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March 31, 2020

Mr. Bradford Billings
Environmental Bureau
New Mexico Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Re: 2019 Semi-Annual Groundwater Monitoring Report (July to December 2019)
Chevron Dollarhide Groundwater Remediation Site
Andrews County, Texas
RRC OCP No. 08-1048
NMOCD RP No. 1R-3944

Dear Mr. Billings:

Chevron Environmental Management Company (CEMC) submits herein to the New Mexico Oil Conservation Division (OCD) the *2019 Semi-Annual Groundwater Monitoring Report (July to December 2019)* for the Chevron Dollarhide Oil Field Unit located in Andrews County, Texas (Site). This report was prepared by GHD Services Inc. (GHD), on behalf of CEMC, to document groundwater monitoring activities performed at the Site during the above referenced reporting period.

If you have any questions regarding this submittal, please contact me at (832) 854-5620 or Nick Casten of GHD at (225) 296-6513.

Respectfully,
Chevron Environmental Management Company on behalf of Chevron U.S.A. Inc.

A handwritten signature in blue ink, appearing to read "Adriane Gifford".

Adriane Gifford
Project Manager

Encl.

cc: Kent Stallings – RRC Site Remediation Section
Nick Casten - GHD



2019 Semi-Annual Groundwater Report (July to December 2019)

Dollarhide Oil Field Unit
Andrews County, Texas
RRC OCP No. 08 1048
OCD RP No. 1R 3944

Chevron Environmental
Management Company

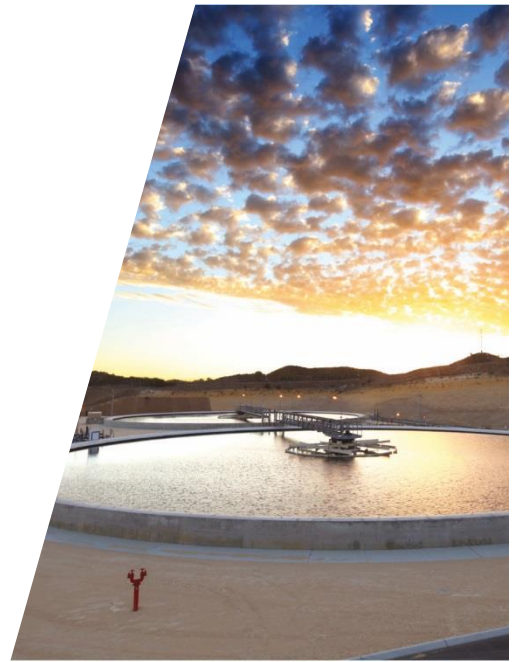




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1. Introduction

GHD Services Inc. (GHD), on behalf of Chevron Environmental Management Company (CEMC), submits herein to the Railroad Commission of Texas (RRC) the second *Semi-Annual Groundwater Monitoring Report (July to December 2019)* for the Dollarhide Oil Field Unit located in Andrews County, Texas (Site). The latitude/longitude coordinates for the Site are 32° 08' 45.60" N and 103° 03' 20.12" W, and a vicinity map showing the Site location is included as Figure 1. This report presents a summary and evaluation of the annual groundwater monitoring data collected in the second half of 2019.

2. Background

It is believed that historical operations at the Site have contributed to elevated chloride concentrations in groundwater in the Ogallala Aquifer. The Site was discovered as an oil and gas production field in 1945 and, over the years, was owned and operated and/or leased by various companies that disposed of excess produced water and drilling fluids into pits. The use of pits for water disposal ceased in 1967, and the Site operators began using an injection system for disposal. In 1971, the first evidence of elevated chloride concentrations in groundwater was identified in Tract 26, and then in 1974 in Tract 45. Groundwater assessment was initiated in 1974, and groundwater recovery was initiated in 1994 by Union Oil Company of California (Unocal).

Representatives of Unocal and the RRC participated in a meeting on June 2, 1994, to discuss the installation of 24 recovery wells located in Texas along the Texas and New Mexico State Line to remove chloride-impacted groundwater from the Ogallala aquifer. Unocal received RRC approval of the recovery system in written correspondence on July 7, 1994. Since 1994, two additional recovery wells were installed, totaling 26 recovery wells that recovered groundwater from the Site. The recovered groundwater was pumped into two on-Site injection wells for oil reservoir pressure maintenance. Chevron Corporation purchased Unocal in August 2005. Since that time, Chevron U.S.A., Inc. (Chevron) continued to operate the groundwater recovery system until the system shutdown in November 2017, with concurrence from the RRC and New Mexico Oil Conservation Division (OCD).

Former Pits

Prior to the 1970s, it was an accepted practice in oil field operations to store produced water in pits adjacent to well locations. After livestock water wells in the vicinity of the Site began exhibiting elevated chloride concentrations, soil borings were installed in all former pit locations to assess possible chlorides in soil leaching to groundwater. Historical aerial photographs were reviewed to assess potential source areas. A 1955 aerial photograph identified the presence of approximately 84 former produced water (brine) pits adjacent to Site well locations. A large-scale evaporation pit located to the northwest of the existing gas plant that had been utilized to store mixed brine was identified as a potential source area. Soil samples were collected from various depths within the former pits and were submitted for laboratory analysis of chlorides. Former pit locations with soil chloride concentrations less than 700 parts per million (ppm) were determined not to be potential



source areas and were left in place. The former pit locations with soil chloride concentrations greater than 700 ppm were determined to be potential source areas, and Unocal capped the pits with a geosynthetic clay liner to prevent any further leaching of chlorides.

Light Non-Aqueous Phase Liquid

During a groundwater sampling event in January 2000, dissolved hydrocarbon constituents and light non-aqueous phase liquid (LNAPL) were detected in recovery well 44-J-WW during a routine groundwater sampling event. The LNAPL exhibited elevated concentrations of hydrocarbons in the C₆-C₁₂ range, indicative of natural gas liquids. A north-south trending underground pipeline that contains hydrocarbon products, operated by another company (not Chevron), is located within 100 feet of monitor well 44-J-WW. Soil investigations were conducted in 2000 by Unocal and 2011 by CEMC, to determine the source area of the release; however, no hydrocarbon impacts were detected in soil. On November 5, 2010, LNAPL was discovered in two additional recovery wells, 44-I-WW and 44-II-WW, during routine operation and maintenance. Due to the presence of LNAPL, these three wells remained inactive through November 2017, when the groundwater recovery system was shut down to prevent the introduction of LNAPL into the groundwater recovery system. The LNAPL identified in these three wells (44-J-WW, 44-I-WW, and 44-II-WW) is not located near any Chevron assets that contain hydrocarbons, and the LNAPL is believed to be associated with other third-party pipelines in the vicinity. LNAPL investigation efforts have been summarized in previous reports that have been submitted to the RRC.

3. Regulatory Framework

The RRC has regulatory jurisdiction over oil and gas production operations in the State of Texas. CEMC has been working under the guidance of the RRC to address the groundwater chloride impacts as a result of historic operations at the Site. Under the RRC, the Site is regulated under Title 16 of the Texas Administrative Code (TAC) Chapter 3 (relating to the Oil and Gas Division) Rule §3.8(b) (Statewide Rule 8 Water Protection).

On October 13, 2015, representatives of the OCD and CEMC participated in a meeting at the OCD office in Santa Fe, New Mexico, to discuss the installation of groundwater monitor wells on CEMC-owned property in New Mexico to delineate and to further assess the impacts to the Site's groundwater with respect to chlorides and total dissolved solids (TDS). Subsequent to the meeting, CEMC submitted a Release Notification and Corrective Action (C-141) Form in a written correspondence on October 28, 2015, per OCD's request, in order to establish a file for the Site. Following the 2015 meeting with the OCD, CEMC completed groundwater investigations in 2015, 2016, and 2017 that included installation of monitor wells in Texas and New Mexico to further delineate the plume boundary.

On May 16, 2017, representatives from CEMC and GHD met with the RRC and the OCD at their respective offices. The meeting was held via teleconference to provide a project status update to both regulatory agencies and to ensure that the regulatory agencies involved in the project are in alignment with the path forward for the Site. During the joint regulatory meeting, the current and future use of the recovery system was discussed. CEMC informed the RRC and OCD of its intentions to temporarily shut down the groundwater recovery system in the fourth quarter of 2017,



for at least one calendar year, to evaluate non-pumping aquifer and plume conditions. The RRC and OCD agreed with this approach and the groundwater recovery system was shut down in November 2017.

4. Groundwater Recovery

In the fourth quarter of 2018, representatives from CEMC and GHD met with the RRC (November 28, 2018) and the OCD (December 13, 2018) at their respective offices. The purpose of these meetings was to provide a project status update to both regulatory agencies and discuss the path forward for the Site. During both 2018 regulatory meetings, CEMC informed the RRC and the OCD of its intentions to permanently shut down the groundwater recovery system. The RRC and OCD both agreed with this approach, and the groundwater recovery system will remain permanently shut down.

5. 2019 Groundwater Investigation

A preliminary groundwater model and future developments were presented to both agencies during the 2018 regulatory meetings. This development includes refining the groundwater model after completing an additional groundwater investigation in 2019. CEMC submitted a work plan in February 2019 proposing to install eleven new monitor wells. The RRC reviewed the work plan and approved of the proposed activities with a request for semi-annual report submittals. The objective of the investigation is to establish long-term plume management monitoring points in Texas and further delineate the downgradient groundwater plume boundary in both states. Additionally, the newly installed wells in New Mexico will be used to identify bedrock elevations across the Dollarhide field and the monument draw, saturated thickness of the Ogallala aquifer, and groundwater flow conditions. The data from the analysis of the new wells will be used to fill in gaps identified in the Conceptual Site Model.

The proposed 2019 investigation activities were split into two events by state, Texas monitor well installation and New Mexico monitor well installation. Three monitor wells were installed in Texas in April 2019. Due to delays with access agreements and permitting, the monitor well installation in New Mexico was delayed until the first quarter of 2020. The data collected from the New Mexico well installation event will be included in the January through June 2020 Semi-Annual Groundwater Monitoring Report.

6. Groundwater Monitoring

Groundwater sampling was initiated in 2008 at the Site on a semi-annual basis. In 2017, CEMC initiated quarterly groundwater sampling to provide concentration data trends. Currently, groundwater monitoring at the Site is being performed on a quarterly basis, with events conducted in January, April, July, and October. The groundwater monitoring system consists of 61 monitor wells and 8 non-remedial wells screened in the Ogallala Aquifer approximately 120 feet below ground surface. Groundwater well designations are shown on Figure 2 and listed in Table 1. During



the January and July events, all viable wells in the groundwater monitoring system are sampled. During the voluntary April and October events, only the wells installed during the 2015, 2016, 2017, and 2019 groundwater investigations are sampled to develop concentration trends over time. The groundwater data collected in July and October 2019 are discussed herein.

6.1 Potentiometric Conditions

Prior to sampling during each event, depth-to-groundwater measurements were collected at each well with an oil/water interface probe, with an accuracy of 0.01 foot, to determine the groundwater elevation in each well. Groundwater potentiometric elevations and contours for the July and October 2019 events are shown on Figures 3 and 4, respectively. The measurements indicate that the groundwater flow direction is generally to the southwest which is consistent with previous events. A summary of the depth-to-groundwater measurements and the corresponding groundwater elevations is included in Tables 2 and 3. Historical groundwater elevations are included in Appendix A.

6.2 Groundwater Sampling

During the July and October 2019 sampling events, investigative groundwater samples were collected via no-purge grab sampling techniques. The groundwater samples were collected directly from the screened interval of each well using a HydraSleeve. The HydraSleeve is deployed during the gauging event to allow the well to return to equilibrium prior to sampling. Groundwater samples were collected in laboratory-supplied containers, preserved on ice, and transported to Xenco Laboratories located in Midland, Texas, following proper chain-of-custody procedures. All groundwater samples were submitted for analysis of chloride by United States Environmental Protection Agency (EPA) Method 300/300.1 and TDS by EPA Method SM2540C. The results received from Xenco Laboratories for both the July and October 2019 sampling events are reported herein.

During the October 2019 event, a set of split groundwater samples (thirteen samples) were collected in addition to the aforementioned investigative groundwater samples in order to verify sampling and analytical precision. The split samples were collected as a result of inconsistencies that appeared in the chloride and TDS concentrations, and per the suggestion made in the RRC's comments dated August, 23, 2019, regarding the *2018 Annual Groundwater Monitoring Report* and *2019 Semi-Annual Groundwater Monitoring Report*. The split sample set was collected following proper procedures, and shipped to Pace Analytical National Center for Testing & Innovation (Pace Analytical) located in Mt. Juliet, Tennessee.

6.3 Analytical Results

Groundwater sample analytical results were compared to the Texas Commission of Environmental Quality (TCEQ) Secondary Drinking Water Standards and Secondary Constituent levels for chlorides (300 milligrams per liter [mg/L]) and TDS (1,000 mg/L). The groundwater sample analytical results from the July and October 2019 events are listed in Tables 4. The groundwater chloride and TDS concentrations and isopleths for the 2019 sampling events are shown on Figures 5 through 8, and the analytical laboratory reports are included in Appendix B. The



concentrations of chlorides and TDS are generally consistent with historical events. A table of historical analytical results is included in Appendix C.

6.4 Quality Assurance/Quality Control

During the July 2019 sampling event, six duplicate samples were collected for chloride and TDS to confirm sample quality and reproducibility. No significant deviations were encountered in the sample results for duplicate constituents.

During the October 2019 sampling event, six duplicate samples were collected for chloride and TDS and sent to Xenco Laboratory to confirm sample quality and reproducibility, and two duplicate samples were collected and sent to Pace Analytical. No significant deviations were encountered for duplicate constituents in the sample results received from Xenco Laboratory. In the sample results received from Pace Analytical, one duplicate TDS analysis demonstrated variation in the results with a relative percent difference (RPD) of 13.2.

A split sample comparison was conducted for the investigative samples submitted to Xenco Laboratory and the split sample set submitted to Pace Analytical during the October 2019 event. The results from the comparison were within acceptable agreement, with the exception of one TDS result having a RPD greater than fifty percent.

All certified groundwater laboratory reports received during the July and October 2019 sampling events were reviewed by a GHD analytical chemist for laboratory and field method quality assurance/quality control (QA/QC). All laboratory reports were approved, and the associated data validation reports issued by GHD are included in Appendix D. The data validation report containing the sample comparison review and approval is also included in the data validation reports in Appendix D.

7. Conclusions and Path Forward

The results of the 2019 groundwater monitoring events will be used to update the groundwater model and to continue development for the strategy and path forward for the Site.

Due to access agreements and issuance of applicable well permits from the New Mexico Office of the State Engineer, the monitor wells that were planned for installation in New Mexico in the fourth quarter of 2019 were further delayed until the first quarter of 2020. Data will be collected from these wells starting in 2020 to further define groundwater model parameters, identify bedrock elevations across the Dollarhide field and the monument draw, and define saturated thickness of the Ogallala aquifer and groundwater flow conditions.

CEMC will continue conducting quarterly monitoring only for the monitor wells recently installed in 2015, 2016, 2017, and 2019. Monitor wells installed prior to 2015 will continue to be sampled semi-annually.



Should you have any questions regarding this submittal, please contact Nick G. Casten of GHD at (225) 296-6513 or Adriane Gifford of CEMC at (832) 854-5620.

All of which is Respectfully Submitted

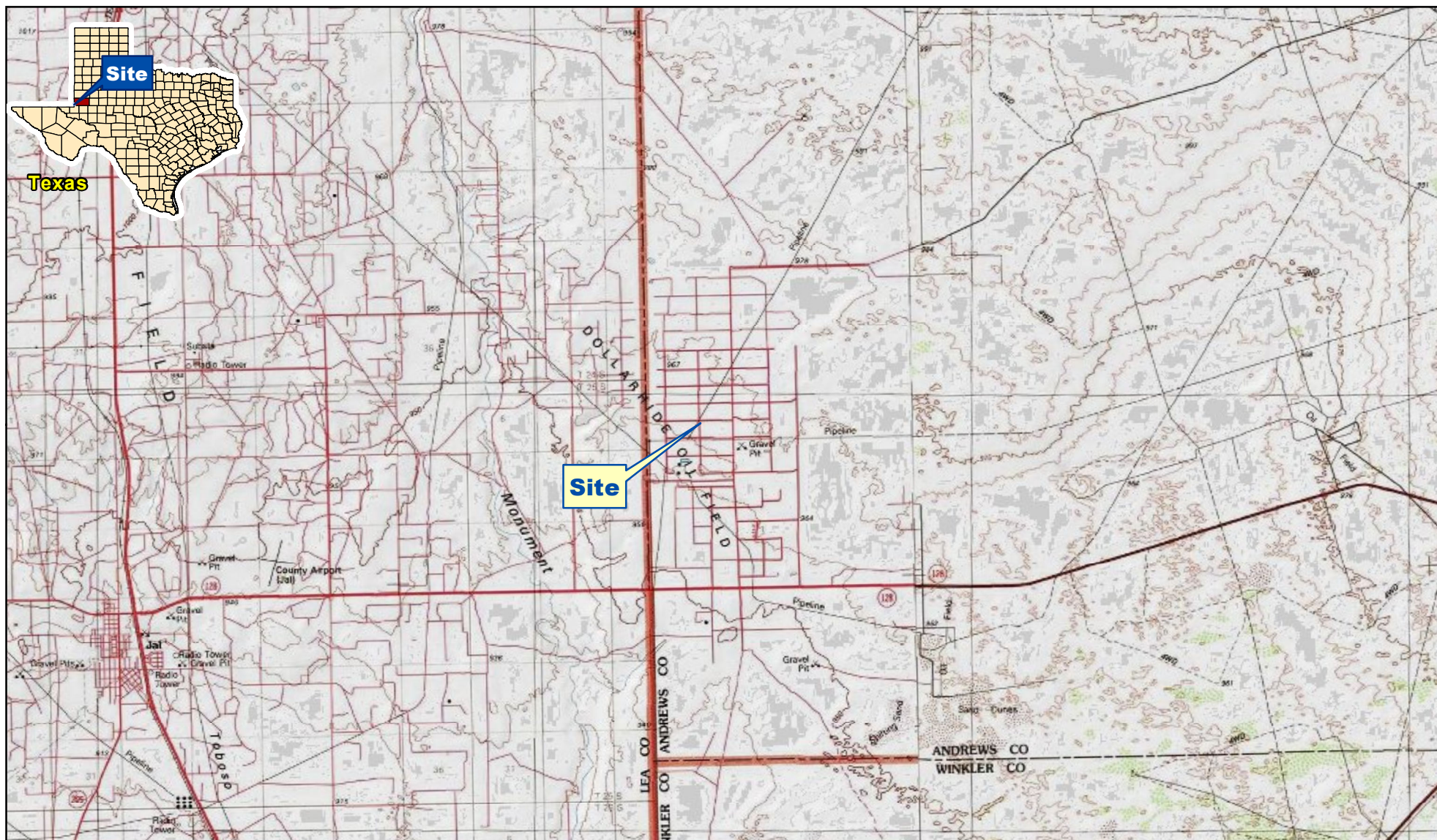
GHD,

A handwritten signature in black ink that reads "Nicholas G. Casten". The signature is written in a cursive style with a large, prominent "N".

Nicholas G. Casten

A handwritten signature in blue ink that reads "Brian L. Carter". The signature is written in a cursive style with a large, prominent "B".

Brian L. Carter, PhD
Texas PG No. 10319



Source: USGS 7.5 Minute Topographic Maps.

0 1 2
Miles

Coordinate System:
NAD 1983 UTM Zone 13N

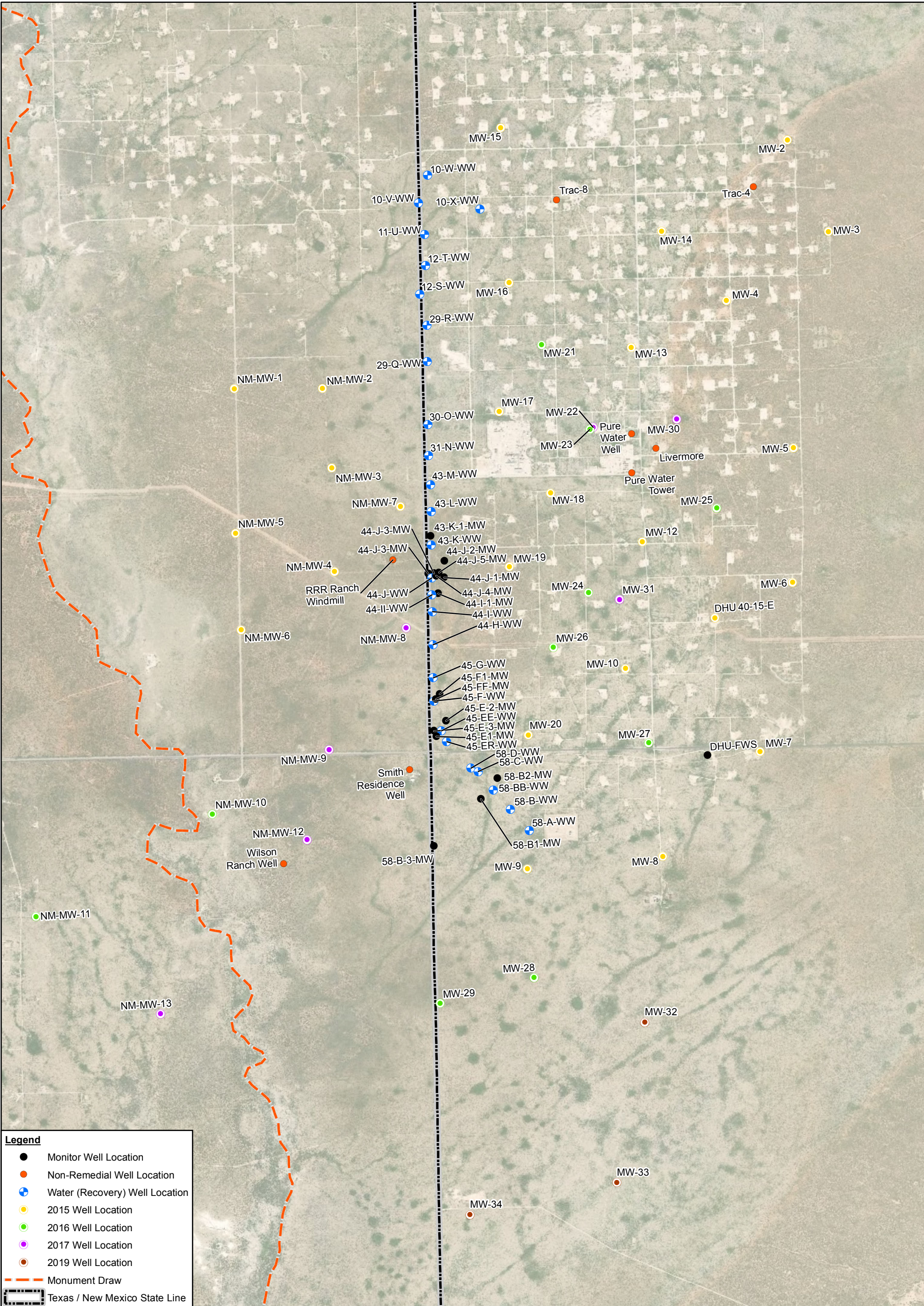


CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
CHEVRON DOLLARHIDE UNIT

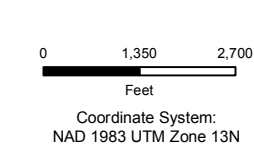
SITE VICINITY MAP

055270
Jun 20, 2019

FIGURE 1



Source: ESRI World Imagery Basemap Service, Digital Globe: 10/11/2016

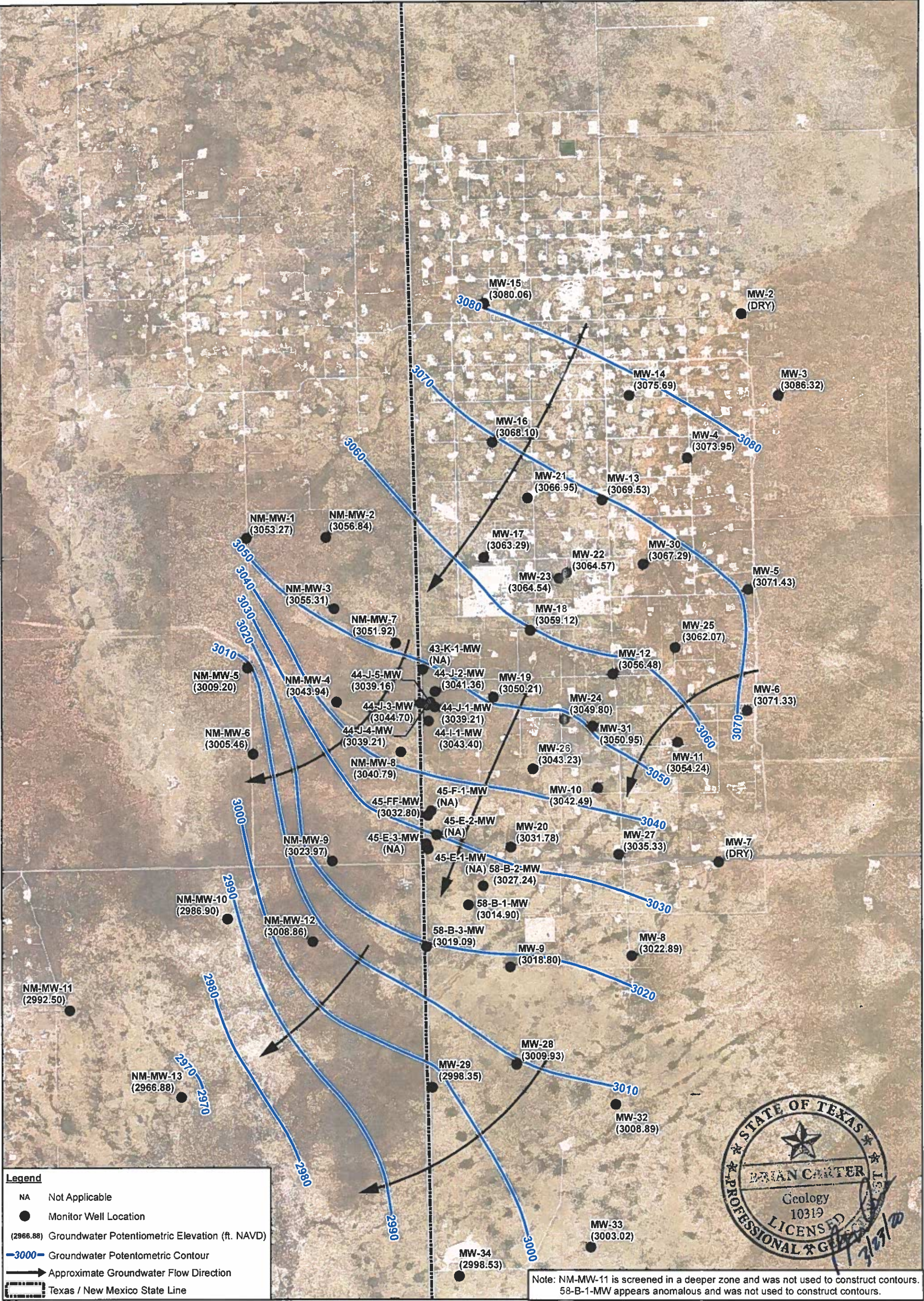


CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
DOLLARHIDE OIL FIELD UNIT

SITE DETAILS MAP

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Jun 20, 2019

FIGURE 2



Source: ESRI World Imagery Basemap Service.

01,5003,000

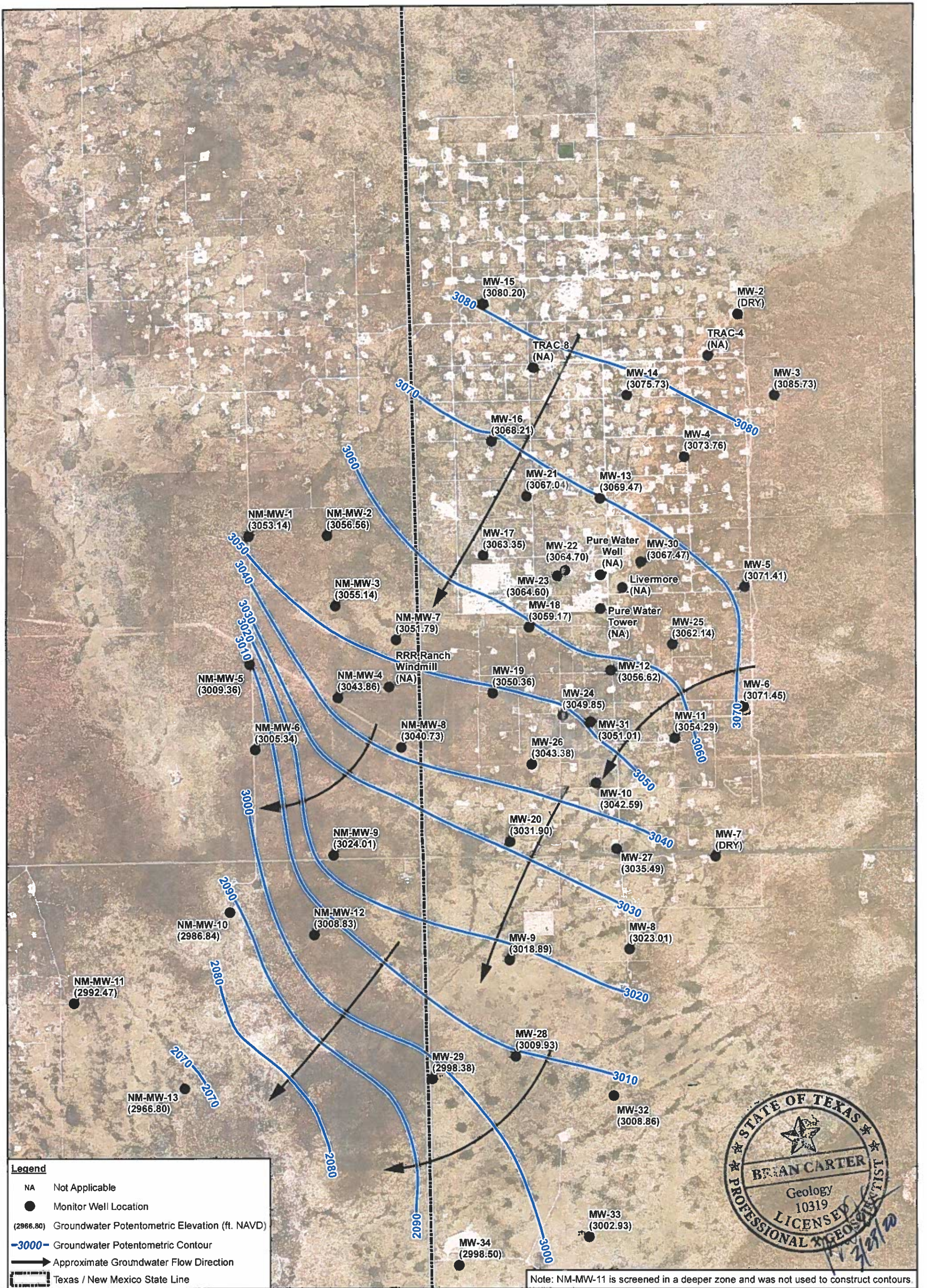
Feet

Coordinate System:
NAD 1983 UTM Zone 13N

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
DOLLARHIDE OIL FIELD UNIT
JULY 2019 GROUNDWATER POTENTIOMETRIC
ELEVATIONS & CONTOURS

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Mar 18, 2020

FIGURE 3



Source: ESRI World Imagery Basemap Service.

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Feet

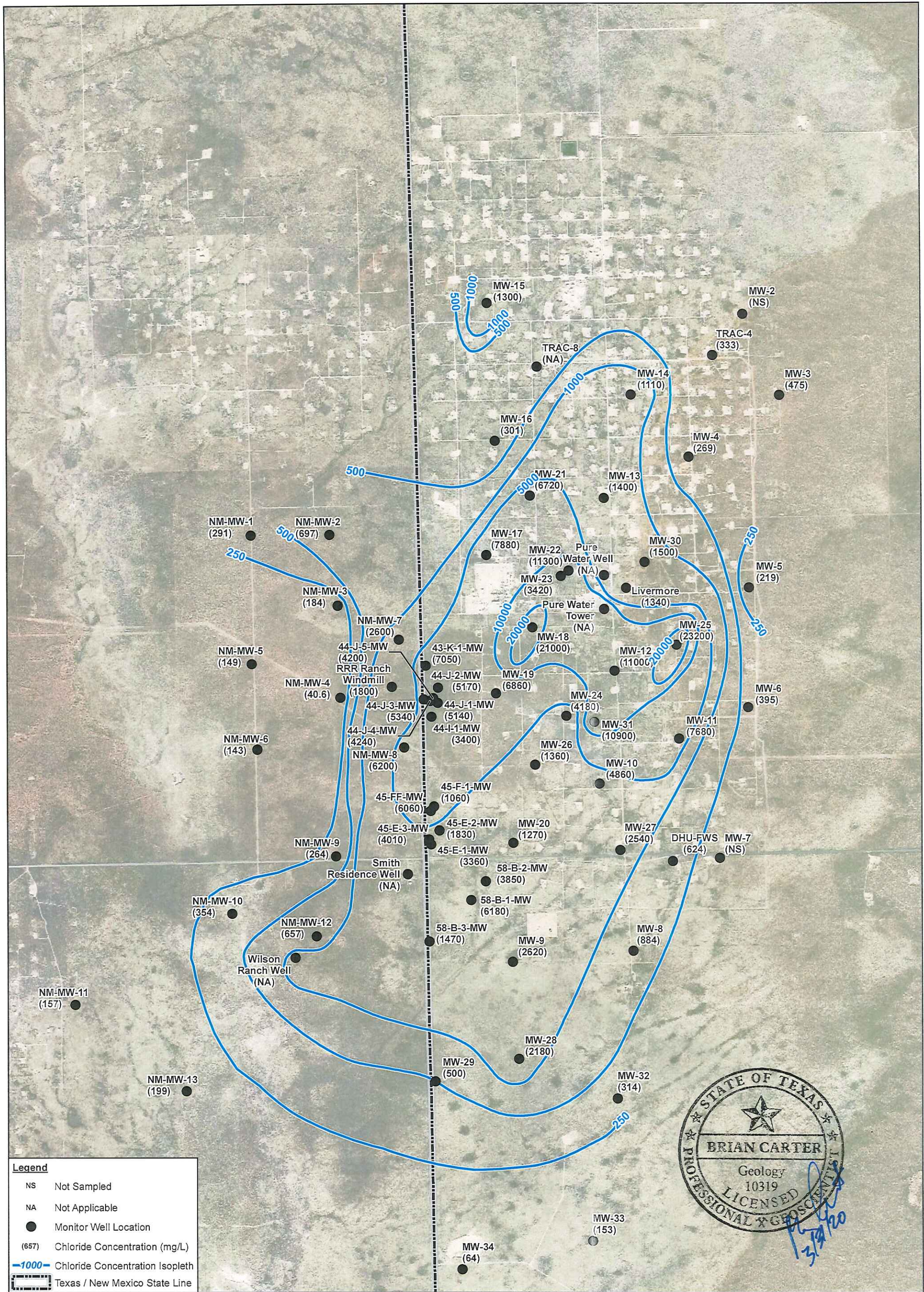
Coordinate System:
NAD 1983 UTM Zone 13N



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
DOLLARHIDE OIL FIELD UNIT
OCTOBER 2019 GROUNDWATER POTENTIOMETRIC
ELEVATIONS & CONTOURS

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Mar 20, 2020

FIGURE 4



Source: ESRI World Imagery Basemap Service.

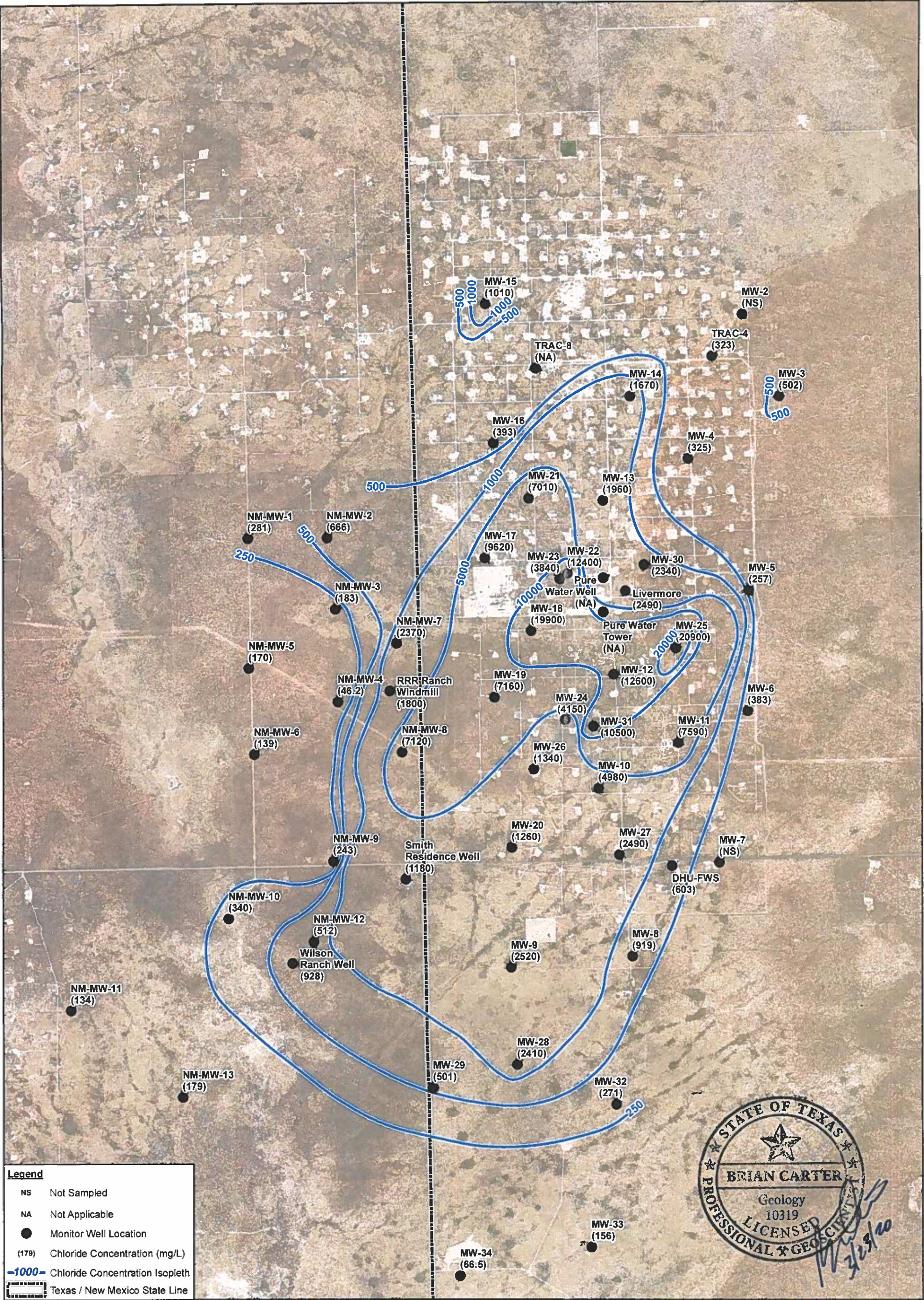
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Feet
Coordinate System:
NAD 1983 UTM Zone 13N



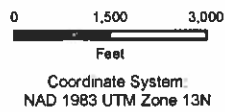
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
DOLLARHIDE OIL FIELD UNIT
JULY 2019 GROUNDWATER CHLORIDE
CONCENTRATIONS & ISOPLETHS

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Mar 31, 2020

FIGURE 5



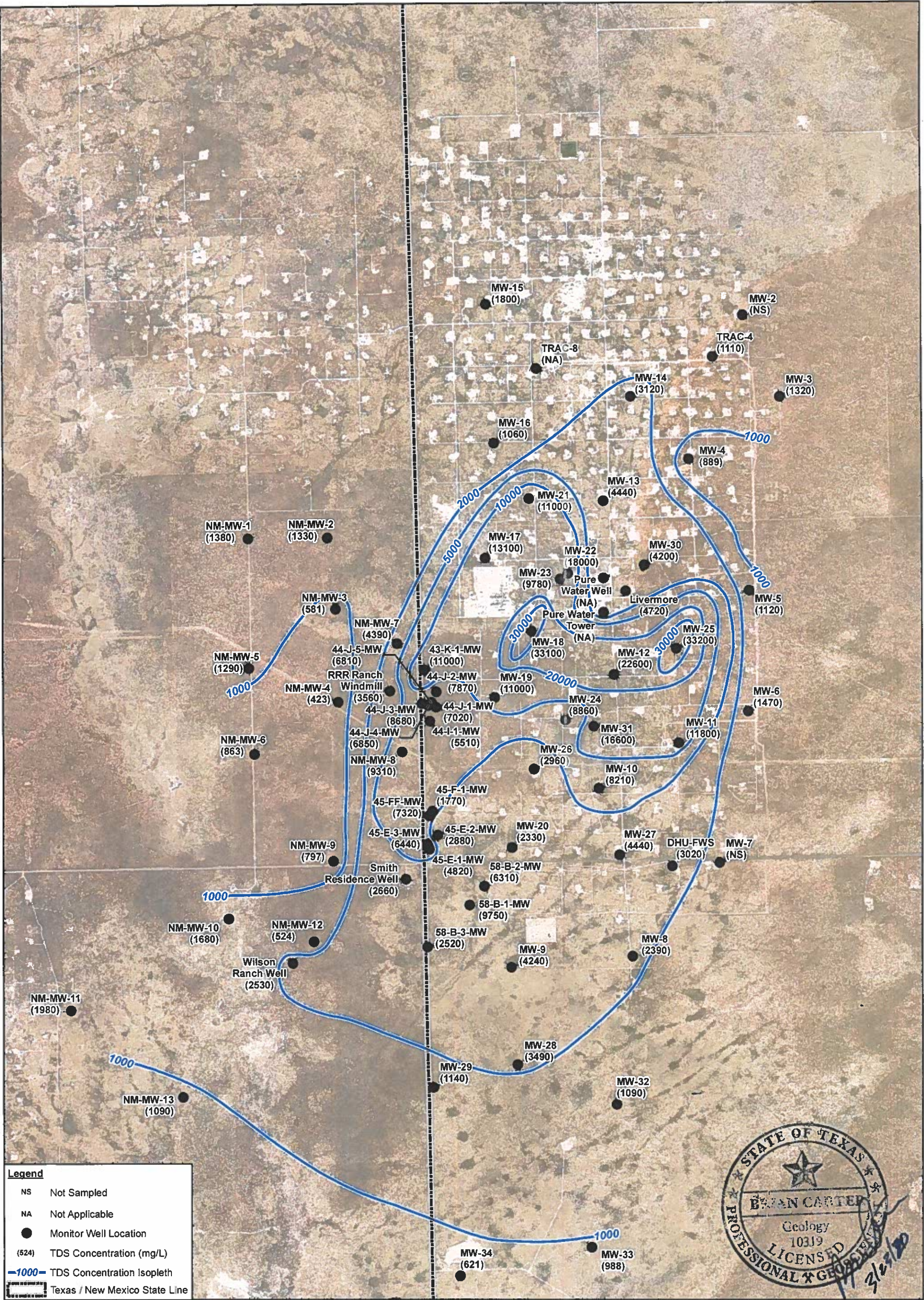
Source: ESRI World Imagery Basemap Service.



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
DOLLARHIDE OIL FIELD UNIT
OCTOBER 2019 GROUNDWATER CHLORIDE
CONCENTRATIONS & ISOPLETHS

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Mar 16, 2020

FIGURE 6



Source: ESRI World Imagery Basemap Service.

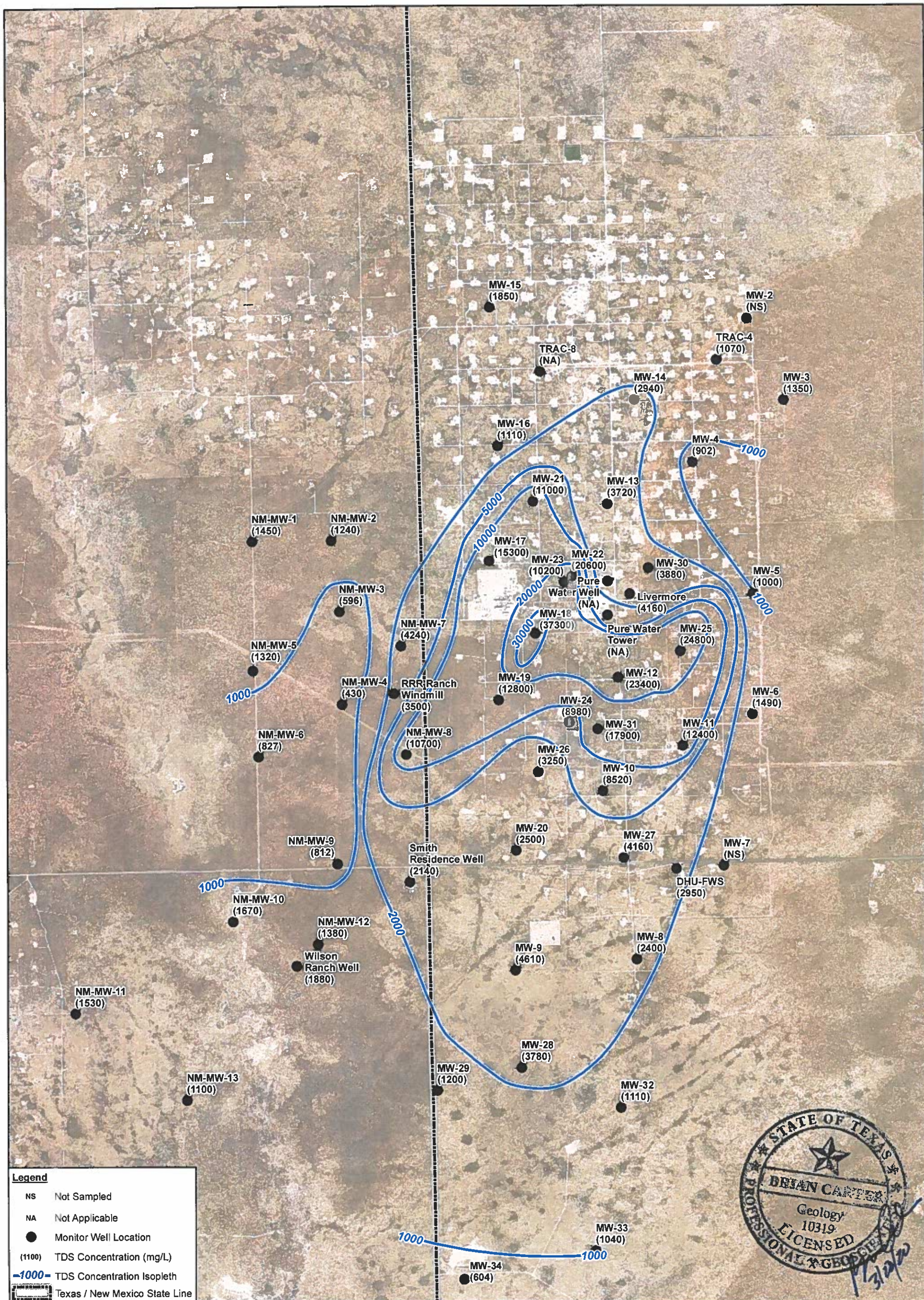
0 1,500 3,000
Feet
Coordinate System:
NAD 1983 UTM Zone 13N



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
DOLLARHIDE OIL FIELD UNIT
JULY 2019 GROUNDWATER TOTAL DISSOLVED SOLIDS (TDS)
CONCENTRATIONS & ISOPLETHS

055270
Mar 20, 2020

FIGURE 7



Source: ESRI World Imagery Basemap Service.

0 1,500 3,000
Feet

Coordinate System:
NAD 1983 UTM Zone 13N



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
DOLLARHIDE OIL FIELD UNIT
OCTOBER 2019 GROUNDWATER TOTAL DISSOLVED SOLIDS (TDS)
CONCENTRATIONS & ISOPLETHS

055270
Mar 16, 2020

FIGURE 8

Table 1
Groundwater Well Designations
Chevron Dollarhide Unit
Dollarhide, Texas

Well Group Designation	Well Identification
Recovery Wells	10-V-WW
	10-W-WW
	10-X-WW
	11-U-WW
	12-S-WW
	12-T-WW
	29-Q-WW
	29-R-WW
	30-O-WW
	31-N-WW
	43-K-WW
	43-L-WW
	43-M-WW
	44-H-WW
	44-I-WW
	44-II-WW
	44-J-WW
	45-EE-WW
	45-ER-WW
	45-F-WW
	45-G-WW
	58-A-WW
	58-B-WW
	58-BB-WW
	58-C-WW
	58-D-WW
Monitor Wells	43-K-1-MW
	44-I-1-MW
	44-J-1-MW
	44-J-2-MW
	44-J-3-MW
	44-J-4-MW
	44-J-5-MW
	45-E-1-MW
	45-E-2-MW
	45-E-3-MW
	45-F-1-MW
	45-FF-MW
	58-B-1-MW
	58-B-2-MW
	58-B-3-MW
	MW-2 ⁽¹⁾
	MW-3 ⁽¹⁾
	MW-4 ⁽¹⁾
	MW-5 ⁽¹⁾
	MW-6 ⁽¹⁾
	MW-7 ⁽¹⁾

Table 1
Groundwater Well Designations
Chevron Dollarhide Unit
Dollarhide, Texas

Well Group Designation	Well Identification
Monitor Wells	MW-8 ⁽¹⁾
	MW-9 ⁽¹⁾
	MW-10 ⁽¹⁾
	MW-11 ⁽¹⁾
	MW-12 ⁽¹⁾
	MW-13 ⁽¹⁾
	MW-14 ⁽¹⁾
	MW-15 ⁽¹⁾
	MW-16 ⁽¹⁾
	MW-17 ⁽¹⁾
	MW-18 ⁽¹⁾
	MW-19 ⁽¹⁾
	MW-20 ⁽¹⁾
	MW-21 ⁽¹⁾
	MW-22 ⁽¹⁾
	MW-23 ⁽¹⁾
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	MW-25 ⁽¹⁾
	MW-26 ⁽¹⁾
	MW-27 ⁽¹⁾
	MW-28 ⁽¹⁾
	MW-29 ⁽¹⁾
	MW-30 ⁽¹⁾
	MW-31 ⁽¹⁾
	MW-32 ⁽¹⁾
	MW-33 ⁽¹⁾
	MW-34 ⁽¹⁾
	NM-MW-1 ⁽¹⁾
	NM-MW-2 ⁽¹⁾
	NM-MW-3 ⁽¹⁾
	NM-MW-4 ⁽¹⁾
	NM-MW-5 ⁽¹⁾
	NM-MW-6 ⁽¹⁾
	NM-MW-7 ⁽¹⁾
	NM-MW-8 ⁽¹⁾
	NM-MW-9 ⁽¹⁾
	NM-MW-10 ⁽¹⁾
	NM-MW-11 ⁽¹⁾
	NM-MW-12 ⁽¹⁾
	NM-MW-13 ⁽¹⁾

Table 1
Groundwater Well Designations
Chevron Dollarhide Unit
Dollarhide, Texas

Well Group Designation	Well Identification
Non-Remedial Wells	Livermore
	Pure Water Tower
	Pure Water Well
	RRR Ranch Windmill
	TRAC-4
	TRAC-8
	Smith Residence
	Wilson Ranch Well

Note:

⁽¹⁾ Indicates monitor wells installed in 2015, 2016, 2017, and 2019 that are voluntarily sampled quarterly.

Table 2
July 2019 Groundwater Elevation Measurements
Chevron Dollarhide Unit
Andrews County, Texas

Well Identification	TOC Elevation (ft NAVD)	Depth to Water (ft below TOC)	Groundwater Elevation (ft NAVD)
Monitor Wells			
43-K-1-MW	NM	94.16	NA
44-I-1-MW	3,138.93	95.53	3,043.40
44-J-1-MW	3,134.50	95.29	3,039.21
44-J-2-MW	3,135.30	93.94	3,041.36
44-J-3-MW	3,140.19	95.49	3,044.70
44-J-4-MW	3,133.69	94.48	3,039.21
44-J-5-MW	3,134.75	95.59	3,039.16
45-E-1-MW	NM	87.66	NA
45-E-2-MW	NM	85.11	NA
45-E-3-MW	NM	88.13	NA
45-F-1-MW	NM	89.49	NA
45-FF-MW	3,122.70	89.90	3,032.80
58-B-1-MW	3,100.59	85.69	3,014.90
58-B-2-MW	3,111.91	84.67	3,027.24
58-B-3-MW	3,108.46	89.37	3,019.09
MW-2	3,204.56	DRY	3,094.00
MW-3	3,199.51	113.19	3,086.32
MW-4	3,189.69	115.74	3,073.95
MW-5	3,174.43	103.00	3,071.43
MW-6	3,165.25	93.92	3,071.33
MW-7	3,132.14	DRY	3,132.14
MW-8	3,107.34	84.45	3,022.89
MW-9	3,103.82	85.02	3,018.80
MW-10	3,139.71	97.22	3,042.49
MW-11	3,156.65	102.41	3,054.24
MW-12	3,151.33	94.85	3,056.48
MW-13	3,168.41	98.88	3,069.53
MW-14	3,182.69	107.00	3,075.69
MW-15	3,184.55	104.49	3,080.06
MW-16	3,167.93	99.83	3,068.10
MW-17	3,147.44	84.15	3,063.29
MW-18	3,155.01	95.89	3,059.12
MW-19	3,149.90	99.69	3,050.21
MW-20	3,120.09	88.31	3,031.78
MW-21	3,159.65	92.70	3,066.95
MW-22	3,152.50	87.93	3,064.57

Table 2
July 2019 Groundwater Elevation Measurements
Chevron Dollarhide Unit
Andrews County, Texas

Well Identification	TOC Elevation (ft NAVD)	Depth to Water (ft below TOC)	Groundwater Elevation (ft NAVD)
MW-23	3,151.66	87.12	3,064.54
MW-24	3,144.88	95.08	3,049.80
MW-25	3,165.45	103.38	3,062.07
MW-26	3,136.99	93.76	3,043.23
MW-27	3,126.99	91.66	3,035.33
MW-28	3,093.86	83.93	3,009.93
MW-29	3,098.60	100.25	2,998.35
MW-30	3,170.95	103.66	3,067.29
MW-31	3,145.41	94.46	3,050.95
MW-32	3,090.28	81.39	3,008.89
MW-33	3,080.02	77.00	3,003.02
MW-34	3,069.95	71.42	2,998.53
NM-MW-1	3,124.90	71.58	3,053.27
NM-MW-2	3,152.86	96.02	3,056.84
NM-MW-3	3,146.86	91.55	3,055.31
NM-MW-4	3,154.21	110.27	3,043.94
NM-MW-5	3,109.14	99.94	3,009.20
NM-MW-6	3,093.23	87.77	3,005.46
NM-MW-7	3,147.67	95.75	3,051.92
NM-MW-8	3,138.62	97.83	3,040.79
NM-MW-9	3,118.18	94.21	3,023.97
NM-MW-10	3,066.32	79.42	2,986.90
NM-MW-11	3,075.44	82.94	2,992.50
NM-MW-12	3,105.47	96.61	3,008.86
NM-MW-13	3,051.17	84.29	2,966.88
Non-Remedial Wells			
RRR Ranch Windmill	NM	93.82	NA
Livermore	NM	95.40	NA
Pure Water Tower	3,154.43	NM	NA
TRAC-4	NM	NM	NA
TRAC-8	NM	NM	NA
Pure Water Well	3,151.80	NM	NA
Smith Residential Well	NM	NM	NA
Wilson Ranch	NM	NM	NA

Notes:

ft = feet

NM = Not Measured

NA = Not Applicable

TOC = top of casing

NAVD = North American Vertical Datum

Table 3

**October 2019 Groundwater Elevation Measurements
Chevron Dollarhide Unit
Andrews County, Texas**

Well Identification	TOC Elevation (ft NAVD)	Depth to Water (ft below TOC)	Groundwater Elevation (ft NAVD)
Monitor Wells			
MW-2	3,204.56	DRY	3,204.56
MW-3	3,199.51	113.78	3,085.73
MW-4	3,189.69	115.93	3,073.76
MW-5	3,174.43	103.02	3,071.41
MW-6	3,165.25	93.80	3,071.45
MW-7	3,132.14	DRY	3,132.14
MW-8	3,107.34	84.33	3,023.01
MW-9	3,103.82	84.93	3,018.89
MW-10	3,139.71	97.12	3,042.59
MW-11	3,156.65	102.36	3,054.29
MW-12	3,151.33	94.71	3,056.62
MW-13	3,168.41	98.94	3,069.47
MW-14	3,182.69	106.96	3,075.73
MW-15	3,184.55	104.35	3,080.20
MW-16	3,167.93	99.72	3,068.21
MW-17	3,147.44	84.09	3,063.35
MW-18	3,155.01	95.84	3,059.17
MW-19	3,149.90	99.54	3,050.36
MW-20	3,120.09	88.19	3,031.90
MW-21	3,159.65	92.61	3,067.04
MW-22	3,152.50	87.80	3,064.70
MW-23	3,151.66	87.06	3,064.60
MW-24	3,144.88	95.03	3,049.85
MW-25	3,165.45	103.31	3,062.14
MW-26	3,136.99	93.61	3,043.38
MW-27	3,126.99	91.50	3,035.49
MW-28	3,093.86	83.93	3,009.93
MW-29	3,098.60	100.22	2,998.38
MW-30	3,170.95	103.48	3,067.47
MW-31	3,145.41	94.40	3,051.01

Table 3

**October 2019 Groundwater Elevation Measurements
Chevron Dollarhide Unit
Andrews County, Texas**

Well Identification	TOC Elevation (ft NAVD)	Depth to Water (ft below TOC)	Groundwater Elevation (ft NAVD)
MW-32	3,090.28	81.42	3,008.86
MW-33	3,080.02	77.09	3,002.93
MW-34	3,069.95	71.45	2,998.50
NM-MW-1	3,124.90	71.76	3,053.14
NM-MW-2	3,152.86	96.30	3,056.56
NM-MW-3	3,146.86	91.72	3,055.14
NM-MW-4	3,154.21	110.35	3,043.86
NM-MW-5	3,109.14	99.78	3,009.36
NM-MW-6	3,093.23	87.89	3,005.34
NM-MW-7	3,147.67	95.88	3,051.79
NM-MW-8	3,138.62	97.89	3,040.73
NM-MW-9	3,118.18	94.17	3,024.01
NM-MW-10	3,066.32	79.48	2,986.84
NM-MW-11	3,075.44	82.97	2,992.47
NM-MW-12	3,105.47	96.64	3,008.83
NM-MW-13	3,051.17	84.37	2,966.80
Non-Remedial Wells			
RRR Ranch Windmill	NM	93.91	NA
Livermore	NM	95.28	NA
Pure Water Tower	3,154.43	NM	NA
TRAC-4	NM	NM	NA
TRAC-8	NM	NM	NA
Pure Water Well	3,151.80	NM	NA
Smith Residential Well	NM	NM	NA
Wilson Ranch	NM	NM	NA

Notes:

ft = feet

NM = Not Measured

NA = Not Applicable

TOC = top of casing

NAVD = North American Vertical Datum

Table 4
2nd Half 2019 Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Andrews County, Texas

Sample ID	July		October	
	Chloride (mg/L)	Total Dissolved Solids (mg/L)	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)	300	1,000	300	1,000
Monitor Wells				
43-K-1-MW	7,050	11,000	NS	NS
44-I-1-MW	3,400	5,510	NS	NS
44-J-1-MW	5,140	7,020	NS	NS
44-J-2-MW	5,170	7,870	NS	NS
44-J-3-MW	5,340	8,680	NS	NS
44-J-4-MW	4,240	6,850	NS	NS
44-J-5-MW	4,200	6,810	NS	NS
45-E-1-MW	3,360	4,820	NS	NS
45-E-2-MW	1,830	2,880	NS	NS
45-E-3-MW	4,010	6,440	NS	NS
45-F-1-MW	1,060	1,770	NS	NS
45-FF-MW	6,060	7,320	NS	NS
58-B-1-MW	6,180	9,750	NS	NS
58-B-2-MW	3,850	6,310	NS	NS
58-B-3-MW	1,470	2,520	NS	NS
MW-2	NS	NS	NS	NS
MW-3	475	1,320	502	1,350
MW-4	269	889	325	902
MW-5	219	1,120	257	1,000
MW-6	395	1,470	383	1,490
MW-7	NS	NS	NS	NS
MW-8	884	2,390	919	2,400
MW-9	2,620	4,240	2,520	4,610
MW-10	4,860	8,210	4,980	8,520
MW-11	7,680	11,800	7,590	12,400
MW-12	11,000	22,600	12,600	23,400
MW-13	1,400	4,440	1,960	3,720
MW-14	1,110	3,120	1,670	2,940
MW-15	1,300	1,800	1,010	1,850
MW-16	301	1,060	393	1,110
MW-17	7,880	13,100	9,620	15,300
MW-18	21,000	33,100	19,900	37,300
MW-19	6,860	11,000	7,160	12,800
MW-20	1,270	2,330	1,260	2,500
MW-21	6,720	11,000	7,010	11,000
MW-22	11,300	18,000	12,400	20,600
MW-23	3,420	9,780	3,840	10,200
MW-24	4,180	8,860	4,150	8,980

Table 4
2nd Half 2019 Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Andrews County, Texas

Sample ID	July		October	
	Chloride (mg/L)	Total Dissolved Solids (mg/L)	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)	300	1,000	300	1,000
MW-25	23,200	33,200	20,900	24,800
MW-26	1,360	2,960	1,340	3,250
MW-27	2,540	4,440	2,490	4,160
MW-28	2,180	3,490	2,410	3,780
MW-29	500	1,140	501	1,200
MW-30	1,500	4,200	2,340	3,880
MW-31	10,900	16,600	10,500	17,900
MW-32	314	1,090	271	1,110
MW-33	153	988	156	1,040
MW-34	64	621	66.5	604
NM-MW-1	291	1,380	281	1,450
NM-MW-2	697	1,330	666	1,240
NM-MW-3	184	581	183	596
NM-MW-4	40.6	423	46.2	430
NM-MW-5	149	1,290	170	1,320
NM-MW-6	143	863	139	827
NM-MW-7	2,600	4,390	2,370	4,240
NM-MW-8	6,200	9,310	7,120	10,700
NM-MW-9	264	797	243	812
NM-MW-10	354	1,680	340	1,670
NM-MW-11	157	1,980	134	1,530
NM-MW-12	657	524	512	1,380
NM-MW-13	199	1,090	179	1,100
Non-Remedial Wells				
Livermore	1,340	4,720	2,490	4,160
Pure Water Tower	NA	NA	NA	NA
Pure Water Well	NA	NA	NA	NA
RRR Ranch Windmill	1,800	3,560	1,800	3,500
Smith Residential Well	1,300	2,660	1,180	2,140
TRAC-4	333	1,110	323	1,070
TRAC-8	NA	NA	NA	NA
Wilson Ranch	1,300	2,530	928	1,880
DHU-FWS	624	3,020	603	2,950

Notes:

1. Constituent concentrations are reported in milligrams per liter (mg/L).
2. Bold font and shading indicates that a detected result was above the TCEQ Secondary Drinking Water Standard.

NA = Not Applicable

NS = Not Sampled

Appendices

Appendix A

Historical Groundwater Elevations

Appendix A
Historical Groundwater Elevation Measurements
Chevron Dollarhide Unit
Dollarhide, Texas

TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
Monitor Wells						
43-K-1-MW						
NM	02/28/07	NM	94.85	NA	NA	NA
	01/22/08	112.95	95.26	NA	NA	NA
	07/07/08	NM	95.33	NA	NA	NA
	08/26/09	114.28	95.69	NA	NA	NA
	01/28/09	112.95	95.32	NA	NA	NA
	08/16/10	NM	95.40	NA	NA	NA
	02/11/11	112.00	95.45	NA	NA	NA
	08/02/11	112.91	94.79	NA	NA	NA
	01/30/13	112.90	95.23	NA	NA	NA
	01/13/14	112.96	92.33	NA	NA	NA
	07/14/14	NM	95.29	NA	NA	NA
	01/12/15	NM	95.21	NA	NA	NA
	07/14/15	NM	95.00	NA	NA	NA
	01/25/16	116.47	94.90	NA	NA	NA
	07/20/16	NM	94.87	NA	NA	NA
	01/11/17	NM	94.82	NA	NA	NA
	07/13/17	NM	95.00	NA	NA	NA
	01/12/18	NM	94.61	NA	NA	NA
	07/02/18	NM	94.47	NA	NA	NA
	01/07/19	NM	94.20	NA	NA	NA
	07/11/19	112.89	94.16	NA	NA	NA
44-I-1-MW						
3,133.50	06/13/06	108.25	93.55	NA	NA	3,039.95
	08/15/06	110.00	96.85	NA	NA	3,036.65
	09/13/06	106.38	96.91	NA	NA	3,036.59
	09/20/06	110.00	96.72	NA	NA	3,036.78
	10/04/06	110.00	96.94	NA	NA	3,036.56
	12/08/06	111.05	97.09	NA	NA	3,036.41
	02/13/07	108.25	96.85	NA	NA	3,036.65
	02/28/07	NM	96.85	NA	NA	3,036.65
	07/30/07	108.25	96.88	NA	NA	3,036.62
	01/22/08	108.25	97.05	NA	NA	3,036.45
	07/09/08	108.25	97.13	NA	NA	3,036.37
	01/28/09	108.25	97.46	NA	NA	3,036.04
	08/27/09	106.20	97.57	NA	NA	3,035.93
	02/19/10	NM	97.31	NA	NA	3,036.19
	08/16/10	NM	97.30	NA	NA	3,036.20
	02/11/11	NM	96.68	NA	NA	3,036.82
	08/02/11	106.70	96.17	NA	NA	3,037.33
	08/15/12	106.65	96.21	NA	NA	3,037.29
	01/30/13	106.26	95.97	NA	NA	3,037.53
	07/30/13	106.65	96.18	NA	NA	3,037.32
	01/13/14	106.65	96.21	NA	NA	3,037.29
	07/14/14	111.17	95.85	NA	NA	3,037.65
	01/12/15	NM	96.27	NA	NA	3,037.23
	07/14/15	NM	95.91	NA	NA	3,037.59
3,138.93	01/25/16	106.94	95.96	NA	NA	3,042.97
	07/20/16	NM	96.10	NA	NA	3,042.83
	01/12/17	NM	95.84	NA	NA	3,043.09
	07/13/17	NM	96.03	NA	NA	3,042.90
	01/12/18	NM	95.64	NA	NA	3,043.29
	07/02/18	NM	95.94	NA	NA	3,042.99
	01/09/19	NM	95.82	NA	NA	3,043.11
	07/11/19	106.21	95.53	NA	NA	3,043.40
44-J-1-MW						
3,134.50	06/13/06	111.04	96.31	NA	NA	3,038.19
	07/13/06	111.04	96.38	NA	NA	3,038.12
	08/15/06	111.00	96.53	NA	NA	3,037.97
	09/13/06	110.00	96.54	NA	NA	3,037.96
	09/20/06	111.00	96.40	NA	NA	3,038.10
	10/04/06	111.00	96.64	NA	NA	3,037.86
	12/08/06	111.97	97.41	NA	NA	3,037.09
	02/13/07	111.04	96.39	NA	NA	3,038.11
	02/28/07	NM	96.39	NA	NA	3,038.11
	07/30/07	111.04	96.51	NA	NA	3,037.99
	01/22/08	111.04	96.86	NA	NA	3,037.64
	07/09/08	111.04	96.90	NA	NA	3,037.60
	01/28/09	111.04	97.21	NA	NA	3,037.29
	08/28/09	110.40	97.27	NA	NA	3,037.23
	08/16/10	NM	96.82	NA	NA	3,037.68
	02/11/11	NM	96.42	NA	NA	3,038.08
	08/02/11	110.72	95.90	NA	NA	3,038.60
	08/15/12	110.04	96.03	NA	NA	3,038.47
	01/30/13	110.69	95.79	NA	NA	3,038.71
	07/30/13	110.80	95.92	NA	NA	3,038.58
	01/13/14	110.81	95.96	NA	NA	3,038.54
	07/14/14	110.76	95.91	NA	NA	3,038.59
	01/12/15	NM	96.01	NA	NA	3,038.49
	01/25/16	NM	95.72	NA	NA	3,038.78
	07/20/16	NM	95.85	NA	NA	3,038.65
	01/12/17	NM	95.60	NA	NA	3,038.90
	07/13/17	NM	95.80	NA	NA	3,038.70
	01/12/18	NM	95.41	NA	NA	3,039.09
	07/02/18	NM	95.70	NA	NA	3,038.80
	01/09/19	NM	95.57	NA	NA	3,038.93
	07/11/19	110.59	95.29	NA	NA	3,039.21

Appendix A
Historical Groundwater Elevation Measurements
Chevron Dollarhide Unit
Dollarhide, Texas

TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
44-J-2-MW						
3,135.30	06/13/06	109.87	91.83	NA	NA	3,043.47
	07/13/06	109.87	94.82	NA	NA	3,040.48
	08/15/06	110.00	94.97	NA	NA	3,040.33
	09/13/06	110.00	95.01	NA	NA	3,040.29
	09/20/06	110.00	94.97	NA	NA	3,040.33
	10/04/06	110.00	96.56	NA	NA	3,038.74
	12/08/06	114.32	95.14	NA	NA	3,040.16
	02/13/07	109.87	94.68	NA	NA	3,040.62
	02/28/07	NM	94.68	NA	NA	3,040.62
	07/30/07	109.87	94.82	NA	NA	3,040.48
	01/22/08	109.87	95.04	NA	NA	3,040.26
	07/09/08	109.87	95.10	NA	NA	3,040.20
	01/28/09	109.87	95.29	NA	NA	3,040.01
	08/28/09	109.00	95.37	NA	NA	3,039.93
	02/19/10	NM	94.56	NA	NA	3,040.74
	08/16/10	NM	95.04	NA	NA	3,040.26
	02/11/11	NM	94.99	NA	NA	3,040.31
	08/02/11	108.75	94.48	NA	NA	3,040.82
	08/15/12	108.80	94.99	NA	NA	3,040.31
	01/30/13	108.90	94.57	NA	NA	3,040.73
	07/30/13	109.00	94.61	NA	NA	3,040.69
	01/13/14	109.03	94.56	NA	NA	3,040.74
	07/14/14	109.02	94.65	NA	NA	3,040.65
	01/12/15	NM	94.68	NA	NA	3,040.62
	07/14/15	NM	94.43	NA	NA	3,040.87
	01/25/16	109.01	94.39	NA	NA	3,040.91
	07/20/16	NM	94.45	NA	NA	3,040.85
	01/12/17	NM	94.30	NA	NA	3,041.00
	07/13/17	NM	94.48	NA	NA	3,040.82
	01/12/18	NM	94.15	NA	NA	3,041.15
	07/02/18	NM	94.31	NA	NA	3,040.99
	01/09/19	NM	94.14	NA	NA	3,041.16
	07/11/19	108.70	93.94	NA	NA	3,041.36
44-J-3-MW						
3,135.25	07/13/06	113.00	96.77	NA	NA	3,038.48
	08/07/06	113.00	96.94	NA	NA	3,038.31
	08/15/06	113.00	96.98	NA	NA	3,038.27
	09/13/06	113.00	97.01	NA	NA	3,038.24
	09/20/06	113.00	95.96	NA	NA	3,039.29
	10/04/06	113.00	97.10	NA	NA	3,038.15
	12/08/06	120.40	97.04	NA	NA	3,038.21
	01/22/08	114.55	97.63	NA	NA	3,037.62
	08/28/09	114.60	97.97	NA	NA	3,037.28
	02/19/10	NM	97.21	NA	NA	3,038.04
	08/16/10	NM	97.20	NA	NA	3,038.05
	02/11/11	110.00	96.74	NA	NA	3,038.51
	08/02/11	114.71	96.27	NA	NA	3,038.98
	01/30/13	114.83	96.17	NA	NA	3,039.08
	07/30/13	114.55	96.22	NA	NA	3,039.03
	01/13/14	114.55	96.25	NA	NA	3,039.00
	07/14/14	114.51	96.23	NA	NA	3,039.02
	01/12/15	NM	96.30	NA	NA	3,038.95
	07/14/15	NM	96.01	NA	NA	3,039.24
3,140.19	01/25/16	114.59	96.02	NA	NA	3,044.17
	07/20/16	NM	96.03	NA	NA	3,044.16
	01/13/17	NM	95.94	NA	NA	3,044.25
	07/13/17	NM	96.05	NA	NA	3,044.14
	01/12/18	NM	95.72	NA	NA	3,044.47
	07/02/18	NM	95.87	NA	NA	3,044.32
	01/09/19	NM	95.66	NA	NA	3,044.53
	07/11/19	114.35	95.49	NA	NA	3,044.70
44-J-4-MW						
3,133.69	07/13/06	111.00	95.79	NA	NA	3,037.90
	08/07/06	111.00	95.97	NA	NA	3,037.72
	08/15/06	111.00	96.02	NA	NA	3,037.67
	09/13/06	111.00	96.04	NA	NA	3,037.65
	09/20/06	111.00	96.00	NA	NA	3,037.69
	10/04/06	111.00	96.11	NA	NA	3,037.58
	12/08/06	115.05	96.09	NA	NA	3,037.60
	01/22/08	113.40	96.77	NA	NA	3,036.92
	08/27/09	113.20	97.09	NA	NA	3,036.60
	02/19/10	NM	96.26	NA	NA	3,037.43
	08/16/10	NM	96.23	NA	NA	3,037.46
	02/11/11	110.00	95.74	NA	NA	3,037.95
	08/02/11	113.43	95.22	NA	NA	3,038.47
	01/30/13	113.25	95.14	NA	NA	3,038.55
	07/30/13	112.95	95.19	NA	NA	3,038.50
	01/13/14	112.93	95.22	NA	NA	3,038.47
	07/14/14	112.94	95.21	NA	NA	3,038.48
	01/12/15	NM	95.25	NA	NA	3,038.44
	07/14/15	NM	94.98	NA	NA	3,038.71
	01/25/16	112.98	94.98	NA	NA	3,038.71
	07/20/16	NM	95.03	NA	NA	3,038.66
	01/12/17	NM	94.92	NA	NA	3,038.77
	07/13/17	NM	95.03	NA	NA	3,038.66
	01/12/18	NM	94.71	NA	NA	3,038.98
	07/02/18	NM	94.87	NA	NA	3,038.82
	01/09/19	NM	94.62	NA	NA	3,039.07
	07/11/19	113.25	94.48	NA	NA	3,039.21

Appendix A
Historical Groundwater Elevation Measurements
Chevron Dollarhide Unit
Dollarhide, Texas

TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
44-J-5-MW						
3,134.75	06/13/06	110.00	96.83	NA	NA	3,037.92
	07/13/06	110.00	96.83	NA	NA	3,037.92
	08/07/06	110.00	97.00	NA	NA	3,037.75
	08/15/06	110.00	97.01	NA	NA	3,037.74
	09/13/06	110.00	97.05	NA	NA	3,037.70
	09/20/06	110.00	97.02	NA	NA	3,037.73
	10/04/06	110.00	97.13	NA	NA	3,037.62
	12/08/06	117.61	97.13	NA	NA	3,037.62
	01/22/08	113.70	97.53	NA	NA	3,037.22
	08/27/09	113.60	97.88	NA	NA	3,036.87
	08/16/10	NM	97.23	NA	NA	3,037.52
	02/11/11	NM	96.84	NA	NA	3,037.91
	08/02/11	113.71	96.32	NA	NA	3,038.43
	01/30/13	113.70	96.23	NA	NA	3,038.52
	07/30/13	113.23	96.30	NA	NA	3,038.45
	01/13/14	113.25	96.33	NA	NA	3,038.42
	07/14/14	113.20	96.30	NA	NA	3,038.45
	01/12/15	NM	96.38	NA	NA	3,038.37
	07/14/15	NM	96.10	NA	NA	3,038.65
	01/25/16	113.26	96.10	NA	NA	3,038.65
	07/20/16	NM	96.14	NA	NA	3,038.61
	01/12/17	NM	96.02	NA	NA	3,038.73
	07/13/17	NM	96.16	NA	NA	3,038.59
	01/12/18	NM	95.80	NA	NA	3,038.95
	07/02/18	NM	95.98	NA	NA	3,038.77
	01/09/19	NM	95.81	NA	NA	3,038.94
	07/11/19	113.11	95.59	NA	NA	3,039.16
45-E-1-MW						
NM	09/12/06	NM	88.92	NA	NA	NA
	12/08/06	105.50	89.15	NA	NA	NA
	02/13/07	107.06	88.51	NA	NA	NA
	02/28/07	NM	88.51	NA	NA	NA
	07/30/07	107.06	88.95	NA	NA	NA
	01/22/08	107.06	90.04	NA	NA	NA
	07/09/08	107.06	89.31	NA	NA	NA
	01/28/09	107.06	89.31	NA	NA	NA
	08/27/09	102.95	89.72	NA	NA	NA
	08/16/10	NM	90.37	NA	NA	NA
	02/11/11	NM	90.36	NA	NA	NA
	08/02/11	103.00	89.70	NA	NA	NA
	01/25/16	103.31	90.58	NA	NA	NA
	07/20/16	NM	90.65	NA	NA	NA
	01/12/17	NM	90.20	NA	NA	NA
	07/13/17	NM	89.96	NA	NA	NA
	01/12/18	NM	88.74	NA	NA	NA
	07/02/18	NM	88.37	NA	NA	NA
	01/09/19	NM	87.95	NA	NA	NA
	07/11/19	102.23	87.66	NA	NA	NA
45-E-2-MW						
NM	09/12/06	NM	81.36	NA	NA	NA
	12/08/06	104.00	86.58	NA	NA	NA
	02/13/07	109.28	85.82	NA	NA	NA
	02/28/07	NM	85.82	NA	NA	NA
	07/30/07	109.28	86.49	NA	NA	NA
	01/22/08	109.28	86.58	NA	NA	NA
	07/09/08	109.28	86.86	NA	NA	NA
	01/28/09	109.28	86.79	NA	NA	NA
	08/26/09	104.20	87.28	NA	NA	NA
	08/16/10	NM	87.84	NA	NA	NA
	02/11/11	NM	88.03	NA	NA	NA
	08/02/11	104.25	87.21	NA	NA	NA
	08/15/12	104.23	87.82	NA	NA	NA
	01/25/16	104.48	88.34	NA	NA	NA
	07/20/16	NM	88.33	NA	NA	NA
	01/12/17	NM	87.93	NA	NA	NA
	07/13/17	NM	87.62	NA	NA	NA
	01/12/18	NM	86.23	NA	NA	NA
	07/02/18	NM	88.85	NA	NA	NA
	01/09/19	NM	85.41	NA	NA	NA
	07/11/19	104.10	85.11	NA	NA	NA
45-E-3-MW						
NM	02/13/07	107.95	88.68	NA	NA	NA
	02/28/07	NM	88.68	NA	NA	NA
	07/26/07	107.95	89.30	NA	NA	NA
	01/22/08	107.95	89.54	NA	NA	NA
	07/08/08	107.95	89.70	NA	NA	NA
	01/28/09	107.95	89.70	NA	NA	NA
	08/26/09	110.00	90.06	NA	NA	NA
	08/16/10	NM	90.63	NA	NA	NA
	02/11/11	107.00	90.74	NA	NA	NA
	08/02/11	107.91	90.19	NA	NA	NA
	07/20/16	NM	91.05	NA	NA	NA
	01/11/17	NM	90.50	NA	NA	NA
	07/13/17	NM	90.37	NA	NA	NA
	01/12/18	NM	89.35	NA	NA	NA
	07/02/18	NM	88.75	NA	NA	NA
	01/09/19	NM	88.41	NA	NA	NA
	07/11/19	107.18	88.13	NA	NA	NA

Appendix A
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TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
45-F-1-MW						
NM	06/13/06	108.19	90.99	NA	NA	NA
	09/12/06	NM	90.15	NA	NA	NA
	12/08/06	107.40	90.34	NA	NA	NA
	02/13/07	108.19	90.22	NA	NA	NA
	02/28/07	NM	90.02	NA	NA	NA
	07/30/07	108.19	90.22	NA	NA	NA
	01/22/08	108.19	90.52	NA	NA	NA
	07/09/08	108.19	90.63	NA	NA	NA
	01/28/09	108.19	90.81	NA	NA	NA
	08/27/09	106.80	90.93	NA	NA	NA
	08/16/10	NM	91.41	NA	NA	NA
	02/11/11	NM	91.52	NA	NA	NA
	08/02/11	107.03	91.15	NA	NA	NA
	08/15/12	108.02	91.40	NA	NA	NA
	01/30/13	106.82	91.29	NA	NA	NA
	07/30/13	107.90	91.70	NA	NA	NA
	01/14/13	107.94	91.71	NA	NA	NA
	07/14/14	107.87	91.53	NA	NA	NA
	01/12/15	NM	91.78	NA	NA	NA
	07/14/15	NM	91.62	NA	NA	NA
	01/25/16	107.90	91.72	NA	NA	NA
	07/20/16	NM	91.56	NA	NA	NA
	01/12/17	NM	91.40	NA	NA	NA
	07/13/17	NM	90.96	NA	NA	NA
	01/12/18	NM	90.44	NA	NA	NA
	07/02/18	NM	90.14	NA	NA	NA
	01/09/19	NM	89.78	NA	NA	NA
	07/11/19	106.79	89.49	NA	NA	NA
45-FF-MW						
3,122.70	06/13/06	111.19	90.57	NA	NA	3,032.13
	09/12/06	NM	90.77	NA	NA	3,031.93
	12/08/06	114.00	90.94	NA	NA	3,031.76
	02/13/07	111.19	90.58	NA	NA	3,032.12
	02/28/07	NM	90.58	NA	NA	3,032.12
	07/30/07	111.19	90.81	NA	NA	3,031.89
	01/22/08	111.19	91.16	NA	NA	3,031.54
	07/09/08	111.19	91.22	NA	NA	3,031.48
	01/28/09	111.19	91.16	NA	NA	3,031.54
	08/27/09	107.50	91.54	NA	NA	3,031.16
	08/16/10	NM	92.01	NA	NA	3,030.69
	02/11/11	NM	92.19	NA	NA	3,030.51
	08/02/11	111.11	91.71	NA	NA	3,030.99
	01/30/13	110.91	91.92	NA	NA	3,030.78
	07/30/13	110.50	92.30	NA	NA	3,030.40
	01/13/14	110.51	92.33	NA	NA	3,030.37
	07/14/14	110.48	92.02	NA	NA	3,030.68
	01/12/15	NM	92.41	NA	NA	3,030.29
	07/14/15	NM	92.30	NA	NA	3,030.40
	01/25/16	110.94	92.36	NA	NA	3,030.34
	07/20/16	NM	92.16	NA	NA	3,030.54
	01/12/17	NM	91.96	NA	NA	3,030.74
	07/13/17	NM	91.55	NA	NA	3,031.15
	01/12/18	NM	90.90	NA	NA	3,031.80
	07/02/18	NM	90.54	NA	NA	3,032.16
	01/09/19	NM	90.31	NA	NA	3,032.39
	07/11/19	110.16	89.90	NA	NA	3,032.80
58-B-1-MW						
3,100.59	06/14/06	NM	NM	NA	NA	NA
	09/12/06	NM	87.12	NA	NA	3,013.47
	12/08/06	106.20	87.06	NA	NA	3,013.53
	02/13/07	105.50	87.02	NA	NA	3,013.57
	02/28/07	NM	87.02	NA	NA	3,013.57
	07/26/07	105.50	87.37	NA	NA	3,013.22
	01/22/08	105.50	87.79	NA	NA	3,012.80
	07/08/08	105.50	87.67	NA	NA	3,012.92
	01/28/09	104.79	87.67	NA	NA	3,012.92
	08/26/09	104.80	87.77	NA	NA	3,012.82
	08/16/10	NM	87.88	NA	NA	3,012.71
	02/11/11	NM	87.43	NA	NA	3,013.16
	08/05/11	104.55	87.00	NA	NA	3,013.59
	08/15/12	104.59	88.12	NA	NA	3,012.47
	01/30/13	107.53	87.76	NA	NA	3,012.83
	07/30/13	104.50	88.56	NA	NA	3,012.03
	01/13/14	104.56	88.60	NA	NA	3,011.99
	07/14/14	104.47	87.92	NA	NA	3,012.67
	01/12/15	NM	88.38	NA	NA	3,012.21
	07/22/16	NM	87.70	NA	NA	3,012.89
	01/13/17	NM	87.20	NA	NA	3,013.39
	07/13/17	NM	86.71	NA	NA	3,013.88
	01/12/18	NM	85.34	NA	NA	3,015.25
	07/02/18	NM	86.12	NA	NA	3,014.47
	01/07/19	NM	85.76	NA	NA	3,014.83
	07/09/19	104.40	85.69	NA	NA	3,014.90

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TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
58-B-2-MW						
3,111.91	06/14/06	NM	NM	NA	NA	NA
	09/12/06	NM	85.80	NA	NA	3,026.11
	12/08/06	NM	85.60	NA	NA	3,026.31
	02/13/07	105.45	85.61	NA	NA	3,026.30
	02/28/07	NM	85.61	NA	NA	3,026.30
	07/26/07	105.45	85.88	NA	NA	3,026.03
	01/22/08	105.45	86.28	NA	NA	3,025.63
	07/08/08	105.45	86.16	NA	NA	3,025.75
	01/28/09	105.45	86.23	NA	NA	3,025.68
	08/26/09	104.50	86.33	NA	NA	3,025.58
	08/16/10	NM	86.42	NA	NA	3,025.49
	02/11/11	NM	86.11	NA	NA	3,025.80
	08/02/11	105.12	85.75	NA	NA	3,026.16
	08/15/12	105.43	86.70	NA	NA	3,025.21
	07/14/15	NM	88.61	NA	NA	3,023.30
	01/25/16	105.08	85.92	NA	NA	3,025.99
	07/22/16	NM	86.40	NA	NA	3,025.51
	01/13/17	NM	85.92	NA	NA	3,025.99
	07/13/17	NM	85.55	NA	NA	3,026.36
	01/12/18	NM	86.47	NA	NA	3,025.44
	07/02/18	NM	85.10	NA	NA	3,026.81
	01/07/19	NM	84.75	NA	NA	3,027.16
	07/09/19	104.47	84.67	NA	NA	3,027.24
58-B-3-MW						
3,108.46	02/13/07	100.75	89.48	NA	NA	3,018.98
	02/28/07	NM	89.48	NA	NA	3,018.98
	07/26/07	100.75	89.39	NA	NA	3,019.07
	01/22/08	100.75	89.71	NA	NA	3,018.75
	07/08/08	100.75	89.75	NA	NA	3,018.71
	01/28/09	100.75	89.81	NA	NA	3,018.65
	08/26/09	104.00	89.88	NA	NA	3,018.58
	08/16/10	NM	90.05	NA	NA	3,018.41
	02/11/11	102.00	90.02	NA	NA	3,018.44
	08/02/11	100.68	89.97	NA	NA	3,018.49
	08/15/12	100.73	90.11	NA	NA	3,018.35
	01/30/13	100.89	90.16	NA	NA	3,018.30
	07/30/13	100.80	90.24	NA	NA	3,018.22
	01/13/14	100.80	90.33	NA	NA	3,018.13
	07/14/14	100.79	90.39	NA	NA	3,018.07
	01/12/15	NM	89.80	NA	NA	3,018.66
	07/14/15	NM	90.06	NA	NA	3,018.40
	01/25/16	100.78	90.08	NA	NA	3,018.38
	07/22/16	NM	90.14	NA	NA	3,018.32
	01/10/17	NM	90.02	NA	NA	3,018.44
	07/13/17	NM	89.88	NA	NA	3,018.58
	01/12/18	NM	89.78	NA	NA	3,018.68
	07/02/18	NM	89.62	NA	NA	3,018.84
	01/07/19	NM	89.36	NA	NA	3,019.10
	07/09/19	100.68	89.37	NA	NA	3,019.09
MW-2						
3,204.56	8/7/2015	NM	104.07	NA	NA	3,100.49
	1/25/2016	109.14	109.05	NA	NA	3,095.51
	7/21/2016	NM	109.10	NA	NA	3,095.46
	1/12/2017	NM	109.20	NA	NA	3,095.36
	4/10/2017	109.71	DRY	NA	NA	DRY
	7/13/2017	NM	109.14	NA	NA	3,095.42
	10/3/2017	109.33	DRY	NA	NA	DRY
	1/12/2018	109.15	DRY	NA	NA	DRY
	4/2/2018	109.15	DRY	NA	NA	DRY
	07/02/18	109.15	DRY	NA	NA	DRY
	10/1/2018	109.58	DRY	NA	NA	DRY
	1/8/2019	109.70	DRY	NA	NA	DRY
	4/9/2019	109.45	DRY	NA	NA	DRY
	7/9/2019	109.14	DRY	NA	NA	DRY
	10/9/2019	NM	DRY	NA	NA	DRY
MW-3						
3,199.51	8/7/2015	NM	112.88	NA	NA	3,086.63
	1/25/2016	119.30	112.95	NA	NA	3,086.56
	7/21/2016	NM	113.02	NA	NA	3,086.49
	1/11/2017	NM	112.95	NA	NA	3,086.56
	4/10/2017	NM	113.17	NA	NA	3,086.34
	7/13/2017	NM	113.04	NA	NA	3,086.47
	10/3/2017	NM	113.11	NA	NA	3,086.40
	1/12/2018	NM	113.04	NA	NA	3,086.47
	4/2/2018	NM	113.20	NA	NA	3,086.31
	07/02/18	NM	113.09	NA	NA	3,086.42
	10/1/2018	NM	113.14	NA	NA	3,086.37
	1/8/2019	NM	113.10	NA	NA	3,086.41
	4/9/2019	NM	113.13	NA	NA	3,086.38
	7/10/2019	119.39	113.19	NA	NA	3,086.32
	10/9/2019	NM	113.78	NA	NA	3,085.73
MW-4						
3,189.69	8/7/2015	NM	115.53	NA	NA	3,074.16
	1/25/2016	116.91	115.60	NA	NA	3,074.09
	7/21/2016	NM	115.65	NA	NA	3,074.04
	1/11/2017	NM	115.55	NA	NA	3,074.14
	4/10/2017	117.74	115.67	NA	NA	3,074.02
	7/13/2017	NM	115.64	NA	NA	3,074.05
	10/3/2017	118.13	115.65	NA	NA	3,074.04
	1/12/2018	NM	115.60	NA	NA	3,074.09
	4/2/2018	NM	115.70	NA	NA	3,073.99
	07/02/18	NM	115.61	NA	NA	3,074.08
	10/1/2018	NM	115.72	NA	NA	3,073.97
	1/8/2019	NM	115.65	NA	NA	3,074.04
	4/9/2019	NM	115.70	NA	NA	3,073.99
	7/10/2019	116.93	115.74	NA	NA	3,073.95
	10/9/2019	NM	115.93	NA	NA	3,073.76

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TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
MW-5						
3,174.43	8/7/2015	NM	102.74	NA	NA	3,071.69
	1/25/2016	116.91	102.78	NA	NA	3,071.65
	7/21/2016	NM	102.84	NA	NA	3,071.59
	1/11/2017	NM	102.80	NA	NA	3,071.63
	4/10/2017	116.95	102.85	NA	NA	3,071.58
	7/13/2017	NM	102.88	NA	NA	3,071.55
	10/3/2017	NM	102.91	NA	NA	3,071.52
	1/12/2018	NM	102.95	NA	NA	3,071.48
	4/2/2018	NM	102.94	NA	NA	3,071.49
	07/02/18	NM	102.93	NA	NA	3,071.50
	10/1/2018	NM	103.00	NA	NA	3,071.43
	1/8/2019	NM	102.90	NA	NA	3,071.53
	4/9/2019	NM	102.99	NA	NA	3,071.44
	7/10/2019	116.96	103.00	NA	NA	3,071.43
	10/9/2019	NM	103.02	NA	NA	3,071.41
MW-6						
3,165.25	8/7/2015	NM	93.97	NA	NA	3,071.28
	1/25/2016	130.94	94.21	NA	NA	3,071.04
	7/21/2016	NM	94.28	NA	NA	3,070.97
	1/11/2017	NM	94.01	NA	NA	3,071.24
	4/10/2017	130.83	94.21	NA	NA	3,071.04
	7/13/2017	NM	94.11	NA	NA	3,071.14
	10/3/2017	NM	94.14	NA	NA	3,071.11
	1/12/2018	NM	93.80	NA	NA	3,071.45
	4/2/2018	NM	94.18	NA	NA	3,071.07
	07/02/18	NM	93.89	NA	NA	3,071.36
	10/1/2018	NM	93.90	NA	NA	3,071.35
	1/8/2019	NM	93.94	NA	NA	3,071.31
	4/9/2019	NM	93.74	NA	NA	3,071.51
	7/10/2019	128.94	93.92	NA	NA	3,071.33
	10/9/2019	NM	93.80	NA	NA	3,071.45
MW-7						
3,132.14	8/7/2015	NM	112.10	NA	NA	3,020.04
	1/25/2016	117.20	112.77	NA	NA	3,019.37
	7/21/2016	NM	114.50	NA	NA	3,017.64
	1/11/2017	NM	115.92	NA	NA	3,016.22
	4/10/2017	116.73	DRY	NA	NA	DRY
	7/13/2017	116.55	DRY	NA	NA	DRY
	10/3/2017	116.46	DRY	NA	NA	DRY
	1/12/2018	NM	DRY	NA	NA	DRY
	4/2/2018	116.66	DRY	NA	NA	DRY
	07/02/18	116.70	DRY	NA	NA	DRY
	10/1/2018	116.61	DRY	NA	NA	DRY
	1/8/2019	116.61	DRY	NA	NA	DRY
	4/5/2019	117.09	DRY	NA	NA	DRY
	7/10/2019	116.59	DRY	NA	NA	DRY
	10/8/2019	NM	DRY	NA	NA	DRY
MW-8						
3,107.34	8/7/2015	NM	85.03	NA	NA	3,022.31
	1/25/2016	110.98	85.46	NA	NA	3,021.88
	7/21/2016	NM	85.10	NA	NA	3,022.24
	1/13/2017	NM	84.95	NA	NA	3,022.39
	4/7/2017	110.98	85.00	NA	NA	3,022.34
	7/13/2017	NM	84.68	NA	NA	3,022.66
	10/3/2017	NM	84.86	NA	NA	3,022.48
	1/12/2018	NM	84.75	NA	NA	3,022.59
	4/2/2018	NM	85.20	NA	NA	3,022.14
	07/02/18	NM	85.09	NA	NA	3,022.25
	10/1/2018	NM	84.83	NA	NA	3,022.51
	1/8/2019	NM	84.81	NA	NA	3,022.53
	4/5/2019	NM	84.52	NA	NA	3,022.82
	7/9/2019	110.97	84.45	NA	NA	3,022.89
	10/8/2019	NM	84.33	NA	NA	3,023.01
MW-9						
3,103.82	8/7/2015	NM	85.68	NA	NA	3,018.14
	1/25/2016	105.30	85.87	NA	NA	3,017.95
	7/21/2016	NM	85.80	NA	NA	3,018.02
	1/13/2017	NM	85.76	NA	NA	3,018.06
	4/7/2017	105.28	85.65	NA	NA	3,018.17
	7/13/2017	NM	85.50	NA	NA	3,018.32
	10/3/2017	NM	85.53	NA	NA	3,018.29
	1/12/2018	NM	85.38	NA	NA	3,018.44
	4/2/2018	NM	85.73	NA	NA	3,018.09
	07/02/18	NM	85.24	NA	NA	3,018.58
	10/1/2018	NM	85.24	NA	NA	3,018.58
	1/7/2019	NM	85.05	NA	NA	3,018.77
	4/5/2019	NM	85.09	NA	NA	3,018.73
	7/9/2019	102.06	85.02	NA	NA	3,018.80
	10/8/2019	NM	84.93	NA	NA	3,018.89
MW-10						
3,139.71	8/7/2015	NM	97.21	NA	NA	3,042.50
	1/25/2016	116.50	97.33	NA	NA	3,042.38
	7/20/2016	NM	97.18	NA	NA	3,042.53
	1/12/2017	NM	97.21	NA	NA	3,042.50
	4/7/2017	116.36	97.22	NA	NA	3,042.49
	7/13/2017	NM	97.12	NA	NA	3,042.59
	10/3/2017	NM	97.35	NA	NA	3,042.36
	1/12/2018	NM	97.30	NA	NA	3,042.41
	4/2/2018	NM	97.41	NA	NA	3,042.30
	07/02/18	NM	97.24	NA	NA	3,042.47
	10/1/2018	NM	97.35	NA	NA	3,042.36
	1/8/2019	NM	97.35	NA	NA	3,042.36
	4/5/2019	NM	97.22	NA	NA	3,042.49
	7/9/2019	116.65	97.22	NA	NA	3,042.49
	10/8/2019	NM	97.12	NA	NA	3,042.59

Appendix A
Historical Groundwater Elevation Measurements
Chevron Dollarhide Unit
Dollarhide, Texas

TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
MW-11						
3,156.65	8/7/2015	NM	102.00	NA	NA	3,054.65
	1/25/2016	110.23	102.08	NA	NA	3,054.57
	7/21/2016	NM	102.16	NA	NA	3,054.49
	1/11/2017	NM	102.10	NA	NA	3,054.55
	4/10/2017	110.02	102.22	NA	NA	3,054.43
	7/13/2017	NM	102.22	NA	NA	3,054.43
	10/3/2017	NM	102.28	NA	NA	3,054.37
	1/12/2018	NM	102.18	NA	NA	3,054.47
	4/2/2018	NM	102.39	NA	NA	3,054.26
	07/02/18	NM	102.28	NA	NA	3,054.37
	10/1/2018	NM	102.35	NA	NA	3,054.30
	1/8/2019	NM	102.35	NA	NA	3,054.30
	4/9/2019	NM	102.45	NA	NA	3,054.20
	7/10/2019	110.03	102.41	NA	NA	3,054.24
	10/9/2019	NM	102.36	NA	NA	3,054.29
MW-12						
3,151.33	8/7/2015	NM	94.70	NA	NA	3,056.63
	1/25/2016	114.18	94.68	NA	NA	3,056.65
	7/20/2016	NM	94.69	NA	NA	3,056.64
	1/11/2017	NM	94.70	NA	NA	3,056.63
	4/7/2017	114.15	94.66	NA	NA	3,056.67
	7/13/2017	NM	94.60	NA	NA	3,056.73
	10/3/2017	NM	94.87	NA	NA	3,056.46
	1/12/2018	NM	94.66	NA	NA	3,056.67
	4/2/2018	NM	94.74	NA	NA	3,056.59
	07/02/18	NM	94.71	NA	NA	3,056.62
	10/1/2018	NM	94.87	NA	NA	3,056.46
	1/8/2019	NM	94.92	NA	NA	3,056.41
	4/10/2019	NM	94.75	NA	NA	3,056.58
	7/9/2019	114.14	94.85	NA	NA	3,056.48
	10/8/2019	NM	94.71	NA	NA	3,056.62
MW-13						
3,168.41	8/7/2015	NM	98.61	NA	NA	3,069.80
	1/25/2016	127.85	98.88	NA	NA	3,069.53
	7/21/2016	NM	98.78	NA	NA	3,069.63
	1/11/2017	NM	98.49	NA	NA	3,069.92
	4/10/2017	127.90	98.70	NA	NA	3,069.71
	7/13/2017	NM	98.60	NA	NA	3,069.81
	10/3/2017	NM	98.70	NA	NA	3,069.71
	1/12/2018	NM	98.61	NA	NA	3,069.80
	4/2/2018	NM	98.80	NA	NA	3,069.61
	07/02/18	NM	98.74	NA	NA	3,069.67
	10/1/2018	NM	98.88	NA	NA	3,069.53
	1/8/2019	NM	98.90	NA	NA	3,069.51
	4/10/2019	NM	98.83	NA	NA	3,069.58
	7/10/2019	127.89	98.88	NA	NA	3,069.53
	10/9/2019	NM	98.94	NA	NA	3,069.47
MW-14						
3,182.69	8/7/2015	NM	106.69	NA	NA	3,076.00
	1/25/2016	124.62	106.78	NA	NA	3,075.91
	7/21/2016	NM	106.90	NA	NA	3,075.79
	1/11/2017	NM	106.78	NA	NA	3,075.91
	4/10/2017	124.48	107.01	NA	NA	3,075.68
	7/13/2017	NM	106.88	NA	NA	3,075.81
	10/3/2017	NM	106.95	NA	NA	3,075.74
	1/12/2018	NM	106.85	NA	NA	3,075.84
	4/2/2018	NM	107.00	NA	NA	3,075.69
	07/02/18	NM	106.91	NA	NA	3,075.78
	10/1/2018	NM	106.98	NA	NA	3,075.71
	1/8/2019	NM	106.97	NA	NA	3,075.72
	4/9/2019	NM	106.96	NA	NA	3,075.73
	7/10/2019	124.43	107.00	NA	NA	3,075.69
	10/9/2019	NM	106.96	NA	NA	3,075.73
MW-15						
3,184.55	8/7/2015	NM	104.29	NA	NA	3,080.26
	1/25/2016	126.36	104.56	NA	NA	3,079.99
	7/21/2016	NM	104.60	NA	NA	3,079.95
	1/11/2017	NM	104.45	NA	NA	3,080.10
	4/10/2017	NM	104.76	NA	NA	3,079.79
	7/13/2017	NM	104.52	NA	NA	3,080.03
	10/3/2017	NM	104.66	NA	NA	3,079.89
	1/12/2018	NM	104.45	NA	NA	3,080.10
	4/2/2018	NM	104.63	NA	NA	3,079.92
	07/02/18	NM	104.56	NA	NA	3,079.99
	10/1/2018	NM	104.57	NA	NA	3,079.98
	1/8/2019	NM	104.54	NA	NA	3,080.01
	4/10/2019	NM	104.50	NA	NA	3,080.05
	7/10/2019	126.59	104.49	NA	NA	3,080.06
	10/9/2019	NM	104.35	NA	NA	3,080.20
MW-16						
3,167.93	8/7/2015	NM	99.76	NA	NA	3,068.17
	1/25/2016	119.30	99.86	NA	NA	3,068.07
	7/21/2016	NM	100.02	NA	NA	3,067.91
	1/11/2017	NM	99.88	NA	NA	3,068.05
	4/10/2017	119.07	100.03	NA	NA	3,067.90
	7/13/2017	NM	99.94	NA	NA	3,067.99
	10/3/2017	NM	100.01	NA	NA	3,067.92
	1/12/2018	NM	99.83	NA	NA	3,068.10
	4/2/2018	NM	99.97	NA	NA	3,067.96
	07/02/18	NM	99.92	NA	NA	3,068.01
	10/1/2018	NM	99.93	NA	NA	3,068.00
	1/8/2019	NM	99.86	NA	NA	3,068.07
	4/10/2019	NM	99.86	NA	NA	3,068.07
	7/10/2019	119.06	99.83	NA	NA	3,068.10
	10/9/2019	NM	99.72	NA	NA	3,068.21

Appendix A
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Chevron Dollarhide Unit
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TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ^(d)
MW-17						
3,147.44	8/7/2015	NM	83.74	NA	NA	3,063.70
	1/25/2016	118.27	84.18	NA	NA	3,063.26
	7/20/2016	NM	82.79	NA	NA	3,064.65
	1/11/2017	NM	83.75	NA	NA	3,063.69
	4/10/2017	118.26	84.27	NA	NA	3,063.17
	7/13/2017	NM	84.06	NA	NA	3,063.38
	10/3/2017	NM	84.08	NA	NA	3,063.36
	1/12/2018	NM	83.79	NA	NA	3,063.65
	4/2/2018	NM	84.26	NA	NA	3,063.18
	07/02/18	NM	84.32	NA	NA	3,063.12
	10/1/2018	NM	84.41	NA	NA	3,063.03
	1/8/2019	NM	84.25	NA	NA	3,063.19
	4/10/2019	NM	84.02	NA	NA	3,063.42
	7/10/2019	118.20	84.15	NA	NA	3,063.29
	10/9/2019	NM	84.09	NA	NA	3,063.35
MW-18						
3,155.01	8/7/2015	NM	95.94	NA	NA	3,059.07
	1/25/2016	122.40	95.81	NA	NA	3,059.20
	7/20/2016	NM	95.91	NA	NA	3,059.10
	1/12/2017	NM	95.82	NA	NA	3,059.19
	4/7/2017	122.37	95.76	NA	NA	3,059.25
	7/13/2017	NM	95.67	NA	NA	3,059.34
	10/3/2017	NM	95.87	NA	NA	3,059.14
	1/12/2018	NM	95.72	NA	NA	3,059.29
	4/2/2018	NM	95.80	NA	NA	3,059.21
	07/02/18	NM	95.74	NA	NA	3,059.27
	10/1/2018	NM	95.90	NA	NA	3,059.11
	1/8/2019	NM	95.88	NA	NA	3,059.13
	4/9/2019	NM	95.76	NA	NA	3,059.25
	7/10/2019	122.35	95.89	NA	NA	3,059.12
	10/9/2019	NM	95.84	NA	NA	3,059.17
MW-19						
3,149.90	8/7/2015	NM	99.58	NA	NA	3,050.32
	1/25/2016	115.04	99.68	NA	NA	3,050.22
	7/20/2016	NM	99.78	NA	NA	3,050.12
	1/12/2017	NM	99.68	NA	NA	3,050.22
	4/7/2017	115.03	99.78	NA	NA	3,050.12
	7/13/2017	NM	99.61	NA	NA	3,050.29
	10/3/2017	NM	99.83	NA	NA	3,050.07
	1/12/2018	NM	99.63	NA	NA	3,050.27
	4/2/2018	NM	99.69	NA	NA	3,050.21
	07/02/18	NM	99.85	NA	NA	3,050.05
	10/1/2018	NM	99.75	NA	NA	3,050.15
	1/8/2019	NM	99.78	NA	NA	3,050.12
	4/9/2019	NM	99.56	NA	NA	3,050.34
	7/10/2019	114.99	99.69	NA	NA	3,050.21
	10/9/2019	NM	99.54	NA	NA	3,050.36
MW-20						
3,120.09	8/7/2015	NM	88.96	NA	NA	3,031.13
	1/25/2016	112.91	88.96	NA	NA	3,031.13
	7/20/2016	NM	89.07	NA	NA	3,031.02
	1/12/2017	NM	89.00	NA	NA	3,031.09
	4/7/2017	112.65	88.97	NA	NA	3,031.12
	7/13/2017	NM	88.76	NA	NA	3,031.33
	10/3/2017	NM	88.88	NA	NA	3,031.21
	1/12/2018	NM	88.75	NA	NA	3,031.34
	4/2/2018	NM	88.67	NA	NA	3,031.42
	07/02/18	NM	88.69	NA	NA	3,031.40
	10/1/2018	NM	88.59	NA	NA	3,031.50
	1/8/2019	NM	88.57	NA	NA	3,031.52
	4/5/2019	NM	88.37	NA	NA	3,031.72
	7/9/2019	112.53	88.31	NA	NA	3,031.78
	10/8/2019	NM	88.19	NA	NA	3,031.90
MW-21						
3,159.65	7/21/2016	NM	92.31	NA	NA	3,067.34
	1/12/2017	NM	92.41	NA	NA	3,067.24
	4/10/2017	123.74	92.65	NA	NA	3,067.00
	7/13/2017	NM	92.55	NA	NA	3,067.10
	10/3/2017	NM	92.65	NA	NA	3,067.00
	1/12/2018	NM	92.47	NA	NA	3,067.18
	4/2/2018	NM	92.64	NA	NA	3,067.01
	07/02/18	NM	92.65	NA	NA	3,067.00
	10/1/2018	NM	92.74	NA	NA	3,066.91
	1/8/2019	NM	92.73	NA	NA	3,066.92
	4/10/2019	NM	92.64	NA	NA	3,067.01
	7/10/2019	123.75	92.70	NA	NA	3,066.95
	10/9/2019	Nm	92.61	NA	NA	3,067.04

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TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
MW-22						
3,152.50	4/10/2017	117.94	87.78	NA	NA	3,064.72
	7/13/2017	NM	87.64	NA	NA	3,064.86
	10/3/2017	NM	87.71	NA	NA	3,064.79
	1/12/2018	NM	87.50	NA	NA	3,065.00
	4/2/2018	NM	87.75	NA	NA	3,064.75
	07/02/18	NM	87.75	NA	NA	3,064.75
	10/1/2018	NM	87.85	NA	NA	3,064.65
	1/8/2019	NM	87.90	NA	NA	3,064.60
	4/10/2019	NM	87.79	NA	NA	3,064.71
	7/10/2019	114.81	87.93	NA	NA	3,064.57
	10/9/2019	NM	87.80	NA	NA	3,064.70
MW-23						
3,151.66	7/21/2016	NM	87.03	NA	NA	3,064.63
	1/11/2017	NM	86.74	NA	NA	3,064.92
	4/10/2017	124.94	87.02	NA	NA	3,064.64
	7/13/2017	NM	86.86	NA	NA	3,064.80
	10/3/2017	NM	86.95	NA	NA	3,064.71
	1/12/2018	NM	86.75	NA	NA	3,064.91
	4/2/2018	NM	86.98	NA	NA	3,064.68
	07/02/18	NM	86.98	NA	NA	3,064.68
	10/1/2018	NM	87.08	NA	NA	3,064.58
	1/8/2019	NM	87.17	NA	NA	3,064.49
	4/10/2019	NM	87.02	NA	NA	3,064.64
	7/10/2019	104.97	87.12	NA	NA	3,064.54
	10/9/2019	NM	87.06	NA	NA	3,064.60
MW-24						
3,144.88	7/20/2016	NM	95.02	NA	NA	3,049.86
	1/12/2017	NM	95.11	NA	NA	3,049.77
	4/7/2017	115.39	95.15	NA	NA	3,049.73
	7/13/2017	NM	95.11	NA	NA	3,049.77
	10/3/2017	NM	95.33	NA	NA	3,049.55
	1/12/2018	NM	95.18	NA	NA	3,049.70
	4/2/2018	NM	95.23	NA	NA	3,049.65
	07/02/18	NM	95.12	NA	NA	3,049.76
	10/1/2018	NM	95.25	NA	NA	3,049.63
	1/8/2019	NM	95.22	NA	NA	3,049.66
	4/9/2019	NM	95.05	NA	NA	3,049.83
	7/9/2019	115.43	95.08	NA	NA	3,049.80
	10/8/2019	NM	95.03	NA	NA	3,049.85
MW-25						
3,165.45	7/21/2016	NM	103.05	NA	NA	3,062.40
	1/11/2017	NM	103.00	NA	NA	3,062.45
	4/10/2017	116.81	103.26	NA	NA	3,062.19
	7/13/2017	NM	103.17	NA	NA	3,062.28
	10/3/2017	NM	103.20	NA	NA	3,062.25
	1/12/2018	NM	103.04	NA	NA	3,062.41
	4/2/2018	NM	103.50	NA	NA	3,061.95
	07/02/18	NM	103.29	NA	NA	3,062.16
	10/1/2018	NM	103.34	NA	NA	3,062.11
	1/8/2019	NM	103.39	NA	NA	3,062.06
	4/9/2019	NM	103.28	NA	NA	3,062.17
	7/10/2019	116.79	103.38	NA	NA	3,062.07
	10/9/2019	NM	103.31	NA	NA	3,062.14
MW-26						
3,136.99	1/12/2017	NM	93.78	NA	NA	3,043.21
	4/7/2017	108.41	93.83	NA	NA	3,043.16
	7/13/2017	NM	93.75	NA	NA	3,043.24
	10/3/2017	NM	94.00	NA	NA	3,042.99
	1/12/2018	NM	93.76	NA	NA	3,043.23
	4/2/2018	NM	93.89	NA	NA	3,043.10
	07/02/18	NM	94.00	NA	NA	3,042.99
	10/1/2018	NM	93.91	NA	NA	3,043.08
	1/6/2019	NM	93.88	NA	NA	3,043.11
	4/9/2019	NM	93.74	NA	NA	3,043.25
	7/9/2019	108.37	93.76	NA	NA	3,043.23
	10/8/2019	NM	93.61	NA	NA	3,043.38
MW-27						
3,126.99	7/20/2016	NM	91.61	NA	NA	3,035.38
	1/11/2017	NM	91.40	NA	NA	3,035.59
	4/7/2017	108.40	91.65	NA	NA	3,035.34
	7/13/2017	NM	91.60	NA	NA	3,035.39
	10/3/2017	NM	91.80	NA	NA	3,035.19
	1/12/2018	NM	91.78	NA	NA	3,035.21
	4/2/2018	NM	92.08	NA	NA	3,034.91
	07/02/18	NM	91.98	NA	NA	3,035.01
	10/1/2018	NM	92.07	NA	NA	3,034.92
	1/8/2019	NM	91.86	NA	NA	3,035.13
	4/5/2019	NM	91.70	NA	NA	3,035.29
	7/9/2019	108.04	91.66	NA	NA	3,035.33
	10/8/2019	NM	91.50	NA	NA	3,035.49
MW-28						
3,093.86	1/10/2017	NM	83.60	NA	NA	3,010.26
	4/7/2017	104.02	83.74	NA	NA	3,010.12
	7/13/2017	NM	83.78	NA	NA	3,010.08
	10/3/2017	NM	83.79	NA	NA	3,010.07
	1/12/2018	NM	83.84	NA	NA	3,010.02
	4/2/2018	NM	83.84	NA	NA	3,010.02
	07/02/18	NM	83.89	NA	NA	3,009.97
	10/1/2018	NM	83.62	NA	NA	3,010.24
	1/9/2019	NM	83.79	NA	NA	3,010.07
	4/9/2019	NM	83.89	NA	NA	3,009.97
	7/9/2019	103.95	83.93	NA	NA	3,009.93
	10/8/2019	NM	83.93	NA	NA	3,009.93

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TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
MW-29						
3,098.60	1/10/2017	NM	99.85	NA	NA	2,998.75
	4/7/2017	113.55	99.97	NA	NA	2,998.63
	7/13/2017	NM	100.00	NA	NA	2,998.60
	10/3/2017	NM	99.95	NA	NA	2,998.65
	1/12/2018	NM	100.08	NA	NA	2,998.52
	4/2/2018	NM	100.17	NA	NA	2,998.43
	07/02/18	NM	100.16	NA	NA	2,998.44
	10/1/2018	NM	100.11	NA	NA	2,998.49
	1/7/2019	NM	100.04	NA	NA	2,998.56
	4/5/2019	NM	100.21	NA	NA	2,998.39
	7/9/2019	113.41	100.25	NA	NA	2,998.35
	10/8/2019	NM	100.22	NA	NA	2,998.38
MW-30						
3,170.95	7/13/2017	NM	103.41	NA	NA	3,067.54
	10/3/2017	NM	103.57	NA	NA	3,067.38
	1/12/2018	NM	103.19	NA	NA	3,067.76
	4/2/2018	NM	103.71	NA	NA	3,067.24
	07/02/18	NM	103.46	NA	NA	3,067.49
	10/1/2018	NM	103.58	NA	NA	3,067.37
	1/8/2019	NM	103.67	NA	NA	3,067.28
	4/10/2019	NM	103.52	NA	NA	3,067.43
	7/10/2019	123.89	103.66	NA	NA	3,067.29
	10/9/2019	NM	103.48	NA	NA	3,067.47
MW-31						
3,145.41	7/13/2017	NM	94.50	NA	NA	3,050.91
	10/3/2017	NM	94.74	NA	NA	3,050.67
	1/12/2018	NM	94.60	NA	NA	3,050.81
	4/2/2018	NM	94.60	NA	NA	3,050.81
	07/02/18	NM	94.50	NA	NA	3,050.91
	10/1/2018	NM	94.62	NA	NA	3,050.79
	1/8/2019	NM	94.59	NA	NA	3,050.82
	4/5/2019	NM	94.42	NA	NA	3,050.99
	7/9/2019	102.57	94.46	NA	NA	3,050.95
	10/8/2019	NM	94.40	NA	NA	3,051.01
MW-32						
3,090.28	4/10/2019	94.04	81.18	NA	NA	3,009.10
	7/9/2019	93.44	81.39	NA	NA	3,008.89
	10/8/2019	NM	81.42	NA	NA	3,008.86
MW-33						
3,080.02	4/10/2019	92.98	76.84	NA	NA	3,003.18
	7/9/2019	92.97	77.00	NA	NA	3,003.02
	10/8/2019	NM	77.09	NA	NA	3,002.93
MW-34						
3,069.95	4/10/2019	78.04	71.21	NA	NA	2,998.74
	7/9/2019	78.03	71.42	NA	NA	2,998.53
	10/8/2019	NM	71.45	NA	NA	2,998.50
NM-MW-1						
3,124.90	12/2/2015	NM	72.01	NA	NA	3,052.89
	1/25/2016	106.86	72.01	NA	NA	3,052.89
	7/22/2016	NM	71.90	NA	NA	3,053.00
	1/12/2017	NM	71.73	NA	NA	3,053.17
	4/7/2017	106.36	71.78	NA	NA	3,053.12
	7/13/2017	NM	71.67	NA	NA	3,053.23
	10/3/2017	NM	71.65	NA	NA	3,053.25
	1/12/2018	NM	71.63	NA	NA	3,053.27
	4/2/2018	NM	71.66	NA	NA	3,053.24
	07/02/18	NM	70.65	NA	NA	3,054.25
	10/1/2018	NM	71.71	NA	NA	3,053.19
	1/7/2019	NM	71.63	NA	NA	3,053.27
	4/4/2019	NM	71.61	NA	NA	3,053.29
	7/8/2019	105.91	71.58	NA	NA	3,053.32
	10/7/2019	NM	71.76	NA	NA	3,053.14
NM-MW-2						
3,152.86	12/2/2015	NM	96.14	NA	NA	3,056.72
	1/25/2016	120.55	96.38	NA	NA	3,056.48
	7/22/2016	NM	96.28	NA	NA	3,056.58
	1/12/2017	NM	96.20	NA	NA	3,056.66
	4/7/2017	120.60	96.49	NA	NA	3,056.37
	7/13/2017	NM	96.25	NA	NA	3,056.61
	10/3/2017	NM	96.17	NA	NA	3,056.69
	1/12/2018	NM	96.29	NA	NA	3,056.57
	4/2/2018	NM	96.18	NA	NA	3,056.68
	07/02/18	NM	96.42	NA	NA	3,056.44
	10/1/2018	NM	96.28	NA	NA	3,056.58
	1/7/2019	NM	96.14	NA	NA	3,056.72
	4/4/2019	NM	96.20	NA	NA	3,056.66
	7/8/2019	120.53	96.02	NA	NA	3,056.84
	10/7/2019	NM	96.30	NA	NA	3,056.56
NM-MW-3						
3,146.86	12/2/2015	NM	91.70	NA	NA	3,055.16
	1/25/2016	105.01	91.80	NA	NA	3,055.06
	7/22/2016	NM	91.81	NA	NA	3,055.05
	1/12/2017	NM	91.75	NA	NA	3,055.11
	4/7/2017	105.28	91.99	NA	NA	3,054.87
	7/13/2017	NM	91.92	NA	NA	3,054.94
	10/3/2017	NM	91.90	NA	NA	3,054.96
	1/12/2018	NM	91.93	NA	NA	3,054.93
	4/2/2018	NM	91.82	NA	NA	3,055.04
	07/02/18	NM	91.88	NA	NA	3,054.98
	10/1/2018	NM	91.78	NA	NA	3,055.08
	1/7/2019	NM	91.68	NA	NA	3,055.18
	4/4/2019	NM	91.70	NA	NA	3,055.16
	7/8/2019	105.31	91.55	NA	NA	3,055.31
	10/7/2019	NM	91.72	NA	NA	3,055.14

Appendix A
Historical Groundwater Elevation Measurements
Chevron Dollarhide Unit
Dollarhide, Texas

TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
NM-MW-4						
3,154.21	12/2/2015	NM	110.59	NA	NA	3,043.62
	1/25/2016	116.91	110.46	NA	NA	3,043.75
	7/22/2016	NM	110.57	NA	NA	3,043.64
	1/12/2017	NM	110.40	NA	NA	3,043.81
	4/7/2017	117.19	110.52	NA	NA	3,043.69
	7/13/2017	NM	110.50	NA	NA	3,043.71
	10/3/2017	NM	110.52	NA	NA	3,043.69
	1/12/2018	NM	110.48	NA	NA	3,043.73
	4/2/2018	NM	110.55	NA	NA	3,043.66
	07/02/18	NM	110.38	NA	NA	3,043.83
	10/1/2018	NM	110.44	NA	NA	3,043.77
	1/7/2019	NM	110.34	NA	NA	3,043.87
	4/4/2019	NM	110.36	NA	NA	3,043.85
	7/8/2019	117.12	110.27	NA	NA	3,043.94
	10/7/2019	NM	110.35	NA	NA	3,043.86
NM-MW-5						
3,109.14	12/2/2015	NM	DRY	NA	NA	DRY
	1/25/2016	115.00	99.95	NA	NA	3,009.19
	7/22/2016	NM	99.78	NA	NA	3,009.36
	1/12/2017	NM	99.70	NA	NA	3,009.44
	4/7/2017	114.92	99.66	NA	NA	3,009.48
	7/13/2017	NM	99.80	NA	NA	3,009.34
	10/3/2017	NM	99.69	NA	NA	3,009.45
	1/12/2018	NM	99.80	NA	NA	3,009.34
	4/2/2018	NM	99.76	NA	NA	3,009.38
	07/02/18	NM	99.82	NA	NA	3,009.32
	10/1/2018	NM	99.89	NA	NA	3,009.25
	1/7/2019	NM	99.61	NA	NA	3,009.53
	4/4/2019	NM	99.74	NA	NA	3,009.40
	7/8/2019	114.43	99.94	NA	NA	3,009.20
	10/7/2019	NM	99.78	NA	NA	3,009.36
NM-MW-6						
3,093.23	12/2/2015	NM	86.98	NA	NA	3,006.25
	1/25/2016	123.21	86.93	NA	NA	3,006.30
	7/22/2016	NM	87.10	NA	NA	3,006.13
	1/12/2017	NM	87.35	NA	NA	3,005.88
	4/7/2017	123.16	87.42	NA	NA	3,005.81
	7/13/2017	NM	87.47	NA	NA	3,005.76
	10/3/2017	NM	87.47	NA	NA	3,005.76
	1/12/2018	NM	87.57	NA	NA	3,005.66
	4/2/2018	NM	87.53	NA	NA	3,005.70
	07/02/18	NM	87.66	NA	NA	3,005.57
	10/1/2018	NM	87.70	NA	NA	3,005.53
	1/7/2019	NM	87.64	NA	NA	3,005.59
	4/4/2019	NM	87.81	NA	NA	3,005.42
	7/8/2019	121.02	87.77	NA	NA	3,005.46
	10/7/2019	NM	87.89	NA	NA	3,005.34
NM-MW-7						
3,147.67	12/2/2015	NM	96.71	NA	NA	3,050.96
	1/25/2016	105.52	96.79	NA	NA	3,050.88
	7/22/2016	NM	96.91	NA	NA	3,050.76
	1/12/2017	NM	96.80	NA	NA	3,050.87
	4/7/2017	105.89	97.20	NA	NA	3,050.47
	7/13/2017	NM	97.12	NA	NA	3,050.55
	10/3/2017	NM	96.73	NA	NA	3,050.94
	1/12/2018	NM	96.40	NA	NA	3,051.27
	4/2/2018	NM	96.26	NA	NA	3,051.41
	07/02/18	NM	96.13	NA	NA	3,051.54
	10/1/2018	NM	96.07	NA	NA	3,051.60
	1/7/2019	NM	95.88	NA	NA	3,051.79
	4/4/2019	NM	95.91	NA	NA	3,051.76
	7/8/2019	105.92	95.75	NA	NA	3,051.92
	10/7/2019	NM	95.88	NA	NA	3,051.79
NM-MW-8						
3,138.62	4/7/2017	108.33	98.63	NA	NA	3,039.99
	7/13/2017	NM	98.49	NA	NA	3,040.13
	10/3/2017	NM	98.42	NA	NA	3,040.20
	1/12/2018	NM	98.34	NA	NA	3,040.28
	4/2/2018	NM	98.35	NA	NA	3,040.27
	07/02/18	NM	98.22	NA	NA	3,040.40
	10/1/2018	NM	98.16	NA	NA	3,040.46
	1/7/2019	NM	98.03	NA	NA	3,040.59
	4/4/2019	NM	98.01	NA	NA	3,040.61
	7/8/2019	108.33	97.83	NA	NA	3,040.79
	10/7/2019	NM	97.89	NA	NA	3,040.73
NM-MW-9						
3,118.18	4/7/2017	96.79	96.73	NA	NA	3,021.45
	7/13/2017	NM	95.58	NA	NA	3,022.60
	10/3/2017	NM	95.37	NA	NA	3,022.81
	1/12/2018	NM	94.94	NA	NA	3,023.24
	4/2/2018	NM	94.71	NA	NA	3,023.47
	07/02/18	NM	94.60	NA	NA	3,023.58
	10/1/2018	NM	94.60	NA	NA	3,023.58
	1/7/2019	NM	94.39	NA	NA	3,023.79
	4/5/2019	NM	97.37	NA	NA	3,020.81
	7/8/2019	96.77	94.21	NA	NA	3,023.97
	10/7/2019	NM	94.17	NA	NA	3,024.01
NM-MW-10						
3,066.32	1/10/2017	NM	78.94	NA	NA	2,987.38
	4/7/2017	108.10	79.02	NA	NA	2,987.30
	7/13/2017	NM	79.09	NA	NA	2,987.23
	10/3/2017	NM	79.12	NA	NA	2,987.20
	1/12/2018	NM	79.15	NA	NA	2,987.17
	4/2/2018	NM	79.23	NA	NA	2,987.09
	07/02/18	NM	79.24	NA	NA	2,987.08
	10/1/2018	NM	79.32	NA	NA	2,987.00
	1/7/2019	NM	79.27	NA	NA	2,987.05
	4/4/2019	NM	79.37	NA	NA	2,986.95
	7/8/2019	108.43	79.42	NA	NA	2,986.90
	10/7/2019	NM	79.48	NA	NA	2,986.84

Appendix A
Historical Groundwater Elevation Measurements
Chevron Dollarhide Unit
Dollarhide, Texas

TOC Elevation (ft NAVD)	Date	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Groundwater Elevation (ft NAVD) ⁽¹⁾
NM-MW-11						
3,075.44	1/10/2017	NM	150.11	NA	NA	2,925.33
	4/7/2017	163.56	127.16	NA	NA	2,948.28
	7/13/2017	NM	107.66	NA	NA	2,967.78
	10/3/2017	NM	97.78	NA	NA	2,977.66
	1/12/2018	NM	90.89	NA	NA	2,984.55
	4/2/2018	NM	87.75	NA	NA	2,987.69
	07/02/18	NM	86.07	NA	NA	2,989.37
	10/1/2018	NM	84.80	NA	NA	2,990.64
	1/7/2019	NM	83.28	NA	NA	2,992.16
	4/4/2019	NM	82.82	NA	NA	2,992.62
	7/8/2019	163.02	82.94	NA	NA	2,992.50
	10/8/2019	NM	82.97	NA	NA	2,992.47
NM-MW-12						
3,105.47	4/7/2017	98.54	96.70	NA	NA	3,008.77
	7/13/2017	NM	96.72	NA	NA	3,008.75
	10/3/2017	NM	96.69	NA	NA	3,008.78
	1/12/2018	NM	96.67	NA	NA	3,008.80
	4/2/2018	NM	96.71	NA	NA	3,008.76
	07/02/18	NM	96.68	NA	NA	3,008.79
	10/1/2018	NM	96.67	NA	NA	3,008.80
	1/7/2019	NM	96.51	NA	NA	3,008.96
	4/4/2019	NM	96.60	NA	NA	3,008.87
	7/8/2019	98.52	96.61	NA	NA	3,008.86
	10/7/2019	NM	96.64	NA	NA	3,008.83
NM-MW-13						
3,051.17	4/7/2017	111.80	84.04	NA	NA	2,967.13
	7/13/2017	NM	84.05	NA	NA	2,967.12
	10/3/2017	NM	84.10	NA	NA	2,967.07
	1/12/2018	NM	84.12	NA	NA	2,967.05
	4/2/2018	NM	84.15	NA	NA	2,967.02
	07/02/18	NM	84.15	NA	NA	2,967.02
	10/1/2018	NM	84.24	NA	NA	2,966.93
	1/7/2019	NM	84.15	NA	NA	2,967.02
	4/4/2019	NM	84.27	NA	NA	2,966.90
	7/8/2019	111.74	84.29	NA	NA	2,966.88
	10/8/2019	NM	84.37	NA	NA	2,966.80
Non-Remedial Wells						
Livermore						
NM	12/07/06	111.60	95.96	NA	NA	NA
	02/13/07	110.72	95.08	NA	NA	NA
	02/28/07	NM	95.08	NA	NA	NA
	07/30/07	110.72	95.71	NA	NA	NA
	07/09/08	110.72	94.89	NA	NA	NA
	01/28/09	110.81	94.81	NA	NA	NA
	08/28/09	111.11	95.08	NA	NA	NA
	02/19/10	NM	94.70	NA	NA	NA
	08/16/10	NM	94.67	NA	NA	NA
	02/11/11	NM	95.00	NA	NA	NA
	07/31/13	104.21	95.29	NA	NA	NA
	07/16/14	NM	95.85	NA	NA	NA
	01/25/16	104.23	95.20	NA	NA	NA
	07/21/16	NM	95.30	NA	NA	NA
	01/11/17	NM	95.10	NA	NA	NA
	07/13/17	NM	95.17	NA	NA	NA
	10/03/17	NM	95.27	NA	NA	NA
	01/12/18	NM	94.97	NA	NA	NA
	04/02/18	NM	94.97	NA	NA	NA
	07/02/18	NM	95.19	NA	NA	NA
	10/1/2018	NM	95.26	NA	NA	NA
	1/8/2019	NM	95.27	NA	NA	NA
	4/10/2019	NM	95.27	NA	NA	NA
	7/10/2019	NM	95.40	NA	NA	NA
	10/9/2019	NM	95.28	NA	NA	NA
Pure Water Tower						
3,154.43	06/18/11	137.00	87.30	NA	NA	3,067.13
Pure Water Well						
3,151.80	08/16/12	104.80	88.00	NA	NA	3,063.80
	08/30/13	100.50	88.35	NA	NA	3,063.45
	07/14/15	NM	88.35	NA	NA	3,063.45
RRR Ranch Windmill						
NM	08/28/09	117.05	95.05	NA	NA	NA
	07/22/16	NM	94.36	NA	NA	NA
	01/12/17	NM	94.28	NA	NA	NA
	07/13/17	99.61	94.37	NA	NA	NA
	10/03/17	NM	94.34	NA	NA	NA
	01/12/18	NM	94.24	NA	NA	NA
	04/02/18	NM	94.24	NA	NA	NA
	07/02/18	NM	94.14	NA	NA	NA
	10/1/2018	NM	94.08	NA	NA	NA
	1/7/2019	NM	93.95	NA	NA	NA
	4/4/2019	NM	93.95	NA	NA	NA
	7/8/2019	96.44	93.82	NA	NA	NA
	10/7/2019	NM	93.91	NA	NA	NA
TRAC-4						
NM	NA	NM	NM	NA	NA	NA
TRAC-8						
NM	NA	NM	NM	NA	NA	NA
Wilson Ranch Well						
NM	NA	NM	NM	NA	NA	NA

Notes:

⁽¹⁾ Formula for Adjusted Groundwater Elevation: TOC - Depth to Water + 0.75(LNAPL thickness).

ft = feet

NAVD = North American Vertical Datum

TOC = top of casing

LNAPL = light non-aqueous phase liquid

NM = Not Measured

NA = Not Applicable

Appendix B

Groundwater Sample Analytical Laboratory Reports

October 25, 2019

GHD Services, Inc. - Houston, TX

Sample Delivery Group: L1151971
Samples Received: 10/19/2019
Project Number: 055270
Description: Dollarhide

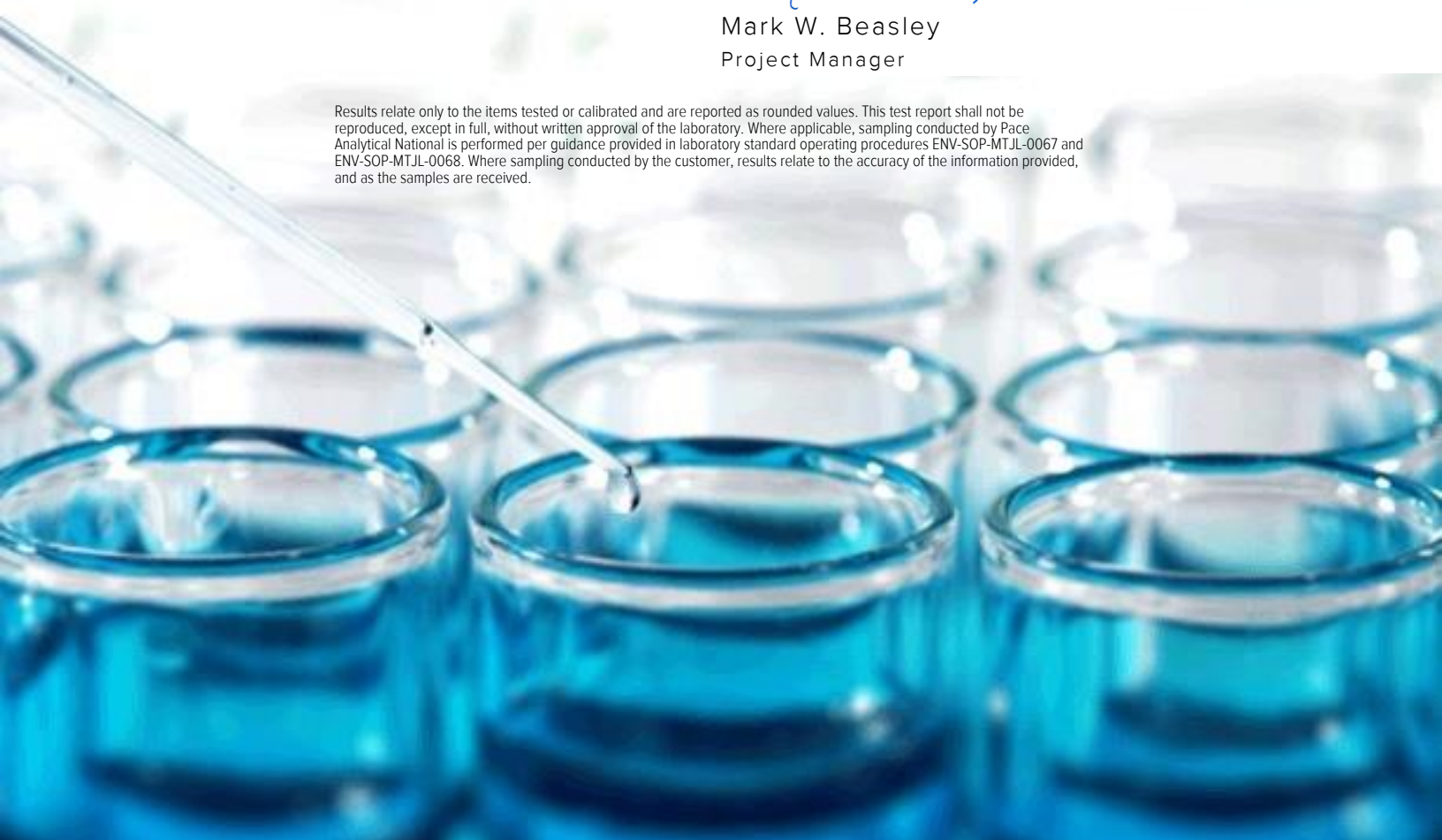
Report To: Chris Knight
11451 Katy Freeway, Ste 400
Houston, TX 77079

Entire Report Reviewed By:



Mark W. Beasley
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





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¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Tr
⁶ Sr
⁷ Qc
⁸ Gl
⁹ Al
¹⁰ Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



NM-MW-1-W-191510 L1151971-01 GW

Collected by
Joe Mireles

Collected date/time
10/15/19 11:55

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366091	1	10/20/19 10:31	10/20/19 11:10	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	10	10/22/19 00:13	10/22/19 00:13	ST	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

NM-MW-6-W-191510 L1151971-02 GW

Collected by
Joe Mireles

Collected date/time
10/15/19 12:15

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366091	1	10/20/19 10:31	10/20/19 11:10	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	5	10/22/19 00:26	10/22/19 00:26	ST	Mt. Juliet, TN

⁴ Cn

⁵ Tr

⁶ Sr

NM-MW-8-W-191510 L1151971-03 GW

Collected by
Joe Mireles

Collected date/time
10/15/19 11:10

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366091	1	10/20/19 10:31	10/20/19 11:10	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	100	10/22/19 00:39	10/22/19 00:39	ST	Mt. Juliet, TN

⁷ Qc

⁸ Gl

⁹ Al

NM-MW-9-W-191510 L1151971-04 GW

Collected by
Joe Mireles

Collected date/time
10/15/19 13:25

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366091	1	10/20/19 10:31	10/20/19 11:10	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	10	10/22/19 01:30	10/22/19 01:30	ST	Mt. Juliet, TN

¹⁰ Sc

MW-9-W-191610 L1151971-05 GW

Collected by
Joe Mireles

Collected date/time
10/16/19 11:40

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366091	1	10/20/19 10:31	10/20/19 11:10	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	100	10/22/19 02:21	10/22/19 02:21	ST	Mt. Juliet, TN

MW-8-W-191610 L1151971-06 GW

Collected by
Joe Mireles

Collected date/time
10/16/19 12:00

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366091	1	10/20/19 10:31	10/20/19 11:10	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	20	10/22/19 02:34	10/22/19 02:34	ST	Mt. Juliet, TN

MW-24-W-191610 L1151971-07 GW

Collected by
Joe Mireles

Collected date/time
10/16/19 13:00

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366091	1	10/20/19 10:31	10/20/19 11:10	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	100	10/22/19 02:46	10/22/19 02:46	ST	Mt. Juliet, TN

ACCOUNT:

GHD Services, Inc. - Houston, TX

PROJECT:

055270

SDG:

L1151971

DATE/TIME:

10/25/19 16:22

PAGE:

3 of 29

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



MW-12-W-191610 L1151971-08 GW

Collected by
Joe Mireles

Collected date/time
10/16/19 13:10

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366091	1	10/20/19 10:31	10/20/19 11:10	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	500	10/22/19 02:59	10/22/19 02:59	ST	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

MW-31-W-191610 L1151971-09 GW

Collected by
Joe Mireles

Collected date/time
10/16/19 13:25

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366091	1	10/20/19 10:31	10/20/19 11:10	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	500	10/22/19 03:12	10/22/19 03:12	ST	Mt. Juliet, TN

⁴ Cn

⁵ Tr

⁶ Sr

MW-18-W-191610 L1151971-10 GW

Collected by
Joe Mireles

Collected date/time
10/16/19 14:00

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366091	1	10/20/19 10:31	10/20/19 11:10	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	500	10/22/19 03:25	10/22/19 03:25	ST	Mt. Juliet, TN

⁷ Qc

⁸ Gl

⁹ Al

MW-25-W-191710 L1151971-11 GW

Collected by
Joe Mireles

Collected date/time
10/17/19 11:05

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366092	1	10/20/19 11:44	10/20/19 12:04	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	500	10/22/19 03:38	10/22/19 03:38	ST	Mt. Juliet, TN

¹⁰ Sc

MW-22-W-191710 L1151971-12 GW

Collected by
Joe Mireles

Collected date/time
10/17/19 14:00

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366092	1	10/20/19 11:44	10/20/19 12:04	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366494	500	10/22/19 03:50	10/22/19 03:50	ST	Mt. Juliet, TN

ACCOUNT:

GHD Services, Inc. - Houston, TX

PROJECT:

055270

SDG:

L1151971

DATE/TIME:

10/25/19 16:22

PAGE:

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All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital 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 by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley
Project Manager





This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

- 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.

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

Mark W. Beasley
Project Manager

Laboratory Review Checklist: Reportable Data



Laboratory Name: Pace Analytical National			LRC Date: 10/25/2019 16:22				
Project Name: Dollarhide			Laboratory Job Number: L1151971-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11 and 12				
Reviewer Name: Mark W. Beasley			Prep Batch Number(s): WG1366092, WG1366091 and WG1366494				
# 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			1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	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 check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	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			2
		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			3
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				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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

Laboratory Review Checklist: Supporting Data



Laboratory Name: Pace Analytical National			LRC Date: 10/25/2019 16:22				
Project Name: Dollarhide			Laboratory Job Number: L1151971-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11 and 12				
Reviewer Name: Mark W. Beasley			Prep Batch Number(s): WG1366092, WG1366091 and WG1366494				
# 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 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?			X		
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post 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 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all 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				
1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period. 2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable); 3. NA = Not applicable; 4. NR = Not reviewed; 5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).							

Laboratory Review Checklist: Exception Reports



Laboratory Name: Pace Analytical National		LRC Date: 10/25/2019 16:22	
Project Name: Dollarhide		Laboratory Job Number: L1151971-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11 and 12	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1366092, WG1366091 and WG1366494	
ER #¹	Description		
1	WG1366494 R3463853-6 and 7: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).		
2	9056A WG1366494 Chloride: Percent Recovery is outside of established control limits.		
3	2540 C-2011 WG1366091 Dissolved Solids: Relative Percent Difference is outside of established control limits.		
1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period. 2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable); 3. NA = Not applicable; 4. NR = Not reviewed; 5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).			



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	1390		5.64	20.0	20.0	1	10/20/2019 11:10	WG1366091

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	279		0.519	1.00	10.0	10	10/22/2019 00:13	WG1366494

¹ Cp² Tc³ Ss⁴ Cn⁵ Tr⁶ Sr⁷ Qc⁸ Gl⁹ Al¹⁰ Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	773		3.75	13.3	13.3	1	10/20/2019 11:10	WG1366091

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	142		0.260	1.00	5.00	5	10/22/2019 00:26	WG1366494

¹ Cp² Tc³ Ss⁴ Cn⁵ Tr⁶ Sr⁷ Qc⁸ Gl⁹ Al¹⁰ Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	10600		5.64	20.0	20.0	1	10/20/2019 11:10	WG1366091

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	5890		5.19	1.00	100	100	10/22/2019 00:39	WG1366494

¹ Cp² Tc³ Ss⁴ Cn⁵ Tr⁶ Sr⁷ Qc⁸ Gl⁹ Al¹⁰ Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	844		3.75	13.3	13.3	1	10/20/2019 11:10	WG1366091

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	258		0.519	1.00	10.0	10	10/22/2019 01:30	WG1366494

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	6240	J3	28.2	100	100	1	10/20/2019 11:10	WG1366091

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	2530		5.19	1.00	100	100	10/22/2019 02:21	WG1366494

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	2080		14.1	50.0	50.0	1	10/20/2019 11:10	WG1366091

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	874		1.04	1.00	20.0	20	10/22/2019 02:34	WG1366494

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Tr

⁶ Sr

⁷ Qc

⁸ Gl

⁹ Al

¹⁰ Sc

Gravimetric Analysis by Method 2540 C-2011

	Result	<u>Qualifier</u>	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	<u>Batch</u>
Analyte	mg/l		mg/l	mg/l	mg/l			
Dissolved Solids	12400		28.2	100	100	1	10/20/2019 11:10	WG1366091

Wet Chemistry by Method 9056A

	Result	<u>Qualifier</u>	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	<u>Batch</u>
Analyte	mg/l		mg/l	mg/l	mg/l			
Chloride	2570		5.19	1.00	100	100	10/22/2019 02:46	WG1366494

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	31000		113	400	400	1	10/20/2019 11:10	WG1366091

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	13100		26.0	1.00	500	500	10/22/2019 02:59	WG1366494

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	29200		113	400	400	1	10/20/2019 11:10	WG1366091

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	10400		26.0	1.00	500	500	10/22/2019 03:12	WG1366494

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Tr

⁶ Sr

⁷ Qc

⁸ Gl

⁹ Al

¹⁰ Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	48900		141	500	500	1	10/20/2019 11:10	WG1366091

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	22300		26.0	1.00	500	500	10/22/2019 03:25	WG1366494

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Tr

⁶ Sr

⁷ Qc

⁸ Gl

⁹ Al

¹⁰ Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	64100		141	500	500	1	10/20/2019 12:04	WG1366092

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	23200		26.0	1.00	500	500	10/22/2019 03:38	WG1366494

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Tr

⁶ Sr

⁷ Qc

⁸ Gl

⁹ Al

¹⁰ Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	33000		113	400	400	1	10/20/2019 12:04	WG1366092

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	12500		26.0	1.00	500	500	10/22/2019 03:50	WG1366494

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Tr

⁶ Sr

⁷ Qc

⁸ Gl

⁹ Al

¹⁰ Sc

Method Blank (MB)

(MB) R3463187-1 10/20/19 11:10

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	U		2.82	10.0

L1151971-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1151971-05 10/20/19 11:10 • (DUP) R3463187-3 10/20/19 11:10

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	6240	7120	1	13.2	J3	5

Laboratory Control Sample (LCS)

(LCS) R3463187-2 10/20/19 11:10

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8300	94.3	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



Method Blank (MB)

(MB) R3463181-1 10/20/19 12:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

Laboratory Control Sample (LCS)

(LCS) R3463181-2 10/20/19 12:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8110	92.2	85.0-115	

¹Cp

²Tc

³Ss

⁴Cn

⁵Tr

⁶Sr

⁷Qc

⁸Gl

⁹Al

¹⁰Sc

Method Blank (MB)

(MB) R3463853-1 10/21/19 19:49

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Chloride	0.118	⬇	0.0519	1.00

1

Cp

2

Tc

3

Ss

4

Cn

5

Tr

6

Sr

7

Qc

8

Gl

9

Al

10

Sc

L1151964-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1151964-01 10/21/19 22:18 • (DUP) R3463853-3 10/21/19 22:31

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	1.68	1.65	1	2.09		15

L1151971-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1151971-04 10/22/19 00:51 • (DUP) R3463853-6 10/22/19 01:04

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	244	244	1	0.262	E	15

L1151971-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1151971-04 10/22/19 01:30 • (DUP) R3463853-8 10/22/19 01:42

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	258	245	10	5.17		15

Laboratory Control Sample (LCS)

(LCS) R3463853-2 10/21/19 20:02

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	38.4	96.0	80.0-120	



L1151964-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1151964-01 10/21/19 22:18 • (MS) R3463853-4 10/21/19 22:44 • (MSD) R3463853-9 10/22/19 18:36

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	1.68	52.9	53.0	102	103	1	80.0-120			0.349	15

L1151971-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1151971-04 10/22/19 00:51 • (MS) R3463853-7 10/22/19 01:17

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	244	282	75.8	1	80.0-120	E V

¹Cp

²Tc

³Ss

⁴Cn

⁵Tr

⁶Sr

⁷Qc

⁸Gl

⁹Al

¹⁰Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
V	The sample concentration is too high to evaluate accurate spike recoveries.

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

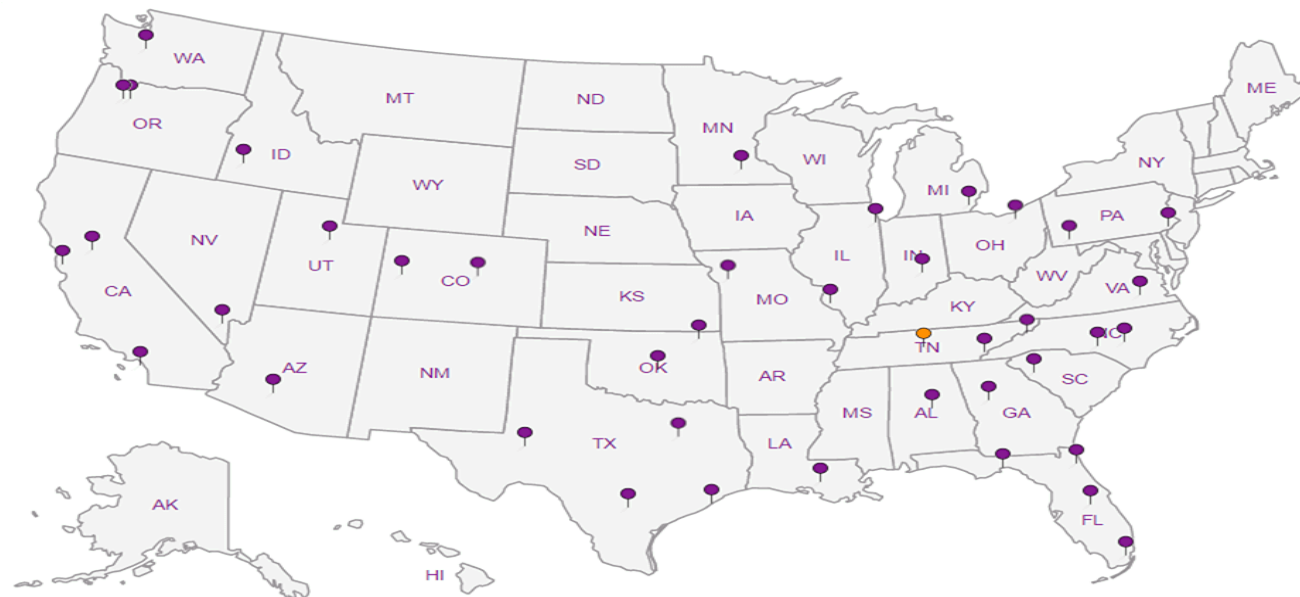
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

Alabama	40660	Nebraska	NE-05-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN2000002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	AZLA

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Tr
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

GHD Services, Inc. - Houston, TX

11451 Katy Freeway, Ste 400
Houston, TX 77079

Billing Information:

Gina Blair
2055 Niagara Falls Blvd. Ste. 3
Niagara Falls, NY 14304

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 2 of 2



Report to:
Chris Knight

Email To: Christopher.Knight@ghd.com,
nick.casten@ghd.com, Brittany.White@ghd.com,

Project
Description: Dollarhide

City/State
Collected: Ja, NM

Please Circle:
PT MT CD ET

Phone: 713-731-3090
Fax:

Client Project #
055270

Lab Project #
CRAHTX-055270

Collected by (print):
Joe Mireles

Site/Facility ID #

P.O. #

Collected by (signature):
Joe Mireles
Immediately
Packed on Ice N Y X

Rush? (Lab MUST Be Notified)

 Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #

Date Results Needed

per SSDW

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time
-----------	-----------	----------	-------	------	------

NM-MW-1-W-191510	G	GW	-	10-15	1155
NM-MW-6-W-191510		GW			1215
NM-MW-8-W-191510		GW			1110
NM-MW-9-W-191510		GW		10-15	1325
MW-9-W-191610		GW		10-16	1140
MW-8-W-191610		GW			1200
MW-24-W-191610					1300
MW-12-W-191610					1310
MW-31-W-191610					1325
MW-18-W-191610	G	GW	-	10-16	1400

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

Samples returned via:
 UPS FedEx Courier

Tracking #

pH Temp

Flow Other

Sample Receipt Checklist

COC Seal Present/Intact: Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes/No
HCL/MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C
26-2-24
Bottles Received: 24

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 10/19/19
Time: 800

Hold:

Condition:
NCF / OR

October 23, 2019

GHD Services, Inc. - Houston, TX

Sample Delivery Group: L1151976
Samples Received: 10/19/2019
Project Number: 055270
Description: Dollarhide

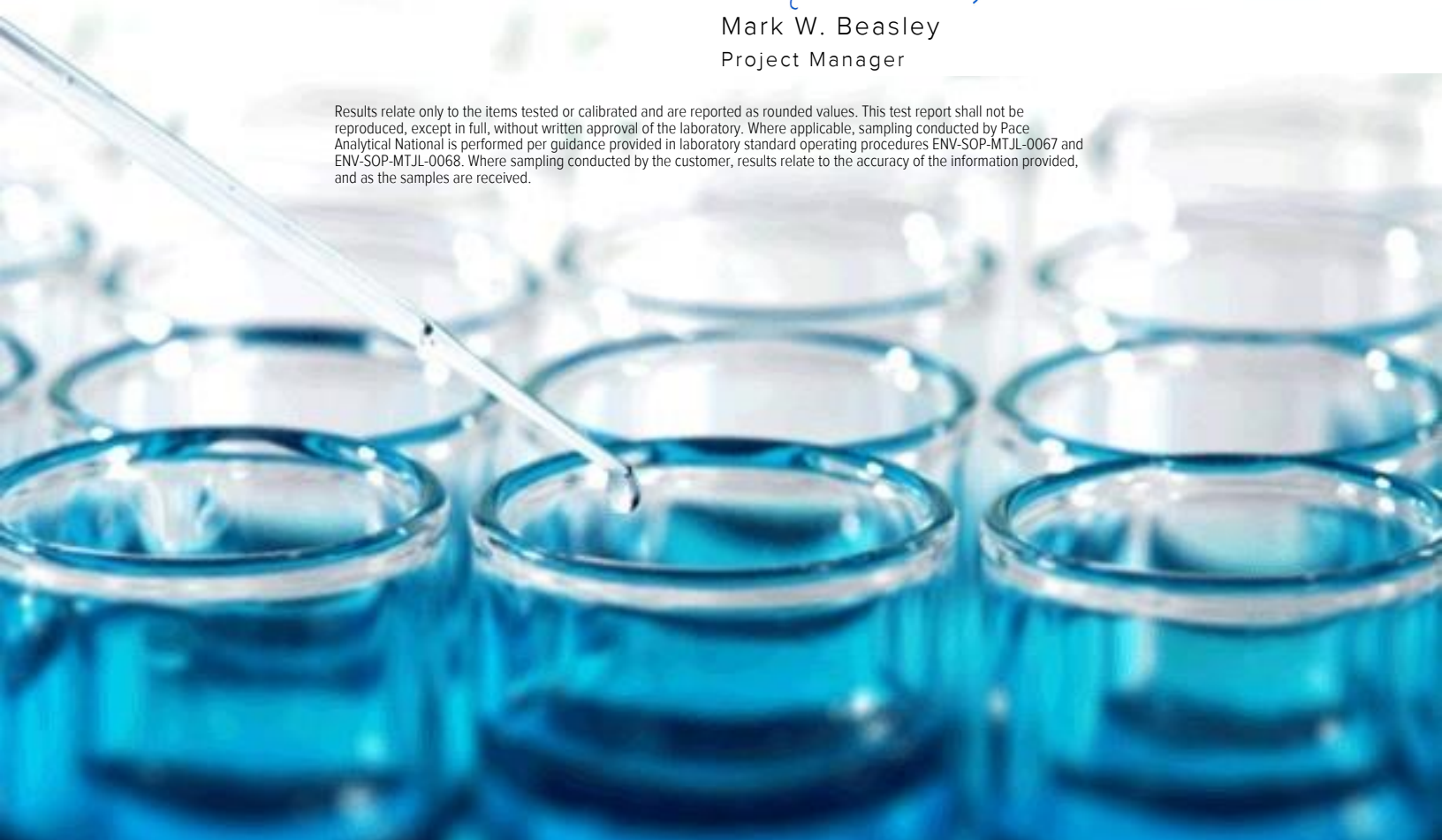
Report To: Chris Knight
11451 Katy Freeway, Ste 400
Houston, TX 77079

Entire Report Reviewed By:



Mark W. Beasley
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Tr: TRRP Summary	5	³ Ss
TRRP form R	6	
TRRP form S	7	⁴ Cn
TRRP Exception Reports	8	⁵ Tr
Sr: Sample Results	9	
NM-MW-13-W-191510 L1151976-01	9	⁶ Sr
Qc: Quality Control Summary	10	
Gravimetric Analysis by Method 2540 C-2011	10	⁷ Qc
Wet Chemistry by Method 9056A	11	
Gl: Glossary of Terms	12	⁸ Gl
Al: Accreditations & Locations	13	⁹ Al
Sc: Sample Chain of Custody	14	¹⁰ Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



NM-MW-13-W-191510 L1151976-01 GW

Collected by
Joe Mireles

Collected date/time
10/15/19 12:45

Received date/time
10/19/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1366092	1	10/20/19 11:44	10/20/19 12:04	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1366495	10	10/21/19 23:49	10/21/19 23:49	ST	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Tr

⁶Sr

⁷Qc

⁸Gl

⁹Al

¹⁰Sc

ACCOUNT:

GHD Services, Inc. - Houston, TX

PROJECT:

055270

SDG:

L1151976

DATE/TIME:

10/23/19 16:39

PAGE:

3 of 14



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital 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 by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley
Project Manager





This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

- 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.

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

Mark W. Beasley
Project Manager

Laboratory Review Checklist: Reportable Data



Laboratory Name: Pace Analytical National			LRC Date: 10/23/2019 16:39				
Project Name: Dollarhide			Laboratory Job Number: L1151976-01				
Reviewer Name: Mark W. Beasley			Prep Batch Number(s): WG1366092 and WG1366495				
# 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 SW846 Method 5035?			X		
		If required for the project, are 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 check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	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				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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

Laboratory Review Checklist: Supporting Data



Laboratory Name: Pace Analytical National			LRC Date: 10/23/2019 16:39				
Project Name: Dollarhide			Laboratory Job Number: L1151976-01				
Reviewer Name: Mark W. Beasley			Prep Batch Number(s): WG1366092 and WG1366495				
# 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 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?			X		
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post 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 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all 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				
1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period. 2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable); 3. NA = Not applicable; 4. NR = Not reviewed; 5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).							



Laboratory Name: Pace Analytical National		LRC Date: 10/23/2019 16:39	
Project Name: Dollarhide		Laboratory Job Number: L1151976-01	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1366092 and WG1366495	
ER #¹	Description		
The Exception Report intentionally left blank, there are no exceptions applied to this SDG.			
1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period. 2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable); 3. NA = Not applicable; 4. NR = Not reviewed; 5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).			



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Dissolved Solids	1060		5.64	20.0	20.0	1	10/20/2019 12:04	WG1366092

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis date / time	Batch
Chloride	198		0.519	1.00	10.0	10	10/21/2019 23:49	WG1366495

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Method Blank (MB)

(MB) R3463181-1 10/20/19 12:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

Laboratory Control Sample (LCS)

(LCS) R3463181-2 10/20/19 12:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8110	92.2	85.0-115	

1

Cp

2

Tc

3

Ss

4

Cn

5

Tr

6

Sr

7

Qc

8

Gl

9

Al

10

Sc

Method Blank (MB)

(MB) R3463786-1 10/21/19 10:45

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Tr

⁶ Sr

⁷ Qc

⁸ Gl

⁹ Al

¹⁰ Sc

L1151551-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1151551-01 10/21/19 20:25 • (DUP) R3463786-3 10/21/19 20:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	12.8	12.9	1	1.28		15

L1151994-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1151994-01 10/22/19 00:53 • (DUP) R3463786-6 10/22/19 01:06

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	4.93	4.97	1	0.854		15

Laboratory Control Sample (LCS)

(LCS) R3463786-2 10/21/19 10:57

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	39.9	99.9	80.0-120	

L1151721-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1151721-01 10/21/19 20:50 • (MS) R3463786-4 10/21/19 21:03 • (MSD) R3463786-5 10/21/19 21:16

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	16.0	66.3	68.5	101	105	1	80.0-120			3.25	15

L1151994-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1151994-01 10/22/19 00:53 • (MS) R3463786-7 10/22/19 01:19

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	4.93	57.2	105	1	80.0-120	



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.





Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

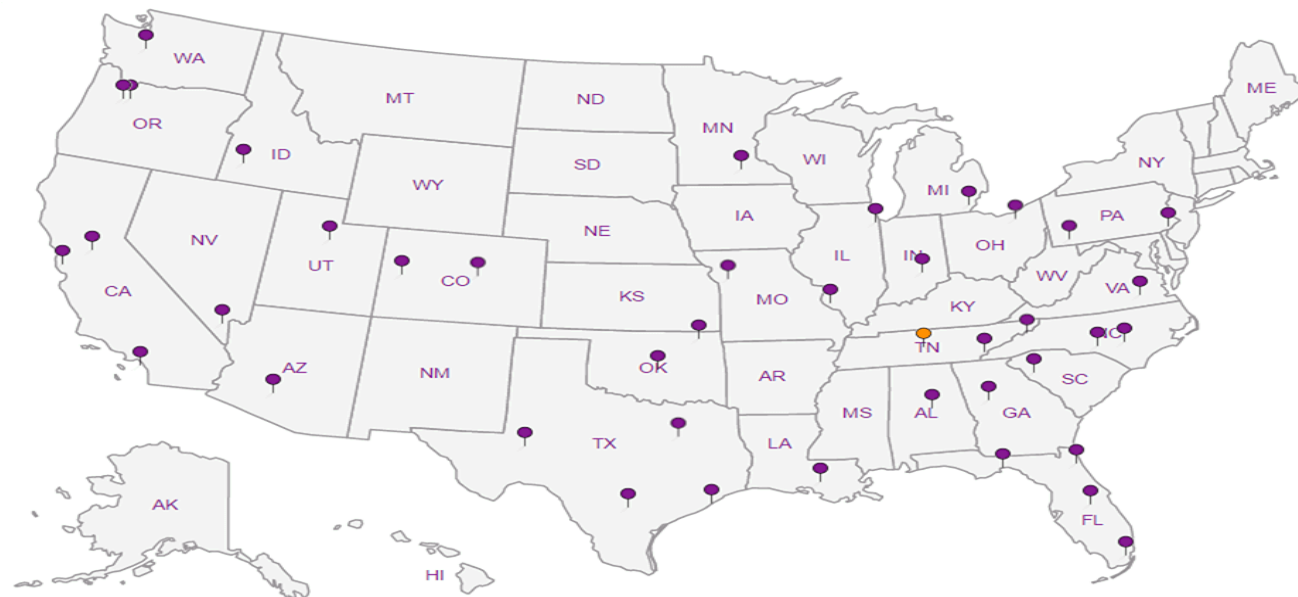
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



GHD Services, Inc. - Houston, TX

11451 Katy Freeway, Ste 400
Houston, TX 77079

Billing Information:

Gina Blair
2055 Niagara Falls Blvd. Ste. 3
Niagara Falls, NY 14304

Pres
Chk

Report to:
Chris Knight

Email To: Christopher.Knight@ghd.com,
nick.casten@ghd.com, Brittany.White@ghd.com,

Project
Description: Dollarhide

City/State
Collected: Jal, NM

Please Circle:
PT MT CT ET

Phone: 713-731-3090
Fax:

Client Project #
055270

Lab Project #
CRAHTX-055270

Collected by (print):
Joe Mireles

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day
Next Day 5 Day (Rad Only)
Two Day 10 Day (Rad Only)
Three Day

Date Results Needed

Immediately
Packed on Ice N ☐ Y ☒

per SSOW

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
-----------	-----------	----------	-------	------	------	--------------

NM-MW-13-W-19150	G	GW	-	10-15	1245	2
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks: Place these samples on their own report.

pH Temp

Flow Other

Samples returned via:
UPS FedEx Courier

Tracking #

Relinquished by: (Signature)

Date: 10-18-14

Time: 1330

Received by: (Signature)

Trip Blank Received: Yes / No
HCL / MeOH
TBR

Relinquished by: (Signature)

Date: 10/18/14

Time: 16:20

Received by: (Signature)

Temp: °C
Bottles Received: 1
2.6-2.24 16

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 10/19/14
Time: 800

If preservation required by Login: Date/Time

Hold: Condition:
NCF / OK

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # 1151976
Tab G164

Acctnum: CRAHTX

Template: T156720

Prelogin: P732572

PM: 134 - Mark W. Beasley

PB: 76 10-1-19

Shipped Via: FedEx Ground

Remarks Sample # (lab only)

-01

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N
COC Signed/Accurate: ☒ Y ☐ N
Bottles arrive intact: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
If Applicable
VOA Zero Headspace: ☒ Y ☐ N
Preservation Correct/Checked: ☒ Y ☐ N
RAD Screen <0.5 mR/hr: ☒ Y ☐ N



Certificate of Analysis Summary 630763

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri Jul-12-19 02:49 pm
Report Date: 05-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	630763-001	630763-002	630763-003	630763-004	630763-005	630763-006
	Field Id:	NM-MW-2-W-191107	NM-MW-3-W-191107	NM-MW-7-W-191107	RRR Ranch Windmill-W-19	NM-MW-4-W-191107	NM-MW-8-W-191107
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	Sampled:	Jul-11-19 14:25	Jul-11-19 14:35	Jul-11-19 14:55	Jul-11-19 15:15	Jul-11-19 15:30	Jul-11-19 15:55
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-16-19 14:58	Jul-16-19 14:58	Jul-16-19 14:58	Jul-16-19 14:58	Jul-16-19 14:58	Jul-16-19 14:58
	Analyzed:	Jul-16-19 15:24	Jul-16-19 15:09	Jul-16-19 15:29	Jul-16-19 15:34	Jul-16-19 16:17	Jul-16-19 15:38
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		697 5.00	184 2.50	2600 25.0	1800 25.0	40.6 2.50	6200 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1330 5.00	581 5.00	4390 5.00	3560 5.00	423 5.00	9310 5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager



Certificate of Analysis Summary 630763

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri Jul-12-19 02:49 pm
Report Date: 05-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	630763-007	630763-008	630763-009	630763-010	630763-013	630763-015
	Field Id:	NM-MW-1-W-191107	NM-MW-5-W-191107	NM-MW-9-W-191207	NM-MW-6-W-191217	NM-MW-10-W-191207	Wilson Ranch Well-W-191207
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	Sampled:	Jul-11-19 16:25	Jul-11-19 16:35	Jul-12-19 10:15	Jul-12-19 10:30	Jul-12-19 11:50	Jul-12-19 12:30
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-16-19 14:58	Jul-16-19 14:58	Jul-16-19 14:58	Jul-16-19 14:58	Jul-16-19 14:58	Jul-16-19 14:58
	Analyzed:	Jul-16-19 15:53	Jul-16-19 15:58	Jul-16-19 16:03	Jul-16-19 16:07	Jul-16-19 16:37	Jul-16-19 16:56
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		291 5.00	149 5.00	264 5.00	143 2.50	354 5.00	1300 10.0
TDS by SM2540C	Extracted:	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00
	Analyzed:	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1380 5.00	1290 5.00	797 5.00	863 5.00	1680 5.00	2530 5.00

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

Debbie Simmons
Project Manager



Certificate of Analysis Summary 630763

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri Jul-12-19 02:49 pm
Report Date: 05-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	630763-016	630763-017	630763-018			
	Field Id:	NM-MW-11-WD-191207	Smith Residence-W-191207	58-B-3-W-191207			
	Depth:						
	Matrix:	WATER	WATER	WATER			
	Sampled:	Jul-12-19 00:00	Jul-12-19 12:45	Jul-12-19 13:00			
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-16-19 14:58	Jul-16-19 14:58	Jul-16-19 14:58			
	Analyzed:	Jul-16-19 17:01	Jul-16-19 17:06	Jul-16-19 17:10			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL			
Chloride		161 10.0	1300 10.0	1470 10.0			
TDS by SM2540C	Extracted:						
	Analyzed:	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL			
Total Dissolved Solids		2010 5.00	2660 5.00	2520 5.00			

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Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager

Analytical Report 630763

for
GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

05-AUG-19

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)



05-AUG-19

Project Manager: **Nick Casten**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **630763**
Dollarhide
Project Address: New Mexico

Nick Casten:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 630763. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 630763 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Debbie Simmons

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NM-MW-2-W-191107	W	07-11-19 14:25		630763-001
NM-MW-3-W-191107	W	07-11-19 14:35		630763-002
NM-MW-7-W-191107	W	07-11-19 14:55		630763-003
RRR Ranch Windmill-W-191107	W	07-11-19 15:15		630763-004
NM-MW-4-W-191107	W	07-11-19 15:30		630763-005
NM-MW-8-W-191107	W	07-11-19 15:55		630763-006
NM-MW-1-W-191107	W	07-11-19 16:25		630763-007
NM-MW-5-W-191107	W	07-11-19 16:35		630763-008
NM-MW-9-W-191207	W	07-12-19 10:15		630763-009
NM-MW-6-W-191217	W	07-12-19 10:30		630763-010
NM-MW-10-W-191207	W	07-12-19 11:50		630763-013
Wilson Ranch Well-W-191207	W	07-12-19 12:30		630763-015
NM-MW-11-WD-191207	W	07-12-19 00:00		630763-016
Smith Residence-W-191207	W	07-12-19 12:45		630763-017
58-B-3-W-191207	W	07-12-19 13:00		630763-018
NM-MW-11-W-191207	W	07-12-19 10:50		Not Analyzed
NM-MW-13-W-191207	W	07-12-19 11:15		Not Analyzed
NM-MW-12-W-191207	W	07-12-19 12:15		Not Analyzed



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Dollarhide

Project ID: 055270
Work Order Number(s): 630763

Report Date: 05-AUG-19
Date Received: 07/12/2019

Sample receipt non conformances and comments:

Report revised 8/5/19 to report samples 011 012 and 014 separately.

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3095578 Inorganic Anions by EPA 300/300.1

Lab Sample ID 630763-002 and 630763-005 were randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 630763-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-2-W-191107**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-001

Date Collected: 07.11.19 14.25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	697	5.00	0.858	mg/L	07.16.19 15.24		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1330	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-3-W-191107**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-002

Date Collected: 07.11.19 14.35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	184	2.50	0.429	mg/L	07.16.19 15.09		5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	581	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-7-W-191107**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-003

Date Collected: 07.11.19 14.55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2600	25.0	4.29	mg/L	07.16.19 15.29		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4390	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **RRR Ranch Windmill-W-191107**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-004

Date Collected: 07.11.19 15.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1800	25.0	4.29	mg/L	07.16.19 15.34		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3560	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-4-W-191107**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-005

Date Collected: 07.11.19 15.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	40.6	2.50	0.429	mg/L	07.16.19 16.17		5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	423	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-8-W-191107**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-006

Date Collected: 07.11.19 15.55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6200	25.0	4.29	mg/L	07.16.19 15.38		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	9310	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-1-W-191107**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-007

Date Collected: 07.11.19 16.25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	291	5.00	0.858	mg/L	07.16.19 15.53		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1380	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-5-W-191107**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-008

Date Collected: 07.11.19 16.35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	149	5.00	0.858	mg/L	07.16.19 15.58		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1290	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-9-W-191207**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-009

Date Collected: 07.12.19 10.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	264	5.00	0.858	mg/L	07.16.19 16.03		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	797	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-6-W-191217**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-010

Date Collected: 07.12.19 10.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	143	2.50	0.429	mg/L	07.16.19 16.07		5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	863	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-10-W-191207**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-013

Date Collected: 07.12.19 11.50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	354	5.00	0.858	mg/L	07.16.19 16.37		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1680	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Wilson Ranch Well-W-191207**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-015

Date Collected: 07.12.19 12.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1300	10.0	1.72	mg/L	07.16.19 16.56		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2530	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-11-WD-191207**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-016

Date Collected: 07.12.19 00.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	161	10.0	1.72	mg/L	07.16.19 17.01		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2010	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Smith Residence-W-191207**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-017

Date Collected: 07.12.19 12.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1300	10.0	1.72	mg/L	07.16.19 17.06		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2660	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 630763



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 58-B-3-W-191207

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 630763-018

Date Collected: 07.12.19 13.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1470	10.0	1.72	mg/L	07.16.19 17.10		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2520	5.00	5.00	mg/L	07.15.19 14.00		1

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

SDL Sample Detection Limit

LOD Limit of Detection

PQL Practical Quantitation Limit

MQL Method Quantitation Limit

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample

BLK

Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample

BKSD/LCSD

Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate

MS

Matrix Spike

MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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



QC Summary 630763

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095578

Matrix: Water

Prep Method: E300P

MB Sample Id: 7682139-1-BLK

LCS Sample Id: 7682139-1-BKS

Date Prep: 07.16.19

LCSD Sample Id: 7682139-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	23.8	95	23.9	96	90-110	0	20	mg/L	07.16.19 15:00	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095578

Matrix: Water

Prep Method: E300P

Parent Sample Id: 630763-002

MS Sample Id: 630763-002 S

Date Prep: 07.16.19

MSD Sample Id: 630763-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	184	125	207	18	207	18	90-110	0	20	mg/L	07.16.19 15:14	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095578

Matrix: Water

Prep Method: E300P

Parent Sample Id: 630763-005

MS Sample Id: 630763-005 S

Date Prep: 07.16.19

MSD Sample Id: 630763-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	40.6	125	64.5	19	64.5	19	90-110	0	20	mg/L	07.16.19 16:22	X

Analytical Method: TDS by SM2540C

Seq Number: 3095550

Matrix: Water

MB Sample Id: 3095550-1-BLK

LCS Sample Id: 3095550-1-BKS

LCSD Sample Id: 3095550-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	939	94	956	96	80-120	2	10	mg/L	07.15.19 14:00	

Analytical Method: TDS by SM2540C

Seq Number: 3095550

Matrix: Water

Parent Sample Id: 630763-001

MD Sample Id: 630763-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1330	1390	4	10	mg/L	07.15.19 14:00	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 630763

GHD Services, INC- Midland
Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3095550

Parent Sample Id: 630763-011

Matrix: Water

MD Sample Id: 630763-011 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1980	1990	1	10	mg/L	07.15.19 14:00	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$

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

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

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
 Phoenix, AZ (480-335-0800) Atlanta, GA (770) 444-8800 Tampa, FL (813) 392-7650

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Page 2

Project Manager:	Nick Casten	Bill to: (if different)	Gina Blair- Aplinevoices-340@gnd.com
Company Name:	GHD	Company Name:	GHD Services Inc.- 340
Address:	2135 S. Loop 250 West	Address:	2055 Niagara Falls Blvd.
City, State ZIP:	Midland, TX 79703	City, State ZIP:	Niagara Falls, NY 14304
Phone:	225-292-9007	Email:	Nick Casten@gnd.com & Christopher.Knight@gnd.com & Brittany.White@gnd.com & edds@gnd.com

Work Order Comments	
Program: UST/ST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐ State of Project: Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐ Deliverables: EDD ☐ ADAPT ☐ Other:	

Project Name:	Dollarhide	Turn Around
Project Number:	55270	Routine ☐
P.O. Number:	34032659	Rush:
Sampler's Name:	Phillip Cole	Due Date:
	see Miracles	

SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	-0.8/-1.0	Thermometer ID					
Received intact:	Yes	No	EB				
Cooler Custody Seals:	Yes	No	N/A	Correction Factor:			
Sample Custody Seals:	Yes	No	N/A	Total Containers:			
					-0.2		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth
MM-MW-2-W-191107	GW	7-11	1425	—
MM-MW-3-W-191107			1435	
MM-MW-7-W-191107			1455	
RRR Ranch Road Mill-W-191107			1515	
MM-MW-9-W-191107			1530	
MM-MW-8-W-191107			1555	
MM-MW-1-W-191107			1625	
MM-MW-5-W-191107		7-11	1635	
MM-MW-9-W-191207	✓	7-12	1015	1
MM-MW-6-W-191217	GW	7-12	1030	1

Total 200.7 / 6010 200.8 / 6020:		8RCRA 13PPM Texas 11
<i>Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8R</i>		
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order for service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for the results of analysis. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample.		
Relinquished by: (Signature)	Received by: (Signature)	
1 <i>Joe Mueller</i>	<i>Joe Mueller</i>	
3		
5		

[illegible]

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Total	200.7 / 6010	200.8 / 6020:
Circle Method(s) and Metal(s) to be analyzed	8RCRA TCLP / SPLP 6010:	13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO ₂ Na Sr Ti Sn U V Zn
		8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U
		1631 / 245.1 / 7470 / 7471 : Hg



Chain of Custody

Work Order No: 1030143

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

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Page 2 of 2

Project Manager:	Nick Casten	Bill to: (if different)	Gina Blair- Aplinevoices-340@gnd.com
Company Name:	GHD	Company Name:	GHD Services Inc. - 340
Address:	2135 S. Loop 250 West	Address:	2055 Niagara Falls Blvd.
City, State ZIP:	Midland, TX 79703	City, State ZIP:	Niagara Falls, NY 14304
Phone:	225-292-9007	Email:	Nick Casten@gnd.com & Christopher.Knight@gnd.com & Britany White@gnd.com & edds@gnd.com

Program: ☐ PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	
State of Project:	
Reporting Level: ☐ I ☐ II ☐ III ☐ PST/UST ☐ TRRP ☒ Level IV ☐	Deliverables: ☐ EDD ☐ ADAPT ☐ Other:

Project Name:	Dollarhide	Turn Around	ANALYSIS REQUEST																Work Order Notes	
Project Number:	55270	Routine ☐																	TAT starts the day received by the lab, if received by 4:30pm	
P.O. Number:	34032659	Rush:																		
Sampler's Name:	Phillip Cole Joe Morales	Due Date:																		
SAMPLE RECEIPT			Temp Blank:	☒ Yes ☐ No	Wet Ice:	☐ Yes ☒ No														
Temperature (°C):	-0.8/-1.0	Thermometer ID																		
Received Intact:	Yes	No																		
Cooler Custody Seals:	Yes	No	N/A	Correction Factor:	-0.3															
Sample Custody Seals:	Yes	No	N/A	Total Containers:																
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chlorides	TDS											Sample Comments		
MM-MW-11-W-191207	GW	7-12	1050	1	X	X														
MM-MW-13-W-191207			1115																	
MM-MW-10-W-191207			1150																	
MM-MW-12-W-191207			1215																	
Wilson Ranch Well-W-191207			1230																	
MM-MW-11-W-191207																				
Smith Residence-W-191207			1345																	
58-B-3-W-191207		7-12	1300		X	X														

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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Joe Morales	J. Morales	7.12.14	2		
3			4		
5			6		



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 07/12/2019 02:49:00 PM

Work Order #: 630763

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 07/12/2019

Checklist reviewed by:

Debbie Simmons

Debbie Simmons

Date: 07/17/2019



Certificate of Analysis Summary 631118

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Wed Jul-17-19 08:02 am
Report Date: 26-JUL-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	631118-001	631118-002	631118-003			
	Field Id:	MW-34-W-191507	MW-33-W-191507	MW-32-W-191507			
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER			
	Sampled:	Jul-15-19 10:05	Jul-15-19 10:20	Jul-15-19 10:35			
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-19-19 14:00	Jul-19-19 14:00	Jul-19-19 14:00			
	Analyzed:	Jul-19-19 17:47	Jul-19-19 16:00	Jul-19-19 16:06			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL			
Chloride		64.2 2.50	153 5.00	314 5.00			
TDS by SM2540C	Extracted:						
	Analyzed:	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL			
Total Dissolved Solids		621 5.00	988 5.00	1090 5.00			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager

Analytical Report 631118

for
GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

26-JUL-19

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)



26-JUL-19

Project Manager: **Nick Casten**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **631118**
Dollarhide
Project Address: New Mexico

Nick Casten:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 631118. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 631118 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Debbie Simmons

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 631118



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-34-W-191507	W	07-15-19 10:05		631118-001
MW-33-W-191507	W	07-15-19 10:20		631118-002
MW-32-W-191507	W	07-15-19 10:35		631118-003



CASE NARRATIVE

Client Name: *GHD Services, INC- Midland*

Project Name: *Dollarhide*

Project ID: 055270
Work Order Number(s): 631118

Report Date: 26-JUL-19
Date Received: 07/17/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3095993 Inorganic Anions by EPA 300/300.1

Lab Sample ID 631118-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 631118-001, -002, -003.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 631118



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-34-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631118-001

Date Collected: 07.15.19 10.05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	64.2	2.50	0.429	mg/L	07.19.19 17.47		5

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	621	5.00	5.00	mg/L	07.18.19 16.00		1



Certificate of Analytical Results 631118



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-33-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631118-002

Date Collected: 07.15.19 10.20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	153	5.00	0.858	mg/L	07.19.19 16.00		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	988	5.00	5.00	mg/L	07.18.19 16.00		1



Certificate of Analytical Results 631118



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-32-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631118-003

Date Collected: 07.15.19 10.35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	314	5.00	0.858	mg/L	07.19.19 16.06		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1090	5.00	5.00	mg/L	07.18.19 16.00		1

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

SDL Sample Detection Limit

LOD Limit of Detection

PQL Practical Quantitation Limit

MQL Method Quantitation Limit

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample

BLK

Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample

BKSD/LCSD

Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate

MS

Matrix Spike

MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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



QC Summary 631118

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095993

Matrix: Water

Prep Method: E300P

MB Sample Id: 7682392-1-BLK

LCS Sample Id: 7682392-1-BKS

Date Prep: 07.19.19

LCSD Sample Id: 7682392-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	24.8	99	24.8	99	90-110	0	20	mg/L	07.19.19 15:06	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095993

Matrix: Ground Water

Prep Method: E300P

Parent Sample Id: 631118-001

MS Sample Id: 631118-001 S

Date Prep: 07.19.19

MSD Sample Id: 631118-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	64.2	125	96.4	26	96.6	26	90-110	0	20	mg/L	07.19.19 17:53	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095993

Matrix: Drinking Water

Prep Method: E300P

Parent Sample Id: 631469-001

MS Sample Id: 631469-001 S

Date Prep: 07.19.19

MSD Sample Id: 631469-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8.80	25.0	33.3	98	33.3	98	90-110	0	20	mg/L	07.19.19 15:35	

Analytical Method: TDS by SM2540C

Seq Number: 3095987

Matrix: Water

MB Sample Id: 3095987-1-BLK

LCS Sample Id: 3095987-1-BKS

LCSD Sample Id: 3095987-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	1010	101	1040	104	80-120	3	10	mg/L	07.18.19 16:00	

Analytical Method: TDS by SM2540C

Seq Number: 3095987

Matrix: Ground Water

Parent Sample Id: 631119-019

MD Sample Id: 631119-019 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	33200	34000	2	10	mg/L	07.18.19 16:00	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 631118

GHD Services, INC- Midland Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3095987

Parent Sample Id: 631119-029

Matrix: Ground Water

MD Sample Id: 631119-029 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	9780	10700	9	10	mg/L	07.18.19 16:00	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



Chain of Custody

Work Order No:

023118

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

www.xenco.com

Page 1 of 1

Project Manager:	Nick Casten	Bill to: (if different)	Gina Blair- Apinvoices-340@gnd.com
Company Name:	GHD	Company Name:	GHD Services Inc.- 340
Address:	2135 S. Loop 250 West	Address:	2055 Niagara Falls Blvd.
City, State ZIP:	Midland, TX 79703	City, State ZIP:	Niagara Falls, NY 14304
Phone:	225-292-9007	Email:	Nick Casten@gnd.com & Christopher.Knight@gnd.com & Britiany.White@gnd.com & edds@gnd.com

Program: ☐ PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	
State of Project:	
Reporting Level: ☐ Level II ☐ Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐	
Deliverables: ☐ EDD ☐ ADAPT ☐ Other:	

Project Name:	Dollarhide	Turn Around	☒
Project Number:	55270	Routine	☒
P.O. Number:	34032659	Rush:	
Sampler's Name:	Phillip Cole Joe Miles	Due Date:	
SAMPLE RECEIPT			
Temperature (°C):	0.3/0.1	Temp Blank:	Yes ☒ No ☐
Received Intact:	Yes ☒ No ☐	Thermometer:	Yes ☒ No ☐
Cooler Custody Seals:	Yes ☒ No ☐	Correction Factor:	-0.5
Sample Custody Seals:	Yes ☒ No ☐	Total Containers:	
ANALYSIS REQUEST			
Sample Identification	Matrix	Date Sampled	Time Sampled
MW-34-W-191507	GW	2-15	1005
MW-33-W-191507	GW	2-15	1030
MW-32-W-191507	GW	2-15	1035
Number of Containers			
Chlorides			
TDS			
Work Order Notes			
Please print as a separate report, from the rest of the samples			
TAT starts the day received by the lab, if received by 4:30pm			
Sample Comments			

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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Joe Miles	Joe Miles	2/17/19			



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 07/17/2019 08:02:00 AM

Work Order #: 631118

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 07/17/2019

Checklist reviewed by:

Debbie Simmons

Debbie Simmons

Date: 07/17/2019



Certificate of Analysis Summary 631119

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Wed Jul-17-19 08:02 am
Report Date: 02-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	631119-001	631119-002	631119-003	631119-004	631119-005	631119-006
	Field Id:	MW-29-W-191507	MW-28-W-191507	58-B-2-MW-W-191507	58-B-1-MW-W-191507	MW-9-W-191507	MW-8-W-191507
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	Jul-15-19 11:10	Jul-15-19 11:20	Jul-15-19 11:50	Jul-15-19 12:05	Jul-15-19 12:25	Jul-15-19 12:45
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-18-19 14:15	Jul-18-19 14:15	Jul-18-19 14:15	Jul-18-19 14:15	Jul-18-19 14:15	Jul-18-19 14:15
	Analyzed:	Jul-18-19 20:52	Jul-18-19 20:58	Jul-18-19 21:05	Jul-18-19 21:11	Jul-18-19 21:32	Jul-18-19 21:39
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		500 10.0	2180 25.0	3850 25.0	6180 50.0	2620 25.0	884 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1140 5.00	3490 5.00	6310 5.00	9750 5.00	4240 5.00	2390 5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager



Certificate of Analysis Summary 631119

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Wed Jul-17-19 08:02 am
Report Date: 02-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	631119-007	631119-008	631119-009	631119-010	631119-011	631119-012
	Field Id:	DHU-FWS-W-191507	MW-27-W-191507	MW-20-W-191507	MW-26-W-191507	MW-24-W-191507	MW-18-W-191507
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	Jul-15-19 12:55	Jul-15-19 13:10	Jul-15-19 13:25	Jul-15-19 13:40	Jul-15-19 13:50	Jul-15-19 14:05
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-18-19 14:15	Jul-18-19 14:15	Jul-18-19 14:15	Jul-18-19 14:15	Jul-18-19 14:15	Jul-18-19 14:15
	Analyzed:	Jul-18-19 21:45	Jul-18-19 21:51	Jul-18-19 21:58	Jul-18-19 22:27	Jul-18-19 22:33	Jul-18-19 22:54
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		624 25.0	2540 25.0	1270 25.0	1360 25.0	4180 25.0	21000 250
TDS by SM2540C	Extracted:						
	Analyzed:	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		3020 5.00	4440 5.00	2330 5.00	2960 5.00	8860 5.00	33100 5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager



Certificate of Analysis Summary 631119

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Wed Jul-17-19 08:02 am
Report Date: 02-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	631119-013	631119-014	631119-015	631119-016	631119-017	631119-018
	Field Id:	MW-19-W-191507	MW-12-W-191507	MW-31-W-191507	MW-10-W-191507	MW-6-W-191507	MW-11-W-191507
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	Jul-15-19 14:15	Jul-15-19 14:30	Jul-15-19 14:45	Jul-15-19 15:05	Jul-15-19 15:25	Jul-15-19 15:35
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-18-19 14:15	Jul-18-19 14:15	Jul-18-19 14:15	Jul-27-19 18:40	Jul-18-19 14:15	Jul-18-19 14:15
	Analyzed:	Jul-18-19 23:01	Jul-18-19 23:07	Jul-18-19 23:13	Jul-28-19 12:27	Jul-18-19 23:26	Jul-18-19 23:32
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		6860 50.0	11000 100	10900 100	4860 25.0	395 10.0	7680 50.0
TDS by SM2540C	Extracted:						
	Analyzed:	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51	Jul-18-19 12:51
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		11000 5.00	22600 5.00	16600 5.00	8210 5.00	1470 5.00	11800 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 631119

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Wed Jul-17-19 08:02 am
Report Date: 02-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	631119-019	631119-020	631119-021	631119-022	631119-023	631119-024
	Field Id:	MW-25-W-191507	MW-10-WD-191507	MW-5-W-191607	MW-3-W-191607	TRACT-4-W-191607	MW-14-W-191607
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	Jul-15-19 15:50	Jul-15-19 00:00	Jul-16-19 10:10	Jul-16-19 10:25	Jul-16-19 10:40	Jul-16-19 10:55
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-19-19 14:00	Jul-27-19 18:40	Jul-19-19 14:00	Jul-19-19 14:00	Jul-19-19 14:00	Jul-19-19 14:00
	Analyzed:	Jul-19-19 16:13	Jul-28-19 12:01	Jul-19-19 17:22	Jul-19-19 17:28	Jul-19-19 17:34	Jul-19-19 17:40
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		23200 100	4750 25.0	219 5.00	475 5.00	333 5.00	1110 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		33200 5.00	8650 5.00	1120 5.00	1320 5.00	1110 5.00	3120 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 631119

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Wed Jul-17-19 08:02 am
Report Date: 02-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	631119-025	631119-026	631119-027	631119-028	631119-029	631119-030
	Field Id:	MW-4-W-191607	MW-13-W-191607	MW-30-W-191607	Livermore-W-191607	MW-23-W-191607	MW-22-W-191607
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	Jul-16-19 11:15	Jul-16-19 11:35	Jul-16-19 11:50	Jul-16-19 12:05	Jul-16-19 12:40	Jul-16-19 12:50
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-19-19 14:00	Jul-19-19 14:00	Jul-19-19 14:00	Jul-19-19 14:00	Jul-19-19 14:00	Jul-19-19 14:00
	Analyzed:	Jul-19-19 18:06	Jul-19-19 18:12	Jul-19-19 18:31	Jul-19-19 18:37	Jul-19-19 18:44	Jul-19-19 18:50
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		269 5.00	1400 25.0	1500 25.0	1340 25.0	3420 25.0	11300 50.0
TDS by SM2540C	Extracted:						
	Analyzed:	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		889 5.00	4440 5.00	4200 5.00	4720 5.00	9780 5.00	18000 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 631119

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Wed Jul-17-19 08:02 am
Report Date: 02-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	631119-031	631119-032	631119-033	631119-034	631119-035	
	Field Id:	MW-17-W-191607	MW-21-W-191607	MW-16-W-191607	MW-15-W-191607	MW-17-WD-191607	
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	
	Sampled:	Jul-16-19 13:05	Jul-16-19 13:30	Jul-16-19 13:45	Jul-16-19 14:10	Jul-16-19 00:00	
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-19-19 14:00	Jul-19-19 14:00	Jul-19-19 14:00	Jul-22-19 11:30	Jul-22-19 11:30	
	Analyzed:	Jul-19-19 18:56	Jul-19-19 19:03	Jul-19-19 19:09	Jul-22-19 12:08	Jul-22-19 12:13	
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
Chloride		7880 50.0	6720 50.0	301 5.00	1300 10.0	8150 50.0	
TDS by SM2540C	Extracted:						
	Analyzed:	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00	Jul-18-19 16:00	
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
Total Dissolved Solids		13100 5.00	11000 5.00	1060 5.00	1800 5.00	12800 5.00	

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Debbie Simmons
Project Manager

Analytical Report 631119

for
GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

02-AUG-19

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)



02-AUG-19

Project Manager: **Nick Casten**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **631119**
Dollarhide
Project Address: New Mexico

Nick Casten:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 631119. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 631119 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Debbie Simmons

Project Manager

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Sample Cross Reference 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-29-W-191507	W	07-15-19 11:10		631119-001
MW-28-W-191507	W	07-15-19 11:20		631119-002
58-B-2-MW-W-191507	W	07-15-19 11:50		631119-003
58-B-1-MW-W-191507	W	07-15-19 12:05		631119-004
MW-9-W-191507	W	07-15-19 12:25		631119-005
MW-8-W-191507	W	07-15-19 12:45		631119-006
DHU-FWS-W-191507	W	07-15-19 12:55		631119-007
MW-27-W-191507	W	07-15-19 13:10		631119-008
MW-20-W-191507	W	07-15-19 13:25		631119-009
MW-26-W-191507	W	07-15-19 13:40		631119-010
MW-24-W-191507	W	07-15-19 13:50		631119-011
MW-18-W-191507	W	07-15-19 14:05		631119-012
MW-19-W-191507	W	07-15-19 14:15		631119-013
MW-12-W-191507	W	07-15-19 14:30		631119-014
MW-31-W-191507	W	07-15-19 14:45		631119-015
MW-10-W-191507	W	07-15-19 15:05		631119-016
MW-6-W-191507	W	07-15-19 15:25		631119-017
MW-11-W-191507	W	07-15-19 15:35		631119-018
MW-25-W-191507	W	07-15-19 15:50		631119-019
MW-10-WD-191507	W	07-15-19 00:00		631119-020
MW-5-W-191607	W	07-16-19 10:10		631119-021
MW-3-W-191607	W	07-16-19 10:25		631119-022
TRACT-4-W-191607	W	07-16-19 10:40		631119-023
MW-14-W-191607	W	07-16-19 10:55		631119-024
MW-4-W-191607	W	07-16-19 11:15		631119-025
MW-13-W-191607	W	07-16-19 11:35		631119-026
MW-30-W-191607	W	07-16-19 11:50		631119-027
Livermore-W-191607	W	07-16-19 12:05		631119-028
MW-23-W-191607	W	07-16-19 12:40		631119-029
MW-22-W-191607	W	07-16-19 12:50		631119-030
MW-17-W-191607	W	07-16-19 13:05		631119-031
MW-21-W-191607	W	07-16-19 13:30		631119-032
MW-16-W-191607	W	07-16-19 13:45		631119-033
MW-15-W-191607	W	07-16-19 14:10		631119-034
MW-17-WD-191607	W	07-16-19 00:00		631119-035



CASE NARRATIVE

Client Name: *GHD Services, INC- Midland*

Project Name: *Dollarhide*

Project ID: 055270
Work Order Number(s): 631119

Report Date: 02-AUG-19
Date Received: 07/17/2019

Sample receipt non conformances and comments:

page 3 did not have date collected nor tests for all samples. Confirmed with Brittany White, all samples on page 3 were collected on 7/16 and are for Chlorides and TDS.

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3096659 Inorganic Anions by EPA 300/300.1

Lab Sample ID 631119-020 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 631119-016, -020.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-29-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-001

Date Collected: 07.15.19 11.10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	500	10.0	1.72	mg/L	07.18.19 20.52		20

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1140	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-28-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-002

Date Collected: 07.15.19 11.20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2180	25.0	4.29	mg/L	07.18.19 20.58		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3490	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 58-B-2-MW-W-191507

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-003

Date Collected: 07.15.19 11.50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3850	25.0	4.29	mg/L	07.18.19 21.05		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	6310	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 58-B-1-MW-W-191507

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-004

Date Collected: 07.15.19 12.05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6180	50.0	8.58	mg/L	07.18.19 21.11		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	9750	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-9-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-005

Date Collected: 07.15.19 12.25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2620	25.0	4.29	mg/L	07.18.19 21.32		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4240	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-8-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-006

Date Collected: 07.15.19 12.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	884	25.0	4.29	mg/L	07.18.19 21.39		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2390	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **DHU-FWS-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-007

Date Collected: 07.15.19 12.55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	624	25.0	4.29	mg/L	07.18.19 21.45		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3020	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-27-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-008

Date Collected: 07.15.19 13.10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2540	25.0	4.29	mg/L	07.18.19 21.51		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4440	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-20-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-009

Date Collected: 07.15.19 13.25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1270	25.0	4.29	mg/L	07.18.19 21.58		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2330	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-26-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-010

Date Collected: 07.15.19 13.40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1360	25.0	4.29	mg/L	07.18.19 22.27		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2960	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-24-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-011

Date Collected: 07.15.19 13.50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4180	25.0	4.29	mg/L	07.18.19 22.33		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8860	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-18-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-012

Date Collected: 07.15.19 14.05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21000	250	42.9	mg/L	07.18.19 22.54		500

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	33100	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-19-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-013

Date Collected: 07.15.19 14.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6860	50.0	8.58	mg/L	07.18.19 23.01		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	11000	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-12-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-014

Date Collected: 07.15.19 14.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11000	100	17.2	mg/L	07.18.19 23.07		200

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	22600	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-31-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-015

Date Collected: 07.15.19 14.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10900	100	17.2	mg/L	07.18.19 23.13		200

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	16600	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-10-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-016

Date Collected: 07.15.19 15.05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 07.27.19 18.40

Seq Number: 3096659

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4860	25.0	4.29	mg/L	07.28.19 12.27		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8210	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-6-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-017

Date Collected: 07.15.19 15.25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	395	10.0	1.72	mg/L	07.18.19 23.26		20

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1470	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-11-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-018

Date Collected: 07.15.19 15.35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.18.19 14.15

Seq Number: 3095823

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7680	50.0	8.58	mg/L	07.18.19 23.32		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095933

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	11800	5.00	5.00	mg/L	07.18.19 12.51		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-25-W-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-019

Date Collected: 07.15.19 15.50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23200	100	17.2	mg/L	07.19.19 16.13		200

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	33200	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-10-WD-191507**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-020

Date Collected: 07.15.19 00.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 07.27.19 18.40

Seq Number: 3096659

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4750	25.0	4.29	mg/L	07.28.19 12.01		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8650	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-5-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-021

Date Collected: 07.16.19 10.10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	219	5.00	0.858	mg/L	07.19.19 17.22		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1120	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-3-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-022

Date Collected: 07.16.19 10.25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	475	5.00	0.858	mg/L	07.19.19 17.28		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1320	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **TRACT-4-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-023

Date Collected: 07.16.19 10.40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	333	5.00	0.858	mg/L	07.19.19 17.34		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1110	5.00	5.00	mg/L	07.18.19 16.00		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-14-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-024

Date Collected: 07.16.19 10.55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1110	25.0	4.29	mg/L	07.19.19 17.40		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3120	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-4-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-025

Date Collected: 07.16.19 11.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	269	5.00	0.858	mg/L	07.19.19 18.06		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	889	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-13-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-026

Date Collected: 07.16.19 11.35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1400	25.0	4.29	mg/L	07.19.19 18.12		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4440	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-30-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-027

Date Collected: 07.16.19 11.50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1500	25.0	4.29	mg/L	07.19.19 18.31		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4200	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Livermore-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-028

Date Collected: 07.16.19 12.05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1340	25.0	4.29	mg/L	07.19.19 18.37		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4720	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-23-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-029

Date Collected: 07.16.19 12.40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3420	25.0	4.29	mg/L	07.19.19 18.44		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	9780	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-22-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-030

Date Collected: 07.16.19 12.50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11300	50.0	8.58	mg/L	07.19.19 18.50		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	18000	5.00	5.00	mg/L	07.18.19 16.00		1



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GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-17-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-031

Date Collected: 07.16.19 13.05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7880	50.0	8.58	mg/L	07.19.19 18.56		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	13100	5.00	5.00	mg/L	07.18.19 16.00		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-21-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-032

Date Collected: 07.16.19 13.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6720	50.0	8.58	mg/L	07.19.19 19.03		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	11000	5.00	5.00	mg/L	07.18.19 16.00		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-16-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-033

Date Collected: 07.16.19 13.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.19.19 14.00

Seq Number: 3095993

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	301	5.00	0.858	mg/L	07.19.19 19.09		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1060	5.00	5.00	mg/L	07.18.19 16.00		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-15-W-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-034

Date Collected: 07.16.19 14.10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1300	10.0	1.72	mg/L	07.22.19 12.08		20

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1800	5.00	5.00	mg/L	07.18.19 16.00		1



Certificate of Analytical Results 631119



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-17-WD-191607**

Matrix: Ground Water

Date Received: 07.17.19 08.02

Lab Sample Id: 631119-035

Date Collected: 07.16.19 00.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8150	50.0	8.58	mg/L	07.22.19 12.13		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3095987

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	12800	5.00	5.00	mg/L	07.18.19 16.00		1

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

GHD Services, INC- Midland
Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095823

Matrix: Water

Prep Method: E300P

MB Sample Id: 7682295-1-BLK

LCS Sample Id: 7682295-1-BKS

Date Prep: 07.18.19

LCSD Sample Id: 7682295-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	25.1	100	25.2	101	90-110	0	20	mg/L	07.18.19 20:14	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095993

Matrix: Water

Prep Method: E300P

MB Sample Id: 7682392-1-BLK

LCS Sample Id: 7682392-1-BKS

Date Prep: 07.19.19

LCSD Sample Id: 7682392-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	24.8	99	24.8	99	90-110	0	20	mg/L	07.19.19 15:06	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3096072

Matrix: Water

Prep Method: E300P

MB Sample Id: 7682483-1-BLK

LCS Sample Id: 7682483-1-BKS

Date Prep: 07.22.19

LCSD Sample Id: 7682483-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	24.1	96	23.9	96	90-110	1	20	mg/L	07.22.19 11:35	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3096659

Matrix: Water

Prep Method: E300P

MB Sample Id: 7682957-1-BLK

LCS Sample Id: 7682957-1-BKS

Date Prep: 07.27.19

LCSD Sample Id: 7682957-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	24.6	98	24.8	99	90-110	1	20	mg/L	07.28.19 11:41	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095823

Matrix: Drinking Water

Prep Method: E300P

Parent Sample Id: 631264-001

MS Sample Id: 631264-001 S

Date Prep: 07.18.19

MSD Sample Id: 631264-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	4.21	25.0	29.1	100	29.3	100	90-110	1	20	mg/L	07.18.19 20:37	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 631119

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095823

Matrix: Drinking Water

Prep Method: E300P

Parent Sample Id: 631265-001

MS Sample Id: 631265-001 S

Date Prep: 07.18.19

MSD Sample Id: 631265-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	24.4	25.0	50.2	103	49.9	102	90-110	1	20	mg/L	07.18.19 22:12	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095993

Matrix: Ground Water

Prep Method: E300P

Parent Sample Id: 631118-001

MS Sample Id: 631118-001 S

Date Prep: 07.19.19

MSD Sample Id: 631118-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	64.2	125	96.4	26	96.6	26	90-110	0	20	mg/L	07.19.19 17:53	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095993

Matrix: Drinking Water

Prep Method: E300P

Parent Sample Id: 631469-001

MS Sample Id: 631469-001 S

Date Prep: 07.19.19

MSD Sample Id: 631469-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8.80	25.0	33.3	98	33.3	98	90-110	0	20	mg/L	07.19.19 15:35	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3096072

Matrix: Water

Prep Method: E300P

Parent Sample Id: 631650-001

MS Sample Id: 631650-001 S

Date Prep: 07.22.19

MSD Sample Id: 631650-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	24.8	99	24.6	98	90-110	1	20	mg/L	07.22.19 11:52	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3096072

Matrix: Water

Prep Method: E300P

Parent Sample Id: 631650-002

MS Sample Id: 631650-002 S

Date Prep: 07.22.19

MSD Sample Id: 631650-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	25.4	102	27.1	108	90-110	6	20	mg/L	07.22.19 13:06	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 631119

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3096659

Matrix: Ground Water

Prep Method: E300P

Parent Sample Id: 631119-020

MS Sample Id: 631119-020 S

Date Prep: 07.27.19

MSD Sample Id: 631119-020 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	4750	1250	4740	0	4740	0	90-110	0	20	mg/L	07.28.19 12:08	X

Analytical Method: TDS by SM2540C

Seq Number: 3095933

Matrix: Water

MB Sample Id: 3095933-1-BLK

LCS Sample Id: 3095933-1-BKS

LCSD Sample Id: 3095933-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	987	99	990	99	80-120	0	10	mg/L	07.18.19 12:51	

Analytical Method: TDS by SM2540C

Seq Number: 3095987

Matrix: Water

MB Sample Id: 3095987-1-BLK

LCS Sample Id: 3095987-1-BKS

LCSD Sample Id: 3095987-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	1010	101	1040	104	80-120	3	10	mg/L	07.18.19 16:00	

Analytical Method: TDS by SM2540C

Seq Number: 3095933

Matrix: Water

Parent Sample Id: 630934-001

MD Sample Id: 630934-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	3990	3900	2	10	mg/L	07.18.19 12:51	

Analytical Method: TDS by SM2540C

Seq Number: 3095933

Matrix: Water

Parent Sample Id: 631249-001

MD Sample Id: 631249-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	2570	2590	1	10	mg/L	07.18.19 12:51	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 631119

GHD Services, INC- Midland Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3095987

Parent Sample Id: 631119-019

Matrix: Ground Water

MD Sample Id: 631119-019 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	33200	34000	2	10	mg/L	07.18.19 16:00	

Analytical Method: TDS by SM2540C

Seq Number: 3095987

Parent Sample Id: 631119-029

Matrix: Ground Water

MD Sample Id: 631119-029 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	9780	10700	9	10	mg/L	07.18.19 16:00	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



Chain of Custody

Work Order No: 1031119

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

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Project Manager:	Nick Casten	Bill to: (if different)	Gina Blair- Apinvoices-340@gnd.com
Company Name:	GHD	Company Name:	GHD Services Inc - 340
Address:	2135 S. Loop 250 West	Address:	2055 Niagara Falls Blvd.
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	Niagara Falls, NY 14304
Phone:	225-292-9007	Email:	Nick.Casten@gnd.com & Christopher.Knigh@gnd.com & Brittany.White@gnd.com & edds@gnd.com

Program: ☐ UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	
State of Project:	
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐	Deliverables: EDD ☐ ADAPT ☐ Other: ☐

Project Name:	Dollarhide	Turn Around	☒	ANALYSIS REQUEST	Work Order Notes
Project Number:	55270	Routine	☒		
P.O. Number:	34032659	Rush:			
Sampler's Name:	Phillip Cole Joe Morales	Due Date:			

SAMPLE RECEIPT		Temp Blank:	Yes No	Well loc:	Yes No
Temperature (°C):	0.301	Thermometer ID			
Received intact:	Yes No				
Cooler Custody Seals:	Yes No	Correction Factor:			
Sample Custody Seals:	Yes No	Total Containers:			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chlorides	TDS																	Sample Comments
MW-29-W-191507	GW	7-15	1110	1	1	X	X																	
MW-28-W-191507			1120																					
58-B-1-W-191507			1150																					
MW-9-W-191507			1205																					
MW-8-W-191507			1225																					
DAU-FWS-W-191507			1245																					
MW-27-W-191507			1310																					
MW-20-W-191507			1325																					
MW-26-W-191507			1340																					

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM Texas 11	Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed	TCLP / SPLP 6010:	8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	1631 / 246.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Joe Morales	1 Joe Morales	7/17/19	2		
3			4		
5			6		



Chain of Custody

Work Order No: 631119

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

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Page 2 of 4

Project Manager:	Nick Casten	Bill to: (if different)	Gina Blair- Apinvoices-340@gnd.com
Company Name:	GHD	Company Name:	GHD Services Inc. - 340
Address:	2135 S. Loop 250 West	Address:	2055 Niagara Falls Blvd.
City, State ZIP:	Midland, TX, 79703	City, State ZIP:	Niagara Falls, NY, 14304
Phone:	225-292-9007	Email:	Nick Casten@gnd.com & Christopher.Knight@gnd.com & Britany.White@gnd.com & edds@gnd.com

Work Order Comments	
Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	
State of Project:	
Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐	
Deliverables: EDD ☐ ADAPT ☐ Other:	

Project Name:	Dollarhide	Turn Around	☒
Project Number:	55270	Routine	☒
P.O. Number:	34032659	Rush:	
Sampler's Name:	Joe Morales Philia Cole	Due Date:	

SAMPLE RECEIPT	Temp Blank: ☒ Yes ☒ No	Wet Ice: ☒ Yes ☒ No	
Temperature (°C):	0-20.1	Thermometer ID	DE
Received Intact:	☒ Yes ☒ No	Correction Factor:	-0.2
Cooler Custody Seals:	☒ Yes ☒ No	Total Containers:	
Sample Custody Seals:	☒ Yes ☒ No		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chlorides	TDS	ANALYSIS REQUEST										Work Order Notes
MW-24-W-191507	GW	7-15	1350	-	1	X	X											
MW-18-W-191507			1405															
MW-19-W-191507			1415															
MW-12-W-191507			1430															
MW-31-W-191507			1445															
MW-10-W-191507			1505															
MW-6-W-191507			1525															
MW-11-W-191507			1535															
MW-35-W-191507			1550															
MW-10-W-191507	GW	7-15				X	X											

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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Joe Morales	BR	7/17/19			
		0802			



031119

Final 1.000



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 07/17/2019 08:02:00 AM

Work Order #: 631119

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 07/17/2019

Checklist reviewed by:

Debbie Simmons

Debbie Simmons

Date: 07/17/2019



Certificate of Analysis Summary 631310

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Thu Jul-18-19 08:09 am
Report Date: 02-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	631310-001	631310-002	631310-003	631310-004	631310-005	631310-006
	Field Id:	43-K-1-MW-W-191707	45-E-3-MW-W-191707	45-F-1-MW-W-191707	45-FF-MW-W-191707	45-E-2-MW-W-191707	45-E-1-MW-W-191707
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	Sampled:	Jul-17-19 11:30	Jul-17-19 11:40	Jul-17-19 12:00	Jul-17-19 12:15	Jul-17-19 12:30	Jul-17-19 12:50
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-22-19 11:30	Jul-22-19 11:30	Jul-22-19 11:30	Jul-22-19 11:30	Jul-22-19 11:30	Jul-22-19 11:30
	Analyzed:	Jul-22-19 12:18	Jul-22-19 12:34	Jul-22-19 12:40	Jul-22-19 12:45	Jul-22-19 12:50	Jul-22-19 12:56
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		7050 50.0	4010 25.0	1060 10.0	6060 25.0	1830 25.0	3360 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	Jul-22-19 16:09	Jul-22-19 16:09	Jul-22-19 16:09	Jul-22-19 16:09	Jul-22-19 16:09	Jul-22-19 16:09
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		11000 5.00	6440 5.00	1770 5.00	7320 5.00	2880 5.00	4820 5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager



Certificate of Analysis Summary 631310

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Thu Jul-18-19 08:09 am
Report Date: 02-AUG-19
Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	631310-007	631310-008	631310-009	631310-010	631310-011	631310-012
	<i>Field Id:</i>	44-I-1-MW-W-191707	44-J-1-MW-W-191707	44-J-5-MW-W-191707	44-J-4-MW-W-191707	44-J-3-MW-W-191707	44-J-2-MW-W-191707
	<i>Depth:</i>						
	<i>Matrix:</i>	WATER	WATER	WATER	WATER	WATER	WATER
	<i>Sampled:</i>	Jul-17-19 13:20	Jul-17-19 13:35	Jul-17-19 13:45	Jul-17-19 14:00	Jul-17-19 14:15	Jul-17-19 14:25
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Jul-22-19 11:30	Jul-22-19 11:30	Jul-22-19 11:30	Jul-22-19 11:30	Jul-22-19 11:30	Jul-22-19 11:30
	<i>Analyzed:</i>	Jul-22-19 13:17	Jul-22-19 13:22	Jul-22-19 13:38	Jul-22-19 13:44	Jul-22-19 13:49	Jul-22-19 13:55
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		3400 25.0	5140 25.0	4200 25.0	4240 25.0	5340 25.0	5170 25.0
TDS by SM2540C	<i>Extracted:</i>						
	<i>Analyzed:</i>	Jul-22-19 16:09	Jul-22-19 16:09	Jul-22-19 16:09	Jul-22-19 16:09	Jul-22-19 16:09	Jul-22-19 16:09
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		5510 5.00	7020 5.00	6810 5.00	6850 5.00	8680 5.00	7870 5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager

Analytical Report 631310

for
GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

02-AUG-19

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)



02-AUG-19

Project Manager: **Nick Casten**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **631310**
Dollarhide
Project Address: New Mexico

Nick Casten:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 631310. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 631310 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Debbie Simmons

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
43-K-1-MW-W-191707	W	07-17-19 11:30		631310-001
45-E-3-MW-W-191707	W	07-17-19 11:40		631310-002
45-F-1-MW-W-191707	W	07-17-19 12:00		631310-003
45-FF-MW-W-191707	W	07-17-19 12:15		631310-004
45-E-2-MW-W-191707	W	07-17-19 12:30		631310-005
45-E-1-MW-W-191707	W	07-17-19 12:50		631310-006
44-I-1-MW-W-191707	W	07-17-19 13:20		631310-007
44-J-1-MW-W-191707	W	07-17-19 13:35		631310-008
44-J-5-MW-W-191707	W	07-17-19 13:45		631310-009
44-J-4-MW-W-191707	W	07-17-19 14:00		631310-010
44-J-3-MW-W-191707	W	07-17-19 14:15		631310-011
44-J-2-MW-W-191707	W	07-17-19 14:25		631310-012



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Dollarhide

Project ID: 055270
Work Order Number(s): 631310

Report Date: 02-AUG-19
Date Received: 07/18/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **43-K-1-MW-W-191707**

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-001

Date Collected: 07.17.19 11.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7050	50.0	8.58	mg/L	07.22.19 12.18		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	11000	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 45-E-3-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-002

Date Collected: 07.17.19 11.40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4010	25.0	4.29	mg/L	07.22.19 12.34		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	6440	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 45-F-1-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-003

Date Collected: 07.17.19 12.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1060	10.0	1.72	mg/L	07.22.19 12.40		20

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1770	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 45-FF-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-004

Date Collected: 07.17.19 12.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6060	25.0	4.29	mg/L	07.22.19 12.45		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	7320	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 45-E-2-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-005

Date Collected: 07.17.19 12.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1830	25.0	4.29	mg/L	07.22.19 12.50		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2880	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 45-E-1-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-006

Date Collected: 07.17.19 12.50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3360	25.0	4.29	mg/L	07.22.19 12.56		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4820	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 44-I-1-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-007

Date Collected: 07.17.19 13.20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3400	25.0	4.29	mg/L	07.22.19 13.17		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	5510	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 44-J-1-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-008

Date Collected: 07.17.19 13.35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5140	25.0	4.29	mg/L	07.22.19 13.22		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	7020	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 44-J-5-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-009

Date Collected: 07.17.19 13.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4200	25.0	4.29	mg/L	07.22.19 13.38		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	6810	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 44-J-4-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-010

Date Collected: 07.17.19 14.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4240	25.0	4.29	mg/L	07.22.19 13.44		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	6850	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 44-J-3-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-011

Date Collected: 07.17.19 14.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5340	25.0	4.29	mg/L	07.22.19 13.49		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8680	5.00	5.00	mg/L	07.22.19 16.09		1



Certificate of Analytical Results 631310



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: 44-J-2-MW-W-191707

Matrix: Water

Date Received: 07.18.19 08.09

Lab Sample Id: 631310-012

Date Collected: 07.17.19 14.25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.22.19 11.30

Seq Number: 3096072

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5170	25.0	4.29	mg/L	07.22.19 13.55		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3096099

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	7870	5.00	5.00	mg/L	07.22.19 16.09		1

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



QC Summary 631310

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3096072

Matrix: Water

Prep Method: E300P

MB Sample Id: 7682483-1-BLK

LCS Sample Id: 7682483-1-BKS

Date Prep: 07.22.19

LCSD Sample Id: 7682483-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	24.1	96	23.9	96	90-110	1	20	mg/L	07.22.19 11:35	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3096072

Matrix: Water

Prep Method: E300P

Parent Sample Id: 631650-001

MS Sample Id: 631650-001 S

Date Prep: 07.22.19

MSD Sample Id: 631650-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	24.8	99	24.6	98	90-110	1	20	mg/L	07.22.19 11:52	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3096072

Matrix: Water

Prep Method: E300P

Parent Sample Id: 631650-002

MS Sample Id: 631650-002 S

Date Prep: 07.22.19

MSD Sample Id: 631650-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	25.4	102	27.1	108	90-110	6	20	mg/L	07.22.19 13:06	

Analytical Method: TDS by SM2540C

Seq Number: 3096099

Matrix: Water

MB Sample Id: 3096099-1-BLK

LCS Sample Id: 3096099-1-BKS

LCSD Sample Id: 3096099-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	972	97	984	98	80-120	1	10	mg/L	07.22.19 16:09	

Analytical Method: TDS by SM2540C

Seq Number: 3096099

Matrix: Water

Parent Sample Id: 631310-001

MD Sample Id: 631310-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	11000	10700	3	10	mg/L	07.22.19 16:09	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 631310

GHD Services, INC- Midland
Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3096099

Parent Sample Id: 631310-011

Matrix: Water

MD Sample Id: 631310-011 D

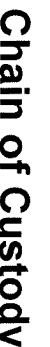
Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	8680	8630	1	10	mg/L	07.22.19 16:09	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$

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

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



10/30

Page 1 of _____

Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

Work Order Comments	
Program: UST/PST	☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:	
Reporting: Level II	Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐
Deliverables: EDD	☐ ADAPT ☐ Other:

Revised Date 051418 Rev. 2018.



63/3/0

Work Order No: 001510



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 07/18/2019 08:09:00 AM

Work Order #: 631310

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 07/18/2019

Checklist reviewed by:

Debbie Simmons

Debbie Simmons

Date: 07/19/2019



Certificate of Analysis Summary 632989

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri Jul-12-19 02:49 pm
Report Date: 05-AUG-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	632989-001	632989-002	632989-003			
	Field Id:	NM-MW-11-W-191207	NM-MW-13-W-191207	NM-MW-12-W-191207			
	Depth:						
	Matrix:	WATER	WATER	WATER			
	Sampled:	Jul-12-19 10:50	Jul-12-19 11:15	Jul-12-19 12:15			
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-16-19 14:58	Jul-16-19 14:58	Jul-16-19 14:58			
	Analyzed:	Jul-16-19 16:12	Jul-16-19 16:32	Jul-16-19 16:51			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL			
Chloride		157 10.0	199 5.00	657 5.00			
TDS by SM2540C	Extracted:	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00			
	Analyzed:	Jul-15-19 14:00	Jul-15-19 14:00	Jul-15-19 14:00			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL			
Total Dissolved Solids		1980 5.00	1090 5.00	524 5.00			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager

Analytical Report 632989

for
GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

05-AUG-19

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNi02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)



05-AUG-19

Project Manager: **Nick Casten**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **632989**
Dollarhide
Project Address: New Mexico

Nick Casten:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 632989. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 632989 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Debbie Simmons

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 632989



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NM-MW-11-W-191207	W	07-12-19 10:50		632989-001
NM-MW-13-W-191207	W	07-12-19 11:15		632989-002
NM-MW-12-W-191207	W	07-12-19 12:15		632989-003



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Dollarhide

Project ID: 055270
Work Order Number(s): 632989

Report Date: 05-AUG-19
Date Received: 07/12/2019

Sample receipt non conformances and comments:

per Brittany White, report NM-MW-11-W-191207, NM- M13-W-191207 and NM-MW-12-W-191207 separate.

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 632989



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-11-W-191207**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 632989-001

Date Collected: 07.12.19 10.50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	157	10.0	1.72	mg/L	07.16.19 16.12		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1980	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 632989



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-13-W-191207**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 632989-002

Date Collected: 07.12.19 11.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	199	5.00	0.858	mg/L	07.16.19 16.32		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1090	5.00	5.00	mg/L	07.15.19 14.00		1



Certificate of Analytical Results 632989



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-12-W-191207**

Matrix: Water

Date Received: 07.12.19 14.49

Lab Sample Id: 632989-003

Date Collected: 07.12.19 12.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.16.19 14.58

Seq Number: 3095578

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	657	5.00	0.858	mg/L	07.16.19 16.51		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3095550

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	524	5.00	5.00	mg/L	07.15.19 14.00		1

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

SDL Sample Detection Limit

LOD Limit of Detection

PQL Practical Quantitation Limit

MQL Method Quantitation Limit

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample

BLK

Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample

BKSD/LCSD

Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate

MS

Matrix Spike

MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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

GHD Services, INC- Midland
Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095578

Matrix: Water

Prep Method: E300P

MB Sample Id: 7682139-1-BLK

LCS Sample Id: 7682139-1-BKS

Date Prep: 07.16.19

LCSD Sample Id: 7682139-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0858	25.0	23.8	95	23.9	96	90-110	0	20	mg/L	07.16.19 15:00	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095578

Matrix: Water

Prep Method: E300P

Parent Sample Id: 630763-002

MS Sample Id: 630763-002 S

Date Prep: 07.16.19

MSD Sample Id: 630763-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	184	125	207	18	207	18	90-110	0	20	mg/L	07.16.19 15:14	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3095578

Matrix: Water

Prep Method: E300P

Parent Sample Id: 630763-005

MS Sample Id: 630763-005 S

Date Prep: 07.16.19

MSD Sample Id: 630763-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	40.6	125	64.5	19	64.5	19	90-110	0	20	mg/L	07.16.19 16:22	X

Analytical Method: TDS by SM2540C

Seq Number: 3095550

Matrix: Water

MB Sample Id: 3095550-1-BLK

LCS Sample Id: 3095550-1-BKS

LCSD Sample Id: 3095550-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	939	94	956	96	80-120	2	10	mg/L	07.15.19 14:00	

Analytical Method: TDS by SM2540C

Seq Number: 3095550

Matrix: Water

Parent Sample Id: 630763-001

MD Sample Id: 630763-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1330	1390	4	10	mg/L	07.15.19 14:00	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 632989

GHD Services, INC- Midland
Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3095550

Parent Sample Id: 632989-001

Matrix: Water

MD Sample Id: 632989-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1980	1990	1	10	mg/L	07.15.19 14:00	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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

Chain of Custody

Work Order No.

632989 dr
1030743

Project Manager: Nick Casten Company Name: GHD Address: 2135 S. Loop 250 West City, State ZIP: Midland, TX. 79703 Phone: 225-292-9007		Bill to: (if different) Company Name: GHD Services Inc.- 340 Address: 2055 Niagara Falls Blvd. City, State ZIP: Niagara Falls, NY. 14304	FLOODS (NW) (313-392-7550) Phoenix, AZ (480-355-0800) Atlanta, GA (770-449-8800) Tampa, FL (813-291-1100)
Email: Nick.Casten@ghd.com & Christopher.Knight@ghd.com & Britany.White@ghd.com & eads@ghd.com			

3-620-2000) www.xenco.com Page 6 of 6

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐

State of Project:

Reporting: Level II Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐

Deliverables: EDD ☐ ADAPT ☐ Other:

Project Name:	Dollarhide	Turn Around
Project Number:	55270	Routine ☐
P.O. Number:	34032659	Rush:
Sampler's Name:	Phillip Cole	Due Date:

SAMPLE RECEIPT		Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	-0.8/-1.0						
Received Intact:	Yes	No					
Cooler Custody Seals:	Yes	No	N/A		Correction Factor:	-0.3	
Sample Custody Seals:	Yes	No	N/A		Total Containers:		

[illegible]

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	Chloride	TDS	Sample Comments
N/M-MW-11-W-1912.07	GW	7-12	1050	—	1.	X	X	
N/M-MW-13W-1912.07			1115			X		
N/M-MW-10-W-1912.07			1150			X		
N/M-MW-12-W-1912.07			1215			X		
William Knack Well-W-1912.07			1230			X		
N/M-MW-11-W-1912.07			—					
Smith Residence-W-1912.07	↓	↓	1345	↑	↓	↓	↓	
58-B-3-W-1912.07	GW	7-12	1300	—	1W	X	X	

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Joe Munk	J. Munk	7.12.1999	2		
3			4		
5			6		



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 07/12/2019 02:49:00 PM

Work Order #: 632989

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst: BIT

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 08/05/2019

Checklist reviewed by:

Debbie Simmons

Debbie Simmons

Date: 08/05/2019



Certificate of Analysis Summary 640401

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri 10.18.2019 10:26

Report Date: 10.29.2019 16:11

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	640401-001	640401-002	640401-003	640401-004	640401-005	640401-006
	Field Id:	NM-MW-1-W-191510	NM-MW-2-W-191510	NM-MW-3-W-191510	NM-MW-4-W-191510	NM-MW-5-W-191510	NM-MW-6-W-191510
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	10.15.2019 11:55	10.15.2019 11:35	10.15.2019 11:27	10.15.2019 10:57	10.15.2019 12:01	10.15.2019 12:15
Inorganic Anions by EPA 300/300.1	Extracted:	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 11:15
	Analyzed:	10.21.2019 12:12	10.21.2019 12:18	10.21.2019 11:56	10.21.2019 13:12	10.21.2019 12:23	10.21.2019 14:56
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		281 5.00	666 5.00	183 X 2.50	46.2 X 2.50	170 5.00	139 2.50
TDS by SM2540C	Extracted:						
	Analyzed:	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1450 5.00	1240 5.00	596 5.00	430 5.00	1320 5.00	827 5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
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Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager



Certificate of Analysis Summary 640401

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri 10.18.2019 10:26

Report Date: 10.29.2019 16:11

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	640401-007	640401-008	640401-009	640401-010	640401-011	640401-012
	Field Id:	NM-MW-7-W-191510	NM-MW-8-W-191510	NM-MW-9-W-191510	NM-MW-10-W-191510	RRR Ranch Windmill-W-	Smith Residence-W-1915
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	10.15.2019 10:35	10.15.2019 11:10	10.15.2019 13:25	10.15.2019 13:11	10.15.2019 10:59	10.15.2019 14:10
Inorganic Anions by EPA 300/300.1	Extracted:	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45
	Analyzed:	10.21.2019 12:29	10.21.2019 12:45	10.21.2019 12:50	10.21.2019 12:56	10.21.2019 13:01	10.21.2019 13:07
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		2370 25.0	7120 25.0	243 5.00	340 5.00	1800 25.0	1180 10.0
TDS by SM2540C	Extracted:						
	Analyzed:	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		4240 5.00	10700 5.00	812 5.00	1670 5.00	3500 5.00	2140 5.00

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

Debbie Simmons
Project Manager



Certificate of Analysis Summary 640401

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri 10.18.2019 10:26

Report Date: 10.29.2019 16:11

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	640401-013	640401-014	640401-015	640401-016	640401-017	640401-018
	Field Id:	Wilson Ranch Well-W-19	MW-28-W-191610	MW-29-W-191610	MW-9-W-191610	MW-8-W-191610	DHU-FWS-W-191610
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	10.15.2019 13:45	10.16.2019 11:00	10.16.2019 11:10	10.16.2019 11:40	10.16.2019 12:00	10.16.2019 12:10
Inorganic Anions by EPA 300/300.1	Extracted:	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45
	Analyzed:	10.21.2019 13:29	10.21.2019 13:34	10.21.2019 13:50	10.21.2019 17:28	10.21.2019 14:01	10.21.2019 14:07
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		928 10.0	2410 25.0	501 5.00	2520 25.0	919 10.0	603 10.0
TDS by SM2540C	Extracted:						
	Analyzed:	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20	10.18.2019 17:20
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1880 5.00	3780 5.00	1200 5.00	4610 5.00	2400 5.00	2950 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 640401

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri 10.18.2019 10:26

Report Date: 10.29.2019 16:11

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	640401-019	640401-020	640401-021	640401-022	640401-023	640401-024
	Field Id:	MW-27-W-191610	MW-20-W-191610	MW-26-W-191610	MW-24-W-191610	MW-12-W-191610	MW-31-W-191610
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	10.16.2019 12:20	10.16.2019 12:30	10.16.2019 12:45	10.16.2019 13:00	10.16.2019 13:15	10.16.2019 13:25
Inorganic Anions by EPA 300/300.1	Extracted:	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 10:45	10.21.2019 11:15	10.21.2019 11:15	10.21.2019 11:15
	Analyzed:	10.21.2019 14:12	10.21.2019 14:18	10.21.2019 14:23	10.21.2019 15:12	10.21.2019 15:17	10.21.2019 15:23
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		2490 25.0	1260 10.0	1340 25.0	4150 25.0	12600 100	10500 50.0
TDS by SM2540C	Extracted:						
	Analyzed:	10.18.2019 17:20	10.18.2019 17:20	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		4160 5.00	2500 5.00	3250 5.00	8980 5.00	23400 5.00	17900 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 640401

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri 10.18.2019 10:26

Report Date: 10.29.2019 16:11

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	640401-025	640401-026	640401-027	640401-028	640401-029	640401-030
	Field Id:	MW-10-W-191610	MW-18-W-191610	MW-19-W-191610	MW-25-W-191710	MW-11-W-191710	MW-10-WD-191610
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	10.16.2019 13:45	10.16.2019 14:00	10.16.2019 14:20	10.17.2019 11:05	10.17.2019 10:30	10.16.2019 00:00
Inorganic Anions by EPA 300/300.1	Extracted:	10.21.2019 11:15	10.21.2019 11:15	10.21.2019 11:15	10.21.2019 11:15	10.21.2019 11:15	10.21.2019 11:15
	Analyzed:	10.21.2019 17:34	10.21.2019 15:45	10.21.2019 15:50	10.21.2019 15:56	10.21.2019 16:01	10.21.2019 16:06
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		4980 25.0	19900 100	7160 50.0	20900 100	7590 50.0	4940 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		8520 5.00	37300 5.00	12800 5.00	24800 5.00	12400 5.00	8630 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 640401

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri 10.18.2019 10:26

Report Date: 10.29.2019 16:11

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	640401-031	640401-032	640401-033	640401-034	640401-035	640401-036
	Field Id:	MW-6-W-191710	MW-5-W-191710	MW-3-W-191710	TRAC-4-W-191710	Livermoore-W-191710	MW-30-W-191710
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	10.17.2019 10:45	10.17.2019 10:55	10.17.2019 11:15	10.17.2019 11:30	10.17.2019 11:50	10.17.2019 12:10
Inorganic Anions by EPA 300/300.1	Extracted:	10.21.2019 11:15	10.21.2019 11:15	10.22.2019 15:45	10.21.2019 11:15	10.21.2019 11:15	10.21.2019 11:15
	Analyzed:	10.21.2019 16:28	10.21.2019 16:34	10.22.2019 22:01	10.21.2019 17:39	10.21.2019 17:44	10.21.2019 17:50
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		383 5.00	257 5.00	502 5.00	323 5.00	2490 25.0	2340 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1490 5.00	1000 5.00	1350 5.00	1070 5.00	4160 5.00	3880 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 640401

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri 10.18.2019 10:26

Report Date: 10.29.2019 16:11

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	640401-037	640401-038	640401-039	640401-040	640401-041	640401-042
	Field Id:	MW-13-W-191710	MW-4-W-191710	MW-14-W-191710	MW-15-W-191710	MW-21-W-191710	MW-16-W-191710
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	10.17.2019 12:20	10.17.2019 12:35	10.17.2019 12:45	10.17.2019 13:00	10.17.2019 13:15	10.17.2019 13:25
Inorganic Anions by EPA 300/300.1	Extracted:	10.21.2019 11:15	10.21.2019 11:15	10.21.2019 11:15	10.21.2019 15:00	10.21.2019 15:00	10.21.2019 15:00
	Analyzed:	10.21.2019 17:55	10.21.2019 18:01	10.21.2019 17:23	10.21.2019 21:09	10.21.2019 21:14	10.21.2019 21:19
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		1960 25.0	325 5.00	1670 25.0	1010 10.0	7010 50.0	393 5.00
TDS by SM2540C	Extracted:						
	Analyzed:	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:14	10.21.2019 08:15	10.21.2019 08:15
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		3720 5.00	902 5.00	2940 5.00	1850 5.00	11000 5.00	1110 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 640401

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri 10.18.2019 10:26
Report Date: 10.29.2019 16:11
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	640401-043	640401-044	640401-045	640401-046		
	Field Id:	MW-17-W-191710	MW-23-W-191710	MW-22-W-191710	MW-17-WD-191710		
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER		
	Sampled:	10.17.2019 13:35	10.17.2019 13:50	10.17.2019 14:00	10.17.2019 00:00		
Inorganic Anions by EPA 300/300.1	Extracted:	10.21.2019 15:00	10.21.2019 15:00	10.21.2019 15:00	10.21.2019 15:00		
	Analyzed:	10.21.2019 21:23	10.21.2019 21:42	10.21.2019 21:47	10.21.2019 21:52		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Chloride		9620 50.0	3840 25.0	12400 50.0	9430 50.0		
TDS by SM2540C	Extracted:						
	Analyzed:	10.21.2019 08:15	10.21.2019 08:15	10.21.2019 08:15	10.21.2019 08:15		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Total Dissolved Solids		15300 5.00	10200 5.00	20600 5.00	16000 5.00		

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Debbie Simmons
Project Manager



Analytical Report 640401

for

GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

10.29.2019

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.29.2019

Project Manager: **Nick Casten**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **640401**
Dollarhide
Project Address: New Mexico

Nick Casten:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 640401. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 640401 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Debbie Simmons'. The signature is fluid and cursive, with a horizontal line drawn underneath it.

Debbie Simmons
Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NM-MW-1-W-191510	W	10.15.2019 11:55		640401-001
NM-MW-2-W-191510	W	10.15.2019 11:35		640401-002
NM-MW-3-W-191510	W	10.15.2019 11:27		640401-003
NM-MW-4-W-191510	W	10.15.2019 10:57		640401-004
NM-MW-5-W-191510	W	10.15.2019 12:01		640401-005
NM-MW-6-W-191510	W	10.15.2019 12:15		640401-006
NM-MW-7-W-191510	W	10.15.2019 10:35		640401-007
NM-MW-8-W-191510	W	10.15.2019 11:10		640401-008
NM-MW-9-W-191510	W	10.15.2019 13:25		640401-009
NM-MW-10-W-191510	W	10.15.2019 13:11		640401-010
RRR Ranch Windmill-W-191510	W	10.15.2019 10:59		640401-011
Smith Residence-W-191510	W	10.15.2019 14:10		640401-012
Wilson Ranch Well-W-191510	W	10.15.2019 13:45		640401-013
MW-28-W-191610	W	10.16.2019 11:00		640401-014
MW-29-W-191610	W	10.16.2019 11:10		640401-015
MW-9-W-191610	W	10.16.2019 11:40		640401-016
MW-8-W-191610	W	10.16.2019 12:00		640401-017
DHU-FWS-W-191610	W	10.16.2019 12:10		640401-018
MW-27-W-191610	W	10.16.2019 12:20		640401-019
MW-20-W-191610	W	10.16.2019 12:30		640401-020
MW-26-W-191610	W	10.16.2019 12:45		640401-021
MW-24-W-191610	W	10.16.2019 13:00		640401-022
MW-12-W-191610	W	10.16.2019 13:15		640401-023
MW-31-W-191610	W	10.16.2019 13:25		640401-024
MW-10-W-191610	W	10.16.2019 13:45		640401-025
MW-18-W-191610	W	10.16.2019 14:00		640401-026
MW-19-W-191610	W	10.16.2019 14:20		640401-027
MW-25-W-191710	W	10.17.2019 11:05		640401-028
MW-11-W-191710	W	10.17.2019 10:30		640401-029
MW-10-WD-191610	W	10.16.2019 00:00		640401-030
MW-6-W-191710	W	10.17.2019 10:45		640401-031
MW-5-W-191710	W	10.17.2019 10:55		640401-032
MW-3-W-191710	W	10.17.2019 11:15		640401-033
TRAC-4-W-191710	W	10.17.2019 11:30		640401-034
Livermoore-W-191710	W	10.17.2019 11:50		640401-035
MW-30-W-191710	W	10.17.2019 12:10		640401-036
MW-13-W-191710	W	10.17.2019 12:20		640401-037
MW-4-W-191710	W	10.17.2019 12:35		640401-038
MW-14-W-191710	W	10.17.2019 12:45		640401-039
MW-15-W-191710	W	10.17.2019 13:00		640401-040
MW-21-W-191710	W	10.17.2019 13:15		640401-041
MW-16-W-191710	W	10.17.2019 13:25		640401-042
MW-17-W-191710	W	10.17.2019 13:35		640401-043



Sample Cross Reference 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

MW-23-W-191710	W	10.17.2019 13:50	640401-044
MW-22-W-191710	W	10.17.2019 14:00	640401-045
MW-17-WD-191710	W	10.17.2019 00:00	640401-046



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Dollarhide

Project ID: 055270
Work Order Number(s): 640401

Report Date: 10.29.2019
Date Received: 10.18.2019

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3104927 Inorganic Anions by EPA 300/300.1

Lab Sample ID 640401-003 and 640401-004 were randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 640401-001, -002, -003, -004, -005, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020, -021.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-1-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-001

Date Collected: 10.15.2019 11:55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	281	5.00	0.210	mg/L	10.21.2019 12:12		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1450	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-2-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-002

Date Collected: 10.15.2019 11:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	666	5.00	0.210	mg/L	10.21.2019 12:18		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1240	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-3-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-003

Date Collected: 10.15.2019 11:27

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	183	2.50	0.105	mg/L	10.21.2019 11:56	X	5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	596	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-4-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-004

Date Collected: 10.15.2019 10:57

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	46.2	2.50	0.105	mg/L	10.21.2019 13:12	X	5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	430	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-5-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-005

Date Collected: 10.15.2019 12:01

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	170	5.00	0.210	mg/L	10.21.2019 12:23		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1320	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-6-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-006

Date Collected: 10.15.2019 12:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	139	2.50	0.105	mg/L	10.21.2019 14:56		5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	827	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-7-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-007

Date Collected: 10.15.2019 10:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2370	25.0	1.05	mg/L	10.21.2019 12:29		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4240	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-8-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-008

Date Collected: 10.15.2019 11:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7120	25.0	1.05	mg/L	10.21.2019 12:45		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	10700	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-9-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-009

Date Collected: 10.15.2019 13:25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	243	5.00	0.210	mg/L	10.21.2019 12:50		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	812	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-10-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-010

Date Collected: 10.15.2019 13:11

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	340	5.00	0.210	mg/L	10.21.2019 12:56		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1670	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **RRR Ranch Windmill-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-011

Date Collected: 10.15.2019 10:59

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1800	25.0	1.05	mg/L	10.21.2019 13:01		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3500	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Smith Residence-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-012

Date Collected: 10.15.2019 14:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1180	10.0	0.421	mg/L	10.21.2019 13:07		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2140	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Wilson Ranch Well-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-013

Date Collected: 10.15.2019 13:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	928	10.0	0.421	mg/L	10.21.2019 13:29		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1880	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-28-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-014

Date Collected: 10.16.2019 11:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2410	25.0	1.05	mg/L	10.21.2019 13:34		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3780	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-29-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-015

Date Collected: 10.16.2019 11:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	501	5.00	0.210	mg/L	10.21.2019 13:50		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1200	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-9-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-016

Date Collected: 10.16.2019 11:40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2520	25.0	1.05	mg/L	10.21.2019 17:28		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4610	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-8-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-017

Date Collected: 10.16.2019 12:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	919	10.0	0.421	mg/L	10.21.2019 14:01		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2400	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **DHU-FWS-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-018

Date Collected: 10.16.2019 12:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	603	10.0	0.421	mg/L	10.21.2019 14:07		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2950	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-27-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-019

Date Collected: 10.16.2019 12:20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2490	25.0	1.05	mg/L	10.21.2019 14:12		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4160	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-20-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-020

Date Collected: 10.16.2019 12:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1260	10.0	0.421	mg/L	10.21.2019 14:18		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104805

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2500	5.00	5.00	mg/L	10.18.2019 17:20		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-26-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-021

Date Collected: 10.16.2019 12:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 10:45

Seq Number: 3104927

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1340	25.0	1.05	mg/L	10.21.2019 14:23		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3250	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-24-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-022

Date Collected: 10.16.2019 13:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4150	25.0	1.05	mg/L	10.21.2019 15:12		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8980	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-12-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-023

Date Collected: 10.16.2019 13:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12600	100	4.21	mg/L	10.21.2019 15:17		200

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	23400	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-31-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-024

Date Collected: 10.16.2019 13:25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10500	50.0	2.10	mg/L	10.21.2019 15:23		100

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	17900	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-10-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-025

Date Collected: 10.16.2019 13:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4980	25.0	1.05	mg/L	10.21.2019 17:34		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8520	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-18-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-026

Date Collected: 10.16.2019 14:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	19900	100	4.21	mg/L	10.21.2019 15:45		200

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	37300	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-19-W-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-027

Date Collected: 10.16.2019 14:20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7160	50.0	2.10	mg/L	10.21.2019 15:50		100

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	12800	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-25-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-028

Date Collected: 10.17.2019 11:05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20900	100	4.21	mg/L	10.21.2019 15:56		200

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	24800	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-11-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-029

Date Collected: 10.17.2019 10:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7590	50.0	2.10	mg/L	10.21.2019 16:01		100

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	12400	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-10-WD-191610**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-030

Date Collected: 10.16.2019 00:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4940	25.0	1.05	mg/L	10.21.2019 16:06		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8630	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-6-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-031

Date Collected: 10.17.2019 10:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	383	5.00	0.210	mg/L	10.21.2019 16:28		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1490	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-5-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-032

Date Collected: 10.17.2019 10:55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	257	5.00	0.210	mg/L	10.21.2019 16:34		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1000	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-3-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-033

Date Collected: 10.17.2019 11:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.22.2019 15:45

Seq Number: 3105071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	502	5.00	0.210	mg/L	10.22.2019 22:01		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1350	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **TRAC-4-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-034

Date Collected: 10.17.2019 11:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	323	5.00	0.210	mg/L	10.21.2019 17:39		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1070	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Livermoore-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-035

Date Collected: 10.17.2019 11:50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2490	25.0	1.05	mg/L	10.21.2019 17:44		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4160	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-30-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-036

Date Collected: 10.17.2019 12:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2340	25.0	1.05	mg/L	10.21.2019 17:50		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3880	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-13-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-037

Date Collected: 10.17.2019 12:20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1960	25.0	1.05	mg/L	10.21.2019 17:55		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3720	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-4-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-038

Date Collected: 10.17.2019 12:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	325	5.00	0.210	mg/L	10.21.2019 18:01		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	902	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-14-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-039

Date Collected: 10.17.2019 12:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1670	25.0	1.05	mg/L	10.21.2019 17:23		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2940	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-15-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-040

Date Collected: 10.17.2019 13:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1010	10.0	0.421	mg/L	10.21.2019 21:09		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104806

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1850	5.00	5.00	mg/L	10.21.2019 08:14		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-21-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-041

Date Collected: 10.17.2019 13:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7010	50.0	2.10	mg/L	10.21.2019 21:14		100

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	11000	5.00	5.00	mg/L	10.21.2019 08:15		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-16-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-042

Date Collected: 10.17.2019 13:25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	393	5.00	0.210	mg/L	10.21.2019 21:19		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1110	5.00	5.00	mg/L	10.21.2019 08:15		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-17-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-043

Date Collected: 10.17.2019 13:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9620	50.0	2.10	mg/L	10.21.2019 21:23		100

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	15300	5.00	5.00	mg/L	10.21.2019 08:15		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-23-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-044

Date Collected: 10.17.2019 13:50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3840	25.0	1.05	mg/L	10.21.2019 21:42		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	10200	5.00	5.00	mg/L	10.21.2019 08:15		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-22-W-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-045

Date Collected: 10.17.2019 14:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12400	50.0	2.10	mg/L	10.21.2019 21:47		100

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	20600	5.00	5.00	mg/L	10.21.2019 08:15		1



Certificate of Analytical Results 640401

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-17-WD-191710**

Matrix: Ground Water

Date Received: 10.18.2019 10:26

Lab Sample Id: 640401-046

Date Collected: 10.17.2019 00:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9430	50.0	2.10	mg/L	10.21.2019 21:52		100

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	16000	5.00	5.00	mg/L	10.21.2019 08:15		1

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

****** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



QC Summary 640401

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104927

Matrix: Water

Prep Method: E300P

Date Prep: 10.21.2019

MB Sample Id: 7688516-1-BLK

LCS Sample Id: 7688516-1-BKS

LCSD Sample Id: 7688516-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0210	25.0	24.7	99	24.7	99	90-110	0	20	mg/L	10.21.2019 11:45	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104928

Matrix: Water

Prep Method: E300P

Date Prep: 10.21.2019

MB Sample Id: 7688518-1-BLK

LCS Sample Id: 7688518-1-BKS

LCSD Sample Id: 7688518-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0210	25.0	24.9	100	24.7	99	90-110	1	20	mg/L	10.21.2019 14:45	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104935

Matrix: Water

Prep Method: E300P

Date Prep: 10.21.2019

MB Sample Id: 7688578-1-BLK

LCS Sample Id: 7688578-1-BKS

LCSD Sample Id: 7688578-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0210	25.0	26.3	105	26.1	104	90-110	1	20	mg/L	10.21.2019 20:35	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3105071

Matrix: Water

Prep Method: E300P

Date Prep: 10.22.2019

MB Sample Id: 7688659-1-BLK

LCS Sample Id: 7688659-1-BKS

LCSD Sample Id: 7688659-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0210	25.0	26.4	106	26.1	104	90-110	1	20	mg/L	10.22.2019 21:27	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104927

Matrix: Ground Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640401-003

MS Sample Id: 640401-003 S

MSD Sample Id: 640401-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	183	125	214	25	214	25	90-110	0	20	mg/L	10.21.2019 12:01	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104927

Matrix: Ground Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640401-004

MS Sample Id: 640401-004 S

MSD Sample Id: 640401-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	46.2	125	68.0	17	68.2	18	90-110	0	20	mg/L	10.21.2019 13:18	X

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 640401

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104928

Matrix: Ground Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640401-006

MS Sample Id: 640401-006 S

MSD Sample Id: 640401-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	139	25.0	165	104	165	104	90-110	0	20	mg/L	10.21.2019 15:01	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104928

Matrix: Ground Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640402-003

MS Sample Id: 640402-003 S

MSD Sample Id: 640402-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	66.5	25.0	92.6	104	92.2	103	90-110	0	20	mg/L	10.21.2019 16:17	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104935

Matrix: Drinking Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640589-001

MS Sample Id: 640589-001 S

MSD Sample Id: 640589-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	27.9	25.0	53.2	101	52.4	98	90-110	2	20	mg/L	10.21.2019 20:55	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104935

Matrix: Drinking Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640590-001

MS Sample Id: 640590-001 S

MSD Sample Id: 640590-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2.93	25.0	16.9	56	16.9	56	90-110	0	20	mg/L	10.21.2019 22:14	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3105071

Matrix: Water

Prep Method: E300P

Date Prep: 10.22.2019

Parent Sample Id: 640619-001

MS Sample Id: 640619-001 S

MSD Sample Id: 640619-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0210	25.0	27.1	108	26.4	106	90-110	3	20	mg/L	10.22.2019 21:48	

Analytical Method: TDS by SM2540C

Seq Number: 3104805

Matrix: Water

MB Sample Id: 3104805-1-BLK

LCS Sample Id: 3104805-1-BKS

LCSD Sample Id: 3104805-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	1050	105	986	99	80-120	6	10	mg/L	10.18.2019 17:20	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 640401

GHD Services, INC- Midland Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3104806

Matrix: Water

MB Sample Id: 3104806-1-BLK

LCS Sample Id: 3104806-1-BKS

LCSD Sample Id: 3104806-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	992	99	1010	101	80-120	2	10	mg/L	10.21.2019 08:14	

Analytical Method: TDS by SM2540C

Seq Number: 3104807

Matrix: Water

MB Sample Id: 3104807-1-BLK

LCS Sample Id: 3104807-1-BKS

LCSD Sample Id: 3104807-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	977	98	977	98	80-120	0	10	mg/L	10.21.2019 08:15	

Analytical Method: TDS by SM2540C

Seq Number: 3104805

Matrix: Ground Water

Parent Sample Id: 640401-001

MD Sample Id: 640401-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1450	1450	0	10	mg/L	10.18.2019 17:20	

Analytical Method: TDS by SM2540C

Seq Number: 3104805

Matrix: Ground Water

Parent Sample Id: 640401-011

MD Sample Id: 640401-011 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	3500	3430	2	10	mg/L	10.18.2019 17:20	

Analytical Method: TDS by SM2540C

Seq Number: 3104806

Matrix: Ground Water

Parent Sample Id: 640401-021

MD Sample Id: 640401-021 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	3250	3040	7	10	mg/L	10.21.2019 08:14	

Analytical Method: TDS by SM2540C

Seq Number: 3104806

Matrix: Ground Water

Parent Sample Id: 640401-031

MD Sample Id: 640401-031 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1490	1420	5	10	mg/L	10.21.2019 08:14	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 640401

GHD Services, INC- Midland Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3104807

Matrix: Ground Water

Parent Sample Id: 640401-041

MD Sample Id: 640401-041 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	11000	10900	1	10	mg/L	10.21.2019 08:15	

Analytical Method: TDS by SM2540C

Seq Number: 3104807

Matrix: Ground Water

Parent Sample Id: 640403-002

MD Sample Id: 640403-002 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1380	1300	6	10	mg/L	10.21.2019 08:15	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



Chain of Custody

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

Work Order No:

1000401

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Page 1 of 5

Project Manager:	Nick Casten	Bill to: (if different)	Gina Blair- Apinvoices-340@gnd.com
Company Name:	GHD	Company Name:	GHD Services Inc. - 340
Address:	2135 S. Loop 250 West	Address:	2055 Niagara Falls Blvd.
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	Niagara Falls, NY. 14304
Phone:	225-292-9007	Email:	Nick Casten@gnd.com & Christopher.Knight@gnd.com & Britany.White@gnd.com & eds@gnd.com

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	Work Order Comments
State of Project:	
Reporting Level: I ☐ Level II ☐ Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐	
Deliverables: EDD ☐ ADAPT ☐ Other:	

Project Name:	Dollarhide	Turn Around	☒
Project Number:	55270	Routine	☒
P.O. Number:	34032659	Rush:	
Sampler's Name:	Joe Miralles	Due Date:	
SAMPLE RECEIPT			
Temperature (°C):	33.1	Temp Blank:	Yes ☒ No ☐
Received Intact:	Yes ☒ No ☐	Wet Ice:	Yes ☒ No ☐
Cooler Custody Seals:	Yes ☒ No ☐	Correction Factor:	
Sample Custody Seals:	Yes ☒ No ☐	Total Containers:	

ANALYSIS REQUEST		Work Order Notes	
Number of Containers	1	TAT starts the day received by the lab, if received by 4:30pm	
Chlorides	X		
TDS	X	Sample Comments	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Chlorides	TDS	As	Ba	Be	B	Cd	Ca	Co	Cr	Cu	Pb	Mn	Mo	Ni	K	Se	Ag	SiO2	Na	Sr	Ti	Sn	U	V	Zn
MM-MW-1-W-191510	GW	10-15	11:53	1	X	X																								
MM-MW-2-W-191510			11:35																											
MM-MW-3-W-191510			11:27																											
MM-MW-4-W-191510			10:57																											
MM-MW-5-W-191510			12:01																											
MM-MW-6-W-191510			12:15																											
MM-MW-7-W-191510			10:35																											
MM-MW-8-W-191510			11:10																											
MM-MW-9-W-191510			13:25																											
MM-MW-10-W-191510	GW	10-15	13:11		X	X																								

Total 200.7 / 6010	200.8 / 6020:	8RCRA	13PPM	Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Co	Cr	Cu <td>Pb</td> <td>Mn</td> <td>Mo</td> <td>Ni</td> <td>K</td> <td>Se</td> <td>Ag</td> <td>SiO2</td> <td>Na</td> <td>Sr</td> <td>Ti</td> <td>Sn</td> <td>U</td> <td>V</td> <td>Zn</td>	Pb	Mn	Mo	Ni	K	Se	Ag	SiO2	Na	Sr	Ti	Sn	U	V	Zn						
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010:		8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U																

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		10/18/20			2
		10/18/20			4
					6



Chain of Custody

Work Order No: 1040401

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

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Page 2 of 5

Project Manager:	Nick Casten	Bill to: (if different)	Gina Blair- Aplinevoices-340@gnd.com
Company Name:	GHD	Company Name:	GHD Services Inc.- 340
Address:	2135 S. Loop 250 West	Address:	2055 Niagara Falls Blvd.
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	Niagara Falls, NY. 14304
Phone:	225-292-9007	Email:	Nick Casten@gnd.com & Christopher.Knight@gnd.com & Britany.White@gnd.com & eds@gnd.com

Program: ☐ PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	
State of Project:	
Reporting Level: ☐ I ☐ II ☐ III ☐ PST/UST ☐ TRRP ☒ Level IV ☐	Deliverables: ☐ EDD ☐ ADAPT ☐ Other:

ANALYSIS REQUEST

Work Order Notes

Project Name:	Dollarhide	Turn Around	☒
Project Number:	55270	Routine	☒
P.O. Number:	34032659	Rush:	
Sampler's Name:	Joe M'selles	Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes ☒ No ☐	Wet Ice:	Yes ☒ No ☐
Temperature (°C):	33.1	Thermometer ID		
Received intact:	Yes ☒ No ☐			
Cooler Custody Seals:	Yes ☒ No ☐ N/A	Correction Factor:		
Sample Custody Seals:	Yes ☒ No ☐ N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chlorides	TDS												TAT starts the day received by the lab, if received by 4:30pm	Sample Comments
RRR Ranch Windmill-W-191510	GW	10-15	10:59	1	1	X	X													
Smith Residence-W-191510		10-15	1412																	
Wilson Ranch W-191510		10-15	1345																	
MW-28-W-191610		10-16	1100																	
MW-29-W-191610			1110																	
MW-9-W-191610			1140																	
MW-8-W-191610			1200																	
DHG-FWS-W-191610			1210																	
MW-27-W-191610			1220																	
MW-20-W-191610		6-W	10-16	1230																

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

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time



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

Chain of Custody

Work Order No: 104041

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Page 3 of 5

Project Manager:	Nick Casten	Bill to: (if different)	Gina Blair- Aplinevoices-340@gnd.com
Company Name:	GHD	Company Name:	GHD Services Inc.- 340
Address:	2135 S. Loop 250 West	Address:	2055 Niagara Falls Blvd.
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	Niagara Falls, NY. 14304
Phone:	225-292-9007	Email:	Nick Casten@gnd.com & Christopher.Knight@gnd.com & Britiany.White@gnd.com & edds@gnd.com

Work Order Comments	
Program: ☐ PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	
State of Project:	
Reporting Level II	Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐
Deliverables: EDD ☐	ADAPT ☐ Other: ☐

Project Name:	Dollarhide	Turn Around
Project Number:	55270	Routine ☒
P.O. Number:	34032659	Rush: ☐
Sampler's Name:	Joe Mirels	Due Date:

SAMPLE RECEIPT	Temp Blank: Yes ☒ No ☐	Wet Ice: Yes ☒ No ☐
Temperature (°C):	5.3 / 3.1	Thermometer ID
Received intact:	Yes No	
Cooler Custody Seals:	Yes No N/A	Correction Factor:
Sample Custody Seals:	Yes No N/A	Total Containers:

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers		ANALYSIS REQUEST										Work Order Notes	
					Chlorides	TDS												
MW-26-W-191610	GW	10-16	1245	-	1	X												
MW-24-W-191610																		
MW-12-W-191610																		
MW-31-W-191610																		
MW-10-W-191610																		
MW-18-W-191610																		
MW-19-W-191610																		
MW-25-W-191710																		
MW-11-W-191710																		
MW-10-W-191610																		

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

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time



Chain of Custody

Work Order No:

1640161

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

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Page 4 of 5

Project Manager:	Nick Casten	Bill to: (if different)	Gina Blair- Aplinevoices-340@gnd.com
Company Name:	GHD	Company Name:	GHD Services Inc.- 340
Address:	2135 S. Loop 250 West	Address:	2055 Niagara Falls Blvd.
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	Niagara Falls, NY. 14304
Phone:	225-292-9007	Email:	Nick Casten@gnd.com & Christopher.Knight@gnd.com & Britany.White@gnd.com & edds@gnd.com

Work Order Comments	
Program: ☐ PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	
State of Project:	
Reporting Level II	Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐
Deliverables: EDD ☐	ADAPT ☐ Other:

Project Name:	Dollarhide	Turn Around
Project Number:	55270	Routine ☒
P.O. Number:	34032659	Rush:
Sampler's Name:	Joe Mireles	Due Date:

SAMPLE RECEIPT	Temp Blank:	Yes ☒ No	Wet Ice:	Yes ☒ No
Temperature (°C):	33.3	Thermometer ID		
Received Intact:	Yes	No		
Cooler Custody Seals:	Yes	No	Correction Factor:	
Sample Custody Seals:	Yes	No	Total Containers:	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chlorides	TDS	ANALYSIS REQUEST											Work Order Notes
MW-6-W-191710	GW	10-17	1045	1	1	X	X												
MW-5-W-191710			1055																
MW-3-W-191710			1115																
TRAC-4-W-191710			1130																
Livermore-W-191710			1150																
MW-30-W-191710			1210																
MW-13-W-191710			1220																
MW-4-W-181710			1235																
MW-14-W-191710			1245																
MW-15-W-191710	GW	10-17	1300	1	1	X	X												

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

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	2	10/19	3	4	10/20
5	6				



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

Chain of Custody

Work Order No.

1040401

Project Manager:	Nick Casten	Bill to: (if different)	Gina Blair- Aplinevoices-340@gnd.com
Company Name:	GHD	Company Name:	GHD Services Inc.- 340
Address:	2135 S. Loop 250 West	Address:	2055 Niagara Falls Blvd.
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	Niagara Falls, NY. 14304
Phone:	225-292-9007	Email:	Nick Casten@gnd.com & Christopher.Knight@gnd.com & Britiany.White@gnd.com & eds@gnd.com

Program: ☐ PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	
State of Project:	
Reporting Level: ☐ I ☐ II ☐ III ☐ PST/UST ☐ TRRP ☒ Level IV ☐	
Deliverables: ☐ EDD ☐ ADAPT ☐ Other:	

ANALYSIS REQUEST

Work Order Notes

Project Name:	Dollarhide	Turn Around	☒
Project Number:	55270	Routine	☒
P.O. Number:	34032659	Rush:	
Sampler's Name:	Joe Micles	Due Date:	
SAMPLE RECEIPT			
Temperature (°C):	33.1	Temp Blank:	Yes ☐ No ☒
Received Intact:	Yes ☒ No ☐	Thermometer ID	
Cooler Custody Seals:	Yes ☐ No ☐ N/A ☐	Correction Factor:	
Sample Custody Seals:	Yes ☐ No ☐ N/A ☐	Total Containers:	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chlorides	TDS											Sample Comments
MW-21-10-191710	GW	10-17	1315	—	1	X	✓											
MW-66-10-191710			1325	—														
MW-17-10-191710			1335	—														
MW-23-10-191710			1350	—														
MW-22-10-191710			1400	—														
MW-17-10-191710	GW	10-17	—	—	1	X	X											

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

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>[Signature]</i>	2 <i>[Signature]</i>	10/18			
3 <i>[Signature]</i>	4 <i>[Signature]</i>	10/20			
5	6				

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 10.18.2019 10.26.00 AM

Work Order #: 640401

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

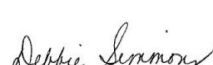
Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

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

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by:	 Brianna Teel	Date: 10.18.2019
Checklist reviewed by:	 Debbie Simmons	Date: 10.18.2019



Certificate of Analysis Summary 640402

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri 10.18.2019 10:34
Report Date: 10.29.2019 14:49
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	640402-001	640402-002	640402-003			
	Field Id:	MW-32-W-191510	MW-33-W-191510	MW-34-W-191510			
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER			
	Sampled:	10.15.2019 14:49	10.15.2019 14:15	10.15.2019 14:25			
Inorganic Anions by EPA 300/300.1	Extracted:	10.21.2019 15:00	10.21.2019 15:00	10.21.2019 11:15			
	Analyzed:	10.21.2019 21:57	10.21.2019 22:02	10.21.2019 16:12			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL			
Chloride		271 5.00	156 5.00	66.5 2.50			
TDS by SM2540C	Extracted:						
	Analyzed:	10.21.2019 08:15	10.21.2019 08:15	10.21.2019 08:15			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL			
Total Dissolved Solids		1110 5.00	1040 5.00	604 5.00			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager



Analytical Report 640402

for

GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

10.29.2019

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.29.2019

Project Manager: **Nick Casten**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **640402**
Dollarhide
Project Address: New Mexico

Nick Casten:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 640402. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 640402 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Debbie Simmons'. The signature is written in a cursive, flowing style.

Debbie Simmons
Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 640402

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-32-W-191510	W	10.15.2019 14:49		640402-001
MW-33-W-191510	W	10.15.2019 14:15		640402-002
MW-34-W-191510	W	10.15.2019 14:25		640402-003



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Dollarhide

Project ID: 055270
Work Order Number(s): 640402

Report Date: 10.29.2019
Date Received: 10.18.2019

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 640402

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-32-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:34

Lab Sample Id: 640402-001

Date Collected: 10.15.2019 14:49

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	271	5.00	0.210	mg/L	10.21.2019 21:57		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1110	5.00	5.00	mg/L	10.21.2019 08:15		1



Certificate of Analytical Results 640402

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-33-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:34

Lab Sample Id: 640402-002

Date Collected: 10.15.2019 14:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	156	5.00	0.210	mg/L	10.21.2019 22:02		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1040	5.00	5.00	mg/L	10.21.2019 08:15		1



Certificate of Analytical Results 640402

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-34-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:34

Lab Sample Id: 640402-003

Date Collected: 10.15.2019 14:25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 11:15

Seq Number: 3104928

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	66.5	2.50	0.105	mg/L	10.21.2019 16:12		5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	604	5.00	5.00	mg/L	10.21.2019 08:15		1

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



QC Summary 640402

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104928

Matrix: Water

Prep Method: E300P

Date Prep: 10.21.2019

MB Sample Id: 7688518-1-BLK

LCS Sample Id: 7688518-1-BKS

LCSD Sample Id: 7688518-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0210	25.0	24.9	100	24.7	99	90-110	1	20	mg/L	10.21.2019 14:45	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104935

Matrix: Water

Prep Method: E300P

Date Prep: 10.21.2019

MB Sample Id: 7688578-1-BLK

LCS Sample Id: 7688578-1-BKS

LCSD Sample Id: 7688578-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0210	25.0	26.3	105	26.1	104	90-110	1	20	mg/L	10.21.2019 20:35	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104928

Matrix: Ground Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640401-006

MS Sample Id: 640401-006 S

MSD Sample Id: 640401-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	139	25.0	165	104	165	104	90-110	0	20	mg/L	10.21.2019 15:01	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104928

Matrix: Ground Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640402-003

MS Sample Id: 640402-003 S

MSD Sample Id: 640402-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	66.5	25.0	92.6	104	92.2	103	90-110	0	20	mg/L	10.21.2019 16:17	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104935

Matrix: Drinking Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640589-001

MS Sample Id: 640589-001 S

MSD Sample Id: 640589-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	27.9	25.0	53.2	101	52.4	98	90-110	2	20	mg/L	10.21.2019 20:55	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104935

Matrix: Drinking Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640590-001

MS Sample Id: 640590-001 S

MSD Sample Id: 640590-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2.93	25.0	16.9	56	16.9	56	90-110	0	20	mg/L	10.21.2019 22:14	X

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



QC Summary 640402

GHD Services, INC- Midland Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3104807

Matrix: Water

MB Sample Id: 3104807-1-BLK

LCS Sample Id: 3104807-1-BKS

LCSD Sample Id: 3104807-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	977	98	977	98	80-120	0	10	mg/L	10.21.2019 08:15	

Analytical Method: TDS by SM2540C

Seq Number: 3104807

Matrix: Ground Water

Parent Sample Id: 640401-041

MD Sample Id: 640401-041 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	11000	10900	1	10	mg/L	10.21.2019 08:15	

Analytical Method: TDS by SM2540C

Seq Number: 3104807

Matrix: Ground Water

Parent Sample Id: 640403-002

MD Sample Id: 640403-002 D

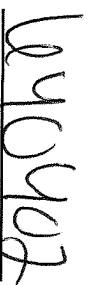
Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1380	1300	6	10	mg/L	10.21.2019 08:15	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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

Page 1 of 1
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Work Order Comments	
Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐	
State of Project:	
Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐	
Deliverables: EDD ☐ ADAPT ☐ Other:	

[illegible]

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		10/18	2		
3 			4		
5			6		

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 10.18.2019 10.34.15 AM

Work Order #: 640402

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

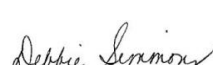
Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

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

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by:	 Brianna Teel	Date: 10.18.2019
Checklist reviewed by:	 Debbie Simmons	Date: 10.18.2019



Certificate of Analysis Summary 640403

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

Project Id: 055270
Contact: Nick Casten
Project Location: New Mexico

Date Received in Lab: Fri 10.18.2019 10:34
Report Date: 10.29.2019 14:49
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	640403-001	640403-002	640403-003	640403-004		
	Field Id:	NM-MW-11-W-191510	NM-MW-12-W-191510	NM-MW-13-W-191510	NM-MW-11-WD-19151		
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER		
	Sampled:	10.15.2019 12:25	10.15.2019 13:40	10.15.2019 12:45	10.15.2019 00:00		
Inorganic Anions by EPA 300/300.1	Extracted:	10.21.2019 15:00	10.21.2019 15:00	10.21.2019 15:00	10.21.2019 15:00		
	Analyzed:	10.21.2019 22:27	10.21.2019 22:32	10.21.2019 22:51	10.21.2019 22:56		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Chloride		134 10.0	512 5.00	179 5.00	77.3 10.0		
TDS by SM2540C	Extracted:						
	Analyzed:	10.21.2019 08:15	10.21.2019 08:15	10.21.2019 08:15	10.21.2019 08:15		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Total Dissolved Solids		1530 5.00	1380 5.00	1100 5.00	1820 5.00		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
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Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Debbie Simmons
Project Manager



Analytical Report 640403

for

GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

10.29.2019

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNi02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.29.2019

Project Manager: **Nick Casten**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **640403**
Dollarhide
Project Address: New Mexico

Nick Casten:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 640403. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 640403 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Debbie Simmons'. The signature is written in a cursive, flowing style.

Debbie Simmons
Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 640403

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NM-MW-11-W-191510	W	10.15.2019 12:25		640403-001
NM-MW-12-W-191510	W	10.15.2019 13:40		640403-002
NM-MW-13-W-191510	W	10.15.2019 12:45		640403-003
NM-MW-11-WD-191510	W	10.15.2019 00:00		640403-004



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Dollarhide

Project ID: 055270
Work Order Number(s): 640403

Report Date: 10.29.2019
Date Received: 10.18.2019

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 640403

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-11-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:34

Lab Sample Id: 640403-001

Date Collected: 10.15.2019 12:25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	134	10.0	0.421	mg/L	10.21.2019 22:27		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1530	5.00	5.00	mg/L	10.21.2019 08:15		1



Certificate of Analytical Results 640403

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-12-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:34

Lab Sample Id: 640403-002

Date Collected: 10.15.2019 13:40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	512	5.00	0.210	mg/L	10.21.2019 22:32		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1380	5.00	5.00	mg/L	10.21.2019 08:15		1



Certificate of Analytical Results 640403

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-13-W-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:34

Lab Sample Id: 640403-003

Date Collected: 10.15.2019 12:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	179	5.00	0.210	mg/L	10.21.2019 22:51		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1100	5.00	5.00	mg/L	10.21.2019 08:15		1



Certificate of Analytical Results 640403

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-11-WD-191510**

Matrix: Ground Water

Date Received: 10.18.2019 10:34

Lab Sample Id: 640403-004

Date Collected: 10.15.2019 00:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.21.2019 15:00

Seq Number: 3104935

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	77.3	10.0	0.421	mg/L	10.21.2019 22:56		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3104807

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1820	5.00	5.00	mg/L	10.21.2019 08:15		1

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

****** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



QC Summary 640403

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104935

Matrix: Water

Prep Method: E300P

Date Prep: 10.21.2019

MB Sample Id: 7688578-1-BLK

LCS Sample Id: 7688578-1-BKS

LCSD Sample Id: 7688578-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0210	25.0	26.3	105	26.1	104	90-110	1	20	mg/L	10.21.2019 20:35	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104935

Matrix: Drinking Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640589-001

MS Sample Id: 640589-001 S

MSD Sample Id: 640589-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	27.9	25.0	53.2	101	52.4	98	90-110	2	20	mg/L	10.21.2019 20:55	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3104935

Matrix: Drinking Water

Prep Method: E300P

Date Prep: 10.21.2019

Parent Sample Id: 640590-001

MS Sample Id: 640590-001 S

MSD Sample Id: 640590-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2.93	25.0	16.9	56	16.9	56	90-110	0	20	mg/L	10.21.2019 22:14	X

Analytical Method: TDS by SM2540C

Seq Number: 3104807

Matrix: Water

MB Sample Id: 3104807-1-BLK

LCS Sample Id: 3104807-1-BKS

LCSD Sample Id: 3104807-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	977	98	977	98	80-120	0	10	mg/L	10.21.2019 08:15	

Analytical Method: TDS by SM2540C

Seq Number: 3104807

Matrix: Ground Water

Parent Sample Id: 640401-041

MD Sample Id: 640401-041 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	11000	10900	1	10	mg/L	10.21.2019 08:15	

Analytical Method: TDS by SM2540C

Seq Number: 3104807

Matrix: Ground Water

Parent Sample Id: 640403-002

MD Sample Id: 640403-002 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1380	1300	6	10	mg/L	10.21.2019 08:15	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



Work Order No.:

by

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813) 889-3927
Hobbs, NM (575-392-7550)

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Work Order Comments	
Program: UST/ST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐ State of Project: Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☒ Level IV ☐ Deliverables: EDD ☐ ADAPT ☐ Other:	

SAMPLE RECEIPT		Temp Blank:	Yes	No	Well Ice:	Yes	No
Temperature (°C):		32.31			Thermometer		
Received intact:	Yes	No					
Cooler Custody Seals:	Yes	No	N/A		Correction Factor:		
Sample Custody Seals:	Yes	No	N/A		Total Containers:		

[illegible]

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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		10/18	2		
3			4		
5		10/17	6		

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 10.18.2019 10.34.21 AM

Work Order #: 640403

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

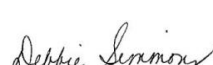
Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	N/A
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

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

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by:	 Brianna Teel	Date: 10.18.2019
Checklist reviewed by:	 Debbie Simmons	Date: 10.18.2019

Appendix C

Historical Groundwater Analytical Data

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
Monitor Wells			
43-K-1-MW			
	2/28/2007	6,200	11,400
	7/26/2007	7,250	13,500
	1/22/2008	7,360	12,500
	7/7/2008	7,460	14,300
	1/28/2009	8,210	14,500
	8/26/2009	9,140	16,700
	2/19/2010	7,560	15,000
	8/18/2010	10,600	17,900
	2/15/2011	11,900	15,400
	8/4/2011	11,600	19,800
	2/3/2012	9,560	19,900
	7/17/2015	8,870	16,700
	1/29/2016	NS	NS
	7/20/2016	8,470	13,800
	1/11/2017	8,360	15,400
	4/10/2017	NS	NS
	7/14/2017	8,550	14,000
	1/12/2018	8,020	10,500
	7/5/2018	7,840	12,700
	1/7/2019	7,130	9,640
	7/17/2019	7,050	11,000
44-I-1-MW			
	01/06	1,909	3,728
	04/06	1,349	2,823
	6/13/2006	1,300	2,930
	9/13/2006	1,340	2,620
	12/8/2006	1,370	3,010
	2/28/2007	1,310	2,840
	7/30/2007	1,440	3,010
	1/22/2008	1,630	2,730
	7/7/2008	1,480	2,910
	1/29/2009	1,510	2,870
	8/27/2009	1,500	2,850
	2/18/2010	1,140	2,800
	8/19/2010	1,610	2,840
	2/15/2011	1,970	2,850
	8/4/2011	1,770	3,060
	2/2/2012	1,550	3,470
	1/29/2013	1,850	3,300
	7/30/2013	1,640	3,550
	1/15/2014	1,860	3,730
	7/16/2014	2,100	5,180
	1/14/2015	2,000	4,690
	1/28/2016	2,430	3,500
	7/20/2016	2,620	6,220
	1/12/2017	3,290	6,250
	4/10/2017	NS	NS
	7/14/2017	2,750	6,700
	1/12/2018	2,940	5,030
	7/5/2018	3,170	5,450
	1/9/2019	3,320	4,580
	7/17/2019	3,400	5,510

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
44-J-1-MW			
	01/06	1,382	2,835
	03/06	1,551	3,139
	6/13/2006	1,550	3,570
	9/13/2006	1,910	3,270
	12/8/2006	1,810	3,090
	2/28/2007	1,600	3,530
	7/30/2007	1,830	3,480
	1/22/2008	2,090	3,390
	7/7/2008	1,960	3,780
	1/29/2009	1,870	4,070
	8/28/2009	2,480	4,050
	2/19/2010	1,850	4,480
	8/19/2010	2,600	4,440
	2/15/2011	2,630	4,960
	8/4/2011	2,890	5,740
	2/2/2012	2,740	5,900
	1/28/2016	NS	NS
	7/20/2016	2,440	5,980
	1/12/2017	NS	NS
	4/10/2017	NS	NS
	7/14/2017	3,650	8,630
	1/12/2018	3,410	6,190
	7/5/2018	4,300	6,910
	1/9/2019	4,850	6,190
	7/17/2019	5,140	7,020
44-J-2-MW			
	01/06	1,380	2,870
	03/06	1,911	3,745
	6/13/2006	1,760	3,910
	9/13/2006	2,230	3,790
	12/8/2006	2,270	3,660
	2/28/2007	1,820	3,770
	7/30/2007	2,090	4,050
	1/22/2008	2,040	3,800
	7/7/2008	2,130	4,290
	1/29/2009	2,260	4,800
	8/28/2009	2,820	5,030
	2/18/2010	2,280	5,840
	8/20/2010	2,930	5,900
	2/15/2011	3,000	5,780
	8/5/2011	3,090	13,200
	2/2/2012	3,200	7,600
	1/28/2016	NS	NS
	7/20/2016	3,990	8,680
	1/12/2017	NS	NS
	4/10/2017	NS	NS
	7/14/2017	4,160	10,000
	1/12/2018	4,560	7,820
	7/5/2018	5,050	8,000
	1/9/2019	4,930	7,020
	7/17/2019	5,170	7,870

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
44-J-3-MW			
	9/13/2006	2,580	4,850
	12/8/2006	2,690	4,790
	8/28/2009	3,330	5,820
	2/18/2010	2,580	4,980
	8/20/2010	3,430	5,940
	2/15/2011	3,660	6,340
	8/2/2011	3,090	5,970
	2/2/2012	2,810	5,640
	1/28/2016	NS	NS
	7/20/2016	3,630	7,810
	1/12/2017	NS	NS
	4/10/2017	NS	NS
	7/20/2017	3,960	9,150
	1/12/2018	4,800	8,420
	7/5/2018	5,290	9,230
	1/9/2019	4,300	6,330
	7/17/2019	5,340	8,680
44-J-4-MW			
	9/13/2006	1,820	3,620
	12/8/2006	2,220	3,880
	8/27/2009	2,090	3,810
	2/18/2010	1,730	4,160
	8/20/2010	2,300	4,500
	2/15/2011	2,400	4,500
	8/2/2011	2,510	4,300
	2/3/2012	2,160	5,150
	1/28/2016	NS	NS
	7/20/2016	3,080	6,110
	1/12/2017	NS	NS
	4/10/2017	NS	NS
	7/20/2017	2,750	6,260
	1/12/2018	3,660	7,250
	7/5/2018	4,520	7,430
	1/9/2019	4,470	6,130
	7/17/2019	4,240	6,850
44-J-5-MW			
	9/13/2006	1,740	3,360
	12/8/2006	1,570	3,260
	8/27/2009	1,650	3,870
	2/19/2010	1,660	3,940
	8/20/2010	2,150	4,260
	2/15/2011	2,530	4,030
	8/4/2011	2,430	4,320
	2/2/2012	2,260	4,920
	1/28/2016	NS	NS
	7/20/2016	2,710	5,470
	1/12/2017	NS	NS
	4/10/2017	NS	NS
	7/20/2017	2,930	6,780
	1/12/2018	3,500	6,230
	7/5/2018	4,060	6,600
	1/9/2019	3,970	5,690
	7/17/2019	4,200	6,810

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
45-E-1-MW			
	01/06	994	1,795
	03/06	1,686	2,951
	6/14/2006	2,580	5,290
	9/12/2006	1,990	4,110
	12/7/2006	3,740	7,960
	2/28/2007	3,650	8,130
	7/30/2007	3,770	9,480
	1/22/2008	3,850	6,250
	7/7/2008	3,770	7,140
	1/28/2009	3,810	8,230
	8/27/2009	3,710	6,780
	2/18/2010	3,150	6,720
	8/17/2010	4,090	6,520
	2/15/2011	4,150	6,800
	8/2/2011	1,960	8,390
	2/2/2012	3,520	9,160
	1/28/2016	NS	NS
	7/20/2016	2,690	6,540
	1/12/2017	2,860	3,340
	4/10/2017	NS	NS
	7/20/2017	2,580	5,020
	1/12/2018	2,300	4,650
	7/5/2018	2,530	4,220
	1/9/2019	2,680	3,650
	7/17/2019	3,360	4,820
45-E-2-MW			
	01/06	98	601
	03/06	76	600
	6/14/2006	85	576
	9/12/2006	81	529
	12/7/2006	82	560
	2/28/2007	1,170	2,210
	7/30/2007	1,260	2,290
	1/22/2008	1,240	2,100
	7/7/2008	1,310	2,300
	1/28/2009	1,280	2,540
	8/26/2009	322	880
	2/18/2010	460	1,160
	8/18/2010	144	612
	2/15/2011	124	629
	8/2/2011	1,450	3,290
	2/2/2012	738	1,620
	1/28/2016	NS	NS
	7/20/2016	170	676
	1/12/2017	2,370	4,320
	4/10/2017	NS	NS
	7/20/2017	1,720	3,780
	1/12/2018	718	3,050
	7/5/2018	1,790	3,130
	1/9/2019	1,660	3,040
	7/17/2019	1,830	2,880

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
45-E-3-MW			
	2/28/2007	3,360	6,800
	7/26/2007	3,780	9,560
	1/22/2008	3,660	6,030
	7/7/2008	3,590	7,750
	1/28/2009	3,820	8,410
	8/26/2009	3,520	6,870
	2/18/2010	3,270	7,990
	8/18/2010	4,060	6,590
	2/15/2011	4,320	6,820
	8/2/2011	1,960	8,490
	2/3/2012	3,920	8,480
	1/28/2016	NS	NS
	7/20/2016	2,870	6,790
	1/11/2017	2,920	6,030
	4/10/2017	NS	NS
	7/20/2017	2,870	5,620
	1/12/2018	2,990	4,940
	7/5/2018	3,360	5,750
	1/9/2019	3,760	5,240
	7/17/2019	4,010	6,440
45-F-1-MW			
	01/06	619	1,270
	03/06	714	1,394
	6/13/2006	1,500	3,620
	9/12/2006	983	1,650
	12/8/2006	1,300	2,840
	2/28/2007	1,430	3,160
	7/30/2007	1,550	2,610
	1/22/2008	1,530	2,400
	7/7/2008	1,380	2,610
	1/29/2009	1,420	2,450
	8/27/2009	1,380	2,140
	2/18/2010	655	1,980
	8/18/2010	1,160	1,960
	2/15/2011	1,020	1,690
	8/2/2011	1,270	2,650
	2/3/2012	1,090	2,500
	1/28/2016	NS	NS
	7/20/2016	632	1,760
	1/12/2017	1,010	1,900
	4/10/2017	NS	NS
	7/20/2017	751	1,700
	1/12/2018	896	1,990
	7/5/2018	923	1,840
	1/9/2019	901	1,840
	7/17/2019	1,060	1,770

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
45-FF-MW			
	01/06	613	1,277
	03/06	3,090	5,086
	6/13/2006	3,870	11,500
	9/12/2006	4,610	7,280
	12/7/2006	4,910	10,600
	2/28/2007	5,060	8,960
	2/28/2007	4,890	11,100
	7/30/2007	5,020	8,780
	1/22/2008	5,160	9,100
	7/7/2008	5,220	9,870
	1/28/2009	4,900	8,540
	8/27/2009	5,760	9,120
	2/18/2010	3,210	7,340
	8/18/2010	5,830	9,360
	2/15/2011	6,000	10,200
	8/4/2011	5,510	12,100
	2/2/2012	4,360	9,680
	1/28/2016	NS	NS
	7/20/2016	3,990	9,940
	1/12/2017	4,800	11,200
	4/10/2017	NS	NS
	7/20/2017	4,170	8,030
	1/12/2018	4,820	8,280
	7/5/2018	5,310	9,090
	1/9/2019	5,080	6,690
	7/17/2019	6,060	7,320
58-B-1-MW			
	01/06	836	1,624
	03/06	1,874	3,138
	6/14/2006	976	2,310
	9/12/2006	3,440	5,290
	12/7/2006	3,230	7,600
	2/28/2007	3,350	7,370
	7/26/2007	4,680	8,890
	1/22/2008	3,220	5,110
	7/7/2008	2,980	6,110
	1/28/2009	3,150	6,330
	8/26/2009	3,320	5,820
	2/18/2010	2,850	6,710
	8/19/2010	4,120	9,970
	2/15/2011	4,180	6,850
	8/2/2011	5,240	11,700
	2/6/2012	5,510	10,000
	1/28/2016	NS	NS
	7/22/2016	3,550	8,460
	1/13/2017	7,510	9,410
	4/10/2017	NS	NS
	7/20/2017	5,480	9,230
	1/12/2018	5,250	8,620
	7/5/2018	6,440	10,000
	1/7/2019	5,240	8,120
	7/15/2019	6,180	9,750

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Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
58-B-2-MW			
	01/06	1,103	2,024
	03/06	650	1,329
	6/14/2006	4,510	8,700
	9/12/2006	8,220	19,000
	12/7/2006	4,700	10,700
	2/28/2007	5,900	10,800
	7/26/2007	6,270	12,200
	1/22/2008	6,200	11,300
	7/7/2008	5,830	11,600
	1/28/2009	5,260	10,600
	8/26/2009	6,260	10,800
	2/18/2010	4,870	9,680
	8/19/2010	6,640	10,200
	2/15/2011	4,100	7,390
	8/2/2011	1,410	13,600
	2/6/2012	5,480	13,600
	1/28/2016	3,550	7,440
	7/22/2016	2,740	6,130
	1/13/2017	4,190	8,700
	4/10/2017	NS	NS
	7/20/2017	3,340	5,910
	1/12/2018	3,470	5,860
	7/5/2018	3,900	6,410
	1/7/2019	4,190	5,470
	7/15/2019	3,850	6,310
58-B-3-MW			
	2/28/2007	607	2,150
	7/26/2007	1,200	2,340
	1/22/2008	1,250	2,010
	7/7/2008	1,140	2,480
	1/28/2009	1,300	2,400
	8/26/2009	1,370	2,320
	2/19/2010	1,070	2,570
	8/19/2010	1,450	2,340
	2/15/2011	1,680	2,500
	8/2/2011	1,450	2,920
	2/3/2012	1,330	2,660
	1/29/2013	1,360	2,370
	7/30/2013	1,230	2,540
	1/15/2014	1,250	2,920
	7/16/2014	1,450	4,360
	1/14/2015	312	938
	7/15/2015	715	1,770
	1/28/2016	688	1,660
	7/22/2016	570	1,290
	1/10/2017	683	1,830
	4/10/2017	NS	NS
	7/20/2017	666	1,440
	1/12/2018	791	1,290
	7/6/2018	976	1,580
	1/7/2019	900	2,070
	7/12/2019	1,470	2,520

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Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
MW-2			
	8/10/2015	204	1,950
	1/28/2016	NS	NS
	7/21/2016	NS	NS
	1/12/2017	NS	NS
	4/10/2017	NS	NS
	7/19/2017	NS	NS
	10/5/2017	NS	NS
	1/12/2018	NS	NS
	4/5/2018	NS	NS
	7/6/2018	NS	NS
	10/4/2018	NS	NS
	1/8/2019	NS	NS
	4/10/2019	NS	NS
	7/16/2019	NS	NS
	10/17/2019	NS	NS
MW-3			
	8/10/2015	249	1,100
	1/27/2016	484	1,070
	7/21/2016	486	1,430
	1/11/2017	564	1,410
	4/10/2017	605	1,960
	7/19/2017	572	1,400
	10/5/2017	569	1,520
	1/12/2018	566	1,410
	4/5/2018	589	1,300
	7/3/2018	593	1,310
	10/4/2018	626	1,310
	1/8/2019	194	619
	4/9/2019	636	1,370
	7/16/2019	475	1,320
	10/17/2019	502	1,350
MW-4			
	8/10/2015	240	1,850
	1/27/2016	250	941
	7/21/2016	355	2,260
	1/11/2017	353	1,260
	4/10/2017	NS	NS
	7/20/2017	325	1,000
	10/5/2017	347	1,010
	1/12/2018	345	968
	4/6/2018	350	413
	7/3/2018	338	831
	10/4/2018	350	883
	1/8/2019	258	426
	4/9/2019	377	877
	7/16/2019	269	889
	10/17/2019	325	902

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Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
MW-5			
	8/10/2015	837	2,960
	1/28/2016	459	2,130
	7/21/2016	397	1,690
	1/11/2017	364	1,400
	4/10/2017	346	1,560
	7/19/2017	309	1,170
	10/5/2017	302	1,040
	1/12/2018	293	1,130
	4/5/2018	289	1,140
	7/3/2018	274	1,020
	10/4/2018	278	1,050
	1/8/2019	244	1,050
	4/9/2019	300	257
	7/16/2019	219	1,120
	10/17/2019	257	1,000
MW-6			
	8/10/2015	578	2,180
	1/28/2016	484	2,090
	7/21/2016	450	1,590
	1/11/2017	441	1,330
	4/10/2017	468	1,760
	7/18/2017	439	1,650
	10/5/2017	407	1,530
	1/12/2018	408	1,490
	4/5/2018	411	1,430
	7/3/2018	402	1,340
	10/4/2018	404	1,450
	1/8/2019	372	1,510
	4/9/2019	418	1,500
	7/15/2019	395	1,470
	10/17/2019	383	1,490
MW-7			
	8/10/2015	772	3,230
	1/28/2016	260	2,620
	7/21/2016	524/508	2,510/2,410
	1/12/2017	NS	NS
	4/10/2017	NS	NS
	7/19/2017	NS	NS
	10/5/2017	NS	NS
	1/12/2018	NS	NS
	4/5/2018	NS	NS
	7/3/2018	NS	NS
	10/4/2018	NS	NS
	1/8/2019	NS	NS
	4/10/2019	NS	NS
	7/15/2019	NS	NS
	10/17/2019	NS	NS

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Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
MW-8			
	8/10/2015	711	2,430
	1/28/2016	763	2,310
	7/21/2016	758	2,140
	1/13/2017	985	2,410
	4/7/2017	933	2,120
	7/17/2017	845	2,280
	10/4/2017	803	2,210
	1/12/2018	813	2,250
	4/5/2018	839	2,300
	7/5/2018	868	2,350
	10/3/2018	888	2,490
	1/8/2019	852	2,160
	4/5/2019	1,060	2,460
	7/15/2019	884	2,390
	10/16/2019	919	2,400
MW-9			
	8/10/2015	1,650	3,390
	1/28/2016	2,160	4,410
	7/21/2016	2,140	6,790
	1/13/2017	3,520	4,540
	4/7/2017	3,070	6,760
	7/17/2017	2,830	4,930
	10/4/2017	2,230	4,730
	1/12/2018	2,540	4,380
	4/5/2018	2,930	4,690
	7/5/2018	2,880	4,250
	10/3/2018	2,910	4,270
	1/7/2019	2,620	807
	4/5/2019	1,200	4,230
	7/15/2019	2,620	4,240
	10/16/2019	2,520	4,610
MW-10			
	8/10/2015	3,480	7,980
	1/28/2016	5,320	9,850
	7/20/2016	5,920	12,400
	1/12/2017	6,360	10,500
	4/7/2017	5,930	12,700
	7/18/2017	5,320	9,720
	10/5/2017	5,190	8,560
	1/12/2018	5,350	9,650
	4/5/2018	5,470	8,630
	7/3/2018	5,340	11,000
	10/3/2018	5,880	8,570
	1/8/2019	5,130	7,050
	4/5/2019	5,760	8,100
	7/15/2019	4,860	8,210
	10/16/2019	4,980	8,520

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Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
MW-11			
	8/10/2015	458	3,260
	1/28/2016	5,280	5,720
	7/21/2016	6,830	16,100
	1/11/2017	7,310	18,800
	4/10/2017	7,760	17,100
	7/18/2017	7,620	12,700
	10/5/2017	7,110	12,600
	1/12/2018	8,120	12,700
	4/5/2018	7,990	11,000
	7/3/2018	7,940	11,800
	10/4/2018	8,310	12,000
	1/8/2019	8,240	9,730
	4/9/2019	7,840	11,700
	7/15/2019	7,680	11,800
	10/17/2019	7,590	12,400
MW-12			
	8/10/2015	7,680	20,500
	1/28/2016	12,800	24,400
	7/20/2016	12,000	27,500
	1/11/2017	16,400	24,100
	4/7/2017	13,900	28,900
	7/18/2017	13,600	23,000
	10/5/2017	14,000	23,000
	1/12/2018	13,100	21,400
	4/5/2018	13,300	19,400
	7/3/2018	13,200	20,200
	10/4/2018	15,000	24,400
	1/8/2019	13,900	14,000
	4/10/2019	14,100	21,700
	7/15/2019	11,000	22,600
	10/16/2019	12,600	23,400
MW-13			
	8/10/2015	1,740	4,100
	1/28/2016	1,850	4,110
	7/21/2016	1,650	5,300
	1/11/2017	1,270	1,660
	4/10/2017	1,890	4,760
	7/19/2017	1,730	4,010
	10/5/2017	1,910	5,260
	1/12/2018	1,750	3,920
	4/6/2018	1,750	3,920
	7/3/2018	2,280	4,560
	10/4/2018	2,200	3,900
	1/8/2019	1,880	3,810
	4/10/2019	2,020	4,160
	7/16/2019	1,400	4,440
	10/17/2019	1,960	3,720

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Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
MW-14			
	8/11/2015	989	3,040
	1/27/2016	1,420	2,560
	7/21/2016	1,480	3,800
	1/11/2017	1,470	2,890
	4/10/2017	1,530	4,400
	7/19/2017	1,500	3,330
	10/5/2017	1,510	3,460
	1/12/2018	1,590	2,910
	4/6/2018	1,720	1,270
	7/3/2018	1,540	2,660
	10/4/2018	1,690	2,620
	1/8/2019	1,630	2,890
	4/9/2019	1,610	2,940
	7/16/2019	1,110	3,120
	10/17/2019	1,670	2,940
MW-15			
	8/11/2015	600	1,730
	1/28/2016	617	1,180
	7/21/2016	554	1,370
	1/11/2017	710	1,640
	4/10/2017	785	2,030
	7/19/2017	652	1,220
	10/5/2017	831	1,690
	1/12/2018	873	1,770
	4/6/2018	877	1,900
	7/3/2018	914	1,650
	10/4/2018	1,030	1,740
	1/8/2019	995	2,290
	4/10/2019	1,110	1,740
	7/16/2019	1,300	1,800
	10/17/2019	1,010	1,850
MW-16			
	8/11/2015	435	1,410
	1/28/2016	323	1,020
	7/21/2016	195	776
	1/11/2017	472	1,180
	4/10/2017	396	1,400
	7/19/2017	444	1,100
	10/5/2017	426	1,210
	1/12/2018	364	1,100
	4/6/2018	432	1,310
	7/3/2018	430	1,160
	10/4/2018	474	1,210
	1/8/2019	468	1,260
	4/10/2019	508	1,240
	7/16/2019	301	1,060
	10/17/2019	393	1,110

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Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
MW-17			
	8/12/2015	5,800	13,400
	1/28/2016	4,400	823
	7/21/2016	3,370	7,900
	1/11/2017	9,760	16,200
	4/10/2017	9,620	20,400
	7/19/2017	8,160	14,400
	10/6/2017	11,400	18,800
	1/12/2018	10,100	15,300
	4/6/2018	9,590	14,800
	7/3/2018	8,570	15,000
	10/4/2018	11,300	17,700
	1/8/2019	10,100	11,100
	4/10/2019	9,440	14,500
	7/16/2019	7,880	13,100
	10/17/2019	9,620	15,300
MW-18			
	8/12/2015	13,400	26,600
	1/28/2016	13,900	25,300
	7/20/2016	8,000	18,900
	1/12/2017	14,200	33,700
	4/7/2017	19,100	37,800
	7/18/2017	13,900	23,500
	10/6/2017	19,000	52,900
	1/12/2018	18,800	30,300
	4/5/2018	20,000	30,400
	7/3/2018	22,000	38,500
	10/4/2018	21,100	31,600
	1/8/2019	17,000	19,000
	4/9/2019	24,600	33,300
	7/15/2019	21,000	33,100
	10/16/2019	19,900	37,300
MW-19			
	8/12/2015	4,780	11,300
	1/28/2016	5,130	10,100
	7/20/2016	5,160	10,200
	1/12/2017	6,370	9,560
	4/7/2017	6,000	13,600
	7/18/2017	5,310	9,840
	10/6/2017	5,290	9,620
	1/12/2018	6,160	10,300
	4/5/2018	6,600	9,880
	7/5/2018	6,580	11,500
	10/4/2018	6,980	11,600
	1/8/2019	6,570	9,300
	4/9/2019	7,000	10,500
	7/15/2019	6,860	11,000
	10/16/2019	7,160	12,800

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Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
MW-20			
	8/12/2015	995	2,760
	1/28/2016	1,200	2,390
	7/20/2016	1,060	2,920
	1/12/2017	1,500	1,970
	4/7/2017	1,200	3,300
	7/18/2017	1,110	2,540
	10/6/2017	1,100	2,220
	1/12/2018	1,130	2,410
	4/5/2018	1,100	2,130
	7/5/2018	1,150	2,160
	10/3/2018	1,340	2,490
	1/8/2019	1,070	2,180
	4/5/2019	1,430	2,410
	7/15/2019	1,270	2,330
	10/16/2019	1,260	2,500
MW-21			
	7/21/2016	7,920	19,400
	1/11/2017	7,360	11,800
	4/10/2017	6,600	17,900
	7/19/2017	5,480	12,200
	10/6/2017	7,210	13,500
	1/12/2018	6,800	10,900
	4/6/2018	7,630	11,000
	7/3/2018	6,860	11,100
	10/4/2018	7,400	11,400
	1/8/2019	7,530	9,420
	4/10/2019	6,970	11,000
	7/16/2019	6,720	11,000
	10/17/2019	7,010	11,000
MW-22			
	3/3/2017	12,100	19,000
	4/10/2017	14,000	33,000
	7/19/2017	8,720	17,400
	10/6/2017	11,400	20,200
	1/12/2018	10,400	16,200
	4/6/2018	10,500	17,200
	7/3/2018	10,300	16,300
	10/4/2018	14,200	18,700
	1/8/2019	12,000	10,900
	4/10/2019	10,900	16,200
	7/16/2019	11,300	18,000
	10/17/2019	12,400	20,600
MW-23			
	7/21/2016	1,430	3,050
	1/11/2017	2,120	4,130
	4/10/2017	3,010	8,750
	7/19/2017	1,680	3,550
	10/6/2017	4,520	7,370
	1/12/2018	5,230	9,340
	4/6/2018	6,830	10,100
	7/3/2018	4,390	6,870
	10/4/2018	6,090	8,980
	1/8/2019	7,910	9,780
	4/10/2019	6,540	10,200
	7/16/2019	3,420	9,780
	10/17/2019	3,840	10,200

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Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
MW-24			
	7/20/2016	3,720	8,910
	1/12/2017	4,740	8,690
	4/7/2017	4,520	11,200
	7/18/2017	3,880	8,600
	10/6/2017	3,930	8,500
	1/12/2018	4,060	8,170
	4/5/2018	3,980	7,080
	7/3/2018	4,140	8,210
	10/4/2018	4,850	8,870
	1/8/2019	3,320	1,020
	4/9/2019	4,370	8,250
	7/15/2019	4,180	8,860
	10/16/2019	4,150	8,980
MW-25			
	7/21/2016	560	1,510
	1/11/2017	24,400	29,700
	4/10/2017	23,100	49,600
	7/18/2017	18,800	32,800
	10/6/2017	18,300	33,200
	1/12/2018	20,900	31,400
	4/5/2018	22,400	32,800
	7/3/2018	23,600	37,600
	10/4/2018	26,500	39,000
	1/8/2019	23,500	29,800
	4/9/2019	24,100	33,100
	7/15/2019	23,200	33,200
	10/17/2019	20,900	24,800
MW-26			
	1/12/2017	1,220	2,840
	4/7/2017	1,190	3,160
	7/18/2017	1,140	3,060
	10/6/2017	1,120	2,570
	1/12/2018	1,160	2,860
	4/5/2018	1,230	2,730
	7/5/2018	1,210	2,810
	10/4/2018	1,340	2,750
	1/8/2019	1,190	2,740
	4/9/2019	1,340	2,830
	7/15/2019	1,360	2,960
	10/16/2019	1,340	3,250
MW-27			
	7/20/2016	1,340	3,080
	1/11/2017	2,400	4,160
	4/7/2017	2,380	4,520
	7/18/2017	2,110	4,150
	10/6/2017	2,280	4,610
	1/12/2018	2,260	4,220
	4/5/2018	2,400	4,250
	7/3/2018	2,510	4,790
	10/3/2018	3,030	4,700
	1/8/2019	2,420	4,110
	4/5/2019	2,830	4,490
	7/15/2019	2,540	4,440
	10/16/2019	2,490	4,160

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Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
MW-28			
	1/10/2017	917	2,520
	4/7/2017	1,090	2,650
	7/17/2017	1,190	2,730
	10/6/2017	1,240	3,270
	1/12/2018	1,470	1,280
	4/5/2018	1,540	2,660
	7/6/2018	1,610	2,540
	10/3/2018	1,760	3,020
	1/7/2019	1,510	3,050
	4/5/2019	851	3,260
	7/15/2019	2,180	3,490
	10/16/2019	2,410	3,780
MW-29			
	1/10/2017	354	946
	4/7/2017	386	1,160
	7/17/2017	393	1,060
	10/6/2017	374	1,100
	1/12/2018	397	601
	4/5/2018	396	1,100
	7/6/2018	397	860
	10/3/2018	409	1,070
	1/7/2019	359	7,270
	4/5/2019	508	1,100
	7/15/2019	500	1,140
	10/16/2019	501	1,200
MW-30			
	7/19/2017	2,360	4,540
	10/6/2017	2,420	5,270
	1/12/2018	2,350	4,160
	4/6/2018	2,240	1,310
	7/3/2018	2,280	3,650
	10/4/2018	2,550	3,820
	1/8/2019	2,460	3,860
	4/10/2019	2,400	4,160
	7/16/2019	1,500	4,200
	10/17/2019	2,340	3,880
MW-31			
	7/18/2017	7,980	13,600
	10/6/2017	8,540	16,600
	1/12/2018	10,700	16,400
	4/5/2018	11,700	17,700
	7/3/2018	12,100	19,800
	10/4/2018	12,800	19,500
	1/8/2019	11,100	10,300
	4/5/2019	11,800	16,200
	7/15/2019	10,900	16,600
	10/16/2019	10,500	17,900
MW-32			
	4/10/2019	373	1,170
	7/15/2019	314	1,090
	10/15/2019	271	1,110
MW-33			
	4/10/2019	183	912
	7/15/2019	153	988
	10/15/2019	156	1,040
MW-34			
	4/10/2019	69.9	600
	7/15/2019	64.2	621
	10/15/2019	66.5	604

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
NM-MW-1			
	12/3/2015	266	1,540
	1/28/2016	283	1,470
	7/22/2016	294	1,420
	1/12/2017	383	1,570
	4/7/2017	291	1,510
	7/13/2017	287	1,520
	10/6/2017	271	1,500
	1/12/2018	271	933
	4/5/2018	263	1,400
	7/6/2018	275	1,350
	10/3/2018	279	1,460
	1/7/2019	256	1,370
	4/4/2019	330	1,400
	7/11/2019	291	1,380
	10/15/2019	281	1,450
NM-MW-2			
	12/3/2015	640	2,620
	1/28/2016	658	1,920
	7/22/2016	638	858
	1/12/2017	790	1,770
	4/7/2017	656	1,590
	7/13/2017	653	1,340
	10/6/2017	650	1,410
	1/12/2018	639	990
	4/5/2018	610	1,210
	7/6/2018	679	1,160
	10/3/2018	674	1,270
	1/7/2019	616	1,210
	4/4/2019	736	1,230
	7/11/2019	397	1,330
	10/15/2019	666	1,240
NM-MW-3			
	12/3/2015	648	3,900
	1/28/2016	327	1,870
	7/22/2016	121	524
	1/12/2017	224	581
	4/7/2017	161	564
	7/13/2017	186	592
	10/6/2017	276	626
	1/12/2018	221	501
	4/5/2018	180	601
	7/6/2018	220	625
	10/3/2018	246	708
	1/7/2019	447	1,250
	4/4/2019	259	653
	7/11/2019	184	581
	10/15/2019	183	596

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
NM-MW-4			
	12/3/2015	739	2,960
	1/28/2016	22.8	821
	7/22/2016	40.9	444
	1/12/2017	48.7	379
	4/7/2017	35.0	410
	7/13/2017	36.1	422
	10/6/2017	42.0	468
	1/12/2018	39	217
	4/5/2018	34	410
	7/6/2018	40.6	414
	10/3/2018	39.7	411
	1/7/2019	258	1,240
	4/4/2019	188	420
	7/11/2019	40.6	423
	10/15/2019	46.2	430
NM-MW-5			
	12/3/2015	DRY	DRY
	1/28/2016	144	1,250
	7/22/2016	129	1,270
	1/12/2017	182	1,320
	4/7/2017	145	1,260
	7/13/2017	147	1,340
	10/6/2017	144	1,090
	1/12/2018	133	893
	4/5/2018	134	1,300
	7/6/2018	140	1,240
	10/3/2018	138	1,290
	1/7/2019	142	1,280
	4/4/2019	175	1,240
	7/11/2019	149	1,290
	10/15/2019	170	1,320
NM-MW-6			
	12/2/2015	188	1,240
	1/28/2016	183	1,060
	7/22/2016	121	817
	1/12/2017	168	825
	4/7/2017	143	852
	7/13/2017	138	818
	10/6/2017	132	742
	1/12/2018	137	468
	4/5/2018	127	836
	7/6/2018	134	801
	10/3/2018	138	833
	1/7/2019	113	813
	4/4/2019	161	813
	7/12/2019	143	863
	10/15/2019	139	827

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
NM-MW-7			
	12/3/2015	696	3,200
	1/28/2016	1,840	3,150
	7/22/2016	1,890	5,320
	1/12/2017	2,390	3,770
	4/7/2017	2,180	4,770
	7/13/2017	2,120	4,100
	10/6/2017	2,070	4,200
	1/12/2018	2,110	2,370
	4/5/2018	2,090	4,270
	7/6/2018	2,330	3,780
	10/3/2018	2,380	4,050
	1/7/2019	2,040	5,190
	4/4/2019	1,940	4,160
	7/11/2019	2,600	4,390
	10/15/2019	2,370	4,240
NM-MW-8			
	3/3/2017	4,870	9,740
	4/7/2017	4,870	12,800
	7/13/2017	5,010	9,040
	10/4/2017	5,000	10,900
	1/12/2018	5,260	5,240
	4/5/2018	5,110	9,160
	7/6/2018	5,960	9,620
	10/3/2018	6,260	11,000
	1/7/2019	4,630	8,040
	4/4/2019	6,690	10,100
	7/11/2019	6,200	9,310
	10/15/2019	7,120	10,700
NM-MW-9			
	1/13/2017	NS	NS
	4/10/2017	NS	NS
	7/17/2017	224	776
	10/4/2017	263	813
	1/12/2018	221	717
	4/5/2018	234	804
	7/6/2018	252	785
	10/3/2018	258	799
	1/7/2019	2,620	4,160
	4/5/2019	297	786
	7/12/2019	264	797
	10/15/2019	243	812
NM-MW-10			
	1/10/2017	314	1,550
	4/7/2017	355	1,570
	7/17/2017	308	1,600
	10/4/2017	302	1,550
	1/12/2018	314	1,050
	4/5/2018	301	1,620
	7/6/2018	308	1,450
	10/3/2018	315	1,520
	1/7/2019	290	1,530
	4/4/2019	396	1,670
	7/12/2019	354	1,680
	10/15/2019	340	1,670

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
NM-MW-11			
	1/10/2017	190	2,100
	4/7/2017	158	1,980
	7/17/2017	135	2,020
	10/4/2017	154	1,940
	1/12/2018	155	1,710
	4/5/2018	699	1,920
	7/6/2018	143	1,820
	10/3/2018	152	1,920
	1/7/2019	154	1,840
	4/4/2019	185	1,870
	7/12/2019	157	1,980
	10/15/2019	134	1,530
NM-MW-12			
	3/3/2017	760	1,460
	4/7/2017	725	2,230
	7/17/2017	726	1,540
	10/4/2017	643	1,590
	1/12/2018	663	1,470
	4/5/2018	656	1,430
	7/6/2018	665	1,250
	10/3/2018	668	1,390
	1/7/2019	596	1,300
	4/4/2019	739	1,310
	7/12/2019	657	524
	10/15/2019	512	1,380
NM-MW-13			
	3/3/2017	183	1,020
	4/7/2017	192	1,110
	7/17/2017	185	1,100
	10/4/2017	183	1,100
	1/12/2018	188	965
	4/5/2018	180	1,090
	7/6/2018	184	1,050
	10/3/2018	185	1,110
	1/7/2019	165	1,070
	4/4/2019	225	1,090
	7/12/2019	199	1,090
	10/15/2019	179	1,100

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
Non-Remedial Wells			
DHU-FWS			
	01/06	564	3,082
	03/06	581	3,181
	6/14/2006	553	3,020
	9/12/2006	584	2,650
	12/6/2006	636	3,070
	7/30/2007	646	3,010
	1/21/2008	637	3,140
	7/7/2008	546	3,050
	1/26/2009	610	3,040
	8/21/2009	580	3,000
	2/17/2010	NA	3,000
	2/18/2010	401	NA
	8/16/2010	771	3,060
	2/10/2011	577	2,840
	8/2/2011	612	2,960
	1/31/2012	866	2,910
	7/19/2016	629	2,810
	1/11/2017	670	3,060
	4/10/2017	NS	NS
	7/14/2017	587	3,020
	10/9/2017	565	2,990
	1/12/2018	615	2,820
	4/5/2018	572	2,640
	7/5/2018	593	2,710
	10/3/2018	593	2,830
	1/7/2019	611	2,900
	4/5/2019	658	3,120
	7/15/2019	624	3,020
	10/16/2019	603	2,950
DHU-Office			
	04/06	376	2,434
DHU- Office (CHRM)			
	04/06	382	2,460

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
Livermore			
	01/06	NS	NS
	03/06	6,946	11,381
	6/14/2006	8,320	14,300
	9/12/2006	7,400	12,000
	12/7/2006	5,750	12,000
	2/28/2007	5,770	11,200
	7/30/2007	5,910	12,600
	7/7/2008	5,280	9,340
	1/29/2009	4,670	8,200
	8/25/2009	4,630	8,260
	2/18/2010	3,700	7,560
	8/20/2010	4,390	7,920
	2/15/2011	4,400	7,430
	8/5/2011	4,230	7,230
	2/3/2012	3,310	6,790
	8/7/2012	3,730	NA
	1/30/2013	3,810	6,080
	7/31/2013	3,630	6,240
	1/15/2014	3,450	5,580
	7/16/2014	3,190	6,830
	1/14/2015	3,200	6,490
	7/17/2015	5,380	11,500
	1/29/2016	3,110	4,530
	7/21/2016	3,040	5,710
	1/11/2017	2,940	4,970
	4/10/2017	NS	NS
	7/19/2017	2,870	4,800
	10/9/2017	2,700	4,200
	1/12/2018	2,700	4,830
	4/6/2018	2,530	1,430
	7/3/2018	2,560	4,580
	10/4/2018	2,710	4,020
	1/8/2019	2,530	4,330
	4/10/2019	2,660	4,670
	7/16/2019	1,340	4,720
	10/17/2019	2,490	4,160

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
Pure Water Tower			
	01/06	6,976	12,456
	03/06	NS	NS
	6/14/2006	7,890	16,200
	9/12/2006	8,200	13,100
	12/6/2006	8,070	14,600
	2/27/2007	6,400	12,800
	7/30/2007	7,450	15,400
	1/21/2008	11,800	20,100
	1/26/2009	5,010	12,100
	8/21/2009	6,920	12,900
	2/17/2010	NA	19,800
	2/18/2010	9,880	NA
	8/16/2010	11,800	23,000
	6/28/2011	9,260	20,500
	8/5/2011	6,470	12,900
	1/31/2012	5,380	11,500
Pure Water Well			
	01/06	NS	NS
	03/06	NS	NS
	6/14/2006	5,820	11,200
	9/12/2006	6,260	13,900
	12/6/2006	2,790	5,680
	7/23/2007	4,060	9,500
	1/21/2008	2,560	4,590
	7/7/2008	1,030	2,320
	1/26/2009	4,390	10,400
	8/21/2009	5,240	9,840
	2/17/2010	NA	9,160
	2/18/2010	1,810	NA
	2/10/2011	5,070	12,900
	8/5/2011	5,430	12,900
	8/21/2012	4,650	10,200
	1/30/2013	4,880	8,800
	10/25/2013	5,340	11,100
	1/13/2014	4,830	10,700
	7/17/2015	754	1,890

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
RRR Ranch Windmill			
	01/06	NS	NS
	03/06	1,693	3,527
	6/14/2006	1,760	3,640
	1/28/2016	1,430	2,760
	7/22/2016	1,460	3,940
	1/12/2017	1,760	3,030
	4/10/2017	NS	NS
	7/17/2017	1,570	3,300
	10/9/2017	2,620	3,870
	1/12/2018	650	1,500
	4/5/2018	1,620	3,110
	7/6/2018	1,670	3,030
	10/3/2018	1,660	3,000
	1/7/2019	1,290	2,950
	4/4/2019	47.4	3,110
	7/11/2019	1,800	3,560
	10/15/2019	1,800	3,500
TRAC-4			
	01/06	432	1,237
	03/06	581	3,181
	6/14/2006	402	1,270
	9/11/2006	428	1,310
	12/7/2006	456	1,300
	2/27/2007	435	1,240
	7/30/2007	493	1,320
	1/21/2008	421	1,220
	7/7/2008	461	1,290
	1/26/2009	546	1,320
	8/21/2009	471	1,330
	2/17/2010	NA	1,320
	2/18/2010	469	NA
	2/15/2011	549	1,340
	8/4/2011	455	1,250
	1/31/2012	445	1,150
	8/2/2012	433	NA
	7/31/2013	427	1,170
	7/18/2014	470	1,480
	7/17/2015	425	1,210
	1/28/2016	400	1,280
	7/19/2016	NS	NS
	1/11/2017	377	1,160
	4/10/2017	NS	NS
	7/19/2017	350	1,100
	10/9/2017	348	1,110
	1/12/2018	335	1,120
	4/6/2018	401	1,040
	7/3/2018	343	1,040
	10/4/2018	347	1,070
	1/7/2019	315	1,080
	4/9/2019	350	1,070
	7/16/2019	333	1,110
	10/17/2019	323	1,070

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
TRAC-8			
	01/06	2,090	3,786
	03/06	2,090	3,801
	6/14/2006	1,740	3,830
	9/11/2006	1,990	4,630
	12/6/2006	2,130	4,600
	2/27/2007	2,220	4,630
	7/30/2007	2,220	5,110
	1/21/2008	2,100	3,580
	7/7/2008	2,010	4,170
	1/26/2009	2,250	4,280
	8/21/2009	2,260	4,140
	3/8/2010	2,240	4,430
	8/16/2010	2,360	4,350
	2/10/2011	2,880	4,750
	8/4/2011	2,450	5,170
	1/31/2012	2,120	4,600
	8/2/2012	1,600	NA
	1/30/2013	1,920	3,420
	7/31/2013	1,760	4,060
	1/13/2014	1,650	3,270
	7/17/2014	1,770	4,670
	1/13/2015	1,810	4,300
	1/28/2016	NS	NS
	7/19/2016	2,000	4,380
Wilson Ranch			
	01/06	2,243	3,578
	03/06	NS	NS
	6/14/2006	2,410	4,980
	9/12/2006	2,510	4,450
	12/7/2006	2,350	4,750
	2/27/2007	2,110	4,020
	7/30/2007	2,440	5,240
	1/21/2008	2,690	3,880
	7/7/2008	2,030	3,810
	8/25/2009	2,320	5,350
	2/12/2016	888	2,230
	7/19/2016	1,500	3,250
	1/10/2017	1,300	3,130
	4/10/2017	NS	NS
	7/16/2017	1,140	2,380
	10/9/2017	1,200	2,800
	1/12/2018	673	1,600
	4/6/2018	1,360	2,950
	7/6/2018	1,330	2,190
	10/3/2018	1,380	2,680
	1/7/2019	1,070	2,420
	4/4/2019	1,480	2,440
	7/12/2019	1,300	2,530
	10/15/2019	928	1,880

Appendix C
Historical Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Dollarhide, Texas

Sample ID	Sample Date	Chloride (mg/L)	Total Dissolved Solids (mg/L)
TCEQ Secondary Drinking Water Standards (mg/L)		300	1,000
Smith Residential Well			
	1/13/2017	1,600	2,580
	4/10/2017	NS	NS
	7/17/2017	1,050	2,230
	10/9/2017	1,260	2,660
	1/12/2018	650	1,500
	4/5/2018	1,280	2,670
	7/6/2018	1,340	2,140
	10/3/2018	1,310	2,260
	1/7/2019	1,020	2,230
	4/5/2019	1,510	2,490
	7/12/2019	1,300	2,660
	10/15/2019	1,180	2,140

Notes:

1. Constituent concentrations are reported in milligrams per liter (mg/L).
2. Bold font and shading indicates that a detected result exceeded the TCEQ Secondary Drinking Water Standard.

NS = Not Sampled

NA = Not Applicable

Appendix D

Data Validation Reports



Memorandum

August 20, 2019

To: Nick Casten, Brittany White

Ref. No.: 055270

From:  Chris G. Knight/eew/25-NF

Tel: 512-506-8803

**Subject: Analytical Results and Reduced Validation
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019**

1. Introduction

The following document details a reduced validation of analytical results for groundwater samples collected at the Chevron Environmental Management Company (CEMC) – Dollarhide site during July 2019. Samples were submitted to Xenco Laboratories, located in Midland, Texas. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, duplicate data, recovery data from laboratory control sample/laboratory control duplicate samples (LCS/LCSD), matrix spikes/matrix spike duplicates (MS/MSD), laboratory duplicates, and field QA/QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the document entitled:

- i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010.

Item i) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. The sample chain of custody document and the analytical reports were used to determine sample holding times. All samples were analyzed within the required holding times.

All samples were delivered on ice and stored by the laboratory at the required temperature (0-6°C).



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of one per twenty investigative samples and/or one per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Laboratory Control Sample Analyses

LCS/LCSD are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of one per twenty investigative samples and/or one per analytical batch.

The LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision.

5. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision.

MS/MSD analyses were performed as specified in Table 1. The MS/MSD samples were spiked with chloride and the results were evaluated using the "Guidelines".

- i) All four MS/MSDs were reported outlying recoveries due to possible matrix interferences and were not assessed. No further action was required.

The laboratory also performed additional MS/MSD on non-site samples. These cannot be used to assess accuracy and precision for the site samples.



6. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1 for TDS. The duplicate results were evaluated per the "Guidelines".

All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

The laboratory performed additional duplicate analyses on non-site samples. These cannot be used to assess precision for the site samples.

7. Field QA/QC Samples

The field QA/QC consisted three field duplicate sample sets.

To assess the analytical and sampling protocol precision, three field duplicate sample sets were collected and submitted to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than fifty percent for water. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

8. Analyte Reporting

The laboratory reported detected results down to the laboratory's RL for each analyte.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable without qualification.

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
NM-MW-2-W-191107	NM-MW-2	Water	07/11/2019	14:25	X	X	DUP
NM-MW-3-W-191107	NM-MW-3	Water	07/11/2019	14:35	X	X	MS/MSD
NM-MW-7-W-191107	NM-MW-7	Water	07/11/2019	14:55	X	X	
RRR Ranch Windmill-W-191107	Ranch Windmill	Water	07/11/2019	15:15	X	X	
NM-MW-4-W-191107	NM-MW-4	Water	07/11/2019	15:30	X	X	MS/MSD
NM-MW-8-W-191107	NM-MW-8	Water	07/11/2019	15:55	X	X	
NM-MW-1-W-191107	NM-MW-1	Water	07/11/2019	16:25	X	X	
NM-MW-5-W-191107	NM-MW-5	Water	07/11/2019	16:35	X	X	
NM-MW-9-W-191207	NM-MW-9	Water	07/12/2019	10:15	X	X	
NM-MW-6-W-191217	NM-MW-6	Water	07/12/2019	10:30	X	X	
NM-MW-11-W-191207	NM-MW-11	Water	07/12/2019	10:50	X	X	DUP
NM-MW-11-WD-191207	NM-MW-11	Water	07/12/2019	10:50	X	X	Field duplicate of NM-MW-11
NM-MW-13-W-191207	NM-MW-13	Water	07/12/2019	11:15	X	X	
NM-MW-10-W-191207	NM-MW-10	Water	07/12/2019	11:50	X	X	
NM-MW-12-W-191207	NM-MW-12	Water	07/12/2019	12:15	X	X	
Wilson Ranch Well-W-191207	WILSON RANCH WW	Water	07/12/2019	12:30	X	X	
Smith Residence-W-191207	SMITH RESIDENCE	Water	07/12/2019	12:45	X	X	
58-B-3-W-191207	58-B-3	Water	07/12/2019	13:00	X	X	

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
MW-34-W-191507	MW-34	Water	07/15/2019	10:05	X	X	MS/MSD
MW-33-W-191507	MW-33	Water	07/15/2019	10:20	X	X	
MW-32-W-191507	MW-32	Water	07/15/2019	10:35	X	X	
MW-29-W-191507	MW-29	Water	07/15/2019	11:10	X	X	
MW-28-W-191507	MW-28	Water	07/15/2019	11:20	X	X	
58-B-2-MW-W-191507	58-B-2	Water	07/15/2019	11:50	X	X	
58-B-1-MW-W-191507	58-B-1	Water	07/15/2019	12:05	X	X	
MW-9-W-191507	MW-9	Water	07/15/2019	12:25	X	X	
MW-8-W-191507	MW-8	Water	07/15/2019	12:45	X	X	
DHU-FWS-W-191507	DHU-FWS	Water	07/15/2019	12:55	X	X	
MW-27-W-191507	MW-27	Water	07/15/2019	13:10	X	X	
MW-20-W-191507	MW-20	Water	07/15/2019	13:25	X	X	
MW-26-W-191507	MW-26	Water	07/15/2019	13:40	X	X	
MW-24-W-191507	MW-24	Water	07/15/2019	13:50	X	X	
MW-18-W-191507	MW-18	Water	07/15/2019	14:05	X	X	
MW-19-W-191507	MW-19	Water	07/15/2019	14:15	X	X	
MW-12-W-191507	MW-12	Water	07/15/2019	14:30	X	X	
MW-31-W-191507	MW-31	Water	07/15/2019	14:45	X	X	
MW-10-W-191507	MW-10	Water	07/15/2019	15:05	X	X	

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
MW-10-WD-191507	MW-10	Water	07/15/2019	15:05	X	X	Field duplicate of MW-10; MS/MSD
MW-6-W-191507	MW-6	Water	07/15/2019	15:25	X	X	
MW-11-W-191507	MW-11	Water	07/15/2019	15:35	X	X	
MW-25-W-191507	MW-25	Water	07/15/2019	15:50	X	X	DUP
MW-5-W-191607	MW-5	Water	07/16/2019	10:10	X	X	
MW-3-W-191607	MW-3	Water	07/16/2019	10:25	X	X	
TRACT-4-W-191607	Trac4	Water	07/16/2019	10:40	X	X	
MW-14-W-191607	MW-14	Water	07/16/2019	10:55	X	X	
MW-4-W-191607	MW-4	Water	07/16/2019	11:15	X	X	
MW-13-W-191607	MW-13	Water	07/16/2019	11:35	X	X	
MW-30-W-191607	MW-30	Water	07/16/2019	11:50	X	X	
Livermore-W-191607	Livermore	Water	07/16/2019	12:05	X	X	
MW-23-W-191607	MW-23	Water	07/16/2019	12:40	X	X	DUP
MW-22-W-191607	MW-22	Water	07/16/2019	12:50	X	X	
MW-17-W-191607	MW-17	Water	07/16/2019	13:05	X	X	
MW-17-WD-191607	MW-17	Water	07/16/2019	13:05	X	X	Field duplicate of MW-17
MW-21-W-191607	MW-21	Water	07/16/2019	13:30	X	X	
MW-16-W-191607	MW-16	Water	07/16/2019	13:45	X	X	
MW-15-W-191607	MW-15	Water	07/16/2019	14:10	X	X	

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
43-K-1-MW-W-191707	43-K-1	Water	07/17/2019	11:30	X	X	DUP
45-E-3-MW-W-191707	45-E-3	Water	07/17/2019	11:40	X	X	
45-F-1-MW-W-191707	45-F-1	Water	07/17/2019	12:00	X	X	
45-FF-MW-W-191707	45-FF	Water	07/17/2019	12:15	X	X	
45-E-2-MW-W-191707	45-E-2	Water	07/17/2019	12:30	X	X	
45-E-1-MW-W-191707	45-E-1	Water	07/17/2019	12:50	X	X	
44-I-1-MW-W-191707	44-I-1	Water	07/17/2019	13:20	X	X	
44-J-1-MW-W-191707	44-J-1	Water	07/17/2019	13:35	X	X	
44-J-5-MW-W-191707	44-J-5	Water	07/17/2019	13:45	X	X	
44-J-4-MW-W-191707	44-J-4	Water	07/17/2019	14:00	X	X	
44-J-3-MW-W-191707	44-J-3	Water	07/17/2019	14:15	X	X	DUP
44-J-2-MW-W-191707	44-J-2	Water	07/17/2019	14:25	X	X	

Notes:

TDS - Total Dissolved Solids
MS/MSD - Matrix Spike/Matrix Spike Duplicate
DUP - Laboratory Duplicate

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:	43-K-1	44-I-1	44-J-1	44-J-2	44-J-3	44-J-4
Sample Name:	43-K-1-MW-W-191707	44-I-1-MW-W-191707	44-J-1-MW-W-191707	44-J-2-MW-W-191707	44-J-3-MW-W-191707	44-J-4-MW-W-191707
Sample Date:	07/17/2019	07/17/2019	07/17/2019	07/17/2019	07/17/2019	07/17/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	7050	3400	5140	5170	5340	4240
TDS	mg/L	11000	5510	7020	7870	8680	6850

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:	44-J-5	45-E-1	45-E-2	45-E-3	45-F-1	45-FF
Sample Name:	44-J-5-MW-W-191707	45-E-1-MW-W-191707	45-E-2-MW-W-191707	45-E-3-MW-W-191707	45-F-1-MW-W-191707	45-FF-MW-W-191707
Sample Date:	07/17/2019	07/17/2019	07/17/2019	07/17/2019	07/17/2019	07/17/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	4200	3360	1830	4010	1060	6060
TDS	mg/L	6810	4820	2880	6440	1770	7320

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:	58-B-1	58-B-2	58-B-3	DHU-FWS	Livermore	MW-3	MW-4
Sample Name:	58-B-1-MW-W-191507	58-B-2-MW-W-191507	58-B-3-W-191207	DHU-FWS-W-191507	Livermore-W-191607	MW-3-W-191607	MW-4-W-191607
Sample Date:	07/15/2019	07/15/2019	07/12/2019	07/15/2019	07/16/2019	07/16/2019	07/16/2019

Parameters**Unit****General Chemistry**

Chloride	mg/L	6180	3850	1470	624	1340	475	269
TDS	mg/L	9750	6310	2520	3020	4720	1320	889

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:		MW-5	MW-6	MW-8	MW-9	MW-10	MW-10	MW-11	MW-12
Sample Name:		MW-5-W-191607	MW-6-W-191507	MW-8-W-191507	MW-9-W-191507	MW-10-W-191507	MW-10-WD-191507	MW-11-W-191507	MW-12-W-191507
Sample Date:		07/16/2019	07/15/2019	07/15/2019	07/15/2019	07/15/2019	07/15/2019 Duplicate	07/15/2019	07/15/2019
Parameters	Unit								
General Chemistry									
Chloride	mg/L	219	395	884	2620	4860	4750	7680	11000
TDS	mg/L	1120	1470	2390	4240	8210	8650	11800	22600

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:		MW-13	MW-14	MW-15	MW-16	MW-17	MW-17	MW-18	MW-19
Sample Name:		MW-13-W-191607	MW-14-W-191607	MW-15-W-191607	MW-16-W-191607	MW-17-W-191607	MW-17-WD-191607	MW-18-W-191507	MW-19-W-191507
Sample Date:		07/16/2019	07/16/2019	07/16/2019	07/16/2019	07/16/2019	07/16/2019 Duplicate	07/15/2019	07/15/2019
Parameters	Unit								
General Chemistry									
Chloride	mg/L	1400	1110	1300	301	7880	8150	21000	6860
TDS	mg/L	4440	3120	1800	1060	13100	12800	33100	11000

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:		MW-20	MW-21	MW-22	MW-23	MW-24	MW-25	MW-26	MW-27
Sample Name:		MW-20-W-191507	MW-21-W-191607	MW-22-W-191607	MW-23-W-191607	MW-24-W-191507	MW-25-W-191507	MW-26-W-191507	MW-27-W-191507
Sample Date:		07/15/2019	07/16/2019	07/16/2019	07/16/2019	07/15/2019	07/15/2019	07/15/2019	07/15/2019
Parameters	Unit								
General Chemistry									
Chloride	mg/L	1270	6720	11300	3420	4180	23200	1360	2540
TDS	mg/L	2330	11000	18000	9780	8860	33200	2960	4440

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:	MW-28	MW-29	MW-30	MW-31	MW-32	MW-33	MW-34
Sample Name:	MW-28-W-191507	MW-29-W-191507	MW-30-W-191607	MW-31-W-191507	MW-32-W-191507	MW-33-W-191507	MW-34-W-191507
Sample Date:	07/15/2019	07/15/2019	07/16/2019	07/15/2019	07/15/2019	07/15/2019	07/15/2019

Parameters**Unit****General Chemistry**

Chloride	mg/L	2180	500	1500	10900	314	153	64.2
TDS	mg/L	3490	1140	4200	16600	1090	988	621

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:	NM-MW-1	NM-MW-2	NM-MW-3	NM-MW-4	NM-MW-5	NM-MW-6
Sample Name:	NM-MW-1-W-191107	NM-MW-2-W-191107	NM-MW-3-W-191107	NM-MW-4-W-191107	NM-MW-5-W-191107	NM-MW-6-W-191217
Sample Date:	07/11/2019	07/11/2019	07/11/2019	07/11/2019	07/11/2019	07/12/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	291	697	184	40.6	149	143
TDS	mg/L	1380	1330	581	423	1290	863

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:		NM-MW-7	NM-MW-8	NM-MW-9	NM-MW-10
Sample Name:		NM-MW-7-W-191107	NM-MW-8-W-191107	NM-MW-9-W-191207	NM-MW-10-W-191207
Sample Date:		07/11/2019	07/11/2019	07/12/2019	07/12/2019
Parameters	Unit				
General Chemistry					
Chloride	mg/L	2600	6200	264	354
TDS	mg/L	4390	9310	797	1680

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:		NM-MW-11	NM-MW-11	NM-MW-12	NM-MW-13
Sample Name:		NM-MW-11-W-191207	NM-MW-11-WD-191207	NM-MW-12-W-191207	NM-MW-13-W-191207
Sample Date:		07/12/2019	07/12/2019	07/12/2019	07/12/2019
			Duplicate		
Parameters	Unit				
General Chemistry					
Chloride	mg/L	157	161	657	199
TDS	mg/L	1980	2010	524	1090

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Location ID:	Ranch Windmill	SMITH RESIDENCE	Trac4	WILSON RANCH WW
Sample Name:	RRR Ranch Windmill-W-191107	Smith Residence-W-191207	TRACT-4-W-191607	Wilson Ranch Well-W-191207
Sample Date:	07/11/2019	07/12/2019	07/16/2019	07/12/2019

Parameters	Unit				
General Chemistry					
Chloride	mg/L	1800	1300	333	1300
TDS	mg/L	3560	2660	1110	2530

Notes:

TDS - Total Dissolved Solids

Table 3

Analytical Methods
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
July 2019

Parameter	Method	Matrix	Holding Time
			Collection to Analysis (Days)
Chloride	EPA 300/300.1	Water	28
TDS	SM 2540C	Water	7

Notes:

TDS - Total Dissolved Solids

Method References:

- EPA - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions



Memorandum

October 29, 2019

To: Nick Casten, Brittany White

Ref. No.: 055270

From: Chris G. Knight/CK/eew/26-NF

Tel: 512-506-8803

**Subject: Analytical Results and Reduced Validation
Groundwater Monitoring Well Split Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019**

1. Introduction

The following document details a reduced validation of analytical results for groundwater samples collected at the Chevron Environmental Management Company (CEMC) – Dollarhide site during October 2019. Samples were submitted to Pace Analytical National Center for Testing & Innovation (Pace), located in Mt. Juliet, Tennessee. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, and recovery data from laboratory control samples (LCS), matrix spikes (MS), and laboratory duplicates.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the document entitled:

- i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010.

Item i) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. The sample chain of custody document and the analytical reports were used to determine sample holding times. All samples were analyzed within the required holding times.

All samples were delivered on ice and stored by the laboratory at the required temperature (0-6°C).



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of one per twenty investigative samples and/or one per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the following exception:

- i) One method blank yielded a low level detection for chloride analysis. All associated sample results were significantly greater than the method blank detection and were not affected. No further action was required.

4. Laboratory Control Sample Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. For this study, LCS were analyzed at a minimum frequency of one per twenty investigative samples and/or one per analytical batch.

The LCS contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries were within the control limits, demonstrating acceptable analytical accuracy.

5. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS or MS/matrix spike duplicate (MSD) samples. The relative percent difference (RPD) between the MS and MSD is used to assess analytical precision.

An MS analysis was performed as specified in Table 1. The MS or MS/MSD samples were spiked with chloride and the results were evaluated using the "Guidelines".

The percent recovery value was within the control limits, demonstrating acceptable analytical accuracy.

The laboratory also performed additional MS or MS/MSD on non-site samples. These cannot be used to assess accuracy and precision for the site samples.

6. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1 for chloride and/or total dissolved solids (TDS). The duplicate results were evaluated per the "Guidelines".



All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision with the following exceptions (see Table 4):

- i) One duplicate analysis was reported with an elevated RPD for TDS. All associated sample results were qualified as estimated.

The laboratory also performed additional duplicate analyses on non-site samples. These cannot be used to assess precision for the site samples.

7. Analyte Reporting

The laboratory reported detected results down to the laboratory's reporting limit (RL) for each analyte.

8. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Split Sampling - Pace
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
NM-MW-8-W-191510	NM-MW-8	Water	10/15/2019	11:10	X	X	
NM-MW-1-W-191510	NM-MW-1	Water	10/15/2019	11:55	X	X	
NM-MW-6-W-191510	NM-MW-6	Water	10/15/2019	12:15	X	X	
NM-MW-13-W-191510	NM-MW-13	Water	10/15/2019	12:45	X	X	
NM-MW-9-W-191510	NM-MW-9	Water	10/15/2019	13:25	X	X	MS; DUP-P
MW-9-W-191610	MW-9	Water	10/16/2019	11:40	X	X	DUP-P
MW-8-W-191610	MW-8	Water	10/16/2019	12:00	X	X	
MW-24-W-191610	MW-24	Water	10/16/2019	13:00	X	X	
MW-12-W-191610	MW-12	Water	10/16/2019	13:10	X	X	
MW-31-W-191610	MW-31	Water	10/16/2019	13:25	X	X	
MW-18-W-191610	MW-18	Water	10/16/2019	14:00	X	X	
MW-25-W-191710	MW-25	Water	10/17/2019	11:05	X	X	
MW-22-W-191710	MW-22	Water	10/17/2019	14:00	X	X	

Notes:

TDS - Total Dissolved Solids
MS - Matrix Spike
DUP-P - Laboratory Duplicate (partial parameters)

Table 2

Analytical Results Summary
Groundwater Monitoring Well Split Sampling - Pace
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Location ID:	MW-8	MW-9	MW-12	MW-18	MW-22	MW-24	MW-25
Sample Name:	MW-8-W-191610	MW-9-W-191610	MW-12-W-191610	MW-18-W-191610	MW-22-W-191710	MW-24-W-191610	MW-25-W-191710
Sample Date:	10/16/2019	10/16/2019	10/16/2019	10/16/2019	10/17/2019	10/16/2019	10/17/2019

Parameters	Unit							
General Chemistry								
Chloride	mg/L	874	2530	13100	22300	12500	2570	23200
TDS	mg/L	2080 J	6240 J	31000 J	48900 J	33000	12400 J	64100

Table 2

Analytical Results Summary
Groundwater Monitoring Well Split Sampling - Pace
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Location ID:	MW-31	NM-MW-1	NM-MW-6	NM-MW-8	NM-MW-9	NM-MW-13
Sample Name:	MW-31-W-191610	NM-MW-1-W-191510	NM-MW-6-W-191510	NM-MW-8-W-191510	NM-MW-9-W-191510	NM-MW-13-W-191510
Sample Date:	10/16/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	10400	279	142	5890	258	198
TDS	mg/L	29200 J	1390 J	773 J	10600 J	844 J	1060

Notes:

TDS - Total Dissolved Solids

J - Estimated concentration

Table 3

Analytical Methods
Groundwater Monitoring Well Split Sampling - Pace
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Parameter	Method	Matrix	Holding Time
			Collection to Analysis (Days)
Chloride	SW-846 9056A	Water	28
TDS	SM 2540 C-2011	Water	7

Notes:

TDS - Total Dissolved Solids

Method References:

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions

SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions

Table 4

Qualified Sample Data Due to Outlying Laboratory Duplicate Results
Groundwater Monitoring Well Split Sampling - Pace
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Parameter	Sample ID	Analyte	RPD Control Limit (percent)	Associated Sample IDs	Qualified Result	Units
General Chemistry	MW-9-W-191610	TDS	13.2	5	MW-12-W-191610	31000 J mg/L
					MW-18-W-191610	48900 J mg/L
					MW-24-W-191610	12400 J mg/L
					MW-31-W-191610	29200 J mg/L
					MW-8-W-191610	2080 J mg/L
					MW-9-W-191610	6240 J mg/L
					NM-MW-1-W-191510	1390 J mg/L
					NM-MW-6-W-191510	773 J mg/L
					NM-MW-8-W-191510	10600 J mg/L
					NM-MW-9-W-191510	844 J mg/L

Notes:

RPD - Relative Percent Difference
TDS - Total Dissolved Solids
J - Estimated concentration



Memorandum

October 30, 2019

To: Nick Casten, Brittany White

Ref. No.: 055270

From: ^{CK} Chris G. Knight/eew/27-NF

Tel: 512-506-8803

**Subject: Analytical Results and Reduced Validation
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019**

1. Introduction

The following document details a reduced validation of analytical results for groundwater samples collected at the Chevron Environmental Management Company (CEMC) – Dollarhide site during October 2019. Samples were submitted to Xenco Laboratories, located in Midland, Texas. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, duplicate data, recovery data from laboratory control sample/laboratory control duplicate samples (LCS/LCSD), matrix spikes/matrix spike duplicates (MS/MSD), laboratory duplicates, and field QA/QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the document entitled:

- i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

Item i) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. The sample chain of custody document and the analytical reports were used to determine sample holding times. All samples were analyzed within the required holding times.

All samples were delivered on ice and stored by the laboratory at the required temperature (0-6°C).



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of one per twenty investigative samples and/or one per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Laboratory Control Sample Analyses

LCS/LCSD are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of one per twenty investigative samples and/or one per analytical batch.

The LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision.

5. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision.

MS/MSD analyses were performed as specified in Table 1. The MS/MSD samples were spiked with chloride and the results were evaluated using the "Guidelines".

- i) Two MS/MSDs were reported outlying recoveries due to possible matrix interferences and were not assessed. No further action was required.

The laboratory also performed additional MS/MSD on non-site samples. These cannot be used to assess accuracy and precision for the site samples.



6. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1 for TDS. The duplicate results were evaluated per the "Guidelines".

All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

The laboratory performed additional duplicate analyses on non-site samples. These cannot be used to assess precision for the site samples.

7. Field QA/QC Samples

The field QA/QC consisted three field duplicate sample sets.

To assess the analytical and sampling protocol precision, three field duplicate sample sets were collected and submitted to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than fifty percent for water. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision with the following exception (see Table 4):

- i) NM-MW-11-W-191510 and NM-MW-11-WD-191510 did show some variability in chloride results and were qualified as estimated

8. Analyte Reporting

The laboratory reported detected results down to the laboratory's RL for each analyte.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
NM-MW-7-W-191510	NM-MW-7	Water	10/15/2019	10:35	X	X	
NM-MW-4-W-191510	NM-MW-4	Water	10/15/2019	10:57	X	X	MS/MSD
RRR Ranch Windmill-W-191510	Ranch Windmill	Water	10/15/2019	10:59	X	X	DUP
NM-MW-8-W-191510	NM-MW-8	Water	10/15/2019	11:10	X	X	
NM-MW-3-W-191510	NM-MW-3	Water	10/15/2019	11:27	X	X	MS/MSD
NM-MW-2-W-191510	NM-MW-2	Water	10/15/2019	11:35	X	X	
NM-MW-1-W-191510	NM-MW-1	Water	10/15/2019	11:55	X	X	DUP
NM-MW-5-W-191510	NM-MW-5	Water	10/15/2019	12:01	X	X	
NM-MW-6-W-191510	NM-MW-6	Water	10/15/2019	12:15	X	X	MS/MSD
NM-MW-11-W-191510	NM-MW-11	Water	10/15/2019	12:25	X	X	
NM-MW-11-WD-191510	NM-MW-11	Water	10/15/2019	12:25	X	X	Field duplicate of NM-MW-11
NM-MW-13-W-191510	NM-MW-13	Water	10/15/2019	12:45	X	X	
NM-MW-10-W-191510	NM-MW-10	Water	10/15/2019	13:11	X	X	
NM-MW-9-W-191510	NM-MW-9	Water	10/15/2019	13:25	X	X	
NM-MW-12-W-191510	NM-MW-12	Water	10/15/2019	13:40	X	X	DUP
Wilson Ranch Well-W-191510	WILSON RANCH WW	Water	10/15/2019	13:45	X	X	
Smith Residence-W-191510	SMITH RESIDENCE	Water	10/15/2019	14:10	X	X	
MW-33-W-191510	MW-33	Water	10/15/2019	14:15	X	X	
MW-34-W-191510	MW-34	Water	10/15/2019	14:25	X	X	MS/MSD
MW-32-W-191510	MW-32	Water	10/15/2019	14:49	X	X	

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
MW-28-W-191610	MW-28	Water	10/16/2019	11:00	X	X	
MW-29-W-191610	MW-29	Water	10/16/2019	11:10	X	X	
MW-9-W-191610	MW-9	Water	10/16/2019	11:40	X	X	
MW-8-W-191610	MW-8	Water	10/16/2019	12:00	X	X	
DHU-FWS-W-191610	DHU-FWS	Water	10/16/2019	12:10	X	X	
MW-27-W-191610	MW-27	Water	10/16/2019	12:20	X	X	
MW-20-W-191610	MW-20	Water	10/16/2019	12:30	X	X	
MW-26-W-191610	MW-26	Water	10/16/2019	12:45	X	X	DUP
MW-24-W-191610	MW-24	Water	10/16/2019	13:00	X	X	
MW-12-W-191610	MW-12	Water	10/16/2019	13:15	X	X	
MW-31-W-191610	MW-31	Water	10/16/2019	13:25	X	X	
MW-10-W-191610	MW-10	Water	10/16/2019	13:45	X	X	
MW-10-WD-191610	MW-10	Water	10/16/2019	13:45	X	X	Field duplicate of MW-10
MW-18-W-191610	MW-18	Water	10/16/2019	14:00	X	X	
MW-19-W-191610	MW-19	Water	10/16/2019	14:20	X	X	
MW-11-W-191710	MW-11	Water	10/17/2019	10:30	X	X	
MW-6-W-191710	MW-6	Water	10/17/2019	10:45	X	X	DUP
MW-5-W-191710	MW-5	Water	10/17/2019	10:55	X	X	
MW-25-W-191710	MW-25	Water	10/17/2019	11:05	X	X	
MW-3-W-191710	MW-3	Water	10/17/2019	11:15	X	X	

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
TRAC-4-W-191710	Trac4	Water	10/17/2019	11:30	X	X	
Livermore-W-191710	Livermore	Water	10/17/2019	11:50	X	X	
MW-30-W-191710	MW-30	Water	10/17/2019	12:10	X	X	
MW-13-W-191710	MW-13	Water	10/17/2019	12:20	X	X	
MW-4-W-191710	MW-4	Water	10/17/2019	12:35	X	X	
MW-14-W-191710	MW-14	Water	10/17/2019	12:45	X	X	
MW-15-W-191710	MW-15	Water	10/17/2019	13:00	X	X	
MW-21-W-191710	MW-21	Water	10/17/2019	13:15	X	X	DUP
MW-16-W-191710	MW-16	Water	10/17/2019	13:25	X	X	
MW-17-W-191710	MW-17	Water	10/17/2019	13:35	X	X	
MW-17-WD-191710	MW-17	Water	10/17/2019	13:35	X	X	Field duplicate of MW-17
MW-23-W-191710	MW-23	Water	10/17/2019	13:50	X	X	
MW-22-W-191710	MW-22	Water	10/17/2019	14:00	X	X	

Notes:

- TDS - Total Dissolved Solids
MS/MSD - Matrix Spike/Matrix Spike Duplicate
DUP - Laboratory Duplicate

Table 2

**Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019**

Location ID:	DHU-FWS	Livermore	MW-3	MW-4	MW-5	MW-6	MW-8	MW-9
Sample Name:	DHU-FWS-W-191610	Livermoore-W-191710	MW-3-W-191710	MW-4-W-191710	MW-5-W-191710	MW-6-W-191710	MW-8-W-191610	MW-9-W-191610
Sample Date:	10/16/2019	10/17/2019	10/17/2019	10/17/2019	10/17/2019	10/17/2019	10/16/2019	10/16/2019

Parameters**Unit****General Chemistry**

Chloride	mg/L	603	2490	502	325	257	383	919	2520
TDS	mg/L	2950	4160	1350	902	1000	1490	2400	4610

Table 2

**Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019**

Location ID:		MW-10	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16
Sample Name:		MW-10-W-191610	MW-10-WD-191610	MW-11-W-191710	MW-12-W-191610	MW-13-W-191710	MW-14-W-191710	MW-15-W-191710	MW-16-W-191710
Sample Date:		10/16/2019	10/16/2019	10/17/2019	10/16/2019	10/17/2019	10/17/2019	10/17/2019	10/17/2019
			Duplicate						
Parameters	Unit								
General Chemistry									
Chloride	mg/L	4980	4940	7590	12600	1960	1670	1010	393
TDS	mg/L	8520	8630	12400	23400	3720	2940	1850	1110

Table 2

**Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019**

Location ID:		MW-17	MW-17	MW-18	MW-19	MW-20	MW-21	MW-22	MW-23
Sample Name:		MW-17-W-191710	MW-17-WD-191710	MW-18-W-191610	MW-19-W-191610	MW-20-W-191610	MW-21-W-191710	MW-22-W-191710	MW-23-W-191710
Sample Date:		10/17/2019	10/17/2019	10/16/2019	10/16/2019	10/16/2019	10/17/2019	10/17/2019	10/17/2019
			Duplicate						
Parameters	Unit								
General Chemistry									
Chloride	mg/L	9620	9430	19900	7160	1260	7010	12400	3840
TDS	mg/L	15300	16000	37300	12800	2500	11000	20600	10200

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Location ID:	MW-24	MW-25	MW-26	MW-27	MW-28	MW-29	MW-30	MW-31
Sample Name:	MW-24-W-191610	MW-25-W-191710	MW-26-W-191610	MW-27-W-191610	MW-28-W-191610	MW-29-W-191610	MW-30-W-191710	MW-31-W-191610
Sample Date:	10/16/2019	10/17/2019	10/16/2019	10/16/2019	10/16/2019	10/16/2019	10/17/2019	10/16/2019

Parameters**Unit****General Chemistry**

Chloride	mg/L	4150	20900	1340	2490	2410	501	2340	10500
TDS	mg/L	8980	24800	3250	4160	3780	1200	3880	17900

Table 2

**Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019**

Location ID:	MW-32	MW-33	MW-34	NM-MW-1	NM-MW-2	NM-MW-3	NM-MW-4	NM-MW-5
Sample Name:	MW-32-W-191510	MW-33-W-191510	MW-34-W-191510	NM-MW-1-W-191510	NM-MW-2-W-191510	NM-MW-3-W-191510	NM-MW-4-W-191510	NM-MW-5-W-191510
Sample Date:	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019

Parameters	Unit							
General Chemistry								
Chloride	mg/L	271	156	66.5	281	666	183	170
TDS	mg/L	1110	1040	604	1450	1240	596	1320

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Location ID:		NM-MW-6	NM-MW-7	NM-MW-8	NM-MW-9	NM-MW-10	NM-MW-11	NM-MW-11
Sample Name:		NM-MW-6-W-191510	NM-MW-7-W-191510	NM-MW-8-W-191510	NM-MW-9-W-191510	NM-MW-10-W-191510	NM-MW-11-W-191510	NM-MW-11-WD-191510
Sample Date:		10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019
								Duplicate
Parameters	Unit							
General Chemistry								
Chloride	mg/L	139	2370	7120	243	340	134 J	77.3 J
TDS	mg/L	827	4240	10700	812	1670	1530	1820

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Location ID:	NM-MW-12	NM-MW-13	Ranch Windmill	SMITH RESIDENCE	Trac4	WILSON RANCH WW
Sample Name:	NM-MW-12-W-191510	NM-MW-13-W-191510	RRR Ranch Windmill-W-191510	Smith Residence-W-191510	TRAC-4-W-191710	Wilson Ranch Well-W-191510
Sample Date:	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/17/2019	10/15/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	512	179	1800	1180	323	928
TDS	mg/L	1380	1100	3500	2140	1070	1880

Notes:

TDS - Total Dissolved Solids

Table 3

Analytical Methods
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Parameter	Method	Matrix	Holding Time
			Collection to Analysis (Days)
Chloride	EPA 300/300.1	Water	28
TDS	SM 2540C	Water	7

Notes:

TDS - Total Dissolved Solids

Method References:

- EPA - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions

Table 4

Qualified Sample Data Due to Variability in Field Duplicate Results
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Parameter	Analyte	RPD	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
General Chemistry	Chloride	53.7	NM-MW-11-W-191510	134 J	NM-MW-11-WD-191510	77.3 J	mg/L

Notes:

RPD - Relative Percent Difference

J - Estimated concentration



Memorandum

October 30, 2019

To: Nick Casten, Brittany White

Ref. No.: 055270

From: ^{CK} Chris G. Knight/eew/28-NF

Tel: 512-506-8803

**Subject: Analytical Results and Reduced Validation
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019**

1. Introduction

The following document details a reduced validation of analytical results for groundwater samples collected at the Chevron Environmental Management Company (CEMC) – Dollarhide site during October 2019. Samples were submitted to Xenco Laboratories (Xenco), located in Midland, Texas. A split sample set was submitted to Pace Analytical National Center for Testing & Innovation (Pace), located in Mt. Juliet, Tennessee. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, duplicate data, recovery data from laboratory control sample (LCS), matrix spikes (MS), and laboratory duplicates.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the document entitled:

- i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

Item i) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. The sample chain of custody document and the analytical reports were used to determine sample holding times. All samples were analyzed within the required holding times.

All samples were delivered on ice and stored by the laboratory at the required temperature (0-6°C).



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of one per twenty investigative samples and/or one per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Laboratory Control Sample Analyses

LCS or LCS/laboratory control sample duplicate (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of one per twenty investigative samples and/or one per analytical batch.

The LCS or LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

5. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS or MS/matrix spike duplicate (MSD) samples. The RPD between the MS and MSD is used to assess analytical precision.

MS or MS/MSD analyses were performed as specified in Table 1. The MS and MS/MSD samples were spiked with chloride and the results were evaluated using the "Guidelines".

- i) Two MS/MSDs were reported outlying recoveries due to possible matrix interferences and were not assessed. No further action was required.

The laboratory also performed additional MS or MS/MSD on non-site samples. These cannot be used to assess accuracy and/or precision for the site samples.



6. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1 for TDS. The duplicate results were evaluated per the "Guidelines".

All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision with the following exception (see Table 4):

- i) One duplicate analysis was reported with an elevated RPD for TDS analysis. All associated sample results were qualified as estimated

The laboratory performed additional duplicate analyses on non-site samples. These cannot be used to assess precision for the site samples.

7. Split Sample Analyses

For this study, split samples were collected and submitted to two separate laboratories; Xenco and Pace. The RPDs associated with these duplicate samples should be less than fifty percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value. The duplicate result comparisons are presented in Table 5.

All split sample duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision with the following exception:

- i) MW-25-W-191710 TDS results did show some variability. The RPD exceedance was noted in Table 5, but no additional qualifications were added to the sample results.

8. Analyte Reporting

The laboratory reported detected results down to the laboratory's RL for each analyte.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments	SDG
					Chloride	TDS		
NM-MW-8-W-191510	NM-MW-8	Water	10/15/2019	11:10	X	X		640401
NM-MW-8-W-191510	NM-MW-8	Water	10/15/2019	11:10	X	X		L1151971
NM-MW-1-W-191510	NM-MW-1	Water	10/15/2019	11:55	X	X	DUP-P	640401
NM-MW-1-W-191510	NM-MW-1	Water	10/15/2019	11:55	X	X		L1151971
NM-MW-6-W-191510	NM-MW-6	Water	10/15/2019	12:15	X	X	MS or MS/MSD	640401
NM-MW-6-W-191510	NM-MW-6	Water	10/15/2019	12:15	X	X		L1151971
NM-MW-13-W-191510	NM-MW-13	Water	10/15/2019	12:45	X	X		640403
NM-MW-13-W-191510	NM-MW-13	Water	10/15/2019	12:45	X	X		L1151976
NM-MW-9-W-191510	NM-MW-9	Water	10/15/2019	13:25	X	X		640401
NM-MW-9-W-191510	NM-MW-9	Water	10/15/2019	13:25	X	X	MS or MS/MSD; DUP-P	L1151971
MW-9-W-191610	MW-9	Water	10/16/2019	11:40	X	X		640401
MW-9-W-191610	MW-9	Water	10/16/2019	11:40	X	X	DUP-P	L1151971
MW-8-W-191610	MW-8	Water	10/16/2019	12:00	X	X		640401
MW-8-W-191610	MW-8	Water	10/16/2019	12:00	X	X		L1151971
MW-24-W-191610	MW-24	Water	10/16/2019	13:00	X	X		640401
MW-24-W-191610	MW-24	Water	10/16/2019	13:00	X	X		L1151971
MW-12-W-191610	MW-12	Water	10/16/2019	13:10	X	X		L1151971
MW-12-W-191610	MW-12	Water	10/16/2019	13:15	X	X		640401
MW-31-W-191610	MW-31	Water	10/16/2019	13:25	X	X		640401
MW-31-W-191610	MW-31	Water	10/16/2019	13:25	X	X		L1151971
MW-18-W-191610	MW-18	Water	10/16/2019	14:00	X	X		640401

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments	SDG
					Chloride	TDS		
MW-18-W-191610	MW-18	Water	10/16/2019	14:00	X	X		L1151971
MW-25-W-191710	MW-25	Water	10/17/2019	11:05	X	X		640401
MW-25-W-191710	MW-25	Water	10/17/2019	11:05	X	X		L1151971
MW-22-W-191710	MW-22	Water	10/17/2019	14:00	X	X		640401
MW-22-W-191710	MW-22	Water	10/17/2019	14:00	X	X		L1151971

Notes:

- TDS - Total Dissolved Solids
MS or MS/MSD - Matrix Spike or Matrix Spike/Matrix Spike Duplicate
DUP-P - Laboratory Duplicate (partial parameters)

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Location ID:		MW-12	MW-12	MW-18	MW-18	MW-22	MW-22
Sample Name:		MW-12-W-191610	MW-12-W-191610	MW-18-W-191610	MW-18-W-191610	MW-22-W-191710	MW-22-W-191710
Sample Date:		10/16/2019	10/16/2019	10/16/2019	10/16/2019	10/17/2019	10/17/2019
			Pace Split Sample		Pace Split Sample		Pace Split Sample
Parameters	Unit						
General Chemistry							
Chloride	mg/L	12600	13100	19900	22300	12400	12500
TDS	mg/L	23400	31000 J	37300	48900 J	20600	33000

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Location ID:		MW-24	MW-24	MW-25	MW-25	MW-31
Sample Name:		MW-24-W-191610	MW-24-W-191610	MW-25-W-191710	MW-25-W-191710	MW-31-W-191610
Sample Date:		10/16/2019	10/16/2019	10/17/2019	10/17/2019	10/16/2019
			Pace Split Sample		Pace Split Sample	
Parameters	Unit					
General Chemistry						
Chloride	mg/L	4150	2570	20900	23200	10500
TDS	mg/L	8980	12400 J	24800	64100	17900

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Location ID:		MW-31	MW-8	MW-8	MW-9	MW-9
Sample Name:		MW-31-W-191610	MW-8-W-191610	MW-8-W-191610	MW-9-W-191610	MW-9-W-191610
Sample Date:		10/16/2019	10/16/2019	10/16/2019	10/16/2019	10/16/2019
		Pace Split Sample		Pace Split Sample		Pace Split Sample
Parameters	Unit					
General Chemistry						
Chloride	mg/L	10400	919	874	2520	2530
TDS	mg/L	29200 J	2400	2080 J	4610	6240 J

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Location ID:		NM-MW-1	NM-MW-1	NM-MW-13	NM-MW-13	NM-MW-6
Sample Name:		NM-MW-1-W-191510	NM-MW-1-W-191510	NM-MW-13-W-191510	NM-MW-13-W-191510	NM-MW-6-W-191510
Sample Date:		10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019
			Pace Split Sample		Pace Split Sample	
Parameters	Unit					
General Chemistry						
Chloride	mg/L	281	279	179	198	139
TDS	mg/L	1450	1390 J	1100	1060	827

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Location ID:		NM-MW-6	NM-MW-8	NM-MW-8	NM-MW-9	NM-MW-9
Sample Name:		NM-MW-6-W-191510	NM-MW-8-W-191510	NM-MW-8-W-191510	NM-MW-9-W-191510	NM-MW-9-W-191510
Sample Date:		10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019
		Pace Split Sample		Pace Split Sample		Pace Split Sample
Parameters	Unit					
General Chemistry						
Chloride	mg/L	142	7120	5890	243	258
TDS	mg/L	773 J	10700	10600 J	812	844 J

Notes:

TDS - Total Dissolved Solids

J - Estimated concentration

Table 3

Analytical Methods
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Parameter	Method	Matrix	Holding Time
			Collection to Analysis (Days)
Chloride	EPA 300/300.1 SW-846 9056A	Water	28
TDS	SM 2540C SM 2540 C-2011	Water	7

Notes:

TDS - Total Dissolved Solids

Method References:

- EPA - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions

Table 4

Qualified Sample Data Due to Outlying Laboratory Duplicate Results
Groundwater Monitoring Well Split Sampling - Pace
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Parameter	Sample ID	Analyte	RPD (percent)	RPD Control Limit (percent)	Associated Sample IDs	Qualified Result	Units
General Chemistry	MW-9-W-191610	TDS	13.2	5	MW-12-W-191610	31000 J	mg/L
					MW-18-W-191610	48900 J	mg/L
					MW-24-W-191610	12400 J	mg/L
					MW-31-W-191610	29200 J	mg/L
					MW-8-W-191610	2080 J	mg/L
					MW-9-W-191610	6240 J	mg/L
					NM-MW-1-W-191510	1390 J	mg/L
					NM-MW-6-W-191510	773 J	mg/L
					NM-MW-8-W-191510	10600 J	mg/L
					NM-MW-9-W-191510	844 J	mg/L

Notes:

RPD - Relative Percent Difference

TDS - Total Dissolved Solids

J - Estimated concentration

Table 5

Split Sample Duplicate Results
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Parameter	Analyte	RPD	Diff (Xenco - Pace)	Xenco Sample ID	Qualified Result	Pace Field Duplicate Sample ID	Qualified Result	Units
General Chemistry	Chloride	3.89	-500	MW-12-W-191610	12600	MW-12-W-191610	13100	mg/L
	TDS	27.9	-7600		23400		31000 J	mg/L
General Chemistry	Chloride	11.3	-2400	MW-18-W-191610	19900	MW-18-W-191610	22300	mg/L
	TDS	26.9	-11600		37300		48900 J	mg/L
General Chemistry	Chloride	0.803	-100	MW-22-W-191710	12400	MW-22-W-191710	12500	mg/L
	TDS	46.2	-12400		20600		33000	mg/L
General Chemistry	Chloride	47.0	1580	MW-24-W-191610	4150	MW-24-W-191610	2570	mg/L
	TDS	31.9	-3420		8980		12400 J	mg/L
General Chemistry	Chloride	10.4	-2300	MW-25-W-191710	20900	MW-25-W-191710	23200	mg/L
	TDS	88.4	-39300		24800		64100	mg/L
General Chemistry	Chloride	0.956	100	MW-31-W-191610	10500	MW-31-W-191610	10400	mg/L
	TDS	47.9	-11300		17900		29200 J	mg/L
General Chemistry	Chloride	5.01	45	MW-8-W-191610	919	MW-8-W-191610	874	mg/L
	TDS	14.2	320		2400		2080 J	mg/L
General Chemistry	Chloride	0.396	-10	MW-9-W-191610	2520	MW-9-W-191610	2530	mg/L
	TDS	30.0	-1630		4610		6240 J	mg/L

Table 5

Split Sample Duplicate Results
Groundwater Monitoring Well Sampling - Split Sample Comparison
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
October 2019

Parameter	Analyte	RPD	Diff (Xenco - Pace)	Xenco Sample ID	Qualified Result	Pace Field Duplicate Sample ID	Qualified Result	Units
General Chemistry	Chloride	0.714	2	NM-MW-1-W-191510	281	NM-MW-1-W-191510	279	mg/L
	TDS	4.22	60		1450		1390 J	mg/L
General Chemistry	Chloride	10.0	-19	NM-MW-13-W-191510	179	NM-MW-13-W-191510	198	mg/L
	TDS	3.70	40		1100		1060	mg/L
General Chemistry	Chloride	2.13	-3	NM-MW-6-W-191510	139	NM-MW-6-W-191510	142	mg/L
	TDS	6.75	54		827		773 J	mg/L
General Chemistry	Chloride	18.9	1230	NM-MW-8-W-191510	7120	NM-MW-8-W-191510	5890	mg/L
	TDS	0.938	100		10700		10600 J	mg/L
General Chemistry	Chloride	5.98	-15	NM-MW-9-W-191510	243	NM-MW-9-W-191510	258	mg/L
	TDS	3.86	-32		812		844 J	mg/L

Notes:

- RPD - Relative Percent Difference
 Diff - Difference
 TDS - Total Dissolved Solids
 J - Estimated concentration
Bold - Exceeded 50% RPD



about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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