



May 11, 2020

Dylan Rose-Coss
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

**Re: Groundwater Monitoring Report
Glenn Springs Holdings, Inc.
E.C. Hill "A, B and C" Tank Battery
Section 27, Township 23 South, Range 37 East
Lea County, New Mexico
1RP-440 and 1RP-462**

Mr. Rose-Coss,

This report summarizes the results of the semi-annual sampling events that occurred in 2019 for the E. C. Hill A, B and C Tank Battery (Site). The Site is located in Lea County, Section 27, Township 23 South, Range 37 East, approximately 11 miles south of Eunice, New Mexico. The GPS coordinates for the Site are 32.272283°N, 103.151018°W. Prior to being operated by OXY, the facility was operated by Plains Exploration and Production, Pogo Producing Company (Pogo) and Chevron Mid-Continent. The Site location is shown on **Figures 1 and 2**.

FACILITY BACKGROUND

This facility is a historic tank battery, which accumulated numerous spills from previous operators. Prior to being operated by OXY, the facility was operated by Plains Exploration and Production, Pogo Producing Company (Pogo) and Chevron Mid-Continent. During Pogo's operation of this facility, several documented spills occurred at the facility. The majority of the spills occurred around production equipment and active underground lines. Pogo had proposed deferring all major cleanup activities on the inaccessible areas of the tank battery until the tank battery was abandoned.

In November 2003, Pogo decided to shut down all production to the tank battery and removed all tanks, vessels, equipment and lines in order to make the former tank battery location accessible to perform further assessment. Once the facility was dismantled, the impacted soils were excavated in the areas of the tanks, vessels and lines. In February 2004, fifteen test trenches were excavated to a depth of 5 feet below ground surface (bgs) throughout the former tank battery location to delineate the extent of impacted soils. The trenches were found to be impacted with elevated levels of Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Chlorides. Based on the results of the trenching, it was decided that soil borings would be required to complete the delineation at the site.

Between May and August 2005, thirteen boreholes were installed throughout the former tank battery area. The soil laboratory results indicated the Site was impacted to groundwater with elevated levels of TPH, BTEX and chlorides. It was evident from the

Tetra Tech

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boreholes and excavations performed at the site that there was very little lateral migration of hydrocarbons in subsurface soils and the impact was defined. In order to prevent leaching of the surrounding soils to groundwater, a 40-mil thick plastic liner (CAP) was installed in the excavation measuring 100' by 180'. The liner was installed to a depth of 3.5 feet bgs with the impacted excavated soils placed beneath the liner to prevent leaching. Once placed in the ground, the liner was backfilled, and the excavation brought up to grade with clean soils.

Between September 2004 and July 2006, Pogo installed five monitor wells (MW-1 through MW-5) to assess the groundwater impacts to the Site. Monitor well MW-1 was installed immediately south of the excavation, while monitor wells MW-2 and MW-3 were installed north of the excavation. Monitor wells MW-4 and MW-5 were installed to the east and southeast of the excavation. Phase separated hydrocarbons (PSH) were measured in monitor well MW-1, while dissolved phase hydrocarbons were detected in monitor wells MW-3, MW-4 and MW-5 at concentrations below the New Mexico Water Quality Control Commission (NMWQCC) standards.

Between May 2, 2011 and May 11, 2011, OXY installed two recovery wells (RW-1 and RW-2) for PSH recovery. Recovery well RW-1 was installed just north of monitor well MW-1, whereas recovery well RW-2 was installed just southwest of monitor well MW-3. PSH were measured in both recovery well RW-1 and recovery well RW-2.

On September 29, 2015, one permanent monitor well (MW-6) was installed to the northeast and one temporary monitor well (TMW-7) was installed to the southwest of the Site. Temporary monitor well TMW-7 was plugged and abandoned on March 2, 2016. The locations of all monitor and recovery wells are depicted on **Figure 3**.

RECOVERY SYSTEM OPERATIONS AND MAINTENANCE

During 2014, QED™ skimmer pumps were installed in monitor wells MW-1 and MW-2 and a Xitech skimmer pump was installed in recovery well RW-1 for the recovery of PSH. The skimmer pumps operate with solar recharged battery power and a nitrogen bottle. The PSH from each well was pumped into drums inside secondary containment where it is periodically removed for offsite disposal. System schematics are included in **Appendix A**. An estimated volume of 30 gallons of phase separated product (PSH) was recovered during 2019, bringing the estimated total volume of PSH recovered since the system started in 2014 to 1,007 gallons.

GAUGING AND MONITOR WELL SAMPLING

In 2019, Tetra Tech Inc. personnel were onsite to gauge monitor wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, RW-1, and RW-2 on a semi-annual basis. All of the wells on site were gauged with an electronic interface probe to the nearest 0.01 foot. The gauging data is summarized in **Table 1**. During all of the 2019 sampling events, PSH were measured in two monitor wells (MW-1 and MW-3) and in both recovery wells (RW-1 and RW-2). The range of PSH thickness measured during the 2019 sampling events were as follows: (MW-1), 1.79 – 2.10 feet; (MW-3), 1.45 – 2.18 feet; (RW-1), 2.47 – 2.52 feet and (RW-2), 2.52 – 6.04 feet. Utilizing the water level elevation calculations, groundwater gradient maps were generated for the February 7, 2019 and August 8, 2019 sampling events. The groundwater gradient in 2019 was to the southeast which is consistent with previous years. Groundwater gradient maps for the two 2019 sampling events are included as **Figure 4** and **Figure 5**.



During each groundwater sampling event, the monitor wells were purged to remove approximately three well casing volumes of water using disposable rope or twine with a new polyethylene bailer for each well. The sample bottles were filled directly from the bailers. The sample bottles were placed on ice and shipped under proper chain-of-custody control to ALS Laboratories of Houston, Texas for analysis of BTEX by EPA Method SW8260 and chlorides by EPA Method E300.

Analytical results indicate that BTEX concentrations were below method detection limits for all monitor wells sampled during all 2019 sampling events.

Chloride analytical results for monitor wells MW-2 and MW-5, were below the 250 milligrams per liter (mg/L) NMWQCC standard during the two 2019 sampling events. The chloride analytical results for MW-4 and MW-6 exceeded the NMWQCC standards during both 2019 sampling events. Chloride concentrations in monitor well MW-4 decreased from 602 mg/L on February 7, 2019 to 555 mg/L on August 8, 2019. Chloride concentrations in monitor well MW-6 decreased from 1,000 mg/L on February 7, 2019 to 887 mg/L on August 8, 2019.

Graphs of chloride concentrations versus groundwater elevations for monitor wells MW-2, MW-4, MW-5, and MW-6 are included in **Appendix B**. These graphs indicate generally stable chloride concentrations in monitor well MW-2 and fluctuations within the historic range of concentrations in monitor well MW-5. For the two monitor wells with chloride concentrations exceeding the NMWQCC standards, chloride concentrations in downgradient monitor well MW-4 have been fluctuating within the historic range of previously detected concentrations and chloride concentrations in cross-gradient monitor well MW-6 generally increased between 2017 and February 7, 2019 but significantly decreased during the August 8, 2019 sampling event.

Chloride concentration maps for the two 2019 sampling events are included as **Figures 6 and 7**. The groundwater analytical data is summarized in **Table 2**. Copies of the laboratory analytical reports are included in **Appendix C**.

CONCLUSIONS

1. The chloride analytical results for monitor wells MW-4 and MW-6 exceeded the NMWQCC standards during both 2019 sampling events which is consistent with previous results. Chloride concentrations in monitor wells MW-4 and MW-6 decreased over the reporting period.
2. Chloride concentrations for monitor wells MW-2 and MW-5 were below the NMWQCC standard of 250 mg/L during both 2019 sampling events which is consistent with previous results.
3. Analytical results indicate that at all four wells sampled had no BTEX concentrations exceeding the method detection limits.
4. A total estimated volume of 1,007 gallons of PSH has been recovered by the remediation system between startup in 2014 and December 2019.



PROPOSED 2020 GROUNDWATER MONITORING PROGRAM

Continued semiannual groundwater monitoring and PSH recovery system operations are proposed for 2020.

If you have any questions or comments concerning this report, please feel free to contact Ray Cheatham at (713) 203-0852.

Respectfully submitted,
Tetra Tech, Inc.

A handwritten signature in black ink, appearing to read 'R Cheatham'.

Ray Cheatham
Principal Geologist

A handwritten signature in blue ink, appearing to read 'G Pope'.

Greg Pope
Principal Geologist

Attachments:

Figures

Tables

Appendix A – Recovery System Schematics

Appendix B – Groundwater Elevation and Chloride Concentration Graphs

Appendix C – Groundwater Laboratory Reports

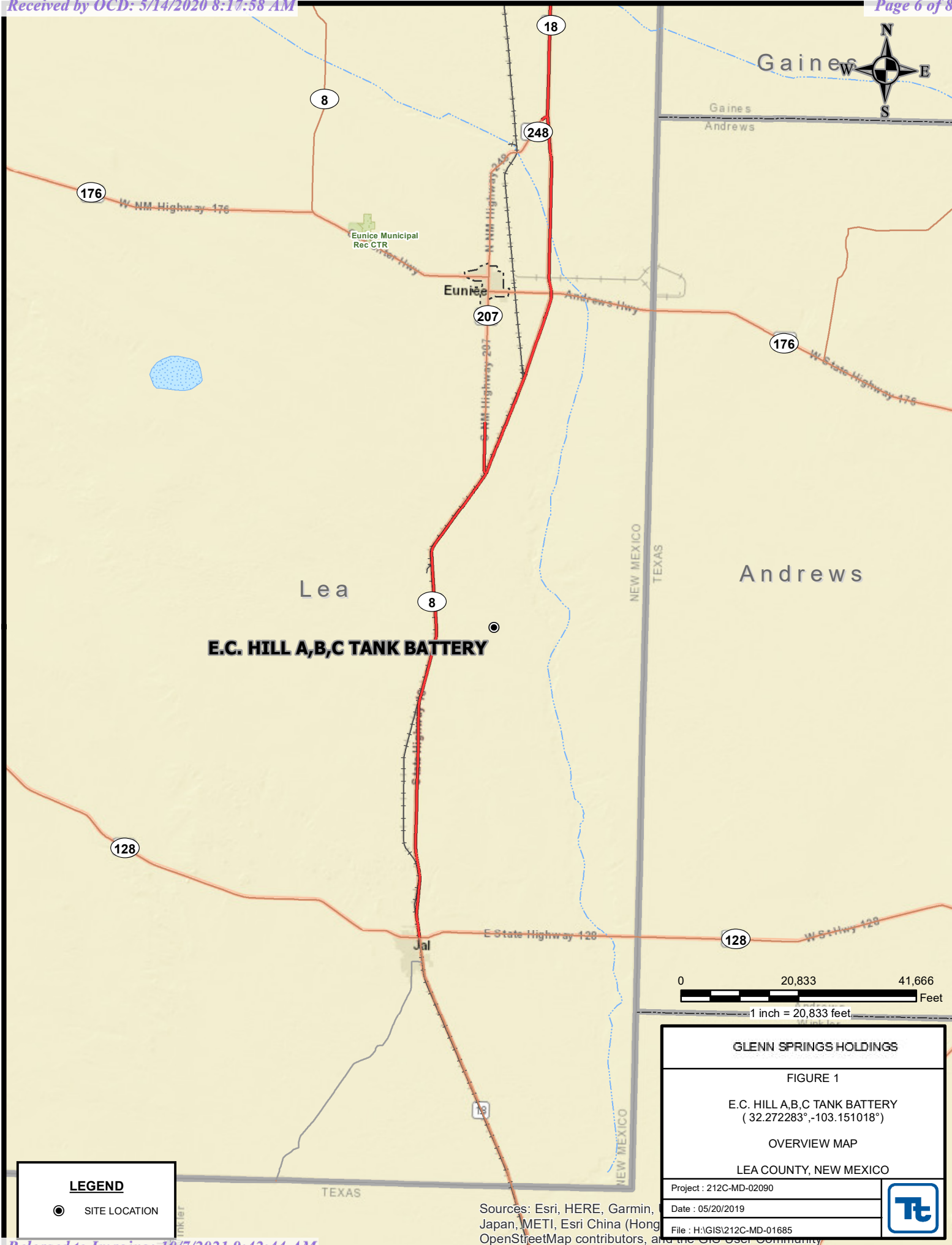
cc: Dusty Wilson – Glenn Springs Holdings, Inc.

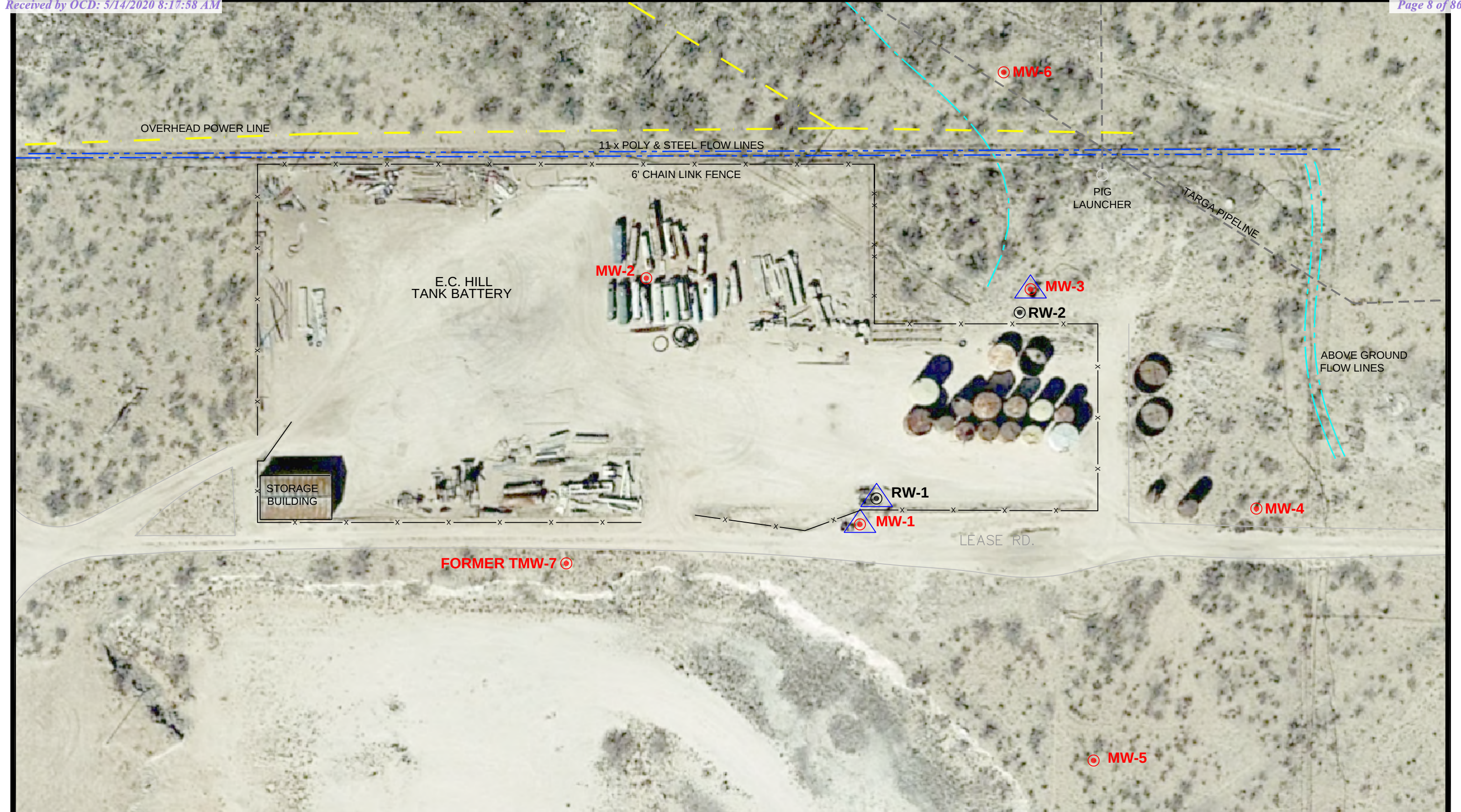
NOTE: Concur with offered recovery and monitoring plan for now.

A handwritten signature in black ink, appearing to read 'Bradford Billings'.

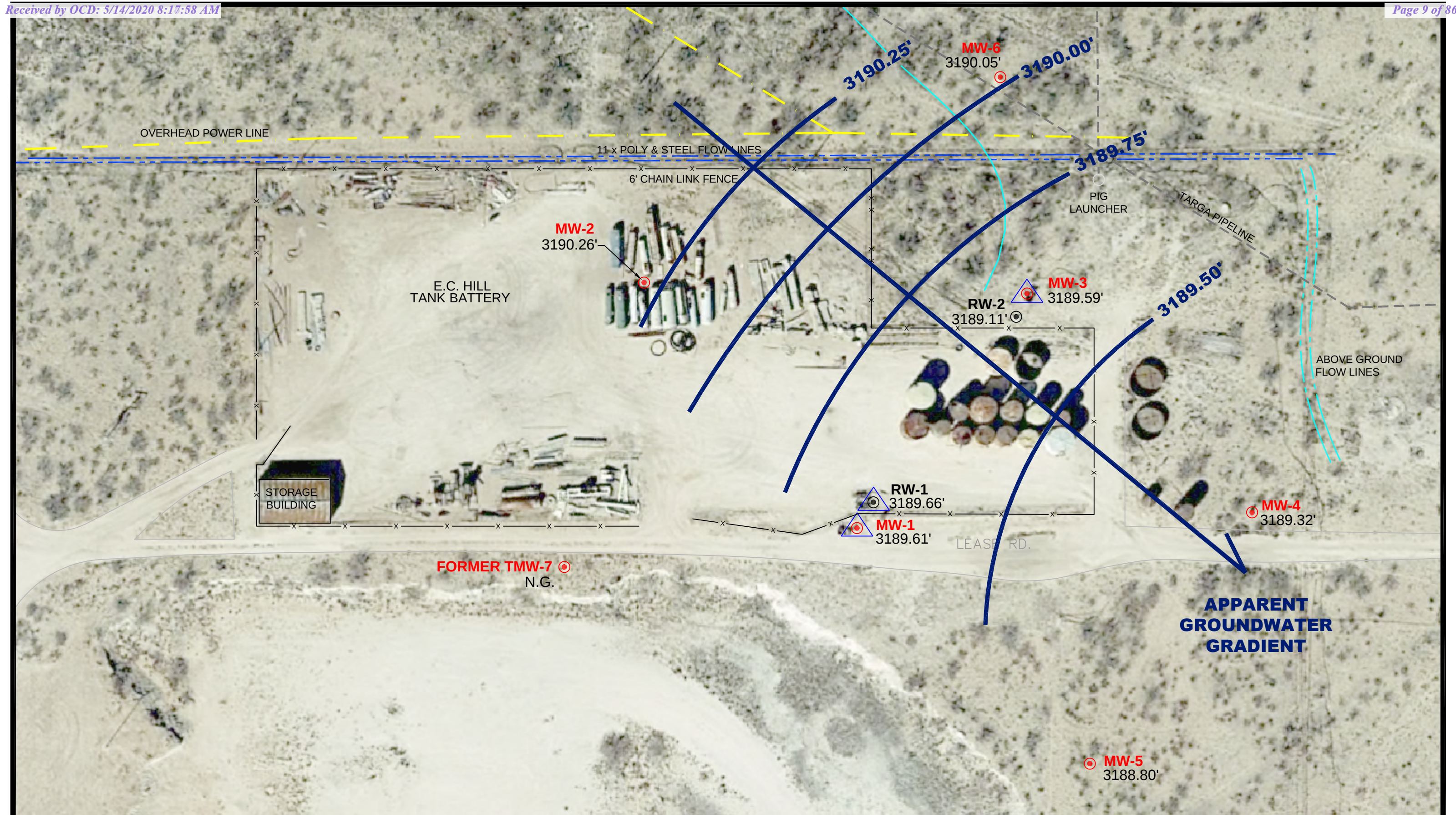
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Figures

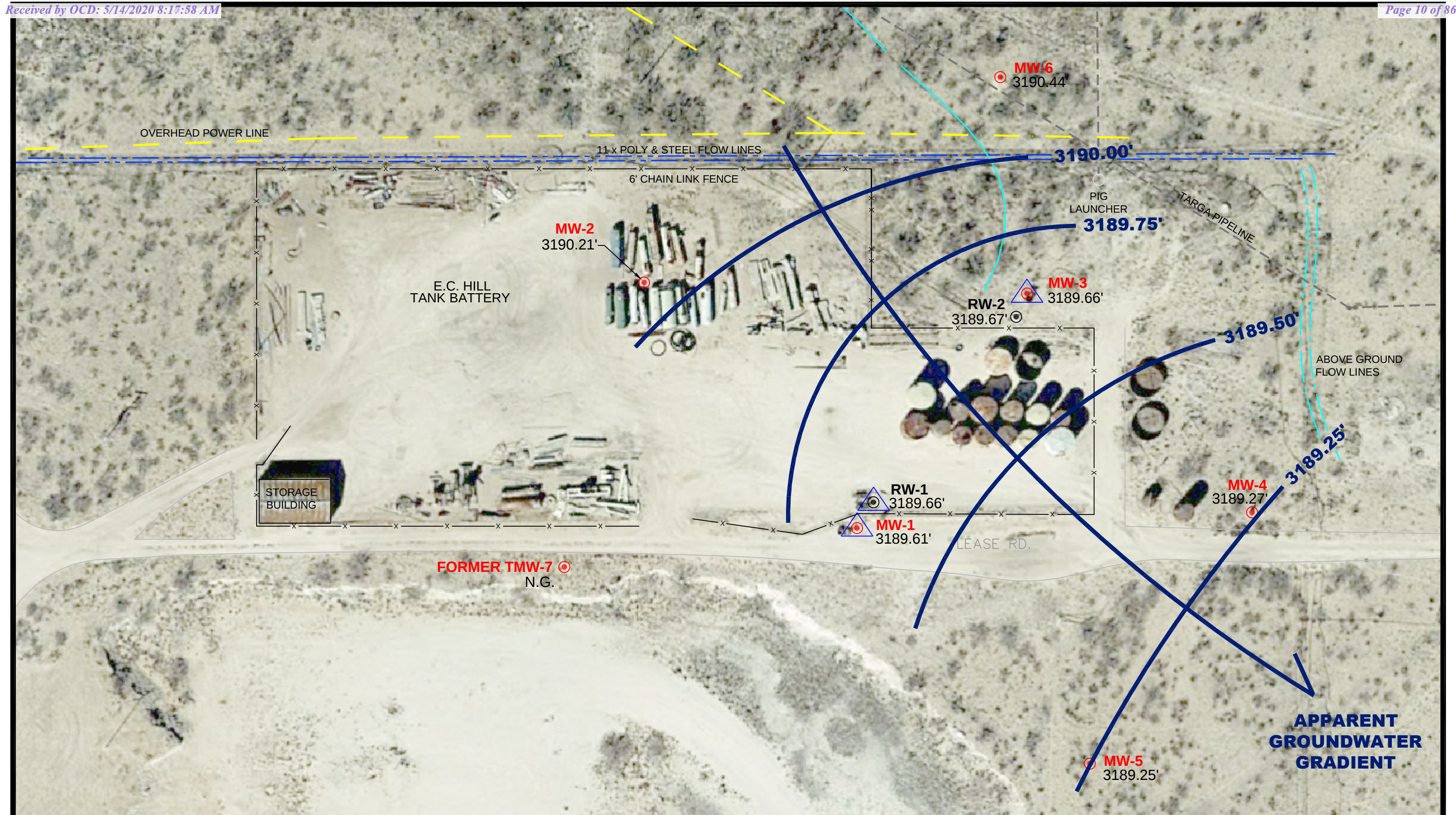




LEGEND ● = MONITOR WELL LOCATIONS ⊙ = RECOVERY WELL LOCATIONS △ = SKIMMER PUMP SYSTEM — = BURIED PIPELINE — = FENCE LINE — = O.H. POWERLINE - - - = ABOVEGROUND FLOWLINE — = STEEL PIPE	NOTES: 1. ALL ELEVATIONS IN FEET AMSL 2. TMW = TEMPORARY MONITOR WELL SOURCE: "NEW MEXICO" 32°16'20.23"N, 103° 9'3.44"W. GOOGLE EARTH. FEBRUARY 20, 2019. APRIL 20, 2020	TETRA TECH 901 W. WALL STREET STE. 100 MIDLAND, TEXAS (432) 682-4559	GLENN SPRINGS HOLDINGS	NORTH 0 20 50ft	FIGURE 3 SITE MAP E.C. HILL "A", "B", "C" TANK BATTERY LEA COUNTY, NEW MEXICO <table border="1"><tr><td>Project: 212C-MD-02090</td><td>REV.</td></tr><tr><td>Date: 4/21/20</td><td></td></tr><tr><td>File: H:\Acad Data\GLENN SPRINGS\2019\01685</td><td></td></tr></table>	Project: 212C-MD-02090	REV.	Date: 4/21/20		File: H:\Acad Data\GLENN SPRINGS\2019\01685	
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LEGEND

	= MONITOR WELL LOCATIONS		= CONTOUR INTERVALS .25 FT.
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	= SKIMMER PUMP SYSTEM		
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NOTES:

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SOURCE "NEW MEXICO" 32°16'20.23"N, 103° 9'3.44"W. GOOGLE EARTH. FEBRUARY 20, 2019, APRIL 20, 2020

TETRA TECH

901 W. WALL STREET STE. 100
MIDLAND, TEXAS
(432) 682-4559

GLENN SPRINGS HOLDINGS

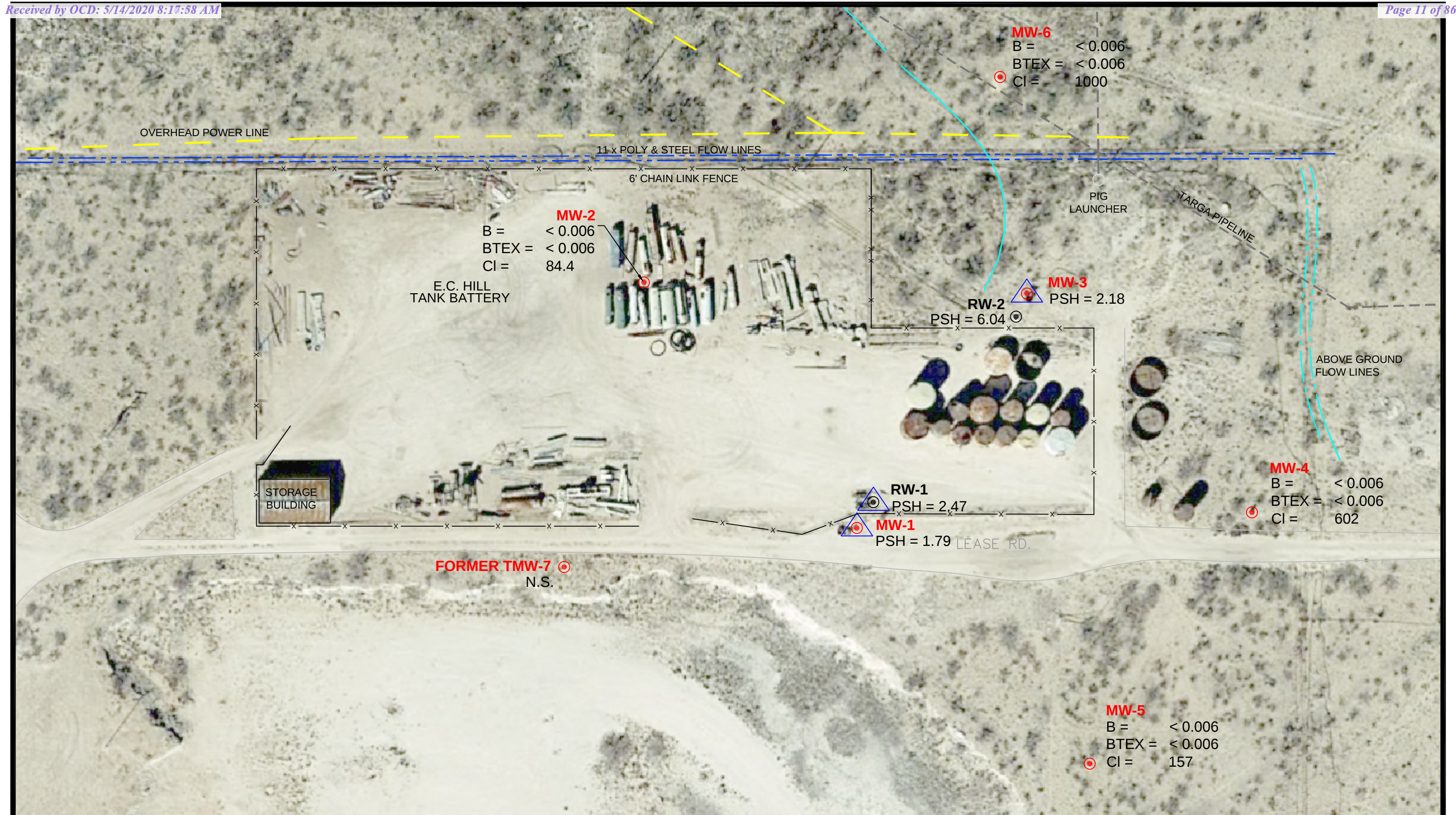
NORTH

0 20 50ft

FIGURE 5

GROUND WATER GRADIENT MAP
AUGUST 08, 2019
E.C. HILL "A", "B", "C" TANK BATTERY
LEA COUNTY, NEW MEXICO

Project: 212C-MD-02090	REV.
Date: 4/21/20	
File: H:\Acad Data\GLENN SPRINGS\2019\01685	



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- ⊙ = RECOVERY WELL LOCATIONS
- △ = SKIMMER PUMP SYSTEM
- = BURIED PIPELINE
- = FENCE LINE
- = O.H. POWER LINE
- = ABOVEGROUND FLOWLINE
- = STEEL PIPE

B = BEZENE CONCENTRATION (MG/L)
T = TOLUENE CONCENTRATION (MG/L)
E = ETHYLBENZENE CONCENTRATION (MG/L)
X = XYLENES CONCENTRATION(MG/L)
CI = CHLORIDE CONCENTRATION (MG/L)

NOTES:

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2. TMW = TEMPORARY MONITOR WELL
3. N.S. = NOT SAMPLED
4. CONCENTRATIONS IN MILLIGRAMS PER LITER(MG/L)
5. PSH = PHASE SEPARATED HYDROCARBONS IN FEET

SOURCE "NEW MEXICO" 32°16'20.23"N, 103° 9'3.44"W. GOOGLE EARTH.
FEBRUARY 20, 2019. APRIL 20, 2020

TETRA TECH
901 W. WALL STREET STE. 100
MIDLAND, TEXAS
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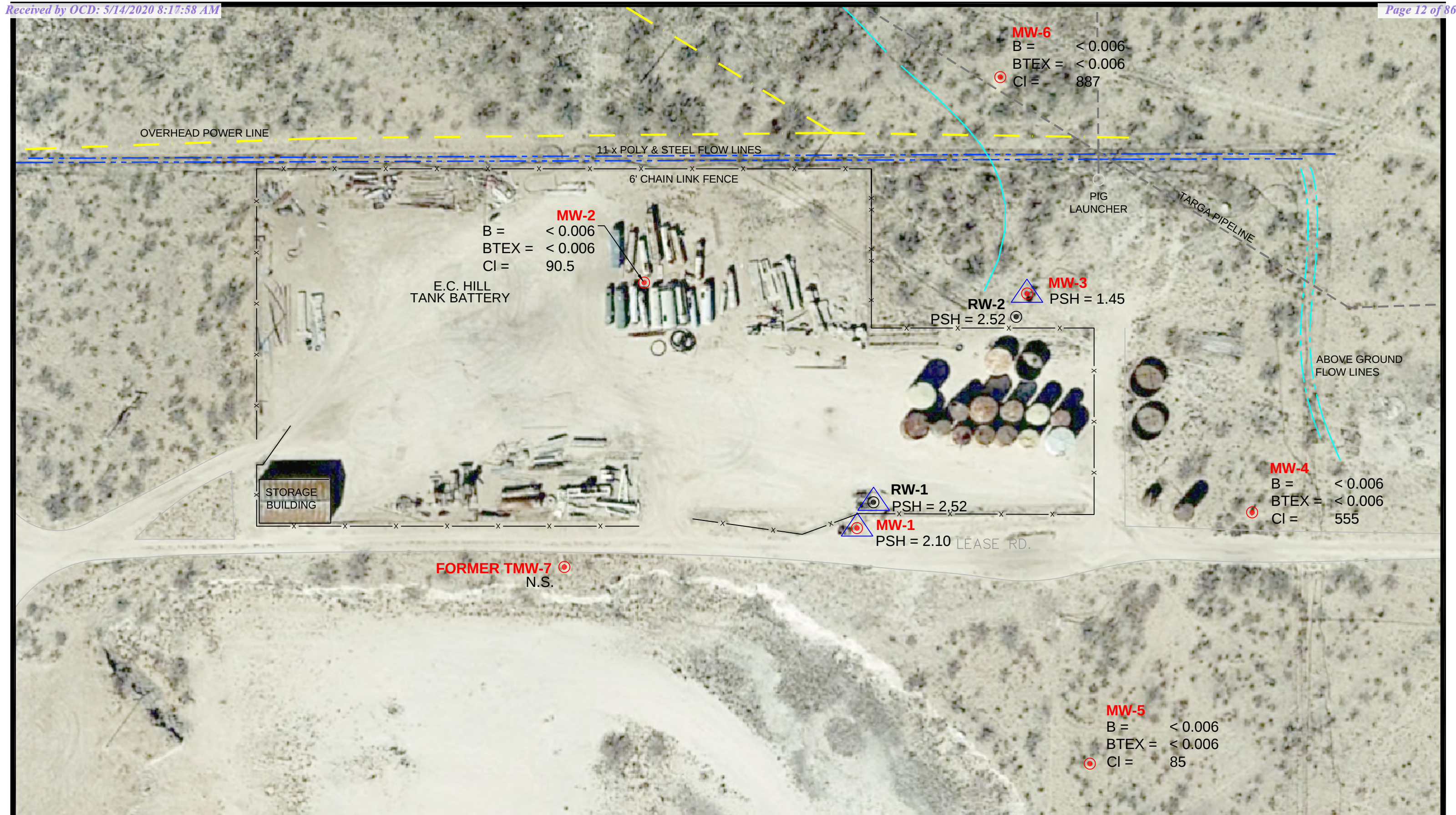
GLENN SPRINGS HOLDINGS

NORTH

0 20 50ft

FIGURE 6
BTEX & CHLORIDE
CONCENTRATION MAP
FEBRUARY 07, 2019
E.C. HILL "A", "B", "C" TANK BATTERY
LEA COUNTY, NEW MEXICO

Project: 212C-MD-02090	REV.
Date: 5/7/20	
File: R:\Acad Data\GLENN SPRINGS\2019\01685	



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SOURCE "NEW MEXICO" 32°16'20.23"N, 103° 9'3.44"W, GOOGLE EARTH.
FEBRUARY 20, 2019, APRIL 20, 2020

TETRA TECH
901 W. WALL STREET STE. 100
MIDLAND, TEXAS
(432) 682-4559

GLENN SPRINGS HOLDINGS

NORTH

0 20 50ft

FIGURE 7
BTEX & CHLORIDE
CONCENTRATION MAP
AUGUST 08, 2019
E.C. HILL "A", "B", "C" TANK BATTERY
LEA COUNTY, NEW MEXICO

Project: 212C-MD-02090	REV.
Date: 4/29/20	
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Tables

Table 1
OXY USA, Inc.
E.C. Hill A, B & C Tank Battery
Summary of Groundwater Elevations and PSH Thickness
Lea County, New Mexico

Well/ Borehole ID	Date Gauged	Well Total Depth (ft)	Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
MW-1	09/17/04	115	-	88.46	-	3274.52	3186.06
	06/17/05	115	86.01	86.04	0.03	3274.52	3188.48
	11/14/05	115	85.82	85.94	0.12	3274.52	3188.49
	03/22/06	115	85.89	87.14	1.25	3274.52	3188.32
	09/22/06	115	85.63	88.26	2.63	3274.52	3188.23
	03/16/07	115	85.65	88.70	3.05	3274.52	3188.11
	06/06/07	115	85.52	88.51	2.99	3274.52	3188.25
	09/28/07	115	85.60	88.62	3.02	3274.52	3188.17
	12/18/07	115	NM	NM	NM	NM	NM
	03/28/08	115	85.70	88.94	3.24	3274.52	3188.01
	06/26/08	115	85.59	88.66	3.07	3274.52	3188.16
	09/22/08	115	85.78	88.20	2.42	3274.52	3188.14
	12/04/08	115	86.01	88.80	2.79	3274.52	3187.81
	03/12/09	115	85.68	88.60	2.92	3274.52	3188.11
	06/22/09	115	85.65	88.63	2.98	3274.52	3188.13
	09/16/09	115	85.74	88.94	3.20	3274.52	3187.98
	12/09/09	115	85.67	88.70	3.03	3274.52	3188.09
	03/10/10	115	85.62	88.68	3.06	3274.52	3188.14
	06/08/10	115	85.70	88.89	3.19	3274.52	3188.02
	09/13/10	115	85.68	88.84	3.16	3274.52	3188.05
	12/14/10	115	85.63	88.78	3.15	3274.52	3188.10
	03/10/11	115	85.63	88.86	3.23	3274.52	3188.08
	06/13/11	115	85.63	88.75	3.12	3274.52	3188.11
	09/19/11	115	85.81	89.13	3.32	3274.52	3187.88
	12/12/11	115	85.83	88.92	3.09	3274.52	3187.92
	03/22/12	115	85.78	89.96	4.18	3274.52	3187.70
	04/06/12	115	85.77	89.97	4.20	3274.52	3187.70
	06/20/12	115	85.75	89.03	3.28	3274.52	3187.95
	09/24/12	115	85.97	88.20	2.23	3274.52	3187.99
	12/14/12	115	86.01	87.13	1.12	3274.52	3188.23
	03/27/13	115	85.93	87.95	2.02	3274.52	3188.09
	06/07/13	115	85.94	88.30	2.36	3274.52	3187.99
	06/24/13	115	86.05	88.43	2.38	3274.52	3187.88
	07/08/13	115	86.28	87.51	1.23	3274.52	3187.93
	07/23/13	115	86.30	87.20	0.90	3274.52	3188.00
	08/06/13	115	86.40	86.70	0.30	3274.52	3188.05
	09/19/13	115	NG	NG	-	3274.52	-
	11/07/13	115	86.12	87.60	1.48	3274.52	3188.03
	12/27/13	115	86.26	87.38	1.12	3274.52	3187.98
	03/27/14	112.68	86.14	87.39	1.25	3274.52	3188.07
	06/17/14	112.68	86.11	88.04	1.93	3274.52	3187.93
	09/26/14	112.68	86.24	86.78	0.54	3274.52	3188.15
	12/16/14	112.68	86.27	86.84	0.57	3274.52	3188.11
	03/24/15	-	86.20	86.35	0.15	3274.52	3188.28
	04/09/15	-	86.11	86.57	0.46	3274.52	3188.30
	06/18/15	-	86.10	86.90	0.80	3274.52	3188.22
	07/30/15	-	85.88	87.30	1.42	3274.52	3188.29

Table 1
OXY USA, Inc.
E.C. Hill A, B & C Tank Battery
Summary of Groundwater Elevations and PSH Thickness
Lea County, New Mexico

Well/ Borehole ID	Date Gauged	Well Total Depth (ft)	Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
MW-1 Cont.	08/05/15	-	85.86	87.51	1.65	3274.52	3188.25
	08/18/15	-	86.06	86.09	0.03	3274.52	3188.45
	09/09/15	112.68	86.11	86.35	0.24	3274.52	3188.35
	12/18/15	-	86.12	86.65	0.53	3275.89	3189.64
	03/14/16	-	85.95	87.45	1.50	3275.89	3189.57
	06/28/16	-	86.19	86.48	0.29	3275.89	3189.63
	09/07/16	-	86.01	86.52	0.51	3275.89	3189.79
	12/06/16	-	86.12	86.90	0.78	3275.89	3189.63
	03/01/17	112.30	86.10	87.25	1.15	3275.89	3189.59
	08/29/17	-	86.96	88.18	1.22	3275.89	3188.72
	02/20/18	-	85.77	88.02	2.25	3275.89	3189.72
	08/23/18	-	85.86	88.10	2.24	3275.89	3189.64
	02/07/19	112.22	85.96	87.75	1.79	3275.89	3189.61
	08/08/19	112.22	85.91	88.01	2.10	3275.89	3189.61
MW-2	06/17/05	102	-	86.04	-	3274.99	3188.95
	11/14/05	102	-	85.9	-	3274.99	3189.09
	03/22/06	102	-	86.08	-	3274.99	3188.91
	09/22/06	102	NM	NM	NM	3274.99	NM
	03/16/07	102	-	86.23	-	3274.99	3188.76
	06/06/07	102	-	86.10	-	3274.99	3188.89
	09/28/07	102	-	86.22	-	3274.99	3188.77
	12/18/07	102	-	86.20	-	3274.99	3188.79
	03/28/08	102	-	86.26	-	3274.99	3188.73
	06/26/08	102	-	86.16	-	3274.99	3188.83
	09/22/08	102	-	86.23	-	3274.99	3188.76
	12/04/08	102	-	86.60	-	3274.99	3188.39
	03/12/09	102	-	86.25	-	3274.99	3188.74
	06/22/09	102	-	86.25	-	3274.99	3188.74
	09/16/09	102	-	86.58	-	3274.99	3188.41
	12/09/09	102	-	86.28	-	3274.99	3188.71
	03/10/10	102	-	86.57	-	3274.99	3188.42
	06/08/10	102	-	86.29	-	3274.99	3188.70
	09/13/10	102	-	86.23	-	3274.99	3188.76
	12/14/10	102	-	87.02	-	3274.99	3187.97
	03/10/11	102	-	86.25	-	3274.99	3188.74
	06/13/11	102	-	86.23	-	3274.99	3188.76
	09/19/11	102	-	86.36	-	3274.99	3188.63
	12/12/11	102	-	86.40	-	3274.99	3188.59
	03/22/12	102	-	86.41	-	3274.99	3188.58
	04/06/12	102	-	86.27	-	3274.99	3188.72
	06/20/12	102	-	86.39	-	3274.99	3188.60
	09/24/12	102	-	86.32	-	3274.99	3188.67
	12/14/12	102	-	86.30	-	3274.99	3188.69
	03/27/13	102	-	86.32	-	3274.99	3188.67
	06/06/13	102	-	86.40	-	3274.99	3188.59
	09/19/13	101.60	-	86.38	-	3274.99	3188.61
	11/07/13	101.60	-	86.49	-	3274.99	3188.50

212C-MD-02090

Table 1
OXY USA, Inc.
E.C. Hill A, B & C Tank Battery
Summary of Groundwater Elevations and PSH Thickness
Lea County, New Mexico

Well/ Borehole ID	Date Gauged	Well Total Depth (ft)	Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
MW-2 Cont.	12/26/13	101.60	-	86.48	-	3274.99	3188.51
	03/27/14	100.10	-	86.42	-	3274.99	3188.57
	06/17/14	100.10	-	86.45	-	3274.99	3188.54
	09/26/14	100.00	-	86.49	-	3274.99	3188.50
	12/16/14	100.00	-	86.23	-	3274.99	3188.76
	03/24/15	-	-	86.26	-	3274.99	3188.73
	06/18/15	-	-	86.33	-	3274.99	3188.66
	08/05/15	-	-	86.25	-	3274.99	3188.74
	09/09/15	100.00	-	86.21	-	3274.99	3188.78
	12/18/15	-	-	86.16	-	3276.46	3190.30
	03/14/16	100.00	-	86.23	-	3276.46	3190.23
	06/28/16	100.00	-	86.31	-	3276.46	3190.15
	09/07/16	-	-	86.29	-	3276.46	3190.17
	12/06/16	-	-	86.38	-	3276.46	3190.08
	03/01/17	99.25	-	86.40	-	3276.46	3190.06
	08/29/17	99.25	-	86.34	-	3276.46	3190.12
	02/20/18	99.55	-	86.19	-	3276.46	3190.27
	08/23/18	-	-	86.44	-	3276.46	3190.02
	02/07/19	99.56	-	86.20	-	3276.46	3190.26
	08/08/19	99.56	-	86.25	-	3276.46	3190.21
MW-3	11/14/05	101	-	87.96	-	3276.48	3188.50
	03/22/06	101	-	87.99	-	3276.48	3188.49
	09/22/06	101	-	88.02	-	3276.48	3188.46
	03/16/07	101	-	88.08	-	3276.48	3188.40
	06/06/07	101	-	88.00	-	3276.48	3188.48
	09/28/07	101	-	88.10	-	3276.48	3188.38
	12/18/07	101	-	88.08	-	3276.48	3188.40
	03/28/08	101	87.76	90.27	2.51	3276.48	3188.09
	06/26/08	101	87.60	90.51	2.91	3276.48	3188.15
	09/22/08	101	87.66	90.63	2.97	3276.48	3188.08
	12/04/08	101	87.94	90.98	3.04	3276.48	3187.78
	03/12/09	101	87.63	90.67	3.04	3276.48	3188.09
	06/22/09	101	87.60	90.69	3.09	3276.48	3188.11
	09/16/09	101	87.73	90.82	3.09	3276.48	3187.98
	12/09/09	101	87.64	90.69	3.05	3276.48	3188.08
	03/10/10	101	87.58	90.68	3.10	3276.48	3188.13
	06/08/10	101	87.68	89.80	2.12	3276.48	3188.27
	09/13/10	101	87.66	90.77	3.11	3276.48	3188.04
	12/14/10	101	87.63	90.67	3.04	3276.48	3188.09
	03/10/11	101	87.60	90.67	3.07	3276.48	3188.11
	06/13/11	101	87.59	90.67	3.08	3276.48	3188.12
	09/19/11	101	87.80	90.67	2.87	3276.48	3187.96
	12/12/11	101	87.74	90.67	2.93	3276.48	3188.01
	03/22/12	101	87.75	90.97	3.22	3276.48	3187.93
	04/06/12	101	87.74	90.96	3.22	3276.48	3187.94
	06/20/12	101	87.71	90.95	3.24	3276.48	3187.96
	09/24/12	101	87.77	91.03	3.26	3276.48	3187.90

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Lea County, New Mexico

Well/ Borehole ID	Date Gauged	Well Total Depth (ft)	Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
MW-3 Cont.	12/14/12	101	87.73	91.02	3.29	3276.48	3187.93
	03/27/13	101	87.72	90.96	3.24	3276.48	3187.95
	06/07/13	101	87.78	91.10	3.32	3276.48	3187.87
	06/24/13	101	87.87	91.15	3.28	3276.48	3187.79
	07/08/13	101	87.97	90.88	2.91	3276.48	3187.78
	07/23/13	101	87.90	91.00	3.10	3276.48	3187.81
	08/06/13	101	87.91	91.03	3.12	3276.48	3187.79
	09/19/13	101	NG	NG	-	3276.48	-
	11/07/13	101	87.79	91.11	3.32	3276.48	3187.86
	12/26/13	101	87.90	91.08	3.18	3276.48	3187.79
	03/27/14	106.14	87.83	90.70	2.87	3276.48	3187.93
	06/17/14	106.14	88.02	90.37	2.35	3276.48	3187.87
	09/26/14	106.14	87.99	90.73	2.74	3276.48	3187.81
	12/16/14	106.14	87.90	90.71	2.81	3276.48	3187.88
	03/24/15	-	88.20	88.56	0.36	3276.48	3188.19
	04/09/15	-	87.82	90.17	2.35	3276.48	3188.07
	06/18/15	-	87.91	90.24	2.33	3276.48	3187.99
	07/30/15	-	87.74	90.08	2.34	3276.48	3188.16
	08/05/15	-	88.15	88.30	0.15	3276.48	3188.29
	08/18/15	-	88.06	88.25	0.19	3276.48	3188.37
	09/09/15	106.14	87.71	90.48	2.77	3276.48	3188.08
	12/18/15	-	87.90	90.06	2.16	3277.87	3189.43
	03/14/16	106.14	87.89	89.55	1.66	3277.87	3189.57
	06/28/16	-	87.75	90.60	2.85	3277.87	3189.41
	09/07/16	-	87.72	89.89	2.17	3277.87	3189.77
	12/06/16	-	87.73	89.92	2.19	3277.87	3189.76
	03/01/17	104.52	88.00	90.33	2.33	3277.87	3189.46
	08/29/17	104.52	87.99	91.02	3.03	3277.87	3189.35
	02/20/18	-	87.85	89.67	1.82	3277.87	3189.70
	08/23/18	-	88.00	89.84	1.84	3277.87	3189.55
	02/07/19	104.52	87.90	90.08	2.18	3277.87	3189.59
	08/08/19	104.52	87.96	89.41	1.45	3277.87	3189.66
MW-4	09/22/06	100	-	87.22	-	3275.22	3188.00
	03/16/07	100	-	87.29	-	3275.22	3187.93
	06/06/07	100	-	87.20	-	3275.22	3188.02
	09/28/07	100	-	87.31	-	3275.22	3187.91
	12/18/07	100	-	87.29	-	3275.22	3187.93
	03/28/08	100	-	87.33	-	3275.22	3187.89
	06/26/08	100	-	87.26	-	3275.22	3187.96
	09/22/08	100	-	87.32	-	3275.22	3187.90
	12/04/08	100	-	87.50	-	3275.22	3187.72
	03/12/09	100	-	87.34	-	3275.22	3187.88
	06/22/09	100	-	87.32	-	3275.22	3187.90
	09/16/09	100	-	87.39	-	3275.22	3187.83
	12/09/09	100	-	87.32	-	3275.22	3187.90
	03/10/10	100	-	87.27	-	3275.22	3187.95
	06/08/10	100	-	87.34	-	3275.22	3187.88

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 Lea County, New Mexico

Well/ Borehole ID	Date Gauged	Well Total Depth (ft)	Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
MW-4 Cont.	09/13/10	100	-	87.32	-	3275.22	3187.90
	12/14/10	100	-	88.13	-	3275.22	3187.09
	03/10/11	100	-	87.34	-	3275.22	3187.88
	06/13/11	100	-	87.32	-	3275.22	3187.90
	09/19/11	100	-	87.43	-	3275.22	3187.79
	12/12/11	100	-	87.48	-	3275.22	3187.74
	03/22/12	100	-	87.31	-	3275.22	3187.91
	04/06/12	100	-	87.35	-	3275.22	3187.87
	06/20/12	100	-	87.43	-	3275.22	3187.79
	09/24/12	100	-	87.36	-	3275.22	3187.86
	12/14/12	100	-	87.44	-	3275.22	3187.78
	03/27/13	100	-	87.43	-	3275.22	3187.79
	06/06/13	100	-	87.51	-	3275.22	3187.71
	09/19/13	100	-	87.51	-	3275.22	3187.71
	11/07/13	100	-	87.61	-	3275.22	3187.61
	12/26/13	100	-	87.56	-	3275.22	3187.66
	03/27/14	101.31	-	87.52	-	3275.22	3187.70
	06/17/14	101.31	-	87.52	-	3275.22	3187.70
	09/26/14	101.22	-	87.59	-	3275.22	3187.63
	12/16/14	101.22	-	87.35	-	3275.22	3187.87
	03/24/15	-	-	87.32	-	3275.22	3187.90
	06/18/15	100.66	-	87.48	-	3275.22	3187.74
	08/05/15	-	-	87.38	-	3275.22	3187.84
	09/09/15	100.66	-	87.27	-	3275.22	3187.95
	12/18/15	100.66	-	87.30	-	3276.59	3189.29
	03/14/16	100.66	-	87.29	-	3276.59	3189.30
	06/28/16	100.66	-	87.36	-	3276.59	3189.23
	09/07/16	-	-	87.41	-	3276.59	3189.18
	12/06/16	-	-	87.45	-	3276.59	3189.14
	03/01/17	100.67	-	87.43	-	3276.59	3189.16
	08/29/17	100.67	-	87.41	-	3276.59	3189.18
	02/20/18	100.71	-	87.21	-	3276.59	3189.38
	08/23/18	-	-	87.52	-	3276.59	3189.07
	02/07/19	100.67	-	87.27	-	3276.59	3189.32
	08/08/19	101.2	-	87.32	-	3276.59	3189.27
MW-5	09/22/06	100	-	87.04	-	3275.04	3188.00
	03/16/07	100	-	87.11	-	3275.04	3187.93
	06/06/07	100	-	87.02	-	3275.04	3188.02
	09/28/07	100	-	87.10	-	3275.04	3187.94
	12/18/07	100	-	87.09	-	3275.04	3187.95
	03/28/08	100	-	87.14	-	3275.04	3187.90
	06/26/08	100	-	87.08	-	3275.04	3187.96
	09/22/08	100	-	87.13	-	3275.04	3187.91
	12/04/08	100	-	87.50	-	3275.04	3187.54
	03/12/09	100	-	87.17	-	3275.04	3187.87
	06/22/09	100	-	87.12	-	3275.04	3187.92
	09/16/09	100	-	87.23	-	3275.04	3187.81

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Well/ Borehole ID	Date Gauged	Well Total Depth (ft)	Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
MW-5 Cont.	12/09/09	100	-	87.23	-	3275.04	3187.81
	03/10/10	100	-	87.10	-	3275.04	3187.94
	06/08/10	100	-	87.19	-	3275.04	3187.85
	09/13/10	100	-	87.18	-	3275.04	3187.86
	12/14/10	100	-	87.94	-	3275.04	3187.10
	03/10/11	100	-	87.17	-	3275.04	3187.87
	06/13/11	100	-	87.14	-	3275.04	3187.90
	09/19/11	100	-	87.25	-	3275.04	3187.79
	12/12/11	100	-	87.29	-	3275.04	3187.75
	03/22/12	100	-	87.31	-	3275.04	3187.73
	04/06/12	100	-	87.21	-	3275.04	3187.83
	06/20/12	100	-	87.29	-	3275.04	3187.75
	09/24/12	100	-	87.30	-	3275.04	3187.74
	12/14/12	100	-	87.25	-	3275.04	3187.79
	03/27/13	100	-	87.21	-	3275.04	3187.83
	06/06/13	100	-	87.31	-	3275.04	3187.73
	09/19/13	101.48	-	87.30	-	3275.04	3187.74
	11/07/13	101.48	-	87.43	-	3275.04	3187.61
	12/26/13	101.48	-	87.41	-	3275.04	3187.63
	03/27/14	99.33	-	87.34	-	3275.04	3187.70
	06/17/14	99.33	-	87.34	-	3275.04	3187.70
	09/26/14	99.32	-	87.40	-	3275.04	3187.64
	12/16/14	99.32	-	87.15	-	3275.04	3187.89
	03/24/15	-	-	87.12	-	3275.04	3187.92
	06/18/15	99.30	-	87.60	-	3275.04	3187.44
	08/05/15	-	-	87.15	-	3275.04	3187.89
	09/09/15	99.30	-	87.10	-	3275.04	3187.94
	12/18/15	99.30	-	87.09	-	3276.40	3189.31
	03/14/16	99.30	-	87.11	-	3276.40	3189.29
	06/28/16	99.30	-	87.21	-	3276.40	3189.19
	09/07/16	-	-	87.24	-	3276.40	3189.16
	12/06/16	-	-	87.23	-	3276.40	3189.17
	03/01/17	98.91	-	87.27	-	3276.40	3189.13
	08/29/17	98.91	-	87.25	-	3276.40	3189.15
	02/20/18	98.97	-	87.06	-	3276.40	3189.34
	08/23/18	-	-	87.31	-	3276.40	3189.09
	02/07/19	99.00	-	87.60	-	3276.40	3188.80
	08/08/19	99.10	-	87.15	-	3276.40	3189.25
MW-6	10/02/15		-	86.77	-	3276.75	3189.98
	10/29/16		-	86.79	-	3276.75	3189.96
	12/18/15		-	86.79	-	3276.75	3189.96
	03/14/16	100	-	86.75	-	3276.75	3190.00
	06/28/16	100	-	86.86	-	3276.75	3189.89
	09/07/16	-	-	86.81	-	3276.75	3189.94
	12/06/16	-	-	86.89	-	3276.75	3189.86
	03/01/17	101.20	-	86.89	-	3276.75	3189.86
	08/29/17	101.20	-	86.87	-	3276.75	3189.88

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Well/ Borehole ID	Date Gauged	Well Total Depth (ft)	Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
MW-6 Cont.	02/20/18	100.95	-	86.72	-	3276.75	3190.03
	08/23/18	-	-	86.90	-	3276.75	3189.85
	02/07/19	101.20	-	86.70	-	3276.75	3190.05
	08/08/19	100.25	-	86.31	-	3276.75	3190.44
TMW-7	10/02/15	-	-	92.56	-	3280.64	3188.08
	10/29/16	94.80	-	90.58	-	3280.64	3190.06
	12/18/15	-	-	90.56	-	3280.64	3190.08
	03/02/16	94.80	-	90.59	-	3280.64	3190.05
RW-1	06/13/11	-	-	88.70	-	NA	NA
	09/19/11	-	88.67	89.96	1.29	-	-
	12/12/11	-	88.32	91.45	3.13	-	-
	03/22/12	-	88.31	91.47	3.16	-	-
	04/06/12	-	88.30	91.46	3.16	-	-
	06/20/12	-	88.30	91.50	3.20	-	-
	09/24/12	-	88.33	91.55	3.22	-	-
	12/14/12	-	88.46	90.55	2.09	-	-
	03/27/13	-	88.83	88.88	0.05	-	-
	06/07/13	-	88.41	91.32	2.91	-	-
	09/19/13	-	NG	-	-	-	-
	11/07/13	-	88.42	91.40	2.98	-	-
	12/26/13	-	88.41	91.44	3.03	-	-
	03/27/14	-	88.39	91.46	3.07	-	-
	06/17/14	-	88.48	91.51	3.03	-	-
	09/26/14	-	88.38	91.37	2.99	-	-
	12/16/14	-	88.39	91.41	3.02	-	-
	03/24/15	-	88.35	91.11	2.76	-	-
	04/09/15	-	88.31	91.11	2.80	-	-
	06/18/15	-	88.26	91.05	2.79	-	-
	07/09/15	-	88.30	90.96	2.66	-	-
	07/29/15	-	88.30	90.81	2.51	-	-
	08/05/15	-	88.26	90.67	2.41	-	-
	08/18/15	-	88.58	88.93	0.35	-	-
	09/09/15	-	88.26	91.39	3.13	-	-
	12/18/15	-	88.40	90.60	2.20	3278.48	3189.53
	03/14/16	-	88.32	90.68	2.36	3278.48	3189.57
	06/28/16	-	88.37	90.75	2.38	3278.48	3189.52
	09/07/16	-	88.35	90.77	2.42	3278.48	3189.70
	12/06/16	-	88.33	90.80	2.47	3278.48	3189.72
	03/01/17	104.20	88.45	90.80	2.35	3278.48	3189.62
	08/29/17	104.20	88.59	91.05	2.46	3278.48	3189.46
	02/20/18	-	88.29	90.58	2.29	3278.48	3189.79
	08/23/18	-	88.39	90.88	2.49	3278.48	3189.65
	02/07/19	104.20	88.39	90.86	2.47	3278.48	3189.66
	08/08/19	104.20	88.38	90.90	2.52	3278.48	3189.66
RW-2	06/13/11	-	-	88.75	-	NA	NA
	09/19/11	-	-	88.92	-	-	-
	12/12/11	-	-	88.88	-	-	-

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RW-2 Cont.	03/22/12	-	88.87	88.91	0.04	-	-
	04/06/12	-	88.88	88.93	0.05	-	-
	06/20/12	-	88.84	88.96	0.12	-	-
	09/24/12	-	88.87	89.11	0.24	-	-
	12/14/12	-	88.89	89.01	0.12	-	-
	03/27/13	-	88.83	89.11	0.28	-	-
	06/07/13	-	88.91	89.32	0.41	-	-
	06/24/13	-	88.96	89.34	0.38	-	-
	07/08/13	-	89.03	89.24	0.21	-	-
	07/23/13	-	89.00	89.20	0.20	-	-
	08/06/13	-	89.00	89.20	0.20	-	-
	09/19/13	-	NG	-	-	-	-
	11/07/13	-	88.93	89.26	0.33	-	-
	12/26/13	-	88.95	89.25	0.30	-	-
	03/27/14	-	88.88	89.21	0.33	-	-
	06/17/14	-	88.96	89.39	0.43	-	-
	09/26/14	-	88.96	89.48	0.52	-	-
	12/16/14	-	88.92	89.47	0.55	-	-
	03/24/15	-	88.74	89.35	0.61	-	-
	06/18/15	-	88.70	89.50	0.80	-	-
	08/05/15	-	88.71	89.04	0.33	-	-
	08/18/15	-	88.71	88.72	0.01	-	-
	09/09/15	-	88.74	88.75	0.01	-	-
	12/18/15	-	88.70	89.45	0.75	3278.47	3189.58
	03/14/16	-	88.60	89.49	0.89	3278.47	3189.65
	06/28/16	-	88.71	89.48	0.77	3278.47	3189.57
	09/07/16	-	88.68	89.46	0.78	3278.47	3189.65
	12/06/16	-	88.66	89.49	0.83	3278.47	3189.67
	03/01/17	107.92	88.56	90.80	2.24	3278.47	3189.52
	08/29/17	107.92	88.40	91.34	2.94	3278.47	3189.56
	02/20/18	-	88.26	90.98	2.72	3278.47	3189.74
	08/23/18	-	88.35	90.91	2.56	3278.47	3189.67
	02/07/19	107.92	88.31	94.35	6.04	3278.47	3189.11
	08/08/19	-	88.36	90.88	2.52	3278.47	3189.67

(-) No data (TOC) Top of casing

(MW-1 and MW-3) Groundwater elevation corrected using 0.75 specific gravity

NM - Not Measured

NA - Top of Casing Elevation not available

NG - Not Gauged, instrument malfunction

TOC elevations resurveyed by John West Survey Company on October 29, 2015. This was the initial survey-
for MW-6, TMW-7, RW-1 and RW-2.

TMW-7 plugged on March 2, 2016.

8/26/2016, LNAPL Specific Gravity analysis: RW-1 = 0.824 and MW-3 = 0.826, used to correct groundwater elevations
Specific Gravity of 0.824 to correct RW-1 and MW-1; SG = 0.826 to correct RW-2 and MW-3 groundwater elevations

Table 2
 OXY USA, Inc.
 E.C. Hill A, B & C Tank Battery
 Summary of Analysis of Groundwater Samples
 Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
MW-1	09/17/04	-	0.0385	0.0146	0.00694	0.0341	0.09414	195
	10/12/04	-	0.111	0.0197	0.0166	0.0699	0.2172	133
	06/24/05	0.03	-	-	-	-	-	-
	11/14/05	0.12	0.495	0.0809	0.137	0.253	0.9659	178
	03/22/06	1.25	-	-	-	-	-	-
	09/22/06	2.63	-	-	-	-	-	-
	03/16/07	3.05	-	-	-	-	-	-
	06/06/07	2.99	-	-	-	-	-	-
	09/28/07	3.02	-	-	-	-	-	-
	12/18/07	NM	-	-	-	-	-	-
	03/28/08	3.24	-	-	-	-	-	-
	06/26/08	3.07	-	-	-	-	-	-
	09/22/08	2.42	-	-	-	-	-	-
	12/04/08	2.79	-	-	-	-	-	-
	03/12/09	2.92	-	-	-	-	-	-
	06/22/09	2.98	-	-	-	-	-	-
	09/16/09	3.20	-	-	-	-	-	-
	12/09/09	3.03	-	-	-	-	-	-
	03/10/10	3.06	-	-	-	-	-	-
	06/08/10	3.19	-	-	-	-	-	-
	09/13/10	3.16	-	-	-	-	-	-
	12/14/10	3.15	-	-	-	-	-	-
	03/10/11	3.23	-	-	-	-	-	-
	06/13/11	3.12	-	-	-	-	-	-
	09/19/11	3.32	-	-	-	-	-	-
	12/12/11	3.09	-	-	-	-	-	-
	03/22/12	4.18	-	-	-	-	-	-

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 Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
MW-1 Cont.	04/06/12	4.20	-	-	-	-	-	-
	06/20/12	3.28	-	-	-	-	-	-
	09/24/12	2.23	-	-	-	-	-	-
	12/14/12	1.12	-	-	-	-	-	-
	03/27/13	2.02	-	-	-	-	-	-
	06/07/13	2.36	-	-	-	-	-	-
	09/19/13	NG	-	-	-	-	-	-
	12/27/13	1.12	-	-	-	-	-	-
	03/27/14	1.25	-	-	-	-	-	-
	06/19/14	1.93	-	-	-	-	-	-
	09/26/14	0.54	-	-	-	-	-	-
	12/16/14	0.73	-	-	-	-	-	-
	03/24/15	0.15	-	-	-	-	-	-
	04/09/15	0.46	-	-	-	-	-	-
	06/18/15	0.80	-	-	-	-	-	-
	09/09/15	0.24	-	-	-	-	-	-
	12/18/15	0.53	-	-	-	-	-	-
	03/16/16	1.50	-	-	-	-	-	-
	06/30/16	0.29	-	-	-	-	-	-
	09/09/16	0.51	-	-	-	-	-	-
	12/07/16	0.78	-	-	-	-	-	-
	03/01/17	1.15	-	-	-	-	-	-
	08/29/17	1.22	-	-	-	-	-	-
	02/20/18	2.25	-	-	-	-	-	-
	08/23/18	2.24	-	-	-	-	-	-
	02/07/19	1.79	-	-	-	-	-	-
	08/08/19	2.10	-	-	-	-	-	-

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Summary of Analysis of Groundwater Samples
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Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
MW-2	06/24/05	-	<0.001	<0.001	<0.001	<0.001	<0.001	102
	11/14/05	-	<0.001	<0.001	<0.001	<0.001	<0.001	61.9
	03/22/06	-	<0.001	<0.001	<0.001	<0.001	<0.001	63.0
	09/22/06	NM	NM	NM	NM	NM	NM	NM
	03/16/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	74.0
	06/06/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	71.8
	09/28/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	47.6
	12/18/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	<200
	03/28/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	83.3
	06/26/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	85.0
	09/22/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	78.0
	12/04/08	-	<0.0005	<0.0005	<0.0005	<0.001	<0.001	94.5
	03/12/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	87.2
	09/16/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	83.3
	12/09/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	87.9
	03/10/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	88.3
	06/08/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	90.3
	09/13/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	86.0
	12/14/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	85.3
	03/10/11	-	<0.001	<0.001	<0.001	<0.003	<0.003	82.2
	06/13/11	-	<0.00014	<0.00020	<0.00030	<0.00023	<0.00030	89
	09/19/11	-	<0.00014	<0.00030	<0.00020	<0.00023	<0.00030	88
	12/12/11	-	<0.00014	<0.00030	<0.00020	<0.00023	<0.00030	87
	04/06/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	295
	06/20/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	98.0
	09/24/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	96.9
	12/14/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	82.4

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Table 2
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 E.C. Hill A, B & C Tank Battery
 Summary of Analysis of Groundwater Samples
 Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
MW-2 Cont,	03/27/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	86.6
	06/07/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	95.7
	09/19/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	94.1
	12/27/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	87.4
	03/27/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	93.2
	06/19/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	101
	09/30/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	94.2
	12/16/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	89.4
	03/24/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	88.5
	06/18/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	89.4
	09/09/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	86.2
	12/18/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	83.2
	03/16/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	91.4
	06/30/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	85.2
	09/09/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	86.3
	12/07/16	-	<0.005	<0.005	<0.005	<0.005	<0.005	103
	03/03/17	-	<0.005	<0.005	<0.005	<0.005	<0.005	86.7
	08/31/17	-	<0.005	<0.005	<0.005	<0.005	<0.005	85.5
	02/21/18	-	<0.005	<0.005	<0.005	<0.005	<0.005	90.7
	08/23/18	-	<0.005	<0.005	<0.005	<0.005	<0.005	88.6
	02/07/19	-	<0.006	<0.005	<0.005	<0.005	<0.006	84.4
	08/08/19	-	<0.006	<0.005	<0.005	<0.005	<0.006	90.5
MW-3	06/24/05	-	0.00166	0.0026	0.00143	0.0137	0.01939	420
	11/14/05	-	0.0037	<0.001	0.00132	0.006	0.01102	310
	03/22/06	-	0.0028	<0.001	0.00397	0.0047	0.01147	285
	09/22/06	-	0.00232	<0.001	<0.001	<0.001	0.00232	330
	03/16/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	297

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Table 2
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 E.C. Hill A, B & C Tank Battery
 Summary of Analysis of Groundwater Samples
 Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
MW-3 Cont.	06/06/07	-	0.00114	<0.001	<0.001	<0.001	0.00114	302
	09/28/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	279
	12/18/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	<200
	03/28/08	2.51	-	-	-	-	-	-
	06/26/08	2.91	-	-	-	-	-	-
	09/22/08	2.97	-	-	-	-	-	-
	12/04/08	3.04	-	-	-	-	-	-
	03/12/09	3.04	-	-	-	-	-	-
	06/22/09	3.09	-	-	-	-	-	-
	09/16/09	2.97	-	-	-	-	-	-
	12/09/09	3.05	-	-	-	-	-	-
	03/10/10	3.10	-	-	-	-	-	-
	06/08/10	2.97	-	-	-	-	-	-
	09/13/10	3.11	-	-	-	-	-	-
	12/14/10	3.04	-	-	-	-	-	-
	03/10/11	3.05	-	-	-	-	-	-
	06/13/11	3.08	-	-	-	-	-	-
	09/19/11	3.08	-	-	-	-	-	-
	12/12/11	3.22	-	-	-	-	-	-
	03/22/12	3.22	-	-	-	-	-	-
	04/06/12	3.22	-	-	-	-	-	-
	06/20/12	3.24	-	-	-	-	-	-
	09/24/12	3.26	-	-	-	-	-	-
	12/14/12	3.29	-	-	-	-	-	-
	03/27/13	3.24	-	-	-	-	-	-
	06/07/13	3.32	-	-	-	-	-	-
	09/19/13	NG	-	-	-	-	-	-

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Table 2
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 Summary of Analysis of Groundwater Samples
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Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
MW-3 Cont.	12/27/13	3.18	-	-	-	-	-	-
	03/27/14	2.87	-	-	-	-	-	-
	06/19/14	2.35	-	-	-	-	-	-
	09/26/14	2.74	-	-	-	-	-	-
	12/16/14	2.83	-	-	-	-	-	-
	03/24/15	0.36	-	-	-	-	-	-
	04/09/15	2.69	-	-	-	-	-	-
	06/18/15	2.33	-	-	-	-	-	-
	09/09/15	2.77	-	-	-	-	-	-
	12/18/15	2.16	-	-	-	-	-	-
	03/16/16	1.66	-	-	-	-	-	-
	06/30/16	2.85	-	-	-	-	-	-
	09/09/16	2.17	-	-	-	-	-	-
	12/07/16	2.19	-	-	-	-	-	-
	03/01/17	2.33	-	-	-	-	-	-
	08/29/17	3.03	-	-	-	-	-	-
	02/20/18	1.82	-	-	-	-	-	-
	08/23/18	1.84	-	-	-	-	-	-
	02/07/19	2.18	-	-	-	-	-	-
	08/08/19	1.45	-	-	-	-	-	-
MW-4	09/22/06	-	<0.001	<0.001	<0.001	<0.001	<0.001	606
	03/16/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	462
	06/06/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	480
	09/28/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	638
	12/18/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	238
	03/28/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	510
	06/26/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	1,080

Table 2
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Summary of Analysis of Groundwater Samples
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Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
MW-4 Cont.	09/22/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	932
	12/04/08	-	0.00068	<0.0005	<0.0005	<0.001	<0.001	761
	03/12/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	383
	06/22/09	-	0.00051	<0.001	<0.001	<0.003	<0.003	717
	09/16/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	773
	12/09/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	711
	03/10/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	749
	06/08/10	-	0.00069	<0.001	<0.001	<0.003	<0.003	616
	09/13/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	450
	12/14/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	355
	03/10/11	-	0.00078	<0.001	<0.001	<0.003	0.00078	256
	06/13/11	-	0.00038	<0.00020	<0.00030	<0.00023	0.00038	520
	09/19/11	-	0.00051 J	<0.00030	<0.00020	<0.00023	0.00051 J	630
	12/12/11	-	0.00091 J	<0.00030	<0.00020	<0.00023	0.00091 J	660
	04/06/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	161
	06/20/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	668
	09/24/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	708
	12/14/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	349
	03/27/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	565
	06/07/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	388
	09/19/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	378
	12/27/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	499
	03/27/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	537
	06/19/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	545
	09/30/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	223
	12/16/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	465
	03/24/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	477

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 Summary of Analysis of Groundwater Samples
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Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
MW-4 Cont.	06/18/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	750
	09/09/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	683
	12/18/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	526
	03/16/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	525
	06/30/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	471
	09/09/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	568
	12/07/16	-	<0.005	<0.005	<0.005	<0.005	<0.005	666
Dup	12/07/16	-	<0.005	<0.005	<0.005	<0.005	<0.005	678
	03/03/17	-	<0.005	<0.005	<0.005	<0.005	<0.005	487
	08/31/17	-	<0.005	<0.005	<0.005	<0.005	<0.005	517
	02/21/18	-	<0.005	<0.005	<0.005	<0.005	<0.005	501
Dup	02/21/18	-	<0.005	<0.005	<0.005	<0.005	<0.005	482
	08/23/18	-	<0.005	<0.005	<0.005	<0.005	<0.005	386
	02/07/19	-	<0.006	<0.005	<0.005	<0.005	<0.006	602
	08/08/19	-	<0.006	<0.005	<0.005	<0.005	<0.006	555
MW-5	09/22/06	-	<0.001	<0.001	<0.001	<0.001	<0.001	95.7
	03/16/07	-	0.00375	<0.001	<0.001	<0.001	0.00375	102
	06/06/07	-	0.00277	<0.001	<0.001	<0.001	0.00277	126
	09/28/07	-	0.0132	<0.001	<0.001	<0.001	0.0132	31.7
	12/18/07	-	0.0290	<0.001	<0.001	0.0024	0.0314	<200
	03/28/08	-	0.0018	<0.001	<0.001	<0.001	0.0018	85.4
	06/26/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	132
	09/22/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	90.9
	12/04/08	-	<0.0005	<0.0005	<0.0005	<0.001	<0.001	124
	03/12/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	90.5
Dup	03/12/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	82.7
	06/22/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	82.6

212C-MD-02090

Table 2
OXY USA, Inc.
E.C. Hill A, B & C Tank Battery
Summary of Analysis of Groundwater Samples
Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
Dup	06/22/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	92.2
MW-5 Cont.	09/16/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	77.1
Dup	09/16/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	104
	12/09/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	78.5
	03/10/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	79.2
Dup	03/10/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	77.4
	06/08/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	80.3
	09/13/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	81.8
	12/14/10	-	<0.001	<0.001	<0.001	<0.003	<0.003	73.3
	03/10/11	-	<0.001	<0.001	<0.001	<0.003	<0.003	72.6
	06/13/11	-	<0.00014	<0.00020	<0.00030	<0.00023	<0.00030	80
	09/19/11	-	<0.00014	<0.00030	<0.00020	<0.00023	<0.00030	76
	12/12/11	-	<0.00014	<0.00030	<0.00020	<0.00023	<0.00030	81
	04/06/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	116
	06/20/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	103
	09/24/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	139
	12/14/12	-	<0.005	<0.005	<0.005	<0.015	<0.015	108
	03/27/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	151
	06/07/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	153
	09/19/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	150
	12/27/13	-	<0.005	<0.005	<0.005	<0.015	<0.015	159
	03/27/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	112
	06/19/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	110
	09/30/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	102
	12/16/14	-	<0.005	<0.005	<0.005	<0.015	<0.015	109
	03/24/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	92.3
	06/18/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	108

212C-MD-02090

Table 2
OXY USA, Inc.
E.C. Hill A, B & C Tank Battery
Summary of Analysis of Groundwater Samples
Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
MW-5 Cont.	09/09/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	116
	12/18/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	125
	03/16/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	99.6
	06/30/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	77.2
	09/09/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	74.7
	12/07/16	-	<0.005	<0.005	<0.005	<0.005	<0.005	89.1
	03/03/17	-	<0.005	<0.005	<0.005	<0.005	<0.005	75.0
Dup	03/03/17	-	<0.005	<0.005	<0.005	<0.005	<0.005	41.5
	08/31/17	-	<0.005	<0.005	<0.005	<0.005	<0.005	75.9
	02/21/18	-	<0.005	<0.005	<0.005	<0.005	<0.005	117
	08/23/18	-	<0.005	<0.005	<0.005	<0.005	<0.005	103
	02/07/19	-	<0.006	<0.005	<0.005	<0.005	<0.006	157
	08/08/19	-	<0.006	<0.005	<0.005	<0.005	<0.006	85
MW-6	10/29/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	617
	12/18/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	581
	03/16/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	639
Dup	03/16/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	646
	06/30/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	429
Dup	06/30/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	446
	09/09/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	724
Dup	09/09/16	-	<0.005	<0.005	<0.005	<0.015	<0.015	732
	12/07/16	-	<0.005	<0.005	<0.005	<0.005	<0.005	758
	03/03/17	-	<0.005	<0.005	<0.005	<0.005	<0.005	485
	08/31/17	-	<0.005	<0.005	<0.005	<0.005	<0.005	914
Dup	08/31/17	-	<0.005	<0.005	<0.005	<0.005	<0.005	953
	02/21/18	-	<0.005	<0.005	<0.005	<0.005	<0.005	1,030
	08/23/18	-	<0.005	<0.005	<0.005	<0.005	<0.005	1,110

212C-MD-02090

Table 2
 OXY USA, Inc.
 E.C. Hill A, B & C Tank Battery
 Summary of Analysis of Groundwater Samples
 Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
MW-6 Cont.	02/07/19	-	<0.006	<0.005	<0.005	<0.005	<0.006	1,000
	08/08/19	-	<0.006	<0.005	<0.005	<0.005	<0.006	887
TMW-7	10/29/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	102
	12/18/15	-	<0.005	<0.005	<0.005	<0.015	<0.015	102
RW-1	06/13/11	-	-	-	-	-	-	-
	09/19/11	1.29	-	-	-	-	-	-
	12/12/11	3.13	-	-	-	-	-	-
	04/06/12	3.16	-	-	-	-	-	-
	06/20/12	3.20	-	-	-	-	-	-
	09/24/12	3.22	-	-	-	-	-	-
	12/14/12	2.09	-	-	-	-	-	-
	03/27/13	0.05	-	-	-	-	-	-
	06/07/13	2.91	-	-	-	-	-	-
	09/19/13	NG	-	-	-	-	-	-
	12/27/13	3.03	-	-	-	-	-	-
	03/27/14	3.07	-	-	-	-	-	-
	06/19/14	3.03	-	-	-	-	-	-
	09/26/14	2.99	-	-	-	-	-	-
	12/16/14	2.97	-	-	-	-	-	-
	03/24/15	2.76	-	-	-	-	-	-
	04/09/15	2.80	-	-	-	-	-	-
	06/18/15	2.79	-	-	-	-	-	-
	09/09/15	3.13	-	-	-	-	-	-
	12/18/15	2.20	-	-	-	-	-	-
	03/16/16	2.36	-	-	-	-	-	-
	06/30/16	2.38	-	-	-	-	-	-
	09/09/16	2.42	-	-	-	-	-	-

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Table 2
 OXY USA, Inc.
 E.C. Hill A, B & C Tank Battery
 Summary of Analysis of Groundwater Samples
 Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
RW-1 Cont.	12/07/16	2.47	-	-	-	-	-	-
	03/01/17	2.35	-	-	-	-	-	-
	08/29/17	2.46	-	-	-	-	-	-
	02/20/18	2.29	-	-	-	-	-	-
	08/23/18	2.49	-	-	-	-	-	-
	02/07/19	2.47	-	-	-	-	-	-
	08/08/19	2.52	-	-	-	-	-	-
RW-2	06/13/11	-	-	-	-	-	-	-
	09/19/11	-	-	-	-	-	-	-
	12/12/11	-	-	-	-	-	-	-
	04/06/12	0.05	-	-	-	-	-	-
	06/20/12	0.12	-	-	-	-	-	-
	09/24/12	0.24	-	-	-	-	-	-
	12/14/12	0.12	-	-	-	-	-	-
	03/27/13	0.28	-	-	-	-	-	-
	06/07/13	0.41	-	-	-	-	-	-
	09/19/13	NG	-	-	-	-	-	-
	12/27/13	0.30	-	-	-	-	-	-
	03/27/14	0.33	-	-	-	-	-	-
	06/19/14	0.43	-	-	-	-	-	-
	09/26/14	0.52	-	-	-	-	-	-
	12/16/14	0.48	-	-	-	-	-	-
	03/24/15	0.61	-	-	-	-	-	-
	06/18/15	0.80	-	-	-	-	-	-
	09/09/15	0.01	-	-	-	-	-	-
	12/18/15	0.75	-	-	-	-	-	-
	03/16/16	0.89	-	-	-	-	-	-

212C-MD-02090

Table 2
 OXY USA, Inc.
 E.C. Hill A, B & C Tank Battery
 Summary of Analysis of Groundwater Samples
 Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
New Mexico Water Quality Control Commission Human Health Standard Maximum Allowable Concentration			0.005 mg/L	1.0 mg/L	0.7 mg/L	0.62 mg/L		250.0 mg/L*
RW-2 Cont.	06/30/16	0.77	-	-	-	-	-	-
	09/09/16	0.78	-	-	-	-	-	-
	12/07/16	0.83	-	-	-	-	-	-
	03/01/17	2.24	-	-	-	-	-	-
	08/29/17	2.94	-	-	-	-	-	-
	02/20/18	2.72	-	-	-	-	-	-
	08/23/18	2.56	-	-	-	-	-	-
	02/07/19	6.04	-	-	-	-	-	-
	08/08/19	2.52	-	-	-	-	-	-

(-) Not Analyzed

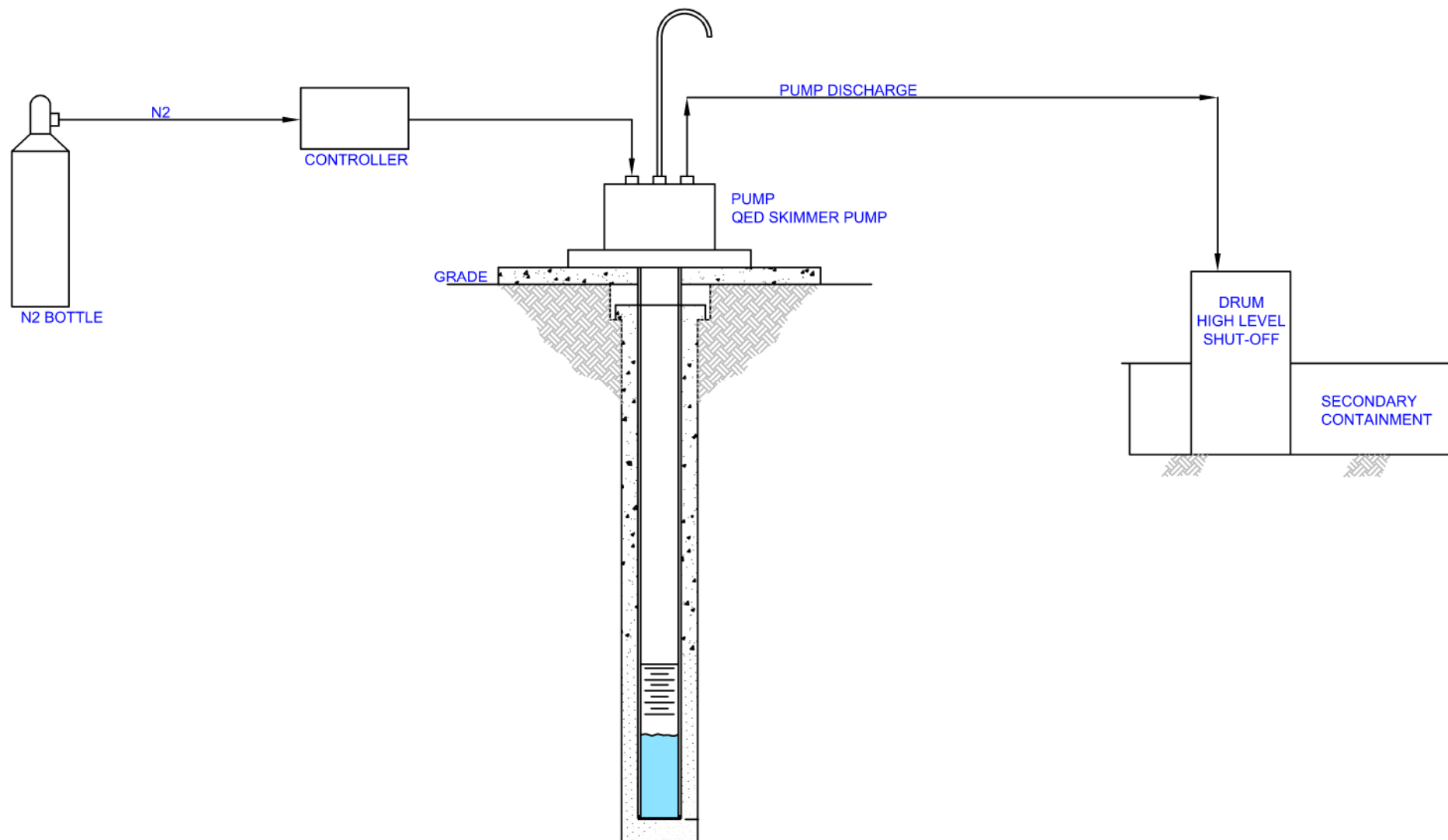
NM - Not Measured

NG - Not Gauged, Instrument Malfunction

Appendix A

Recovery System Schematics

MW-1



TETRA TECH
901 W. WALL STREET STE. 100
MIDLAND, TEXAS
(432) 682-4559

GLENN SPRINGS HOLDINGS

PFD SCHEMATIC/PRODUCT WELLS

E.C. HILL A, B, C, TANK BATTERY
LEA COUNTY, NEW MEXICO

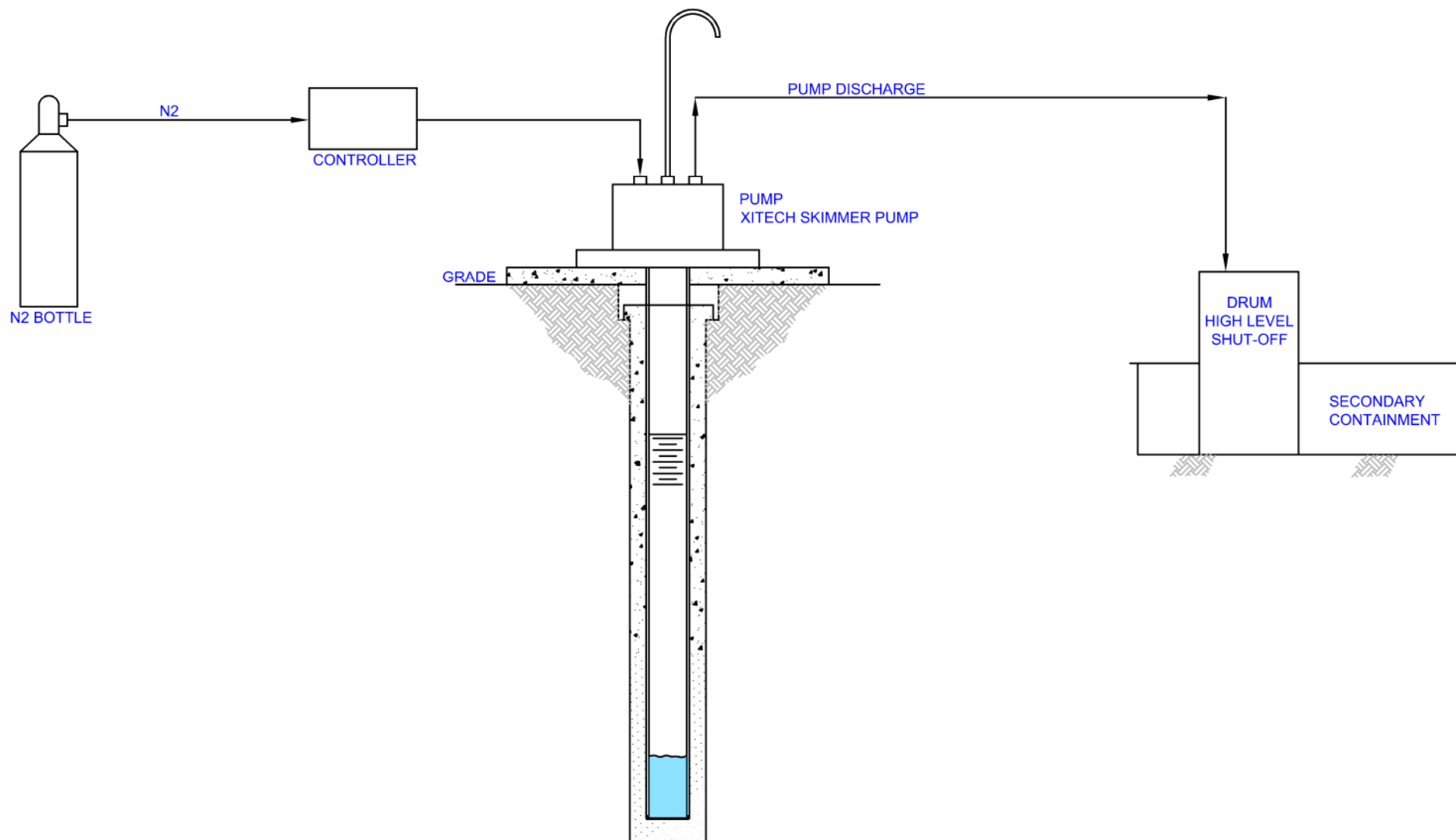
Project: 212C-MD-02090

Date: 4/24/20

File: GLENN SPRINGS HOLDINGS A,B,C TB DETAIL MW1

REV.

MW-2



TETRA TECH
901 W. WALL STREET STE. 100
MIDLAND, TEXAS
(432) 682-4559

GLENN SPRINGS HOLDINGS

PFD SCHEMATIC/PRODUCT WELLS

E.C. HILL A, B, C, TANK BATTERY
LEA COUNTY, NEW MEXICO

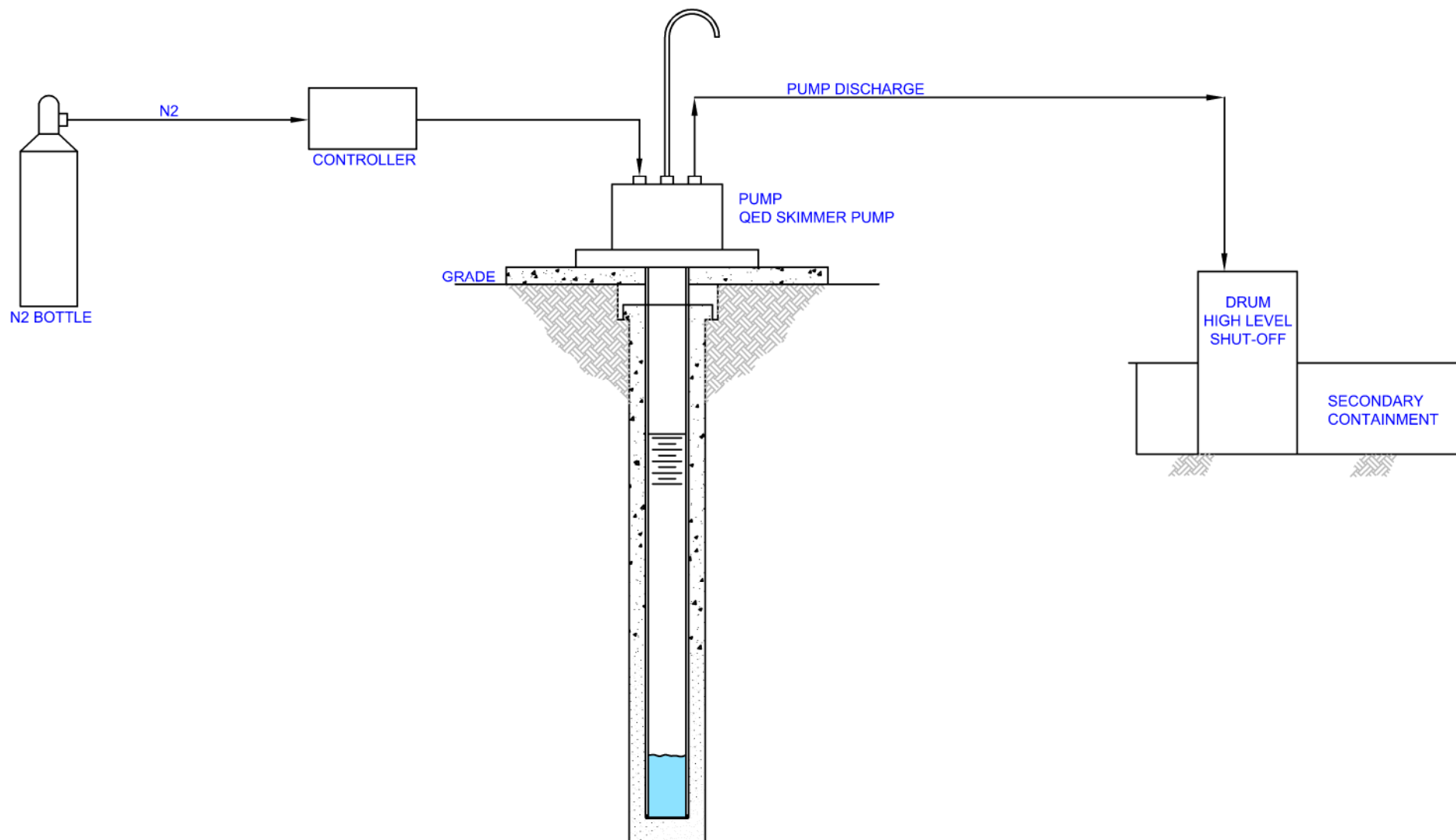
Project: 212C-MD-02090

Date: 4/24/20

File: GLENN SPRINGS HOLDINGS A,B,C TB DETAL RW1

REV.

RW-1



TETRA TECH
901 W. WALL STREET STE. 100
MIDLAND, TEXAS
(432) 682-4559

GLENN SPRINGS HOLDINGS

PFD SCHEMATIC/PRODUCT WELLS

E.C. HILL A, B, C, TANK BATTERY
LEA COUNTY, NEW MEXICO

Project: 212C-MD-02090

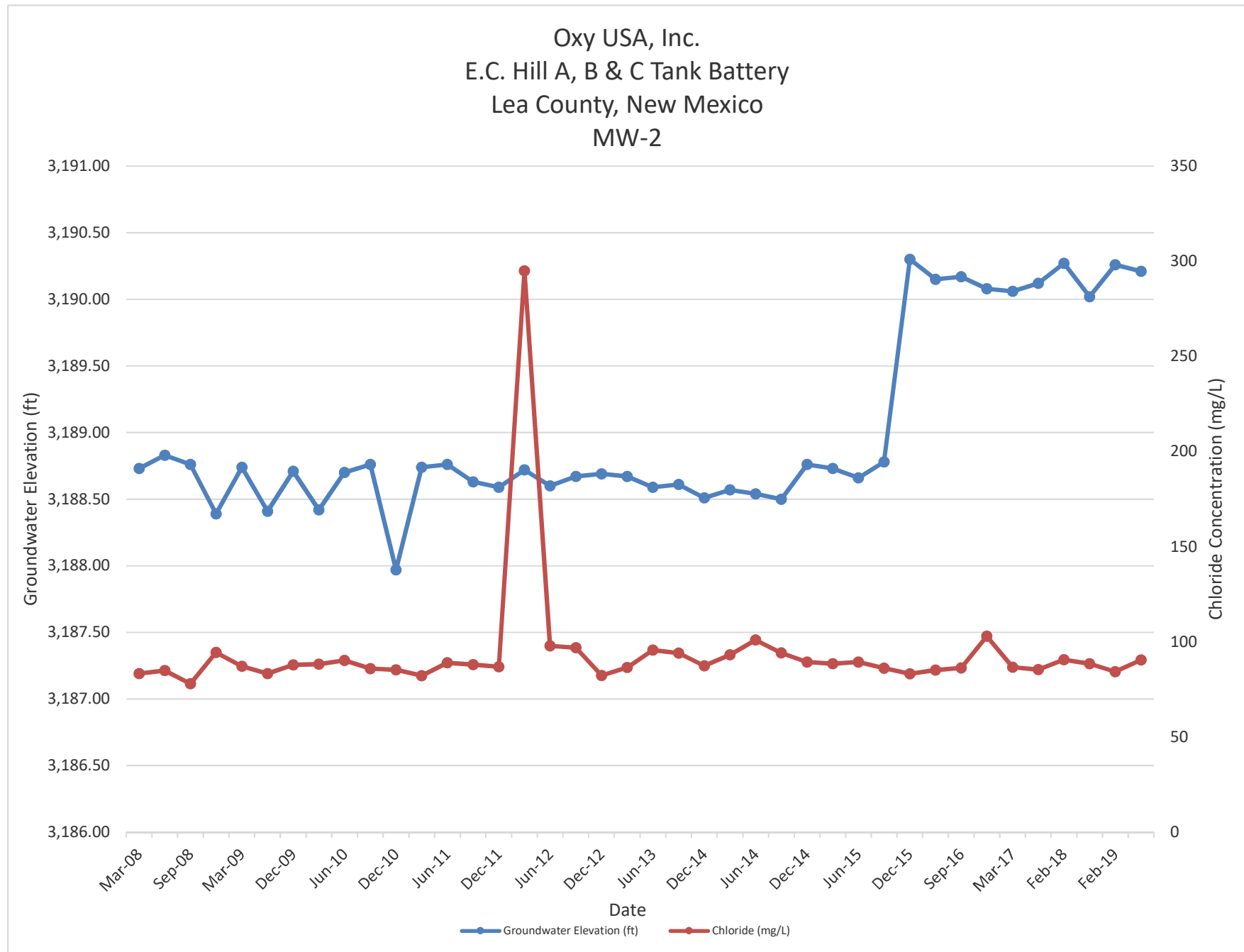
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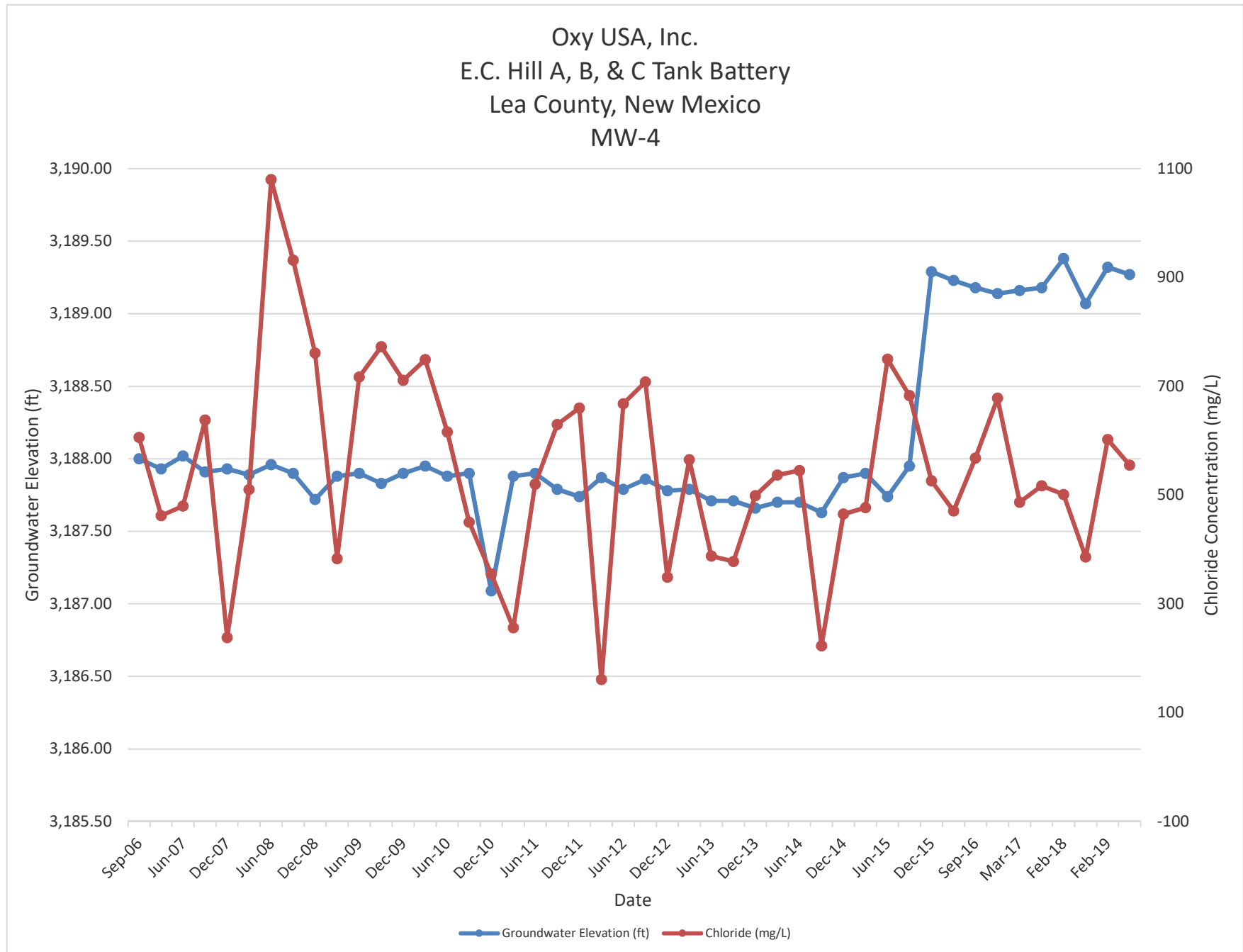
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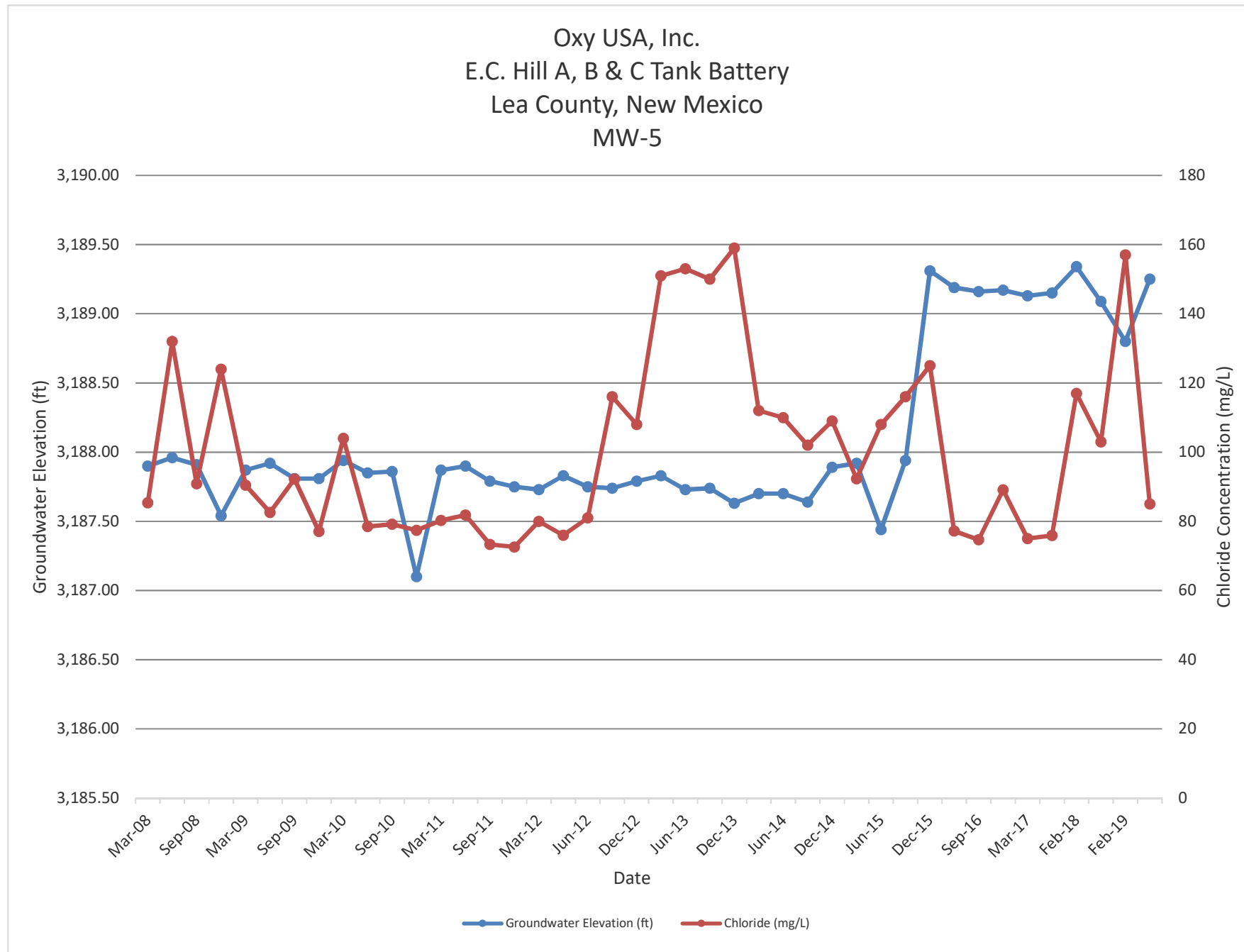
REV.

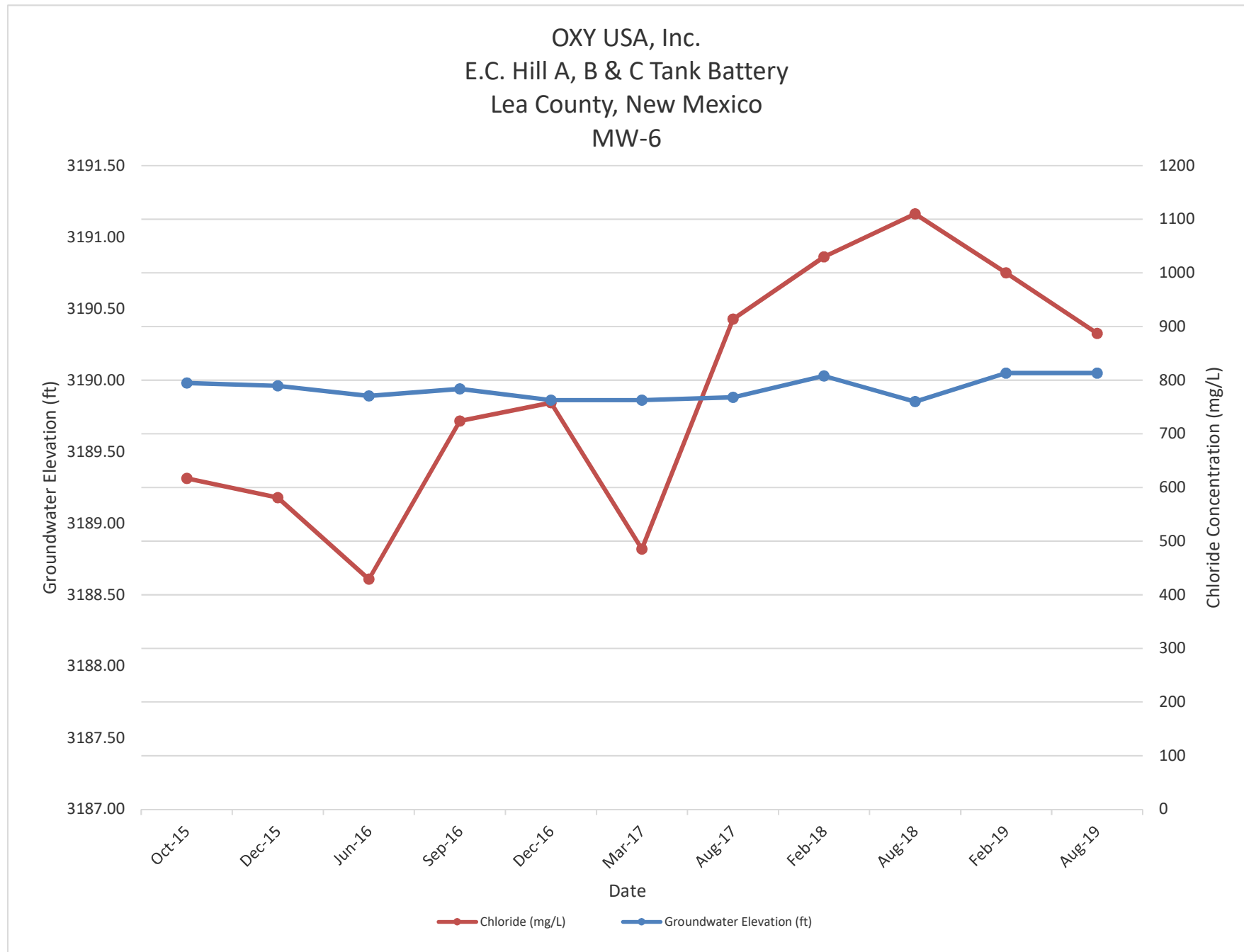
Appendix B

Groundwater Elevation and Chloride Concentration Graphs









Appendix C

Groundwater Laboratory Reports



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

February 26, 2019

James Abston
Glenn Springs Holdings, Inc.
PO Box 2148

Houston, TX 77252-2148

Work Order: **HS19020503**

Laboratory Results for: **55628DM GSHI PXP Hill E.C. ABC TB**

Dear James,

ALS Environmental received 6 sample(s) on Feb 08, 2019 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: DANE.WACASEY
Dane J. Wacasey

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
Work Order: HS19020503

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19020503-01	MW-2	Groundwater		07-Feb-2019 14:20	08-Feb-2019 09:00	☐
HS19020503-02	MW-4	Groundwater		07-Feb-2019 14:00	08-Feb-2019 09:00	☐
HS19020503-03	MW-5	Groundwater		07-Feb-2019 13:50	08-Feb-2019 09:00	☐
HS19020503-04	MW-6	Groundwater		07-Feb-2019 14:20	08-Feb-2019 09:00	☐
HS19020503-05	DUP	Groundwater		07-Feb-2019 00:00	08-Feb-2019 09:00	☐
HS19020503-06	Trip Blank	Water	ALS- 011119-100	07-Feb-2019 00:00	08-Feb-2019 09:00	☐

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
Work Order: HS19020503

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R332802,R332988

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E300

Batch ID: R333413

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: MW-2
 Collection Date: 07-Feb-2019 14:20

ANALYTICAL REPORT

WorkOrder:HS19020503
 Lab ID:HS19020503-01
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	16-Feb-2019 01:44
Ethylbenzene	U		0.50	5.0	ug/L	1	16-Feb-2019 01:44
Toluene	U		0.50	5.0	ug/L	1	16-Feb-2019 01:44
Xylenes, Total	U		0.50	5.0	ug/L	1	16-Feb-2019 01:44
Surr: 1,2-Dichloroethane-d4	86.9			70-126	%REC	1	16-Feb-2019 01:44
Surr: 4-Bromofluorobenzene	98.5			82-124	%REC	1	16-Feb-2019 01:44
Surr: Dibromofluoromethane	93.3			77-123	%REC	1	16-Feb-2019 01:44
Surr: Toluene-d8	97.2			82-127	%REC	1	16-Feb-2019 01:44
ANIONS BY E300.0		Method:E300				Analyst: KMU	
Chloride	84.4		2.00	5.00	mg/L	10	23-Feb-2019 18:06

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

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: MW-4
 Collection Date: 07-Feb-2019 14:00

ANALYTICAL REPORT

WorkOrder:HS19020503
 Lab ID:HS19020503-02
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	16-Feb-2019 02:56
Ethylbenzene	U		0.50	5.0	ug/L	1	16-Feb-2019 02:56
Toluene	U		0.50	5.0	ug/L	1	16-Feb-2019 02:56
Xylenes, Total	U		0.50	5.0	ug/L	1	16-Feb-2019 02:56
Surr: 1,2-Dichloroethane-d4	87.9			70-126	%REC	1	16-Feb-2019 02:56
Surr: 4-Bromofluorobenzene	96.4			82-124	%REC	1	16-Feb-2019 02:56
Surr: Dibromofluoromethane	94.4			77-123	%REC	1	16-Feb-2019 02:56
Surr: Toluene-d8	98.9			82-127	%REC	1	16-Feb-2019 02:56
ANIONS BY E300.0		Method:E300				Analyst: KMU	
Chloride	602		10.0	25.0	mg/L	50	23-Feb-2019 17:08

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

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: MW-5
 Collection Date: 07-Feb-2019 13:50

ANALYTICAL REPORT

WorkOrder:HS19020503
 Lab ID:HS19020503-03
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	16-Feb-2019 03:20
Ethylbenzene	U		0.50	5.0	ug/L	1	16-Feb-2019 03:20
Toluene	U		0.50	5.0	ug/L	1	16-Feb-2019 03:20
Xylenes, Total	U		0.50	5.0	ug/L	1	16-Feb-2019 03:20
Surr: 1,2-Dichloroethane-d4	87.2			70-126	%REC	1	16-Feb-2019 03:20
Surr: 4-Bromofluorobenzene	99.0			82-124	%REC	1	16-Feb-2019 03:20
Surr: Dibromofluoromethane	93.3			77-123	%REC	1	16-Feb-2019 03:20
Surr: Toluene-d8	96.7			82-127	%REC	1	16-Feb-2019 03:20
ANIONS BY E300.0		Method:E300				Analyst: KMU	
Chloride	157		2.00	5.00	mg/L	10	23-Feb-2019 17:52

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

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: MW-6
 Collection Date: 07-Feb-2019 14:20

ANALYTICAL REPORT

WorkOrder:HS19020503
 Lab ID:HS19020503-04
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	16-Feb-2019 03:44
Ethylbenzene	U		0.50	5.0	ug/L	1	16-Feb-2019 03:44
Toluene	U		0.50	5.0	ug/L	1	16-Feb-2019 03:44
Xylenes, Total	U		0.50	5.0	ug/L	1	16-Feb-2019 03:44
Surr: 1,2-Dichloroethane-d4	86.9			70-126	%REC	1	16-Feb-2019 03:44
Surr: 4-Bromofluorobenzene	97.6			82-124	%REC	1	16-Feb-2019 03:44
Surr: Dibromofluoromethane	93.7			77-123	%REC	1	16-Feb-2019 03:44
Surr: Toluene-d8	96.1			82-127	%REC	1	16-Feb-2019 03:44
ANIONS BY E300.0		Method:E300				Analyst: KMU	
Chloride	1,000		10.0	25.0	mg/L	50	23-Feb-2019 18:50

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

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: DUP
 Collection Date: 07-Feb-2019 00:00

ANALYTICAL REPORT

WorkOrder:HS19020503
 Lab ID:HS19020503-05
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	16-Feb-2019 04:08
Ethylbenzene	U		0.50	5.0	ug/L	1	16-Feb-2019 04:08
Toluene	U		0.50	5.0	ug/L	1	16-Feb-2019 04:08
Xylenes, Total	U		0.50	5.0	ug/L	1	16-Feb-2019 04:08
Surr: 1,2-Dichloroethane-d4	88.7			70-126	%REC	1	16-Feb-2019 04:08
Surr: 4-Bromofluorobenzene	98.3			82-124	%REC	1	16-Feb-2019 04:08
Surr: Dibromofluoromethane	94.0			77-123	%REC	1	16-Feb-2019 04:08
Surr: Toluene-d8	95.9			82-127	%REC	1	16-Feb-2019 04:08
ANIONS BY E300.0		Method:E300				Analyst: KMU	
Chloride	1,000		4.00	10.0	mg/L	20	23-Feb-2019 19:05

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

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: Trip Blank
 Collection Date: 07-Feb-2019 00:00

ANALYTICAL REPORT

WorkOrder:HS19020503
 Lab ID:HS19020503-06
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	13-Feb-2019 15:24
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Feb-2019 15:24
Toluene	U		0.50	5.0	ug/L	1	13-Feb-2019 15:24
Xylenes, Total	U		0.50	5.0	ug/L	1	13-Feb-2019 15:24
Surr: 1,2-Dichloroethane-d4	86.7			70-126	%REC	1	13-Feb-2019 15:24
Surr: 4-Bromofluorobenzene	98.0			82-124	%REC	1	13-Feb-2019 15:24
Surr: Dibromofluoromethane	94.0			77-123	%REC	1	13-Feb-2019 15:24
Surr: Toluene-d8	97.9			82-127	%REC	1	13-Feb-2019 15:24

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

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19020503

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R332802	Test Name : VOLATILES - SW8260C		Matrix: Water			
HS19020503-06	Trip Blank	07 Feb 2019 00:00			13 Feb 2019 15:24	1
Batch ID R332988	Test Name : VOLATILES - SW8260C		Matrix: Groundwater			
HS19020503-01	MW-2	07 Feb 2019 14:20			16 Feb 2019 01:44	1
HS19020503-02	MW-4	07 Feb 2019 14:00			16 Feb 2019 02:56	1
HS19020503-03	MW-5	07 Feb 2019 13:50			16 Feb 2019 03:20	1
HS19020503-04	MW-6	07 Feb 2019 14:20			16 Feb 2019 03:44	1
HS19020503-05	DUP	07 Feb 2019 00:00			16 Feb 2019 04:08	1
Batch ID R333413	Test Name : ANIONS BY E300.0		Matrix: Groundwater			
HS19020503-01	MW-2	07 Feb 2019 14:20			23 Feb 2019 18:06	10
HS19020503-02	MW-4	07 Feb 2019 14:00			23 Feb 2019 17:08	50
HS19020503-03	MW-5	07 Feb 2019 13:50			23 Feb 2019 17:52	10
HS19020503-04	MW-6	07 Feb 2019 14:20			23 Feb 2019 18:50	50
HS19020503-05	DUP	07 Feb 2019 00:00			23 Feb 2019 19:05	20

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19020503

QC BATCH REPORT

Batch ID: R332802		Instrument: VOA6		Method: SW8260					
MBLK	Sample ID: VBLKW-190213	Units: ug/L		Analysis Date: 13-Feb-2019 10:51					
Client ID:	Run ID: VOA6_332802	SeqNo: 4948445		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Benzene	U	5.0							
Ethylbenzene	U	5.0							
Toluene	U	5.0							
Xylenes, Total	U	5.0							
Surr: 1,2-Dichloroethane-d4	43.19	0	50	0	86.4	70 - 130			
Surr: 4-Bromofluorobenzene	48.34	0	50	0	96.7	82 - 115			
Surr: Dibromofluoromethane	46.41	0	50	0	92.8	73 - 126			
Surr: Toluene-d8	48.69	0	50	0	97.4	81 - 120			

LCS	Sample ID: VLCSW-190213	Units: ug/L		Analysis Date: 13-Feb-2019 10:02					
Client ID:	Run ID: VOA6_332802	SeqNo: 4948444		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Benzene	19.15	5.0	20	0	95.7	74 - 120			
Ethylbenzene	19.3	5.0	20	0	96.5	77 - 117			
Toluene	18.8	5.0	20	0	94.0	77 - 118			
Xylenes, Total	56.32	5.0	60	0	93.9	75 - 122			
Surr: 1,2-Dichloroethane-d4	43.42	0	50	0	86.8	70 - 130			
Surr: 4-Bromofluorobenzene	49.03	0	50	0	98.1	82 - 115			
Surr: Dibromofluoromethane	47.13	0	50	0	94.3	73 - 126			
Surr: Toluene-d8	48.54	0	50	0	97.1	81 - 120			

MS	Sample ID: HS19020361-12MS	Units: ug/L		Analysis Date: 13-Feb-2019 13:24					
Client ID:	Run ID: VOA6_332802	SeqNo: 4948448		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Benzene	20.59	5.0	20	0	103	70 - 127			
Ethylbenzene	20.96	5.0	20	0	105	70 - 124			
Toluene	20.02	5.0	20	0	100	70 - 123			
Xylenes, Total	59.67	5.0	60	0	99.5	70 - 130			
Surr: 1,2-Dichloroethane-d4	45.03	0	50	0	90.1	70 - 126			
Surr: 4-Bromofluorobenzene	49.08	0	50	0	98.2	82 - 124			
Surr: Dibromofluoromethane	48.69	0	50	0	97.4	77 - 123			
Surr: Toluene-d8	48.83	0	50	0	97.7	82 - 127			

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19020503

QC BATCH REPORT

Batch ID: R332802		Instrument: VOA6		Method: SW8260						
MSD	Sample ID:	HS19020361-12MSD			Units:	ug/L				
				Analysis Date:			13-Feb-2019 13:48			
	Client ID:	Run ID: VOA6_332802			SeqNo: 4948449		PrepDate:		DF: 1	
	Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Benzene	18.66	5.0	20	0	93.3	70 - 127	20.59	9.84	20	
Ethylbenzene	19.17	5.0	20	0	95.8	70 - 124	20.96	8.95	20	
Toluene	18.23	5.0	20	0	91.2	70 - 123	20.02	9.37	20	
Xylenes, Total	55.58	5.0	60	0	92.6	70 - 130	59.67	7.11	20	
Surr: 1,2-Dichloroethane-d4	43.85	0	50	0	87.7	70 - 126	45.03	2.65	20	
Surr: 4-Bromofluorobenzene	48.83	0	50	0	97.7	82 - 124	49.08	0.506	20	
Surr: Dibromofluoromethane	47.5	0	50	0	95.0	77 - 123	48.69	2.47	20	
Surr: Toluene-d8	48.45	0	50	0	96.9	82 - 127	48.83	0.789	20	

The following samples were analyzed in this batch: HS19020503-06

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19020503

QC BATCH REPORT

Batch ID: R332988		Instrument: VOA6		Method: SW8260					
MBLK	Sample ID: VBLKW-190215	Units: ug/L		Analysis Date: 16-Feb-2019 01:20					
Client ID:	Run ID: VOA6_332988	SeqNo: 4952730		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	U	5.0							
Ethylbenzene	U	5.0							
Toluene	U	5.0							
Xylenes, Total	U	5.0							
Surr: 1,2-Dichloroethane-d4	43.01	0	50	0	86.0	70 - 130			
Surr: 4-Bromofluorobenzene	49.08	0	50	0	98.2	82 - 115			
Surr: Dibromofluoromethane	47.31	0	50	0	94.6	73 - 126			
Surr: Toluene-d8	48.47	0	50	0	96.9	81 - 120			

LCS	Sample ID: VLCSW-190215	Units: ug/L		Analysis Date: 16-Feb-2019 00:32					
Client ID:	Run ID: VOA6_332988	SeqNo: 4952728		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	19.98	5.0	20	0	99.9	74 - 120			
Ethylbenzene	20.3	5.0	20	0	102	77 - 117			
Toluene	19.63	5.0	20	0	98.2	77 - 118			
Xylenes, Total	58.01	5.0	60	0	96.7	75 - 122			
Surr: 1,2-Dichloroethane-d4	43.37	0	50	0	86.7	70 - 130			
Surr: 4-Bromofluorobenzene	48.87	0	50	0	97.7	82 - 115			
Surr: Dibromofluoromethane	48.1	0	50	0	96.2	73 - 126			
Surr: Toluene-d8	48.1	0	50	0	96.2	81 - 120			

MS	Sample ID: HS19020503-01MS	Units: ug/L		Analysis Date: 16-Feb-2019 02:08					
Client ID: MW-2	Run ID: VOA6_332988	SeqNo: 4952732		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	20.7	5.0	20	0	104	70 - 127			
Ethylbenzene	20.85	5.0	20	0	104	70 - 124			
Toluene	20.12	5.0	20	0	101	70 - 123			
Xylenes, Total	60.04	5.0	60	0	100	70 - 130			
Surr: 1,2-Dichloroethane-d4	43.14	0	50	0	86.3	70 - 126			
Surr: 4-Bromofluorobenzene	49.69	0	50	0	99.4	82 - 124			
Surr: Dibromofluoromethane	47.43	0	50	0	94.9	77 - 123			
Surr: Toluene-d8	47.65	0	50	0	95.3	82 - 127			

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19020503

QC BATCH REPORT

Batch ID: R332988		Instrument: VOA6		Method: SW8260						
MSD		Sample ID: HS19020503-01MSD	Units: ug/L		Analysis Date: 16-Feb-2019 02:32					
Client ID: MW-2	Run ID: VOA6_332988		SeqNo: 4952733		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual	
Benzene	20.59	5.0	20	0	103	70 - 127	20.7	0.535	20	
Ethylbenzene	21.11	5.0	20	0	106	70 - 124	20.85	1.24	20	
Toluene	20.36	5.0	20	0	102	70 - 123	20.12	1.21	20	
Xylenes, Total	60.62	5.0	60	0	101	70 - 130	60.04	0.965	20	
Surr: 1,2-Dichloroethane-d4	43.71	0	50	0	87.4	70 - 126	43.14	1.32	20	
Surr: 4-Bromofluorobenzene	48.44	0	50	0	96.9	82 - 124	49.69	2.54	20	
Surr: Dibromofluoromethane	47.87	0	50	0	95.7	77 - 123	47.43	0.915	20	
Surr: Toluene-d8	47.92	0	50	0	95.8	82 - 127	47.65	0.566	20	
The following samples were analyzed in this batch:										
HS19020503-01		HS19020503-02		HS19020503-03		HS19020503-04				
HS19020503-05										

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19020503

QC BATCH REPORT

Batch ID: R333413		Instrument: ICS2100		Method: E300						
MBLK	Sample ID: WBLKW1-022319	Units: mg/L		Analysis Date: 23-Feb-2019 11:46						
Client ID:	Run ID: ICS2100_333413	SeqNo: 4962123		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.500								
LCS	Sample ID: WLCSW1-022319	Units: mg/L		Analysis Date: 23-Feb-2019 12:01						
Client ID:	Run ID: ICS2100_333413	SeqNo: 4962124		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.35	0.500	20	0	96.8	90 - 110				
LCSD	Sample ID: WLCSDW1-022319	Units: mg/L		Analysis Date: 23-Feb-2019 12:16						
Client ID:	Run ID: ICS2100_333413	SeqNo: 4962125		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.66	0.500	20	0	98.3	90 - 110	19.35	1.58	20	
MS	Sample ID: HS19020503-01MS	Units: mg/L		Analysis Date: 23-Feb-2019 18:21						
Client ID: MW-2	Run ID: ICS2100_333413	SeqNo: 4962145		PrepDate:		DF: 10				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	181.3	5.00	100	84.43	96.9	80 - 120				
MS	Sample ID: HS19020495-02MS	Units: mg/L		Analysis Date: 23-Feb-2019 13:21						
Client ID:	Run ID: ICS2100_333413	SeqNo: 4962128		PrepDate:		DF: 10				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	277	5.00	100	174.5	103	80 - 120				
MSD	Sample ID: HS19020503-01MSD	Units: mg/L		Analysis Date: 23-Feb-2019 18:36						
Client ID: MW-2	Run ID: ICS2100_333413	SeqNo: 4962147		PrepDate:		DF: 10				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	183.9	5.00	100	84.43	99.5	80 - 120	181.3	1.4	20	

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19020503

QC BATCH REPORT

Batch ID: R333413		Instrument: ICS2100		Method: E300	
MSD	Sample ID: HS19020495-02MSD	Units: mg/L		Analysis Date: 23-Feb-2019 13:35	
Client ID:	Run ID: ICS2100_333413	SeqNo: 4962129		PrepDate:	DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD RPD Limit Qual
Chloride	274.6	5.00	100	174.5 100	80 - 120 277 0.871 20

The following samples were analyzed in this batch:

HS19020503-01	HS19020503-02	HS19020503-03	HS19020503-04
HS19020503-05			

ALS Houston, US

Date: 26-Feb-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19020503

**QUALIFIERS,
ACRONYMS, UNITS**

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

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

Unit Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Houston, US

Date: 26-Feb-19

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	88-0356	27-Mar-2019
Texas	T10470231-18-21	30-Apr-2019
North Dakota	R193 2018-2019	30-Apr-2019
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Dept of Defense	ANAB L2231	20-Dec-2021
Kentucky	123043 - 2018	30-Apr-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019
North Carolina	624-2019	31-Dec-2019
California	2919, 2018-2019	30-Apr-2019
Maryland	343, 2018-2019	30-Jun-2019

ALS Houston, US

Date: 26-Feb-19

Sample Receipt Checklist

Client Name: Glen Springs/CRA

Date/Time Received: **08-Feb-2019 09:00**

Work Order: HS19020503

Received by: **NDR**

Checklist completed by: Paresh M. Giga 11-Feb-2019
eSignature Date

Reviewed by: Dane J. Wacasey 17-Feb-2019
eSignature Date

Matrices: **Groundwater/Water**Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	COC IDs:198566
Samplers name present on COC?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	0.6c/0.9c U/c IR25		
Cooler(s)/Kit(s):	44665		
Date/Time sample(s) sent to storage:	2/8/19 12:15		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:			

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:


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Chain of Custody Form

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Page 1 of 1

COC ID: 198566

Customer Information			Project Information			ALS Project Manager:											ALS Work Order #:	
Parameter/Method Request for Analysis																		
Purchase Order	4502201559 ENV 749-4	Project Name	GSHI PXP Hill E.C. ABC TB	A	8260_W (BTEX)													
Work Order		Project Number	55628DM (ENV749A10)	B	300_W (Chloride)													
Company Name	Glenn Springs Holdings, Inc.	Bill To Company	Glenn Springs Holdings, Inc.	C	8260_W (BTEX-Trip Blank)													
Send Report To	Angela Bown	Invoice Attn	Accounts Payable	D														
Address	PO Box 2148	Address	PO Box 2148	E	HS19020503 Glenn Springs Holdings, Inc. 55628DM GSHI PXP Hill E.C. ABC TB 													
				F														
				G														
City/State/Zip	Houston, TX 77252-2148	City/State/Zip	Houston TX 77252-2148	H														
Phone		Phone		I														
Fax		Fax		J														
e-Mail Address	Angela.Bown@ghd.com	e-Mail Address																

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-1			Groundwa	1.8	4	X	X									
2	MW-2	2-7-19	1420	Groundwa	1.8	4	X	X									
3	MW-3			Groundwa	1.8	4	X	X									
4	MW-4	2-7-19	1400	Groundwa	1.8	4	X	X									
5	MW-5	2-7-19	1350	Groundwa	1.8	4	X	X									
6	MW-6	2-7-19	1420	Groundwa	1.8	4	X	X									
7	MW-7			Groundwa	1.8	4	X	X									
8	RW-1			Groundwa	1.8	4	X	X									
9	RW-2			Groundwa	1.8	4	X	X									
10	DUP	2-7-19		Groundwa	1.8	4	X	X									

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
Proton B. Bown		FedEx		☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour			
Relinquished by:	Date:	Time:	Received by:	Notes:			
Proton B. Bown	2-7-19	1200	W. R. K.	[GSHI PXP Hill EC ABC TB]			
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)	
			W. R. K.	44665	0.6°C	☒ Level II Std QC ☐ TRRP Checklist	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			☐ Level III Std QC/Raw Date ☐ TRRP Level IV	
						☐ Level IV SW846/CLP ☐ Other	

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

- Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
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Chain of Custody Form

Page ____ of ____

COC ID: 198565

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+1 281 530 5656Middletown, PA
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+1 610 948 4903Salt Lake City, UT
+1 801 266 7700South Charleston, WV
+1 304 356 3168York, PA
+1 717 505 5280

Customer Information		Project Information		Parameter/Method Request for Analysis													
Purchase Order	4502201559 ENV 749-4	Project Name	GSHI PXP Hill E.C. ABC TB	A	8260_W (BTEx)												
Work Order		Project Number	55628DM (ENV749A10)	B	300_W (Chloride)												
Company Name	Glenn Springs Holdings, Inc.	Bill To Company	Glenn Springs Holdings, Inc.	C	8260_W (BTEx-Trip Blank)												
Send Report To	Angela Bown	Invoice Attn	Accounts Payable	D	HS19020503 Glenn Springs Holdings, Inc. 55628DM GSHI PXP Hill E.C. ABC TB 												
Address	PO Box 2148	Address	PO Box 2148	E													
City/State/Zip	Houston, TX 77252-2148	City/State/Zip	Houston TX 77252-2148	F													
Phone		Phone		G													
Fax		Fax		H													
e-Mail Address	Angela.Bown@ghd.com	e-Mail Address		I													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Trip Blank			Water	1,8	2			X								
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

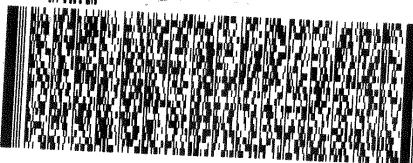
Sampler(s) Please Print & Sign <i>Angela Bown</i>		Shipment Method FedEx		Required Turnaround Time: (Check Box) ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour				Results Due Date:	
Relinquished by: <i>Angela Bown</i>	Date: 2-7-19	Time: 1700	Received by: <i>Angela Bown</i>		Notes: [GSHI PXP Hill EC ABC TB]				
Relinquished by:	Date:	Time:	Received by (Laboratory): <i>Angela Bown</i>		Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)		
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):				☒ Level II Std QC	☐ TRRP Checklist	
							☐ Level III Std QC/Row Date	☐ TRRP Level IV	
							☐ Level IV SW846/CLP		
							☐ Other		

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

- Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
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 3. The Chain of Custody is a legal document. All information must be completed accurately.

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 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5556 Fax +1 281 530 5557	44661	CUSTODY SEAL		Seal Broken By:
		Date:	Time:	2/8/19
		Name:		
		Company:		

ORIGIN ID: SGRA (432) 682-4559 TODD WELLS GSHI-TETRA TECH 901 WEST WALL STREET STE 4100 MIDLAND, TX 79701 UNITED STATES US	SHIP DATE: 12NOV18 ACTWT: 1.00 LB MAN CAD: 300130/CAFE3211 DIMS: 19x18x13 IN
TO CLIENT SERVICES ALS LABORATORY GROUP 10450 STANCLIFF ROAD SUITE 210 HOUSTON TX 77099 (281) 530-5556 REF: 55626/55627 GSHI-DW	
RMA: 	
FedEx Express	
RETURNING MAIL CAT FRI - 08 FEB 10:30A PRIORITY OVERNIGHT	
FedEx TRK# 4380 9534 4837 0221	
AB SGRA	
77099 TX-US IAH	
	



10450 Stancliff Rd. Suite 210
Houston, TX 77099
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August 21, 2019

James Abston
Glenn Springs Holdings, Inc.
PO Box 2148
Houston, TX 77252-2148

Work Order: **HS19080475**

Laboratory Results for: **55628DM GSHI PXP Hill E.C. ABC TB**

Dear James,

ALS Environmental received 6 sample(s) on Aug 09, 2019 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
Dane J. Wacasey

ALS Houston, US

Date: 21-ago-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
Work Order: HS19080475

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19080475-01	MW-2	Groundwater		08-Aug-2019 12:05	09-Aug-2019 08:45	☐
HS19080475-02	MW-4	Groundwater		08-Aug-2019 11:45	09-Aug-2019 08:45	☐
HS19080475-03	MW-5	Groundwater		08-Aug-2019 11:25	09-Aug-2019 08:45	☐
HS19080475-04	MW-6	Groundwater		08-Aug-2019 12:35	09-Aug-2019 08:45	☐
HS19080475-05	DUP	Groundwater		08-Aug-2019 00:00	09-Aug-2019 08:45	☐
HS19080475-06	Trip Blank	Water	C&G- 062119-317	08-Aug-2019 00:00	09-Aug-2019 08:45	☐

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
Work Order: HS19080475

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R344140

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E300

Batch ID: R344408

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
-

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: MW-2
 Collection Date: 08-Aug-2019 12:05

ANALYTICAL REPORT

WorkOrder:HS19080475
 Lab ID:HS19080475-01
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	13-Aug-2019 01:55
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Aug-2019 01:55
Toluene	U		0.50	5.0	ug/L	1	13-Aug-2019 01:55
Xylenes, Total	U		0.50	5.0	ug/L	1	13-Aug-2019 01:55
Surr: 1,2-Dichloroethane-d4	92.9			70-126	%REC	1	13-Aug-2019 01:55
Surr: 4-Bromofluorobenzene	97.4			82-124	%REC	1	13-Aug-2019 01:55
Surr: Dibromofluoromethane	98.1			77-123	%REC	1	13-Aug-2019 01:55
Surr: Toluene-d8	99.0			82-127	%REC	1	13-Aug-2019 01:55
ANIONS BY E300.0		Method:E300				Analyst: KMU	
Chloride	90.5		2.00	5.00	mg/L	10	15-Aug-2019 18:35

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

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: MW-4
 Collection Date: 08-Aug-2019 11:45

ANALYTICAL REPORT

WorkOrder:HS19080475
 Lab ID:HS19080475-02
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	13-Aug-2019 04:45
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Aug-2019 04:45
Toluene	U		0.50	5.0	ug/L	1	13-Aug-2019 04:45
Xylenes, Total	U		0.50	5.0	ug/L	1	13-Aug-2019 04:45
Surr: 1,2-Dichloroethane-d4	94.3			70-126	%REC	1	13-Aug-2019 04:45
Surr: 4-Bromofluorobenzene	96.0			82-124	%REC	1	13-Aug-2019 04:45
Surr: Dibromofluoromethane	97.3			77-123	%REC	1	13-Aug-2019 04:45
Surr: Toluene-d8	101			82-127	%REC	1	13-Aug-2019 04:45
ANIONS BY E300.0		Method:E300				Analyst: KMU	
Chloride	555		4.00	10.0	mg/L	20	15-Aug-2019 20:32

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

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: MW-5
 Collection Date: 08-Aug-2019 11:25

ANALYTICAL REPORT

WorkOrder:HS19080475
 Lab ID:HS19080475-03
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	13-Aug-2019 05:09
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Aug-2019 05:09
Toluene	U		0.50	5.0	ug/L	1	13-Aug-2019 05:09
Xylenes, Total	U		0.50	5.0	ug/L	1	13-Aug-2019 05:09
Surr: 1,2-Dichloroethane-d4	94.2			70-126	%REC	1	13-Aug-2019 05:09
Surr: 4-Bromofluorobenzene	98.3			82-124	%REC	1	13-Aug-2019 05:09
Surr: Dibromofluoromethane	97.0			77-123	%REC	1	13-Aug-2019 05:09
Surr: Toluene-d8	101			82-127	%REC	1	13-Aug-2019 05:09
ANIONS BY E300.0		Method:E300				Analyst: KMU	
Chloride	85.0		2.00	5.00	mg/L	10	15-Aug-2019 20:48

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

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: MW-6
 Collection Date: 08-Aug-2019 12:35

ANALYTICAL REPORT

WorkOrder:HS19080475
 Lab ID:HS19080475-04
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	13-Aug-2019 05:34
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Aug-2019 05:34
Toluene	U		0.50	5.0	ug/L	1	13-Aug-2019 05:34
Xylenes, Total	U		0.50	5.0	ug/L	1	13-Aug-2019 05:34
Surr: 1,2-Dichloroethane-d4	93.9			70-126	%REC	1	13-Aug-2019 05:34
Surr: 4-Bromofluorobenzene	96.3			82-124	%REC	1	13-Aug-2019 05:34
Surr: Dibromofluoromethane	96.5			77-123	%REC	1	13-Aug-2019 05:34
Surr: Toluene-d8	100			82-127	%REC	1	13-Aug-2019 05:34
ANIONS BY E300.0		Method:E300				Analyst: KMU	
Chloride	887		4.00	10.0	mg/L	20	15-Aug-2019 21:05

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

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: DUP
 Collection Date: 08-Aug-2019 00:00

ANALYTICAL REPORT

WorkOrder:HS19080475
 Lab ID:HS19080475-05
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	13-Aug-2019 05:58
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Aug-2019 05:58
Toluene	U		0.50	5.0	ug/L	1	13-Aug-2019 05:58
Xylenes, Total	U		0.50	5.0	ug/L	1	13-Aug-2019 05:58
Surr: 1,2-Dichloroethane-d4	93.8			70-126	%REC	1	13-Aug-2019 05:58
Surr: 4-Bromofluorobenzene	94.7			82-124	%REC	1	13-Aug-2019 05:58
Surr: Dibromofluoromethane	98.7			77-123	%REC	1	13-Aug-2019 05:58
Surr: Toluene-d8	100			82-127	%REC	1	13-Aug-2019 05:58
ANIONS BY E300.0		Method:E300				Analyst: KMU	
Chloride	1,090		10.0	25.0	mg/L	50	15-Aug-2019 21:21

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

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
 Project: 55628DM GSHI PXP Hill E.C. ABC TB
 Sample ID: Trip Blank
 Collection Date: 08-Aug-2019 00:00

ANALYTICAL REPORT

WorkOrder:HS19080475
 Lab ID:HS19080475-06
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES - SW8260C		Method:SW8260				Analyst: PC	
Benzene	U		0.60	5.0	ug/L	1	13-Aug-2019 00:42
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Aug-2019 00:42
Toluene	U		0.50	5.0	ug/L	1	13-Aug-2019 00:42
Xylenes, Total	U		0.50	5.0	ug/L	1	13-Aug-2019 00:42
Surr: 1,2-Dichloroethane-d4	92.5			70-126	%REC	1	13-Aug-2019 00:42
Surr: 4-Bromofluorobenzene	95.0			82-124	%REC	1	13-Aug-2019 00:42
Surr: Dibromofluoromethane	97.8			77-123	%REC	1	13-Aug-2019 00:42
Surr: Toluene-d8	99.1			82-127	%REC	1	13-Aug-2019 00:42

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

ALS Houston, US

Date: 21-ago-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19080475

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: R344140 (0)		Test Name : VOLATILES - SW8260C			Matrix: Water	
HS19080475-06	Trip Blank	08 Aug 2019 00:00			13 Aug 2019 00:42	1
Batch ID: R344140 (0)		Test Name : VOLATILES - SW8260C			Matrix: Groundwater	
HS19080475-01	MW-2	08 Aug 2019 12:05			13 Aug 2019 01:55	1
HS19080475-02	MW-4	08 Aug 2019 11:45			13 Aug 2019 04:45	1
HS19080475-03	MW-5	08 Aug 2019 11:25			13 Aug 2019 05:09	1
HS19080475-04	MW-6	08 Aug 2019 12:35			13 Aug 2019 05:34	1
HS19080475-05	DUP	08 Aug 2019 00:00			13 Aug 2019 05:58	1
Batch ID: R344408 (0)		Test Name : ANIONS BY E300.0			Matrix: Groundwater	
HS19080475-01	MW-2	08 Aug 2019 12:05			15 Aug 2019 18:35	10
HS19080475-02	MW-4	08 Aug 2019 11:45			15 Aug 2019 20:32	20
HS19080475-03	MW-5	08 Aug 2019 11:25			15 Aug 2019 20:48	10
HS19080475-04	MW-6	08 Aug 2019 12:35			15 Aug 2019 21:05	20
HS19080475-05	DUP	08 Aug 2019 00:00			15 Aug 2019 21:21	50

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19080475

QC BATCH REPORT

Batch ID: R344140 (0)		Instrument: VOA9		Method: VOLATILES - SW8260C					
MBLK	Sample ID: VBLKW-190812	Units: ug/L		Analysis Date: 13-Aug-2019 00:17					
Client ID:	Run ID: VOA9_344140	SeqNo: 5207053		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Benzene	U	5.0							
Ethylbenzene	U	5.0							
Toluene	U	5.0							
Xylenes, Total	U	5.0							
Surr: 1,2-Dichloroethane-d4	46.83	0	50	0	93.7	70 - 130			
Surr: 4-Bromofluorobenzene	47.94	0	50	0	95.9	82 - 115			
Surr: Dibromofluoromethane	49.71	0	50	0	99.4	73 - 126			
Surr: Toluene-d8	49.92	0	50	0	99.8	81 - 120			

LCS	Sample ID: VLCSW-190812	Units: ug/L		Analysis Date: 12-Aug-2019 23:29					
Client ID:	Run ID: VOA9_344140	SeqNo: 5207052		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Benzene	21.08	5.0	20	0	105	74 - 120			
Ethylbenzene	21.27	5.0	20	0	106	77 - 117			
Toluene	20.62	5.0	20	0	103	77 - 118			
Xylenes, Total	64.6	5.0	60	0	108	75 - 122			
Surr: 1,2-Dichloroethane-d4	45.04	0	50	0	90.1	70 - 130			
Surr: 4-Bromofluorobenzene	50.43	0	50	0	101	82 - 115			
Surr: Dibromofluoromethane	48.66	0	50	0	97.3	73 - 126			
Surr: Toluene-d8	50.17	0	50	0	100	81 - 120			

MS	Sample ID: HS19080475-01MS	Units: ug/L		Analysis Date: 13-Aug-2019 03:08					
Client ID: MW-2	Run ID: VOA9_344140	SeqNo: 5207060		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Benzene	20.84	5.0	20	0	104	70 - 127			
Ethylbenzene	21.35	5.0	20	0	107	70 - 124			
Toluene	20.51	5.0	20	0	103	70 - 123			
Xylenes, Total	64.14	5.0	60	0	107	70 - 130			
Surr: 1,2-Dichloroethane-d4	46.15	0	50	0	92.3	70 - 126			
Surr: 4-Bromofluorobenzene	50.19	0	50	0	100	82 - 124			
Surr: Dibromofluoromethane	49.22	0	50	0	98.4	77 - 123			
Surr: Toluene-d8	50.51	0	50	0	101	82 - 127			

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19080475

QC BATCH REPORT

Batch ID: R344140 (0)		Instrument: VOA9		Method: VOLATILES - SW8260C					
MSD		Sample ID: HS19080475-01MSD		Units: ug/L		Analysis Date: 13-Aug-2019 03:32			
Client ID: MW-2		Run ID: VOA9_344140		SeqNo: 5207061		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	20.36	5.0	20	0	102	70 - 127	20.84	2.34	20
Ethylbenzene	20.54	5.0	20	0	103	70 - 124	21.35	3.87	20
Toluene	19.51	5.0	20	0	97.6	70 - 123	20.51	4.97	20
Xylenes, Total	60.82	5.0	60	0	101	70 - 130	64.14	5.3	20
Surr: 1,2-Dichloroethane-d4	45.43	0	50	0	90.9	70 - 126	46.15	1.57	20
Surr: 4-Bromofluorobenzene	48.91	0	50	0	97.8	82 - 124	50.19	2.59	20
Surr: Dibromofluoromethane	49.43	0	50	0	98.9	77 - 123	49.22	0.424	20
Surr: Toluene-d8	49.86	0	50	0	99.7	82 - 127	50.51	1.29	20
The following samples were analyzed in this batch:									
HS19080475-01		HS19080475-02		HS19080475-03		HS19080475-04			
HS19080475-05		HS19080475-06							

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19080475

QC BATCH REPORT

Batch ID: R344408 (0)		Instrument: ICS-Integrion		Method: ANIONS BY E300.0					
MBLK	Sample ID: WBLKW1-081519	Units: mg/L		Analysis Date: 15-Aug-2019 16:39					
Client ID:	Run ID: ICS-Integrion_344408		SeqNo: 5212815		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chloride	U	0.500							
LCS	Sample ID: WLC SW1-081519	Units: mg/L		Analysis Date: 15-Aug-2019 16:55					
Client ID:	Run ID: ICS-Integrion_344408		SeqNo: 5212816		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chloride	20.05	0.500	20	0	100	90 - 110			
LCSD	Sample ID: WLCSDW1-081519	Units: mg/L		Analysis Date: 15-Aug-2019 17:12					
Client ID:	Run ID: ICS-Integrion_344408		SeqNo: 5212817		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chloride	19.99	0.500	20	0	100.0	90 - 110	20.05	0.295	20
MS	Sample ID: HS19080485-01MS	Units: mg/L		Analysis Date: 15-Aug-2019 21:55					
Client ID:	Run ID: ICS-Integrion_344408		SeqNo: 5212832		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chloride	319	5.00	100	230.9	88.0	80 - 120			
MS	Sample ID: HS19080475-01MS	Units: mg/L		Analysis Date: 15-Aug-2019 18:52					
Client ID: MW-2	Run ID: ICS-Integrion_344408		SeqNo: 5212821		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chloride	183.7	5.00	100	90.5	93.2	80 - 120			
MSD	Sample ID: HS19080485-01MSD	Units: mg/L		Analysis Date: 15-Aug-2019 22:11					
Client ID:	Run ID: ICS-Integrion_344408		SeqNo: 5212833		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chloride	314.6	5.00	100	230.9	83.7	80 - 120	319	1.36	20

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19080475

QC BATCH REPORT

Batch ID: R344408 (0)		Instrument: ICS-Integrion		Method: ANIONS BY E300.0					
MSD		Sample ID: HS19080475-01MSD		Units: mg/L		Analysis Date: 15-Aug-2019 19:08			
Client ID: MW-2		Run ID: ICS-Integrion_344408		SeqNo: 5212822		PrepDate:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chloride	184.1	5.00	100	90.5	93.6	80 - 120	183.7	0.174	20
The following samples were analyzed in this batch:									
HS19080475-01 HS19080475-02 HS19080475-03 HS19080475-04 HS19080475-05									

ALS Houston, US

Date: 21-Aug-19

Client: Glenn Springs Holdings, Inc.
Project: 55628DM GSHI PXP Hill E.C. ABC TB
WorkOrder: HS19080475

**QUALIFIERS,
ACRONYMS, UNITS**

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

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

Unit Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Houston, US

Date: 21-Aug-19

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US

Date: 21-Aug-19

Sample Receipt Checklist

Client Name: Glen Springs/CRA

Date/Time Received: **09-Aug-2019 08:45**

Work Order: HS19080475

Received by: **JRM**

Checklist completed by: Nilesh D. Ranchod 9-Aug-2019
eSignature Date

Reviewed by: Dane J. Wacasey 21-Aug-2019
eSignature Date

Matrices: **Water**Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	COC IDs:205742
Samplers name present on COC?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	2.2C UC/C IR # 25		
Cooler(s)/Kit(s):	43849		
Date/Time sample(s) sent to storage:	08/09/2019 15:45		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:			

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:

Chain of Custody Form

HS19080475

Everett, WA
+1 425 356 2600Holland, MI
+1 616 399 6070

Page 1 of 1

COC ID: 205742

Glenn Springs Holdings, Inc.
55628DM GSHI PXP Hill E.C. ABC TB

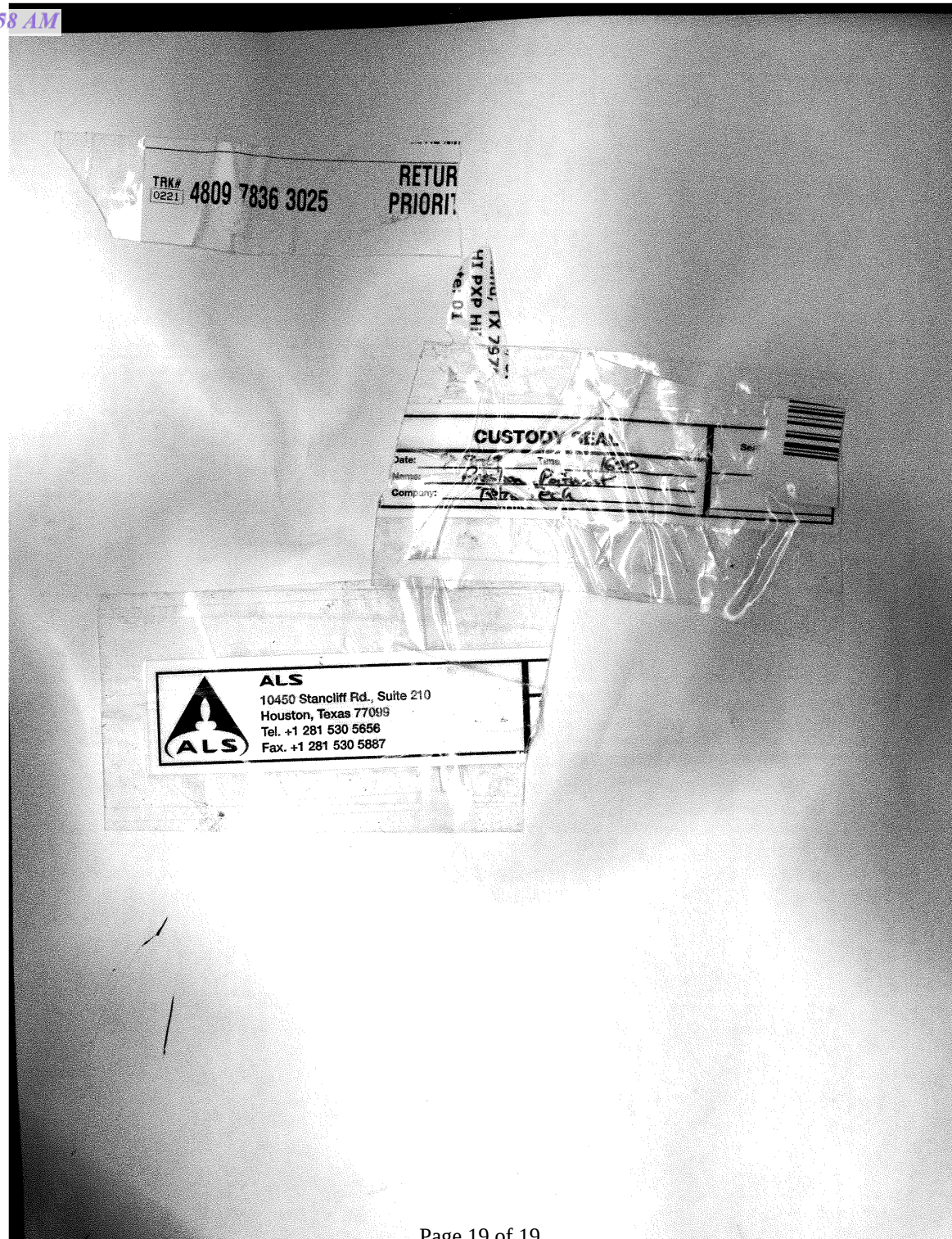
Customer Information		Project Information		ALS Project Manager:	
Purchase Order	4502201559 ENV 749-402-D02-10	Project Name	55628DM GSHI PXP Hill E.C. ABC TB	A	8260_W (BTEX)
Work Order		Project Number	55628DM (ENV749A10)	B	300_W (Chloride)
Company Name	Glenn Springs Holdings, Inc.	Bill To Company	Glenn Springs Holdings, Inc.	C	8260_W (BTEX-Trip Blank)
Send Report To	Mike Carmona	Invoice Attn	Accounts Payable	D	
Address	PO Box 2148	Address	PO Box 2148	E	
City/State/Zip	Houston, TX 77252-2148	City/State/Zip	Houston TX 77252-2148	F	
Phone		Phone		G	
Fax		Fax		H	
e-Mail Address	Mike.Carmona@tetratech.com	e-Mail Address		I	
				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-1			Groundwa	1,8	4	X	X									
2	MW-2	8-8-19	1205	Groundwa	1,8	4	X	X									
3	MW-3			Groundwa	1,8	4	X	X									
4	MW-4	8-8-19	1145	Groundwa	1,8	4	X	X									
5	MW-5	8-8-19	1125	Groundwa	1,8	4	X	X									
6	MW-6	8-8-19	1235	Groundwa	1,8	4	X	X									
7	DUP	8-8-19		Groundwa	1,8	4	X	X									
8	Trip Blank			Water	1,8	2			X								
9																	
10																	

Sampler(s) Please Print & Sign <i>Preston Poteint</i>		Shipment Method FedEx		Required Turnaround Time: (Check Box) ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour		Results Due Date:	
Relinquished by: <i>[Signature]</i>		Date: 8-8-19	Time: 1600	Received by:		Notes: [GSHI PXP Hill EC ABC TB]	
Relinquished by:		Date: 8/9/19	Time: 08:45	Received by (Laboratory): <i>J. M. M. M.</i>		QC Package: (Check One Box Below)	
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		☒ Level II Std QC ☐ Level III Std QC/Row Date ☐ Level IV SW/646/CLP ☐ Other	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035							

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

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District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 8279

CONDITIONS

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 8279
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bbillings	Approve monitoring, sampling and recovery plan for now	10/7/2021