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1RP-3944

CHEVRON

Remediation Site

Dollarhide 2019 Semi-

Annual Groundwater

Monitoring Report

(January to June

2019)



Adriane Gifford
Project Manager

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July 31, 2019

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 (January to June 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 (January to June 2019) for the Chevron Dollarhide Oil Field Unit located in Andrews County, Texas (Site). This report was prepared by GHD Services Inc. (GHD) to document groundwater monitoring activities performed at the Site on behalf of CEMC during the above referenced reporting period.

If you have any questions regarding this submittal, please contact me at (832) 854-5620 or Nick G. 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: Jessica Cofrancesco, RRC Site Remediation Section
Nick G. Casten, GHD



Semi-Annual Groundwater Monitoring Report (January to June 2019)

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

Chevron Environmental
Management Company

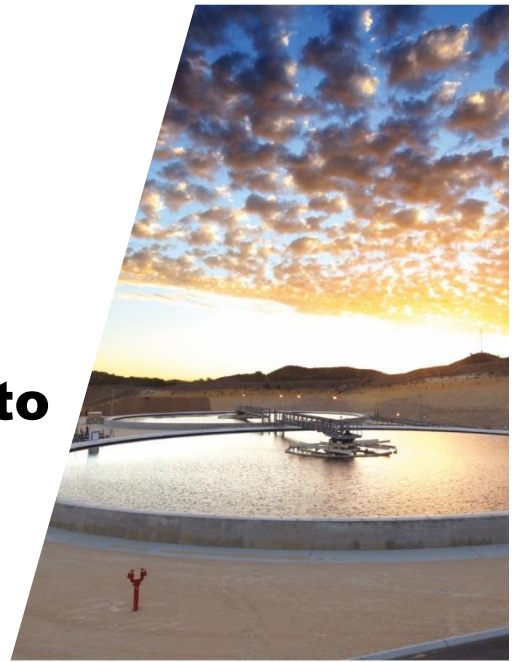




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1. Introduction

GHD Services Inc. (GHD), on behalf of Chevron Environmental Management Company (CEMC), submits herein to the Railroad Commission of Texas (RRC) the first *Semi-Annual Groundwater Monitoring Report (January to June 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 first 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. 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 Dollard 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. 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 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. Installation details from the April 2019 event are included within. Due to delays with access agreements and permitting, the monitor well installation in New Mexico has been delayed until the third or fourth quarter of 2019. The data collected from the New Mexico well installation event is anticipated to be included in the July through December 2019 Semi-Annual Groundwater Monitoring Report.

5.1 Monitor Well Construction

Three monitor wells (MW-32, MW-33, and MW-34) were installed using roto-sonic drilling methods to total depths ranging from approximately 88 to 100 feet below ground surface (bgs). Soil boring logs are included in Appendix A. All wells were constructed using 4-inch diameter schedule 40 PVC casing, with 8/16 sand gravel filter packs and 0.020-inch slotted PVC well screens adjacent to the bottom 40 feet of the wells. Each well was sealed using a cement/bentonite grout to the ground surface. Surface completions consisted of a concrete pad and approximately 3 feet of PVC casing



stickups encased in locking steel well vaults. Copies of the State of Texas Well Reports are included in Appendix B, and the monitor well construction diagrams are included in Appendix C.

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 bgs. 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 January and April 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 January and April 2019 events are shown on Figures 3 and 4, respectively, and indicate that the groundwater flow direction is generally to the southwest, 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 D.

6.2 Groundwater Sampling

All 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 Laboratory located in Odessa, Texas, following proper chain-of-custody procedures. The 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.

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 January and April 2019 events are listed in Tables 4. The groundwater chlorides 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 E. The



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

6.4 Quality Assurance/Quality Control

During the January and April 2019 sampling events, six duplicate samples were collected for chloride and TDS during each sampling event to confirm sample quality and reproducibility. No significant deviations were encountered in the sample results for duplicate constituents. Additionally, the certified groundwater laboratory reports received from Xenco Laboratory were reviewed and approved by a GHD analytical chemist for laboratory and field method quality assurance/quality control (QA/QC). The associated data validation reports issued by GHD are included in Appendix G.

7. Conclusions and Path Forward

The installation of the eight additional monitor wells in New Mexico is scheduled to be completed in the third or fourth quarter of 2019, pending access agreements and issuance of applicable well permits from the New Mexico Office of the State Engineer. The installation of the eight wells in New Mexico will 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. The results of the 2019 groundwater monitoring events will be used to continue development for the strategy and path forward for the Site. CEMC anticipates scheduling an update meeting with the RRC and the OCD in the fourth quarter of 2019 to discuss the results of the 2019 groundwater investigation.

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.

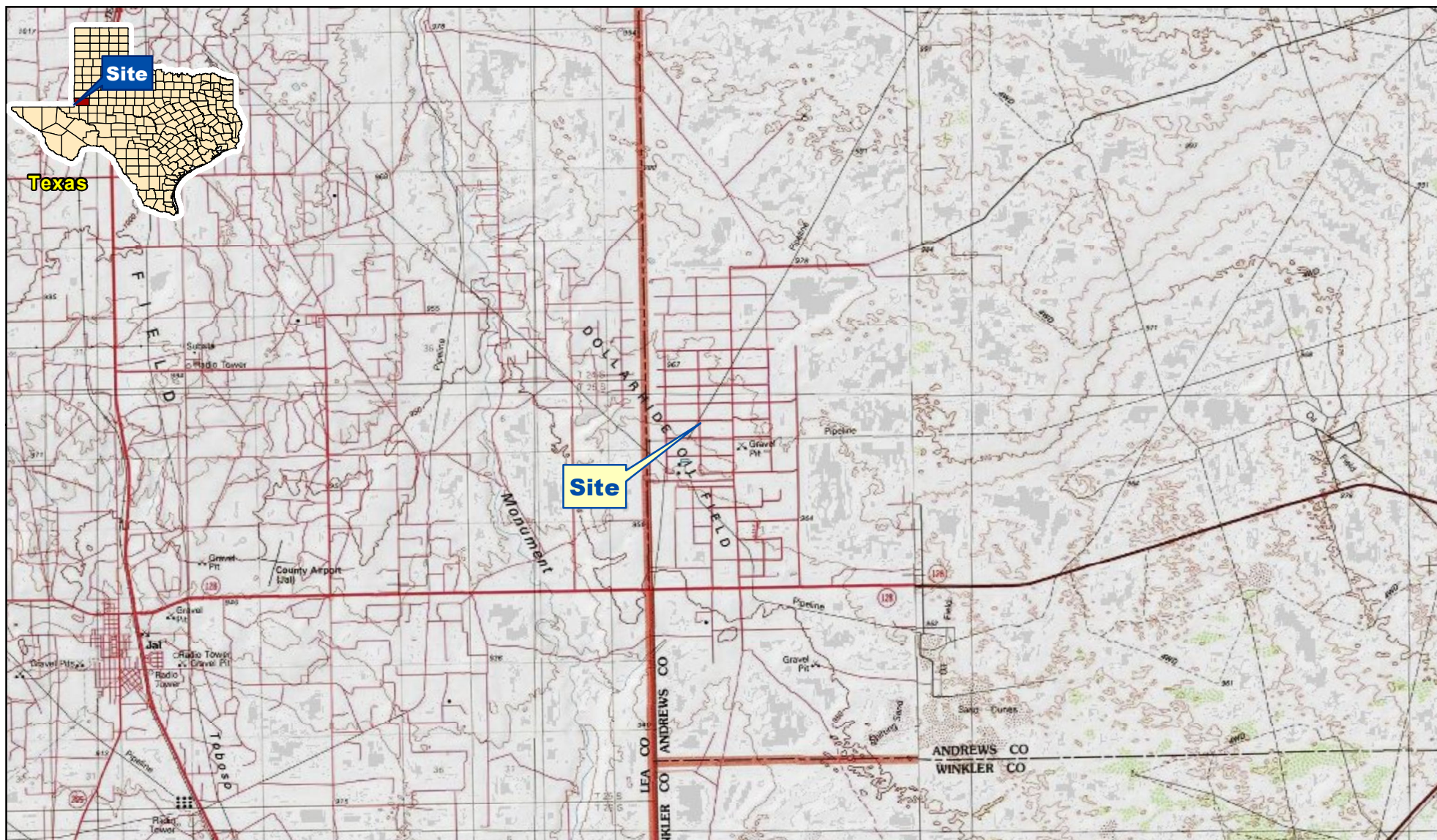
Should you have any questions regarding this submittal, please contact Nick G. Casten of GHD at (225) 296-6513 or Adriane Gifford of CEMC at (832) 854-5620.

All of which is Respectfully Submitted

GHD,

Nicholas G. Casten

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

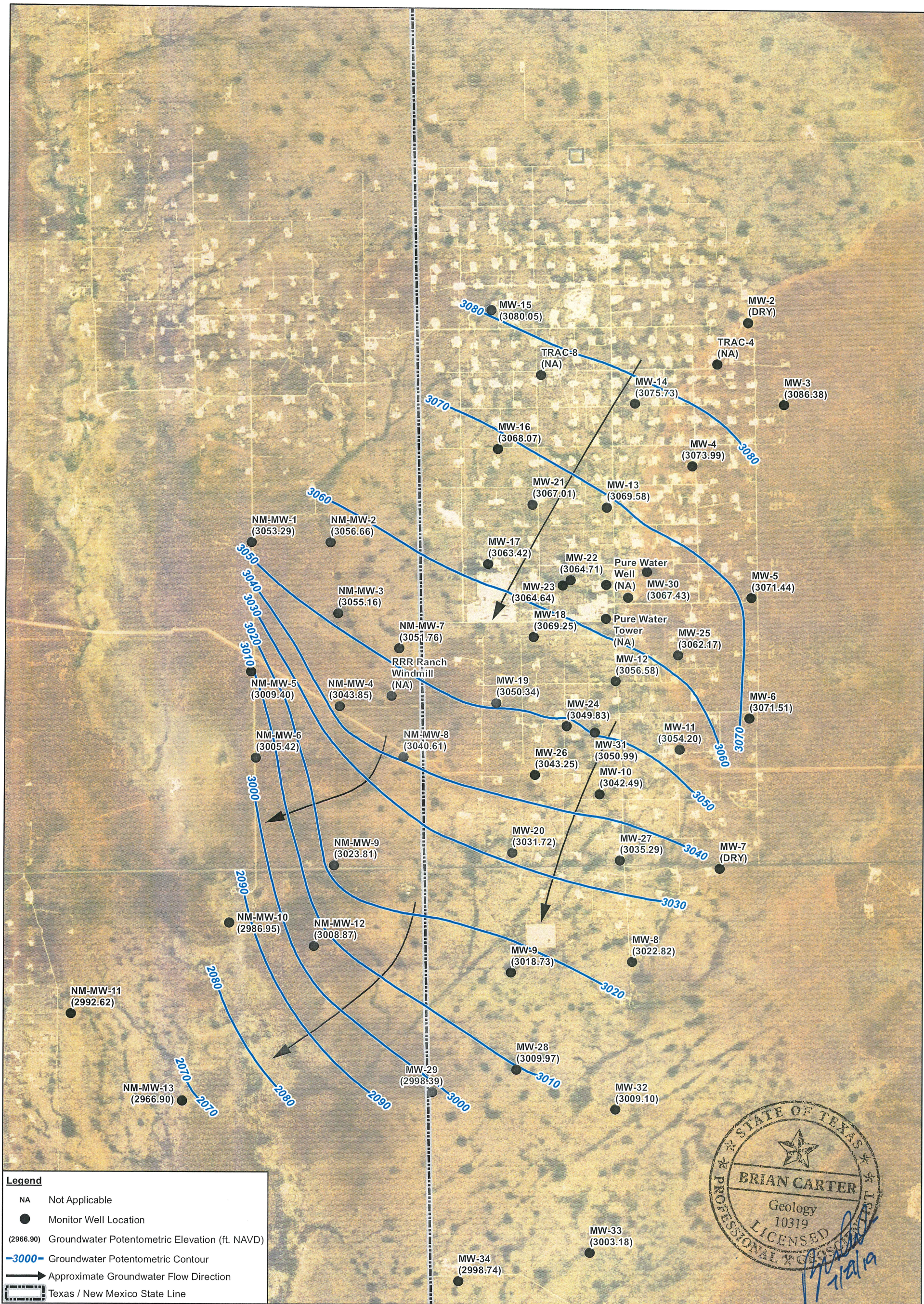


CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
CHEVRON DOLLARHIDE UNIT

SITE VICINITY MAP

055270
Jun 20, 2019

FIGURE 1



Source: ESRI World Imagery Basemap Service.

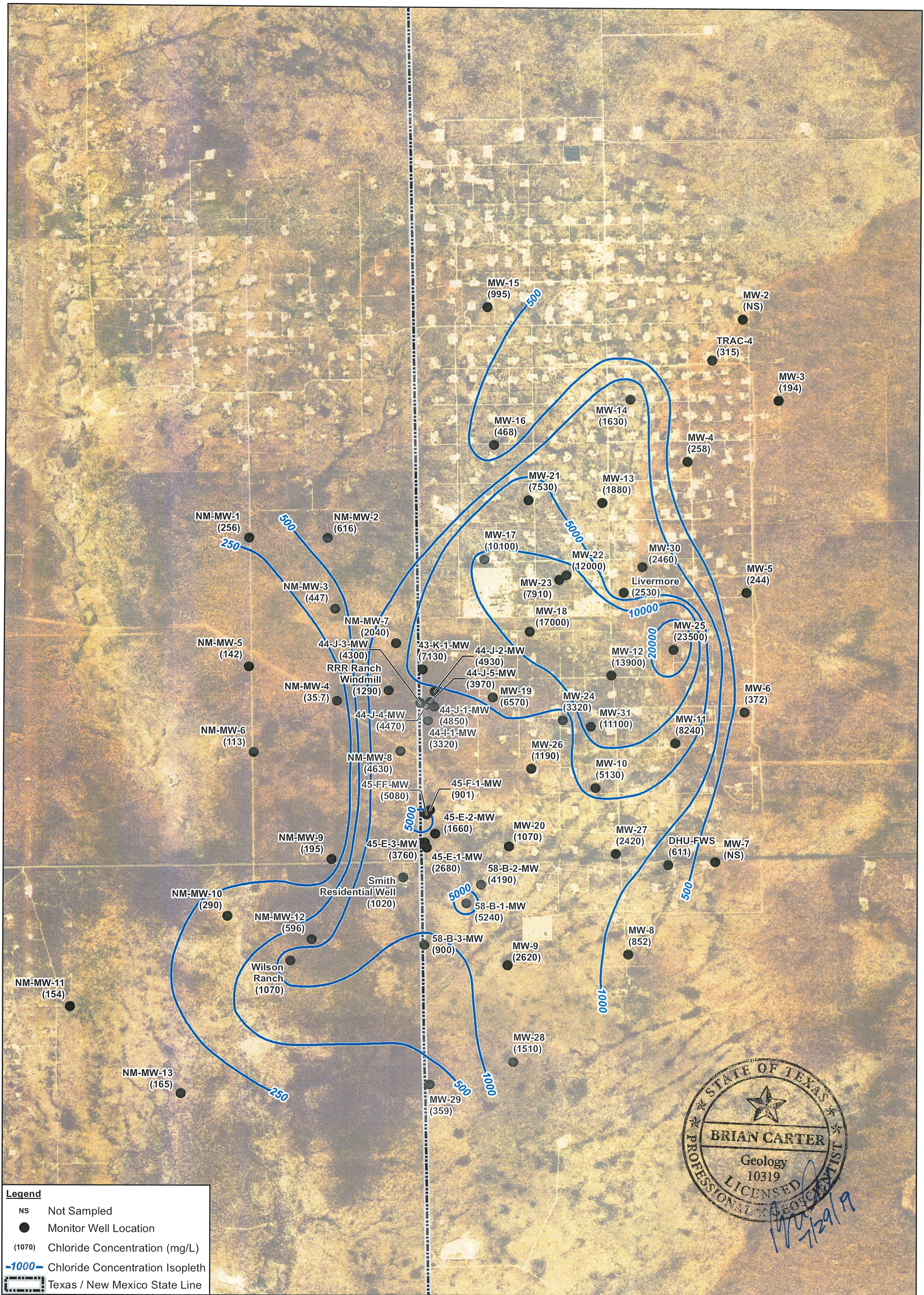
0 1,500 3,000
 Feet
 Coordinate System:
 NAD 1983 UTM Zone 13N



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

055270
 Jul 2, 2019

FIGURE 4



Source: ESRI World Imagery Basemap Service.

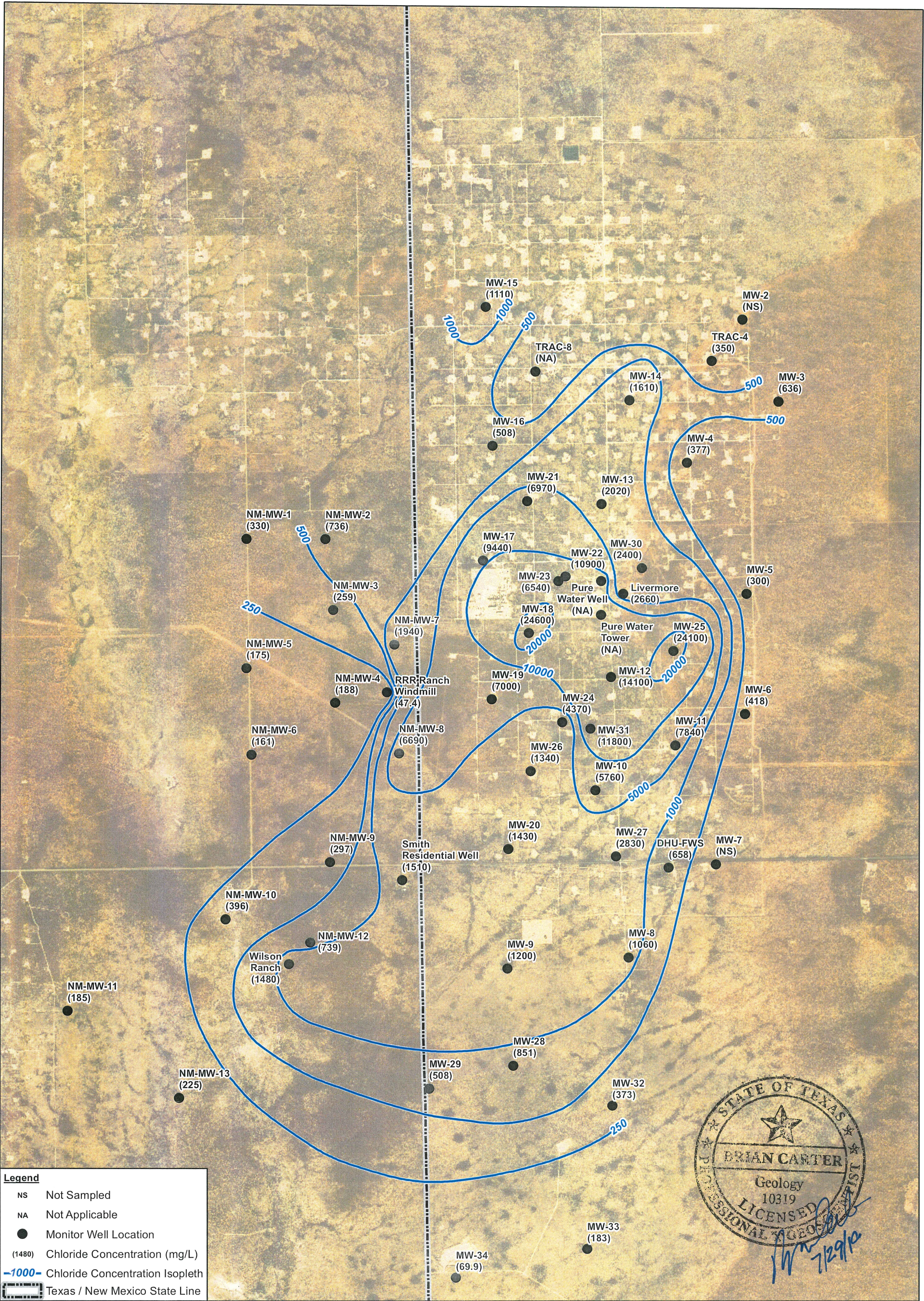
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Feet
Coordinate System:
NAD 1983 UTM Zone 13N



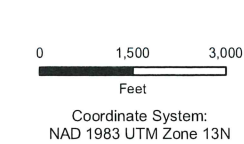
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 ANDREWS COUNTY, TEXAS
 DOLLARHIDE OIL FIELD UNIT
 JANUARY 2019 GROUNDWATER CHLORIDE
 CONCENTRATIONS & ISOPLETHS

055270
 Jul 25, 2019

FIGURE 5



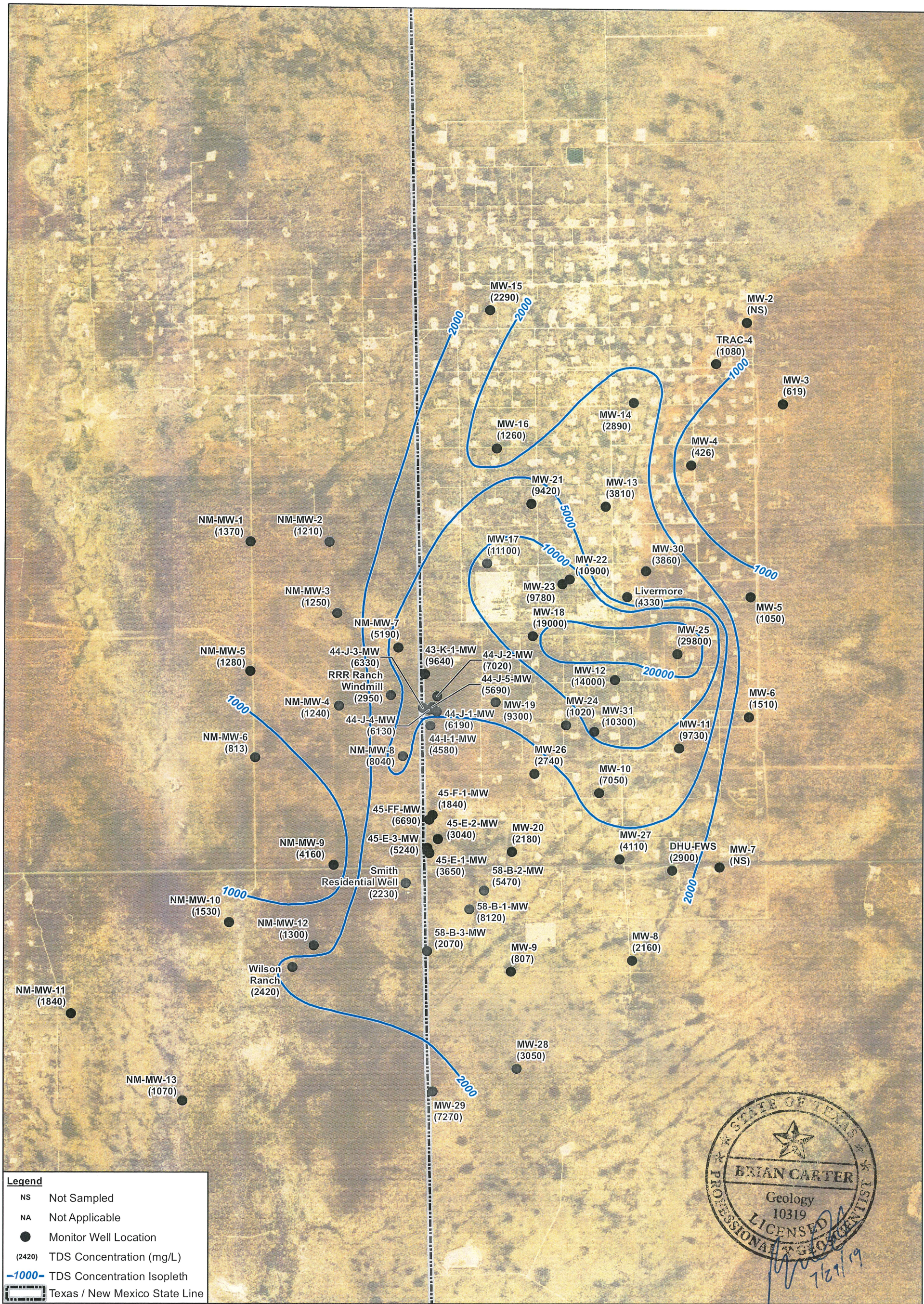
Source: ESRI World Imagery Basemap Service.



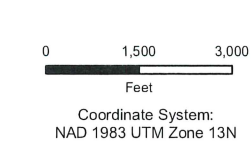
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
DOLLARHIDE OIL FIELD UNIT
APRIL 2019 GROUNDWATER CHLORIDE
CONCENTRATIONS & ISOPLETHS

055270
Jul 25, 2019

FIGURE 6



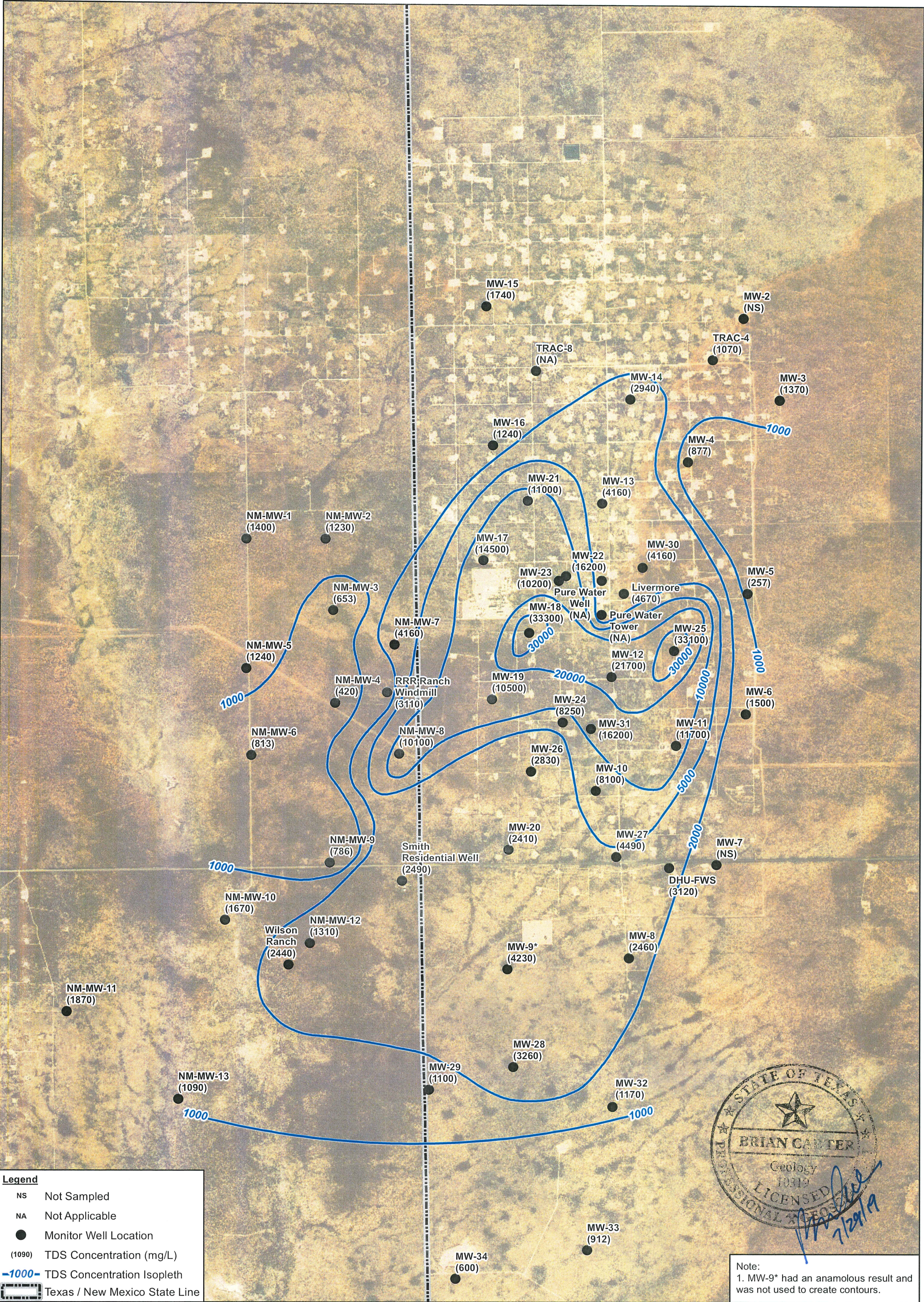
Source: ESRI World Imagery Basemap Service.



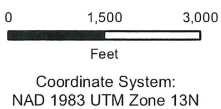
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
ANDREWS COUNTY, TEXAS
DOLLARHIDE OIL FIELD UNIT
JANUARY 2019 GROUNDWATER TOTAL DISSOLVED SOLIDS (TDS)
CONCENTRATIONS & ISOPLETHS

055270
Jul 25, 2019

FIGURE 7



Source: ESRI World Imagery Basemap Service.



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

055270
Jul 29, 2019

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⁾
	MW-24 ⁽¹⁾
	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

**January 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	94.20	NA
44-I-1-MW	3,138.93	95.82	3,043.11
44-J-1-MW	3,134.50	95.57	3,038.93
44-J-2-MW	3,135.30	94.14	3,041.16
44-J-3-MW	3,140.19	95.66	3,044.53
44-J-4-MW	3,133.69	94.62	3,039.07
44-J-5-MW	3,134.75	95.81	3,038.94
45-E-1-MW	NM	87.95	NA
45-E-2-MW	NM	85.41	NA
45-E-3-MW	NM	88.41	NA
45-F-1-MW	NM	89.78	NA
45-FF-MW	3,122.70	90.31	3,032.39
58-B-1-MW	3,100.59	85.76	3,014.83
58-B-2-MW	3,111.91	84.75	3,027.16
58-B-3-MW	3,108.46	89.36	3,019.10
MW-2	3,204.56	DRY	3,094.00
MW-3	3,199.51	113.10	3,086.41
MW-4	3,189.69	115.65	3,074.04
MW-5	3,174.43	102.90	3,071.53
MW-6	3,165.25	93.94	3,071.31
MW-7	3,132.14	DRY	3,132.14
MW-8	3,107.34	84.81	3,022.53
MW-9	3,103.82	85.05	3,018.77
MW-10	3,139.71	97.35	3,042.36
MW-11	3,156.65	102.35	3,054.30
MW-12	3,151.33	94.92	3,056.41
MW-13	3,168.41	98.90	3,069.51
MW-14	3,182.69	106.97	3,075.72
MW-15	3,184.55	104.54	3,080.01
MW-16	3,167.93	99.86	3,068.07
MW-17	3,147.44	84.25	3,063.19
MW-18	3,155.01	95.88	3,059.13
MW-19	3,149.90	99.78	3,050.12
MW-20	3,120.09	88.57	3,031.52
MW-21	3,159.65	92.73	3,066.92
MW-22	3,152.50	87.90	3,064.60

Table 2

**January 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	87.17	3,064.49
MW-24	3,144.88	95.22	3,049.66
MW-25	3,165.45	103.39	3,062.06
MW-26	3,136.99	93.88	3,043.11
MW-27	3,126.99	91.86	3,035.13
MW-28	3,093.86	83.79	3,010.07
MW-29	3,098.60	100.04	2,998.56
MW-30	3,170.95	103.67	3,067.28
MW-31	3,145.41	94.59	3,050.82
NM-MW-1	3,124.90	71.63	3,053.27
NM-MW-2	3,152.86	96.14	3,056.72
NM-MW-3	3,146.86	81.68	3,065.18
NM-MW-4	3,154.21	110.34	3,043.87
NM-MW-5	3,109.14	99.61	3,009.53
NM-MW-6	3,093.23	87.64	3,005.59
NM-MW-7	3,147.67	95.88	3,051.79
NM-MW-8	3,138.62	98.03	3,040.59
NM-MW-9	3,118.18	94.39	3,023.79
NM-MW-10	3,066.32	79.27	2,987.05
NM-MW-11	3,075.44	83.28	2,992.16
NM-MW-12	3,105.47	96.51	3,008.96
NM-MW-13	3,051.17	84.15	2,967.02
Non-Remedial Wells			
RRR Ranch Windmill	NM	93.95	NA
Livermore	NM	95.27	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

April 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	113.13	3,086.38
MW-4	3,189.69	115.70	3,073.99
MW-5	3,174.43	102.99	3,071.44
MW-6	3,165.25	93.74	3,071.51
MW-7	3,132.14	DRY	3,132.14
MW-8	3,107.34	84.52	3,022.82
MW-9	3,103.82	85.09	3,018.73
MW-10	3,139.71	97.22	3,042.49
MW-11	3,156.65	102.45	3,054.20
MW-12	3,151.33	94.75	3,056.58
MW-13	3,168.41	98.83	3,069.58
MW-14	3,182.69	106.96	3,075.73
MW-15	3,184.55	104.50	3,080.05
MW-16	3,167.93	99.86	3,068.07
MW-17	3,147.44	84.02	3,063.42
MW-18	3,155.01	95.76	3,059.25
MW-19	3,149.90	99.56	3,059.25
MW-20	3,120.09	88.37	3,031.72
MW-21	3,159.65	92.64	3,067.01
MW-22	3,152.50	87.79	3,064.71
MW-23	3,151.66	87.02	3,064.64
MW-24	3,144.88	95.05	3,049.83
MW-25	3,165.45	103.28	3,062.17
MW-26	3,136.99	93.74	3,043.25
MW-27	3,126.99	91.70	3,035.29
MW-28	3,093.86	83.89	3,009.97
MW-29	3,098.60	100.21	2,998.39
MW-30	3,170.95	103.52	3,067.43
MW-31	3,145.41	94.42	3,050.99

Table 3

April 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	81.18	3,009.10
MW-33	3,080.02	76.84	3,003.18
MW-34	3,069.95	71.21	2,998.74
NM-MW-1	3,124.90	71.61	3,053.29
NM-MW-2	3,152.86	96.20	3,056.66
NM-MW-3	3,146.86	91.70	3,055.16
NM-MW-4	3,154.21	110.36	3,043.85
NM-MW-5	3,109.14	99.74	3,009.40
NM-MW-6	3,093.23	87.81	3,005.42
NM-MW-7	3,147.67	95.91	3,051.76
NM-MW-8	3,138.62	98.01	3,040.61
NM-MW-9	3,118.18	94.37	3,023.81
NM-MW-10	3,066.32	79.37	2,986.95
NM-MW-11	3,075.44	82.82	2,992.62
NM-MW-12	3,105.47	96.60	3,008.87
NM-MW-13	3,051.17	84.27	2,966.90
Non-Remedial Wells			
RRR Ranch Windmill	NM	93.95	NA
Livermore	NM	95.27	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
1st Half 2019 Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Andrews County, Texas

Sample ID	January		April	
	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	7,130	9,640	NS	NS
44-I-1-MW	3,320	4,580	NS	NS
44-J-1-MW	4,850	6,190	NS	NS
44-J-2-MW	4,930	7,020	NS	NS
44-J-3-MW	4,300	6,330	NS	NS
44-J-4-MW	4,470	6,130	NS	NS
44-J-5-MW	3,970	5,690	NS	NS
45-E-1-MW	2,680	3,650	NS	NS
45-E-2-MW	1,660	3,040	NS	NS
45-E-3-MW	3,760	5,240	NS	NS
45-F-1-MW	901	1,840	NS	NS
45-FF-MW	5,080	6,690	NS	NS
58-B-1-MW	5,240	8,120	NS	NS
58-B-2-MW	4,190	5,470	NS	NS
58-B-3-MW	900	2,070	NS	NS
MW-2	NS	NS	NS	NS
MW-3	194	619	636	1,370
MW-4	258	426	377	877
MW-5	244	1,050	300	257
MW-6	372	1,510	418	1,500
MW-7	NS	NS	NS	NS
MW-8	852	2,160	1,060	2,460
MW-9	2,620	807	1,200	4,230
MW-10	5,130	7,050	5,760	8,100
MW-11	8,240	9,730	7,840	11,700
MW-12	13,900	14,000	14,100	21,700
MW-13	1,880	3,810	2,020	4,160
MW-14	1,630	2,890	1,610	2,940
MW-15	995	2,290	1,110	1,740
MW-16	468	1,260	508	1,240
MW-17	10,100	11,100	9,440	14,500
MW-18	17,000	19,000	24,600	33,300
MW-19	6,570	9,300	7,000	10,500
MW-20	1,070	2,180	1,430	2,410
MW-21	7,530	9,420	6,970	11,000
MW-22	12,000	10,900	10,900	16,200
MW-23	7,910	9,780	6,540	10,200
MW-24	3,320	1,020	4,370	8,250

Table 4
1st Half 2019 Groundwater Analytical Results Summary
Chevron Dollarhide Unit
Andrews County, Texas

Sample ID	January		April	
	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	23,500	29,800	24,100	33,100
MW-26	1,190	2,740	1,340	2,830
MW-27	2,420	4,110	2,830	4,490
MW-28	1,510	3,050	851	3,260
MW-29	359	7,270	508	1,100
MW-30	2,460	3,860	2,400	4,160
MW-31	11,100	10,300	11,800	16,200
MW-32	NA	NA	373	1,170
MW-33	NA	NA	183	912
MW-34	NA	NA	69.9	600
NM-MW-1	256	1,370	330	1,400
NM-MW-2	616	1,210	736	1,230
NM-MW-3	447	1,250	259	653
NM-MW-4	35.7	1,240	188	420
NM-MW-5	142	1,280	175	1,240
NM-MW-6	113	813	161	813
NM-MW-7	2,040	5,190	1,940	4,160
NM-MW-8	4,630	8,040	6,690	10,100
NM-MW-9	195	4,160	297	786
NM-MW-10	290	1,530	396	1,670
NM-MW-11	154	1,840	185	1,870
NM-MW-12	596	1,300	739	1,310
NM-MW-13	165	1,070	225	1,090
Non-Remedial Wells				
Livermore	2,530	4,330	2,660	4,670
Pure Water Tower	NA	NA	NA	NA
Pure Water Well	NA	NA	NA	NA
RRR Ranch Windmill	1,290	2,950	47.4	3,110
Smith Residential Well	1,020	2,230	1,510	2,490
TRAC-4	315	1,080	350	1,070
TRAC-8	NA	NA	NA	NA
Wilson Ranch	1,070	2,420	1,480	2,440
DHU-FWS	611	2,900	658	3,120

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

Soil Boring Logs



STRATIGRAPHIC AND INSTRUMENTATION LOG

Page 1 of 2

PROJECT NAME: Dollarhide Field

HOLE DESIGNATION: MW-32

PROJECT NUMBER: 055270

DATE COMPLETED: April 3, 2019

CLIENT: Chevron Environmental Management Company

DRILLING METHOD: Roto-Sonic

LOCATION: Dollarhide, Texas

FIELD PERSONNEL: S. Saller

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitor Well
2	TOPSOIL, silty, with slight gravel, brown, slightly moist, rootlets		
4	- caliche gravel content increasing with depth at 4.0ft BGS		
6	SP-SAND, cemented caliche gravel fragments, light brown and white caliche	5.00	
8			
10	- rock powder, fine caliche sand with large caliche fragments at 10.0ft BGS		
12			
14	- partially cemented sand nodules mixed with caliche at 15.0ft BGS		
16			
18			
20	- massive caliche fragments with rock powder at 20.0ft BGS		
22			
24			
26			
28			
30	- sand content increasing with depth at 30.0ft BGS		
32	SP-SAND, fine grained, with some caliche and partially cemented sand nodules, light reddish brown, dry	32.00	
34			
36			
38			
40	- light brown, nodule content increasing with depth at 40.0ft BGS		
42			
44	- light reddish brown at 43.0ft BGS		
46			
48	- thin bedded layers in friable, brittle sand nodules at 48.0ft BGS		

Bentonite/
Cement Grout

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 4/3/2019

OVERBURDEN LOG 055270-2019 (MW-30 TO MW-34) 4.2.2019.GPJ CRA CORP.GDT 5/30/19



STRATIGRAPHIC AND INSTRUMENTATION LOG

Page 2 of 2

PROJECT NAME: Dollarhide Field

PROJECT NUMBER: 055270

CLIENT: Chevron Environmental Management Company

LOCATION: Dollarhide, Texas

HOLE DESIGNATION: MW-32

DATE COMPLETED: April 3, 2019

DRILLING METHOD: Roto-Sonic

FIELD PERSONNEL: S. Saller

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitor Well
52			
54	- stronger red color, slightly moist at 55.0ft BGS		
56			
58			
60	- small gravel in friable sand nodules/plates at 61.0ft BGS		
62			
64			
66			
68			
70			
72			
74	- gravel content increasing with depth at 74.0ft BGS		
76	SPG-SAND, little gravel, reddish brown, slightly moist	76.00	
78			
80			
82	- wet, some gray sand at 83.0ft BGS		
84			
86			
88			
90	BEDROCK, red bed	89.00	
92			
94			
96	END OF BOREHOLE @ 95.0ft BGS	95.00	
98			

Bentonite/
Cement Grout

Bentonite Seal

Well Screen

Sand Pack

WELL DETAILS

Screened interval:

70.00 to 90.00ft BGS

Length: 20ft

Sand Pack:

67.00 to 90.00ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ∇ 4/3/2019

OVERBURDEN LOG 055270-2019 (MW-30 TO MW-34) 4.2.2019.GPJ CRA CORP.GDT 5/30/19



STRATIGRAPHIC AND INSTRUMENTATION LOG

Page 1 of 2

PROJECT NAME: Dollarhide Field

HOLE DESIGNATION: MW-33

PROJECT NUMBER: 055270

DATE COMPLETED: April 5, 2019

CLIENT: Chevron Environmental Management Company

DRILLING METHOD: Roto-Sonic

LOCATION: Dollarhide, Texas

FIELD PERSONNEL: S. Saller

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitor Well
2	TOPSOIL, silty sand, with small nodular caliche fragments, brown-tan, dry		
4			
6		6.00	
8	SP-SAND, silty, light brown/white, dry - caliche nodular size increases with depth at 7.0ft BGS		
10			
12			
14			
16			
18			
20			
22			
24			
26	- nodular caliche decreases with depth at 26.0ft BGS		
28			
30			
32	SP-SAND, fine to medium grained, increasing sand nodules with depth, light red, dry	31.00	
34			
36			
38			
40			
42			
44			
46	- fragile sand nodules, nodules increasingly friable with depth, medium red at 46.0ft BGS		
48			

Bentonite/
Cement Grout

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 4/5/2019

OVERBURDEN LOG 055270-2019 (MW-30 TO MW-34) 4.2.2019.GPJ CRA_CORP.GDT 5/30/19



STRATIGRAPHIC AND INSTRUMENTATION LOG

Page 2 of 2

PROJECT NAME: Dollarhide Field

PROJECT NUMBER: 055270

CLIENT: Chevron Environmental Management Company

LOCATION: Dollarhide, Texas

HOLE DESIGNATION: MW-33

DATE COMPLETED: April 5, 2019

DRILLING METHOD: Roto-Sonic

FIELD PERSONNEL: S. Saller

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitor Well
52	- pale red at 50.0ft BGS		
54			
56	- rich red at 55.0ft BGS		
58			
60			
62			
64	- 1' gravel zone, sandy, light brown to light red sand at 63.0ft BGS		
66			
68			
70	SP-SAND, gravel, reddish brown, dry	70.00	
72			
74			
76			
78	- gravel content increases at 78.0ft BGS		
80			
82	GPS-GRAVEL, sandy, with some cementation, gravel size increases with depth, medium reddish-brown, wet	81.00	
84			
86			
88	SP-SAND, gravelly, red, saturated	88.00	
90	BEDROCK, red bed, clay/shale, dockum, dry	90.00	
92	END OF BOREHOLE @ 91.0ft BGS	91.00	
94			
96			
98			

Bentonite Seal

Well Screen

Sand Pack

WELL DETAILS

Screened interval:

70.00 to 90.00ft BGS

Length: 20ft

Sand Pack:

67.00 to 90.00ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ∇ 4/5/2019

OVERBURDEN LOG 055270-2019 (MW-30 TO MW-34) 4.2.2019.GPJ CRA CORP.GDT 5/30/19



STRATIGRAPHIC AND INSTRUMENTATION LOG

Page 1 of 2

PROJECT NAME: Dollarhide Field

HOLE DESIGNATION: MW-34

PROJECT NUMBER: 055270

DATE COMPLETED: April 6, 2019

CLIENT: Chevron Environmental Management Company

DRILLING METHOD: Roto-Sonic

LOCATION: Dollarhide, Texas

FIELD PERSONNEL: S. Saller

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitor Well
2	TOPSOIL, sandy clay, with gravel, brown, moist		
4	SP-SAND, caliche sand, light brown/white, dry	3.00	
6			
8	- light reddish brown at 8.0ft BGS		
10			
12	- rock powder and large caliche fragments, friable from here, white at 12.0ft BGS		
14			
16			
18			
20			
22	- light reddish brown at 22.0ft BGS		
24			
26			
28	- rock powder and large caliche fragments, white at 27.0ft BGS		
30	SP-SAND, fine grained, some caliche gravel, friable sand nodules, light brown, dry	30.00	
32			
34			
36			
38			
40	- light reddish brown at 40.0ft BGS		
42	- 6" red sandstone layer at 41.5ft BGS		
44	- heavy friable sand stone nodules, sand, reddish brown at 43.0ft BGS		
46			
48	- slight lithic gravel, sandstone nodules, fine grained sand, reddish brown, dry at 48.0ft BGS		

Bentonite/
Cement Grout

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 4/6/2019

OVERBURDEN LOG 055270-2019 (MW-30 TO MW-34) 4.2.2019.GPJ CRA_CORP.GDT 5/30/19



STRATIGRAPHIC AND INSTRUMENTATION LOG

Page 2 of 2

PROJECT NAME: Dollarhide Field

PROJECT NUMBER: 055270

CLIENT: Chevron Environmental Management Company

LOCATION: Dollarhide, Texas

HOLE DESIGNATION: MW-34

DATE COMPLETED: April 6, 2019

DRILLING METHOD: Roto-Sonic

FIELD PERSONNEL: S. Saller

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitor Well
52			
54			
56			
58			
60	SP-SAND, gravelly, lithic gravel, fine to coarse grained gravel, reddish brown, dry	60.00	
62			
64	- sandy gravel zone, dry at 65.0ft BGS		
66			
68	GP-GRAVEL, sandy, reddish brown, with slight clay, wet	67.00	
70			
72	BEDROCK, red bed shale, dry	71.50	
74			
76			
78			
80			
82	END OF BOREHOLE @ 82.0ft BGS	82.00	
84			
86			
88			
90			
92			
94			
96			
98			

Bentonite Seal

Well Screen

Sand Pack

WELL DETAILS

Screened interval:
65.00 to 76.00ft BGS
Length: 11ft
Sand Pack:
62.00 to 82.00ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 4/6/2019

OVERBURDEN LOG 055270-2019 (MW-30 TO MW-34) 4.2.2019.GPJ CRA_CORP.GDT 5/30/19

Appendix B

Well Reports

STATE OF TEXAS WELL REPORT for Tracking #508591

Owner:	Chevron EMC	Owner Well #:	MW-32
Address:	1500 Louisiana street room 38108 Houston, TX 77002	Grid #:	26-64-2
Well Location:	Dollarhide field sw 4400 road,hwy 128 andrews, TX 79714	Latitude:	32° 06' 01.84" N
Well County:	Andrews	Longitude:	103° 02' 38.9" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Start Date: **4/3/2019**

Drilling End Date: **4/4/2019**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	92

Drilling Method: **sonic**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	67	91	Sand	12/20

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	62	Cement 10 Bags/Sacks
	62	67	Bentonite 2 Chips

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Surface Completion by Driller

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Cascade Drilling LP**
7773 seldon In
peoria, TX 85345

Driller Name: **Roger Rodriquez** License Number: **59618**

Comments: **No Data**

Report Amended on 7/29/2019 by Request #28378

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	5	topsoil
5	32	cailiche sand
32	76	sand
76	89	gravely sand
89	92	red bed shale

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Riser	New Plastic (PVC)	40	0	70
4.5	Screen	New Plastic (PVC)	40 0.010	70	90

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #508593

Owner:	Chevron EMC	Owner Well #:	MW-33
Address:	1500 Louisiana street room 38108 Houston, TX 77002	Grid #:	26-64-2
Well Location:	Dollarhide field sw 4400 road,hwy 128 Andrews, TX 79714	Latitude:	32° 05' 14.6" N
		Longitude:	103° 02' 49.67" W
Well County:	Andrews	Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Start Date: **4/4/2019**

Drilling End Date: **4/5/2019**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	90

Drilling Method: **sonic**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	67	91	Sand	12/20

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	62	Cement 15 Bags/Sacks
	62	67	Bentonite 2 Chips

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Surface Completion by Driller

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Cascade Drilling LP**

**7773 seldon In
peoria, TX 85345**

Driller Name: **Roger Rodriquez**

License Number: **59618**

Comments: **No Data**

Report Amended on 7/29/2019 by Request #28377

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	6	topsoil
6	31	caliche
31	70	sand
70	81	gravely sand
81	89.5	sandy gravel
89.5	91	red bed

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
4.5	Riser	New Plastic (PVC)	40	0	70
4.5	Screen	New Plastic (PVC)	40 0.010	70	90

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #508594

Owner:	Chevron EMC	Owner Well #:	MW-34
Address:	1500 Louisiana street room 38108 Houston, TX 77002	Grid #:	26-64-2
Well Location:	Dollarhide field sw 4400 road hwy 128 Andrews, TX 79714	Latitude:	32° 05' 05.89" N
Well County:	Winkler	Longitude:	103° 03' 40.9" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Start Date: **4/6/2019**

Drilling End Date: **4/6/2019**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	8	0	82

Drilling Method: **sonic**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
Filter Pack Intervals:	62	82	Sand	12/20

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	55	Cement 12 Bags/Sacks
	62	67	Bentonite 4 Chips

Seal Method: **Tremie**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Surface Completion by Driller

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

	Description (number of sacks & material)	Top Depth (ft.)	Bottom Depth (ft.)
Plug Information:	sand	75	82

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Cascade Drilling LP**

**7773 seldon In
peoria, TX 85345**

Driller Name: **Roger Rodriquez**

License Number: **59618**

Comments: **No Data**

Report Amended on 7/29/2019 by Request #28376

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	3	topsoil
3	33	caliche
33	60	sand
60	67	gravely sand
67	71.5	sandy gravel
71.5	82	red bed

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Riser	New Plastic (PVC)	40	0	65
4.5	Screen	New Plastic (PVC)	40 0.010	65	75

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

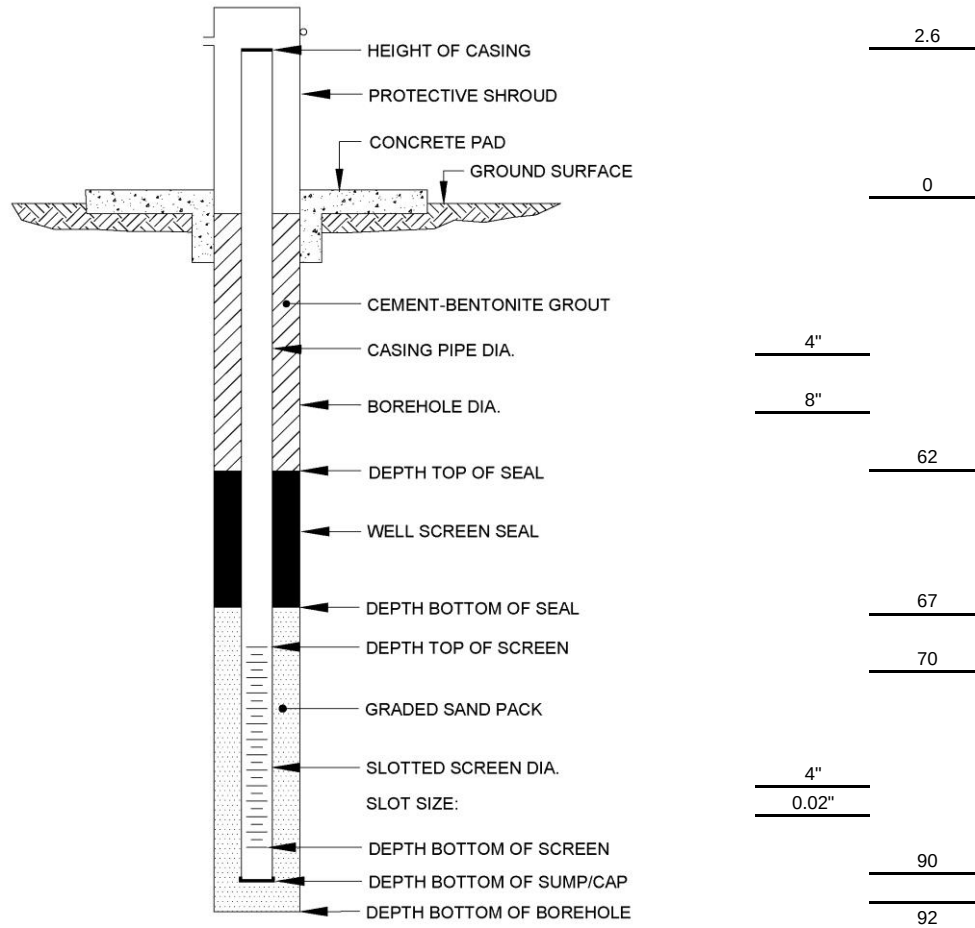
TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

Appendix C

Monitor Well Construction Diagrams



ELEV. TOP OF CASING

3090.28 ft NAVD '88

ELEV. GROUND SURFACE

3087.73 ft NAVD '88

SCREENED INTERVAL

70.00 to 90.00 ft bgs

DATE INSTALLED

4/3/2019

Construction Notes:

Well Casing:

Schedule 40 PVC

Shroud:

6" round metal shroud

Filter Pack:

12/20 Grade Silica Sand

Bentonite Seal:

Bentonite Chips

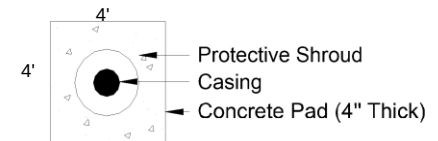
Grout:

Cement-bentonite mixture

Remarks:

ft bgs: feet below ground surface

NAVD: North American Vertical Datum

**PLAN VIEW****SECTION VIEW**

NOTE: All section dimensions are in feet (unless otherwise noted).



GHD SERVICES INC.

4/3/2019	1	055270-2019
DATE	REV. NO.	FILE NO.
BMW	JR	BC
DRAWN BY:	REVIEWED BY:	APPROVED BY:

Chevron Environmental Management Co.
Houston, Texas

CLIENT

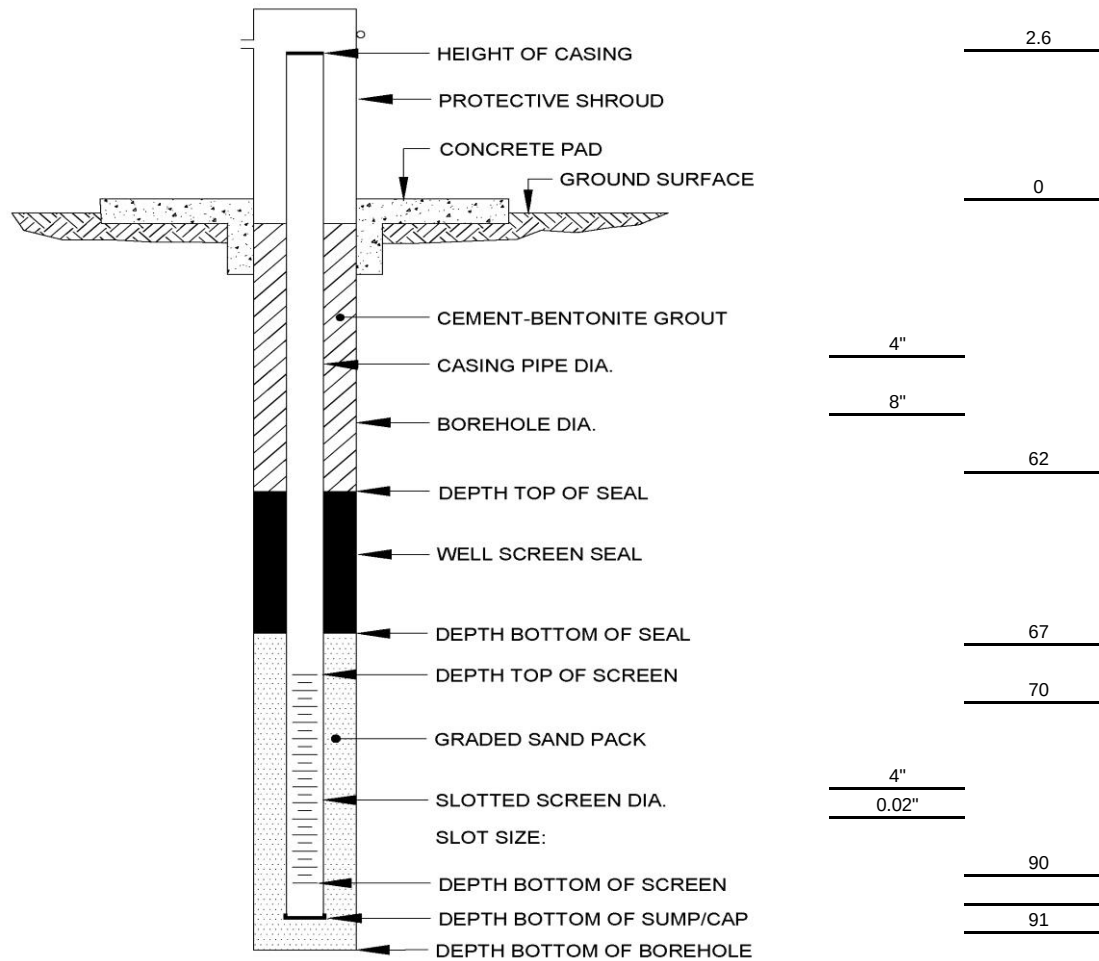
Dollarhide Oil Field Unit
Andrews County, Texas

PROJECT LOCATION

Monitor Well Cross Section
MW-32

C

Appendix



ELEV. TOP OF CASING	3,080.02 ft NAVD '88
ELEV. GROUND SURFACE	3,077.42 ft NAVD '88
SCREENED INTERVAL	62.00 to 102.00 ft bgs
DATE INSTALLED	4/5/2019

Construction Notes:

Well Casing:

Schedule 40 PVC

Shroud:

6" round metal shroud

Filter Pack:

12/20 Grade Silica Sand

Bentonite Seal:

Bentonite Chips

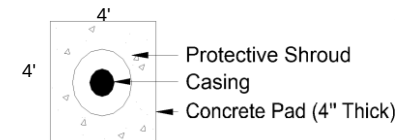
Grout:

Cement-bentonite mixture

Remarks:

ft bgs: feet below ground surface

NAVD: North American Vertical Datum

**PLAN VIEW****SECTION VIEW**

NOTE: All section dimensions are in feet (unless otherwise noted).



GHD SERVICES INC.

4/5/2019	1	055270-2019
DATE	REV. NO.	FILE NO.
BMW	JR	BC
DRAWN BY:	REVIEWED BY:	APPROVED BY:

Chevron Environmental Management Co.
Houston, Texas

CLIENT

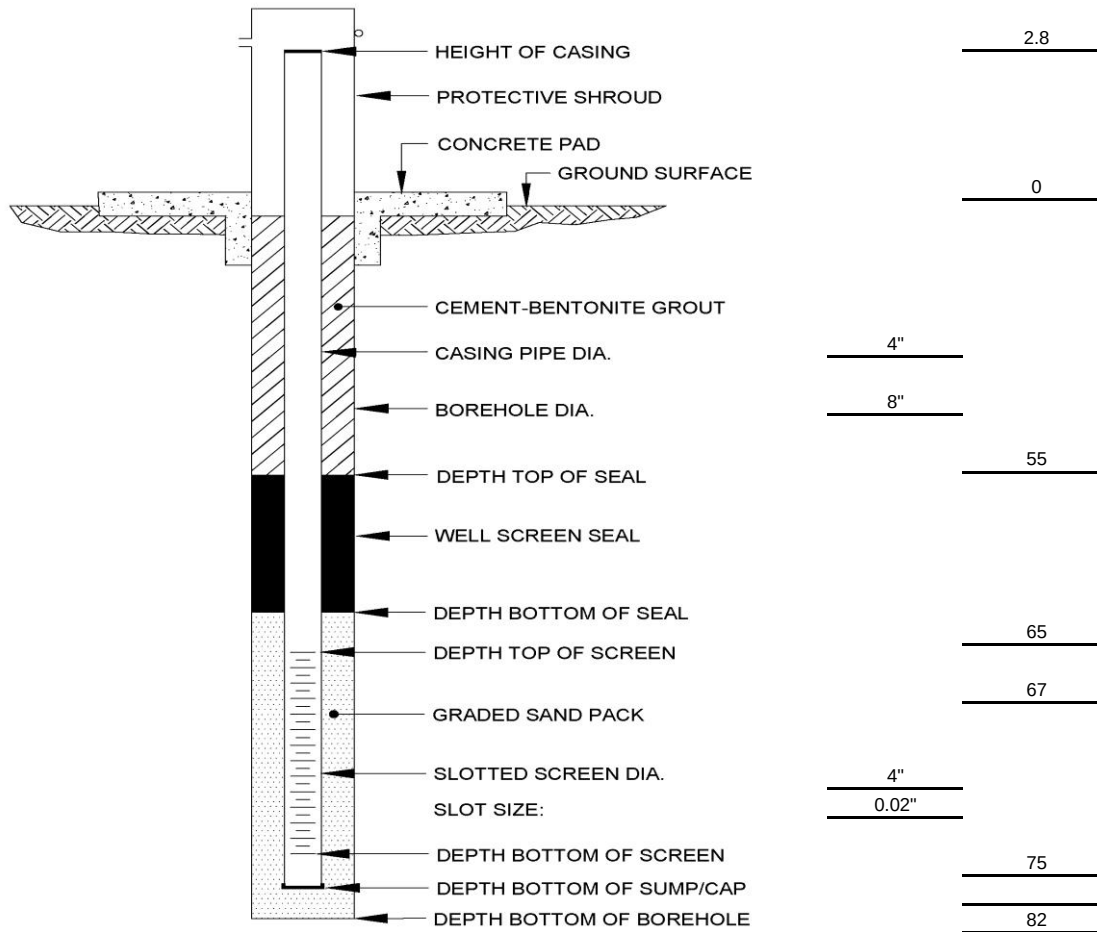
Dollarhide Oil Field Unit
Andrews County, Texas

PROJECT LOCATION

Monitor Well Cross Section
MW-33

C

Appendix



ELEV. TOP OF CASING

3,069.95 ft NAVD '88

ELEV. GROUND SURFACE

3,067.20 ft NAVD '88

SCREENED INTERVAL

65.00 to 76.00 ft bgs

DATE INSTALLED

4/6/2019

Construction Notes:

Well Casing:

Schedule 40 PVC

Shroud:

6" round metal shroud

Filter Pack:

12/20 Grade Silica Sand

Bentonite Seal:

Bentonite Chips

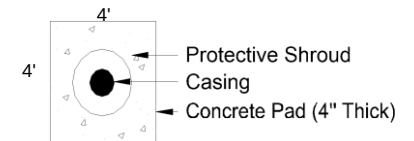
Grout:

Cement-bentonite mixture

Remarks:

ft bgs: feet below ground surface

NAVD: North American Vertical Datum

**PLAN VIEW****SECTION VIEW**

NOTE: All section dimensions are in feet (unless otherwise noted).



GHD SERVICES INC.

4/6/2019	1	055270-2019
DATE	REV. NO.	FILE NO.
BMW	JR	BC
DRAWN BY:	REVIEWED BY:	APPROVED BY:

Chevron Environmental Management Co.
Houston, Texas

CLIENT

Dollarhide Oil Field Unit
Andrews County, Texas

PROJECT LOCATION

Monitor Well Cross Section
MW-34

C

Appendix

Appendix D

Historical Groundwater Elevations

Appendix D
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
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
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

Appendix D
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
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
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

Appendix D
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
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
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
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

Appendix D
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⁾
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
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
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

Appendix D
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⁾
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
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
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
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

Appendix D
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-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
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
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
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
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
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

Appendix D
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-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
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
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
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
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
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

Appendix D
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-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
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
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
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
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
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

Appendix D
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-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
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
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
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
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
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
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

Appendix D
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-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
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
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
MW-32						
	4/10/2019	94.04	81.18	NA	NA	-81.18
MW-33						
	4/10/2019	92.98	76.84	NA	NA	-76.84
MW-34						
	4/10/2019	78.04	71.21	NA	NA	-71.21
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
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
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	81.68	NA	NA	3,065.18
	4/4/2019	NM	91.70	NA	NA	3,055.16

Appendix D
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
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
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
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
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
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
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

Appendix D
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
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
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
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
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
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 E

Groundwater Sample Analytical Laboratory Reports



Certificate of Analysis Summary 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16

Report Date: 03.29.2019 17:26

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-001	611072-002	611072-003	611072-004	611072-005	611072-006
	Field Id:	43-K-1-MW-W-190109	45-E-3-MW-W-190109	45-F-1-MW-W-190109	45-FF-MW-W-190109	45-E-2-MW-W-190109	45-E-1-MW-W-190109
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.09.2019 10:20	01.09.2019 10:35	01.09.2019 10:55	01.09.2019 11:10	01.09.2019 11:25	01.09.2019 11:40
Inorganic Anions by EPA 300/300.1	Extracted:	01.11.2019 13:00	01.11.2019 13:00	01.11.2019 13:00	01.11.2019 13:00	01.11.2019 13:00	01.11.2019 13:00
	Analyzed:	01.11.2019 16:45	01.11.2019 16:56	01.11.2019 17:06	01.11.2019 17:16	01.11.2019 17:58	01.11.2019 18:08
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		7130 50.0	3760 25.0	901 10.0	5080 25.0	1660 25.0	2680 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		9640 5.00	5240 5.00	1840 5.00	6690 5.00	3040 5.00	3650 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16

Report Date: 03.29.2019 17:26

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-007	611072-008	611072-009	611072-010	611072-011	611072-012
	Field Id:	44-I-1-MW-W-190109	44-J-1-MW-W-190109	44-J-5-MW-W-190109	44-J-3-MW-W-190109	44-J-4-MW-W-190109	44-J-2-MW-W-190109
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.09.2019 12:10	01.09.2019 12:20	01.09.2019 12:30	01.09.2019 12:40	01.09.2019 12:50	01.09.2019 13:05
Inorganic Anions by EPA 300/300.1	Extracted:	01.11.2019 13:00	01.11.2019 13:00	01.11.2019 13:00	01.11.2019 13:00	01.11.2019 13:00	01.14.2019 12:30
	Analyzed:	01.11.2019 18:39	01.11.2019 18:49	01.11.2019 19:00	01.11.2019 19:10	01.11.2019 19:20	01.14.2019 15:52
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		3320 25.0	4850 25.0	3970 25.0	4300 25.0	4470 25.0	4930 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		4580 5.00	6190 5.00	5690 5.00	6330 5.00	6130 5.00	7020 5.00

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Debbie Simmons
Project Manager



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GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16

Report Date: 03.29.2019 17:26

Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	611072-013	611072-014	611072-015	611072-016	611072-017	611072-018
	<i>Field Id:</i>	MW-8-W-190109	DHU-FWS-W-190109	58-B-2-MW-W-190109	58-B-1-MW-W-190109	MW-9-W-190109	58-B-3-MW-W-190109
	<i>Depth:</i>						
	<i>Matrix:</i>	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	<i>Sampled:</i>	01.09.2019 13:45	01.09.2019 13:55	01.09.2019 14:05	01.09.2019 14:15	01.09.2019 14:35	01.09.2019 14:50
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30
	<i>Analyzed:</i>	01.14.2019 16:02	01.14.2019 16:12	01.14.2019 16:23	01.15.2019 15:34	01.15.2019 15:44	01.15.2019 15:55
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		852 10.0	611 5.00	4190 25.0	5240 50.0	2620 25.0	900 10.0

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16
Report Date: 03.29.2019 17:26
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-013	611072-014	611072-015	611072-016	611072-017	611072-018
	Field Id:	MW-8-W-190109	DHU-FWS-W-190109	58-B-2-MW-W-190109	58-B-1-MW-W-190109	MW-9-W-190109	58-B-3-MW-W-190109
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.09.2019 13:45	01.09.2019 13:55	01.09.2019 14:05	01.09.2019 14:15	01.09.2019 14:35	01.09.2019 14:50
TDS by SM2540C	Extracted:						
	Analyzed:	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 15:10
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		2160 5.00	2900 5.00	5470 5.00	8120 5.00	807 5.00	2070 5.00

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GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16

Report Date: 03.29.2019 17:26

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-019	611072-020	611072-021	611072-022	611072-023	611072-024
	Field Id:	MW-29-W-190109	MW-28-W-190109	NM-MW-10-W-190109	NM-MW-12-W-190109	Wilson Well-W-190109	Wilson Well-WD-190109
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.09.2019 15:00	01.09.2019 15:10	01.09.2019 15:35	01.09.2019 15:45	01.09.2019 15:55	01.09.2019 00:00
Inorganic Anions by EPA 300/300.1	Extracted:	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30
	Analyzed:	01.15.2019 16:05	01.15.2019 16:15	01.14.2019 17:15	01.14.2019 17:25	01.15.2019 16:36	01.15.2019 16:46
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		359 5.00	1510 25.0	290 5.00	596 5.00	1070 25.0	1020 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	01.14.2019 15:10	01.14.2019 15:10	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		7270 5.00	3050 5.00	1530 5.00	1300 5.00	2420 5.00	2420 5.00

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GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16

Report Date: 03.29.2019 17:26

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-025	611072-026	611072-027	611072-028	611072-029	611072-030
	Field Id:	Smith Well-W-190109	NM-MW-8-W-190110	NM-MW-4-W-190110	RRR Ranch-W-190110	NM-MW-7-W-190110	NM-MW-3-W-190110
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.09.2019 16:10	01.10.2019 10:10	01.10.2019 10:25	01.10.2019 10:35	01.10.2019 10:45	01.10.2019 10:55
Inorganic Anions by EPA 300/300.1	Extracted:	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 12:30	01.14.2019 13:15
	Analyzed:	01.15.2019 16:57	01.15.2019 17:07	01.15.2019 17:38	01.15.2019 17:48	01.15.2019 17:59	01.14.2019 21:33
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		1020 25.0	4630 50.0	35.7 2.50	1290 25.0	2040 25.0	447 10.0

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16
Report Date: 03.29.2019 17:26
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-025	611072-026	611072-027	611072-028	611072-029	611072-030
	Field Id:	Smith Well-W-190109	NM-MW-8-W-190110	NM-MW-4-W-190110	RRR Ranch-W-190110	NM-MW-7-W-190110	NM-MW-3-W-190110
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.09.2019 16:10	01.10.2019 10:10	01.10.2019 10:25	01.10.2019 10:35	01.10.2019 10:45	01.10.2019 10:55
TDS by SM2540C	Extracted:						
	Analyzed:	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		2230 5.00	8040 5.00	1240 5.00	2950 5.00	5190 5.00	1250 5.00

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Certificate of Analysis Summary 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16
Report Date: 03.29.2019 17:26
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-031	611072-032	611072-033	611072-034	611072-035	611072-036
	Field Id:	NM-MW-2-W-190110	NM-MW-1-W-190110	NM-MW-5-W-190110	NM-MW-6-W-190110	NM-MW-11-W-190110	NM-MW-13-W-190110
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.10.2019 11:05	01.10.2019 11:10	01.10.2019 11:20	01.10.2019 11:30	01.10.2019 11:40	01.10.2019 12:00
Inorganic Anions by EPA 300/300.1	Extracted:	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15
	Analyzed:	01.14.2019 21:44	01.14.2019 21:54	01.14.2019 22:04	01.14.2019 23:27	01.14.2019 22:35	01.14.2019 22:46
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		616 5.00	256 5.00	142 5.00	113 2.50	154 10.0	165 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16
Report Date: 03.29.2019 17:26
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-031	611072-032	611072-033	611072-034	611072-035	611072-036
	Field Id:	NM-MW-2-W-190110	NM-MW-1-W-190110	NM-MW-5-W-190110	NM-MW-6-W-190110	NM-MW-11-W-190110	NM-MW-13-W-190110
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.10.2019 11:05	01.10.2019 11:10	01.10.2019 11:20	01.10.2019 11:30	01.10.2019 11:40	01.10.2019 12:00
TDS by SM2540C	Extracted:						
	Analyzed:	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1210 5.00	1370 5.00	1280 5.00	813 5.00	1840 5.00	1070 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 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16
Report Date: 03.29.2019 17:26
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-037	611072-038	611072-039	611072-040	611072-041	611072-042
	Field Id:	NM-MW-9-W-190110	MW-27-W-190110	MW-20-W-190110	MW-10-W-190110	MW-10-WD-190110	MW-26-W-190110
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
Inorganic Anions by EPA 300/300.1	Sampled:	01.10.2019 12:25	01.10.2019 12:35	01.10.2019 12:45	01.10.2019 12:55	01.10.2019 00:00	01.10.2019 13:10
	Extracted:	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15
	Analyzed:	01.14.2019 22:56	01.14.2019 23:06	01.14.2019 23:17	01.15.2019 00:08	01.15.2019 00:39	01.15.2019 00:50
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		195 5.00	2420 25.0	1070 10.0	5130 25.0	5560 25.0	1190 25.0

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16
Report Date: 03.29.2019 17:26
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-037	611072-038	611072-039	611072-040	611072-041	611072-042
	Field Id:	NM-MW-9-W-190110	MW-27-W-190110	MW-20-W-190110	MW-10-W-190110	MW-10-WD-190110	MW-26-W-190110
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.10.2019 12:25	01.10.2019 12:35	01.10.2019 12:45	01.10.2019 12:55	01.10.2019 00:00	01.10.2019 13:10
TDS by SM2540C	Extracted:						
	Analyzed:	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15	01.14.2019 16:15	01.16.2019 08:00	01.16.2019 08:00
	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	4110 5.00	2180 5.00	7050 5.00	7130 5.00	2740 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16

Report Date: 03.29.2019 17:26

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-043	611072-044	611072-045	611072-046	611072-047	611072-048
	Field Id:	MW-24-W-190110	MW-12-W-190110	MW-31-W-190110	MW-18-W-190110	MW-19-W-190110	MW-25-W-190110
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.10.2019 13:15	01.10.2019 13:20	01.10.2019 13:30	01.10.2019 13:45	01.10.2019 13:50	01.10.2019 14:00
Inorganic Anions by EPA 300/300.1	Extracted:	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15	01.14.2019 13:15	01.16.2019 12:00
	Analyzed:	01.15.2019 01:00	01.15.2019 01:10	01.15.2019 01:21	01.15.2019 01:31	01.15.2019 01:41	01.16.2019 12:45
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		3320 25.0	13900 100	11100 50.0	17000 100	6570 50.0	23500 100
TDS by SM2540C	Extracted:						
	Analyzed:	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1020 5.00	14000 5.00	10300 5.00	19000 5.00	9300 5.00	29800 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 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16

Report Date: 03.29.2019 17:26

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-049	611072-050	611072-051	611072-052	611072-053	611072-054
	Field Id:	MW-11-W-190110	MW-6-W-190110	MW-5-W-190110	MW-3-W-190110	Tract-4-W-190110	Tract-4-WD-190110
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.10.2019 14:10	01.10.2019 14:20	01.10.2019 14:25	01.10.2019 14:35	01.10.2019 14:45	01.10.2019 00:00
Inorganic Anions by EPA 300/300.1	Extracted:	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00
	Analyzed:	01.16.2019 12:56	01.16.2019 13:06	01.16.2019 13:16	01.16.2019 13:48	01.16.2019 13:58	01.16.2019 14:08
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		8240 50.0	372 5.00	244 5.00	194 5.00	315 5.00	314 5.00
TDS by SM2540C	Extracted:						
	Analyzed:	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		9730 5.00	1510 5.00	1050 5.00	619 5.00	1080 5.00	1080 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16

Report Date: 03.29.2019 17:26

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-055	611072-056	611072-057	611072-058	611072-059	611072-060
	Field Id:	MW-14-W-190110	MW-4-W-190110	MW-13-W-190110	MW-30-W-190110	Livermore-W-190110	MW-23-W190110
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	01.10.2019 14:50	01.10.2019 15:00	01.10.2019 15:10	01.10.2019 15:15	01.10.2019 15:30	01.10.2019 15:35
Inorganic Anions by EPA 300/300.1	Extracted:	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00
	Analyzed:	01.16.2019 14:19	01.16.2019 14:29	01.16.2019 15:10	01.16.2019 15:21	01.16.2019 15:52	01.16.2019 16:02
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		1630 25.0	258 5.00	1880 25.0	2460 25.0	2530 25.0	7910 50.0
TDS by SM2540C	Extracted:						
	Analyzed:	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00	01.16.2019 08:00
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		2890 5.00	426 5.00	3810 5.00	3860 5.00	4330 5.00	9780 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 611072

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 01.11.2019 10:16

Report Date: 03.29.2019 17:26

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	611072-061	611072-062	611072-063	611072-064	611072-065	
	Field Id:	MW-22-W-190110	MW-17-W-190110	MW-21-W-190110	MW-16-W-190110	MW-15-W-190110	
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	
	Sampled:	01.10.2019 15:40	01.10.2019 15:50	01.10.2019 15:55	01.10.2019 16:05	01.10.2019 16:15	
Inorganic Anions by EPA 300/300.1	Extracted:	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00	01.16.2019 12:00	
	Analyzed:	01.16.2019 16:12	01.16.2019 16:23	01.16.2019 16:33	01.16.2019 16:43	01.16.2019 16:54	
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
Chloride		12000 50.0	10100 50.0	7530 50.0	468 5.00	995 10.0	
TDS by SM2540C	Extracted:						
	Analyzed:	01.16.2019 08:55	01.16.2019 08:55	01.16.2019 08:55	01.16.2019 08:55	01.16.2019 08:55	
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
Total Dissolved Solids		10900 5.00	11100 5.00	9420 5.00	1260 5.00	2290 5.00	

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Debbie Simmons
Project Manager



Analytical Report 611072

for

GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

03.29.2019

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
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-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



03.29.2019

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

Reference: XENCO Report No(s): **611072**
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) 611072. 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. 611072 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 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
43-K-1-MW-W-190109	W	01.09.2019 10:20		611072-001
45-E-3-MW-W-190109	W	01.09.2019 10:35		611072-002
45-F-1-MW-W-190109	W	01.09.2019 10:55		611072-003
45-FF-MW-W-190109	W	01.09.2019 11:10		611072-004
45-E-2-MW-W-190109	W	01.09.2019 11:25		611072-005
45-E-1-MW-W-190109	W	01.09.2019 11:40		611072-006
44-I-1-MW-W-190109	W	01.09.2019 12:10		611072-007
44-J-1-MW-W-190109	W	01.09.2019 12:20		611072-008
44-J-5-MW-W-190109	W	01.09.2019 12:30		611072-009
44-J-3-MW-W-190109	W	01.09.2019 12:40		611072-010
44-J-4-MW-W-190109	W	01.09.2019 12:50		611072-011
44-J-2-MW-W-190109	W	01.09.2019 13:05		611072-012
MW-8-W-190109	W	01.09.2019 13:45		611072-013
DHU-FWS-W-190109	W	01.09.2019 13:55		611072-014
58-B-2-MW-W-190109	W	01.09.2019 14:05		611072-015
58-B-1-MW-W-190109	W	01.09.2019 14:15		611072-016
MW-9-W-190109	W	01.09.2019 14:35		611072-017
58-B-3-MW-W-190109	W	01.09.2019 14:50		611072-018
MW-29-W-190109	W	01.09.2019 15:00		611072-019
MW-28-W-190109	W	01.09.2019 15:10		611072-020
NM-MW-10-W-190109	W	01.09.2019 15:35		611072-021
NM-MW-12-W-190109	W	01.09.2019 15:45		611072-022
Wilson Well-W-190109	W	01.09.2019 15:55		611072-023
Wilson Well-WD-190109	W	01.09.2019 00:00		611072-024
Smith Well-W-190109	W	01.09.2019 16:10		611072-025
NM-MW-8-W-190110	W	01.10.2019 10:10		611072-026
NM-MW-4-W-190110	W	01.10.2019 10:25		611072-027
RRR Ranch-W-190110	W	01.10.2019 10:35		611072-028
NM-MW-7-W-190110	W	01.10.2019 10:45		611072-029
NM-MW-3-W-190110	W	01.10.2019 10:55		611072-030
NM-MW-2-W-190110	W	01.10.2019 11:05		611072-031
NM-MW-1-W-190110	W	01.10.2019 11:10		611072-032
NM-MW-5-W-190110	W	01.10.2019 11:20		611072-033
NM-MW-6-W-190110	W	01.10.2019 11:30		611072-034
NM-MW-11-W-190110	W	01.10.2019 11:40		611072-035
NM-MW-13-W-190110	W	01.10.2019 12:00		611072-036
NM-MW-9-W-190110	W	01.10.2019 12:25		611072-037
MW-27-W-190110	W	01.10.2019 12:35		611072-038
MW-20-W-190110	W	01.10.2019 12:45		611072-039
MW-10-W-190110	W	01.10.2019 12:55		611072-040
MW-10-WD-190110	W	01.10.2019 00:00		611072-041
MW-26-W-190110	W	01.10.2019 13:10		611072-042
MW-24-W-190110	W	01.10.2019 13:15		611072-043



Sample Cross Reference 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

MW-12-W-190110	W	01.10.2019 13:20	611072-044
MW-31-W-190110	W	01.10.2019 13:30	611072-045
MW-18-W-190110	W	01.10.2019 13:45	611072-046
MW-19-W-190110	W	01.10.2019 13:50	611072-047
MW-25-W-190110	W	01.10.2019 14:00	611072-048
MW-11-W-190110	W	01.10.2019 14:10	611072-049
MW-6-W-190110	W	01.10.2019 14:20	611072-050
MW-5-W-190110	W	01.10.2019 14:25	611072-051
MW-3-W-190110	W	01.10.2019 14:35	611072-052
Tract-4-W-190110	W	01.10.2019 14:45	611072-053
Tract-4-WD-190110	W	01.10.2019 00:00	611072-054
MW-14-W-190110	W	01.10.2019 14:50	611072-055
MW-4-W-190110	W	01.10.2019 15:00	611072-056
MW-13-W-190110	W	01.10.2019 15:10	611072-057
MW-30-W-190110	W	01.10.2019 15:15	611072-058
Livermore-W-190110	W	01.10.2019 15:30	611072-059
MW-23-W190110	W	01.10.2019 15:35	611072-060
MW-22-W-190110	W	01.10.2019 15:40	611072-061
MW-17-W-190110	W	01.10.2019 15:50	611072-062
MW-21-W-190110	W	01.10.2019 15:55	611072-063
MW-16-W-190110	W	01.10.2019 16:05	611072-064
MW-15-W-190110	W	01.10.2019 16:15	611072-065



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Dollarhide

Project ID: 055270
Work Order Number(s): 611072

Report Date: 03.29.2019
Date Received: 01.11.2019

Sample receipt non conformances and comments:

Report revised 3/29/19 after client request to double check the Chloride results for 611072-017, -019, -027, -037, -043 and -056. Upon review of the sample containers at the Midland lab it was noted that 611072-017 and 611072-37 were inadvertently switched at login., 611072-019 and 611072-043 were inadvertently switched at login and 611072-27 and 56 were inadvertently switched at login. Data has been corrected in our system and report revised.

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **43-K-1-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-001

Date Collected: 01.09.2019 10:20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7130	50.0	8.58	mg/L	01.11.2019 16:45		100

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	9640	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **45-E-3-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-002

Date Collected: 01.09.2019 10:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3760	25.0	4.29	mg/L	01.11.2019 16:56		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	5240	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **45-F-1-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-003

Date Collected: 01.09.2019 10:55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	901	10.0	1.72	mg/L	01.11.2019 17:06		20

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1840	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **45-FF-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-004

Date Collected: 01.09.2019 11:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5080	25.0	4.29	mg/L	01.11.2019 17:16		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	6690	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **45-E-2-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-005

Date Collected: 01.09.2019 11:25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1660	25.0	4.29	mg/L	01.11.2019 17:58		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3040	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **45-E-1-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-006

Date Collected: 01.09.2019 11:40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2680	25.0	4.29	mg/L	01.11.2019 18:08		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3650	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **44-I-1-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-007

Date Collected: 01.09.2019 12:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3320	25.0	4.29	mg/L	01.11.2019 18:39		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4580	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **44-J-1-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-008

Date Collected: 01.09.2019 12:20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4850	25.0	4.29	mg/L	01.11.2019 18:49		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	6190	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **44-J-5-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-009

Date Collected: 01.09.2019 12:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3970	25.0	4.29	mg/L	01.11.2019 19:00		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	5690	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **44-J-3-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-010

Date Collected: 01.09.2019 12:40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4300	25.0	4.29	mg/L	01.11.2019 19:10		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	6330	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **44-J-4-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-011

Date Collected: 01.09.2019 12:50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.11.2019 13:00

Seq Number: 3075625

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4470	25.0	4.29	mg/L	01.11.2019 19:20		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	6130	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **44-J-2-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-012

Date Collected: 01.09.2019 13:05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4930	25.0	4.29	mg/L	01.14.2019 15:52		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	7020	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-8-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-013

Date Collected: 01.09.2019 13:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	852	10.0	1.72	mg/L	01.14.2019 16:02		20

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2160	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **DHU-FWS-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-014

Date Collected: 01.09.2019 13:55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	611	5.00	0.858	mg/L	01.14.2019 16:12		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2900	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **58-B-2-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-015

Date Collected: 01.09.2019 14:05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4190	25.0	4.29	mg/L	01.14.2019 16:23		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	5470	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **58-B-1-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-016

Date Collected: 01.09.2019 14:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5240	50.0	8.58	mg/L	01.15.2019 15:34		100

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8120	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-9-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-017

Date Collected: 01.09.2019 14:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2620	25.0	4.29	mg/L	01.15.2019 15:44		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	807	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **58-B-3-MW-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-018

Date Collected: 01.09.2019 14:50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	900	10.0	1.72	mg/L	01.15.2019 15:55		20

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2070	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-29-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-019

Date Collected: 01.09.2019 15:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	359	5.00	0.858	mg/L	01.15.2019 16:05		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	7270	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-28-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-020

Date Collected: 01.09.2019 15:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1510	25.0	4.29	mg/L	01.15.2019 16:15		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075717

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3050	5.00	5.00	mg/L	01.14.2019 15:10		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-10-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-021

Date Collected: 01.09.2019 15:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	290	5.00	0.858	mg/L	01.14.2019 17:15		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1530	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-12-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-022

Date Collected: 01.09.2019 15:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	596	5.00	0.858	mg/L	01.14.2019 17:25		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1300	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Wilson Well-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-023

Date Collected: 01.09.2019 15:55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1070	25.0	4.29	mg/L	01.15.2019 16:36		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2420	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Wilson Well-WD-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-024

Date Collected: 01.09.2019 00:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1020	25.0	4.29	mg/L	01.15.2019 16:46		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2420	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Smith Well-W-190109**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-025

Date Collected: 01.09.2019 16:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1020	25.0	4.29	mg/L	01.15.2019 16:57		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2230	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-8-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-026

Date Collected: 01.10.2019 10:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4630	50.0	8.58	mg/L	01.15.2019 17:07		100

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8040	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-4-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-027

Date Collected: 01.10.2019 10:25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	35.7	2.50	0.429	mg/L	01.15.2019 17:38		5

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1240	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **RRR Ranch-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-028

Date Collected: 01.10.2019 10:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1290	25.0	4.29	mg/L	01.15.2019 17:48		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2950	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-7-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-029

Date Collected: 01.10.2019 10:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 12:30

Seq Number: 3075808

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2040	25.0	4.29	mg/L	01.15.2019 17:59		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	5190	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-3-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-030

Date Collected: 01.10.2019 10:55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	447	10.0	1.72	mg/L	01.14.2019 21:33		20

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1250	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-2-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-031

Date Collected: 01.10.2019 11:05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	616	5.00	0.858	mg/L	01.14.2019 21:44		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1210	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-1-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-032

Date Collected: 01.10.2019 11:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	256	5.00	0.858	mg/L	01.14.2019 21:54		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1370	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-5-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-033

Date Collected: 01.10.2019 11:20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	142	5.00	0.858	mg/L	01.14.2019 22:04		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1280	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-6-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-034

Date Collected: 01.10.2019 11:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	113	2.50	0.429	mg/L	01.14.2019 23:27		5

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	813	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-11-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-035

Date Collected: 01.10.2019 11:40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	154	10.0	1.72	mg/L	01.14.2019 22:35		20

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1840	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-13-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-036

Date Collected: 01.10.2019 12:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	165	5.00	0.858	mg/L	01.14.2019 22:46		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1070	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-9-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-037

Date Collected: 01.10.2019 12:25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	195	5.00	0.858	mg/L	01.14.2019 22:56		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4160	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-27-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-038

Date Collected: 01.10.2019 12:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2420	25.0	4.29	mg/L	01.14.2019 23:06		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4110	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-20-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-039

Date Collected: 01.10.2019 12:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1070	10.0	1.72	mg/L	01.14.2019 23:17		20

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2180	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-10-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-040

Date Collected: 01.10.2019 12:55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5130	25.0	4.29	mg/L	01.15.2019 00:08		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075718

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	7050	5.00	5.00	mg/L	01.14.2019 16:15		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-10-WD-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-041

Date Collected: 01.10.2019 00:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5560	25.0	4.29	mg/L	01.15.2019 00:39		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	7130	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-26-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-042

Date Collected: 01.10.2019 13:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1190	25.0	4.29	mg/L	01.15.2019 00:50		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2740	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-24-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-043

Date Collected: 01.10.2019 13:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3320	25.0	4.29	mg/L	01.15.2019 01:00		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1020	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-12-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-044

Date Collected: 01.10.2019 13:20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13900	100	17.2	mg/L	01.15.2019 01:10		200

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	14000	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-31-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-045

Date Collected: 01.10.2019 13:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11100	50.0	8.58	mg/L	01.15.2019 01:21		100

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	10300	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-18-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-046

Date Collected: 01.10.2019 13:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	17000	100	17.2	mg/L	01.15.2019 01:31		200

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	19000	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-19-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-047

Date Collected: 01.10.2019 13:50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.14.2019 13:15

Seq Number: 3075811

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6570	50.0	8.58	mg/L	01.15.2019 01:41		100

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	9300	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-25-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-048

Date Collected: 01.10.2019 14:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23500	100	17.2	mg/L	01.16.2019 12:45		200

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	29800	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-11-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-049

Date Collected: 01.10.2019 14:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8240	50.0	8.58	mg/L	01.16.2019 12:56		100

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	9730	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-6-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-050

Date Collected: 01.10.2019 14:20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	372	5.00	0.858	mg/L	01.16.2019 13:06		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1510	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-5-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-051

Date Collected: 01.10.2019 14:25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	244	5.00	0.858	mg/L	01.16.2019 13:16		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1050	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-3-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-052

Date Collected: 01.10.2019 14:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	194	5.00	0.858	mg/L	01.16.2019 13:48		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	619	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Tract-4-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-053

Date Collected: 01.10.2019 14:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	315	5.00	0.858	mg/L	01.16.2019 13:58		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1080	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Tract-4-WD-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-054

Date Collected: 01.10.2019 00:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	314	5.00	0.858	mg/L	01.16.2019 14:08		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1080	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-14-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-055

Date Collected: 01.10.2019 14:50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1630	25.0	4.29	mg/L	01.16.2019 14:19		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2890	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-4-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-056

Date Collected: 01.10.2019 15:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	258	5.00	0.858	mg/L	01.16.2019 14:29		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	426	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-13-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-057

Date Collected: 01.10.2019 15:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1880	25.0	4.29	mg/L	01.16.2019 15:10		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3810	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-30-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-058

Date Collected: 01.10.2019 15:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2460	25.0	4.29	mg/L	01.16.2019 15:21		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3860	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Livermore-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-059

Date Collected: 01.10.2019 15:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2530	25.0	4.29	mg/L	01.16.2019 15:52		50

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4330	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-23-W190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-060

Date Collected: 01.10.2019 15:35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7910	50.0	8.58	mg/L	01.16.2019 16:02		100

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3075997

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	9780	5.00	5.00	mg/L	01.16.2019 08:00		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-22-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-061

Date Collected: 01.10.2019 15:40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12000	50.0	8.58	mg/L	01.16.2019 16:12		100

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3076042

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	10900	5.00	5.00	mg/L	01.16.2019 08:55		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-17-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-062

Date Collected: 01.10.2019 15:50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10100	50.0	8.58	mg/L	01.16.2019 16:23		100

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3076042

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	11100	5.00	5.00	mg/L	01.16.2019 08:55		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-21-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-063

Date Collected: 01.10.2019 15:55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7530	50.0	8.58	mg/L	01.16.2019 16:33		100

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3076042

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	9420	5.00	5.00	mg/L	01.16.2019 08:55		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-16-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-064

Date Collected: 01.10.2019 16:05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	468	5.00	0.858	mg/L	01.16.2019 16:43		10

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3076042

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1260	5.00	5.00	mg/L	01.16.2019 08:55		1



Certificate of Analytical Results 611072

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-15-W-190110**

Matrix: Ground Water

Date Received: 01.11.2019 10:16

Lab Sample Id: 611072-065

Date Collected: 01.10.2019 16:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 01.16.2019 12:00

Seq Number: 3076064

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	995	10.0	1.72	mg/L	01.16.2019 16:54		20

Analytical Method: TDS by SM2540C

Tech: OJS

% Moisture:

Analyst: OJS

Seq Number: 3076042

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2290	5.00	5.00	mg/L	01.16.2019 08:55		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

GHD Services, INC- Midland
Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3075625

Matrix: Water

Prep Method: E300P

Date Prep: 01.11.2019

MB Sample Id: 7669641-1-BLK

LCS Sample Id: 7669641-1-BKS

LCSD Sample Id: 7669641-1-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	22.5	90	22.6	90	90-110	0	20	mg/L	01.11.2019 14:41	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3075808

Matrix: Water

Prep Method: E300P

Date Prep: 01.14.2019

MB Sample Id: 7669719-1-BLK

LCS Sample Id: 7669719-1-BKS

LCSD Sample Id: 7669719-1-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	25.5	102	24.5	98	90-110	4	20	mg/L	01.14.2019 15:00	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3075811

Matrix: Water

Prep Method: E300P

Date Prep: 01.14.2019

MB Sample Id: 7669720-1-BLK

LCS Sample Id: 7669720-1-BKS

LCSD Sample Id: 7669720-1-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	23.2	93	22.8	91	90-110	2	20	mg/L	01.14.2019 20:41	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3076064

Matrix: Water

Prep Method: E300P

Date Prep: 01.16.2019

MB Sample Id: 7669858-1-BLK

LCS Sample Id: 7669858-1-BKS

LCSD Sample Id: 7669858-1-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	23.5	94	23.6	94	90-110	0	20	mg/L	01.16.2019 11:54	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3075625

Matrix: Drinking Water

Prep Method: E300P

Date Prep: 01.11.2019

Parent Sample Id: 611021-001

MS Sample Id: 611021-001 S

MSD Sample Id: 611021-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	4.95	25.0	26.0	84	26.0	84	90-110	0	20	mg/L	01.11.2019 15:12	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3075625

Matrix: Drinking Water

Prep Method: E300P

Date Prep: 01.11.2019

Parent Sample Id: 611023-001

MS Sample Id: 611023-001 S

MSD Sample Id: 611023-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.23	25.0	27.4	85	27.5	85	90-110	0	20	mg/L	01.11.2019 17:37	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 611072

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3075808

Matrix: Water

Prep Method: E300P

Date Prep: 01.14.2019

Parent Sample Id: 611157-001

MS Sample Id: 611157-001 S

MSD Sample Id: 611157-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	147	125	253	85	258	89	90-110	2	20	mg/L	01.14.2019 15:31	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3075808

Matrix: Water

Prep Method: E300P

Date Prep: 01.14.2019

Parent Sample Id: 611157-002

MS Sample Id: 611157-002 S

MSD Sample Id: 611157-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	106	125	233	102	237	105	90-110	2	20	mg/L	01.14.2019 16:54	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3075811

Matrix: Ground Water

Prep Method: E300P

Date Prep: 01.14.2019

Parent Sample Id: 611072-034

MS Sample Id: 611072-034 S

MSD Sample Id: 611072-034 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	113	125	231	94	231	94	90-110	0	20	mg/L	01.14.2019 23:37	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3075811

Matrix: Water

Prep Method: E300P

Date Prep: 01.14.2019

Parent Sample Id: 611157-003

MS Sample Id: 611157-003 S

MSD Sample Id: 611157-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	147	125	262	92	261	91	90-110	0	20	mg/L	01.14.2019 21:13	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3076064

Matrix: Drinking Water

Prep Method: E300P

Date Prep: 01.16.2019

Parent Sample Id: 611411-001

MS Sample Id: 611411-001 S

MSD Sample Id: 611411-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1.78	25.0	25.5	95	25.6	95	90-110	0	20	mg/L	01.16.2019 12:25	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3076064

Matrix: Drinking Water

Prep Method: E300P

Date Prep: 01.16.2019

Parent Sample Id: 611412-001

MS Sample Id: 611412-001 S

MSD Sample Id: 611412-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	52.7	25.0	76.5	95	76.9	97	90-110	1	20	mg/L	01.16.2019 14:50	

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 611072

GHD Services, INC- Midland Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3075717

Matrix: Water

MB Sample Id: 3075717-1-BLK

LCS Sample Id: 3075717-1-BKS

LCSD Sample Id: 3075717-1-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	994	99	981	98	80-120	1	10	mg/L	01.14.2019 15:10	

Analytical Method: TDS by SM2540C

Seq Number: 3075718

Matrix: Water

MB Sample Id: 3075718-1-BLK

LCS Sample Id: 3075718-1-BKS

LCSD Sample Id: 3075718-1-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	966	97	964	96	80-120	0	10	mg/L	01.14.2019 16:15	

Analytical Method: TDS by SM2540C

Seq Number: 3075997

Matrix: Water

MB Sample Id: 3075997-1-BLK

LCS Sample Id: 3075997-1-BKS

LCSD Sample Id: 3075997-1-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	988	99	975	98	80-120	1	10	mg/L	01.16.2019 08:00	

Analytical Method: TDS by SM2540C

Seq Number: 3076042

Matrix: Water

MB Sample Id: 3076042-1-BLK

LCS Sample Id: 3076042-1-BKS

LCSD Sample Id: 3076042-1-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	984	98	963	96	80-120	2	10	mg/L	01.16.2019 08:55	

Analytical Method: TDS by SM2540C

Seq Number: 3075717

Matrix: Ground Water

Parent Sample Id: 611072-001

MD Sample Id: 611072-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	9640	9750	1	10	mg/L	01.14.2019 15:10	

Analytical Method: TDS by SM2540C

Seq Number: 3075717

Matrix: Ground Water

Parent Sample Id: 611072-020

MD Sample Id: 611072-020 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	3050	3120	2	10	mg/L	01.14.2019 15:10	

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 611072

GHD Services, INC- Midland Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3075718

Matrix: Ground Water

Parent Sample Id: 611072-021

MD Sample Id: 611072-021 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1530	1540	1	10	mg/L	01.14.2019 16:15	

Analytical Method: TDS by SM2540C

Seq Number: 3075718

Matrix: Ground Water

Parent Sample Id: 611072-040

MD Sample Id: 611072-040 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	7050	6950	1	10	mg/L	01.14.2019 16:15	

Analytical Method: TDS by SM2540C

Seq Number: 3075997

Matrix: Ground Water

Parent Sample Id: 611072-041

MD Sample Id: 611072-041 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	7130	7260	2	10	mg/L	01.16.2019 08:00	

Analytical Method: TDS by SM2540C

Seq Number: 3075997

Matrix: Ground Water

Parent Sample Id: 611072-060

MD Sample Id: 611072-060 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	9780	9910	1	10	mg/L	01.16.2019 08:00	

Analytical Method: TDS by SM2540C

Seq Number: 3076042

Matrix: Ground Water

Parent Sample Id: 611072-061

MD Sample Id: 611072-061 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	10900	10700	2	10	mg/L	01.16.2019 08:55	

Analytical Method: TDS by SM2540C

Seq Number: 3076042

Matrix: Water

Parent Sample Id: 611330-008

MD Sample Id: 611330-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	<5.00	0	10	mg/L	01.16.2019 08:55	U

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:

601072

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

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Page 1 of 7

Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick.Casten@ghd.com & Christopher.Knight@ghd.com & Britany.White@ghd.com & edds@ghd.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:	☒
Project Number:	055270-2019-001	Route:	☐
P.O. Number:		Rush:	
Sampler's Name:	Jeff Nichols - Joshua Shankley	Due Date:	
SAMPLE RECEIPT			
Temperature (°C):	6.30.2	Temp Blank:	Yes ☐ No ☒
Received Intact:	(Yes) ☒ No ☐	Thermometer ID:	2
Cooler Custody Seals:	Yes ☒ No ☐	Correction Factor:	0.1
Sample Custody Seals:	Yes ☒ No ☐	Total Containers:	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	ANALYSIS REQUEST																Work Order Notes
43-K-1-MW-W-190109	FW	1-9	1030	-	Chlorides																
45-E-2-MW-W-190109		1-9	1035	-	TDS																
45-F-1-MW-W-190109			1055	-																	
45-F-1-MW-W-190109			1110	-																	
45-E-2-MW-W-190109			1125	-																	
45-E-1-MW-W-190109			1140	-																	
44-I-1-MW-W-190109			1210	-																	
44-J-1-MW-W-190109			1220	-																	
44-J-5-MW-W-190109			1230	-																	
44-J-3-MW-W-190109		1-9	1240	-																	

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	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
1 / Joshua Shankley	2 / Nick Casten	01/11/19 1010			
3					
5					



Chain of Custody

Work Order No:

611092

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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7

Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX, 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick.Casten@ghd.com & Christopher.Knight@ghd.com & Brittany.White@ghd.com & edds@ghd.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:	055270-2019-001	Routine	☐
P.O. Number:		Rush:	
Sampler's Name:		Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes ☐ No ☒	Wet Ice:	Yes ☐ No ☒
Temperature (°C):	0.200	Thermometer ID:	PE	
Received Intact:	Yes ☒ No ☐	Correction Factor:	0.1	
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
44-J-4-MW-W-190009	GW	1-9	1250	—	1	X	X		
44-J-2-MW-W-190109	—	—	1305	—	—	—	—		
MW-8-W-190109	—	—	1345	—	—	—	—		
DH4-FW5-W-190109	—	—	1355	—	—	—	—		
58-B-2-MW-W-190109	—	—	1405	—	—	—	—		
58-B-1-MW-W-190109	—	—	1415	—	—	—	—		
MW-9-W-190109	—	—	1435	—	—	—	—		
58-B-3-MW-W-190109	—	—	1450	—	—	—	—		
MW-29-W-190109	—	—	1500	—	—	—	—		
MW-28-W-190109	GW	1-9	1510	—	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 / 191119 Shawbury	ACB	01/11/19 1046	2		
3			4		
5			6		



Chain of Custody

Work Order No: 1611072

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)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick Casten@ghd.com & Christopher.Knight@ghd.com & Britany.White@ghd.com & edds@ghd.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	☒
Project Number:	055270-2019-001	Routine	☒
P.O. Number:		Rush:	
Sampler's Name:		Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes ☒ No ☐	Wet Ice:	Yes ☒ No ☐
Temperature (°C):	0.5°C	Thermometer ID: 16		
Received Intact:	Yes ☒ No ☐			
Cooler Custody Seals:	Yes ☒ No ☐ N/A	Correction Factor:	-0.1	
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																	
MM-MW-10-W-190109	GW	1-9	1535	-	X	X																	
MM-MW-12-W-190109			1545	-																			
Wilson Well-W-190109			1565	-																			
Wilson Well-W-190109				-																			
Smith Well-W-190109		1-9	1610	-																			
MM-MW-8-W-190110		1-10	1010	-																			
MM-MW-4-W-190110		1-10	1025	-																			
RR-Rough-W-190110		1-10	1035	-																			
MM-MW-7-W-190110	GW	1-10	1045	-	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
1/1/19	1/1/19	1040	2		
3			4		
5			6		



Chain of Custody

Work Order No:

611072

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 7

Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick Casten@ghd.com & Christopher.Knight@ghd.com & Brittany.White@ghd.com & edds@ghd.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	☒
Project Number:	055270-2019-001	Routine	☐
P.O. Number:		Rush:	
Sampler's Name:		Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	0.2 (0.2)	Thermometer ID				
Received Intact:	Yes	No				
Cooler Custody Seals:	Yes	No	N/A	Correction Factor:	-0.1	
Sample Custody Seals:	Yes	No	N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	Chloride	TDS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							</
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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>Brittany White</i>	<i>Nick Casten</i>	01/11/19 10:05	2		
3			4		
5			6		



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: 1011072

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Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick.Casten@ghd.com & Christopher.Knight@ghd.com & Brittany.White@ghd.com & edds@ghd.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:	☒ Routine ☐ Rush
Project Number:	055270-2019-001		
P.O. Number:			
Sampler's Name:		Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes ☒ No ☐	Wet Ice:	Yes ☒ No ☐
Temperature (°C):	0.3/0.2	Thermometer ID: <u>12</u>		
Received intact:	Yes ☒ No ☐			
Cooler Custody Seals:	Yes ☒ No ☐ N/A ☐	Correction Factor:	-0.1	
Sample Custody Seals:	Yes ☒ No ☐ N/A ☐	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	Chloride	TDS													Sample Comments
MW-10-W-190110	6-W	1-10	1255	—	1	X	X													
MW-10-W-190110				—																
MW-26-W-190110			1310	—																
MW-24-W-190110			1315	—																
MW-12-W-190110			1320	—																
MW-31-W-190110			1330	—																
MW-18-W-190110			1345	1																
MW-19-W-190110			1350	—																
MW-25-W-190110	↓	↑	1400	—	↓	↓	↓													
MW-11-W-190110	6-W	1-10	1410	—	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

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 <u>Joshua Stenberg</u>	2 <u>[Signature]</u>	01/11/19 1010	3 <u>[Signature]</u>	4 <u>[Signature]</u>	
5			6		



Chain of Custody

Work Order No:

1011072

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

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Page 5 of 7

Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick Casten@ghd.com & Christopher.Knight@ghd.com & Britiany.White@ghd.com & edds@ghd.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	☒
Project Number:	055270-2019-001	Routine	☒
P.O. Number:		Rush:	
Sampler's Name:		Due Date:	

SAMPLE RECEIPT	Temp Blank: ☒	Yes ☒ No ☐	Wet Ice: ☒ Yes ☐ No ☐
Temperature (°C):	0.3102	Thermometer:	12
Received Intact:	Yes ☒ No ☐	Correction Factor:	-0.1
Cooler Custody Seals:	Yes ☒ No ☐ N/A	Total Containers:	
Sample Custody Seals:	Yes ☒ No ☐ N/A		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chlorides	TDS	ANALYSIS REQUEST										Work Order Notes
MW-6-W-190110	GW	1-10	1430	-	1	X	X											
MW-5-W-190110			1435	-	1													
MW-3-W-190110			1435	-	1													
Tract-4-W-190110			1445	-	1													
Tract-4-W-D-190110				-	1													
MW-14-W-190110			1450	-	1													
MW-4-W-190110			1500	-	1													
MW-13-W-190110			1510	-	1													
MW-30-W-190110			1515	-	1													
Livermore-W-190110	GW	1-10	1530	-	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																

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 / 10/11/19 / 1010	10/11/19 / 1010	2			
3		4			
5		6			



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Revised Date 051418 Rev. 2018.1



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 01/11/2019 10:16:00 AM

Work Order #: 611072

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

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

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by:

Katie Lowe

Date: 01/11/2019

Checklist reviewed by:

Debbie Simmons

Date: 01/12/2019



Certificate of Analysis Summary 620285

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 04.05.2019 15:28

Report Date: 04.23.2019 15:52

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	620285-001	620285-002	620285-003	620285-004	620285-005	620285-006
	Field Id:	NM-MW-7-W-190404	RRR Ranch-W-190404	NM-MW-4-W-190404	NM-MW-8-W-190404	NM-MW-3-W-190404	NM-MW-2-W-190404
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	04.04.2019 10:00	04.04.2019 10:25	04.04.2019 10:45	04.04.2019 11:00	04.04.2019 11:15	04.04.2019 11:30
Inorganic Anions by EPA 300/300.1	Extracted:	04.09.2019 10:40	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00
	Analyzed:	04.10.2019 21:14	04.12.2019 17:42	04.12.2019 18:01	04.12.2019 18:08	04.12.2019 18:14	04.12.2019 18:33
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		1940 25.0	47.4 2.50	188 2.50	6690 25.0	259 2.50	736 5.00
TDS by SM2540C	Extracted:						
	Analyzed:	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43
	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	3110 5.00	420 5.00	10100 5.00	653 5.00	1230 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 620285

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 04.05.2019 15:28

Report Date: 04.23.2019 15:52

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	620285-007	620285-008	620285-009	620285-010	620285-011	620285-012
	Field Id:	NM-MW-1-W-190404	NM-MW-5-W-190404	NM-MW-6-W-190404	NM-MW-11-W-190404	NM-MW-11-WD-19040	NM-MW-13-W-190404
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	04.04.2019 11:45	04.04.2019 11:55	04.04.2019 12:10	04.04.2019 12:40	04.04.2019 00:00	04.04.2019 13:15
Inorganic Anions by EPA 300/300.1	Extracted:	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00
	Analyzed:	04.12.2019 18:40	04.12.2019 18:46	04.12.2019 18:52	04.12.2019 18:59	04.12.2019 19:05	04.12.2019 19:11
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		330 5.00	175 5.00	161 2.50	185 10.0	185 10.0	225 5.00
TDS by SM2540C	Extracted:						
	Analyzed:	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1400 5.00	1240 5.00	813 5.00	1870 5.00	1920 5.00	1090 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 620285

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 04.05.2019 15:28

Report Date: 04.23.2019 15:52

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	620285-013	620285-014	620285-015	620285-016	620285-017	620285-018
	Field Id:	NM-MW-10-W-190404	NM-MW-12-W-190404	Wilson Ranch-W-190404	NM-MW-9-W-190504	Smith-W-190504	MW-29-W-190504
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	04.04.2019 13:48	04.04.2019 14:10	04.04.2019 14:20	04.05.2019 10:00	04.05.2019 10:15	04.05.2019 10:40
Inorganic Anions by EPA 300/300.1	Extracted:	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00
	Analyzed:	04.12.2019 19:30	04.12.2019 19:49	04.12.2019 19:56	04.12.2019 20:02	04.12.2019 20:08	04.12.2019 20:15
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		396 5.00	739 5.00	1480 10.0	297 5.00	1510 10.0	508 5.00
TDS by SM2540C	Extracted:						
	Analyzed:	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1670 5.00	1310 5.00	2440 5.00	786 5.00	2490 5.00	1100 5.00

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 620285

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 04.05.2019 15:28

Report Date: 04.23.2019 15:52

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	620285-019	620285-020	620285-021	620285-022	620285-023	620285-024
	Field Id:	MW-28-W-190504	Smith-WD-190504	MW-9-W-190504	MW-8-W-190504	DHU-FWS-W-190504	MW-27-W-190504
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	04.05.2019 10:50	04.05.2019 00:00	04.05.2019 11:15	04.05.2019 11:30	04.05.2019 11:40	04.05.2019 11:50
Inorganic Anions by EPA 300/300.1	Extracted:	04.12.2019 16:00	04.12.2019 16:00	04.12.2019 16:00	04.15.2019 09:30	04.15.2019 09:30	04.15.2019 09:30
	Analyzed:	04.12.2019 20:21	04.12.2019 20:27	04.12.2019 20:34	04.15.2019 10:33	04.15.2019 10:53	04.15.2019 10:59
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		851 10.0	1490 10.0	1200 10.0	1060 10.0	658 25.0	2830 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		3260 5.00	2470 5.00	4230 5.00	2460 5.00	3120 5.00	4490 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 620285

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide

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

Date Received in Lab: Fri 04.05.2019 15:28
Report Date: 04.23.2019 15:52
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	620285-025	620285-026	620285-027	620285-028		
	Field Id:	MW-20-W-190504	MW-10-WD-190504	MW-10-W-190504	MW-31-W-190504		
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER		
	Sampled:	04.05.2019 12:00	04.05.2019 00:00	04.05.2019 12:15	04.05.2019 12:30		
Inorganic Anions by EPA 300/300.1	Extracted:	04.15.2019 09:30	04.15.2019 09:30	04.15.2019 09:30	04.15.2019 09:30		
	Analyzed:	04.15.2019 11:06	04.15.2019 11:12	04.15.2019 11:32	04.15.2019 11:38		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Chloride		1430 10.0	5780 25.0	5760 25.0	11800 50.0		
TDS by SM2540C	Extracted:						
	Analyzed:	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43	04.09.2019 15:43		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Total Dissolved Solids		2410 5.00	8190 5.00	8100 5.00	16200 5.00		

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

Debbie Simmons
Project Manager



Analytical Report 620285

for

GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

04.23.2019

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
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-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



04.23.2019

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

Reference: XENCO Report No(s): **620285**
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) 620285. 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. 620285 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 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NM-MW-7-W-190404	W	04.04.2019 10:00		620285-001
RRR Ranch-W-190404	W	04.04.2019 10:25		620285-002
NM-MW-4-W-190404	W	04.04.2019 10:45		620285-003
NM-MW-8-W-190404	W	04.04.2019 11:00		620285-004
NM-MW-3-W-190404	W	04.04.2019 11:15		620285-005
NM-MW-2-W-190404	W	04.04.2019 11:30		620285-006
NM-MW-1-W-190404	W	04.04.2019 11:45		620285-007
NM-MW-5-W-190404	W	04.04.2019 11:55		620285-008
NM-MW-6-W-190404	W	04.04.2019 12:10		620285-009
NM-MW-11-W-190404	W	04.04.2019 12:40		620285-010
NM-MW-11-WD-190404	W	04.04.2019 00:00		620285-011
NM-MW-13-W-190404	W	04.04.2019 13:15		620285-012
NM-MW-10-W-190404	W	04.04.2019 13:48		620285-013
NM-MW-12-W-190404	W	04.04.2019 14:10		620285-014
Wilson Ranch-W-190404	W	04.04.2019 14:20		620285-015
NM-MW-9-W-190504	W	04.05.2019 10:00		620285-016
Smith-W-190504	W	04.05.2019 10:15		620285-017
MW-29-W-190504	W	04.05.2019 10:40		620285-018
MW-28-W-190504	W	04.05.2019 10:50		620285-019
Smith-WD-190504	W	04.05.2019 00:00		620285-020
MW-9-W-190504	W	04.05.2019 11:15		620285-021
MW-8-W-190504	W	04.05.2019 11:30		620285-022
DHU-FWS-W-190504	W	04.05.2019 11:40		620285-023
MW-27-W-190504	W	04.05.2019 11:50		620285-024
MW-20-W-190504	W	04.05.2019 12:00		620285-025
MW-10-WD-190504	W	04.05.2019 00:00		620285-026
MW-10-W-190504	W	04.05.2019 12:15		620285-027
MW-31-W-190504	W	04.05.2019 12:30		620285-028



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Dollarhide

Project ID: 055270
Work Order Number(s): 620285

Report Date: 04.23.2019
Date Received: 04.05.2019

Sample receipt non conformances and comments:

Report revised 04/23/19 to correct field IDs for samples 620285-021 and 620285-022 to match chain of custody.

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3085629 Inorganic Anions by EPA 300/300.1

Lab Sample ID 620285-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference.

Lab Sample ID 620285-012 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference.

Samples in the analytical batch are: 620285-002, -003, -004, -005, -006, -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.

Batch: LBA-3085716 Inorganic Anions by EPA 300/300.1

Lab Sample ID 620285-022 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 620285-022, -023, -024, -025, -026, -027, -028.

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



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-7-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-001

Date Collected: 04.04.2019 10:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.09.2019 10:40

Seq Number: 3085303

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1940	25.0	4.29	mg/L	04.10.2019 21:14		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4160	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **RRR Ranch-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-002

Date Collected: 04.04.2019 10:25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	47.4	2.50	0.429	mg/L	04.12.2019 17:42		5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3110	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-4-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-003

Date Collected: 04.04.2019 10:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	188	2.50	0.429	mg/L	04.12.2019 18:01		5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	420	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-8-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-004

Date Collected: 04.04.2019 11:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6690	25.0	4.29	mg/L	04.12.2019 18:08		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	10100	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-3-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-005

Date Collected: 04.04.2019 11:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	259	2.50	0.429	mg/L	04.12.2019 18:14		5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	653	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-2-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-006

Date Collected: 04.04.2019 11:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	736	5.00	0.858	mg/L	04.12.2019 18:33		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1230	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-1-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-007

Date Collected: 04.04.2019 11:45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	330	5.00	0.858	mg/L	04.12.2019 18:40		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1400	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-5-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-008

Date Collected: 04.04.2019 11:55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	175	5.00	0.858	mg/L	04.12.2019 18:46		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1240	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-6-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-009

Date Collected: 04.04.2019 12:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	161	2.50	0.429	mg/L	04.12.2019 18:52		5

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	813	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-11-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-010

Date Collected: 04.04.2019 12:40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	185	10.0	1.72	mg/L	04.12.2019 18:59		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1870	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-11-WD-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-011

Date Collected: 04.04.2019 00:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	185	10.0	1.72	mg/L	04.12.2019 19:05		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1920	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-13-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-012

Date Collected: 04.04.2019 13:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	225	5.00	0.858	mg/L	04.12.2019 19:11		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085169

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1090	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-10-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-013

Date Collected: 04.04.2019 13:48

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	396	5.00	0.858	mg/L	04.12.2019 19:30		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1670	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-12-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-014

Date Collected: 04.04.2019 14:10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	739	5.00	0.858	mg/L	04.12.2019 19:49		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1310	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Wilson Ranch-W-190404**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-015

Date Collected: 04.04.2019 14:20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1480	10.0	1.72	mg/L	04.12.2019 19:56		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2440	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **NM-MW-9-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-016

Date Collected: 04.05.2019 10:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	297	5.00	0.858	mg/L	04.12.2019 20:02		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	786	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Smith-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-017

Date Collected: 04.05.2019 10:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1510	10.0	1.72	mg/L	04.12.2019 20:08		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2490	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-29-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-018

Date Collected: 04.05.2019 10:40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	508	5.00	0.858	mg/L	04.12.2019 20:15		10

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1100	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-28-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-019

Date Collected: 04.05.2019 10:50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	851	10.0	1.72	mg/L	04.12.2019 20:21		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3260	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Smith-WD-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-020

Date Collected: 04.05.2019 00:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1490	10.0	1.72	mg/L	04.12.2019 20:27		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2470	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-9-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-021

Date Collected: 04.05.2019 11:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.12.2019 16:00

Seq Number: 3085629

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1200	10.0	1.72	mg/L	04.12.2019 20:34		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4230	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-8-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-022

Date Collected: 04.05.2019 11:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.15.2019 09:30

Seq Number: 3085716

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1060	10.0	1.72	mg/L	04.15.2019 10:33		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2460	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **DHU-FWS-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-023

Date Collected: 04.05.2019 11:40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.15.2019 09:30

Seq Number: 3085716

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	658	25.0	4.29	mg/L	04.15.2019 10:53		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	3120	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-27-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-024

Date Collected: 04.05.2019 11:50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.15.2019 09:30

Seq Number: 3085716

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2830	25.0	4.29	mg/L	04.15.2019 10:59		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4490	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-20-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-025

Date Collected: 04.05.2019 12:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.15.2019 09:30

Seq Number: 3085716

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1430	10.0	1.72	mg/L	04.15.2019 11:06		20

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2410	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-10-WD-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-026

Date Collected: 04.05.2019 00:00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.15.2019 09:30

Seq Number: 3085716

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5780	25.0	4.29	mg/L	04.15.2019 11:12		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8190	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-10-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-027

Date Collected: 04.05.2019 12:15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.15.2019 09:30

Seq Number: 3085716

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5760	25.0	4.29	mg/L	04.15.2019 11:32		50

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8100	5.00	5.00	mg/L	04.09.2019 15:43		1



Certificate of Analytical Results 620285

GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-31-W-190504**

Matrix: Ground Water

Date Received: 04.05.2019 15:28

Lab Sample Id: 620285-028

Date Collected: 04.05.2019 12:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.15.2019 09:30

Seq Number: 3085716

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11800	50.0	8.58	mg/L	04.15.2019 11:38		100

Analytical Method: TDS by SM2540C

Tech: CHE

% Moisture:

Analyst: CHE

Seq Number: 3085168

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	16200	5.00	5.00	mg/L	04.09.2019 15:43		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

GHD Services, INC- Midland
Dollarhide**Analytical Method: Inorganic Anions by EPA 300/300.1**

Seq Number: 3085303

Matrix: Water

Prep Method: E300P

Date Prep: 04.09.2019

MB Sample Id: 7675334-1-BLK

LCS Sample Id: 7675334-1-BKS

LCSD Sample Id: 7675334-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	25.0	26.7	107	25.8	103	90-110	3	20	mg/L	04.10.2019 17:57	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3085629

Matrix: Water

Prep Method: E300P

Date Prep: 04.12.2019

MB Sample Id: 7675686-1-BLK

LCS Sample Id: 7675686-1-BKS

LCSD Sample Id: 7675686-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	25.0	25.7	103	25.8	103	90-110	0	20	mg/L	04.12.2019 17:30	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3085716

Matrix: Water

Prep Method: E300P

Date Prep: 04.15.2019

MB Sample Id: 7675770-1-BLK

LCS Sample Id: 7675770-1-BKS

LCSD Sample Id: 7675770-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	25.0	27.4	110	27.4	110	90-110	0	20	mg/L	04.15.2019 10:20	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3085303

Matrix: Water

Prep Method: E300P

Date Prep: 04.09.2019

Parent Sample Id: 620148-003

MS Sample Id: 620148-003 S

MSD Sample Id: 620148-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	332	125	428	77	464	106	90-110	8	20	mg/L	04.10.2019 18:18	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3085303

Matrix: Water

Prep Method: E300P

Date Prep: 04.09.2019

Parent Sample Id: 620148-009

MS Sample Id: 620148-009 S

MSD Sample Id: 620148-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	93.1	125	203	88	206	90	90-110	1	20	mg/L	04.10.2019 19:53	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3085629

Matrix: Ground Water

Prep Method: E300P

Date Prep: 04.12.2019

Parent Sample Id: 620285-002

MS Sample Id: 620285-002 S

MSD Sample Id: 620285-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	47.4	125	186	111	171	99	90-110	8	20	mg/L	04.12.2019 17:49	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 620285

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3085629

Matrix: Ground Water

Prep Method: E300P

Parent Sample Id: 620285-012

MS Sample Id: 620285-012 S

Date Prep: 04.12.2019

MSD Sample Id: 620285-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	225	250	452	91	502	111	90-110	10	20	mg/L	04.12.2019 19:18	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3085716

Matrix: Ground Water

Prep Method: E300P

Parent Sample Id: 620285-022

MS Sample Id: 620285-022 S

Date Prep: 04.15.2019

MSD Sample Id: 620285-022 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1060	500	1590	106	1490	86	90-110	6	20	mg/L	04.15.2019 15:23	X

Analytical Method: TDS by SM2540C

Seq Number: 3085168

Matrix: Water

MB Sample Id: 3085168-1-BLK

LCS Sample Id: 3085168-1-BKS

LCSD Sample Id: 3085168-1-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	6.50	1000	944	94	945	95	80-120	0	10	mg/L	04.09.2019 15:43	

Analytical Method: TDS by SM2540C

Seq Number: 3085169

Matrix: Water

MB Sample Id: 3085169-1-BLK

LCS Sample Id: 3085169-1-BKS

LCSD Sample Id: 3085169-1-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	6.00	1000	953	95	945	95	80-120	1	10	mg/L	04.09.2019 15:43	

Analytical Method: TDS by SM2540C

Seq Number: 3085168

Matrix: Ground Water

Parent Sample Id: 620285-013

MD Sample Id: 620285-013 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1670	1670	0	10	mg/L	04.09.2019 15:43	

Analytical Method: TDS by SM2540C

Seq Number: 3085168

Matrix: Ground Water

Parent Sample Id: 620285-015

MD Sample Id: 620285-015 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	2440	2350	4	10	mg/L	04.09.2019 15:43	

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



GHD Services, INC- Midland
Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3085169

Parent Sample Id: 620014-002

Matrix: Water

MD Sample Id: 620014-002 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1410	1430	1	10	mg/L	04.09.2019 15:43	

Analytical Method: TDS by SM2540C

Seq Number: 3085169

Parent Sample Id: 620285-003

Matrix: Ground Water

MD Sample Id: 620285-003 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	420	426	1	10	mg/L	04.09.2019 15:43	

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.

1078

Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick.Casten@ghd.com & Christopher.Knight@ghd.com & Brittany.White@ghd.com & edds@ghd.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:	

[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 <i>[Signature]</i>	<i>[Signature]</i>	4/15/19	2		
3 <i>[Signature]</i>		4/15/19	4		
5			6		

Chain of Custody

Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick.Casten@ghd.com & Christopher.Knight@ghd.com & Britiany.White@ghd.com & edds@ghd.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:	055270-2019-001	Route ☒
P.O. Number:		Rush:
Sampler's Name:	Joe Mirles Mike Moffitt	Due Date:

SAMPLE RECEIPT	Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	0.810.1			Thermobead		
Received Inact:	Yes	No				
Cooler Custody Seals:	Yes	No	N/A	Correction Factor:	-0.1	
Sample Custody Seals:	Yes	No	N/A	Total Containers:		

[illegible][illegible][illegible]

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 <i>Jack Mueller</i>	<i>[Signature]</i>	4/5/19	2		
3		1508	4		
5			6		

Revised Date 05/14/18 Rev. 20



Chain of Custody

Work Order No:

1220285

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 3 of 3

Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick.Casten@ghd.com & Christopher.Knight@ghd.com & Britany.White@ghd.com & edds@ghd.com

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

Project Name:	Dollarhide	Turn Around	☒
Project Number:	055270-2019-001	Routine	☒
P.O. Number:		Rush:	
Sampler's Name:		Due Date:	

SAMPLE RECEIPT	Temp Blank: ☒ No ☒ Yes	Wet Ice: ☒ Yes ☒ No
Temperature (°C):	0-21.1	Thermometer ID
Received In tact:	☒ Yes ☐ No	
Cooler Custody Seals:	Yes ☒ No ☐ N/A	Correction Factor: 0.1
Sample Custody Seals:	Yes ☐ No ☐ N/A	Total Containers:

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chlorides	TDS	ANALYSIS REQUEST	Work Order Notes
MW-9-W-190504	GW	4/5	1115	1	X	X			
MW-8-W-190504	GW	4/5	1130	1	X	X			
DHD-FWS-W-190504	GW	4/5	1140	1	X	X			
MW-27-W-190504	GW	4/5	1150	1	X	X			
MW-20-W-190504	GW	4/5	1200	1	X	X			
MW-10-W-190504	GW	4/5	1215	1	X	X			
MW-31-W-190504	GW	4/5	1230	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	2	2	3	4	4
5	6	6			

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 04.05.2019 03.28.00 PM

Work Order #: 620285

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

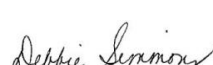
Temperature Measuring device used : R8

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:	 Katie Lowe	Date: 04.05.2019
Checklist reviewed by:	 Debbie Simmons	Date: 04.07.2019



Certificate of Analysis Summary 620697

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



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

Date Received in Lab: Wed Apr-10-19 03:00 pm
Report Date: 03-MAY-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	620697-001	620697-002	620697-003	620697-004	620697-005	620697-006
	Field Id:	MW-19-W-190904	MW-18-W-190904	MW-24-W-190904	MW-26-W-190904	MW-25-W-190904	MW-11-W-190904
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	Apr-09-19 09:45	Apr-09-19 09:55	Apr-09-19 10:05	Apr-09-19 10:15	Apr-09-19 10:30	Apr-09-19 10:45
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-17-19 18:30	Apr-17-19 18:30	Apr-17-19 18:30	Apr-18-19 16:00	Apr-18-19 16:00	Apr-18-19 16:00
	Analyzed:	Apr-18-19 01:12	Apr-18-19 01:21	Apr-18-19 01:29	Apr-18-19 23:51	Apr-18-19 23:59	Apr-19-19 00:24
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		7000 50.0	24600 100	4370 25.0	1340 25.0	24100 100	7840 50.0
TDS by SM2540C	Extracted:						
	Analyzed:	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		10500 5.00	33300 5.00	8250 5.00	2830 5.00	33100 5.00	11700 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 620697

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



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

Date Received in Lab: Wed Apr-10-19 03:00 pm
Report Date: 03-MAY-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	620697-007	620697-008	620697-009	620697-010	620697-011	620697-012
	Field Id:	MW-6-W-190904	MW-5-W-190904	MW-3-W-190904	Tract 4-W-190904	MW-14-W-190904	MW-4-W-190904
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	Apr-09-19 11:00	Apr-09-19 11:15	Apr-09-19 11:35	Apr-09-19 11:50	Apr-09-19 12:10	Apr-09-19 12:20
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-18-19 16:00	Apr-18-19 16:00	Apr-18-19 16:00	Apr-18-19 16:00	Apr-18-19 16:00	Apr-18-19 16:00
	Analyzed:	Apr-19-19 00:33	Apr-19-19 00:41	Apr-19-19 00:50	Apr-19-19 13:11	Apr-19-19 00:58	Apr-19-19 01:31
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		418 5.00	300 5.00	636 5.00	350 5.00	1610 25.0	377 5.00
TDS by SM2540C	Extracted:						
	Analyzed:	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1500 5.00	257 5.00	1370 5.00	1070 5.00	2940 5.00	877 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 620697

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



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

Date Received in Lab: Wed Apr-10-19 03:00 pm
Report Date: 03-MAY-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	620697-013	620697-014	620697-015	620697-016	620697-017	620697-018
	Field Id:	Livermore-W-191004	MW-30-W-191004	MW-13-W-191004	MW-15-W-191004	MW-16-W-191004	MW-21-W-191004
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	Sampled:	Apr-10-19 09:45	Apr-10-19 10:00	Apr-10-19 10:05	Apr-10-19 10:30	Apr-10-19 10:40	Apr-10-19 10:50
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-18-19 16:00	Apr-18-19 16:00	Apr-18-19 16:00	Apr-18-19 16:00	Apr-18-19 16:00	Apr-18-19 16:00
	Analyzed:	Apr-19-19 01:40	Apr-19-19 02:05	Apr-19-19 02:13	Apr-19-19 02:22	Apr-19-19 02:30	Apr-19-19 02:38
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		2660 25.0	2400 25.0	2020 25.0	1110 10.0	508 5.00	6970 25.0
TDS by SM2540C	Extracted:						
	Analyzed:	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		4670 5.00	4160 5.00	4160 5.00	1740 5.00	1240 5.00	11000 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 620697

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



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

Date Received in Lab: Wed Apr-10-19 03:00 pm
Report Date: 03-MAY-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	620697-019	620697-020	620697-021	620697-022		
	Field Id:	MW-17-W-191004	MW-23-W-191004	MW-22-W-191004	MW-12-W-191004		
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER		
	Sampled:	Apr-10-19 11:00	Apr-10-19 11:10	Apr-10-19 11:20	Apr-10-19 11:35		
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-18-19 16:00	Apr-18-19 16:00	Apr-18-19 16:30	Apr-18-19 16:30		
	Analyzed:	Apr-19-19 02:47	Apr-19-19 02:55	Apr-19-19 04:11	Apr-19-19 04:19		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Chloride		9440 50.0	6540 25.0	10900 50.0	14100 50.0		
TDS by SM2540C	Extracted:						
	Analyzed:	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21		
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Total Dissolved Solids		14500 5.00	10200 5.00	16200 5.00	21700 5.00		

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

Debbie Simmons
Project Manager

Analytical Report 620697

for GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

03-MAY-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)



03-MAY-19

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

Reference: XENCO Report No(s): **620697**
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) 620697. 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. 620697 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

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Sample Cross Reference 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-19-W-190904	W	04-09-19 09:45		620697-001
MW-18-W-190904	W	04-09-19 09:55		620697-002
MW-24-W-190904	W	04-09-19 10:05		620697-003
MW-26-W-190904	W	04-09-19 10:15		620697-004
MW-25-W-190904	W	04-09-19 10:30		620697-005
MW-11-W-190904	W	04-09-19 10:45		620697-006
MW-6-W-190904	W	04-09-19 11:00		620697-007
MW-5-W-190904	W	04-09-19 11:15		620697-008
MW-3-W-190904	W	04-09-19 11:35		620697-009
Tract 4-W-190904	W	04-09-19 11:50		620697-010
MW-14-W-190904	W	04-09-19 12:10		620697-011
MW-4-W-190904	W	04-09-19 12:20		620697-012
Livermore-W-191004	W	04-10-19 09:45		620697-013
MW-30-W-191004	W	04-10-19 10:00		620697-014
MW-13-W-191004	W	04-10-19 10:05		620697-015
MW-15-W-191004	W	04-10-19 10:30		620697-016
MW-16-W-191004	W	04-10-19 10:40		620697-017
MW-21-W-191004	W	04-10-19 10:50		620697-018
MW-17-W-191004	W	04-10-19 11:00		620697-019
MW-23-W-191004	W	04-10-19 11:10		620697-020
MW-22-W-191004	W	04-10-19 11:20		620697-021
MW-12-W-191004	W	04-10-19 11:35		620697-022
MW-34-W-191004	W	04-10-19 11:55		Not Analyzed
MW-33-W-191004	W	04-10-19 12:05		Not Analyzed
MW-32-W-191004	W	04-10-19 12:15		Not Analyzed



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Dollarhide

Project ID: 055270
Work Order Number(s): 620697

Report Date: 03-MAY-19
Date Received: 04/10/2019

Sample receipt non conformances and comments:

report revised 5/3/19 to report MW-32, MW-33 and MW-34 on a separate report and also correct IDs for samples collected on 4/10/19.

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-19-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-001

Date Collected: 04.09.19 09.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 04.17.19 18.30

Seq Number: 3086124

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7000	50.0	8.58	mg/L	04.18.19 01.12		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	10500	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-18-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-002

Date Collected: 04.09.19 09.55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 04.17.19 18.30

Seq Number: 3086124

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24600	100	17.2	mg/L	04.18.19 01.21		200

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	33300	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-24-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-003

Date Collected: 04.09.19 10.05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 04.17.19 18.30

Seq Number: 3086124

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4370	25.0	4.29	mg/L	04.18.19 01.29		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8250	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-26-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-004

Date Collected: 04.09.19 10.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1340	25.0	4.29	mg/L	04.18.19 23.51		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2830	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-25-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-005

Date Collected: 04.09.19 10.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24100	100	17.2	mg/L	04.18.19 23.59		200

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	33100	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-11-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-006

Date Collected: 04.09.19 10.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7840	50.0	8.58	mg/L	04.19.19 00.24		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	11700	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-6-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-007

Date Collected: 04.09.19 11.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	418	5.00	0.858	mg/L	04.19.19 00.33		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1500	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-5-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-008

Date Collected: 04.09.19 11.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	300	5.00	0.858	mg/L	04.19.19 00.41		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	257	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-3-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-009

Date Collected: 04.09.19 11.35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	636	5.00	0.858	mg/L	04.19.19 00.50		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1370	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Tract 4-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-010

Date Collected: 04.09.19 11.50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	350	5.00	0.858	mg/L	04.19.19 13.11		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1070	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-14-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-011

Date Collected: 04.09.19 12.10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1610	25.0	4.29	mg/L	04.19.19 00.58		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2940	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-4-W-190904**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-012

Date Collected: 04.09.19 12.20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	377	5.00	0.858	mg/L	04.19.19 01.31		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	877	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **Livermore-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-013

Date Collected: 04.10.19 09.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2660	25.0	4.29	mg/L	04.19.19 01.40		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4670	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-30-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-014

Date Collected: 04.10.19 10.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2400	25.0	4.29	mg/L	04.19.19 02.05		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4160	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-13-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-015

Date Collected: 04.10.19 10.05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2020	25.0	4.29	mg/L	04.19.19 02.13		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	4160	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-15-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-016

Date Collected: 04.10.19 10.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1110	10.0	1.72	mg/L	04.19.19 02.22		20

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1740	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-16-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-017

Date Collected: 04.10.19 10.40

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	508	5.00	0.858	mg/L	04.19.19 02.30		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1240	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-21-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-018

Date Collected: 04.10.19 10.50

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6970	25.0	4.29	mg/L	04.19.19 02.38		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	11000	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-17-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-019

Date Collected: 04.10.19 11.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9440	50.0	8.58	mg/L	04.19.19 02.47		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	14500	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-23-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-020

Date Collected: 04.10.19 11.10

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.00

Seq Number: 3086297

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6540	25.0	4.29	mg/L	04.19.19 02.55		50

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085480

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	10200	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-22-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-021

Date Collected: 04.10.19 11.20

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.30

Seq Number: 3086304

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10900	50.0	8.58	mg/L	04.19.19 04.11		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085483

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	16200	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 620697



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-12-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 620697-022

Date Collected: 04.10.19 11.35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.30

Seq Number: 3086304

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14100	50.0	8.58	mg/L	04.19.19 04.19		100

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085483

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	21700	5.00	5.00	mg/L	04.11.19 16.21		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: 3086124

Matrix: Water

Prep Method: E300P

MB Sample Id: 7676021-1-BLK

LCS Sample Id: 7676021-1-BKS

Date Prep: 04.17.19

LCSD Sample Id: 7676021-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	0.197	25.0	26.3	105	26.0	104	90-110	1	20	mg/L	04.17.19 21:26	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086297

Matrix: Water

Prep Method: E300P

MB Sample Id: 7676093-1-BLK

LCS Sample Id: 7676093-1-BKS

Date Prep: 04.18.19

LCSD Sample Id: 7676093-1-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	26.7	107	26.9	108	90-110	1	20	mg/L	04.18.19 22:42	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086304

Matrix: Water

Prep Method: E300P

MB Sample Id: 7676094-1-BLK

LCS Sample Id: 7676094-1-BKS

Date Prep: 04.18.19

LCSD Sample Id: 7676094-1-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	27.5	110	26.7	107	90-110	3	20	mg/L	04.19.19 03:29	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086124

Matrix: Water

Prep Method: E300P

Parent Sample Id: 620864-007

MS Sample Id: 620864-007 S

Date Prep: 04.17.19

MSD Sample Id: 620864-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	636	250	902	106	884	99	90-110	2	20	mg/L	04.18.19 13:04	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086124

Matrix: Drinking Water

Prep Method: E300P

Parent Sample Id: 621306-001

MS Sample Id: 621306-001 S

Date Prep: 04.17.19

MSD Sample Id: 621306-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7.11	25.0	33.2	104	32.6	102	90-110	2	20	mg/L	04.17.19 21:51	

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

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

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



QC Summary 620697

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086297

Matrix: Ground Water

Prep Method: E300P

Parent Sample Id: 620697-010

MS Sample Id: 620697-010 S

Date Prep: 04.18.19

MSD Sample Id: 620697-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	350	250	604	102	615	106	90-110	2	20	mg/L	04.19.19 13:19	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086297

Matrix: Drinking Water

Prep Method: E300P

Parent Sample Id: 621494-001

MS Sample Id: 621494-001 S

Date Prep: 04.18.19

MSD Sample Id: 621494-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	11.6	25.0	38.3	107	38.2	106	90-110	0	20	mg/L	04.18.19 23:17	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086304

Matrix: Drinking Water

Prep Method: E300P

Parent Sample Id: 621493-001

MS Sample Id: 621493-001 S

Date Prep: 04.18.19

MSD Sample Id: 621493-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	18.1	25.0	43.8	103	45.0	108	90-110	3	20	mg/L	04.19.19 05:51	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086304

Matrix: Drinking Water

Prep Method: E300P

Parent Sample Id: 621495-001

MS Sample Id: 621495-001 S

Date Prep: 04.18.19

MSD Sample Id: 621495-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3.24	25.0	29.9	107	30.0	107	90-110	0	20	mg/L	04.19.19 03:54	

Analytical Method: TDS by SM2540C

Seq Number: 3085480

Matrix: Water

MB Sample Id: 3085480-1-BLK

LCS Sample Id: 3085480-1-BKS

LCSD Sample Id: 3085480-1-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	985	99	982	98	80-120	0	10	mg/L	04.11.19 16:21	

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



QC Summary 620697

GHD Services, INC- Midland Dollarhide

Analytical Method: TDS by SM2540C

Seq Number: 3085483

MB Sample Id: 3085483-1-BLK

Matrix: Water

LCS Sample Id: 3085483-1-BKS

LCSD Sample Id: 3085483-1-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	995	100	987	99	80-120	1	10	mg/L	04.11.19 16:21	

Analytical Method: TDS by SM2540C

Seq Number: 3085480

Parent Sample Id: 620697-001

Matrix: Ground Water

MD Sample Id: 620697-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	10500	10700	2	10	mg/L	04.11.19 16:21	

Analytical Method: TDS by SM2540C

Seq Number: 3085480

Parent Sample Id: 620697-011

Matrix: Ground Water

MD Sample Id: 620697-011 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	2940	3240	10	10	mg/L	04.11.19 16:21	

Analytical Method: TDS by SM2540C

Seq Number: 3085483

Parent Sample Id: 620697-021

Matrix: Ground Water

MD Sample Id: 620697-021 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	16200	15800	3	10	mg/L	04.11.19 16:21	

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

Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick Casten@ghd.com & Christopher.Knight@ghd.com & Brittany.White@ghd.com & edds@ghd.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		ANALYSIS REQUEST	Work Order Notes
Project Number:		055270-2019-001		Routine ☒			
P.O. Number:				Rush:			
Sampler's Name:		Joshua Shockey JOSHI, Matthew		Due Date:			
SAMPLE RECEIPT		Temp Blank: ☐ Yes ☐ No		Wet Ice: ☒ Yes ☐ No			
Temperature (°C):		0.40.3		Thermoflex ID			
Received In tact:		☒ Yes ☐ No					
Cooler Custody Seals:		Yes ☒ No ☐ N/A		Correction Factor:		-0.1	
Sample Custody Seals:		Yes ☒ No ☐ N/A		Total Containers:			
Number of Containers							
es							
TAT starts the day received by the lab, if received by 4:30pm							

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	Chloride	TDS	Sample Comments
MW-18-W-190904	CW	4-9	0945	—	1	X	X	
MW-18-W-190904			6455		1			
MW-24-W-190904			1005		1			
MW-24-W-190904			1015		1			
MW-26-W-190904			1030		1			
MW-25-W-190904			1045		1			
MW-11-W-190904			1100		1			
MW-8-W-190904			1115		1			
MW-5-W-190904			1135		1			
MW-3-W-190904			1150		1			
Tract 4-W-190904					3	X	X	M&M parent

[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 <i>William S. [Signature]</i>	<i>[Signature]</i>	04/10/19 1500	2		
3			4		
5			6		



Chain of Custody

Work Order No:

1620097

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 2 of 3

Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick Casten@gnd.com & Christopher.Knight@gnd.com & Brittany.White@gnd.com & eds@gnd.com

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	Routine ☒
Project Number:	055270-2019-001	Rush:	
P.O. Number:		Due Date:	
Sampler's Name:	Jordan Sharkey		
SAMPLE RECEIPT			
Temperature (°C):	040.5	Temp Blank:	Yes ☒ No ☐
Received intact:	Yes ☒ No ☐	Thermomix:	Yes ☒ No ☐
Cooler Custody Seals:	Yes ☒ No ☐	Correction Factor:	01
Sample Custody Seals:	Yes ☒ No ☐	Total Containers:	
ANALYSIS REQUEST			
Sample Identification	Matrix	Date Sampled	Time Sampled
MW-14-W-190904	FW	4-9	1210
MW-4-W-190904	GW	4-9	1230
Livermore-W-191004	GW	4-10	0945
MW-30-W-191004			1000
MW-13-W-191004			1005
MW-15-W-191004			1030
MW-16-W-191004			1040
MW-21-W-191004			1050
MW-17-W-191004			1100
MW-23-W-191004			1110
Number of Containers			
Chlorides			
TDS			
ANALYSIS REQUEST			
Work Order Notes			
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 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 Jordan Sharkey	2 [Signature]	04/10/19 1500	3 [Signature]	4 [Signature]	
5 [Signature]			6 [Signature]		



Page 3 of 3

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:	ANALYSIS REQUEST							Work Order Notes
Project Number:	055270-2019-001	Routine ☒								
P.O. Number:		Rush:								
Sampler's Name:		Due Date:								

SAMPLE RECEIPT		Temp Blank:		Wet Ice:	
Yes	No	Yes	No	Yes	No
Temperature (°C):		0.410.3			
Received Intact:		Yes No			
Cooler Custody Seals:		Yes No N/A		Correction Factor: 0.1	
Sample Custody Seals:		Yes No N/A		Total Containers:	

Number of Containers

Yes

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

[illegible]

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	SiO ₂	Na	Sr	Ti	Sn	U	V	Zn
<i>Circle Method(s) and Metal(s) to be analyzed</i>		TCLP / SPLP	6010:	8RCRA	Sb	As	Ba	Be	B	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.



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 04/10/2019 03:00:00 PM

Work Order #: 620697

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
#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: 04/10/2019

Checklist reviewed by:

Debbie Simmons

Debbie Simmons

Date: 04/12/2019



Certificate of Analysis Summary 623143

GHD Services, INC- Midland, Midland, TX

Project Name: Dollarhide



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

Date Received in Lab: Wed Apr-10-19 03:00 pm
Report Date: 03-MAY-19
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	623143-001	623143-002	623143-003			
	Field Id:	MW-34-W-191004	MW-33-W-191004	MW-32-W-191004			
	Depth:						
	Matrix:	GROUND WATER	GROUND WATER	GROUND WATER			
	Sampled:	Apr-10-19 11:55	Apr-10-19 12:05	Apr-10-19 12:15			
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-18-19 16:30	Apr-18-19 16:30	Apr-18-19 16:30			
	Analyzed:	Apr-19-19 04:27	Apr-19-19 04:36	Apr-19-19 05:01			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL			
Chloride		69.9 2.50	183 2.50	373 5.00			
TDS by SM2540C	Extracted:						
	Analyzed:	Apr-11-19 16:21	Apr-11-19 16:21	Apr-11-19 16:21			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL			
Total Dissolved Solids		600 5.00	912 5.00	1170 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

Version: 1.9%

Debbie Simmons
Project Manager

Analytical Report 623143

for
GHD Services, INC- Midland

Project Manager: Nick Casten

Dollarhide

055270

03-MAY-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)



03-MAY-19

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

Reference: XENCO Report No(s): **623143**
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) 623143. 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. 623143 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 623143



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-34-W-191004	W	04-10-19 11:55		623143-001
MW-33-W-191004	W	04-10-19 12:05		623143-002
MW-32-W-191004	W	04-10-19 12:15		623143-003



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Dollarhide

Project ID: 055270
Work Order Number(s): 623143

Report Date: 03-MAY-19
Date Received: 04/10/2019

Sample receipt non conformances and comments:

per Brittany White, report MW-32, MW-33 and MW-34 separate.

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 623143



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-34-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 623143-001

Date Collected: 04.10.19 11.55

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.30

Seq Number: 3086304

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	69.9	2.50	0.429	mg/L	04.19.19 04.27		5

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085483

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	600	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 623143



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-33-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 623143-002

Date Collected: 04.10.19 12.05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.30

Seq Number: 3086304

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	183	2.50	0.429	mg/L	04.19.19 04.36		5

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085483

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	912	5.00	5.00	mg/L	04.11.19 16.21		1



Certificate of Analytical Results 623143



GHD Services, INC- Midland, Midland, TX

Dollarhide

Sample Id: **MW-32-W-191004**

Matrix: Ground Water

Date Received: 04.10.19 15.00

Lab Sample Id: 623143-003

Date Collected: 04.10.19 12.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: CHE

Date Prep: 04.18.19 16.30

Seq Number: 3086304

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	373	5.00	0.858	mg/L	04.19.19 05.01		10

Analytical Method: TDS by SM2540C

Tech: SPC

% Moisture:

Analyst: SPC

Seq Number: 3085483

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1170	5.00	5.00	mg/L	04.11.19 16.21		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 623143

GHD Services, INC- Midland Dollarhide

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086304

Matrix: Water

Prep Method: E300P

MB Sample Id: 7676094-1-BLK

LCS Sample Id: 7676094-1-BKS

Date Prep: 04.18.19

LCSD Sample Id: 7676094-1-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	27.5	110	26.7	107	90-110	3	20	mg/L	04.19.19 03:29	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086304

Matrix: Drinking Water

Prep Method: E300P

Parent Sample Id: 621493-001

MS Sample Id: 621493-001 S

Date Prep: 04.18.19

MSD Sample Id: 621493-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	18.1	25.0	43.8	103	45.0	108	90-110	3	20	mg/L	04.19.19 05:51	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3086304

Matrix: Drinking Water

Prep Method: E300P

Parent Sample Id: 621495-001

MS Sample Id: 621495-001 S

Date Prep: 04.18.19

MSD Sample Id: 621495-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3.24	25.0	29.9	107	30.0	107	90-110	0	20	mg/L	04.19.19 03:54	

Analytical Method: TDS by SM2540C

Seq Number: 3085483

Matrix: Water

MB Sample Id: 3085483-1-BLK

LCS Sample Id: 3085483-1-BKS

LCSD Sample Id: 3085483-1-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	995	100	987	99	80-120	1	10	mg/L	04.11.19 16:21	

Analytical Method: TDS by SM2540C

Seq Number: 3085483

Matrix: Ground Water

Parent Sample Id: 620697-021

MD Sample Id: 620697-021 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	16200	15800	3	10	mg/L	04.11.19 16:21	

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:

623143

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 3 of 1

Project Manager:	Nick Casten	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	
Phone:	225-292-9007	Email:	Nick.Casten@ghd.com & Christopher.Knight@ghd.com & Brittany.White@ghd.com & edds@ghd.com
Project Name:	Dollarhide	Turn Around:	
Project Number:	055270-2019-001	Routine:	☒
P.O. Number:		Rush:	
Sampler's Name:		Due Date:	

SAMPLE RECEIPT		Temp Blank:	☒ Yes ☐ No	Wet Ice:	☒ Yes ☐ No
Temperature (°C):	0.40.5	Thermofluorid			
Received Intact:	Yes	No		Correction Factor:	0.1
Cooler Custody Seals:	Yes	No		Total Containers:	
Sample Custody Seals:	Yes	No			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	Chloride	TDS	Sample Comments											
MW-22-W-191004	6W	04/10/19	11:20		1	X	X												
MW-12-W-191004			11:35		1														
MW-34-W-191004			11:55		1														
MW-33-W-191004			12:05		1														
MW-32-W-191004			12:15		1														

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

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 \$8 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
Johna Shorting		04/10/19 1500			



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 05/03/2019 10:38:19 AM

Work Order #: 623143

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

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

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by:

Katie Lowe

Date: 05/03/2019

Checklist reviewed by:

Debbie Simmons

Date: 05/03/2019

Appendix F

Historical Groundwater Analytical Data

Appendix F
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
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

Appendix F
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
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

Appendix F
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
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
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

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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
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
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

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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
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
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

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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
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
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

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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
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
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

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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-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
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
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

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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
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
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

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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
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
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

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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
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
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

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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
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
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

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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
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
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

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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
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
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
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
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

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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-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
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
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
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

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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
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
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
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
MW-32			
	4/10/2019	373	1,170
MW-33			
	4/10/2019	183	912
MW-34			
	4/10/2019	69.9	600

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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
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
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
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

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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
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	258.0	1,240
	4/4/2019	188	420
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
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

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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
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
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
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
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

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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
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
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
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

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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
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
DHU-Office			
	04/06	376	2,434
DHU- Office (CHRM)			
	04/06	382	2,460

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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
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

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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
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

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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
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
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

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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
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

Appendix F
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

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 G

Data Validation Reports



Memorandum

January 30, 2019

To: Nick Casten, Brittany White

Ref. No.: 055270

From:  Chris G. Knight/eew/22-NF

Tel: 512-506-8803

**Subject: Analytical Results and Reduced Validation
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 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 January 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 samples (LCS), 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/laboratory control sample duplicates (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.

An MS/MSD analysis was performed as specified in Table 1. The MS/MSD samples were spiked with chloride and the results were evaluated using the "Guidelines". All percent recoveries and the RPD value were within the control limits, demonstrating acceptable analytical accuracy and precision.

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 total dissolved solids (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
January 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-190109	43-K-1	Water	01/09/2019	10:20	X	X	DUP
45-E-3-MW-W-190109	45-E-3	Water	01/09/2019	10:35	X	X	
45-F-1-MW-W-190109	45-F-1	Water	01/09/2019	10:55	X	X	
45-FF-MW-W-190109	45-FF	Water	01/09/2019	11:10	X	X	
45-E-2-MW-W-190109	45-E-2	Water	01/09/2019	11:25	X	X	
45-E-1-MW-W-190109	45-E-1	Water	01/09/2019	11:40	X	X	
44-I-1-MW-W-190109	44-I-1	Water	01/09/2019	12:10	X	X	
44-J-1-MW-W-190109	44-J-1	Water	01/09/2019	12:20	X	X	
44-J-5-MW-W-190109	44-J-5	Water	01/09/2019	12:30	X	X	
44-J-3-MW-W-190109	44-J-3	Water	01/09/2019	12:40	X	X	
44-J-4-MW-W-190109	44-J-4	Water	01/09/2019	12:50	X	X	
44-J-2-MW-W-190109	44-J-2	Water	01/09/2019	13:05	X	X	
MW-8-W-190109	MW-8	Water	01/09/2019	13:45	X	X	
DHU-FWS-W-190109	DHU-FWS	Water	01/09/2019	13:55	X	X	
58-B-2-MW-W-190109	58-B-2	Water	01/09/2019	14:05	X	X	
58-B-1-MW-W-190109	58-B-2	Water	01/09/2019	14:15	X	X	
MW-9-W-190109	MW-9	Water	01/09/2019	14:35	X	X	
58-B-3-MW-W-190109	58-B-3	Water	01/09/2019	14:50	X	X	
MW-29-W-190109	MW-29	Water	01/09/2019	15:00	X	X	

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
MW-28-W-190109	MW-28	Water	01/09/2019	15:10	X	X	DUP
NM-MW-10-W-190109	NM-MW-10	Water	01/09/2019	15:35	X	X	DUP
NM-MW-12-W-190109	NM-MW-12	Water	01/09/2019	15:45	X	X	
Wilson Well-W-190109	WILSON RANCH WW	Water	01/09/2019	15:55	X	X	
Wilson Well-WD-190109	WILSON RANCH WW	Water	01/09/2019	15:55	X	X	Field duplicate of WILSON RANCH WW
Smith Well-W-190109	SMITH RESIDENCE	Water	01/09/2019	16:10	X	X	
NM-MW-8-W-190110	NM-MW-8	Water	01/10/2019	10:10	X	X	
NM-MW-4-W-190110	NM-MW-4	Water	01/10/2019	10:25	X	X	
RRR Ranch-W-190110	Ranch Windmill	Water	01/10/2019	10:35	X	X	
NM-MW-7-W-190110	NM-MW-7	Water	01/10/2019	10:45	X	X	
NM-MW-3-W-190110	NM-MW-3	Water	01/10/2019	10:55	X	X	
NM-MW-2-W-190110	NM-MW-2	Water	01/10/2019	11:05	X	X	
NM-MW-1-W-190110	NM-MW-1	Water	01/10/2019	11:10	X	X	
NM-MW-5-W-190110	NM-MW-5	Water	01/10/2019	11:20	X	X	
NM-MW-6-W-190110	NM-MW-6	Water	01/10/2019	11:30	X	X	MS/MSD
NM-MW-11-W-190110	NM-MW-11	Water	01/10/2019	11:40	X	X	
NM-MW-13-W-190110	NM-MW-13	Water	01/10/2019	12:00	X	X	
NM-MW-9-W-190110	NM-MW-9	Water	01/10/2019	12:25	X	X	
MW-27-W-190110	MW-27	Water	01/10/2019	12:35	X	X	

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
MW-20-W-190110	MW-20	Water	01/10/2019	12:45	X	X	DUP Field duplicate of MW-10; DUP
MW-10-W-190110	MW-10	Water	01/10/2019	12:55	X	X	
MW-10-WD-190110	MW-10	Water	01/10/2019	12:55	X	X	
MW-26-W-190110	MW-26	Water	01/10/2019	13:10	X	X	Field duplicate of Trac4
MW-24-W-190110	MW-24	Water	01/10/2019	13:15	X	X	
MW-12-W-190110	MW-12	Water	01/10/2019	13:20	X	X	
MW-31-W-190110	MW-31	Water	01/10/2019	13:30	X	X	
MW-18-W-190110	MW-18	Water	01/10/2019	13:45	X	X	
MW-19-W-190110	MW-19	Water	01/10/2019	13:50	X	X	
MW-25-W-190110	MW-25	Water	01/10/2019	14:00	X	X	
MW-11-W-190110	MW-11	Water	01/10/2019	14:10	X	X	
MW-6-W-190110	MW-6	Water	01/10/2019	14:20	X	X	
MW-5-W-190110	MW-5	Water	01/10/2019	14:25	X	X	
MW-3-W-190110	MW-3	Water	01/10/2019	14:35	X	X	
Tract-4-W-190110	Trac4	Water	01/10/2019	14:45	X	X	
Tract-4-WD-190110	Trac4	Water	01/10/2019	14:45	X	X	
MW-14-W-190110	MW-14	Water	01/10/2019	14:50	X	X	
MW-4-W-190110	MW-4	Water	01/10/2019	15:00	X	X	
MW-13-W-190110	MW-13	Water	01/10/2019	15:10	X	X	

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
MW-30-W-190110	MW-30	Water	01/10/2019	15:15	X	X	
Livermore-W-190110	Livermore	Water	01/10/2019	15:30	X	X	
MW-23-W-190110	MW-23	Water	01/10/2019	15:35	X	X	DUP
MW-22-W-190110	MW-22	Water	01/10/2019	15:40	X	X	DUP
MW-17-W-190110	MW-17	Water	01/10/2019	15:50	X	X	
MW-21-W-190110	MW-21	Water	01/10/2019	15:55	X	X	
MW-16-W-190110	MW-16	Water	01/10/2019	16:05	X	X	
MW-15-W-190110	MW-15	Water	01/10/2019	16:15	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
January 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-190109	44-I-1-MW-W-190109	44-J-1-MW-W-190109	44-J-2-MW-W-190109	44-J-3-MW-W-190109	44-J-4-MW-W-190109
Sample Date:		01/09/2019	01/09/2019	01/09/2019	01/09/2019	01/09/2019	01/09/2019
Parameters	Unit						
General Chemistry							
Chloride	mg/L	7130	3320	4850	4930	4300	4470
TDS	mg/L	9640	4580	6190	7020	6330	6130

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 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-190109	45-E-1-MW-W-190109	45-E-2-MW-W-190109	45-E-3-MW-W-190109	45-F-1-MW-W-190109	45-FF-MW-W-190109
Sample Date:		01/09/2019	01/09/2019	01/09/2019	01/09/2019	01/09/2019	01/09/2019
Parameters	Unit						
General Chemistry							
Chloride	mg/L	3970	2680	1660	3760	901	5080
TDS	mg/L	5690	3650	3040	5240	1840	6690

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Location ID:		58-B-2	58-B-2	58-B-3	DHU-FWS	Livermore	MW-3
Sample Name:		58-B-1-MW-W-190109	58-B-2-MW-W-190109	58-B-3-MW-W-190109	DHU-FWS-W-190109	Livermore-W-190110	MW-3-W-190110
Sample Date:		01/09/2019	01/09/2019	01/09/2019	01/09/2019	01/10/2019	01/10/2019
Parameters	Unit						
General Chemistry							
Chloride	mg/L	5240	4190	900	611	2530	194
TDS	mg/L	8120	5470	2070	2900	4330	619

Table 2
Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Location ID:		MW-4	MW-5	MW-6	MW-8	MW-9	MW-10	MW-10
Sample Name:		MW-4-W-190110	MW-5-W-190110	MW-6-W-190110	MW-8-W-190109	MW-9-W-190109	MW-10-W-190110	MW-10-WD-190110
Sample Date:		01/10/2019	01/10/2019	01/10/2019	01/09/2019	01/09/2019	01/10/2019	01/10/2019
Parameters	Unit							
General Chemistry								
Chloride	mg/L	35.7	244	372	852	195	5130	5560
TDS	mg/L	426	1050	1510	2160	807	7050	7130

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Location ID:		MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17
Sample Name:		MW-11-W-190110	MW-12-W-190110	MW-13-W-190110	MW-14-W-190110	MW-15-W-190110	MW-16-W-190110	MW-17-W-190110
Sample Date:		01/10/2019	01/10/2019	01/10/2019	01/10/2019	01/10/2019	01/10/2019	01/10/2019
Parameters	Unit							
General Chemistry								
Chloride	mg/L	8240	13900	1880	1630	995	468	10100
TDS	mg/L	9730	14000	3810	2890	2290	1260	11100

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Location ID:		MW-18	MW-19	MW-20	MW-21	MW-22	MW-23	MW-24
Sample Name:		MW-18-W-190110	MW-19-W-190110	MW-20-W-190110	MW-21-W-190110	MW-22-W-190110	MW-23-W-190110	MW-24-W-190110
Sample Date:		01/10/2019	01/10/2019	01/10/2019	01/10/2019	01/10/2019	01/10/2019	01/10/2019
Parameters	Unit							
General Chemistry								
Chloride	mg/L	17000	6570	1070	7530	12000	7910	359
TDS	mg/L	19000	9300	2180	9420	10900	9780	1020

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Location ID:		MW-25	MW-26	MW-27	MW-28	MW-29	MW-30	MW-31
Sample Name:		MW-25-W-190110	MW-26-W-190110	MW-27-W-190110	MW-28-W-190109	MW-29-W-190109	MW-30-W-190110	MW-31-W-190110
Sample Date:		01/10/2019	01/10/2019	01/10/2019	01/09/2019	01/09/2019	01/10/2019	01/10/2019
Parameters	Unit							
General Chemistry								
Chloride	mg/L	23500	1190	2420	1510	3320	2460	11100
TDS	mg/L	29800	2740	4110	3050	7270	3860	10300

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Location ID:	NM-MW-1	NM-MW-2	NM-MW-3	NM-MW-4	NM-MW-5	NM-MW-6	NM-MW-7
Sample Name:	NM-MW-1-W-190110	NM-MW-2-W-190110	NM-MW-3-W-190110	NM-MW-4-W-190110	NM-MW-5-W-190110	NM-MW-6-W-190110	NM-MW-7-W-190110
Sample Date:	01/10/2019	01/10/2019	01/10/2019	01/10/2019	01/10/2019	01/10/2019	01/10/2019

Parameters	Unit							
General Chemistry								
Chloride	mg/L	256	616	447	258	142	113	2040
TDS	mg/L	1370	1210	1250	1240	1280	813	5190

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Location ID:	NM-MW-8	NM-MW-9	NM-MW-10	NM-MW-11	NM-MW-12	NM-MW-13
Sample Name:	NM-MW-8-W-190110	NM-MW-9-W-190110	NM-MW-10-W-190109	NM-MW-11-W-190110	NM-MW-12-W-190109	NM-MW-13-W-190110
Sample Date:	01/10/2019	01/10/2019	01/09/2019	01/10/2019	01/09/2019	01/10/2019

Parameters**Unit****General Chemistry**

Chloride	mg/L	4630	2620	290	154	596	165
TDS	mg/L	8040	4160	1530	1840	1300	1070

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 2019

Location ID:		Ranch Windmill	SMITH RESIDENCE	Trac4	Trac4	WILSON RANCH WW	WILSON RANCH WW
Sample Name:		RRR Ranch-W-190110	Smith Well-W-190109	Tract-4-W-190110	Tract-4-WD-190110	Wilson Well-W-190109	Wilson Well-WD-190109
Sample Date:		01/10/2019	01/09/2019	01/10/2019	01/10/2019	01/09/2019	01/09/2019
Parameters	Unit						
General Chemistry							
Chloride	mg/L	1290	1020	315	314	1070	1020
TDS	mg/L	2950	2230	1080	1080	2420	2420

Notes:

TDS - Total Dissolved Solids

Table 3

Analytical Methods
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
January 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

May 7, 2019

To: Nick Casten, Brittany White

Ref. No.: 055270

From: ^{CK} Chris G. Knight/eew/23-NF

Tel: 512-506-8803

**Subject: Analytical Results and Reduced Validation
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 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 April 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 samples (LCS), 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 with the following exceptions:

- 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 actions were required.
- ii) Two method blanks yielded low level detections for total dissolved solids (TDS). All associated sample results were significantly greater than the method blank detections and were not affected. No further actions were required.

4. Laboratory Control Sample Analyses

LCS/laboratory control sample duplicates (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 three MS/MSDs were reported outlying recoveries. If only the MS or MSD recovery was outside of control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD. 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
April 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-190404	NM-MW-7	Water	04/04/2019	10:00	X	X	
RRR Ranch-W-190404	Ranch Windmill	Water	04/04/2019	10:25	X	X	MS/MSD
NM-MW-4-W-190404	NM-MW-4	Water	04/04/2019	10:45	X	X	DUP
NM-MW-8-W-190404	NM-MW-8	Water	04/04/2019	11:00	X	X	
NM-MW-3-W-190404	NM-MW-3	Water	04/04/2019	11:15	X	X	
NM-MW-2-W-190404	NM-MW-2	Water	04/04/2019	11:30	X	X	
NM-MW-1-W-190404	NM-MW-1	Water	04/04/2019	11:45	X	X	
NM-MW-5-W-190404	NM-MW-5	Water	04/04/2019	11:55	X	X	
NM-MW-6-W-190404	NM-MW-6	Water	04/04/2019	12:10	X	X	
NM-MW-11-W-190404	NM-MW-11	Water	04/04/2019	12:40	X	X	
NM-MW-11-WD-190404	NM-MW-11	Water	04/04/2019	12:40	X	X	Field duplicate of NM-MW-11
NM-MW-13-W-190404	NM-MW-13	Water	04/04/2019	13:15	X	X	MS/MSD
NM-MW-10-W-190404	NM-MW-10	Water	04/04/2019	13:48	X	X	DUP
NM-MW-12-W-190404	NM-MW-12	Water	04/04/2019	14:10	X	X	
Wilson Ranch-W-190404	WILSON RANCH WW	Water	04/04/2019	14:20	X	X	DUP
NM-MW-9-W-190504	NM-MW-9	Water	04/05/2019	10:00	X	X	
Smith-W-190504	SMITH RESIDENCE	Water	04/05/2019	10:15	X	X	
Smith-WD-190504	SMITH RESIDENCE	Water	04/05/2019	10:15	X	X	Field duplicate of SMITH RESIDENCE

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
MW-29-W-190504	MW-29	Water	04/05/2019	10:40	X	X	
MW-28-W-190504	MW-28	Water	04/05/2019	10:50	X	X	
MW-9-W-190504	MW-9	Water	04/05/2019	11:15	X	X	
MW-8-W-190504	MW-8	Water	04/05/2019	11:30	X	X	MS/MSD
DHU-FWS-W-190504	DHU-FWS	Water	04/05/2019	11:40	X	X	
MW-27-W-190504	MW-27	Water	04/05/2019	11:50	X	X	
MW-20-W-190504	MW-20	Water	04/05/2019	12:00	X	X	
MW-10-W-190504	MW-10	Water	04/05/2019	12:15	X	X	
MW-10-WD-190504	MW-10	Water	04/05/2019	12:15	X	X	Field duplicate of MW-10
MW-31-W-190504	MW-31	Water	04/05/2019	12:30	X	X	
MW-19-W-190904	MW-19	Water	04/09/2019	09:45	X	X	DUP
MW-18-W-190904	MW-18	Water	04/09/2019	09:55	X	X	
MW-24-W-190904	MW-24	Water	04/09/2019	10:05	X	X	
MW-26-W-190904	MW-26	Water	04/09/2019	10:15	X	X	
MW-25-W-190904	MW-25	Water	04/09/2019	10:30	X	X	
MW-11-W-190904	MW-11	Water	04/09/2019	10:45	X	X	
MW-6-W-190904	MW-6	Water	04/09/2019	11:00	X	X	
MW-5-W-190904	MW-5	Water	04/09/2019	11:15	X	X	
MW-3-W-190904	MW-3	Water	04/09/2019	11:35	X	X	

Table 1

Sample Collection and Analysis Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
					Chloride	TDS	
Tract 4-W-190904	Trac4	Water	04/09/2019	11:50	X	X	MS/MSD
MW-14-W-190904	MW-14	Water	04/09/2019	12:10	X	X	DUP
MW-4-W-190904	MW-4	Water	04/09/2019	12:20	X	X	
Livermore-W-191004	Livermore	Water	04/10/2019	09:45	X	X	
MW-30-W-191004	MW-30	Water	04/10/2019	10:00	X	X	
MW-13-W-191004	MW-13	Water	04/10/2019	10:05	X	X	
MW-15-W-191004	MW-15	Water	04/10/2019	10:30	X	X	
MW-16-W-191004	MW-16	Water	04/10/2019	10:40	X	X	
MW-21-W-191004	MW-21	Water	04/10/2019	10:50	X	X	
MW-17-W-191004	MW-17	Water	04/10/2019	11:00	X	X	
MW-23-W-191004	MW-23	Water	04/10/2019	11:10	X	X	
MW-22-W-191004	MW-22	Water	04/10/2019	11:20	X	X	DUP
MW-12-W-191004	MW-12	Water	04/10/2019	11:35	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
April 2019

Location ID:	DHU-FWS	Livermore	MW-3	MW-4	MW-5	MW-6
Sample Name:	DHU-FWS-W-190504	Livermore-W-191004	MW-3-W-190904	MW-4-W-190904	MW-5-W-190904	MW-6-W-190904
Sample Date:	04/05/2019	04/10/2019	04/09/2019	04/09/2019	04/09/2019	04/09/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	658	2660	636	377	300	418
Total dissolved solids (TDS)	mg/L	3120	4670	1370	877	257	1500

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Location ID:		MW-8	MW-9	MW-10	MW-10	MW-11	MW-12
Sample Name:		MW-8-W-190504	MW-9-W-190504	MW-10-W-190504	MW-10-WD-190504	MW-11-W-190904	MW-12-W-191004
Sample Date:		04/05/2019	04/05/2019	04/05/2019	04/05/2019 Duplicate	04/09/2019	04/10/2019
Parameters	Unit						
General Chemistry							
Chloride	mg/L	1060	1200	5760	5780	7840	14100
Total dissolved solids (TDS)	mg/L	2460	4230	8100	8190	11700	21700

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Location ID:	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
Sample Name:	MW-13-W-191004	MW-14-W-190904	MW-15-W-191004	MW-16-W-191004	MW-17-W-191004	MW-18-W-190904
Sample Date:	04/10/2019	04/09/2019	04/10/2019	04/10/2019	04/10/2019	04/09/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	2020	1610	1110	508	9440	24600
Total dissolved solids (TDS)	mg/L	4160	2940	1740	1240	14500	33300

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Location ID:	MW-19	MW-20	MW-21	MW-22	MW-23	MW-24
Sample Name:	MW-19-W-190904	MW-20-W-190504	MW-21-W-191004	MW-22-W-191004	MW-23-W-191004	MW-24-W-190904
Sample Date:	04/09/2019	04/05/2019	04/10/2019	04/10/2019	04/10/2019	04/09/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	7000	1430	6970	10900	6540	4370
Total dissolved solids (TDS)	mg/L	10500	2410	11000	16200	10200	8250

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Location ID:	MW-25	MW-26	MW-27	MW-28	MW-29	MW-30
Sample Name:	MW-25-W-190904	MW-26-W-190904	MW-27-W-190504	MW-28-W-190504	MW-29-W-190504	MW-30-W-191004
Sample Date:	04/09/2019	04/09/2019	04/05/2019	04/05/2019	04/05/2019	04/10/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	24100	1340	2830	851	508	2400
Total dissolved solids (TDS)	mg/L	33100	2830	4490	3260	1100	4160

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Location ID:	MW-31	NM-MW-1	NM-MW-2	NM-MW-3	NM-MW-4	NM-MW-5
Sample Name:	MW-31-W-190504	NM-MW-1-W-190404	NM-MW-2-W-190404	NM-MW-3-W-190404	NM-MW-4-W-190404	NM-MW-5-W-190404
Sample Date:	04/05/2019	04/04/2019	04/04/2019	04/04/2019	04/04/2019	04/04/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	11800	330	736	259	188	175
Total dissolved solids (TDS)	mg/L	16200	1400	1230	653	420	1240

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Location ID:	NM-MW-6	NM-MW-7	NM-MW-8	NM-MW-9	NM-MW-10	NM-MW-11
Sample Name:	NM-MW-6-W-190404	NM-MW-7-W-190404	NM-MW-8-W-190404	NM-MW-9-W-190504	NM-MW-10-W-190404	NM-MW-11-W-190404
Sample Date:	04/04/2019	04/04/2019	04/04/2019	04/05/2019	04/04/2019	04/04/2019

Parameters	Unit						
General Chemistry							
Chloride	mg/L	161	1940	6690	297	396	185
Total dissolved solids (TDS)	mg/L	813	4160	10100	786	1670	1870

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Location ID:		NM-MW-11	NM-MW-12	NM-MW-13	Ranch Windmill
Sample Name:		NM-MW-11-WD-190404	NM-MW-12-W-190404	NM-MW-13-W-190404	RRR Ranch-W-190404
Sample Date:		04/04/2019	04/04/2019	04/04/2019	04/04/2019
Parameters	Unit				
General Chemistry					
Chloride	mg/L	185	739	225	47.4
Total dissolved solids (TDS)	mg/L	1920	1310	1090	3110

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Location ID: Sample Name: Sample Date:		SMITH RESIDENCE Smith-W-190504 04/05/2019	SMITH RESIDENCE Smith-WD-190504 04/05/2019 Duplicate	Trac4 Tract 4-W-190904 04/09/2019	WILSON RANCH WW Wilson Ranch-W-190404 04/04/2019
Parameters	Unit				
General Chemistry					
Chloride	mg/L	1510	1490	350	1480
Total dissolved solids (TDS)	mg/L	2490	2470	1070	2440

Notes:

TDS - Total Dissolved Solids

Table 3

Analytical Methods
Groundwater Monitoring Well Sampling
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 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

May 9, 2019

To: Nick Casten, Brittany White

Ref. No.: 055270

From:  Chris G. Knight/eew/24-NF

Tel: 512-506-8803

**Subject: Analytical Results and Reduced Validation
Groundwater Monitoring Well Sampling (MW-32, MW-33, and MW-34)
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 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 April 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 samples (LCS), matrix spikes/matrix spike duplicates (MS/MSD), 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/laboratory control sample duplicates (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.

The laboratory performed 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".

The laboratory performed 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 RL for each analyte.

8. 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 (MW-32, MW-33, and MW-34)
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>	
					Chloride	TDS
MW-34-W-191004	MW-34	Water	04/10/2019	11:55	X	X
MW-33-W-191004	MW-33	Water	04/10/2019	12:05	X	X
MW-32-W-191004	MW-32	Water	04/10/2019	12:15	X	X

Notes:

TDS - Total Dissolved Solids

Table 2

Analytical Results Summary
Groundwater Monitoring Well Sampling (MW-32, MW-33, and MW-34)
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 2019

Location ID:	MW-32	MW-33	MW-34
Sample Name:	MW-32-W-191004	MW-33-W-191004	MW-34-W-191004
Sample Date:	04/10/2019	04/10/2019	04/10/2019

Parameters	Unit			
General Chemistry				
Chloride	mg/L	373	183	69.9
TDS	mg/L	1170	912	600

Notes:

TDS - Total Dissolved Solids

Table 3

Analytical Methods
Groundwater Monitoring Well Sampling (MW-32, MW-33, and MW-34)
Chevron Environmental Management Company (CEMC) - Dollarhide
Andrews County, Texas
April 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



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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