2022 Annual Groundwater Monitoring and Corrective Action Report

Limestone Electric Generating Station, Jewett, Texas

Landfill Unit (Unit 004)

January 31, 2023

Prepared For
NRG Texas Power, LLC
Jewett, Texas

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Executive Summary

Pursuant to 30 Texas Administrative Code (30 TAC) Chapter 352, Coal Combustion Residuals Waste Management and Registration Program for Coal Combustion Residuals (CCR) Implementation TCEQ's CCR Permit Program), the owner or operator of an existing CCR unit must prepare an annual groundwater monitoring and corrective action report no later than January 31, 2023, addressing the preceding calendar year. The information to be provided in the Annual Report is described in Subsection 1.2 of the Texas Commission on Environmental Quality (TCEQ) Draft Technical Guidance No. 32, Coal Combustion Residuals Groundwater Monitoring and Corrective Action.

TRC Environmental Corporation (TRC) has prepared the *2022 Annual Groundwater Monitoring and Corrective Action Report* (Annual Report) for the Landfill (Unit 004) CCR unit located at the Limestone Electric Generating Station (Station) on behalf of NRG Texas Power, LLC (NRG).. The Landfill (Unit 004) was the only CCR unit in operation at the Station during 2022. This Annual Report also provides the following information:

- The groundwater monitoring systems for the Landfill CCR unit operated under detection monitoring at the start and end of 2022; and
- Potential statistically significant increases (SSIs) of Appendix III CCR constituents identified above background in groundwater and provides the alternative source demonstrations (ASDs) addressing the potential SSIs that were successfully completed during 2022.

In conclusion, this Annual Report contains the information required pursuant to 30 TAC §352.901 and 30 TAC §352.902 of the TCEQ CCR Permit Program and TCEQ Draft Technical Guidance No. 32. This information is provided in this Annual Report. No other information is required to be included in the Annual Report as specified in 30 TAC §352.971 and §352.981 of the TCEQ CCR Permit Program.

Based on the key activities performed during 2022, it is recommended that the Landfill (Unit 004) remain in detection monitoring subject to the following key activities and that the following project timeline be implemented during 2023:

- The *2022 Annual Report* will be prepared and placed into the Facility Operating Record (FOR) by January 31, 2023, submitted to the TCEQ within 30 days of placement in the FOR, and posted to the Station's publicly accessible CCR website by March 2, 2023;
- An ASD for the second half 2022 (October) semi-annual detection monitoring event will be prepared and submitted to the TCEQ during the first quarter 2023;

- Both semi-annual groundwater detection monitoring events will be performed during the first and second halves of 2023 (April and October) for the Appendix III detection monitoring parameters;
- Groundwater potentiometric surface maps will be prepared for the first and second halves of 2023 semi-annual detection monitoring events;
- The flow rates and directions of groundwater flow will be determined for the first and second halves of 2023 semi-annual detection monitoring events;
- Statistical analysis and identification of potential SSIs will be performed for the first and second halves of 2023 semi-annual detection monitoring events;
- NRG will notify TCEQ, if required, if potential SSIs are identified and whether ASDs will be prepared for the first and second halves of 2023 semi-annual detection monitoring events; and
- An ASD for the first half 2023 (April) semi-annual detection monitoring event will be prepared and submitted to TCEQ for review, if required.

Section 1
Introduction

1.1 CCR Program Summary

On June 28, 2021, the United States Environmental Protection Agency (USEPA) published the final approval of the TCEQ partial State Coal Combustion Residuals (CCR) Permit Program, which became effective on July 28, 2021. The TCEQ adopted by reference the Federal CCR Program (40 CFR Part 257) as amended through the July 30, 2018 issue of the Federal Register (83 FR 36435), subject to the changes and additions provided in the TCEQ CCR Permit Program. As stated in USEPA's approval of the TCEQ CCR Permit Program on June 28, 2021, the TCEQ CCR Permit Program now operates in lieu of the Federal CCR program. Therefore, during 2022, the Landfill (Unit 004) CCR unit operated pursuant to the requirements of the TCEQ CCR Permit Program for the entirety of 2022.

Pursuant to the TCEQ CCR Permit Program, no later than January 31 of each calendar year, the owner or operator must prepare an annual groundwater monitoring and corrective action report (Annual Report) for the CCR unit(s) addressing the preceding calendar year. At a minimum, per TCEQ Draft Technical Guidance No. 32, the Annual Report must contain:

- A map, aerial image, or diagram showing the CCR unit(s) and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit(s);
- Narrative description of the Facility and Unit Descriptions and groundwater monitoring system, monitoring well inspection;
- Hydrogeology (groundwater flow rate and direction) with potentiometric surface map;
- Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;
- In addition to all the monitoring data, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs and laboratory reports;
- Statistical analysis and results;
- A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over

background levels); and other information required to be included in the annual report, as specified in 30 TAC §§352.971 and 352.981; and

- Summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, conclusions and recommendations, and project timelines and key activities for the upcoming year.

TRC Environmental Corporation (TRC) has prepared the *2022 Groundwater Monitoring and Corrective Action Report* for the Landfill (Unit 004) CCR unit located at the Limestone Electric Generating Station (Station) on behalf of NRG Texas Power, LLC (NRG) in accordance with 30 TAC §352.901 and 30 TAC §352.902 of the TCEQ CCR Permit Program and TCEQ Draft Technical Guidance No. 32.

Pursuant to the TCEQ CCR Permit Program, NRG will comply with the recordkeeping requirements, the notification requirements, and will post the Annual Report to NRG's publicly accessible CCR Web site. In addition, pursuant to §352.902 of the TCEQ CCR Permit Program, NRG will submit the Annual Report to the TCEQ for review no later than 30 days after the report has been placed into the Station's FOR.

1.2 Corrective Measures and Corrective Action

Finally, since the Landfill (Unit 004) is not currently subject to corrective measures or corrective action activities under the TCEQ CCR Permit Program, the provisions of 30 TAC §352.971 and §352.981 of the TCEQ CCR Permit Program do not apply. Therefore, per §352.901 of the TCEQ CCR Permit Program, no other information relative to corrective measures or corrective action must be provided in this Annual Report.

1.3 Station Overview

The Station is located northwest of Jewett, near the borders of Limestone, Freestone, and Leon Counties, Texas (see Figure 1-1). The Station is bisected by Farm-to-Market Road 39 (FM39) with the electricity generating portion of the Station located to the west of FM39 in Limestone County and a solid waste disposal area (SWDA), which includes the Landfill (Unit 004). The Station currently uses western United States coal as a fuel source to power the boilers. The spent coal fuels or CCR have been classified by the TCEQ as a Class II Nonhazardous waste and consist of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge. During 2022, the Station had the following active CCR unit per the TCEQ CCR Permit Program:

- Landfill Unit (Unit 004).

The Landfill is located east of FM39 in the northern portion of the SWDA. The landfill is located to the north of the intermittent Lynn Creek. The Landfill was constructed in 1980 and is used

for the final placement of CCR. The Landfill is divided into multiple areas for organization purposes. The western half of the landfill has reached capacity and was capped prior to the effective date of both the Federal CCR Rule on October 19, 2015 and the TCEQ CCR Permit Program. CCR is currently being placed at the southern portion of the landfill.

The location of the Landfill is shown on Figure 1-2.

Section 2
Groundwater Monitoring System and Hydrogeology

2.1 Groundwater Monitoring Systems

The groundwater monitoring system for the Landfill CCR unit at the Station consists of a total of 10 monitoring wells installed into the uppermost aquifer, which are described in the subsections below. The locations and identification numbers for the background (or upgradient) and downgradient groundwater monitoring wells that are part of the groundwater monitoring program are shown on Figure 2-1.

2.1.1 Landfill (Unit 004)

The groundwater monitoring system for the Landfill consists of 10 monitoring wells (MW-1, MW-2, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22, MW-27R, and MW-28) screened into the uppermost aquifer (see Figure 2-1). Monitoring wells MW-27R and MW-28 are located hydraulically upgradient of the Landfill and monitor background quality in the uppermost aquifer. The remaining eight wells (MW-1, MW-2, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22) are located downgradient of the Landfill and monitor the quality of groundwater in the uppermost aquifer passing beneath the waste boundary of the Landfill.

No groundwater monitoring wells were installed or decommissioned as part of the CCR groundwater monitoring system for the Landfill during 2022.

2.2 Semi-annual Detection Monitoring Sampling

Hydrologic Monitoring Inc. (HMI) performed the semi-annual detection monitoring events during the first and second half of 2022 per §352.941 of the TCEQ CCR Permit Program. HMI performed the monitoring activities under contract to TRC.

The first half 2022 semi-annual detection monitoring event was conducted in April 2022, with the second half 2021 semi-annual detection monitoring event being performed in October 2022.

2.2.1 Monitoring Well Inspection

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 were noted in the monitoring wells during the 2022 quarterly background and semi-annual detection monitoring events.

2.2.2 Quarterly Background Detection Monitoring

A total of eight quarterly background monitoring events were performed beginning in the third quarter of 2019 through the second quarter of 2021. The quarterly background samples were analyzed for both the Appendix III and Appendix IV Federal CCR Rule parameters. This background data set was used for comparison to 2022 semi-annual sampling events.

2.2.3 Semi-annual Detection Monitoring

The Appendix III field and laboratory analytical data collected during the April 2022 and October 2022 semi-annual detection monitoring events were the second and third semi-annual detection monitoring events that used the new background water quality data set to identify potential SSIs for the Appendix III data.

2.2.4 Analytical Laboratory

During 2022, the semi-annual detection monitoring groundwater samples were analyzed by ALS Environmental (ALS) located in Houston, Texas, which is a TCEQ certified laboratory (TCEQ ID T104704231-22-29).

2.2.5 Laboratory and Field Analyses

The semi-annual groundwater detection monitoring samples were analyzed for the Appendix III CCR constituents pursuant to 30 TAC Chapter 352. Additionally, field parameters (pH, temperature, specific conductivity, and turbidity) were obtained for all monitoring wells during both semi-annual groundwater monitoring events performed during 2022.

Laboratory and field analytical data are provided in Appendices A and B. Semi-annual detection monitoring analytical data are summarized in Table 2-2.

2.3 Laboratory Data Quality Review

Upon receipt of the April and October 2022 groundwater monitoring analytical data from the analytical laboratory, the data were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination.

TRC concluded that the April and October laboratory analytical data, analyzed by ALS, were complete and usable for the purposes of the CCR semi-annual detection monitoring program. Laboratory data quality review information is provided in Appendix C.

2.4 Groundwater Flow Direction, Gradient, and Rate

Static groundwater elevations were measured for each monitoring well at the Landfill CCR unit during each of the 2022 semi-annual detection monitoring sampling events prior to sample collection. These measurements are provided in Table 2-1. Groundwater potentiometric surface maps were developed for the April and October detection monitoring events to evaluate groundwater flow directions. The potentiometric surface maps are provided as Figures 2-2, and 2-3.

Groundwater is typically encountered at depths ranging from 2.18 (MW-01) to 31.02 (MW-28) feet below top of casing (btoc) for the Landfill groundwater monitoring system, with the overall direction of groundwater flow beneath and in the vicinity of the Landfill to the south-southeast.

Based on the 2022 detection monitoring groundwater elevation data, there does not appear to be significant seasonal changes in groundwater flow direction at the Landfill CCR unit. The calculated groundwater gradients were variable depending on lithology and ranged from 0.00477 to 0.00610 feet/feet at the Landfill. The average groundwater flow velocity beneath the Landfill was 19.62 feet/year.

2.5 Monitoring Wells Installed or Decommissioned

No groundwater monitoring wells were installed or decommissioned during 2022.

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 performed during April and October 2022 for the Landfill. Previous monitoring data were provided in the 2017, 2018, 2019, 2020, and 2021 Annual Reports. Based on the data and results of the monitoring activities during 2022, the status of the groundwater monitoring and corrective action program at the Station including key actions completed, problems encountered, and actions to resolve the problems are summarized in the following subsections.

3.2 Key Actions Completed

The following key actions were completed during 2022:

- The *2021 Annual Groundwater Monitoring and Corrective Action Report* was prepared per §257.90(e) and (f) of the Federal CCR Rule and 30 TAC Chapter 352 of the TCEQ CCR Permit Program, placed into the FOR by January 31, 2022, and posted to NRG's publicly accessible CCR website by March 2, 2022;
- The first and second half 2022 semi-annual detection monitoring events for the Landfill CCR unit were performed during April 2022 and October 2022 and the samples were analyzed for the Appendix III detection monitoring constituents;
- To perform the statistical analysis for the first half 2022 (April) and second half 2022 (October) semi-annual detection monitoring events, the Appendix III analytical results were compared to the new background water quality data set developed using the eight quarterly detection monitoring events performed beginning in the third quarter of 2019 through the second quarter of 2021;
- Groundwater potentiometric surface maps were prepared for the Landfill CCR unit for the April and October 2022 semi-annual detection monitoring events;
- The directions and apparent flow rate of groundwater were determined;
- Potential SSIs above background were identified for the Landfill CCR unit for the first and second half 2022 semi-annual detection monitoring events;
- NRG notified TCEQ in December 2021 pursuant to the TCEQ CCR Permit Program that potential SSIs had been identified for the second half 2021 (October) semi-annual detection monitoring event. An ASD was submitted to TCEQ during the first quarter 2022;

- NRG notified TCEQ in June 2022 pursuant to the TCEQ CCR Permit Program that potential SSIs had been identified for the first half 2022 (April) semi-annual detection monitoring event. An ASD was submitted to the TCEQ in the third quarter of 2022; and
- NRG notified TCEQ in December 2022 pursuant to the TCEQ CCR Permit Program that potential SSIs had been identified for the second half 2022 (October) semi-annual detection monitoring event and that NRG intends to prepare and submit an ASD to TCEQ during the first quarter of 2023.

The Landfill CCR unit remained in detection monitoring during 2022 based on the successful completion/submittal of written ASDs. No corrective action activities were performed for the Landfill CCR unit pursuant to the TCEQ Permit Program during 2022.

3.3 Problems Encountered and Resolution

During 2022, no problems were encountered in the CCR groundwater monitoring program for the Station and no actions were taken to resolve problems.

Section 4
Statistical Analysis and Results

This Annual Report identifies potential SSIs above background that were determined for groundwater samples collected during the October 2020, April 2021, and October 2021 semi-annual detection monitoring events.

4.1 October 2021 Semi-annual Detection Monitoring Event

Statistical analysis and identification of potential SSIs for the second half (October 2021) semi-annual detection monitoring event were completed in December 2021. Select analytes were resampled in November 2021 following receipt of the October 2021 sampling data. The statistical analysis was conducted in accordance with the revised Statistical Methods Certification (August 2018) using (Lower Tolerance Limits) LTLs where applicable, and Upper Tolerance Limits (UTLs) per §257.93(f)(3) of the Federal CCR Rule and the TCEQ CCR Permit Program.

The eighth and final quarterly background detection monitoring event was performed during April 2021 as part of the development of a new background groundwater quality data set for the groundwater monitoring program. Statistical analysis and identification of potential SSIs for the October 2021 semi-annual detection monitoring event was performed using the new background water quality data set. Per the TCEQ CCR Permit Program, potential SSIs were identified in December 2021 for the October 2021 semi-annual detection monitoring event.

The results of the statistical analysis for the October 2021 semi-annual detection monitoring event for the Landfill are summarized in the following table. One potential SSI was identified for downgradient monitoring well MW-21. This information was also provided in the 2021 Annual Report. In accordance with §257.94(e)(2) of the Federal CCR Rule, an ASD was performed during 2022 to evaluate the potential SSIs as discussed in Section 5.0, which is provided with the 2022 Annual Report. The ASD was also submitted to TCEQ during 2022.

Table 4-1
Potential SSI – October 2021, Detection Monitoring, Landfill

ANALYTE	WELL	LTL	UTL	SAMPLE DATE	VALUE	UNIT
Boron	MW-21	N/A	0.44	11/11/2021	0.691	mg/L

mg/L= milligrams per liter
N/A = Not Applicable
LTL – Lower Tolerance Limit
UTL – Upper Tolerance Limit

4.2 April 2022 Semi-annual Detection Monitoring Event

Statistical analysis and identification of potential SSIs for the first half (April 2022) semi-annual detection monitoring event was completed in May 2022. The statistical analysis was conducted in accordance with the revised Statistical Methods Certification (August 2018) using LTLs where applicable, and UTLs per §257.93(f)(3) of the Federal CCR Rule and the TCEQ CCR Permit Program.

The results of the statistical analysis for the April 2022 semi-annual detection monitoring event for the Landfill are summarized in the following table. One potential SSI was identified for downgradient monitoring well MW-21. In accordance with §257.94(e)(2) of the Federal CCR Rule, an ASD was performed to evaluate the potential SSIs as discussed in Section 5.0, which is provided with this Annual Report. The ASD was also submitted to TCEQ during 2022.

Table 4-2
Potential SSI – April 2022, Detection Monitoring, Landfill

ANALYTE	WELL	LTL	UTL	SAMPLE DATE	VALUE	UNIT
Boron	MW-21	N/A	0.44	4/7/2022	0.754	mg/L

mg/L= milligrams per liter SU = Standard Units N/A = Not Applicable
LTL – Lower Tolerance Limit UTL – Upper Tolerance Limit

4.3 October 2022 Semi-annual Detection Monitoring Event

Statistical analysis and identification of potential SSIs for the second half (October 2022) semi-annual detection monitoring event were completed in December 2021. Select analytes were resampled in November 2022 following receipt of the October 2022 sampling data. The statistical analysis was conducted in accordance with the revised Statistical Methods Certification (August 2018) using LTLs where applicable, and UTLs per §257.93(f)(3) of the Federal CCR Rule and the TCEQ CCR Permit Program.

The results of the statistical analysis for the October 2022 semi-annual detection monitoring event for the Landfill are summarized in the following table. One potential SSI was identified for downgradient monitoring well MW-21. In accordance with §257.94(e)(2) of the Federal CCR Rule, an ASD will be prepared to evaluate the potential SSI as discussed in Section 5.0. This ASD will be submitted to TCEQ in 2023 and will also be included with the 2023 Annual Report.

Table 4-3
Potential SSI – October 2022, Detection Monitoring, Landfill

ANALYTE	WELL	LTL	UTL	SAMPLE DATE	VALUE	UNIT
Boron	MW-21	N/A	0.44	11/22/2022	1.48	mg/L

mg/L= milligrams per liter
LTL – Lower Tolerance Limit
N/A = Not Applicable
UTL – Upper Tolerance Limit

Section 5
Alternative Source Demonstrations

As described in Section 4.0, potential SSIs above background levels were identified for the Landfill for the second half (October) 2021, the first half (April) 2022), and the second half (October) 2022 semi-annual detection monitoring events. ASDs were prepared for the second half (October) 2021 and the first half (April) 2022 monitoring events during 2022 that successfully documented that alternative sources or historical errors in statistical analysis were responsible for the potential SSIs observed. Both ASDs were submitted to TCEQ during 2022. An ASD for the second half (October) 2022 monitoring event will be prepared and submitted to TCEQ during the first quarter 2023.

Pursuant to §257.94(e)(2) of the Federal CCR Rule and the TCEQ CCR Permit Program, 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. To evaluate the potential SSIs and to determine whether an ASD could be successfully demonstrated, ASDs were completed and certified by a qualified Texas P.E. during 2022 per the Federal CCR Rule as follows:

- In March 2022, an ASD was certified for one potential SSI identified for the Landfill CCR unit for the second half (October 2021) semi-annual detection monitoring sampling event; and
- In September 2022, an ASD was certified for one potential SSI identified for the Landfill CCR unit for the first half (April 2022) semi-annual detection monitoring sampling event.

Both ASDs were submitted to TCEQ pursuant to the TCEQ CCR Permit Program.

Pursuant to the TCEQ CCR Permit Program, ASDs successfully demonstrated alternative sources or issues with laboratory data analytical quality for the Landfill CCR unit. Therefore, the Landfill remained in detection monitoring during 2022. The ASDs for the Landfill CCR unit for both semi-annual detection monitoring events are discussed in the subsections below. he completed ASDs are provided in Appendix D.

5.1 Summary of ASDs

5.1.1 Second Half (October) 2021 and First Half (April) 2022

Two ASDs were successfully completed for the Landfill during 2022. The results for the ASDs for the second half (October) 2021 and first half (April) 2022 semi-annual detection monitoring sampling events are summarized below:

- October 2021. One potential SSI was identified. Boron was identified for downgradient monitoring well MW-21. Three alternative sources were identified for the potential SSIs:
  1) Presence of numerous non-CCR sources in the vicinity of the Landfill, including historical and current natural gas wells and their associated well pads and surface pits that are located immediately surrounding the Landfill; and
  2) Monitor wells were completed into and screened across both lignite and shale seams that are a source of trace elements such as boron; and
  3) A lignite mine is located immediately south of the Landfill and mining operations can impact the groundwater quality (boron concentrations) and pH of groundwater over a long period of time.
- April 2022. One potential SSI was identified. Boron was identified at downgradient monitoring well MW-21. Three alternative sources were identified for the potential SSIs:
  1) Presence of numerous non-CCR sources in the vicinity of the Landfill, including historical and current natural gas wells and their associated well pads and surface pits that are located immediately surrounding the Landfill;
  2) Monitor wells were completed into and screened across both lignite and shale seams that are a source of trace elements such as boron; and
  3) A lignite mine is located immediately south of the Landfill and mining operations can impact the groundwater quality (boron concentrations) and pH of groundwater over a long period of time.

5.1.2 Second Half (October) 2022

Per the TCEQ CCR Permit Program, NRG notified the TCEQ in December 2022 that potential SSIs had been determined for the October 2022 semi-annual detection monitoring event and that an ASD will be prepared for the October 2022 semi-annual detection monitoring event. The ASD will be submitted to the TCEQ during the first quarter 2023.

5.2 Detection Monitoring During 2022

As discussed previously, written ASDs were completed and certified by a qualified Texas P.E. during 2022 for the Landfill CCR unit. The ASDs successfully demonstrated that alternative sources were responsible for the potential SSIs identified in groundwater for the second half (October 2021) and first half (April 2022) semi-annual detection monitoring events. Therefore, the Landfill CCR unit remained in the detection monitoring program at the start and end of 2022.

5.3 Transition Between Monitoring Programs

During 2022, the groundwater monitoring system for the Landfill CCR unit remained in detection monitoring. Therefore, there was no transition between detection and assessment monitoring programs for the Landfill CCR unit during 2022.

Section 6
Projected Key Activities and Timelines for 2023

Key activities and project timelines for 2023 will be performed pursuant to TCEQ's CCR Permit Program and are as follows:

- The *2022 Annual Report* will be prepared and placed into the FOR by January 31, 2023, submitted to the TCEQ within 30 days of placement in the FOR, and posted to the Station's publicly accessible CCR website by March 2, 2023;
- An ASD for the second half 2022 (October) semi-annual detection monitoring event will be prepared and submitted to the TCEQ during the first quarter 2023;
- The semi-annual groundwater detection monitoring events will be performed during the first and second halves of 2023 (April and October) for the Appendix III detection monitoring parameters;
- Groundwater potentiometric surface maps will be prepared for the first and second halves 2023 semi-annual detection monitoring events;
- The flow rates and directions of groundwater flow will be determined;
- Identification of potential SSIs will be performed for the first and second halves of 2023 semi-annual detection monitoring events;
- NRG will notify TCEQ, if required, if potential SSIs were identified and whether ASDs will be prepared for the first and second halves of 2023 semi-annual detection monitoring events; and
- Written ASDs will be prepared and submitted to TCEQ for review, if required, to evaluate potential SSIs above background for the first and second halves of 2023 semi-annual detection monitoring events for the Landfill CCR unit.

Section 7
Conclusions and Recommendations

In conclusion, this Annual Report contains the information required pursuant to 30 TAC §352.901 and 30 TAC §352.902 of the TCEQ CCR Permit Program and TCEQ Draft Technical Guidance No. 32 of the TCEQ CCR Permit Program. This information is provided in this Annual Report. No other information is required to be included in the Annual Report as specified in 30 TAC §352.971 and §352.981 of the TCEQ CCR Permit Program.

Based on the key activities performed during 2022, it is recommended that the Landfill (Unit 004) remain in semi-annual detection monitoring subject to the following key activities and that the following project timeline be implemented during 2023:

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- The *2022 Annual Report* will be prepared and placed into the FOR by January 31, 2023 and posted to the Station's publicly accessible CCR website by March 2, 2023;
- An ASD for the second half 2022 (October) semi-annual detection monitoring event will be prepared and submitted to the TCEQ during the first quarter 2023;
- The semi-annual groundwater detection monitoring events will be performed during the first and second halves of 2023 (April and October) for the Appendix III detection monitoring parameters;
- Groundwater potentiometric surface maps will be prepared for the first and second halves of 2023 semi-annual detection monitoring events;
- The flow rates and directions of groundwater flow will be determined;
- Identification of potential SSIs will be performed for the first and second halves of 2023 semi-annual detection monitoring events;
- NRG will notify TCEQ, if required, if potential SSIs are identified and whether ASDs will be prepared for the first and second halves of 2023 semi-annual detection monitoring events; and
- Written ASDs will be prepared and submitted to TCEQ for review, if required, to evaluate potential SSIs above background for the first and second halves of 2023 semi-annual detection monitoring events for the Landfill CCR unit.

Section 8
References

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.

Federal Register, Vol. 85, No. 168, August 28, 2020, 40 CFR Part 257, Hazardous and Solid Waste Management System; Disposal of CCR from Electric Utilities; A Holistic Approach to Closure Part A: Deadline to Initiate Closure.

ERM, Sampling and Analysis Plan, October 2017, Limestone Electric Generating Station, Jewett, Texas.

ERM, CCR Statistical Analysis Plan, October 2017, Limestone Electric Generating Station, Jewett, Texas.

ERM, Annual Groundwater Monitoring and Corrective Action Report, January 31, 2018, Limestone Electric Generating Station, Secondary E Pond Unit (Unit 003), Jewett, Texas.

TCEQ, Draft Technical Guidance No. 32, Coal Combustion Residuals Groundwater Monitoring and Corrective Action.

TCEQ, 30 TAC Chapter 352, Coal Combustion Residuals Waste Management and Registration Program for Coal Combustion Residuals (CCR) Implementation.

TRC, 2018 Annual Groundwater Monitoring and Corrective Action Report, January 31, 2019, Limestone Electric Generating Station, Secondary E Pond (Unit 003) and Landfill (Unit 004), Jewett, Texas.

TRC, 2019 Annual Groundwater Monitoring and Corrective Action Report, January 31, 2020, Limestone Electric Generating Station, Secondary E Pond (Unit 003) and Landfill (Unit 004), Jewett, Texas.

TRC, 2020 Annual Groundwater Monitoring and Corrective Action Report, January 31, 2021, Limestone Electric Generating Station, Secondary E Pond (Unit 003) and Landfill (Unit 004), Jewett, Texas.

TRC, 2021 Annual Groundwater Monitoring and Corrective Action Report, January 31, 2022, Limestone Electric Generating Station, Landfill (Unit 004), Jewett, Texas.

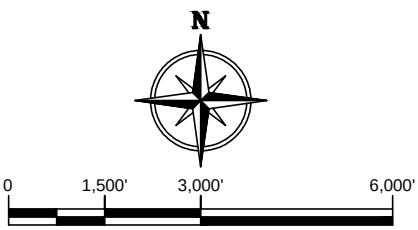
TRC, Alternative Source Demonstration, September 2022, Limestone Electric Generating Station, Landfill (Unit 004), Jewett, Texas.

TRC, Statistical Methods Certification, August 2018, Limestone Electric Generating Station, Jewett, Texas.

Figures

REFERENCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLES
DONIE, TEXAS (2016)
FARRAR, TEXAS (2016)

TEXAS
QUADRANGLE LOCATION



SCALE IN FEET
1" = 3,000'-0"

PROJECT:
NRG TEXAS POWER, LLC
Limestone Electric Generating Station
Jewett, Texas

TITLE:
SITE LOCATION MAP

DRAWN BY:	O. Fonseka	PROJECT No.:	477046.0000.0000
CHECKED BY:	T. Dworaczyk		
APPROVED BY:	T. Dworaczyk		**FIGURE 1-1**
DATE:	December 2022		

TRC
14701 St. Mary's Lane
Suite 500
Houston, TX 77079
Phone: 713.244.1000

FILE: Fig 1-1 - NRG-LimestoneStation - Site Location Map.dwg

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PROJECT:
NRG TEXAS POWER, LLC
Limestone Electric Generating Station
Jewett, Texas

TITLE:
LOCATION OF CCR LANDFILL

DRAWN BY:	O. Fonseka	PROJECT No.:	477046.0000.0000
CHECKED BY:	R. Varnell		**FIGURE 1-2**
APPROVED BY:	R. Varnell		
DATE:	December 2022		

TRC
14701 St. Mary's Lane
Suite 500
Houston, TX 77079
Phone: 713.244.1000

FILE: Fig 1-2 - NRG-LimestoneStation - Landfill_Adjusted.dwg

HOU D:\Users\SRay\Downloads\ Fig 2 - NRG-LimestoneStation - Landfill_Adjusted.dwg 01/07/21

LEGEND

- Monitoring Well Locations
- Landfill Background CCR Monitoring Well
- Landfill CCR Monitoring Well
- CCR Unit Boundary

STATE OF TEXAS
ANTHONY DWORACZYK
GEOLOGY
2658
LICENSED
PROFESSIONAL GEOSCIENTIST

AD 1-19-23

0 350 700 Feet

1 " = 700 '
1:8,400

N

PROJECT:
NRG TEXAS POWER, LLC
LIMESTONE
JEWETT, TEXAS

TITLE:
CCR GROUNDWATER MONITORING NETWORKS MAP

DRAWN BY:	F. YARBROUGH	PROJ. NO.:	477046.0000.0000
CHECKED BY:	J. ATWELL		
APPROVED BY:			
DATE:	JANUARY 2022		

FIGURE 2-1

TRC
14701 St. Mary's Lane, Suite 500
Houston, TX, 77079
Phone 281.616.0100
www.trcsolutions.com

FILE NO.: 477046_2-1.mxd

LEGEND

- Monitoring Well Locations
- Landfill Background CCR Monitoring Well
- Landfill CCR Monitoring Well
- ***418.73*** Groundwater Elevation (FT MSL)
- Groundwater Flow Direction
- Groundwater Elevation Contour - Dashed where Inferred (FT MSL)

STATE OF TEXAS
ANTHONY DWORACZYK
GEOLOGY
2658
LICENSED
PROFESSIONAL GEOSCIENTIST

AD
1-19-23

NOTE:
GROUNDWATER ELEVATIONS MEASURED BY HMI ON APRIL 2022
MW-16 was not used to draw the potentiometric map

0 650 1,300 FT

1 " = 647 '
1:7,764

N

PROJECT:
NRG TEXAS POWER, LLC
LIMESTONE
JEWETT, TEXAS

TITLE:
GROUNDWATER POTENTIOMETRIC SURFACE - APRIL 2022

DRAWN BY:	F. YARBROUGH	PROJ. NO.:	477046.0000.0000
CHECKED BY:	J. ATWELL		
APPROVED BY:			
DATE:	JANUARY 2023		

FIGURE 2-2

TRC
14701 St. Mary's Lane, Suite 500
Houston, TX, 77079
Phone 281.616.0100
www.trcsolutions.com

FILE NO.: 423027_2-2_January.mxd

LEGEND

- Monitoring Well Location
- Landfill CCR Monitoring Well
- Landfill Background CCR Monitoring Well
- ***446.68*** Groundwater Elevation (FT MSL)
- ***NM*** Not Measured
- Groundwater Flow Direction
- Groundwater Elevation Contour - Dashed where Inferred (FT MSL)

STATE OF TEXAS
ANTHONY DWORACZYK
GEOLOGY
2658
LICENSED
PROFESSIONAL GEOSCIENTIST

1-19-23

NOTE:
GROUNDWATER ELEVATIONS MEASURED BY HMI ON JANUARY 25, 2021
MW-16 was not used to draw the potentiometric map.

0 650 1,300 FT

1 " = 647 '
1:7,764

N

PROJECT:
NRG TEXAS POWER, LLC
LIMESTONE
JEWETT, TEXAS

TITLE:
GROUNDWATER POTENTIOMETRIC SURFACE - OCTOBER 2022

DRAWN BY: F. YARBROUGH	PROJ. NO.: 477046.0001.0000
CHECKED BY: J. ATWELL	**FIGURE 2-3**
APPROVED BY:	
DATE: JANUARY 2023	

TRC
14701 St. Mary's Lane, Suite 500
Houston, TX, 77079
Phone 281.616.0100
www.trcsolutions.com

FILE NO.: 477046_2-3_December.mxd

Tables

Table 2-1
Summary of Groundwater Elevation Data
January - December 2022
Limestone Electric Gernerating Station - Jewett, Texas

Well Description	Monitor Well ID	Measurement Date	Top of Casing (ft. MSL)	Depth to Water (ft.)	Ground Water Elevation (ft. MSL)
Landfill					
Downgradient	MW-01	4/7/2022	420.84	2.18	418.66
	MW-01	10/5/2022	420.84	2.68	418.16
	MW-02	4/7/2022	430.01	4.84	425.17
	MW-02	10/5/2022	430.01	6.92	423.09
	MW-17	4/7/2022	421.22	2.49	418.73
	MW-17	10/5/2022	421.22	3.06	418.16
	MW-18	4/7/2022	436.30	10.13	426.17
	MW-18	10/5/2022	436.30	11.56	424.74
	MW-19	4/7/2022	443.79	17.85	425.94
	MW-19	10/5/2022	443.79	19.25	424.54
	MW-20	4/7/2022	445.11	18.98	426.13
	MW-20	10/5/2022	445.11	20.31	424.80
	MW-21	4/7/2022	446.35	16.55	429.80
	MW-21	10/5/2022	446.35	19.21	427.14
	MW-21	11/22/2022	446.35	20.19	426.16
	MW-22	4/7/2022	447.59	15.61	431.98
	MW-22	10/5/2022	447.59	18.81	428.78
Gauge only	MW-06	4/7/2022	457.62	18.19	439.43
	MW-06	10/5/2022	457.62	18.70	438.92
	MW-09	4/7/2022	452.03	17.78	434.25
	MW-09	10/5/2022	452.03	20.00	432.03
	MW-16	4/7/2022	463.80	16.61	447.19
	MW-16	10/5/2022	463.80	18.30	445.50
Upgradient	MW-27R	4/7/2022	457.89	17.74	440.15
	MW-27R	10/5/2022	457.89	18.96	438.93
	MW-28	4/7/2022	477.52	31.02	446.50
	MW-28	10/5/2022	477.52	30.84	446.68

Table 2-2
Summary of Groundwater Monitoring Data
January - December 2022
Limestone Electric Gernerating Station - Jewett, Texas

			Analyte Group	NRG App III						
			Analyte	Boron	Calcium	Chloride	Fluoride	Sulfate	Total Dissolved Solids	pH, Field
			Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	su
Well Description	**Well ID**	**Sample Date**	**Duplicate**							
Landfill										
Upgradient	MW-27R	04/07/2022	N	0.211	499	1700	< 0.10 U	556	5040	6.46
	MW-27R	10/05/2022	N	0.168	441	1660	< 0.10 U	550	5680	6.46
	MW-28	04/07/2022	N	0.244	600	2390	< 0.10 U	644	7490	5.16
	MW-28	10/05/2022	N	0.182	416	1430	0.230	792	5630	5.45
Downgradient	MW-01	04/07/2022	N	0.0463	57.5	269	< 0.10 U	< 0.200	816	4.99
	MW-01	10/05/2022	N	0.0341 [J]	260.0	278	0.110	0.560	870	5.64
	MW-02	04/07/2022	N	0.123 [J]	137	363	< 0.10 U	352	1580	5.57
	MW-02	10/05/2022	N	0.0842 [J]	132	354	< 0.10 U	271	1340	5.57
	MW-17	04/07/2022	N	0.0348	3.14	8.92	< 0.10 U	7.10	120	6.28
	MW-17	10/05/2022	N	0.0238 [J]	2.70	9.05	0.110	7.45	146	5.77
	MW-18	04/07/2022	N	0.0554	67.3	6.82	< 0.10 U	29.6	344	6.30
	MW-18	10/05/2022	N	0.0322 [J]	66.2	7.33	0.100	28.3	368	6.19
	MW-19	04/07/2022	FD	0.0500	33.9	37.6	< 0.10 U	91.8	346	n/a
	MW-19	04/07/2022	N	0.0543	33.1	37.3	< 0.10 U	90.9	302	5.91
	MW-19	10/05/2022	FD	0.0327 [J]	32.5	37.9	< 0.10 U	86.9	328	n/a
	MW-19	10/05/2022	N	0.0343 [J]	34.1	37.6	< 0.10 U	85.7	328	5.59
	MW-20	04/07/2022	N	0.0568	28.9	19.0	0.080 J	26.2	354	6.38
	MW-20	10/05/2022	N	0.0333 [J]	28.7	18.1	0.210	28.5	342	6.28
	MW-21	04/07/2022	N	0.754	68.4	23.4	< 0.10 U	318	620	5.89
	MW-21	10/05/2022	N	0.786 [J]	73.5	20.8	< 0.10 U	306	594	5.15
	MW-21	11/22/2022	N	1.48	n/a	n/a	n/a	n/a	n/a	5.37
	MW-22	04/07/2022	N	0.0487	54.0	32.5	< 0.10 U	114	372	5.54
	MW-22	10/05/2022	N	0.0538 [J]	53.5	34.8	< 0.10 U	118	356	5.27

Notes

N	Normal sample
FD	Field Duplicate
J	Concentration is an estimated value. Result is less than the method quantittion limit but ≥ to the method detection limit.
U	Analyte was not detected at or above the method detection limit.
n/a	Not analyzed

Appendix A
Detection Monitoring Data (April 2022)

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

April 19, 2022

Lori Burris
TRC Corporation
14701 St. Mary's Lane
Suite 500
Houston, TX 77079

Work Order: **HS22040391**

Laboratory Results for: **NRG Limestone - CCR Program**

Dear Lori Burris,

ALS Environmental received 12 sample(s) on Apr 07, 2022 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Corey Grandits
Project Manager

Client:	TRC Corporation	**TRRP Laboratory Data Package Cover Page**
Project:	NRG Limestone - CCR Program	
WorkOrder:	**HS22040391**	

This data package consists of all or some of the following as applicable:

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

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.

Client:	TRC Corporation
Project:	NRG Limestone - CCR Program
WorkOrder:	**HS22040391**

TRRP Laboratory Data Package Cover Page

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 attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory have been identified by the laboratory in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

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

Corey Grandits
Project Manager

Laboratory Review Checklist: Reportable Data							
Laboratory Name: ALS Laboratory Group			LRC Date: 04/19/2022				
Project Name: NRG Limestone - CCR Program			Laboratory Job Number: HS22040391				
Reviewer Name: Corey Grandits			Prep Batch Number(s): 177520,R406473,R406511,R406624,R406803				
#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-custody (C-O-C)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW-846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability 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	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			1
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				2
		Were all necessary corrective actions performed for the reported data?	X				
		Was applicable and available technology used to lower the SDL and minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Program for the analytes, matrices and methods associated with this laboratory data package?	X				

Laboratory Review Checklist: Supporting Data							
Laboratory Name: ALS Laboratory Group			LRC Date: 04/19/2022				
Project Name: NRG Limestone - CCR Program			Laboratory Job Number: HS22040391				
Reviewer Name: Corey Grandits			Prep Batch Number(s): 177520,R406473,R406511,R406624,R406803				
#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB)**					
		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			3
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data** (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?	X				
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?		X			4
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods** (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

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;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports	
Laboratory Name: ALS Laboratory Group	LRC Date: 04/19/2022
Project Name: NRG Limestone - CCR Program	Laboratory Job Number: HS22040391
Reviewer Name: Corey Grandits	Prep Batch Number(s): 177520,R406473,R406511,R406624,R406803

ER#[5]	Description
1	Batch 177520, Metals Method SW6020, sample MW-02, MS and MSD recovered outside the control limit for Calcium, however, the result in the parent sample is greater than 4x the spike amount.
2	The analysis for Fluoride was subcontracted to ALS Environmental in Holland, MI. Report and Laboratory Review Checklist are attached to the Report.
3	See Run Log and CCB Exceptions Report.
4	Batch 177520, Metals Method SW6020, sample MW-02, PDS recovered outside the control limit for Calcium, , however, the result in the parent sample is greater than 4x the spike amount.

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;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391
Start Date: 14-Apr-2022 End Date: 15-Apr-2022

Run ID:ICPMS06_406486
Instrument:ICPMS06
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
ICV	1	14-Apr-2022 11:57	023_ICV.d	B CA
LLICV2	1	14-Apr-2022 12:01	025LCV2.d	B CA
LLICV5	1	14-Apr-2022 12:03	026LCV5.d	B CA
ICB	1	14-Apr-2022 12:05	027_ICB.d	B CA
ICSA	1	14-Apr-2022 12:09	029ICSA.d	B CA
ICSAB	1	14-Apr-2022 12:11	030ICSB.d	B CA
CCV 1	1	14-Apr-2022 12:19	032_CCV.d	B CA
CCB 1	1	14-Apr-2022 12:20	033_CCB.d	B CA
CCV 2	1	14-Apr-2022 12:43	044_CCV.d	B CA
CCB 2	1	14-Apr-2022 12:45	045_CCB.d	B CA
CCV 3	1	14-Apr-2022 13:12	056_CCV.d	B CA
CCB 3	1	14-Apr-2022 13:18	059_CCB.d	B CA
CCB 4	1	14-Apr-2022 13:33	066_CCB.d	B CA
CCV 4	1	14-Apr-2022 13:35	067_CCV.d	B CA
CCV 5	1	14-Apr-2022 13:57	078_CCV.d	B CA
CCB 5	1	14-Apr-2022 13:58	079_CCB.d	B CA
CCV 6	1	14-Apr-2022 14:21	090_CCV.d	B CA
CCB 6	1	14-Apr-2022 14:23	091_CCB.d	B CA
CCV 7	1	14-Apr-2022 14:46	102_CCV.d	B CA
CCB 7	1	14-Apr-2022 14:48	103_CCB.d	B CA
CCB 8	1	14-Apr-2022 14:55	105_CCB.d	B CA
CCB 9	1	14-Apr-2022 15:12	113_CCB.d	B CA
CCV 8	1	14-Apr-2022 15:14	114_CCV.d	B CA
CCV 9	1	14-Apr-2022 15:37	125_CCV.d	B CA
CCB 10	1	14-Apr-2022 15:39	126_CCB.d	B CA
CCV 10	1	14-Apr-2022 16:23	137_CCV.d	B CA
CCB 11	1	14-Apr-2022 16:25	138_CCB.d	B CA
CCV 11	1	14-Apr-2022 16:51	149_CCV.d	B CA
CCB 12	1	14-Apr-2022 16:53	150_CCB.d	B CA
CCV 12	1	14-Apr-2022 17:17	161_CCV.d	B CA
CCB 13	1	14-Apr-2022 17:19	162_CCB.d	B CA
CCV 13	1	14-Apr-2022 17:44	173_CCV.d	B CA
CCB 14	1	14-Apr-2022 17:46	174_CCB.d	B CA
CCV 14	1	14-Apr-2022 18:09	185_CCV.d	B CA
CCB 15	1	14-Apr-2022 18:10	186_CCB.d	B CA
CCV 15	1	14-Apr-2022 18:31	195_CCV.d	B CA
CCB 16	1	14-Apr-2022 18:33	196_CCB.d	B CA
LLICCV2	1	14-Apr-2022 19:08	212LCV2.d	B CA
LLICCV5	1	14-Apr-2022 19:10	213LCV5.d	B CA
ICCB 17	1	14-Apr-2022 19:12	214_ICB.d	B CA
ICCV 16	1	14-Apr-2022 19:14	215_ICV.d	B CA
CCV 17	1	14-Apr-2022 19:28	217_CCV.d	B CA
CCB 18	1	14-Apr-2022 19:30	218_CCB.d	B CA
CCV 18	1	14-Apr-2022 19:41	224_CCV.d	B CA
CCB 19	1	14-Apr-2022 19:43	225_CCB.d	B CA
CCB 20	1	14-Apr-2022 20:21	239_CCB.d	B CA
CCV 19	1	14-Apr-2022 20:23	240_CCV.d	B CA
CCB 21	1	14-Apr-2022 20:37	247_CCB.d	B CA
CCV 20	1	14-Apr-2022 20:39	248_CCV.d	B CA
CCV 21	1	14-Apr-2022 20:53	255_CCV.d	B CA

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391
Start Date: 14-Apr-2022 End Date: 15-Apr-2022

Run ID:ICPMS06_406486
Instrument:ICPMS06
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
CCB 22	1	14-Apr-2022 20:55	256_CCB.d	B CA
CCV 22	1	14-Apr-2022 21:14	266_CCV.d	B CA
CCB 23	1	14-Apr-2022 21:16	267_CCB.d	B CA
CCV 23	1	14-Apr-2022 21:39	278_CCV.d	B CA
CCB 24	1	14-Apr-2022 21:40	279_CCB.d	B CA
CCV 24	1	14-Apr-2022 22:03	290_CCV.d	B CA
CCB 25	1	14-Apr-2022 22:05	291_CCB.d	B CA
CCV 25	1	14-Apr-2022 22:21	299_CCV.d	B CA
CCB 26	1	14-Apr-2022 22:23	300_CCB.d	B CA
CCV 26	1	14-Apr-2022 22:46	311_CCV.d	B CA
CCB 27	1	14-Apr-2022 22:48	312_CCB.d	B CA
CCV 27	1	14-Apr-2022 23:10	323_CCV.d	B CA
CCB 28	1	14-Apr-2022 23:12	324_CCB.d	B CA
CCV 28	1	14-Apr-2022 23:30	333_CCV.d	B CA
CCB 29	1	14-Apr-2022 23:32	334_CCB.d	B CA
CCV 29	1	14-Apr-2022 23:42	339_CCV.d	B CA
CCB 30	1	14-Apr-2022 23:44	340_CCB.d	B CA
MBLK-177520	1	14-Apr-2022 23:46	341SMPL.d	B CA
LCS-177520	1	14-Apr-2022 23:48	342SMPL.d	B CA
MW-02	1	14-Apr-2022 23:50	343SMPL.d	B CA
MW-02SD	5	14-Apr-2022 23:52	344SMPL.d	CA
MW-02MS	1	14-Apr-2022 23:54	345SMPL.d	B CA
MW-02MSD	1	14-Apr-2022 23:56	346SMPL.d	B CA
MW-02PDS	1	14-Apr-2022 23:58	347SMPL.d	B CA
CCV 30	1	14-Apr-2022 23:59	348_CCV.d	B CA
CCB 31	1	15-Apr-2022 00:01	349_CCB.d	B CA
MW-01	1	15-Apr-2022 00:03	350SMPL.d	CA
MW-17	1	15-Apr-2022 00:05	351SMPL.d	CA
MW-18	1	15-Apr-2022 00:07	352SMPL.d	CA
MW-19	1	15-Apr-2022 00:09	353SMPL.d	CA
MW-20	1	15-Apr-2022 00:11	354SMPL.d	CA
MW-21	1	15-Apr-2022 00:13	355SMPL.d	B CA
MW-22	1	15-Apr-2022 00:15	356SMPL.d	CA
Field Blank-01	1	15-Apr-2022 00:21	359SMPL.d	CA
CCV 31	1	15-Apr-2022 00:23	360_CCV.d	B CA
CCB 32	1	15-Apr-2022 00:25	361_CCB.d	B CA
Field Dup[licate-01	1	15-Apr-2022 00:27	362SMPL.d	B CA
CCV 32	1	15-Apr-2022 00:39	368_CCV.d	B CA
CCB 33	1	15-Apr-2022 00:41	369_CCB.d	B CA
ICCV 33	1	15-Apr-2022 01:04	381_ICV.d	B CA
LLICCV2	1	15-Apr-2022 01:06	382LCV2.d	B CA
LLICCV5	1	15-Apr-2022 01:08	383LCV5.d	B CA
ICCB 34	1	15-Apr-2022 01:10	384_ICB.d	B CA
ICSA	1	15-Apr-2022 01:12	385ICSA.d	B CA
ICSAB	1	15-Apr-2022 01:14	386ICSB.d	B CA
CCV 34	1	15-Apr-2022 01:20	389_CCV.d	B CA
CCB 35	1	15-Apr-2022 01:22	390_CCB.d	B CA
CCV 35	1	15-Apr-2022 01:38	398_CCV.d	B CA
CCB 36	1	15-Apr-2022 01:40	399_CCB.d	B CA
CCV 36	1	15-Apr-2022 01:54	406_CCV.d	B CA

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391
Start Date: 14-Apr-2022 End Date: 15-Apr-2022

Run ID:ICPMS06_406486
Instrument:ICPMS06
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
CCB 37	1	15-Apr-2022 01:55	407_CCB.d	B CA
CCV 37	1	15-Apr-2022 02:10	414_CCV.d	B CA
CCB 38	1	15-Apr-2022 02:11	415_CCB.d	B CA
CCV 38	1	15-Apr-2022 02:29	424_CCV.d	B CA
CCB 39	1	15-Apr-2022 02:31	425_CCB.d	B CA
CCV 39	1	15-Apr-2022 03:31	455_CCV.d	B CA
CCB 40	1	15-Apr-2022 03:33	456_CCB.d	B CA
LLCCV2	1	15-Apr-2022 03:37	458LCV2.d	B CA
LLCCV5	1	15-Apr-2022 03:39	459LCV5.d	B CA
ICSA	1	15-Apr-2022 03:41	460ICSA.d	B CA
ICSAB	1	15-Apr-2022 03:43	461ICSB.d	B CA

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391

Run ID:ICPMS06_406486
Instrument:ICPMS06
Method:SW6020A

CCB 3	Date: 14-Apr-2022 13:18	Seq: 6598920		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	14.12	11	20	
CCB 4	Date: 14-Apr-2022 13:33	Seq: 6599137		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	17.94	11	20	
CCB 5	Date: 14-Apr-2022 13:58	Seq: 6599150		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	11.52	11	20	
CCB 7	Date: 14-Apr-2022 14:48	Seq: 6599340		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	22.38	11	20	
CCB 28	Date: 14-Apr-2022 23:12	Seq: 6600227		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	18.22	11	20	
CCB 30	Date: 14-Apr-2022 23:44	Seq: 6600243		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	15.07	11	20	
CCB 31	Date: 15-Apr-2022 00:01	Seq: 6600358		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	38.19	11	20	
ICCB 34	Date: 15-Apr-2022 01:10	Seq: 6600717		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	19.95	11	20	
CCB 35	Date: 15-Apr-2022 01:22	Seq: 6600723		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	11.6	11	20	
CCB 40	Date: 15-Apr-2022 03:33	Seq: 6600798		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	14.17	11	20	
	Calcium	41.91	34	500	

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Work Order: HS22040391

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22040391-01	MW-01	Water		07-Apr-2022 10:50	07-Apr-2022 15:33	☐
HS22040391-02	MW-02	Water		07-Apr-2022 11:40	07-Apr-2022 15:33	☐
HS22040391-03	MW-17	Water		07-Apr-2022 12:35	07-Apr-2022 15:33	☐
HS22040391-04	MW-18	Water		07-Apr-2022 09:35	07-Apr-2022 15:33	☐
HS22040391-05	MW-19	Water		07-Apr-2022 10:15	07-Apr-2022 15:33	☐
HS22040391-06	MW-20	Water		07-Apr-2022 11:00	07-Apr-2022 15:33	☐
HS22040391-07	MW-21	Water		07-Apr-2022 11:40	07-Apr-2022 15:33	☐
HS22040391-08	MW-22	Water		07-Apr-2022 12:20	07-Apr-2022 15:33	☐
HS22040391-09	MW-27R	Water		07-Apr-2022 11:20	07-Apr-2022 15:33	☐
HS22040391-10	MW-28	Water		07-Apr-2022 10:25	07-Apr-2022 15:33	☐
HS22040391-11	Field Blank-01	Water		07-Apr-2022 10:20	07-Apr-2022 15:33	☐
HS22040391-12	Field Dup[licate-01	Water		07-Apr-2022 10:00	07-Apr-2022 15:33	☐

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: MW-01
Collection Date: 07-Apr-2022 10:50

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-01
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.0463**		**0.0110**	**0.0200**	**mg/L**	1	15-Apr-2022 12:54
Calcium	**57.5**		**0.0340**	**0.500**	**mg/L**	1	15-Apr-2022 00:03
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**269**		**4.00**	**10.0**	**mg/L**	20	13-Apr-2022 17:49
Sulfate	< 0.200		0.200	0.500	mg/L	1	14-Apr-2022 12:28
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**816**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: MW-02
Collection Date: 07-Apr-2022 11:40

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-02
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.123**		**0.0110**	**0.0200**	**mg/L**	1	14-Apr-2022 23:50
Calcium	**137**		**0.0340**	**0.500**	**mg/L**	1	14-Apr-2022 23:50
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**363**		**4.00**	**10.0**	**mg/L**	20	13-Apr-2022 18:10
Sulfate	**352**		**4.00**	**10.0**	**mg/L**	20	13-Apr-2022 18:10
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**1,580**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: MW-17
Collection Date: 07-Apr-2022 12:35

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-03
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.0348**		**0.0110**	**0.0200**	**mg/L**	1	15-Apr-2022 12:56
Calcium	**3.14**		**0.0340**	**0.500**	**mg/L**	1	15-Apr-2022 00:05
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**8.92**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 18:26
Sulfate	**7.10**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 18:26
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**120**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: MW-18
Collection Date: 07-Apr-2022 09:35

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-04
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.0554**		**0.0110**	**0.0200**	**mg/L**	1	15-Apr-2022 12:58
Calcium	**67.3**		**0.0340**	**0.500**	**mg/L**	1	15-Apr-2022 00:07
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**6.82**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 18:31
Sulfate	**29.6**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 18:31
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**344**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: MW-19
Collection Date: 07-Apr-2022 10:15

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-05
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.0543**		**0.0110**	**0.0200**	**mg/L**	1	15-Apr-2022 13:00
Calcium	**33.1**		**0.0340**	**0.500**	**mg/L**	1	15-Apr-2022 00:09
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**37.3**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 18:36
Sulfate	**90.9**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 18:36
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**302**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: MW-20
Collection Date: 07-Apr-2022 11:00

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-06
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.0568**		**0.0110**	**0.0200**	**mg/L**	1	15-Apr-2022 13:02
Calcium	**28.9**		**0.0340**	**0.500**	**mg/L**	1	15-Apr-2022 00:11
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**19.0**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 18:42
Sulfate	**26.2**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 18:42
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**354**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: MW-21
Collection Date: 07-Apr-2022 11:40

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-07
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.754**		**0.0110**	**0.0200**	**mg/L**	1	15-Apr-2022 00:13
Calcium	**68.4**		**0.0340**	**0.500**	**mg/L**	1	15-Apr-2022 00:13
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**23.4**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 18:47
Sulfate	**318**		**2.00**	**5.00**	**mg/L**	10	14-Apr-2022 12:44
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**620**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: MW-22
Collection Date: 07-Apr-2022 12:20

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-08
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.0487**		**0.0110**	**0.0200**	**mg/L**	1	15-Apr-2022 13:04
Calcium	**54.0**		**0.0340**	**0.500**	**mg/L**	1	15-Apr-2022 00:15
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**32.5**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 18:52
Sulfate	**114**		**2.00**	**5.00**	**mg/L**	10	14-Apr-2022 12:49
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**372**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: MW-27R
Collection Date: 07-Apr-2022 11:20

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-09
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.211**		**0.0110**	**0.0200**	**mg/L**	1	15-Apr-2022 13:06
Calcium	**499**		**0.340**	**5.00**	**mg/L**	10	15-Apr-2022 13:29
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**1,700**		**20.0**	**50.0**	**mg/L**	100	13-Apr-2022 19:40
Sulfate	**556**		**2.00**	**5.00**	**mg/L**	10	13-Apr-2022 19:35
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**5,040**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: MW-28
Collection Date: 07-Apr-2022 10:25

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-10
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.244**		**0.0110**	**0.0200**	**mg/L**	1	15-Apr-2022 13:08
Calcium	**600**		**0.340**	**5.00**	**mg/L**	10	15-Apr-2022 13:30
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**2,390**		**40.0**	**100**	**mg/L**	200	13-Apr-2022 19:50
Sulfate	**644**		**2.00**	**5.00**	**mg/L**	10	13-Apr-2022 19:45
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**7,490**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: Field Blank-01
Collection Date: 07-Apr-2022 10:20

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-11
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	< 0.0110		0.0110	0.0200	mg/L	1	15-Apr-2022 13:10
Calcium	**0.202**	J	**0.0340**	**0.500**	**mg/L**	1	15-Apr-2022 00:21
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	< 0.200		0.200	0.500	mg/L	1	13-Apr-2022 19:56
Sulfate	< 0.200		0.200	0.500	mg/L	1	13-Apr-2022 19:56
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	< 5.00		5.00	10.0	mg/L	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - CCR Program
Sample ID: Field Dup[licate-01
Collection Date: 07-Apr-2022 10:00

ANALYTICAL REPORT
WorkOrder:HS22040391
Lab ID:HS22040391-12
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 12-Apr-2022		Analyst: JC
Boron	**0.0500**		**0.0110**	**0.0200**	**mg/L**	1	15-Apr-2022 00:27
Calcium	**33.9**		**0.0340**	**0.500**	**mg/L**	1	15-Apr-2022 00:27
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: YP
Chloride	**37.6**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 20:01
Sulfate	**91.8**		**0.200**	**0.500**	**mg/L**	1	13-Apr-2022 20:01
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**346**		**5.00**	**10.0**	**mg/L**	1	14-Apr-2022 14:19
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	19-Apr-2022 09:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391

Batch ID: 177520 **Start Date:** 12 Apr 2022 11:30 **End Date:** 12 Apr 2022 15:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22040391-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-08		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-09		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-10		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-11		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22040391-12		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 177520 (0)	**Test Name :** ICP-MS METALS BY SW6020A				**Matrix:** Water	
HS22040391-01	MW-01	07 Apr 2022 10:50		12 Apr 2022 11:30	15 Apr 2022 12:54	1
HS22040391-01	MW-01	07 Apr 2022 10:50		12 Apr 2022 11:30	15 Apr 2022 00:03	1
HS22040391-02	MW-02	07 Apr 2022 11:40		12 Apr 2022 11:30	14 Apr 2022 23:50	1
HS22040391-03	MW-17	07 Apr 2022 12:35		12 Apr 2022 11:30	15 Apr 2022 12:56	1
HS22040391-03	MW-17	07 Apr 2022 12:35		12 Apr 2022 11:30	15 Apr 2022 00:05	1
HS22040391-04	MW-18	07 Apr 2022 09:35		12 Apr 2022 11:30	15 Apr 2022 12:58	1
HS22040391-04	MW-18	07 Apr 2022 09:35		12 Apr 2022 11:30	15 Apr 2022 00:07	1
HS22040391-05	MW-19	07 Apr 2022 10:15		12 Apr 2022 11:30	15 Apr 2022 13:00	1
HS22040391-05	MW-19	07 Apr 2022 10:15		12 Apr 2022 11:30	15 Apr 2022 00:09	1
HS22040391-06	MW-20	07 Apr 2022 11:00		12 Apr 2022 11:30	15 Apr 2022 13:02	1
HS22040391-06	MW-20	07 Apr 2022 11:00		12 Apr 2022 11:30	15 Apr 2022 00:11	1
HS22040391-07	MW-21	07 Apr 2022 11:40		12 Apr 2022 11:30	15 Apr 2022 00:13	1
HS22040391-08	MW-22	07 Apr 2022 12:20		12 Apr 2022 11:30	15 Apr 2022 13:04	1
HS22040391-08	MW-22	07 Apr 2022 12:20		12 Apr 2022 11:30	15 Apr 2022 00:15	1
HS22040391-09	MW-27R	07 Apr 2022 11:20		12 Apr 2022 11:30	15 Apr 2022 13:29	10
HS22040391-09	MW-27R	07 Apr 2022 11:20		12 Apr 2022 11:30	15 Apr 2022 13:06	1
HS22040391-10	MW-28	07 Apr 2022 10:25		12 Apr 2022 11:30	15 Apr 2022 13:30	10
HS22040391-10	MW-28	07 Apr 2022 10:25		12 Apr 2022 11:30	15 Apr 2022 13:08	1
HS22040391-11	Field Blank-01	07 Apr 2022 10:20		12 Apr 2022 11:30	15 Apr 2022 13:10	1
HS22040391-11	Field Blank-01	07 Apr 2022 10:20		12 Apr 2022 11:30	15 Apr 2022 00:21	1
HS22040391-12	Field Dup[licate-01	07 Apr 2022 10:00		12 Apr 2022 11:30	15 Apr 2022 00:27	1
Batch ID: R406473 (0)	**Test Name :** ANIONS BY E300.0, REV 2.1, 1993				**Matrix:** Water	
HS22040391-01	MW-01	07 Apr 2022 10:50			13 Apr 2022 17:49	20
HS22040391-02	MW-02	07 Apr 2022 11:40			13 Apr 2022 18:10	20
HS22040391-03	MW-17	07 Apr 2022 12:35			13 Apr 2022 18:26	1
HS22040391-04	MW-18	07 Apr 2022 09:35			13 Apr 2022 18:31	1
HS22040391-05	MW-19	07 Apr 2022 10:15			13 Apr 2022 18:36	1
HS22040391-06	MW-20	07 Apr 2022 11:00			13 Apr 2022 18:42	1
HS22040391-07	MW-21	07 Apr 2022 11:40			13 Apr 2022 18:47	1
HS22040391-08	MW-22	07 Apr 2022 12:20			13 Apr 2022 18:52	1
HS22040391-09	MW-27R	07 Apr 2022 11:20			13 Apr 2022 19:40	100
HS22040391-09	MW-27R	07 Apr 2022 11:20			13 Apr 2022 19:35	10
HS22040391-10	MW-28	07 Apr 2022 10:25			13 Apr 2022 19:50	200
HS22040391-10	MW-28	07 Apr 2022 10:25			13 Apr 2022 19:45	10
HS22040391-11	Field Blank-01	07 Apr 2022 10:20			13 Apr 2022 19:56	1
HS22040391-12	Field Dup[licate-01	07 Apr 2022 10:00			13 Apr 2022 20:01	1

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R406511 (0)	**Test Name :** ANIONS BY E300.0, REV 2.1, 1993				**Matrix:** Water	
HS22040391-01	MW-01	07 Apr 2022 10:50			14 Apr 2022 12:28	1
HS22040391-07	MW-21	07 Apr 2022 11:40			14 Apr 2022 12:44	10
HS22040391-08	MW-22	07 Apr 2022 12:20			14 Apr 2022 12:49	10
Batch ID: R406624 (0)	**Test Name :** TOTAL DISSOLVED SOLIDS BY SM2540C-2011				**Matrix:** Water	
HS22040391-01	MW-01	07 Apr 2022 10:50			14 Apr 2022 14:19	1
HS22040391-02	MW-02	07 Apr 2022 11:40			14 Apr 2022 14:19	1
HS22040391-03	MW-17	07 Apr 2022 12:35			14 Apr 2022 14:19	1
HS22040391-04	MW-18	07 Apr 2022 09:35			14 Apr 2022 14:19	1
HS22040391-05	MW-19	07 Apr 2022 10:15			14 Apr 2022 14:19	1
HS22040391-06	MW-20	07 Apr 2022 11:00			14 Apr 2022 14:19	1
HS22040391-07	MW-21	07 Apr 2022 11:40			14 Apr 2022 14:19	1
HS22040391-08	MW-22	07 Apr 2022 12:20			14 Apr 2022 14:19	1
HS22040391-09	MW-27R	07 Apr 2022 11:20			14 Apr 2022 14:19	1
HS22040391-10	MW-28	07 Apr 2022 10:25			14 Apr 2022 14:19	1
HS22040391-11	Field Blank-01	07 Apr 2022 10:20			14 Apr 2022 14:19	1
HS22040391-12	Field Dup[licate-01	07 Apr 2022 10:00			14 Apr 2022 14:19	1
Batch ID: R406803 (0)	**Test Name :** SUBCONTRACT ANALYSIS - FLOURIDE				**Matrix:** Water	
HS22040391-01	MW-01	07 Apr 2022 10:50			19 Apr 2022 09:07	1
HS22040391-02	MW-02	07 Apr 2022 11:40			19 Apr 2022 09:07	1
HS22040391-03	MW-17	07 Apr 2022 12:35			19 Apr 2022 09:07	1
HS22040391-04	MW-18	07 Apr 2022 09:35			19 Apr 2022 09:07	1
HS22040391-05	MW-19	07 Apr 2022 10:15			19 Apr 2022 09:07	1
HS22040391-06	MW-20	07 Apr 2022 11:00			19 Apr 2022 09:07	1
HS22040391-07	MW-21	07 Apr 2022 11:40			19 Apr 2022 09:07	1
HS22040391-08	MW-22	07 Apr 2022 12:20			19 Apr 2022 09:07	1
HS22040391-09	MW-27R	07 Apr 2022 11:20			19 Apr 2022 09:07	1
HS22040391-10	MW-28	07 Apr 2022 10:25			19 Apr 2022 09:07	1
HS22040391-11	Field Blank-01	07 Apr 2022 10:20			19 Apr 2022 09:07	1
HS22040391-12	Field Dup[licate-01	07 Apr 2022 10:00			19 Apr 2022 09:07	1

WorkOrder: HS22040391
InstrumentID: ICPMS06
Test Code: ICP_TW
Test Number: SW6020A
Test Name: ICP-MS Metals by SW6020A

METHOD DETECTION / REPORTING LIMITS

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Boron	7440-42-8	0.0125	0.0106	0.0110	0.0200
A	Calcium	7440-70-2	0.0500	0.0394	0.0340	0.500

WorkOrder: HS22040391
InstrumentID: ICS-Integrion
Test Code: 300_W
Test Number: E300
Test Name: Anions by E300.0, Rev 2.1, 1993

METHOD DETECTION / REPORTING LIMITS

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Chloride	16887-00-6	0.500	0.531	0.200	0.500
A	Sulfate	14808-79-8	0.500	0.518	0.200	0.500

WorkOrder: HS22040391
InstrumentID: Balance1
Test Code: TDS_W 2540C
Test Number: M2540C
Test Name: Total Dissolved Solids by SM2540C

METHOD DETECTION / REPORTING LIMITS

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Total Dissolved Solids (Residue, Filterable)	TDS	5.00	12.0	5.00	10.0

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391

QC BATCH REPORT

Batch ID: 177520 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

MBLK Sample ID: **MBLK-177520** Units: **mg/L** Analysis Date: **14-Apr-2022 23:46**
Client ID: Run ID: **ICPMS06_406486** SeqNo: **6600350** PrepDate: **12-Apr-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	< 0.0110	0.0200								
Calcium	< 0.0340	0.500								

LCS Sample ID: **LCS-177520** Units: **mg/L** Analysis Date: **14-Apr-2022 23:48**
Client ID: Run ID: **ICPMS06_406486** SeqNo: **6600351** PrepDate: **12-Apr-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5145	0.0200	0.5	0	103	80 - 120				
Calcium	5.183	0.500	5	0	104	80 - 120				

MS Sample ID: **HS22040391-02MS** Units: **mg/L** Analysis Date: **14-Apr-2022 23:54**
Client ID: **MW-02** Run ID: **ICPMS06_406486** SeqNo: **6600354** PrepDate: **12-Apr-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5983	0.0200	0.5	0.1234	95.0	80 - 120				
Calcium	140.3	0.500	5	137.2	62.1	80 - 120				SO

MSD Sample ID: **HS22040391-02MSD** Units: **mg/L** Analysis Date: **14-Apr-2022 23:56**
Client ID: **MW-02** Run ID: **ICPMS06_406486** SeqNo: **6600355** PrepDate: **12-Apr-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5747	0.0200	0.5	0.1234	90.2	80 - 120	0.5983	4.03	20	
Calcium	135.8	0.500	5	137.2	-27.4	80 - 120	140.3	3.24	20	SO

PDS Sample ID: **HS22040391-02PDS** Units: **mg/L** Analysis Date: **14-Apr-2022 23:58**
Client ID: **MW-02** Run ID: **ICPMS06_406486** SeqNo: **6600356** PrepDate: **12-Apr-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.6097	0.0200	0.5	0.1234	97.3	75 - 125				
Calcium	140.8	0.500	10	137.2	35.9	75 - 125				SO

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391

QC BATCH REPORT

Batch ID: 177520 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

SD Sample ID: **HS22040391-02SD** Units: **mg/L** Analysis Date: **14-Apr-2022 23:52**
Client ID: **MW-02** Run ID: **ICPMS06_406486** SeqNo: **6600353** PrepDate: **12-Apr-2022** DF: **5**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Calcium	138.4	2.50					137.2	0.846	10	

The following samples were analyzed in this batch:

HS22040391-01	HS22040391-02	HS22040391-03	HS22040391-04
HS22040391-05	HS22040391-06	HS22040391-07	HS22040391-08
HS22040391-09	HS22040391-10	HS22040391-11	HS22040391-12

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391

QC BATCH REPORT

Batch ID: R406473 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY E300.0, REV 2.1, 1993**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **13-Apr-2022 17:01**
Client ID: Run ID: **ICS-Integrion_406473** SeqNo: **6598286** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	< 0.200	0.500								
Sulfate	< 0.200	0.500								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **13-Apr-2022 17:07**
Client ID: Run ID: **ICS-Integrion_406473** SeqNo: **6598287** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.04	0.500	20	0	95.2	90 - 110				
Sulfate	18.98	0.500	20	0	94.9	90 - 110				

MS Sample ID: **HS22040402-01MS** Units: **mg/L** Analysis Date: **13-Apr-2022 22:13**
Client ID: Run ID: **ICS-Integrion_406473** SeqNo: **6598320** PrepDate: DF: **10**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	305.9	5.00	100	219.8	86.2	80 - 120				
Sulfate	213.7	5.00	100	122.8	90.8	80 - 120				

MS Sample ID: **HS22040391-02MS** Units: **mg/L** Analysis Date: **13-Apr-2022 18:15**
Client ID: **MW-02** Run ID: **ICS-Integrion_406473** SeqNo: **6598299** PrepDate: DF: **20**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	540.2	10.0	200	362.6	88.8	80 - 120				
Sulfate	529.2	10.0	200	351.9	88.7	80 - 120				

MS Sample ID: **HS22040331-01MS** Units: **mg/L** Analysis Date: **13-Apr-2022 17:33**
Client ID: Run ID: **ICS-Integrion_406473** SeqNo: **6598292** PrepDate: DF: **10**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	271.2	5.00	100	179.2	92.0	80 - 120				
Sulfate	205.3	5.00	100	110.8	94.5	80 - 120				

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391

QC BATCH REPORT

Batch ID: R406473 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY E300.0, REV 2.1, 1993**

MSD Sample ID: **HS22040402-01MSD** Units: **mg/L** Analysis Date: **13-Apr-2022 22:18**
Client ID: Run ID: **ICS-Integrion_406473** SeqNo: **6598321** PrepDate: DF: **10**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	309.1	5.00	100	219.8	89.4	80 - 120	305.9	1.04	20	
Sulfate	213.2	5.00	100	122.8	90.4	80 - 120	213.7	0.205	20	

MSD Sample ID: **HS22040391-02MSD** Units: **mg/L** Analysis Date: **13-Apr-2022 18:21**
Client ID: **MW-02** Run ID: **ICS-Integrion_406473** SeqNo: **6598300** PrepDate: DF: **20**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	539.5	10.0	200	362.6	88.4	80 - 120	540.2	0.133	20	
Sulfate	527.6	10.0	200	351.9	87.8	80 - 120	529.2	0.315	20	

MSD Sample ID: **HS22040331-01MSD** Units: **mg/L** Analysis Date: **13-Apr-2022 17:38**
Client ID: Run ID: **ICS-Integrion_406473** SeqNo: **6598293** PrepDate: DF: **10**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	271.2	5.00	100	179.2	91.9	80 - 120	271.2	0.0369	20	
Sulfate	204.9	5.00	100	110.8	94.1	80 - 120	205.3	0.178	20	

The following samples were analyzed in this batch:

HS22040391-01	HS22040391-02	HS22040391-03	HS22040391-04
HS22040391-05	HS22040391-06	HS22040391-07	HS22040391-08
HS22040391-09	HS22040391-10	HS22040391-11	HS22040391-12

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391

QC BATCH REPORT

Batch ID: R406511 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY E300.0, REV 2.1, 1993**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **14-Apr-2022 10:25**
Client ID: Run ID: **ICS-Integrion_406511** SeqNo: **6599102** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	< 0.200	0.500								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **14-Apr-2022 10:30**
Client ID: Run ID: **ICS-Integrion_406511** SeqNo: **6599103** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.61	0.500	20	0	98.1	90 - 110				

MS Sample ID: **HS22040391-01MS** Units: **mg/L** Analysis Date: **14-Apr-2022 12:33**
Client ID: **MW-01** Run ID: **ICS-Integrion_406511** SeqNo: **6599107** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	10.49	0.500	10	0	105	80 - 120				

MSD Sample ID: **HS22040391-01MSD** Units: **mg/L** Analysis Date: **14-Apr-2022 12:39**
Client ID: **MW-01** Run ID: **ICS-Integrion_406511** SeqNo: **6599108** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	10.46	0.500	10	0	105	80 - 120	10.49	0.244	20	

The following samples were analyzed in this batch: HS22040391-01 HS22040391-07 HS22040391-08

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: HS22040391

QC BATCH REPORT

Batch ID: R406624 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK Sample ID: **WBLK-041422** Units: **mg/L** Analysis Date: **14-Apr-2022 14:19**
Client ID: Run ID: **Balance1_406624** SeqNo: **6602119** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)	< 5.00	10.0								

LCS Sample ID: **WLCS-041422** Units: **mg/L** Analysis Date: **14-Apr-2022 14:19**
Client ID: Run ID: **Balance1_406624** SeqNo: **6602120** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)	1042	10.0	1000	0	104	85 - 115				

DUP Sample ID: **HS22040391-12DUP** Units: **mg/L** Analysis Date: **14-Apr-2022 14:19**
Client ID: **Field Dup[licate-01** Run ID: **Balance1_406624** SeqNo: **6602118** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)	348	10.0					346	0.576	5	

DUP Sample ID: **HS22040391-02DUP** Units: **mg/L** Analysis Date: **14-Apr-2022 14:19**
Client ID: **MW-02** Run ID: **Balance1_406624** SeqNo: **6602107** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)	1562	10.0					1582	1.27	5	

The following samples were analyzed in this batch:

HS22040391-01	HS22040391-02	HS22040391-03	HS22040391-04
HS22040391-05	HS22040391-06	HS22040391-07	HS22040391-08
HS22040391-09	HS22040391-10	HS22040391-11	HS22040391-12

Client: TRC Corporation
Project: NRG Limestone - CCR Program
WorkOrder: **HS22040391**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Florida	E87611-34	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Texas	T104704231-21-28	30-Apr-2022

Sample Receipt Checklist

Work Order ID: HS22040391 **Date/Time Received:** **07-Apr-2022 15:33**

Client Name: TRC-HOU **Received by:** **Patrick Salome**

Completed By:	/S/ Nilesh D. Ranchod	08-Apr-2022 15:33	**Reviewed by:**	/S/ Corey Grandits	13-Apr-2022 14:42
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **Water** Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:262952/262951
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	0.4C/0.9C UC/C	IR#31	
Cooler(s)/Kit(s):	48200		
Date/Time sample(s) sent to storage:	04/07/2022 16:00		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

COC ID: 262952

ALS Project Manager: | ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	477046.0000.0000	Project Name	NRG Limestone- CCR Program	A	ICP_TW (B and Ca (App III))
Work Order		Project Number		B	300_W (Cl, SO4)
Company Name	TRC Corporation	Bill To Company	TRC Corporation	C	Sub_Fluoride (Sub Fluoride to ALS Michigan)
Send Report To	Lori Burris	Invoice Attn	A/P	D	TDS_W 2540C (TDS)
Address	14701 St. Mary's Lane Suite 500	Address	14701 St. Mary's Lane Suite 500		
City/State/Zip	Houston, TX 77079	City/State/Zip	Houston TX 77079		
Phone	(713) 244-1000	Phone	(713) 244-1000		
Fax	(713) 244-1099	Fax	(713) 244-1099		
e-Mail Address	LBurris@trcsolutions.com	e-Mail Address	apinvoiceapproval@trcsolutions.com		

HS22040391
TRC Corporation
NRG Limestone

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-01	4-7-22	1050	Water	2,8	3	X	X	X	X							
2	MW-02		1140	Water	2,8	3	X	X	X	X							
3	MW-17		1235	Water	2,8	3	X	X	X	X							
4	MW-18		935	Water	2,8	3	X	X	X	X							
5	MW-19		1015	Water	2,8	3	X	X	X	X							
6	MW-20		1100	Water	2,8	3	X	X	X	X							
7	MW-21		1140	Water	2,8	3	X	X	X	X							
8	MW-22		1220	Water	2,8	3	X	X	X	X							
9	MW-27R		1120	Water	2,8	3	X	X	X	X							
10	MW-28R (BRH)		1025	Water	2,8	3	X	X	X	X							

Sampler(s) Please Print & Sign: Brian Hillin & HMI Team

Shipment Method: Drop off @ Lab

Required Turnaround Time: (Check Box) ☐ STD 10 W. Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:		Date: 4/7/22	Time: 1533	Received by:	
Relinquished by:		Date:	Time:	Received by (Laboratory):	4/7/2022 15:33
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):	

Notes: NRG Limestone PRIVILEGED & CONFIDENTIAL

Cooler ID	Cooler Temp.
48262	0.4° C
	4.31

QC Package: (Check One Box Below)
☐ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other
☒ TRRP Checklist
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note:
1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

COC ID: 262951

ALS Project Manager: | ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	477046.0000.0000	Project Name	NRG Limestone- CCR Program	A	ICP_TW (B and Ca (App III))
Work Order		Project Number		B	300_W (Cl, SO4)
Company Name	TRC Corporation	Bill To Company	TRC Corporation	C	Sub_Fluoride (Sub Fluoride to ALS Michigan)
Send Report To	Lori Burris	Invoice Attn	A/P	D	TDS_W 2540C (TDS)
Address	14701 St. Mary's Lane Suite 500	Address	14701 St. Mary's Lane Suite 500	E	
				F	HS22040391
City/State/Zip	Houston, TX 77079	City/State/Zip	Houston TX 77079	G	TRC Corporation
Phone	(713) 244-1000	Phone	(713) 244-1000	H	NRG Limestone
Fax	(713) 244-1099	Fax	(713) 244-1099	I	
e-Mail Address	LBurris@trcsolutions.com	e-Mail Address	apinvoiceapproval@trcsolutions.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-02-MS	4-7-22	1140	Water	2,8	3	X	X	X	X							
2	MW-02-MSD	↓	1140	Water	2,8	3	X	X	X	X							
3	Field Blank-01		1020	Water	2,8	3	X	X	X	X							
4	Field Duplicate-01		1000	Water	2,8	3	X	X	X	X							
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Brian Hillard HMI Team

Shipment Method: Drop off @ lab

Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date: 4/7/22	Time: 1533	Received by:	
Relinquished by:	Date:	Time:	Received by (Laboratory): 4-7-2022 15:33	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

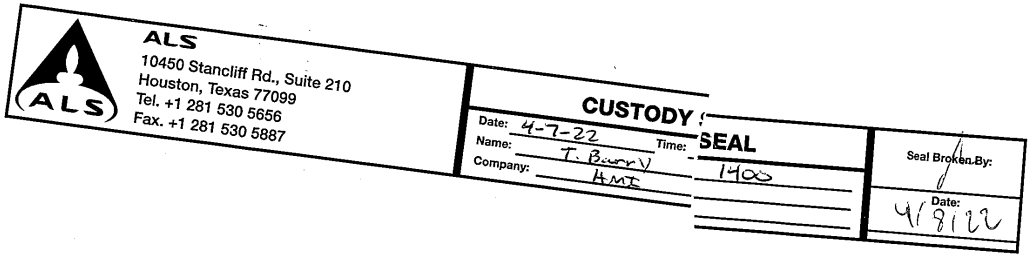
Notes: NRG Limestone PRIVILEGED & CONFIDENTIAL

Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☐ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other
☒ TRRP Checklist
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
CUSTODY SEAL
Date: 4-7-22
Time: 1400
Name: T. Bowry
Company: AMS
Seal Broken By:
Date: 4/8/22

19-Apr-2022

Corey Grandits
ALS Environmental
10450 Stancliff Rd
Suite 210
Houston, TX 77099

Re: **HS22040391** Work Order: **22040951**

Dear Corey,

ALS Environmental received 12 samples on 12-Apr-2022 02:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 26.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Client:	ALS Environmental
Project:	HS22040391
Work Order:	22040951

TRRP Laboratory Data Package Cover Page

This data package consists of all or some of the following as applicable:

This signature page, the laboratory case narrative, and the following reportable data:

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) for each analyte for each method and matrix;
R10 Other problems or anomalies:
See Case Narrative.

Release Statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached Case Narrative and QC Summaries. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified, and no information affecting the quality of the data has been knowingly withheld.

Chad Whelton

Chad Whelton
Project Manager

WET CHEMISTRY DATA ASSESSMENT CHECKLIST

Wet Chemistry	Batch Number: TITRATOR1_220416A	Instrument ID: ISE analyzer	
Method: Fluoride	Work order Number (s): 22040951		
Analyst Name: JB	Date 4/16/22	Reviewer Name: CAC	Date: 4-18-22

	A[1]	Description	Yes	No	NA[2]	NR[3]	ER#[4]
R1	I	Chain-of-Custody					
		1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?			X		
		2) Were all departures from standard conditions described in an exception report?			X		
R2	I	**SAMPLE AND QUALITY CONTROL (QC) IDENTIFICATION**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?			X		
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?			X		
R3	I	**TEST REPORTS**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample quantitation limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Was % moisture (or solids) reported for all soil and sediment samples?			X		
		8) If required for the project, TICs reported?			X		
R4	I	**SURROGATE RECOVERY DATA**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	I	**TEST REPORTS/SUMMMARY FORMS FOR BLANK SAMPLES**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < ½ MQL?	X				
R6	I	**LABORATORY CONTROL SAMPLES (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS and LCSD %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	X				
		6) Was the LCSD RPD within QC limits?	X				
R7	I	**MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD) DATA**					
		1) Were the project or method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS and MSD %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	I	**ANALYTICAL DUPLICATE DATA (IF REQUIRED)**					
		1) Were appropriate analytical duplicates analyzed for each matrix?	X				
		2) Were analytical duplicates analyzed at the appropriate frequency?	X				
		3) Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	I	**METHOD QUANTITATION LIMITS (MQLS):**					
		1) Are the MQLs for each method analyte listed and included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs included in the laboratory data package?			X		
R10	I	**OTHER PROBLEMS/ANOMALIES**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		2) Were all necessary corrective actions performed for the reported data?	X				
		3) If requested, is the justification for elevated SQLs documented?			X		

S1	I	**INITIAL CALIBRATION (ICAL)**					
		1) Were response factors (RFs) and/or relative response factors (RRFs) for each analyte within the QC limits?			X		
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	I	**INITIAL AND CONTINUING CALIBRATION VERIFICATION (ICCV AND CCV) AND**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the organic CCB < MDL?	X				
S3	I	**MASS SPECTRAL TUNING:**					
		1) Was the appropriate compound for the method used for tuning?			X		
		2) Were ion abundance data within the method-required QC limits?			X		
S4	I	**INTERNAL STANDARDS (IS):**					
		Were IS area counts within the method-required QC limits?			X		
S5	I	**RAW DATA**					
		1) Were the raw data (e.g., chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	I	**DUAL COLUMN CONFIRMATION (IF REQUIRED)**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	I	**TENTATIVELY IDENTIFIED COMPOUNDS (TICS):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**INTERFERENCE CHECK SAMPLE (ICS) RESULTS:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**SERIAL DILUTIONS, POST DIGESTION SPIKES, AND METHOD OF STANDARD**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	I	**PROFICIENCY TEST REPORTS:**					
		Are proficiency testing or inter-laboratory comparison results on file?	X				
S11	I	**METHOD DETECTION LIMIT (MDL) STUDIES**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S12	I	**STANDARDS DOCUMENTATION**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	I	**COMPOUND/ANALYTE IDENTIFICATION PROCEDURES**					
		Are the procedures for compound/analyte identification documented?	X				
S14	I	**DEMONSTRATION OF ANALYST COMPETENCY (DOC)**					
		1) Was DOC conducted consistent with NELAC 5C or ISO/IEC 4.2.2?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	I	**VERIFICATION/VALIDATION DOCUMENTATION FOR METHODS**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable, (NELAC 5.10.2 or ISO/IEC 17025 Section 5.4.5)?	X				
S16	I	**LABORATORY STANDARD OPERATING PROCEDURES (SOPS):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
2 NA = Not applicable.
3 NR = Not Reviewed.
4 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

WET CHEMISTRY DATA ASSESSMENT CHECKLIST

Wet Chemistry	Batch Number:	

ER #[1]	DESCRIPTION
1	No exceptions

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

Client: ALS Environmental
Project: HS22040391
Work Order: **22040951**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
22040951-01	MW-01	Water	HS22040391-01	4/7/2022 10:50	4/12/2022 14:00	☐
22040951-02	MW-02	Water	HS22040391-02	4/7/2022 11:40	4/12/2022 14:00	☐
22040951-03	MW-17	Water	HS22040391-03	4/7/2022 12:35	4/12/2022 14:00	☐
22040951-04	MW-18	Water	HS22040391-04	4/7/2022 09:35	4/12/2022 14:00	☐
22040951-05	MW-19	Water	HS22040391-05	4/7/2022 10:15	4/12/2022 14:00	☐
22040951-06	MW-20	Water	HS22040391-06	4/7/2022 11:00	4/12/2022 14:00	☐
22040951-07	MW-21	Water	HS22040391-07	4/7/2022 11:40	4/12/2022 14:00	☐
22040951-08	MW-22	Water	HS22040391-08	4/7/2022 12:20	4/12/2022 14:00	☐
22040951-09	MW-27R	Water	HS22040391-09	4/7/2022 11:20	4/12/2022 14:00	☐
22040951-10	MW-28	Water	HS22040391-10	4/7/2022 10:25	4/12/2022 14:00	☐
22040951-11	Field Blank-01	Water	HS22040391-11	4/7/2022 10:20	4/12/2022 14:00	☐
22040951-12	Field Duplicate-01	Water	HS22040391-12	4/7/2022 10:00	4/12/2022 14:00	☐

Client:	ALS Environmental
Project:	HS22040391
Work Order:	22040951

Case Narrative

Samples for the above noted Work Order were received on 04/12/2022. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:
No other deviations or anomalies were noted.

Client: ALS Environmental
Project: HS22040391
WorkOrder: **22040951**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter

Work Order: 22040951
Client: ALS Environmental
Project: HS22040391

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
Batch ID R342323 **Test Name:** Fluoride						
22040951-01	MW-01	Water	4/7/2022 10:50:00 AM			4/16/2022 11:57 AM
22040951-02	MW-02		4/7/2022 11:40:00 AM			4/16/2022 11:57 AM
22040951-03	MW-17		4/7/2022 12:35:00 PM			4/16/2022 11:57 AM
22040951-04	MW-18		4/7/2022 9:35:00 AM			4/16/2022 11:57 AM
22040951-05	MW-19		4/7/2022 10:15:00 AM			4/16/2022 11:57 AM
22040951-06	MW-20		4/7/2022 11:00:00 AM			4/16/2022 11:57 AM
22040951-07	MW-21		4/7/2022 11:40:00 AM			4/16/2022 11:57 AM
22040951-08	MW-22		4/7/2022 12:20:00 PM			4/16/2022 11:57 AM
22040951-09	MW-27R		4/7/2022 11:20:00 AM			4/16/2022 11:57 AM
22040951-10	MW-28		4/7/2022 10:25:00 AM			4/16/2022 11:57 AM
22040951-11	Field Blank-01		4/7/2022 10:20:00 AM			4/16/2022 11:57 AM
22040951-12	Field Duplicate-01		4/7/2022 10:00:00 AM			4/16/2022 11:57 AM

ALS Group, USA

Date: *19-Apr-22*

Client: ALS Environmental
Project: HS22040391
Sample ID: MW-01
Collection Date: 4/7/2022 10:50 AM

Work Order: 22040951
Lab ID: 22040951-01
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: MW-02
Collection Date: 4/7/2022 11:40 AM

Work Order: 22040951
Lab ID: 22040951-02
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: MW-17
Collection Date: 4/7/2022 12:35 PM

Work Order: 22040951
Lab ID: 22040951-03
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: MW-18
Collection Date: 4/7/2022 09:35 AM

Work Order: 22040951
Lab ID: 22040951-04
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: MW-19
Collection Date: 4/7/2022 10:15 AM

Work Order: 22040951
Lab ID: 22040951-05
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: MW-20
Collection Date: 4/7/2022 11:00 AM

Work Order: 22040951
Lab ID: 22040951-06
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	**0.080**	J	**0.058**	**0.10**	**mg/L**	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: MW-21
Collection Date: 4/7/2022 11:40 AM

Work Order: 22040951
Lab ID: 22040951-07
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: MW-22
Collection Date: 4/7/2022 12:20 PM

Work Order: 22040951
Lab ID: 22040951-08
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: MW-27R
Collection Date: 4/7/2022 11:20 AM

Work Order: 22040951
Lab ID: 22040951-09
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: MW-28
Collection Date: 4/7/2022 10:25 AM

Work Order: 22040951
Lab ID: 22040951-10
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: Field Blank-01
Collection Date: 4/7/2022 10:20 AM

Work Order: 22040951
Lab ID: 22040951-11
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22040391
Sample ID: Field Duplicate-01
Collection Date: 4/7/2022 10:00 AM

Work Order: 22040951
Lab ID: 22040951-12
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **JB**
Fluoride	U		0.058	0.10	mg/L	1	4/16/2022 11:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

WorkOrder: 22040951
InstrumentID: Titrator 1
Test Code: FL_4500C_W
Test Number: A4500-F C-11
Test Name: Fluoride **Matrix:** Water **Units:** mg/L

METHOD DETECTION / REPORTING LIMITS

Type	Analyte	CAS	DCS Spike	DCS	MDL	Unadjusted MQL
A	Fluoride	16984-48-8	0.08	0.08	0.058	0.10

Batch ID: **R342323** Instrument ID **Titrator 1** Method: **A4500-F C-11**

MBLK Sample ID: **MB-R342323-R342323** Units: **mg/L** Analysis Date: **4/16/2022 11:57 AM**
Client ID: Run ID: **TITRATOR 1_220416A** SeqNo: **8333582** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	U	0.10								

LCS Sample ID: **LCS-R342323-R342323** Units: **mg/L** Analysis Date: **4/16/2022 11:57 AM**
Client ID: Run ID: **TITRATOR 1_220416A** SeqNo: **8333583** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	4.98	0.10	5	0	99.6	80-120	0			

MS Sample ID: **22040951-02AMS** Units: **mg/L** Analysis Date: **4/16/2022 11:57 AM**
Client ID: **MW-02** Run ID: **TITRATOR 1_220416A** SeqNo: **8333587** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	5.31	0.10	5	0	106	75-125	0			

MS Sample ID: **22041029-01C MS** Units: **mg/L** Analysis Date: **4/16/2022 11:57 AM**
Client ID: Run ID: **TITRATOR 1_220416A** SeqNo: **8333600** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	6.25	0.10	5	1.02	105	75-125	0			

MSD Sample ID: **22040951-02AMSD** Units: **mg/L** Analysis Date: **4/16/2022 11:57 AM**
Client ID: **MW-02** Run ID: **TITRATOR 1_220416A** SeqNo: **8333588** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	5.8	0.10	5	0	116	75-125	5.31	8.82	20	

MSD Sample ID: **22041029-01C MSD** Units: **mg/L** Analysis Date: **4/16/2022 11:57 AM**
Client ID: Run ID: **TITRATOR 1_220416A** SeqNo: **8333601** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	6.31	0.10	5	1.02	106	75-125	6.25	0.955	20	

The following samples were analyzed in this batch:

22040951-01A	22040951-02A	22040951-03A
22040951-04A	22040951-05A	22040951-06A
22040951-07A	22040951-08A	22040951-09A
22040951-10A	22040951-11A	22040951-12A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **18538**

SUBCONTRACT TO:

ALS Group USA, Corp.
3352 - 128th Ave
Holland, MI 494249263

Phone: +1 616 399 6070

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Corey Grandits
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	Corey.Grandits@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS22040391
TSR:	Ron Martino

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS22040391-01**	**MW-01**	**Water**	**07 Apr 2022 10:50**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
2.	**HS22040391-02**	**MW-02**	**Water**	**07 Apr 2022 11:40**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
3.	**HS22040391-03**	**MW-17**	**Water**	**07 Apr 2022 12:35**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
4.	**HS22040391-04**	**MW-18**	**Water**	**07 Apr 2022 09:35**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
5.	**HS22040391-05**	**MW-19**	**Water**	**07 Apr 2022 10:15**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
6.	**HS22040391-06**	**MW-20**	**Water**	**07 Apr 2022 11:00**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
7.	**HS22040391-07**	**MW-21**	**Water**	**07 Apr 2022 11:40**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
8.	**HS22040391-08**	**MW-22**	**Water**	**07 Apr 2022 12:20**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
9.	**HS22040391-09**	**MW-27R**	**Water**	**07 Apr 2022 11:20**

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **18538**

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
10.	**HS22040391-10**	**MW-28**	**Water**	**07 Apr 2022 10:25**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
11.	**HS22040391-11**	**Field Blank-01**	**Water**	**07 Apr 2022 10:20**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022
12.	**HS22040391-12**	**Field Dup[licate-01**	**Water**	**07 Apr 2022 10:00**
	Fluoride by ISE 4500. TRC EQuis EDD			19 Apr 2022

Comments: Please analyze for Fluoride SM4500F-C. TRRP{{ final report. EQUIS EDD TRC
Send report to the emails shown above.
HS22040391-02 MS/MSD Please batch our client together in one batch.

QC Level: TRRP LRC (TRRP checklist only+Level II (normal))

Relinquished By: _____ Date/Time: 4/11/2022 1800

Received By: FedEx Date/Time: 4/12/22 1400

Cooler ID(s): _____ Temperature(s): IR1 5.0°C pH 2

ALS Group, USA

Sample Receipt Checklist

Client Name: **ALS - HOUSTON** Date/Time Received: **12-Apr-22 14:00**

Work Order: **22040951** Received by: **LYS**

Checklist completed by Lydia Sweet 12-Apr-22 Reviewed by: Chad Whelton 13-Apr-22

eSignature | Date | eSignature | Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.0/5.0c	IR1	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	4/12/2022 3:40:29 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Appendix B
Detection Monitoring Data (October 2022)

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

October 17, 2022

Lori Burris
TRC Corporation
14701 St. Mary's Lane
Suite 500
Houston, TX 77079

Work Order: **HS22100230**

Laboratory Results for: **NRG Limestone - Appedix III**

Dear Lori Burris,

ALS Environmental received 12 sample(s) on Oct 05, 2022 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Andy C. Neir

Client:	TRC Corporation	**TRRP Laboratory Data Package Cover Page**
Project:	NRG Limestone - Appedix III	
WorkOrder:	**HS22100230**	

This data package consists of all or some of the following as applicable:

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

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.

Client:	TRC Corporation	**TRRP Laboratory Data Package Cover Page**
Project:	NRG Limestone - Appedix III	
WorkOrder:	**HS22100230**	

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 attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory have been identified by the laboratory in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

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

Andy C. Neir

Laboratory Review Checklist: Reportable Data								
Laboratory Name: ALS Laboratory Group			LRC Date: 10/17/2022					
Project Name: NRG Limestone - Appedix III			Laboratory Job Number: HS22100230					
Reviewer Name: Andy Neir			Prep Batch Number(s): 184650,R418943,R419049,R419365,R419526					
#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]	
R1	OI	**Chain-of-custody (C-O-C)**						
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X					
		Were all departures from standard conditions described in an exception report?	X					
R2	OI	**Sample and quality control (QC) identification**						
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X					
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X					
R3	OI	**Test reports**						
		Were all samples prepared and analyzed within holding times?	X					
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X					
		Were calculations checked by a peer or supervisor?	X					
		Were all analyte identifications checked by a peer or supervisor?	X					
		Were sample detection limits reported for all analytes not detected?	X					
		Were all results for soil and sediment samples reported on a dry weight basis?			X			
		Were % moisture (or solids) reported for all soil and sediment samples?			X			
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW-846 Method 5035?			X			
		If required for the project, TICs reported?			X			
R4	O	**Surrogate recovery data**						
		Were surrogates added prior to extraction?			X			
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X			
R5	OI	**Test reports/summary forms for blank samples**						
		Were appropriate type(s) of blanks analyzed?	X					
		Were blanks analyzed at the appropriate frequency?	X					
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X					
		Were blank concentrations < MQL?	X					
R6	OI	**Laboratory control samples (LCS):**						
		Were all COCs included in the LCS?	X					
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X					
		Were LCSs analyzed at the required frequency?	X					
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X					
		Does the detectability 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	**Matrix spike (MS) and matrix spike duplicate (MSD) data**						
		Were the project/method specified analytes included in the MS and MSD?	X					
		Were MS/MSD analyzed at the appropriate frequency?	X					
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			1	
		Were MS/MSD RPDs within laboratory QC limits?	X					
R8	OI	**Analytical duplicate data**						
		Were appropriate analytical duplicates analyzed for each matrix?	X					
		Were analytical duplicates analyzed at the appropriate frequency?	X					
		Were RPDs or relative standard deviations within the laboratory QC limits?	X					
R9	OI	**Method quantitation limits (MQLs):**						
		Are the MQLs for each method analyte included in the laboratory data package?	X					
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X					
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X					
R10	OI	**Other problems/anomalies**						
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				2	
		Were all necessary corrective actions performed for the reported data?	X					
		Was applicable and available technology used to lower the SDL and minimize the matrix interference effects on the sample results?	X					
		Is the laboratory NELAC-accredited under the Texas Laboratory Program for the analytes, matrices and methods associated with this laboratory data package?	X					

Laboratory Review Checklist: Supporting Data								
Laboratory Name: ALS Laboratory Group			LRC Date: 10/17/2022					
Project Name: NRG Limestone - Appedix III			Laboratory Job Number: HS22100230					
Reviewer Name: Andy Neir			Prep Batch Number(s): 184650,R418943,R419049,R419365,R419526					
#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]	
S1	OI	**Initial calibration (ICAL)**						
		Were response factors and/or relative response factors for each analyte within QC limits?	X					
		Were percent RSDs or correlation coefficient criteria met?	X					
		Was the number of standards recommended in the method used for all analytes?	X					
		Were all points generated between the lowest and highest standard used to calculate the curve?	X					
		Are ICAL data available for all instruments used?	X					
		Has the initial calibration curve been verified using an appropriate second source standard?	X					
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB)**						
		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			3	
S3	O	**Mass spectral tuning:**						
		Was the appropriate compound for the method used for tuning?	X					
		Were ion abundance data within the method-required QC limits?	X					
S4	O	**Internal standards (IS):**						
		Were IS area counts and retention times within the method-required QC limits?	X					
S5	OI	**Raw data** (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section						
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X					
		Were data associated with manual integrations flagged on the raw data?	X					
S6	O	**Dual column confirmation**						
		Did dual column confirmation results meet the method-required QC?			X			
S7	O	**Tentatively identified compounds (TICs):**						
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X			
S8	I	**Interference Check Sample (ICS) results:**						
		Were percent recoveries within method QC limits?	X					
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**						
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?		X			4	
S10	OI	**Method detection limit (MDL) studies**						
		Was a MDL study performed for each reported analyte?	X					
		Is the MDL either adjusted or supported by the analysis of DCSs?	X					
S11	OI	**Proficiency test reports:**						
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X					
S12	OI	**Standards documentation**						
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X					
S13	OI	**Compound/analyte identification procedures**						
		Are the procedures for compound/analyte identification documented?	X					
S14	OI	**Demonstration of analyst competency (DOC)**						
		Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	X					
		Is documentation of the analyst's competency up-to-date and on file?	X					
S15	OI	**Verification/validation documentation for methods** (NELAC Chap 5 or ISO/IEC 17025 Section 5)						
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X					
S16	OI	**Laboratory standard operating procedures (SOPs):**						
		Are laboratory SOPs current and on file for each method performed?	X					

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;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports		
Laboratory Name: ALS Laboratory Group		LRC Date: 10/17/2022
Project Name: NRG Limestone - Appedix III		Laboratory Job Number: HS22100230
Reviewer Name: Andy Neir		Prep Batch Number(s): 184650,R418943,R419049,R419365,R419526
ER#[5]	**Description**	
1	Batch 184650, Metals Method SW6020, sample MW-02, MS recovered outside the control limit for Calcium, however, the result in the parent sample is greater than 4x the spike amount Batch R418943, Anions Method E300, sample HS22100267-01, MS and MSD were performed on unrelated sample Batch R419049, Anions Method E300, sample HS22100460-01, MS and MSD were performed on unrelated sample	
3	Login Notes: ID Differs : COC - MW-28 Labels - MW-28R The analysis for Fluoride was subcontracted to ALS Environmental in Holland, MI. Report and Laboratory Review Checklist are attached to the final report	
3	See Run Log and CCB Exceptions Report.	
4	Batch 184650, Metals Method SW6020, sample MW-02, PDS recovered outside the control limit for Calcium, however, the result in the parent sample is greater than 4x the spike amount	

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;
R# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230
Start Date: 11-Oct-2022 End Date: 11-Oct-2022

Run ID:ICPMS07_419132
Instrument:ICPMS07
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
ICV	1	11-Oct-2022 17:50	012_ICV.d	B CA
LLICV2	1	11-Oct-2022 17:52	013LCV2.d	B CA
LLICV5	1	11-Oct-2022 17:53	014LCV5.d	B CA
ICB	1	11-Oct-2022 17:55	015_ICB.d	B CA
ICSA	1	11-Oct-2022 17:58	016ICSA.d	B CA
ICSAB	1	11-Oct-2022 18:00	017ICSB.d	B CA
CCV 1	1	11-Oct-2022 18:04	019_CCV.d	B CA
CCB 1	1	11-Oct-2022 18:06	020_CCB.d	B CA
CCV 2	1	11-Oct-2022 18:27	031_CCV.d	B CA
CCB 2	1	11-Oct-2022 18:28	032_CCB.d	B CA
CCV 3	1	11-Oct-2022 18:49	043_CCV.d	B CA
CCB 3	1	11-Oct-2022 18:51	044_CCB.d	B CA
CCV 4	1	11-Oct-2022 19:11	055_CCV.d	B CA
CCB 4	1	11-Oct-2022 19:13	056_CCB.d	B CA
CCV 5	1	11-Oct-2022 19:19	059_CCV.d	B CA
CCB 5	1	11-Oct-2022 19:21	060_CCB.d	B CA
CCV 6	1	11-Oct-2022 19:32	066_CCV.d	B CA
CCB 6	1	11-Oct-2022 19:34	067_CCB.d	B CA
CCV 7	1	11-Oct-2022 19:49	075_CCV.d	B CA
CCB 7	1	11-Oct-2022 19:51	076_CCB.d	B CA
LCS-184650	1	11-Oct-2022 19:54	078SMPL.d	B CA
MW-02	1	11-Oct-2022 19:56	079SMPL.d	B CA
MW-02SD	5	11-Oct-2022 19:58	080SMPL.d	B CA
MW-02MS	1	11-Oct-2022 20:00	081SMPL.d	B CA
MW-02MSD	1	11-Oct-2022 20:02	082SMPL.d	B CA
MW-02PDS	1	11-Oct-2022 20:04	083SMPL.d	CA
CCV 8	1	11-Oct-2022 20:07	085_CCV.d	B CA
CCB 8	1	11-Oct-2022 20:09	086_CCB.d	B CA
MW-01	1	11-Oct-2022 20:11	087SMPL.d	B CA
MW-17	1	11-Oct-2022 20:13	088SMPL.d	B CA
MW-18	1	11-Oct-2022 20:15	089SMPL.d	B CA
MW-19	1	11-Oct-2022 20:17	090SMPL.d	B CA
MW-20	1	11-Oct-2022 20:19	091SMPL.d	B CA
MW-21	1	11-Oct-2022 20:20	092SMPL.d	B CA
MW-22	1	11-Oct-2022 20:22	093SMPL.d	B CA
MW-27R	1	11-Oct-2022 20:24	094SMPL.d	B
MW-28	1	11-Oct-2022 20:26	095SMPL.d	B
Field Blank-01	1	11-Oct-2022 20:28	096SMPL.d	B CA
CCV 9	1	11-Oct-2022 20:30	097_CCV.d	B CA
CCB 9	1	11-Oct-2022 20:32	098_CCB.d	B CA
Field Dup[licate-01	1	11-Oct-2022 20:34	099SMPL.d	B CA
CCV 10	1	11-Oct-2022 20:53	109_CCV.d	B CA
CCB 10	1	11-Oct-2022 20:54	110_CCB.d	B CA
CCV 11	1	11-Oct-2022 21:10	118_CCV.d	B CA
CCB 11	1	11-Oct-2022 21:12	119_CCB.d	B CA
CCV 12	1	11-Oct-2022 21:27	127_CCV.d	B CA
CCB 12	1	11-Oct-2022 21:29	128_CCB.d	B CA
CCV 13	1	11-Oct-2022 21:44	136_CCV.d	B CA
CCB 13	1	11-Oct-2022 21:45	137_CCB.d	B CA

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230
Start Date: 12-Oct-2022 End Date: 13-Oct-2022

Run ID:ICPMS07_419209
Instrument:ICPMS07
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
LLICV2	1	12-Oct-2022 12:31	015LCV2.d	CA
LLICV5	1	12-Oct-2022 12:33	016LCV5.d	CA
ICB	1	12-Oct-2022 12:35	017_ICB.d	B CA
ICV	1	12-Oct-2022 12:37	018_ICV.d	B CA
ICSA	1	12-Oct-2022 12:39	019ICSA.d	CA
ICSAB	1	12-Oct-2022 12:41	020ICSB.d	CA
CCV 1	1	12-Oct-2022 12:46	022_CCV.d	B CA
CCB 1	1	12-Oct-2022 12:48	023_CCB.d	B CA
CCV 2	1	12-Oct-2022 13:09	034_CCV.d	B CA
CCB 2	1	12-Oct-2022 13:11	035_CCB.d	B CA
CCV 3	1	12-Oct-2022 13:32	046_CCV.d	B CA
CCB 3	1	12-Oct-2022 13:33	047_CCB.d	B CA
CCV 4	1	12-Oct-2022 14:18	058_CCV.d	B CA
CCB 4	1	12-Oct-2022 14:20	059_CCB.d	B CA
MBLK-184650	1	12-Oct-2022 14:21	060SMPL.d	B CA
MW-27R	20	12-Oct-2022 14:23	061SMPL.d	CA
MW-28	20	12-Oct-2022 14:25	062SMPL.d	CA
CCV 5	1	12-Oct-2022 14:40	070_CCV.d	B CA
CCB 5	1	12-Oct-2022 14:42	071_CCB.d	B CA
CCV 6	1	12-Oct-2022 15:06	082_CCV.d	B CA
CCB 6	1	12-Oct-2022 15:08	083_CCB.d	B CA
CCV 7	1	12-Oct-2022 15:28	094_CCV.d	B CA
CCB 7	1	12-Oct-2022 15:30	095_CCB.d	B CA
CCV 8	1	12-Oct-2022 15:54	106_CCV.d	B CA
CCB 8	1	12-Oct-2022 15:56	107_CCB.d	B CA
CCV 9	1	12-Oct-2022 16:21	118_CCV.d	B CA
CCB 9	1	12-Oct-2022 16:23	119_CCB.d	B CA
CCV 10	1	12-Oct-2022 16:51	130_CCV.d	B CA
CCB 10	1	12-Oct-2022 16:53	131_CCB.d	B CA
CCV 11	1	12-Oct-2022 17:13	142_CCV.d	B CA
CCB 11	1	12-Oct-2022 17:15	143_CCB.d	B CA
CCV 12	1	12-Oct-2022 17:37	154_CCV.d	B CA
CCB 12	1	12-Oct-2022 17:39	155_CCB.d	B CA
CCV 13	1	12-Oct-2022 18:01	166_CCV.d	B CA
CCB 13	1	12-Oct-2022 18:03	167_CCB.d	B CA
CCV 14	1	12-Oct-2022 18:23	178_CCV.d	B CA
CCB 14	1	12-Oct-2022 18:25	179_CCB.d	B CA
CCV 15	1	12-Oct-2022 19:43	185_CCV.d	B CA
CCB 15	1	12-Oct-2022 19:44	186_CCB.d	B CA
CCV 16	1	12-Oct-2022 20:05	197_CCV.d	B CA
CCB 16	1	12-Oct-2022 20:07	198_CCB.d	B CA
CCV 17	1	12-Oct-2022 20:26	208_CCV.d	B CA
CCB 17	1	12-Oct-2022 20:27	209_CCB.d	B CA
CCV 18	1	12-Oct-2022 20:44	218_CCV.d	B CA
CCB 18	1	12-Oct-2022 20:46	219_CCB.d	B CA
CCV 19	1	12-Oct-2022 21:07	230_CCV.d	B CA
CCB 19	1	12-Oct-2022 21:09	231_CCB.d	B CA
CCV 20	1	12-Oct-2022 21:24	239_CCV.d	B CA
CCB 20	1	12-Oct-2022 21:26	240_CCB.d	B CA
ICCV 21	1	12-Oct-2022 22:54	252_ICV.d	B CA

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230
Start Date: 12-Oct-2022 End Date: 13-Oct-2022

Run ID:ICPMS07_419209
Instrument:ICPMS07
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
LLCCV2	1	12-Oct-2022 22:56	253LCV2.d	CA
LLCCV5	1	12-Oct-2022 22:58	254LCV5.d	CA
ICCB 21	1	12-Oct-2022 23:00	255_ICB.d	B CA
CCV 22	1	12-Oct-2022 23:04	257_CCV.d	B CA
CCB 22	1	12-Oct-2022 23:06	258_CCB.d	B CA
CCV 23	1	12-Oct-2022 23:23	267_CCV.d	B CA
CCB 23	1	12-Oct-2022 23:25	268_CCB.d	B CA
CCV 24	1	12-Oct-2022 23:39	276_CCV.d	B CA
CCB 24	1	12-Oct-2022 23:41	277_CCB.d	B CA
CCV 25	1	13-Oct-2022 00:02	288_CCV.d	B CA
CCB 25	1	13-Oct-2022 00:04	289_CCB.d	B CA
CCV 26	1	13-Oct-2022 00:17	296_CCV.d	B CA
CCB 26	1	13-Oct-2022 00:19	297_CCB.d	B CA
CCV 27	1	13-Oct-2022 00:35	305_CCV.d	B CA
CCB 27	1	13-Oct-2022 00:36	306_CCB.d	B CA
CCV 28	1	13-Oct-2022 00:57	317_CCV.d	B CA
CCB 28	1	13-Oct-2022 00:59	318_CCB.d	B CA
CCV 29	1	13-Oct-2022 01:16	327_CCV.d	B CA
CCB 29	1	13-Oct-2022 01:18	328_CCB.d	B CA
CCV 30	1	13-Oct-2022 01:24	331_CCV.d	B CA
CCB 30	1	13-Oct-2022 01:26	332_CCB.d	B CA
LLCCV2	1	13-Oct-2022 01:30	334LCV2.d	CA
LLCCV5	1	13-Oct-2022 01:32	335LCV5.d	CA
ICSA	1	13-Oct-2022 01:33	336ICSA.d	CA
ICSAB	1	13-Oct-2022 01:35	337ICSB.d	CA

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

Run ID:ICPMS07_419132
Instrument:ICPMS07
Method:SW6020A

CCB 1	Date: 11-Oct-2022 18:06	Seq: 6913319	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	13.99	11	20	

CCB 6	Date: 11-Oct-2022 19:34	Seq: 6913366	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	14.5	11	20	

CCB 7	Date: 11-Oct-2022 19:51	Seq: 6913375	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	23.97	11	20	

CCB 8	Date: 11-Oct-2022 20:09	Seq: 6913385	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	23.56	11	20	

CCB 9	Date: 11-Oct-2022 20:32	Seq: 6913397	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	14.42	11	20	

CCB 11	Date: 11-Oct-2022 21:12	Seq: 6913479	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	14.01	11	20	

CCB 12	Date: 11-Oct-2022 21:29	Seq: 6913488	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	20.71	11	20	

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

Run ID:ICPMS07_419209
Instrument:ICPMS07
Method:SW6020A

CCB 2	Date: 12-Oct-2022 13:11	Seq: 6915417		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		25.38	11	20	
CCB 3	Date: 12-Oct-2022 13:33	Seq: 6915425		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		30.64	11	20	
CCB 4	Date: 12-Oct-2022 14:20	Seq: 6915437		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		14.44	11	20	
CCB 12	Date: 12-Oct-2022 17:39	Seq: 6916422		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		50.68	11	20	
CCB 13	Date: 12-Oct-2022 18:03	Seq: 6916434		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		153	11	20	
CCB 14	Date: 12-Oct-2022 18:25	Seq: 6916461		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		55.92	11	20	
CCB 15	Date: 12-Oct-2022 19:44	Seq: 6916479		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		11.18	11	20	
CCB 18	Date: 12-Oct-2022 20:46	Seq: 6916517		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		28.45	11	20	
CCB 19	Date: 12-Oct-2022 21:09	Seq: 6916529		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		26.85	11	20	
CCB 20	Date: 12-Oct-2022 21:26	Seq: 6916538		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		17.81	11	20	
CCB 22	Date: 12-Oct-2022 23:06	Seq: 6916648		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		19.5	11	20	
CCB 23	Date: 12-Oct-2022 23:25	Seq: 6916658		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		21.21	11	20	
CCB 24	Date: 12-Oct-2022 23:41	Seq: 6917433		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	
Boron		24.87	11	20	
CCB 25	Date: 13-Oct-2022 00:04	Seq: 6917445		D/F: 1	Units: ug/L
Analyte		**Result**	**MDL**	**Report Limit**	

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

Run ID:ICPMS07_419209
Instrument:ICPMS07
Method:SW6020A

	Boron	35.89	11	20	
CCB 26	Date: 13-Oct-2022 00:19	Seq: 6917453	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	26.56	11	20	
CCB 27	Date: 13-Oct-2022 00:36	Seq: 6917462	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	35.59	11	20	
CCB 28	Date: 13-Oct-2022 00:59	Seq: 6917474	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	28.67	11	20	
CCB 29	Date: 13-Oct-2022 01:18	Seq: 6917643	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	19.8	11	20	
CCB 30	Date: 13-Oct-2022 01:26	Seq: 6917647	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	20.13	11	20	

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Work Order: HS22100230

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22100230-01	MW-01	Water		05-Oct-2022 10:25	05-Oct-2022 14:40	☐
HS22100230-02	MW-02	Water		05-Oct-2022 09:40	05-Oct-2022 14:40	☐
HS22100230-03	MW-17	Water		05-Oct-2022 11:00	05-Oct-2022 14:40	☐
HS22100230-04	MW-18	Water		05-Oct-2022 11:45	05-Oct-2022 14:40	☐
HS22100230-05	MW-19	Water		05-Oct-2022 11:45	05-Oct-2022 14:40	☐
HS22100230-06	MW-20	Water		05-Oct-2022 11:10	05-Oct-2022 14:40	☐
HS22100230-07	MW-21	Water		05-Oct-2022 10:35	05-Oct-2022 14:40	☐
HS22100230-08	MW-22	Water		05-Oct-2022 10:00	05-Oct-2022 14:40	☐
HS22100230-09	MW-27R	Water		05-Oct-2022 09:25	05-Oct-2022 14:40	☐
HS22100230-10	MW-28	Water		05-Oct-2022 10:25	05-Oct-2022 14:40	☐
HS22100230-11	Field Blank-01	Water		05-Oct-2022 11:50	05-Oct-2022 14:40	☐
HS22100230-12	Field Dup[licate-01	Water		05-Oct-2022 10:00	05-Oct-2022 14:40	☐

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-01
Collection Date: 05-Oct-2022 10:25

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-01
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.0341**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 20:11
Calcium	**60.0**		**0.0340**	**0.500**	**mg/L**	1	11-Oct-2022 20:11
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**278**		**2.00**	**5.00**	**mg/L**	10	09-Oct-2022 12:58
Sulfate	**0.560**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 14:59
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**870**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-02
Collection Date: 05-Oct-2022 09:40

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-02
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.0842**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 19:56
Calcium	**132**		**0.0340**	**0.500**	**mg/L**	1	11-Oct-2022 19:56
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**354**		**2.00**	**5.00**	**mg/L**	10	09-Oct-2022 12:42
Sulfate	**271**		**2.00**	**5.00**	**mg/L**	10	09-Oct-2022 12:42
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**1,340**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-17
Collection Date: 05-Oct-2022 11:00

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-03
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.0238**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 20:13
Calcium	**2.70**		**0.0340**	**0.500**	**mg/L**	1	11-Oct-2022 20:13
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**9.05**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 13:03
Sulfate	**7.45**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 13:03
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**146**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-18
Collection Date: 05-Oct-2022 11:45

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-04
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.0322**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 20:15
Calcium	**66.2**		**0.0340**	**0.500**	**mg/L**	1	11-Oct-2022 20:15
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**7.33**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 13:08
Sulfate	**28.3**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 13:08
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**368**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-19
Collection Date: 05-Oct-2022 11:45

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-05
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.0343**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 20:17
Calcium	**34.1**		**0.0340**	**0.500**	**mg/L**	1	11-Oct-2022 20:17
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**37.6**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 13:40
Sulfate	**85.7**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 13:40
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**328**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-20
Collection Date: 05-Oct-2022 11:10

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-06
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.0333**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 20:19
Calcium	**28.7**		**0.0340**	**0.500**	**mg/L**	1	11-Oct-2022 20:19
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**18.1**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 13:45
Sulfate	**28.5**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 13:45
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**342**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-21
Collection Date: 05-Oct-2022 10:35

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-07
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.786**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 20:20
Calcium	**73.5**		**0.0340**	**0.500**	**mg/L**	1	11-Oct-2022 20:20
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**20.8**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 13:51
Sulfate	**306**		**1.00**	**2.50**	**mg/L**	5	10-Oct-2022 12:41
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**594**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-22
Collection Date: 05-Oct-2022 10:00

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-08
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.0538**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 20:22
Calcium	**53.5**		**0.0340**	**0.500**	**mg/L**	1	11-Oct-2022 20:22
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**34.8**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 13:56
Sulfate	**118**		**0.400**	**1.00**	**mg/L**	2	10-Oct-2022 12:46
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**356**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-27R
Collection Date: 05-Oct-2022 09:25

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-09
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.168**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 20:24
Calcium	**441**		**0.680**	**10.0**	**mg/L**	20	12-Oct-2022 14:23
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**1,660**		**10.0**	**25.0**	**mg/L**	50	09-Oct-2022 14:06
Sulfate	**550**		**10.0**	**25.0**	**mg/L**	50	09-Oct-2022 14:06
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**5,680**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-28
Collection Date: 05-Oct-2022 10:25

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-10
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.182**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 20:26
Calcium	**416**		**0.680**	**10.0**	**mg/L**	20	12-Oct-2022 14:25
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**1,430**		**10.0**	**25.0**	**mg/L**	50	09-Oct-2022 14:12
Sulfate	**792**		**10.0**	**25.0**	**mg/L**	50	09-Oct-2022 14:12
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**5,630**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: Field Blank-01
Collection Date: 05-Oct-2022 11:50

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-11
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	< 0.0110		0.0110	0.0200	mg/L	1	11-Oct-2022 20:28
Calcium	**0.0649**	J	**0.0340**	**0.500**	**mg/L**	1	11-Oct-2022 20:28
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	< 0.200		0.200	0.500	mg/L	1	09-Oct-2022 14:17
Sulfate	< 0.200		0.200	0.500	mg/L	1	09-Oct-2022 14:17
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	< 5.00		5.00	10.0	mg/L	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: Field Dup[licate-01
Collection Date: 05-Oct-2022 10:00

ANALYTICAL REPORT
WorkOrder:HS22100230
Lab ID:HS22100230-12
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 11-Oct-2022		Analyst: JHD
Boron	**0.0327**		**0.0110**	**0.0200**	**mg/L**	1	11-Oct-2022 20:34
Calcium	**32.5**		**0.0340**	**0.500**	**mg/L**	1	11-Oct-2022 20:34
ANIONS BY E300.0, REV 2.1, 1993		**Method:E300**					Analyst: TH
Chloride	**37.9**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 14:22
Sulfate	**86.9**		**0.200**	**0.500**	**mg/L**	1	09-Oct-2022 14:22
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		**Method:M2540C**					Analyst: CWG
Total Dissolved Solids (Residue, Filterable)	**328**		**5.00**	**10.0**	**mg/L**	1	12-Oct-2022 18:08
SUBCONTRACT ANALYSIS - FLOURIDE		**Method:NA**					Analyst: SUBHO
Subcontract Analysis	See Attached		0			1	17-Oct-2022 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

Batch ID: 184650 **Start Date:** 11 Oct 2022 12:00 **End Date:** 11 Oct 2022 16:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22100230-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-08		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-09		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-10		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-11		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22100230-12		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 184650 (0)	**Test Name :** ICP-MS METALS BY SW6020A				**Matrix:** Water	
HS22100230-01	MW-01	05 Oct 2022 10:25		11 Oct 2022 12:00	11 Oct 2022 20:11	1
HS22100230-02	MW-02	05 Oct 2022 09:40		11 Oct 2022 12:00	11 Oct 2022 19:56	1
HS22100230-03	MW-17	05 Oct 2022 11:00		11 Oct 2022 12:00	11 Oct 2022 20:13	1
HS22100230-04	MW-18	05 Oct 2022 11:45		11 Oct 2022 12:00	11 Oct 2022 20:15	1
HS22100230-05	MW-19	05 Oct 2022 11:45		11 Oct 2022 12:00	11 Oct 2022 20:17	1
HS22100230-06	MW-20	05 Oct 2022 11:10		11 Oct 2022 12:00	11 Oct 2022 20:19	1
HS22100230-07	MW-21	05 Oct 2022 10:35		11 Oct 2022 12:00	11 Oct 2022 20:20	1
HS22100230-08	MW-22	05 Oct 2022 10:00		11 Oct 2022 12:00	11 Oct 2022 20:22	1
HS22100230-09	MW-27R	05 Oct 2022 09:25		11 Oct 2022 12:00	12 Oct 2022 14:23	20
HS22100230-09	MW-27R	05 Oct 2022 09:25		11 Oct 2022 12:00	11 Oct 2022 20:24	1
HS22100230-10	MW-28	05 Oct 2022 10:25		11 Oct 2022 12:00	12 Oct 2022 14:25	20
HS22100230-10	MW-28	05 Oct 2022 10:25		11 Oct 2022 12:00	11 Oct 2022 20:26	1
HS22100230-11	Field Blank-01	05 Oct 2022 11:50		11 Oct 2022 12:00	11 Oct 2022 20:28	1
HS22100230-12	Field Dup[licate-01	05 Oct 2022 10:00		11 Oct 2022 12:00	11 Oct 2022 20:34	1
Batch ID: R418943 (0)	**Test Name :** ANIONS BY E300.0, REV 2.1, 1993				**Matrix:** Water	
HS22100230-01	MW-01	05 Oct 2022 10:25			09 Oct 2022 14:59	1
HS22100230-01	MW-01	05 Oct 2022 10:25			09 Oct 2022 12:58	10
HS22100230-02	MW-02	05 Oct 2022 09:40			09 Oct 2022 12:42	10
HS22100230-03	MW-17	05 Oct 2022 11:00			09 Oct 2022 13:03	1
HS22100230-04	MW-18	05 Oct 2022 11:45			09 Oct 2022 13:08	1
HS22100230-05	MW-19	05 Oct 2022 11:45			09 Oct 2022 13:40	1
HS22100230-06	MW-20	05 Oct 2022 11:10			09 Oct 2022 13:45	1
HS22100230-07	MW-21	05 Oct 2022 10:35			09 Oct 2022 13:51	1
HS22100230-08	MW-22	05 Oct 2022 10:00			09 Oct 2022 13:56	1
HS22100230-09	MW-27R	05 Oct 2022 09:25			09 Oct 2022 14:06	50
HS22100230-10	MW-28	05 Oct 2022 10:25			09 Oct 2022 14:12	50
HS22100230-11	Field Blank-01	05 Oct 2022 11:50			09 Oct 2022 14:17	1
HS22100230-12	Field Dup[licate-01	05 Oct 2022 10:00			09 Oct 2022 14:22	1
Batch ID: R419049 (0)	**Test Name :** ANIONS BY E300.0, REV 2.1, 1993				**Matrix:** Water	
HS22100230-07	MW-21	05 Oct 2022 10:35			10 Oct 2022 12:41	5
HS22100230-08	MW-22	05 Oct 2022 10:00			10 Oct 2022 12:46	2

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R419365 (0)	**Test Name :** TOTAL DISSOLVED SOLIDS BY SM2540C-2011				**Matrix:** Water	
HS22100230-01	MW-01	05 Oct 2022 10:25			12 Oct 2022 18:08	1
HS22100230-02	MW-02	05 Oct 2022 09:40			12 Oct 2022 18:08	1
HS22100230-03	MW-17	05 Oct 2022 11:00			12 Oct 2022 18:08	1
HS22100230-04	MW-18	05 Oct 2022 11:45			12 Oct 2022 18:08	1
HS22100230-05	MW-19	05 Oct 2022 11:45			12 Oct 2022 18:08	1
HS22100230-06	MW-20	05 Oct 2022 11:10			12 Oct 2022 18:08	1
HS22100230-07	MW-21	05 Oct 2022 10:35			12 Oct 2022 18:08	1
HS22100230-08	MW-22	05 Oct 2022 10:00			12 Oct 2022 18:08	1
HS22100230-09	MW-27R	05 Oct 2022 09:25			12 Oct 2022 18:08	1
HS22100230-10	MW-28	05 Oct 2022 10:25			12 Oct 2022 18:08	1
HS22100230-11	Field Blank-01	05 Oct 2022 11:50			12 Oct 2022 18:08	1
HS22100230-12	Field Dup[licate-01	05 Oct 2022 10:00			12 Oct 2022 18:08	1
Batch ID: R419526 (0)	**Test Name :** SUBCONTRACT ANALYSIS - FLOURIDE				**Matrix:** Water	
HS22100230-01	MW-01	05 Oct 2022 10:25			17 Oct 2022 10:19	1
HS22100230-02	MW-02	05 Oct 2022 09:40			17 Oct 2022 10:19	1
HS22100230-03	MW-17	05 Oct 2022 11:00			17 Oct 2022 10:19	1
HS22100230-04	MW-18	05 Oct 2022 11:45			17 Oct 2022 10:19	1
HS22100230-05	MW-19	05 Oct 2022 11:45			17 Oct 2022 10:19	1
HS22100230-06	MW-20	05 Oct 2022 11:10			17 Oct 2022 10:19	1
HS22100230-07	MW-21	05 Oct 2022 10:35			17 Oct 2022 10:19	1
HS22100230-08	MW-22	05 Oct 2022 10:00			17 Oct 2022 10:19	1
HS22100230-09	MW-27R	05 Oct 2022 09:25			17 Oct 2022 10:19	1
HS22100230-10	MW-28	05 Oct 2022 10:25			17 Oct 2022 10:19	1
HS22100230-11	Field Blank-01	05 Oct 2022 11:50			17 Oct 2022 10:19	1
HS22100230-12	Field Dup[licate-01	05 Oct 2022 10:00			17 Oct 2022 10:19	1

WorkOrder: HS22100230
InstrumentID: ICPMS07
Test Code: ICP_TW
Test Number: SW6020A
Test Name: ICP-MS Metals by SW6020A

METHOD DETECTION / REPORTING LIMITS

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Boron	7440-42-8	0.0125	0.0172	0.0110	0.0200
A	Calcium	7440-70-2	1.00	1.01	0.0340	0.500

WorkOrder: HS22100230
InstrumentID: ICS-Integrion
Test Code: 300_W
Test Number: E300
Test Name: Anions by E300.0, Rev 2.1, 1993

METHOD DETECTION / REPORTING LIMITS

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Chloride	16887-00-6	0.250	0.341	0.200	0.500
A	Sulfate	14808-79-8	0.250	0.324	0.200	0.500

WorkOrder: HS22100230
InstrumentID: Balance1
Test Code: TDS_W 2540C
Test Number: M2540C
Test Name: Total Dissolved Solids by SM2540C

METHOD DETECTION / REPORTING LIMITS

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Total Dissolved Solids (Residue, Filterable)	TDS	5.00	4.00	5.00	10.0

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

QC BATCH REPORT

Batch ID: 184650 (0) **Instrument: ICPMS07** **Method: ICP-MS METALS BY SW6020A**

MBLK Sample ID: **MBLK-184650** Units: **mg/L** Analysis Date: **12-Oct-2022 14:21**
Client ID: Run ID: **ICPMS07_419209** SeqNo: **6915573** PrepDate: **11-Oct-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	< 0.0110	0.0200								
Calcium	< 0.0340	0.500								

LCS Sample ID: **LCS-184650** Units: **mg/L** Analysis Date: **11-Oct-2022 19:54**
Client ID: Run ID: **ICPMS07_419132** SeqNo: **6913377** PrepDate: **11-Oct-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.4547	0.0200	0.5	0	90.9	80 - 120				
Calcium	4.979	0.500	5	0	99.6	80 - 120				

MS Sample ID: **HS22100230-02MS** Units: **mg/L** Analysis Date: **11-Oct-2022 20:00**
Client ID: **MW-02** Run ID: **ICPMS07_419132** SeqNo: **6913380** PrepDate: **11-Oct-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5647	0.0200	0.5	0.08425	96.1	80 - 120				
Calcium	141.7	0.500	5	132.4	187	80 - 120				SO

MSD Sample ID: **HS22100230-02MSD** Units: **mg/L** Analysis Date: **11-Oct-2022 20:02**
Client ID: **MW-02** Run ID: **ICPMS07_419132** SeqNo: **6913381** PrepDate: **11-Oct-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5734	0.0200	0.5	0.08425	97.8	80 - 120	0.5647	1.53	20	
Calcium	136.9	0.500	5	132.4	90.7	80 - 120	141.7	3.44	20	O

PDS Sample ID: **HS22100230-02PDS** Units: **mg/L** Analysis Date: **11-Oct-2022 20:04**
Client ID: **MW-02** Run ID: **ICPMS07_419132** SeqNo: **6913382** PrepDate: **11-Oct-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	139.5	0.500	10	132.4	70.7	75 - 125				SO

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

QC BATCH REPORT

Batch ID: 184650 (0) **Instrument: ICPMS07** **Method: ICP-MS METALS BY SW6020A**

SD Sample ID: **HS22100230-02SD** Units: **mg/L** Analysis Date: **11-Oct-2022 19:58**
Client ID: **MW-02** Run ID: **ICPMS07_419132** SeqNo: **6913379** PrepDate: **11-Oct-2022** DF: **5**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Boron	0.1106	0.100					0.08425	0	10	
Calcium	131.3	2.50					132.4	0.856	10	

The following samples were analyzed in this batch:

HS22100230-01	HS22100230-02	HS22100230-03	HS22100230-04
HS22100230-05	HS22100230-06	HS22100230-07	HS22100230-08
HS22100230-09	HS22100230-10	HS22100230-11	HS22100230-12

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

QC BATCH REPORT

Batch ID: R418943 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY E300.0, REV 2.1, 1993**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **09-Oct-2022 11:02**
Client ID: Run ID: **ICS-Integrion_418943** SeqNo: **6909140** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	< 0.200	0.500								
Sulfate	< 0.200	0.500								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **09-Oct-2022 11:07**
Client ID: Run ID: **ICS-Integrion_418943** SeqNo: **6909141** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.15	0.500	20	0	101	90 - 110				
Sulfate	20.11	0.500	20	0	101	90 - 110				

MS Sample ID: **HS22100267-01MS** Units: **mg/L** Analysis Date: **09-Oct-2022 11:18**
Client ID: Run ID: **ICS-Integrion_418943** SeqNo: **6909143** PrepDate: DF: **5**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	197.4	2.50	50	154.1	86.6	80 - 120				
Sulfate	281.2	2.50	50	244.8	72.7	80 - 120				SO

MS Sample ID: **HS22100230-02MS** Units: **mg/L** Analysis Date: **09-Oct-2022 12:47**
Client ID: **MW-02** Run ID: **ICS-Integrion_418943** SeqNo: **6909157** PrepDate: DF: **10**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	443.4	5.00	100	354.1	89.3	80 - 120				
Sulfate	361.5	5.00	100	271.4	90.1	80 - 120				

MSD Sample ID: **HS22100267-01MSD** Units: **mg/L** Analysis Date: **09-Oct-2022 11:23**
Client ID: Run ID: **ICS-Integrion_418943** SeqNo: **6909144** PrepDate: DF: **5**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	197.5	2.50	50	154.1	86.9	80 - 120	197.4	0.0861	20	
Sulfate	281.2	2.50	50	244.8	72.6	80 - 120	281.2	0.00854	20	SO

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

QC BATCH REPORT

Batch ID: **R418943 (0)** **Instrument:** **ICS-Integrion** **Method:** **ANIONS BY E300.0, REV 2.1, 1993**

MSD Sample ID: **HS22100230-02MSD** Units: **mg/L** Analysis Date: **09-Oct-2022 12:53**
Client ID: **MW-02** Run ID: **ICS-Integrion_418943** SeqNo: **6909158** PrepDate: DF: **10**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	440.3	5.00	100	354.1	86.2	80 - 120	443.4	0.69	20	
Sulfate	360.6	5.00	100	271.4	89.2	80 - 120	361.5	0.242	20	

The following samples were analyzed in this batch:

HS22100230-01	HS22100230-02	HS22100230-03	HS22100230-04
HS22100230-05	HS22100230-06	HS22100230-07	HS22100230-08
HS22100230-09	HS22100230-10	HS22100230-11	HS22100230-12

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

QC BATCH REPORT

Batch ID: R419049 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY E300.0, REV 2.1, 1993**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **10-Oct-2022 11:48**
Client ID: Run ID: **ICS-Integrion_419049** SeqNo: **6911236** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	< 0.200	0.500								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **10-Oct-2022 11:59**
Client ID: Run ID: **ICS-Integrion_419049** SeqNo: **6911237** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	20.31	0.500	20	0	102	90 - 110				

MS Sample ID: **HS22100460-01MS** Units: **mg/L** Analysis Date: **10-Oct-2022 12:31**
Client ID: Run ID: **ICS-Integrion_419049** SeqNo: **6911239** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	154.3	0.500	10	148.4	58.7	80 - 120				SEO

MS Sample ID: **HS22091533-01MS** Units: **mg/L** Analysis Date: **10-Oct-2022 14:53**
Client ID: Run ID: **ICS-Integrion_419049** SeqNo: **6911260** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	54.96	0.500	10	46.53	84.3	80 - 120				O

MSD Sample ID: **HS22100460-01MSD** Units: **mg/L** Analysis Date: **10-Oct-2022 12:36**
Client ID: Run ID: **ICS-Integrion_419049** SeqNo: **6911240** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	154.2	0.500	10	148.4	58.4	80 - 120	154.3	0.0207	20	SEO

MSD Sample ID: **HS22091533-01MSD** Units: **mg/L** Analysis Date: **10-Oct-2022 14:58**
Client ID: Run ID: **ICS-Integrion_419049** SeqNo: **6911261** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	56.41	0.500	10	46.53	98.7	80 - 120	54.96	2.59	20	O

The following samples were analyzed in this batch: HS22100230-07 HS22100230-08

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22100230

QC BATCH REPORT

Batch ID: R419365 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK Sample ID: **WBLK-101222** Units: **mg/L** Analysis Date: **12-Oct-2022 18:08**
Client ID: Run ID: **Balance1_419365** SeqNo: **6919020** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)	< 5.00	10.0								

LCS Sample ID: **WLCS-101222** Units: **mg/L** Analysis Date: **12-Oct-2022 18:08**
Client ID: Run ID: **Balance1_419365** SeqNo: **6919021** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)	1064	10.0	1000	0	106	85 - 115				

DUP Sample ID: **HS22100269-02DUP** Units: **mg/L** Analysis Date: **12-Oct-2022 18:08**
Client ID: Run ID: **Balance1_419365** SeqNo: **6919019** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)	1052	10.0					1054	0.19	5	

DUP Sample ID: **HS22100230-02DUP** Units: **mg/L** Analysis Date: **12-Oct-2022 18:08**
Client ID: **MW-02** Run ID: **Balance1_419365** SeqNo: **6919004** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filterable)	1346	10.0					1344	0.149	5	

The following samples were analyzed in this batch:

HS22100230-01	HS22100230-02	HS22100230-03	HS22100230-04
HS22100230-05	HS22100230-06	HS22100230-07	HS22100230-08
HS22100230-09	HS22100230-10	HS22100230-11	HS22100230-12

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: **HS22100230**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	22-041-0	27-Mar-2023
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2022	31-Dec-2022
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS22100230 **Date/Time Received:** **05-Oct-2022 14:40**

Client Name: TRC-HOU **Received by:** **Malcolm Burleson**

Completed By: */S/ Paresh M. Giga* (eSignature) 05-Oct-2022 16:59 (Date/Time) **Reviewed by:** */S/ Kori Bagsby* (eSignature) 06-Oct-2022 10:21 (Date/Time)

Matrices: **Water** Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:283449/283448
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	2.2C/2.0C U/C	IR31
Cooler(s)/Kit(s):	48621	
Date/Time sample(s) sent to storage:	10/5/22 17:30	

Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: ID Differs :
COC - MW-28 Labels - MW-28R

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

ALS

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070

Chain of Custody Form

Page 1 of 2

COC ID: 283449

HS22100230
TRC Corporation
NRG Limestone - Appendix III

ALS Project Manager:

Customer Information

Purchase Order	179967
Work Order	
Company Name	TRC Corporation
Send Report To	Lori Burris
Address	14701 St. Mary's Lane Suite 500
City/State/Zip	Houston, TX 77079
Phone	(713) 244-1000
Fax	(713) 244-1099
e-Mail Address	LBurris@trcsolutions.com

Project Information

Project Name	NRG Limestone- Appendix III
Project Number	
Bill To Company	TRC Corporation
Invoice Attn	A/P
Address	14701 St. Mary's Lane Suite 500
City/State/Zip	Houston TX 77079
Phone	(713) 244-1000
Fax	(713) 244-1099
e-Mail Address	apinvoiceapproval@trcsolutions.com

A	ICP_TW (B and Ca (App III))
B	300_W (Cl, SO4)
C	Sub_Fluoride (Sub Fluoride to ALS Michigan)
D	TDS_W 2540C (TDS)
E	
F	
G	
H	
I	
J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-01	10-5-22	1025	Water	2,8	3	X	X	X	X							
2	MW-02	↓	940	Water	2,8	3	X	X	X	X							
3	MW-17	↓	1100	Water	2,8	3	X	X	X	X							
4	MW-18	↓	1145	Water	2,8	3	X	X	X	X							
5	MW-19	↓	1145	Water	2,8	3	X	X	X	X							
6	MW-20	↓	1110	Water	2,8	3	X	X	X	X							
7	MW-21	↓	1035	Water	2,8	3	X	X	X	X							
8	MW-22	↓	1000	Water	2,8	3	X	X	X	X							
9	MW-27R	↓	925	Water	2,8	3	X	X	X	X							
10	MW-28	↓	1025	Water	2,8	3	X	X	X	X							

Sampler(s) Please Print & Sign: Mason Bond + HMC Team [signature]

Shipment Method: Drop off @ lab

Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other ____

Results Due Date:

Relinquished by: Gabriel Garcia [signature] Date: 10.5.22 Time: 1440 Received by: [signature] 1440 10052022

Relinquished by: Date: Time: Received by (Laboratory):

Relinquished by (Laboratory): Date: Time: Checked by (Laboratory):

Notes: NRG Limestone PRIVILEGED & CONFIDENTIAL

Cooler ID	Cooler Temp.
45621	IR31 2.2 uc -0.2 c

QC Package: (Check One Box Below)
☐ Level II Std QC
☐ Level III Std QC/Raw Date
☐ Level IV SW846/CLP
☐ Other ____
☒ TRRP Checklist
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately. Privileged and Confidential

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070

Chain of Custody Form

COC ID: 283448

HS22100230

TRC Corporation
NRG Limestone - Appedix III

/V

Customer Information		Project Information		ALS Project Manager:
Purchase Order	179967	Project Name	NRG Limestone- Appendix III	
Work Order		Project Number		
Company Name	TRC Corporation	Bill To Company	TRC Corporation	
Send Report To	Lori Burris	Invoice Attn	A/P	
Address	14701 St. Mary's Lane Suite 500	Address	14701 St. Mary's Lane Suite 500	
City/State/Zip	Houston, TX 77079	City/State/Zip	Houston TX 77079	
Phone	(713) 244-1000	Phone	(713) 244-1000	
Fax	(713) 244-1099	Fax	(713) 244-1099	
e-Mail Address	LBurris@trcsolutions.com	e-Mail Address	apinvoiceapproval@trcsolutions.com	

	A	B	C	D	E	F	G	H	I	J
A	ICP_TW (B and Ca (App III))									
B	300_W (Cl, SO4)									
C	Sub_Fluoride (Sub Fluoride to ALS Michigan)									
D	TDS_W 2540C (TDS)									
E										
F										
G										
H										
I										
J										

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-02 - MS	10-5-22	940	Water	2,8	3	X	X	X	X							
2	MW-02 MSD		940	Water	2,8	3	X	X	X	X							
	Field Blank		1150	Water	2,8	3	X	X	X	X							
	Field Duplicate		1000	Water	2,8	3	X	X	X	X							

Cooler(s) Please Print & Sign: Jason Bond + HMT Team

Shipment Method: Drop off @ lab

Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by: Gabriel Garcia — Date: 10.5.22 — Time: 1440 — Received by: — Date: — Time: 1440

Relinquished by: — Date: — Time: — Received by (Laboratory): — Date: 10/5/2022

Notes: NRG Limestone PRIVILEGED & CONFIDENTIAL

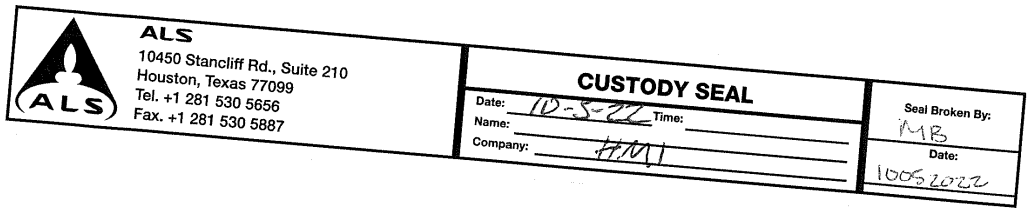
Relinquished by (Laboratory): — Date: — Time: — Checked by (Laboratory):

Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☐ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other
☒ TRRP Checklist
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
The Chain of Custody is a legal document. All information must be completed accurately.


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
CUSTODY SEAL
Date: 10-5-22 Time:
Name:
Company: HMI
Seal Broken By:
MB
Date:
10052022

17-Oct-2022

Corey Grandits
ALS Environmental
10450 Stancliff Rd
Suite 210
Houston, TX 77099

Re: **HS22100230** Work Order: **22100588**

Dear Corey,

ALS Environmental received 12 samples on 06-Oct-2022 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 27.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Client:	ALS Environmental
Project:	HS22100230
Work Order:	22100588

TRRP Laboratory Data Package Cover Page

This data package consists of all or some of the following as applicable:

This signature page, the laboratory case narrative, and the following reportable data:

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) for each analyte for each method and matrix;
R10 Other problems or anomalies:
See Case Narrative.

Release Statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached Case Narrative and QC Summaries. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified, and no information affecting the quality of the data has been knowingly withheld.

Chad Whelton

Chad Whelton
Project Manager

WET CHEMISTRY DATA ASSESSMENT CHECKLIST

Wet Chemistry	Batch Number: TITRATOR1_221013C	Instrument ID: Mantech Autotitrator	
Method: FL_4500C_W	Work order Number (s): 22100588		
Analyst Name: QN	Date 10/13/2022	Reviewer Name: JB	Date: 10/14/22

	A[1]	Description	Yes	No	NA[2]	NR[3]	ER#[4]
R1	I	Chain-of-Custody					
		1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?			X		
		2) Were all departures from standard conditions described in an exception report?			X		
R2	I	**SAMPLE AND QUALITY CONTROL (QC) IDENTIFICATION**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?			X		
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?			X		
R3	I	**TEST REPORTS**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample quantitation limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Was % moisture (or solids) reported for all soil and sediment samples?			X		
		8) If required for the project, TICs reported?			X		
R4	I	**SURROGATE RECOVERY DATA**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	I	**TEST REPORTS/SUMMMARY FORMS FOR BLANK SAMPLES**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < ½ MQL?	X				
R6	I	**LABORATORY CONTROL SAMPLES (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS and LCSD %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	X				
		6) Was the LCSD RPD within QC limits?	X				
R7	I	**MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD) DATA**					
		1) Were the project or method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS and MSD %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	I	**ANALYTICAL DUPLICATE DATA (IF REQUIRED)**					
		1) Were appropriate analytical duplicates analyzed for each matrix?	X				
		2) Were analytical duplicates analyzed at the appropriate frequency?	X				
		3) Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	I	**METHOD QUANTITATION LIMITS (MQLS):**					
		1) Are the MQLs for each method analyte listed and included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs included in the laboratory data package?			X		
R10	I	**OTHER PROBLEMS/ANOMALIES**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		2) Were all necessary corrective actions performed for the reported data?	X				
		3) If requested, is the justification for elevated SQLs documented?			X		

S1	I	**INITIAL CALIBRATION (ICAL)**					
		1) Were response factors (RFs) and/or relative response factors (RRFs) for each analyte within the QC limits?			X		
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	I	**INITIAL AND CONTINUING CALIBRATION VERIFICATION (ICCV AND CCV) AND**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the organic CCB < MDL?	X				
S3	I	**MASS SPECTRAL TUNING:**					
		1) Was the appropriate compound for the method used for tuning?			X		
		2) Were ion abundance data within the method-required QC limits?			X		
S4	I	**INTERNAL STANDARDS (IS):**					
		Were IS area counts within the method-required QC limits?			X		
S5	I	**RAW DATA**					
		1) Were the raw data (e.g., chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	I	**DUAL COLUMN CONFIRMATION (IF REQUIRED)**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	I	**TENTATIVELY IDENTIFIED COMPOUNDS (TICS):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**INTERFERENCE CHECK SAMPLE (ICS) RESULTS:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**SERIAL DILUTIONS, POST DIGESTION SPIKES, AND METHOD OF STANDARD**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	I	**PROFICIENCY TEST REPORTS:**					
		Are proficiency testing or inter-laboratory comparison results on file?	X				
S11	I	**METHOD DETECTION LIMIT (MDL) STUDIES**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S12	I	**STANDARDS DOCUMENTATION**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	I	**COMPOUND/ANALYTE IDENTIFICATION PROCEDURES**					
		Are the procedures for compound/analyte identification documented?	X				
S14	I	**DEMONSTRATION OF ANALYST COMPETENCY (DOC)**					
		1) Was DOC conducted consistent with NELAC 5C or ISO/IEC 4.2.2?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	I	**VERIFICATION/VALIDATION DOCUMENTATION FOR METHODS**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable, (NELAC 5.10.2 or ISO/IEC 17025 Section 5.4.5)?	X				
S16	I	**LABORATORY STANDARD OPERATING PROCEDURES (SOPS):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
2 NA = Not applicable.
3 NR = Not Reviewed.
4 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

WET CHEMISTRY DATA ASSESSMENT CHECKLIST

Wet Chemistry	Batch Number:	

ER #[1]	DESCRIPTION
1	
2	
3	
4	
5	
6	

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

Client: ALS Environmental
Project: HS22100230
Work Order: **22100588**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
22100588-01	MW-01	Water	HS22100230-01	10/5/2022 10:25	10/6/2022 09:30	☐
22100588-02	MW-02	Water	HS22100230-02	10/5/2022 09:40	10/6/2022 09:30	☐
22100588-03	MW-17	Water	HS22100230-03	10/5/2022 11:00	10/6/2022 09:30	☐
22100588-04	MW-18	Water	HS22100230-04	10/5/2022 11:45	10/6/2022 09:30	☐
22100588-05	MW-19	Water	HS22100230-05	10/5/2022 11:45	10/6/2022 09:30	☐
22100588-06	MW-20	Water	HS22100230-06	10/5/2022 11:10	10/6/2022 09:30	☐
22100588-07	MW-21	Water	HS22100230-07	10/5/2022 10:35	10/6/2022 09:30	☐
22100588-08	MW-22	Water	HS22100230-08	10/5/2022 10:00	10/6/2022 09:30	☐
22100588-09	MW-27R	Water	HS22100230-09	10/5/2022 09:25	10/6/2022 09:30	☐
22100588-10	MW-28	Water	HS22100230-10	10/5/2022 10:25	10/6/2022 09:30	☐
22100588-11	Field Blank-01	Water	HS22100230-11	10/5/2022 11:50	10/6/2022 09:30	☐
22100588-12	Field Duplicate-01	Water	HS22100230-12	10/5/2022 10:00	10/6/2022 09:30	☐

Client:	ALS Environmental
Project:	HS22100230
Work Order:	22100588

Case Narrative

Samples for the above noted Work Order were received on 10/06/2022. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:
No other deviations or anomalies were noted.

Client: ALS Environmental
Project: HS22100230
WorkOrder: **22100588**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter

Work Order: 22100588
Client: ALS Environmental
Project: HS22100230

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
Batch ID R355659	**Test Name:** Fluoride					
22100588-01	MW-01	Water	10/5/2022 10:25:00 AM			10/13/2022 08:40 PM
22100588-03	MW-17		10/5/2022 11:00:00 AM			10/13/2022 08:40 PM
22100588-04	MW-18		10/5/2022 11:45:00 AM			10/13/2022 08:40 PM
22100588-05	MW-19					10/13/2022 08:40 PM
Batch ID R355659	**Test Name:** Fluoride					
22100588-02	MW-02	Water	10/5/2022 9:40:00 AM			10/13/2022 08:40 PM
22100588-06	MW-20		10/5/2022 11:10:00 AM			10/13/2022 08:40 PM
22100588-07	MW-21		10/5/2022 10:35:00 AM			10/13/2022 08:40 PM
22100588-08	MW-22		10/5/2022 10:00:00 AM			10/13/2022 08:40 PM
22100588-09	MW-27R		10/5/2022 9:25:00 AM			10/13/2022 08:40 PM
22100588-10	MW-28		10/5/2022 10:25:00 AM			10/13/2022 08:40 PM
22100588-11	Field Blank-01		10/5/2022 11:50:00 AM			10/13/2022 08:40 PM
22100588-12	Field Duplicate-01		10/5/2022 10:00:00 AM			10/13/2022 08:40 PM

ALS Group, USA

Date: *17-Oct-22*

Client: ALS Environmental
Project: HS22100230
Sample ID: MW-01
Collection Date: 10/5/2022 10:25 AM

Work Order: 22100588
Lab ID: 22100588-01
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	**0.110**		**0.058**	**0.10**	**mg/L**	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22100230
Sample ID: MW-02
Collection Date: 10/5/2022 09:40 AM

Work Order: 22100588
Lab ID: 22100588-02
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	U		0.058	0.10	mg/L	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22100230
Sample ID: MW-17
Collection Date: 10/5/2022 11:00 AM

Work Order: 22100588
Lab ID: 22100588-03
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	**0.110**		**0.058**	**0.10**	**mg/L**	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22100230
Sample ID: MW-18
Collection Date: 10/5/2022 11:45 AM

Work Order: 22100588
Lab ID: 22100588-04
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	**0.100**		**0.058**	**0.10**	**mg/L**	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22100230
Sample ID: MW-19
Collection Date: 10/5/2022 11:45 AM

Work Order: 22100588
Lab ID: 22100588-05
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	U		0.058	0.10	mg/L	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22100230
Sample ID: MW-20
Collection Date: 10/5/2022 11:10 AM

Work Order: 22100588
Lab ID: 22100588-06
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	**0.210**		**0.058**	**0.10**	**mg/L**	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22100230
Sample ID: MW-21
Collection Date: 10/5/2022 10:35 AM

Work Order: 22100588
Lab ID: 22100588-07
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	U		0.058	0.10	mg/L	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22100230
Sample ID: MW-22
Collection Date: 10/5/2022 10:00 AM

Work Order: 22100588
Lab ID: 22100588-08
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	U		0.058	0.10	mg/L	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22100230
Sample ID: MW-27R
Collection Date: 10/5/2022 09:25 AM

Work Order: 22100588
Lab ID: 22100588-09
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	U		0.058	0.10	mg/L	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22100230
Sample ID: MW-28
Collection Date: 10/5/2022 10:25 AM

Work Order: 22100588
Lab ID: 22100588-10
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	**0.230**		**0.058**	**0.10**	**mg/L**	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS22100230
Sample ID: Field Blank-01
Collection Date: 10/5/2022 11:50 AM

Work Order: 22100588
Lab ID: 22100588-11
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	U		0.058	0.10	mg/L	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *17-Oct-22*

Client: ALS Environmental
Project: HS22100230
Sample ID: Field Duplicate-01
Collection Date: 10/5/2022 10:00 AM

Work Order: 22100588
Lab ID: 22100588-12
Matrix: WATER

Analyses	Result	Qual	SDL	MQL	Units	Dilution Factor	Date Analyzed
FLUORIDE		Method: **A4500-F C-11**					Analyst: **QTN**
Fluoride	U		0.058	0.10	mg/L	1	10/13/2022 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 17-Oct-22

WorkOrder: 22100588
InstrumentID: Titrator 1
Test Code: FL_4500C_W
Test Number: A4500-F C-11
Test Name: Fluoride

METHOD DETECTION / REPORTING LIMITS

Matrix: Water **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	Unadjusted MQL
A	Fluoride	16984-48-8	0.08	0.06	0.058	0.10

QC BATCH REPORT

Batch ID: **R355659A** Instrument ID **Titrator 1** Method: **A4500-F C-11**

MBLK Sample ID: **MB-R355659-R355659A** Units: **mg/L** Analysis Date: **10/13/2022 08:40 PM**
Client ID: Run ID: **TITRATOR 1_221013C** SeqNo: **8896934** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	U	0.10								

LCS Sample ID: **LCS-R355659-R355659A** Units: **mg/L** Analysis Date: **10/13/2022 08:40 PM**
Client ID: Run ID: **TITRATOR 1_221013C** SeqNo: **8896935** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	4.84	0.10	5	0	96.8	90-110	0			

MS Sample ID: **22100463-19AMS** Units: **mg/L** Analysis Date: **10/13/2022 08:40 PM**
Client ID: Run ID: **TITRATOR 1_221013C** SeqNo: **8896943** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	5.35	0.10	5	0.4	99	90-110	0			

MSD Sample ID: **22100463-19AMSD** Units: **mg/L** Analysis Date: **10/13/2022 08:40 PM**
Client ID: Run ID: **TITRATOR 1_221013C** SeqNo: **8896944** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	5.3	0.10	5	0.4	98	90-110	5.35	0.939	20	

The following samples were analyzed in this batch:

22100588-01A	22100588-03A	22100588-04A
22100588-05A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 22100588
Project: HS22100230

QC BATCH REPORT

Batch ID: **R355659B** Instrument ID **Titrator 1** Method: **A4500-F C-11**

MBLK Sample ID: **MB-R355659-R355659B** Units: **mg/L** Analysis Date: **10/13/2022 08:40 PM**
Client ID: Run ID: **TITRATOR 1_221013C** SeqNo: **8896958** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	U	0.10								

LCS Sample ID: **LCS-R355659-R355659B** Units: **mg/L** Analysis Date: **10/13/2022 08:40 PM**
Client ID: Run ID: **TITRATOR 1_221013C** SeqNo: **8896959** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	4.75	0.10	5	0	95	90-110	0			

MS Sample ID: **22100588-02AMS** Units: **mg/L** Analysis Date: **10/13/2022 08:40 PM**
Client ID: **MW-02** Run ID: **TITRATOR 1_221013C** SeqNo: **8896961** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	4.75	0.10	5	0.03	94.4	90-110	0			

MSD Sample ID: **22100588-02AMSD** Units: **mg/L** Analysis Date: **10/13/2022 08:40 PM**
Client ID: **MW-02** Run ID: **TITRATOR 1_221013C** SeqNo: **8896962** Prep Date: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	4.77	0.10	5	0.03	94.8	90-110	4.75	0.42	20	

The following samples were analyzed in this batch:

22100588-02A	22100588-06A	22100588-07A
22100588-08A	22100588-09A	22100588-10A
22100588-11A	22100588-12A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

22100588
ALS - HOUSTON: ALS Environmental
Project: HS22100230

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **20048**

SUBCONTRACT TO:

ALS Laboratory Group
3352 128th Ave.
Holland, MI 494249263

Phone: +1 616 399 6070

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Corey Grandits
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	Corey.Grandits@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS22100230
TSR:	Ron Martino

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS22100230-01**	**MW-01**	**Water**	**05 Oct 2022 10:25**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
2.	**HS22100230-02**	**MW-02**	**Water**	**05 Oct 2022 09:40**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
3.	**HS22100230-03**	**MW-17**	**Water**	**05 Oct 2022 11:00**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
4.	**HS22100230-04**	**MW-18**	**Water**	**05 Oct 2022 11:45**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
5.	**HS22100230-05**	**MW-19**	**Water**	**05 Oct 2022 11:45**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
6.	**HS22100230-06**	**MW-20**	**Water**	**05 Oct 2022 11:10**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
7.	**HS22100230-07**	**MW-21**	**Water**	**05 Oct 2022 10:35**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
8.	**HS22100230-08**	**MW-22**	**Water**	**05 Oct 2022 10:00**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
9.	**HS22100230-09**	**MW-27R**	**Water**	**05 Oct 2022 09:25**

3.0°C IR3 PM32

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **20048**

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
10.	**HS22100230-10**	**MW-28**	**Water**	**05 Oct 2022 10:25**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
11.	**HS22100230-11**	**Field Blank-01**	**Water**	**05 Oct 2022 11:50**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022
12.	**HS22100230-12**	**Field Dup[licate-01**	**Water**	**05 Oct 2022 10:00**
	Fluoride by ISE 4500. EQuis EDD			14 Oct 2022

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
Batch client samples together. MS/MSD must be performed on client sample.
HS22100230-02 = MS/MSD

QC Level: TRRP LRC (TRRP checklist only+Level II (normal))

22100588
ALS - HOUSTON: ALS Environmental
Project: HS22100230

Relinquished By: _____ Date/Time: OCT 05 2022 1800

Received By: _____ Date/Time: 10/6/22 0930

Cooler ID(s): _____ Temperature(s): _____

3.0°C IR3
PW32

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **ALS - HOUSTON** Date/Time Received: **06-Oct-22 09:30**

Work Order: **22100588** Received by: **KRW**

Checklist completed by Keith Wierenga 07-Oct-22 (eSignature / Date) Reviewed by: Chad Whelton 07-Oct-22 (eSignature / Date)

Matrices: Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0/4.0 C	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	10/7/2022 9:22:00 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Privileged and Confidential

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 04, 2022

Lori Burris
TRC Corporation
14701 St. Mary's Lane
Suite 500
Houston, TX 77079

Work Order: **HS22110107**

Laboratory Results for: **NRG Limestone - Appedix III**

Dear Lori Burris,

ALS Environmental received 1 sample(s) on Oct 05, 2022 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER
Andy C. Neir

Client:	TRC Corporation	**TRRP Laboratory Data Package Cover Page**
Project:	NRG Limestone - Appedix III	
WorkOrder:	**HS22110107**	

This data package consists of all or some of the following as applicable:

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

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.

Client:	TRC Corporation	**TRRP Laboratory Data Package Cover Page**
Project:	NRG Limestone - Appedix III	
WorkOrder:	**HS22110107**	

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 attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory have been identified by the laboratory in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

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

Andy C. Neir

Laboratory Review Checklist: Reportable Data							
Laboratory Name: ALS Laboratory Group			LRC Date: 11/04/2022				
Project Name: NRG Limestone - Appedix III			Laboratory Job Number: HS22110107				
Reviewer Name: Andy Neir			Prep Batch Number(s): 185687				
#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-custody (C-O-C)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW-846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability 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	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			1
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				2
		Were all necessary corrective actions performed for the reported data?	X				
		Was applicable and available technology used to lower the SDL and minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Program for the analytes, matrices and methods associated with this laboratory data package?	X				

Laboratory Review Checklist: Supporting Data							
Laboratory Name: ALS Laboratory Group			LRC Date: 11/04/2022				
Project Name: NRG Limestone - Appedix III			Laboratory Job Number: HS22110107				
Reviewer Name: Andy Neir			Prep Batch Number(s): 185687				
#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB)**					
		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			3
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data** (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?	X				
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods** (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

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;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports	
Laboratory Name: ALS Laboratory Group	LRC Date: 11/04/2022
Project Name: NRG Limestone - Appedix III	Laboratory Job Number: HS22110107
Reviewer Name: Andy Neir	Prep Batch Number(s): 185687

ER#[5]	Description
1	Batch 185687, Metals by method SW6020, Sample HS22101251-06, MSD was performed on an unrelated sample
2	This report contains additional analyses. The sample was originally reported as ALS Workorder Number HS22100230.
3	See Run Log and CCB Exception Reports

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;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22110107
Start Date: 03-Nov-2022 End Date: 04-Nov-2022

Run ID:ICPMS07_420935
Instrument:ICPMS07
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
ICV	1	03-Nov-2022 11:12	016_ICV.d	NA
LLICV2	1	03-Nov-2022 11:13	017LCV2.d	NA
LLICV5	1	03-Nov-2022 11:15	018LCV5.d	NA
ICB	1	03-Nov-2022 11:17	019_ICB.d	NA
ICSA	1	03-Nov-2022 11:24	021ICSA.d	NA
ICSAB	1	03-Nov-2022 11:26	022ICSB.d	NA
CCV 1	1	03-Nov-2022 11:33	024_CCV.d	NA
CCB 1	1	03-Nov-2022 11:35	025_CCB.d	NA
CCV 2	1	03-Nov-2022 12:02	036_CCV.d	NA
CCB 2	1	03-Nov-2022 12:04	037_CCB.d	NA
CCV 3	1	03-Nov-2022 12:25	048_CCV.d	NA
CCB 3	1	03-Nov-2022 12:26	049_CCB.d	NA
CCV 4	1	03-Nov-2022 12:47	060_CCV.d	NA
CCB 4	1	03-Nov-2022 12:49	061_CCB.d	NA
CCV 5	1	03-Nov-2022 13:04	069_CCV.d	NA
CCB 5	1	03-Nov-2022 13:06	070_CCB.d	NA
CCV 6	1	03-Nov-2022 14:14	081_CCV.d	NA
CCB 6	1	03-Nov-2022 14:16	082_CCB.d	NA
CCV 7	1	03-Nov-2022 14:46	093_CCV.d	NA
CCB 7	1	03-Nov-2022 14:48	094_CCB.d	NA
CCV 8	1	03-Nov-2022 15:09	105_CCV.d	NA
CCB 8	1	03-Nov-2022 15:11	106_CCB.d	NA
CCV 9	1	03-Nov-2022 15:39	117_CCV.d	NA
CCB 9	1	03-Nov-2022 15:41	118_CCB.d	NA
CCV 10	1	03-Nov-2022 16:12	129_CCV.d	NA
CCB 10	1	03-Nov-2022 16:14	130_CCB.d	NA
CCV 11	1	03-Nov-2022 16:38	141_CCV.d	NA
CCB 11	1	03-Nov-2022 16:39	142_CCB.d	NA
CCV 12	1	03-Nov-2022 17:06	153_CCV.d	NA
CCB 12	1	03-Nov-2022 17:08	154_CCB.d	NA
CCV 13	1	03-Nov-2022 17:37	165_CCV.d	NA
CCB 13	1	03-Nov-2022 17:38	166_CCB.d	NA
CCV 14	1	03-Nov-2022 17:59	177_CCV.d	NA
CCB 14	1	03-Nov-2022 18:01	178_CCB.d	NA
CCV 15	1	03-Nov-2022 18:16	186_CCV.d	NA
CCB 15	1	03-Nov-2022 18:18	187_CCB.d	NA
CCV 16	1	03-Nov-2022 19:38	193_CCV.d	NA
CCB 16	1	03-Nov-2022 19:40	194_CCB.d	NA
CCV 17	1	03-Nov-2022 19:55	202_CCV.d	NA
CCB 17	1	03-Nov-2022 19:57	203_CCB.d	NA
CCV 18	1	03-Nov-2022 20:17	214_CCV.d	NA
CCB 18	1	03-Nov-2022 20:19	215_CCB.d	NA
CCV 19	1	03-Nov-2022 20:40	226_CCV.d	NA
CCB 19	1	03-Nov-2022 20:42	227_CCB.d	NA
CCV 20	1	03-Nov-2022 21:12	233_CCV.d	NA
CCB 20	1	03-Nov-2022 21:14	234_CCB.d	NA
CCV 21	1	03-Nov-2022 21:31	243_CCV.d	NA
CCB 21	1	03-Nov-2022 21:33	244_CCB.d	NA
CCV 22	1	03-Nov-2022 21:53	255_CCV.d	NA
CCB 22	1	03-Nov-2022 21:55	256_CCB.d	NA

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22110107
Start Date: 03-Nov-2022 End Date: 04-Nov-2022

Run ID:ICPMS07_420935
Instrument:ICPMS07
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
CCV 23	1	03-Nov-2022 22:06	262_CCV.d	NA
CCB 23	1	03-Nov-2022 22:08	263_CCB.d	NA
CCV 24	1	03-Nov-2022 22:23	271_CCV.d	NA
CCB 24	1	03-Nov-2022 22:25	272_CCB.d	NA
CCV 25	1	03-Nov-2022 22:46	283_CCV.d	NA
CCB 25	1	03-Nov-2022 22:47	284_CCB.d	NA
CCV 26	1	03-Nov-2022 23:03	289_CCV.d	NA
CCB 26	1	03-Nov-2022 23:04	290_CCB.d	NA
CCV 27	1	03-Nov-2022 23:20	298_CCV.d	NA
CCB 27	1	03-Nov-2022 23:22	299_CCB.d	NA
ICCV 28	1	03-Nov-2022 23:44	311_ICV.d	NA
LLCCV2	1	03-Nov-2022 23:46	312LCV2.d	NA
LLCCV5	1	03-Nov-2022 23:48	313LCV5.d	NA
ICCB 28	1	03-Nov-2022 23:50	314_ICB.d	NA
ICSA	1	03-Nov-2022 23:52	315ICSA.d	NA
ICSAB	1	03-Nov-2022 23:54	316ICSB.d	NA
CCV 29	1	03-Nov-2022 23:58	318_CCV.d	NA
CCB 29	1	03-Nov-2022 23:59	319_CCB.d	NA
MBLK-185687	1	04-Nov-2022 00:01	320SMPL.d	NA
LCS-185687	1	04-Nov-2022 00:03	321SMPL.d	NA
ZZZZZZSD	5	04-Nov-2022 00:07	323SMPL.d	
ZZZZZZMS	1	04-Nov-2022 00:09	324SMPL.d	NA
ZZZZZZMSD	1	04-Nov-2022 00:11	325SMPL.d	NA
ZZZZZZPDS	1	04-Nov-2022 00:13	326SMPL.d	
CCV 30	1	04-Nov-2022 00:14	327_CCV.d	NA
CCB 30	1	04-Nov-2022 00:16	328_CCB.d	NA
CCV 31	1	04-Nov-2022 00:37	339_CCV.d	NA
CCB 31	1	04-Nov-2022 00:38	340_CCB.d	NA
MW-21	5	04-Nov-2022 00:55	349SMPL.d	NA
CCV 32	1	04-Nov-2022 00:59	351_CCV.d	NA
CCB 32	1	04-Nov-2022 01:01	352_CCB.d	NA
CCV 33	1	04-Nov-2022 01:05	354_CCV.d	NA
CCB 33	1	04-Nov-2022 01:07	355_CCB.d	NA
LLCCV2	1	04-Nov-2022 01:10	357LCV2.d	NA
LLCCV5	1	04-Nov-2022 01:12	358LCV5.d	NA
ICSA	1	04-Nov-2022 01:14	359ICSA.d	NA
ICSAB	1	04-Nov-2022 01:16	360ICSB.d	NA

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22110107

Run ID:ICPMS07_420935
Instrument:ICPMS07
Method:SW6020A

ICB	Date: 03-Nov-2022 11:17	Seq: 6958937		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-57.7	14	200
CCB 1	Date: 03-Nov-2022 11:35	Seq: 6958943		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-124.5	14	200
CCB 2	Date: 03-Nov-2022 12:04	Seq: 6958950		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-154	14	200
CCB 3	Date: 03-Nov-2022 12:26	Seq: 6958975		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-189.5	14	200
CCB 4	Date: 03-Nov-2022 12:49	Seq: 6958984		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-211.6	14	200
CCB 5	Date: 03-Nov-2022 13:06	Seq: 6959148		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-226.8	14	200
CCB 6	Date: 03-Nov-2022 14:16	Seq: 6959160		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-212.5	14	200
CCB 7	Date: 03-Nov-2022 14:48	Seq: 6959172		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-213.2	14	200
CCB 8	Date: 03-Nov-2022 15:11	Seq: 6959192		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-222.1	14	200
CCB 9	Date: 03-Nov-2022 15:41	Seq: 6959773		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-222.1	14	200
CCB 10	Date: 03-Nov-2022 16:14	Seq: 6959785		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-249	14	200
CCB 11	Date: 03-Nov-2022 16:39	Seq: 6959797		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-231.9	14	200
CCB 12	Date: 03-Nov-2022 17:08	Seq: 6959809		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**
	Sodium		-253.1	14	200
CCB 13	Date: 03-Nov-2022 17:38	Seq: 6959821		D/F: 1	Units: ug/L
	Analyte		**Result**	**MDL**	**Report Limit**

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22110107

Run ID:ICPMS07_420935
Instrument:ICPMS07
Method:SW6020A

	Sodium	-161.8	14	200	
CCB 14	Date: 03-Nov-2022 18:01	Seq: 6959833	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-62.55	14	200	
CCB 15	Date: 03-Nov-2022 18:18	Seq: 6959842	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	2351	14	200	
CCB 16	Date: 03-Nov-2022 19:40	Seq: 6959849	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-212	14	200	
CCB 17	Date: 03-Nov-2022 19:57	Seq: 6959858	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-245.2	14	200	
CCB 18	Date: 03-Nov-2022 20:19	Seq: 6959870	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-261.2	14	200	
CCB 19	Date: 03-Nov-2022 20:42	Seq: 6959882	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	775.4	14	200	
CCB 20	Date: 03-Nov-2022 21:14	Seq: 6959948	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	14.44	14	200	
CCB 21	Date: 03-Nov-2022 21:33	Seq: 6959958	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-54.62	14	200	
CCB 22	Date: 03-Nov-2022 21:55	Seq: 6959970	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-148.3	14	200	
CCB 23	Date: 03-Nov-2022 22:08	Seq: 6960001	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-160.3	14	200	
CCB 24	Date: 03-Nov-2022 22:25	Seq: 6960012	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-89.49	14	200	
CCB 25	Date: 03-Nov-2022 22:47	Seq: 6960024	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-56.64	14	200	
CCB 26	Date: 03-Nov-2022 23:04	Seq: 6960030	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-144.7	14	200	

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22110107

Run ID:ICPMS07_420935
Instrument:ICPMS07
Method:SW6020A

CCB 27	Date: 03-Nov-2022 23:22	Seq: 6960039		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	19.3	14	200	
ICCB 28	Date: 03-Nov-2022 23:50	Seq: 6960960		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-26.08	14	200	
CCB 29	Date: 03-Nov-2022 23:59	Seq: 6960965		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-23.19	14	200	
CCB 31	Date: 04-Nov-2022 00:38	Seq: 6960986		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	-57.82	14	200	
CCB 32	Date: 04-Nov-2022 01:01	Seq: 6960998		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	3130	14	200	
CCB 33	Date: 04-Nov-2022 01:07	Seq: 6961001		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Sodium	1626	14	200	

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Work Order: HS22110107

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22110107-01	MW-21	Water		05-Oct-2022 10:35	05-Oct-2022 14:40	☐

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-21
Collection Date: 05-Oct-2022 10:35

ANALYTICAL REPORT
WorkOrder:HS22110107
Lab ID:HS22110107-01
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 03-Nov-2022		Analyst: JHD
Sodium	**80.0**		**0.0700**	**1.00**	**mg/L**	5	04-Nov-2022 00:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22110107

Batch ID: 185687 **Start Date:** 03 Nov 2022 12:30 **End Date:** 03 Nov 2022 16:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22110107-01		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22110107

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 185687 (0)	**Test Name :** ICP-MS METALS BY SW6020A				**Matrix:** Water	
HS22110107-01	MW-21	05 Oct 2022 10:35		03 Nov 2022 12:30	04 Nov 2022 00:55	5

WorkOrder: HS22110107
InstrumentID: ICPMS07
Test Code: ICP_TW
Test Number: SW6020A
Test Name: ICP-MS Metals by SW6020A

METHOD DETECTION / REPORTING LIMITS

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Sodium	7440-23-5	1.00	1.27	0.0140	0.200

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22110107

QC BATCH REPORT

Batch ID: 185687 (0) **Instrument: ICPMS07** **Method: ICP-MS METALS BY SW6020A**

MBLK Sample ID: **MBLK-185687** Units: **mg/L** Analysis Date: **04-Nov-2022 00:01**
Client ID: Run ID: **ICPMS07_420935** SeqNo: **6960966** PrepDate: **03-Nov-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	< 0.0140	0.200								

LCS Sample ID: **LCS-185687** Units: **mg/L** Analysis Date: **04-Nov-2022 00:03**
Client ID: Run ID: **ICPMS07_420935** SeqNo: **6960967** PrepDate: **03-Nov-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	5.391	0.200	5	0	108	80 - 120				

MS Sample ID: **HS22101251-06MS** Units: **mg/L** Analysis Date: **04-Nov-2022 00:09**
Client ID: Run ID: **ICPMS07_420935** SeqNo: **6960970** PrepDate: **03-Nov-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	267.7	0.200	5	263.6	82.5	80 - 120				EO

MSD Sample ID: **HS22101251-06MSD** Units: **mg/L** Analysis Date: **04-Nov-2022 00:11**
Client ID: Run ID: **ICPMS07_420935** SeqNo: **6960971** PrepDate: **03-Nov-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	262.5	0.200	5	263.6	-22.6	80 - 120	267.7	1.98	20	SEO

PDS Sample ID: **HS22101251-06PDS** Units: **mg/L** Analysis Date: **04-Nov-2022 14:00**
Client ID: Run ID: **ICPMS07_421026** SeqNo: **6962059** PrepDate: **03-Nov-2022** DF: **20**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	470.1	4.00	200	281.2	94.4	75 - 125				

SD Sample ID: **HS22101251-06SD** Units: **mg/L** Analysis Date: **04-Nov-2022 13:58**
Client ID: Run ID: **ICPMS07_421026** SeqNo: **6962058** PrepDate: **03-Nov-2022** DF: **100**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Sodium	287.4	20.0					281.2	2.2	10	

The following samples were analyzed in this batch: HS22110107-01

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: **HS22110107**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	22-041-0	27-Mar-2023
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2022	31-Dec-2022
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS22110107 **Date/Time Received:** **05-Oct-2022 14:40**

Client Name: TRC-HOU **Received by:** **Malcolm Burleson**

Completed By:	/S/ Paresh M. Giga	05-Oct-2022 16:59	**Reviewed by:**	/S/ Andy C. Neir	02-Nov-2022 11:02
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **Water** Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:283449/283448
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	2.2C/2.0C U/C	IR31
Cooler(s)/Kit(s):	48621	
Date/Time sample(s) sent to storage:	10/5/22 17:30	

Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: work order Relog - for "Na" analyses (Original WO# HS22100230-07)

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

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Chain of Custody Form

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COC ID: 283449

HS22110107
TRC Corporation
NRG Limestone - Appendix III

Customer Information		Project Information			
Purchase Order	179967	ALS Project Manager:			
Work Order		Project Name	NRG Limestone- Appendix III	A	ICP_TW (B and Ca (App III))
Company Name	TRC Corporation	Project Number		B	300_W (Cl, SO4)
Send Report To	Lori Burris	Bill To Company	TRC Corporation	C	Sub_Fluoride (Sub Fluoride to ALS Michigan)
Address	14701 St. Mary's Lane Suite 500	Invoice Attn	A/P	D	TDS_W 2540C (TDS)
		Address	14701 St. Mary's Lane Suite 500	E	
City/State/Zip	Houston, TX 77079	City/State/Zip	Houston TX 77079	F	
Phone	(713) 244-1000	Phone	(713) 244-1000	G	
Fax	(713) 244-1099	Fax	(713) 244-1099	H	
e-Mail Address	LBurris@trcsolutions.com	e-Mail Address	apinvoiceapproval@trcsolutions.com	I	
				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-01	10-5-22	1025	Water	2,8	3	X	X	X	X							
2	MW-02	↓	940	Water	2,8	3	X	X	X	X							
3	MW-17	↓	1100	Water	2,8	3	X	X	X	X							
4	MW-18	↓	1145	Water	2,8	3	X	X	X	X							
5	MW-19	↓	1145	Water	2,8	3	X	X	X	X							
6	MW-20	↓	1110	Water	2,8	3	X	X	X	X							
7	MW-21	↓	1035	Water	2,8	3	X	X	X	X							
8	MW-22	↓	1000	Water	2,8	3	X	X	X	X							
9	MW-27R	↓	925	Water	2,8	3	X	X	X	X							
10	MW-28	↓	1025	Water	2,8	3	X	X	X	X							

Sampler(s) Please Print & Sign: Mason Bond + HMC Team [signature]

Shipment Method: Drop off @ lab

Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other ____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:
Gabriel Garcia [signature]	10.5.22	1440	[signature] 1440 10052022
Relinquished by:	Date:	Time:	Received by (Laboratory):
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):

Notes: NRG Limestone PRIVILEGED & CONFIDENTIAL

Cooler ID	Cooler Temp.
4186.21	IR23) 2.7°c -0.2°c

QC Package: (Check One Box Below)
☐ Level II Std QC
☐ Level III Std QC/Raw Date
☐ Level IV SW846/CLP
☐ Other
☒ TRRP Checklist
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Privileged and Confidential

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Chain of Custody Form

Page 2 of 2

COC ID: 283448

HS22110107

TRC Corporation

NRG Limestone - Appedix III

Customer Information		Project Information		ALS Project Manager:	
Purchase Order	179967	Project Name	NRG Limestone- Appendix III		
Work Order		Project Number			
Company Name	TRC Corporation	Bill To Company	TRC Corporation		
Send Report To	Lori Burris	Invoice Attn	A/P		
Address	14701 St. Mary's Lane Suite 500	Address	14701 St. Mary's Lane Suite 500		
City/State/Zip	Houston, TX 77079	City/State/Zip	Houston TX 77079		
Phone	(713) 244-1000	Phone	(713) 244-1000		
Fax	(713) 244-1099	Fax	(713) 244-1099		
e-Mail Address	LBurris@trcsolutions.com	e-Mail Address	apinvoiceapproval@trcsolutions.com		

A	ICP_TW (B and Ca (App III))
B	300_W (Cl, SO4)
C	Sub_Fluoride (Sub Fluoride to ALS Michigan)
D	TDS_W 2540C (TDS)
E	
F	
G	
H	
I	
J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-02-MS	10-5-22	940	Water	2,8	3	X	X	X	X							
2	MW-02 MSD		940	Water	2,8	3	X	X	X	X							
3	Field Blank		1150	Water	2,8	3	X	X	X	X							
4	Field Duplicate		1000	Water	2,8	3	X	X	X	X							

Sampler(s) Please Print & Sign: Alyson Bond + HMT Team

Relinquished by: Gabriel Garcia — Date: 10.5.22 — Time: 1440

Relinquished by: — Date: — Time:

Received by (Laboratory): — Date: — Time:

Shipment Method: Drop off @ lab

Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Received by: 1440

Received by (Laboratory): 10/5/2022

Checked by (Laboratory):

Notes: NRG Limestone PRIVILEGED & CONFIDENTIAL

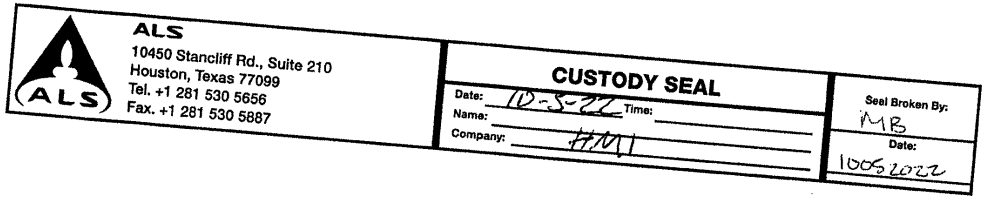
Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)

☐ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other
☒ TRRP Checklist
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
The Chain of Custody is a legal document. All information must be completed accurately.


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
CUSTODY SEAL
Date: 10-5-22 Time:
Name:
Company: HMI
Seal Broken By:
MB
Date:
10052022

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

December 01, 2022

Lori Burris
TRC Corporation
14701 St. Mary's Lane
Suite 500
Houston, TX 77079

Work Order: **HS22111337**

Laboratory Results for: **NGR Limestone - App III**

Dear Lori Burris,

ALS Environmental received 1 sample(s) on Nov 22, 2022 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Andy C. Neir

Client:	TRC Corporation	**TRRP Laboratory Data Package Cover Page**
Project:	NRG Limestone - Appedix III	
WorkOrder:	**HS22111337**	

This data package consists of all or some of the following as applicable:

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

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.

Client:	TRC Corporation	**TRRP Laboratory Data Package Cover Page**
Project:	NRG Limestone - Appedix III	
WorkOrder:	**HS22111337**	

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 attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory have been identified by the laboratory in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

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

Andy C. Neir

Laboratory Review Checklist: Reportable Data								
Laboratory Name: ALS Laboratory Group			LRC Date: 12/01/2022					
Project Name: NRG Limestone - Appedix III			Laboratory Job Number: HS22111337					
Reviewer Andy Neir			Prep Batch Number(s): 186767					
#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]	
R1	OI	**Chain-of-custody (C-O-C)**						
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X					
		Were all departures from standard conditions described in an exception report?	X					
R2	OI	**Sample and quality control (QC) identification**						
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X					
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X					
R3	OI	**Test reports**						
		Were all samples prepared and analyzed within holding times?	X					
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X					
		Were calculations checked by a peer or supervisor?	X					
		Were all analyte identifications checked by a peer or supervisor?	X					
		Were sample detection limits reported for all analytes not detected?	X					
		Were all results for soil and sediment samples reported on a dry weight basis?			X			
		Were % moisture (or solids) reported for all soil and sediment samples?			X			
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW-846 Method 5035?			X			
		If required for the project, TICs reported?			X			
R4	O	**Surrogate recovery data**						
		Were surrogates added prior to extraction?			X			
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X			
R5	OI	**Test reports/summary forms for blank samples**						
		Were appropriate type(s) of blanks analyzed?	X					
		Were blanks analyzed at the appropriate frequency?	X					
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X					
		Were blank concentrations < MQL?	X					
R6	OI	**Laboratory control samples (LCS):**						
		Were all COCs included in the LCS?	X					
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X					
		Were LCSs analyzed at the required frequency?	X					
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X					
		Does the detectability 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	**Matrix spike (MS) and matrix spike duplicate (MSD) data**						
		Were the project/method specified analytes included in the MS and MSD?	X					
		Were MS/MSD analyzed at the appropriate frequency?	X					
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X					
		Were MS/MSD RPDs within laboratory QC limits?	X					
R8	OI	**Analytical duplicate data**						
		Were appropriate analytical duplicates analyzed for each matrix?			X			
		Were analytical duplicates analyzed at the appropriate frequency?			X			
		Were RPDs or relative standard deviations within the laboratory QC limits?			X			
R9	OI	**Method quantitation limits (MQLs):**						
		Are the MQLs for each method analyte included in the laboratory data package?	X					
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X					
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X					
R10	OI	**Other problems/anomalies**						
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X					
		Were all necessary corrective actions performed for the reported data?	X					
		Was applicable and available technology used to lower the SDL and minimize the matrix interference effects on the sample results?	X					
		Is the laboratory NELAC-accredited under the Texas Laboratory Program for the analytes, matrices and methods associated with this laboratory data package?	X					

Laboratory Review Checklist: Supporting Data							
Laboratory Name: ALS Laboratory Group			LRC Date: 12/01/2022				
Project Name: NRG Limestone - Appedix III			Laboratory Job Number: HS22111337				
Reviewer Name: Andy Neir			Prep Batch Number(s): 186767				
#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB)**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data** (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?	X				
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods** (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

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; R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports	
Laboratory Name: ALS Laboratory Group	LRC Date: 12/01/2022
Project Name: NRG Limestone - Appedix III	Laboratory Job Number: HS22111337
Reviewer Name: Andy Neir	Prep Batch Number(s): 186767

ER#[5]	Description
	No Exceptions

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;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22111337
Start Date: 30-Nov-2022 End Date: 01-Dec-2022

Run ID:ICPMS07_422847
Instrument:ICPMS07
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
LLICV2	1	30-Nov-2022 11:03	013LCV2.d	B
LLICV5	1	30-Nov-2022 11:05	014LCV5.d	B
ICB	1	30-Nov-2022 11:07	015_ICB.d	B
ICV	1	30-Nov-2022 11:09	016_ICV.d	B
ICSA	1	30-Nov-2022 11:11	017ICSA.d	B
ICSAB	1	30-Nov-2022 11:13	018ICSB.d	B
CCV 1	1	30-Nov-2022 11:19	020_CCV.d	B
CCB 1	1	30-Nov-2022 11:21	021_CCB.d	B
CCV 2	1	30-Nov-2022 11:47	032_CCV.d	B
CCB 2	1	30-Nov-2022 11:49	033_CCB.d	B
CCV 3	1	30-Nov-2022 12:12	044_CCV.d	B
CCB 3	1	30-Nov-2022 12:14	045_CCB.d	B
CCV 4	1	30-Nov-2022 12:40	056_CCV.d	B
CCB 4	1	30-Nov-2022 12:42	057_CCB.d	B
CCB 5	1	30-Nov-2022 13:04	069_CCB.d	B
CCV 5	1	30-Nov-2022 13:12	070_CCV.d	B
CCV 6	1	30-Nov-2022 13:14	071_CCV.d	B
CCV 7	1	30-Nov-2022 13:17	073_CCV.d	B
CCB 6	1	30-Nov-2022 13:19	074_CCB.d	B
CCV 8	1	30-Nov-2022 13:40	085_CCV.d	B
CCB 7	1	30-Nov-2022 13:42	086_CCB.d	B
CCV 9	1	30-Nov-2022 14:02	097_CCV.d	B
CCB 8	1	30-Nov-2022 14:04	098_CCB.d	B
CCV 10	1	30-Nov-2022 14:31	109_CCV.d	B
CCB 9	1	30-Nov-2022 14:33	110_CCB.d	B
CCV 11	1	30-Nov-2022 14:55	121_CCV.d	B
CCB 10	1	30-Nov-2022 14:56	122_CCB.d	B
CCV 12	1	30-Nov-2022 15:22	133_CCV.d	B
CCB 11	1	30-Nov-2022 15:24	134_CCB.d	B
CCV 13	1	30-Nov-2022 15:47	145_CCV.d	B
CCB 12	1	30-Nov-2022 15:49	146_CCB.d	B
CCV 14	1	30-Nov-2022 16:19	157_CCV.d	B
CCB 13	1	30-Nov-2022 16:20	158_CCB.d	B
CCV 15	1	30-Nov-2022 16:43	169_CCV.d	B
CCB 14	1	30-Nov-2022 16:45	170_CCB.d	B
CCV 16	1	30-Nov-2022 17:10	181_CCV.d	B
CCB 15	1	30-Nov-2022 17:12	182_CCB.d	B
CCV 17	1	30-Nov-2022 17:38	193_CCV.d	B
CCB 16	1	30-Nov-2022 17:40	194_CCB.d	B
CCV 18	1	30-Nov-2022 17:44	195_CCV.d	B
CCV 19	1	30-Nov-2022 18:05	206_CCV.d	B
CCB 17	1	30-Nov-2022 18:07	207_CCB.d	B
CCV 20	1	30-Nov-2022 19:52	212_CCV.d	B
CCB 18	1	30-Nov-2022 19:54	213_CCB.d	B
MBLK-186767	1	30-Nov-2022 19:56	214SMPL.d	B
LCS-186767	1	30-Nov-2022 19:58	215SMPL.d	B
ZZZZZZSD	5	30-Nov-2022 20:01	217SMPL.d	
ZZZZZZMS	1	30-Nov-2022 20:03	218SMPL.d	B
ZZZZZZMSD	1	30-Nov-2022 20:05	219SMPL.d	B
CCB 19	1	30-Nov-2022 20:11	222_CCB.d	B

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone- Appedix III
WorkOrder: HS22111337
Start Date: 30-Nov-2022 End Date: 01-Dec-2022

Run ID:ICPMS07_422847
Instrument:ICPMS07
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
CCV 21	1	30-Nov-2022 20:28	226_CCV.d	B
CCV 22	1	30-Nov-2022 20:39	232_CCV.d	B
CCB 20	1	30-Nov-2022 20:41	233_CCB.d	B
LLCCV2	1	30-Nov-2022 21:10	248LCV2.d	B
LLCCV5	1	30-Nov-2022 21:12	249LCV5.d	B
ICCB 21	1	30-Nov-2022 21:14	250_ICB.d	B
ICCV 23	1	30-Nov-2022 21:16	251_ICV.d	B
CCV 24	1	30-Nov-2022 21:20	253_CCV.d	B
CCB 22	1	30-Nov-2022 21:22	254_CCB.d	B
MW-21	5	30-Nov-2022 21:28	257SMPL.d	B
CCV 25	1	30-Nov-2022 21:41	264_CCV.d	B
CCB 23	1	30-Nov-2022 21:43	265_CCB.d	B
CCV 26	1	30-Nov-2022 22:00	274_CCV.d	B
CCB 24	1	30-Nov-2022 22:01	275_CCB.d	B
CCV 27	1	30-Nov-2022 22:16	283_CCV.d	B
CCB 25	1	30-Nov-2022 22:18	284_CCB.d	B
CCV 28	1	30-Nov-2022 22:39	295_CCV.d	B
CCB 26	1	30-Nov-2022 22:41	296_CCB.d	B
CCV 29	1	30-Nov-2022 23:02	307_CCV.d	B
CCB 27	1	30-Nov-2022 23:04	308_CCB.d	B
CCV 30	1	30-Nov-2022 23:19	316_CCV.d	B
CCB 28	1	30-Nov-2022 23:20	317_CCB.d	B
CCV 31	1	30-Nov-2022 23:41	328_CCV.d	B
CCB 29	1	30-Nov-2022 23:43	329_CCB.d	B
CCV 32	1	30-Nov-2022 23:58	337_CCV.d	B
CCB 30	1	01-Dec-2022 00:00	338_CCB.d	B
CCV 33	1	01-Dec-2022 00:06	341_CCV.d	B
CCB 31	1	01-Dec-2022 00:07	342_CCB.d	B
LLCCV2	1	01-Dec-2022 00:09	343LCV2.d	B
LLCCV5	1	01-Dec-2022 00:11	344LCV5.d	B
ICSA	1	01-Dec-2022 00:13	345ICSA.d	B
ICSAB	1	01-Dec-2022 00:15	346ICSB.d	B

FORM 13 - ANALYSIS RUN LOG

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22111337
Start Date: 01-Dec-2022 End Date: 01-Dec-2022

Run ID:ICPMS07_422941
Instrument:ICPMS07
Method:SW6020A

Sample No.	D/F	Time	FileID	Analytes
ICV	1	01-Dec-2022 11:01	016_ICV.d	B
ICB	1	01-Dec-2022 11:07	019_ICB.d	B
CCV 1	1	01-Dec-2022 11:15	023_CCV.d	B
CCB 1	1	01-Dec-2022 11:17	024_CCB.d	B
ZZZZZZSD	100	01-Dec-2022 11:26	029SMPL.d	
ZZZZZZPDS	20	01-Dec-2022 11:28	030SMPL.d	
CCV 2	1	01-Dec-2022 11:38	035_CCV.d	B
CCB 2	1	01-Dec-2022 11:40	036_CCB.d	B
ZZZZZZPDS	1	01-Dec-2022 11:42	037SMPL.d	B
CCV 3	1	01-Dec-2022 12:01	047_CCV.d	B
CCB 3	1	01-Dec-2022 12:02	048_CCB.d	B
CCV 4	1	01-Dec-2022 12:30	059_CCV.d	B
CCB 4	1	01-Dec-2022 12:32	060_CCB.d	B
CCV 5	1	01-Dec-2022 13:01	071_CCV.d	B
CCB 5	1	01-Dec-2022 13:03	072_CCB.d	B
CCV 6	1	01-Dec-2022 13:24	083_CCV.d	B
CCB 6	1	01-Dec-2022 13:26	084_CCB.d	B
CCV 7	1	01-Dec-2022 13:48	095_CCV.d	B
CCB 7	1	01-Dec-2022 13:50	096_CCB.d	B
CCB 8	1	01-Dec-2022 14:17	108_CCB.d	B
CCV 8	1	01-Dec-2022 14:30	109_CCV.d	B
CCB 9	1	01-Dec-2022 14:54	121_CCB.d	B
CCV 9	1	01-Dec-2022 14:55	122_CCV.d	B

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22111337

Run ID:ICPMS07_422847
Instrument:ICPMS07
Method:SW6020A

CCB 1	Date: 30-Nov-2022 11:21	Seq: 7006210		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	21.92	11	20	
CCB 2	Date: 30-Nov-2022 11:49	Seq: 7006216		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	21.67	11	20	
CCB 3	Date: 30-Nov-2022 12:14	Seq: 7006270		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	24.79	11	20	
CCB 4	Date: 30-Nov-2022 12:42	Seq: 7006546		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	26.66	11	20	
CCB 5	Date: 30-Nov-2022 13:04	Seq: 7006558		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	27.43	11	20	
CCB 6	Date: 30-Nov-2022 13:19	Seq: 7006563		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	25.12	11	20	
CCB 7	Date: 30-Nov-2022 13:42	Seq: 7006575		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	23.42	11	20	
CCB 8	Date: 30-Nov-2022 14:04	Seq: 7006600		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	24.35	11	20	
CCB 9	Date: 30-Nov-2022 14:33	Seq: 7006741		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	22.4	11	20	
CCB 10	Date: 30-Nov-2022 14:56	Seq: 7006753		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	42.93	11	20	
CCB 11	Date: 30-Nov-2022 15:24	Seq: 7006764		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	31.9	11	20	
CCB 12	Date: 30-Nov-2022 15:49	Seq: 7006896		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	38.88	11	20	
CCB 13	Date: 30-Nov-2022 16:20	Seq: 7007241		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	28.7	11	20	
CCB 14	Date: 30-Nov-2022 16:45	Seq: 7007253		D/F: 1	Units: ug/L
	Analyte	**Result**	**MDL**	**Report Limit**	

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22111337

Run ID:ICPMS07_422847
Instrument:ICPMS07
Method:SW6020A

	Boron	28.89	11	20	
CCB 15	Date: 30-Nov-2022 17:12	Seq: 7007265	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	31.65	11	20	
CCB 16	Date: 30-Nov-2022 17:40	Seq: 7007277	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	44.13	11	20	
CCB 17	Date: 30-Nov-2022 18:07	Seq: 7007290	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	41.03	11	20	
CCB 18	Date: 30-Nov-2022 19:54	Seq: 7007294	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	21.93	11	20	
CCB 19	Date: 30-Nov-2022 20:11	Seq: 7007303	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	33.45	11	20	
CCB 20	Date: 30-Nov-2022 20:41	Seq: 7007311	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	27.42	11	20	
CCB 22	Date: 30-Nov-2022 21:22	Seq: 7007341	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	26.63	11	20	
CCB 23	Date: 30-Nov-2022 21:43	Seq: 7007352	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	31.3	11	20	
CCB 24	Date: 30-Nov-2022 22:01	Seq: 7007362	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	25.13	11	20	
CCB 25	Date: 30-Nov-2022 22:18	Seq: 7007371	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	31.95	11	20	
CCB 26	Date: 30-Nov-2022 22:41	Seq: 7007435	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	26.5	11	20	
CCB 27	Date: 30-Nov-2022 23:04	Seq: 7007447	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	24.17	11	20	
CCB 28	Date: 30-Nov-2022 23:20	Seq: 7007503	D/F: 1	Units: ug/L	
	Analyte	**Result**	**MDL**	**Report Limit**	
	Boron	37.2	11	20	

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22111337

Run ID:ICPMS07_422847
Instrument:ICPMS07
Method:SW6020A

CCB 29	Date: 30-Nov-2022 23:43	Seq: 7007865	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	28.17	11	20	

CCB 30	Date: 01-Dec-2022 00:00	Seq: 7007874	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	24.94	11	20	

CCB 31	Date: 01-Dec-2022 00:07	Seq: 7007878	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	24.14	11	20	

CCB EXCEPTIONS REPORT

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22111337

Run ID:ICPMS07_422941
Instrument:ICPMS07
Method:SW6020A

CCB 1	Date: 01-Dec-2022 11:17	Seq: 7008600	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	14.48	11	20	

CCB 2	Date: 01-Dec-2022 11:40	Seq: 7008609	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	15.1	11	20	

CCB 3	Date: 01-Dec-2022 12:02	Seq: 7008621	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	15.04	11	20	

CCB 4	Date: 01-Dec-2022 12:32	Seq: 7008635	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	13.2	11	20	

CCB 5	Date: 01-Dec-2022 13:03	Seq: 7008647	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	12.62	11	20	

CCB 6	Date: 01-Dec-2022 13:26	Seq: 7008658	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	14.69	11	20	

CCB 7	Date: 01-Dec-2022 13:50	Seq: 7008724	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	17.54	11	20	

CCB 8	Date: 01-Dec-2022 14:17	Seq: 7008793	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	20.56	11	20	

CCB 9	Date: 01-Dec-2022 14:54	Seq: 7008804	D/F: 1	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	
Boron	26.11	11	20	

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Work Order: HS22111337

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22111337-01	MW-21	Water		22-Nov-2022 09:55	22-Nov-2022 12:43	☐

Client: TRC Corporation
Project: NRG Limestone - Appedix III
Sample ID: MW-21
Collection Date: 22-Nov-2022 09:55

ANALYTICAL REPORT
WorkOrder:HS22111337
Lab ID:HS22111337-01
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020A**			Prep:SW3010A / 30-Nov-2022		Analyst: JHD
Boron	**1.48**		**0.0550**	**0.100**	**mg/L**	5	30-Nov-2022 21:28

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22111337

Batch ID: 186767 **Start Date:** 30 Nov 2022 10:00 **End Date:** 30 Nov 2022 14:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22111337-01		10 (mL)	10 (mL)	1	250 mL plastic, HNO3 to pH <2

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22111337

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 186767 (0)	**Test Name :** ICP-MS METALS BY SW6020A				**Matrix:** Water	
HS22111337-01	MW-21	22 Nov 2022 09:55		30 Nov 2022 10:00	30 Nov 2022 21:28	5

WorkOrder: HS22111337
InstrumentID: ICPMS07
Test Code: ICP_TW
Test Number: SW6020A
Test Name: ICP-MS Metals by SW6020A

METHOD DETECTION / REPORTING LIMITS

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Boron	7440-42-8	0.0125	0.0172	0.0110	0.0200

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: HS22111337

QC BATCH REPORT

Batch ID: 186767 (0) **Instrument: ICPMS07** **Method: ICP-MS METALS BY SW6020A**

MBLK Sample ID: **MBLK-186767** Units: **mg/L** Analysis Date: **30-Nov-2022 19:56**
Client ID: Run ID: **ICPMS07_422847** SeqNo: **7007295** PrepDate: **30-Nov-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	< 0.0110	0.0200								

LCS Sample ID: **LCS-186767** Units: **mg/L** Analysis Date: **30-Nov-2022 19:58**
Client ID: Run ID: **ICPMS07_422847** SeqNo: **7007296** PrepDate: **30-Nov-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5101	0.0200	0.5	0	102	80 - 120				

MS Sample ID: **HS22111329-02MS** Units: **mg/L** Analysis Date: **30-Nov-2022 20:03**
Client ID: Run ID: **ICPMS07_422847** SeqNo: **7007299** PrepDate: **30-Nov-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.6488	0.0200	0.5	0.1144	107	80 - 120				

MSD Sample ID: **HS22111329-02MSD** Units: **mg/L** Analysis Date: **30-Nov-2022 20:05**
Client ID: Run ID: **ICPMS07_422847** SeqNo: **7007300** PrepDate: **30-Nov-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.6609	0.0200	0.5	0.1144	109	80 - 120	0.6488	1.85	20	

PDS Sample ID: **HS22111329-02PDS** Units: **mg/L** Analysis Date: **01-Dec-2022 11:42**
Client ID: Run ID: **ICPMS07_422941** SeqNo: **7008610** PrepDate: **30-Nov-2022** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.6495	0.0200	0.5	0.1144	107	75 - 125				

The following samples were analyzed in this batch: HS22111337-01

Client: TRC Corporation
Project: NRG Limestone - Appedix III
WorkOrder: **HS22111337**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	22-041-0	27-Mar-2023
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2022	31-Dec-2022
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS22111337 **Date/Time Received:** **22-Nov-2022 12:43**

Client Name: TRC-HOU **Received by:** **Paresh M. Giga**

Completed By:	/S/ Corey Grandits	22-Nov-2022 14:31	**Reviewed by:**	/S/ Andy C. Neir	23-Nov-2022 08:48
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **W** Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:262948
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.5UC/1.0C	IR31	
Cooler(s)/Kit(s):	Md Blue		
Date/Time sample(s) sent to storage:	11/22/2022		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 1

COC ID: 262948

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	477046.0000.0000	Project Name	NRG Limestone- CCR Program	A	ICP_TW (B and Ca (App III))
Work Order		Project Number		B	300_W (Cl, SO4)
Company Name	TRC Corporation	Bill To Company	TRC Corporation	C	Sub_Fluoride (Sub Fluoride to ALS Michigan)
Send Report To	Lori Burris	Invoice Attn	A/P	D	TDS_W 2540C (TDS)
Address	14701 St. Mary's Lane Suite 500	Address	14701 St. Mary's Lane Suite 500	E	ICP_TW (Boron only)
				F	
City/State/Zip	Houston, TX 77079	City/State/Zip	Houston TX 77079	G	
Phone	(713) 244-1000	Phone	(713) 244-1000	H	
Fax	(713) 244-1099	Fax	(713) 244-1099	I	
e-Mail Address	LBurris@trcsolutions.com	e-Mail Address	apinvoiceapproval@trcsolutions.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-21	11.22.22	955	W	2	1					X						
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

HS22111337

TRC Corporation

NRG WA Parish - Appedix III

Sampler(s) Please Print & Sign	Shipment Method	Required Turnaround Time: (Check Box)	Results Due Date:
Gabriel Garcia	Drop off @ lab	☐ STD 10 Wk Days ☒ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other	

Relinquished by:	Date:	Time:	Received by:	Notes:
Gabriel Garcia	11.22.22	1243		NRG Limestone PRIVILEGED & CONFIDENTIAL
Relinquished by:	Date:	Time:	Received by (Laboratory): 11.22.22 1243	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

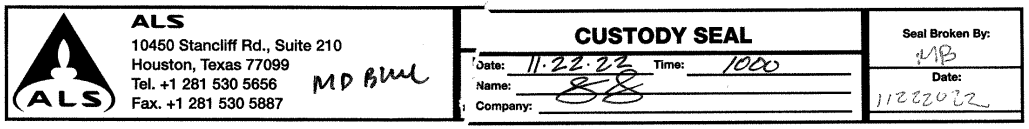
Cooler ID	Cooler Temp.
	1831
M. Paine	1.5w
	-0.5c

QC Package: (Check One Box Below)

- ☐ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SVM&B/CLP
- ☐ Other
- ☒ TRRP Checklist
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.



ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

MD Blue

CUSTODY SEAL

Date: 11.22.22 Time: 1000
Name: SS
Company:

Seal Broken By: MB
Date: 11222022

MD Blue NOV 2 2 2022

Appendix C
Laboratory Data Quality Review

DATA USABILITY SUMMARY

Lori Burris of TRC Environmental Corporation (TRC) reviewed one (1) data package from ALS Global Laboratories (ALS) for the analysis of groundwater samples collected April 7, 2022, at the NRG Limestone Electric Generating Station (Limestone) in Jewett, Texas. Data were reviewed for conformance to the requirements of the guidance document, *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13) (TCEQ 2010). Lori Burris verified that at the time the laboratory data were generated for the project, ALS was NELAC-accredited under the Texas Laboratory Accreditation Program for the matrices, analytes, and methods of analysis requested on the chain-of-custody documentation. ALS's National Environmental Laboratory Accreditation Program (NELAP) certification is included in the laboratory data package.

Intended Use of Data: To provide current data on concentrations of chemicals of concern (COCs) in the groundwater at the property. These data are used for compliance with the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ) Coal Combustion Residuals (CCR) detection monitoring programs. Data are also used for statistical analysis of potential statistically significant increases (SSI).

Analyses requested included:

- EPA 300.0 – Inorganic Anions (Chloride and Sulfate) by ion chromatography;
- A4500-F C-11 – Fluoride by ion selective electrode;
- SW-846 6020A – Metals (Calcium and Boron) by inductively coupled plasma-mass spectrometry (ICP/MS); and
- SM2540C – Total Dissolved Solids (TDS) by drying.

Data were reviewed and validated as described in *Review and Reporting of COC Concentration Data,* (RG-366/TRRP-13) and the results of the review/validation are discussed in this DUS.

The following laboratory submittals and field data were examined:

- the reportable data,
- the laboratory review checklists, and
- field sampling logs.

The results of supporting quality control (QC) analyses were summarized on the Laboratory Review Checklist (LRC) and Exception Report (ER) in the analytical report which was included in this review.

The LRC, associated ER, and reportable data included in this review are attached to this Data Usability Summary (DUS).

DATA REVIEW/VALIDATION RESULTS

Introduction

Ten (10) groundwater samples, one (1) duplicate groundwater sample and one (1) field blank were analyzed for chloride, sulfate, fluoride, metals, and TDS. Table 1 lists the field identifications cross-referenced to laboratory identifications.

Analytical Results

The data package contains a minimum of one (1) quality control batch per analytical method analyzed. The quality control batch identifies the laboratory QC samples that correspond to the designated field samples. Not-detected results are reported as less than the value of the sample detection limit (SDL) as defined by the TRRP rule. The project Sampling and Analysis Plan (SAP) states that quality control percent recoveries of 70% to 130% indicate sufficient accuracy and a relative percent difference (RPD) of 30% indicates adequate precision. Therefore, these limits were used for comparison during this review for accuracy and precision. Data qualified as part of this review are shown in Table 2.

Preservation and Holding Times

The samples were evaluated for agreement with the chain-of-custody. The laboratory mis-labeled the Field Duplicate-01 sample as “Field Dup[licate-01”. The samples were received in the appropriate containers with the paperwork filled out properly. The laboratory sample receipt checklist stated the samples were received at temperatures of 0.9 and 5.0°C. Samples reported in the data package were prepared and analyzed within holding times.

Calibrations

According to the LRC, initial and continuing calibration data met EPA, Standard Method (SM) and SW-846 Method requirements for boron, chloride, sulfate, fluoride and TDS. Metals continuing calibration blanks (CCBs) had detections of boron. Associated sample MW-02 was qualified as estimated (J) for boron due to CCB contamination.

Blanks

Metals, chloride, sulfate, fluoride, and TDS were reported as not-detected in the method blanks.

One field blank (Field Blank-01) was collected and analyzed as part of this data package. An estimated detection of calcium (0.202J mg/L) was identified in the field blank (FB-01). Associated samples were reported for calcium greater than 5X the field blank concentration and were not qualified.

Laboratory Control Samples

Laboratory control samples (LCS) met the QC acceptance criteria for chloride, sulfate, fluoride, metals and TDS.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples for fluoride batch R342323 analyzed on site sample MW-02 and chloride/sulfate batches R406473 and R406511 analyzed on site samples MW-02 and MW-01 were within QC acceptance criteria. MS/MSD analysis is not a requirement of TDS method SM2540C.

Metals batch 177520 MS/MSD analyzed on site sample MW-02 had calcium recovery outside acceptance criteria. However, the amount of calcium spiked was less than 4X the unspiked parent sample and may not represent the matrix effect; therefore, this MS/MSD was not used for qualification purposes.

Post Digestion Spike and Serial Dilution

The metals post digestion spike (PDS) was outside acceptance limits for calcium. However, the amount of calcium spiked was less than 4X the unspiked parent sample and was not used for qualification purposes. The serial dilution for metals was within laboratory acceptance criteria.

Laboratory Duplicates

Laboratory duplicate for TDS analyzed on site samples MW-02 and Field Duplicate-01 were within QC acceptance criteria.

Field Precision

One (1) field duplicate sample was included in this data package (MW-19/Field Duplicate-01). Both sample and duplicate, MW-19/Field Duplicate-01, were reported as detected for boron, calcium, chloride, sulfate, and TDS. The relative percent difference (RPD) between sample and duplicate was within the QC acceptance criteria of 30% for the listed compounds.

Sample/duplicate precision calculations are included in Table 3.

Summary

The groundwater analytical data are usable for the purpose of determining current concentrations of COCs in this medium at the Limestone site.

The data user is advised that sample MW-02 was qualified as estimated (J) for boron due to CCB contamination.

References:

TCEQ. 2010. TRRP 13: Review and Reporting of COC Concentration Data. Texas Commission for Environmental Quality, Austin, Texas.

Environmental Resources Management (ERM). October 2017. Sampling and Analysis Plan. W.A. Parish Electric Generating Station, Thompsons, Texas.

Table 1 – Cross-Reference between Laboratory and Field Identifications

Laboratory Identification	Field Identification	Matrix Type
HS22040391-01	MW-01	Groundwater
HS22040391-02	MW-02	Groundwater
HS22040391-03	MW-17	Groundwater
HS22040391-04	MW-18	Groundwater
HS22040391-05	MW-19	Groundwater
HS22040391-06	MW-20	Groundwater
HS22040391-07	MW-21	Groundwater
HS22040391-08	MW-22	Groundwater
HS22040391-09	MW-27R	Groundwater
HS22040391-10	MW-28	Groundwater
HS22040391-11	Field Blank-01	Water
HS22040391-12	Field Duplicate-01	Groundwater

Table 2 – Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
MW-02	Boron	J	CCB contamination.

U – Not-detected

J – Estimated data; the reported quantitation limit or sample concentration is approximated due to exceedance of one or more QC requirements.

UJ – The analyte was analyzed for but was not detected above the reported sample detection limit. The associated value is an estimate and may be inaccurate or imprecise.

L – Bias in sample, likely to be low.

H – Bias in sample likely to be high.

Table 3 – Field Precision

Field Identification	Analyte	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD[a]	Qualified
MW-19/Field Duplicate-01	Boron	0.0543	0.0500	8	A
	Calcium	33.1	33.9	2	A
	Chloride	37.3	37.6	1	A
	Sulfate	90.9	91.8	1	A
	TDS	302	346	14	A

[a] RPD = ((SR - DR)*200)/(SR + DR)
A - Acceptable Data.
A* - Acceptable Data where results were less than 5X the MQL and the difference between sample and duplicate was less than 2X the MQL.
X – Outside the TRRP-13/SAP acceptance criteria of 30% RPD.
J – Estimated detected.
U – Not-detected.

DATA USABILITY SUMMARY

Lori Burris of TRC Environmental Corporation (TRC) reviewed one (1) data package from ALS Global Laboratories (ALS) for the analysis of a groundwater sample collected October 5, 2022, at the NRG Limestone Electric Generating Station (Limestone) in Jewett, Texas. Data were reviewed for conformance to the requirements of the guidance document, *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13) (TCEQ 2010). Lori Burris verified that at the time the laboratory data were generated for the project, ALS was NELAC-accredited under the Texas Laboratory Accreditation Program for the matrices, analytes, and methods of analysis requested on the chain-of-custody documentation. ALS's National Environmental Laboratory Accreditation Program (NELAP) certification is included in the laboratory data package.

Intended Use of Data: To provide current data on concentrations of chemicals of concern (COCs) in the groundwater at the property. These data are used for compliance with the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ) Coal Combustion Residuals (CCR) detection monitoring programs. Data are also used for statistical analysis of potential statistically significant increases (SSI).

Analyses requested included:

- SW-846 6020A – Metals (Sodium) by inductively coupled plasma-mass spectrometry (ICP/MS).

Data were reviewed and validated as described in *Review and Reporting of COC Concentration Data,* (RG-366/TRRP-13) and the results of the review/validation are discussed in this DUS.

The following laboratory submittals and field data were examined:

- the reportable data,
- the laboratory review checklists, and
- field sampling logs.

The results of supporting quality control (QC) analyses were summarized on the Laboratory Review Checklist (LRC) and Exception Report (ER) in the analytical report which was included in this review.

The LRC, associated ER, and reportable data included in this review are attached to this Data Usability Summary (DUS).

DATA REVIEW/VALIDATION RESULTS

Introduction

One (1) groundwater sample was analyzed for sodium. Table 1 lists the field identifications cross-referenced to laboratory identifications.

Analytical Results

The data package contains a minimum of one (1) quality control batch per analytical method analyzed. The quality control batch identifies the laboratory QC samples that correspond to the

designated field samples. Not-detected results are reported as less than the value of the sample detection limit (SDL) as defined by the TRRP rule. The project Sampling and Analysis Plan (SAP) states that quality control percent recoveries of 70% to 130% indicate sufficient accuracy and a relative percent difference (RPD) of 30% indicates adequate precision. Therefore, these limits were used for comparison during this review for accuracy and precision. No data were qualified as part of this review (see Table 2).

Preservation and Holding Times

The sample was evaluated for agreement with the chain-of-custody. The sample was received in the appropriate container with the paperwork filled out properly. The laboratory sample receipt checklist stated the sample was received at a temperature of 2.0°C. The sample reported in the data package was prepared and analyzed within holding times.

Calibrations

According to the LRC, initial and continuing calibration data met SW-846 Method requirements for sodium. The continuing calibration blanks (CCBs) had detections of sodium. The associated sample, MW-21, was reported as detected for sodium greater than five times the CCB concentrations; therefore, data did not require qualification.

Blanks

Sodium was reported as not-detected in the method blank.

Laboratory Control Samples

Laboratory control samples (LCS) met the QC acceptance criteria for sodium.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples for sodium batch 185687 were analyzed on a sample not associated with the project site and were not used for qualification purposes.

Post Digestion Spike and Serial Dilution

The sodium post digestion spike (PDS) and serial dilution for sodium were analyzed on a sample not associated with the project site but were within laboratory acceptance criteria.

Laboratory Duplicates

Laboratory duplicates were not analyzed as part of this data package.

Field Precision

Field duplicate samples were not analyzed as part of this data package.

Summary

The groundwater analytical data are usable for the purpose of determining current concentrations of COCs in this medium at the Limestone site.

References:

TCEQ. 2010. TRRP 13: Review and Reporting of COC Concentration Data. Texas Commission for Environmental Quality, Austin, Texas.

Environmental Resources Management (ERM). October 2017. Sampling and Analysis Plan. W.A. Parish Electric Generating Station, Thompsons, Texas.

Table 1 – Cross-Reference between Laboratory and Field Identifications

Laboratory Identification	Field Identification	Matrix Type
HS22110107-01	MW-21	Groundwater

Table 2 – Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
No data were qualified as part of this review.			

U – Not-detected

J – Estimated data; the reported quantitation limit or sample concentration is approximated due to exceedance of one or more QC requirements.

UJ – The analyte was analyzed for but was not detected above the reported sample detection limit. The associated value is an estimate and may be inaccurate or imprecise.

L – Bias in sample, likely to be low.

H – Bias in sample likely to be high.

DATA USABILITY SUMMARY

Lori Burris of TRC Environmental Corporation (TRC) reviewed one (1) data package from ALS Global Laboratories (ALS) for the analysis of a groundwater sample collected November 22, 2022, at the NRG Limestone Electric Generating Station (Limestone) in Jewett, Texas. Data were reviewed for conformance to the requirements of the guidance document, *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13) (TCEQ 2010). Lori Burris verified that at the time the laboratory data were generated for the project, ALS was NELAC-accredited under the Texas Laboratory Accreditation Program for the matrices, analytes, and methods of analysis requested on the chain-of-custody documentation. ALS's National Environmental Laboratory Accreditation Program (NELAP) certification is included in the laboratory data package.

Intended Use of Data: To provide current data on concentrations of chemicals of concern (COCs) in the groundwater at the property. These data are used for compliance with the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ) Coal Combustion Residuals (CCR) detection monitoring programs. Data are also used for statistical analysis of potential statistically significant increases (SSI).

Analyses requested included:

- SW-846 6020A – Metals (Boron) by inductively coupled plasma-mass spectrometry (ICP/MS).

Data were reviewed and validated as described in *Review and Reporting of COC Concentration Data,* (RG-366/TRRP-13) and the results of the review/validation are discussed in this DUS.

The following laboratory submittals and field data were examined:

- the reportable data,
- the laboratory review checklists, and
- field sampling logs.

The results of supporting quality control (QC) analyses were summarized on the Laboratory Review Checklist (LRC) and Exception Report (ER) in the analytical report which was included in this review.

The LRC, associated ER, and reportable data included in this review are attached to this Data Usability Summary (DUS).

DATA REVIEW/VALIDATION RESULTS

Introduction

One (1) groundwater sample (MW-21) was analyzed for boron. Table 1 lists the field identifications cross-referenced to laboratory identifications.

Analytical Results

The data package contains a minimum of one (1) quality control batch per analytical method analyzed. The quality control batch identifies the laboratory QC samples that correspond to the

designated field samples. Not-detected results are reported as less than the value of the sample detection limit (SDL) as defined by the TRRP rule. The project Sampling and Analysis Plan (SAP) states that quality control percent recoveries of 70% to 130% indicate sufficient accuracy and a relative percent difference (RPD) of 30% indicates adequate precision. Therefore, these limits were used for comparison during this review for accuracy and precision. No data were qualified as part of this review (see Table 2).

Preservation and Holding Times

The sample was evaluated for agreement with the chain-of-custody. The sample was received in the appropriate container with the paperwork filled out properly. The laboratory sample receipt checklist stated the sample was received at a temperature of 1.0°C. The sample reported in the data package was prepared and analyzed within holding times.

Calibrations

According to the LRC, initial and continuing calibration data met SW-846 Method requirements for sodium. The continuing calibration blanks (CCBs) had detections of boron. The associated sample, MW-21, was reported as detected for boron greater than five times the CCB concentrations; therefore, data did not require qualification.

Blanks

Boron was reported as not-detected in the method blank.

Laboratory Control Samples

Laboratory control samples (LCS) met the QC acceptance criteria for sodium.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples for boron were analyzed on a sample not associated with the project site and were not used for qualification purposes.

Post Digestion Spike and Serial Dilution

The sodium post digestion spike (PDS) and serial dilution for sodium were analyzed on a sample not associated with the project site but were within laboratory acceptance criteria.

Laboratory Duplicates

Laboratory duplicates were not analyzed as part of this data package.

Field Precision

Field duplicate samples were not analyzed as part of this data package.

Summary

The groundwater analytical data are usable for the purpose of determining current concentrations of COCs in this medium at the Limestone site.

References:

TCEQ. 2010. TRRP 13: Review and Reporting of COC Concentration Data. Texas Commission for Environmental Quality, Austin, Texas.

Environmental Resources Management (ERM). October 2017. Sampling and Analysis Plan. W.A. Parish Electric Generating Station, Thompsons, Texas.

Table 1 – Cross-Reference between Laboratory and Field Identifications

Laboratory Identification	Field Identification	Matrix Type
HS22111337-01	MW-21	Groundwater

Table 2 – Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
No data were qualified as part of this review.			

U – Not-detected

J – Estimated data; the reported quantitation limit or sample concentration is approximated due to exceedance of one or more QC requirements.

UJ – The analyte was analyzed for but was not detected above the reported sample detection limit. The associated value is an estimate and may be inaccurate or imprecise.

L – Bias in sample, likely to be low.

H – Bias in sample likely to be high.

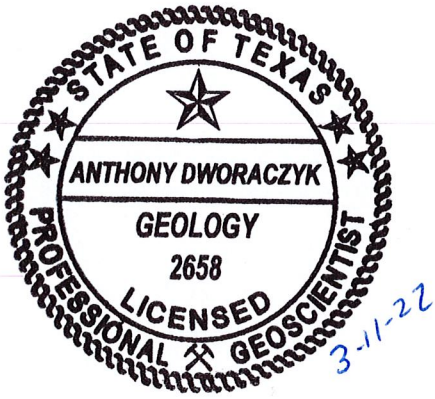
Appendix D
Alternative Source Demonstrations

Alternative Source Demonstration

Limestone Electric Generating Station
Landfill (Unit 004)

March 2022

Prepared For
NRG Texas Power, LLC
Jewett, Texas



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Executive Summary

The NRG Texas Power, LLC (NRG) Limestone Electric Generating Station (Station) is located approximately seven miles northwest of Jewett, Texas and approximately 0.5 miles north of the intersection of Limestone, Freestone, and Leon Counties. Units managing coal combustion residuals (CCR) at the Station are subject to the requirements of 30 Texas Administrative Code (TAC) Chapter 352 and Title 40 Code of Federal Regulations (CFR §257.94(e). CCR generated at the Station consists of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge. The Station has one active CCR unit, Landfill (Unit 004), that is managed pursuant to 30 TAC Chapter 352 and 40 CFR §257.94(e), and which is the subject of this Alternative Source Demonstration (ASD).

The ninth semi-annual groundwater detection monitoring event was conducted in October 2021. Laboratory analytical data were received by NRG on November 9, 2021. Statistical evaluation of the Appendix III monitoring parameters was completed by December 12, 2021 to identify apparent statistically significant increases (SSIs) above background pursuant to 30 TAC 352 Subpart H and NRG notified the Texas Commission on Environmental Quality (TCEQ) of its intent to prepare an ASD. The statistical evaluation identified one potential SSI in a monitoring well at the Landfill. This ASD successfully identified alternative sources for the potential SSI. Therefore, semi-annual detection monitoring will be continued for the Landfill.

As previously described in the ASD for the third semi-annual detection monitoring event, persistent, unresolvable issues with data quality necessitated establishment of a new background water quality data set. The new background water quality data set was developed for both Appendix III and Appendix IV CCR constituents collected quarterly from the third half 2019 (July) through the second half 2021 (April). The October 2021 semi-annual detection monitoring sampling event results are the first data set statistically evaluated against the new background water quality data set. Use of the new background data set resulted in a reduction of the number of SSIs identified during prior semi-annual detection monitoring events, especially for the upgradient monitoring wells.

Section 1
Introduction

1.1 Background

The NRG Texas Power, LLC (NRG) Limestone Electric Generating Station (Station) is located approximately seven miles northwest of Jewett, Texas and approximately 0.5 miles north of the intersection of Limestone, Freestone, and Leon Counties. The Station is bisected by Farm-to-Market Road 39 (FM 39), which runs north-south through the middle of the Station. The western portion of the Station is located in Limestone County and includes the electricity generating portion of the Station. The eastern portion of the Station is located in Freestone County and includes the solid waste disposal area (SWDA).

Management of coal combustion residuals (CCR) at the Station is performed pursuant to 30 Texas Administrative Code (TAC) Chapter 352, which became effective during June 2021. Prior to this, management of CCR was performed pursuant to the United States Environmental Protection Agency (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 Phase 1, Part1 final rule (July 30, 2018). CCR generated at the Station consist of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge, which have been classified by the TCEQ as Class II nonhazardous waste. The Station has one active CCR-management unit – Landfill (Unit 004).

The landfill unit is located within the eastern portion of the Station as shown on Figure 1. The Landfill was constructed in 1980 and is used for the final disposition of CCR. The western half of the Landfill has reached capacity and historically had been closed and capped prior to the effective date of the CCR Rule (October 2015). CCR is currently being placed at the southern part of the eastern portion of the Landfill.

On behalf of NRG, Environmental Resources Management, Inc. (ERM) conducted eight independent background groundwater monitoring events for both the Appendix III and IV CCR constituents between April 2015 and August 2017 per §257.94(b) of the CCR Rule and the first semi-annual detection monitoring event in October 2017. Results of the eight background and first semi-annual detection monitoring events for the Landfill were documented in the *Annual Groundwater Monitoring Report, Landfill (Unit 004)* (ERM 2018a) and the *Groundwater Monitoring Report, Landfill (Unit 004)* (ERM 2018b) pursuant to §257.90(e).

The Limestone Station has continued to conduct semi-annual detection monitoring at the Landfill. Following each sampling event, the results have been evaluated for statistically significant increases (SSIs), and alternative source demonstrations (ASDs) have been prepared as needed. These activities have been

included in Annual Reports, which have been placed into the Facility Operating Record (FOR) and posted to NRG's publicly accessible website.

1.2 Purpose

The purpose of this ASD is to evaluate the apparent SSIs above background for the ninth semi-annual detection monitoring event in accordance with 30 TAC Chapter 352. The statistical evaluation identified one apparent SSI (boron in downgradient monitoring well MW-21). Section 3 evaluates both alternative sources and natural variations in groundwater geochemistry for the apparent SSIs in accordance with 30 TAC Chapter 352.

Section 2
Site Geology and Hydrogeology

This section provides information about the geology and hydrogeology of the area at and surrounding the Landfill.

2.1 Hydrogeology

Based on the *Geologic Atlas of Texas, Waco Sheet* (BEG 1972), the Station is primarily located within the outcrop of the Calvert Bluff Formation of the Wilcox Group. Minor portions of the southeast corner of the Station are located within the outcrop of the Carrizo Sand and minor portions of the southwest corner of the Station are immediately underlain by alluvium. The Calvert Bluff Formation underlies both the Carrizo Sand and alluvium where present.

The Landfill is located solely within the outcrop of the Calvert Bluff Formation (BEG 1972); however, site investigation data indicate the Landfill may also be located within the outcrop of the Carrizo Sand. The Calvert Bluff Formation consists mostly of mudstone interbedded with fine sandstone, lignite, and ironstone concretions. The mudstone contains silt and very fine sand laminae. The Carrizo Sand consists of very fine sand with partings of silty clay, carbonaceous clay, and ironstone. The Carrizo Sand and the Wilcox Group comprise the Carrizo-Wilcox aquifer, which is recognized by the Texas Water Development Board (TWDB) as a major aquifer system in Texas. The Station is located within the outcrop, or the recharge zone, of the Carrizo-Wilcox aquifer (TWDB 2011).

Site investigations were conducted at the Station by Espey, Huston & Associated in 1986; Radian International in 1996 and 1997; EPRI in 2007, and Environmental Resources Management, Inc. (ERM) in 2016. The results of these investigations were summarized in the October 2017 *Ground Water Monitoring Networks for Coal Combustion Residual (CCR) Rule Compliance* report (ERM 2017b). Surficial material at the Landfill consists of in-situ or reworked clay from the Axtell-Tabor soil association. This clay is the source material for the Landfill liner and cap. Boring logs indicate the surficial material is underlain by interbedded clays, silts, and sands of the Quaternary alluvium, Carrizo Sand, and Calvert Bluff Formation. The boundaries between these units are generally indistinguishable.

The certified CCR monitoring well network for the Landfill consists of two upgradient, background monitoring wells (MW-27 [now MW-27R] and MW-28) and eight downgradient monitoring wells (MW-1, MW-2, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22). A groundwater potentiometric surface map was prepared by TRC for the October 2021 semiannual detection monitoring event and is provided in this ASD as Figure 2. The direction of groundwater flow beneath the Landfill was to the south - southwest.

2.2 Surrounding Area

2.2.1 Oil and Gas Production Wells

The Station and surrounding vicinity are densely populated with historical and current oil and gas activities consisting primarily of natural gas production wells. Numerous active natural gas wells and their associated well pads and surface pits are located immediately surrounding and within the footprint of the Landfill. Figure 3 is a Mid-East Texas Groundwater Conservation District (METGCD) well map showing the locations of wells in the vicinity of the Landfill. The map is limited to Freestone and Leon counties and does not show wells in Limestone County immediately west of the Landfill. This figure demonstrates the extent to which non-CCR sources of constituents to groundwater pervade the vicinity of the Landfill.

Surface well pits typically contain spent completion fluids or workover fluids. Completion or workover fluids are often brine-containing liquids that are used for well testing and are chemically compatible with the formation fluids; and the spent fluids contained in the pits would have come into contact with formation fluids. According to the United States Geological Survey (USGS) National Produced Waters Geochemical Database, water co-produced with hydrocarbons (referred to as "produced water" or "formation water") from geologic formations underlying the Site has the following composition (USGS 2018):

- pH ranging from 4.67 standard units (SU) to 5.6 SU;
- Calcium ranging from 12,560 milligrams per liter (mg/L) to 33,520 mg/L;
- Chloride ranging from 56,980 mg/L to 96,200 mg/L;
- Sulfate ranging from 480 mg/L to 1,790 mg/L; and
- Total dissolved solids (TDS) ranging from 98,330 mg/L to 152,970 mg/L.

Considering the composition of the formation water with which the completion or workover fluids came into contact and the typical brine composition of these fluids, potential releases of these fluids would be expected to affect groundwater quality within the immediate vicinity and downgradient of the natural gas well pads and surface pits. Even minor releases of these fluids could increase the concentrations of calcium, chloride, sulfate, and TDS and decrease the pH in the nearby Landfill upgradient and downgradient monitoring wells.

2.2.2 Lignite Mine

Approximately 1.5 miles south of the NRG Limestone Landfill is the Jewett lignite mine. The Jewett Mine is a 35,000-acre surface-mine complex. The mine, which is one of the largest in Texas, produced about 5.3 million short tons of lignite per year, according to the U.S. Department of Energy (USDOE). The 31-year-old mine provided lignite for combustion at the Limestone Station. In 2018, NRG decided to close the mine and are in the process of reclamation.

In 2020, the Jewett Mine had four final pits containing water ranging from approximately 340 million to 1.5 billion gallons. The estimated volumes remaining in the pits in 2020 were as follows:

- E-South Final Pit: 342,000,000 gallons;
- RP-D9 Final Pit: 403,000,000 gallons;
- B-North Final Pit: 375,000,000 gallons; and
- BX Final Pit: 1,290,000,000 gallons.

The pits can have depths greater than 100 feet. The groundwater potentiometric surface is generally understood to be above the bottom of the pits. Multiple seams of lignite at varying depths below the ground surface were removed from these pits during mining.

According to the U.S Department of Energy, Office of Scientific and Technical Information, *Trace elements in Texas Lignite*, 1983, during coal mining and utilization, trace elements are released into the environment. Certain of these elements may have beneficial or neutral effects while other trace elements are potentially harmful. On a national basis, nine of these elements: antimony, arsenic, boron, cadmium, germanium, mercury, molybdenum, selenium, and silver; are commonly found in concentrations greater than the levels present in typical crustal rocks. Because of the conditions under which Gulf Coast lignites were deposited and the nature of lignites in general, the modes of occurrence and concentrations of trace elements in Texas lignites are different from coals found elsewhere in the United States. Based on a limited data set of 38 lignite samples from Arkansas, Mississippi, and Alabama compiled in 1975, Gulf Coast lignites were identified as having higher levels of boron, lanthanum, lead, selenium, uranium, yttrium, and zirconium than other US coal regions.

2.2.3 Lignite/Shale Seams in Monitoring Wells

A review of the boring logs for the Landfill monitoring network identified lignite seams and shale starting at around 37 feet below ground surface (bgs) in some of the borings. As noted on the boring logs in Attachment 1, monitor wells were completed across these lignite and shale seams. Although lignite seams and shale are not noted in all of the borings for the monitoring network, the presences of these minerals in the subsurface would have an effect on groundwater quality for the region.

As noted above, lignite contains trace elements that are released into the environment, which include boron. As presented in the Geological Survey Bulletin 1314-A, *Geochemical Investigations of Some Black Shales and Associated Rocks,* trace elements of *boron*, barium, gallium, and strontium are found in the upper cretaceous shales of Texas. The following section discusses the geochemistry of the groundwater in the area.

2.3 Groundwater Geochemistry and Boron in Groundwater

Boron is normally considered to be a minor constituent in groundwater since it is generally present in low concentrations (Palmucci & Rusi, 2014). Apart from a potential boron source area, the primary origin of boron in groundwater is typically associated with the processes of sorption and desorption from mineral surfaces including soil and bedrock (Ravenscroft & McArthur, 2004). Boron is often cited as a contaminant trace chemical and usually occurs as a non-ionized form as H_3BO_3 in soils at pH <8.5, but above this pH, it exists as an anion, $B(OH)_4^-$ (Upadhyaya et al., 2014).

The factors that may influence the concentration of boron in groundwater include weathering, human activity, evaporative concentration, ion-exchange, electrical conductivity (EC), and pH. Ravenscroft & McArthur (2004) investigated the mechanism of regional boron enrichment in groundwater and the results indicated that the main process resulting in boron enrichment in groundwater was flushing by fresh groundwater. The desorption of boron from mineral surfaces could be affected by pH, ionic strength, salinity, and the HCO_3/CO_3 ratio. Decreases in pH will increase the dissolution of boron from the mineral surfaces. Boron adsorption favors high pH and boron desorption favors low pH in rocks, soils, and organic matters (Hollis et al., 1988; Keren & Communar, 2009; Tabelin et al., 2014).

Additional investigations confirmed that the presence of boron in groundwater depends on the EC (salinity), such that the concentration of boron increases with increasing EC. Halim et al. (2010) reported that the increae in Cl^- contributes to an increase in EC value since a strong linear correlation (R^2 = 0.88) between EC and Cl^- was observed. Palmucci & Rusi (2014) observed a clear correlation between elevated concentrations of boron and the chloride-sodium facies, which are characterized by high saline content, negative redox potential, and low value of the SO_4^{2-}/Cl^- ratio. Rodriguez-Espinosa et al. (2020) determined that the concentration of boron in groundwater was related to SO_4^{2-} and the age affect.

Regarding concentrations of boron in groundwater at the Landfill, the source of boron is more likely natural rather than anthropogenic. Therefore, the increase in concentration of boron at MW-21 may be related to natural variations in groundwater geochemistry, such as pH, ion exchanges, EC, and salinity.

Section 3
Alternative Source Demonstration

The ninth semi-annual detection monitoring event was conducted in October 2021. Laboratory analytical data were received by NRG on November 9, 2021. Statistical evaluation to identify SSIs was completed by December 12, 2010 pursuant to 30 TAC 352 Subpart H and notification of intent to prepare an ASD was submitted to TCEQ. The statistical evaluation identified one apparent SSI (boron in downgradient monitoring well MW-21). Section 3 evaluates both alternative sources and natural variations in groundwater geochemistry for the apparent SSIs in accordance with 30 TAC Chapter 352.

Statistical evaluation of the ninth semi-annual detection monitoring event (comparison of downgradient monitoring results to 95 percent confidence/95 percent coverage upper tolerance limits (UTLs) of the background monitoring results) identified one apparent SSI for the Landfill, as shown in Table 1. The sample result presented in Table 1 is for the verification sample collected in November 2021. While this result is less than the October result, the result was greater than its UTL.

Table 1 SSI – October 2021 Semi-annual Detection Monitoring Event

ANALYTE	WELL	LTL	UTL	SAMPLE DATE	VALUE	UNIT
Boron	MW-21 (DG)	NA	0.282	11/11/2021	0.691	mg/L

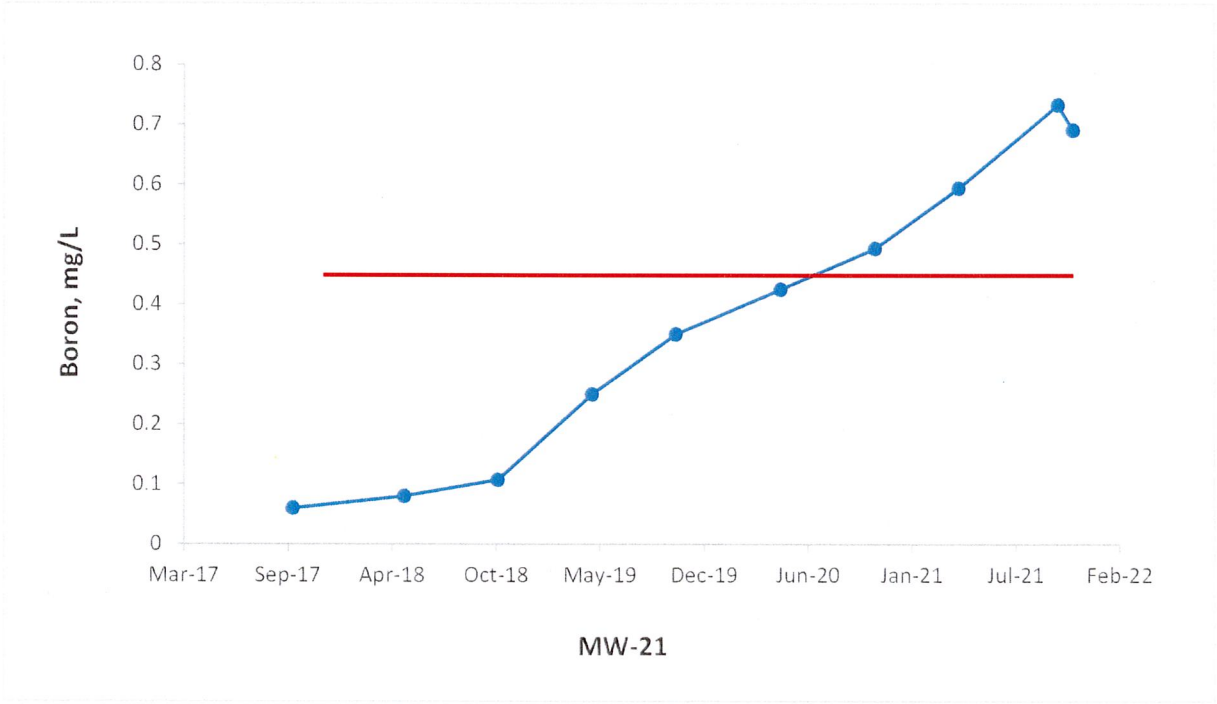
Notes: DG = Downgradient
mg/L = milligrams per Liter

Alternative sources for the potential SSI encompass a range of apparent lines of reasoning and include the following non-CCR sources located in the vicinity of the Landfill:

- As presented in Section 2, the Station and surrounding vicinity are densely populated with historical and current oil and gas activities consisting primarily of natural gas production wells;
- Monitor wells were completed into and screened across both lignite and shale seams that are a source of trace elements such as boron; and
- A lignite mine is located immediately south of the Landfill and mining operations can impact the groundwater quality and pH of groundwater over a long period of time.

Acidity is transported from a mine in groundwater or by surface water runoff that can then infiltrate into groundwater. Through migration, such groundwater can impact groundwater quality at and in the vicinity of the Landfill. During the course of historical detection monitoring at the Landfill, the pH of groundwater at MW-21 has remained within the range of 5.0 to 5.6 S.U. As discussed in Section 2.2, low pH (< 6) conditions are favorable for the dissolution of boron from mineral surfaces in the soil and bedrock.

Boron was detected in MW-21 at a concentration of 0.733 milligrams per Liter (mg/L) in the October 2021 sample and 0.691 mg/L in the November 2021 verification sample, which exceeded the UTL of 0.44 mg/L. The historical data review of boron in MW-21 (see graph below) indicated an increasing trend of boron concentrations in groundwater from 2017 to 2022, which was potentially the result of fresh groundwater flushing under acidic conditions.



Boron Concentration in Groundwater at MW-21

Another potential line of reasoning is that high EC (salinity) will increase the boron concentration in groundwater. However, no increasing of chloride or sulfate was detected in the sampling event. To further investigate the effect of EC and salinity, analysis of sodium concentrations to evaluate potential changes in EC is recommended in future sampling events.

In summary, the apparent boron SSI in MW-21 for the ninth semi-annual detection monitoring event is most likely related to other non-CCR off-site sources (oil and gas activities or the historic lignite mine), the apparent presence of lignite seams withing the screened portion of monitor wells, or natural variations in groundwater geochemistry (acidic pH conditions) rather than a release to groundwater from the landfill.

Section 4
Conclusions

The statistical evaluation identified one apparent SSI (boron in downgradient monitoring well MW-21). This ASD has identified the following lines of reasoning that support both alternative non-CCR sources or natural variations in groundwater geochemistry for this apparent SSI:

- Numerous historical and active natural gas wells and their associated well pads and surface pits are located immediately surrounding and within the footprint of the Landfill. Well pits associated with the natural gas wells contribute spent completion or workover fluids to groundwater that contain constituents that are also CCR Rule Appendix III detection monitoring constituents;
- As shown on the boring logs for the Landfill CCR groundwater monitoring network, lignite and shale seams that contain trace amounts of boron are present at the Landfill and several monitor wells were installed into and screened across these seams;
- The Jewett lignite surface mine is located approximately 1.5 south of the Landfill; and
- Natural variations in groundwater geochemistry likely related to changes in pH, ion exchanges, EC, and/or salinity.

Therefore, based on the lines of reasoning presented in this ASD, alternative sources and/or natural variations in groundwater geochemistry, rather than a release from the Landfill have been shown to likely be responsible for the apparent SSI observed. Based on this successful ASD, NRG will continue semi-annual detection monitoring for the Landfill.

Section 5
References

BEG 1972. *Geologic Atlas of Texas, Waco Sheet*. The University of Texas at Austin, Bureau of Economic Geology. Reprinted 1972.

Halim, M. A., Majumder, R. K., Nessa, S. A., Hiroshiro, Y., Sasaki, K., Saha, B. B., Saepuloh, A., & Jinno, K., 2010. Evaluation of processes controlling the geochemical constituents in deep groundwater in Bangladesh: Spatial variability on arsenic and boron enrichment. *Journal of Hazardous Materials*, *180*(1–3), 50–62. https://doi.org/10.1016/J.JHAZMAT.2010.01.008.

Hollis, J. F., Keren, R., & Gal, M., 1988. Boron Release and Sorption by Fly Ash as Affected by pH and Particle Size. *Journal of Environmental Quality*, *17*(2), 181–184. https://doi.org/10.2134/JEQ1988.00472425001700020002X.

Keren, R., & Communar, G., 2009. Boron Sorption on Wastewater Dissolved Organic Matter: pH Effect. *Soil Science Society of America Journal*, *73*(6), 2021–2025. https://doi.org/10.2136/SSSAJ2008.0381.

Mid-East Texas Groundwater Conservation District (METGCD), 2019. GIS Data Portal. Available at: https://metgcd.halff.com/Map/Public. Accessed July 2, 2019.

Palmucci, W., & Rusi, S. (2014). Boron-rich groundwater in Central Eastern Italy: a hydrogeochemical and statistical approach to define origin and distribution. *Environmental Earth Sciences*, *72*(12), 5139–5157. https://doi.org/10.1007/s12665-014-3384-5.

Ravenscroft, P., & McArthur, J. M., 2004. Mechanism of regional enrichment of groundwater by boron: the examples of Bangladesh and Michigan, USA. *Applied Geochemistry*, *19*(9), 1413–1430. https://doi.org/10.1016/J.APGEOCHEM.2003.10.014.

Tabelin, C. B., Hashimoto, A., Igarashi, T., & Yoneda, T., 2014. Leaching of boron, arsenic and selenium from sedimentary rocks: II. pH dependence, speciation and mechanisms of release. *Science of The Total Environment*, *473–474*, 244–253. https://doi.org/10.1016/J.SCITOTENV.2013.12.029.

TRC 2018b. *Statistical Methods Certification – Limestone Electric Generating Station*. TRC, August 2018.

TRC 2019a. *2018 Annual Groundwater Monitoring and Corrective Action Report – Limestone Electric Generating Station*. TRC, January 2019.

TRC 2019b. Technical Memorandum on Laboratory Quality Issues. TRC, April 24, 2019.

TRC 2019c. Technical Memorandum on Laboratory Change for CCR Sampling Events. TRC, July 19, 2019.

TWDB, 1990. *Aquifers of Texas*. Texas Water Development Board Report 380. Peter George, et al. July 2011.

Upadhyaya, D., Survaiya, M. D., Basha, S., Mandal, S. K., Thorat, R. B., Haldar, S., Goel, S., Dave, H., Baxi, K., Trivedi, R. H., & Mody, K. H., 2014. Occurrence and distribution of selected heavy metals and boron in groundwater of the Gulf of Khambhat region, Gujarat, India. *Environmental Science and Pollution Research*, *21*(5), 3880–3890. https://doi.org/10.1007/s11356-013-2376-4.

United States Department of Energy, Office of Scientific and Technical Information, 1983. Trace elements in Texas Lignite.

United States Environmental Protection Agency, 2008. Drinking Water Health Advisory For Boron. *Office of Water U.S. Environmental Protection Agency Washington, DC*, *822-R-08–0*. https://www.epa.gov/environmental-topics/water-topics.

United States Geological Survey, 2018. National Produced Waters Geochemical Database, USGS IDs 99922 through 99929. United State Geological Survey. Accessed on July 16, 2018.

Figures

PROJECT:
NRG TEXAS POWER, LLC
Limestone Electric Generating Station
Jewett, Texas

TITLE:
LOCATION OF CCR LANDFILL

DRAWN BY:	O. Fonseka	PROJECT No.:	298367.2002.0000
CHECKED BY:	R. Varnell		**FIGURE 1**
APPROVED BY:	R. Varnell		
DATE:	January 2021		

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

FILE: Fig 2 - NRG-LimestoneStation - Landfill_Adjusted.dwg

HOU D:\Users\SRay\Downloads\ Fig 2 - NRG-LimestoneStation - Landfill_Adjusted.dwg 01/07/21

LEGEND

- MONITORING WELL LOCATION
- LANDFILL BACKGROUND CCR MONITORING WELL LOCATION
- LANDFILL CCR MONITORING WELL LOCATION
- ***446.51*** GROUNDWATER ELEVATION (FT MSL)
- ***NM*** NOT MEASURED
- GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)

STATE OF TEXAS
ANTHONY DWORACZYK
GEOLOGY
2658
LICENSED
PROFESSIONAL GEOSCIENTIST

1-28-22

NOTE:
GROUNDWATER ELEVATIONS MEASURED BY HMI ON OCTOBER 13, 2021

0 650 1,300 FT

1 " = 647 '
1:7,764

N

PROJECT:
NRG TEXAS POWER, LLC
LIMESTONE
JEWETT, TEXAS

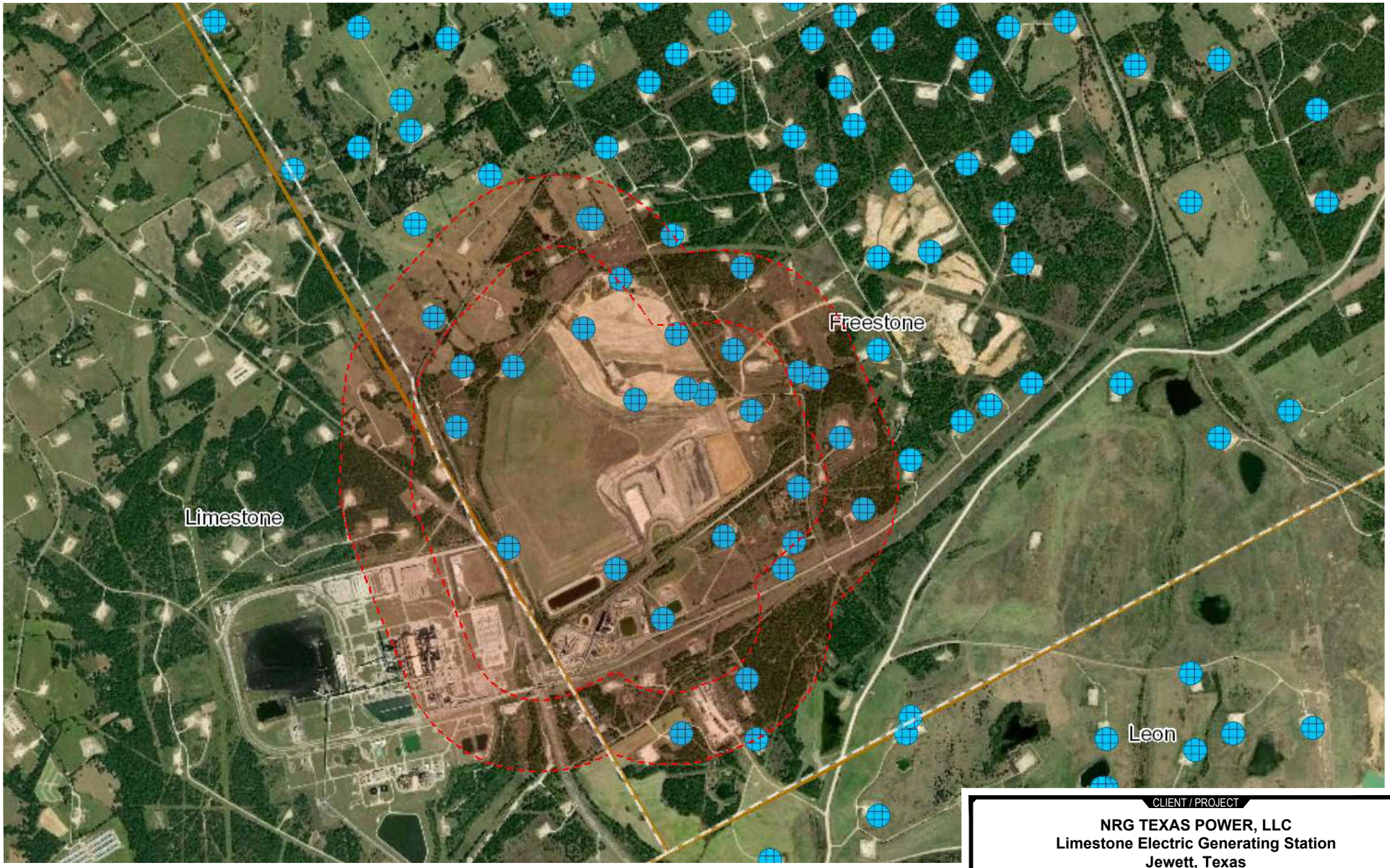
TITLE:
GROUNDWATER POTENTIOMETRIC SURFACE - OCTOBER 2021

DRAWN BY:	F. YARBROUGH	PROJ. NO.:	423027.0000.0000
CHECKED BY:			
APPROVED BY:			
DATE:	JANUARY 2022		

FIGURE 2

TRC
14701 St. Mary's Lane, Suite 500
Houston, TX, 77079
Phone 281.616.0100
www.trcsolutions.com

FILE NO.: 423027_2-4_October.mxd



July 3, 2019

polygonLayer

Override 1

METGCD Wells

METGCD Wells

Yes

Counties

1:36,112

0 0.3 0.6 1.2 mi

0 0.5 1 2 km

Halff Associates, Inc.
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user

CLIENT / PROJECT

NRG TEXAS POWER, LLC
Limestone Electric Generating Station
Jewett, Texas

TITLE

OIL AND GAS WELL MAP

DRAWN BY: O. Fonseka	REQUEST BY: T. Dworaczyk	PROJECT NO. 477046
DWG. DATE: March 2022	PROJECT-MGR: T. Dworaczyk	

TRC
14701 ST. MARY'S LANE, STE. 500
HOUSTON, TEXAS 77079
PHONE: 281-616-0100
TRCcompanies.com

FIGURE 3

Attachments

Attachment 1 Boring Logs

ESPEY, HUSTON & ASSOCIATES, INC.
ENGINEERING & ENVIRONMENTAL CONSULTANTS

HOLE NO. MW-1

DRILLING LOG

HOLE NO.	MW-1
LOCATION	Limestone Electric Generating Station
GROUND ELEV.	±418.06'
DRILL ANGLE	0°
COLLAR ELEV.	None
DRILL DIRECTION	Vertical
TOTAL DEPTH	60'
STARTED	10/1/86
ELEV. DATUM	Surface
COMPLETED	10/1/86

	DEPTH	DATE	TIME
FIRST FREE WATER			
BAILED WATER LEVEL			
STATIC WATER LEVEL	4.88	10/7/86	1635

PROJECT NO.	8754
SHEET	1 OF 1
PROJECT/SITE	Houston Lighting & Power
GEO/ENG.	Clyde Smith
CONTRACTOR	Reed & Morris
DRILLER	Ray Reed
RIG MODEL	CFD-1
HOLE TYPE	Rotary
HOLE DIAMETER	5"
DRILL FLUID	H_2O

TESTS	SAMPLES	COMPLETION

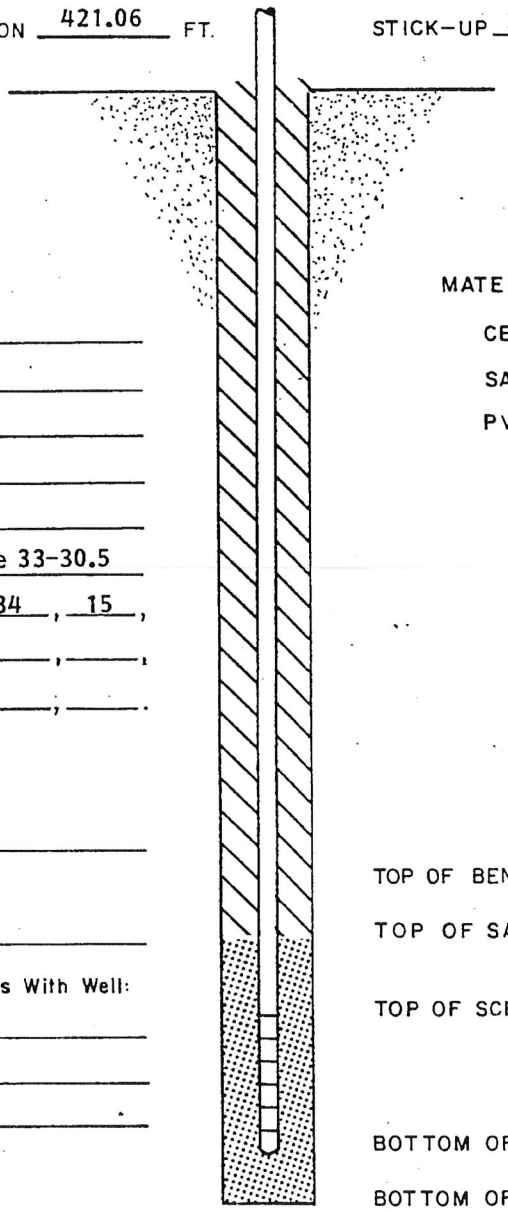
ELEV.	DEPTH	LEGEND	CLASSIFICATION/DESCRIPTION	RECOV.	SAMPLES	DRILLING REMARKS
	5		Brown sand and clay			
	10		Light gray, fine grained sand with minor amounts gray clay and ironstone			
	15					
	20					
	25		Gray silty clay			
	30					
	35		Interbedded brown to tan sand and gray clay			
	40		- very lignitic 39-41'			
	45		Fine gray sand with thin interbeds of gray clay			
	50					
	55		Gray clay			
	60		T.D. at 60'			

WELL COMPLETION RECORD

JOB NO. 8754 WELL NO. MW1 GEOLOGIST Clyde Smith

CLIENT HL&P DRILLER Reed & Morris

TOP OF CASING ELEVATION 421.06 FT. STICK-UP 3.0 FT.



DETAILS OF CONSTRUCTION:

Date Completed 10/1/86

Hole Diameter (in) 7 7/8

Screen Size (in) .010

Screen Length (ft) 20

Casing Size (in) 4

Packer Depth (ft) Bentonite 33-30.5

Centralizer Depths (ft) 54, 34, 15, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____.

Completion Technique:

1) Sand Placement Method

Tremie

2) Grout Placement Method

Tremie

Description of Potential Problems With Well:

None

MATERIALS

CEMENT (sks) 12

SAND (ft^3) 8

PVC (ft) 38.5

TOP OF BENTONITE PACK 30.5 FT.

TOP OF SAND PACK 33 FT.

TOP OF SCREEN 35.5 FT.

BOTTOM OF SCREEN 55.5 FT.

BOTTOM OF HOLE 56 FT.

NOTE: ALL DEPTHS ARE REFERENCED TO "DEPTH BELOW GROUND SURFACE"

STATE OF TEXAS WELL REPORT for Tracking #178434

Owner:	**NRG Texas Power Limestone Station**	Owner Well #:	**MW-17**
Address:	**Rt. 1 BoX 85 Jewett, TX 75846**	Grid #:	**39-64-1**
Well Location:	**FM 39 N. Jewett, TX 75846**	Latitude:	**31° 05' 14" N**
		Longitude:	**096° 07' 26" W**
Well County:	**Limestone**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Start Date: **4/20/2009** Drilling End Date: **4/20/2009**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**8.5**	**0**	**55**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
38	**55**	**Gravel**	**20/40**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**36**	**4, Portland**
36	**38**	**2, Bentonite**
38	**55**	**12 Sand**

Seal Method: **Grout**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Alternative Procedure Used**

Water Level: **46 ft.** below land surface on **2009-04-20** Measurement Method: **Unknown**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Advanced Drilling Systems, Inc.**

904 W. Tidwell
Houston, TX 77091

Driller Name: **David Rogers** License Number: **52037**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
		0-1: Yellowish red SILTY CLAY with abundant Red Mottling
		1-5: Gray very SILTY SAND moist, with some
		clayey sand seams
		- very silty
		5-12: Gray CLAYEY SAND with abundant strong
		brown mottling
		- very silty
		- some black lignite seams
		- wet
		- abundant yellowish brown mottling
		- abuundant strong brown
		- very moist
		12-16: Gray, very SILTY SAND
		- very moist
		- very fine grained
		- some yellowish brown mottling
		- very silty

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
2	**New**	**PVC**	**Casing 0-40 sch-40**
2	**New**	**PVC**	**Slotted 40-55 0.01**

16-20: Strong brown SILTY CLAY with abundant silty sand seams
- some yellowish brown clayey sand seams
20-26: Yellowish brown CLAYEY SAND with
abundant gray hard brittle clay seams
- some brownish yellow limonitic iron seams
- abundant dark gray clay seams
- very moist
- very silty
26-31: Brown very silty sand, very fine grained
31-42: Brown CLAYEY SAND with abundant
gray clay seams
- very moist
- some muscovite flakes
- abundant dark gray clay seams
- very moist
- some strong brown silty sand seams
- very silty
- very abundant dark gray seams
42-53: Dark gray SILTY SAND, fine grained,
abundant dark gray silty clay seams
- very silty
- saturated @ 46 bgs.
- abundant dark gray silty clay seams
- very silty
- very moist
53-55: Very dark gray CLAY, firm
- some light gray silt seams
- lignite seams

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

ERM Environmental Resources Management

MW-19
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-19 Date Drilled 2016-05-17

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.40 ' Boring Diam. 9.00 "

N. Coord. 10507460.00 ' E. Coord. 3574645.00 ' Surface Elevation 440.94 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 25.00 ' Sump Length 0.40 '

Top of Casing Elevation 443.79 ' Stickup 2.85 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

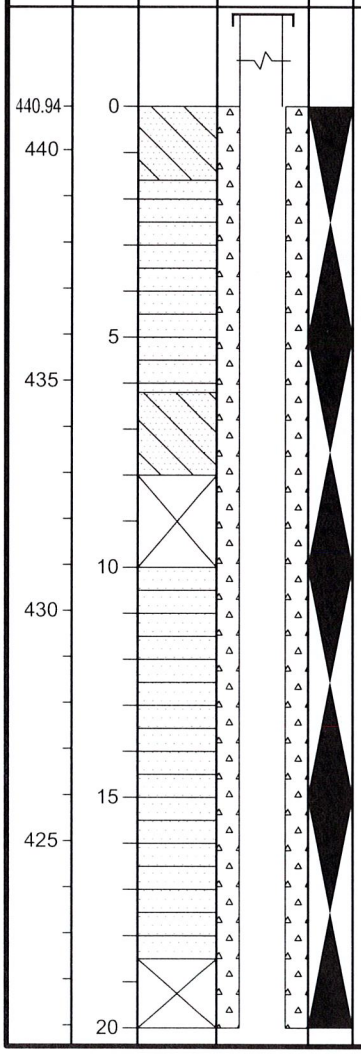
Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer



Elevation (Feet)	Depth (Feet)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
440.94	0	0-5	0-1.6	SANDY CLAY: Yellowish-brown (10YR 6/4), dry, crumbly, hard, sand is less than 10 percent, PP=4.0 TSF
440			1.6-6.2	SILTY SAND: Light yellowish-brown (10YR 6/4), dry to damp, firm to hard, semi-plastic; thinly laminated. PP=3.5-4.5 TSF
	5	5-10		
435			6.2-8	SANDY CLAY: Light yellowish-brown (10YR 6/4) to yellowish-brown (10YR 5/8), dry to damp, stiff to hard; semi-plastic; thinly laminated.
			8-10	No Recovery
	10	10-15	10-18.5	SILTY SAND: Dark yellowish-brown (10YR 4/6), dry to damp becoming wet at 15.5 to 15.8 feet then dry to damp 15.8 to 18, stiff to hard; soft, friable; thinly bedded. @16.8 feet thin lens of rocks, sand is well sorted;. rootlets at 10.3 feet.
430				
	15	15-20		
425				
			18.5-20	No Recovery
	20			

STATE OF TEXAS 10/10/16 James R. Davidson Geology 10493 LICENSED PROFESSIONAL GEOSCIENTIST

ERM Environmental Resources Management

MW-19
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-19 Date Drilled 2016-05-17

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.40 ' Boring Diam. 9.00 "

N. Coord. 10507460.00 ' E. Coord. 3574645.00 ' Surface Elevation 440.94 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 25.00 ' Sump Length 0.40 '

Top of Casing Elevation 443.79 ' Stickup 2.85 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
420	20					20-25	20-34	SILTY SAND: Light olive-brown (2.5Y 5/3), damp becoming moist at 25 to 25.8 feet, damp 25.5 to 28 feet, damp to moist 28 to 30 feet, soft, friable, thinly bedded; some lenticular clay nodules from 30 to 34 feet.
415	25					25-30		
410	30					30-35		
405	35						34-35.4	No Recovery T.D. = 35.40 '
	40							

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ERM Environmental Resources Management

MW-20
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-20 Date Drilled 2016-05-17

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 39.40 ' Boring Diam. 9.00 "

N. Coord. 10507730.00 ' E. Coord. 3574995.00 ' Surface Elevation 442.12 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 29.00 ' Sump Length 0.40 '

Top of Casing Elevation 445.11 ' Stickup 2.99 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Driling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
442.12	0				0-5	0-0.7	SANDY CLAY: Mottled light yellowish-brown (10YR 5/4) and light brownish-gray (10YR 6/2), dry, firm, brittle; sand less than 10 percent, thinly laminated.
						0.7-1.6	SILTY SAND: Yellowish-brown (10YR 5/4), dry, soft, friable; sand is fine grained, subangular, silt approximately 10 percent.
440						1.6-4	SANDY CLAY: Mottled light yellowish-brown (10YR 5/4) and light brownish-gray (10YR 6/2), dry, firm to stiff, brittle; sand less than 10 percent, thinly laminated. PP=2.5-3.5 TSF
						4-5	No Recovery
	5				5-10	5-8.5	SANDY CLAY: Very dark brown (7.5YR 2.3/3), dry, hard, brittle. PP=4.5+TSF @6.8 feet becomes strong brown (7.5YR 4/6); @7.8 feet becomes light olive brown (2.5 Y 5/3) with some angular rock fragments.
435							
						8.5-10	No Recovery
	10				10-15	10-25	SILTY SAND: Light yellowish-brown (2.5Y 6/4) and light gray (2.5Y 7/2) interbedded, dry, friable, well sorted, silt approximately 10 percent. @13.1 feet possible cross-bedding with rip-up (clay) clasts. @17.8 becomes damp, silt content increases to approximately 30 percent.
430							
	15				15-20		
425							
	20						
	25						

STATE OF TEXAS
James R. Davidson
Geology
10493
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PROFESSIONAL GEOSCIENTIST
10/14/16

ERM Environmental Resources Management

MW-20
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-20 Date Drilled 2016-05-17

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 39.40 ' Boring Diam. 9.00 "

N. Coord. 10507730.00 ' E. Coord. 3574995.00 ' Surface Elevation 442.12 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 29.00 ' Sump Length 0.40 '

Top of Casing Elevation 445.11 ' Stickup 2.99 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Driling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
420	20					20-25		
415	25					25-30	25-39.4	SILTY SAND: Olive-brown (2.5Y 4/4), damp to wet (becomes wet at 30-30.8 and 35-35.5 feet), soft, friable. Thinly laminated clay lenses at 37.7 to 37.8 ft. and 38.8 to 39.1 ft., damp, brittle.
410	30					30-35		
405	35					35-39.4		
	40							T.D. = 39.40 '

STATE OF TEXAS 10/16/16 James R. Davidson Geology 10493 LICENSED PROFESSIONAL GEOSCIENTIST

ERM Environmental Resources Management

MW-21
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-21 Date Drilled 2016-05-18

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.40 ' Boring Diam. 9.00 "

N. Coord. 10508050.00 ' E. Coord. 3575406.00 ' Surface Elevation 443.46 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 25.00 ' Sump Length 0.40 '

Top of Casing Elevation 446.35 ' Stickup 2.89 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
443.46	0				0-5	0-0.8	SANDY CLAY: Mottled yellowish-brown (10YR 5/4) and yellowish-red (10 YR 4/6), dry, stiff, brittle. PP=3.5 TSF
						0.8-1.2	SILTY SAND: Strong brown (7.5 YR 5/6), dry, soft, friable, well sorted. Silt approx. 10 percent.
						1.2-2.9	SANDY CLAY: Dark yellowish-brown interlaminated with light brownish-gray (10YR 6/2), dry to damp, firm, semi-plastic. PP=2.5 TSF
440						2.9-8	SILTY SAND: Strong brown (7.5 YR 5/6) to yellowish-brown (10YR 4/4), dry, soft, friable, well sorted. Silt approx. 10 percent. @6.1 becomes dark brown (7.5YR 7/2).
	5				5-10		
435						8-10	No Recovery
	10				10-15	10-19.5	SILTY SAND: Mottled dark yellowish-brown (10YR 4/4) and gray (10YR 5/1)dry, soft, friable, silt content about 40 percent. @11.2 feet becomes yellowish-brown (10YR 5/6) interlaminated with gray (10YR 5/1); @13.1 feet silt content decreases to 10 percent.
430							
	15				15-20		
425						19.5-24.5	SILTY SAND: Yellowish-brown (10YR 5/4), moist, soft, friable, thinly bedded with well developed partings. @22.0 to 22.5 and 23.0 to 24.5 feet silt content increases to 40 percent.
	20						

STATE OF TEXAS 10/14/16 James R. Davidson Geology 10493 LICENSED PROFESSIONAL GEOSCIENTIST

ERM Environmental Resources Management

MW-21 DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-21 Date Drilled 2016-05-18

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.40 ' Boring Diam. 9.00 "

N. Coord. 10508050.00 ' E. Coord. 3575406.00 ' Surface Elevation 443.46 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 25.00 ' Sump Length 0.40 '

Top of Casing Elevation 446.35 ' Stickup 2.89 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	20					20-25		
420							24.5-31.4	SILTY SAND: Olive brown (2.5Y 4/5), moist, soft, friable, thinly bedded with well developed partings.
	25					25-30		
415								
	30					30-35.4		
							31.4-31.9	CLAY: Interlaminated with silty sand. Clay is black (7.5YR 2.5/1), damp, semi-plastic, soft. Silty sand is brown (10YR 4/3), damp, soft, friable.
							31.9-35.4	SILTY SAND: mottled yellowish brown (10YR 5/6) and light brownish-gray (10YR 6/2), damp becomes wet at 32.2 to 33 feet, laminated.
410								
	35							T.D. = 35.40 '
405								
	40							

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ERM Environmental Resources Management

MW-22
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-22 Date Drilled 2016-05-18

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.00 ' Boring Diam. 9.00 "

N. Coord. 10508270.00 ' E. Coord. 3575669.00 ' Surface Elevation 444.68 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 24.50 ' Sump Length 0.40 '

Top of Casing Elevation 447.59 ' Stickup 2.91 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
444.68	0				0-5	0-1.6	SILTY SAND: Strong brown (7.5YR 5/6), dry, soft, friable.
						1.6-3.5	SANDY CLAY: Interlaminated dark yellowish-brown (10YR 4/4) and light brownish-gray (10YR 6/2), damp, semi-plastic. PP=2.5 TSF
						3.5-5	No Recovery
440	5				5-10	5-7.5	SILTY SAND: Strong brown (7.5YR 5/6), dry, soft, friable.
						7.5-8.5	SANDY CLAY: Interlaminated dark yellowish-brown (10YR 4/4) and light brownish-gray (10YR 6/2), damp, semi-plastic.
						8.5-10	No Recovery
435	10				10-15	10-19	SILTY SAND: Interlaminated gray (7.5YR 6/1 and strong brown (7.5 YR 5/6), damp, loose, friable, well sorted, well developed partings. @11.0 to 11.6 bioturbation; @12.5 lenticular clay nodules (interclasts); @13.0 silt content increases to 40 percent.
430	15				15-20		
						19-24	SILTY SAND: Interlaminated silty sand and sandy clay. Silty sand as above. Sandy clay is strong brown, dry to damp, crumbly.
425	20						

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MW-22
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-22 Date Drilled 2016-05-18

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.00 ' Boring Diam. 9.00 "

N. Coord. 10508270.00 ' E. Coord. 3575669.00 ' Surface Elevation 444.68 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 24.50 ' Sump Length 0.40 '

Top of Casing Elevation 447.59 ' Stickup 2.91 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	20					20-25		
420	25					25-30	24-30	SILTY SAND: Brown, moist to wet, soft, friable, laminated. breaks along parting surfaces. Silt content approx. 10 percent. @25.7 feet, silt content increases to 40 percent. @28.1 silt content decreases to 10 percent.
415	30					30-35	30-31	SILTY SAND: Brown, moist to wet, soft, friable, laminated. breaks along parting surfaces. Silt content approx. 10 percent.
							31-31.8	SILTY SAND: Brown, moist to wet, soft, friable, laminated. breaks along parting surfaces. Silt content approx. 40 percent.
							31.8-35	SILTY SAND: Brown, damp to moist, soft, friable, laminated. breaks along parting surfaces. Silt content approx. 10 percent.
410	35							T.D. = 35.00 '
405	40							

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ERM Environmental Resources Management

MW-23
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-23 Date Drilled 2016-04-13

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 45.00 ' Boring Diam. 9.00 "

N. Coord. 10505630.00 ' E. Coord. 3571983.00 ' Surface Elevation 434.36 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 30.00 ' Sump Length 0.40 '

Top of Casing Elevation 437.25 ' Stickup 2.89 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
434.36	0				0-5	0-0.5 0.5-10.6	GRAVEL: Roadbase - crushed limestone with silt matrix. greenish-gray (Gley 1/6/10Y). SANDY CLAY: Fill Material - Light yellowish- brown (10YR 6/4), dry, thinly laminated, brittle. PP =1.0 TSF
430	5				5-10		
425	10				10-15	10.6-10.61 10.61-17.5	LIGNITE: Black organic plant material consisting of decaying rootlets and grass. SANDY CLAY: Dark red (2.5 YR 3/6), dry, firm to stiff, rootlets at 13.4 ft., becomes thinly bedded at 14.3 ft. Sharp basal contact.
420	15				15-20		
415	20					17.5-27.4	SILTY SAND: Very dark grayish-brown (10YR 3/2) grading down to light gray (10YR 7/1), soft, friable; thinly bedded, sand is fine grained, well sorted, subangular to angular. @23.1 becomes mottled with dark yellowish-brown.

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ERM Environmental Resources Management

MW-23
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-23 Date Drilled 2016-04-13

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 45.00 ' Boring Diam. 9.00 "

N. Coord. 10505630.00 ' E. Coord. 3571983.00 ' Surface Elevation 434.36 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 30.00 ' Sump Length 0.40 '

Top of Casing Elevation 437.25 ' Stickup 2.89 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

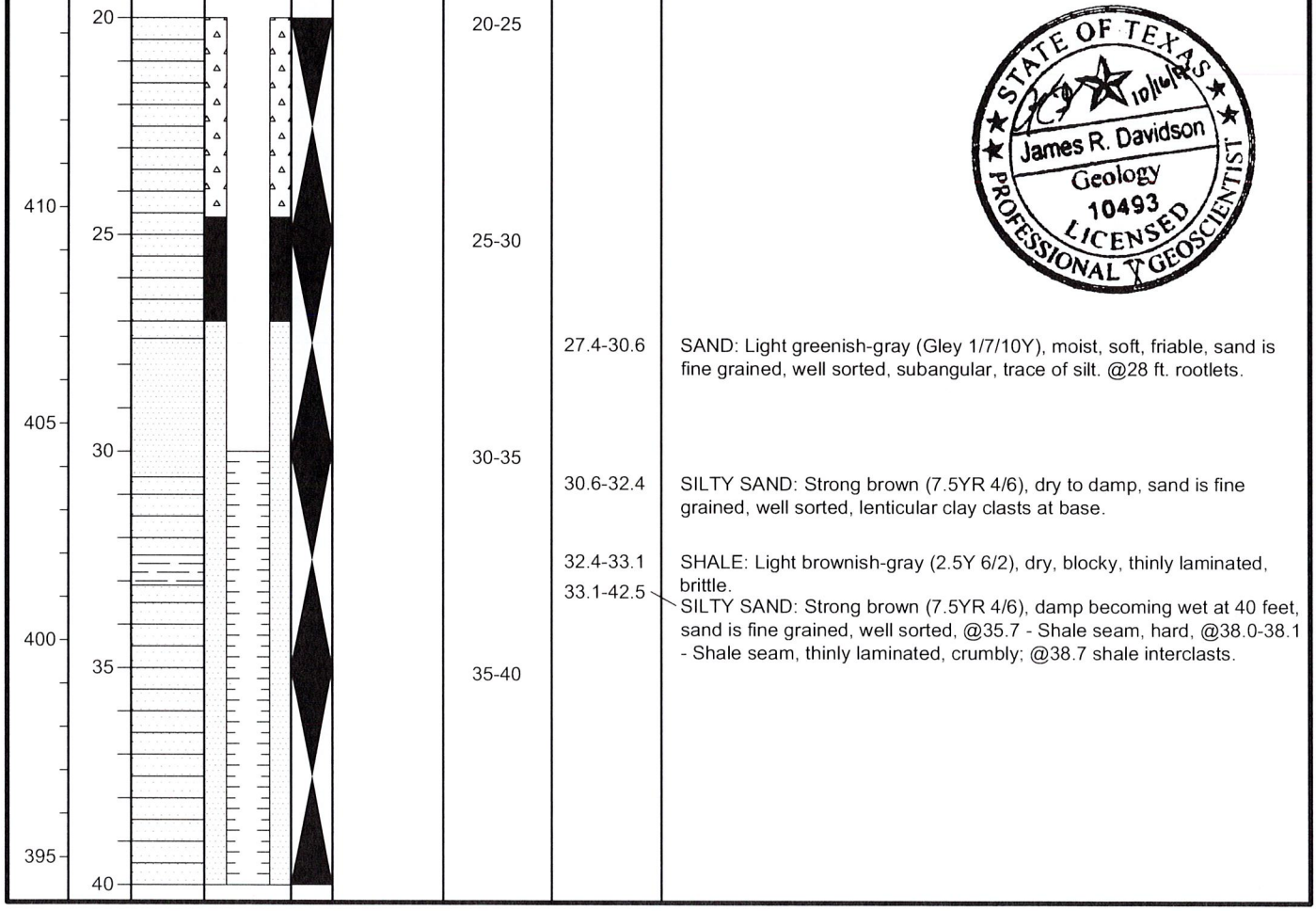
Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer



ERM Environmental Resources Management

MW-23
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-23 Date Drilled 2016-04-13

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 45.00 ' Boring Diam. 9.00 "

N. Coord. 10505630.00 ' E. Coord. 3571983.00 ' Surface Elevation 434.36 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 30.00 ' Sump Length 0.40 '

Top of Casing Elevation 437.25 ' Stickup 2.89 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	40					40-45		
							42.5-43.3	SHALE: Light brownish-gray (2.5Y 6/2), dry, blocky, thinly laminated, brittle.
							43.3-45	Silty Sand
390	45							T.D. = 45.00 '
385	50							
380	55							
375	60							

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10/14/16

ERM Environmental Resources Management

MW-28 DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-28 Date Drilled 2016-04-14

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 70.00' Boring Diam. 9.00 "

N. Coord. 10511130.00 ' E. Coord. 3573967.00 ' Surface Elevation 474.57 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 50.00 ' Sump Length 0.40 '

Top of Casing Elevation 477.52 ' Stickup 2.95 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Don Whitley

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
474.57	0					0-5	0-5	NOT SAMPLED: Hydrovac
470	5					5-10	5-18	SANDY CLAY: 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly laminated, damp, semi- to non-plastic, 2.0-2.5 TSF, sand approx. 30 %: fine grained, subangular. @ 10 ft, sand content decreases to approx. 10%, breaks along laminae.
465	10					10-15		
460	15					15-20		
							18-18.4	CLAYEY SAND: 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly bedded, fine grained, uncemented, cohesive, well sorted, subangular, clay approx. 40% - dry, damp.
455	20						18.4-22.5	SANDY CLAY: 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly laminated, damp, semi- to non-plastic, 2.0-2.5 TSF, sand approx. 30% - fine grained, subangular, lenticular pockets of sand - fine grained, subangular, 7.5YR/5/8 strong brown.

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ERM Environmental Resources Management

MW-28 DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-28 Date Drilled 2016-04-14

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 70.00' Boring Diam. 9.00 "

N. Coord. 10511130.00 ' E. Coord. 3573967.00 ' Surface Elevation 474.57 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 50.00 ' Sump Length 0.40 '

Top of Casing Elevation 477.52 ' Stickup 2.95 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Don Whitley

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	20				20-25		
						22.5-25	No Recovery
450	25				25-30	25-25.8	SILTY SAND: Gley 1/7/10Y Light Greenish Gray, fine grained, subangular to subrounded, uncemented, well sorted, damp to moist, cohesive, silt approx. 10%
						25.8-27.3	SANDY CLAY: 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly laminated, damp, semi- to non-plastic, 2.0-2.5 TSF, sand approx. 30% - fine grained, subangular, lenticular pockets of sand - fine grained, subangular, 7.5YR/5/8 strong brown.
						27.3-28.5	SILTY SAND: Gley 1/7/10Y Light Greenish Gray, fine grained, subangular to subrounded, uncemented, well sorted, dry to damp, cohesive, silt approx. 10%
445	30				30-35	28.5-30	SANDY CLAY: 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly laminated, damp, semi- to non-plastic, 2.0-2.5 TSF, sand approx. 30% - fine grained, subangular, lenticular pockets of sand - fine grained, subangular, 7.5YR/5/8 strong brown.
						30-32.5	INTERBEDDED CLAY AND SAND: Silty Sand - 30-30.3 ft, 31.2-31.4 ft, 32.2-32.4 ft. - Gley 1/7/10Y Light Greenish Gray, fine grained, subangular to subrounded, uncemented, well sorted, damp to moist, cohesive, silt approx. 10%. Sandy Clay - 30.3-31.2 ft, 31.4-32.2 ft, 32.4-32.5 ft. - 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly laminated, damp, semi- to non-plastic, 2.0-2.5 TSF, sand approx. 30% - fine grained, subangular, lenticular pockets of sand - fine grained, subangular, 7.5YR/5/8 strong brown.
						32.5-35	No Recovery
440	35				35-40	35-40	INTERBEDDED CLAY AND SAND: Thinly bedded, alternating Silty Sand and Shale. Silty Sand - 7.5YR/5/8 Strong brown, fine grained, uncemented, well sorted, subangular, dry to damp. Shale - 7.5YR/5/1 Gray, non-plastic, dry, 2.0 TSF, trace sand.
435	40						

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ERM Environmental Resources Management

MW-28
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-28 Date Drilled 2016-04-14

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 70.00' Boring Diam. 9.00 "

N. Coord. 10511130.00 ' E. Coord. 3573967.00 ' Surface Elevation 474.57 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 50.00 ' Sump Length 0.40 '

Top of Casing Elevation 477.52 ' Stickup 2.95 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Don Whitley

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	40				40-45	40-45	INTERBEDDED CLAY AND SAND: Shale - 40-40.4 ft, 40.8-41.1 ft, 41.4-43.8 ft, 44.2-45 ft. - non-plastic, thinly laminated, breaks along laminae, trace sand. Silty Sand - 40.4-40.8 ft, 41.1-41.4 ft, 43.8-44.2 ft. - 7.5YR/5/8 Strong brown, fine grained, uncemented, subangular, well sorted, damp to moist.
430	45				45-50	45-50	INTERBEDDED CLAY AND SAND: Thinly bedded, alternating Silty Sand and Shale. Silty Sand - 7.5YR/6/1 Gray, fine grained, uncemented, subangular, well sorted, dry to damp. Shale - Gley 1/2.5/10Y Greenish Black, non-plastic, dry, trace sand.
425	50				50-55	50-56.6	SHALE: Gley 1/2.5/10Y Greenish Black, non-plastic, dry to damp, thinly laminated, breaks along laminae, trace sand, has thin beds of fine grained sand throughout. @ 52.9-53.2 Silty Sand seam - 7.5YR/4/3 Brown, fine grained, uncemented, subangular, wet.
420	55				55-60		
						56.6-57.1	SILTY SAND: 7.5YR/4/2 Brown, fine grained, uncemented, subangular, wet to saturated
						57.1-58.5	SHALE: Gley 1/2.5/10Y Greenish Black, non-plastic, dry to damp, thinly laminated, breaks along laminae, trace sand, has thin beds of fine grained sand throughout
415	60					58.5-60	No Recovery

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ERM Environmental Resources Management

MW-28
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-28 Date Drilled 2016-04-14

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 70.00' Boring Diam. 9.00 "

N. Coord. 10511130.00 ' E. Coord. 3573967.00 ' Surface Elevation 474.57 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 50.00 ' Sump Length 0.40 '

Top of Casing Elevation 477.52 ' Stickup 2.95 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

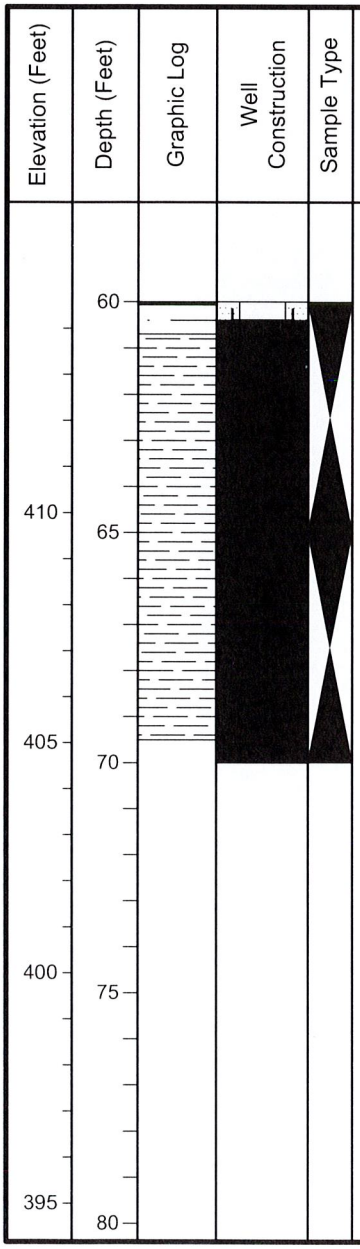
Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Don Whitley

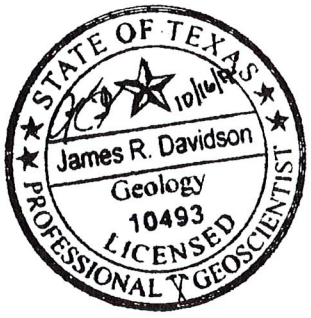
SKETCH MAP

NOTES

PP = Pocket Penetrometer



Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
60-65	60-60.7 60.7-69.5	INTERBEDDED CLAY AND SAND: Thinly alternating Silty Sand and Shale. Silty Sand - 7.5YR/6/1 Gray, fine grained, uncemented, subangular, well sorted, dry to damp. Shale - Gley 1/2.5/10Y Greenish Black, non-plastic, dry, trace sand. SHALE: Gley 1/2.5/10Y Greenish Black, non-plastic, dry to damp, thinly laminated, breaks along laminae, trace sand, has thin beds of fine grained sand throughout. @ 61.5-61.7 - Silty Sand lense, 7.5YR/4/2 Brown
65-70		
		T.D. = 70.00'



ESPEY, HUSTON & ASSOCIATES, INC.
ENGINEERING & ENVIRONMENTAL CONSULTANTS

HOLE NO. MW-1

DRILLING LOG

HOLE NO.	MW-1
LOCATION	Limestone Electric Generating Station
GROUND ELEV.	±418.06'
DRILL ANGLE	0°
COLLAR ELEV.	None
DRILL DIRECTION	Vertical
TOTAL DEPTH	60'
STARTED	10/1/86
ELEV. DATUM	Surface
COMPLETED	10/1/86

	DEPTH	DATE	TIME
FIRST FREE WATER			
BAILED WATER LEVEL			
STATIC WATER LEVEL	4.88	10/7/86	1635

PROJECT NO.	8754
SHEET	1 OF 1
PROJECT/SITE	Houston Lighting & Power
GEO/ENG.	Clyde Smith
CONTRACTOR	Reed & Morris
DRILLER	Ray Reed
RIG MODEL	CFD-1
HOLE TYPE	Rotary
HOLE DIAMETER	5"
DRILL FLUID	H_2O

TESTS	SAMPLES	COMPLETION

ELEV.	DEPTH	LEGEND	CLASSIFICATION/DESCRIPTION	RECOV.	SAMPLES	DRILLING REMARKS
	5		Brown sand and clay			
	10		Light gray, fine grained sand with minor amounts gray clay and ironstone			
	15					
	20					
	25		Gray silty clay			
	30					
	35		Interbedded brown to tan sand and gray clay			
	40		- very lignitic 39-41'			
	45		Fine gray sand with thin interbeds of gray clay			
	50					
	55		Gray clay			
	60		T.D. at 60'			

Alternative Source Demonstration

Limestone Electric Generating Station
Landfill (Unit 004)

New Coal Combustion Residuals (CCR) Registration No. CCR115
Industrial Solid Waste Registration No. 32490
EPA Identification No. TXD000837336
RN100542927/CN603207218

August 2022

Prepared For
NRG Texas Power, LLC
Jewett, Texas

Gregory E. Tieman, L.R.S.
Senior Client Service Manager

Tony Dworaczyk, P.G.
Project Manager

14701 St. Mary's Lane, Suite 500, Houston, TX 77079, ● 713.244.1073 Phone ● www.TRCcompanies.com

Table of Contents

List of Figures

Attachments

Executive Summary

The NRG Texas Power, LLC (NRG) Limestone Electric Generating Station (Station) is located approximately seven miles northwest of Jewett, Texas and approximately 0.5 miles north of the intersection of Limestone, Freestone, and Leon Counties. Units managing coal combustion residuals (CCR) at the Station are subject to the requirements of 30 Texas Administrative Code (TAC) Chapter 352. CCR generated at the Station consists of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge. The Station has one active CCR unit, the Landfill (Unit 004), that is managed pursuant to 30 TAC Chapter 352, which is the subject of this Alternative Source Demonstration (ASD).

The tenth semi-annual groundwater detection monitoring event was conducted on April 7, 2022. Statistical evaluation of the Appendix III monitoring parameters was performed within 60 days of sample collection to identify apparent statistically significant increases (SSIs) above background pursuant to 30 TAC 352 Subpart H. One apparent SSI: boron; was identified. NRG notified the Texas Commission on Environmental Quality (TCEQ) of its intent to prepare an ASD on June 13, 2022.

As previously described in the ASD for the third semi-annual detection monitoring event, persistent, unresolvable issues with data quality necessitated establishment of a new background water quality data set. The new background water quality data set was developed for both Appendix III and Appendix IV CCR constituents collected quarterly from the second half 2019 (July) through the second half 2021 (April). The April 2022 semi-annual detection monitoring event analytical results are the second data set statistically evaluated using the new background water quality data set.

This ASD successfully identified alternative sources for the apparent SSI at the Landfill, based on the following lines of reasoning:

- Numerous historical and active natural gas wells and their associated well pads and surface pits are located immediately surrounding and within the footprint of the Landfill. Well pits associated with the natural gas wells contribute spent completion or workover fluids to groundwater that contain constituents that are also CCR Rule Appendix III detection monitoring constituents;
- As shown on the boring logs for the Landfill CCR groundwater monitoring network, lignite and shale seams that contain trace amounts of boron are present at the Landfill and several monitor wells were installed into and screened across these seams;
- The Jewett lignite surface mine is located approximately 1.5 south of the Landfill; and
- Natural variations in groundwater geochemistry likely related to changes in pH, ion exchanges, electrical conductivity (EC), and/or salinity.

Therefore, NRG will continue performing semi-annual detection monitoring for the Landfill per 30 TAC Chapter 352.

Section 1
Introduction

1.1 Background

The NRG Texas Power, LLC (NRG) Limestone Electric Generating Station (Station) is located approximately seven miles northwest of Jewett, Texas and approximately 0.5 miles north of the intersection of Limestone, Freestone, and Leon Counties. The Station is bisected by Farm-to-Market Road 39 (FM 39), which runs north-south through the middle of the Station. The western portion of the Station is located in Limestone County and includes the electricity generating portion of the Station. The eastern portion of the Station is located in Freestone County and includes the solid waste disposal area (SWDA).

Management of coal combustion residuals (CCR) at the Station is performed pursuant to 30 Texas Administrative Code (TAC) Chapter 352, which became effective during June 2021. Prior to this, management of CCR was performed pursuant to the United States Environmental Protection Agency (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 Phase 1, Part1 final rule (July 30, 2018). CCR generated at the Station consist of fly ash, bottom ash, and flue gas desulfurization (FGD) scrubber sludge, which have been classified by the TCEQ as Class II nonhazardous waste. The Station has one active CCR-management unit – Landfill (Unit 004).

The Landfill is located within the eastern portion of the Station as shown on Figure 1. The Landfill was constructed in 1980 and is used for the final disposition of CCR. The western half of the Landfill has reached capacity and historically had been closed and capped prior to the effective date of the CCR Rule (October 19, 2015). CCR is currently being placed at the southern part of the eastern portion of the Landfill.

1.1.1 Groundwater Monitoring Program

The certified CCR monitoring well network for the Landfill consists of two upgradient background monitoring wells (MW-27R and MW-28) and eight downgradient monitoring wells (MW-1, MW-2, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22). A groundwater potentiometric surface map was prepared by TRC for the October 2021 semiannual detection monitoring event and is provided in this ASD as Figure 2. The direction of groundwater flow beneath the Landfill was to the south - southwest.

On behalf of NRG, Environmental Resources Management, Inc. (ERM) conducted eight independent background groundwater detection monitoring events for both the Appendix III and IV CCR constituents between April 2015 and August 2017 per §257.94(b) of the federal CCR Rule and the first semi-annual

detection monitoring event in October 2017. Results of the eight background and first semi-annual detection monitoring events were documented in the *Annual Groundwater Monitoring Report, Landfill (Unit 004)* (ERM 2018a) pursuant to §257.90(e).

The Station has continued to conduct semi-annual detection monitoring at the Landfill per the federal CCR Rule and 30 TAC Chapter 352. As of the April 2022 sampling event, a total of 10 semi-annual detection monitoring events have now been performed. Following each semi-annual detection monitoring sampling event, the results have been evaluated for potential SSIs, and ASDs have been prepared as needed. Since implementation of 30 TAC Chapter 352, the ASDs have been submitted to TCEQ for review and approval. The semi-annual detection monitoring activities and ASDs have been included in the Annual Groundwater Monitoring and Corrective Action reports, which have been placed into the Facility Operating Record (FOR) and posted to NRG's publicly accessible website.

As previously described in the ASD for the third semi-annual detection monitoring event, persistent, unresolvable issues with data quality necessitated establishment of a new background water quality data set. The new background water quality data set was developed for both Appendix III and Appendix IV CCR constituents collected quarterly from the third half 2019 (July) through the second half 2021 (April). The April 2022 semi-annual detection monitoring event analytical results, including the May 20, 2022 verification sampling results, are the second data set statistically evaluated using the new background water quality data set.

1.2 Purpose

TRC prepared this ASD to evaluate one apparent SSI above background levels for the tenth semi-annual detection monitoring event in accordance with 30 TAC Chapter 352.

Section 2
Site Geology and Hydrogeology

This section provides information about the geology and hydrogeology of the Station and the area at and surrounding the Landfill.

2.1 Hydrogeology

Based on the *Geologic Atlas of Texas, Waco Sheet* (BEG 1972), the Station is primarily located within the outcrop of the Calvert Bluff Formation of the Wilcox Group. Minor portions of the southeast corner of the Station are located within the outcrop of the Carrizo Sand and minor portions of the southwest corner of the Station are immediately underlain by alluvium. The Calvert Bluff Formation underlies both the Carrizo Sand and alluvium where present.

The Landfill is located solely within the outcrop of the Calvert Bluff Formation (BEG 1972); however, site investigation data indicate the Landfill may also be located within the outcrop of the Carrizo Sand. The Calvert Bluff Formation consists mostly of mudstone interbedded with fine sandstone, lignite, and ironstone concretions. The mudstone contains silt and very fine sand laminae. The Carrizo Sand consists of very fine sand with partings of silty clay, carbonaceous clay, and ironstone. The Carrizo Sand and the Wilcox Group comprise the Carrizo-Wilcox aquifer, which is recognized by the Texas Water Development Board (TWDB) as a major aquifer system in Texas. The Station is located within the outcrop, or the recharge zone, of the Carrizo-Wilcox aquifer (TWDB 2011).

Site investigations were conducted at the Station by Espey, Huston & Associated in 1986; Radian International in 1996 and 1997; EPRI in 2007, and Environmental Resources Management, Inc. (ERM) in 2016. The results of these investigations were summarized in the October 2017 *Ground Water Monitoring Networks for Coal Combustion Residual (CCR) Rule Compliance* report (ERM 2017b). Surficial material at the Landfill consists of in-situ or reworked clay from the Axtell-Tabor soil association. This clay is the source material for the Landfill liner and cap. Boring logs indicate the surficial material is underlain by interbedded clays, silts, and sands of the Quaternary alluvium, Carrizo Sand, and Calvert Bluff Formation. The boundaries between these units are generally indistinguishable.

2.2 Surrounding Area

2.2.1 Oil and Gas Production Wells

The Station and surrounding vicinity are densely populated with historical and current oil and gas activities consisting primarily of the installation and operation of natural gas production wells. Numerous active natural gas wells and their associated well pads, surface pits, subsurface pipelines, and

infrastructure are located immediately surrounding and within the footprint of the Landfill. Figure 3 is a Mid-East Texas Groundwater Conservation District (METGCD) well map showing the locations of wells in the vicinity of the Landfill. The map is limited to Freestone and Leon counties and does not show wells in Limestone County immediately west of the Landfill. This figure demonstrates the extent to which non-CCR sources of constituents to groundwater pervade the vicinity of the Landfill.

Surface well pits typically contain spent completion fluids or workover fluids. Completion or workover fluids are often brine-containing liquids that are used for well testing and are chemically compatible with the formation fluids; and the spent fluids contained in the pits would have come into contact with formation fluids. According to the United States Geological Survey (USGS) National Produced Waters Geochemical Database, water co-produced with hydrocarbons (referred to as "produced water" or "formation water") from geologic formations underlying the Site has the following composition (USGS 2018):

- pH ranging from 4.67 standard units (SU) to 5.6 SU;
- Calcium ranging from 12,560 milligrams per liter (mg/L) to 33,520 mg/L;
- Chloride ranging from 56,980 mg/L to 96,200 mg/L;
- Sulfate ranging from 480 mg/L to 1,790 mg/L; and
- Total dissolved solids (TDS) ranging from 98,330 mg/L to 152,970 mg/L.

Considering the composition of the formation water with which the completion or workover fluids came into contact and the typical brine composition of these fluids, potential releases of these fluids would be expected to affect groundwater quality within the immediate vicinity and downgradient of the natural gas well pads and surface pits. Even minor releases of these fluids could increase the concentrations of calcium, chloride, sulfate, and TDS and decrease the pH in the nearby Landfill upgradient and downgradient monitoring wells.

2.2.2 Lignite Mine

Approximately 1.5 miles south of the Landfill is the Jewett lignite mine. The Jewett Mine is a 35,000-acre surface-mine complex. The mine, which is one of the largest in Texas, produced about 5.3 million short tons of lignite per year, according to the U.S. Department of Energy (USDOE). The 31-year-old mine provided lignite for combustion at the Station. In 2018, NRG decided to close the mine and are in the process of performing reclamation.

In 2020, the Jewett Mine had four final pits containing water ranging from approximately 340 million to 1.5 billion gallons. The estimated volumes remaining in the pits in 2020 were as follows:

- E-South Final Pit: 342,000,000 gallons;
- RP-D9 Final Pit: 403,000,000 gallons;

- B-North Final Pit: 375,000,000 gallons; and
- BX Final Pit: 1,290,000,000 gallons.

The pits can have depths greater than 100 feet. The groundwater potentiometric surface is generally understood to be above the bottom of the pits. Multiple seams of lignite at varying depths below the ground surface were removed from these pits during mining.

According to the U.S Department of Energy, Office of Scientific and Technical Information*, Trace elements in Texas Lignite*, 1983, during coal mining and utilization, trace elements are released into the environment. Certain of these elements may have beneficial or neutral effects while other trace elements are potentially harmful. On a national basis, nine of these elements: antimony, arsenic, boron, cadmium, germanium, mercury, molybdenum, selenium, and silver; are commonly found in concentrations greater than the levels present in typical crustal rocks. Because of the conditions under which Gulf Coast lignites were deposited and the nature of lignites in general, the modes of occurrence and concentrations of trace elements in Texas lignites are different from coals found elsewhere in the United States. Based on a limited data set of 38 lignite samples from Arkansas, Mississippi, and Alabama compiled in 1975, Gulf Coast lignites were identified as having higher levels of boron, lanthanum, lead, selenium, uranium, yttrium, and zirconium than other US coal regions.

2.2.3 Lignite/Shale Seams in Monitoring Wells

A review of the boring logs for the Landfill monitoring network identified lignite seams and shale starting at around 37 feet below ground surface (bgs) in some of the borings. As noted on the boring logs in Attachment 1, monitor wells were completed across these lignite and shale seams. Although lignite seams and shale are not noted in all of the borings for the monitoring network, the presences of these minerals in the subsurface would have an effect on groundwater quality for the region.

As noted above, lignite contains trace elements that are released into the environment, which include boron. As presented in the Geological Survey Bulletin 1314-A, *Geochemical Investigations of Some Black Shales and Associated Rocks,* trace elements of *boron*, barium, gallium, and strontium are found in the upper cretaceous shales of Texas. The following section discusses the geochemistry of the groundwater in the area.

2.3 Groundwater Geochemistry and Boron in Groundwater

Boron is normally considered to be a minor constituent in groundwater since it is generally present in low concentrations (Palmucci & Rusi, 2014). Apart from a potential boron source area, the primary origin of boron in groundwater is typically associated with the processes of sorption and desorption from mineral surfaces including soil and bedrock (Ravenscroft & McArthur, 2004). Boron is often cited

as a contaminant trace chemical and usually occurs as a non-ionized form as H_3BO_3 in soils at pH <8.5, but above this pH, it exists as an anion, $B(OH)_4^-$ (Upadhyaya et al., 2014).

The factors that may influence the concentration of boron in groundwater include weathering, human activity, evaporative concentration, ion-exchange, EC, and pH. Ravenscroft & McArthur (2004) investigated the mechanism of regional boron enrichment in groundwater and the results indicated that the main process resulting in boron enrichment in groundwater was flushing by fresh groundwater. The desorption of boron from mineral surfaces could be affected by pH, ionic strength, salinity, and the HCO_3/CO_3 ratio. Decreases in pH will increase the dissolution of boron from the mineral surfaces. Boron adsorption favors high pH and boron desorption favors low pH in rocks, soils, and organic matters (Hollis et al., 1988; Keren & Communar, 2009; Tabelin et al., 2014).

Additional investigations confirmed that the presence of boron in groundwater depends on the EC (salinity), such that the concentration of boron increases with increasing EC. Halim et al. (2010) reported that the increae in Cl^- contributes to an increase in EC value since a strong linear correlation (R^2 = 0.88) between EC and Cl^- was observed. Palmucci & Rusi (2014) observed a clear correlation between elevated concentrations of boron and the chloride-sodium facies, which are characterized by high saline content, negative redox potential, and low value of the SO_4^{2-}/Cl^- ratio. Rodriguez-Espinosa et al. (2020) determined that the concentration of boron in groundwater was related to SO_4^{2-} and the age affect.

Regarding concentrations of boron in groundwater at the Landfill, the source of boron is more likely natural rather than anthropogenic. Therefore, the increase in concentration of boron at MW-21 may be related to natural variations in groundwater geochemistry related to pH, ion exchanges, EC, and salinity.

Section 3
Alternative Source Demonstration

The tenth semi-annual detection monitoring event was conducted on April 7, 2022 per 30 TAC Chapter 352. Statistical evaluation of the results (comparison of downgradient monitoring results to 95 percent confidence/95 percent coverage upper tolerance limits [UTLs]) was performed within 60 days of sample collection to identify apparent SSIs above background pursuant to 30 TAC 352, Subpart H. One apparent SSI was identified: boron.

The UTLs and sampling results for the for the apparent SSI are provided in Table 1 below.

Table 1 SSI – April 2022 Semi-annual Detection Monitoring Event

ANALYTE	WELL	LTL	UTL	SAMPLE DATE	VALUE	UNIT
Boron	MW-21 (DG)	NA	0.44	04/07/2022	0.754	mg/L

Notes: DG = Downgradient
mg/L = milligrams per Liter

Alternative sources for the apparent SSI encompass a range of apparent lines of reasoning and include the following non-CCR sources located in the vicinity of the Landfill:

- As presented in Section 2, the Station and surrounding vicinity are densely populated with historical and current oil and gas activities consisting primarily of natural gas production wells;
- Monitor wells were completed into and screened across both lignite and shale seams that are a source of trace elements such as boron; and
- A lignite mine is located immediately south of the Landfill and mining operations can impact the groundwater quality and pH of groundwater over a long period of time.

Acidity is transported from a mine in groundwater or by surface water runoff that can then infiltrate into groundwater. Through migration, such groundwater can impact groundwater quality at and in the vicinity of the Landfill. During the course of historical detection monitoring at the Landfill, the pH of groundwater at MW-21 has remained within the range of 5.0 to 5.6 S.U. As discussed in Section 2.2, low pH (< 6) conditions are favorable for the dissolution of boron from mineral surfaces in the soil and bedrock.

In summary, the apparent boron SSI in MW-21 for the ninth semi-annual detection monitoring event is most likely related to other non-CCR off-site sources (oil and gas activities or the historic lignite mine), the apparent presence of lignite seams withing the screened portion of monitor wells, or natural variations in groundwater geochemistry (acidic pH conditions) rather than a release to groundwater from the Landfill.

Section 4
Conclusions

Based on statistical evaluation of the April 7, 2022 semi-annual detection monitoring event analytical results, one apparent SSI: boron; was identified for the Landfill. This ASD has identified the following lines of reasoning that support alternative sources for the apparent SSI:

- Numerous historical and active natural gas wells and their associated well pads and surface pits are located immediately surrounding and within the footprint of the Landfill. Well pits associated with the natural gas wells contribute spent completion or workover fluids to groundwater that contain constituents that are also CCR Rule Appendix III detection monitoring constituents;
- As shown on the boring logs for the Landfill CCR groundwater monitoring network, lignite and shale seams that contain trace amounts of boron are present at the Landfill and several monitor wells were installed into and screened across these seams;
- The Jewett lignite surface mine is located approximately 1.5 south of the Landfill; and
- Natural variations in groundwater geochemistry likely related to changes in pH, ion exchanges, EC, and/or salinity.

Therefore, based on the lines of reasoning presented in this ASD, alternative sources and/or natural variations in groundwater geochemistry, rather than a release from the Landfill have been shown to likely be responsible for the apparent SSI observed. Based on this successful ASD, NRG will continue semi-annual detection monitoring for the Landfill per 30 TAC Chapter 352.

Section 5
References

BEG 1972. *Geologic Atlas of Texas, Waco Sheet*. The University of Texas at Austin, Bureau of Economic Geology. Reprinted 1972.

Halim, M. A., Majumder, R. K., Nessa, S. A., Hiroshiro, Y., Sasaki, K., Saha, B. B., Saepuloh, A., & Jinno, K., 2010. Evaluation of processes controlling the geochemical constituents in deep groundwater in Bangladesh: Spatial variability on arsenic and boron enrichment. *Journal of Hazardous Materials*, *180*(1–3), 50–62. https://doi.org/10.1016/J.JHAZMAT.2010.01.008.

Hollis, J. F., Keren, R., & Gal, M., 1988. Boron Release and Sorption by Fly Ash as Affected by pH and Particle Size. *Journal of Environmental Quality*, *17*(2), 181–184. https://doi.org/10.2134/JEQ1988.00472425001700020002X.

Keren, R., & Communar, G., 2009. Boron Sorption on Wastewater Dissolved Organic Matter: pH Effect. *Soil Science Society of America Journal*, *73*(6), 2021–2025. https://doi.org/10.2136/SSSAJ2008.0381.

Mid-East Texas Groundwater Conservation District (METGCD), 2019. GIS Data Portal. Available at: https://metgcd.halff.com/Map/Public. Accessed July 2, 2019.

Palmucci, W., & Rusi, S. (2014). Boron-rich groundwater in Central Eastern Italy: a hydrogeochemical and statistical approach to define origin and distribution. *Environmental Earth Sciences*, *72*(12), 5139–5157. https://doi.org/10.1007/s12665-014-3384-5.

Ravenscroft, P., & McArthur, J. M., 2004. Mechanism of regional enrichment of groundwater by boron: the examples of Bangladesh and Michigan, USA. *Applied Geochemistry*, *19*(9), 1413–1430. https://doi.org/10.1016/J.APGEOCHEM.2003.10.014.

Tabelin, C. B., Hashimoto, A., Igarashi, T., & Yoneda, T., 2014. Leaching of boron, arsenic and selenium from sedimentary rocks: II. pH dependence, speciation and mechanisms of release. *Science of The Total Environment*, *473–474*, 244–253. https://doi.org/10.1016/J.SCITOTENV.2013.12.029.

TRC 2018b. *Statistical Methods Certification – Limestone Electric Generating Station*. TRC, August 2018.

TRC 2019a. *2018 Annual Groundwater Monitoring and Corrective Action Report – Limestone Electric Generating Station*. TRC, January 2019.

TRC 2019b. Technical Memorandum on Laboratory Quality Issues. TRC, April 24, 2019.

TRC 2019c. Technical Memorandum on Laboratory Change for CCR Sampling Events. TRC, July 19, 2019.

TWDB, 1990. *Aquifers of Texas*. Texas Water Development Board Report 380. Peter George, et al. July 2011.

Upadhyaya, D., Survaiya, M. D., Basha, S., Mandal, S. K., Thorat, R. B., Haldar, S., Goel, S., Dave, H., Baxi, K., Trivedi, R. H., & Mody, K. H., 2014. Occurrence and distribution of selected heavy metals and boron in groundwater of the Gulf of Khambhat region, Gujarat, India. *Environmental Science and Pollution Research*, *21*(5), 3880–3890. https://doi.org/10.1007/s11356-013-2376-4.

United States Department of Energy, Office of Scientific and Technical Information, 1983. Trace elements in Texas Lignite.

United States Environmental Protection Agency, 2008. Drinking Water Health Advisory For Boron. *Office of Water U.S. Environmental Protection Agency Washington, DC*, *822-R-08–0*. https://www.epa.gov/environmental-topics/water-topics.

United States Geological Survey, 2018. National Produced Waters Geochemical Database, USGS IDs 99922 through 99929. United State Geological Survey. Accessed on July 16, 2018.

Figures

PROJECT:
NRG TEXAS POWER, LLC
Limestone Electric Generating Station
Jewett, Texas

TITLE:
Site Map

DRAWN BY:	O. Fonseka	PROJECT No.:	298367.2002.0000
CHECKED BY:	R. Varnell		**FIGURE 1**
APPROVED BY:	R. Varnell		
DATE:	January 2021		

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

FILE: Fig 2 - NRG-LimestoneStation - Landfill_Adjusted.dwg

HOU D:\Users\SRay\Downloads\ Fig 2 - NRG-LimestoneStation - Landfill_Adjusted.dwg 01/07/21

LEGEND

- MONITORING WELL LOCATION
- LANDFILL BACKGROUND CCR MONITORING WELL LOCATION
- LANDFILL CCR MONITORING WELL LOCATION
- ***418.73*** GROUNDWATER ELEVATION (FT MSL)
- ***NM*** NOT MEASURED
- GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FT MSL)

STATE OF TEXAS
ANTHONY DWORACZYK
GEOLOGY
2658
LICENSED
PROFESSIONAL GEOSCIENTIST

9-2-22

NOTE:
GROUNDWATER ELEVATIONS MEASURED BY HMI ON APRIL 2022

0 650 1,300 FT

1 " = 647 '
1:7,764

N

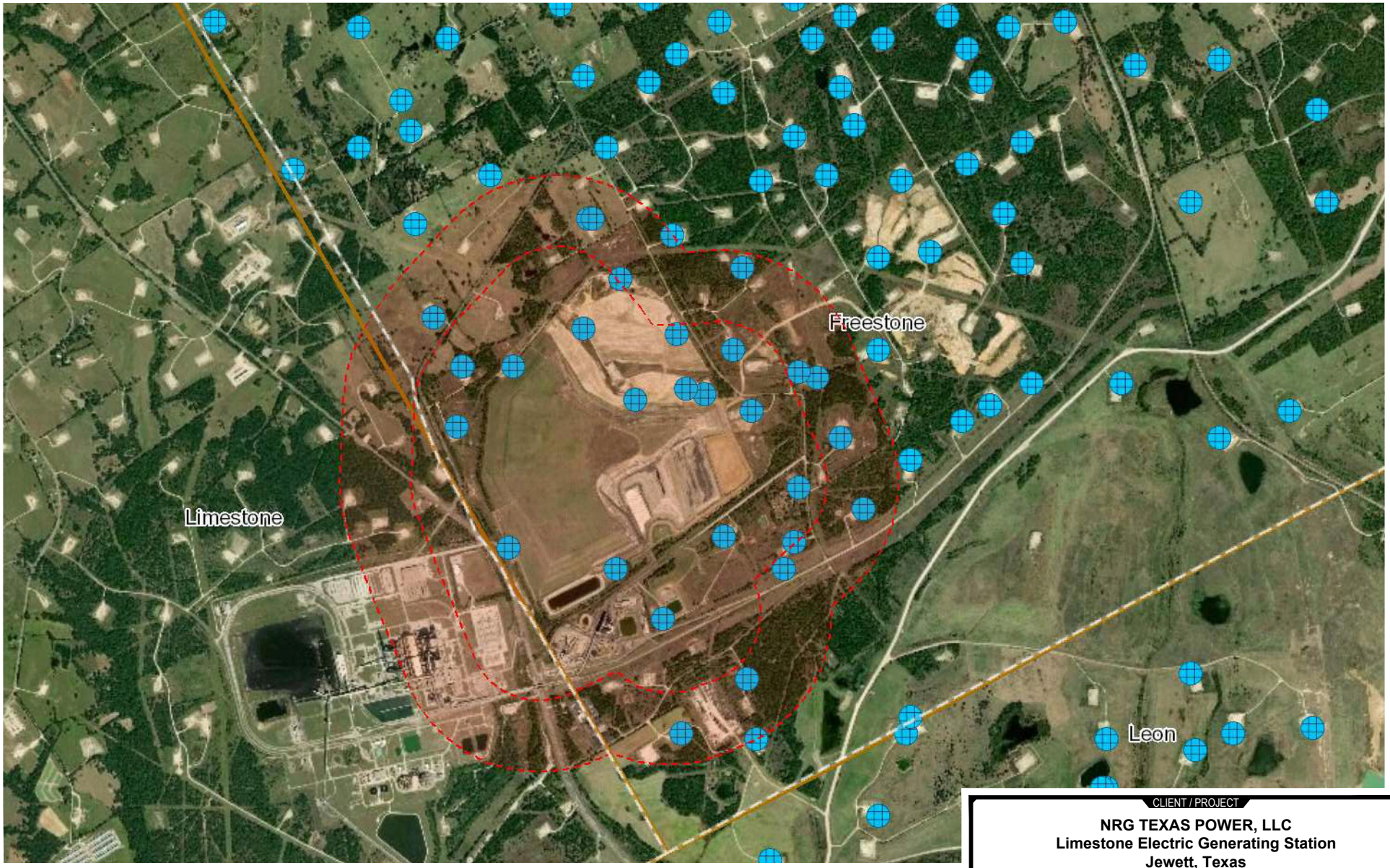
PROJECT:
NRG TEXAS POWER, LLC
LIMESTONE
JEWETT, TEXAS

TITLE:
GROUNDWATER POTENTIOMETRIC SURFACE - APRIL 2022

DRAWN BY:	F. YARBROUGH	PROJ. NO.:	477046.0000.0000
CHECKED BY:			
APPROVED BY:			**FIGURE 2**
DATE:	SEPTEMBER 2022		

TRC
14701 St. Mary's Lane, Suite 500
Houston, TX, 77079
Phone 281.616.0100
www.trcsolutions.com

FILE NO.: 423027_2-2_January.mxd



July 3, 2019

polygonLayer

Override 1

METGCD Wells

METGCD Wells

Yes

Counties

1:36,112

0 0.3 0.6 1.2 mi

0 0.5 1 2 km

Halff Associates, Inc.
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user

CLIENT / PROJECT

NRG TEXAS POWER, LLC
Limestone Electric Generating Station
Jewett, Texas

TITLE

OIL AND GAS WELL MAP

DRAWN BY: O. Fonseka	REQUEST BY: T. Dworaczyk	PROJECT NO. 477046
DWG. DATE: March 2022	PROJECT-MGR: T. Dworaczyk	

TRC
14701 ST. MARY'S LANE, STE. 500
HOUSTON, TEXAS 77079
PHONE: 281-616-0100
TRCcompanies.com

FIGURE 3

Attachments

Attachment 1 Boring Logs

ESPEY, HUSTON & ASSOCIATES, INC.
ENGINEERING & ENVIRONMENTAL CONSULTANTS

HOLE NO. MW-1

DRILLING LOG

HOLE NO.	MW-1
LOCATION	Limestone Electric Generating Station
GROUND ELEV.	±418.06'
DRILL ANGLE	0°
COLLAR ELEV.	None
DRILL DIRECTION	Vertical
TOTAL DEPTH	60'
STARTED	10/1/86
ELEV. DATUM	Surface
COMPLETED	10/1/86

	DEPTH	DATE	TIME
FIRST FREE WATER			
BAILED WATER LEVEL			
STATIC WATER LEVEL	4.88	10/7/86	1635

PROJECT NO.	8754
SHEET	1 OF 1
PROJECT/SITE	Houston Lighting & Power
GEO/ENG.	Clyde Smith
CONTRACTOR	Reed & Morris
DRILLER	Ray Reed
RIG MODEL	CFD-1
HOLE TYPE	Rotary
HOLE DIAMETER	5"
DRILL FLUID	H_2O

TESTS	SAMPLES	COMPLETION

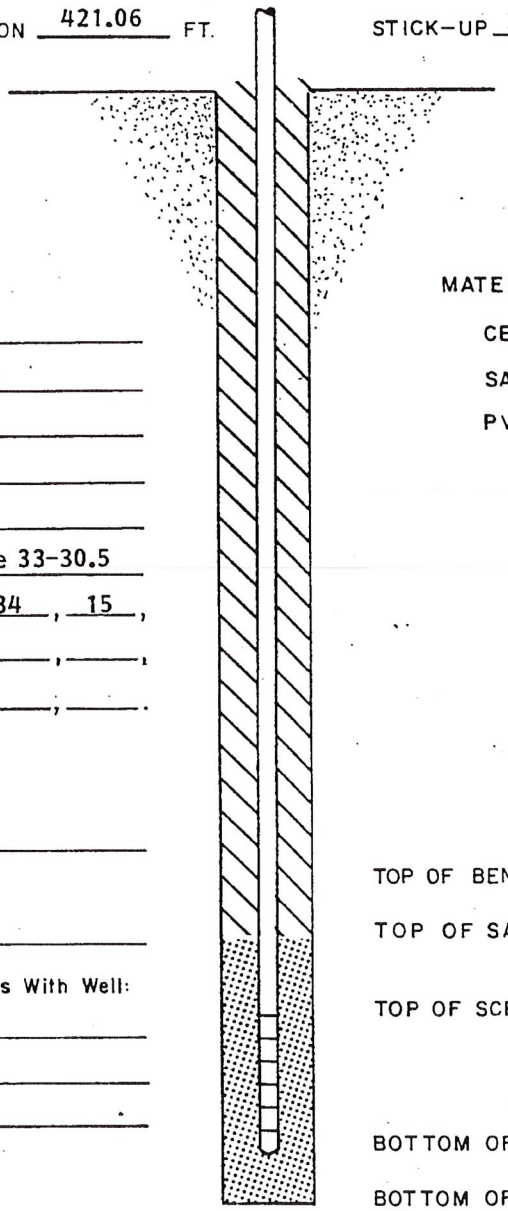
ELEV.	DEPTH	LEGEND	CLASSIFICATION/DESCRIPTION	RECOV.	SAMPLES	DRILLING REMARKS
	5		Brown sand and clay			
	10		Light gray, fine grained sand with minor amounts gray clay and ironstone			
	15					
	20					
	25		Gray silty clay			
	30					
	35		Interbedded brown to tan sand and gray clay			
	40		- very lignitic 39-41'			
	45		Fine gray sand with thin interbeds of gray clay			
	50					
	55		Gray clay			
	60		T.D. at 60'			

WELL COMPLETION RECORD

JOB NO. 8754 WELL NO. MW1 GEOLOGIST Clyde Smith

CLIENT HL&P DRILLER Reed & Morris

TOP OF CASING ELEVATION 421.06 FT. STICK-UP 3.0 FT.



DETAILS OF CONSTRUCTION:

Date Completed 10/1/86

Hole Diameter (in) 7 7/8

Screen Size (in) .010

Screen Length (ft) 20

Casing Size (in) 4

Packer Depth (ft) Bentonite 33-30.5

Centralizer Depths (ft) 54, 34, 15, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____.

Completion Technique:

1) Sand Placement Method

Tremie

2) Grout Placement Method

Tremie

Description of Potential Problems With Well:

None

MATERIALS

CEMENT (sks) 12

SAND (ft^3) 8

PVC (ft) 38.5

TOP OF BENTONITE PACK 30.5 FT.

TOP OF SAND PACK 33 FT.

TOP OF SCREEN 35.5 FT.

BOTTOM OF SCREEN 55.5 FT.

BOTTOM OF HOLE 56 FT.

NOTE: ALL DEPTHS ARE REFERENCED TO "DEPTH BELOW GROUND SURFACE"

STATE OF TEXAS WELL REPORT for Tracking #178434

Owner:	**NRG Texas Power Limestone Station**	Owner Well #:	**MW-17**
Address:	**Rt. 1 BoX 85 Jewett, TX 75846**	Grid #:	**39-64-1**
Well Location:	**FM 39 N. Jewett, TX 75846**	Latitude:	**31° 05' 14" N**
		Longitude:	**096° 07' 26" W**
Well County:	**Limestone**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Start Date: **4/20/2009** Drilling End Date: **4/20/2009**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**8.5**	**0**	**55**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
38	**55**	**Gravel**	**20/40**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**36**	**4, Portland**
36	**38**	**2, Bentonite**
38	**55**	**12 Sand**

Seal Method: **Grout**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Alternative Procedure Used**

Water Level: **46 ft.** below land surface on **2009-04-20** Measurement Method: **Unknown**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Advanced Drilling Systems, Inc.**

904 W. Tidwell
Houston, TX 77091

Driller Name: **David Rogers** License Number: **52037**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
		0-1: Yellowish red SILTY CLAY with abundant Red Mottling
		1-5: Gray very SILTY SAND moist, with some
		clayey sand seams
		- very silty
		5-12: Gray CLAYEY SAND with abundant strong
		brown mottling
		- very silty
		- some black lignite seams
		- wet
		- abundant yellowish brown mottling
		- abuundant strong brown
		- very moist
		12-16: Gray, very SILTY SAND
		- very moist
		- very fine grained
		- some yellowish brown mottling
		- very silty

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
2	**New**	**PVC**	**Casing 0-40 sch-40**
2	**New**	**PVC**	**Slotted 40-55 0.01**

16-20: Strong brown SILTY CLAY with abundant silty sand seams
- some yellowish brown clayey sand seams
20-26: Yellowish brown CLAYEY SAND with
abundant gray hard brittle clay seams
- some brownish yellow limonitic iron seams
- abundant dark gray clay seams
- very moist
- very silty
26-31: Brown very silty sand, very fine grained
31-42: Brown CLAYEY SAND with abundant
gray clay seams
- very moist
- some muscovite flakes
- abundant dark gray clay seams
- very moist
- some strong brown silty sand seams
- very silty
- very abundant dark gray seams
42-53: Dark gray SILTY SAND, fine grained,
abundant dark gray silty clay seams
- very silty
- saturated @ 46 bgs.
- abundant dark gray silty clay seams
- very silty
- very moist
53-55: Very dark gray CLAY, firm
- some light gray silt seams
- lignite seams

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

ERM Environmental Resources Management

MW-19
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-19 Date Drilled 2016-05-17

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.40 ' Boring Diam. 9.00 "

N. Coord. 10507460.00 ' E. Coord. 3574645.00 ' Surface Elevation 440.94 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 25.00 ' Sump Length 0.40 '

Top of Casing Elevation 443.79 ' Stickup 2.85 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

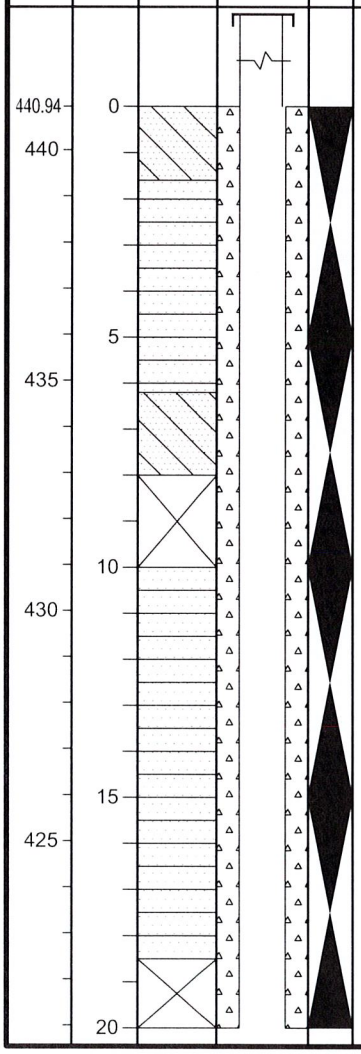
Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer



Elevation (Feet)	Depth (Feet)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
440.94	0	0-5	0-1.6	SANDY CLAY: Yellowish-brown (10YR 6/4), dry, crumbly, hard, sand is less than 10 percent, PP=4.0 TSF
440			1.6-6.2	SILTY SAND: Light yellowish-brown (10YR 6/4), dry to damp, firm to hard, semi-plastic; thinly laminated. PP=3.5-4.5 TSF
	5	5-10		
435			6.2-8	SANDY CLAY: Light yellowish-brown (10YR 6/4) to yellowish-brown (10YR 5/8), dry to damp, stiff to hard; semi-plastic; thinly laminated.
			8-10	No Recovery
	10	10-15	10-18.5	SILTY SAND: Dark yellowish-brown (10YR 4/6), dry to damp becoming wet at 15.5 to 15.8 feet then dry to damp 15.8 to 18, stiff to hard; soft, friable; thinly bedded. @16.8 feet thin lens of rocks, sand is well sorted;. rootlets at 10.3 feet.
430				
	15	15-20		
425				
			18.5-20	No Recovery
	20			

STATE OF TEXAS 10/10/16 James R. Davidson Geology 10493 LICENSED PROFESSIONAL GEOSCIENTIST

ERM Environmental Resources Management

MW-19
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-19 Date Drilled 2016-05-17

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.40 ' Boring Diam. 9.00 "

N. Coord. 10507460.00 ' E. Coord. 3574645.00 ' Surface Elevation 440.94 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 25.00 ' Sump Length 0.40 '

Top of Casing Elevation 443.79 ' Stickup 2.85 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
420	20					20-25	20-34	SILTY SAND: Light olive-brown (2.5Y 5/3), damp becoming moist at 25 to 25.8 feet, damp 25.5 to 28 feet, damp to moist 28 to 30 feet, soft, friable, thinly bedded; some lenticular clay nodules from 30 to 34 feet.
415	25					25-30		
410	30					30-35		
405	35						34-35.4	No Recovery T.D. = 35.40 '
	40							

STATE OF TEXAS 10/14/16 James R. Davidson Geology 10493 LICENSED PROFESSIONAL GEOSCIENTIST

ERM Environmental Resources Management

MW-20
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-20 Date Drilled 2016-05-17

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 39.40 ' Boring Diam. 9.00 "

N. Coord. 10507730.00 ' E. Coord. 3574995.00 ' Surface Elevation 442.12 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 29.00 ' Sump Length 0.40 '

Top of Casing Elevation 445.11 ' Stickup 2.99 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Driling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
442.12	0				0-5	0-0.7	SANDY CLAY: Mottled light yellowish-brown (10YR 5/4) and light brownish-gray (10YR 6/2), dry, firm, brittle; sand less than 10 percent, thinly laminated.
						0.7-1.6	SILTY SAND: Yellowish-brown (10YR 5/4), dry, soft, friable; sand is fine grained, subangular, silt approximately 10 percent.
440						1.6-4	SANDY CLAY: Mottled light yellowish-brown (10YR 5/4) and light brownish-gray (10YR 6/2), dry, firm to stiff, brittle; sand less than 10 percent, thinly laminated. PP=2.5-3.5 TSF
						4-5	No Recovery
	5				5-10	5-8.5	SANDY CLAY: Very dark brown (7.5YR 2.3/3), dry, hard, brittle. PP=4.5+TSF @6.8 feet becomes strong brown (7.5YR 4/6); @7.8 feet becomes light olive brown (2.5 Y 5/3) with some angular rock fragments.
435							
						8.5-10	No Recovery
	10				10-15	10-25	SILTY SAND: Light yellowish-brown (2.5Y 6/4) and light gray (2.5Y 7/2) interbedded, dry, friable, well sorted, silt approximately 10 percent. @13.1 feet possible cross-bedding with rip-up (clay) clasts. @17.8 becomes damp, silt content increases to approximately 30 percent.
430							
	15				15-20		
425							
	20						
	25						

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10/14/16

ERM Environmental Resources Management

MW-20
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-20 Date Drilled 2016-05-17

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 39.40 ' Boring Diam. 9.00 "

N. Coord. 10507730.00 ' E. Coord. 3574995.00 ' Surface Elevation 442.12 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 29.00 ' Sump Length 0.40 '

Top of Casing Elevation 445.11 ' Stickup 2.99 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Driling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
420	20					20-25		
415	25					25-30	25-39.4	SILTY SAND: Olive-brown (2.5Y 4/4), damp to wet (becomes wet at 30-30.8 and 35-35.5 feet), soft, friable. Thinly laminated clay lenses at 37.7 to 37.8 ft. and 38.8 to 39.1 ft., damp, brittle.
410	30					30-35		
405	35					35-39.4		
	40							T.D. = 39.40 '

STATE OF TEXAS 10/16/16 James R. Davidson Geology 10493 LICENSED PROFESSIONAL GEOSCIENTIST

ERM Environmental Resources Management

MW-21
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-21 Date Drilled 2016-05-18

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.40 ' Boring Diam. 9.00 "

N. Coord. 10508050.00 ' E. Coord. 3575406.00 ' Surface Elevation 443.46 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 25.00 ' Sump Length 0.40 '

Top of Casing Elevation 446.35 ' Stickup 2.89 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
443.46	0				0-5	0-0.8	SANDY CLAY: Mottled yellowish-brown (10YR 5/4) and yellowish-red (10 YR 4/6), dry, stiff, brittle. PP=3.5 TSF
						0.8-1.2	SILTY SAND: Strong brown (7.5 YR 5/6), dry, soft, friable, well sorted. Silt approx. 10 percent.
						1.2-2.9	SANDY CLAY: Dark yellowish-brown interlaminated with light brownish-gray (10YR 6/2), dry to damp, firm, semi-plastic. PP=2.5 TSF
440						2.9-8	SILTY SAND: Strong brown (7.5 YR 5/6) to yellowish-brown (10YR 4/4), dry, soft, friable, well sorted. Silt approx. 10 percent. @6.1 becomes dark brown (7.5YR 7/2).
	5				5-10		
435						8-10	No Recovery
	10				10-15	10-19.5	SILTY SAND: Mottled dark yellowish-brown (10YR 4/4) and gray (10YR 5/1)dry, soft, friable, silt content about 40 percent. @11.2 feet becomes yellowish-brown (10YR 5/6) interlaminated with gray (10YR 5/1); @13.1 feet silt content decreases to 10 percent.
430							
	15				15-20		
425						19.5-24.5	SILTY SAND: Yellowish-brown (10YR 5/4), moist, soft, friable, thinly bedded with well developed partings. @22.0 to 22.5 and 23.0 to 24.5 feet silt content increases to 40 percent.
	20						

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ERM Environmental Resources Management

MW-21 DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-21 Date Drilled 2016-05-18

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.40 ' Boring Diam. 9.00 "

N. Coord. 10508050.00 ' E. Coord. 3575406.00 ' Surface Elevation 443.46 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 25.00 ' Sump Length 0.40 '

Top of Casing Elevation 446.35 ' Stickup 2.89 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	20					20-25		
420							24.5-31.4	SILTY SAND: Olive brown (2.5Y 4/5), moist, soft, friable, thinly bedded with well developed partings.
	25					25-30		
415								
	30					30-35.4		
							31.4-31.9	CLAY: Interlaminated with silty sand. Clay is black (7.5YR 2.5/1), damp, semi-plastic, soft. Silty sand is brown (10YR 4/3), damp, soft, friable.
							31.9-35.4	SILTY SAND: mottled yellowish brown (10YR 5/6) and light brownish-gray (10YR 6/2), damp becomes wet at 32.2 to 33 feet, laminated.
410								
	35							T.D. = 35.40 '
405								
	40							

STATE OF TEXAS 10/16/16 James R. Davidson Geology 10493 LICENSED PROFESSIONAL GEOSCIENTIST

ERM Environmental Resources Management

MW-22
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-22 Date Drilled 2016-05-18

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.00 ' Boring Diam. 9.00 "

N. Coord. 10508270.00 ' E. Coord. 3575669.00 ' Surface Elevation 444.68 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 24.50 ' Sump Length 0.40 '

Top of Casing Elevation 447.59 ' Stickup 2.91 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
444.68	0				0-5	0-1.6	SILTY SAND: Strong brown (7.5YR 5/6), dry, soft, friable.
						1.6-3.5	SANDY CLAY: Interlaminated dark yellowish-brown (10YR 4/4) and light brownish-gray (10YR 6/2), damp, semi-plastic. PP=2.5 TSF
						3.5-5	No Recovery
440	5				5-10	5-7.5	SILTY SAND: Strong brown (7.5YR 5/6), dry, soft, friable.
						7.5-8.5	SANDY CLAY: Interlaminated dark yellowish-brown (10YR 4/4) and light brownish-gray (10YR 6/2), damp, semi-plastic.
						8.5-10	No Recovery
435	10				10-15	10-19	SILTY SAND: Interlaminated gray (7.5YR 6/1 and strong brown (7.5 YR 5/6), damp, loose, friable, well sorted, well developed partings. @11.0 to 11.6 bioturbation; @12.5 lenticular clay nodules (interclasts); @13.0 silt content increases to 40 percent.
430	15				15-20		
						19-24	SILTY SAND: Interlaminated silty sand and sandy clay. Silty sand as above. Sandy clay is strong brown, dry to damp, crumbly.
425	20						

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ERM Environmental Resources Management

MW-22
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-22 Date Drilled 2016-05-18

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 35.00 ' Boring Diam. 9.00 "

N. Coord. 10508270.00 ' E. Coord. 3575669.00 ' Surface Elevation 444.68 ' Ft. MSL Datum

Screen: Type Schedule 40 PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 2.00 " Length 24.50 ' Sump Length 0.40 '

Top of Casing Elevation 447.59 ' Stickup 2.91 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Bruce Milton

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	20					20-25		
420	25					25-30	24-30	SILTY SAND: Brown, moist to wet, soft, friable, laminated. breaks along parting surfaces. Silt content approx. 10 percent. @25.7 feet, silt content increases to 40 percent. @28.1 silt content decreases to 10 percent.
415	30					30-35	30-31	SILTY SAND: Brown, moist to wet, soft, friable, laminated. breaks along parting surfaces. Silt content approx. 10 percent.
							31-31.8	SILTY SAND: Brown, moist to wet, soft, friable, laminated. breaks along parting surfaces. Silt content approx. 40 percent.
							31.8-35	SILTY SAND: Brown, damp to moist, soft, friable, laminated. breaks along parting surfaces. Silt content approx. 10 percent.
410	35							T.D. = 35.00 '
405	40							

STATE OF TEXAS 10/10/16 James R. Davidson Geology 10493 LICENSED PROFESSIONAL GEOSCIENTIST

ERM Environmental Resources Management

MW-23
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-23 Date Drilled 2016-04-13

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 45.00 ' Boring Diam. 9.00 "

N. Coord. 10505630.00 ' E. Coord. 3571983.00 ' Surface Elevation 434.36 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 30.00 ' Sump Length 0.40 '

Top of Casing Elevation 437.25 ' Stickup 2.89 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
434.36	0				0-5	0-0.5 0.5-10.6	GRAVEL: Roadbase - crushed limestone with silt matrix. greenish-gray (Gley 1/6/10Y). SANDY CLAY: Fill Material - Light yellowish- brown (10YR 6/4), dry, thinly laminated, brittle. PP =1.0 TSF
430	5				5-10		
425	10				10-15	10.6-10.61 10.61-17.5	LIGNITE: Black organic plant material consisting of decaying rootlets and grass. SANDY CLAY: Dark red (2.5 YR 3/6), dry, firm to stiff, rootlets at 13.4 ft., becomes thinly bedded at 14.3 ft. Sharp basal contact.
420	15				15-20		
415	20					17.5-27.4	SILTY SAND: Very dark grayish-brown (10YR 3/2) grading down to light gray (10YR 7/1), soft, friable; thinly bedded, sand is fine grained, well sorted, subangular to angular. @23.1 becomes mottled with dark yellowish-brown.

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ERM Environmental Resources Management

MW-23
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-23 Date Drilled 2016-04-13

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 45.00 ' Boring Diam. 9.00 "

N. Coord. 10505630.00 ' E. Coord. 3571983.00 ' Surface Elevation 434.36 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 30.00 ' Sump Length 0.40 '

Top of Casing Elevation 437.25 ' Stickup 2.89 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

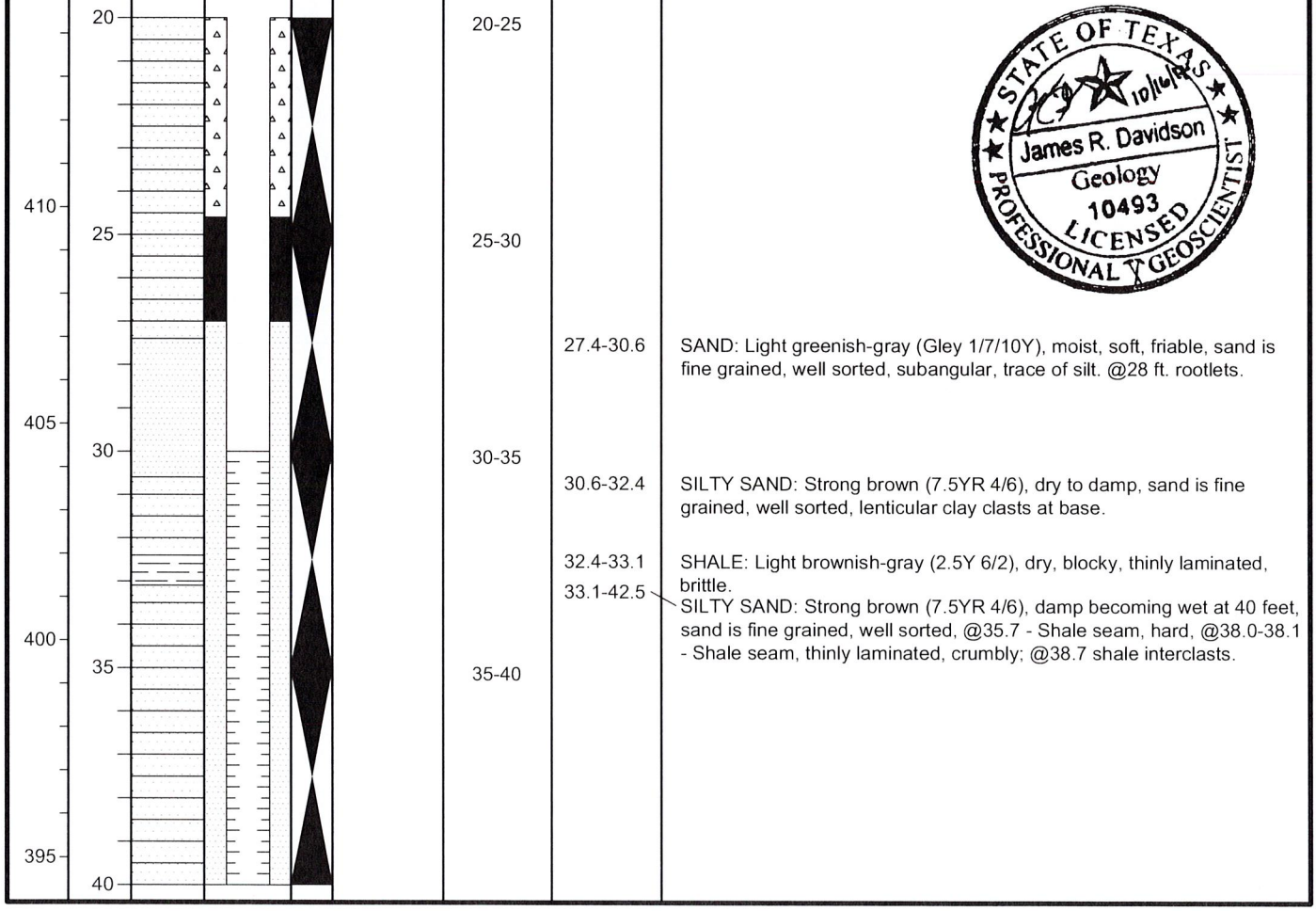
Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer



ERM Environmental Resources Management

MW-23
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-23 Date Drilled 2016-04-13

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 45.00 ' Boring Diam. 9.00 "

N. Coord. 10505630.00 ' E. Coord. 3571983.00 ' Surface Elevation 434.36 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 30.00 ' Sump Length 0.40 '

Top of Casing Elevation 437.25 ' Stickup 2.89 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Mike Kristoff

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	40					40-45		
							42.5-43.3	SHALE: Light brownish-gray (2.5Y 6/2), dry, blocky, thinly laminated, brittle.
							43.3-45	Silty Sand
390	45							T.D. = 45.00 '
385	50							
380	55							
375	60							

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10/14/16

ERM Environmental Resources Management

MW-28 DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-28 Date Drilled 2016-04-14

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 70.00' Boring Diam. 9.00 "

N. Coord. 10511130.00 ' E. Coord. 3573967.00 ' Surface Elevation 474.57 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 50.00 ' Sump Length 0.40 '

Top of Casing Elevation 477.52 ' Stickup 2.95 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Don Whitley

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type		Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
474.57	0					0-5	0-5	NOT SAMPLED: Hydrovac
470	5					5-10	5-18	SANDY CLAY: 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly laminated, damp, semi- to non-plastic, 2.0-2.5 TSF, sand approx. 30 %: fine grained, subangular. @ 10 ft, sand content decreases to approx. 10%, breaks along laminae.
465	10					10-15		
460	15					15-20		
							18-18.4	CLAYEY SAND: 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly bedded, fine grained, uncemented, cohesive, well sorted, subangular, clay approx. 40% - dry, damp.
455	20						18.4-22.5	SANDY CLAY: 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly laminated, damp, semi- to non-plastic, 2.0-2.5 TSF, sand approx. 30% - fine grained, subangular, lenticular pockets of sand - fine grained, subangular, 7.5YR/5/8 strong brown.

STATE OF TEXAS 10/14/16 James R. Davidson Geology 10493 LICENSED PROFESSIONAL GEOSCIENTIST

ERM Environmental Resources Management

MW-28 DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-28 Date Drilled 2016-04-14

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 70.00' Boring Diam. 9.00 "

N. Coord. 10511130.00 ' E. Coord. 3573967.00 ' Surface Elevation 474.57 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 50.00 ' Sump Length 0.40 '

Top of Casing Elevation 477.52 ' Stickup 2.95 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

Drilling Company Best Drilling Services Driller Sonny Tobola

Drilling Method Hollow Stem Auger Log By Don Whitley

SKETCH MAP

NOTES

PP = Pocket Penetrometer

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	20				20-25		
						22.5-25	No Recovery
450	25				25-30	25-25.8	SILTY SAND: Gley 1/7/10Y Light Greenish Gray, fine grained, subangular to subrounded, uncemented, well sorted, damp to moist, cohesive, silt approx. 10%
						25.8-27.3	SANDY CLAY: 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly laminated, damp, semi- to non-plastic, 2.0-2.5 TSF, sand approx. 30% - fine grained, subangular, lenticular pockets of sand - fine grained, subangular, 7.5YR/5/8 strong brown.
						27.3-28.5	SILTY SAND: Gley 1/7/10Y Light Greenish Gray, fine grained, subangular to subrounded, uncemented, well sorted, dry to damp, cohesive, silt approx. 10%
445	30				30-35	28.5-30	SANDY CLAY: 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly laminated, damp, semi- to non-plastic, 2.0-2.5 TSF, sand approx. 30% - fine grained, subangular, lenticular pockets of sand - fine grained, subangular, 7.5YR/5/8 strong brown.
						30-32.5	INTERBEDDED CLAY AND SAND: Silty Sand - 30-30.3 ft, 31.2-31.4 ft, 32.2-32.4 ft. - Gley 1/7/10Y Light Greenish Gray, fine grained, subangular to subrounded, uncemented, well sorted, damp to moist, cohesive, silt approx. 10%. Sandy Clay - 30.3-31.2 ft, 31.4-32.2 ft, 32.4-32.5 ft. - 7.5YR/5/4 Brown and 7.5YR/7/1 Light Gray, thinly laminated, damp, semi- to non-plastic, 2.0-2.5 TSF, sand approx. 30% - fine grained, subangular, lenticular pockets of sand - fine grained, subangular, 7.5YR/5/8 strong brown.
						32.5-35	No Recovery
440	35				35-40	35-40	INTERBEDDED CLAY AND SAND: Thinly bedded, alternating Silty Sand and Shale. Silty Sand - 7.5YR/5/8 Strong brown, fine grained, uncemented, well sorted, subangular, dry to damp. Shale - 7.5YR/5/1 Gray, non-plastic, dry, 2.0 TSF, trace sand.
435	40						

STATE OF TEXAS 10/10/16 James R. Davidson Geology 10493 LICENSED PROFESSIONAL GEOSCIENTIST

ERM Environmental Resources Management

MW-28
DRILLING LOG

Proj. No. 0345059 Boring/Well ID MW-28 Date Drilled 2016-04-14

Project Limestone CCR Rule Well Installation Owner NRG Energy

Location Limestone EGS Boring T.D. 70.00' Boring Diam. 9.00 "

N. Coord. 10511130.00 ' E. Coord. 3573967.00 ' Surface Elevation 474.57 ' Ft. MSL Datum

Screen: Type PVC Diam. 2.00 " Length 10.00 ' Slot Size 0.01 "

Casing: Type PVC Diam. 2.00 " Length 50.00 ' Sump Length 0.40 '

Top of Casing Elevation 477.52 ' Stickup 2.95 '

Depth to Water: 1. Ft. 0.00 ( ) 2. Ft. 0.00 ( )

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Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	40				40-45	40-45	INTERBEDDED CLAY AND SAND: Shale - 40-40.4 ft, 40.8-41.1 ft, 41.4-43.8 ft, 44.2-45 ft. - non-plastic, thinly laminated, breaks along laminae, trace sand. Silty Sand - 40.4-40.8 ft, 41.1-41.4 ft, 43.8-44.2 ft. - 7.5YR/5/8 Strong brown, fine grained, uncemented, subangular, well sorted, damp to moist.
430	45				45-50	45-50	INTERBEDDED CLAY AND SAND: Thinly bedded, alternating Silty Sand and Shale. Silty Sand - 7.5YR/6/1 Gray, fine grained, uncemented, subangular, well sorted, dry to damp. Shale - Gley 1/2.5/10Y Greenish Black, non-plastic, dry, trace sand.
425	50				50-55	50-56.6	SHALE: Gley 1/2.5/10Y Greenish Black, non-plastic, dry to damp, thinly laminated, breaks along laminae, trace sand, has thin beds of fine grained sand throughout. @ 52.9-53.2 Silty Sand seam - 7.5YR/4/3 Brown, fine grained, uncemented, subangular, wet.
420	55				55-60		
						56.6-57.1	SILTY SAND: 7.5YR/4/2 Brown, fine grained, uncemented, subangular, wet to saturated
						57.1-58.5	SHALE: Gley 1/2.5/10Y Greenish Black, non-plastic, dry to damp, thinly laminated, breaks along laminae, trace sand, has thin beds of fine grained sand throughout
415	60					58.5-60	No Recovery

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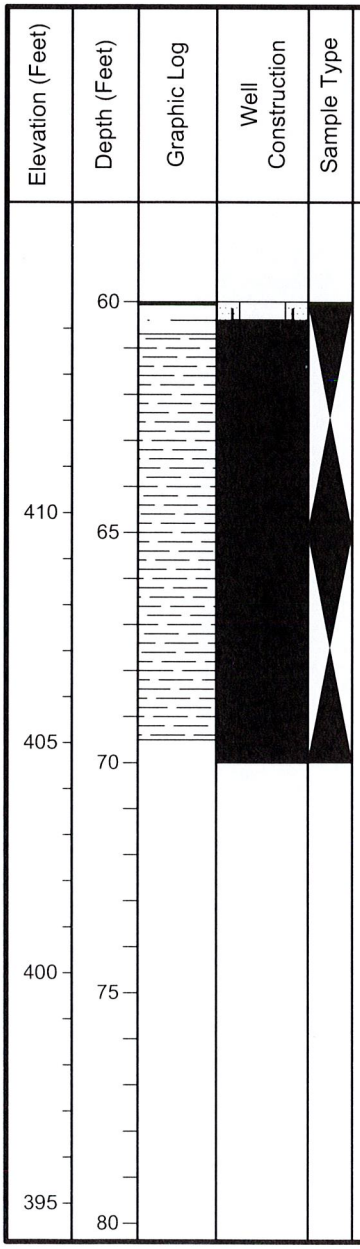
PP = Pocket Penetrometer



Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
60-65	60-60.7 60.7-69.5	INTERBEDDED CLAY AND SAND: Thinly alternating Silty Sand and Shale. Silty Sand - 7.5YR/6/1 Gray, fine grained, uncemented, subangular, well sorted, dry to damp. Shale - Gley 1/2.5/10Y Greenish Black, non-plastic, dry, trace sand. SHALE: Gley 1/2.5/10Y Greenish Black, non-plastic, dry to damp, thinly laminated, breaks along laminae, trace sand, has thin beds of fine grained sand throughout. @ 61.5-61.7 - Silty Sand lense, 7.5YR/4/2 Brown
65-70		
		T.D. = 70.00'