analyte	MQL	MDL	Units	Method
Chloride	0.400	0.0534	mg/L	300.0
Fluoride	0.200	0.0601	mg/L	300.0
Sulfate	0.500	0.0957	mg/L	300.0

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

### Prep: 3010A

Analyte	MQL	MDL	Units	Method
Boron	0.100	0.0700	mg/L	6020
Calcium	0.500	0.198	mg/L	6020

## General Chemistry

Analyte	MQL	MDL	Units	Method
pH	0.01	0.01	SU	9040B
Total Dissolved Solids	10.0	10.0	mg/L	SM 2540C

# QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## HPLC/IC

### Analysis Batch: 238428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165461-1	MW-48	Total/NA	Water	300.0	
600-165461-2	MW-49	Total/NA	Water	300.0	
600-165461-3	MW-50	Total/NA	Water	300.0	
600-165461-4	Field Blank	Total/NA	Water	300.0	
600-165461-5	MW-47	Total/NA	Water	300.0	
600-165461-6	MW-52	Total/NA	Water	300.0	
600-165461-7	MW-67	Total/NA	Water	300.0	
600-165461-8	MW-55	Total/NA	Water	300.0	
600-165461-9	MW-56	Total/NA	Water	300.0	
600-165461-10	MW-65	Total/NA	Water	300.0	
600-165461-11	MW-68	Total/NA	Water	300.0	
MB 600-238428/4	Method Blank	Total/NA	Water	300.0	
LCS 600-238428/5	Lab Control Sample	Total/NA	Water	300.0	
600-165461-1 MS	MW-48	Total/NA	Water	300.0	
600-165461-1 MSD	MW-48	Total/NA	Water	300.0	
600-165461-7 MS	MW-47 MS	Total/NA	Water	300.0	
600-165461-7 MSD	MW-47 MSD	Total/NA	Water	300.0	

### Analysis Batch: 238627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165461-1	MW-48	Total/NA	Water	300.0	
600-165461-2	MW-49	Total/NA	Water	300.0	
600-165461-3	MW-50	Total/NA	Water	300.0	
600-165461-5	MW-47	Total/NA	Water	300.0	
600-165461-6	MW-52	Total/NA	Water	300.0	
600-165461-8	MW-55	Total/NA	Water	300.0	
600-165461-9	MW-56	Total/NA	Water	300.0	
600-165461-10	MW-65	Total/NA	Water	300.0	
600-165461-11	MW-68	Total/NA	Water	300.0	
MB 600-238627/4	Method Blank	Total/NA	Water	300.0	
LCS 600-238627/5	Lab Control Sample	Total/NA	Water	300.0	
600-165461-1 MS	MW-48	Total/NA	Water	300.0	
600-165461-1 MSD	MW-48	Total/NA	Water	300.0	

### Analysis Batch: 238910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165670-1	MW-57	Total/NA	Water	300.0	
600-165670-1	MW-57	Total/NA	Water	300.0	
600-165670-2	MW-59	Total/NA	Water	300.0	
600-165670-2	MW-59	Total/NA	Water	300.0	
600-165670-3	MW-43	Total/NA	Water	300.0	
600-165670-3	MW-43	Total/NA	Water	300.0	
600-165670-4	MW-44	Total/NA	Water	300.0	
600-165670-4	MW-44	Total/NA	Water	300.0	
600-165670-5	MW-23	Total/NA	Water	300.0	
600-165670-5	MW-23	Total/NA	Water	300.0	
600-165670-6	MW-42	Total/NA	Water	300.0	
600-165670-6	MW-42	Total/NA	Water	300.0	
600-165670-7	MW-28D	Total/NA	Water	300.0	
600-165670-7	MW-28D	Total/NA	Water	300.0	
MB 600-238910/34	Method Blank	Total/NA	Water	300.0	

TestAmerica Houston



# QC Association Summary

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## HPLC/IC (Continued)

### Analysis Batch: 238910 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 600-238910/4	Method Blank	Total/NA	Water	300.0	
LCS 600-238910/35	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-238910/5	Lab Control Sample	Total/NA	Water	300.0	
600-165670-5 MS	MW-23	Total/NA	Water	300.0	
600-165670-5 MSD	MW-23	Total/NA	Water	300.0	

### Analysis Batch: 238978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165670-8	Field Blank-2	Total/NA	Water	300.0	
600-165670-9	MW-46	Total/NA	Water	300.0	
600-165670-9	MW-46	Total/NA	Water	300.0	
600-165670-10	MW-45	Total/NA	Water	300.0	
600-165670-10	MW-45	Total/NA	Water	300.0	
MB 600-238978/4	Method Blank	Total/NA	Water	300.0	
LCS 600-238978/5	Lab Control Sample	Total/NA	Water	300.0	
600-165670-8 MS	Field Blank-2	Total/NA	Water	300.0	
600-165670-8 MSD	Field Blank-2	Total/NA	Water	300.0	

### Analysis Batch: 239490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165604-1	MW-19	Total/NA	Water	300.0	
600-165604-2	MW-35	Total/NA	Water	300.0	
600-165604-3	MW-53	Total/NA	Water	300.0	
600-165604-4	MW-54	Total/NA	Water	300.0	
600-165604-5	MW-58	Total/NA	Water	300.0	
600-165604-6	MW-66	Total/NA	Water	300.0	
600-165604-7	Dup-1	Total/NA	Water	300.0	
600-165751-1	MW-40	Total/NA	Water	300.0	
MB 600-239490/34	Method Blank	Total/NA	Water	300.0	
MB 600-239490/4	Method Blank	Total/NA	Water	300.0	
LCS 600-239490/35	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-239490/5	Lab Control Sample	Total/NA	Water	300.0	
600-165604-2 MS	MW-35	Total/NA	Water	300.0	
600-165604-2 MSD	MW-35	Total/NA	Water	300.0	

### Analysis Batch: 239599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165604-1	MW-19	Total/NA	Water	300.0	
600-165604-2	MW-35	Total/NA	Water	300.0	
600-165604-3	MW-53	Total/NA	Water	300.0	
600-165604-4	MW-54	Total/NA	Water	300.0	
600-165604-5	MW-58	Total/NA	Water	300.0	
600-165604-6	MW-66	Total/NA	Water	300.0	
600-165604-7	Dup-1	Total/NA	Water	300.0	
600-165751-1	MW-40	Total/NA	Water	300.0	
600-165751-2	MW-39	Total/NA	Water	300.0	
600-165751-3	Dup-2	Total/NA	Water	300.0	
600-165751-4	MW-63	Total/NA	Water	300.0	
600-165751-5	MW-41	Total/NA	Water	300.0	
600-165751-6	MW-64	Total/NA	Water	300.0	
600-165751-7	MW-62	Total/NA	Water	300.0	

TestAmerica Houston

# QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## HPLC/IC (Continued)

### Analysis Batch: 239599 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165817-1	MW-36	Total/NA	Water	300.0	
600-165817-2	MW-61	Total/NA	Water	300.0	
600-165817-3	MW-38	Total/NA	Water	300.0	
600-165817-4	MW-37	Total/NA	Water	300.0	
MB 600-239599/34	Method Blank	Total/NA	Water	300.0	
MB 600-239599/4	Method Blank	Total/NA	Water	300.0	
LCS 600-239599/35	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-239599/5	Lab Control Sample	Total/NA	Water	300.0	
600-165604-1 MS	MW-19	Total/NA	Water	300.0	
600-165604-1 MSD	MW-19	Total/NA	Water	300.0	
600-165751-5 MS	MW-41 MS	Total/NA	Water	300.0	
600-165751-5MSD	MW-41 MSD	Total/NA	Water	300.0	

### Analysis Batch: 239692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165751-2	MW-39	Total/NA	Water	300.0	
600-165751-3	Dup-2	Total/NA	Water	300.0	
600-165751-4	MW-63	Total/NA	Water	300.0	
600-165751-5	MW-41	Total/NA	Water	300.0	
600-165751-6	MW-64	Total/NA	Water	300.0	
600-165751-7	MW-62	Total/NA	Water	300.0	
600-165817-1	MW-36	Total/NA	Water	300.0	
600-165817-2	MW-61	Total/NA	Water	300.0	
600-165817-3	MW-38	Total/NA	Water	300.0	
600-165817-4	MW-37	Total/NA	Water	300.0	
600-165817-5	MW-60	Total/NA	Water	300.0	
600-165817-5	MW-60	Total/NA	Water	300.0	
MB 600-239692/4	Method Blank	Total/NA	Water	300.0	
LCS 600-239692/5	Lab Control Sample	Total/NA	Water	300.0	
600-165817-2 MS	MW-61	Total/NA	Water	300.0	
600-165817-2 MSD	MW-61	Total/NA	Water	300.0	
600-166588-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
600-166588-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 150764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165461-1	MW-48	Total/NA	Water	3010A	
600-165461-2	MW-49	Total/NA	Water	3010A	
600-165461-3	MW-50	Total/NA	Water	3010A	
600-165461-4	Field Blank	Total/NA	Water	3010A	
600-165461-5	MW-47	Total/NA	Water	3010A	
600-165461-6	MW-52	Total/NA	Water	3010A	
600-165461-7	MW-67	Total/NA	Water	3010A	
600-165461-8	MW-55	Total/NA	Water	3010A	
600-165461-9	MW-56	Total/NA	Water	3010A	
600-165461-10	MW-65	Total/NA	Water	3010A	
600-165461-11	MW-68	Total/NA	Water	3010A	
MB 560-150764/1-A	Method Blank	Total/NA	Water	3010A	

TestAmerica Houston

# QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Metals (Continued)

### Prep Batch: 150764 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 560-150764/2-A	Lab Control Sample	Total/NA	Water	3010A	
600-165461-7 MS	MW-47 MS	Total/NA	Water	3010A	
600-165461-7 MSD	MW-47 MSD	Total/NA	Water	3010A	

### Prep Batch: 150857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165670-1	MW-57	Total/NA	Water	3010A	
600-165670-2	MW-59	Total/NA	Water	3010A	
600-165670-3	MW-43	Total/NA	Water	3010A	
600-165670-4	MW-44	Total/NA	Water	3010A	
600-165670-5	MW-23	Total/NA	Water	3010A	
600-165670-6	MW-42	Total/NA	Water	3010A	
600-165670-7	MW-28D	Total/NA	Water	3010A	
600-165670-8	Field Blank-2	Total/NA	Water	3010A	
600-165670-9	MW-46	Total/NA	Water	3010A	
600-165670-10	MW-45	Total/NA	Water	3010A	
MB 560-150857/1-A	Method Blank	Total/NA	Water	3010A	
LCS 560-150857/2-A	Lab Control Sample	Total/NA	Water	3010A	
600-165670-1 MS	MW-57	Total/NA	Water	3010A	
600-165670-1 MSD	MW-57	Total/NA	Water	3010A	

### Analysis Batch: 150858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165461-1	MW-48	Total/NA	Water	6020	150764
600-165461-2	MW-49	Total/NA	Water	6020	150764
600-165461-3	MW-50	Total/NA	Water	6020	150764
600-165461-4	Field Blank	Total/NA	Water	6020	150764
600-165461-5	MW-47	Total/NA	Water	6020	150764
600-165461-6	MW-52	Total/NA	Water	6020	150764
600-165461-7	MW-67	Total/NA	Water	6020	150764
600-165461-8	MW-55	Total/NA	Water	6020	150764
600-165461-9	MW-56	Total/NA	Water	6020	150764
600-165461-10	MW-65	Total/NA	Water	6020	150764
600-165461-11	MW-68	Total/NA	Water	6020	150764
MB 560-150764/1-A	Method Blank	Total/NA	Water	6020	150764
LCS 560-150764/2-A	Lab Control Sample	Total/NA	Water	6020	150764
600-165461-7 MS	MW-47 MS	Total/NA	Water	6020	150764
600-165461-7 MSD	MW-47 MSD	Total/NA	Water	6020	150764

### Analysis Batch: 150911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165670-1	MW-57	Total/NA	Water	6020	150857
600-165670-2	MW-59	Total/NA	Water	6020	150857
600-165670-3	MW-43	Total/NA	Water	6020	150857
600-165670-4	MW-44	Total/NA	Water	6020	150857
600-165670-5	MW-23	Total/NA	Water	6020	150857
600-165670-6	MW-42	Total/NA	Water	6020	150857
600-165670-7	MW-28D	Total/NA	Water	6020	150857
600-165670-8	Field Blank-2	Total/NA	Water	6020	150857
600-165670-9	MW-46	Total/NA	Water	6020	150857
600-165670-10	MW-45	Total/NA	Water	6020	150857

TestAmerica Houston

# QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Metals (Continued)

### Analysis Batch: 150911 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 560-150857/1-A	Method Blank	Total/NA	Water	6020	150857
LCS 560-150857/2-A	Lab Control Sample	Total/NA	Water	6020	150857
600-165670-1 MS	MW-57	Total/NA	Water	6020	150857
600-165670-1 MSD	MW-57	Total/NA	Water	6020	150857

### Prep Batch: 150912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165751-1	MW-40	Total/NA	Water	3010A	
600-165751-2	MW-39	Total/NA	Water	3010A	
600-165751-3	Dup-2	Total/NA	Water	3010A	
600-165751-5	MW-41	Total/NA	Water	3010A	
600-165751-6	MW-64	Total/NA	Water	3010A	
600-165751-7	MW-62	Total/NA	Water	3010A	
MB 560-150912/1-A	Method Blank	Total/NA	Water	3010A	
LCS 560-150912/2-A	Lab Control Sample	Total/NA	Water	3010A	
600-165751-5 MS	MW-41 MS	Total/NA	Water	3010A	
600-165751-5MSD	MW-41 MSD	Total/NA	Water	3010A	

### Analysis Batch: 150967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165751-1	MW-40	Total/NA	Water	6020	150912
600-165751-2	MW-39	Total/NA	Water	6020	150912
600-165751-3	Dup-2	Total/NA	Water	6020	150912
600-165751-5	MW-41	Total/NA	Water	6020	150912
600-165751-6	MW-64	Total/NA	Water	6020	150912
600-165751-7	MW-62	Total/NA	Water	6020	150912
MB 560-150912/1-A	Method Blank	Total/NA	Water	6020	150912
LCS 560-150912/2-A	Lab Control Sample	Total/NA	Water	6020	150912
600-165751-5 MS	MW-41 MS	Total/NA	Water	6020	150912
600-165751-5MSD	MW-41 MSD	Total/NA	Water	6020	150912

### Prep Batch: 151020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165817-1	MW-36	Total/NA	Water	3010A	
600-165817-2	MW-61	Total/NA	Water	3010A	
600-165817-3	MW-38	Total/NA	Water	3010A	
600-165817-4	MW-37	Total/NA	Water	3010A	
600-165817-5	MW-60	Total/NA	Water	3010A	
MB 560-151020/1-A	Method Blank	Total/NA	Water	3010A	
LCS 560-151020/2-A	Lab Control Sample	Total/NA	Water	3010A	
600-165918-E-1-B MS	Matrix Spike	Total/NA	Water	3010A	
600-165918-E-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	3010A	

### Prep Batch: 151021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165604-1	MW-19	Total/NA	Water	3010A	
600-165604-2	MW-35	Total/NA	Water	3010A	
600-165604-3	MW-53	Total/NA	Water	3010A	
600-165604-4	MW-54	Total/NA	Water	3010A	
600-165604-5	MW-58	Total/NA	Water	3010A	
600-165604-6	MW-66	Total/NA	Water	3010A	

TestAmerica Houston

# QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Metals (Continued)

### Prep Batch: 151021 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165604-7	Dup-1	Total/NA	Water	3010A	
MB 560-151021/1-A	Method Blank	Total/NA	Water	3010A	
LCS 560-151021/2-A	Lab Control Sample	Total/NA	Water	3010A	
600-165831-E-9-B MS	Matrix Spike	Total/NA	Water	3010A	
600-165831-E-9-C MSD	Matrix Spike Duplicate	Total/NA	Water	3010A	

### Analysis Batch: 151054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 560-151021/1-A	Method Blank	Total/NA	Water	6020	151021
LCS 560-151021/2-A	Lab Control Sample	Total/NA	Water	6020	151021
600-165831-E-9-B MS	Matrix Spike	Total/NA	Water	6020	151021
600-165831-E-9-C MSD	Matrix Spike Duplicate	Total/NA	Water	6020	151021

### Filtration Batch: 151062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165718-B-4-C MS	Matrix Spike	Dissolved	Water	FILTRATION	
600-165718-B-4-D MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

### Analysis Batch: 151088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165604-1	MW-19	Total/NA	Water	6020	151021
600-165604-2	MW-35	Total/NA	Water	6020	151021
600-165604-3	MW-53	Total/NA	Water	6020	151021
600-165604-4	MW-54	Total/NA	Water	6020	151021
600-165604-5	MW-58	Total/NA	Water	6020	151021
600-165604-6	MW-66	Total/NA	Water	6020	151021
600-165604-7	Dup-1	Total/NA	Water	6020	151021

### Prep Batch: 151129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165751-4	MW-63	Total/NA	Water	3010A	
MB 560-151129/1-A	Method Blank	Total/NA	Water	3010A	
LCS 560-151129/2-A	Lab Control Sample	Total/NA	Water	3010A	
600-165718-B-4-C MS	Matrix Spike	Dissolved	Water	3010A	151062
600-165718-B-4-D MSD	Matrix Spike Duplicate	Dissolved	Water	3010A	151062

### Analysis Batch: 151139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165817-1	MW-36	Total/NA	Water	6020	151020
600-165817-2	MW-61	Total/NA	Water	6020	151020
600-165817-3	MW-38	Total/NA	Water	6020	151020
600-165817-4	MW-37	Total/NA	Water	6020	151020
600-165817-5	MW-60	Total/NA	Water	6020	151020
MB 560-151020/1-A	Method Blank	Total/NA	Water	6020	151020
LCS 560-151020/2-A	Lab Control Sample	Total/NA	Water	6020	151020
600-165918-E-1-B MS	Matrix Spike	Total/NA	Water	6020	151020
600-165918-E-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	6020	151020

### Analysis Batch: 151159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165751-4	MW-63	Total/NA	Water	6020	151129

TestAmerica Houston

# QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Metals (Continued)

### Analysis Batch: 151159 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165817-3	MW-38	Total/NA	Water	6020	151020
MB 560-151129/1-A	Method Blank	Total/NA	Water	6020	151129
LCS 560-151129/2-A	Lab Control Sample	Total/NA	Water	6020	151129
600-165718-B-4-C MS	Matrix Spike	Dissolved	Water	6020	151129
600-165718-B-4-D MSD	Matrix Spike Duplicate	Dissolved	Water	6020	151129

## General Chemistry

### Analysis Batch: 238037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165461-1	MW-48	Total/NA	Water	SM 2540C	
600-165461-2	MW-49	Total/NA	Water	SM 2540C	
600-165461-3	MW-50	Total/NA	Water	SM 2540C	
600-165461-4	Field Blank	Total/NA	Water	SM 2540C	
600-165461-5	MW-47	Total/NA	Water	SM 2540C	
600-165461-6	MW-52	Total/NA	Water	SM 2540C	
600-165461-7	MW-67	Total/NA	Water	SM 2540C	
600-165461-8	MW-55	Total/NA	Water	SM 2540C	
600-165461-9	MW-56	Total/NA	Water	SM 2540C	
600-165461-10	MW-65	Total/NA	Water	SM 2540C	
600-165461-11	MW-68	Total/NA	Water	SM 2540C	
MB 600-238037/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-238037/2	Lab Control Sample	Total/NA	Water	SM 2540C	
600-165389-A-5 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 238224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165604-1	MW-19	Total/NA	Water	SM 2540C	
600-165604-2	MW-35	Total/NA	Water	SM 2540C	
600-165604-3	MW-53	Total/NA	Water	SM 2540C	
600-165604-4	MW-54	Total/NA	Water	SM 2540C	
600-165604-5	MW-58	Total/NA	Water	SM 2540C	
MB 600-238224/25	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-238224/26	Lab Control Sample	Total/NA	Water	SM 2540C	
600-165544-B-4 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 238387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165604-6	MW-66	Total/NA	Water	SM 2540C	
600-165604-7	Dup-1	Total/NA	Water	SM 2540C	
600-165670-1	MW-57	Total/NA	Water	SM 2540C	
600-165670-2	MW-59	Total/NA	Water	SM 2540C	
600-165670-3	MW-43	Total/NA	Water	SM 2540C	
600-165670-4	MW-44	Total/NA	Water	SM 2540C	
600-165670-5	MW-23	Total/NA	Water	SM 2540C	
600-165670-6	MW-42	Total/NA	Water	SM 2540C	
600-165670-7	MW-28D	Total/NA	Water	SM 2540C	
600-165670-8	Field Blank-2	Total/NA	Water	SM 2540C	
600-165670-9	MW-46	Total/NA	Water	SM 2540C	
600-165670-10	MW-45	Total/NA	Water	SM 2540C	

TestAmerica Houston



# QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## General Chemistry (Continued)

### Analysis Batch: 238387 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 600-238387/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-238387/2	Lab Control Sample	Total/NA	Water	SM 2540C	
600-165697-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 238460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165461-1	MW-48	Total/NA	Water	9040B	
600-165461-2	MW-49	Total/NA	Water	9040B	
600-165461-3	MW-50	Total/NA	Water	9040B	
600-165461-4	Field Blank	Total/NA	Water	9040B	
600-165461-5	MW-47	Total/NA	Water	9040B	
600-165461-6	MW-52	Total/NA	Water	9040B	
600-165461-7	MW-67	Total/NA	Water	9040B	
600-165461-8	MW-55	Total/NA	Water	9040B	
600-165461-9	MW-56	Total/NA	Water	9040B	
600-165461-10	MW-65	Total/NA	Water	9040B	
600-165461-11	MW-68	Total/NA	Water	9040B	
600-165670-1	MW-57	Total/NA	Water	9040B	
600-165670-2	MW-59	Total/NA	Water	9040B	
600-165670-3	MW-43	Total/NA	Water	9040B	
600-165670-4	MW-44	Total/NA	Water	9040B	
600-165670-5	MW-23	Total/NA	Water	9040B	
600-165670-6	MW-42	Total/NA	Water	9040B	
600-165670-7	MW-28D	Total/NA	Water	9040B	
600-165670-8	Field Blank-2	Total/NA	Water	9040B	
600-165670-9	MW-46	Total/NA	Water	9040B	
600-165670-10	MW-45	Total/NA	Water	9040B	
600-165751-1	MW-40	Total/NA	Water	9040B	
600-165751-2	MW-39	Total/NA	Water	9040B	
600-165751-3	Dup-2	Total/NA	Water	9040B	
600-165751-4	MW-63	Total/NA	Water	9040B	
600-165751-5	MW-41	Total/NA	Water	9040B	
600-165751-6	MW-64	Total/NA	Water	9040B	
600-165751-7	MW-62	Total/NA	Water	9040B	
LCS 600-238460/1	Lab Control Sample	Total/NA	Water	9040B	
LCS 600-238460/26	Lab Control Sample	Total/NA	Water	9040B	
600-165461-1 DU	MW-48	Total/NA	Water	9040B	
600-165461-11 DU	MW-68	Total/NA	Water	9040B	
600-165670-3 DU	MW-43	Total/NA	Water	9040B	
600-165751-3 DU	Dup-2	Total/NA	Water	9040B	

### Analysis Batch: 238644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165751-1	MW-40	Total/NA	Water	SM 2540C	
600-165751-2	MW-39	Total/NA	Water	SM 2540C	
600-165751-3	Dup-2	Total/NA	Water	SM 2540C	
600-165751-4	MW-63	Total/NA	Water	SM 2540C	
600-165751-5	MW-41	Total/NA	Water	SM 2540C	
600-165751-6	MW-64	Total/NA	Water	SM 2540C	
600-165751-7	MW-62	Total/NA	Water	SM 2540C	
MB 600-238644/25	Method Blank	Total/NA	Water	SM 2540C	

TestAmerica Houston

# QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## General Chemistry (Continued)

### Analysis Batch: 238644 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 600-238644/26	Lab Control Sample	Total/NA	Water	SM 2540C	
600-165751-3 DU	Dup-2	Total/NA	Water	SM 2540C	

### Analysis Batch: 238686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165604-1	MW-19	Total/NA	Water	9040B	
600-165604-2	MW-35	Total/NA	Water	9040B	
600-165604-3	MW-53	Total/NA	Water	9040B	
600-165604-4	MW-54	Total/NA	Water	9040B	
600-165604-5	MW-58	Total/NA	Water	9040B	
600-165604-6	MW-66	Total/NA	Water	9040B	
600-165604-7	Dup-1	Total/NA	Water	9040B	
LCS 600-238686/1	Lab Control Sample	Total/NA	Water	9040B	
600-165882-A-1 DU	Duplicate	Total/NA	Water	9040B	

### Analysis Batch: 238757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165817-1	MW-36	Total/NA	Water	SM 2540C	
600-165817-2	MW-61	Total/NA	Water	SM 2540C	
600-165817-3	MW-38	Total/NA	Water	SM 2540C	
600-165817-4	MW-37	Total/NA	Water	SM 2540C	
600-165817-5	MW-60	Total/NA	Water	SM 2540C	
MB 600-238757/25	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-238757/26	Lab Control Sample	Total/NA	Water	SM 2540C	
600-165817-2 DU	MW-61	Total/NA	Water	SM 2540C	

### Analysis Batch: 239043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-165817-1	MW-36	Total/NA	Water	9040B	
600-165817-2	MW-61	Total/NA	Water	9040B	
600-165817-3	MW-38	Total/NA	Water	9040B	
600-165817-4	MW-37	Total/NA	Water	9040B	
600-165817-5	MW-60	Total/NA	Water	9040B	
LCS 600-239043/1	Lab Control Sample	Total/NA	Water	9040B	
600-166006-A-1 DU	Duplicate	Total/NA	Water	9040B	

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-48**

**Date Collected: 05/02/18 13:42**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			238428	05/15/18 11:24	DAW	TAL HOU
Total/NA	Analysis	300.0		2			238627	05/16/18 18:37	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 21:54	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 20:49	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-49**

**Date Collected: 05/02/18 12:35**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			238428	05/15/18 12:18	DAW	TAL HOU
Total/NA	Analysis	300.0		2			238627	05/16/18 19:31	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 22:00	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 20:56	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-50**

**Date Collected: 05/02/18 11:30**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			238428	05/15/18 12:36	DAW	TAL HOU
Total/NA	Analysis	300.0		2			238627	05/16/18 19:49	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 22:05	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 21:00	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

**Client Sample ID: Field Blank**

**Date Collected: 05/02/18 14:00**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			238428	05/15/18 13:29	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 22:11	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 21:04	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-47**

**Date Collected: 05/03/18 09:20**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			238428	05/15/18 12:53	DAW	TAL HOU
Total/NA	Analysis	300.0		2			238627	05/16/18 20:07	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 22:16	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 21:07	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-52**

**Date Collected: 05/03/18 14:12**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			238428	05/15/18 13:11	DAW	TAL HOU
Total/NA	Analysis	300.0		2			238627	05/16/18 20:25	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 22:21	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 21:11	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-67**

**Date Collected: 05/03/18 12:15**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			238428	05/15/18 14:26	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 21:03	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 21:15	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-55**

**Date Collected: 05/04/18 14:08**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			238428	05/15/18 15:21	DAW	TAL HOU
Total/NA	Analysis	300.0		2			238627	05/16/18 20:43	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 22:27	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 21:18	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-56**

**Date Collected: 05/04/18 12:42**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			238428	05/15/18 15:39	DAW	TAL HOU
Total/NA	Analysis	300.0		2			238627	05/16/18 21:36	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 23:03	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 21:21	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-65**

**Date Collected: 05/04/18 11:10**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-10**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			238428	05/15/18 15:56	DAW	TAL HOU
Total/NA	Analysis	300.0		2			238627	05/16/18 21:54	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 23:08	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 21:25	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-68**

**Date Collected: 05/04/18 09:20**

**Date Received: 05/04/18 16:57**

**Lab Sample ID: 600-165461-11**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			238428	05/15/18 16:14	DAW	TAL HOU
Total/NA	Analysis	300.0		2			238627	05/16/18 22:12	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150764	05/09/18 12:16	AKM	TAL CC
Total/NA	Analysis	6020		1			150858	05/10/18 23:13	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 21:32	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238037	05/08/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-19**

**Date Collected: 05/07/18 12:30**

**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239490	05/30/18 18:59	DAW	TAL HOU
Total/NA	Analysis	300.0		5			239599	05/31/18 18:55	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151021	05/16/18 11:50	AKM	TAL CC
Total/NA	Analysis	6020		1			151088	05/17/18 17:14	JEM	TAL CC
Total/NA	Analysis	9040B		1			238686	05/16/18 16:21	KRD	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-19**

**Date Collected: 05/07/18 12:30**

**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238224	05/10/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-35**

**Date Collected: 05/07/18 09:30**

**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			239490	05/30/18 19:53	DAW	TAL HOU
Total/NA	Analysis	300.0		2			239599	05/31/18 19:49	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151021	05/16/18 11:50	AKM	TAL CC
Total/NA	Analysis	6020		1			151088	05/17/18 17:20	JEM	TAL CC
Total/NA	Analysis	9040B		1			238686	05/16/18 16:25	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238224	05/10/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-53**

**Date Collected: 05/07/18 13:50**

**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239490	05/30/18 21:40	DAW	TAL HOU
Total/NA	Analysis	300.0		5			239599	05/31/18 20:07	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151021	05/16/18 11:50	AKM	TAL CC
Total/NA	Analysis	6020		1			151088	05/17/18 17:25	JEM	TAL CC
Total/NA	Analysis	9040B		1			238686	05/16/18 16:29	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238224	05/10/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-54**

**Date Collected: 05/07/18 10:55**

**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			239490	05/30/18 21:58	DAW	TAL HOU
Total/NA	Analysis	300.0		2			239599	05/31/18 20:25	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151021	05/16/18 11:50	AKM	TAL CC
Total/NA	Analysis	6020		1			151088	05/17/18 17:31	JEM	TAL CC
Total/NA	Analysis	9040B		1			238686	05/16/18 16:33	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238224	05/10/18 11:03	EC1	TAL HOU

TestAmerica Houston



# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-58**

**Date Collected: 05/07/18 15:50**

**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			239490	05/30/18 22:16	DAW	TAL HOU
Total/NA	Analysis	300.0		2			239599	05/31/18 21:18	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151021	05/16/18 11:50	AKM	TAL CC
Total/NA	Analysis	6020		1			151088	05/17/18 18:27	JEM	TAL CC
Total/NA	Analysis	9040B		1			238686	05/16/18 16:36	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238224	05/10/18 11:03	EC1	TAL HOU

**Client Sample ID: MW-66**

**Date Collected: 05/07/18 17:00**

**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			239490	05/30/18 22:34	DAW	TAL HOU
Total/NA	Analysis	300.0		2			239599	05/31/18 21:36	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151021	05/16/18 11:50	AKM	TAL CC
Total/NA	Analysis	6020		1			151088	05/17/18 18:33	JEM	TAL CC
Total/NA	Analysis	9040B		1			238686	05/16/18 16:40	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

**Client Sample ID: Dup-1**

**Date Collected: 05/07/18 00:00**

**Date Received: 05/08/18 14:06**

**Lab Sample ID: 600-165604-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			239490	05/30/18 22:52	DAW	TAL HOU
Total/NA	Analysis	300.0		2			239599	05/31/18 21:54	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151021	05/16/18 11:50	AKM	TAL CC
Total/NA	Analysis	6020		1			151088	05/17/18 18:38	JEM	TAL CC
Total/NA	Analysis	9040B		1			238686	05/16/18 16:44	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

**Client Sample ID: MW-57**

**Date Collected: 05/08/18 07:35**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			238910	05/21/18 15:27	DAW	TAL HOU
Total/NA	Analysis	300.0		50			238910	05/21/18 16:24	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150857	05/11/18 11:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150911	05/11/18 18:16	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:00	KRD	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-57**

**Date Collected: 05/08/18 07:35**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

**Client Sample ID: MW-59**

**Date Collected: 05/08/18 08:25**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			238910	05/21/18 20:35	DAW	TAL HOU
Total/NA	Analysis	300.0		100			238910	05/21/18 20:53	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150857	05/11/18 11:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150911	05/11/18 18:38	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:03	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

**Client Sample ID: MW-43**

**Date Collected: 05/08/18 09:40**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			238910	05/21/18 21:11	DAW	TAL HOU
Total/NA	Analysis	300.0		50			238910	05/21/18 21:28	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150857	05/11/18 11:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150911	05/11/18 18:43	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:14	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

**Client Sample ID: MW-44**

**Date Collected: 05/08/18 10:58**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			238910	05/21/18 22:22	DAW	TAL HOU
Total/NA	Analysis	300.0		100			238910	05/21/18 22:40	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150857	05/11/18 11:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150911	05/11/18 18:49	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:21	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-23**

**Date Collected: 05/08/18 12:05**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5			238910	05/21/18 23:34	DAW	TAL HOU
Total/NA	Analysis	300.0		250			238910	05/21/18 23:52	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150857	05/11/18 11:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150911	05/11/18 19:25	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:24	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

**Client Sample ID: MW-42**

**Date Collected: 05/08/18 13:00**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			238910	05/22/18 00:45	DAW	TAL HOU
Total/NA	Analysis	300.0		100			238910	05/22/18 01:03	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150857	05/11/18 11:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150911	05/11/18 19:30	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:28	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

**Client Sample ID: MW-28D**

**Date Collected: 05/08/18 14:08**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			238910	05/22/18 01:21	DAW	TAL HOU
Total/NA	Analysis	300.0		50			238910	05/22/18 01:39	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150857	05/11/18 11:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150911	05/11/18 19:36	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:32	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

**Client Sample ID: Field Blank-2**

**Date Collected: 05/08/18 14:55**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			238978	05/22/18 09:56	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150857	05/11/18 11:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150911	05/11/18 19:42	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:35	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-46**

**Date Collected: 05/08/18 15:25**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			238978	05/22/18 11:27	DAW	TAL HOU
Total/NA	Analysis	300.0		100			238978	05/22/18 11:45	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150857	05/11/18 11:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150911	05/11/18 19:47	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:38	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

**Client Sample ID: MW-45**

**Date Collected: 05/08/18 16:45**

**Date Received: 05/09/18 12:43**

**Lab Sample ID: 600-165670-10**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			238978	05/22/18 12:03	DAW	TAL HOU
Total/NA	Analysis	300.0		250			238978	05/22/18 12:21	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150857	05/11/18 11:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150911	05/11/18 19:52	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:42	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	238387	05/12/18 09:55	EC1	TAL HOU

**Client Sample ID: MW-40**

**Date Collected: 05/09/18 08:45**

**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239490	05/30/18 23:10	DAW	TAL HOU
Total/NA	Analysis	300.0		5			239599	05/31/18 22:12	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150912	05/14/18 10:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150967	05/14/18 23:09	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:46	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238644	05/16/18 10:50	EC1	TAL HOU

**Client Sample ID: MW-39**

**Date Collected: 05/09/18 09:50**

**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			239599	05/31/18 22:30	DAW	TAL HOU
Total/NA	Analysis	300.0		5			239692	06/01/18 13:42	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150912	05/14/18 10:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150967	05/14/18 23:15	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:49	KRD	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-39**

**Date Collected: 05/09/18 09:50**

**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238644	05/16/18 10:50	EC1	TAL HOU

**Client Sample ID: Dup-2**

**Date Collected: 05/09/18 00:00**

**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			239599	05/31/18 22:48	DAW	TAL HOU
Total/NA	Analysis	300.0		5			239692	06/01/18 14:36	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150912	05/14/18 10:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150967	05/14/18 23:20	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 22:56	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238644	05/16/18 10:50	EC1	TAL HOU

**Client Sample ID: MW-63**

**Date Collected: 05/09/18 11:20**

**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239599	06/01/18 01:11	DAW	TAL HOU
Total/NA	Analysis	300.0		2			239692	06/01/18 14:54	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151129	05/21/18 08:30	AKM	TAL CC
Total/NA	Analysis	6020		1			151159	05/21/18 14:17	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 23:04	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238644	05/16/18 10:50	EC1	TAL HOU

**Client Sample ID: MW-41**

**Date Collected: 05/09/18 13:00**

**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239599	05/31/18 23:42	DAW	TAL HOU
Total/NA	Analysis	300.0		2			239692	06/01/18 15:12	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150912	05/14/18 10:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150967	05/14/18 22:16	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 23:07	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238644	05/16/18 10:50	EC1	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-64**

**Date Collected: 05/09/18 13:23**

**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239599	06/01/18 01:29	DAW	TAL HOU
Total/NA	Analysis	300.0		2			239692	06/01/18 13:06	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150912	05/14/18 10:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150967	05/14/18 23:26	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 23:11	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238644	05/16/18 10:50	EC1	TAL HOU

**Client Sample ID: MW-62**

**Date Collected: 05/09/18 16:05**

**Date Received: 05/10/18 13:05**

**Lab Sample ID: 600-165751-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239599	06/01/18 01:47	DAW	TAL HOU
Total/NA	Analysis	300.0		5			239692	06/01/18 13:24	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	150912	05/14/18 10:00	AKM	TAL CC
Total/NA	Analysis	6020		1			150967	05/14/18 23:31	JEM	TAL CC
Total/NA	Analysis	9040B		1			238460	05/11/18 23:15	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238644	05/16/18 10:50	EC1	TAL HOU

**Client Sample ID: MW-36**

**Date Collected: 05/11/18 08:20**

**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239599	06/01/18 02:05	DAW	TAL HOU
Total/NA	Analysis	300.0		2			239692	06/01/18 15:29	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151020	05/16/18 11:05	AKM	TAL CC
Total/NA	Analysis	6020		1			151139	05/17/18 21:00	JEM	TAL CC
Total/NA	Analysis	9040B		1			239043	05/22/18 12:45	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238757	05/17/18 13:18	EC1	TAL HOU

**Client Sample ID: MW-61**

**Date Collected: 05/11/18 09:48**

**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239599	06/01/18 02:23	DAW	TAL HOU
Total/NA	Analysis	300.0		10			239692	06/01/18 15:47	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151020	05/16/18 11:05	AKM	TAL CC
Total/NA	Analysis	6020		1			151139	05/17/18 21:06	JEM	TAL CC
Total/NA	Analysis	9040B		1			239043	05/22/18 12:49	KRD	TAL HOU

TestAmerica Houston



# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Client Sample ID: MW-61**

**Date Collected: 05/11/18 09:48**

**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238757	05/17/18 13:18	EC1	TAL HOU

**Client Sample ID: MW-38**

**Date Collected: 05/11/18 11:10**

**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239599	06/01/18 02:41	DAW	TAL HOU
Total/NA	Analysis	300.0		10			239692	06/01/18 16:41	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151020	05/16/18 11:05	AKM	TAL CC
Total/NA	Analysis	6020		1			151139	05/17/18 21:11	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	151020	05/16/18 11:05	AKM	TAL CC
Total/NA	Analysis	6020		10			151159	05/21/18 12:53	JEM	TAL CC
Total/NA	Analysis	9040B		1			239043	05/22/18 12:52	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238757	05/17/18 13:18	EC1	TAL HOU

**Client Sample ID: MW-37**

**Date Collected: 05/11/18 12:20**

**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239599	06/01/18 02:59	DAW	TAL HOU
Total/NA	Analysis	300.0		5			239692	06/01/18 16:59	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151020	05/16/18 11:05	AKM	TAL CC
Total/NA	Analysis	6020		1			151139	05/17/18 21:17	JEM	TAL CC
Total/NA	Analysis	9040B		1			239043	05/22/18 12:56	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238757	05/17/18 13:18	EC1	TAL HOU

**Client Sample ID: MW-60**

**Date Collected: 05/11/18 13:25**

**Date Received: 05/11/18 16:34**

**Lab Sample ID: 600-165817-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			239692	06/01/18 17:17	DAW	TAL HOU
Total/NA	Analysis	300.0		5			239692	06/01/18 18:11	DAW	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	151020	05/16/18 11:05	AKM	TAL CC
Total/NA	Analysis	6020		1			151139	05/17/18 21:22	JEM	TAL CC
Total/NA	Analysis	9040B		1			239043	05/22/18 13:00	KRD	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	238757	05/17/18 13:18	EC1	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

**Laboratory References:**

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

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# Accreditation/Certification Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish App III

TestAmerica Job ID: 600-165461-2

## Laboratory: TestAmerica Houston

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Texas	NELAP	6	T104704223-17-22	10-31-18

## Laboratory: TestAmerica Corpus Christi

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Oklahoma	State Program	6	2017-139	08-31-18
Texas	NELAP	6	T104704210-18-21	03-31-19
USDA	Federal		P330-18-00035	02-02-21



Chain of Custody Record

<b>Client Information</b> Client Contact: Andrew Clayton Company: TRC Solutions Address: 10550 Richmond Ave., Ste. 210 City: Houston State, Zip: TX, 77042 Phone: 832-763-4936 Email: aclayton@trcsolutions.com Project Name: NRG-WA Parish Wells Site:		Lab PM: Tigrett, Lance E-Mail: lance.tigrett@testamericainc.com Job #:		Carrier Tracking Note(s): COC No: 600-35296-11606.2 Page:	
Due Date Requested: Standard TAT TAT Requested (days):		Analysis Requested: Appendix IV Total Number of Containers: 5		Barcode: 600-165461 Chain of Custody	
Sample Identification: MW-48, MW-49, MW-50, Field Blank, MW-47, MW-52, MW-67, MS-1, MSP-2		Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): 7470A (Mercury)(TA-Corpus) 903.0-Radium-226(TA-St. Louis) 904.0-Radium-228 (TA-St. Louis) Ra226Ra228_GFPCC		Special Instructions/Note: Email to: adwoorazyk@trc... phenderson@trc...	
Sample Date: 5-2-18, 5-2-18, 5-2-18, 5-3-18, 5-3-18, 5-3-18 Sample Time: 1342, 1235, 1130, 1400, 0920, 1412, 1215 Sample Type (C=comp, G=grab): G, ↓, ↓, G, ↓, ↓, ↓, G, W		Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air): Water, ↓, ↓, W, ↓, ↓, ↓, W		Possible Hazard Identification: Non-Hazard, Flammable, Skin Irritant, Poison B, Unknown, Radiological Deliverable Requested: I, II, III, IV, Other (specify) CCP Rule	
Relinquished by: Andrew Clayton Relinquished by: Lee Gourley Relinquished by:		Date: 5-3-18 1600, 5/4/18 1657 Date/Time: 5/2/18 3:30pm, 5-4-18 1657		Method of Shipment:	
Empty Kit Relinquished by:		Date:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:		Company: TRC Solutions	











Chain of Custody Record

<b>Client Information</b> Client Contact: Andrew Clayton Company: TRC Solutions Address: 10550 Richmond Ave., Ste. 210 City: Houston State, Zip: TX, 77042 Phone: 832-763-4936 Email: aclayton@trcsolutions.com Project Name: NRG-WA Parish Wells Site:		Lab PM: Tigrett, Lance E-Mail: lance.tigrett@testamericainc.com Carrier Tracking Note(s): COC No: 600-35296-11606 2 Page:	
Due Date Requested: <u>Standard</u> TAT Requested (days): PO #: WO #: Project #: 60008045 SSONW#:		Job #: Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
<b>Sample Identification</b> MW-5-5 MW-56 MW-65 MW-68		Analysis Requested Perform MS/MSD (Yes or No) [X] [ ] Field Filtered Sample (Yes or No) [X] [ ] 6020 (Custom Metals)(TA-Corpus) [X] [ ] 300-ORGM_280 (Fluoride, Sulfate, Chloride) [X] [ ] 2540C (Calc'd (TDS)) [X] [ ] 7470A (Mercury)(TA-Corpus) [X] [ ] 903-0-Radium-226(TA-St.Louis) [X] [ ] 904-0-Radium-228 (TA-St.Louis) [X] [ ] Ra226Ra228_GFPC [X] [ ]	
Sample Date: 5-4-18 Sample Time: 1208 Matrix (Water, Snow/Ice, Swab, Oil, Other): Water		Total Number of Containers: 5 Special Instructions/Note:	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			
Deliverable Requested: I, II, III, IV, Other (specify)			
Relinquished by: Andrew Clayton Relinquished by: Lee Clayton Relinquished by:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Date/Time: 5-4-18 16:00 Date/Time: 5/4/18 16:57 Date/Time:		Method of Shipment:	
Company: TRC Solutions Company: TRC Solutions Company:		Received by: Lee Clayton Requested by: Lee Clayton Received by:	
Custody Seal No.: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:	



## Sample Receipt ( 165461

Loc: 600

e Received: \_\_\_\_\_

JOB NUMBER: \_\_\_\_\_

461

CLIENT: \_\_\_\_\_

TRC / WRC 18 MAY 4 16:57

UNPACKED BY: \_\_\_\_\_

[Signature]

CARRIER/DRIVER: \_\_\_\_\_

PL

Custody Seal Present:  YES  NO

Number of Coolers Received: 4

4

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Therm CF	Corrected Temp (°C)
<u>GW</u>	<u>Y / N</u>	<u>Y / N</u>	<u>2.9</u>	<u>676</u>	<u>+0.3</u>	<u>3.2</u>
<u>GW</u>	<u>Y / N</u>	<u>Y / N</u>	<u>3.6</u>	<u>1</u>	<u>1</u>	<u>3.9</u>
<u>RW</u>	<u>Y / N</u>	<u>Y / N</u>	<u>0.3</u>	<u>1</u>	<u>1</u>	<u>0.6</u>
<u>GW</u>	<u>Y / N</u>	<u>Y / N</u>	<u>4.1</u>	<u>1</u>	<u>1</u>	<u>4.4</u>
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				

CF = correction factor

Samples received on ice?  YES  NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED:  NO  YES

Base samples are > pH 12:  YES  NO Acid preserved are < pH 2:  YES  NO

pH paper Lot # H2740488

VOA headspace acceptable (5-6mm):  YES  NO  NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	YES	NO
	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**COMMENTS:**

[Signature]

5578




**Chain of Custody Record**

<b>Client Information</b>		Lab PM: <b>Tigrett, C. Lance</b>		Carrier Tracking No(s):	
Client Contact: <b>Andrew Clayton</b>		E-Mail: <b>lance.tigrett@testamericainc.com</b>		COC No: <b>800-59038-16903.1</b>	
Company: <b>TRC Solutions, Inc.</b>		Phone: <b>832-7634936</b>		Page:	
Address: <b>10550 Richmond Avenue Suite 210</b>		Due Date Requested: <b>Standard IAT</b>		Job #:	
City: <b>Houston</b>		TAT Requested (days):		Preservation Codes:	
State, Zip: <b>TX, 77042</b>		PO #:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Z - other (specify)	
Phone: <b>713-244-1000(Tel)</b>		WO #:		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5	
Email: <b>AClayton@trcsolutions.com</b>		Project #:		Other:	
Project Name: <b>NRG-W. A. Parish/State Program</b>		60007663		Special Instructions/Note:	
Site:		SSOW#:		Also email phenolaseon@trc tdvoraczky@trc	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, A=air)	Analysis Requested		Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020 - (MOD) Custom Method List	2540C - Gated (TDS)	300 - ORP/M, ZPP (Truondechloridesulfate)	Total Number of containers	Special Instructions/Note:
					D	S							
MW-19	5-7-18	1730	G	Water	X	X	X	X	X	X	X	X	
MW-35	5-7-18	0930			X	X	X	X	X	X	X	X	
MW-53		1350			X	X	X	X	X	X	X	X	
MW-54		1055			X	X	X	X	X	X	X	X	
MW-58		1550			X	X	X	X	X	X	X	X	
MW-66		1700	G	W	X	X	X	X	X	X	X	X	
Dwp-1	5-7-18	-			X	X	X	X	X	X	X	X	



600-165604 Chain of Custody

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

Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_

Relinquished by: **William Shum** Company: \_\_\_\_\_ Date/Time: **5-7-18 1900**

Relinquished by: **William Shum** Company: \_\_\_\_\_ Date/Time: **5-7-18 1400**

Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Custody Seal No.: \_\_\_\_\_  
 Yes  No

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Special Instructions/QC Requirements:

Method of Shipment: \_\_\_\_\_

Received by: **William Shum** Company: \_\_\_\_\_ Date/Time: **5/8/18 12:43**

Received by: **William Shum** Company: \_\_\_\_\_ Date/Time: **5/8/18 1400**

Received by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Cooler Temperature(s) °C and Other Remarks:





Sa Loc: 600  
165604 ipt Checklist

Date/Time Received: \_\_\_\_\_

JOB NUMBER: \_\_\_\_\_

CLIENT: TBC

UNPACKED BY: \_\_\_\_\_

CARRIER/DRIVER: PC

18 MAY 8 14:06

Custody Seal Present:  YES  NO

Number of Coolers Received: 2

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Therm CF	Corrected Temp (°C)
<u>BW</u>	<u>Y</u> / <u>N</u>	<u>Y</u> / <u>N</u>	<u>3.6</u>	<u>670</u>	<u>0.3</u>	<u>3.9</u>
<u>BW</u>	<u>Y</u> / <u>N</u>	<u>Y</u> / <u>N</u>	<u>2.9</u>	<u>670</u>	<u>0.3</u>	<u>3.2</u>
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				

CF = correction factor

Samples received on ice?  YES  NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED:  NO  YES

Base samples are >pH 12:  YES  NO      Acid preserved are <pH 2:  YES  NO

pH paper Lot # HC740488

VOA headspace acceptable (5-6mm):  YES  NO  NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	YES	NO
	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**COMMENTS:**

\_\_\_\_\_

\_\_\_\_\_


\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# Chain of Custody Record

<b>Client Information</b> Client Contact: Andrew Clayton Company: TRC Solutions Address: 10550 Richmond Ave., Ste. 210 City: Houston State, Zip: TX, 77042 Phone: 832-763-4936 Email: aclayton@trcsolutions.com Project Name: NRG-WA Parish Wells Site:		Lab PM: Tigrett, Lance E-Mail: lance.tigrett@testamericainc.com Carrier Tracking No(s): COC No: 600-35296-11606.2 Page: Job #:	
<b>Due Date Requested:</b> TAT Requested (days): Standard PO #: WO #: Project #: 60008045 SSOW#:		<b>Analysis Requested</b> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 6020 (Custom Metals)(TA-Corpus) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 300_ORGM_28D (Fluoride, Sulfate, Chloride) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2640C_Calcd (TDS) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 74704 (Mercury)(TA-Corpus) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 900-0-Radium-226(TA-St. Louis) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 904-0-Radium-228(TA-St. Louis) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No PH <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No RA226Ra228_GEPC <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Sample Identification</b> MW-57 MW-59 MW-43 MW-44 MW-23 MW-42 MW-28D MW-46 MW-45 ac MW-Field Blank-2		<b>Sample Date</b> 05-18-0735 0825 0940 1058 1205 1300 1408 1455 1525 1645 5818	
<b>Sample Time</b> 0735 0825 0940 1058 1205 1300 1408 1455 1525 1645		<b>Sample Type (C=Comp, G=grab)</b> G G G G G G G G G G	
<b>Matrix (W=water, S=solid, O=water, BT=issue, A=air)</b> Water Water Water Water Water Water Water Water Water Water		<b>Preservation Code:</b> G G G G G G G G G G	
<b>Special Instructions/Note:</b> 600-165670 Chain of Custody 		<b>Total Number of containers</b> 5	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<b>Sample Disposal (A fee may be assessed if samples are retained longer than...)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
<b>Deliverable Requested:</b> I, II, III, IV, Other (specify)		<b>Special Instructions/QC Requirements:</b>	
<b>Empty Kit Relinquished by:</b> Andrew Clayton Relinquished by: Larry Moore Relinquished by:		<b>Method of Shipment:</b> Date/Time: 5-18-18 815 Date/Time: 5/18/18 1235 Date/Time:	
<b>Custody Seals Intact:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Cooler Temperature(s) °C and Other Remarks:</b>	







## Sample Receipt Checklist

Loc: 600

165670

18 MAY 9 12:43

JOB NUMBER: 10

Date/Time Received: \_\_\_\_\_

CLIENT: TRC Solutions

UNPACKED BY: \_\_\_\_\_

CARRIER/DRIVER: PC

Custody Seal Present:  YES  NO

Number of Coolers Received: 3

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Them CF	Corrected Temp (°C)
BW	<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	4.8	IR676	+0.3	5.1
GB	<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	1.7	IR676	+0.3	1.9
BW	<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	4.6	IR676	+0.3	4.9
	<input type="checkbox"/> Y / <input type="checkbox"/> N	<input type="checkbox"/> Y / <input type="checkbox"/> N				
	<input type="checkbox"/> Y / <input type="checkbox"/> N	<input type="checkbox"/> Y / <input type="checkbox"/> N				
	<input type="checkbox"/> Y / <input type="checkbox"/> N	<input type="checkbox"/> Y / <input type="checkbox"/> N				
	<input type="checkbox"/> Y / <input type="checkbox"/> N	<input type="checkbox"/> Y / <input type="checkbox"/> N				
	<input type="checkbox"/> Y / <input type="checkbox"/> N	<input type="checkbox"/> Y / <input type="checkbox"/> N				
	<input type="checkbox"/> Y / <input type="checkbox"/> N	<input type="checkbox"/> Y / <input type="checkbox"/> N				

CF = correction factor

Samples received on ice?  YES  NO see below

LABORATORY PRESERVATION OF SAMPLES REQUIRED:  NO  YES

Base samples are >pH 12:  YES  NO Acid preserved are <pH 2:  YES  NO

pH paper Lot # HC740488

VOA headspace acceptable (5-6mm):  YES  NO  NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?  YES  NO

**COMMENTS:**

1st BW cooler - all ice melted but still in temp

DP 5/9/18



# Chain of Custody Record

<b>Client Information</b> Client Contact: Andrew Clayton Company: TRC Solutions Address: 10550 Richmond Ave., Ste. 210 City: Houston State, Zip: TX, 77042 Phone: 832-763-4936 Email: aclayton@trcsolutions.com Project Name: NRG-WA Parish Wells Site:		Lab PM: Tigrrett, Lance E-Mail: lance.tigrrett@testamericainc.com Carmer Tracking No(s): COC No: 600-352996-11606.2 Page: Job #:	
Due Date Requested: TAT Requested (days): Standard PO #: WO #: Project #: 60008045 SSOW#:		<b>Analysis Requested</b> 7470A (Mercury)(TA-Corpus) X 903.0-Radium-226(TA-St. Louis) X 904.0-Radium-228 (TA-St. Louis) X 75496-6042 (TSP) X 300-ORGM-88B (Fluoride, Sulfate, Chloride) X 6020 (Cesium Metals)(TA-Corpus) X Perform MS/MSD (Yes or No) X Field Filtered Sample (Yes or No) X Total Number of containers: 5	
<b>Sample Identification</b> MW-40 MW-39 DW-2 MW-63 MW-41 MW-41MS MW-41MSD MW-64 MW-62		Matrix (W=water, S=solid, O=wastewater, I=ice, T=tissue, A=air) Water Preservation Code: Sample Type (C=Comp, G=grab) Sample Time Sample Date Date Requested Date Time Date Time Date Time Date Time Date Time	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:	
Empty Kit Relinquished by: Relinquished by: Andrew Clayton Relinquished by: Andrew Clayton Relinquished by: Andrew Clayton Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Method of Shipment: Date: 5-9-13 1830 Date: 5-10-13 1355 Date: 5-10-13 1355 Date: 5-16-18 12105 Date: 5-15-18 1305	



600-165751 Chain of Custody



Chain of Custody Record

<b>Client Information</b> Client Contact: Andrew Clayton Company: TRC Solutions Address: 10550 Richmond Ave., Ste. 210 City: Houston State, Zip: TX, 77042 Phone: 832-763-4936 Email: aclayton@trcsolutions.com Project Name: NRG-WA Parish Wells Site:		Lab PM: Tigrett, Lance E-Mail: lance.tigrett@testamericainc.com Carrier Tracking No(s): COC No: 600-35296-11606.2 Page: Job #:	
<b>Due Date Requested:</b> TAT Requested (days): Standard PO #:		<b>Analysis Requested</b> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 6020 (Custom Method) (TA-Corpus) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 300_ORGFM_28D (Fluoride, Sulfate, Chloride) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2640C_Calcd (TDS) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 7470A (Mercury) (TA-Corpus) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 603.0 Radium-226 (TA-St. Louis) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 604.0 Radium-228 (TA-St. Louis) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 605.0 Radium-228 (TA-St. Louis) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Total Number of containers: 5	
<b>Sample Identification</b> MW-40 MW-39 Dup-2 MW-63 MW-41 MW-41 MS MW-41 MSD MW-64 MW-62		<b>Sample Date</b> 0845 0930 1120 1300 1323 1345 1450 1605	
<b>Sample Type</b> (C=Comp, G=grab) G G G G G G G		<b>Matrix</b> (W=water, S=solid, O=wastewater, BT=tissue, A=air) Water Water Water Water Water Water Water	
<b>Preservation Code:</b> M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify) Other:		<b>Special Instructions/Note:</b>	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological <b>Deliverable Requested:</b> I, II, III, IV, Other (specify)			
<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
<b>Empty Kit Relinquished by:</b> Andrew Clayton Date/Time: 5-18-18 1830 Company:		<b>Received by:</b> [Signature] Date/Time: 5-18-18 12:05 Company:	
<b>Relinquished by:</b> Andrew Clayton Date/Time: 5-18-18 1305 Company:		<b>Received by:</b> [Signature] Date/Time: 5-18-18 1305 Company:	
<b>Custody Seals Intact:</b> Yes <input type="checkbox"/> No <input type="checkbox"/>		<b>Cooler Temperature(s) °C and Other Remarks:</b>	





Sample Receipt Checklist  
Loc: 600  
165751

18 MAY 10 13:05

JOB NUMBER: \_\_\_\_\_

Date/Time Received: \_\_\_\_\_

CLIENT: TRC

UNPACKED BY: J.D.

CARRIER/DRIVER: PC

Custody Seal Present:  YES  NO

Number of Coolers Received: 2

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Therm CF	Corrected Temp (°C)
<u>BLO</u>	Y / N	Y / N	<u>4.1</u>	<u>6074</u>	<u>1.3</u>	<u>4.4</u>
<u>GLU</u>	Y / N	Y / N	<u>5.4</u>	<u>1</u>	<u>1</u>	<u>5.9</u>
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				

CF = correction factor

Samples received on ice?  YES  NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED:  NO  YES

Base samples are >pH 12:  YES  NO Acid preserved are <pH 2:  YES  NO

pH paper Lot # AC740488

VOA headspace acceptable (5-6mm):  YES  NO  NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?  YES  NO

COMMENTS: Sample Date not on COC - sample date is on container labels  
J.D. 5-10-18









## Sample Receipt Check

Loc: 600  
**165817**

18 MAY 11 16:30

JOB NUMBER:

817

Received:

CLIENT:

TRC Solutions

UNPACKED BY:

CARRIER/DRIVER:

Chen

Custody Seal Present:

YES  NO

Number of Coolers Received: 2

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Therm CF	Corrected Temp (°C)
BW	X / N	Y / N	11.1	IR 676	+0.3	11.4
BW	Y / N	Y / N	17.4	IR 676	+0.3	17.7
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				

CF = correction factor

Samples received on ice?  YES  NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED:

NO  YES

Base samples are >pH 12:  YES  NO

Acid preserved are <pH 2:  YES  NO

pH paper Lot #

4740458

VOA headspace acceptable (5-6mm):  YES  NO  NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?

YES NO

### COMMENTS:

Chill in Progress

5/21/18

## Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Lab PM: Tigrett, C. Lance	Carrier Tracking No(s):	COC No: 600-31576.1																																																																																																							
Client Contact: Shipping/Receiving		E-Mail: lance.tigrett@testamericainc.com	State of Origin: Texas	Page: Page 1 of 1																																																																																																							
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Texas																																																																																																									
Address: 1733 N. Padre Island Drive, City: Corpus Christi		<b>Analysis Requested</b>  Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - EDA Z - other (specify)  Other:																																																																																																									
Slate, Zip: TX, 78408																																																																																																											
Phone: 361-289-2673(Tel) 361-289-2471(Fax)																																																																																																											
Email:																																																																																																											
Project Name: TRC-Texas W. A. Parish Wells																																																																																																											
Site:		Total Number of containers  Special Instructions/Note:																																																																																																									
Due Date Requested: 6/1/2018					<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Sample Identification - Client ID (Lab ID)</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=Comp, G=grab)</th> <th>Matrix (W=water, S=solid, O=wasteoil, BT=Tissue, AS=Air)</th> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>6020/3010A Appendix IV List</th> <th>7470A/7470A Prep</th> <th>Total Number of containers</th> </tr> </thead> <tbody> <tr> <td>MW-19 (600-165604-1)</td> <td>5/7/18</td> <td>12:30 Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>1</td> </tr> <tr> <td>MW-35 (600-165604-2)</td> <td>5/7/18</td> <td>09:30 Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>1</td> </tr> <tr> <td>MW-53 (600-165604-3)</td> <td>5/7/18</td> <td>13:50 Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>1</td> </tr> <tr> <td>MW-54 (600-165604-4)</td> <td>5/7/18</td> <td>10:55 Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>1</td> </tr> <tr> <td>MW-58 (600-165604-5)</td> <td>5/7/18</td> <td>15:50 Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>1</td> </tr> <tr> <td>MW-66 (600-165604-6)</td> <td>5/7/18</td> <td>17:00 Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>1</td> </tr> <tr> <td>Dup-1 (600-165604-7)</td> <td>5/7/18</td> <td>Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wasteoil, BT=Tissue, AS=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020/3010A Appendix IV List	7470A/7470A Prep	Total Number of containers	MW-19 (600-165604-1)	5/7/18	12:30 Central	Water	Water	X	X	X	X	1	MW-35 (600-165604-2)	5/7/18	09:30 Central	Water	Water	X	X	X	X	1	MW-53 (600-165604-3)	5/7/18	13:50 Central	Water	Water	X	X	X	X	1	MW-54 (600-165604-4)	5/7/18	10:55 Central	Water	Water	X	X	X	X	1	MW-58 (600-165604-5)	5/7/18	15:50 Central	Water	Water	X	X	X	X	1	MW-66 (600-165604-6)	5/7/18	17:00 Central	Water	Water	X	X	X	X	1	Dup-1 (600-165604-7)	5/7/18	Central	Water	Water	X	X	X	X	1																				
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Project #: 60007663																																																																																																											
SSOW#:																																																																																																											
Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.																																																																																																											
<b>Possible Hazard Identification</b> Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month ) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																																																																																																									
Empty Kit Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: 5/15/18 7:00 Company: FAH Relinquished by: _____ Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____		Special Instructions/QC Requirements: Primary Deliverable Rank: 2 Method of Shipment: _____ Cooler Temperature(s) °C and Other Remarks: OTC IR 10.8°C																																																																																																									
Custody Seals Intact: _____ Custody Seal No.: _____ Yes    Δ    No		Ver: 09/20/2016																																																																																																									









# Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165461**

**List Source: TestAmerica Houston**

**List Number: 1**

**Creator: Crafton, Tommie S**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.2°C 3.9°C 0.6°C 4.4°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.

## Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165461**

**List Number: 2**

**Creator: Van Joolen, Nickolas L**

**List Source: TestAmerica Corpus Christi**

**List Creation: 05/09/18 11:55 AM**

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

## Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165604**

**List Source: TestAmerica Houston**

**List Number: 1**

**Creator: Parker, Dana R**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.9 3.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.

# Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165604**  
**List Number: 3**  
**Creator: Adams, Juanita A**

**List Source: TestAmerica Corpus Christi**  
**List Creation: 05/16/18 09:28 AM**

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



## Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165670**

**List Source: TestAmerica Houston**

**List Number: 1**

**Creator: Parker, Dana R**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.1 1.9 4.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.



## Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165670**  
**List Number: 3**  
**Creator: Adams, Juanita A**

**List Source: TestAmerica Corpus Christi**  
**List Creation: 05/14/18 12:12 PM**

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



## Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165751**

**List Source: TestAmerica Houston**

**List Number: 1**

**Creator: Snow, Tiffany B**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.4, 5.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	False	No date on COC - logged according to date on container labels
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.

## Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165751**

**List Number: 2**

**Creator: Adams, Juanita A**

**List Source: TestAmerica Corpus Christi**

**List Creation: 05/12/18 12:05 PM**

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

## Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165751**

**List Number: 4**

**Creator: Adams, Juanita A**

**List Source: TestAmerica Corpus Christi**

**List Creation: 05/17/18 08:59 AM**

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

# Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165817**

**List Source: TestAmerica Houston**

**List Number: 1**

**Creator: Crafton, Tommie S**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	11.4°C 17.7°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.



# Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-165461-2

**Login Number: 165817**  
**List Number: 3**  
**Creator: Adams, Juanita A**

**List Source: TestAmerica Corpus Christi**  
**List Creation: 05/16/18 09:28 AM**

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



**GROUNDWATER GAUGING FORM**

<b>TRC</b>	Client	NRC	Date & Time	Start 5-2-19
	Site	WA Parish	Finish	5-11-18

On-site TRC Personnel: A Clayton    2 Dabbos.

Well ID	Time	Depth of Water (ft btoc)	Total Depth (ft btoc)	Well Condition and Other Observations
MW-50	1100	24.99	63.49	well in good shape, water clear
MW-49	1210	24.14	47.50	well in good shape water clear. Sulphur odor
MW-48	1317	15.89	38.20	well in good condition water clear
MW-47	0855	19.37	<del>58.90</del> 58.90	well in good shape water clear <span style="font-size: small;">245 feet tube well 515 feet residue</span>
MW-67	1155	17.20	58.90	well in good shape water clear <span style="font-size: small;">is black residue</span>
MW-52	1332	18.16	54.0	well in good condition water is yellowish ↳ Calcium build up on tube about 45 ft
MW-68	0900	17.05	68.75	well in good shape water clear sulphur color
MW-51	0818	N/A	N/A	DEAD
MW-65	1036	19.51	69.21	well in good shape water clear sulphur odor
MW-56	1208	22.06	38.67	well in good condition water clear
MW-61	1329	22.10	43.20	well in good shape water clear
MW-35	0845	17.24	59.10	4" stick up on low area - prone to flooding. 4" PVC
MW-54	1200	21.99	63.12	well in good cond. Some black sludge on tubing @ ~30' BTOC
MW-19	<del>21.05</del>	<del>50.14</del>	50.14	well in good cond
MW-53	13.96	13.25	38.60	well in good cond
MW-58	<del>14.49</del>	14.49	38.68	well in good cond
MW-66	<del>15.82</del>	15.82	55'	well in good condition
MW-57		12.50	52.50	flush mount good cond.
MW-43		14.32	42.63	well in good cond
MW-44		12.23	58.00	Flush mount - good cond but prone to flooding.
MW-23	1200	12.41	50.20	good condition
MW-59		23.80	52.50	Good condition
MW-42		12.78	48.0	Good condition
MW-280		17.32	70.50	Good condition

















Sample Location

MW-37

Date

5-11-18

Client

NRG

Site

WA Parish

Static Depth to Water (ft btoc)	8.60	Sample Collection Time	1720
Total Purge Volume (gal)	4L	Purge Method	low flow
Total Depth (ft btoc)	40.1'	Sample Method	Low-Stress, Low-Flow
Screen Depth Interval (ft btoc)		Water Description	Clear
Pump Intake Depth (feet btoc)	34'	Sampling Personnel	A Clayton

Time (min)	Volume Purged (L)	Flow Rate (L/min)	Depth to Water (ft btoc)	Drawdown (ft)	pH (SU) ± 10%	Temp (C) ± 10%	Conductivity (u-siemens/cm) ± 3%	ORP (mV) ± 10%	Dissolved Oxygen (mg/L) ± 10%	Turbidity (NTUs) <10
1158		0.20	8.62	0.02	6.79	27.42	2.37	152	2.94	0.0
1203	1L	<del>0.200</del>	8.62	0.02	6.56	27.31	2.41	153	0.82	0.0
1208	2L	0.225	8.62	0.02	6.59	26.83	2.41	159	0.43	0.0
1213	3L	0.225	8.62	0.02	6.54	26.40	2.43	166	0.38	0.0
1218	4L	0.225	8.62	0.02	6.53	26.66	2.43	167	0.35	0.0
1220	Sampled MW-37 for Arp III TV									
					2L unpreserved					
					2.25 L nitric acid					











Sample Location

<sup>ae</sup>  
~~MW-3~~ MW-41

Date

3-9-18

Client

NRG

Site

WAParish

Static Depth to Water (ft btoc)	8.72	Sample Collection Time	1300
Total Purge Volume (gal)	5L	Purge Method	Low Flow
Total Depth (ft btoc)	39.6	Sample Method	Low-Stress, Low-Flow
Screen Depth Interval (ft btoc)		Water Description	Clear
Pump Intake Depth (feet btoc)	38	Sampling Personnel	Andrew Clayton

Time (min)	Volume Purged (L)	Flow Rate (L/min)	Depth to Water (ft btoc)	Drawdown (ft)	pH (SU) ± 10%	Temp (C) ± 10%	Conductivity (u-siemens/cm) ± 3%	ORP (mV) ± 10%	Dissolved Oxygen (mg/L) ± 10%	Turbidity (NTUs) <10
1230	/	0.250	8.40	0.28	6.96	29.57	1.89	204	2.89	2.6
1235	~1L	0.250	8.37	0.25	6.82	29.59	1.93	424	1.38	0.0
1240	~2L	0.200	8.35	0.23	6.77	26.65	1.94	521	1.95	27.2
1245	~3L	0.200	8.34	0.22	6.78	26.63	1.94	526	0.96	31.0
1250	~4L	0.200	8.32	0.20	6.80	23.63	1.93	530	0.93	28.9
1255	5L	0.200	8.32	0.20	6.79	26.67	1.92	533	0.92	24.4
1300	Sampled MW-41 for Arp III, IV 2L unpressured									
	Also collected MW-41MS For Arp III, IV 2.25 L nitric acid									
	MW-41MS " " "									













Sample Location	MW-46	Date	5-8-18
Client	NRG		
Site	WA Parish		

Static Depth to Water (ft btoc)	11.90	Sample Collection Time	1525
Total Purge Volume (gal)	~7L	Purge Method	low flow
Total Depth (ft btoc)	69.2	Sample Method	Low-Stress, Low-Flow
Screen Depth Interval (ft btoc)		Water Description	clear
Pump Intake Depth (feet btoc)	26'	Sampling Personnel	A Clayton

Time (min)	Volume Purged (L)	Flow Rate (L/min)	Depth to Water (ft btoc)	Drawdown (ft)	pH (SU) ± 10%	Temp (C) ± 10%	Conductivity (u-siemens/cm) ± 3%	ORP (mV) ± 10%	Dissolved Oxygen (mg/L) ± 10%	Turbidity (NTUs) <10
1453	—	0.290	11.43	0.03	9.27	25.07	1.06	-12	5.64	0.0
1458	2L	0.200	11.45	0.05	9.28	24.11	1.06	-1	4.57	0.0
1503	3L	0.200	11.45	0.05	11.55	23.76	1.71	-194	2.01	0.0
1508	4L	0.200	11.47	0.07	11.59	23.72	2.05	-214	2.06	0.0
1513	5L	0.200	11.47	0.07	11.57	23.60	2.15	-219	0.69	0.0
1518	~6L	0.200	11.44	0.04	11.73	23.72	2.20	-233	0.56	0.0
1523	7L	0.200	11.45	0.05	11.69	23.99	2.22	-234	0.58	0.0
1525	Sampled MW-46 for Arp III:IV 2L unpreserved 2.25L preserved									









Sample Location

MW-49

Date

5-2-18

Client

NRE

Site

WA Parish

Static Depth to Water (ft btoc)	24.14	Sample Collection Time	1235
Total Purge Volume (gal)	6 L	Purge Method	Low Flow
Total Depth (ft btoc)	47.50	Sample Method	Low-Stress, Low-Flow
Screen Depth Interval (ft btoc)		Water Description	Clear, Sulphur Odor
Pump Intake Depth (feet btoc)	38.00	Sampling Personnel	AC ED

Time (min)	Volume Purged (L)	Flow Rate (L/min)	Depth to Water (ft btoc)	Drawdown (ft)	pH (SU) ± 10%	Temp (C) ± 10%	Conductivity (u-siemens/cm) ± 3%	ORP (mV) ± 10%	Dissolved Oxygen (mg/L) ± 10%	Turbidity (NTUs) <10
<del>1210</del>				0.08						
<del>1210</del>		0.18/min	24.22	<del>0.07</del>	7.38	26.29	1.97	-85	2.75	0.0
1215		↓	24.21	0.07	6.98	24.21	2.08	-85	1.78	0.0
1220	2 L	0.2/min	24.22	0.08	6.93	23.84	2.23	-119	1.10	0.0
1225		↓	24.21	0.07	6.93	24.80	2.23	-126	0.76	0.0
1230			24.22	0.08	6.94	24.71	2.21	-130	0.77	0.0
1235	6L	0.2/min	24.22	0.08	6.95	24.84	2.19	-133	0.72	0.0
1235	Sampled MW-49 for				Aspx III - IV			2L unpreserved 2.25L nitric acid		
1305		Final	DTW	24.22						



































Sample Location	MW-65	Date	5/4/18
Client	ARG		
Site	Cell 2B		

Static Depth to Water (ft btoc)	19.51	Sample Collection Time	1110
Total Purge Volume (gal) L	62	Purge Method	low flow
Total Depth (ft btoc)	69.21	Sample Method	Low-Stress, Low-Flow
Screen Depth Interval (ft btoc)		Water Description	clear
Pump Intake Depth (feet btoc)	55.0	Sampling Personnel	ZD

Time (min)	Volume Purged (L)	Flow Rate (L/min)	Depth to Water (ft btoc)	Drawdown (ft)	pH (SU) ± 10%	Temp (C) ± 10%	Conductivity (u-siemens/cm) ± 3%	ORP (mV) ± 10%	Dissolved Oxygen (mg/L) ± 10%	Turbidity (NTUs) <10
1040		<del>2.70</del>	19.63	0.12	7.16	21.73	1.82	-172	1.69	0.0
1045			19.65	0.14	7.12	21.32	1.97	-180	1.14	0.0
1050			19.63	0.12	7.10	21.24	2.06	-179	0.91	0.0
1055			19.63	0.12	7.12	21.20	2.09	-179	0.81	0.0
1100			19.63	0.12	7.02	21.17	2.08	-164	0.72	0.0
1105			19.63	0.12	7.02	21.14	2.09	-164	0.68	0.0
1110	12L	↓	19.64	0.13	7.02	21.45	2.09	-162	0.66	0.0
			* Sample Collected -		1110					
			* Final DTW		19.53					









# Appendix B

## Detection Monitoring Data (October 2018)

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*TRC Environmental Corporation | NRG Texas Power, LLC*

*2018 Annual Groundwater Monitoring Report*

*S:\NRG\W.A. PARISH\2. REPORTS\2018 ANNUAL REPORT\FINAL REPORT\2018 W A PARISH ANNUAL GW REPORT\_2019 TD 1-29-19.DOCX*

*January 31, 2019*

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Houston

6310 Rothway Street

Houston, TX 77040

Tel: (713)690-4444

TestAmerica Job ID: 600-175322-1

Client Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

Revision: 1

For:

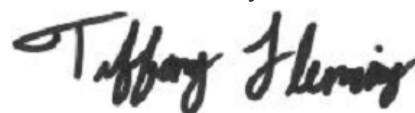
TRC Solutions, Inc.

10550 Richmond Avenue

Suite 210

Houston, Texas 77042

Attn: Andrew Clayton



Authorized for release by:

12/14/2018 1:31:24 PM

Tiffany Fleming, Project Management Assistant I

(361)289-2673

[tiffany.fleming@testamericainc.com](mailto:tiffany.fleming@testamericainc.com)

Designee for

C. Lance Tigrett, Project Manager II

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### LINKS

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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

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

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

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# Appendix A

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

This data package is for TestAmerica Houston job number 600-175322-1 and consists of:

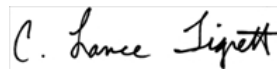
- R1 - Field chain-of-custody documentation;
- R2 - Sample identification cross-reference;
- R3 - Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods,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

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

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

C. Lance Tigrett

Name (printed)



Signature

12/14/2018

Date

Project Manager II

Official Title (printed)

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

Laboratory Name:	TestAmerica Houston	LRC Date:	12/14/2018
Project Name:	TRC-Texas W. A. Parish CCR 10-29-18	Laboratory Job Number:	600-175322-1
Reviewer Name:	C. Lance Tigrett		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	<b>Chain-of-custody (C-O-C)</b>					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	<b>Sample and quality control (QC) identification</b>					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	<b>Test reports</b>					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	<b>Surrogate recovery data</b>					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	<b>Test reports/summary forms for blank samples</b>					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	<b>Laboratory control samples (LCS):</b>					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>					
		Were the project/method specified analytes included in the MS and MSD?		X			R07A
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			R07C
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	<b>Analytical duplicate data</b>					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	<b>Method quantitation limits (MQLs):</b>					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	<b>Other problems/anomalies</b>					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?		X			R10B
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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



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

Laboratory Name:	TestAmerica Houston	LRC Date:	12/14/2018
Project Name:	TRC-Texas W. A. Parish CCR 10-29-18	Laboratory Job Number:	600-175322-1
Reviewer Name:	C. Lance Tigrett		

# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
S1	OI	<b>Initial calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	<b>Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?		X			S02B
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?		X			S02D
S3	O	<b>Mass spectral tuning</b>					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	<b>Internal standards (IS)</b>					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	<b>Raw data (NELAC Section 5.5.10)</b>					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	<b>Dual column confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	<b>Tentatively identified compounds (TICs)</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	<b>Interference Check Sample (ICS) results</b>					
		Were percent recoveries within method QC limits?	X				
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	<b>Method detection limit (MDL) studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSS?	X				
S11	OI	<b>Proficiency test reports</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	<b>Standards documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	<b>Compound/analyte identification procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	<b>Demonstration of analyst competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	<b>Verification/validation documentation for methods (NELAC Chapter 5)</b>					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	<b>Laboratory standard operating procedures (SOPs)</b>					
		Are laboratory SOPs current and on file for each method performed?	X				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

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

Laboratory Name:	TestAmerica Houston	LRC Date:	12/14/2018
Project Name:	TRC-Texas W. A. Parish CCR 10-29-18	Laboratory Job Number:	600-175322-1
Reviewer Name:	C. Lance Tigrett		

ER # <sup>1</sup>	Description
R07A	Method 6020: The MS/MSD was diluted due to the nature of the sample matrix. Because of this dilution, the matrix spike concentration in the sample was reduced to a level where the Boron recovery calculation does not provide useful information.
R07C	Method 300.0: 600-175322-10 MS failed the recovery criteria for the following analyte: Sulfate. Matrix interference is suspected. Method 300.0: 600-175322-10 MSD failed the recovery criteria for the following analytes: Chloride, and Sulfate. Matrix interference is suspected. Method 300.0: 600-175322-11 MS/MSD failed the recovery criteria for the following analyte: Chloride. Matrix interference is suspected. Method 300.0: 600-175322-20 MS/MSD failed the recovery criteria for the following analyte: Chloride. Matrix interference is suspected. Method 300.0: 600-175322-24 MS/MSD failed the recovery criteria for the following analyte: Chloride. Matrix interference is suspected. Method 6020: Due to the high concentration of target analytes, samples 600-175322-10 MS/MSD and 600-175322-24 MS/MSD could not be evaluated for accuracy. The associated laboratory control sample (LCS) met acceptance criteria.
R10B	Method 300.0: The following samples were diluted due to the nature of the sample matrix: MW-36 (600-175322-1), MW-60 (600-175322-2), MW-37 (600-175322-3), MW-38 (600-175322-4), MW-61 (600-175322-5), MW-39 (600-175322-6), MW-40 (600-175322-7), MW-62 (600-175322-8), MW-41 (600-175322-9), MW-63 (600-175322-10), MW-63 MS (600-175322-10[MS]), MW-63 MSD (600-175322-10[MSD]), MW-64 (600-175322-11), MW-23 (600-175322-12), MW-28D (600-175322-13), MW-42 (600-175322-14), (600-175322-A-11 MS) and (600-175322-A-11 MSD). Elevated reporting limits (RLs) are provided. Method 300.0: The following samples were diluted due to the nature of the sample matrix: MW-43 (600-175322-15), MW-47 (600-175322-16), MW-48 (600-175322-17), MW-44 (600-175322-18), MW-46 (600-175322-19), MW-50 (600-175322-20), MW-52 (600-175322-21), MW-54 (600-175322-22), MW-55 (600-175322-23), MW-58 (600-175322-24), MW-58 MS (600-175322-24[MS]), MW-58 MSD (600-175322-24[MSD]), MW-65 (600-175322-25), DUP-01 (600-175322-27), DUP-02 (600-175322-28), (600-175322-A-20 MS) and (600-175322-A-20 MSD). Elevated reporting limits (RLs) are provided. Method 300.0: The following samples were diluted due to the nature of the sample matrix: MW-61 (600-175322-5), MW-39 (600-175322-6), MW-40 (600-175322-7), MW-62 (600-175322-8), MW-41 (600-175322-9), MW-63 (600-175322-10), MW-63 MS (600-175322-10[MS]), MW-63 MSD (600-175322-10[MSD]), MW-23 (600-175322-12), MW-28D (600-175322-13) and MW-42 (600-175322-14). Elevated reporting limits (RLs) are provided. Method 6020: The following samples were diluted due to the nature of the sample matrix: MW-52 (600-175322-21), MW-54 (600-175322-22), MW-55 (600-175322-23), MW-58 (600-175322-24), MW-58 MS (600-175322-24[MS]), MW-58 MSD (600-175322-24[MSD]), MW-65 (600-175322-25), FB-01 (600-175322-26), DUP-01 (600-175322-27), DUP-02 (600-175322-28) and (600-175322-B-24-A SD). Elevated reporting limits (RLs) are provided.
S02B	Method 6020: The continuing calibration verification (CCV) associated with batch 560-157066 recovered above the upper control limit for Boron. The samples associated with this CCV were <RL for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW-36 (600-175322-1), MW-60 (600-175322-2), MW-37 (600-175322-3), MW-38 (600-175322-4), MW-61 (600-175322-5), MW-39 (600-175322-6), MW-40 (600-175322-7), MW-62 (600-175322-8), MW-41 (600-175322-9), MW-64 (600-175322-11), MW-23 (600-175322-12), MW-28D (600-175322-13), MW-42 (600-175322-14), MW-43 (600-175322-15), MW-47 (600-175322-16), MW-48 (600-175322-17), MW-44 (600-175322-18), MW-46 (600-175322-19) and (MB 560-156442/1-A).
S02D	Method 6020: The continuing calibration blank (CCB) for analytical batch 560-157066 contained Ca above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.
	<ol style="list-style-type: none"> <li>Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</li> <li>O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</li> <li>NA = Not applicable;</li> <li>NR = Not reviewed;</li> <li>ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</li> </ol>

**Matrix:** Water  
**Method:** 6020  
**Prep Method:** 3010A  
**Date Analyzed:** 8/1/2018  
**Job #:** MDLV 560-153538/3  
**TALS Batch:** 153562  
**Units:** ug/L

Analyte	Instrument #	MDL	DCS Spike	Measured Result	MQL
Ag	Micpms	0.941	1.250	1.514	5
Al	Micpms	50.000	125.000	163.400	100
As	Micpms	1.090	1.250	2.055	5
B	Micpms	70.000	25.000	24.540	100
Ba	Micpms	0.810	1.250	1.465	5
Be	Micpms	1.240	1.250	1.388	4
Ca	Micpms	198.000	250.000	130.800	500
Cd	Micpms	0.854	1.250	1.542	2
Co	Micpms	1.360	1.250	1.583	5
Cr	Micpms	1.400	1.250	0.016	5
Cu	Micpms	2.000	1.250	2.596	10
Fe	Micpms	101.000	125.000	100.400	250
K	Micpms	407.000	125.000	110.600	1000
Li	Micpms	2.260	1.250	1.813	5
Mg	Micpms	113.000	125.000	91.070	500
Mn	Micpms	11.600	12.500	8.809	50
Mo	Micpms	1.400	1.250	0.747	5
Na	Micpms	727.000	250.000	192.200	1000
Ni	Micpms	2.170	1.250	1.498	5
P	Micpms	100.000	125.000	28.150	250
Pb	Micpms	0.733	1.250	1.932	5
Sb	Micpms	1.610	1.250	1.445	5
Se	Micpms	1.080	1.250	2.326	5
Sn	Micpms	5.080	1.250	1.062	25
Sr	Micpms	0.768	1.250	1.597	5
Ti	Micpms	1.530	1.250	2.276	5
Tl	Micpms	0.693	0.500	0.336	2
U	Micpms	0.940	1.250	6.218	5
V	Micpms	1.440	5.000	0.543	5
Zn	Micpms	3.550	1.250	0.915	25

**Matrix:** Water  
**Method:** EPA 300 / SW-846 9056  
**Prep Method:**  
**Date Analyzed:** 6/25/2018  
**Job #:** 600-164342  
**TALS Batch:** 241355  
**Units:** mg/L

Analyte	Instrument #	MDL	DCS Spike	Measured Result	ML
Bromide	CHWC16	0.101	0.200	0.188	0.4
Chloride	CHWC16	0.053	0.400	0.506	0.4
Fluoride	CHWC16	0.060	0.200	0.180	0.2
Nitrate as N	CHWC16	0.025	0.200	0.233	0.2
Nitrite as N	CHWC16	0.030	0.200	0.271	0.2
Sulfate	CHWC16	0.096	0.400	0.366	0.5



**Matrix:** Water  
**Method:** SM 2540C  
**Date Analyzed:** 7/13/2018  
**Job #:** 600-168589  
**TALS Batch:** 242692  
**Units:** mg/L

Analyte	Instrument #	MDL	DCS Spike	Measured Result	MQL
Total Dissolved Solids	NOEQUIP	10.000	29.880	30.000	10

- 1
- 2
- 3
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- 5
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- 10
- 11
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- 13
- 14
- 15

# Case Narrative

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

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**Job ID: 600-175322-1**

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**Laboratory: TestAmerica Houston**

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**Narrative**

**Job Narrative  
600-175322-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 10/30/2018 8:51 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.4° C, 0.7° C, 1.0° C, 2.3° C and 2.4° C.

**All applicable analytical narratives can be found in the TRRP Checklist section of the report.**

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- 2
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# Method Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

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

#### Protocol References:

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

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

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

#### Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

# Sample Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-175322-1	MW-36	Water	10/29/18 15:00	10/30/18 08:51
600-175322-2	MW-60	Water	10/29/18 16:05	10/30/18 08:51
600-175322-3	MW-37	Water	10/29/18 17:00	10/30/18 08:51
600-175322-4	MW-38	Water	10/29/18 16:00	10/30/18 08:51
600-175322-5	MW-61	Water	10/29/18 15:00	10/30/18 08:51
600-175322-6	MW-39	Water	10/29/18 16:55	10/30/18 08:51
600-175322-7	MW-40	Water	10/29/18 15:20	10/30/18 08:51
600-175322-8	MW-62	Water	10/29/18 16:05	10/30/18 08:51
600-175322-9	MW-41	Water	10/29/18 15:10	10/30/18 08:51
600-175322-10	MW-63	Water	10/29/18 16:05	10/30/18 08:51
600-175322-11	MW-64	Water	10/29/18 14:40	10/30/18 08:51
600-175322-12	MW-23	Water	10/29/18 16:15	10/30/18 08:51
600-175322-13	MW-28D	Water	10/29/18 14:25	10/30/18 08:51
600-175322-14	MW-42	Water	10/29/18 15:15	10/30/18 08:51
600-175322-15	MW-43	Water	10/29/18 16:30	10/30/18 08:51
600-175322-16	MW-47	Water	10/29/18 14:35	10/30/18 08:51
600-175322-17	MW-48	Water	10/29/18 15:25	10/30/18 08:51
600-175322-18	MW-44	Water	10/29/18 15:35	10/30/18 08:51
600-175322-19	MW-46	Water	10/29/18 14:25	10/30/18 08:51
600-175322-20	MW-50	Water	10/29/18 13:55	10/30/18 08:51
600-175322-21	MW-52	Water	10/29/18 14:35	10/30/18 08:51
600-175322-22	MW-54	Water	10/29/18 16:35	10/30/18 08:51
600-175322-23	MW-55	Water	10/29/18 14:45	10/30/18 08:51
600-175322-24	MW-58	Water	10/29/18 15:15	10/30/18 08:51
600-175322-25	MW-65	Water	10/29/18 15:40	10/30/18 08:51
600-175322-26	FB-01	Water	10/29/18 15:10	10/30/18 08:51
600-175322-27	DUP-01	Water	10/29/18 13:00	10/30/18 08:51
600-175322-28	DUP-02	Water	10/29/18 15:00	10/30/18 08:51

# Client Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-36**  
**Date Collected: 10/29/18 15:00**  
**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-1**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	307		8.00	1.07	mg/L			11/08/18 10:53	20
Fluoride	1.32	J	4.00	1.20	mg/L			11/08/18 10:53	20
Sulfate	562		10.0	1.91	mg/L			11/08/18 10:53	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	218		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 06:40	10
Boron	0.0700	U	0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 18:56	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1400		20.0	20.0	mg/L			11/02/18 13:48	1

**Client Sample ID: MW-60**  
**Date Collected: 10/29/18 16:05**  
**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-2**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	355		8.00	1.07	mg/L			11/08/18 11:13	20
Fluoride	1.21	J	4.00	1.20	mg/L			11/08/18 11:13	20
Sulfate	213		10.0	1.91	mg/L			11/08/18 11:13	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	214		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 06:46	10
Boron	0.0894	J	0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 19:01	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1270		20.0	20.0	mg/L			11/02/18 13:48	1

**Client Sample ID: MW-37**  
**Date Collected: 10/29/18 17:00**  
**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-3**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	262		10.0	1.34	mg/L			11/08/18 11:33	25
Fluoride	1.53	J	5.00	1.50	mg/L			11/08/18 11:33	25
Sulfate	894		12.5	2.39	mg/L			11/08/18 11:33	25

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	191		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 06:51	10
Boron	0.308		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 19:06	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1760		20.0	20.0	mg/L			11/02/18 13:48	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-38**  
**Date Collected: 10/29/18 16:00**  
**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-4**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	470		20.0	2.67	mg/L			11/08/18 11:53	50
Fluoride	3.27	J	10.0	3.01	mg/L			11/08/18 11:53	50
Sulfate	1500		25.0	4.79	mg/L			11/08/18 11:53	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	224		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 06:57	10
Boron	3.20		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 19:11	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2430		20.0	20.0	mg/L			11/02/18 13:48	1

**Client Sample ID: MW-61**  
**Date Collected: 10/29/18 15:00**  
**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-5**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	106		10.0	1.34	mg/L			11/08/18 12:13	25
Fluoride	1.56	J	5.00	1.50	mg/L			11/08/18 12:13	25
Sulfate	1210		100	19.1	mg/L			11/09/18 12:09	200

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	465		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 07:02	10
Boron	1.50		1.00	0.700	mg/L		11/01/18 11:31	11/23/18 22:20	10

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2160		20.0	20.0	mg/L			11/02/18 13:48	1

**Client Sample ID: MW-39**  
**Date Collected: 10/29/18 16:55**  
**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-6**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	874		20.0	2.67	mg/L			11/08/18 13:58	50
Fluoride	3.01	U	10.0	3.01	mg/L			11/08/18 13:58	50
Sulfate	295		25.0	4.79	mg/L			11/09/18 08:34	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	234		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 07:08	10
Boron	0.141		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 19:21	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2000		20.0	20.0	mg/L			11/02/18 13:48	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-40**  
**Date Collected: 10/29/18 15:20**  
**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-7**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	678		10.0	1.34	mg/L			11/08/18 14:18	25
Fluoride	1.50	U	5.00	1.50	mg/L			11/08/18 14:18	25
Sulfate	90.9		12.5	2.39	mg/L			11/09/18 08:51	25

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	236		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 07:14	10
Boron	0.118		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 19:26	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1070		20.0	20.0	mg/L			11/02/18 13:48	1

**Client Sample ID: MW-62**  
**Date Collected: 10/29/18 16:05**  
**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-8**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	566		10.0	1.34	mg/L			11/08/18 14:38	25
Fluoride	1.50	U	5.00	1.50	mg/L			11/08/18 14:38	25
Sulfate	116		12.5	2.39	mg/L			11/09/18 09:09	25

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	277		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 19:09	10
Boron	0.0819	J	0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 20:05	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1420		20.0	20.0	mg/L			11/02/18 13:48	1

**Client Sample ID: MW-41**  
**Date Collected: 10/29/18 15:10**  
**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-9**  
**Matrix: Water**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	461		8.00	1.07	mg/L			11/08/18 14:58	20
Fluoride	1.22	J	4.00	1.20	mg/L			11/08/18 14:58	20
Sulfate	74.0		10.0	1.91	mg/L			11/09/18 09:27	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	168		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 19:14	10
Boron	0.0700	U	0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 20:10	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1160		20.0	20.0	mg/L			11/02/18 13:48	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-63**  
 Date Collected: 10/29/18 16:05  
 Date Received: 10/30/18 08:51

**Lab Sample ID: 600-175322-10**  
 Matrix: Water

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	452		10.0	1.34	mg/L			11/08/18 15:18	25
Fluoride	1.50	U	5.00	1.50	mg/L			11/08/18 15:18	25
Sulfate	505		12.5	2.39	mg/L			11/09/18 09:45	25

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	294		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 06:34	10
Boron	0.0996	J	0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 18:51	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1570		20.0	20.0	mg/L			11/02/18 13:48	1

**Client Sample ID: MW-64**  
 Date Collected: 10/29/18 14:40  
 Date Received: 10/30/18 08:51

**Lab Sample ID: 600-175322-11**  
 Matrix: Water

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	512		8.00	1.07	mg/L			11/08/18 09:53	20
Fluoride	1.24	J	4.00	1.20	mg/L			11/08/18 09:53	20
Sulfate	50.0		10.0	1.91	mg/L			11/08/18 09:53	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	207		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 19:19	10
Boron	0.0934	J	0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 20:15	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1680		20.0	20.0	mg/L			11/02/18 13:48	1

**Client Sample ID: MW-23**  
 Date Collected: 10/29/18 16:15  
 Date Received: 10/30/18 08:51

**Lab Sample ID: 600-175322-12**  
 Matrix: Water

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1290		40.0	5.34	mg/L			11/08/18 16:18	100
Fluoride	6.01	U	20.0	6.01	mg/L			11/08/18 16:18	100
Sulfate	678		50.0	9.57	mg/L			11/09/18 10:39	100

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	405		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 19:25	10
Boron	0.168		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 20:20	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3350		40.0	40.0	mg/L			11/02/18 13:48	1

TestAmerica Houston



# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Client Sample ID: MW-28D

## Lab Sample ID: 600-175322-13

Date Collected: 10/29/18 14:25

Matrix: Water

Date Received: 10/30/18 08:51

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	142		4.00	0.534	mg/L			11/08/18 16:38	10
Fluoride	0.774	J	2.00	0.601	mg/L			11/08/18 16:38	10
Sulfate	101		5.00	0.957	mg/L			11/09/18 11:33	10

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	97.8		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 19:30	10
Boron	0.163		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 20:25	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1240		20.0	20.0	mg/L			11/02/18 13:48	1

## Client Sample ID: MW-42

## Lab Sample ID: 600-175322-14

Date Collected: 10/29/18 15:15

Matrix: Water

Date Received: 10/30/18 08:51

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	335		10.0	1.34	mg/L			11/08/18 16:58	25
Fluoride	1.66	J	5.00	1.50	mg/L			11/08/18 16:58	25
Sulfate	833		12.5	2.39	mg/L			11/09/18 11:51	25

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	191		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 19:36	10
Boron	0.604		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 20:30	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1810		20.0	20.0	mg/L			11/02/18 13:48	1

## Client Sample ID: MW-43

## Lab Sample ID: 600-175322-15

Date Collected: 10/29/18 16:30

Matrix: Water

Date Received: 10/30/18 08:51

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	258		4.00	0.534	mg/L			11/08/18 13:41	10
Fluoride	0.601	U	2.00	0.601	mg/L			11/08/18 13:41	10
Sulfate	80.9		5.00	0.957	mg/L			11/08/18 13:41	10

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	73.0		5.00	1.98	mg/L		11/01/18 11:31	11/21/18 19:41	10
Boron	0.424		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 20:35	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	756		20.0	20.0	mg/L			11/02/18 13:48	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Client Sample ID: MW-47

Date Collected: 10/29/18 14:35

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-16

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	339		8.00	1.07	mg/L			11/08/18 13:59	20
Fluoride	1.20	U	4.00	1.20	mg/L			11/08/18 13:59	20
Sulfate	95.5		10.0	1.91	mg/L			11/08/18 13:59	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	105		5.00	1.98	mg/L		11/01/18 11:31	11/22/18 07:54	10
Boron	0.348		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 20:40	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	964		20.0	20.0	mg/L			11/02/18 13:48	1

## Client Sample ID: MW-48

Date Collected: 10/29/18 15:25

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-17

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	428		8.00	1.07	mg/L			11/08/18 14:17	20
Fluoride	1.20	U	4.00	1.20	mg/L			11/08/18 14:17	20
Sulfate	111		10.0	1.91	mg/L			11/08/18 14:17	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	62.8		5.00	1.98	mg/L		11/01/18 11:31	11/22/18 07:59	10
Boron	0.572		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 20:45	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	998		20.0	20.0	mg/L			11/02/18 13:48	1

## Client Sample ID: MW-44

Date Collected: 10/29/18 15:35

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-18

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	690		10.0	1.34	mg/L			11/08/18 14:35	25
Fluoride	1.50	U	5.00	1.50	mg/L			11/08/18 14:35	25
Sulfate	369		12.5	2.39	mg/L			11/08/18 14:35	25

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	159		5.00	1.98	mg/L		11/01/18 11:31	11/22/18 08:04	10
Boron	0.240		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 20:50	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1230		20.0	20.0	mg/L			11/02/18 13:48	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Client Sample ID: MW-46

Date Collected: 10/29/18 14:25

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-19

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	245		4.00	0.534	mg/L			11/08/18 14:53	10
Fluoride	0.601	U	2.00	0.601	mg/L			11/08/18 14:53	10
Sulfate	126		5.00	0.957	mg/L			11/08/18 14:53	10

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	118		5.00	1.98	mg/L		11/01/18 11:31	11/22/18 08:10	10
Boron	0.169		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 21:30	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	760		20.0	20.0	mg/L			11/02/18 13:48	1

## Client Sample ID: MW-50

Date Collected: 10/29/18 13:55

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-20

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	414		8.00	1.07	mg/L			11/08/18 15:11	20
Fluoride	1.20	U	4.00	1.20	mg/L			11/08/18 15:11	20
Sulfate	123		10.0	1.91	mg/L			11/08/18 15:11	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	139	b ^	5.00	1.98	mg/L		11/01/18 11:31	11/20/18 03:34	10
Boron	0.243		0.100	0.0700	mg/L		11/01/18 11:31	12/07/18 21:35	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1020		20.0	20.0	mg/L			11/02/18 13:48	1

## Client Sample ID: MW-52

Date Collected: 10/29/18 14:35

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-21

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	846		20.0	2.67	mg/L			11/08/18 16:40	50
Fluoride	3.01	U	10.0	3.01	mg/L			11/08/18 16:40	50
Sulfate	499		25.0	4.79	mg/L			11/08/18 16:40	50

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	372		2.50	0.990	mg/L		11/01/18 10:02	11/06/18 13:48	5
Boron	0.370		0.100	0.0700	mg/L		11/01/18 10:02	12/07/18 21:45	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2320		20.0	20.0	mg/L			11/02/18 13:48	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Client Sample ID: MW-54

Date Collected: 10/29/18 16:35

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-22

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	249		8.00	1.07	mg/L			11/08/18 16:58	20
Fluoride	1.20	U	4.00	1.20	mg/L			11/08/18 16:58	20
Sulfate	79.7		10.0	1.91	mg/L			11/08/18 16:58	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	115		2.50	0.990	mg/L		11/01/18 10:02	11/06/18 13:53	5
Boron	0.265		0.100	0.0700	mg/L		11/01/18 10:02	12/07/18 21:50	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	700		20.0	20.0	mg/L			11/02/18 13:48	1

## Client Sample ID: MW-55

Date Collected: 10/29/18 14:45

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-23

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	607		8.00	1.07	mg/L			11/08/18 17:16	20
Fluoride	1.20	U	4.00	1.20	mg/L			11/08/18 17:16	20
Sulfate	53.3		10.0	1.91	mg/L			11/08/18 17:16	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	178		2.50	0.990	mg/L		11/01/18 10:02	11/06/18 13:59	5
Boron	0.221		0.100	0.0700	mg/L		11/01/18 10:02	12/07/18 21:55	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1660		20.0	20.0	mg/L			11/02/18 13:48	1

## Client Sample ID: MW-58

Date Collected: 10/29/18 15:15

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-24

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	322		8.00	1.07	mg/L			11/08/18 17:34	20
Fluoride	1.20	U	4.00	1.20	mg/L			11/08/18 17:34	20
Sulfate	91.6		10.0	1.91	mg/L			11/08/18 17:34	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	115		2.50	0.990	mg/L		11/01/18 10:02	11/06/18 13:26	5
Boron	0.270		0.100	0.0700	mg/L		11/01/18 10:02	12/07/18 21:40	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	878		20.0	20.0	mg/L			11/02/18 13:48	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Client Sample ID: MW-65

Date Collected: 10/29/18 15:40

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-25

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	225		10.0	1.34	mg/L			11/08/18 18:28	25
Fluoride	1.50	U	5.00	1.50	mg/L			11/08/18 18:28	25
Sulfate	636		12.5	2.39	mg/L			11/08/18 18:28	25

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	207		2.50	0.990	mg/L		11/01/18 10:02	11/06/18 14:40	5
Boron	0.296		0.100	0.0700	mg/L		11/01/18 10:02	12/07/18 22:00	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1590		20.0	20.0	mg/L			11/02/18 13:48	1

## Client Sample ID: FB-01

Date Collected: 10/29/18 15:10

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-26

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.85		0.400	0.0534	mg/L			11/08/18 18:46	1
Fluoride	0.124	J	0.200	0.0601	mg/L			11/08/18 18:46	1
Sulfate	1.03		0.500	0.0957	mg/L			11/08/18 18:46	1

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	2.04	J	2.50	0.990	mg/L		11/01/18 10:02	11/06/18 14:46	5
Boron	0.0700	U	0.100	0.0700	mg/L		11/01/18 10:02	12/07/18 22:05	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1980		200	200	mg/L			11/02/18 13:48	1

## Client Sample ID: DUP-01

Date Collected: 10/29/18 13:00

Date Received: 10/30/18 08:51

## Lab Sample ID: 600-175322-27

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	306		8.00	1.07	mg/L			11/08/18 19:04	20
Fluoride	1.20	U	4.00	1.20	mg/L			11/08/18 19:04	20
Sulfate	505		10.0	1.91	mg/L			11/08/18 19:04	20

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	276		2.50	0.990	mg/L		11/01/18 10:02	11/06/18 14:51	5
Boron	0.0700	U	0.100	0.0700	mg/L		11/01/18 10:02	12/07/18 22:10	1

### General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1330		20.0	20.0	mg/L			11/02/18 13:48	1

TestAmerica Houston

# Client Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: DUP-02**

**Lab Sample ID: 600-175322-28**

**Date Collected: 10/29/18 15:00**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	476		10.0	1.34	mg/L			11/08/18 19:21	25
Fluoride	1.50	U	5.00	1.50	mg/L			11/08/18 19:21	25
Sulfate	256		12.5	2.39	mg/L			11/08/18 19:21	25

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

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	193		2.50	0.990	mg/L		11/01/18 10:02	11/06/18 14:56	5
Boron	0.231		0.100	0.0700	mg/L		11/01/18 10:02	12/07/18 22:14	1

**General Chemistry**

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1330		20.0	20.0	mg/L			11/02/18 13:48	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15



# Definitions/Glossary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.
N1	MS, MSD: Spike recovery exceeds upper or lower control limits.

### Metals

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
b	The compound was found in the blank and sample

### General Chemistry

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

## Glossary

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

# QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 600-251665/22**

**Matrix: Water**

**Analysis Batch: 251665**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			11/08/18 13:05	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			11/08/18 13:05	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			11/08/18 13:05	1

**Lab Sample ID: LCS 600-251665/23**

**Matrix: Water**

**Analysis Batch: 251665**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	18.64		mg/L		93	90 - 110
Fluoride	7.50	7.030		mg/L		94	90 - 110
Sulfate	20.0	20.16		mg/L		101	90 - 110

**Lab Sample ID: 600-175322-20 MS**

**Matrix: Water**

**Analysis Batch: 251665**

**Client Sample ID: MW-50**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	414		200	539.2	N1	mg/L		62	80 - 120
Fluoride	1.20	U	40.0	32.18		mg/L		80	80 - 120
Sulfate	123		200	307.7		mg/L		92	80 - 120

**Lab Sample ID: 600-175322-20 MSD**

**Matrix: Water**

**Analysis Batch: 251665**

**Client Sample ID: MW-50**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	414		200	541.9	N1	mg/L		64	80 - 120	0	20
Fluoride	1.20	U	40.0	32.69		mg/L		82	80 - 120	2	20
Sulfate	123		200	307.4		mg/L		92	80 - 120	0	20

**Lab Sample ID: 600-175322-24 MS**

**Matrix: Water**

**Analysis Batch: 251665**

**Client Sample ID: MW-58 MS**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	322		200	476.4	N1	mg/L		77	80 - 120
Fluoride	1.20	U	40.0	32.59		mg/L		81	80 - 120
Sulfate	91.6		200	283.9		mg/L		96	80 - 120

**Lab Sample ID: 600-175322-24 MSD**

**Matrix: Water**

**Analysis Batch: 251665**

**Client Sample ID: MW-58 MSD**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	322		200	477.9	N1	mg/L		78	80 - 120	0	20
Fluoride	1.20	U	40.0	32.66		mg/L		82	80 - 120	0	20
Sulfate	91.6		200	285.8		mg/L		97	80 - 120	1	20

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

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

**Lab Sample ID: MB 600-251672/4**  
**Matrix: Water**  
**Analysis Batch: 251672**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			11/08/18 09:08	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			11/08/18 09:08	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			11/08/18 09:08	1

**Lab Sample ID: LCS 600-251672/5**  
**Matrix: Water**  
**Analysis Batch: 251672**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.80		mg/L		99	90 - 110
Fluoride	7.50	7.574		mg/L		101	90 - 110
Sulfate	20.0	20.09		mg/L		100	90 - 110

**Lab Sample ID: 600-175322-10 MS**  
**Matrix: Water**  
**Analysis Batch: 251672**

**Client Sample ID: MW-63 MS**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	452		250	657.2		mg/L		82	80 - 120
Fluoride	1.50	U	50.0	52.61		mg/L		105	80 - 120

**Lab Sample ID: 600-175322-10 MSD**  
**Matrix: Water**  
**Analysis Batch: 251672**

**Client Sample ID: MW-63 MSD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chloride	452		250	650.5	N1	mg/L		79	80 - 120	1	20
Fluoride	1.50	U	50.0	52.56		mg/L		105	80 - 120	0	20

**Lab Sample ID: 600-175322-11 MS**  
**Matrix: Water**  
**Analysis Batch: 251672**

**Client Sample ID: MW-64**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	512		200	657.0	N1	mg/L		72	80 - 120
Fluoride	1.24	J	40.0	41.80		mg/L		101	80 - 120
Sulfate	50.0		200	257.0		mg/L		104	80 - 120

**Lab Sample ID: 600-175322-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 251672**

**Client Sample ID: MW-64**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chloride	512		200	650.3	N1	mg/L		69	80 - 120	1	20
Fluoride	1.24	J	40.0	41.53		mg/L		101	80 - 120	1	20
Sulfate	50.0		200	254.7		mg/L		102	80 - 120	1	20

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

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

**Lab Sample ID: MB 600-251770/4**  
**Matrix: Water**  
**Analysis Batch: 251770**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			11/09/18 07:58	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			11/09/18 07:58	1

**Lab Sample ID: LCS 600-251770/5**  
**Matrix: Water**  
**Analysis Batch: 251770**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	18.49		mg/L		92	90 - 110
Sulfate	20.0	20.10		mg/L		100	90 - 110

**Lab Sample ID: 600-175322-10 MS**  
**Matrix: Water**  
**Analysis Batch: 251770**

**Client Sample ID: MW-63 MS**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	505		250	663.5	N1	mg/L		64	80 - 120

**Lab Sample ID: 600-175322-10 MSD**  
**Matrix: Water**  
**Analysis Batch: 251770**

**Client Sample ID: MW-63 MSD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	505		250	664.6	N1	mg/L		64	80 - 120	0	20

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

**Lab Sample ID: MB 560-156442/1-A**  
**Matrix: Water**  
**Analysis Batch: 157113**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 156442**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.198	U	0.500	0.198	mg/L		11/01/18 11:31	11/21/18 06:29	1

**Lab Sample ID: LCS 560-156442/2-A**  
**Matrix: Water**  
**Analysis Batch: 157113**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 156442**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	25.0	25.18		mg/L		101	80 - 120

**Lab Sample ID: 600-175322-10 MS**  
**Matrix: Water**  
**Analysis Batch: 157066**

**Client Sample ID: MW-63 MS**  
**Prep Type: Total/NA**  
**Prep Batch: 156442**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	339	b * ^	25.0	364.9	4	mg/L		102	80 - 120
Boron	0.700	U ^	0.250	0.700	U ^	mg/L		NC	80 - 120

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

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

**Lab Sample ID: 600-175322-10 MSD**  
**Matrix: Water**  
**Analysis Batch: 157191**

**Client Sample ID: MW-63 MSD**  
**Prep Type: Total/NA**  
**Prep Batch: 156442**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	Limits	RPD	Limit
				Result	Qualifier						
Calcium	339	b * ^	25.0	351.5	4	mg/L		49	80 - 120	4	20
Boron	0.700	U ^	0.250	0.700	U	mg/L		NC	80 - 120	NC	20

**Lab Sample ID: MB 560-156444/1-A**  
**Matrix: Water**  
**Analysis Batch: 156610**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 156444**

Analyte	MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Calcium	0.3015	J	0.500	0.198	mg/L		11/01/18 10:02	11/06/18 13:10	1
Boron	0.0700	U	0.100	0.0700	mg/L		11/01/18 10:02	11/06/18 13:10	1

**Lab Sample ID: MB 560-156444/1-A**  
**Matrix: Water**  
**Analysis Batch: 156610**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 156444**

Analyte	MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Calcium	0.198	U	0.500	0.198	mg/L		11/01/18 10:02	11/06/18 13:21	1
Boron	0.0700	U	0.100	0.0700	mg/L		11/01/18 10:02	11/06/18 13:21	1

**Lab Sample ID: LCS 560-156444/2-A**  
**Matrix: Water**  
**Analysis Batch: 156610**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 156444**

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Calcium	25.0	29.36		mg/L		117	80 - 120
Boron	0.250	0.280	U	mg/L		80	80 - 120

**Lab Sample ID: 600-175322-24 MS**  
**Matrix: Water**  
**Analysis Batch: 156610**

**Client Sample ID: MW-58 MS**  
**Prep Type: Total/NA**  
**Prep Batch: 156444**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	Limits
				Result	Qualifier				
Calcium	115		25.0	155.1	4	mg/L		162	80 - 120
Boron	0.350	U	0.250	0.5060		mg/L		NC	80 - 120

**Lab Sample ID: 600-175322-24 MSD**  
**Matrix: Water**  
**Analysis Batch: 156610**

**Client Sample ID: MW-58 MSD**  
**Prep Type: Total/NA**  
**Prep Batch: 156444**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	Limits	RPD	Limit
				Result	Qualifier						
Calcium	115		25.0	155.1	4	mg/L		162	80 - 120	0	20
Boron	0.350	U	0.250	0.5205		mg/L		NC	80 - 120	3	20

TestAmerica Houston

# QC Sample Results

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

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

**Lab Sample ID: MB 600-251321/26**  
**Matrix: Water**  
**Analysis Batch: 251321**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			11/02/18 13:48	1

**Lab Sample ID: MB 600-251321/51**  
**Matrix: Water**  
**Analysis Batch: 251321**

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			11/02/18 13:48	1

**Lab Sample ID: LCS 600-251321/27**  
**Matrix: Water**  
**Analysis Batch: 251321**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1800	1825		mg/L		101	90 - 110

**Lab Sample ID: LCS 600-251321/52**  
**Matrix: Water**  
**Analysis Batch: 251321**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1800	1644		mg/L		91	90 - 110

**Lab Sample ID: 600-175322-19 DU**  
**Matrix: Water**  
**Analysis Batch: 251321**

**Client Sample ID: MW-46**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	760		702.0		mg/L		8	10



# Unadjusted Detection Limits

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	MQL	MDL	Units	Method
Chloride	0.400	0.0534	mg/L	300.0
Fluoride	0.200	0.0601	mg/L	300.0
Sulfate	0.500	0.0957	mg/L	300.0

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

### Prep: 3010A

Analyte	MQL	MDL	Units	Method
Boron	0.100	0.0700	mg/L	6020
Calcium	0.500	0.198	mg/L	6020

## General Chemistry

Analyte	MQL	MDL	Units	Method
Total Dissolved Solids	10.0	10.0	mg/L	SM 2540C

# QC Association Summary

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## HPLC/IC

### Analysis Batch: 251665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-15	MW-43	Total/NA	Water	300.0	
600-175322-16	MW-47	Total/NA	Water	300.0	
600-175322-17	MW-48	Total/NA	Water	300.0	
600-175322-18	MW-44	Total/NA	Water	300.0	
600-175322-19	MW-46	Total/NA	Water	300.0	
600-175322-20	MW-50	Total/NA	Water	300.0	
600-175322-21	MW-52	Total/NA	Water	300.0	
600-175322-22	MW-54	Total/NA	Water	300.0	
600-175322-23	MW-55	Total/NA	Water	300.0	
600-175322-24	MW-58	Total/NA	Water	300.0	
600-175322-25	MW-65	Total/NA	Water	300.0	
600-175322-26	FB-01	Total/NA	Water	300.0	
600-175322-27	DUP-01	Total/NA	Water	300.0	
600-175322-28	DUP-02	Total/NA	Water	300.0	
MB 600-251665/22	Method Blank	Total/NA	Water	300.0	
LCS 600-251665/23	Lab Control Sample	Total/NA	Water	300.0	
600-175322-20 MS	MW-50	Total/NA	Water	300.0	
600-175322-20 MSD	MW-50	Total/NA	Water	300.0	
600-175322-24 MS	MW-58 MS	Total/NA	Water	300.0	
600-175322-24 MSD	MW-58 MSD	Total/NA	Water	300.0	

### Analysis Batch: 251672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-1	MW-36	Total/NA	Water	300.0	
600-175322-2	MW-60	Total/NA	Water	300.0	
600-175322-3	MW-37	Total/NA	Water	300.0	
600-175322-4	MW-38	Total/NA	Water	300.0	
600-175322-5	MW-61	Total/NA	Water	300.0	
600-175322-6	MW-39	Total/NA	Water	300.0	
600-175322-7	MW-40	Total/NA	Water	300.0	
600-175322-8	MW-62	Total/NA	Water	300.0	
600-175322-9	MW-41	Total/NA	Water	300.0	
600-175322-10	MW-63	Total/NA	Water	300.0	
600-175322-11	MW-64	Total/NA	Water	300.0	
600-175322-12	MW-23	Total/NA	Water	300.0	
600-175322-13	MW-28D	Total/NA	Water	300.0	
600-175322-14	MW-42	Total/NA	Water	300.0	
MB 600-251672/4	Method Blank	Total/NA	Water	300.0	
LCS 600-251672/5	Lab Control Sample	Total/NA	Water	300.0	
600-175322-10 MS	MW-63 MS	Total/NA	Water	300.0	
600-175322-10 MSD	MW-63 MSD	Total/NA	Water	300.0	
600-175322-11 MS	MW-64	Total/NA	Water	300.0	
600-175322-11 MSD	MW-64	Total/NA	Water	300.0	

### Analysis Batch: 251770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-5	MW-61	Total/NA	Water	300.0	
600-175322-6	MW-39	Total/NA	Water	300.0	
600-175322-7	MW-40	Total/NA	Water	300.0	
600-175322-8	MW-62	Total/NA	Water	300.0	
600-175322-9	MW-41	Total/NA	Water	300.0	

TestAmerica Houston

# QC Association Summary

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## HPLC/IC (Continued)

### Analysis Batch: 251770 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-10	MW-63	Total/NA	Water	300.0	
600-175322-12	MW-23	Total/NA	Water	300.0	
600-175322-13	MW-28D	Total/NA	Water	300.0	
600-175322-14	MW-42	Total/NA	Water	300.0	
MB 600-251770/4	Method Blank	Total/NA	Water	300.0	
LCS 600-251770/5	Lab Control Sample	Total/NA	Water	300.0	
600-175322-10 MS	MW-63 MS	Total/NA	Water	300.0	
600-175322-10 MSD	MW-63 MSD	Total/NA	Water	300.0	

## Metals

### Prep Batch: 156442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-1	MW-36	Total/NA	Water	3010A	
600-175322-2	MW-60	Total/NA	Water	3010A	
600-175322-3	MW-37	Total/NA	Water	3010A	
600-175322-4	MW-38	Total/NA	Water	3010A	
600-175322-5	MW-61	Total/NA	Water	3010A	
600-175322-6	MW-39	Total/NA	Water	3010A	
600-175322-7	MW-40	Total/NA	Water	3010A	
600-175322-8	MW-62	Total/NA	Water	3010A	
600-175322-9	MW-41	Total/NA	Water	3010A	
600-175322-10	MW-63	Total/NA	Water	3010A	
600-175322-11	MW-64	Total/NA	Water	3010A	
600-175322-12	MW-23	Total/NA	Water	3010A	
600-175322-13	MW-28D	Total/NA	Water	3010A	
600-175322-14	MW-42	Total/NA	Water	3010A	
600-175322-15	MW-43	Total/NA	Water	3010A	
600-175322-16	MW-47	Total/NA	Water	3010A	
600-175322-17	MW-48	Total/NA	Water	3010A	
600-175322-18	MW-44	Total/NA	Water	3010A	
600-175322-19	MW-46	Total/NA	Water	3010A	
600-175322-20	MW-50	Total/NA	Water	3010A	
MB 560-156442/1-A	Method Blank	Total/NA	Water	3010A	
LCS 560-156442/2-A	Lab Control Sample	Total/NA	Water	3010A	
600-175322-10 MS	MW-63 MS	Total/NA	Water	3010A	
600-175322-10 MSD	MW-63 MSD	Total/NA	Water	3010A	

### Prep Batch: 156444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-21	MW-52	Total/NA	Water	3010A	
600-175322-22	MW-54	Total/NA	Water	3010A	
600-175322-23	MW-55	Total/NA	Water	3010A	
600-175322-24	MW-58	Total/NA	Water	3010A	
600-175322-25	MW-65	Total/NA	Water	3010A	
600-175322-26	FB-01	Total/NA	Water	3010A	
600-175322-27	DUP-01	Total/NA	Water	3010A	
600-175322-28	DUP-02	Total/NA	Water	3010A	
MB 560-156444/1-A	Method Blank	Total/NA	Water	3010A	
LCS 560-156444/2-A	Lab Control Sample	Total/NA	Water	3010A	

TestAmerica Houston

# QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Metals (Continued)

### Prep Batch: 156444 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-24 MS	MW-58 MS	Total/NA	Water	3010A	
600-175322-24 MSD	MW-58 MSD	Total/NA	Water	3010A	

### Analysis Batch: 156610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-21	MW-52	Total/NA	Water	6020	156444
600-175322-22	MW-54	Total/NA	Water	6020	156444
600-175322-23	MW-55	Total/NA	Water	6020	156444
600-175322-24	MW-58	Total/NA	Water	6020	156444
600-175322-25	MW-65	Total/NA	Water	6020	156444
600-175322-26	FB-01	Total/NA	Water	6020	156444
600-175322-27	DUP-01	Total/NA	Water	6020	156444
600-175322-28	DUP-02	Total/NA	Water	6020	156444
MB 560-156444/1-A	Method Blank	Total/NA	Water	6020	156444
MB 560-156444/1-A	Method Blank	Total/NA	Water	6020	156444
LCS 560-156444/2-A	Lab Control Sample	Total/NA	Water	6020	156444
600-175322-24 MS	MW-58 MS	Total/NA	Water	6020	156444
600-175322-24 MSD	MW-58 MSD	Total/NA	Water	6020	156444

### Analysis Batch: 157066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-20	MW-50	Total/NA	Water	6020	156442
600-175322-10 MS	MW-63 MS	Total/NA	Water	6020	156442

### Analysis Batch: 157113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-1	MW-36	Total/NA	Water	6020	156442
600-175322-2	MW-60	Total/NA	Water	6020	156442
600-175322-3	MW-37	Total/NA	Water	6020	156442
600-175322-4	MW-38	Total/NA	Water	6020	156442
600-175322-5	MW-61	Total/NA	Water	6020	156442
600-175322-6	MW-39	Total/NA	Water	6020	156442
600-175322-7	MW-40	Total/NA	Water	6020	156442
600-175322-10	MW-63	Total/NA	Water	6020	156442
MB 560-156442/1-A	Method Blank	Total/NA	Water	6020	156442
LCS 560-156442/2-A	Lab Control Sample	Total/NA	Water	6020	156442

### Analysis Batch: 157153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-8	MW-62	Total/NA	Water	6020	156442
600-175322-9	MW-41	Total/NA	Water	6020	156442
600-175322-11	MW-64	Total/NA	Water	6020	156442
600-175322-12	MW-23	Total/NA	Water	6020	156442
600-175322-13	MW-28D	Total/NA	Water	6020	156442
600-175322-14	MW-42	Total/NA	Water	6020	156442
600-175322-15	MW-43	Total/NA	Water	6020	156442
600-175322-16	MW-47	Total/NA	Water	6020	156442
600-175322-17	MW-48	Total/NA	Water	6020	156442
600-175322-18	MW-44	Total/NA	Water	6020	156442
600-175322-19	MW-46	Total/NA	Water	6020	156442

TestAmerica Houston

# QC Association Summary

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Metals (Continued)

### Analysis Batch: 157191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-5	MW-61	Total/NA	Water	6020	156442
600-175322-10 MSD	MW-63 MSD	Total/NA	Water	6020	156442

### Analysis Batch: 157674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-1	MW-36	Total/NA	Water	6020	156442
600-175322-2	MW-60	Total/NA	Water	6020	156442
600-175322-3	MW-37	Total/NA	Water	6020	156442
600-175322-4	MW-38	Total/NA	Water	6020	156442
600-175322-6	MW-39	Total/NA	Water	6020	156442
600-175322-7	MW-40	Total/NA	Water	6020	156442
600-175322-8	MW-62	Total/NA	Water	6020	156442
600-175322-9	MW-41	Total/NA	Water	6020	156442
600-175322-10	MW-63	Total/NA	Water	6020	156442
600-175322-11	MW-64	Total/NA	Water	6020	156442
600-175322-12	MW-23	Total/NA	Water	6020	156442
600-175322-13	MW-28D	Total/NA	Water	6020	156442
600-175322-14	MW-42	Total/NA	Water	6020	156442
600-175322-15	MW-43	Total/NA	Water	6020	156442
600-175322-16	MW-47	Total/NA	Water	6020	156442
600-175322-17	MW-48	Total/NA	Water	6020	156442
600-175322-18	MW-44	Total/NA	Water	6020	156442
600-175322-19	MW-46	Total/NA	Water	6020	156442
600-175322-20	MW-50	Total/NA	Water	6020	156442
600-175322-21	MW-52	Total/NA	Water	6020	156444
600-175322-22	MW-54	Total/NA	Water	6020	156444
600-175322-23	MW-55	Total/NA	Water	6020	156444
600-175322-24	MW-58	Total/NA	Water	6020	156444
600-175322-25	MW-65	Total/NA	Water	6020	156444
600-175322-26	FB-01	Total/NA	Water	6020	156444
600-175322-27	DUP-01	Total/NA	Water	6020	156444
600-175322-28	DUP-02	Total/NA	Water	6020	156444

## General Chemistry

### Analysis Batch: 251321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-1	MW-36	Total/NA	Water	SM 2540C	
600-175322-2	MW-60	Total/NA	Water	SM 2540C	
600-175322-3	MW-37	Total/NA	Water	SM 2540C	
600-175322-4	MW-38	Total/NA	Water	SM 2540C	
600-175322-5	MW-61	Total/NA	Water	SM 2540C	
600-175322-6	MW-39	Total/NA	Water	SM 2540C	
600-175322-7	MW-40	Total/NA	Water	SM 2540C	
600-175322-8	MW-62	Total/NA	Water	SM 2540C	
600-175322-9	MW-41	Total/NA	Water	SM 2540C	
600-175322-10	MW-63	Total/NA	Water	SM 2540C	
600-175322-11	MW-64	Total/NA	Water	SM 2540C	
600-175322-12	MW-23	Total/NA	Water	SM 2540C	
600-175322-13	MW-28D	Total/NA	Water	SM 2540C	

TestAmerica Houston

# QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## General Chemistry (Continued)

### Analysis Batch: 251321 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-175322-14	MW-42	Total/NA	Water	SM 2540C	
600-175322-15	MW-43	Total/NA	Water	SM 2540C	
600-175322-16	MW-47	Total/NA	Water	SM 2540C	
600-175322-17	MW-48	Total/NA	Water	SM 2540C	
600-175322-18	MW-44	Total/NA	Water	SM 2540C	
600-175322-19	MW-46	Total/NA	Water	SM 2540C	
600-175322-20	MW-50	Total/NA	Water	SM 2540C	
600-175322-21	MW-52	Total/NA	Water	SM 2540C	
600-175322-22	MW-54	Total/NA	Water	SM 2540C	
600-175322-23	MW-55	Total/NA	Water	SM 2540C	
600-175322-24	MW-58	Total/NA	Water	SM 2540C	
600-175322-25	MW-65	Total/NA	Water	SM 2540C	
600-175322-26	FB-01	Total/NA	Water	SM 2540C	
600-175322-27	DUP-01	Total/NA	Water	SM 2540C	
600-175322-28	DUP-02	Total/NA	Water	SM 2540C	
MB 600-251321/26	Method Blank	Total/NA	Water	SM 2540C	
MB 600-251321/51	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-251321/27	Lab Control Sample	Total/NA	Water	SM 2540C	
LCS 600-251321/52	Lab Control Sample	Total/NA	Water	SM 2540C	
600-175322-19 DU	MW-46	Total/NA	Water	SM 2540C	



# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-36**

**Date Collected: 10/29/18 15:00**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			251672	11/08/18 10:53	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157113	11/21/18 06:40	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 18:56	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-60**

**Date Collected: 10/29/18 16:05**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			251672	11/08/18 11:13	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157113	11/21/18 06:46	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 19:01	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-37**

**Date Collected: 10/29/18 17:00**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			251672	11/08/18 11:33	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157113	11/21/18 06:51	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 19:06	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-38**

**Date Collected: 10/29/18 16:00**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			251672	11/08/18 11:53	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157113	11/21/18 06:57	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 19:11	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-61**

**Date Collected: 10/29/18 15:00**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			251672	11/08/18 12:13	KP1	TAL HOU
Total/NA	Analysis	300.0		200			251770	11/09/18 12:09	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157113	11/21/18 07:02	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157191	11/23/18 22:20	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-39**

**Date Collected: 10/29/18 16:55**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			251672	11/08/18 13:58	KP1	TAL HOU
Total/NA	Analysis	300.0		50			251770	11/09/18 08:34	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157113	11/21/18 07:08	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 19:21	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-40**

**Date Collected: 10/29/18 15:20**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			251672	11/08/18 14:18	KP1	TAL HOU
Total/NA	Analysis	300.0		25			251770	11/09/18 08:51	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157113	11/21/18 07:14	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 19:26	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-62**

**Date Collected: 10/29/18 16:05**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			251672	11/08/18 14:38	KP1	TAL HOU
Total/NA	Analysis	300.0		25			251770	11/09/18 09:09	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-62**

**Lab Sample ID: 600-175322-8**

**Date Collected: 10/29/18 16:05**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6020		10			157153	11/21/18 19:09	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 20:05	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-41**

**Lab Sample ID: 600-175322-9**

**Date Collected: 10/29/18 15:10**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			251672	11/08/18 14:58	KP1	TAL HOU
Total/NA	Analysis	300.0		20			251770	11/09/18 09:27	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157153	11/21/18 19:14	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 20:10	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-63**

**Lab Sample ID: 600-175322-10**

**Date Collected: 10/29/18 16:05**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			251672	11/08/18 15:18	KP1	TAL HOU
Total/NA	Analysis	300.0		25			251770	11/09/18 09:45	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157113	11/21/18 06:34	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 18:51	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-64**

**Lab Sample ID: 600-175322-11**

**Date Collected: 10/29/18 14:40**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			251672	11/08/18 09:53	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157153	11/21/18 19:19	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 20:15	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-23**

**Date Collected: 10/29/18 16:15**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-12**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			251672	11/08/18 16:18	KP1	TAL HOU
Total/NA	Analysis	300.0		100			251770	11/09/18 10:39	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157153	11/21/18 19:25	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 20:20	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-28D**

**Date Collected: 10/29/18 14:25**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-13**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			251672	11/08/18 16:38	KP1	TAL HOU
Total/NA	Analysis	300.0		10			251770	11/09/18 11:33	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157153	11/21/18 19:30	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 20:25	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-42**

**Date Collected: 10/29/18 15:15**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-14**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			251672	11/08/18 16:58	KP1	TAL HOU
Total/NA	Analysis	300.0		25			251770	11/09/18 11:51	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157153	11/21/18 19:36	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 20:30	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-43**

**Date Collected: 10/29/18 16:30**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-15**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			251665	11/08/18 13:41	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157153	11/21/18 19:41	JEM	TAL CC

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-43**

**Date Collected: 10/29/18 16:30**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-15**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 20:35	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-47**

**Date Collected: 10/29/18 14:35**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-16**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			251665	11/08/18 13:59	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157153	11/22/18 07:54	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 20:40	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-48**

**Date Collected: 10/29/18 15:25**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-17**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			251665	11/08/18 14:17	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157153	11/22/18 07:59	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 20:45	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-44**

**Date Collected: 10/29/18 15:35**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-18**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			251665	11/08/18 14:35	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157153	11/22/18 08:04	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 20:50	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-46**

**Date Collected: 10/29/18 14:25**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-19**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			251665	11/08/18 14:53	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157153	11/22/18 08:10	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 21:30	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-50**

**Date Collected: 10/29/18 13:55**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-20**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20	5 mL	1.0 mL	251665	11/08/18 15:11	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		10			157066	11/20/18 03:34	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156442	11/01/18 11:31	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 21:35	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-52**

**Date Collected: 10/29/18 14:35**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-21**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			251665	11/08/18 16:40	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		5			156610	11/06/18 13:48	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 21:45	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-54**

**Date Collected: 10/29/18 16:35**

**Date Received: 10/30/18 08:51**

**Lab Sample ID: 600-175322-22**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			251665	11/08/18 16:58	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		5			156610	11/06/18 13:53	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 21:50	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

TestAmerica Houston



# Lab Chronicle

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: MW-55**

**Lab Sample ID: 600-175322-23**

**Date Collected: 10/29/18 14:45**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			251665	11/08/18 17:16	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		5			156610	11/06/18 13:59	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 21:55	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-58**

**Lab Sample ID: 600-175322-24**

**Date Collected: 10/29/18 15:15**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			251665	11/08/18 17:34	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		5			156610	11/06/18 13:26	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 21:40	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: MW-65**

**Lab Sample ID: 600-175322-25**

**Date Collected: 10/29/18 15:40**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			251665	11/08/18 18:28	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		5			156610	11/06/18 14:40	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 22:00	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: FB-01**

**Lab Sample ID: 600-175322-26**

**Date Collected: 10/29/18 15:10**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			251665	11/08/18 18:46	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		5			156610	11/06/18 14:46	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 22:05	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

TestAmerica Houston

# Lab Chronicle

Client: TRC Solutions, Inc.  
 Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

**Client Sample ID: DUP-01**

**Lab Sample ID: 600-175322-27**

**Date Collected: 10/29/18 13:00**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			251665	11/08/18 19:04	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		5			156610	11/06/18 14:51	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 22:10	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Client Sample ID: DUP-02**

**Lab Sample ID: 600-175322-28**

**Date Collected: 10/29/18 15:00**

**Matrix: Water**

**Date Received: 10/30/18 08:51**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			251665	11/08/18 19:21	KP1	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		5			156610	11/06/18 14:56	JEM	TAL CC
Total/NA	Prep	3010A			50 mL	50 mL	156444	11/01/18 10:02	AKM	TAL CC
Total/NA	Analysis	6020		1			157674	12/07/18 22:14	JEM	TAL CC
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	251321	11/02/18 13:48	A1T	TAL HOU

**Laboratory References:**

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

# Accreditation/Certification Summary

Client: TRC Solutions, Inc.  
Project/Site: TRC-Texas W. A. Parish CCR 10-29-18

TestAmerica Job ID: 600-175322-1

## Laboratory: TestAmerica Houston

The accreditations/certifications listed below are applicable to this report.


Authority	Program	EPA Region	Identification Number	Expiration Date
Texas	NELAP	6	T104704223-18-23	10-31-19

## Laboratory: TestAmerica Corpus Christi

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Oklahoma	State Program	6	2018-070	08-31-19
Texas	NELAP	6	T104704210-18-22	03-31-19
USDA	Federal		P330-18-00035	02-02-21

### Chain of Custody Record

<b>Client Information</b> Company: Andrew Clayton Address: 10550 Richmond Ave Suite 210 City: Houston State/Zip: TX, 77042 Phone: 713-244-1000(Tel) Email: aclayton@trcsolutions.com Project Name: TRC-Texas W. A. Parish CCR Site:		Lab P#M: Tigrrett, C. Lance E-Mail: lance.tigrrett@testamericainc.com Carrier Tracking No(s): COC No: 600-64023-17920.5 Page: 1 of 3 Job #:	
<b>Analysis Requested</b> Due Date Requested: TAT Requested (days): PO #: 4501812797 WO #: Project #: 60007663 SSONW#:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 6020 - (MOD) Boron and Calcium (App III) 300 - ORGM, 28D Chloride, Flouride, Sulfate 900B - pH Local Method (Field pH provided) 2540C - Calcd-TDS	
<b>Sample Identification</b> Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (Water, Soil, Sludge, Other) Preservation Code:		Total Number of Containers Preservation Codes: A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/Note: 600-175322 Chain of Custody 	
<b>Sample Disposal</b> (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab Special Instructions/QC Requirements:		Method of Shipment: Drop off @ Lab Date/Time: 10/30/18 851 Received by: Cameron Haber Company:	
<b>Empty Kit Relinquished by:</b> Relinquished by: Cameron Haber Relinquished by:		Date/Time: 10/30/18 851 Date/Time:	
<b>Custody Seals Intact:</b> Δ Yes Δ No Custody Seal No.:		Date/Time: 10/30/18 851 Date/Time:	





### Chain of Custody Record

<b>Client Information</b> Client Contact: Andrew Clayton Company: TRC Solutions, Inc. Address: 10550 Richmond Ave Suite 210 City: Houston State, Zip: TX, 77042 Phone: 713-244-1000(Tel) Email: aclayton@trcsolutions.com Project Name: TRC-Texas W. A. Parish CCR Site:		Lab Pkt: Tiggrett, C. Lance E-Mail: lance.tiggrett@testamericainc.com Camer Tracking No(s):		COC No: 600-64023-17920.5 Page: 2 of 3 Job #:	
Due Date Requested: TAT Requested (days): PO #: 4501812797 WO #: Project #: 60007663 SSOW#:		<b>Analysis Requested</b> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 6020 - (MOD) Boron and Calcium (App III) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 300_ORGM_2ED Chloride, Fluoride, Sulfate <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 9040B-pH Local Method <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2540C_Calcd.TDS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Field pH provided by TCC)			
<b>Sample Identification</b> MW-23 MW-28D MW-42 MW-43 MW-47 MW-48 MW-44 MW-46 MW-50 MW-52 MW-54		Sample Date 10/21/18 1425 1515 1630 1435 1525 1535 1425 1355 1435 1635		Sample Time 1615 1425 1515 1630 1435 1525 1535 1425 1355 1435 1635	
Sample Type (C=Comp, G=grab) G Water Water Water Water Water Water Water Water Water Water		Matrix (W=Water, S=Solid, O=Other) Water Water Water Water Water Water Water Water Water Water Water		Preservation Code: G Water Water Water Water Water Water Water Water Water Water	
Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 6020 - (MOD) Boron and Calcium (App III) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 300_ORGM_2ED Chloride, Fluoride, Sulfate <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 9040B-pH Local Method <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2540C_Calcd.TDS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Field pH provided by TCC)		Total Number of Containers 2		Special Instructions/Note: Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)					
Empty Kit Relinquished by: Cameron Haber Relinquished by: Cameron Haber Relinquished by:					
Date/Time: 10.30.18 851 Date/Time: 10.30.18 851 Date/Time:					
Method of Shipment: Prep off @ Lab Received by: Clayton Received by: Clayton Received by:					
Company: HMI Company: HMI Company:					
Cooler Temperature(s) °C and Other Remarks:					





**Sample Receipt Checklist**

JOB NUMBER: \_\_\_\_\_

Date/Time Received: 18 OCT 30 8:51

UNPACKED BY: As

CLIENT: TRC

CARRIER/DRIVER: Fedex client

Custody Seal Present:  YES  NO

Number of Coolers Received: 5

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Therm CF	Corrected Temp (°C)
B/W	(Y) / N	Y / (N)	2.3	1218	-0.3	2.4
B/W	(Y) / N	Y / (N)	1.5			1.0
G/W	(X) / N	Y / (N)	2.6	I	I	2.3
R/W	(Y) / N	Y / (N)	1.0	I	I	0.7
B/W	(Y) / N	Y / (N)	0.7			0.4
	Y / N	Y / N				
	Y / N	Y / N				As
	Y / N	Y / N				
	Y / N	Y / N				

CF = correction factor

Samples received on ice?  YES  NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED:  NO  YES

Base samples are >pH 12:  YES  NO      Acid preserved are <pH 2:  YES  NO

pH paper Lot # \_\_\_\_\_

VOA headspace acceptable (5-6mm):  YES  NO  NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	YES	NO
	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**COMMENTS:**

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As  
10/30/18

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Lab PM: Tigrett, C. Lance		Carrier Tracking No(s):		COC No: 600-35342-1	
Client Contact: Shipping/Receiving		E-Mail: lance.tigrett@testamericainc.com		State of Origin: Texas		Page: Page 1 of 4	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Texas		Job #:		600-175322-1	
Address: 1733 N. Padre Island Drive,		Due Date Requested: 11/9/2018		<b>Analysis Requested</b>		<b>Preservation Codes:</b> A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
City: Corpus Christi		TAT Requested (days):					
State, Zip: TX, 78408		PO #:		Perform MS/MSD (Yes or No)		Total Number of containers	
Phone: 361-289-2673(Tel) 361-289-2471(Fax)		WO #:		Field Filtered Sample (Yes or No)		60203010A (MOD) Boron and Calcium (App III)	
Email:		Project #: 60007663		Preservation Code:		Special Instructions/Note:	
Project Name: TRC-Texas W. A. Parish CCR 10-29-18		SSOW#:		Sample Date		Sample Time	
Site:		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Matrix (W=water, S=solid, O=wastewater, BT=TISSUE, A=Air)	
MW-36 (600-175322-1)	10/29/18	15:00 Central	Water	X		1	
MW-60 (600-175322-2)	10/29/18	16:05 Central	Water	X		1	
MW-37 (600-175322-3)	10/29/18	17:00 Central	Water	X		1	
MW-38 (600-175322-4)	10/29/18	16:00 Central	Water	X		1	
MW-61 (600-175322-5)	10/29/18	15:00 Central	Water	X		1	
MW-39 (600-175322-6)	10/29/18	16:55 Central	Water	X		1	
MW-40 (600-175322-7)	10/29/18	15:20 Central	Water	X		1	
MW-62 (600-175322-8)	10/29/18	16:05 Central	Water	X		1	
MW-41 (600-175322-9)	10/29/18	15:10 Central	Water	X		1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) \_\_\_\_\_  
 Primary Deliverable Rank: 2  
 Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: *NR* Date: 10/30/18 17:00 Company: *TRC*  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Custody Seals Intact: \_\_\_\_\_ Custody Seal No.: \_\_\_\_\_  
 Δ Yes Δ No  
 Cooler Temperature(s) °C and Other Remarks: 4.9/5.1 R-10

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
 Special Instructions/QC Requirements: \_\_\_\_\_  
 Method of Shipment: \_\_\_\_\_  
 Received by: *TRC* Date: 10/31/18 0930 Company: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_





# Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b>		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact: Shipping/Receiving		Phone:		Tigrett, C. Lance		State of Origin: Texas		600-35342.3	
Company: TestAmerica Laboratories, Inc.		E-Mail: lance.tigrett@testamericainc.com		6020/3010A (MOD) Boron and Calcium (App III)		600-175322-1		Page: Page 3 of 4	
Address: 1733 N. Padre Island Drive,		Due Date Requested: 11/9/2018		Field Filtered Sample (Yes or No)		Preservation Codes:		Job #: 600-175322-1	
City: Corpus Christi		TAT Requested (days):		Perform MS/MSD (Yes or No)		A - HCL M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)		Other: Other:	
State/Zip: TX, 78408		PO #:		Preservation Code:		Total Number of Containers			
Phone: 361-289-2673(Tel) 361-289-2471(Fax)		WO #:		Sample Time		Analysis Requested			
Email:		Project #: 60007663		Sample Date		Special Instructions/Note:			
Project Name: TRC-Texas W. A. Parish CCR 10-29-18		SSOW#:		Sample Type (C=Comp, G=Grab)					
Site:		Sample Date		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)					
<b>Sample Identification - Client ID (Lab ID)</b>		Sample Date		Sample Time		Matrix			
MW-48 (600-175322-17)		10/29/18		15:25 Central		Water		1	
MW-44 (600-175322-18)		10/29/18		15:35 Central		Water		1	
MW-46 (600-175322-19)		10/29/18		14:25 Central		Water		1	
MW-50 (600-175322-20)		10/29/18		13:55 Central		Water		1	
MW-52 (600-175322-21)		10/29/18		14:35 Central		Water		1	
MW-54 (600-175322-22)		10/29/18		16:35 Central		Water		1	
MW-55 (600-175322-23)		10/29/18		14:45 Central		Water		1	
MW-58 (600-175322-24)		10/29/18		15:15 Central		Water		1	
MW-58 MS (600-175322-24MS)		10/29/18		15:15 Central		Water		1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>NS</i>	10/30/18	1700	Company: <i>TA</i>
Relinquished by:	Date/Time:	Date/Time:	Company:
Relinquished by:	Date/Time:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Cooler Temperature(s) °C and Other Remarks: 4.9/5.1 18-10		





# Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-175322-1

**Login Number: 175322**

**List Source: TestAmerica Houston**

**List Number: 1**

**Creator: Taylor, Jaquelyn R**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4, 1.0, 2.3, 0.7, 0.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.



## Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-175322-1

**Login Number: 175322**

**List Number: 2**

**Creator: Scott, Kohen 1**

**List Source: TestAmerica Corpus Christi**

**List Creation: 10/31/18 12:05 PM**

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



**Hydrologic Monitoring**

1654 W. Sam Houston Pkwy. N.  
Houston, Texas 77043

Phone 713.464.5206

Fax 713.464.5207

November 1, 2018

Mr. Tony Dworaczyk, P.G.  
TRC  
10550 Richmond Ave, Suite 210  
Houston, Texas 77042

**Subject:** NRG – WA Parish Generating Station, Thompsons, Texas  
2H18 Groundwater Monitoring:  
*State Program*  
*CCR Program*

Dear Mr. Dworaczyk:

This document summarizes groundwater and surface water monitoring field activities at the NRG-WA Parish Generating Station, Thompsons, Texas.

**Contents**

Field Activities Narrative

Table 1: Gauging Data and Groundwater Field Parameters

State Prgm - Groundwater Sampling Forms, Instrument Calibration Log, COCs

CCR Prgm - Groundwater Sampling Forms, Instrument Calibration Log, COCs

HMI SOP – Low-Flow Groundwater Sampling Memo

## Field Activities Narrative

1. Hydrologic Monitoring, LLC (HMI) conducted semiannual groundwater monitoring (State Program and CCR Program, on separate COCs, per TRC), at the WA Parish Generating Station, on behalf of TRC, on October 29, 2018.
2. Low-flow groundwater sampling was conducted at monitor wells in accordance with the Site Sampling and Analysis Plan and EPA guidance (Puls and Barcelona, 1996 EPA Guidance on Low-Flow Groundwater Sampling, REV 4, September 19, 2017). Low-flow purging was conducted at EPA-recommended purge rates of 0.1 - 0.2 liters/minute. Field parameters of pH, specific conductivity, temperature, dissolved oxygen, and oxidation-reduction potential were monitored at ½-liter intervals, in an air-tight flow-through cell. Turbidity was measured outside the cell. Well drawdown was monitored at the same intervals. Upon field parameter stabilization, the water input tube was disconnected from the flow-through cell, and groundwater samples were collected directly into lab-supplied bottles, and placed in iced coolers.
3. Quarterly surface water sampling will be conducted by TRC.
4. Field QA/QC, in accordance with Site SAP:

### Parish - State Program:

FB-01 @ MW-29

Dup-01 @ MW-4

Dup-02 @ MW-32

MS/MSD @ MW-2 and MW-18

### Parish - CCR:

FB-01 @ MW-61

Dup-01 @ MW-36

Dup-02 @ MW-44

MS/MSD @ MW-58 and MW-63

5. Non-dedicated field equipment (i.e., gauging probes) were decontaminated prior to use, and between wells, in accordance with decontamination procedures outlined in the Site SAP.
6. HMI delivered iced coolers to Test America-Houston, for analysis per the attached COCs, for each area. Proper chain-of-custody was maintained.

7. Site notes:

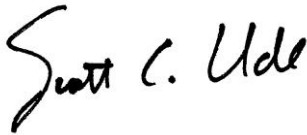
Parish (CCR) E. Pond wells (MW-36, MW-60, MW-37, MW-38, and MW-61) were additionally-developed, prior to standard low-flow purging and sampling, per TRC request, 10-22-18. Additional development consisted of pumping water at higher purge rates, for approximately 15 minutes, within the screened interval (documented on sampling forms). Following recovery, wells were then low-flow-sampled, per standard procedures.

HMI met TRC's Andrew Clayton at Gate 2 parking area. Signed-in/out with site security guard (Shirley). HMI's 10-person team viewed NRG safety video, per Bob Been, October 29, 2018.

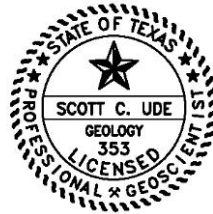
HMI appreciates the opportunity to assist TRC with this project. If you have any questions or require additional information please feel free to call us at 713.464.5206.

Sincerely,

HYDROLOGIC MONITORING



Scott C. Ude, P.G.



The seal appearing on this document was authorized by Scott C. Ude, P.G. 353 on November 1, 2018.

Attachments

cc: Andrew Clayton, TRC-Houston  
Greg Scherbenske, P.G., HMI-Houston  
Brian Hillin, HMI-Houston

**Table 1A - State Program  
Gauging Data and Groundwater Field Parameters**

**NRG - WA Parish Generating Station  
Thompsons, Texas  
October 29, 2018**

Sample I.D.	2H18	2H18	(Peristaltic)		Top of Casing Elev (ft-msl)	Depth to LNAPL (ft-toc)	Depth to Water (ft-toc)	LNAPL Thickness (ft)	DNAPL Thickness (ft)	Corrected GW Elev (ft-msl)	Water Column (ft)	Total Depth (ft-toc)	Screen Length (ft)	Sample Intake (ft-toc)	Well Inspection	pH (S.U.)	Temp. (C)	S.C. (umhos)	D.O. (mg/L)	ORP (mV)	Turbidity (NTU)	Water Clarity	Comments
	# Wells Sampled	# Wells Gauged	Surface Water Sample	MW Low-Flow Sample																			
<i>Monitoring Wells:</i>																							
MW-1	1		x		69.84	NP	13.05	0.00	0.00	56.79	25.10	38.15	NR	33.15	See form	6.72	25.3	8,897	2.4	-118.6	9.2	Clear	
MW-2	2		x		70.58	NP	10.85	0.00	0.00	59.73	21.79	32.64	NR	27.64	See form	6.68	27.4	4,420	2.4	79.6	1.7	Clear	MS/MSD
MW-3	3		x		67.89	NP	16.31	0.00	0.00	51.58	18.49	34.80	NR	29.80	See form	6.69	25.5	10,130	0.7	-30.8	2.9	Clear	
MW-4	4		x		70.79	NP	9.77	0.00	0.00	61.02	13.20	22.97	NR	17.97	See form	7.31	25.5	4,320	0.8	189.3	0.7	Clear	Dup-01
MW-5	5		x		70.60	NP	10.07	0.00	0.00	60.53	18.63	28.70	NR	23.70	See form	6.35	24.6	2,320	2.3	-40.0	2.1	Clear	
MW-16	6		x		60.88	NP	2.50	0.00	0.00	58.38	50.55	53.05	NR	48.05	See form	9.06	25.8	737	1.6	-110.4	81.1	Sl. Cloudy	
MW-17	7		x		64.63	NP	14.58	0.00	0.00	50.05	50.57	65.15	NR	60.15	See form	7.33	23.7	1,729	1.2	-74.6	5.9	Clear	
MW-18	8		x		65.17	NP	15.87	0.00	0.00	49.30	35.70	51.57	NR	46.57	See form	7.61	24.7	1,464	1.5	-176.7	9.5	Clear	MS/MSD
MW-20	9		x		64.23	NP	8.13	0.00	0.00	56.10	19.82	27.95	NR	22.95	See form	6.88	21.7	4,320	2.2	80.0	1.9	Clear	
MW-21	10		x		63.85	NP	4.91	0.00	0.00	58.94	20.29	25.20	NR	20.20	See form	6.76	26.7	6,730	0.9	-82.9	13.9	Clear	
MW-22	11		x		62.52	NP	12.30	0.00	0.00	50.22	41.45	53.75	NR	48.75	See form	6.74	22.3	6,210	2.2	-65.1	40.9	Sl. Cloudy	
MW-25	12		x		62.98	NP	8.56	0.00	0.00	54.42	28.08	36.64	NR	31.64	See form	6.67	23.3	8,540	1.1	-150.7	35.8	Clear w/ white particles	
MW-26S	13		x		64.83	NP	11.54	0.00	0.00	53.29	26.04	37.58	NR	32.58	See form	6.59	23.6	8,731	2.7	-75.7	24.2	Clear w/ small black particles	
MW-26D	14		x		65.24	NP	13.48	0.00	0.00	51.76	58.77	72.25	NR	67.25	See form	6.97	23.7	1,923	3.4	-111.3	4.7	Clear	
MW-27	15		x		65.62	NP	11.72	0.00	0.00	53.90	2.10	13.82	NR	13.80	See form	6.92	28.1	3,349	4.6	-194.8	39.5	Clear w/ small white particles	
MW-28S	16		x		70.97	NP	18.59	0.00	0.00	52.38	9.91	28.50	NR	23.50	See form	6.50	22.8	2,330	2.1	-70.2	7.4	Clear	
MW-28D	17		x		70.37	NP	19.05	0.00	0.00	51.32	51.00	70.05	10	65.05	See form	6.95	22.8	1,042	1.4	-174.9	9.1	Clear	
MW-29	18		x		64.19	NP	9.04	0.00	0.00	55.15	28.62	37.66	NR	32.66	See form	6.49	24.5	3,100	2.8	-95.1	5.5	Clear	FB-01
MW-30S	19		x		65.14	NP	15.75	0.00	0.00	49.39	15.36	31.11	NR	26.11	See form	6.82	25.4	323	1.2	-134.6	56.0	Cloudy w/ white particles	
MW-30D	20		x		65.09	NP	15.17	0.00	0.00	49.92	29.90	45.07	NR	40.07	See form	6.93	24.0	1,351	1.0	-165.3	28.2	Sl. Cloudy w/ white particles	
MW-31	21		x		68.25	NP	17.13	0.00	0.00	51.12	21.09	38.22	NR	33.22	See form	6.67	24.4	4,270	1.5	28.6	8.2	Clear	
MW-32	22		x		70.75	NP	20.74	0.00	0.00	50.01	27.61	48.35	NR	43.35	See form	11.29	22.4	3,960	2.8	-91.8	77.7	Sl. Cloudy	Dup-02
MW-33	23		x		62.98	NP	13.20	0.00	0.00	49.78	37.03	50.23	NR	45.23	See form	7.50	24.3	4,220	1.6	-157.3	20.6	Clear	
MW-34	24		x		63.21	NP	10.53	0.00	0.00	52.68	3.42	13.95	NR	12.95	See form	7.30	24.4	5,180	3.4	-294.3	26.2	Clear	
<i>Surface Water (to be conducted by TRC)</i>																							
SW-01	1		x																				
SW-02	2		x																				
SW-03	3		x																				
SW-04	4		x																				
SW-05	5		x																				
SW-06	6		x																				
SW-07	7		x																				
SW-08	8		x																				
SW-09	9		x																				
SW-10	10		x																				
SW-11	11		x																				
SW-12	12		x																				
SW-13	13		x																				
SW-14	14		x																				

Notes: Semiannual monitoring (scheduled April & October)  
 NP = No product (LNAPL), NA = Not applicable, NS = Not sampled, NM = Not measured, NR = Not reported  
 Trip Blanks accompanied coolers of VOC samples to lab

**Table 1B - CCR Program  
Gauging Data and Groundwater Field Parameters**

**NRG - WA Parish Generating Station  
Thompsons, Texas  
October 29, 2018**

Sample I.D.	2H18	2H18	(Peristaltic)		Surface Water Sample	MW Low-Flow Sample	Top of Casing Elev (ft-msl)	Depth to LNAPL (ft-toc)	Depth to Water (ft-toc)	LNAPL Thickness (ft)	DNAPL Thickness (ft)	Corrected GW Elev (ft-msl)	Water Column (ft)	Total Depth (ft-toc)	Screen Length (ft)	Sample Intake (ft-toc)	Well Inspection	pH (S.U.)	Temp. (C)	S.C. (umhos)	D.O. (mg/L)	ORP (mV)	Turbidity (NTU)	Water Clarity	Comments
	# Wells Sampled	# Wells Gauged																							
<b>E Pond</b>																									
<i>Upgradient Wells:</i>																									
MW-36	1			x	71.31	NP	7.51	0.00	0.00	63.80	35.72	43.23	10	38.23	See form	6.70	28.0	1,690	3.1	45.0	1.9	Clear	Dup-01; Extra development per TRC		
MW-60	2			x	70.80	NP	6.31	0.00	0.00	64.49	31.24	37.55	10	32.55	See form	6.39	27.3	1,662	3.4	112.3	7.4	Clear	Extra development per TRC		
<i>Downgradient Wells:</i>																									
MW-37	1			x	71.27	NP	11.30	0.00	0.00	59.97	32.21	43.51	10	38.51	See form	6.78	23.1	2,150	2.1	12.5	37.2	Clear	Extra development per TRC		
MW-38	2			x	70.69	NP	10.95	0.00	0.00	59.74	35.08	46.03	10	41.03	See form	7.04	23.7	2,620	2.0	-32.8	28.1	Clear	Extra development per TRC		
MW-61	3			x	71.21	NP	11.37	0.00	0.00	59.84	31.83	43.20	10	38.20	See form	6.91	24.2	2,310	2.3	5.1	27.2	Clear	FB-01; Extra development per TRC		
<b>APH Pond</b>																									
<i>Upgradient Wells:</i>																									
MW-39	1			x	70.27	NP	8.01	0.00	0.00	62.26	25.08	33.09	10	28.09	See form	6.78	25.2	2,430	2.5	417.0	17.4	Clear			
MW-40	2			x	71.67	NP	8.87	0.00	0.00	62.80	28.93	37.80	10	32.80	See form	6.54	25.7	2,640	1.2	-13.8	8.6	Clear			
MW-62	3			x	72.59	NP	10.34	0.00	0.00	62.25	32.62	42.96	10	37.96	See form	6.70	25.4	2,250	2.0	91.6	6.7	Clear			
<i>Downgradient Wells:</i>																									
MW-41	1			x	69.18	NP	7.15	0.00	0.00	62.03	32.47	39.62	10	34.62	See form	6.84	26.1	1,419	2.4	97.7	12.2	Clear			
MW-63	2			x	70.35	NP	8.71	0.00	0.00	61.64	27.40	36.11	10	31.11	See form	6.63	27.0	1,762	2.6	141.9	8.9	Clear	MS/MSD		
MW-64	3			x	70.00	NP	8.01	0.00	0.00	61.99	32.43	40.44	10	35.44	See form	6.60	25.8	2,070	1.2	-11.6	7.4	Clear			
<b>SWDA Multiunit</b>																									
<i>Upgradient Wells:</i>																									
MW-23	1			x	65.47	NP	14.31	0.00	0.00	51.16	35.91	50.22	10	45.22	See form	11.61	23.7	3,460	5.7	-128.1	4.8	Clear			
MW-28D	2			x	70.37	NP	19.05	0.00	0.00	51.32	51.00	70.05	10	65.05	See form	6.98	23.4	1,138	1.5	-172.9	8.6	Clear			
MW-42	3			x	65.88	NP	14.63	0.00	0.00	51.25	33.36	47.99	10	42.99	See form	6.93	23.5	1,912	1.0	-143.2	78.0	Clear			
MW-43	4			x	66.67	NP	16.63	0.00	0.00	50.04	25.99	42.62	10	37.62	See form	6.92	24.3	2,049	2.6	-74.0	17.6	Clear			
MW-47	5			x	70.40	NP	21.94	0.00	0.00	48.46	35.96	57.90	10	52.90	See form	7.25	26.9	1,887	0.6	-115.7	47.5	Sl. Cloudy			
MW-48	6			x	65.89	NP	18.65	0.00	0.00	47.24	19.60	38.25	10	33.25	See form	7.31	25.8	2,060	0.6	-75.3	71.8	Sl. Cloudy			
<i>Downgradient Wells:</i>																									
MW-44	1			x	64.42	NP	14.21	0.00	0.00	50.21	43.79	58.00	10	53.00	See form	7.03	24.9	3,115	2.4	-95.8	90.2	Sl. Cloudy	Dup-02		
MW-46	2			x	64.15	NP	13.17	0.00	0.00	50.98	55.85	69.02	10	64.02	See form	7.10	24.9	1,974	3.8	-133.9	40.3	Clear			
MW-50	3			x	71.27	NP	27.88	0.00	0.00	43.39	35.57	63.45	10	58.45	See form	6.68	26.3	1,731	0.9	-213.5	46.5	Sl. Cloudy			
MW-52	4			x	67.91	NP	20.66	0.00	0.00	47.25	32.59	53.25	10	48.25	See form	7.30	25.0	3,110	1.1	-194.3	>200	Cloudy			
MW-54	5			x	68.29	NP	24.59	0.00	0.00	43.70	38.51	63.10	10	58.10	See form	7.57	24.7	1,512	1.1	-124.8	121	Cloudy			
MW-55	6			x	69.34	NP	24.71	0.00	0.00	44.63	18.49	43.20	10	38.20	See form	12.57	25.2	2,360	2.5	-119.3	58.2	Sl. Cloudy			
MW-58	7			x	65.40	NP	16.76	0.00	0.00	48.64	20.90	37.66	10	32.66	See form	6.73	24.9	1,581	0.8	-225.6	7.9	Clear	MS/MSD		
MW-65	8			x	66.65	NP	22.17	0.00	0.00	44.48	45.83	68.00	10	63.00	See form	7.47	24.5	2,170	1.0	-158.9	87.4	Cloudy			

Notes: Semiannual monitoring (scheduled April & October)

NP = No product (LNAPL), NA = Not applicable, NS = Not sampled, NM = Not measured, NR = Not reported



# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-1

Event: 2418

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

Initials: JAC

## Well Inspection Information

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1015	NP	1305	0.00	0.00	38.15	33.15	NR	yes	yes	NO	yes		Weather: Clear, 70's

## Well Purging Record

\*needs lock

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1020	13.15	0.5	6.76	26.0	9,010	2.9	-144.6	22.7	1. Low-flow purge-sample with	clear
	1023	13.26	1.0	6.76	25.7	8,990	2.7	-132.6	20.3	A) Peristaltic pump with ded poly tubing	" "
	1025	13.33	1.5	6.75	25.6	8,970	2.6	-124.8	18.9	B) Ded. bladder pump w/ ded poly tubing	" "
	1028	13.39	2.0	6.74	25.5	8,950	2.6	-126.1	16.4	C) Nonded. bladder pump w/ poly tubing	" "
	1030	13.46	2.5	6.74	25.5	8,920	2.6	-119.8	14.8	or,	" "
	1033	13.52	3.0	6.73	25.5	8,900	2.6	-119.2	13.87	2. Recovery Well Sampling	" "
	1035	13.53	3.5	6.73	25.5	8,898	2.6	-119.0	12.6		" "
	1038	13.58	4.0	6.73	25.5	8,898	2.6	-118.8	11.9		" "
	1040	13.60	4.5	6.72	25.4	8,897	2.5	-118.7	11.1		" "
	1043	13.61	5.0	6.72	25.4	8,897	2.5	-118.7	10.5		" "
	1045	13.61	5.5	6.72	25.3	8,897	2.4	-118.7	9.1		" "
	1048	13.62	6.0	6.72	25.3	8,897	2.4	-118.6	9.2		" "

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1055	MW-1	13.62	6.72	25.3	8,897	2.4	-118.6	9.2	metals (custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										fluoride/chloride/sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

+ MS/MSD  
(for all parameters)

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-2  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: JAC

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1125	NA	10.85	0.00	0.00	32.64	27.64	NR	Yes	Yes	No	Yes		Weather: Clear, 70's

## Well Purging Record

\* needs lock

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1135	11.06	0.5	6.75	27.6	4,580	3.1	74.9	4.7	1. Low-flow purge-sample with	clear
	1138	11.24	1.0	6.72	27.5	4,540	2.7	77.3	3.4	A) Peristaltic pump with ded poly tubing	" "
	1140	11.33	1.5	6.70	27.3	4,500	2.6	78.7	2.7	B) Ded. bladder pump w/ ded poly tubing	" "
	1143	11.42	2.0	6.69	26.9	4,460	2.5	79.1	2.5	C) Nonded. bladder pump w/ poly tubing	" "
	1145	11.49	2.5	6.69	26.8	4,460	2.5	79.5	2.0	or,	" "
	1148	11.52	3.0	6.68	27.0	4,430	2.5	79.6	1.8	2. Recovery Well Sampling	" "
	1150	11.52	3.5	6.68	27.3	4,420	2.5	79.6	1.7		" "
	1153	11.53	4.0	6.68	27.4	4,420	2.4	79.6	1.7		" "

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1155	mw-2	11.53	6.68	27.4	4,420	2.4	79.6	1.7	metals (Custom list)	HNO <sub>3</sub>	+ MS/MSD
										Total P	H <sub>2</sub> SO <sub>4</sub>	+ MS/MSD
										Fluoride/Chloride/Sulfate/TDS	Neat	+ MS/MSD

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-3  
Event: 2H18

Completion: At-Grade  Upright  Vault   
Casing Diam: 2-in  4-in  Other   
Casing Material: PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: TAB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1000	NR	16.31	0.00	0.00	34.80	29.80	NR	yes	yes	yes	yes		Weather: Pt/cloudy 70°

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1005	16.53	0.5	6.42	25.1	10,140	1.6	-0.1	4.6	1. Low-flow purge-sample with	clear
	1007	16.70	1.0	6.54	25.1	10,130	1.4	-7.9	4.0	(A) Peristaltic pump with ded poly tubing	
	1010	16.83	1.5	6.57	25.1	10,130	1.2	-14.4	3.7	B) Ded. bladder pump w/ ded poly tubing	
	1013	16.98	2.0	6.64	25.2	10,140	1.0	-25.7	4.0	C) Nonded. bladder pump w/ poly tubing	
	1015	17.05	2.5	6.66	25.3	10,130	0.9	-24.7	4.4	or,	reduced purge
	1020	17.15	3.0	6.67	25.4	10,130	0.9	-25.7	2.6	2. Recovery Well Sampling	rate to 0.1 l/min
	1025	17.20	3.5	6.69	25.5	10,120	0.7	-28.1	2.9		
	1030	17.28	4.0	6.69	25.5	10,130	0.7	-30.8	2.9		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	10:35	MW-3	17.28	6.69	25.5	10,130	0.7	-30.8	2.9	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

+ Dup-01  
(for all parameters)

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-4  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: TAB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/19/18	1110	NA	9.77	0.00	0.00	22.97	17.97	NR	yes	yes	yes	yes		Weather: pt/cloudy, 80s

## Well Purging Record

\*cut lock

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/19/18	1115	9.90	0.5	7.39	26.5	5230	1.3	202.3	1.3	1. Low-flow purge-sample with	C/cut
	1117	9.93	1.0	7.35	26.1	4860	1.1	204.1	1.0	(A) Peristaltic pump with ded poly tubing	
	1120	9.97	1.5	7.33	26.0	4670	1.0	202.6	0.8	B) Ded. bladder pump w/ ded poly tubing	
	1123	10.02	2.0	7.30	25.9	4500	0.8	198.3	0.9	C) Nonded. bladder pump w/ poly tubing	
	1125	10.08	2.5	7.29	25.6	4410	0.8	194.3	0.6	or,	
	1127	10.09	3.0	7.29	25.6	4340	0.7	191.4	0.6	2. Recovery Well Sampling	
	1130	10.13	3.5	7.30	25.5	4320	0.8	188.6	0.8		
	1133	10.16	4.0	7.31	25.5	4320	0.8	189.3	0.7		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/19/18	1135	MW-4	10.16	7.31	25.3	4320	0.8	189.3	0.7	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	
	1200	Dup-01	10.16	7.31	25.3	4320	0.4	189.3	0.7	same	same	
										same	same	
										same	same	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-5  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: SCD

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1005	NP	10.07	0.0	0.0	28.70	23.70	NR	Yes	Yes	No	Yes		Weather: Clear 70's

## Well Purging Record

↳ cut lock

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1015	10.18	0.5	6.12	24.7	2170	3.8	-21.7	6.8	1. Low-flow purge-sample with	Clear
	1017	10.24	1.0	6.18	24.8	2230	3.1	-23.9	5.4	(A) Peristaltic pump with ded poly tubing	
	1020	10.27	1.5	6.26	24.8	2260	2.7	-26.1	4.9	B) Ded. bladder pump w/ ded poly tubing	
	1022	10.29	2.0	6.30	24.7	2290	2.5	-30.3	4.1	C) Nonded. bladder pump w/ poly tubing	
	1025	10.30	2.5	6.32	24.7	2300	2.4	-35.1	3.6	or,	
	1027	10.31	3.0	6.33	24.7	2310	2.4	-37.2	3.0	2. Recovery Well Sampling	
	1030	10.32	3.5	6.34	24.6	2310	2.3	-38.9	2.8		
	1032	10.33	4.0	6.35	24.6	2320	2.3	-40.0	2.1		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1035	MW-5	10.33	6.35	24.6	2320	2.3	-40.0	2.1	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-16  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: MJB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-24-18	1230	NP	2.50	0.00	0.00	53.05	48.05	NR	Yes	Yes	No lock	Yes		Weather: Clear 70's

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-24-18	1235	2.75	0.5	9.94	27.4	1292	3.2	-104.4	7200	1. Low-flow purge-sample with	Cloudy
	1237	2.92	1.0	11.03	26.2	1674	2.6	-168.4	2200	A) Peristaltic pump with ded poly tubing	
	1240	3.10	1.5	11.29	25.4	1864	2.2	-140.0	135	B) Ded. bladder pump w/ ded poly tubing	Reduced purge rate to 0.1 L/min
	1245	3.30	2.0	11.34	25.7	1929	1.9	-147.3	112	C) Nonded. bladder pump w/ poly tubing	
	1250	3.49	2.5	11.27	25.6	1813	1.9	-143.9	118	or,	
	1255	3.70	3.0	11.12	25.5	1570	1.8	-186.0	129	2. Recovery Well Sampling	
	1300	3.80	3.5	11.00	25.6	1442	1.7	-180.2	158		
	1305	3.94	4.0	10.45	25.2	1205	1.7	-157.1	136		
	1310	4.12	4.5	9.66	25.7	400	1.7	-126.1	116		
	1315	4.30	5.0	9.38	25.7	812	1.6	-120.2	81.6		5% Cloudy
	1320	4.43	5.5	9.12	25.7	763	1.6	-110.9	71.8		
	1325	4.56	6.0	9.04	25.8	748	1.6	-110.7	74.9		

## Well Sampling Record

(xPurge continued below)

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-24-18	1340	MW-16	4.85	9.06	25.8	737	1.6	-110.4	81.1	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
	1330		6.5	9.07	25.8	740	1.6	-109.6	79.6	Fluoride/Chloride/Sulfate/TDS	Neat	
	1335		7.0	9.06	25.8	737	1.6	-110.4	81.1			

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS



# Well Purging and Groundwater Sampling Record

NRG

WA Parish (State Program)  
Thompsons, Texas

Well: MW-17

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: CJH

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-29-18	1000	NA	14.58	0.0	0.0	65.15 (soft)	60-15	NR	yes	yes	NO Lock	yes		Weather: Clear, 70's

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-29-18	1015	14.67	0.5	7.57	24.5	1789	2.0	46.8	26.0	1. Low-flow purge-sample with	Clear
	1017	14.69	1.0	7.63	24.1	1787	1.5	42.0	14.5	(A) Peristaltic pump with ded poly tubing	
	1020	14.71	1.5	7.61	23.9	1776	1.4	5.4	9.7	B) Ded. bladder pump w/ ded poly tubing	
	1022	14.72	2.0	7.58	23.9	1767	1.3	-26.7	9.1	C) Nonded. bladder pump w/ poly tubing	
	1025	14.72	2.5	7.53	23.9	1759	1.3	-46.9	8.2	or,	
	1027	14.72	3.0	7.49	23.8	1750	1.3	-58.8	7.4	2. Recovery Well Sampling	
	1030	14.72	3.5	7.42	23.8	1739	1.2	-66.1	7.0		
	1032	14.72	4.0	7.38	23.7	1734	1.2	-69.2	6.5		
	1035	14.72	4.5	7.35	23.7	1731	1.2	-72.1	6.2		
	1037	14.72	5.0	7.33	23.7	1729	1.2	-74.6	5.9		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-29-18	1040	MW-17	14.72	7.33	23.7	1729	1.2	-74.6	5.9	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

+ MS/MSD  
(for all parameters)

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-18  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: RLR

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10.29.18	1200	NA	15.87	0.0	0.0	51.57	46.57	NR	yes	yes	NO	yes		Weather: Clear, 80s
											X No lock			

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10.29.18	1205	15.97	0.5	7.89	26.8	1450	2.5	-126.0	68.3	1. Low-flow purge-sample with	Sl. Cloudy w/
	1208	16.07	1.0	7.76	25.4	1474	1.9	-142.2	36.7	(A) Peristaltic pump with ded poly tubing	Small white particles
	1210	16.11	1.5	7.70	25.1	1470	1.7	-157.6	17.9	B) Ded. bladder pump w/ ded poly tubing	Clear
	1213	16.15	2.0	7.68	24.9	1467	1.7	-165.2	15.6	C) Nonded. bladder pump w/ poly tubing	
	1215	16.18	2.5	7.66	24.8	1466	1.6	-170.8	13.4	or,	↓
	1218	16.20	3.0	7.64	24.7	1465	1.5	-173.6	12.0	2. Recovery Well Sampling	
	1220	16.20	3.5	7.62	24.7	1465	1.5	-175.1	10.9		
↓	1223	16.21	4.0	7.61	24.7	1464	1.5	-176.7	9.5		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1225	MW-18	16.21	7.61	24.7	1464	1.5	-176.7	9.5	metals (Custom list)	HNO3	+ MS/MSD
										Total P	H2SO4	+ MS/MSD
										Fluoride/Chloride/Sulfate/TDS	Neat	+ MS/MSD

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-20  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials GDS

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/24/18	1100	NP	8.13	0.0	0.0	27.95	22.95	NR	Yes	Yes	NO	Yes		Weather: SUNNY, 70's (cut lock per TRC)

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/24/18	1105	8.20	0.5	7.68	23.3	4370	3.3	31.1	28.9	1. Low-flow purge-sample with	clear.
	1107	8.21	1.0	7.32	22.5	4380	2.6	53.9	11.9	A) Peristaltic pump with ded poly tubing	↓
	1110	8.21	1.5	7.10	22.0	4370	2.3	65.5	8.7	B) Ded. bladder pump w/ ded poly tubing	
	1113	8.21	2.0	6.97	21.9	4360	2.3	74.5	5.8	C) Nonded. bladder pump w/ poly tubing	
	1115	8.21	2.5	6.94	21.9	4350	2.3	76.2	3.2	or,	
	1117	8.21	3.0	6.91	21.7	4350	2.2	78.5	2.0	2. Recovery Well Sampling	
	1120	8.21	3.5	6.89	21.7	4330	2.2	79.3	1.6		
	1123	8.21	4.0	6.88	21.7	4320	2.2	80.0	1.9		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/24/18	1125	MW-20	8.21	6.88	21.7	4320	2.2	80.0	1.9	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-21  
Event: 2418

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: TAB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	12:40	N/A	4.91	0.00	0.00	29.20	20.20	NR	YES	YES	No	YES		Weather: pt / cloudy 80s

## Well Purging Record

\*cut lock

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	12:45	5.10	0.5	6.77	26.8	6570	1.2	-37.2	14.3	1. Low-flow purge-sample with	clear
	12:47	5.16	1.0	6.75	26.3	6690	1.0	-48.2	16.2	(A) Peristaltic pump with ded poly tubing	↓
	12:50	5.22	1.5	6.75	26.1	6690	0.9	-57.8	17.0	B) Ded. bladder pump w/ ded poly tubing	
	12:53	5.28	2.0	6.75	25.9	6720	0.9	-62.7	14.8	C) Nonded. bladder pump w/ poly tubing	
	12:55	5.35	2.5	6.75	26.1	6740	0.9	-72.2	12.9	or,	
	12:57	5.38	3.0	6.75	26.5	6730	0.9	-77.5	13.8	2. Recovery Well Sampling	
	13:00	5.40	3.5	6.76	26.7	6730	0.9	-80.4	14.0		
✓	13:03	5.43	4.0	6.76	26.7	6730	0.9	-82.9	13.9		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	13:05	MW-21	5.43	6.76	26.7	6730	0.9	-82.9	13.9	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

\* TRAVELING NE FROM MW-1, THIS WELL IS LOCATED BETWEEN 2ND AND 3RD TELEPHONE POLE; IN CUT OUT WORDS AREA.

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-22  
Event: 2418

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: *ADS*

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1215	NA	12.30	0.0	0.0	53.75	48.75	NR	Yes	Yes	NO (NO LOCK PRESENT)	Yes		Weather: SUNNY, 70'S

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1220	12.46	0.5	6.91	23.9	5840	3.8	-54.3	104.0	1. Low-flow purge-sample with	SL Cloudy
	1223	12.55	1.0	6.80	22.8	6060	2.4	-56.9	64.1	A) Peristaltic pump with ded poly tubing	↓
	1225	12.60	1.5	6.79	22.6	6100	2.3	-58.8	50.7	B) Ded. bladder pump w/ ded poly tubing	
	1227	12.65	2.0	6.78	22.4	6150	2.2	-58.5	44.8	C) Nonded. bladder pump w/ poly tubing	
	1230	12.69	2.5	6.77	22.2	6180	2.2	-61.0	41.0	or,	
	1233	12.71	3.0	6.77	22.2	6190	2.3	-63.6	41.3	2. Recovery Well Sampling	
	1235	12.72	3.5	6.76	22.2	6200	2.2	-64.3	42.0		
	1237	12.73	4.0	6.74	22.3	6210	2.2	-65.1	40.9		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1240	MW-22	12.73	6.74	22.3	6210	2.2	-65.1	40.9	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: **MW-25**  
Event: **2H18**

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: **BRH**

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1225	NA	8.56	0.0	0.0	36.64	31.64	NR	Yes	ISSUE	No lock	Yes		Weather: Sunny, 80s

↳ No protective casing lid present

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1235	9.36	0.5	7.31	24.6	8680	3.4	-150.7	49.1	1. Low-flow purge-sample with	clear w/ white
	1238	10.09	1.0	6.94	23.7	8620	2.3	-147.5	41.6	A) Peristaltic pump with ded poly tubing	particles
	1240	10.72	1.5	6.81	23.5	8580	1.7	-146.2	35.1	B) Ded. bladder pump w/ ded poly tubing	Reduced purge rate to 0.1 L/min
	1245	11.23	2.0	6.74	23.3	8540	1.4	-147.8	34.7	C) Nonded. bladder pump w/ poly tubing	
	1250	11.58	2.5	6.70	23.2	8530	1.2	-149.3	35.9	or,	
	1255	11.92	3.0	6.69	23.2	8530	1.2	-150.2	36.7	2. Recovery Well Sampling	
	1300	12.19	3.5	6.68	23.2	8540	1.2	-151.0	36.2		
	1305	12.42	4.0	6.67	23.3	8540	1.1	-150.7	35.8		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1310	MW-25	12.42	6.67	23.3	8540	1.1	-150.7	35.8	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS



# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-26S  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: BB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	950	NA	11.54	0.0	0.0	37.58	32.58	NR	Yes	Yes	No	Yes		Weather: Sunny 80°
														needs lock

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	955	12.49	0.5	6.84	25.1	7884	4.1	-133.7	28.4	1. Low-flow purge-sample with	Clear (fine blk)
	958	13.40	1.0	6.71	24.3	8812	3.2	-109.0	24.8	(A) Peristaltic pump with ded poly tubing	" (Particles)
	1000	13.92	1.5	6.69	24.0	8860	2.7	-96.4	23.6	B) Ded. bladder pump w/ ded poly tubing	" "
	1003	14.69	2.0	6.65	23.8	8871	2.5	-91.0	22.9	C) Nonded. bladder pump w/ poly tubing	" "
	1005	16.08	2.5	6.63	23.7	8789	2.6	-79.4	23.1	or,	" " (Red to 0.1)
	1010	16.56	3.0	6.61	23.6	8741	2.6	-76.8	23.4	2. Recovery Well Sampling	" " (LPM)
	1015	17.03	3.5	6.60	23.7	8736	2.7	-76.1	23.9		" "
	1020	17.49	4.0	6.59	23.6	8731	2.7	-75.7	24.2		" "

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1025	MW-26S	17.49	6.59	23.6	8,731	2.7	-75.7	24.2	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-26D  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: B B

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1045	NR	13.48	0.0	0.0	72.25	67.25	NR	YES	YES	NO	YES		Weather: Sunny 80° F
											↑			

## Well Purging Record

needs lock

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1050	13.50	0.5	7.21	24.0	2140	3.8	-94.5	9.4	1. Low-flow purge-sample with	Clear
	1053	13.50	1.0	7.12	24.0	2034	3.6	-102.6	6.8	A) Peristaltic pump with ded poly tubing	"
	1055	13.50	1.5	7.04	23.9	1992	3.6	-106.8	5.4	B) Ded. bladder pump w/ ded poly tubing	"
	1058	13.50	2.0	7.01	23.8	1950	3.5	-108.7	5.2	C) Nonded. bladder pump w/ poly tubing	"
	1100	13.50	2.5	6.99	23.8	1938	3.5	-109.6	5.0	or,	"
	1103	13.50	3.0	6.99	23.8	1932	3.5	-110.4	4.9	2. Recovery Well Sampling	"
	1105	13.50	3.5	6.98	23.7	1926	3.4	-110.4	4.8		"
	1108	13.50	4.0	6.97	23.7	1923	3.4	-111.3	4.7		"

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1110	MW-26D	13.50	6.97	23.7	1923	3.4	-111.3	4.7	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

In the middle of a wetlands area, ATV only; enter from N. side.

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-27  
Event: 2418

Completion Casing Diam Casing Material  
At-Grade  2-in  PVC   
Upright  4-in  SS   
Vault  Other  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: *BD*

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1200	NP	11.72	0.0	0.0	13.82	13.8 (Base)	NR	yes	yes	no	yes		Weather: Sunny 80's

## Well Purging Record

*(Fill bottles as needed; slow-recovery)*

*needs lock*

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity		
10/29/18	1205	12.22	0.5	6.92	28.1	3349	4.6	-194.8	39.5	1. Low-flow purge-sample with	clear / small white particles		
			1.0	<i>(Stopped purge due to draw-down and fill bottles + purged day + let well recover multiple times.)</i>						A) Peristaltic pump with ded poly tubing			
			1.5									B) Ded. bladder pump w/ ded poly tubing	
			2.0									C) Nonded. bladder pump w/ poly tubing	
			2.5									or,	
			3.0									2. Recovery Well Sampling	
			3.5										
			4.0										

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1210	MW-27	12.22	6.92	28.1	3349	4.6	-194.8	39.5	metals (Custom list)	HNO <sub>3</sub>	
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-285  
Event: 2418

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: BRH

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1020	NA	18.59	0.0	0.0	28.50	23.50	NR	Yes	Yes	Lock cut	Yes		Weather: Sunny, 70s

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1030	19.30	0.5	6.81	22.6	2480	4.2	-21.2	8.2	1. Low-flow purge-sample with	clear
	1033	19.72	1.0	6.74	22.4	2470	3.0	-66.7	7.1	A) Peristaltic pump with ded poly tubing	↓ Reduced purge rate to 0.1L/min ↓
	1035	19.96	1.5	6.69	22.4	2440	2.8	-82.5	5.6	B) Ded. bladder pump w/ ded poly tubing	
	1038	20.20	2.0	6.65	22.4	2410	2.6	-81.3	6.4	C) Nonded. bladder pump w/ poly tubing	
	1040	20.41	2.5	6.58	22.5	2370	2.4	-73.8	7.2	or,	
	1045	20.61	3.0	6.54	22.6	2360	2.2	-68.5	8.6	2. Recovery Well Sampling	
	1050	20.81	3.5	6.51	22.7	2340	2.1	-66.7	7.9		
	1055	21.01	4.0	6.50	22.8	2330	2.1	-70.2	7.4		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1100	MW-285	21.01	6.50	22.8	2330	2.1	-70.2	7.4	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-28D  
Event: 2418

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: BRH

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1120	NA	19.05	0.0	0.0	70.05	65.05	10	Yes	Yes	No Lock	Yes		Weather: Sunny, 70s

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1125	19.11	0.5	7.08	24.4	1224	3.8	-139.5	12.9	1. Low-flow purge-sample with	clear
	1128	19.11	1.0	7.06	23.8	1191	3.0	-145.7	11.3	A) Peristaltic pump with ded poly tubing	↓
	1130	19.11	1.5	7.02	23.4	1156	2.4	-154.7	10.4	B) Ded. bladder pump w/ ded poly tubing	
	1133	19.11	2.0	7.02	23.0	1121	2.0	-162.4	9.8	C) Nonded. bladder pump w/ poly tubing	
	1135	19.11	2.5	6.99	22.9	1087	1.7	-167.6	9.5	or,	
	1138	19.11	3.0	6.97	22.8	1059	1.5	-171.4	9.3	2. Recovery Well Sampling	
	1140	19.11	3.5	6.96	22.8	1049	1.4	-173.0	8.9		
	1143	19.11	4.0	6.95	22.8	1042	1.4	-174.9	9.1		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1145	MW-28D	19.11	6.95	22.8	1042	1.4	-174.9	9.1	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

+ FB-01  
(For all parameters)

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-29  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: SCD

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1105	NP	9.04	0.0	0.0	37.66	32.66	NR	Yes	Yes	NO	Yes		Weather: Clear 70's

## Well Purging Record

↳ cut lock

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1115	9.66	0.5	6.90	24.9	3120	4.1	-33.2	8.4	1. Low-flow purge-sample with	Clear  ↓ ↓ ↓ ↓ ↓ ↓ ↓
	1117	10.05	1.0	6.77	24.6	3110	3.5	-38.9	7.5	(A) Peristaltic pump with ded poly tubing	
	1120	10.34	1.5	6.70	24.6	3100	3.2	-46.4	6.9	B) Ded. bladder pump w/ ded poly tubing	
	1122	10.69	2.0	6.62	24.5	3100	3.0	-57.1	6.7	C) Nonded. bladder pump w/ poly tubing	
	1127	11.09	2.5	6.57	24.4	3090	2.9	-70.5	6.3	or,	
	1132	11.34	3.0	6.53	24.4	3090	2.9	-87.2	6.1	2. Recovery Well Sampling	
	1137	11.64	3.5	6.51	24.5	3090	2.8	-93.5	5.9		
	1142	11.86	4.0	6.49	24.5	3100	2.8	-95.1	5.5		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments	
10/29/18	1145	MW-29	11.86	6.49	24.5	3100	2.8	-95.1	5.5	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston	
										Total P	H <sub>2</sub> SO <sub>4</sub>		
										Fluoride/Chloride/Sulfate/TDS	Neat		
	1210	FB-01	NA	—————→							Same Same Same	Same Same Same	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS



# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-30S

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: RLR

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	105a	NA	15.75	0.0	0.0	31.11	26.11	NR	Yes	Yes	NO	Yes		Weather: Clear; 70s
						Soft bottom					*No lock			

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1055	16.45	0.5	7.19	26.1	578	2.2	-136.2	116.0	1. Low-flow purge-sample with	Cloudy w/ white particles
	1058	17.03	1.0	7.05	25.2	427	1.6	-138.4	93.7	(A) Peristaltic pump with ded poly tubing	
	1100	17.45	1.5	6.97	25.0	368	1.4	-137.0	89.9	B) Ded. bladder pump w/ ded poly tubing	Purge rate reduced to 0.1 L/min
	1105	18.25	2.0	6.89	25.1	339	1.2	-137.1	68.5	C) Nonded. bladder pump w/ poly tubing	
	1110	18.62	2.5	6.87	25.2	331	1.1	-136.5	59.6	or,	↓ ↓
	1115	18.88	3.0	6.84	25.4	328	1.1	-135.8	55.1	2. Recovery Well Sampling	
	1120	19.07	3.5	6.83	25.4	325	1.2	-134.9	56.2		
	1125	19.14	4.0	6.82	25.4	323	1.2	-134.6	56.0		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1130	MW-30S	19.14	6.82	25.4	323	1.2	-134.6	56.0	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-30D  
Event: 2418

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: PLL

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1010	NA	15.17	0.0	0.0	45.07	40.07	NR	YES	YES	NO *No lock	YES		Weather: Clear; 70s

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1015	15.60	0.5	6.62	23.8	1214	2.7	-136.8	49.1	1. Low-flow purge-sample with	Slightly cloudy w/
	1018	15.68	1.0	6.77	23.7	1288	2.1	-142.6	48.3	(A) Peristaltic pump with ded poly tubing	white particles
	1020	15.70	1.5	6.84	23.8	1320	1.7	-148.1	46.7	B) Ded. bladder pump w/ ded poly tubing	↓
	1023	15.70	2.0	6.87	23.9	1334	1.4	-155.6	40.7	C) Nonded. bladder pump w/ poly tubing	
	1025	15.70	2.5	6.89	24.0	1340	1.2	-161.7	32.1	or,	
	1028	15.70	3.0	6.91	24.0	1345	1.1	-163.2	27.7	2. Recovery Well Sampling	
	1030	15.70	3.5	6.92	24.0	1348	1.1	-164.8	27.1		
	1033	15.70	4.0	6.93	24.0	1351	1.0	-165.3	28.2		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1035	MW-30D	15.70	6.93	24.0	1351	1.0	-165.3	28.2	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-31  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: CJH

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-29-18	1105	NA	17.13	0.0	0.0	38.22	33.22	NR	yes	yes	Hand cut lock	yes		Weather: Clear, 70's

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-29-18	1115	17.83	0.5	6.74	25.4	3910	1.9	48.1	9.4	1. Low-flow purge-sample with	Clear
	1117	18.28	1.0	6.70	24.6	4120	1.6	42.1	11.6	A) Peristaltic pump with ded poly tubing	
	1120	18.70	1.5	6.69	24.3	4230	1.5	38.0	11.1	B) Ded. bladder pump w/ ded poly tubing	
	1125	19.00	2.0	6.68	24.4	4260	1.5	34.0	10.3	C) Nonded. bladder pump w/ poly tubing	Red. purge rate to 0.1 L/min.
	1130	19.17	2.5	6.68	24.5	4280	1.5	32.1	9.7	or,	
	1135	19.36	3.0	6.68	24.5	4280	1.5	30.9	9.4	2. Recovery Well Sampling	
	1140	19.51	3.5	6.67	24.4	4270	1.5	29.5	8.7		
	1145	19.66	4.0	6.67	24.4	4270	1.5	28.6	8.2		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-29-18	1150	MW-31	19.66	6.67	24.4	4270	1.5	28.6	8.2	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

+ Dup - 02  
(for all parameters)

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-32  
Event: 2418

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

✓ located in Boral Resources  
asphalt parking lot.

Initials: CWS

## Well Inspection Information

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1000	NA	20.74	0.0	0.0	42.35	43.35	NR	Yes	Yes	No	Yes		Weather: Sunny, 60's (No locks present)

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1005	20.84	0.5	11.61	22.6	4150	4.6	-56.6	31.9	1) Low-flow purge-sample with	clear
	1007	20.86	1.0	11.62	22.7	4140	3.7	-74.3	33.1	A) Peristaltic pump with ded poly tubing	↓
	1010	20.87	1.5	11.58	22.5	4150	3.0	-85.3	59.3	B) Ded. bladder pump w/ ded poly tubing	sl. cloudy
	1013	20.87	2.0	11.44	22.5	4090	2.8	-89.1	84.7	C) Nonded. bladder pump w/ poly tubing	↓
	1015	20.87	2.5	11.33	22.6	4060	2.8	-89.0	72.7	or,	
	1017	20.87	3.0	11.27	22.6	4010	2.8	-89.1	80.7	2. Recovery Well Sampling	
	1020	20.87	3.5	11.27	22.5	4010	2.9	-89.7	82.0		
	1023	20.87	4.0	11.29	22.4	3980	2.8	-90.9	79.6		
✓	1025	20.87	4.5	11.29	22.4	3960	2.8	-91.8	77.7		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1030	MW-32	20.87	11.29	22.4	3960	2.8	-91.8	77.7	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	
✓	800	Dvp-02	20.87	11.29	22.4	3960	2.8	-91.8	77.7	Same	Same	
										Same	Same	
										Same	Same	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-33  
Event: 2418

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: *WJ*

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-29-12	1125	NP	13.20	0.00	0.00	50.23	45.23	NR	Yes	Yes	No	Yes		Weather: Clear 70°
											Lock			

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-29-12	1135	13.20	0.5	7.71	25.6	4550	3.1	-147.3	36.6	1. Low-flow purge-sample with	Clear
	1137	13.30	1.0	7.62	25.0	4500	3.0	-156.2	31.3	(A) Peristaltic pump with ded poly tubing	
	1140	13.32	1.5	7.56	24.5	4490	2.7	-163.4	26.8	B) Ded. bladder pump w/ ded poly tubing	
	1142	13.33	2.0	7.53	24.3	4430	2.2	-167.2	24.7	C) Nonded. bladder pump w/ poly tubing	
	1145	13.35	2.5	7.51	24.3	4320	1.8	-171.0	24.3	or,	
	1147	13.35	3.0	7.51	24.4	4260	1.7	-165.6	23.8	2. Recovery Well Sampling	
	1150	13.36	3.5	7.50	24.3	4240	1.6	-160.8	21.7		
	1152	13.36	4.0	7.50	24.3	4220	1.6	-157.3	20.6		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-29-12	1155	MW-33	13.36	7.50	24.3	4220	1.6	-157.3	20.6	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (State Program)  
Thompsons, Texas

Well: MW-34  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: MVB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-29-18	1020	NP	10.53	0.00	0.00	13.95	12.95	NR	Yes	Yes	No Lock	Yes		Weather: Sunny (60°)

## Well Purging Record

\* Sett TD, tried multiple times to get deeper  
But unsuccessful

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-29-18	1035	11.47	0.5	7.27	24.6	5270	4.2	-279.0	35.1	1. Low-flow purge-sample with	Clear Purge at 8.1 Ym
	1040	12.00	1.0	7.27	24.4	5220	3.9	-290.7	30.5	(A) Peristaltic pump with ded poly tubing	Due to limited
	1045	12.48	1.5	7.30	24.4	5180	3.4	-294.3	26.2	B) Ded. bladder pump w/ ded poly tubing	water column
			2.0							C) Nonded. bladder pump w/ poly tubing	
			2.5							or,	
			3.0							2. Recovery Well Sampling	
			3.5								
			4.0								

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-29-18	1050	MW-34	12.48	7.30	24.4	5180	3.4	-294.3	26.2	metals (Custom list)	HNO <sub>3</sub>	Lab: Test America-Houston
										Total P	H <sub>2</sub> SO <sub>4</sub>	
										Fluoride/Chloride/Sulfate/TDS	Neat	

Custom metals: Alum, Antimony, Arsenic, Barium, Boron, Calcium, Chromium, Cobalt, Copper, Fe, Mg, Mn, Nickel, Selenium, Silver, Sodium, Strontium, Vanadium, Zinc, & Total Phosphorus, Fluoride, Sulfate, Chloride, TDS





### Chain of Custody Record

<b>Client Information</b>		Sampler: Brian Hillman + HMT team Phone: 713-653-3127		Lab PM: Tigrett, C. Lance E-Mail: lance.tigrett@testamericainc.com		Carrier Tracking No(s):		COC No: 600-59038-16903.1 Page: 1 of 3									
Company: TRC Solutions, Inc. Address: 10550 Richmond Avenue Suite 210 City: Houston State, Zip: TX, 77042 Phone: 713-244-1000(Tel) Email: AClayton@trcsolutions.com Project Name: NRG-W. A. Parish/State Program Site:				Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 60007663 SSOW#:				<b>Analysis Requested</b>									
<b>Sample Identification</b>		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes/No)	Paper/MS/MSD (Yes/No)	6020 - (MOD) Custom Metals List	4500_P_E - Phosphorus as P	2640C_Calcd (TDS)	300_ORGFM_28D (Fluoride/Chloride/Sulfate)	0 = MS/MSD volume provided	Total Number of containers	Job #:			
				Preservation Code		X	X	D	S	N	N			Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)			
														Special Instructions/Note:			
MW-1		10/29/18	1055	G	Water	N	N	X	X	X	X		3				
MW-2			1155		Water	Y	X	X	X	X			9				
MW-3			1035		Water	N	X	X	X	X			3				
MW-4			1135		Water		X	X	X	X			1				
MW-5			1035		Water		X	X	X	X			1				
MW-16			1340		Water		X	X	X	X			1				
MW-17			1040		Water		X	X	X	X			1				
MW-18			1225		Water	Y	X	X	X	X			9				
MW-20			1125		Water	N	X	X	X	X			3				
MW-21			1305		Water		X	X	X	X			1				
MW-22			1240		Water		X	X	X	X			1				
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month )</b> <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months											
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:											
Empty Kit Relinquished by:			Date:			Time:			Method of Shipment: <i>WIP OFF 2 HR</i>								
Relinquished by: <i>Cameron Hater</i>			Date/Time: <i>10-30-18 851</i>			Company: <i>HMT</i>			Received by: <i>[Signature]</i>			Date/Time: <i>10/30/18 005</i>			Company: <i>TAA</i>		
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:		
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks:											



### Chain of Custody Record

<b>Client Information</b>	Sampler: Brian Hallen + NMT team	Lab PM: Tigrett, C. Lance	Carrier Tracking No(s):	COC No: 600-59038-16903.1
Client Contact: Andrew Clayton	Phone: 713-653-3127	E-Mail: lance.tigrett@testamericainc.com		Page: 3 of 3

Company: TRC Solutions, Inc. Address: 10550 Richmond Avenue Suite 210 City: Houston State, Zip: TX, 77042 Phone: 713-244-1000(Tel) Email: AClayton@trcsolutions.com Project Name: NRG-W. A. Parish/State Program Site:	<b>Analysis Requested</b> Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 60007663 SSOW#:
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- Preservation Codes:**
- |                   |                       |
|-------------------|-----------------------|
| A - HCL           | M - Hexane            |
| B - NaOH          | N - None              |
| C - Zn Acetate    | O - AsNaO2            |
| D - Nitric Acid   | P - Na2O4S            |
| E - NaHSO4        | Q - Na2SO3            |
| F - MeOH          | R - Na2S2O3           |
| G - Amchlor       | S - H2SO4             |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice           | U - Acetone           |
| J - DI Water      | V - MCAA              |
| K - EDTA          | W - pH 4-5            |
| L - EDA           | Z - other (specify)   |
- Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8020 - (MOD) Custom Metals List				Total Number of Containers	Special Instructions/Note:
							D	S	N	N		
MW-33	10/29/18	1155	G	Water	N	N	X	X	X	X		
MW-34	↓	1050	↓	Water	↓	↓	X	X	X	X		
FB-01	↓	1210	↓	Water	↓	↓	X	X	X	X		
Dup-01	↓	1200	↓	Water	↓	↓	X	X	X	X		
Dup-02	↓	800	↓	Water	↓	↓	X	X	X	X		
				Water			X	X	X	X		
				Water			X	X	X	X		
				Water			X	X	X	X		
				Water			X	X	X	X		
				Water			X	X	X	X		

<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Cameron Haber	Date/Time: 10-30-18 851	Company: HMI	Received by: [Signature]
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
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# Well Purging and Groundwater Sampling Record

+ Dup-01  
(No pH)

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-36

Event: 2H18

Completion Casing Diam Casing Material  
At-Grade  2-in  PVC   
Upright  4-in  SS   
Vault  Other  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: SCD

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1420	NP	7.51	0.00	0.00	43.23	38.23	10	Yes	Yes	NO	Yes		Weather: Partly Cloudy 80's
											No lock			

## Well Purging Record

\* Per TRL, Additional volume removed from well prior to low-flow purge and sample pumped @ 0.5 L/min for 15 min; ~20 gal removed. Allowed well to recharge before sampling

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1440	7.98	0.5	6.79	28.4	1685	3.9	18.9	4.6	1. Low-flow purge-sample with	Clear
	1442	8.07	1.0	6.76	28.2	1687	3.5	39.3	3.8	A) Peristaltic pump with ded poly tubing	
	1445	8.10	1.5	6.75	28.1	1688	3.3	42.3	3.1	B) Ded. bladder pump w/ ded poly tubing	
	1447	8.12	2.0	6.73	28.1	1688	3.2	43.9	2.8	C) Nonded. bladder pump w/ poly tubing	
	1450	8.14	2.5	6.72	28.0	1689	3.2	44.3	2.5	or,	
	1452	8.15	3.0	6.71	28.0	1689	3.1	44.6	2.3	2. Recovery Well Sampling	
	1455	8.16	3.5	6.71	28.0	1690	3.1	44.8	2.0		
	1457	8.16	4.0	6.70	28.0	1690	3.1	45.0	1.9		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1500	mw-36	8.16	6.70	28.0	1690	3.1	45.0	1.9	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		
	1300	Dup-01	8.16	6.70	28.0	1690	3.1	45.0	1.9	Same	Same	
										Same	Same	

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-60

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: SCO

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1525	NP	6.31	0.00	0.00	37.55	32.55	10	Yes	Yes	NO	Yes		Weather: Partly Cloudy 80's

## Well Purging Record

Per TRC, Additional volume removed from well prior to low-flow purge and sample. Pumped @ 0.5 L/min for 15 min; ≈ 2.0 gal removed. Allowed well to recharge before sampling

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1545	6.50	0.5	6.43	27.7	1659	4.7	91.5	11.0	1. Low-flow purge-sample with	Clear
	1547	6.54	1.0	6.42	27.5	1659	4.0	103.8	9.4	(A) Peristaltic pump with ded poly tubing	
	1550	6.58	1.5	6.41	27.4	1660	3.8	105.9	8.7	B) Ded. bladder pump w/ ded poly tubing	
	1552	6.60	2.0	6.40	27.4	1661	3.6	109.3	8.3	C) Nonded. bladder pump w/ poly tubing	
	1555	6.62	2.5	6.40	27.4	1661	3.5	110.9	7.9	or,	
	1557	6.63	3.0	6.39	27.3	1662	3.5	111.4	7.7	2. Recovery Well Sampling	
	1600	6.63	3.5	6.39	27.3	1662	3.5	111.9	7.5		
	1602	6.64	4.0	6.39	27.3	1662	3.4	112.3	7.4		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1605	MW-60	6.64	6.39	27.3	1662	3.4	112.3	7.4	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		



# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-37

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

Initials: *ADS*

## Well Inspection Information

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1615	NP	11.30	0.00	0.00	43.51	38.51	10	Yes	Yes	Yes	Yes		Weather: Sunny, 80's

## Well Purging Record

PER TRC, ADDITIONAL VOLUME REMOVED FROM WELL PRIOR TO LOW-FLOW PURGE AND SAMPLE. PUMPED @ 0.5 L/min FOR 15 MIN; ~ 2.0 gal removed; Allowed well to recharge

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1635	11.30	0.5	6.76	22.2	2150	3.9	12.1	102	1. Low-flow purge-sample with	sl. cloudy
	1637	11.30	1.0	6.76	22.8	2150	2.8	12.2	76.9	A) Peristaltic pump with ded poly tubing	↓
	1640	11.30	1.5	6.77	23.0	2150	2.2	12.6	60.4	B) Ded. bladder pump w/ ded poly tubing	
	1643	11.30	2.0	6.78	23.2	2150	2.1	13.0	56.8	C) Nonded. bladder pump w/ poly tubing	↓
	1645	11.30	2.5	6.78	23.3	2150	2.1	13.3	47.6	or,	
	1647	11.30	3.0	6.78	23.3	2150	2.1	13.6	41.6	2. Recovery Well Sampling	↓
	1650	11.30	3.5	6.78	23.2	2150	2.2	13.5	39.3		
	1653	11.30	4.0	6.79	23.2	2150	2.1	13.1	38.1		
	1655	11.30	4.5	6.78	23.1	2150	2.1	12.5	37.2		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1700	MW-37	11.30	6.78	23.1	2150	2.1	12.5	37.2	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-38

Event: 2H18

Completion Casing Diam Casing Material  
At-Grade  2-in  PVC   
Upright  4-in  SS   
Vault  Other  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: GDS

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1520	NA	10.95	0.00	0.00	46.03	41.03	10	Yes	Yes	Yes	Yes		Weather: Sunny, 80's

## Well Purging Record

\* PER TRC, ADDITIONAL volume removed from well prior to low-flow purge and sample. Pumped @ 0.5 L/min for 15 min; ~2.0 gal removed; Allowed well to recharge.

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1540	11.02	0.5	7.10	22.8	2610	2.2	-51.0	133	1. Low-flow purge-sample with	cloudy
	1543	11.14	1.0	7.10	23.1	2630	2.4	-49.1	88.4	A) Peristaltic pump with ded poly tubing	Si. cloudy
	1545	11.16	1.5	7.10	23.3	2620	2.2	-48.1	51.5	B) Ded. bladder pump w/ ded poly tubing	
	1547	11.16	2.0	7.08	23.5	2610	2.0	-40.5	37.7	C) Nonded. bladder pump w/ poly tubing	↓
	1550	11.16	2.5	7.07	23.6	2610	2.1	-37.7	32.2	or,	clear
	1553	11.16	3.0	7.06	23.6	2620	2.0	-35.4	30.8	2. Recovery Well Sampling	
	1555	11.16	3.5	7.05	23.6	2620	2.0	-34.1	29.7		
	1557	11.16	4.0	7.04	23.7	2620	2.0	-32.8	28.1		↓

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1600	MW-38	11.16	7.04	23.7	2620	2.0	-32.8	28.1	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

+ FB-01  
(no pH)

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-61

Event: 2H18

Completion Casing Diam Casing Material  
At-Grade  2-in  PVC   
Upright  4-in  SS   
Vault  Other  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: *GD*

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1415	NA	11.37	0.00	0.00	43.20	38.20	10	Yes	Yes	No	Yes		Weather: Sunny, 80's (No lock present)

## Well Purging Record

\* PER TRC, ADDITIONAL VOLUME REMOVED FROM WELL PRIOR TO LOW-FLOW PURGE AND SAMPLE. PUMPED @ 0.5 L/MIN FOR 15 MIN; ~ 2.0 GAL REMOVED; ALLOWED WELL TO RECHARGE

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1435	11.41	0.5	6.88	22.6	2330	2.5	-13.1	73.7	1. Low-flow purge-sample with	SI-Cloudy
	1437	11.41	1.0	6.87	23.3	2320	2.0	-10.5	52.4	A) Peristaltic pump with ded poly tubing	↓ Clear
	1440	11.41	1.5	6.90	23.8	2320	2.2	-6.5	41.5	B) Ded. bladder pump w/ ded poly tubing	
	1443	11.41	2.0	6.90	24.1	2320	2.1	-3.5	36.4	C) Nonded. bladder pump w/ poly tubing	
	1445	11.41	2.5	6.90	24.3	2310	2.2	-1.7	29.7	or,	
	1447	11.41	3.0	6.91	24.3	2320	2.3	0.1	29.2	2. Recovery Well Sampling	
	1450	11.41	3.5	6.90	24.3	2310	2.3	1.3	28.0		
	1453	11.41	4.0	6.91	24.2	2310	2.3	3.3	26.4		
	1455	11.41	4.5	6.91	24.2	2310	2.3	5.1	27.2		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1500	MW-61	11.41	6.91	24.2	2310	2.3	5.1	27.2	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		
	1510	FB-01	NA							Same	Same	
										Same	Same	



# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-40

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: CJH

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-29-18	1455	NEP	8.87	0.00	0.00	37.80	32.80	10	yes	yes	yes	yes		Weather: Partly cloudy, 80's

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-29-18	1500	9.02	0.5	6.69	26.6	2490	1.7	-13.4	18.8	1. Low-flow purge-sample with	clear ↓
	1502	9.02	1.0	6.59	26.2	2580	1.3	-14.9	17.0	A) Peristaltic pump with ded poly tubing	
	1505	9.02	1.5	6.55	25.9	2620	1.3	-16.2	15.2	B) Ded. bladder pump w/ ded poly tubing	
	1507	9.02	2.0	6.55	25.9	2630	1.3	-16.0	13.6	C) Nonded. bladder pump w/ poly tubing	
	1510	9.02	2.5	6.55	25.7	2630	1.3	-15.1	10.9	or,	
	1512	9.02	3.0	6.54	25.6	2640	1.2	-14.6	9.1	2. Recovery Well Sampling	
	1515	9.02	3.5	6.54	25.6	2640	1.2	-14.2	8.9		
	1517	9.02	4.0	6.54	25.7	2640	1.2	-13.8	8.6		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-29-18	1520	MW-40	9.02	6.54	25.7	2640	1.2	-13.8	8.6	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-62  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: CJH

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-29-18	1540	NP	10.34	0.00	0.00	42.96	37.96	10	Yes	Yes	4 in Cut Lock	Yes		Weather: Partly Cloudy, 80s

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-29-18	1545	10.52	0.5	6.95	26.6	2050	2.2	71.4	11.6	1. Low-flow purge-sample with	Clear
	1547	10.56	1.0	6.77	26.0	2180	2.0	79.2	10.2	(A) Peristaltic pump with ded poly tubing	
	1550	10.58	1.5	6.73	25.7	2230	2.0	84.1	9.5	B) Ded. bladder pump w/ ded poly tubing	
	1552	10.58	2.0	6.72	25.6	2240	2.1	86.0	8.8	C) Nonded. bladder pump w/ poly tubing	
	1555	10.58	2.5	6.71	25.6	2240	2.1	88.5	8.4	or,	
	1557	10.58	3.0	6.71	25.5	2250	2.1	89.7	7.9	2. Recovery Well Sampling	
	1600	10.58	3.5	6.70	25.5	2250	2.0	90.4	7.5		
	1602	10.58	4.0	6.70	25.4	2250	2.0	91.6	6.7		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-29-18	1605	MW-62	10.58	6.70	25.4	2250	2.0	91.6	6.7	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		





# Well Purging and Groundwater Sampling Record

+ MS/MSD  
(No pH)

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-63

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: JAC

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1535	NP	8.71	0.00	0.00	36.11	31.11	10	yes	yes	yes	yes		Weather: Clear, 70's

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1545	8.86	0.5	6.74	26.3	1723	2.8	99.3	23.7	1. Low-flow purge-sample with	Clear
	1548	8.91	1.0	6.69	26.5	1736	2.6	121.8	21.2	A) Peristaltic pump with ded poly tubing	" "
	1550	8.91	1.5	6.67	26.5	1751	2.6	132.4	19.5	B) Ded. bladder pump w/ ded poly tubing	" "
	1553	8.91	2.0	6.64	26.7	1752	2.6	132.5	15.4	C) Nonded. bladder pump w/ poly tubing	" "
	1555	8.93	2.5	6.63	26.8	1756	2.6	135.9	11.3	or,	" "
	1558	8.94	3.0	6.63	26.9	1760	2.6	140.2	10.1	2. Recovery Well Sampling	" "
	1600	8.94	3.5	6.63	27.0	1762	2.6	141.6	9.8		" "
	1603	8.95	4.0	6.63	27.0	1762	2.6	141.9	8.9		" "

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1605	MW-63	8.95	6.63	27.0	1762	2.6	141.9	8.9	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston + MS/MSD
										Fluoride/Chloride/Sulfate and TDS	Neat	+ MS/MSD
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-64

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: CJH

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-29-18	1415	NP	8.01	0.00	0.00	40.44	35.44	10	yes	yes	yes	yes		Weather: Partly Cloudy 80's

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-29-18	1420	8.12	0.5	6.90	27.1	2160	1.3	-17.5	23.7	1. Low-flow purge-sample with	Clear ↓
	1422	8.12	1.0	6.74	26.7	2120	1.2	-16.1	12.1	(A) Peristaltic pump with ded poly tubing	
	1425	8.12	1.5	6.65	25.9	2100	1.2	-13.9	10.2	B) Ded. bladder pump w/ ded poly tubing	
	1427	8.12	2.0	6.64	25.9	2090	1.2	-13.7	9.3	C) Nonded. bladder pump w/ poly tubing	
	1430	8.12	2.5	6.62	25.9	2090	1.2	-13.4	9.0	or,	
	1432	8.12	3.0	6.61	25.9	2080	1.2	-12.8	8.4	2. Recovery Well Sampling	
	1435	8.12	3.5	6.61	25.8	2070	1.2	-12.1	7.6		
	1437	8.12	4.0	6.60	25.8	2070	1.2	-11.6	7.4		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-29-18	1440	MW-64	8.12	6.60	25.8	2070	1.2	-11.6	7.4	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-23

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: BRH

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1530	NP	14.31	0.00	0.00	50.22	45.22	10	Yes	Yes	Yes	Yes		Weather: Sunny, 80s

## Well Purging Record

\*pH confirmed

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1540	14.56	0.5	11.32	25.8	3360	6.5	-144.7	121.0	1. Low-flow purge-sample with	Sl. cloudy, white
	1543	14.67	1.0	11.49	25.4	3320	5.8	-144.4	104.0	(A) Peristaltic pump with ded poly tubing	particles
	1545	14.79	1.5	11.56	24.5	3310	5.4	-142.1	81.0	B) Ded. bladder pump w/ ded poly tubing	
	1548	14.87	2.0	11.58	23.9	3310	5.4	-139.4	66.0	C) Nonded. bladder pump w/ poly tubing	
	1550	14.94	2.5	11.60	23.7	3390	5.5	-135.4	53.0	or,	
	1555	15.02	3.0	11.63	23.6	3440	5.6	-133.5	49.1	2. Recovery Well Sampling	↓ (Reduced purge rate to 0.1 L/min)
	1600	15.07	3.5	11.63	23.6	3460	5.5	-131.9	46.2		clear w/white
	1605	15.11	4.0	11.62	23.6	3470	5.6	-129.7	42.0		particles
	1610	15.15	4.5	11.61	23.7	3460	5.7	-128.1	40.8		↓

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1615	MW-23	15.15	11.61	23.7	3460	5.7	-128.1	40.8	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# This Well overlaps in CCR Program and STATE program.

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR) / STATE  
Thompsons, Texas

Well: MW-28D

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: BRH

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1120	NP	19.05	0.00	0.00	70.05	65.05	10	Yes	Yes	Yes	Yes		Weather: Sunny, 80s

Logbook added

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1405	19.11	0.5	7.42	25.4	1840	4.4	-153.0	14.6	1. Low-flow purge-sample with	clear
	1408	19.11	1.0	7.26	24.6	1607	3.2	-161.2	10.1	(A) Peristaltic pump with ded poly tubing	↓
	1410	19.11	1.5	7.15	24.0	1364	2.0	-170.4	9.6	B) Ded. bladder pump w/ ded poly tubing	
	1413	19.11	2.0	7.10	23.7	1282	1.8	-172.1	9.3	C) Nonded. bladder pump w/ poly tubing	
	1415	19.11	2.5	7.05	23.6	1187	1.7	-173.8	8.7	or,	
	1418	19.11	3.0	7.02	23.5	1151	1.6	-174.7	8.3	2. Recovery Well Sampling	
	1420	19.11	3.5	6.99	23.4	1144	1.5	-173.4	8.4		
↓	1423	19.11	4.0	6.98	23.4	1138	1.5	-172.9	8.6		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1425	MW-28D	19.11	6.98	23.4	1138	1.5	-172.9	8.6	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-42

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: BRH

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1445	NP	14.63	0.00	0.00	47.99	42.99	10	Yes	Yes	Yes	Yes		Weather: Sunny, 80s

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1455	14.79	0.5	7.29	25.8	1935	3.7	-135.2	52.0	1. Low-flow purge-sample with	St. cloudy ↓
	1458	14.79	1.0	7.13	25.2	1916	2.6	-129.9	64.0	(A) Peristaltic pump with ded poly tubing	
	1500	14.79	1.5	7.05	24.5	1912	2.0	-128.5	81.0	B) Ded. bladder pump w/ ded poly tubing	
	1503	14.79	2.0	6.99	24.1	1897	1.7	-130.7	75.0	C) Nonded. bladder pump w/ poly tubing	
	1505	14.79	2.5	6.98	23.7	1920	1.3	-135.4	76.0	or,	
	1508	14.79	3.0	6.96	23.6	1917	1.1	-138.1	80.0	2. Recovery Well Sampling	
	1510	14.79	3.5	6.94	23.5	1914	1.0	-140.8	77.0		
	1513	14.79	4.0	6.93	23.5	1912	1.0	-143.2	78.0		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1515	MW-42	14.79	6.93	23.5	1912	1.0	-143.2	78.0	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		



# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-43

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: BB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1605	NP	16.63	0.00	0.00	42.62	37.62	10	YES	YES	YES	YES		Weather Sunny 80's

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1610	16.95	0.5	7.32	25.8	1857	4.9	-98.4	33.6	1. Low-flow purge-sample with	Clear
	1613	17.21	1.0	7.16	25.0	2,042	3.8	-90.3	21.4	(A) Peristaltic pump with ded poly tubing	11
	1615	17.32	1.5	7.05	24.8	2,066	3.5	-85.8	20.9	B) Ded. bladder pump w/ ded poly tubing	11
	1618	17.40	2.0	7.01	24.5	2,060	3.1	-79.2	20.6	C) Nonded. bladder pump w/ poly tubing	11
	1620	17.46	2.5	6.98	24.4	2,054	2.9	-77.6	18.9	or,	11
	1623	17.51	3.0	6.95	24.3	2,052	2.7	-75.8	18.4	2. Recovery Well Sampling	11
	1625	17.54	3.5	6.93	24.3	2,050	2.6	-74.3	17.9		11
	1628	17.57	4.0	6.92	24.3	2,049	2.6	-74.0	17.6		11

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1630	MW-43	17.57	6.92	24.3	2,049	2.6	-74.0	17.6	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-47

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: TAB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/19/18	1410	NR	21.94	0.00	0.00	57.90	52.90	10	YES	YES	YES	YES		Weather: pt/cloudy 70°

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/19/18	1415	22.00	0.5	7.50	27.3	1987	1.3	-106.9	64.9	1. Low-flow purge-sample with	SI/cloudy
	1417	22.00	1.0	7.39	27.1	1945	1.1	-108.3	60.2	(A) Peristaltic pump with ded poly tubing	
	1420	22.00	1.5	7.35	27.1	1927	1.0	-109.9	59.7	B) Ded. bladder pump w/ ded poly tubing	
	1423	22.00	2.0	7.32	27.1	1913	0.8	-110.9	57.3	C) Nonded. bladder pump w/ poly tubing	
	1425	22.00	2.5	7.28	27.1	1898	0.7	-113.2	55.1	or,	
	1427	22.00	3.0	7.26	27.1	1890	0.6	-114.6	48.9	2. Recovery Well Sampling	
	1430	22.00	3.5	7.25	27.0	1889	0.6	-115.4	48.5		
	1433	22.00	4.0	7.25	26.9	1887	0.6	-115.7	47.5		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/19/18	1435	MW-47	22.00	7.25	26.9	1887	0.6	-115.7	47.5	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-48

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: TAB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1500	NA	18.65	0.00	0.00	38.25	33.25	10	YES	YES	YES	YES		Weather: pt/cloudy 80°

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1505	18.92	0.5	7.48	26.3	2070	1.2	-53.9	54.5	1. Low-flow purge-sample with	S/L/Cloudy Light Tan
	1507	18.92	1.0	7.40	25.7	2080	1.0	-61.3	54.6	A) Peristaltic pump with ded poly tubing	
	1510	18.92	1.5	7.37	26.1	2070	0.8	-64.0	60.4	B) Ded. bladder pump w/ ded poly tubing	
	1513	18.92	2.0	7.34	25.4	2070	0.7	-68.7	62.8	C) Nonded. bladder pump w/ poly tubing	
	1515	18.92	2.5	7.33	25.6	2070	0.6	-69.6	65.7	or,	
	1517	18.92	3.0	7.32	25.8	2060	0.6	-73.3	68.4	2. Recovery Well Sampling	
	1520	18.92	3.5	7.31	25.8	2060	0.6	-74.7	70.1		
	1523	18.92	4.0	7.31	25.8	2060	0.6	-75.3	71.8		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1526	MW-48	18.92	7.31	25.8	2060	0.6	-75.3	71.8	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

+ Dup -02  
(No PH)

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-44

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Between ditch & road

Initials: BS

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1510	NP	14.21	0.00	0.00	58.00	53.00	10	Yes	Yes	Yes	Yes		Weather Sunny 80's

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1515	14.39	0.5	7.95	25.9	2724	4.1	-127.6	69.4	1. Low-flow purge-sample with	tan slightly cloudy
	1518	14.42	1.0	7.36	25.5	2793	3.8	-120.2	110	A) Peristaltic pump with ded poly tubing	Brown Cloudy
	1520	14.42	1.5	7.16	25.3	2,961	3.1	-102.8	113	B) Ded. bladder pump w/ ded poly tubing	" "
	1523	14.42	2.0	7.11	25.0	3,046	2.8	-98.4	102	C) Nonded. bladder pump w/ poly tubing	" "
	1525	14.42	2.5	7.06	25.0	3,089	2.6	-97.2	94.8	or,	light brown (slightly cloudy)
	1527	14.42	3.0	7.04	24.9	3,106	2.5	-96.8	93.4	2. Recovery Well Sampling	" "
	1530	14.42	3.5	7.03	24.9	3,113	2.4	-96.1	92.1		" "
	1533	14.42	4.0	7.03	24.9	3,115	2.4	-95.8	90.2		" "

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1535	MW-44	14.42	7.03	24.9	3,115	2.4	-95.8	90.2	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		
	1500	Dup-02	14.42	7.03	24.9	3,115	2.4	-95.8	90.2	Same	Same	
										Same	Same	

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-46

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

(At Grade between ditch+road)

Initials: BRB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1400	NP	13.17	0.0	0.0	69.02	64.02	10	Yes	Yes	Yes	Yes		Weather: Sunny 80's

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1405	13.17	0.5	8.11	26.2	1724	4.9	-156.7	18.6	1. Low-flow purge-sample with	clear (small white)
	1408	13.17	1.0	7.56	25.6	1,885	4.1	-138.4	29.8	(A) Peristaltic pump with ded poly tubing	" particles
	1410	13.18	1.5	7.39	25.3	1,929	4.0	-137.6	37.4	B) Ded. bladder pump w/ ded poly tubing	" "
	1413	13.18	2.0	7.26	25.2	1,953	4.0	-135.2	40.8	C) Nonded. bladder pump w/ poly tubing	" "
	1415	13.18	2.5	7.19	25.1	1,960	3.9	-135.0	39.6	or,	" "
	1418	13.18	3.0	7.13	25.0	1,968	3.9	-134.7	40.7	2. Recovery Well Sampling	" "
	1420	13.18	3.5	7.11	24.9	1,972	3.8	-134.2	40.0		" "
	1423	13.18	4.0	7.10	24.9	1,974	3.8	-133.9	40.3		" "

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1425	MW-46	13.18	7.10	24.9	1,974	3.8	-133.9	40.3	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

\* Leak cut; nuts replacing \*

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-50

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: RLR

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1330	NP	27.88	0.0	0.0	63.45	58.45	10	YCS	YES	NO	YES		Weather: Clear, 80s
											cut lock			

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1335	27.92	0.5	7.17	28.3	1739	2.0	-197.6	110.6	1. Low-flow purge-sample with	Cloudy w/ smell
	1338	27.92	1.0	6.92	27.3	1735	1.4	-205.2	77.2	A) Peristaltic pump with ded poly tubing	White particles
	1340	27.92	1.5	6.85	26.9	1733	1.2	-206.1	63.7	B) Ded. bladder pump w/ ded poly tubing	
	1343	27.92	2.0	6.80	26.7	1732	1.1	-209.1	57.8	C) Nonded. bladder pump w/ poly tubing	
	1345	27.92	2.5	6.76	26.5	1732	1.1	-211.5	51.7	or,	
	1348	27.92	3.0	6.73	26.4	1731	1.0	-212.6	47.6	2. Recovery Well Sampling	Sl. Cloudy w/ small
	1350	27.92	3.5	6.70	26.3	1731	1.0	-213.0	46.2		white particles
	1353	27.92	4.0	6.68	26.3	1731	0.9	-213.5	46.5		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1355	MW-50	27.92	6.68	26.3	1731	0.9	-213.5	46.5	Metals (Boron, Calcium)	HNO3	
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

\*Lock cut and replaced\*

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-52

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: RLR

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1410	NP	20.66	0.00	0.00	53.25	48.25	10	Yes	Yes	Yes	Yes		Weather: Clear; 80s

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1415	20.76	0.5	7.78	26.8	2,830	2.6	-117.9	188.1	1. Low-flow purge-sample with	Cloudy w/ yellow tint
	1418	20.76	1.0	7.45	26.0	2,990	1.9	-148.2	172.8	A) Peristaltic pump with ded poly tubing	
	1420	20.76	1.5	7.38	25.6	3,060	1.5	-167.7	185.1	B) Ded. bladder pump w/ ded poly tubing	
	1423	20.76	2.0	7.35	25.2	3,090	1.3	-176.5	199.3	C) Nonded. bladder pump w/ poly tubing	
	1425	20.76	2.5	7.33	25.1	3,100	1.2	-184.3	>200	or,	
	1428	20.76	3.0	7.32	25.0	3,100	1.2	-189.6	>200	2. Recovery Well Sampling	
	1430	20.76	3.5	7.31	25.0	3,110	1.1	-191.2	>200		
	1433	20.76	4.0	7.30	25.0	3,110	1.1	-194.3	>200		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1435	MW-52	20.76	7.30	25.0	3,110	1.1	-194.3	>200	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		



# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-54

Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: *myjz*

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-29-18	1605	NP	24.59	0.00	0.00	63.10	58.10	10	Yes	Yes	No Lock	Yes		Weather: Clear 80°

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-29-18	1610	24.65	0.5	7.61	27.3	1502	1.7	-126.7	7200	1. Low-flow purge-sample with	clearly
	1612	24.65	1.0	7.60	26.2	1498	1.5	-122.5	7200	(A) Peristaltic pump with ded poly tubing	
	1615	24.65	1.5	7.58	25.7	1504	1.2	-127.3	7200	B) Ded. bladder pump w/ ded poly tubing	
	1617	24.65	2.0	7.57	25.3	1507	1.2	-130.3	7200	C) Nonded. bladder pump w/ poly tubing	
	1620	24.65	2.5	7.57	25.1	1505	1.1	-138.3	177	or,	
	1622	24.65	3.0	7.57	24.9	1508	1.1	-136.5	130	2. Recovery Well Sampling	
	1625	24.65	3.5	7.57	24.7	1509	1.1	-131.8	127		
	1627	24.65	4.0	7.57	24.7	1510	1.1	-127.3	124		
	1630	24.65	4.5	7.57	24.7	1512	1.1	-124.8	121		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-29-18	1635	MW-54	24.65	7.57	24.7	1512	1.1	-124.8	121	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-55

Event: 2H18

Completion Casing Diam Casing Material  
At-Grade  2-in  PVC   
Upright  4-in  SS   
Vault  Other  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: *MDH*

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-24-18	1420	NA	24.71	0.00	0.00	48.20	38.20	10	Yes	Yes	No	Yes		Weather: clear 20°
											lock			

## Well Purging Record

\* Double checked

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-24-18	1425	25.31	0.5	12.69	27.2	2450	3.3	-127.9	66.0	1. Low-flow purge-sample with	slightly
	1427	25.34	1.0	12.78	27.1	2520	2.8	-129.4	50.0	A) Peristaltic pump with ded poly tubing	
	1430	25.36	1.5	12.81	26.3	2530	2.8	-124.7	47.8	B) Ded. bladder pump w/ ded poly tubing	
	1432	25.39	2.0	12.81	25.7	2520	2.7	-126.7	44.2	C) Nonded. bladder pump w/ poly tubing	
	1435	25.44	2.5	12.76	25.4	2490	2.7	-124.3	48.1	or,	
	1437	25.48	3.0	12.68	25.3	2440	2.6	-124.7	50.8	2. Recovery Well Sampling	
	1440	25.52	3.5	12.63	25.2	2390	2.5	-122.2	53.4		
	1442	25.56	4.0	12.57	25.2	2360	2.5	-119.3	58.2		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-24-18	1445	MW-55	25.56	12.57	25.2	2360	2.5	-119.3	58.2	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

+ MS/MSD  
(no pH)

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-58

Event: 2H18

Completion Casing Diam Casing Material  
At-Grade  2-in  PVC   
Upright  4-in  SS   
Vault  Other  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: RLR

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10/29/18	1450	NP	16.76	0.00	0.00	37.66	32.66	10	yes	yes	No needs lock	yes		Weather: Clear; 80s

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10/29/18	1455	16.95	0.5	7.21	25.8	1680	2.1	-191.7	40.8	1. Low-flow purge-sample with	Sl. Cloudy w/ small
	1458	16.95	1.0	7.08	25.3	1641	1.7	-199.6	28.6	A) Peristaltic pump with ded poly tubing	white particles
	1500	16.95	1.5	6.97	25.0	1627	1.4	-205.8	15.9	B) Ded. bladder pump w/ ded poly tubing	
	1503	16.95	2.0	6.85	25.0	1607	1.2	-211.7	12.1	C) Nonded. bladder pump w/ poly tubing	Clear w/ small
	1505	16.95	2.5	6.79	25.0	1595	1.0	-216.6	9.8	or,	white particles
	1508	16.95	3.0	6.76	25.0	1589	0.9	-221.5	9.1	2. Recovery Well Sampling	
	1510	16.95	3.5	6.74	25.0	1583	0.8	-223.3	8.5		
	1513	16.95	4.0	6.73	24.9	1581	0.8	-225.6	7.9		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10/29/18	1515	MW-58	16.95	6.73	24.9	1581	0.8	-225.6	7.9	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston + MS/MSD
										Fluoride/Chloride/Sulfate and TDS	Neat	+ MS/MSD
										Report field pH to lab		

# Well Purging and Groundwater Sampling Record

NRG  
WA Parish (CCR)  
Thompsons, Texas

Well: MW-65  
Event: 2H18

Completion At-Grade  Upright  Vault   
Casing Diam 2-in  4-in  Other   
Casing Material PVC  SS  Other

Hydrologic Monitoring for TRC  
Houston, Texas

## Well Inspection Information

Initials: MJB

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
10-29-08	1515	NP	22.17	0.00	0.00	68.00	63.00	10	Yes	Yes	No lock	Yes		Weather: 51-Cloudy 80's

## Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
10-29-08	1520	22.26	0.5	7.60	26.4	1967	1.9	-194.0	165	1. Low-flow purge-sample with	cloudy
	1522	22.26	1.0	7.52	25.4	2080	1.5	-168.3	137	A) Peristaltic pump with ded poly tubing	
	1525	22.26	1.5	7.50	25.0	2130	1.2	-160.2	120	B) Ded. bladder pump w/ ded poly tubing	
	1527	22.26	2.0	7.49	24.9	2160	1.1	-168.7	108	C) Nonded. bladder pump w/ poly tubing	
	1530	22.26	2.5	7.48	24.8	2160	1.1	-163.4	99.4	or,	
	1532	22.26	3.0	7.47	24.7	2170	1.0	-166.4	93.7	2. Recovery Well Sampling	
	1535	22.26	3.5	7.47	24.6	2170	1.0	-161.4	90.8		
	1537	22.26	4.0	7.47	24.6	2170	1.0	-158.9	87.4		

## Well Sampling Record

Date	Time	Well	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv.	Comments
10-29-08	1540	MW-65	22.26	7.47	24.5	2170	1.0	-158.9	87.4	Metals (Boron, Calcium)	HNO3	Lab: Test America-Houston
										Fluoride/Chloride/Sulfate and TDS	Neat	
										Report field pH to lab		











**Hydrologic Monitoring**

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## **MEMORANDUM**

### **Low-Flow Groundwater Monitoring Standard Operating Procedures**

HMI conducts low-flow groundwater sampling in accordance with the Site Sampling and Analysis Plan, and EPA guidance (Puls and Barcelona, 1996 EPA Guidance on Low-Flow Groundwater Sampling, REV 4, September 19, 2017; and Yeskis & Zavala, 2002, EPA/542:S-02/00, Groundwater Sampling Guidelines for Superfund and RCRA Project Managers). Groundwater field instrumentation is calibrated daily using manufacturer specifications, and is documented on a field instrument calibration log.

#### Groundwater Sampling Methodology

HMI conducts low-flow groundwater sampling using a peristaltic pump and dedicated polyethylene tubing at wells with requisite depths-to-water. Intake depths are permanently set at midscreen, mid-water column, or as appropriate, ensuring that future sampling events consistently monitor the targeted water-bearing interval. During sampling with a peristaltic pump, the sample tube is attached to the pump using a one-foot section of dedicated, flexible silastic tubing (item #5703, Geotech Environmental Equipment, Inc.). A two-foot segment of polyethylene tubing connects the silastic tubing at the pump head, to a disposable segment of silastic tubing on the input barb of the flow-through cell. Purging commences through a sealed flow-through cell at EPA-recommended purge rates (generally 0.1 to 0.2 liters/minute), with well drawdown being monitored. Field parameter readings are measured at 0.5-liter intervals (generally, the equivalent of one cell-volume “turnover”). Field parameters of pH, specific conductivity, temperature, dissolved oxygen, and oxidation-reduction potential are monitored inside the cell. Turbidity is monitored outside the cell. Purging continues until a requisite volume is purged (generally a minimum of 3,000-4,000 ml or 6-8 flow-through cell volumes), and field parameters have stabilized in accordance with SAP guidance:

- pH +/- 0.1 units;
- Temperature -
- Conductivity +/- 3%
- Dissolved Oxygen +/- 10%
- ORP +/- 10 millivolts
- Turbidity +/- 10%

Immediately prior to sampling, the input tubing to the flow-through cell is removed from the disposable segment of silastic tubing on the input barb, and groundwater samples are collected directly into lab-supplied containers, using the same purge rate. Groundwater samples are placed in iced coolers, and remain in HMI's custody until delivered to the lab. Peristaltic tubes may be dedicated in respective well casings, or are bagged, labeled, and stored in sealed tubs at HMI. The purging and sampling process is documented on groundwater sampling field forms.

#### Cross-Contamination Prevention Program

Dedicated peristaltic tubing is used when possible, to minimize any potential cross-contamination issues, during groundwater monitoring activities. Remaining non-dedicated equipment (e.g., electronic gauging probe) is properly decontaminated prior to use, and between wells. The decontamination procedure may include a combination of mechanical and chemical decontamination. For example, scrubbing using a Liquinox-water wash, and a rinse with ethyl alcohol (isopropanol) when warranted, followed by a deionized water rinse with air drying.

#### HMI Deliverables

HMI provides thorough field documentation of groundwater monitoring activities, including a field narrative, a table summarizing gauging data and groundwater field parameters, groundwater sampling forms, a field instrument calibration log, and chain-of-custody documentation.

# Appendix C

## Data Quality Review (May and October 2018)

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*TRC Environmental Corporation | NRG Texas Power, LLC*

*2018 Annual Groundwater Monitoring Report*

*S:\NRG\W.A. PARISH\2. REPORTS\2018 ANNUAL REPORT\FINAL REPORT\2018 W A PARISH ANNUAL GW REPORT\_2019 TD 1-29-19.DOCX*

*January 31, 2019*

## 1.1 BACKGROUND

TRC Environmental Corporation quality assurance (QA) staff performed a review of quality control (QC) data associated with the samples collected in May and October 2018 to ensure that the reported analytical results are valid, accurate, and sufficient to meet method quality objectives. Data were reviewed for compliance with the analytical protocols used for sample analysis. Laboratory-defined control limits were also used as review criteria.

Items reviewed during the data validation process included the following:

- Sample holding times and preservation
- Blank analyses
- Spike recoveries
- Duplicate sample results
- QC sample adherence to control limits
- Sample collection documentation

Results of QC analyses are discussed in this report and provide information necessary for the identification of potential data limitations.

A list of samples, collection dates, and laboratory identifier cross-references is presented as Tables 1 and 2. These samples were collected at the NRG Energy Inc. (NRG) W.A. Parish Electric Generating Station located in Thompsons, Texas.

During the May 2018 groundwater event, a total of forty (40) groundwater samples, two (2) groundwater field duplicates, two (2) groundwater matrix spike/matrix spike duplicate (MS/MSD) pairs, and two (2) ambient condition field blanks were collected.

During the October 2018 groundwater event (CCR program), a total of twenty-five (25) groundwater samples, two (2) groundwater field duplicates, two (2) groundwater matrix spike/matrix spike duplicate (MS/MSD) pairs, and one (1) field blank were collected.

Samples were submitted to TestAmerica in Houston, TX for analysis by one or more of the following methods:

### May 2018 Groundwater Event:

- Anions by MCAWW Method 300.0
- Metals by SW846 Method 6020
- Total Dissolved Solids (TDS) by SM Method SM 2540C

Selected samples for selected analytes were extracted according to SW846 Method 3010A and SW846 Method 7470A prior to analysis by one of the methods cited above.

### October 2018 Groundwater Event:

- Anions by MCAWW Method 300.0
- Metals by SW846 Method 6020
- Total Dissolved Solids (TDS) by SM Method SM 2540C

Selected samples for selected analytes were extracted according to SW846 Method 3010A prior to analysis by one of the methods cited above.

## **2.1 SAMPLE HOLDING TIMES AND PRESERVATION**

Maximum holding times and sample preservation guidelines are established for each method to reduce the chance of generating results that are not representative of the original sample due to changes in analyte concentration over time.

Samples were received at the laboratory properly preserved and in good condition. Sample preparatory and analytical steps were performed within recommended holding times.

## **3.1 BLANK ANALYSES**

Blanks are analyzed to help monitor whether reported concentrations of analytes of interest may be biased high due to contributions from sources outside the environmental test media (or the site) being investigated. Blanks analyzed as part of the sampling events are laboratory method blanks, equipment blanks, and ambient conditions blanks.

**Laboratory Method Blank** - An aliquot of reagent matrix taken through the analytical process as though it were an actual sample. The purpose of method blank analyses is to monitor for laboratory sources of contamination (i.e., potential high bias in reported sample results).

Target analytes were not reported as detected in most method blanks. Calcium was detected in the October 2018 method blank associated with analysis batch 156610; however, reported results in the associated samples were greater than five times the blank concentration. These results indicate that, in general, no measurement contributions to detected concentrations of target analytes resulted from laboratory sources of contamination.

**Equipment Rinsate Blank** – An aliquot of distilled or deionized water is poured over decontaminated sample collection equipment, collected in sample containers, and submitted to the laboratory for analysis. Equipment rinsate blank results are used to assess the thoroughness of any decontamination procedures performed on sample collection equipment.

Equipment rinsate blanks were not collected during the May and October 2018 groundwater events as dedicated sample equipment was utilized.

**Ambient Conditions Blank** – These field blanks are aliquots of distilled or deionized water are opened at the sample collection site, collected in sample containers, and submitted to the laboratory for analysis. Ambient conditions blank results provide information regarding potential sources of contamination that may be present at the sample collection site.

Chloride was detected in both of the May 2018 ambient field blanks; however, the reported results in the associated samples are greater than five times the blank concentration therefore no data interpretation issues are identified.

Chloride, fluoride, sulfate, calcium, and total dissolved solids were detected in the October 2018 ambient field blank. However, the reported results for chloride, fluoride, sulfate, and calcium in the associated samples are greater than five times the blank concentration therefore no data interpretation issues are identified. Detected concentrations of total dissolved solids in the associated samples were less than five times the blank concentration indicating potential contribution from ambient sources of contamination. It should be noted that the water used for collection of the ambient field blank in October 2018 may not have been deionized and may have acted as a source for the field blank contamination.

#### 4.1 SPIKE RECOVERIES

Spiked samples are samples in which known amounts of analytes of interest have been added. Spike recoveries can be used to assess measurement accuracy. Laboratory control sample (LCS), MS, and surrogate spike analyses were included in the QC effort associated with the samples collected as part of this event.

**Laboratory Control Samples** – Target analytes are spiked at known concentrations into analyte-free water and are processed (prepared and analyzed) with the project samples. This type of spiked sample is analyzed to assess the preparatory and analytical accuracy in the absence of matrix effects.

Recoveries fall within laboratory-derived limits for both sampling events, indicating adequate laboratory measurement control of analytical systems in the absence of potential matrix interferences.

**Matrix Spikes** – A matrix spike sample is a field sample that is spiked at known concentrations with target analytes. Both spiked and un-spiked aliquots of this sample are analyzed. This type of spiked sample is analyzed to assess matrix effects for the specific sites associated with the investigation as well as on the preparatory and analytical procedures.

Most recoveries fall within laboratory-derived limits indicating minimal matrix interferences with recovery of all target analytes. However, the following exceptions were identified based on MS/MSD recoveries:

May 2018 Groundwater Event:

- The following results may be biased due to high or low MS/MSD recoveries.
  - Recoveries of fluoride in parent sample MW-61 may be biased low.
  - Recoveries of chloride in parent sample MW-61 may be biased low.
  - Recoveries of calcium in parent sample MW-47 may be biased low.
  
- The following results could not be evaluated for MS/MSD recoveries due to an un-spiked parent sample concentration greater than four times the spiked



concentration.

- Chloride in samples MW-48 and MW-19.
- Sulfate in samples MW-41 and MW-61.

#### October 2018 Groundwater Event:

- The following results may be biased due to high or low MS/MSD recoveries.
  - Chloride in parent samples MW-50, MW -58, and MW-64 may be biased low.
  - Sulfate in parent sample MW-63 may be biased low.
- The following results could not be evaluated for MS/MSD recoveries due to an un-spiked parent sample concentration greater than four times the spiked concentration.
  - Calcium in samples MW-63 and MW-58.

## 5.1 DUPLICATE SAMPLE ANALYSES

Measurement precision can be estimated by calculating the relative percent difference (RPD) between results of the corresponding duplicate samples. The analysis of LCS/LCSD pairs, MS/MSD pairs, laboratory duplicate pairs, and field duplicate pairs were included in the QC effort associated with the samples collected in this event.

The equation used to calculate the RPD is:

$$RPD = \frac{|X_1 - X_2|}{(X_1 + X_2)/2} \times 100$$

Where  $X_1$  and  $X_2$  are duplicate sample measurement results.

**Laboratory Control Sample Duplicates** – Target analytes are spiked at known concentrations into two aliquots of analyte-free water and processed (prepared and analyzed) with the samples. The LCS/LCSD pairs indicate variability in the absence of sample matrix interferences.

#### May 2018 Groundwater Event:

- Reported RPD values for LCS/LCSD analyses fall within laboratory-defined QC limits indicating that potential variability caused by the analytical system for associated target analytes is negligible.

#### October 2018 Groundwater Event:

- LCSD analyses were not required for the reported methods.

**Matrix Spike Duplicates** – A matrix spike duplicate is a second spiked aliquot of a single field sample. The MS/MSD pairs provide an indication of measurement variability in sample preparation and analysis given the presence of matrix effects.

Calculated RPDs for the MS/MSD results are within QC limits for all methods during all sampling events. These results indicate that measurement variability (imprecision) caused by the matrix is within expected levels for the groundwater samples.

**Laboratory Duplicates** – A laboratory duplicate is a second aliquot of a single field sample that is prepared and analyzed in the same manner as the original aliquot. The laboratory duplicate pairs provide an indication of measurement variability in sample preparation and analysis and sample heterogeneity.

Calculated RPDs for laboratory duplicate results for all sampling events are within QC limits. These results indicate that measurement variability (imprecision) caused by the sample preparation and analysis methods is within expected levels for the groundwater samples.

**Field Duplicates** – A field duplicate is a second field sample taken as close in space and time as another sample. Field duplicate pairs provide an indication of measurement variability in sample preparation and analysis as well as sample collection procedures given the presence of matrix effects.

May 2018 Groundwater Event:

- Sample Dup-1 was submitted as a field duplicate of MW-54. Results for these analyses are presented in Table 3. Calculated RPD values for Chloride and Boron are greater than expected and are indicative of excessive variability in the sample collected at MW-54.
- Sample Dup-2 was submitted as a field duplicate of MW-39. Results for these analyses are presented in Table 4.

October 2018 Groundwater Event (CCR Program):

- Sample Dup-01 was submitted as a field duplicate of MW-36. Results for these analyses are presented in Table 5.
- Sample Dup-02 was submitted as a field duplicate of MW-44. Results for these analyses are presented in Table 6. Calculated RPD values for Chloride and Sulfate are greater than expected and are indicative of excessive variability in the sample collected at MW-44.

## 6.1 OTHER ISSUES

Based on laboratory notes, the following table summarizes samples that required dilutions, resulting in the inability to achieve the requested reporting limits:

### Samples Requiring Dilution

#### May 2018 Groundwater Event

Chloride and Sulfate	MW-23, MW-28D, MW-35, MW-36, MW-37, MW-38, MW-39, MW-40, MW-41, MW-42, MW-43, MW-44, MW-45, MW-46, MW-47, MW-48, MW-49, MW-50, MW-52, MW-53, MW-54, MW-55, MW-56, MW-57, MW-58, MW-59, MW-60, MW-61, MW-62, MW-63, MW-64, MW-65, MW-66, MW-67, MW-68, MW-68, Dup-1, Dup-2	No reason provided
Fluoride	MW-19, MW-23, MW-28D, MW-35, MW-36, MW-37, MW-38, MW-39, MW-40, MW-41, MW-42, MW-43, MW-44, MW-45, MW-46, MW-47, MW-49, MW-50, MW-52, MW-53, MW-54, MW-55, MW-56, MW-57, MW-58, MW-59, MW-60, MW-61, MW-62, MW-63, MW-64, MW-65, MW-66, MW-67, MW-68, MW-45, MW-48, Dup-1, Dup-2	No reason provided

#### October 2018 Groundwater Event

Chloride, Fluoride, and Sulfate	MW-23, MW-28D, MW-36, MW-37, MW-38, MW-39, MW-40, MW-41, MW-42, MW-43, MW-44, MW-46, MW-47, MW-48, MW-50, MW-52, MW-54, MW-55, MW-58, MW-60, MW-61, MW-62, MW-63, MW-64, MW-65, DUP-01, DUP-02	Diluted due to the nature of the sample matrix
Calcium and Boron	MW-23, MW-28D, MW-36, MW-37, MW-38, MW-39, MW-40, MW-41, MW-42, MW-43, MW-44, MW-46, MW-47, MW-48, MW-50, MW-52, MW-54, MW-55, MW-58, MW-60, MW-61, MW-62, MW-63, MW-64, MW-65, DUP-01, DUP-02, FB-01	Diluted due to the nature of the sample matrix

## 7.1 CONCLUSIONS

QC data indicate that measurement data are sufficient to meet method quality objectives, reported data are defensible, and QC mechanisms were generally effective in ensuring measurement data reliability within the expected limits of sampling and analytical error.

Potential issues related to sensitivity and the inability to achieve the requested reporting limits are summarized in Section 6.1.

### **The data user is advised of the following identified potential issues for the data set:**

#### May 2018 Groundwater Event:

- The following results are biased based on associated MS/MSD recoveries:
  - Fluoride and chloride in sample MW-61
  - Calcium in sample MW-47
- The following results could not be evaluated for MS/MSD recoveries due to elevated concentrations:
  - Chloride in samples MW-19 and MW-48
  - Sulfate in samples MW-41 and MW-61
- The following results include excessive variability based on field duplicate results:
  - Chloride and Boron in sample MW-54

#### October 2018 Groundwater Event:

- The following results are biased based on associated MS/MSD recoveries:
  - Chloride in samples MW-50, MW-58, and MW-64
  - Sulfate in sample MW-63
- The following results could not be evaluated for MS/MSD recoveries due to elevated concentrations:
  - Calcium in samples MW-58 and MW-63
- The following results include excessive variability based on field duplicate results:
  - Chloride and Sulfate in sample MW-44

## TABLES

**Table 1. May 2018 Evaluated Samples**

<b>TRC ID</b>	<b>TestAmerica ID</b>	<b>Matrix</b>	<b>Sample Date</b>	<b>TestAmerica Job ID</b>
MW-48	600-165461-1	Water	5/2/2018	J165461
MW-48	600-165461-1 MS	Water	5/2/2018	J165461
MW-48	600-165461-1 MSD	Water	5/2/2018	J165461
MW-49	600-165461-2	Water	5/2/2018	J165461
MW-50	600-165461-3	Water	5/2/2018	J165461
Field Blank	600-165461-4	Water	5/2/2018	J165461
MW-47	600-165461-5	Water	5/3/2018	J165461
MW-47 MS	600-165461-7 MS	Water	5/3/2018	J165461
MW-47 MSD	600-165461-7 MSD	Water	5/3/2018	J165461
MW-52	600-165461-6	Water	5/3/2018	J165461
MW-67	600-165461-7	Water	5/3/2018	J165461
MW-55	600-165461-8	Water	5/4/2018	J165461
MW-55	600-165461-8 MS	Water	5/4/2018	J165461
MW-55	600-165461-8 MSD	Water	5/4/2018	J165461
MW-56	600-165461-9	Water	5/4/2018	J165461
MW-65	600-165461-10	Water	5/4/2018	J165461
MW-68	600-165461-11	Water	5/4/2018	J165461
MW-19	600-165604-1	Water	5/7/2018	J165461
MW-19	600-165604-1 MS	Water	5/7/2018	J165461
MW-19	600-165604-1 MSD	Water	5/7/2018	J165461
MW-35	600-165604-2	Water	5/7/2018	J165461
MW-35	600-165604-2 MS	Water	5/7/2018	J165461
MW-35	600-165604-2 MSD	Water	5/7/2018	J165461
MW-53	600-165604-3	Water	5/7/2018	J165461
MW-54	600-165604-4	Water	5/7/2018	J165461
MW-58	600-165604-5	Water	5/7/2018	J165461
MW-66	600-165604-6	Water	5/7/2018	J165461
Dup-1	600-165604-7	Water	5/7/2018	J165461
MW-57	600-165670-1	Water	5/8/2018	J165461
MW-57	600-165670-1 MS	Water	5/8/2018	J165461
MW-57	600-165670-1 MSD	Water	5/8/2018	J165461
MW-59	600-165670-2	Water	5/8/2018	J165461
MW-43	600-165670-3	Water	5/8/2018	J165461
MW-44	600-165670-4	Water	5/8/2018	J165461
MW-44	600-165670-4 MS	Water	5/8/2018	J165461
MW-44	600-165670-4 MSD	Water	5/8/2018	J165461
MW-23	600-165670-5	Water	5/8/2018	J165461
MW-23	600-165670-5 MS	Water	5/8/2018	J165461
MW-23	600-165670-5 MSD	Water	5/8/2018	J165461

TRC ID	TestAmerica ID	Matrix	Sample Date	TestAmerica Job ID
MW-42	600-165670-6	Water	5/8/2018	J165461
MW-28D	600-165670-7	Water	5/8/2018	J165461
Field Blank-2	600-165670-8	Water	5/8/2018	J165461
Field Blank-2	600-165670-8 MS	Water	5/8/2018	J165461
Field Blank-2	600-165670-8 MSD	Water	5/8/2018	J165461
MW-46	600-165670-9	Water	5/8/2018	J165461
MW-45	600-165670-10	Water	5/8/2018	J165461
MW-40	600-165751-1	Water	5/9/2018	J165461
MW-40	600-165751-1 MS	Water	5/9/2018	J165461
MW-40	600-165751-1 MSD	Water	5/9/2018	J165461
MW-39	600-165751-2	Water	5/9/2018	J165461
Dup-2	600-165751-3	Water	5/9/2018	J165461
MW-63	600-165751-4	Water	5/9/2018	J165461
MW-41	600-165751-5	Water	5/9/2018	J165461
MW-41 MS	600-165751-5 MS	Water	5/9/2018	J165461
MW-41 MSD	600-165751-5 MSD	Water	5/9/2018	J165461
MW-64	600-165751-6	Water	5/9/2018	J165461
MW-62	600-165751-7	Water	5/9/2018	J165461
MW-36	600-165817-1	Water	5/11/2018	J165461
MW-61	600-165817-2	Water	5/11/2018	J165461
MW-61	600-165817-2 MS	Water	5/11/2018	J165461
MW-61	600-165817-2 MSD	Water	5/11/2018	J165461
MW-38	600-165817-3	Water	5/11/2018	J165461
MW-37	600-165817-4	Water	5/11/2018	J165461
MW-37	600-165817-4 MS	Water	5/11/2018	J165461
MW-37	600-165817-4 MSD	Water	5/11/2018	J165461
MW-60	600-165817-5	Water	5/11/2018	J165461



**Table 2. October 2018 Evaluated Samples**

TRC ID	TestAmerica ID	Matrix	Sample Date	TestAmerica Job ID
<b>CCR Program</b>				
MW-36	600-175322-1	Water	10/29/2018	J175322
MW-60	600-175322-2	Water	10/29/2018	J175322
MW-37	600-175322-3	Water	10/29/2018	J175322
MW-38	600-175322-4	Water	10/29/2018	J175322
MW-61	600-175322-5	Water	10/29/2018	J175322
MW-39	600-175322-6	Water	10/29/2018	J175322
MW-40	600-175322-7	Water	10/29/2018	J175322
MW-62	600-175322-8	Water	10/29/2018	J175322
MW-41	600-175322-9	Water	10/29/2018	J175322
MW-63	600-175322-10	Water	10/29/2018	J175322
MW-63 MS	600-175322-10 MS	Water	10/29/2018	J175322
MW-63 MSD	600-175322-10 MSD	Water	10/29/2018	J175322
MW-64	600-175322-11	Water	10/29/2018	J175322
MW-64 MS	600-175322-11 MS	Water	10/29/2018	J175322
MW-64 MSD	600-175322-11 MSD	Water	10/29/2018	J175322
MW-23	600-175322-12	Water	10/29/2018	J175322
MW-28D	600-175322-13	Water	10/29/2018	J175322
MW-42	600-175322-14	Water	10/29/2018	J175322
MW-43	600-175322-15	Water	10/29/2018	J175322
MW-47	600-175322-16	Water	10/29/2018	J175322
MW-48	600-175322-17	Water	10/29/2018	J175322
MW-44	600-175322-18	Water	10/29/2018	J175322
MW-46	600-175322-19	Water	10/29/2018	J175322
MW-50	600-175322-20	Water	10/29/2018	J175322
MW-50 MS	600-175322-20 MS	Water	10/29/2018	J175322
MW-50 MSD	600-175322-20 MSD	Water	10/29/2018	J175322
MW-52	600-175322-21	Water	10/29/2018	J175322
MW-54	600-175322-22	Water	10/29/2018	J175322
MW-55	600-175322-23	Water	10/29/2018	J175322
MW-58	600-175322-24	Water	10/29/2018	J175322
MW-58 MS	600-175322-24 MS	Water	10/29/2018	J175322
MW-58 MSD	600-175322-24 MSD	Water	10/29/2018	J175322
MW-65	600-175322-25	Water	10/29/2018	J175322
FB-01	600-175322-26	Water	10/29/2018	J175322
DUP-01	600-175322-27	Water	10/29/2018	J175322
DUP-02	600-175322-28	Water	10/29/2018	J175322

**Table 3. May 2018 Field Duplicate MW-54**

<b>Analyte</b>	<b>Original Result</b>	<b>Duplicate Result</b>	<b>Units</b>	<b>RPD</b>
Fluoride	0.501	0.482	mg/L	3.87
Chloride	355	222	mg/L	46.10
Sulfate	88.5	71.0	mg/L	21.94
Calcium	96.1	108	mg/L	11.66
Boron	0.380	0.245	mg/L	43.20
TDS	972	970	mg/L	0.21

NC – not calculable

ND – not detected

**Table 4. May 2018 Field Duplicate MW-39**

<b>Analyte</b>	<b>Original Result</b>	<b>Duplicate Result</b>	<b>Units</b>	<b>RPD</b>
Fluoride	0.491	0.458	mg/L	6.95
Chloride	724	736	mg/L	1.64
Sulfate	201	202.0	mg/L	0.50
Calcium	310	308	mg/L	0.65
Boron	0.274	0.292	mg/L	6.36
TDS	2440	2290	mg/L	6.34

NC – not calculable

ND – not detected

**Table 5. October 2018 Field Duplicate MW-36**

<b>Analyte</b>	<b>Original Result</b>	<b>Duplicate Result</b>	<b>Units</b>	<b>RPD</b>
Chloride	307	306	mg/L	0.33
Fluoride	1.32	ND	mg/L	NC
Sulfate	562	505	mg/L	10.68
Boron	ND	ND	mg/L	NC
Calcium	218	276	mg/L	23.48
TDS	1400	1330	mg/L	5.13

NC – not calculable

ND – not detected

**Table 6. October 2018 Field Duplicate MW-44**

<b>Analyte</b>	<b>Original Result</b>	<b>Duplicate Result</b>	<b>Units</b>	<b>RPD</b>
Chloride	690	476	mg/L	36.71
Fluoride	ND	ND	mg/L	NC
Sulfate	369	256	mg/L	36.16
Boron	ND	ND	mg/L	NC
Calcium	159	193	mg/L	19.32
TDS	1230	1330	mg/L	7.81

NC – not calculable

ND – not detected

# Appendix D

## Alternative Source Demonstrations

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*TRC Environmental Corporation | NRG Texas Power, LLC*

*2018 Annual Groundwater Monitoring Report*

*S:\NRG\W.A. PARISH\2. REPORTS\2018 ANNUAL REPORT\FINAL REPORT\2018 W A PARISH ANNUAL GW REPORT\_2019 TD 1-29-19.DOCX*

*January 31, 2019*

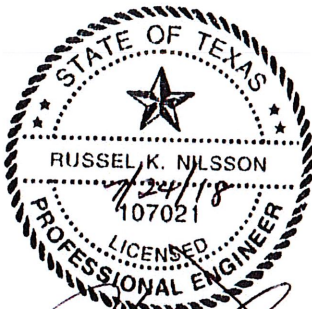


## Alternative Source Demonstration

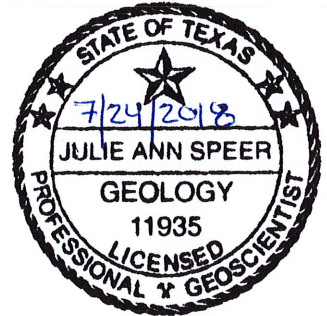
### W.A. Parish Electric Generating Station Solid Waste Disposal Area (SWMU 001) CCR Multiunit

July 2018

Prepared For  
NRG Texas Power, LLC  
Thompsons, Texas



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TRC Environmental Corporation | NRG  
Alternate Source Demonstration, W.A. Parish, Solid Waste Disposal Area (SWMU 001)

AUSTIN \FP3\ ENVIRONMENTAL \PROJECTS\ NRG \ PRIVILEGED AND CONFIDENTIAL \ PARISH \ P&C \ ALTERNATE SOURCE  
DETERMINATIONS \ SWDA \ ASD \ WAP \ SWDA\_FINAL\_072418.DOCX



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Appendix A Updated Background/Baseline Tolerance Limit Calculations

# Executive Summary

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The NRG Texas Power, LLC (NRG) W.A. Parish Electric Generating Station (Site) is located in Thompsons, Fort Bend County, Texas. Units managing coal combustion residuals (CCR) at the Site are subject to the United States Environmental Protection Agency's (USEPA) final rule for the regulation and management of CCR under the Resource Conservation and Recovery Act (RCRA) Title 40, Code of Federal Regulations, Part 257 (40 CFR §257) (CCR Rule). CCR generated at the Site consist of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge. The Site has three active CCR units that are subject to regulation under the CCR Rule, including the Solid Waste Disposal Area (SWDA) multiunit, which is the subject of this Alternate Source Demonstration (ASD). The SWDA Landfill consists of four active CCR-management cells that were initially managed as individual CCR units, as reflected in the initial certification of the groundwater monitoring systems (October 17, 2017) for the four active CCR-management cells at the SWDA and in the subsequent Annual Groundwater Monitoring Reports (ERM 2018a through ERM 2018d) and Groundwater Monitoring Reports (ERM 2018e through ERM 2018h).

Eight independent background/baseline groundwater monitoring events were conducted at the SWDA CCR-management cells between July 2016 and July 2017 per §257.94(b) and the initial post-background/baseline detection monitoring event was conducted in October 2017. Laboratory analytical data for the first post-background/baseline detection monitoring event were received by NRG on October 27, 2017. A statistical evaluation of the first post-background/baseline detection monitoring parameters (Appendix III to §257 of the CCR Rule) was completed to identify statistically significant increases (SSIs) pursuant to §257.93(f) and (g) and in accordance with the CCR *Statistical Analysis Plan* (ERM 2017a). The statistical evaluation identified apparent SSIs in monitoring wells at each of the four individual SWDA CCR-management units. This ASD was prepared to evaluate the SSIs in accordance with 257.94(e).

Based on the results of the ASD, NRG has updated both the groundwater monitoring system and statistical analysis method for the SWDA to reflect establishment of a single CCR multiunit (rather than four individual CCR units having separate groundwater monitoring systems) that is permitted pursuant to §257.91(d) and to use an alternate statistical method to evaluate the groundwater monitoring data that is permitted pursuant to §257.93(f). The updated statistical evaluation, which is based on establishing a single multiunit groundwater monitoring system for the four CCR-management cells and the updated statistical method, identified two SSIs, but these were demonstrated to have alternative sources other than a release from the SWDA CCR multiunit to groundwater. Therefore, detection monitoring will be continued for the SWDA CCR multiunit utilizing the updated multiunit groundwater monitoring system and the updated statistical analytical method for evaluation of the groundwater monitoring data.

*TRC Environmental Corporation | NRG  
Alternate Source Demonstration, W.A. Parish, Solid Waste Disposal Area (SWMU 001)*

# Section 1

## Introduction

---

### 1.1 Background

The NRG Texas Power, LLC (NRG) W.A. Parish Electric Generating Station (Site) is located in Thompsons, Fort Bend County, Texas, adjacent to Smithers Lake. The Solid Waste Disposal Area (SWDA) extends north from the northeastern shore of the lake as shown on Figure 1. The electricity generating portion of the Site, or the main Plant Operations Area (Plant Area), is located along the southeastern shore of the lake.

Units managing coal combustion residuals (CCR) at the Site are subject to the United States Environmental Protection Agency's (USEPA) final rule for the regulation and management of CCR under the Resource Conservation and Recovery Act (RCRA) Title 40, Code of Federal Regulations, Part 257 (40 CFR §257) (CCR Rule, effective date October 17, 2015) and the CCR Remand Rule Proposal (March 1, 2018). CCR generated at the Site consist of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge. The Site has three active CCR-management units that are subject to regulation under the CCR Rule and the CCR Remand Rule Proposal, as follows:

1. SWDA (SWMU 001), which consists of active CCR-management cells Cell 1C, Cell 2A-Pug Mill, Cell 2B, and Cell 3;
2. Air Preheater Pond (APH Pond, SWMU 021); and
3. FGD Emergency Pond (E Pond, SWMU 020).

Both the APH and E Ponds are located within the Plant Area. The SWDA CCR cells are the subject of this Alternative Source Demonstration (ASD).

CCR-management activities at the SWDA at each of the four CCR-management cells are generally described as follows:

- Cell 1C – Receives nonmarketable CCR trucked from the plant.
- Cell 2B – Receives marketable CCR trucked from the plant.
- Cell 3 – Receives CCR bottom ash trucked from the plant.
- Cell 2A-Pug Mill – Pug mill is located at a small active portion of closed Cell 2A. The pug mill grinds CCR for reuse.

NRG initially managed these four active CCR-management cells under the CCR Rule and the CCR Remand Rule Proposal as individual CCR units, as reflected in the initial certification of *TRC Environmental Corporation | NRG Alternate Source Demonstration, W.A. Parish, Solid Waste Disposal Area (SWMU 001)*

the groundwater monitoring systems (October 17, 2017) for the four active CCR-management cells at the SWDA the subsequent Annual Groundwater Monitoring Report (ERM, January 30, 2018) and the Groundwater Monitoring Reports (ERM, March 1, 2018)..

## 1.2 Purpose

On behalf of NRG, Environmental Resources Management, Inc. (ERM) conducted eight independent background/baseline groundwater monitoring events between July 2016 and July 2017 per §257.94(b) and the first post-background/baseline detection monitoring event for the four individual SWDA CCR units in October 2017. Results of the eight background/baseline and first post-background/baseline detection monitoring events were documented for each of the four individual SWDA CCR units in the Annual Groundwater Monitoring Reports for the four SDWA CCR-management units dated January 30, 2018 (ERM 2018a through ERM 2018d) and in the Groundwater Monitoring Reports dated March 1, 2018 (ERM 2018e through ERM 2018h) in accordance with the requirements of §257.90(e).

A statistical evaluation of the first post-background/baseline detection monitoring parameters (Appendix III to §257 of the CCR Rule) was completed pursuant to §257.93(f) and (g) and in accordance with the CCR *Statistical Analysis Plan* (ERM 2017a). As part of the statistical evaluation, the first post-background/baseline detection monitoring data were evaluated to identify statistically significant increases (SSIs) in detection monitoring parameters to determine if concentrations in detection monitoring wells exceeded background levels. The statistical evaluation identified potential SSIs in the first post-background/baseline detection monitoring wells, which was documented in the Groundwater Monitoring Reports for the SWDA CCR units dated March 1, 2018 (ERM 2018e through ERM 2018h). On behalf of NRG, TRC Environmental Corporation (TRC) prepared this ASD to evaluate the SSIs identified in the March 2018 Groundwater Monitoring Reports (ERM 2018e through ERM 2018h) in accordance with §257.94(e).

## 1.3 Hydrogeology

According to the *Geologic Atlas of Texas, Houston Sheet* (BEG 1982), the Site is underlain by alluvium and the Beaumont formation (also commonly referred to as Beaumont Clay). The alluvium is present along the Brazos River, which is located approximately 0.9 miles from the northern boundary of the SWDA CCR units. Both the alluvium and the Beaumont formation are comprised of clay, silt, and sand; and may include stream channel, point-bar, natural levee, backswamp, coastal marsh and mud-flat deposits. The thickness of the Beaumont formation is approximately 100 feet. The alluvium is not present at the Plant Area which is consistent with this area being located outside of the Brazos River floodplain zone (FBC 2018).

The alluvium and Beaumont Formation are located within the upper unit of the Chicot aquifer system. At most locations throughout Fort Bend County, the Chicot aquifer system is under confined conditions (TWDB 1990). The Chicot aquifer system is primarily recharged by precipitation at locations where it outcrops in Austin, Harris, and Waller Counties; groundwater then flows laterally within Fort Bend County (TWDB 1990). Site investigations performed by others on behalf of NRG also indicate that the uppermost groundwater-bearing units at the Site are under confined conditions.

Site investigations conducted in May 2016 and November 2016 identified three main subsurface strata at the Site, which were designated as Stratum DA-1 through DA-3 at the SWDA and Stratum PA-1 through PA-3 at the Plant Area. The strata are fully described in the October 2017 *CCR Groundwater Monitoring Networks* report (ERM 2017b) and are summarized below.

### 1.3.1 Stratum DA-1 and Stratum PA-1 (Upper Confining Unit)

Stratum DA-1 and Stratum PA-1 are both predominately silty clay with some sandy clay, clay, and sandy silt. Stratum DA-1 is generally present from the ground surface to approximately 30 feet below ground surface (bgs), but this stratum ranges in thickness from 20 feet to 60 feet throughout the SWDA. Stratum PA-1 is present from the ground surface to depths ranging from 15 feet bgs to 32 feet bgs.

Stratum DA-1 and Stratum PA-1 both serve as confining units to underlying Stratum DA-2 and Stratum PA-2, respectively, which comprise the uppermost groundwater-bearing unit at the Site. Geotechnical laboratory testing indicates that the hydraulic conductivity of Stratum DA-1 and Stratum PA-1 is 2.85E-08 centimeters per second (cm/sec) and 2.03E-08 cm/sec, respectively (ERM 2017b).

### 1.3.2 Stratum DA-2 and Stratum PA-2 (Uppermost Groundwater-Bearing Unit)

Stratum DA-2 consists of interbedded sand, silty sand, clayey sand, and clayey sandy silt with some gravelly sand. The clay content within Stratum DA-2 varies across the SWDA. Stratum PA-2 is predominantly silty sand with varying sand and silt content and trace clay. Stratum DA-2 and Stratum PA-2 are generally greater than 10 feet in thickness with bottom depths ranging from 60 to 80 feet bgs.

Both Stratum DA-2 and Stratum PA-2 are saturated and comprise the uppermost groundwater-bearing unit at the CCR units. CCR monitoring wells in the SWDA and Plant Area are completed within Stratum DA-2 and Stratum PA-2, respectively. Slug testing results for CCR monitoring wells indicate hydraulic conductivity ranges from 6.86E-04 cm/sec to 2.59E-02 cm/sec in Stratum DA-2; and from 6.68E-04 cm/sec to 4.26E-02 cm/sec in Stratum PA-2 (ERM 2017b).

### 1.3.3 Stratum DA-3 and Stratum PA-3 (Lower Confining Unit)

Stratum DA-3 and Stratum PA-3 are both predominantly clay to silty clay. These strata appear to be bottom confining layers to the overlying groundwater-bearing units (Stratum DA-2 and Stratum PA-2). The thicknesses of Stratum DA-3 and Stratum PA-3 have not been defined.

### 1.3.4 Solid Waste Disposal Area – Hydrogeology

Groundwater monitoring well networks were established in 2016 for each of the four active CCR-management cells in the SWDA, as summarized in Table 1. The groundwater monitoring systems for the four CCR-management cells were certified under 257.91(f) on October 17, 2017. The SWDA monitoring wells were completed into Stratum DA-2. A groundwater potentiometric surface map prepared by TRC for the first post-background/baseline monitoring event conducted by ERM in October 2017 is provided as Figure 2. Groundwater flows primarily to the northeast towards the Brazos River beneath the SWDA at a gradient ranging from 0.0007 feet per foot (ft/ft) to 0.003 ft/ft.

The four active SWDA CCR-management cells are located immediately hydraulically crossgradient or downgradient of each other based on the groundwater potentiometric surface and groundwater flow direction. The original certified CCR groundwater monitoring well networks (October 17, 2017) for the four CCR-management cells only designated one or two upgradient wells per active SWDA CCR-management cell, which does not appear to fully represent upgradient, background groundwater quality at the SWDA, considering the lateral extent of the SWDA and the heterogeneous lithology of Stratum DA-2 (i.e., varying clay and silt content in Stratum DA-2 across the SWDA).

Table 1  
Original Groundwater Monitoring System for SWDA Active CCR-management Cells

CCR UNIT	UPGRADIENT WELLS	DOWNGRADIENT WELLS
Cell 1C	MW-47, MW-48	MW-19, MW-49, MW-50, MW51, MW-52, MW-67
Cell 2B	MW-53	MW-35, MW-54, MW-55, MW-56, MW-65, MW-68
Cell 3	MW-28D, MW-42	MW-44, MW-45, MW-46
Cell 2A-Pug Mill	MW-23, MW-43	MW-57, MW-58, MW-59, MW-66

Per §257.91(d), the CCR Rule allows establishment of a multiunit groundwater monitoring system for a CCR unit such as the SWDA when the multiunit meets the criteria provided



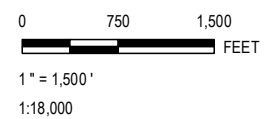
in 257.91(d)(1), instead of a separate groundwater monitoring system for each of the four active CCR-management cells.

A multiunit groundwater monitoring system is more appropriate for the SWDA primarily since it will allow for a more representative characterization of upgradient (background) groundwater quality at the SWDA. Establishment of a SWDA multiunit encompassing all four CCR-management cells will allow for use of a larger set of upgradient (background) wells as compared to the initial individual monitoring well networks that used one or two upgradient wells to define background conditions. Use of a larger set of upgradient wells will allow for a better representation of background groundwater quality upgradient of the SWDA. In addition; a multiunit groundwater monitoring system would be equally capable of detecting monitored constituents at the downgradient boundary of the SWDA as the individual groundwater monitoring systems for the four active CCR-management cells, based on the location spacing and orientations of these cells, the hydrogeologic setting, and the similar engineering design, construction, and management of these cells.



**LEGEND**

 UNIT BOUNDARY



AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).



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 Austin, TX 78752  
 Phone: 512.329.6080  
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PROJECT:

**NRG TEXAS POWER, LLC  
 W.A. PARISH STATION  
 THOMPSONS, TEXAS**

TITLE:

**SITE MAP**

DRAWN BY: MHORN

CHECKED BY: JSPEER

APPROVED BY:

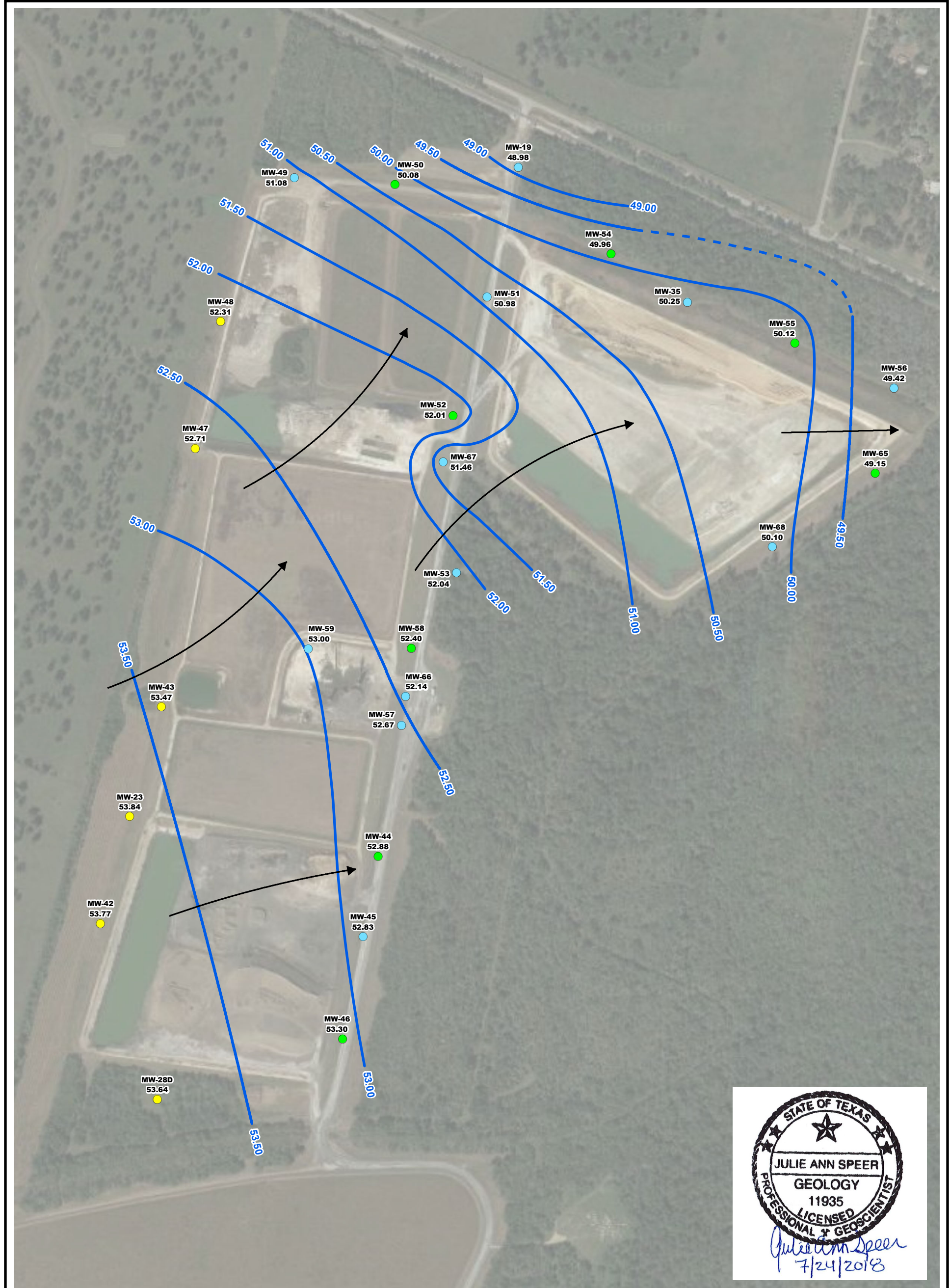
DATE: JULY 2018

PROJ. NO.: 294645.0000.0000

FILE: 294645\_1.mxd

**FIGURE 1**

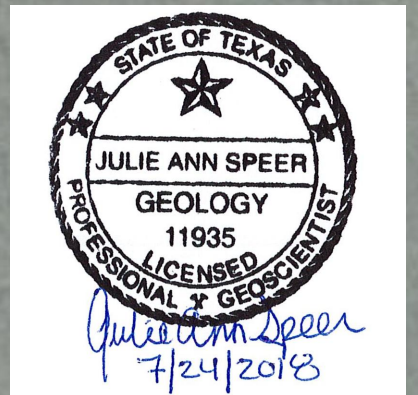
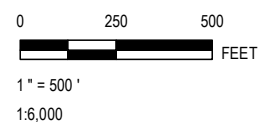




**LEGEND**

- MONITORING WELL
- MULTIUNIT DOWNGRAIDENT MONITORING WELL
- MULTIUNIT UPGRADIENT MONITORING WELL
- 53.64** GROUNDWATER ELEVATION (FT MSL)
- GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)
- GROUNDWATER FLOW DIRECTION

NOTE:  
 GROUNDWATER ELEVATION CONTOURS INTERPRETED BY TRC BASED ON GROUNDWATER ELEVATIONS MEASURED BY ENVIRONMENTAL RESOURCES MANAGEMENT, INC. (ERM) ON OCTOBER 9, 2017.



505 East Huntland Drive, Suite 250  
 Austin, TX 78752  
 Phone: 512.329.6080  
 www.trcsolutions.com

PROJECT:	<b>NRG TEXAS POWER, LLC W.A. PARISH STATION THOMPSONS, TEXAS</b>
TITLE:	<b>SOLID WASTE DISPOSAL AREA, GROUNDWATER POTENTIOMETRIC SURFACE MAP – OCTOBER 2017</b>

DRAWN BY:	MHORN
CHECKED BY:	JSPEER
APPROVED BY:	JSPEER
DATE:	JULY 2018
PROJ. NO.:	294645.0000.0000
FILE:	294645_2_SW.mxd
<b>FIGURE 2</b>	

# Section 2

## Alternative Source Demonstration

---

As discussed in the March 1, 2018, Groundwater Monitoring Reports (ERM 2018e through ERM 2018h), statistical evaluation of the first post-background/baseline detection monitoring laboratory analytical results for each of the four SWDA active CCR-management cells identified potential SSIs of Appendix III parameters above background. This section evaluates alternative sources for the potential SSIs as per §257.94(e)(2).

### 2.1 Initially Identified Statistically Significant Increases (SSIs)

The Site CCR *Statistical Analysis Plan* (ERM 2017a) stated groundwater data for each individual CCR-management unit would be evaluated for SSIs using prediction limits per §257.93(f)(3) for the certified groundwater monitoring networks. Background/baseline was established for monitoring wells at each active CCR-management cell in accordance with the *Statistical Analysis Plan* based on detection monitoring samples collected between July 2016 and July 2017. The first post-background/baseline detection monitoring samples were collected in October 2017. NRG received the first post-background/baseline laboratory analytical results on October 27, 2017. The initially identified SSIs over background that were reported in the March 1, 2018, Groundwater Monitoring Reports for the four SWDA active CCR-management cells (ERM 2018e through ERM 2018f) are summarized below in Table 2. All other Appendix III constituents were within the statistical background limits, which were based on the upper predictive limits (UPLs) and (the lower predictive limit [LPL] for pH), as summarized in the March 1, 2018 reports.

Table 2  
Initially Identified SSIs – October 2017 Detection Monitoring Event

ANALYTE	WELL	LPL	UPL	SAMPLE DATE	VALUE	UNIT
<b>CELL 1C</b>						
Boron	MW-19	N/A	0.83	2017-10-09	1.93	mg/L
Calcium	MW-19	N/A	126	2017-10-09	285	mg/L
Calcium	MW-49	N/A	126	2017-10-09	147	mg/L
Calcium	MW-50	N/A	126	2017-10-09	134	mg/L
Calcium	MW-52	N/A	126	2017-10-10	297	mg/L
Chloride	MW-19	N/A	466	2017-10-09	511	mg/L
Chloride	MW-52	N/A	466	2017-10-10	804	mg/L

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**Table 2**  
**Initially Identified SSIs – October 2017 Detection Monitoring Event**

<b>ANALYTE</b>	<b>WELL</b>	<b>LPL</b>	<b>UPL</b>	<b>SAMPLE DATE</b>	<b>VALUE</b>	<b>UNIT</b>
pH	MW-19	7.08	7.35	2017-10-09	7.42	SU
pH	MW-49	7.08	7.35	2017-10-09	6.99	SU
pH	MW-51	7.08	7.35	2017-10-10	11.03	SU
pH	MW-67	7.08	7.35	2017-10-10	7.06	SU
Sulfate	MW-19	N/A	220	2017-10-09	483	mg/L
Sulfate	MW-52	N/A	220	2017-10-10	487	mg/L
TDS	MW-52	N/A	1,930	2017-10-10	2,410	mg/L
<b>CELL 2B</b>						
Boron	MW-56	N/A	0.501	2017-10-09	0.934	mg/L
Calcium	MW-55	N/A	171	2017-10-09	211	mg/L
Calcium	MW-65	N/A	171	2017-10-10	188	mg/L
Chloride	MW-56	N/A	649	2017-10-09	843	mg/L
pH	MW-35	6.92	7.11	2017-10-09	7.96	SU
pH	MW-54	6.92	7.11	2017-10-09	7.12	SU
pH	MW-55	6.92	7.11	2017-10-09	11.78	SU
pH	MW-65	6.92	7.11	2017-10-10	7.52	SU
pH	MW-68	6.92	7.11	2017-10-10	7.31	SU
Sulfate	MW-56	N/A	239	2017-10-09	400	mg/L
Sulfate	MW-65	N/A	239	2017-10-10	628	mg/L
<b>CELL 3</b>						
Boron	MW-44	N/A	1.22	2017-10-10	1.27	mg/L
Calcium	MW-45	N/A	229	2017-10-10	398	mg/L
Chloride	MW-45	N/A	494	2017-10-10	1,060	mg/L
<b>CELL 2A - PUG MILL</b>						
Boron	MW-57	N/A	0.555	2017-10-10	2.26	mg/L
Boron	MW-59	N/A	0.555	2017-10-10	0.557	mg/L

LPL = lower prediction limit  
UPL = upper prediction limit

mg/L = milligrams per liter  
SU = standard units

N/A = Not Applicable

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Alternate Source Demonstration, W.A. Parish, Solid Waste Disposal Area (SWMU 001)

In accordance with §257.94(e)(2), NRG may demonstrate that a source other than the CCR unit caused the SSIs over background levels for a constituent or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. This ASD has been prepared to evaluate the initially identified SSIs post-background/baseline detection monitoring event performed at the four SWDA active CCR-management cells in October 2017.

## 2.2 Revisions to Monitoring System and Statistical Method

The alternative source of the SSIs initially identified for the SWDA cells is the inadequate (or incomplete) characterization of upgradient groundwater quality, which is directly related to the establishment of four individual groundwater monitoring well networks for each CCR-management cell in 2016 rather than implementation of a multiunit monitoring well network encompassing all four CCR-management cells. In addition, the October 2017 *Statistical Analysis Plan* (ERM, 2017a) stipulated pooling available upgradient monitoring well data if and only if the results are statistically similar on a per-parameter basis. However, this restriction results in artificially underestimating the natural range of groundwater quality in the upgradient (background) monitoring wells.

NRG has elected to update the groundwater monitoring system and statistical analysis method for the four SWDA active CCR-management cells to reflect a comprehensive, multiunit monitoring network. Establishment of a SWDA multiunit groundwater monitoring system will allow a more accurate estimate of the natural range of upgradient (background) groundwater quality and to use an alternate acceptable statistical method pursuant to the CRR Rule for evaluating the detection monitoring data as follows:

- The groundwater monitoring system has been updated to a single multiunit system that encompasses all four of the SWDA active CCR-management cells in accordance with §257.91(d). Table 3 lists the upgradient and downgradient monitoring wells selected for the SWDA multiunit groundwater monitoring system. All six monitoring wells that are located hydraulically upgradient of the SWDA were designated as the multiunit groundwater monitoring system upgradient (background) wells (MW-23, MW-28D, MW-42, MW-43, MW-47, and MW-48). The downgradient wells were selected based on their location along the SWDA boundary relative to groundwater flow and a well-spacing consistent with the upgradient wells (MW-44, MW-46, MW-50, MW-52, MW-54, MW-55, MW-65, and MW-58). The six designated upgradient wells are located approximately 600 feet to 1,400 feet from each other and the eight designated downgradient wells are located approximately 800 feet to 1,200 feet from each other. Groundwater quality for the downgradient monitoring wells was not considered during the selection of the multiunit groundwater monitoring system. The multiunit monitoring well network is shown on the groundwater potentiometric surface map prepared by TRC for the first post-background/baseline monitoring event conducted by ERM



in October 2017 (Figure 2). The updated multiunit groundwater monitoring system does not include the following wells that were part of the individual groundwater monitoring systems for each of the four CCR-management cell: MW-19, MW-35, MW-45, MW-49, MW-51, MW-53, MW-56, MW-57, and MW-66.

- The statistical method has been updated to include pooling the baseline analytical results for all upgradient wells for each of the Appendix III parameters.
- The statistical method is also updated to utilize upper tolerance limits (UTL) (and lower tolerance limit [LTL] for pH) rather than UPLs (and LPLs for pH) as initially stipulated in the October 2017 *Statistical Analysis Plan*. Both statistical analytical methods are acceptable per §257.93(f)(3).

Table 3  
SWDA Multiunit Monitoring Well Network

UPGRADIENT WELLS	DOWNGRADIENT WELLS
MW-23, MW-28D, MW-42, MW-43, MW-47, MW-48	MW-44, MW-46, MW-50, MW-52, MW-54, MW-55, MW-65, MW-58

### 2.3 Updated Statistically Significant Increases (SSIs)

Table 4 presents the updated statistical comparison values (tolerance limits) for the upgradient groundwater monitoring well detection monitoring background/baseline laboratory analytical results. US EPA’s ProUCL software was used to calculate the UTLs (and LTLs for pH). The ProUCL outputs are provided in Appendix A. Two SSIs were identified based on the updated multiunit groundwater monitoring system and statistical method, as shown in Table 5.



**Table 4**  
**Updated SWDA Multiunit Tolerance Limits**

<b>ANALYTE</b>	<b>DISTRIBUTION</b>	<b>CONFIDENCE COEFFICIENT</b>	<b>LTL</b>	<b>UTL</b>	<b>UNIT</b>
Boron	Nonparametric	0.731	N/A	1.1	mg/L
Calcium	Nonparametric	0.731	N/A	313	mg/L
Chloride	Nonparametric	0.731	N/A	992	mg/L
Fluoride	Nonparametric	0.688	N/A	5.44	mg/L
pH	Nonparametric	0.699	6.9	10.6	SU
Sulfate	Nonparametric	0.731	N/A	1,220	mg/L
TDS	Nonparametric	0.731	N/A	3,890	mg/L

mg/L = milligrams per liter; N/A = Not Applicable; SU= Standard Units  
 The following outlier fluoride values were removed from the upgradient background/ baseline data set:  
 MW-42 – 20.8 mg/L 3/18/2017; MW-43 – 10.6 mg/L 3/8/2017; MW-47 – 10.5 mg/L 3/8/2017;  
 MW-48 20.7 mg/L 3/8/2017

**Table 5**  
**SSIs Identified Based on Updated Statistical Evaluation and Multiunit Monitoring System– October 2017**  
**Detection Monitoring Event**

<b>ANALYTE</b>	<b>WELL</b>	<b>LTL</b>	<b>UTL</b>	<b>SAMPLE DATE</b>	<b>VALUE</b>	<b>UNIT</b>
Boron	MW-44		1.1	2017-10-10	1.27	mg/L
pH	MW-55	6.92	10.62	2017-10-09	11.78	SU

Statistical performance standards require the confidence of an SSI to be at least 95 percent (%). The short baseline for the SWDA results in a confidence level of 73% for the boron data set and 70% for the pH data set because there was no underlying distribution and nonparametric statistics were used. This means that a longer baseline period and/or additional wells to evaluate background/baseline conditions are needed to differentiate between natural variations in groundwater quality and potential affects from the SWDA CCR multiunit. This ASD applies to boron in MW-44 and pH in MW-55.

Additionally, the boron SSI identified in MW-44 based on the first post- background/baseline monitoring event in October 2017 appears to have been adversely affected by extreme rainfall and flooding during Hurricane Harvey in late August 2017. The boron concentration detected in MW-44 during October 2017 was higher than during the background/baseline period. In late

August 2017, an estimated 30 to 40 inches of rain fell within the Site vicinity (NOAA 2017) during Hurricane Harvey and resulted in the Brazos River breaching its banks (45-foot rise at a river gauge located approximately 13 miles upstream of the Site in Richmond, Texas) and flooding the area surrounding the Site. According to NRG Site personnel and aerial images from August 2017, the SWDA cells did not flood during Hurricane Harvey, but the areas immediately outside the SWDA berms (where the monitoring wells are located) did flood. A review of the October 2017 monitoring results indicate the flooding had a discernable effect on water quality, but this effect is anticipated to be temporary.

# Section 3


## Conclusions

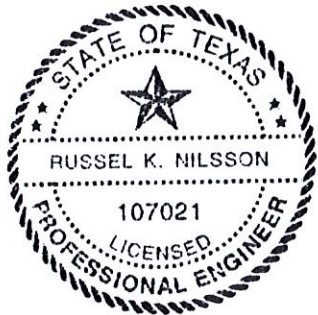
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The groundwater monitoring network at the SWDA was updated to a single multiunit groundwater monitoring system as permitted in 257.91(d) of the CCR Rule. The statistical method was also updated to include pooling the baseline analytical results for each Appendix III parameter for all upgradient wells and to utilize tolerance limits (UTLs and LTL for pH) rather than predictive limits (UPLs and LPL for pH) for evaluation of the background/baseline monitoring results of the updated upgradient (background) multiunit groundwater monitoring well network. The updated statistical evaluation based on a multiunit groundwater monitoring system and updated statistical method identified two SSIs, but these were demonstrated to have sources other than a release to groundwater from the SWDA CCR multiunit. Therefore, detection monitoring using the updated groundwater monitoring system at the SWDA CCR multiunit and implementation of the updated statistical method will be continued..

# Section 4 Certification

I hereby certify that the alternative source demonstration presented within this document for the WA Parish Electric Generating Station SWDA CCR multiunit has been prepared to meet the requirements of Title 40 CFR 257.94 (e) 2 of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of Title 40 CFR 257.94 (e) 2.

Name:  Expiration Date: 9/30/18  
Company: TRC Environmental Corporation Date: 7/24/18



TRC Environmental Corporation | NRG  
Alternate Source Demonstration, W.A. Parish, Solid Waste Disposal Area (SWMU 001)

# Section 5

## References

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# Appendix A

## Updated Background/Baseline Tolerance Limit Calculations

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Background Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation ProUCL 5.17/11/2018 1:24:35 PM  
 From File WorkSheet.xls  
 Full Precision OFF  
 Confidence Coefficient 95%  
 Coverage 95%  
 New or Future K Observations 1  
 Number of Bootstrap Operations 2000

**Boron**

General Statistics

Total Number of Observations	51	Number of Distinct Observations	49
Minimum	0.129	First Quartile	0.244
Second Largest	1.1	Median	0.492
Maximum	1.22	Third Quartile	0.642
Mean	0.468	SD	0.263
Coefficient of Variation	0.563	Skewness	0.627
Mean of logged Data	-0.934	SD of logged Data	0.623

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965
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Normal GOF Test

Shapiro Wilk Test Statistic	0.917	Normal GOF Test	
5% Shapiro Wilk P Value	0.00141	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.148	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.123	Data Not Normal at 5% Significance Level	

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	1.009	90% Percentile (z)	0.806
95% UPL (t)	0.914	95% Percentile (z)	0.901
95% USL	1.249	99% Percentile (z)	1.081

Gamma GOF Test

A-D Test Statistic	1.164	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.14	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.125	Data Not Gamma Distributed at 5% Significance Level	

Gamma Statistics

k hat (MLE)	3.022	k star (bias corrected MLE)	2.857
Theta hat (MLE)	0.155	Theta star (bias corrected MLE)	0.164
nu hat (MLE)	308.2	nu star (bias corrected)	291.4
MLE Mean (bias corrected)	0.468	MLE Sd (bias corrected)	0.277

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1.008	90% Percentile	0.839
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.03	95% Percentile	0.996
95% WH Approx. Gamma UTL with 95% Coverage	1.181	99% Percentile	1.337
95% HW Approx. Gamma UTL with 95% Coverage	1.223		
95% WH USL	1.703	95% HW USL	1.828

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.923	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.00275	Data Not Lognormal at 5% Significance Level	

Lilliefors Test Statistic	0.157	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.123	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	1.413	90% Percentile (z)	0.873
95% UPL (t)	1.128	95% Percentile (z)	1.095
95% USL	2.491	99% Percentile (z)	1.674

**Nonparametric Distribution Free Background Statistics**  
**Data do not follow a Discernible Distribution (0.05)**

Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	50	<b>95% UTL with 95% Coverage</b>	<b>1.1</b>
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by t	0.731
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	1.16	95% BCA Bootstrap UTL with 95% Coverage	1.1
95% UPL	0.961	90% Percentile	0.766
90% Chebyshev UPL	1.266	95% Percentile	0.847
95% Chebyshev UPL	1.627	99% Percentile	1.16
95% USL	1.22		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Calcium**

General Statistics			
Total Number of Observations	51	Number of Distinct Observations	46
Minimum	70	First Quartile	87.05
Second Largest	313	Median	112
Maximum	360	Third Quartile	200.5
Mean	143.1	SD	75.27
Coefficient of Variation	0.526	Skewness	1.229
Mean of logged Data	4.85	SD of logged Data	0.461

Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965

Normal GOF Test			
Shapiro Wilk Test Statistic	0.8	Normal GOF Test	
5% Shapiro Wilk P Value	6.57E-09	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.297	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.123	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	297.7	90% Percentile (z)	239.6
95% UPL (t)	270.5	95% Percentile (z)	266.9
95% USL	366.3	99% Percentile (z)	318.2

Gamma GOF Test			
A-D Test Statistic	3.12	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.754	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.255	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.125	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics		
k hat (MLE)	4.559 k star (bias corrected MLE)	4.304
Theta hat (MLE)	31.39 Theta star (bias corrected MLE)	33.25
nu hat (MLE)	465 nu star (bias corrected)	439
MLE Mean (bias corrected)	143.1 MLE Sd (bias corrected)	68.98

Background Statistics Assuming Gamma Distribution		
95% Wilson Hilferty (WH) Approx. Gamma UPL	273.9 90% Percentile	235.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	274.8 95% Percentile	272.1
95% WH Approx. Gamma UTL with 95% Coverage	313.4 99% Percentile	350
95% HW Approx. Gamma UTL with 95% Coverage	316.7	
95% WH USL	429.4 95% HW USL	443.2

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.869 Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	7.42E-06 Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.226 Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.123 Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level		

Background Statistics assuming Lognormal Distribution		
95% UTL with 95% Coverage	329.5 90% Percentile (z)	230.7
95% UPL (t)	278.9 95% Percentile (z)	272.8
95% USL	501.6 99% Percentile (z)	373.6

**Nonparametric Distribution Free Background Statistics**  
**Data do not follow a Discernible Distribution (0.05)**

Nonparametric Upper Limits for Background Threshold Values		
Order of Statistic, r	50	<b>95% UTL with 95% Coverage</b> <b>313</b>
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by t 0.731
		Approximate Sample Size needed to achieve specified CC 93
95% Percentile Bootstrap UTL with 95% Coverage	336.5	95% BCA Bootstrap UTL with 95% Coverage 327.5
95% UPL	302.2	90% Percentile 270
90% Chebyshev UPL	371.1	95% Percentile 294
95% Chebyshev UPL	474.4	99% Percentile 336.5
95% USL	360	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Chloride**

General Statistics		
Total Number of Observations	51	Number of Distinct Observations 46
Minimum	137	First Quartile 227
Second Largest	992	Median 297
Maximum	1070	Third Quartile 358.5
Mean	380.1	SD 254
Coefficient of Variation	0.668	Skewness 1.715
Mean of logged Data	5.78	SD of logged Data 0.536

Critical Values for Background Threshold Values (BTVs)		
Tolerance Factor K (For UTL)	2.054	d2max (for USL) 2.965

Normal GOF Test		
Shapiro Wilk Test Statistic	0.701	Normal GOF Test
5% Shapiro Wilk P Value	8.42E-13	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.314	Lilliefors GOF Test
5% Lilliefors Critical Value	0.123	Data Not Normal at 5% Significance Level
Data Not Normal at 5% Significance Level		
Background Statistics Assuming Normal Distribution		
95% UTL with 95% Coverage	901.8	90% Percentile (z) 705.6
95% UPL (t)	809.9	95% Percentile (z) 797.9
95% USL	1133	99% Percentile (z) 971
Gamma GOF Test		
A-D Test Statistic	3.621	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.239	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.125	Data Not Gamma Distributed at 5% Significance Level
Data Not Gamma Distributed at 5% Significance Level		
Gamma Statistics		
k hat (MLE)	3.272	k star (bias corrected MLE) 3.093
Theta hat (MLE)	116.2	Theta star (bias corrected MLE) 122.9
nu hat (MLE)	333.8	nu star (bias corrected) 315.5
MLE Mean (bias corrected)	380.1	MLE Sd (bias corrected) 216.1
Background Statistics Assuming Gamma Distribution		
95% Wilson Hilferty (WH) Approx. Gamma UPL	793.5	90% Percentile 669.9
95% Hawkins Wixley (HW) Approx. Gamma UPL	793.9	95% Percentile 790.8
95% WH Approx. Gamma UTL with 95% Coverage	925.3	99% Percentile 1052
95% HW Approx. Gamma UTL with 95% Coverage	933.5	
95% WH USL	1321	95% HW USL 1367
Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.874	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	1.24E-05	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.195	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.123	Data Not Lognormal at 5% Significance Level
Data Not Lognormal at 5% Significance Level		
Background Statistics assuming Lognormal Distribution		
95% UTL with 95% Coverage	972.5	90% Percentile (z) 643.1
95% UPL (t)	801.3	95% Percentile (z) 781.2
95% USL	1584	99% Percentile (z) 1125
<b>Nonparametric Distribution Free Background Statistics</b>		
<b>Data do not follow a Discernible Distribution (0.05)</b>		
Nonparametric Upper Limits for Background Threshold Values		
Order of Statistic, r	50	<b>95% UTL with 95% Coverage 992</b>
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by t 0.731
		Approximate Sample Size needed to achieve specified CC 93
95% Percentile Bootstrap UTL with 95% Coverage	1031	95% BCA Bootstrap UTL with 95% Coverage 1025
95% UPL	984.2	90% Percentile 889
90% Chebyshev UPL	1150	95% Percentile 977.5
95% Chebyshev UPL	1498	99% Percentile 1031
95% USL	1070	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

### Fluoride

#### General Statistics

Total Number of Observations	47	Number of Distinct Observations	46
Minimum	0.198	First Quartile	0.572
Second Largest	5.44	Median	0.818
Maximum	7.72	Third Quartile	1.475
Mean	1.569	SD	1.731
Coefficient of Variation	1.103	Skewness	1.825
Mean of logged Data	0.00636	SD of logged Data	0.894

#### Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.074	d2max (for USL)	2.933
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#### Normal GOF Test

Shapiro Wilk Test Statistic	0.69	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.946	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.301	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.128	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

#### Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	5.158	90% Percentile (z)	3.787
95% UPL (t)	4.504	95% Percentile (z)	4.415
95% USL	6.644	99% Percentile (z)	5.595

#### Gamma GOF Test

A-D Test Statistic	3.312	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.772	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.224	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.132	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

#### Gamma Statistics

k hat (MLE)	1.267	k star (bias corrected MLE)	1.201
Theta hat (MLE)	1.238	Theta star (bias corrected MLE)	1.307
nu hat (MLE)	119.1	nu star (bias corrected)	112.8
MLE Mean (bias corrected)	1.569	MLE Sd (bias corrected)	1.432

#### Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4.375	90% Percentile	3.453
95% Hawkins Wixley (HW) Approx. Gamma UPL	4.395	95% Percentile	4.408
95% WH Approx. Gamma UTL with 95% Coverage	5.507	99% Percentile	6.598
95% HW Approx. Gamma UTL with 95% Coverage	5.645		
95% WH USL	8.775	95% HW USL	9.469

#### Lognormal GOF Test

Shapiro Wilk Test Statistic	0.905	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.946	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.166	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.128	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

#### Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	6.42 90% Percentile (z)	3.163
95% UPL (t)	4.582 95% Percentile (z)	4.376
95% USL	13.83 99% Percentile (z)	8.045

**Nonparametric Distribution Free Background Statistics**  
**Data do not follow a Discernible Distribution (0.05)**

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	46	<b>95% UTL with 95% Coverage</b>	<b>5.44</b>
Approx, f used to compute achieved CC	1.211	Approximate Actual Confidence Coefficient achieved by l	0.688
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	7.036	95% BCA Bootstrap UTL with 95% Coverage	5.44
95% UPL	5.108	90% Percentile	4.376
90% Chebyshev UPL	6.815	95% Percentile	4.565
95% Chebyshev UPL	9.192	99% Percentile	6.671
95% USL	7.72		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**pH**

General Statistics

Total Number of Observations	48	Number of Distinct Observations	36
Minimum	6.37	First Quartile	7.105
Second Largest	10.62	Median	7.19
Maximum	10.87	Third Quartile	7.295
Mean	7.441	SD	0.899
Coefficient of Variation	0.121	Skewness	3.053
Mean of logged Data	2.001	SD of logged Data	0.104

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
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Normal GOF Test

Shapiro Wilk Test Statistic	0.525	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.369	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	9.3	90% Percentile (z)	8.593
95% UPL (t)	8.964	95% Percentile (z)	8.919
95% USL	10.08	99% Percentile (z)	9.532

Gamma GOF Test

A-D Test Statistic	8.848	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.359	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.127	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics

k hat (MLE)	85.28	k star (bias corrected MLE)	79.97
Theta hat (MLE)	0.0872	Theta star (bias corrected MLE)	0.093

nu hat (MLE)	8187 nu star (bias corrected)	7677
MLE Mean (bias corrected)	7.441 MLE Sd (bias corrected)	0.832
<b>Background Statistics Assuming Gamma Distribution</b>		
95% Wilson Hilferty (WH) Approx. Gamma UPL	8.873 90% Percentile	8.525
95% Hawkins Wixley (HW) Approx. Gamma UPL	8.862 95% Percentile	8.86
95% WH Approx. Gamma UTL with 95% Coverage	9.219 99% Percentile	9.512
95% HW Approx. Gamma UTL with 95% Coverage	9.209	
95% WH USL	10.06 95% HW USL	10.06
<b>Lognormal GOF Test</b>		
Shapiro Wilk Test Statistic	0.569 Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947 Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.353 Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127 Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level		
<b>Background Statistics assuming Lognormal Distribution</b>		
95% UTL with 95% Coverage	9.179 90% Percentile (z)	8.456
95% UPL (t)	8.829 95% Percentile (z)	8.782
95% USL	10.05 99% Percentile (z)	9.43

**Nonparametric Distribution Free Background Statistics**  
**Data do not follow a Discernible Distribution (0.05)**

**Nonparametric Upper Limits for Background Threshold Values**

Order of Statistic, r	47	<b>95% UTL with 95% Coverage</b>	<b>10.62</b>
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by l	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	10.78	95% BCA Bootstrap UTL with 95% Coverage	10.78
95% UPL	10.52	90% Percentile	7.716
90% Chebyshev UPL	10.17	95% Percentile	9.914
95% Chebyshev UPL	11.4	99% Percentile	10.75
95% USL	10.87		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Sulfate**

**General Statistics**

Total Number of Observations	51	Number of Distinct Observations	50
Minimum	66.6	First Quartile	102.5
Second Largest	1220	Median	137
Maximum	1230	Third Quartile	223.5
Mean	305.2	SD	372.1
Coefficient of Variation	1.219	Skewness	1.751
Mean of logged Data	5.231	SD of logged Data	0.887

**Critical Values for Background Threshold Values (BTVs)**

Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965
------------------------------	-------	-----------------	-------

**Normal GOF Test**

Shapiro Wilk Test Statistic	0.593	Normal GOF Test	
5% Shapiro Wilk P Value	1.11E-16	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.361	Lilliefors GOF Test	



5% Lilliefors Critical Value	0.123	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
<b>Background Statistics Assuming Normal Distribution</b>			
95% UTL with 95% Coverage	1069	90% Percentile (z)	782
95% UPL (t)	934.9	95% Percentile (z)	917.2
95% USL	1408	99% Percentile (z)	1171
<b>Gamma GOF Test</b>			
A-D Test Statistic	6.154	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.776	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.281	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.127	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
<b>Gamma Statistics</b>			
k hat (MLE)	1.159	k star (bias corrected MLE)	1.104
Theta hat (MLE)	263.4	Theta star (bias corrected MLE)	276.5
nu hat (MLE)	118.2	nu star (bias corrected)	112.6
MLE Mean (bias corrected)	305.2	MLE Sd (bias corrected)	290.5
<b>Background Statistics Assuming Gamma Distribution</b>			
95% Wilson Hilferty (WH) Approx. Gamma UPL	865	90% Percentile	685.8
95% Hawkins Wixley (HW) Approx. Gamma UPL	857	95% Percentile	883.1
95% WH Approx. Gamma UTL with 95% Coverage	1087	99% Percentile	1338
95% HW Approx. Gamma UTL with 95% Coverage	1097		
95% WH USL	1808	95% HW USL	1926
<b>Lognormal GOF Test</b>			
Shapiro Wilk Test Statistic	0.786	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	1.84E-09	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.218	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.123	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
<b>Background Statistics assuming Lognormal Distribution</b>			
95% UTL with 95% Coverage	1157	90% Percentile (z)	583.1
95% UPL (t)	839.5	95% Percentile (z)	805
95% USL	2597	99% Percentile (z)	1474
<b>Nonparametric Distribution Free Background Statistics</b>			
<b>Data do not follow a Discernible Distribution (0.05)</b>			
<b>Nonparametric Upper Limits for Background Threshold Values</b>			
Order of Statistic, r	50	<b>95% UTL with 95% Coverage</b>	<b>1220</b>
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by f	0.731
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	1225	95% BCA Bootstrap UTL with 95% Coverage	1225
95% UPL	1190	90% Percentile	1070
90% Chebyshev UPL	1432	95% Percentile	1155
95% Chebyshev UPL	1943	99% Percentile	1225
95% USL	1230		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

## TDS

### General Statistics

Total Number of Observations	51	Number of Distinct Observations	47
Minimum	682	First Quartile	979
Second Largest	3890	Median	1230
Maximum	4060	Third Quartile	2510
Mean	1703	SD	955.5
Coefficient of Variation	0.561	Skewness	0.892
Mean of logged Data	7.297	SD of logged Data	0.532

### Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965
------------------------------	-------	-----------------	-------

### Normal GOF Test

Shapiro Wilk Test Statistic	0.844	Normal GOF Test	
5% Shapiro Wilk P Value	5.50E-07	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.256	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.123	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

### Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	3666	90% Percentile (z)	2928
95% UPL (t)	3320	95% Percentile (z)	3275
95% USL	4536	99% Percentile (z)	3926

### Gamma GOF Test

A-D Test Statistic	2.131	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.755	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.211	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.125	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

### Gamma Statistics

k hat (MLE)	3.647	k star (bias corrected MLE)	3.446
Theta hat (MLE)	467	Theta star (bias corrected MLE)	494.3
nu hat (MLE)	372	nu star (bias corrected)	351.5
MLE Mean (bias corrected)	1703	MLE Sd (bias corrected)	917.6

### Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3467	90% Percentile	2934
95% Hawkins Wixley (HW) Approx. Gamma UPL	3499	95% Percentile	3438
95% WH Approx. Gamma UTL with 95% Coverage	4018	99% Percentile	4522
95% HW Approx. Gamma UTL with 95% Coverage	4093		
95% WH USL	5658	95% HW USL	5923

### Lognormal GOF Test

Shapiro Wilk Test Statistic	0.901	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	2.36E-04	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.18	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.123	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

### Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	4397	90% Percentile (z)	2917
95% UPL (t)	3629	95% Percentile (z)	3538
95% USL	7137	99% Percentile (z)	5083

## Nonparametric Distribution Free Background Statistics

**Data do not follow a Discernible Distribution (0.05)**

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	50	<b>95% UTL with 95% Coverage</b>	<b>3890</b>
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by t	0.731
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	3975	95% BCA Bootstrap UTL with 95% Coverage	3975
95% UPL	3746	90% Percentile	3050
90% Chebyshev UPL	4598	95% Percentile	3470
95% Chebyshev UPL	5909	99% Percentile	3975
95% USL	4060		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

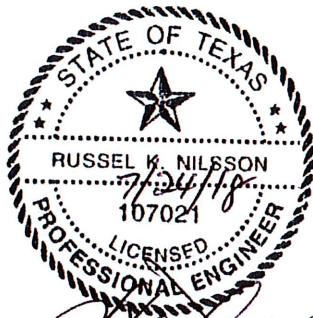


## Alternative Source Demonstration

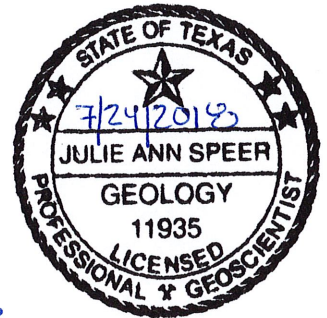
### W.A. Parish Electric Generating Station FGD Emergency Pond (SWMU 020)

**July 2018**

*Prepared For*  
NRG Texas Power, LLC  
Thompsons, Texas



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Senior Engineer



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Geologist/Project Manager

TRC Environmental Corporation | NRG  
Alternate Source Demonstration, W.A. Parish, FGD Emergency Pond (SWMU 020)

\\AUSTIN-FP3\ENVIRONMENTAL\PROJECTS\NRG\PRIVILEGED AND CONFIDENTIAL\PARISH\P&C\ALTERNATE SOURCE  
DETERMINATIONS\E POND\ASD WAP E POND FINAL 072418.DOCX

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Appendix A	Updated Background/Baseline Tolerance Calculations
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# Executive Summary

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The NRG Texas Power, LLC (NRG) W.A. Parish Electric Generating Station (Site) is located in Thompsons, Fort Bend County, Texas. Units managing coal combustion residuals (CCR) at the Site are subject to the United States Environmental Protection Agency's (USEPA) final rule for the regulation and management of CCR under the Resource Conservation and Recovery Act (RCRA) Title 40, Code of Federal Regulations, Part 257 (40 CFR §257) (CCR Rule). CCR generated at the Site consist of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge. The Site has three active CCR units that are subject to regulation under the CCR Rule, including the FGD Emergency Pond (E Pond, SWMU 020), which is the subject of this Alternate Source Demonstration (ASD).

Eight independent background/baseline groundwater monitoring events were conducted at the E Pond between July 2016 and July 2017 per §257.94(b) and the initial post-background/baseline detection monitoring event was conducted in October 2017. Laboratory analytical data for the first post-background/baseline detection monitoring event were received by NRG on October 27, 2017. A statistical evaluation of the first post-background/baseline detection monitoring parameters (Appendix III to §257 of the CCR Rule) was completed to identify statistically significant increases (SSIs) pursuant to §257.93(f) and (g) and in accordance with the Site's CCR *Statistical Analysis Plan* (ERM 2017a). The statistical evaluation identified apparent SSIs in monitoring wells at the E Pond. This ASD was prepared to evaluate the SSIs in accordance with 257.94(e).

Based on the results of the ASD, NRG has updated the statistical analysis method to more adequately estimate the natural range of background groundwater quality and to use an alternative statistical method that is permitted pursuant to §257.93(f). The updated statistical evaluation identified SSIs, but these were demonstrated to have alternative sources than a release from the E Pond to groundwater. Therefore, detection monitoring will continue for the E Pond, utilizing the updated statistical analysis method.

# Section 1

## Introduction

---

### 1.1 Background

The NRG Texas Power, LLC (NRG) W.A. Parish Electric Generating Station (Site) is located in Thompsons, Fort Bend County, Texas, adjacent to Smithers Lake. The electricity generating portion of the Site, or the main Plant Operations Area (Plant Area), is located along the southeastern shore of the lake.

Units managing coal combustion residuals (CCR) at the Site are subject to the United States Environmental Protection Agency's (USEPA) final rule for the regulation and management of CCR under the Resource Conservation and Recovery Act (RCRA) Title 40, Code of Federal Regulations, Part 257 (40 CFR §257) (CCR Rule, effective date October 17, 2015) and the CCR Remand Rule Proposal (March 1, 2018). CCR generated at the Site consist of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge. The Site has three active CCR-management units that are subject to regulation under the CCR Rule and the CCR Remand Rule Proposal, as follows:

- Solid Waste Disposal Area (SWDA) (SWMU 001), which consists of active CCR-management cells Cell 1C, Cell 2A-Pug Mill, Cell 2B, and Cell 3;
- Air Preheater Pond (APH Pond, SWMU 021); and
- FGD Emergency Pond (E Pond, SWMU 020).

The APH Pond is located in the central portion of the Plant Area as shown on Figure 1. The SWDA is located to the north of the Plant Area and both the APH and E Ponds are located to the south within the Plant Area. The E Pond is the subject of this Alternative Source Demonstration (ASD).

The dimensions of the E Pond are approximately 200-feet by 110-feet and the aerial extent is approximately 0.5 acres. According to NRG, the E pond receives storm water runoff from the FGD dewatering area and also blowdown from the FGD system. This pond may also receive the contents of an FGD process vessel when the FGD system is not in operation.

### 1.2 Purpose

On behalf of NRG, Environmental Resources Management, Inc. (ERM) conducted eight independent background/baseline groundwater monitoring events between July 2016 and July 2017 per §257.94(b) and the first post-background/baseline detection monitoring event was



conducted in October 2017. Results of the eight background/baseline and first post-background/baseline detection monitoring results for the E Pond were documented in the January 30, 2018, *Annual Groundwater Monitoring Report, FGD Emergency Pond (SWMU 020)* (ERM 2018a) and the March 1, 2018, *Groundwater Monitoring Report, FGD Emergency Pond (SWMU 020)* (ERM 2018b) in accordance with the requirements of §257.90(e).

A statistical evaluation of the first post-background/baseline detection monitoring parameters (Appendix III to §257 of the CCR Rule) was completed pursuant to §257.93(f) and (g) and in accordance with the CCR *Statistical Analysis Plan* (ERM 2017a). As part of the statistical evaluation, the first post-background/baseline detection monitoring data were evaluated to identify statistically significant increases (SSIs) in detection monitoring parameters to determine if concentrations in detection monitoring wells exceed background levels. The statistical evaluation identified potential SSIs in the first post-background/baseline detection monitoring wells, which was documented in the March 1, 2018, *Groundwater Monitoring Report, FGD Emergency Pond (SWMU 020)* (ERM 2018b). On behalf of NRG, TRC Environmental Corporation (TRC) prepared this ASD to evaluate the SSIs identified in the March 1, 2018, *Groundwater Monitoring Report, FGD Emergency Pond (SWMU 020)* (ERM 2018b) in accordance with §257.94(e).

### 1.3 Hydrogeology

According to the *Geologic Atlas of Texas, Houston Sheet* (BEG 1982), the Site is underlain by alluvium and the Beaumont formation (also commonly referred to as Beaumont Clay). The alluvium is present along the Brazos River, which is located approximately 0.9 miles from the northern boundary of the SWDA CCR units. Both the alluvium and the Beaumont formation are comprised of clay, silt, and sand; and may include stream channel, point-bar, natural levee, backswamp, coastal marsh and mud-flat deposits. The thickness of the Beaumont formation is approximately 100 feet. The alluvium is not present at the Plant Area which is consistent with this area being located outside of the Brazos River floodplain zone (FBC 2018).

The alluvium and Beaumont Formation are located within the upper unit of the Chicot aquifer system. At most locations throughout Fort Bend County, the Chicot aquifer system is under confined conditions (TWDB 1990). The Chicot aquifer system is primarily recharged by precipitation at locations where it outcrops in Austin, Harris, and Waller Counties; groundwater then flows laterally within Fort Bend County (TWDB 1990). Site investigations performed by others on behalf of NRG also indicate that the uppermost groundwater-bearing units at the Site are under confined conditions.

Site investigations conducted in May 2016 and November 2016 identified three main subsurface strata at the Site, which were designated as Stratum DA-1 through DA-3 at the SWDA and

Stratum PA-1 through PA-3 at the Plant Area. The strata are fully described in the October 2017 CCR Groundwater Monitoring Networks report (ERM 2017b) and are summarized below.

### 1.3.1 Stratum DA-1 and Stratum PA-1 (Upper Confining Unit)

Stratum DA-1 and Stratum PA-1 are both predominately silty clay with some sandy clay, clay, and sandy silt. Stratum DA-1 is generally present from the ground surface to approximately 30 feet below ground surface (bgs), but this stratum ranges in thickness from 20 feet to 60 feet throughout the SWDA. Stratum PA-1 is present from the ground surface to depths ranging from 15 feet bgs to 32 feet bgs.

Stratum DA-1 and Stratum PA-1 both serve as confining units to underlying Stratum DA-2 and Stratum PA-2, respectively, which comprise the uppermost groundwater-bearing unit at the Site. Geotechnical laboratory testing indicates that the hydraulic conductivity of Stratum DA-1 and Stratum PA-1 is 2.85E-08 centimeters per second (cm/sec) and 2.03E-08 cm/sec, respectively (ERM 2017b).

### 1.3.2 Stratum DA-2 and Stratum PA-2 (Uppermost Groundwater-Bearing Unit)

Stratum DA-2 consists of interbedded sand, silty sand, clayey sand, and clayey sandy silt with some gravelly sand. The clay content within Stratum DA-2 varies across the SWDA. Stratum PA-2 is predominantly silty sand with varying sand and silt content and trace clay. Stratum DA-2 and Stratum PA-2 are generally greater than 10 feet in thickness with bottom depths ranging from 60 to 80 feet bgs.

Both Stratum DA-2 and Stratum PA-2 are saturated and comprise the uppermost groundwater-bearing unit at the CCR units. CCR monitoring wells in the SWDA and Plant Area are completed within Stratum DA-2 and Stratum PA-2, respectively. Slug testing results for CCR monitoring wells indicate hydraulic conductivity ranges from 6.86E-04 cm/sec to 2.59E-02 cm/sec in Stratum DA-2; and from 6.68E-04 cm/sec to 4.26E-02 cm/sec in Stratum PA-2 (ERM 2017b). Groundwater primarily flows to the northeast towards the Brazos River beneath the SWDA; to the southwest beneath the E Pond, and to the southeast beneath the APH Pond.

### 1.3.3 Stratum DA-3 and Stratum PA-3 (Lower Confining Unit)

Stratum DA-3 and Stratum PA-3 are both predominantly clay to silty clay. These strata appear to be bottom confining layers to the overlying groundwater-bearing units (Stratum DA-2 and Stratum PA-2). The thicknesses of Stratum DA-3 and Stratum PA-3 have not been defined.

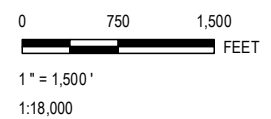
#### 1.3.4 FGD Emergency Pond – Hydrogeology

The certified CCR groundwater monitoring well network established for the E Pond consists of two upgradient monitoring wells (MW-36 and MW-60) and three downgradient monitoring wells (MW-37, MW-38, and MW-61). The E Pond monitoring wells were completed into Stratum PA-2. A groundwater potentiometric surface map prepared by TRC for the first post-background/baseline monitoring event conducted by ERM in October 2017 is provided as Figure 2. Groundwater flows primarily to the southwest beneath the E Pond at a gradient ranging from 0.010 feet per foot (ft/ft) to 0.030 ft/ft.



**LEGEND**

 UNIT BOUNDARY



AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).



505 East Huntland Drive, Suite 250  
 Austin, TX 78752  
 Phone: 512.329.6080  
 www.trcsolutions.com

PROJECT:

**NRG TEXAS POWER, LLC  
 W.A. PARISH STATION  
 THOMPSONS, TEXAS**

TITLE:

**SITE MAP**

DRAWN BY:

MHORN

CHECKED BY:

JSPEER

APPROVED BY:

DATE:

JULY 2018

PROJ. NO.:

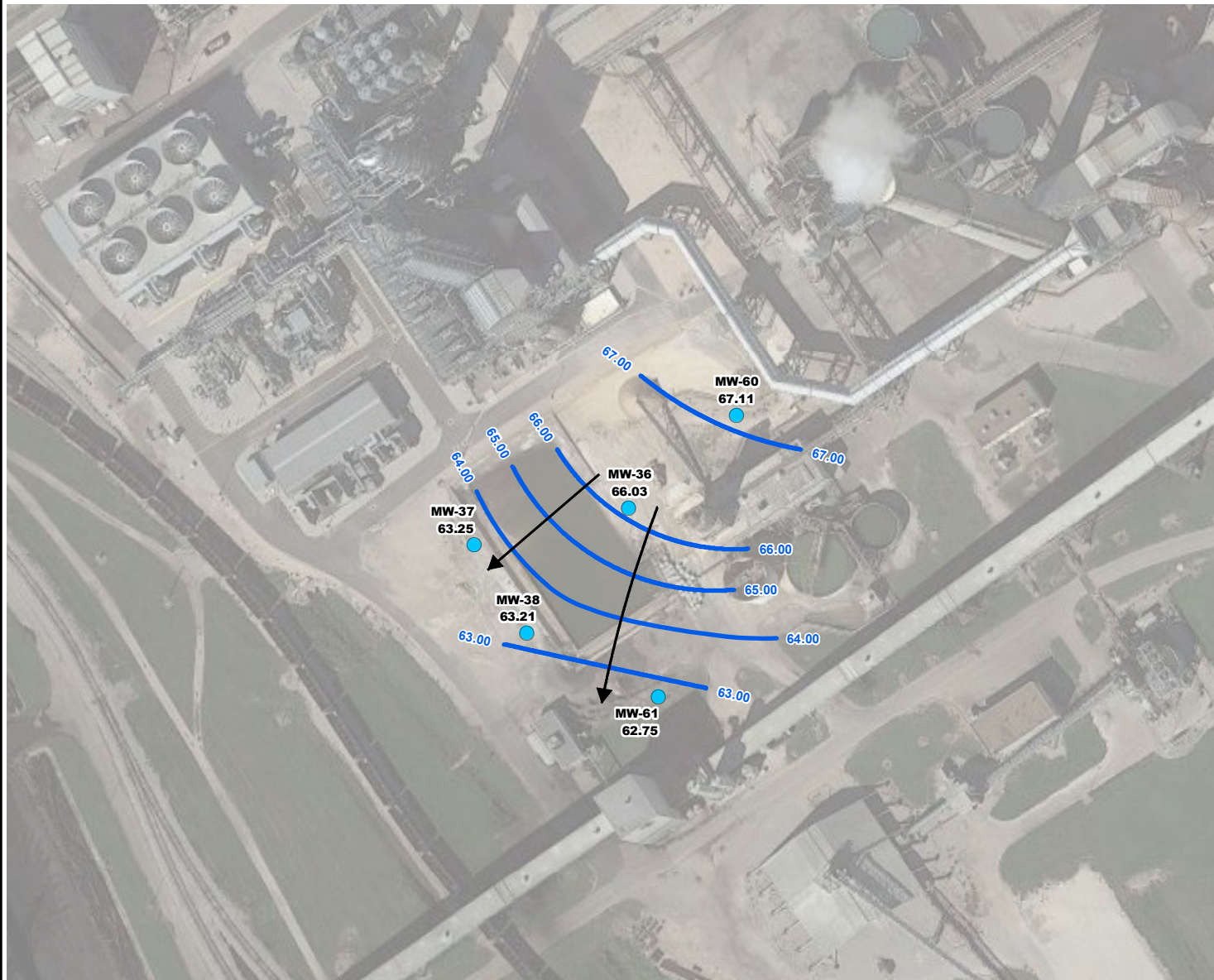
294645.0000.0000

FILE:

294645\_1.mxd

**FIGURE 1**

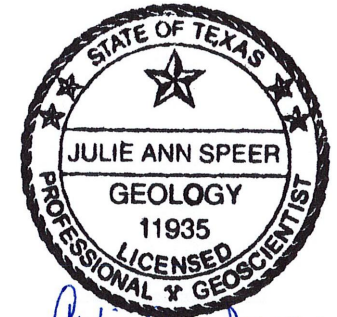




**LEGEND**

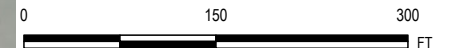
- MONITORING WELL
- 67.00** GROUNDWATER ELEVATION (FT MSL)
- GROUNDWATER ELEVATION
- CONTOUR - DASHED WHERE INFERRED (FT MSL)
- ← GROUNDWATER FLOW DIRECTION

NOTE:  
GROUNDWATER ELEVATION CONTOURS INTERPRETED BY TRC BASED ON GROUNDWATER ELEVATIONS MEASURED BY ENVIRONMENTAL RESOURCES MANAGEMENT, INC. (ERM) ON OCTOBER 9, 2017.



*Julie Ann Speer*  
7/24/2018

AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).



1" = 150'  
1:1,800



505 East Huntland Drive, Suite 250  
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TRC - GIS

PROJECT:

**NRG TEXAS POWER, LLC  
W.A. PARISH STATION  
THOMPSONS, TEXAS**

TITLE:

**FGD EMERGENCY POND, GROUNDWATER  
POTENTIOMETRIC SURFACE MAP - OCTOBER 2017**

DRAWN BY: MHORN

CHECKED BY: JSPEER

APPROVED BY: JSPEER

DATE: JULY 2018

PROJ. NO.: 294645.0000.0000

FILE: 294645\_2\_EP.mxd

**FIGURE 2**

# Section 2

## Alternative Source Demonstration

---

As discussed in the March 1, 2018, *Groundwater Monitoring Report, FGD Emergency Pond (SWMU 020)* (ERM 2018b), statistical evaluation of the first post-background/baseline detection monitoring laboratory analytical results identified potential SSIs of Appendix III parameters above background/baseline. This section evaluates alternative sources for the potential SSIs as per §257.94(e)(2).

### 2.1 Initially Identified Statistically Significant Increases (SSIs)

The Site CCR *Statistical Analysis Plan* (ERM 2017a) stated the E Pond groundwater data would be evaluated for SSIs using prediction limits per §257.93(f)(3) for the certified groundwater monitoring network. Background/baseline was established for the five monitoring wells in accordance with the *Statistical Analysis Plan* based on detection monitoring samples collected between July 2016 and July 2017. The first post-background/baseline detection monitoring samples were collected in October 2017. NRG received the first post-background/baseline laboratory analytical results on October 27, 2017. The initially identified SSIs over background/baseline that were reported in the March 1, 2018, *Groundwater Monitoring Report, FGD Emergency Pond (SWMU 020)* (ERM 2018b) are summarized below in Table 1. All other Appendix III constituents were within the statistical background/baseline limits, which were based on the upper predictive limits (UPLs) and (the lower predictive limit [LPL] for pH), as summarized in the March 1, 2018 report.

Table 1  
Initially Identified SSIs – October 2017 Detection Monitoring Event

ANALYTE	WELL	LPL	UPL	SAMPLE DATE	VALUE	UNIT
Boron	MW-37	N/A	0.136	2017-10-09	0.296	mg/L
Boron	MW-38	N/A	0.136	2017-10-09	1.38	mg/L
Boron	MW-61	N/A	0.136	2017-10-09	1.11	mg/L
Calcium	MW-38	N/A	278	2017-10-09	655	mg/L
Calcium	MW-61	N/A	278	2017-10-09	335	mg/L
pH	MW-38	6.43	6.93	2017-10-09	7.93	SU
Sulfate	MW-38	N/A	852	2017-10-09	1,520	mg/L
Sulfate	MW-61	N/A	852	2017-10-09	1,300	mg/L
TDS	MW-38	N/A	1,930	2017-10-09	2,210	mg/L
TDS	MW-61	N/A	1,930	2017-10-09	2,660	mg/L

LPL = lower prediction limit  
UPL = upper prediction limit

mg/L = milligrams per liter  
SU = standard units

N/A = Not Applicable

In accordance with §257.94(e)(2), NRG may demonstrate that a source other than the CCR unit caused the SSIs over background levels for a constituent or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. This ASD has been prepared to evaluate the initially identified SSIs post-background/baseline detection monitoring event performed at the E Pond in October 2017.

## 2.2 Updates to Statistical Method

The October 2017 *Statistical Analysis Plan* (ERM, 2017a) stipulated pooling upgradient monitoring well data (MW-36 and MW-60) if and only if the results are statistically similar on a per-parameter basis. However, this restriction results in artificially underestimating the natural range of groundwater quality in the upgradient (background) monitoring wells. NRG has elected to update the statistical analysis method to remove this restriction and to use an alternate acceptable statistical method pursuant to the CRR Rule for evaluating the detection monitoring data as follows:

- The statistical method has been updated to include pooling the background/baseline analytical results for all upgradient (background) wells for each of the Appendix III parameters.
- The statistical method is also updated to utilize upper tolerance limits (UTL) (and lower tolerance limit [LTL] for pH) rather than UPLs (and LPLs for pH) as initially stipulated in the

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Alternate Source Demonstration, W.A. Parish, FGD Emergency Pond



October 2017 *Statistical Analysis Plan*. Both statistical analytical methods are acceptable per §257.93(f)(3).

### 2.3 Updated Statistically Significant Increases (SSIs)

Table 2 presents the updated statistical comparison values (tolerance limits) for the upgradient groundwater monitoring well detection monitoring background/baseline laboratory analytical results. US EPA's ProUCL software was used to calculate the UTLs (and LTLs for pH). The ProUCL outputs are provided in Appendix A.

**Table 2**  
**Updated E Pond Tolerance Limits**

<b>ANALYTE</b>	<b>DISTRIBUTION</b>	<b>CONFIDENCE COEFFICIENT</b>	<b>LTL</b>	<b>UTL</b>	<b>UNIT</b>
Boron	Normal	0.95	N/A	0.16	mg/L
Calcium	Normal	0.95	N/A	301	mg/L
Chloride	Normal	0.95	N/A	359	mg/L
Fluoride	Gamma	0.95	N/A	7.0	mg/L
pH	Normal	0.95	6.4	7.1	mg/L
Sulfate	Gamma	0.95	N/A	1,070	mg/L
TDS	Normal	0.95	N/A	1,958	mg/L

N/A Not Applicable

The following outlier fluoride values were removed from the upgradient background/ baseline data set:  
MW-36 – 20 U mg/L 9/1/2016; MW-60 – 20.9 mg/L 2/8/2017

Ten SSIs were identified based on the revised statistical method, as shown on Table 3.

**Table 3**  
**SSIs Identified Based on Updated Statistical Evaluation – October 2017 Detection Monitoring Event**

ANALYTE	WELL	LTL	UTL	SAMPLE DATE	VALUE	UNIT
Boron	MW-37	N/A	0.160	2017-10-09	0.296	mg/L
Boron	MW-38	N/A	0.160	2017-10-09	1.38	mg/L
Boron	MW-61	N/A	0.160	2017-10-09	1.11	mg/L
Calcium	MW-38	N/A	301	2017-10-09	655	mg/L
Calcium	MW-61	N/A	301	2017-10-09	335	mg/L
pH	MW-38	6.4	7.1	2017-10-09	7.93	SU
Sulfate	MW-38	N/A	1,070	2017-10-09	1,520	mg/L
Sulfate	MW-61	N/A	1,070	2017-10-09	1,300	mg/L
TDS	MW-38	N/A	1,958	2017-10-09	2,210	mg/L
TDS	MW-61	N/A	1,958	2017-10-09	2,660	mg/L

The bottom of the E Pond is separated from the uppermost groundwater-bearing unit by a confining unit (Stratum PA-1) that hydraulically isolates the E Pond and the uppermost groundwater-bearing unit. Available data indicate the uppermost groundwater-bearing unit is under confined conditions and the confining unit is an effective hydraulic barrier between the bottom of the E Pond and the underlying groundwater-bearing unit, as follows:

- Based on review of the boring logs for the groundwater monitoring wells installed around the E Pond, the clay confining unit (Stratum PA-1) was documented to be present at each monitoring well surrounding the E Pond from the ground surface to depths ranging from 19 feet bgs to 32 feet bgs (i.e., thickness ranging from 19 feet to 32 feet).
- Geotechnical laboratory results of a soil sample collected from the confining unit at 10 feet bgs indicates the confining unit is a lean clay with a hydraulic conductivity of 2.03E-0-8 cm/sec (ERM 2017b), which is consistent with an impervious lithologic unit that exceeds the required specifications per 40 CFR §257.71(a) for a compacted clay liner.

Therefore, it does not appear likely that the source for the SSIs identified in downgradient wells for the first post-background/baseline detection monitoring event are due to a release from the E Pond and that the SSIs observed in groundwater in Stratum PA-2 are likely related to another source, such as the following:

- The E Pond is located at an active power generating area at the Plant Area and non CCR-related and CCR-related materials are actively managed near the E Pond. For example, the FGD loadout pad immediately adjoins the E Pond. The presence of non CCR-related and CCR-related materials near the E pond may be a potential source for some or all of the SSIs identified in groundwater samples collected from wells located downgradient of the E Pond, as described further below.
- During the second post background/baseline detection monitoring event in May 2018, TRC's field personnel observed stockpiles of CCR at, and in some cases, on top of the groundwater monitoring wells. In some cases, this material needed to be removed from around the wells prior to monitoring. Furthermore, TRC's field personnel reported that the environment during sampling was very "dusty" and field personnel were concerned that fugitive CCR dust was settling into the well during sample collection. Finally, TRC's field personnel noted that groundwater in the wells required more time to stabilize before sample collection compared to other Site wells.

## Section 3


# Conclusions

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The statistical method was revised to include pooling the background/baseline analytical results for all upgradient (background) wells for each Appendix III parameter and to utilize UTLs and LTLs rather than UPLs and LPLs for baseline monitoring results. The revised statistical evaluation identified 10 SSIs, but these were demonstrated to have alternative sources other than a release from the E Pond to groundwater. Therefore, detection monitoring will continue for the E Pond, utilizing the updated statistical analysis method.

# Section 4 Certification

I hereby certify that the alternative source demonstration presented within this document for the WA Parish Electric Generating Station E Pond has been prepared to meet the requirements of Title 40 CFR 257.94 (e) 2 of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of Title 40 CFR 257.94 (e) 2.

Name:  Expiration Date: 9/30/18  
Company: TRC Environmental Corporation Date: 7/24/18



# Section 5

## References

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- BEG 1982. Geologic Atlas of Texas, Houston Sheet. The University of Texas at Austin, Bureau of Economic Geology. Revised 1982.
- ERM 2017a. CCR Statistical Analysis Plan, W.A. Parish, Electric Generating Station, Thompsons, Texas. Environmental Resource Management, Inc. October 2017.
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- FBC 2018. Fort Bend County Floodplain Mapping Tool. Fort Bend County, Texas. Accessed on July 12, 2018.
- TWDB 1990. Evaluation of Water Resources of Fort Bend County, Texas. Texas Water Development Board Report 321. David Thorkildsen. January 1990.

# Appendix A

## Updated Background/Baseline Tolerance Calculations

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Background Statistics for Uncensored Full Data Sets

User Selected Options  
 Date/Time of Computation ProUCL 5.14/17/2018 10:31:07 AM  
 From File WorkSheet.xls  
 Full Precision OFF  
 Confidence Coefficient 95%  
 Coverage 95%  
 New or Future K Observations 1  
 Number of Bootstrap Operations 2000

**E Pond B**

General Statistics

Total Number of Observations	16	Number of Distinct Observations	16
Minimum	0.0706	First Quartile	0.0823
Second Largest	0.132	Median	0.0937
Maximum	0.155	Third Quartile	0.116
Mean	0.1	SD	0.0236
Coefficient of Variation	0.235	Skewness	0.894
Mean of logged Data	-2.324	SD of logged Data	0.224

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443
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Normal GOF Test

Shapiro Wilk Test Statistic	0.924	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.887	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.169	Lilliefors GOF Test
5% Lilliefors Critical Value	0.213	Data appear Normal at 5% Significance Level

**Data appear Normal at 5% Significance Level**

Background Statistics Assuming Normal Distribution

<b>95% UTL with 95% Coverage</b>	<b>0.16</b>	90% Percentile (z)	0.13
95% UPL (t)	0.143	95% Percentile (z)	0.139
95% USL	0.158	99% Percentile (z)	0.155

Gamma GOF Test

A-D Test Statistic	0.364	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.736	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.151	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	20.8	k star (bias corrected MLE)	16.94
Theta hat (MLE)	0.00482	Theta star (bias corrected MLE)	0.00592
nu hat (MLE)	665.6	nu star (bias corrected)	542.1
MLE Mean (bias corrected)	0.1	MLE Sd (bias corrected)	0.0244

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.145	90% Percentile	0.132
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.145	95% Percentile	0.143
95% WH Approx. Gamma UTL with 95% Coverage	0.167	99% Percentile	0.165
95% HW Approx. Gamma UTL with 95% Coverage	0.168		
95% WH USL	0.164	95% HW USL	0.165

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.957	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.887	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.136	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.213	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution		
95% UTL with 95% Coverage	0.172 90% Percentile (z)	0.13
95% UPL (t)	0.147 95% Percentile (z)	0.142
95% USL	0.169 99% Percentile (z)	0.165

Nonparametric Distribution Free Background Statistics  
Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values		
Order of Statistic, r	16 95% UTL with 95% Coverage	0.155
Approx, f used to compute achieved CC	0.842 Approximate Actual Confidence Coefficient achieved by U	0.56
	Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.155 95% BCA Bootstrap UTL with 95% Coverage	0.155
95% UPL	0.155 90% Percentile	0.129
90% Chebyshev UPL	0.173 95% Percentile	0.138
95% Chebyshev UPL	0.206 99% Percentile	0.152
95% USL	0.155	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.14/17/2018 10:28:53 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

**E Pond Ca**

General Statistics		
Total Number of Observations	16 Number of Distinct Observations	15
Minimum	186 First Quartile	210.3
Second Largest	278 Median	221.5
Maximum	281 Third Quartile	245.8
Mean	228.9 SD	28.47
Coefficient of Variation	0.124 Skewness	0.407
Mean of logged Data	5.426 SD of logged Data	0.123

Critical Values for Background Threshold Values (BTVs)		
Tolerance Factor K (For UTL)	2.524 d2max (for USL)	2.443

Normal GOF Test		
Shapiro Wilk Test Statistic	0.956 Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.887 Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.159 Lilliefors GOF Test	
5% Lilliefors Critical Value	0.213 Data appear Normal at 5% Significance Level	

**Data appear Normal at 5% Significance Level**

Background Statistics Assuming Normal Distribution		
<b>95% UTL with 95% Coverage</b>	<b>300.8</b> 90% Percentile (z)	265.4
95% UPL (t)	280.4 95% Percentile (z)	275.8
95% USL	298.5 99% Percentile (z)	295.2

Gamma GOF Test		
A-D Test Statistic	0.249 Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.736 Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.148 Kolmogorov-Smirnov Gamma GOF Test	

5% K-S Critical Value 0.214 Detected data appear Gamma Distributed at 5% Significance Level  
 Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics		
k hat (MLE)	70.17 k star (bias corrected MLE)	57.05
Theta hat (MLE)	3.263 Theta star (bias corrected MLE)	4.013
nu hat (MLE)	2245 nu star (bias corrected)	1826
MLE Mean (bias corrected)	228.9 MLE Sd (bias corrected)	30.31

Background Statistics Assuming Gamma Distribution		
95% Wilson Hilferty (WH) Approx. Gamma UPL	282.6 90% Percentile	268.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	282.9 95% Percentile	281
95% WH Approx. Gamma UTL with 95% Coverage	306.5 99% Percentile	305.3
95% HW Approx. Gamma UTL with 95% Coverage	307.4	
95% WH USL	303.8 95% HW USL	304.5

Lognormal GOF Test	
Shapiro Wilk Test Statistic	0.966 Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.887 Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.139 Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.213 Data appear Lognormal at 5% Significance Level
Data appear Lognormal at 5% Significance Level	

Background Statistics assuming Lognormal Distribution		
95% UTL with 95% Coverage	310.1 90% Percentile (z)	266.1
95% UPL (t)	283.9 95% Percentile (z)	278.3
95% USL	307.1 99% Percentile (z)	302.7

Nonparametric Distribution Free Background Statistics  
 Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values		
Order of Statistic, r	16 95% UTL with 95% Coverage	281
Approx, f used to compute achieved CC	0.842 Approximate Actual Confidence Coefficient achieved by U	0.56
	Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	281 95% BCA Bootstrap UTL with 95% Coverage	281
95% UPL	281 90% Percentile	268
90% Chebyshev UPL	317 95% Percentile	278.8
95% Chebyshev UPL	356.8 99% Percentile	280.6
95% USL	281	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**E Pond CI**

General Statistics		
Total Number of Observations	16 Number of Distinct Observations	14
Minimum	241 First Quartile	273.5
Second Largest	320 Median	290.5
Maximum	341 Third Quartile	306.3
Mean	289.9 SD	27.19
Coefficient of Variation	0.0938 Skewness	-0.0912
Mean of logged Data	5.665 SD of logged Data	0.0949

Critical Values for Background Threshold Values (BTVs)		
Tolerance Factor K (For UTL)	2.524 d2max (for USL)	2.443

Normal GOF Test	
Shapiro Wilk Test Statistic	0.986 Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.887 Data appear Normal at 5% Significance Level

Lilliefors Test Statistic 0.101 Lilliefors GOF Test  
 5% Lilliefors Critical Value 0.213 Data appear Normal at 5% Significance Level  
**Data appear Normal at 5% Significance Level**

Background Statistics Assuming Normal Distribution

<b>95% UTL with 95% Coverage</b>	<b>358.6</b>	90% Percentile (z)	324.8
95% UPL (t)	339.1	95% Percentile (z)	334.7
95% USL	356.4	99% Percentile (z)	353.2

Gamma GOF Test

A-D Test Statistic 0.16 Anderson-Darling Gamma GOF Test  
 5% A-D Critical Value 0.736 Detected data appear Gamma Distributed at 5% Significance Level  
 K-S Test Statistic 0.11 Kolmogorov-Smirnov Gamma GOF Test  
 5% K-S Critical Value 0.214 Detected data appear Gamma Distributed at 5% Significance Level  
 Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	119.7	k star (bias corrected MLE)	97.26
Theta hat (MLE)	2.423	Theta star (bias corrected MLE)	2.981
nu hat (MLE)	3829	nu star (bias corrected)	3112
MLE Mean (bias corrected)	289.9	MLE Sd (bias corrected)	29.4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	341.4	90% Percentile	328.2
95% Hawkins Wixley (HW) Approx. Gamma UPL	341.7	95% Percentile	339.9
95% WH Approx. Gamma UTL with 95% Coverage	363.7	99% Percentile	362.7
95% HW Approx. Gamma UTL with 95% Coverage	364.5		
95% WH USL	361.2	95% HW USL	361.9

Lognormal GOF Test

Shapiro Wilk Test Statistic 0.98 Shapiro Wilk Lognormal GOF Test  
 5% Shapiro Wilk Critical Value 0.887 Data appear Lognormal at 5% Significance Level  
 Lilliefors Test Statistic 0.118 Lilliefors Lognormal GOF Test  
 5% Lilliefors Critical Value 0.213 Data appear Lognormal at 5% Significance Level  
 Data appear Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	366.9	90% Percentile (z)	326.1
95% UPL (t)	342.7	95% Percentile (z)	337.5
95% USL	364.1	99% Percentile (z)	360

Nonparametric Distribution Free Background Statistics

Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	16	95% UTL with 95% Coverage	341
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by U	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	341	95% BCA Bootstrap UTL with 95% Coverage	341
95% UPL	341	90% Percentile	320
90% Chebyshev UPL	374	95% Percentile	325.3
95% Chebyshev UPL	412.1	99% Percentile	337.9
95% USL	341		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**E Pond F**

General Statistics

Total Number of Observations 14 Number of Distinct Observations 14

Minimum	0.2	First Quartile	0.523
Second Largest	4.24	Median	0.751
Maximum	4.41	Third Quartile	1.705
Mean	1.374	SD	1.36
Coefficient of Variation	0.99	Skewness	1.635
Mean of logged Data	-0.084	SD of logged Data	0.927
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.614	d2max (for USL)	2.372
Normal GOF Test			
Shapiro Wilk Test Statistic	0.756	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.226	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.226	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	4.929	90% Percentile (z)	3.117
95% UPL (t)	3.867	95% Percentile (z)	3.611
95% USL	4.599	99% Percentile (z)	4.538
Gamma GOF Test			
A-D Test Statistic	0.541	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.195	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.233	Detected data appear Gamma Distributed at 5% Significance Level	
<b>Detected data appear Gamma Distributed at 5% Significance Level</b>			
Gamma Statistics			
k hat (MLE)	1.387	k star (bias corrected MLE)	1.138
Theta hat (MLE)	0.99	Theta star (bias corrected MLE)	1.208
nu hat (MLE)	38.85	nu star (bias corrected)	31.86
MLE Mean (bias corrected)	1.374	MLE Sd (bias corrected)	1.288
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	4.197	90% Percentile	3.065
95% Hawkins Wixley (HW) Approx. Gamma UPL	4.324	95% Percentile	3.934
95% WH Approx. Gamma UTL with 95% Coverage	6.507	99% Percentile	5.934
<b>95% HW Approx. Gamma UTL with 95% Coverag</b>	<b>7.033</b>		
95% WH USL	5.717	95% HW USL	6.085
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.953	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.157	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.226	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	10.37	90% Percentile (z)	3.016
95% UPL (t)	5.028	95% Percentile (z)	4.223
95% USL	8.283	99% Percentile (z)	7.943
Nonparametric Distribution Free Background Statistics			
Data appear Gamma Distributed at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	14	95% UTL with 95% Coverage	4.41
Approx, f used to compute achieved CC	0.737	Approximate Actual Confidence Coefficient achieved by U	0.512
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	4.41	95% BCA Bootstrap UTL with 95% Coverage	4.41
95% UPL	4.41	90% Percentile	3.517
90% Chebyshev UPL	5.597	95% Percentile	4.3

95% Chebyshev UPL	7.51 99% Percentile	4.388
95% USL	4.41	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

### E Pond pH

#### General Statistics

Total Number of Observations	16	Number of Distinct Observations	14
Minimum	6.54	First Quartile	6.663
Second Largest	6.91	Median	6.81
Maximum	6.91	Third Quartile	6.863
Mean	6.769	SD	0.121
Coefficient of Variation	0.0179	Skewness	-0.508
Mean of logged Data	1.912	SD of logged Data	0.018

#### Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443
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#### Normal GOF Test

Shapiro Wilk Test Statistic	0.9	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.887	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.164	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.213	Data appear Normal at 5% Significance Level	

**Data appear Normal at 5% Significance Level**

#### Background Statistics Assuming Normal Distribution

<b>95% UTL with 95% Coverage</b>	<b>7.075</b>	90% Percentile (z)	6.924
95% UPL (t)	6.988	95% Percentile (z)	6.968
95% USL	7.065	99% Percentile (z)	7.051

#### Gamma GOF Test

A-D Test Statistic	0.706	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.736	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.17	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

#### Gamma Statistics

k hat (MLE)	3296	k star (bias corrected MLE)	2678
Theta hat (MLE)	0.00205	Theta star (bias corrected MLE)	0.00253
nu hat (MLE)	105476	nu star (bias corrected)	85700
MLE Mean (bias corrected)	6.769	MLE Sd (bias corrected)	0.131

#### Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	6.99	90% Percentile	6.937
95% Hawkins Wixley (HW) Approx. Gamma UPL	6.991	95% Percentile	6.985
95% WH Approx. Gamma UTL with 95% Coverage	7.08	99% Percentile	7.077
95% HW Approx. Gamma UTL with 95% Coverage	7.081		
95% WH USL	7.07	95% HW USL	7.071

#### Lognormal GOF Test

Shapiro Wilk Test Statistic	0.898	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.887	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.167	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.213	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

#### Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	7.083	90% Percentile (z)	6.926
---------------------------	-------	--------------------	-------

95% UPL (t)	6.992 95% Percentile (z)	6.971
95% USL	7.072 99% Percentile (z)	7.057

Nonparametric Distribution Free Background Statistics  
Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	16 95% UTL with 95% Coverage	6.91
Approx, f used to compute achieved CC	0.842 Approximate Actual Confidence Coefficient achieved by U	0.56
	Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	6.91 95% BCA Bootstrap UTL with 95% Coverage	6.91
95% UPL	6.91 90% Percentile	6.9
90% Chebyshev UPL	7.144 95% Percentile	6.91
95% Chebyshev UPL	7.314 99% Percentile	6.91
95% USL	6.91	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**E Pond SO4**

General Statistics

Total Number of Observations	16 Number of Distinct Observations	16
Minimum	180 First Quartile	237.6
Second Largest	655 Median	316.5
Maximum	876 Third Quartile	512.5
Mean	386.1 SD	203.3
Coefficient of Variation	0.526 Skewness	1.069
Mean of logged Data	5.837 SD of logged Data	0.497

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524 d2max (for USL)	2.443
------------------------------	-----------------------	-------

Normal GOF Test

Shapiro Wilk Test Statistic	0.879 Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.887 Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.219 Lilliefors GOF Test	
5% Lilliefors Critical Value	0.213 Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	899.2 90% Percentile (z)	646.6
95% UPL (t)	753.5 95% Percentile (z)	720.5
95% USL	882.8 99% Percentile (z)	859

Gamma GOF Test

A-D Test Statistic	0.512 Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.742 Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.21 Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.216 Detected data appear Gamma Distributed at 5% Significance Level	

**Detected data appear Gamma Distributed at 5% Significance Level**

Gamma Statistics

k hat (MLE)	4.348 k star (bias corrected MLE)	3.575
Theta hat (MLE)	88.8 Theta star (bias corrected MLE)	108
nu hat (MLE)	139.1 nu star (bias corrected)	114.4
MLE Mean (bias corrected)	386.1 MLE Sd (bias corrected)	204.2

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	795.4 90% Percentile	660
95% Hawkins Wixley (HW) Approx. Gamma UPL	804.5 95% Percentile	771.5



95% WH Approx. Gamma UTL with 95% Coverage	1039	99% Percentile	1011
<b>95% HW Approx. Gamma UTL with 95% Coverag</b>	<b>1070</b>		
95% WH USL	1009	95% HW USL	1037

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.935	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.887	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.19	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.213	Data appear Lognormal at 5% Significance Level
Data appear Lognormal at 5% Significance Level		

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1201	90% Percentile (z)	647.7
95% UPL (t)	840.8	95% Percentile (z)	775.8
95% USL	1153	99% Percentile (z)	1088

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	16	95% UTL with 95% Coverage	876
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by U	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	876	95% BCA Bootstrap UTL with 95% Coverage	876
95% UPL	876	90% Percentile	633.5
90% Chebyshev UPL	1015	95% Percentile	710.3
95% Chebyshev UPL	1299	99% Percentile	842.9
95% USL	876		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**E Pond TDS**

General Statistics

Total Number of Observations	16	Number of Distinct Observations	14
Minimum	1230	First Quartile	1288
Second Largest	1680	Median	1385
Maximum	1980	Third Quartile	1583
Mean	1444	SD	203.6
Coefficient of Variation	0.141	Skewness	1.257
Mean of logged Data	7.267	SD of logged Data	0.133

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443
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Normal GOF Test

Shapiro Wilk Test Statistic	0.877	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.887	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.179	Lilliefors GOF Test
5% Lilliefors Critical Value	0.213	Data appear Normal at 5% Significance Level

**Data appear Approximate Normal at 5% Significance Level**

Background Statistics Assuming Normal Distribution

<b>95% UTL with 95% Coverage</b>	<b>1958</b>	90% Percentile (z)	1705
95% UPL (t)	1812	95% Percentile (z)	1779
95% USL	1942	99% Percentile (z)	1918

Gamma GOF Test

A-D Test Statistic	0.565	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.735	Detected data appear Gamma Distributed at 5% Significance Level

K-S Test Statistic	0.179	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	58.16	k star (bias corrected MLE)	47.3
Theta hat (MLE)	24.83	Theta star (bias corrected MLE)	30.54
nu hat (MLE)	1861	nu star (bias corrected)	1513
MLE Mean (bias corrected)	1444	MLE Sd (bias corrected)	210
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	1818	90% Percentile	1719
95% Hawkins Wixley (HW) Approx. Gamma UPL	1819	95% Percentile	1806
95% WH Approx. Gamma UTL with 95% Coverage	1986	99% Percentile	1977
95% HW Approx. Gamma UTL with 95% Coverage	1990		
95% WH USL	1967	95% HW USL	1970
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.907	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.887	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.171	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.213	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	2004	90% Percentile (z)	1698
95% UPL (t)	1822	95% Percentile (z)	1783
95% USL	1983	99% Percentile (z)	1952
Nonparametric Distribution Free Background Statistics			
Data appear Approximate Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	16	95% UTL with 95% Coverage	1980
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by U	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1980	95% BCA Bootstrap UTL with 95% Coverage	1980
95% UPL	1980	90% Percentile	1640
90% Chebyshev UPL	2074	95% Percentile	1755
95% Chebyshev UPL	2359	99% Percentile	1935
95% USL	1980		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

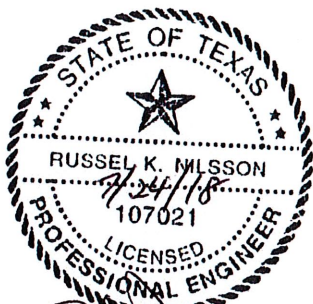


## Alternative Source Demonstration

### W.A. Parish Electric Generating Station Air Preheater Pond (SWMU 021)

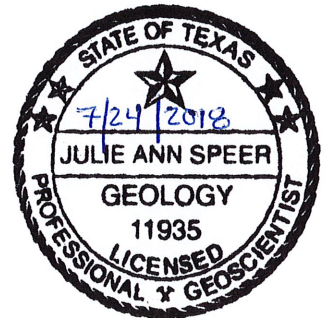
**July 2018**

*Prepared For*  
NRG Texas Power, LLC  
Thompsons, Texas



A handwritten signature in black ink, appearing to read "R. Nilsson".

R. Kent Nilsson, P.E.  
Senior Engineer



A handwritten signature in blue ink, appearing to read "Julie Speer".

Julie Speer, P.G.  
Geologist/Project Manager

TRC Environmental Corporation | NRG  
Alternate Source Demonstration, W.A. Parish, Air Preheater Pond

\\AUSTIN-FP3-ENVIRONMENTAL\PROJECTS\NRG-PRIVILEGED AND CONFIDENTIAL\PARISH-P&C\ALTERNATE SOURCE DETERMINATIONS\APH POND\ASD WAP APH POND RPT FINAL 072418.DOCX

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Appendix A Background/Baseline Tolerance Limit Calculations

# Executive Summary

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The NRG Texas Power, LLC (NRG) W.A. Parish Electric Generating Station (Site) is located in Thompsons, Fort Bend County, Texas. Units managing coal combustion residuals (CCR) at the Site are subject to the United States Environmental Protection Agency's (US EPA) final rule for the regulation and management of CCR under the Resource Conservation and Recovery Act (RCRA) Title 40, Code of Federal Regulations, Part 257 (40 CFR §257) (CCR Rule). CCR generated at the Site consist of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge. The Site has three active CCR management units that are subject to regulation under the CCR Rule, including the Air Preheater Pond (APH) Pond, which is the subject of this Alternate Source Demonstration (ASD).

Eight independent background/baseline groundwater monitoring events were conducted for the APH Pond between July 2016 and July 2017 per §257.94(b) and the initial post-background/baseline detection monitoring event was conducted in October 2017. Laboratory analytical data for the first post-background/baseline detection monitoring event were received by NRG on October 27, 2017. A statistical evaluation of the first post-background/baseline detection monitoring parameters (Appendix III to §257 of the CCR Rule) was completed to identify statistically significant increases (SSIs) pursuant to §257.93(f) and (g) and in accordance with the Site's *CCR Statistical Analysis Plan* (ERM 2017a). The statistical evaluation identified apparent SSIs in monitoring wells at the APH Pond. This ASD was prepared to evaluate the SSIs in accordance with §257.94(e).

Based on the results of the ASD, NRG has updated both the groundwater monitoring system and statistical analysis method for the APH Pond to reflect the observed groundwater potentiometric surface and an alternate statistical method that is permitted pursuant to §257.93(f). No SSIs were identified based on statistical reevaluation of the first post-background/baseline detection monitoring data using the updated groundwater monitoring network and alternate statistical analysis approach. Therefore, detection monitoring will be continued for the APH Pond utilizing the updated groundwater monitoring network and the updated statistical analysis method.

# Section 1

## Introduction

---

### 1.1 Background

The NRG Texas Power, LLC (NRG) W.A. Parish Electric Generating Station (Site) is located in Thompsons, Fort Bend County, Texas, adjacent to Smithers Lake. The electricity generating portion of the Site, or the main Plant Operations Area (Plant Area), is located along the southeastern shore of the lake.

Units managing coal combustion residuals (CCR) units at the Site are subject to the United States Environmental Protection Agency's (US EPA) final rule for the regulation and management of CCR under the Resource Conservation and Recovery Act (RCRA) Title 40, Code of Federal Regulations, Part 257 (40 CFR §257) (CCR Rule, effective date October 17, 2015) and the CCR Remand Rule Proposal (March 1, 2018). CCR generated at the Site consist of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge. The Site has three active CCR management units that are subject to regulation under the CCR Rule and the CCR Remand Rule Proposal, as follows:

1. Solid Waste Disposal Area (SWDA) (SWMU 001), which consists of active CCR-management cells Cell 1C, Cell 2A-Pug Mill, Cell 2B, and Cell 3;
2. Air Preheater Pond (APH Pond, SWMU 021); and
3. FGD Emergency Pond (E Pond, SWMU 020).

The APH Pond is located at the southwestern portion of the Plant Area as shown on Figure 1. The SWDA is located to the north of the Plant Area and both the APH and E Ponds are located to the south within the Plant Area. The APH Pond is the subject of this Alternate Source Demonstration (ASD).

According to NRG, the APH Pond comprises an area of 1.2 acres and has a total storage capacity of 3.7 acre-feet. The APH Pond receives effluent from air preheater wash and boiler cleaning wash, which consists of fly ash or economizer ash particles and water.

## 1.2 Purpose

On behalf of NRG, Environmental Resources Management, Inc. (ERM) conducted eight independent background/baseline groundwater detection monitoring events for the APH Pond between July 2016 and July 2017 per §257.94(b) and the first post-background/baseline detection monitoring event in October 2017. Results of the background/baseline and first post-background/baseline detection monitoring events were documented in the January 30, 2018, *Annual Groundwater Monitoring Report, Air Preheater Pond (SWMU 021)* (ERM 2018a) and the March 1, 2018, *Groundwater Monitoring Report, Air Preheater Pond (SWMU 021)* (ERM 2018b) in accordance with the requirements of §257.90(e).

A statistical evaluation of the first post-background/baseline detection monitoring parameters (Appendix III to §257 of the CCR Rule) was completed pursuant to §257.93(f) and (g) and in accordance with the CCR *Statistical Analysis Plan* (ERM 2017a). As part of the statistical evaluation, the first post-background/baseline detection monitoring data were evaluated to identify statistically significant increases (SSIs) in detection monitoring parameters to determine if concentrations in detection monitoring wells exceed background/baseline levels. The statistical evaluation identified potential SSIs in the first post-background/baseline detection monitoring wells, which was documented in the March 1, 2018, *Groundwater Monitoring Report, Air Preheater Pond (SWMU 021)* (ERM 2018b). On behalf of NRG, TRC Environmental Corporation (TRC) prepared this ASD to evaluate the SSIs identified in the *Groundwater Monitoring Report, Air Preheater Pond (SWMU 021)* (ERM 2018b) in accordance with §257.94(e).

## 1.3 Hydrogeology

According to the *Geologic Atlas of Texas, Houston Sheet* (BEG 1982), the Site is underlain by alluvium and the Beaumont formation (also commonly referred to as Beaumont Clay). The alluvium is present along the Brazos River, which is located approximately 0.9 miles from the northern boundary of the SWDA CCR units. Both the alluvium and the Beaumont formation are comprised of clay, silt, and sand; and may include stream channel, point-bar, natural levee, backswamp, coastal marsh and mud-flat deposits. The thickness of the Beaumont formation is approximately 100 feet. The alluvium is not present at the Plant Area which is consistent with this area being located outside of the Brazos River floodplain zone (FBC 2018).

The alluvium and Beaumont Formation are located within the upper unit of the Chicot aquifer system. At most locations throughout Fort Bend County, the Chicot aquifer system is under confined conditions (TWDB 1990). The Chicot aquifer system is primarily recharged by precipitation at locations where it outcrops in Austin, Harris, and Waller Counties; groundwater then flows laterally within Fort Bend County (TWDB 1990). Site investigations performed by

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Alternate Source Demonstration, W.A. Parish, Air Preheater Pond



others on behalf of NRG also indicate that the uppermost groundwater-bearing units at the site are under confined conditions.

Site investigations conducted in May 2016 and November 2016 by ERM identified three main subsurface strata at the Site, which were designated as Stratum DA-1 through DA-3 at the SWDA and Stratum PA-1 through PA-3 at the Plant Area. The strata are fully described in the October 2017 *CCR Groundwater Monitoring Network* report (ERM 2017b) and are summarized below.

### **1.3.1 Stratum DA-1 and Stratum PA-1 (Upper Confining Unit)**

Stratum DA-1 and Stratum PA-1 are both predominately silty clay with some sandy clay, clay, and sandy silt. Stratum DA-1 is generally present from the ground surface to approximately 30 feet below ground surface (bgs), but this stratum ranges in thickness from 20 feet to 60 feet throughout the SWDA. Stratum PA-1 is present from the ground surface to depths ranging from 15 feet bgs to 32 feet bgs.

Stratum DA-1 and Stratum PA-1 both serve as confining units to underlying Stratum DA-2 and Stratum PA-2, respectively, which comprise the uppermost groundwater-bearing unit at the Site. Geotechnical laboratory testing indicates that the hydraulic conductivity of Stratum DA-1 and Stratum PA-1 is  $2.85\text{E-}08$  centimeters per second (cm/sec) and  $2.03\text{E-}08$  cm/sec, respectively (ERM 2017b).

### **1.3.2 Stratum DA-2 and Stratum PA-2 (Uppermost Groundwater-Bearing Unit)**

Stratum DA-2 consists of interbedded sand, silty sand, clayey sand, and clayey sandy silt with some gravelly sand. The clay content within Stratum DA-2 varies across the SWDA. Stratum PA-2 is predominantly silty sand with varying sand and silt content and trace clay. Stratum DA-2 and Stratum PA-2 are generally greater than 10 feet in thickness with bottom depths ranging from 60 to 80 feet bgs.

Both Stratum DA-2 and Stratum PA-2 are saturated and comprise the uppermost groundwater-bearing unit at the CCR units. CCR monitoring wells at the SWDA and Plant Area are completed within Stratum DA-2 and Stratum PA-2, respectively. Slug testing results for CCR monitoring wells indicate hydraulic conductivity ranges from  $6.86\text{E-}04$  cm/sec to  $2.59\text{E-}02$  cm/sec in Stratum DA-2; and from  $6.68\text{E-}04$  cm/sec to  $4.26\text{E-}02$  cm/sec in Stratum PA-2 (ERM 2017b). Groundwater primarily flows to the northeast towards the Brazos River beneath the SWDA; to the southwest beneath the E Pond, and to the southeast beneath the APH Pond.

### 1.3.3 Stratum DA-3 and Stratum PA-3 (Lower Confining Unit)

Stratum DA-3 and Stratum PA-3 are both predominantly clay to silty clay. These strata appear to be bottom confining layers to the overlying groundwater-bearing units (Stratum DA-2 and Stratum PA-2). The thicknesses of Stratum DA-3 and Stratum PA-3 have not been defined.

### 1.3.4 Air Preheater Pond – Hydrogeology

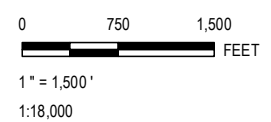
The CCR monitoring well network at the APH Pond consists of six groundwater monitoring wells (MW-39, MW-40, MW-41, MW-62, MW-63, and MW-64) completed into Stratum PA-2. Groundwater potentiometric surface maps prepared by TRC for the three most recent sampling events conducted by ERM in May 2017, July 2017, and October 2017 are provided as Figure 2 through 4, respectively. Groundwater flows to the southeast beneath the APH Pond at a gradient ranging from 0.002 feet per foot (ft/ft) to 0.006 ft/ft.

The groundwater monitoring system for the APH Pond was certified under 257.91(f) on October 17, 2017. The original certified CCR monitoring well network for the APH Pond designated one upgradient monitoring well (MW-62) and five downgradient monitoring wells (MW-39, MW-40, MW-41, MW-63, and MW-64). However, based on TRC's review of groundwater elevations measured during detection monitoring events and development of revised potentiometric surface maps for the three most recent detection monitoring events, two of the designated downgradient wells (MW-39 and MW-40) are located upgradient of the APH Pond as shown on the revised groundwater potentiometric surface maps. Therefore, it is appropriate to update the CCR monitoring well network for the APH Pond to consist of three upgradient monitoring wells (MW-39, MW-40, and MW-62) and three downgradient monitoring wells (MW-41, MW-63, and MW-64).



**LEGEND**

 UNIT BOUNDARY



AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).



505 East Huntland Drive, Suite 250  
 Austin, TX 78752  
 Phone: 512.329.6080  
 www.trcsolutions.com

PROJECT:

**NRG TEXAS POWER, LLC  
 W.A. PARISH STATION  
 THOMPSONS, TEXAS**

TITLE:

**SITE MAP**

DRAWN BY:

MHORN

CHECKED BY:

JSPEER

APPROVED BY:

DATE:

JULY 2018

PROJ. NO.:

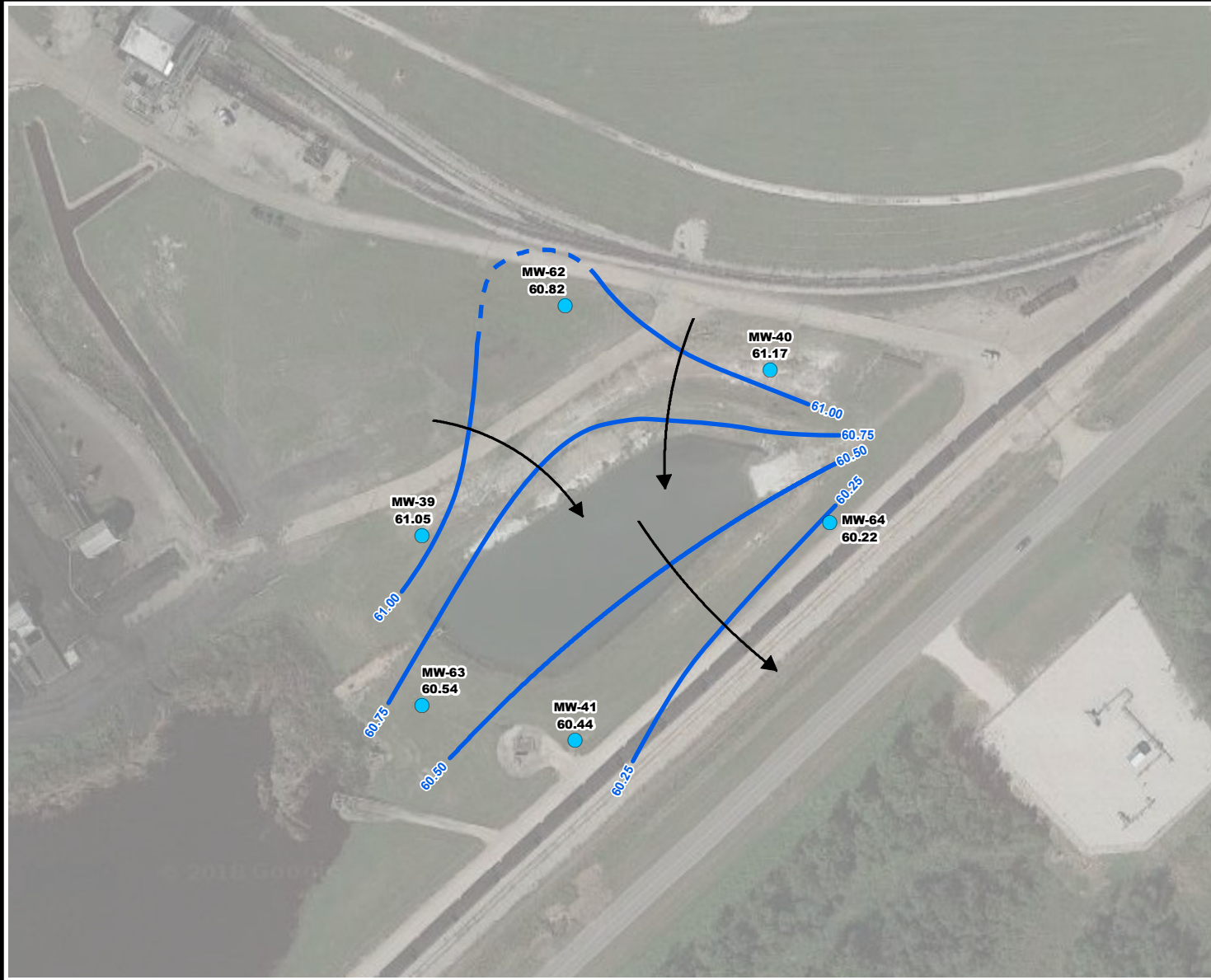
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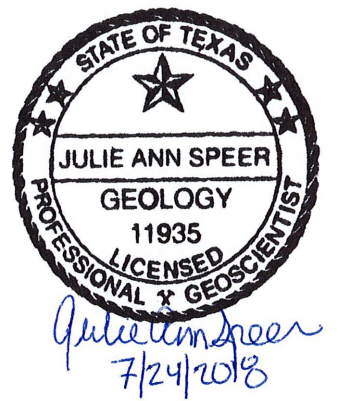
**FIGURE 1**



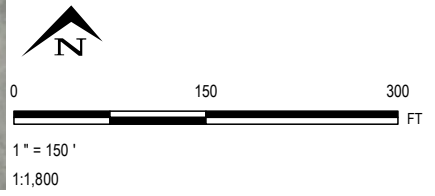


- LEGEND**
- MONITORING WELL
  - 61.00** GROUNDWATER ELEVATION (FT MSL)
  - GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)
  - GROUNDWATER FLOW DIRECTION

NOTE:  
GROUNDWATER ELEVATION CONTOURS INTERPRETED BY TRC BASED ON GROUNDWATER ELEVATIONS MEASURED BY ENVIRONMENTAL RESOURCES MANAGEMENT, INC. (ERM) ON MAY 17, 2017.



AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).

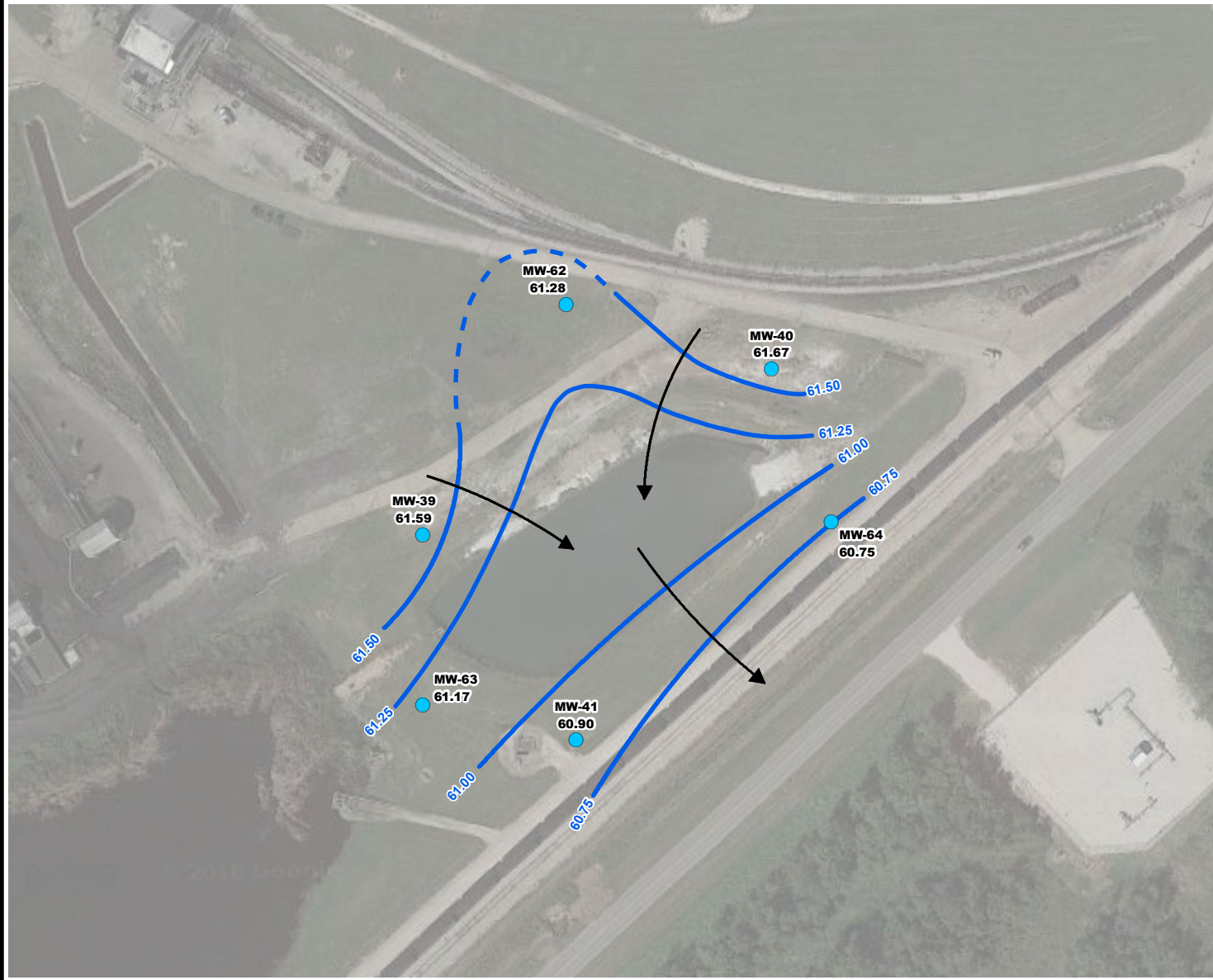



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Austin, TX 78752  
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TRC - GIS

PROJECT:	<b>NRG TEXAS POWER, LLC W.A. PARISH STATION THOMPSONS, TEXAS</b>
TITLE:	<b>AIR PREHEATER POND GROUNDWATER POTENTIOMETRIC SURFACE MAP – MAY 2017</b>

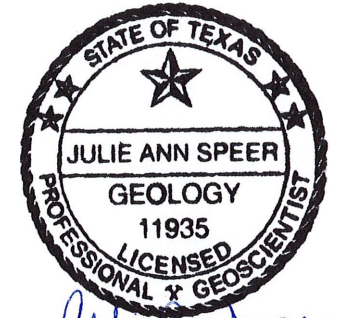
DRAWN BY:	MHORN
CHECKED BY:	JSPEER
APPROVED BY:	
DATE:	JULY 2018
PROJ. NO.:	294645.0000.0000
FILE:	294645_2.mxd
<b>FIGURE 2</b>	



**LEGEND**

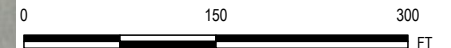
- MONITORING WELL
- 61.00** GROUNDWATER ELEVATION (FT MSL)
- GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)
- GROUNDWATER FLOW DIRECTION

NOTE:  
GROUNDWATER ELEVATION CONTOURS INTERPRETED BY TRC BASED ON GROUNDWATER ELEVATIONS MEASURED BY ENVIRONMENTAL RESOURCES MANAGEMENT, INC. (ERM) ON JULY 20, 2017.



*Julie Ann Speer*  
7/24/2018

AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).



1" = 150'  
1:1,800



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Austin, TX 78752  
Phone: 512.329.6080  
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TRC - GIS

PROJECT:

**NRG TEXAS POWER, LLC  
W.A. PARISH STATION  
THOMPSONS, TEXAS**

TITLE:

**AIR PREHEATER POND  
GROUNDWATER POTENTIOMETRIC SURFACE MAP – JULY 2017**

DRAWN BY: MHORN

CHECKED BY: JSPEER

APPROVED BY:

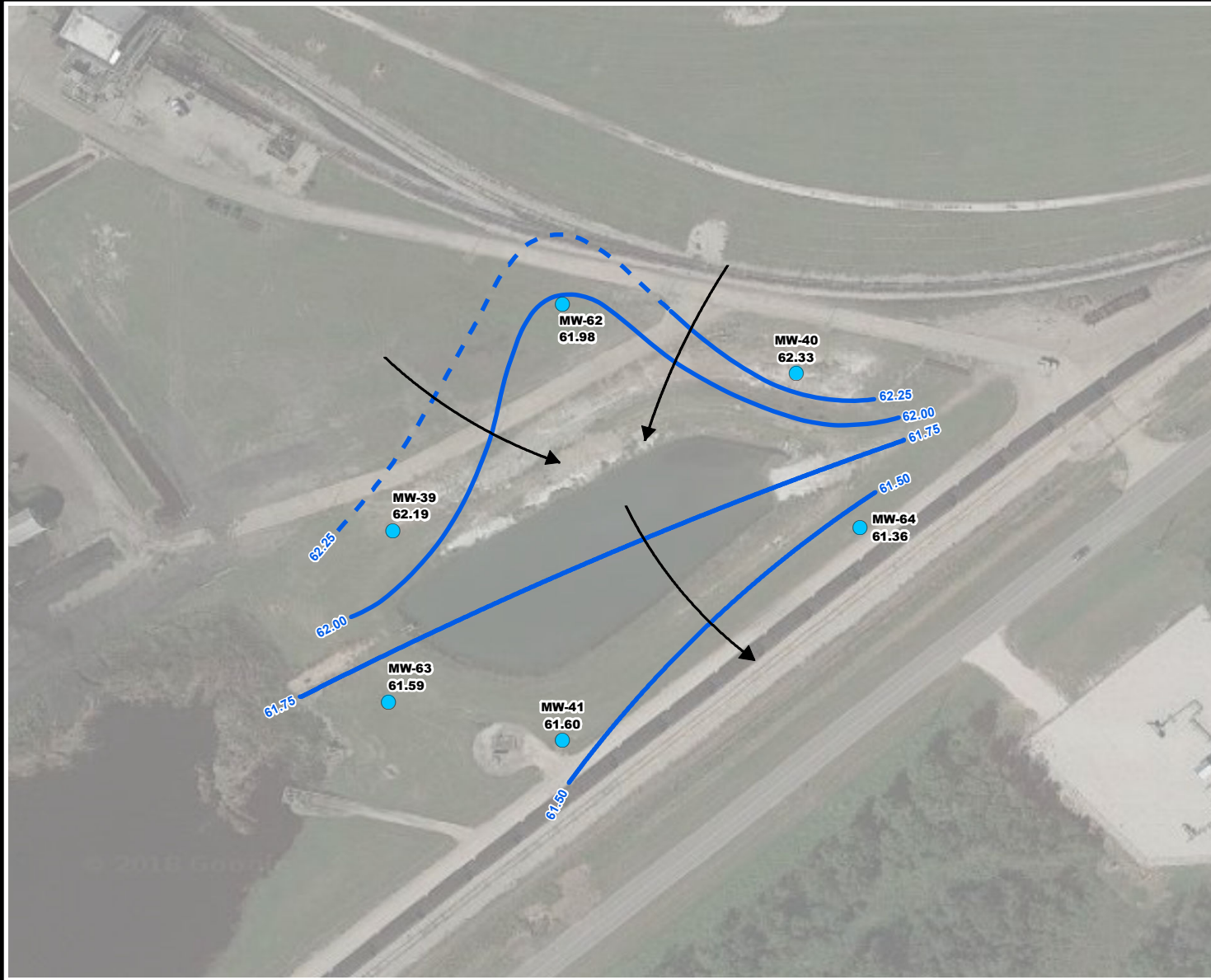
DATE: JULY 2018

PROJ. NO.: 294645.0000.0000

FILE: 294645\_3.mxd

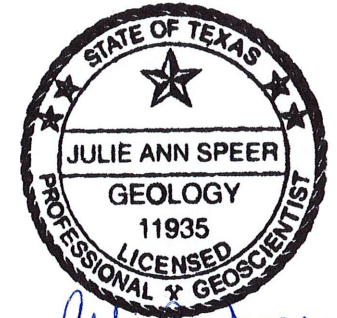
**FIGURE 3**





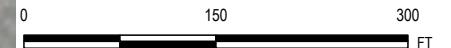
- LEGEND**
- MONITORING WELL
  - 61.50** GROUNDWATER ELEVATION (FT MSL)
  - GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)
  - GROUNDWATER FLOW DIRECTION

NOTE:  
GROUNDWATER ELEVATION CONTOURS INTERPRETED BY TRC BASED ON GROUNDWATER ELEVATIONS MEASURED BY ENVIRONMENTAL RESOURCES MANAGEMENT, INC. (ERM) ON OCTOBER 9, 2017.



*Julie Ann Speer*  
7/24/2018

AERIAL IMAGE SOURCE: GOOGLE EARTH AND THEIR DATA PARTNERS (10/28/2017).



1" = 150'  
1:1,800



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TRC - GIS

PROJECT: **NRG TEXAS POWER, LLC  
W.A. PARISH STATION  
THOMPSONS, TEXAS**

TITLE: **AIR PREHEATER POND  
GROUNDWATER POTENTIOMETRIC SURFACE MAP – OCTOBER 2017**

DRAWN BY:	MHORN
CHECKED BY:	JSPEER
APPROVED BY:	
DATE:	JULY 2018
PROJ. NO.:	294645.0000.0000
FILE:	294645_4.mxd

**FIGURE 4**

# Section 2

## Alternative Source Demonstration

---

As discussed in the March 1, 2018, *Groundwater Monitoring Report, Air Preheater Pond (SWMU 021)* (ERM 2018b), statistical evaluation of the first post-background/baseline detection monitoring laboratory analytical results identified potential SSIs of Appendix III parameters above background/baseline. This section evaluates alternative sources for the potential SSIs as per §257.94(e)(2).

### 2.1 Initially Identified Statistically Significant Increases (SSIs)

The Site CCR *Statistical Analysis Plan* (ERM 2017a) stated the APH Pond groundwater data would be evaluated for SSIs using prediction limits per §257.93(f)(3) for the certified groundwater monitoring network. Background/baseline was established for the six monitoring wells in accordance with the *Statistical Analysis Plan* based on detection monitoring samples collected between July 2016 and July 2017. The first post-background/baseline detection monitoring samples were collected in October 2017. NRG received the first post-background/baseline laboratory analytical results on October 27, 2017. The initially identified SSIs over background/baseline that were reported in the March 1, 2018, *Groundwater Monitoring Report, Air Preheater Pond (SWMU 021)* (ERM 2018b) are summarized below in Table 1. All other Appendix III constituents were within the statistical background/baseline limits, which were based on the upper predictive limits (UPLs), as summarized in the March 1, 2018 report.

Table 1  
Initially Identified SSIs – October 2017 Detection Monitoring Event

ANALYTE	WELL	UPL	SAMPLE DATE	VALUE	UNIT
Calcium	MW-39	240	2017-10-09	306	mg/L
Calcium	MW-40	240	2017-10-09	336	mg/L
Calcium	MW-63	240	2017-10-09	328	mg/L
Calcium	MW-64	240	2017-10-09	251	mg/L
Chloride	MW-39	704	2017-10-09	838	mg/L
Sulfate	MW-39	149	2017-10-09	201	mg/L
Sulfate	MW-63	149	2017-10-09	440	mg/L

mg/L = milligrams per liter



In accordance with §257.94(e)(2), NRG may demonstrate that a source other than the CCR unit caused the SSIs over background/baseline levels for a constituent or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. This ASD has been prepared to evaluate the initially identified SSIs for the first post-background/baseline detection monitoring event performed at the APH Pond in October 2017.

## 2.2 Revisions to Monitoring System and Statistical Method

The alternative source of the SSIs initially identified for the APH Pond is the incorrect characterization of upgradient groundwater quality, which is directly related to the initially incorrect selection of upgradient background monitoring wells in 2016. As discussed previously, TRC's reevaluation of the groundwater monitoring system relative to the potentiometric surface and direction of groundwater flow at the APH Pond indicated two wells (MW-39 and MW-40) initially designated in 2016 as hydraulically downgradient are located hydraulically upgradient of the APH Pond. In addition, the October 2017 *Statistical Analysis Plan* (ERM, 2017a) stipulated pooling available upgradient monitoring wells if and only if the results are statistically similar on a per-parameter basis. This restriction results in artificially underestimating the natural range of groundwater quality passing beneath the CCR unit.

NRG has elected to update the groundwater monitoring system and statistical analysis method for the APH Pond to reflect the observed groundwater potentiometric surface, to more adequately estimate the natural range of background groundwater quality, and to use an alternate acceptable statistical method pursuant to the CCR Rule for evaluating the detection monitoring data as follows:

- The groundwater monitoring system has been updated to use all three upgradient wells (MW-39, MW-40, and MW-62) to establish baseline background conditions rather than only MW-62, as initially concluded in 2016. Groundwater gauging results from background/baseline and post-background/baseline detection monitoring events indicate that monitoring wells MW-39, MW-40, and MW-62 are located upgradient of the APH Pond, as shown on the potentiometric surface maps provided as Figures 2 through 4. It is also not appropriate to use only MW-62 as an upgradient well because groundwater elevations at MW-62 were generally measured to be lower than in monitoring wells MW-39 and MW-40.
- The statistical method has been updated to include pooling the baseline analytical results for all three upgradient wells for each of the Appendix III parameters.
- The statistical method is also updated to utilize upper tolerance limits (UTL) (and lower tolerance limit [LTL] for pH) rather than UPLs as initially stipulated in the October 2017 *Statistical Analysis Plan*. Both statistical analytical methods are acceptable per §257.93(f)(3).

## 2.3 Updated System Statistically Significant Increases

Table 2 presents the updated statistical comparison values (tolerance limits) for the upgradient monitoring well detection monitoring background/baseline laboratory analytical results. US EPA's ProUCL software was used to calculate the UTLs (and LTL for pH). The ProUCL outputs are provided in Appendix A. None of the October 2017 detection monitoring results for the downgradient monitoring wells at the APH Pond were greater than these UTLs. Therefore, no SSIs are identified for the APH Pond based on the updated groundwater monitoring system and statistical method.

**Table 2**  
**Updated APH Pond Statistical Comparison Values (Tolerance Limits)**

<b>ANALYTE</b>	<b>DISTRIBUTION</b>	<b>LTL</b>	<b>UTL</b>	<b>UNIT</b>
Boron	Nonparametric	N/A	0.127	mg/L
Calcium	Normal	N/A	366	mg/L
Chloride	Normal	N/A	824	mg/L
Fluoride	Gamma	N/A	4.73 <sup>[1]</sup>	mg/L
pH	Nonparametric	6.0	6.9	mg/L
Sulfate	Lognormal	N/A	449	mg/L
TDS	Normal	N/A	3,153	mg/L

<sup>[1]</sup> The following outlier fluoride values were removed from the upgradient and downgradient data sets:  
 MW-39 – 20 U mg/L 9/1/2016; MW-40 – 20 U mg/L 9/1/2016; MW-41 – 20 U mg/L 9/1/2016;  
 MW-64 21.7 mg/L 2/18/2017

## Section 3


# Conclusions

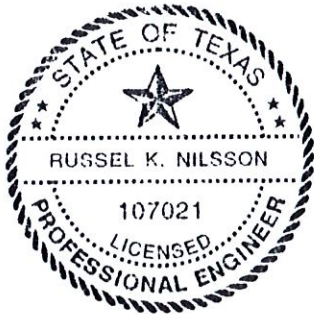
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The groundwater monitoring network at the APH Pond was updated to designate wells MW-39, MW-40, and MW-62 as upgradient wells based on the groundwater gauging data obtained from July 2016 through October 2017 during the eight background/baseline and first post-background/baseline detection monitoring events. The statistical method was also updated to include pooling the baseline analytical results for each Appendix III parameter for all upgradient wells and to utilize tolerance limits (UTLs and LTL for pH) rather than predictive limits (UPLs and LPL for pH) for baseline monitoring results of the updated upgradient well network. Based on using the updated groundwater monitoring network and statistical method, no SSIs were identified at the APH Pond. Therefore, detection monitoring will continue for the APH Pond, utilizing the updated groundwater monitoring network and updated statistical analysis method.

# Section 4 Certification

I hereby certify that the Alternative Source Demonstration presented within this document for the W.A. Parish Electric Generating Station APH Pond has been prepared to meet the requirements of Title 40 CFR 257.94 (e) 2 of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of Title 40 CFR 257.94 (e) 2.

Name:  Expiration Date: 9/30/18  
Company: TRC Environmental Corporation Date: 7/24/18



## Section 5 References

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- BEG 1982. Geologic Atlas of Texas, Houston Sheet. The University of Texas at Austin, Bureau of Economic Geology. Revised 1982.
- ERM 2017a. CCR Statistical Analysis Plan, W.A. Parish, Electric Generating Station, Thompsons, Texas. Environmental Resource Management, Inc. October 2017.
- ERM 2017b. CCR Groundwater Monitoring Networks, W.A. Parish, Electric Generating Station, Thompsons, Texas. Environmental Resource Management, Inc. October 2017.
- ERM 2018a. Annual Groundwater Monitoring Report, Air Preheater Pond (SWMU 021). Environmental Resource Management, Inc. January 30, 2018.
- ERM 2018b. Groundwater Monitoring Report, Air Preheater Pond (SWMU 021). Environmental Resource Management, Inc. March 1, 2018.
- FBC 2018. Fort Bend County Floodplain Mapping Tool. Fort Bend County, Texas. Accessed on July 12, 2018.
- TWDB 1990. Evaluation of Water Resources of Fort Bend County, Texas. Texas Water Development Board Report 321. David Thorkildsen. January 1990.

# Appendix A Background/Baseline Tolerance Limit Calculations

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### Background Statistics for Uncensored Full Data Sets

User Selected Options  
 Date/Time of Computation ProUCL 5.14/17/2018 9:44:27 AM  
 From File WorkSheet.xls  
 Full Precision OFF  
 Confidence Coefficient 95%  
 Coverage 95%  
 New or Future K Observations 1  
 Number of Bootstrap Operations 2000

#### Boron

##### General Statistics

Total Number of Observations	24	Number of Distinct Observations	20
Minimum	0.0736	First Quartile	0.0891
Second Largest	0.127	Median	0.109
Maximum	0.127	Third Quartile	0.116
Mean	0.103	SD	0.017
Coefficient of Variation	0.166	Skewness	-0.301
Mean of logged Data	-2.289	SD of logged Data	0.173

##### Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644
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##### Normal GOF Test

Shapiro Wilk Test Statistic	0.915	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.916	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.184	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.177	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

##### Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.142	90% Percentile (z)	0.125
95% UPL (t)	0.133	95% Percentile (z)	0.131
95% USL	0.148	99% Percentile (z)	0.142

##### Gamma GOF Test

A-D Test Statistic	0.918	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.742	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.195	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.177	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

##### Gamma Statistics

k hat (MLE)	36.17	k star (bias corrected MLE)	31.68
Theta hat (MLE)	0.00284	Theta star (bias corrected MLE)	0.00324
nu hat (MLE)	1736	nu star (bias corrected)	1521
MLE Mean (bias corrected)	0.103	MLE Sd (bias corrected)	0.0183

##### Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.135	90% Percentile	0.127
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.136	95% Percentile	0.135
95% WH Approx. Gamma UTL with 95% Coverage	0.147	99% Percentile	0.15
95% HW Approx. Gamma UTL with 95% Coverage	0.148		
95% WH USL	0.155	95% HW USL	0.156

##### Lognormal GOF Test

Shapiro Wilk Test Statistic	0.905	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.916	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.194	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.177	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

##### Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.151	90% Percentile (z)	0.126
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95% UPL (t)	0.137	95% Percentile (z)	0.135
95% USL	0.16	99% Percentile (z)	0.151

**Nonparametric Distribution Free Background Statistics**  
**Data do not follow a Discernible Distribution (0.05)**

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	24	<b>95% UTL with 95% Coverage</b>	<b>0.127</b>
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.127	95% BCA Bootstrap UTL with 95% Coverage	0.127
95% UPL	0.127	90% Percentile	0.121
90% Chebyshev UPL	0.155	95% Percentile	0.126
95% Chebyshev UPL	0.179	99% Percentile	0.127
95% USL	0.127		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Calcium**

General Statistics

Total Number of Observations	24	Number of Distinct Observations	21
Minimum	186	First Quartile	207.5
Second Largest	344	Median	239.5
Maximum	359	Third Quartile	275.8
Mean	249	SD	50.79
Coefficient of Variation	0.204	Skewness	0.693
Mean of logged Data	5.498	SD of logged Data	0.197

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644
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Normal GOF Test

Shapiro Wilk Test Statistic	0.919	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.916	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.146	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.177	Data appear Normal at 5% Significance Level	

**Data appear Normal at 5% Significance Level**

Background Statistics Assuming Normal Distribution

<b>95% UTL with 95% Coverage</b>	<b>366.3</b>	90% Percentile (z)	314.1
95% UPL (t)	337.9	95% Percentile (z)	332.5
95% USL	383.3	99% Percentile (z)	367.2

Gamma GOF Test

A-D Test Statistic	0.536	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.144	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.177	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	26.47	k star (bias corrected MLE)	23.19
Theta hat (MLE)	9.408	Theta star (bias corrected MLE)	10.74
nu hat (MLE)	1270	nu star (bias corrected)	1113
MLE Mean (bias corrected)	249	MLE Sd (bias corrected)	51.71

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	342	90% Percentile	317.1
95% Hawkins Wixley (HW) Approx. Gamma UPL	342.6	95% Percentile	339.7
95% WH Approx. Gamma UTL with 95% Coverage	377.3	99% Percentile	384.8

95% HW Approx. Gamma UTL with 95% Coverage	379.1	
95% WH USL	399.6	95% HW USL 402.3
<b>Lognormal GOF Test</b>		
Shapiro Wilk Test Statistic	0.939	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.916	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.135	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.177	Data appear Lognormal at 5% Significance Level
Data appear Lognormal at 5% Significance Level		
<b>Background Statistics assuming Lognormal Distribution</b>		
95% UTL with 95% Coverage	385.1	90% Percentile (z) 314.5
95% UPL (t)	344.9	95% Percentile (z) 337.8
95% USL	411.3	99% Percentile (z) 386.4
<b>Nonparametric Distribution Free Background Statistics</b>		
Data appear Normal at 5% Significance Level		
<b>Nonparametric Upper Limits for Background Threshold Values</b>		
Order of Statistic, r	24	95% UTL with 95% Coverage 359
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL 0.708
		Approximate Sample Size needed to achieve specified CC 59
95% Percentile Bootstrap UTL with 95% Coverage	359	95% BCA Bootstrap UTL with 95% Coverage 359
95% UPL	355.3	90% Percentile 322.8
90% Chebyshev UPL	404.5	95% Percentile 341.9
95% Chebyshev UPL	475	99% Percentile 355.6
95% USL	359	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

## Chloride

### General Statistics

Total Number of Observations	24	Number of Distinct Observations	24
Minimum	378	First Quartile	539.8
Second Largest	746	Median	572.5
Maximum	840	Third Quartile	654
Mean	597.8	SD	97.81
Coefficient of Variation	0.164	Skewness	0.339
Mean of logged Data	6.38	SD of logged Data	0.166

### Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644
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### Normal GOF Test

Shapiro Wilk Test Statistic	0.973	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.916	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.142	Lilliefors GOF Test
5% Lilliefors Critical Value	0.177	Data appear Normal at 5% Significance Level

**Data appear Normal at 5% Significance Level**

### Background Statistics Assuming Normal Distribution

<b>95% UTL with 95% Coverage</b>	<b>823.6</b>	90% Percentile (z)	723.1
95% UPL (t)	768.9	95% Percentile (z)	758.7
95% USL	856.4	99% Percentile (z)	825.3

### Gamma GOF Test

A-D Test Statistic	0.29	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.124	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.177	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics		
k hat (MLE)	38.71 k star (bias corrected MLE)	33.9
Theta hat (MLE)	15.44 Theta star (bias corrected MLE)	17.64
nu hat (MLE)	1858 nu star (bias corrected)	1627
MLE Mean (bias corrected)	597.8 MLE Sd (bias corrected)	102.7

Background Statistics Assuming Gamma Distribution		
95% Wilson Hilferty (WH) Approx. Gamma UPL	780.3 90% Percentile	732.6
95% Hawkins Wixley (HW) Approx. Gamma UPL	782.1 95% Percentile	776.1
95% WH Approx. Gamma UTL with 95% Coverage	847.7 99% Percentile	862.2
95% HW Approx. Gamma UTL with 95% Coverage	851.7	
95% WH USL	889.9 95% HW USL	895.4

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.97 Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.916 Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.112 Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.177 Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level		

Background Statistics assuming Lognormal Distribution		
95% UTL with 95% Coverage	865.3 90% Percentile (z)	729.8
95% UPL (t)	788.6 95% Percentile (z)	775.1
95% USL	914.7 99% Percentile (z)	867.8

Nonparametric Distribution Free Background Statistics  
Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values		
Order of Statistic, r	24 95% UTL with 95% Coverage	840
Approx, f used to compute achieved CC	1.263 Approximate Actual Confidence Coefficient achieved by UTL	0.708
	Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	840 95% BCA Bootstrap UTL with 95% Coverage	825.9
95% UPL	816.5 90% Percentile	709.5
90% Chebyshev UPL	897.3 95% Percentile	741.7
95% Chebyshev UPL	1033 99% Percentile	818.4
95% USL	840	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

## Fluoride

General Statistics		
Total Number of Observations	22 Number of Distinct Observations	20
Minimum	0.0647 First Quartile	0.38
Second Largest	4.2 Median	0.579
Maximum	4.28 Third Quartile	1.385
Mean	1.022 SD	1.139
Coefficient of Variation	1.115 Skewness	2.224
Mean of logged Data	-0.457 SD of logged Data	1.028

Critical Values for Background Threshold Values (BTVs)		
Tolerance Factor K (For UTL)	2.349 d2max (for USL)	2.603

Normal GOF Test		
Shapiro Wilk Test Statistic	0.683 Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.911 Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.276 Lilliefors GOF Test	
5% Lilliefors Critical Value	0.184 Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level		

Background Statistics Assuming Normal Distribution		
95% UTL with 95% Coverage	3.698 90% Percentile (z)	2.482
95% UPL (t)	3.026 95% Percentile (z)	2.896
95% USL	3.987 99% Percentile (z)	3.672

Gamma GOF Test		
A-D Test Statistic	0.747 Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.766 Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.16 Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.19 Detected data appear Gamma Distributed at 5% Significance Level	
<b>Detected data appear Gamma Distributed at 5% Significance Level</b>		

Gamma Statistics		
k hat (MLE)	1.183 k star (bias corrected MLE)	1.052
Theta hat (MLE)	0.864 Theta star (bias corrected MLE)	0.972
nu hat (MLE)	52.05 nu star (bias corrected)	46.29
MLE Mean (bias corrected)	1.022 MLE Sd (bias corrected)	0.997

Background Statistics Assuming Gamma Distribution		
<b>95% Wilson Hilferty (WH) Approx. Gamma UPL</b>	<b>3.087</b> 90% Percentile	2.324
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.182 95% Percentile	3.008
95% WH Approx. Gamma UTL with 95% Coverage	4.41 99% Percentile	4.589
<b>95% HW Approx. Gamma UTL with 95% Coverage</b>	<b>4.73</b>	
95% WH USL	5.08 95% HW USL	5.546

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.953 Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.911 Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.165 Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.184 Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level		

Background Statistics assuming Lognormal Distribution		
95% UTL with 95% Coverage	7.076 90% Percentile (z)	2.363
95% UPL (t)	3.861 95% Percentile (z)	3.432
95% USL	9.184 99% Percentile (z)	6.913

Nonparametric Distribution Free Background Statistics  
Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values		
Order of Statistic, r	22 95% UTL with 95% Coverage	4.28
Approx, f used to compute achieved CC	1.158 Approximate Actual Confidence Coefficient achieved by UTL	0.676
	Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	4.28 95% BCA Bootstrap UTL with 95% Coverage	4.276
95% UPL	4.268 90% Percentile	1.41
90% Chebyshev UPL	4.516 95% Percentile	4.061
95% Chebyshev UPL	6.099 99% Percentile	4.263
95% USL	4.28	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

## pH

General Statistics		
Total Number of Observations	24 Number of Distinct Observations	18
Minimum	6.02 First Quartile	6.67
Second Largest	6.87 Median	6.71
Maximum	6.94 Third Quartile	6.755
Mean	6.697 SD	0.162
Coefficient of Variation	0.0242 Skewness	-3.223
Mean of logged Data	1.901 SD of logged Data	0.0252

Critical Values for Background Threshold Values (BTVs)		
Tolerance Factor K (For UTL)	2.309 d2max (for USL)	2.644
Normal GOF Test		
Shapiro Wilk Test Statistic	0.647 Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.916 Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.261 Lilliefors GOF Test	
5% Lilliefors Critical Value	0.177 Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level		
Background Statistics Assuming Normal Distribution		
95% UTL with 95% Coverage	7.071 90% Percentile (z)	6.905
95% UPL (t)	6.981 95% Percentile (z)	6.964
95% USL	7.126 99% Percentile (z)	7.074
Gamma GOF Test		
A-D Test Statistic	2.631 Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.742 Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.261 Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.177 Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level		
Gamma Statistics		
k hat (MLE)	1692 k star (bias corrected MLE)	1481
Theta hat (MLE)	0.00396 Theta star (bias corrected MLE)	0.00452
nu hat (MLE)	81230 nu star (bias corrected)	71078
MLE Mean (bias corrected)	6.697 MLE Sd (bias corrected)	0.174
Background Statistics Assuming Gamma Distribution		
95% Wilson Hilferty (WH) Approx. Gamma UPL	6.991 90% Percentile	6.921
95% Hawkins Wixley (HW) Approx. Gamma UPL	6.992 95% Percentile	6.986
95% WH Approx. Gamma UTL with 95% Coverage	7.087 99% Percentile	7.109
95% HW Approx. Gamma UTL with 95% Coverage	7.089	
95% WH USL	7.145 95% HW USL	7.148
Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.626 Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.916 Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.269 Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.177 Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level		
Background Statistics assuming Lognormal Distribution		
95% UTL with 95% Coverage	7.095 90% Percentile (z)	6.914
95% UPL (t)	6.996 95% Percentile (z)	6.978
95% USL	7.155 99% Percentile (z)	7.099
<b>Nonparametric Distribution Free Background Statistics</b>		
<b>Data do not follow a Discernible Distribution (0.05)</b>		
Nonparametric Upper Limits for Background Threshold Values		
Order of Statistic, r	24	<b>95% UTL with 95% Coverage</b> 6.94
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL 0.708
		Approximate Sample Size needed to achieve specified CC 59
95% Percentile Bootstrap UTL with 95% Coverage	6.94	95% BCA Bootstrap UTL with 95% Coverage 6.94
95% UPL	6.923	90% Percentile 6.794
90% Chebyshev UPL	7.194	95% Percentile 6.86
95% Chebyshev UPL	7.418	99% Percentile 6.924
95% USL	6.94	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Sulfate**

General Statistics

Total Number of Observations	24	Number of Distinct Observations	24
Minimum	50.8	First Quartile	69.48
Second Largest	281	Median	84.5
Maximum	740	Third Quartile	155.5
Mean	136.8	SD	140.8
Coefficient of Variation	1.029	Skewness	3.716
Mean of logged Data	4.675	SD of logged Data	0.621

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644
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Normal GOF Test

Shapiro Wilk Test Statistic	0.546	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.916	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.271	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.177	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	461.9	90% Percentile (z)	317.2
95% UPL (t)	383.1	95% Percentile (z)	368.4
95% USL	509	99% Percentile (z)	464.3

Gamma GOF Test

A-D Test Statistic	1.552	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.754	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.203	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.18	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics

k hat (MLE)	2.2	k star (bias corrected MLE)	1.953
Theta hat (MLE)	62.18	Theta star (bias corrected MLE)	70.05
nu hat (MLE)	105.6	nu star (bias corrected)	93.75
MLE Mean (bias corrected)	136.8	MLE Sd (bias corrected)	97.9

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	328.8	90% Percentile	267.6
95% Hawkins Wixley (HW) Approx. Gamma UPL	324.7	95% Percentile	327
95% WH Approx. Gamma UTL with 95% Coverage	431.5	99% Percentile	458.9
95% HW Approx. Gamma UTL with 95% Coverage	432.7		
95% WH USL	502.1	95% HW USL	509.1

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.874	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.916	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.173	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.177	Data appear Lognormal at 5% Significance Level	

**Data appear Approximate Lognormal at 5% Significance Level**

Background Statistics assuming Lognormal Distribution

<b>95% UTL with 95% Coverage</b>	<b>449.2</b>	90% Percentile (z)	237.4
95% UPL (t)	317.3	95% Percentile (z)	297.4
95% USL	552.9	99% Percentile (z)	454

Nonparametric Distribution Free Background Statistics

Data appear Approximate Lognormal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	24	95% UTL with 95% Coverage	740
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
		Approximate Sample Size needed to achieve specified CC	59

95% Percentile Bootstrap UTL with 95% Coverage	740	95% BCA Bootstrap UTL with 95% Coverage	740
95% UPL	625.3	90% Percentile	199.8
90% Chebyshev UPL	567.9	95% Percentile	269.9
95% Chebyshev UPL	763.1	99% Percentile	634.4
95% USL	740		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

## TDS

### General Statistics

Total Number of Observations	24	Number of Distinct Observations	22
Minimum	1330	First Quartile	1833
Second Largest	2760	Median	2040
Maximum	3020	Third Quartile	2515
Mean	2137	SD	439.8
Coefficient of Variation	0.206	Skewness	0.29
Mean of logged Data	7.647	SD of logged Data	0.207

### Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644
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### Normal GOF Test

Shapiro Wilk Test Statistic	0.955	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.916	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.163	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.177	Data appear Normal at 5% Significance Level	

**Data appear Normal at 5% Significance Level**

### Background Statistics Assuming Normal Distribution

<b>95% UTL with 95% Coverage</b>	<b>3153</b>	90% Percentile (z)	2701
95% UPL (t)	2906	95% Percentile (z)	2860
95% USL	3300	99% Percentile (z)	3160

### Gamma GOF Test

A-D Test Statistic	0.476	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.151	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.178	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

### Gamma Statistics

k hat (MLE)	24.65	k star (bias corrected MLE)	21.6
Theta hat (MLE)	86.7	Theta star (bias corrected MLE)	98.95
nu hat (MLE)	1183	nu star (bias corrected)	1037
MLE Mean (bias corrected)	2137	MLE Sd (bias corrected)	459.9

### Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2966	90% Percentile	2744
95% Hawkins Wixley (HW) Approx. Gamma UPL	2976	95% Percentile	2945
95% WH Approx. Gamma UTL with 95% Coverage	3283	99% Percentile	3350
95% HW Approx. Gamma UTL with 95% Coverage	3305		
95% WH USL	3483	95% HW USL	3514

### Lognormal GOF Test

Shapiro Wilk Test Statistic	0.964	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.916	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.139	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.177	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

### Background Statistics assuming Lognormal Distribution



95% UTL with 95% Coverage	3379 90% Percentile (z)	2731
95% UPL (t)	3009 95% Percentile (z)	2944
95% USL	3622 99% Percentile (z)	3391

Nonparametric Distribution Free Background Statistics  
Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values		
Order of Statistic, r	24 95% UTL with 95% Coverage	3020
Approx, f used to compute achieved CC	1.263 Approximate Actual Confidence Coefficient achieved by UTL	0.708
	Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	3020 95% BCA Bootstrap UTL with 95% Coverage	3020
95% UPL	2955 90% Percentile	2714
90% Chebyshev UPL	3484 95% Percentile	2754
95% Chebyshev UPL	4094 99% Percentile	2960
95% USL	3020	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.