TETRA TECH

April 27, 2022

Mr. Bradford Billings
State of New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: 2021 Annual Monitoring and Remedial Activities Report
ConocoPhillips – Vacuum Glorietta East Unit, 1RP-744
Lea County, New Mexico

Mr. Billings:

This report details the continuing groundwater monitoring and remedial activities at the ConocoPhillips Company ("COP") Vacuum Glorietta East Unit, Lea County, New Mexico (Site). The Site location is shown in Figure 1. The Site was assigned the identifier order No. 1RP-744 by the New Mexico Oil Conservation Division (NMOCD).

1.0 BACKGROUND AND PREVIOUS INVESTIGATIONS

Impacts to soil and groundwater are believed to be associated with a release that was reported to the NMOCD on October 28, 2002. Approximately 80 barrels of oil and 20 barrels of water were recovered after the release. The affected area was estimated to be approximately 80 feet by 150 feet in size.

An initial investigation was performed at the Site by B&H Environmental Services in November 2002. A total of seven shallow soil borings were advanced during the investigation and soil samples collected from the borings indicated the presence of chlorides and petroleum hydrocarbons above NMOCD Recommended Remedial Action Limits (RRALs).

Approximately 3,240 cubic yards (yd^3) of petroleum-impacted soil was excavated in August 2004, and another 1,000 yd^3 of soil was removed in November and December 2008 after additional assessment. One monitoring well (VG-1) was installed at this time, but was abandoned because it was located within the footprint of the excavation.

Backfilling and reseeding of the excavation was approved and performed in June 2009, and three monitoring wells were subsequently installed: VG-2 was installed downgradient of the excavation, VG-3 was installed upgradient of the excavation, and VG-4 was installed within the footprint of the excavation. Three additional groundwater monitoring wells (VG-5, VG-6, and VG-7) were installed between December

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4 and December 13, 2013 to further assess the northern, western, and southern extent of hydrocarbons and chlorides in the groundwater.

Small amounts of phase separated hydrocarbons (PSH) and concentrations of benzene, toluene, ethylbenzene, and total xylenes (collectively referred to as BTEX) and chlorides greater than New Mexico Water Quality Control Commission (NMWQCC) Groundwater Quality Standards have historically been documented in VG-4. Mobile du/al phase extraction (MDPE) has been used as a remediation method at the Site. The first four MDPE events at the Site took place at VG-4 in September 2014, May 2015, June 2019, and May 2020 by AcuVac Remediation, LLC (AcuVac) of Houston, Texas.

2.0 HYDROGEOLOGY

The water bearing zone consists of the Pliocene-age Ogallala aquifer under unconfined conditions at the site. The Ogallala aquifer is located at the base of the Ogallala Formation. In general, the Ogallala Formation consists of quartz sand and gravel that is poorly to well-cemented with calcium carbonate and contains minor amounts of clay. The wells installed at the Site were drilled to depths of approximately 70 to 80 feet below ground surface (bgs) with static groundwater water levels at approximately 65 feet bgs.

3.0 2021 GROUNDWATER MONITORING

3.1 Methodology

Prior to sampling the wells, each well was gauged to measure the depth to groundwater and PSH, if any. The water levels and the PSH measurements are summarized in Table 1, and well locations are shown in Figure 2. Monitoring wells containing PSH are gauged, but not sampled. Each monitoring well without measurable PSH was sampled utilizing low flow sampling techniques. The semi-annual groundwater monitoring events occurred in May and November 2021. Groundwater samples were collected and analyzed for BTEX by United States Environmental Protection Agency (EPA) Method 8260 and chlorides by Method 300.0. Groundwater samples were transported to Pace Analytical Services, LLC, in Mount Juliet, Tennessee under chain-of-custody control for the 2021 sampling events. Table 2 presents a summary of the groundwater analyses. The analytical reports and chain-of-custody documentation are presented in Appendix A.

3.2 2021 Groundwater Gradient

Groundwater gradient maps were generated for the May and November 2021 sampling events. The hydraulic gradient for the aquifer was generally to the southeast, and consistent with historical data. The May and November 2021 groundwater gradient maps are included in Figure 3 and Figure 4, respectively. The hydraulic gradient at the Site for the events in 2021 was 0.00141 and 0.00225, respectively; the average hydraulic gradient was approximately 0.00183.

3.3 2021 Phase Separated Hydrocarbon

The monitoring wells were gauged for the presence of PSH during groundwater sampling events. No PSH was detected during the May or November 2021 sampling events.

3.4 2021 Groundwater Analytical Results

During the May 2021 sampling event, monitoring wells VG-3, VG-4, VG-5, VG-6, and VG-7 were sampled. VG-2 did not contain enough water to sample. The reported concentrations of benzene (1.32 mg/L) and chlorides (532 mg/L) in the sample collected from monitoring well VG-4 exceeded the applicable NMWQCC Groundwater Quality Standards of 0.01 mg/L and 250 mg/L, respectively. No additional exceedances of the applicable NMWQCC standards were identified during the May 2021 sampling event.

During the November 2021 monitoring event, monitoring wells VG-3, VG-4, VG-5, VG-6, and VG-7, were sampled. No water was detected in VG-2; no water sample was collected. The reported concentrations of benzene (2.12 mg/L), total xylenes (0.952 mg/L), and chlorides (461 mg/L) in the sample collected from monitoring well VG-4 exceeded the applicable NMWQCC Groundwater Quality Standards of 0.01 mg/L, 0.62 mg/L, and 250 mg/L, respectively. The concentration of chlorides in the sample collected from VG-5 (331 mg/L) exceeded the applicable standard. No additional exceedances of the applicable NMWQCC standards were identified during the November 2021 sampling event.

4.0 REMEDIAL ACTIVITIES

In 2021, PSH recovery was conducted at the Site during four MDPE/soil vapor extraction (SVE) events. The events were conducted February 23 through 26, May 3 through 6, July 26 through 29, and November 8 through 11, 2021. During each event, Tetra Tech personnel mobilized to the Site to supervise remedial activities conducted by AcuVac. Each event conducted in 2021 was performed at VG-4. The events conducted in February and May consisted of MDPE; however, based on the lack of PSH present in VG-4, additional groundwater extraction was considered unnecessary, and the July and November events were SVE only.

The April event resulted in the recovery of 7.69 gallons of PSH vapor, the May event resulted in the recovery of 10.34 gallons of PSH vapor, the July event resulted in the recovery of 10.49 gallons of PSH vapor, and the November event resulted in the recovery of 12.39 gallons of PSH vapor, for a total of 40.91 gallons of PSH vapor recovered from VG-4 in 2021. The PSH vapor recoveries reported by AcuVac were calculated based on the TCEQ formula for emissions of the AcuVac System internal combustion engine presented in the AcuVac SVE reports. PSH vapor concentrations were based upon the undiluted well vapor samples obtained every 30 minutes throughout events with a modified Horiba photoionization detector (PID). AcuVac reports for 2021 remedial activities are presented in Appendix B.

4.0 WORK PLAN

As no additional PSH has been detected in VG-4, the absorbent sock in that well has been removed. Quarterly SVE events at VG-4 are planned for 2022. Groundwater monitoring and sampling of the monitoring wells will be continued on a semi-annual basis, with annual reporting to the NMOCD.

If you have any questions, please call Julie Evans at (432) 258-3451.

Sincerely,
Tetra Tech, Inc.

Julie Evans
Project Manager

Reviewed By:

Charles H. Terhune IV, P.G.
Senior Project Manager

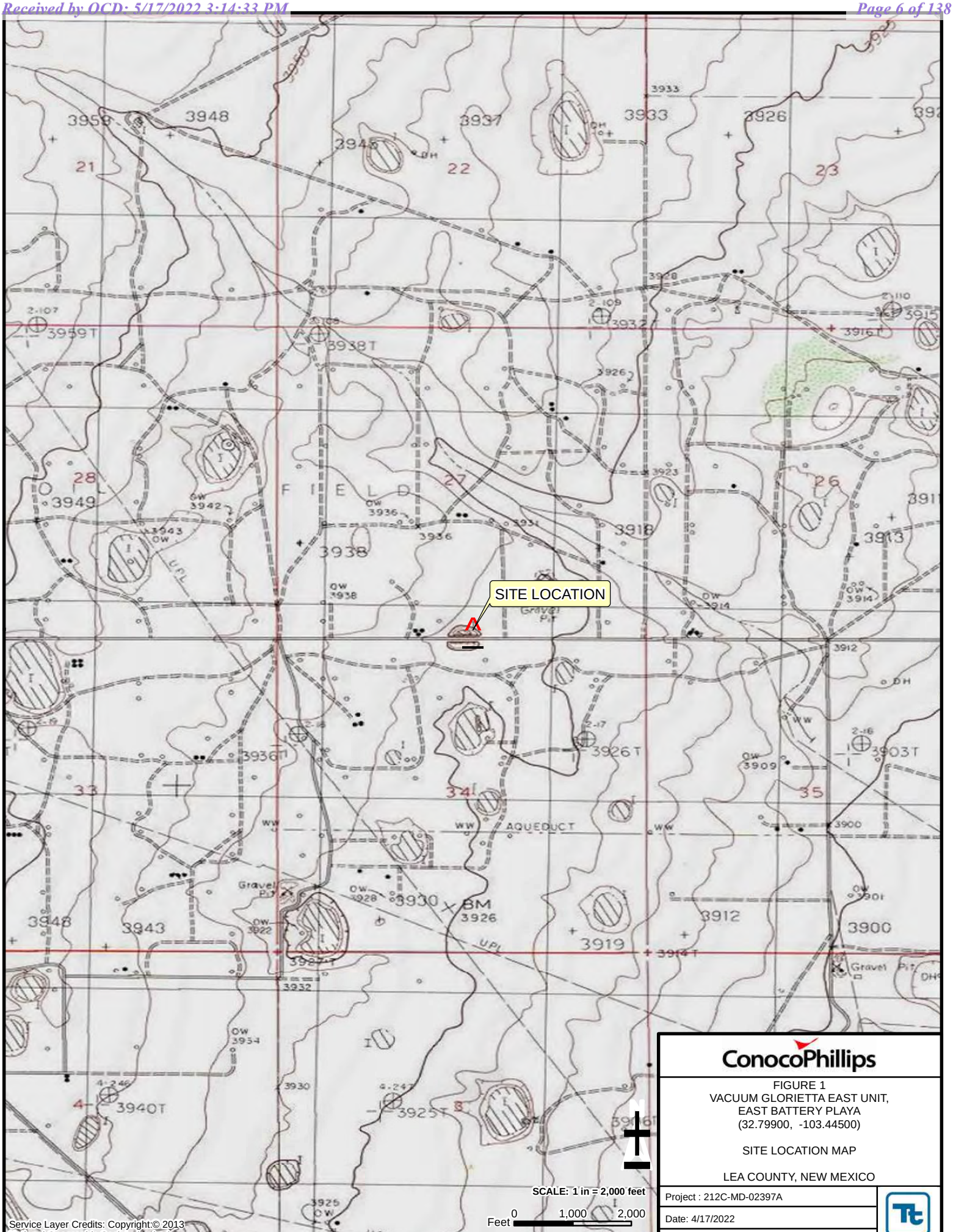
cc: Ms. Jenni Fortunato – ConocoPhillips

Attachments:

Figure 1 – Site Location Map
Figure 2 – Site Map
Figure 3 – Groundwater Gradient Map – May 2021
Figure 4 – Groundwater Gradient Map – November 2021
Figure 5 – Benzene Concentration Map – May 2021
Figure 6 – Benzene Concentration Map – November 2021
Figure 7 – Chloride Concentration Map – May 2021
Figure 8 – Chloride Concentration Map – November 2021
Table 1 – Summary of Groundwater Elevations and PSH Thickness
Table 2 – Summary of Groundwater Analytical Data
Appendix A – Laboratory Analytical Data Packages
Appendix B – AcuVac Remediation, LLC Reports

TETRA TECH

FIGURES



ConocoPhillips

FIGURE 1
VACUUM GLORIETTA EAST UNIT,
EAST BATTERY PLAYA
(32.79900, -103.44500)

SITE LOCATION MAP

LEA COUNTY, NEW MEXICO

Project : 212C-MD-02397A	
Date: 4/17/2022	
File: Figure 1 Vacuum Glorietta	

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LEGEND

A MONITOR WELL LOCATION
A PLUGGED AND ABANDONED MONITOR WELL

SCALE: 1 in = 200 feet

Feet 0 100 200

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FIGURE 2

SITE MAP

VACUUM GLORIETTA EAST UNIT

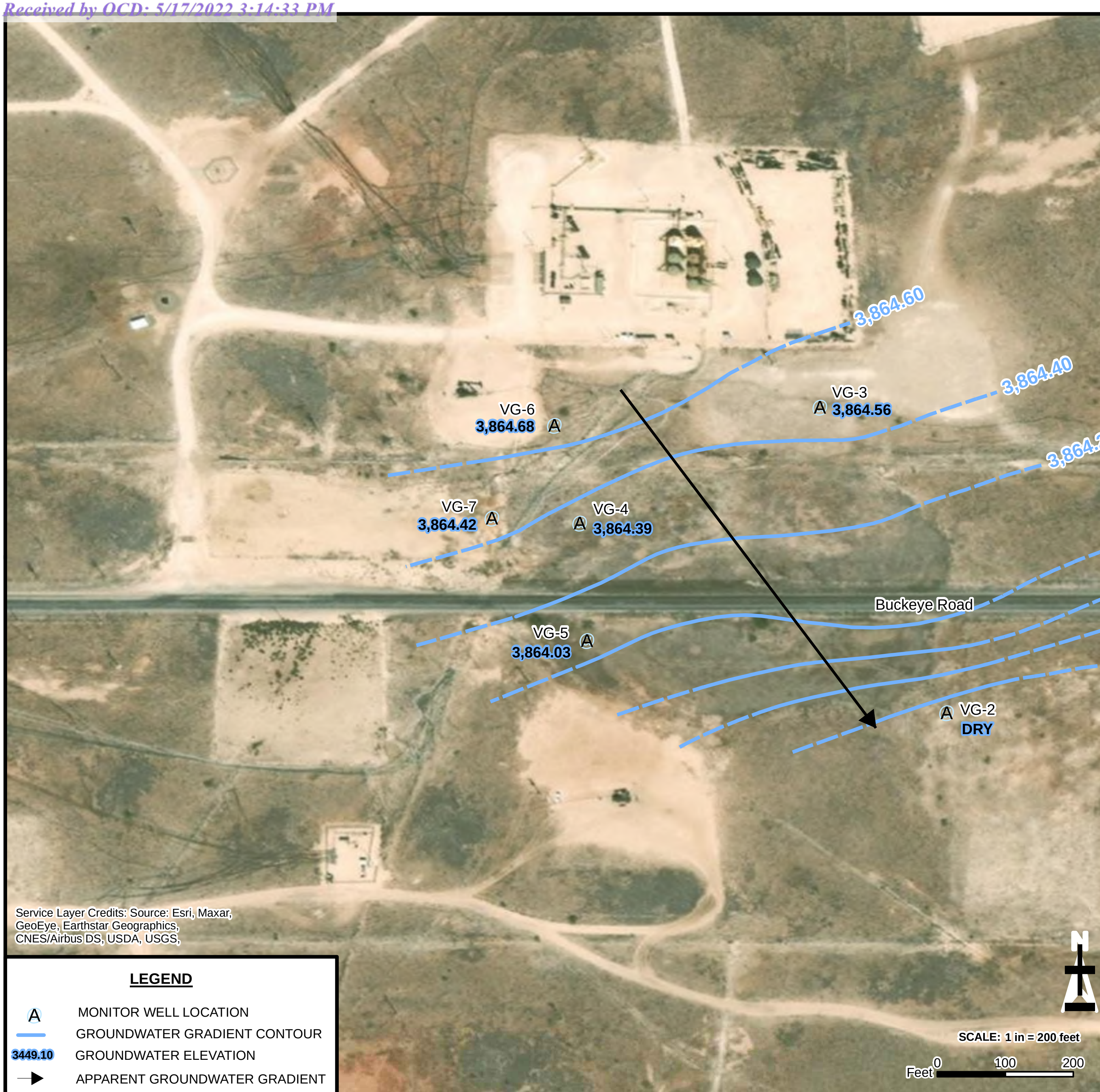
LEA COUNTY, NEW MEXICO

Project : 212C-MD-02397A

Date: 4/17/2022

File: Figure 2 Vacuum Glorietta

Client\Conoco\02397A COP - Vacuum Glorietta 2022\2021 Annual Report\Figures\GIS\Figure 2 Vacuum Glorietta.mxd By: troy.fegter



ConocoPhillips

FIGURE 3

GROUNDWATER GRADIENT MAP - MAY 2021

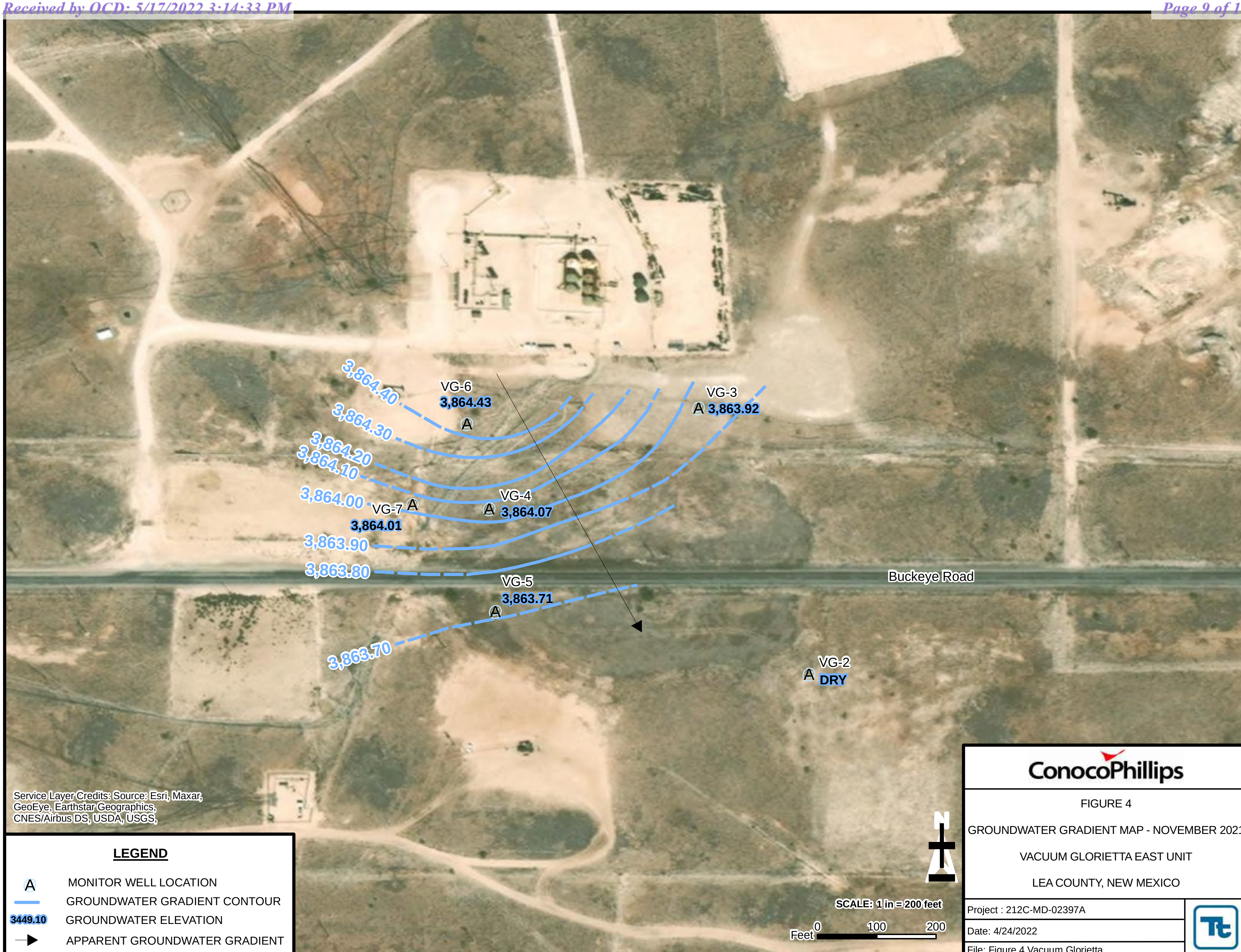
VACUUM GLORIETTA EAST UNIT

LEA COUNTY, NEW MEXICO

Project : 212C-MD-02397A

Date: 4/24/2022

File: Figure 3 Vacuum Glorietta



LEGEND

A	MONITOR WELL LOCATION
	GROUNDWATER GRADIENT CONTOUR
3449.10	GROUNDWATER ELEVATION
→	APPARENT GROUNDWATER GRADIENT

ConocoPhillips

FIGURE 4

GROUNDWATER GRADIENT MAP - NOVEMBER 2021

VACUUM GLORIETTA EAST UNIT

LEA COUNTY, NEW MEXICO

Project : 212C-MD-02397A

Date: 4/24/2022

File: Figure 4 Vacuum Glorietta

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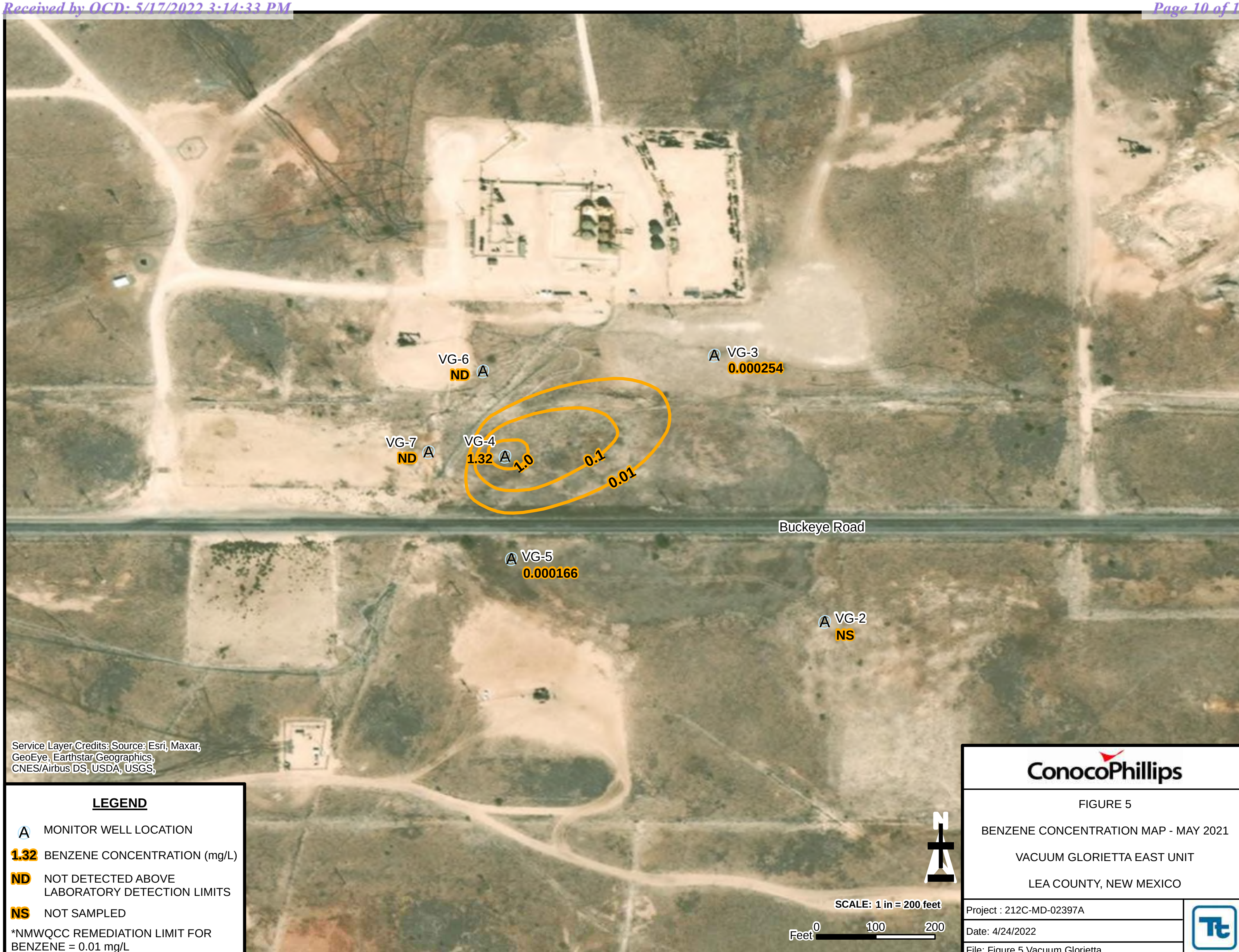

LEGEND

- A MONITOR WELL LOCATION
- **1.32** BENZENE CONCENTRATION (mg/L)
- **ND** NOT DETECTED ABOVE LABORATORY DETECTION LIMITS
- **NS** NOT SAMPLED

*NMWQCC REMEDIATION LIMIT FOR BENZENE = 0.01 mg/L

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FIGURE 5

BENZENE CONCENTRATION MAP - MAY 2021

VACUUM GLORIETTA EAST UNIT

LEA COUNTY, NEW MEXICO

Project : 212C-MD-02397A

Date: 4/24/2022

File: Figure 5 Vacuum Glorietta

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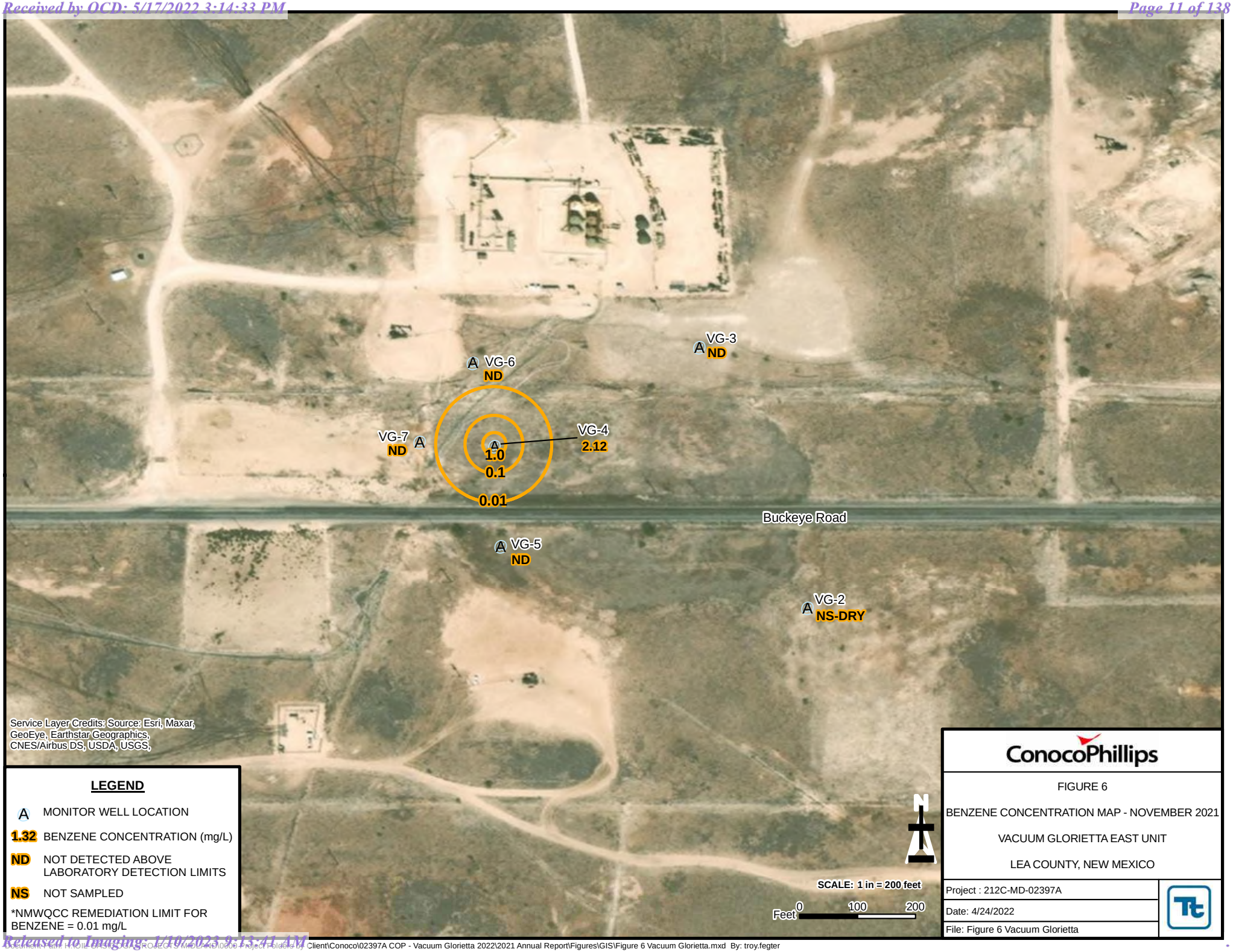

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FIGURE 6

BENZENE CONCENTRATION MAP - NOVEMBER 2021

VACUUM GLORIETTA EAST UNIT

LEA COUNTY, NEW MEXICO

Project : 212C-MD-02397A	
Date: 4/24/2022	
File: Figure 6 Vacuum Glorietta	

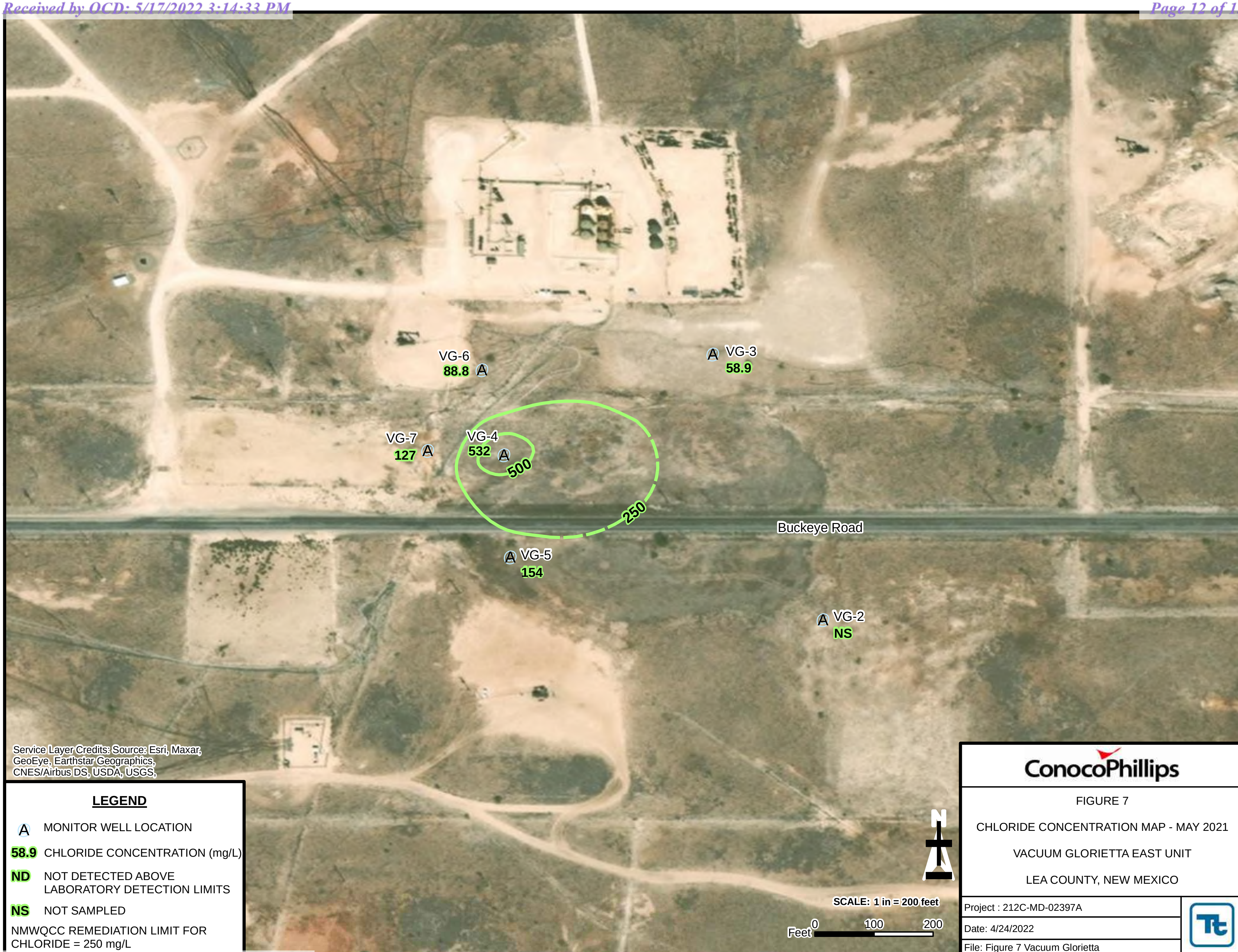

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FIGURE 7

CHLORIDE CONCENTRATION MAP - MAY 2021

VACUUM GLORIETTA EAST UNIT

LEA COUNTY, NEW MEXICO

Project : 212C-MD-02397A
Date: 4/24/2022
File: Figure 7 Vacuum Glorietta

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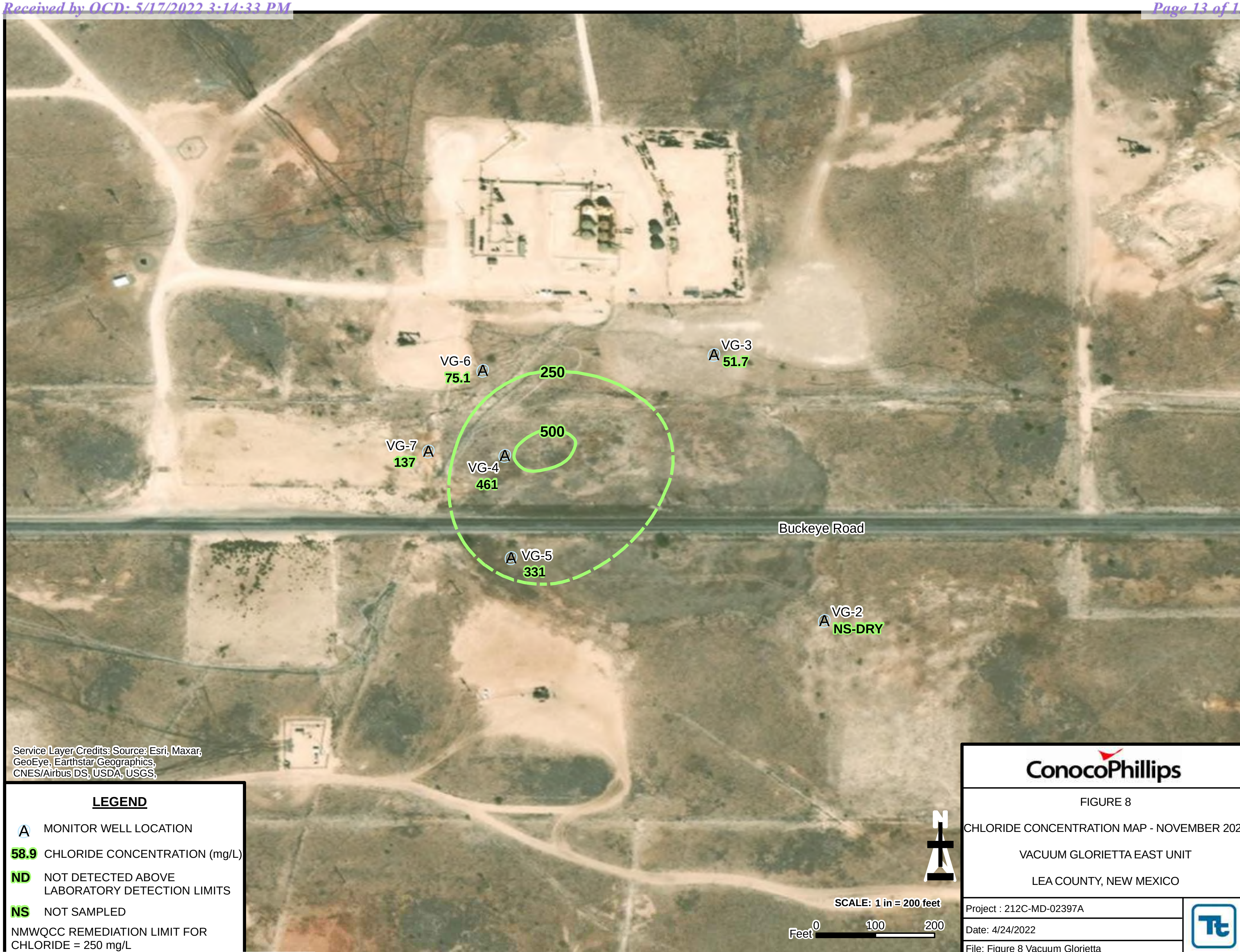

LEGEND

- A MONITOR WELL LOCATION
- 58.9 CHLORIDE CONCENTRATION (mg/L)
- ND NOT DETECTED ABOVE LABORATORY DETECTION LIMITS
- NS NOT SAMPLED

NMWQCC REMEDIATION LIMIT FOR CHLORIDE = 250 mg/L

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FIGURE 8

CHLORIDE CONCENTRATION MAP - NOVEMBER 2021

VACUUM GLORIETTA EAST UNIT

LEA COUNTY, NEW MEXICO

Project : 212C-MD-02397A

Date: 4/24/2022

File: Figure 8 Vacuum Glorietta

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TETRA TECH

TABLES

Table 1
ConocoPhillips
Vacuum Glorietta
Lea County, New Mexico
Summary of Groundwater Elevations and PSH Thickness

Well Identification	Date Measured	Well Total Depth (ft)	Depth to Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Product Elevation, feet AMSL	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
VG-2	1/27/2014	70	-	65.41	-	-	3,930.56	**3,865.15**
	4/16/2014	70	-	65.38	-	-	3,930.56	**3,865.18**
	7/22/2014	70	-	65.32	-	-	3,930.56	**3,865.24**
	10/9/2014	70	-	64.03	-	-	3,930.56	**3,866.53**
	1/14/2015	70	-	64.3	-	-	3,930.56	**3,866.26**
	4/16/2015	70	-	64.37	-	-	3,930.56	**3,866.19**
	7/8/2015	70	-	64.85	-	-	3,930.56	**3,865.71**
	10/9/2015	70	-	65.15	-	-	3,930.56	**3,865.41**
	1/7/2016	70	-	65.25	-	-	3,930.56	**3,865.31**
	4/6/2016	70	-	65.29	-	-	3,930.56	**3,865.27**
	6/10/2016	70	-	65.35	-	-	3,930.56	**3,865.21**
	8/16/2017	70	-	65.58	-	-	3,930.56	**3,864.98**
	11/30/2017	70	-	65.57	-	-	3,930.56	**3,864.99**
	7/24/2018	-	-	65.79	-	-	3,930.56	**3,864.77**
	11/14/2018	67.7	-	65.9	-	-	3,930.56	**3,864.66**
	6/17/2019	67.89	-	66.44	-	-	3,930.56	**3,864.12**
	11/20/2019	67.89	-	66.42	-	-	3,930.56	**3,864.14**
	5/13/2020	67.7	-	66.51	-	-	3,930.56	**3,864.05**
	11/19/2020	67.7	-	66.74	-	-	3,930.56	**3,863.82**
	5/11/2021	67.7	Dry					
	11/17/2021	67.7	Dry					
VG-3	1/27/2014	70	-	64.71	-	-	3,931.15	**3,866.44**
	4/16/2014	70	-	64.66	-	-	3,931.15	**3,866.49**
	7/22/2014	70	-	64.59	-	-	3,931.15	**3,866.56**
	9/10/2014	70	-	63.3	-	-	3,931.15	**3,867.85**
	1/14/2015	70	-	63.58	-	-	3,931.15	**3,867.57**
	4/16/2015	70	-	63.63	-	-	3,931.15	**3,867.52**
	8/7/2015	70	-	64.11	-	-	3,931.15	**3,867.04**
	9/10/2015	70	-	64.38	-	-	3,931.15	**3,866.77**
	7/1/2016	70	-	64.48	-	-	3,931.15	**3,866.67**
	6/4/2016	70	-	64.54	-	-	3,931.15	**3,866.61**
	6/10/2016	70	-	64.61	-	-	3,931.15	**3,866.54**
	8/16/2017	70	-	64.86	-	-	3,931.15	**3,866.29**
	11/30/2017	70	-	64.87	-	-	3,931.15	**3,866.28**
	7/24/2018	-	-	65.02	-	-	3,931.15	**3,866.13**
	11/14/2018	68.48	-	65.21	-	-	3,931.15	**3,865.94**
	6/17/2019	68.61	-	65.56	-	-	3,931.15	**3,865.59**
	11/19/2019	68.61	-	65.66	-	-	3,931.15	**3,865.49**
	5/12/2020	68.3	-	65.78	-	-	3,931.15	**3,865.37**
	11/19/2020	68.3	-	65.98	-	-	3,931.15	**3,865.17**
	5/11/2021	68.41	-	66.59	-	-	3,931.15	**3,864.56**
	11/17/2021	68.41		67.23	-	-	3,931.15	**3,863.92**
VG-4	1/27/2014	78	65.52	65.56	0.04	3,866.41	3,931.93	**3,866.40**
	4/16/2014	78	65.48	65.49	0.01	3,866.45	3,931.93	**3,866.45**
	7/22/2014	78	65.44	65.45	0.01	3,866.49	3,931.93	**3,866.49**
	10/9/2014	78	-	63.93	-	-	3,931.93	**3,868.00**
	1/14/2015	78	-	64.48	-	-	3,931.93	**3,867.45**
	4/16/2015	78	-	64.53	-	-	3,931.93	**3,867.40**
	7/8/2015	78	-	65.02	-	-	3,931.93	**3,866.91**

Table 1
ConocoPhillips
Vacuum Glorietta
Lea County, New Mexico
Summary of Groundwater Elevations and PSH Thickness

Well Identification	Date Measured	Well Total Depth (ft)	Depth to Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Product Elevation, feet AMSL	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
VG-4 continued	10/9/2015	78	-	65.25	-	-	3,931.93	**3,866.68**
	1/7/2016	78	-	65.33	-	-	3,931.93	**3,866.60**
	4/6/2016	78	65.35	65.36	0.01	3,866.58	3,931.93	**3,866.58**
	10/6/2016	78	-	65.46	-	-	3,931.93	**3,866.47**
	8/16/2017	78	-	65.75	-	-	3,931.93	**3,866.18**
	11/30/2017	78	-	68.42	-	-	3,931.93	**3,863.51**
	7/24/2018	-	65.13	65.92	0.79	3,866.80	3,931.93	**3,866.64**
	11/14/2018	-	66.06	67.14	1.08	3,865.87	3,931.93	**3,865.65**
	6/17/2019	-	66.35	66.38	0.03	3,865.58	3,931.93	**3,865.57**
	11/19/2019	-	66.57	66.68	0.11	3,865.36	3,931.93	**3,865.34**
	5/13/2020	72.1	-	66.65	-	-	3,931.93	**3,865.28**
	11/18/2020	-	67.89	67.93	0.04	3,864.04	3,931.93	**3,864.03**
	5/12/2021	70.7	-	67.54	-	-	3,931.93	**3,864.39**
	7/14/2021	-	-	67.60	-	-	3,931.93	**3,864.33**
	11/17/2021	70.7	-	67.86	-	-	3,931.93	**3,864.07**
VG-5	1/27/2014	74	-	64.51	-	-	3,930.52	**3,866.01**
	4/16/2014	74	-	64.8	-	-	3,930.52	**3,865.72**
	7/22/2014	74	-	64.38	-	-	3,930.52	**3,866.14**
	10/9/2014	74	-	63.16	-	-	3,930.52	**3,867.36**
	1/14/2015	74	-	63.42	-	-	3,930.52	**3,867.10**
	4/16/2015	74	-	63.46	-	-	3,930.52	**3,867.06**
	7/8/2015	74	-	63.99	-	-	3,930.52	**3,866.53**
	10/9/2015	74	-	64.25	-	-	3,930.52	**3,866.27**
	1/7/2016	74	-	64.32	-	-	3,930.52	**3,866.20**
	4/6/2016	74	-	64.36	-	-	3,930.52	**3,866.16**
	10/6/2016	74	-	64.43	-	-	3,930.52	**3,866.09**
	8/16/2017	74	-	64.68	-	-	3,930.52	**3,865.84**
	11/30/2017	74	-	64.77	-	-	3,930.52	**3,865.75**
	7/24/2018	-	-	64.84	-	-	3,930.52	**3,865.68**
	11/14/2018	75.3	-	64.98	-	-	3,930.52	**3,865.54**
	6/17/2019	75.31	-	65.46	-	-	3,930.52	**3,865.06**
	11/20/2019	75.31	-	65.49	-	-	3,930.52	**3,865.03**
	5/13/2020	75.15	-	65.57	-	-	3,930.52	**3,864.95**
	11/19/2020	75.15	-	65.8	-	-	3,930.52	**3,864.72**
	5/11/2021	75.15	-	66.49	-	-	3,930.52	**3,864.03**
	11/17/2021	75.15	-	66.81	-	-	3,930.52	**3,863.71**
VG-6	1/27/2014	80	-	68.38	-	-	3,935.16	**3,866.78**
	4/16/2014	80	-	68.32	-	-	3,935.16	**3,866.84**
	7/22/2014	80	-	68.26	-	-	3,935.16	**3,866.90**
	10/9/2014	80	-	67.06	-	-	3,935.16	**3,868.10**
	1/14/2015	80	-	67.27	-	-	3,935.16	**3,867.89**
	4/16/2015	80	-	67.3	-	-	3,935.16	**3,867.86**
	7/8/2015	80	-	67.86	-	-	3,935.16	**3,867.30**
	10/9/2015	80	-	68.12	-	-	3,935.16	**3,867.04**
	1/7/2016	80	-	68.16	-	-	3,935.16	**3,867.00**
	4/6/2016	80	-	68.21	-	-	3,935.16	**3,866.95**
	10/6/2016	80	-	68.27	-	-	3,935.16	**3,866.89**
	8/16/2017	80	-	68.53	-	-	3,935.16	**3,866.63**
	11/30/2017	80	-	68.57	-	-	3,935.16	**3,866.59**

Table 1
ConocoPhillips
Vacuum Glorietta
Lea County, New Mexico
Summary of Groundwater Elevations and PSH Thickness

Well Identification	Date Measured	Well Total Depth (ft)	Depth to Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Product Elevation, feet AMSL	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
VG-6 continued	7/24/2018	-	-	68.69	-	-	3,935.16	**3,866.47**
	11/14/2018	80	-	68.86	-	-	3,935.16	**3,866.30**
	6/17/2019	80.16	-	69.35	-	-	3,935.16	**3,865.81**
	11/19/2019	80.16	-	69.31	-	-	3,935.16	**3,865.85**
	5/12/2020	79.72	-	69.41	-	-	3,935.16	**3,865.75**
	11/18/2020	79.72	-	69.64	-	-	3,935.16	**3,865.52**
	5/12/2021	79.72	-	70.48	-	-	3,935.16	**3,864.68**
	11/17/2021	79.72	-	70.73	-	-	3,935.16	**3,864.43**
VG-7	1/27/2014	80	-	68.23	-	-	3,934.78	**3,866.55**
	4/16/2014	80	-	68.19	-	-	3,934.78	**3,866.59**
	7/22/2014	80	-	68.1	-	-	3,934.78	**3,866.68**
	10/9/2014	80	-	66.93	-	-	3,934.78	**3,867.85**
	1/14/2015	80	-	67.12	-	-	3,934.78	**3,867.66**
	4/16/2015	80	-	67.16	-	-	3,934.78	**3,867.62**
	7/8/2015	80	-	67.7	-	-	3,934.78	**3,867.08**
	10/9/2015	80	-	67.98	-	-	3,934.78	**3,866.80**
	1/7/2016	80	-	68.01	-	-	3,934.78	**3,866.77**
	4/6/2016	80	-	68.07	-	-	3,934.78	**3,866.71**
	10/6/2016	80	-	68.13	-	-	3,934.78	**3,866.65**
	8/16/2017	80	-	68.38	-	-	3,934.78	**3,866.40**
	11/30/2017	80	-	68.36	-	-	3,934.78	**3,866.42**
	7/24/2018	-	-	68.58	-	-	3,934.78	**3,866.20**
	11/14/2018	79.8	-	68.65	-	-	3,934.78	**3,866.13**
	6/17/2019	80.09	-	69.15	-	-	3,934.78	**3,865.63**
	11/19/2019	80.09	-	69.17	-	-	3,934.78	**3,865.61**
	5/12/2020	79.87	-	69.30	-	-	3,934.78	**3,865.48**
	11/18/2020	79.86	-	69.48	-	-	3,934.78	**3,865.30**
	5/12/2021	79.86	-	70.36	-	-	3,934.78	**3,864.42**
	11/17/2021	79.86	-	70.77	-	-	3,934.78	**3,864.01**

Notes:

ft	feet
PSH	phase separated hydrocarbons
TOC	top of casing
AMSL	above mean sea level
-	no measurement

Table 2
ConocoPhillips
Vacuum Glorietta
Lea County, New Mexico
Summary of Groundwater Analytical Data

Sample Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethlybenzene (mg/L)	Xylene (mg/L)	Chlorides (mg/L)
NMWQCC Groundwater Quality Standards (mg/L)		0.01	0.750	0.75	0.62	250
VG-2	1/28/2014	<0.001	<0.001	<0.001	<0.003	125
	4/16/2014	<0.001	<0.001	<0.001	<0.003	134
	7/22/2014	<0.001	<0.001	<0.001	<0.003	146
	10/9/2014	<0.001	<0.001	<0.001	<0.003	111
DUP	10/9/2014	<0.001	<0.001	<0.001	<0.003	139
	1/14/2015	<0.001	<0.001	<0.001	<0.003	106
	4/16/2015	<0.001	<0.001	<0.001	<0.003	88.4
	7/8/2015	<0.001	<0.001	<0.001	<0.003	73.8
	10/9/2015	<0.001	<0.001	<0.001	<0.003	106
	1/7/2016	<0.001	<0.001	<0.001	<0.003	183
	4/6/2016	<0.001	<0.001	<0.001	<0.003	174
	10/6/2016	<0.001	<0.001	<0.001	<0.003	200
	8/16/2017	<0.0020	<0.0050	<0.0020	<0.0060	200
	11/30/2017	<0.0020	<0.0050	<0.0020	<0.0060	195
	7/25/2018	<0.00100	<0.00100	<0.00100	<0.00300	173
DUP	7/25/2018	<0.00100	<0.00100	<0.00100	<0.00300	169
	11/14/2018	<0.00100	<0.00100	<0.00100	<0.00300	175
	6/17/2019	<0.00100	<0.00100	<0.00100	<0.00300	193
	11/20/2019	<0.00100	<0.00100	<0.00100	<0.00300	192
	5/13/2020	<0.00100	<0.00100	<0.00100	<0.00300	176
	11/19/2020	<0.00100	<0.00100	<0.00100	<0.00300	117
	5/11/2021	Not Sampled - Dry				
	11/17/2021	Not Sampled - Dry				
VG-3	1/18/2014	<0.001	<0.001	<0.001	<0.003	45.2
	4/16/2014	<0.001	<0.001	<0.001	<0.003	46.7
	7/22/2014	<0.001	<0.001	<0.001	<0.003	44.4
	9/10/2014	<0.001	<0.001	<0.001	<0.003	38.2
	1/14/2015	<0.001	<0.001	<0.001	<0.003	50
	4/16/2015	<0.001	<0.001	<0.001	<0.003	45.7
	7/8/2015	<0.001	<0.001	<0.001	<0.003	44.2
	10/9/2015	<0.001	<0.001	<0.001	<0.003	41.6
	1/7/2016	<0.001	<0.001	<0.001	<0.003	40.4
	4/6/2016	<0.001	<0.001	<0.001	<0.003	40.9
	10/6/2016	<0.001	<0.001	<0.001	<0.003	40.3
	8/16/2017	<0.0020	<0.0050	<0.0020	<0.0060	40.4
	11/30/2017	<0.0020	<0.0050	<0.0020	<0.0060	38.1
	7/25/2018	<0.00100	<0.00100	<0.00100	<0.00300	44.8
	11/14/2018	<0.00100	<0.00100	<0.00100	<0.00300	46.6
	6/17/2019	<0.00100	<0.00100	<0.00100	<0.00300	49.6
	11/19/2019	<0.00100	<0.00100	<0.00100	<0.00300	55.1

Table 2
ConocoPhillips
Vacuum Glorietta
Lea County, New Mexico
Summary of Groundwater Analytical Data

Sample Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethlybenzene (mg/L)	Xylene (mg/L)	Chlorides (mg/L)
NMWQCC Groundwater Quality Standards (mg/L)		0.01	0.750	0.75	0.62	250
VG-3 continued	5/12/2020	<0.00100	<0.00100	<0.00100	<0.00300	56.8
	11/19/2020	<0.00100	<0.00100	<0.00100	<0.00300	59.8
	5/11/2021	0.000254 J	<0.00100	0.000335 J	0.000705 J	58.9
	11/17/2021	<0.0020	<0.0050	<0.0020	<0.0060	51.7
VG-4	10/28/2014	1.80	<0.05	0.82	0.20	4,140
	1/14/2015	2.70	0.030	1.10	0.78	5,640
	4/16/2015	5.60	0.037	1.70	0.80	3,080
DUP	4/16/2015	5.00	0.030	1.30	0.31	-
	7/8/2015	4.94	<0.05	1.57	<0.15	2,240
DUP	7/8/2015	4.21	0.002	1.27	0.13	-
	10/9/2015	4.18	<0.05	1.50	0.31	1,480
	1/7/2016	4.12	<0.05	2.10	0.27	1,360
DUP	1/7/2016	4.08	0.022	2.01	0.18	-
	4/6/2016	3.61	<0.05	5.47	2.13	1,190
DUP	4/6/2016	3.17	<0.05	2.95	0.99	-
	10/6/2016	1.51	<0.05	0.54	0.26	1,490
DUP	10/6/2016	1.58	<0.05	0.57	0.27	-
	8/16/2017	0.77	<0.0050	0.12	0.04	1,180
	11/30/2017	0.96	0.007	0.25	0.11	1,060
DUP 1	11/30/2017	1.50	0.007	0.39	0.11	1,090
	7/25/2018	Not Sampled - PSH				
	11/14/2018	Not Sampled - PSH				
	6/17/2019	Not Sampled - PSH				
	11/19/2019	Not Sampled - PSH				
	5/13/2020	1.59	0.0837	0.551	0.826	581
	11/18/2020	Not Sampled - PSH				
	5/12/2021	1.32	0.0246 J	0.296	0.111 J	532
DUP	5/12/2021	1.12	<0.0500	0.321	0.0821 J	532
	11/18/2021	2.12	0.0463	0.0911	0.952	461
DUP	11/18/2021	2.15	<0.250	1.14	1.01	464
VG-5	1/28/2014	<0.001	<0.001	<0.001	<0.003	304
	4/16/2014	<0.001	<0.001	<0.001	<0.003	342
DUP	4/16/2014	<0.001	<0.001	<0.001	<0.003	328
	7/22/2014	<0.001	<0.001	<0.001	<0.003	140
	10/9/2014	<0.001	<0.001	<0.001	<0.003	278
	1/14/2015	<0.001	<0.001	<0.001	<0.003	228
DUP	1/14/2015	<0.001	<0.001	<0.001	<0.003	200
	4/16/2015	<0.001	<0.001	<0.001	<0.003	200
	7/8/2015	<0.001	<0.001	<0.001	<0.003	232

Table 2
ConocoPhillips
Vacuum Glorietta
Lea County, New Mexico
Summary of Groundwater Analytical Data

Sample Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethlybenzene (mg/L)	Xylene (mg/L)	Chlorides (mg/L)
NMWQCC Groundwater Quality Standards (mg/L)		0.01	0.750	0.75	0.62	250
VG-5 continued	10/9/2015	<0.001	<0.001	<0.001	<0.003	204
DUP	10/9/2015	<0.001	<0.001	<0.001	<0.003	187
	1/7/2016	<0.001	<0.001	<0.001	<0.003	158
	4/6/2016	<0.001	<0.001	<0.001	<0.003	224
	10/6/2016	<0.001	<0.001	<0.001	<0.003	283
	8/16/2017	<0.0020	<0.0050	<0.0020	<0.0060	298
	11/30/2017	<0.0020	<0.0050	<0.0020	<0.0060	417
	7/25/2018	<0.00100	<0.00100	<0.00100	<0.00300	225
	11/14/2018	<0.00100	<0.00100	<0.00100	<0.00300	180
DUP	11/14/2018	<0.00100	<0.00100	<0.00100	<0.00300	177
	6/17/2019	0.000862 J	0.00439	0.000526 J	0.00244 J	188
	11/20/2019	<0.00100	<0.00100	<0.00100	<0.00300	176
	5/13/2020	<0.00100	<0.00100	<0.00100	<0.00300	295
	11/19/2020	<0.00100	<0.00100	<0.00100	<0.00300	368
	5/11/2021	0.000166 J	<0.00100	<0.00100	<0.00300	154
	11/18/2021	<0.00200	<0.00500	<.00200	<0.00600	331
VG-6	1/28/2014	<0.001	<0.001	<0.001	<0.003	88.3
	4/16/2014	<0.001	<0.001	<0.001	<0.003	78.1
	7/22/2014	<0.001	<0.001	<0.001	<0.003	95.3
	10/9/2014	<0.001	<0.001	<0.001	<0.003	113
	1/14/2015	<0.001	<0.001	<0.001	<0.003	88.4
	4/16/2015	<0.001	<0.001	<0.001	<0.003	82.3
	7/8/2015	<0.001	<0.001	<0.001	<0.003	99.9
	10/9/2015	<0.001	<0.001	<0.001	<0.003	134
	1/7/2016	<0.001	<0.001	<0.001	<0.003	111
	4/6/2016	<0.001	<0.001	<0.001	<0.003	86
	10/6/2016	<0.001	<0.001	<0.001	<0.003	139
	8/16/2017	<0.0020	<0.0050	<0.0020	<0.0060	140
	11/30/2017	<0.0020	<0.0050	<0.0020	<0.0060	84.4
	7/25/2018	<0.00100	<0.00100	<0.00100	<0.00300	117
	11/14/2018	<0.00100	<0.00100	<0.00100	<0.00300	134
	6/17/2019	<0.00100	0.001	<0.00100	<0.00300	138
	11/19/2019	<0.00100	<0.00100	<0.00100	<0.00300	143
	5/12/2020	<0.00100	<0.00100	<0.00100	<0.00300	135
	11/18/2020	<0.00100	<0.00100	<0.00100	<0.00300	115
	5/12/2021	<0.00100	<0.00100	<0.00100	<0.00300	88.8
	11/17/2021	<0.0020	<0.0050	<0.0020	<0.0060	75.1
VG-7	1/28/2014	<0.001	<0.001	<0.001	<0.003	191
DUP	1/28/2014	<0.001	<0.001	<0.001	<0.003	201

Table 2
ConocoPhillips
Vacuum Glorietta
Lea County, New Mexico
Summary of Groundwater Analytical Data

Sample Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethlybenzene (mg/L)	Xylene (mg/L)	Chlorides (mg/L)
NMWQCC Groundwater Quality Standards (mg/L)		0.01	0.750	0.75	0.62	250
VG-7 continued	4/16/2014	<0.001	<0.001	<0.001	<0.003	211
	7/22/2014	<0.001	<0.001	<0.001	<0.003	201
DUP	7/22/2014	-	-	-	-	203
	10/9/2014	<0.001	<0.001	<0.001	<0.003	189
	1/14/2015	<0.001	<0.001	<0.001	<0.003	246
	4/16/2015	<0.001	<0.001	<0.001	<0.003	270
	7/8/2015	<0.001	<0.001	<0.001	<0.003	203
	10/9/2015	<0.001	<0.001	<0.001	<0.003	154
	1/7/2016	<0.001	<0.001	<0.001	<0.003	121
	4/6/2016	<0.001	<0.001	<0.001	<0.003	148
	10/6/2016	<0.001	<0.001	<0.001	<0.003	172
	8/16/2017	<0.0020	<0.0050	<0.0020	<0.0060	134
	11/30/2017	<0.0020	<0.0050	<0.0020	<0.0060	164
	7/25/2018	<0.00100	<0.00100	<0.00100	<0.00300	254
	11/14/2018	<0.00100	<0.00100	<0.00100	<0.00300	229
	6/17/2019	<0.00100	<0.00100	<0.00100	<0.00300	207
DUP	6/17/2019	<0.00100	<0.00100	<0.00100	<0.00300	207
	11/19/2019	<0.00100	<0.00100	<0.00100	<0.00300	149
DUP	11/19/2019	<0.00100	<0.00100	<0.00100	<0.00300	145
	5/12/2020	<0.00100	<0.00100	<0.00100	<0.00300	129
DUP	5/12/2020	<0.00100	<0.00100	<0.00100	<0.00300	129
	11/18/2020	<0.00100	<0.00100	<0.00100	<0.00300	122
DUP	11/18/2020	<0.00100	<0.00100	<0.00100	<0.00300	125
	5/12/2021	<0.00100	<0.00100	<0.00100	<0.00300	127
	11/17/2021	<0.0020	<0.0050	<0.0020	<0.0060	137

Notes:

mg/L	milligrams per liter
NMWQCC	New Mexico Water Quality Control Comission
-	not analyzed
	result exceeds NMWQCC groundwater quality standards
DUP	duplicate sample
J	The reported value is an estimate
PSH	phase separated hydrocarbons

TETRA TECH

APPENDIX A
LABORATORY ANALYTICAL DATA

Pace Analytical®

ANALYTICAL REPORT

May 31, 2021

ConocoPhillips - Tetra Tech

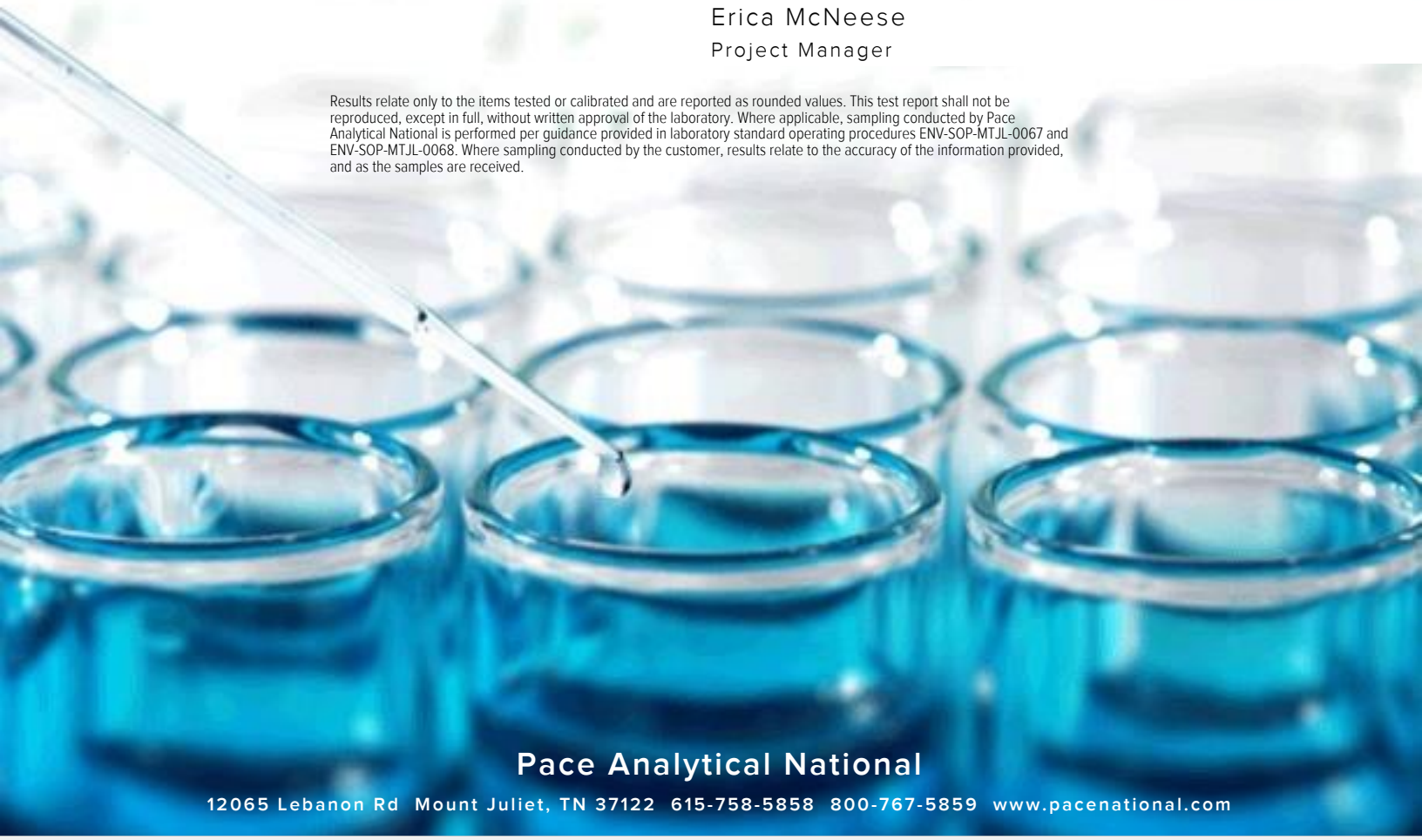
Sample Delivery Group:	L1353557
Samples Received:	05/14/2021
Project Number:	212C-MD-02397
Description:	COP- Vacuum Glorietta

Report To: Julie Evans
901 West Wall
Suite 100
Midland, TX 79701

Entire Report Reviewed By: Erica McNeese

Erica McNeese
Project Manager

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



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

VG-5 L1353557-01 GW

Collected by: Preston Poitevint | Collected date/time: 05/11/21 12:50 | Received date/time: 05/14/21 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1677670	5	05/27/21 08:08	05/27/21 08:08	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1674268	1	05/21/21 13:36	05/21/21 13:36	ADM	Mt. Juliet, TN

VG-3 L1353557-02 GW

Collected by: Preston Poitevint | Collected date/time: 05/11/21 14:15 | Received date/time: 05/14/21 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1677670	1	05/27/21 08:20	05/27/21 08:20	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1674703	1	05/21/21 01:47	05/21/21 01:47	ACG	Mt. Juliet, TN

VG-6 L1353557-03 GW

Collected by: Preston Poitevint | Collected date/time: 05/12/21 11:50 | Received date/time: 05/14/21 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1677670	1	05/27/21 08:31	05/27/21 08:31	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1674703	1	05/21/21 02:07	05/21/21 02:07	ACG	Mt. Juliet, TN

VG-7 L1353557-04 GW

Collected by: Preston Poitevint | Collected date/time: 05/12/21 13:00 | Received date/time: 05/14/21 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1677678	5	05/27/21 12:36	05/27/21 12:36	GB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1674703	1	05/21/21 02:27	05/21/21 02:27	ACG	Mt. Juliet, TN

VG-4 L1353557-05 GW

Collected by: Preston Poitevint | Collected date/time: 05/12/21 14:05 | Received date/time: 05/14/21 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1677678	10	05/27/21 13:03	05/27/21 13:03	GB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1674961	50	05/21/21 16:26	05/21/21 16:26	DWR	Mt. Juliet, TN

DUP L1353557-06 GW

Collected by: Preston Poitevint | Collected date/time: 05/12/21 00:00 | Received date/time: 05/14/21 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1677678	10	05/27/21 13:16	05/27/21 13:16	GB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1674961	50	05/21/21 16:46	05/21/21 16:46	DWR	Mt. Juliet, TN

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

Erica McNeese
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	154		1.90	5.00	5	05/27/2021 08:08	WG1677670

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000166	J	0.0000941	0.00100	1	05/21/2021 13:36	WG1674268
Toluene	U		0.000278	0.00100	1	05/21/2021 13:36	WG1674268
Ethylbenzene	U		0.000137	0.00100	1	05/21/2021 13:36	WG1674268
Total Xylenes	U		0.000174	0.00300	1	05/21/2021 13:36	WG1674268
(S) Toluene-d8	*100*			*80.0-120*		*05/21/2021 13:36*	WG1674268
(S) 4-Bromofluorobenzene	*97.4*			*77.0-126*		*05/21/2021 13:36*	WG1674268
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*		*05/21/2021 13:36*	WG1674268

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	58.9		0.379	1.00	1	05/27/2021 08:20	WG1677670

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000254	J	0.0000941	0.00100	1	05/21/2021 01:47	WG1674703
Toluene	U		0.000278	0.00100	1	05/21/2021 01:47	WG1674703
Ethylbenzene	0.000335	J	0.000137	0.00100	1	05/21/2021 01:47	WG1674703
Total Xylenes	0.000705	J	0.000174	0.00300	1	05/21/2021 01:47	WG1674703
(S) Toluene-d8	*98.4*			*80.0-120*		*05/21/2021 01:47*	WG1674703
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*05/21/2021 01:47*	WG1674703
(S) 1,2-Dichloroethane-d4	*89.8*			*70.0-130*		*05/21/2021 01:47*	WG1674703

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Chloride	88.8		0.379	1.00	1	05/27/2021 08:31	WG1677670

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000941	0.00100	1	05/21/2021 02:07	WG1674703
Toluene	U		0.000278	0.00100	1	05/21/2021 02:07	WG1674703
Ethylbenzene	U		0.000137	0.00100	1	05/21/2021 02:07	WG1674703
Total Xylenes	U		0.000174	0.00300	1	05/21/2021 02:07	WG1674703
(S) Toluene-d8	*104*			*80.0-120*		*05/21/2021 02:07*	WG1674703
(S) 4-Bromofluorobenzene	*108*			*77.0-126*		*05/21/2021 02:07*	WG1674703
(S) 1,2-Dichloroethane-d4	*92.6*			*70.0-130*		*05/21/2021 02:07*	WG1674703

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Chloride	127		1.90	5.00	5	05/27/2021 12:36	WG1677678

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000941	0.00100	1	05/21/2021 02:27	WG1674703
Toluene	U		0.000278	0.00100	1	05/21/2021 02:27	WG1674703
Ethylbenzene	U		0.000137	0.00100	1	05/21/2021 02:27	WG1674703
Total Xylenes	U		0.000174	0.00300	1	05/21/2021 02:27	WG1674703
(S) Toluene-d8	*103*			*80.0-120*		*05/21/2021 02:27*	WG1674703
(S) 4-Bromofluorobenzene	*95.1*			*77.0-126*		*05/21/2021 02:27*	WG1674703
(S) 1,2-Dichloroethane-d4	*91.6*			*70.0-130*		*05/21/2021 02:27*	WG1674703

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	532		3.79	10.0	10	05/27/2021 13:03	WG1677678

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	1.32		0.00471	0.0500	50	05/21/2021 16:26	WG1674961
Toluene	0.0246	J	0.0139	0.0500	50	05/21/2021 16:26	WG1674961
Ethylbenzene	0.296		0.00685	0.0500	50	05/21/2021 16:26	WG1674961
Total Xylenes	0.111	J	0.00870	0.150	50	05/21/2021 16:26	WG1674961
(S) Toluene-d8	*98.0*			*80.0-120*		*05/21/2021 16:26*	WG1674961
(S) 4-Bromofluorobenzene	*90.3*			*77.0-126*		*05/21/2021 16:26*	WG1674961
(S) 1,2-Dichloroethane-d4	*90.4*			*70.0-130*		*05/21/2021 16:26*	WG1674961

DUP
Collected date/time: 05/12/21 00:00
L1353557

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	532		3.79	10.0	10	05/27/2021 13:16	WG1677678

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	1.12		0.00471	0.0500	50	05/21/2021 16:46	WG1674961
Toluene	U		0.0139	0.0500	50	05/21/2021 16:46	WG1674961
Ethylbenzene	0.321		0.00685	0.0500	50	05/21/2021 16:46	WG1674961
Total Xylenes	0.0821	J	0.00870	0.150	50	05/21/2021 16:46	WG1674961
(S) Toluene-d8	*103*			*80.0-120*		*05/21/2021 16:46*	WG1674961
(S) 4-Bromofluorobenzene	*88.4*			*77.0-126*		*05/21/2021 16:46*	WG1674961
(S) 1,2-Dichloroethane-d4	*86.1*			*70.0-130*		*05/21/2021 16:46*	WG1674961

Sample Narrative:

L1353557-06 WG1674961: Target compounds too high to run at a lower dilution.

Method Blank (MB)

(MB) R3659926-1 05/27/21 00:52

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.379	1.00

L1353487-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1353487-01 05/27/21 01:38 • (DUP) R3659926-3 05/27/21 01:50

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	68.6	68.6	1	0.105		15

L1353487-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1353487-10 05/27/21 05:51 • (DUP) R3659926-6 05/27/21 06:02

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	6.99	7.00	1	0.229		15

Laboratory Control Sample (LCS)

(LCS) R3659926-2 05/27/21 01:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	39.8	99.5	80.0-120	

L1353487-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1353487-01 05/27/21 01:38 • (MS) R3659926-4 05/27/21 02:01 • (MSD) R3659926-5 05/27/21 02:13

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	68.6	114	114	90.3	90.2	1	80.0-120	E	E	0.0385	15

L1353487-10 Original Sample (OS) • Matrix Spike (MS)

(OS) L1353487-10 05/27/21 05:51 • (MS) R3659926-7 05/27/21 06:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	6.99	58.9	104	1	80.0-120	

Method Blank (MB)

(MB) R3660957-1 05/27/21 08:36

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.379	1.00

L1353557-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1353557-04 05/27/21 12:36 • (DUP) R3660957-5 05/27/21 12:50

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	127	127	5	0.358		15

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3660957-6 05/27/21 15:15

Analyte	Original Result	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride		U	10	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3660957-2 05/27/21 08:49

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	37.7	94.3	80.0-120	

L1351415-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1351415-01 05/27/21 11:43 • (MS) R3660957-3 05/27/21 11:57 • (MSD) R3660957-4 05/27/21 12:10

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	2.49	53.6	52.2	102	99.5	1	80.0-120			2.52	15

L1353656-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1353656-01 05/27/21 15:42 • (MS) R3660957-7 05/27/21 15:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	1.91	49.4	94.9	1	80.0-120	

Method Blank (MB)

(MB) R3657884-2 05/21/21 09:51

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Ethylbenzene	U		0.000137	0.00100
Toluene	U		0.000278	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	*103*			*80.0-120*
(S) 4-Bromofluorobenzene	*95.9*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*108*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3657884-1 05/21/21 09:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00574	115	70.0-123	
Ethylbenzene	0.00500	0.00477	95.4	79.0-123	
Toluene	0.00500	0.00496	99.2	79.0-120	
Xylenes, Total	0.0150	0.0154	103	79.0-123	
(S) Toluene-d8			*102*	*80.0-120*	
(S) 4-Bromofluorobenzene			*99.7*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*115*	*70.0-130*	

Method Blank (MB)

(MB) R3657624-2 05/20/21 19:36

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Ethylbenzene	U		0.000137	0.00100
Toluene	U		0.000278	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	*104*			*80.0-120*
(S) 4-Bromofluorobenzene	*95.8*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*98.0*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3657624-1 05/20/21 18:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00545	109	70.0-123	
Ethylbenzene	0.00500	0.00433	86.6	79.0-123	
Toluene	0.00500	0.00455	91.0	79.0-120	
Xylenes, Total	0.0150	0.0126	84.0	79.0-123	
(S) Toluene-d8			*94.6*	*80.0-120*	
(S) 4-Bromofluorobenzene			*83.8*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*96.9*	*70.0-130*	

Method Blank (MB)

(MB) R3658544-3 05/21/21 09:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Ethylbenzene	U		0.000137	0.00100
Toluene	U		0.000278	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	*109*			*80.0-120*
(S) 4-Bromofluorobenzene	*100*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*97.2*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3658544-1 05/21/21 08:31 • (LCSD) R3658544-2 05/21/21 08:51

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.00500	0.00539	0.00563	108	113	70.0-123			4.36	20
Ethylbenzene	0.00500	0.00428	0.00438	85.6	87.6	79.0-123			2.31	20
Toluene	0.00500	0.00481	0.00460	96.2	92.0	79.0-120			4.46	20
Xylenes, Total	0.0150	0.0133	0.0128	88.7	85.3	79.0-123			3.83	20
(S) Toluene-d8				*95.4*	*95.6*	*80.0-120*				
(S) 4-Bromofluorobenzene				*88.0*	*89.4*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*89.4*	*86.1*	*70.0-130*				

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

ConocoPhillips - Tetra Tech

901 West Wall
Suite 100
Midland, TX 79701

Billing Information:
Accounts Payable
901 West Wall
Suite 100
Midland, TX 79701

Pres Chk

Report to: Julie Evans

Email To: julie.evans@tetratech.com

Project Description: COP- Vacuum Glorietta

City/State Collected: Lea County, NM

Phone: 432-687-8137
Fax:

Client Project # 212C-MD-02397

Lab Project # COPTETRA-VACUUM

Collected by (print): Preston Pointer

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntr	CHLORIDE 125mlHDPE-NoPres	V8260BTEX 40mlAmb-HCl	Remarks	Sample # (lab only)
VG [redacted]-5		GW		5-11-21	1250	4	X	X		-01
VG [redacted]-3		GW		5-11-21	1415	4	X	X		-02
VG [redacted]-6		GW		5-12-21	1150	4	X	X		-03
VG [redacted]-7		GW		5-12-21	1300	4	X	X		-04
VG [redacted]-4		GW		5-12-21	1405	4	X	X		-05
DUP		GW		[redacted]	—	4	X	X		-06
		GW				4	X	X		
		GW				4	X	X		
		GW				4	X	X		

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

L # 135395-7
J175

Acctnum: COPTETRA
Template: T151596
Prelogin: P714613
TSR: 526 - Chris McCord
PB:

Shipped Via:

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: ___Y ___N
COC Signed/Accurate: ___Y ___N
Bottles arrive intact: ___Y ___N
Correct bottles used: ___Y ___N
Sufficient volume sent: ___Y ___N
If Applicable
VOA Zero Headspace: ___Y ___N
Preservation Correct/Checked: ___Y ___N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	5-13-21	12:40		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
	5-13-21	17:00		29-1-28 18
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
			Trivia Robertson	5/14/21 8:00

If preservation required by Login: Date/Time

Hold:

Condition NCF / OK

Pace Analytical®

ANALYTICAL REPORT

December 03, 2021

ConocoPhillips - Tetra Tech

Sample Delivery Group:	L1433918
Samples Received:	11/20/2021
Project Number:	212C-MD-02397
Description:	COP- Vacuum Glorietta
Site:	COPTETRA-VACCUM
Report To:	Julie Evans 901 West Wall Suite 100 Midland, TX 79701

Entire Report Reviewed By:

Chris McCord
Project Manager

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

Pace Analytical Services, LLC -Dallas
400 W. Bethany Drive Suite 190 Allen, TX 75013 972-727-1123 800-767-5859 www.pacenational.com

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VG-3 L1433918-01 GW

Collected by: Matthew Castrejan | Collected date/time: 11/17/21 13:20 | Received date/time: 11/20/21 08:37

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1778470	10	11/22/21 14:29	11/22/21 14:29	JAP	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260	WG1779763	1	11/24/21 16:27	11/24/21 16:27	NSR	Allen, TX

VG-6 L1433918-02 GW

Collected by: Matthew Castrejan | Collected date/time: 11/17/21 14:35 | Received date/time: 11/20/21 08:37

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1778470	20	11/22/21 14:47	11/22/21 14:47	JAP	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260	WG1779763	1	11/24/21 16:45	11/24/21 16:45	NSR	Allen, TX

VG-7 L1433918-03 GW

Collected by: Matthew Castrejan | Collected date/time: 11/17/21 15:50 | Received date/time: 11/20/21 08:37

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1778470	20	11/22/21 15:05	11/22/21 15:05	JAP	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260	WG1779763	1	11/24/21 17:03	11/24/21 17:03	NSR	Allen, TX

VG-5 L1433918-04 GW

Collected by: Matthew Castrejan | Collected date/time: 11/18/21 10:55 | Received date/time: 11/20/21 08:37

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1778470	50	11/22/21 15:58	11/22/21 15:58	JAP	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260	WG1779763	1	11/24/21 17:21	11/24/21 17:21	NSR	Allen, TX

VG-4 L1433918-05 GW

Collected by: Matthew Castrejan | Collected date/time: 11/18/21 13:05 | Received date/time: 11/20/21 08:37

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1778470	100	11/22/21 16:16	11/22/21 16:16	JAP	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260	WG1779763	1	11/24/21 17:39	11/24/21 17:39	NSR	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260	WG1782576	50	11/30/21 18:21	11/30/21 18:21	NSR	Allen, TX

DUP L1433918-07 GW

Collected by: Matthew Castrejan | Collected date/time: 11/18/21 00:00 | Received date/time: 11/20/21 08:37

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1778470	100	11/22/21 16:34	11/22/21 16:34	JAP	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260	WG1782576	50	11/30/21 18:38	11/30/21 18:38	NSR	Allen, TX

CASE NARRATIVE

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

Chris McCord
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	51.7		0.541	8.00	10	11/22/2021 14:29	WG1778470

Volatile Organic Compounds (GC/MS) by Method 8260

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000493	0.00200	1	11/24/2021 16:27	WG1779763
Ethylbenzene	U		0.000462	0.00200	1	11/24/2021 16:27	WG1779763
Toluene	U		0.000998	0.00500	1	11/24/2021 16:27	WG1779763
Xylenes, Total	U		0.00132	0.00600	1	11/24/2021 16:27	WG1779763
(S) 1,2-Dichloroethane-d4	*114*			*70.0-130*		*11/24/2021 16:27*	WG1779763
(S) 4-Bromofluorobenzene	*103*			*70.0-130*		*11/24/2021 16:27*	WG1779763
(S) Toluene-d8	*99.5*			*70.0-130*		*11/24/2021 16:27*	WG1779763

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Chloride	75.1		1.08	16.0	20	11/22/2021 14:47	WG1778470

Volatile Organic Compounds (GC/MS) by Method 8260

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.000493	0.00200	1	11/24/2021 16:45	WG1779763
Ethylbenzene	U		0.000462	0.00200	1	11/24/2021 16:45	WG1779763
Toluene	U		0.000998	0.00500	1	11/24/2021 16:45	WG1779763
Xylenes, Total	U		0.00132	0.00600	1	11/24/2021 16:45	WG1779763
(S) 1,2-Dichloroethane-d4	*114*			*70.0-130*		*11/24/2021 16:45*	WG1779763
(S) 4-Bromofluorobenzene	*105*			*70.0-130*		*11/24/2021 16:45*	WG1779763
(S) Toluene-d8	*99.0*			*70.0-130*		*11/24/2021 16:45*	WG1779763

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	137		1.08	16.0	20	11/22/2021 15:05	WG1778470

Volatile Organic Compounds (GC/MS) by Method 8260

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000493	0.00200	1	11/24/2021 17:03	WG1779763
Ethylbenzene	U		0.000462	0.00200	1	11/24/2021 17:03	WG1779763
Toluene	U		0.000998	0.00500	1	11/24/2021 17:03	WG1779763
Xylenes, Total	U		0.00132	0.00600	1	11/24/2021 17:03	WG1779763
(S) 1,2-Dichloroethane-d4	*92.6*			*70.0-130*		*11/24/2021 17:03*	WG1779763
(S) 4-Bromofluorobenzene	*104*			*70.0-130*		*11/24/2021 17:03*	WG1779763
(S) Toluene-d8	*169*	J1		*70.0-130*		*11/24/2021 17:03*	WG1779763

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

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Chloride	331		2.70	40.0	50	11/22/2021 15:58	WG1778470

Volatile Organic Compounds (GC/MS) by Method 8260

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.000493	0.00200	1	11/24/2021 17:21	WG1779763
Ethylbenzene	U		0.000462	0.00200	1	11/24/2021 17:21	WG1779763
Toluene	U		0.000998	0.00500	1	11/24/2021 17:21	WG1779763
Xylenes, Total	U		0.00132	0.00600	1	11/24/2021 17:21	WG1779763
(S) 1,2-Dichloroethane-d4	*115*			*70.0-130*		*11/24/2021 17:21*	WG1779763
(S) 4-Bromofluorobenzene	*104*			*70.0-130*		*11/24/2021 17:21*	WG1779763
(S) Toluene-d8	*99.5*			*70.0-130*		*11/24/2021 17:21*	WG1779763

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Chloride	461		5.41	80.0	100	11/22/2021 16:16	WG1778470

Volatile Organic Compounds (GC/MS) by Method 8260

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	2.12		0.0247	0.100	50	11/30/2021 18:21	WG1782576
Ethylbenzene	0.911		0.0231	0.100	50	11/30/2021 18:21	WG1782576
Toluene	0.0463		0.000998	0.00500	1	11/24/2021 17:39	WG1779763
Xylenes, Total	0.952		0.0660	0.300	50	11/30/2021 18:21	WG1782576
(S) 1,2-Dichloroethane-d4	*109*			*70.0-130*		*11/24/2021 17:39*	WG1779763
(S) 1,2-Dichloroethane-d4	*94.4*			*70.0-130*		*11/30/2021 18:21*	WG1782576
(S) 4-Bromofluorobenzene	*98.9*			*70.0-130*		*11/24/2021 17:39*	WG1779763
(S) 4-Bromofluorobenzene	*93.0*			*70.0-130*		*11/30/2021 18:21*	WG1782576
(S) Toluene-d8	*108*			*70.0-130*		*11/24/2021 17:39*	WG1779763
(S) Toluene-d8	*74.8*			*70.0-130*		*11/30/2021 18:21*	WG1782576

DUP
Collected date/time: 11/18/21 00:00
L1433918

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	464		5.41	80.0	100	11/22/2021 16:34	WG1778470

Volatile Organic Compounds (GC/MS) by Method 8260

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	2.15		0.0247	0.100	50	11/30/2021 18:38	WG1782576
Ethylbenzene	1.14		0.0231	0.100	50	11/30/2021 18:38	WG1782576
Toluene	U		0.0499	0.250	50	11/30/2021 18:38	WG1782576
Xylenes, Total	1.01		0.0660	0.300	50	11/30/2021 18:38	WG1782576
(S) 1,2-Dichloroethane-d4	*92.9*			*70.0-130*		*11/30/2021 18:38*	WG1782576
(S) 4-Bromofluorobenzene	*100*			*70.0-130*		*11/30/2021 18:38*	WG1782576
(S) Toluene-d8	*97.1*			*70.0-130*		*11/30/2021 18:38*	WG1782576

Method Blank (MB)

(MB) R3732656-1 11/22/21 12:24

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.0541	0.800

Laboratory Control Sample (LCS)

(LCS) R3732656-2 11/22/21 12:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	5.00	5.22	104	80.0-120	

L1433923-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1433923-04 11/22/21 17:46 • (MS) R3732656-3 11/22/21 18:03 • (MSD) R3732656-4 11/22/21 18:21

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	103	160	160	115	115	10	80.0-120	E	E	0.00469	20

L1433923-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1433923-06 11/22/21 19:33 • (MS) R3732656-5 11/22/21 19:51 • (MSD) R3732656-6 11/22/21 20:08

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	100	76.5	183	182	106	106	20	80.0-120			0.256	20

Method Blank (MB)

(MB) R3733560-2 11/24/21 11:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.000493	0.00200
Ethylbenzene	U		0.000462	0.00200
Toluene	U		0.000998	0.00500
Xylenes, Total	U		0.00132	0.00600
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*
(S) 4-Bromofluorobenzene	*104*			*70.0-130*
(S) Toluene-d8	*99.7*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3733560-1 11/24/21 11:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0200	0.0195	97.5	73.0-131	
Ethylbenzene	0.0200	0.0209	105	76.0-129	
Toluene	0.0200	0.0197	98.5	73.0-130	
Xylenes, Total	0.0600	0.0601	100	78.0-124	
(S) 1,2-Dichloroethane-d4			*104*	*70.0-130*	
(S) 4-Bromofluorobenzene			*100*	*70.0-130*	
(S) Toluene-d8			*101*	*70.0-130*	

L1434330-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1434330-01 11/24/21 13:29 • (MS) R3733560-3 11/24/21 13:46 • (MSD) R3733560-4 11/24/21 14:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0200	U	0.0206	0.0203	103	102	1	74.0-130			1.47	20
Ethylbenzene	0.0200	U	0.0220	0.0218	110	109	1	77.0-127			0.913	20
Toluene	0.0200	U	0.0208	0.0206	104	103	1	74.0-127			0.966	20
Xylenes, Total	0.0600	U	0.0634	0.0620	106	103	1	71.0-133			2.23	20
(S) 1,2-Dichloroethane-d4					*106*	*105*		*70.0-130*				
(S) 4-Bromofluorobenzene					*98.6*	*99.6*		*70.0-130*				
(S) Toluene-d8					*102*	*102*		*70.0-130*				

Method Blank (MB)

(MB) R3735882-2 11/30/21 17:27

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.000493	0.00200
Ethylbenzene	U		0.000462	0.00200
Toluene	U		0.000998	0.00500
Xylenes, Total	U		0.00132	0.00600
(S) 1,2-Dichloroethane-d4	*79.4*			*70.0-130*
(S) 4-Bromofluorobenzene	*93.7*			*70.0-130*
(S) Toluene-d8	*95.5*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3735882-1 11/30/21 15:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0200	0.0198	99.0	73.0-131	
Ethylbenzene	0.0200	0.0214	107	76.0-129	
Toluene	0.0200	0.0200	100	73.0-130	
Xylenes, Total	0.0600	0.0599	99.8	78.0-124	
(S) 1,2-Dichloroethane-d4			*91.6*	*70.0-130*	
(S) 4-Bromofluorobenzene			*99.0*	*70.0-130*	
(S) Toluene-d8			*98.3*	*70.0-130*	

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.

Pace Analytical Services, LLC -Dallas 400 W. Bethany Drive Suite 190 Allen, TX 75013

Arkansas	88-0647	Kansas	E10388
Florida	E871118	Texas	T104704232-20-32
Iowa	408	Oklahoma	8727
Louisiana	30686		

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

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

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

ConocoPhillips - Tetra Tech

901 West Wall
Suite 100
Midland, TX 79701

Billing Information:
Accounts Payable
901 West Wall
Suite 100
Midland, TX 79701

Report to: Julie Evans

Email To: julie.evans@tetratech.com

Project Description: COP- Vacuum Glorietta

City/State Collected:

Phone: 432-687-8137
Fax:

Client Project # 212C-MD-02247

Lab Project # COPTETRA-VACUUM

Collected by (print): Matthew Castrejon

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE 125mlHDPE-NoPres	V8260BTEX 40mlAmb-HCl								Remarks	Sample # (lab only)
VG-3	G	GW		11-17-21	1320	4	X	X									-01
VG-6	G	GW		11-17-21	1435	4	X	X									-02
VG-7	G	GW		11-17-21	1550	4	X	X									-03
VG-5	G	GW		11-18-21	1055	4	X	X									-04
VG-4	G	GW		11-18-21	1305	4	X	X									-05
Dup	G	GW				4	X	X									-07
	G	GW				4	X	X									
		GW				4	X	X									
		GW				4	X	X									

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

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

L# L1433918

Table #

Acctnum: COPTETRA

Template: T151596

Prelogin: P714613

TSR: 526 - Chris McCord

PB:

Shipped Via:

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Matthew Castrejon	11-19-21	1400			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	
	11-19-21	1700	Greyhound		
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: Condition: NCF / OK
GH	11/20/21	0837	Pace	11/20/21 0837	

Pace Analytical	Document Name: Sample Condition Upon Receipt	Document Revised: 7/27/20 Page 1 of 1
	Document No.: F-DAL-C-001-rev 14	Issuing Authority: Pace Dallas Quality Office

Sample Condition Upon Receipt

☐Dallas ☐Ft Worth ☐Corpus Christi ☐Austin

Client Name: Conoco Phillips Project Work order (place label):

Courier FedEX ☐ UPS ☐ USPS ☐ Client ☐ LSO ☐ PACE ☐ Other GH

L1433918

Tracking #: _____

Custody Seal on Cooler/Box: Yes ☑ No ☐

Received on ice: Wet ☑ Blue ☐ No ice ☐

Receiving Lab 1 Thermometer Used: IR-18 Cooler Temp °C: 3.9 (Recorded) 0.2 (Correction Factor) 3.7 (Actual)

Receiving Lab 2 Thermometer Used: _____ Cooler Temp °C: _____ (Recorded) _____ (Correction Factor) _____ (Actual)

Temperature should be above freezing to 6°C unless collected same day as receipt in which evidence of cooling is acceptable

Triage Person: AP Date: 11/20/21

Chain of Custody relinquished	Yes ☑ No ☐
Sampler name & signature on COC	Yes ☑ No ☐
Short HT analyses (<72 hrs)	Yes ☐ No ☐

Login Person: AP Date: 11/30/21

Sufficient Volume received	Yes ☑ No ☐
Correct Container used	Yes ☑ No ☐
Container Intact	Yes ☑ No ☐
Sample pH Acceptable pH Strips:_____ Residual Chlorine Present Cl Strips:_____ Sulfide Present Lead Acetate Strips:_____	Yes ☐ No ☐ NA ☑ Yes ☐ No ☐ NA ☑ Yes ☐ No ☐ NA ☑
Are soil samples (volatiles, TPH) received in 5035A Kits (not applicable to TCLP VOA or PST Program TPH)	Yes ☐ No ☐ NA ☑
Unpreserved 5035A soil frozen within 48 hrs	Yes ☐ No ☐ NA ☑
Headspace in VOA (>6mm)	Yes ☐ No ☑ NA ☐
Project sampled in USDA Regulated Area outside of Texas State Sampled:_____	Yes ☐ No ☐ NA ☑
Non-Conformance(s):	Yes ☐ No ☑

Labeling Person (if different than log-in):_____ Date: _____

L1433918

PRI PPD

Pcs: 1 of 1

19NOV21 01:39P ** LABEL **

Schd: GLI 1454

DALLAS, TX

GLI 3089782608

From PACE ANALYTICAL WEST TEXAS
972-727-1123

RECV PACE ANALYTICAL WEST TEXAS
HFPU

DALLAS, TX 75202

Phone: 432-202-4238

Manual Wght:
50.0

Tariff Wght:
50.0

PO/Ref #:

Priority

Agency Phone: (214)747-8859 WWW.SHIPGREYHOUND.COM

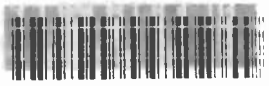
PRI PPD

Pcs: 1 of 1

19NOV21 01:39P ** ORIGIN **

Schd: GLI 1454

GLI 3089782608



From: ODESSA MIDLAND, TX

To: DALLAS, TX

Priority

P EXPRS $ 30.00 C EXPRS

P VALUE C VALUE

TETRA TECH

APPENDIX B
ACUVAC REMEDIATION, LLC REPORTS

AcuVac Remediation

March 2, 2021

Ms. Julie Evans
Hydrogeologist/Environmental Project Manager
Tetra Tech
1500 City West Boulevard, Suite 1000
Houston, TX 77042

Dear Julie:

Re: Vacuum Glorietta Site, Lea County, NM, (Event #5)

At your request, AcuVac Remediation, LLC (AcuVac) performed four Mobile Dual Phase Extraction (MDPE) Events: #5A, #5B, #5C and #5D as outlined in the table below at the above referenced site (Site). The following is the report and a copy of the operating data collected during Event #5. Additionally, the attached Table #1 contains the Summary Well Data, and Table #2 contains the Summary Recovery Data.

Event Number	Well Number	Event Type	Event Duration (hrs)	Date
#5A	VG-4	MDPE	10.0	02/23/2021
#5B	VG-4	MDPE	10.0	02/24/2021
#5C	VG-4	MDPE	10.0	02/25/2021
#5D	VG-4	MDPE	8.0	02/26/2021

The purpose of the events was to enhance recovery of phase separated hydrocarbons (PSH) present at the Site through the removal of petroleum hydrocarbons in both liquid and vapor phases. PSH is referred to as petroleum hydrocarbons and Light Non-Aqueous Phase Liquids (LNAPL). The source of the PSH is a historical pipeline release.

OBJECTIVES

The objectives of the MDPE Events:

- Evaluate the potential for removing liquid and vapor phase LNAPL from the groundwater and soils in the subsurface formations.
- Expose the capillary fringe area and below to the extraction well induced vacuums.
- Increase the groundwater and contaminant specific yields with high induced vacuums.
- Provide an induced hydraulic gradient to gain hydraulic control of the area during the Event period.

.

METHODS AND EQUIPMENT

AcuVac owns and maintains an inventory of equipment to perform MDPE events and uses no third-party equipment. The events at the Site were conducted using the AcuVac I-6 System (System) with a Roots RAI-33 blower, used as a vacuum pump, and a Roots RAI-22 positive displacement blower. The table below lists additional equipment and instrumentation employed, and the data element captured by each.

Equipment and Instrumentation Employed by AcuVac	
Measurement Equipment	**Data Element**
Extraction Well Induced Vacuum and Flow	
Dwyer Magnehelic Gauges	Extraction Well Vacuum
Dwyer Averaging Pitot Tubes / Magnehelic Gauges	Extraction Well Vapor Flow
Observation Wells	
Dwyer Digital Manometer	Vacuum / Pressure Influence
Extraction Well Vapor Monitoring	
V-1 Vacuum Box	Extraction Well Non-Diluted Vapor Sample Collection
HORIBA® Analyzer	Extraction Well Vapor TPH Concentration
RKI 1200 O_2 Monitor	Extraction Well Vapor Oxygen Content
NAPL Thickness (if present)	
Solinst Interface Probes Model 122	Depth to LNAPL and Depth to Groundwater
Groundwater Depression / Upwelling	
In-Situ Level Troll 700 Data Logger	Liquid Column in Extraction and Observation Wells
In-Situ Vented Cable with Chamber	Equalize Well Vacuum/Pressure
In-Situ Rugged Reader Data Logger Interface	Capture Readings from Data Logger Trolls
Atmospheric Conditions	
Testo Model 511	Relative and Absolute Barometric Pressure

The vacuum extraction portion of the System consists of a vacuum pump driven by an internal combustion engine (IC engine). The vacuum pump connects to the extraction well, and the vacuum created on the extraction well causes light hydrocarbons in the soil and on the groundwater to volatilize and flow through a moisture knockout tank to the vacuum pump and the IC engine where they burn as part of the normal combustion process. Auxiliary propane powers the engine if the well vapors do not provide the required energy.

The IC engine provides the power necessary to achieve and maintain high induced vacuums and/or high well vapor flows needed to maximize the vacuum radius of influence.

Emissions from the engine pass through two of three catalytic converters to maximize destruction of effluent hydrocarbon vapors. The engine's fuel-to-air ratio is adjusted to maintain efficient combustion. Because the engine powers all equipment, the System stops when the engine stops preventing an uncontrolled release of hydrocarbons. Since the System operates entirely under vacuum, any leaks in the seals or connections leak into the System and not the atmosphere. Vacuum loss, low oil pressure, over-speed, or overheating automatically shut down the engine.

The design of the AcuVac System enables independent control of both the induced well vacuum and the groundwater pumping functions such that the AcuVac team controls the induced hydraulic gradient to increase exposure of the formation to soil vapor extraction (SVE). The ability to separate the vapor and liquid flows within the extraction well improve the LNAPL recovery rates and enabled the AcuVac team to record data specific to each media.

RECOVERY SUMMARY FOR MDPE EVENT #5

The Recovery Summary Table below lists the groundwater and LNAPL recovery data for Event #5 (MDPE) and compares the results with Events #4 (MDPE) and #3 (SVE) performed on the dates shown. Events #1 and #2 were omitted from this report due to the elapsed time since the events.

Recovery Summary
Well VG-4

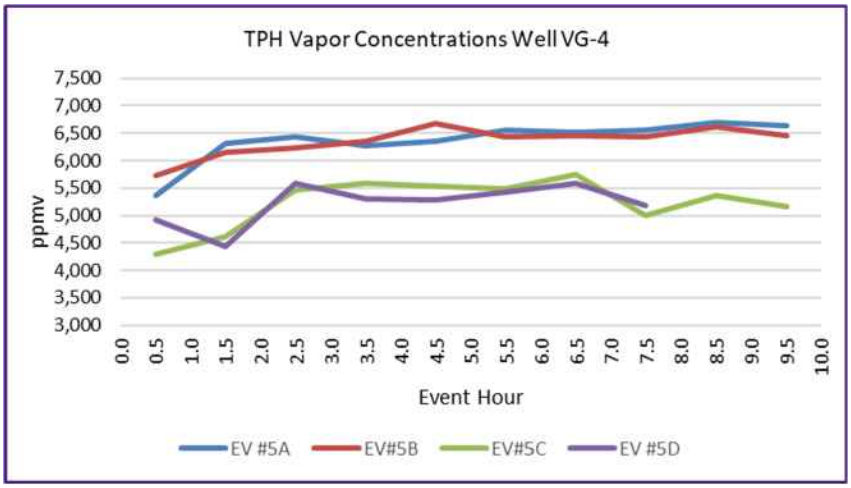
Event Number		Event #5D	Event #5C	Event #5B	Event #5A	Event #5	Event #4	Event #3
Event Date		**02/26/2021**	**02/25/2021**	**02/24/2021**	**02/23/2021**	**Total**	**05/07/2020**	**06/13/2019**
Event Hours		**8.0**	**10.0**	**10.0**	**10.0**	**38.0**	**28.0**	**28.0**
Data Element								
Groundwater Recovery	gals	1,140	1,570	2,095	2,306	7,111	5,065	0
LNAPL Recovery								
Liquid	gals	0	0	0	0	0	0	0
Vapor	gals	1.58	1.76	2.25	2.10	7.69	11.88	9.78
Total	gals	1.58	1.76	2.25	2.01	7.69	11.88	9.78
Gallons/Hour	gph	**0.20**	**0.18**	**0..23**	**0.21**	**0.20**	**0.42**	**0.35**

- Total vapor hydrocarbons burned as IC engine fuel in the Recovery Summary Table above are based on the HORIBA® data recorded. The HORIBA® analytical data from the influent vapor samples are compared with previous events in the Influent Vapor Data Table below:

Influent Vapor Data
Well VG-4

Event Number		Event #5D	Event #5C	Event #5B	Event #5A	Event #4C	Event #3C
Event Date		**02/26/2021**	**02/25/2021**	**02/24/2021**	**02/23/2021**	**05/07/2020**	**06/13/2019**
Event Hours		**8.0**	**10.0**	**10.0**	**10.0**	**8.0**	**8.0**
Data Element							
TPH- Maximum	ppmv	5,580	5,740	6,670	6,700	14,560	11,140
TPH- Average	ppmv	5,214	5,190	6,353	6,371	11,068	9,749
TPH- Minimum	ppmv	4,440	4,300	5,720	5,360	7,850	4,970
TPH- Initial	ppmv	4,910	4,300	5,720	5,360	7,850	4,970
TPH- Ending	ppmv	5,190	5,160	6,460	6,640	13,890	10,940
CO_2	%	9.73	9.83	11.63	11.61	9.51	8.90
CO	%	0	0	0	0	0.02	0.01
O_2	%	4.50	4.73	1.89	2.12	2.48	3.0
H_2S	ppm	0	0	0	0	2.94	3.10

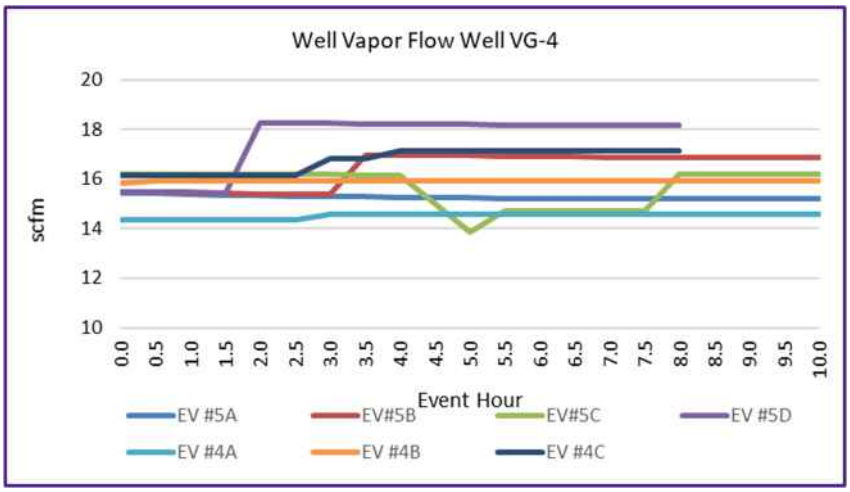
- The TPH vapor concentrations from the influent vapor samples for Event #5 are presented in the graph below:



- The extraction well induced vacuum and well vapor flow for Event #3 through Event #5 is compared in the table below. The Well Vapor Flow graph compares the well flow during Events #5 and #4.

Well Vacuum and Well Vapor Flow
Well VG-4

Event Number		Event #5D	Event #5C	Event #5B	Event #5A	Event #4C	Event #3C
Event Date		**02/26/2021**	**02/25/2021**	**02/24/2021**	**02/23/2021**	**05/07/2020**	**06/13/2019**
Event Hours		**8.0**	**10.0**	**10.0**	**10.0**	**8.0**	**8.0**
Data Element							
Well Vacuum- Maximum	"H_2O	64.00	63.00	63.00	60.00	90.00	75.00
Well Vacuum- Average	"H_2O	63.06	58.35	62.00	60.00	82.94	70.59
Well Vacuum- Minimum	"H_2O	60.00	50.00	60.00	60.00	80.00	65.00
Well Vapor Flow- Maximum	scfm	18.27	16.20	16.96	15.41	17.13	16.67
Well Vapor Flow- Average	scfm	17.59	15.70	16.41	15.27	16.75	16.33
Well Vapor Flow- Minimum	scfm	15.43	13.86	15.37	15.19	16.17	16.01



- The groundwater pump rates for Event #3 through Event #5 are contained in the table below.

Groundwater Pump Data Well MW-VG-4							
Event Number		**Event #5D**	**Event #5C**	**Event #5B**	**Event #5A**	**Event #4C**	**Event #3C**
Event Date		**02/26/2021**	**02/25/2021**	**02/24/2021**	**02/23/2021**	**05/07/2020**	**06/13/2019**
Event Hours		**8.0**	**10.0**	**10.0**	**10.0**	**8.0**	**8.0**
Data Element							
Maximum GW Pump Rate	gpm	3.60	3.33	3.83	5.17	-	-
Average GW Pump Rate	gpm	2.38	2.48	3.54	3.92	-	-

- The LNAPL thickness recorded at the start and conclusion of each event is contained in the table below.

LNAPL Thickness Data Well VG-4							
Event Number		**Event #5D**	**Event #5C**	**Event #5B**	**Event #5A**	**Event #4C**	**Event #3C**
Event Date		**02/26/2021**	**02/25/2021**	**02/24/2021**	**02/23/2021**	**05/07/2020**	**06/13/2019**
Event Hours		**8.0**	**10.0**	**10.0**	**10.0**	**8.0**	**8.0**
Event Start							
Depth to Groundwater	Ft BTOC	67.09	67.12	67.08	67.10	66.67	66.34
Depth to LNAPL	Ft BTOC	-	-	-	67.02	-	66.33
LNAPL Thickness	ft	-	-	-	0.08	-	0.01
Hydro Equivalent	Ft BTOC	67.09	67.12	67.08	67.04	66.67	66.33
Event Conclusion							
Depth to Groundwater	Ft BTOC	67.70	67.18	67.42	67.45	67.35	64.91
Depth to LNAPL	Ft BTOC	-	-	-	-	-	-
LNAPL Thickness	ft	-	-	-	-	-	-
Hydro Equivalent	Ft BTOC	67.70	67.18	67.42	67.45	67.35	64.91

ADDITIONAL INFORMATION

- Overall, the TPH vapor concentrations were lower for Event #5 than previous events. Event #5 was conducted the week following a hard freeze in the area. The effect of the freezing temperatures on the radiant cooling of the soil cannot be determined, but it may have impacted the volatilization of the TPH vapors in the soil.
- As shown in the Well Vapor Flow graph on page 4, the vapor flow during Event #5 and #4 was mostly steady. The well flow was generally lower for Events #4A and #5A and then increased with subsequent days during each event.
- All LNAPL volume recovered, 7.69 gals, was burned as IC engine fuel.
- During the first hour of Event #5C, the color of the groundwater changed, and biomass was observed in the site glass. The source of the biomass is not known, although it is believed that some type of “breakthrough in the formation” occurred. A sample of the groundwater was obtained and sent to a lab for analysis.

- At event hour 4.5 of Event #5C, a warning message was observed on the pump controller. The pump was pulled from the well, and the backup was installed. It is most likely that silt or other materials from the formation were drawn into the pump causing the failure.
- At the start of Event #5D, the water line connected to the in-well pump was frozen. The groundwater pump was not started until event hour 2.0.
- At the conclusion of Event #5D, the bottom of the well was tagged, and approximately 0.5 ft of material had been removed from the well bottom as the total depth of the well measured 72.70 ft BTOC, and the initial total depth was measured at 72.20 ft BTOC at the start of Event #5A.

METHOD OF CALIBRATION AND CALCULATIONS

The HORIBA® Analytical instrument is calibrated with Hexane, CO and CO_2.

The formula used to calculate the emission rate is:

$$ER = HC\ (ppmv) \times MW\ (Hexane) \times Flow\ Rate\ (scfm) \times 1.58E^{-7} \frac{(min)(lb\ mole)}{(hr)(ppmv)(ft^3)} = lbs/hr$$

INFORMATION INCLUDED WITH REPORT

- Table #1 Summary Well Data
- Table #2 Summary Recovery Data
- Description of the Enhanced Vapor Recovery Process
- Recorded Data
- Photographs of the AcuVac System and well VG-4.

After you have reviewed the report and if you have any questions, please contact me. We appreciate you selecting AcuVac to provide these services.

Sincerely,
ACUVAC REMEDIATION, LLC

Paul D. Faucher
President

Summary Well Data
Table #1

Event		5A	5B	5C	5D
WELL NO.		**VG-4**	**VG-4**	**VG-4**	**VG-4**
Current Event Hours		10.0	10.0	10.0	8.0
Total Event Hours		98.0	108.0	118.0	126.0
TD (estimated)	ft BGS	72.2	72.2	72.2	72.7
Well Screen	ft BGS	unknown	unknown	unknown	unknown
Well Size	in	4.0	4.0	4..0	4.0
Well Data					
Depth to Groundwater - Static - Start Event	ft BTOC	67.10	67.08	67.12	67.09
Depth to LNAPL - Static - Start Event	ft BTOC	67.02	-	-	-
LNAPL Thickness	ft	0.08	-	-	-
Hydro-Equivalent- Beginning	ft BTOC	67.04	67.08	67.12	67.09
Depth to Groundwater - End Event	ft BTOC	67.45	67.42	67.18	67.70
Depth to LNAPL - End Event	ft BTOC	-	-	-	-
LNAPL Thickness	ft	-	-	-	-
Hydro-Equivalent- Ending	ft BTOC	67.45	67.42	67.18	67.70
Extraction Data					
Maximum Extraction Well Vacuum	"H_2O	60.00	63.00	63.00	64.00
Average Extraction Well Vacuum	"H_2O	60.00	62.00	58.35	63.06
Minimum Extraction Well Vacuum	"H_2O	60.00	60.00	50.00	60.00
Maximum Extraction Well Vapor Flow	scfm	15.41	16.96	16.20	18.27
Average Extraction Well Vapor Flow	scfm	15.27	16.41	15.70	17.59
Minimum Extraction Well Vapor Flow	scfm	15.19	15.37	13.86	15.43
Influent Data					
Maximum TPH	ppmv	6,700	6,670	5,740	5,580
Average TPH	ppmv	6,371	6,353	5,190	5,214
Maximum TPH	ppmv	5,360	5,720	4,300	4,440
Initial TPH	ppmv	5,360	5,720	4,300	4,910
Final TPH	ppmv	6,640	6,460	5,160	5,190
Average CO_2	%	11.61	11.63	9.83	9.73
Average CO	%	0	0	0	0
Average O_2	%	2.12	1.89	4.73	4.50
Average H_2S	ppm	0	0	0	0

Summary Recovery Data
Table #2

Event		5A	5B	5C	5D
WELL NO.		VG-4	VG-4	VG-4	VG-4
Recovery Data- Current Event					
Total Liquid Volume Recovered	gals	2,306	2,095	1,570	1,140
Total Liquid LNAPL Recovered	gals	-	-	-	-
Total Liquid LNAPL Recovered / Total Liquid	%	-	-	-	-
Total Liquid LNAPL Recovered / Total LNAPL	%	-	-	-	-
Total Vapor LNAPL Recovered	gals	2.10	2.25	1.76	1.58
Total Vapor LNAPL Recovered / Total LNAPL	%	100.00	100.00	100.00	100.00
Total Vapor and Liquid LNAPL Recovered	gals	2.10	2.25	1.76	1.58
Average LNAPL Recovery	gals/hr	0.21	0.23	0.18	0.20
Total LNAPL Recovered	lbs	14.72	15.77	12.33	11.08
Total Volume of Well Vapors	cu. ft	9,162	9,846	9,940	8,429
Recovery Data- Cumulative					
Total Liquid Volume Recovered	gals	15,355	17,450	19,020	20,160
Total Liquid LNAPL Recovered	gals	7.99	7.99	7.99	7.99
Total Vapor LNAPL Recovered	gals	36.35	38.60	40.36	41.94
Total Vapor and Liquid LNAPL Recovered	gals	44.33	46.59	48.35	49.93
Average LNAPL Recovery	gals/hr	0.45	0.43	0.41	0.40
Total LNAPL Recovered	lbs	1,148	1,164	1,176	1,187
Total Volume of Well Vapors	cu. ft	96,203	106,049	115,469	123,898

AcuVac Remediation

OPERATING DATA – EVENT # 5A PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

	Date		2-23-21					
	Time		0700	0730	0800	0830	0900	0930
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	180	14	14	14	14	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	60	60	60	60	60	60
	Extraction Well Flow	scfm	15,41	15,41	15,38	15,35	15,32	15,31
	Influent Vapor Temp.	°F	53	53	55	57	59	60
	Air Temp	°F	38	43	50	54	61	63
	Barometric Pressure	"Hg	30,06	30,05	30,05	30,04	30,03	29,99
VAPOR / INFLUENT	TPH	ppmv	—	5360	—	6320	—	6440
	CO_2	%	—	11,16	—	11,82	—	11,86
	CO	%	—	0,00	—	0,00	—	0,00
	O_2	%	—	3,0	—	2,8	—	1,7
	H_2S	ppm	—	—	—	—	—	—
NOTES	Arrived at site 0630. Tanker arrived @ 0640. Tailgate safety meeting. Event strt @ 0700. TPH remained lower than last event.							
RECOVERY	Totalizer	11356 gals	11356	11511	11637	11751	11868	11981
	Pump Rate	gals/min	5,16	4,2	3,8	3,9	3,77	3,80
	Total Volume	gals	0	155	281	398	512	625
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	2,64 ft	5,12	4,60	3,11	2,80	2,22	2,20
	GW Depression	ft	(2,48)	(1,96)	(0,47)	(0,16)	,42	,44
	Extraction Well	DTNAPL	67,02					
	Extraction Well	DTGW	67,10					

0,08

AcuVac Remediation

OPERATING DATA – EVENT # 5A PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

	Date		2.23.21					
	Time		1000	1030	1100	1130	1200	1230
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	135	135	135	135	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	60	60	60	60	60	60
	Extraction Well Flow	scfm	15.31	15.28	15.27	15.27	15.25	15.22
	Influent Vapor Temp.	°F	60	62	63	63	64	66
	Air Temp	°F	64	66	68	69	70	72
	Barometric Pressure	"Hg	29.97	29.95	29.93	29.90	29.88	29.85
VAPOR / INFLUENT	TPH	ppmv	—	6280	—	6360	—	6550
	CO_2	%	—	11.22	—	11.36	—	11.64
	CO	%	—	0.00	—	0.00	—	0.00
	O_2	%	—	2.6	—	2.4	—	1.9
	H_2S	ppm	—	—	—	—	—	—
NOTES	At 1200 switched from top propane tank to lower propane tank. Vapor readings remained consistent.							
RECOVERY	Totalizer	gals	12095	12214	12328	12445	12560	12674
	Pump Rate	gals/min	3.97	3.80	3.90	3.83	3.80	3.83
	Total Volume	gals	739	858	972	1089	1204	1318
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head 2.64	ft	2.18	2.19	2.20	2.15	2.18	2.15
	GW Depression	ft	.46	.45	.44	.49	.46	.49
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 5A PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # V6-4

	Date		2-23-21					
	Time		1300	1330	1400	1430	1500	1530
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	140	140	140	140	140	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	60	60	60	60	60	60
	Extraction Well Flow	scfm	15,22	15,14	15,19	15,19	15,19	15,19
	Influent Vapor Temp.	°F	66	68	68	68	68	68
	Air Temp	°F	72	73	73	73	75	75
	Barometric Pressure	"Hg	29,80	29,79	29.77	29.77	29,75	29.74
VAPOR / INFLUENT	TPH	ppmv	—	6510	—	6550	—	6700
	CO_2	%	—	11,66	—	11,70	—	11,82
	CO	%	—	0,00	—	0,00	—	0,00
	O_2	%	—	1,9	—	1,8	—	1,5
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals	12789	12904	13020	13130	13243	13355
	Pump Rate	gals/min	3,83	3,87	3,67	3,77	3,73	3,70
	Total Volume	gals	1433	1548	1664	1774	1887	1999
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head 2,64	ft	2,16	2,16	2,18	2,15	2,14	2,08
	GW Depression	ft	,40	,46	.46	,49	,50	,56
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 5A PAGE # 4 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4	Date	2-23-21						
	Time	1600	1630	1700				
	Hr Meter							
ENGINE / BLOWER	Engine Speed RPM	1800	1800	1800				
	Oil Pressure psi	50	50	50				
	Water Temp °F	140	140	140				
	Alternator Volts	14	14	14				
	Intake Vacuum "Hg	14	14	14				
	Gas Flow Fuel/Propane cfh	120	120	120				
ATMOSPHERE VACUUM / AIR	Extraction Well Vac. "H_2O	60	60	60				
	Extraction Well Flow scfm	15.19	15.19	15.19				
	Influent Vapor Temp. °F	68	68	68				
	Air Temp °F	75	75	75				
	Barometric Pressure "Hg	29.74	29.74	29.74				
VAPOR / INFLUENT	TPH ppmv	—	6640	—				
	CO_2 %	—	11.86	—				
	CO %	—	0.00	—				
	O_2 %	—	1.6	—				
	H_2S ppm	—	—	—				
NOTES	Event stop @ 1700. Changed out top propane tank. Gauged VG-4. No NAPL present, Depart site 1720.							
RECOVERY	Totalizer gals	13466	13578	13662				
	Pump Rate gals/min	3.73	2.8	—				
	Total Volume gals	2110	2222	2306				
	NAPL % Vol							
	NAPL Gals							
EW	Data Logger Head 2.64 ft	2.10	2.14	2.14				
	GW Depression ft	.54	.50	.50				
	Extraction Well DTNAPL			—				
	Extraction Well DTGW			67.45				

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 5B PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # V6-4

	Date		2-24-21					
	Time		0630	0700	0730	0800	0850	0900
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	60	60	60	60	60	60
	Extraction Well Flow	scfm	15.46	15.46	15.43	15.41	15.38	15.37
	Influent Vapor Temp.	°F	50	50	52	53	55	56
	Air Temp	°F	34	36	39	41	44	46
	Barometric Pressure	"Hg	30.11	30.11	30.13	30.14	30.14	30.15
VAPOR / INFLUENT	TPH	ppmv	–	5720	–	6160	–	6230
	CO_2	%	–	11.49	–	11.84	–	11.86
	CO	%	–	0.00	–	0.00	–	000
	O_2	%	–	2.3	–	1.9	–	1.9
	H_2S	ppm	–	–	–	–	–	–
NOTES	Arrived at site 0610. Tanker arrived 0615. Tailgate safety meeting. Event start at 0630. TPH steadily ↑.							
RECOVERY	Totalizer 13667	gals	13662	13777	13885	13993	14102	14205
	Pump Rate	gals/min	3.83	3.60	3.60	3.63	3.43	3.77
	Total Volume	gals	0	115	223	331	440	543
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head 3.50	ft	3.76	2.66	2.31	2.30	2.20	2.18
	GW Depression	ft	(1.24)	(.14)	.21	.22	.32	.34
	Extraction Well	DTNAPL	–					
	Extraction Well	DTGW	67.08					

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 5B PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4

	Date		2-24-21					
	Time		0930	1000	1030	1100	1130	1200
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	130	130	130	130	135
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	60	63	63	63	63	63
	Extraction Well Flow	scfm	15,37	16,96	16,96	16,96	16,96	16,97
	Influent Vapor Temp.	°F	56	58	58	58	58	60
	Air Temp	°F	48	50	52	54	55	55
	Barometric Pressure	"Hg	30,14	30,14	30,13	30,11	30,09	30,07
VAPOR / INFLUENT	TPH	ppmv	—	6360	—	6670	—	6430
	CO_2	%	—	12,02	—	12,16	—	11,56
	CO	%	—	0,00	—	0,00	—	0,00
	O_2	%	—	1,6	—	1,3	—	2,3
	H_2S	ppm	—	—	—	—	—	—

NOTES

At 0930 increased well vac to 63 H_2O, well flow increased from 15,37 to 16,96 scfm. Switched tanks @(propane) 1140.

RECOVERY	Totalizer	gals	14318	14430	14540	14647	14753	14848
	Pump Rate	gals/min	3,73	3,67	3,57	3,53	3,17	3,70
	Total Volume	gals	656	768	878	985	1091	1186
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	2,53 ft	2,18	2,16	2,14	2,17	2,15	2,22
	GW Depression	ft	,34	,36	,38	,35	,37	,30
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 5B PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4

	Date		2-24-21					
	Time		1230	1300	1330	1400	1430	1500
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	140	140	140	140	140	140
	Alternator	Volts	14	14	14	140	14	14
	Intake Vacuum	"Hg	14	14	14	140	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	63	63	63	63	63	63
	Extraction Well Flow	scfm	16.91	16.89	16.88	16.88	16.88	16.88
	Influent Vapor Temp.	°F	61	62	63	63	63	63
	Air Temp	°F	56	57	58	59	61	61
	Barometric Pressure	"Hg	30.09	30.04	30.02	30.00	29.98	29.97
VAPOR / INFLUENT	TPH	ppmv	—	6450	—	6430	—	6620
	CO_2	%	—	11.62	—	10.98	—	11.48
	CO	%	—	0.00	—	0.00	—	0.00
	O_2	%	—	2.1	—	2.1	—	1.7
	H_2S	ppm	—	0	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals	14959	15064	15170	15269	15368	15466
	Pump Rate	gals/min	3.50	3.53	3.30	3.30	3.27	3.23
	Total Volume	gals	1297	1402	1508	1607	1706	1804
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head 2.52	ft	2.22	2.02	2.24	2.25	2.30	2.31
	GW Depression	ft	.30	.30	.28	.27	.22	.21
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 5B PAGE # 4 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

	Date	2-24-21						
	Time	1530	1600	1630				
	Hr Meter							
ENGINE / BLOWER	Engine Speed RPM	1800	1800	1800				
	Oil Pressure psi	50	50	50				
	Water Temp °F	140	140	140				
	Alternator Volts	14	14	14				
	Intake Vacuum "Hg	14	14	14				
	Gas Flow Fuel/Propane cfh	120	120	120				
ATMOSPHERE VACUUM / AIR	Extraction Well Vac. "H_2O	63	63	63				
	Extraction Well Flow scfm	16.88	16.88	16.88				
	Influent Vapor Temp. °F	63	63	63				
	Air Temp °F	61	61	61				
	Barometric Pressure "Hg	29.97	29.97	29.97				
VAPOR / INFLUENT	TPH ppmv	—	6460	—				
	CO_2 %	—	11.32	—				
	CO %	—	0.00	—				
	O_2 %	—	1.9	—				
	H_2S ppm	—	—	—				
NOTES	GPM ↓ last 3-4 hours of event. Event occured the week after heavy 1 week freeze. Event end @ 1630, Pulled pump to gauge. No NAPL, Observed some Sand on pump. Raised pump from 1.5' from bottom of well to 1.0' = 2.5' from bottom of well for next day.							
RECOVERY	Totalizer gals	15563	15660	15757				
	Pump Rate gals/min	3.23	3.23	—				
	Total Volume gals	1901	1998	2095				
	NAPL % Vol							
	NAPL Gals							
EW	Data Logger Head 2.52 ft	2.31	2.30	2.30				
	GW Depression ft	.21	.22	.22				
	Extraction Well DTNAPL							
	Extraction Well DTGW							

AcuVac Remediation

OPERATING DATA – EVENT # 5C PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4

	Date		2-25-21					
	Time		0630	0700	0730	0800	0830	0900
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	63	63	63	63	63	63
	Extraction Well Flow	scfm	16.20	16.20	16.19	16.19	16.17	16.17
	Influent Vapor Temp.	°F	52	52	53	53	54	54
	Air Temp	°F	33	34	34	35	36	37
	Barometric Pressure	"Hg	30.23	30.23	30.23	30.24	30.24	30.24
VAPOR / INFLUENT	TPH	ppmv	–	4300	–	4620	–	5460
	CO_2	%	–	9.16	–	9.46	–	10.54
	CO	%	–	0.00	–	0.00	–	0.00
	O_2	%	–	6.4	–	5.6	–	2.9
	H_2S	ppm	–	–	–	–	–	–
NOTES	Arrived at site 0610, Tailgate safety meeting. Event Start @ 0630, Observed early change in color of water in site glass. Took sample. Sand, grit present in bottom of sample container. Pump controller "UC", Re-started and gradually raised controller, Site glass cleared up back to original color. Sand not present any more.							
RECOVERY	Totalizer 15737	gals	15737	15784	15881	15981	16078	16175
	Pump Rate	gals/min	1.57	3.23	3.33	3.23	3.23	3.10
	Total Volume	gals	0	47	144	244	341	438
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head 1.75	ft	2.77	2.40	2.22	2.05	2.04	2.01
	GW Depression	ft	(1.02)	(.65)	(.47)	(.30)	(.29)	(.26)
	Extraction Well	DTNAPL	–					
	Extraction Well	DTGW	67.12					

AcuVac Remediation

OPERATING DATA – EVENT # 5C PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # V6-4

	Date		7-25-21					
	Time		0930	1000	1030	1100	1130	1200
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	130	130	130	130	135
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	63	63	63	—	50	50
	Extraction Well Flow	scfm	16.17	16.14	16.14	—	13.86	14.73
	Influent Vapor Temp.	°F	54	56	56	56	58	58
	Air Temp	°F	39	39	39	40	41	42
	Barometric Pressure	"Hg	30.24	30.23	30.22	30.21	30.17	30.15
VAPOR / INFLUENT	TPH	ppmv	—	5590	—	ND	—	5480
	CO_2	%	—	10.80	—	ND	—	10.14
	CO	%	—	0.00	—	ND	—	0.00
	O_2	%	—	3.2	—	ND	—	4.3
	H_2S	ppm	—	—	—	—	—	—
NOTES	At 1050 pump control failure. Pulled and replaced pump. Re-start at 1115. Pumpset at data logger to 0.75. It was determined to raise water in well for adequate pumping. Data logger to 3', Pump control @ 235							
RECOVERY	Totalizer	gals	16268	16360	16450	—	16515	16590
	Pump Rate	gals/min	3.07	3.00	2.17		2.50	2.0
	Total Volume	gals	531	623	713		778	853
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head 1.75	ft	2.00	2.02	1.96	Reset .75	1.57	3.01
	GW Depression	ft	(.25)	(.27)	(.21)		(.78)	(2.76)
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 5C PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4

	Date		2-25-21					
	Time		1230	1300	1330	1400	1430	1500
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	150	50	50	50	50
	Water Temp	°F	135	135	135	135	135	135
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	50	50	50	50	60	60
	Extraction Well Flow	scfm	14.73	14.73	14.73	14.73	16.19	16.19
	Influent Vapor Temp.	°F	58	58	58	58	58	58
	Air Temp	°F	42	45	45	46	46	46
	Barometric Pressure	"Hg	30.13	30.13	30.10	30.08	30.08	30.06
VAPOR / INFLUENT	TPH	ppmv	—	5740	—	4990	—	5370
	CO_2	%	—	10.56	—	9.02	—	9.62
	CO	%	—	0.00	—	0.00	—	0.00
	O_2	%	—	3.6	—	5.9	—	5.2
	H_2S	ppm	—	—	—	—	—	—

NOTES

Continually ↑ pump controller to 250, 265, 275 & 290, Amps = 6.2 not charging. Increased vacuum in well & well flow ↑.

RECOVERY	Totalizer	gals	16650	16711	16771	16833	16907	17002
	Pump Rate	gals/min	2.03	2.00	2.03	2.50	3.17	3.27
	Total Volume	gals	913	974	1034	1095	1170	1265
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head .75	ft	3.05	3.05	3.08	2.99	3.11	3.06
	GW Depression	ft	(0.30)	(0.30)	(0.33)	(0.24)	(0.36)	(0.31)
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 5C PAGE # 4 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

	Date	2-25-21						
	Time	1530	1600	1630				
	Hr Meter							
ENGINE / BLOWER	Engine Speed RPM	1800	1800	1800				
	Oil Pressure psi	50	50	50				
	Water Temp °F	135	135	135				
	Alternator Volts	14	14	14				
	Intake Vacuum "Hg	14	14	14				
	Gas Flow Fuel/Propane cfh	120	120	120				
ATMOSPHERE VACUUM / AIR	Extraction Well Vac. "H_2O	60	60	60				
	Extraction Well Flow scfm	16.19	16.19	16.19				
	Influent Vapor Temp. °F	58	58	58				
	Air Temp °F	46	46	46				
	Barometric Pressure "Hg	30.05	30.05	30.05				
VAPOR / INFLUENT	TPH ppmv	—	5160	—				
	CO_2 %	—	9.18	—				
	CO %	—	0.00	—				
	O_2 %	—	5.5	—				
	H_2S ppm	—	—	—				
RECOVERY	Totalizer gals	17100	17204	17307				
	Pump Rate gals/min	3.47	3.43	—				
	Total Volume gals	1363	1467	1570				
	NAPL % Vol							
	NAPL Gals							
EW	Data Logger Head .75 ft	2.86	2.76	1.70				
	GW Depression ft	(2.11)	(2.01)	(1.05)				
	Extraction Well DTNAPL			—				
	Extraction Well DTGW			67.18				

NOTES

At 1530 ↑ pump controller to 300. Amps staying @ 6.
Event end @ 1630.

AcuVac Remediation

OPERATING DATA – EVENT # 5D PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

		Date	2-26-21					
		Time	0600	0630	0700	0730	0800	0830
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	~~1800~~	~~1800~~
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	60	60	60	60	64	64
	Extraction Well Flow	scfm	15.49	15.49	15.46	15.43	18.27	18.27
	Influent Vapor Temp.	°F	48	48	50	52	54	54
	Air Temp	°F	26	27	28	34	37	43
	Barometric Pressure	"Hg	30.03	30.03	30.03	30.03	30.02	30.01
VAPOR / INFLUENT	TPH	ppmv	–	4910	–	4440	–	5580
	CO_2	%	–	10.22	–	9.54	–	10.54
	CO	%	–	0.00	–	0.00	–	0.00
	O_2	%	–	3.9	–	4.9	–	3.4
	H_2S	ppm	–	–	–	–	–	–
NOTES	Arrived at site 0540. Tailgate safety meeting. Event start at 0600, Product discharge line frozen. Temp = 26°F feels like 19°F. Started SVE until line unfroze at 0815.							
RECOVERY	Totalizer 31706	gals	31706	31706	31706	31706	31706	31733
	Pump Rate	gals/min	–	–	–	–	–	3.87
	Total Volume	gals	0	0	0	0	0	27
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head .93	ft	5.15	5.74	5.76	5.82	5.80	3.92
	GW Depression	ft	(4.22)	(4.81)	(4.83)	(4.89)	(4.87)	(2.99)
	Extraction Well	DTNAPL	–					
	Extraction Well	DTGW	67.09					

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 5D PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4

		Date	2-26-21					
		Time	0900	0930	1000	1030	1100	1130
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	130	130	130	135	135
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	64	64	64	64	64	64
	Extraction Well Flow	scfm	18.25	18.23	18.22	18.22	18.20	18.16
	Influent Vapor Temp.	°F	55	56	57	57	58	60
	Air Temp	°F	45	48	51	54	54	55
	Barometric Pressure	"Hg	30.00	29.97	29.95	29.93	29.91	29.89
VAPOR / INFLUENT	TPH	ppmv	–	5310	–	5280	–	5420
	CO_2	%	–	9.60	–	9.48	–	9.64
	CO	%	–	0.00	–	0.00	–	0.00
	O_2	%	–	4.7	–	4.9	–	4.7
	H_2S	ppm	–	–	–	–	–	–
NOTES	0900 switched to lower propane tank. 0930 well flow ↑							
RECOVERY	Totalizer	gals	31834	31924	32020	32110	32218	32322
	Pump Rate	gals/min	3.00	3.20	3.00	3.60	3.47	3.47
	Total Volume	gals	128	228	324	414	522	626
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft	2.82	2.88	2.80	2.85	2.35	2.37
	GW Depression	ft	(1.89)	(1.95)	(1.87)	(1.92)	(1.42)	(1.44)
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 5D PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4

		Date	2-26-21					
		Time	1200	1230	1300	1330	1400	
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	
	Oil Pressure	psi	50	50	50	50	50	
	Water Temp	°F	135	135	135	135	135	
	Alternator	Volts	14	14	14	135	135	
	Intake Vacuum	"Hg	14	14	14	14	14	
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	64	64	64	64	64	
	Extraction Well Flow	scfm	18.16	18.16	18.16	18.16	18.16	
	Influent Vapor Temp.	°F	60	60	60	60	60	
	Air Temp	°F	57	59	62	64	64	
	Barometric Pressure	"Hg	29.87	29.85	29.84	29.84	29.84	
VAPOR / INFLUENT	TPH	ppmv	—	5580	—	5190	—	
	CO_2	%	—	9.98	—	9.36	—	
	CO	%	—	0.00	—	0.00	—	
	O_2	%	—	4.3	—	5.2	—	
	H_2S	ppm	—	—	—	—	—	

NOTES

Event end 1400, Gauged well: No Napl, DTW = 67.70, gauged TD = 72.70, 2 days prior TD 70.20, Variance of .50' which client believes broke through during event.

RECOVERY	Totalizer	gals	32426	32530	32636	32740	32846	
	Pump Rate	gals/min	3.47	3.53	3.47	3.53	3.47	
	Total Volume	gals	730	834	940	1044	1150	(1140)
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft	2.25	2.15	2.10	2.08	2.06	
	GW Depression	ft	(1.32)	(1.22)	(1.25)	(1.15)	(1.13)	
	Extraction Well	DTNAPL					—	
	Extraction Well	DTGW					67.70	

0.00

AcuVac Remediation

May 11, 2021

Ms. Julie Evans
Hydrogeologist/Environmental Project Manager
Tetra Tech
1500 City West Boulevard, Suite 1000
Houston, TX 77042

Dear Julie:

Re: Vacuum Glorietta Site, Lea County, NM, (Event #6)

At your request, AcuVac Remediation, LLC (AcuVac) performed four Mobile Dual Phase Extraction (MDPE) Events: #6A, #6B, #6C and #6D as outlined in the table below at the above referenced site (Site). The following is the report and a copy of the operating data collected during Event #6. Additionally, the attached Table #1 contains the Summary Well Data, and Table #2 contains the Summary Recovery Data.

Event Number	Well Number	Event Type	Event Duration (hrs)	Date
#6A	VG-4	MDPE	10.0	05/03/2021
#6B	VG-4	MDPE	10.0	05/04/2021
#6C	VG-4	MDPE	10.0	05/05/2021
#6D	VG-4	MDPE	8.0	05/06/2021

The purpose of the events was to enhance recovery of phase separated hydrocarbons (PSH) present at the Site through the removal of petroleum hydrocarbons in both liquid and vapor phases. PSH is referred to as petroleum hydrocarbons and Light Non-Aqueous Phase Liquids (LNAPL). The source of the PSH is a historical pipeline release.

OBJECTIVES

The objectives of the MDPE Events:

- Evaluate the potential for removing liquid and vapor phase LNAPL from the groundwater and soils in the subsurface formations.
- Expose the capillary fringe area and below to the extraction well induced vacuums.
- Increase the groundwater and contaminant specific yields with high induced vacuums.
- Provide an induced hydraulic gradient to gain hydraulic control of the area during the Event period.

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METHODS AND EQUIPMENT

AcuVac owns and maintains an inventory of equipment to perform MDPE events and uses no third-party equipment. The events at the Site were conducted using the AcuVac I-6 System (System) with a Roots RAI-33 blower, used as a vacuum pump, and a Roots RAI-22 positive displacement blower. The table below lists additional equipment and instrumentation employed, and the data element captured by each.

Equipment and Instrumentation Employed by AcuVac

Measurement Equipment	Data Element
Extraction Well Induced Vacuum and Flow	
Dwyer Magnehelic Gauges	Extraction Well Vacuum
Dwyer Averaging Pitot Tubes / Magnehelic Gauges	Extraction Well Vapor Flow
Observation Wells	
Dwyer Digital Manometer	Vacuum / Pressure Influence
Extraction Well Vapor Monitoring	
V-1 Vacuum Box	Extraction Well Non-Diluted Vapor Sample Collection
HORIBA® Analyzer	Extraction Well Vapor TPH Concentration
RKI 1200 O_2 Monitor	Extraction Well Vapor Oxygen Content
NAPL Thickness (if present)	
Solinst Interface Probes Model 122	Depth to LNAPL and Depth to Groundwater
Groundwater Depression / Upwelling	
In-Situ Level Troll 700 Data Logger	Liquid Column in Extraction and Observation Wells
In-Situ Vented Cable with Chamber	Equalize Well Vacuum/Pressure
In-Situ Rugged Reader Data Logger Interface	Capture Readings from Data Logger Trolls
Atmospheric Conditions	
Testo Model 511	Relative and Absolute Barometric Pressure

The vacuum extraction portion of the System consists of a vacuum pump driven by an internal combustion engine (IC engine). The vacuum pump connects to the extraction well, and the vacuum created on the extraction well causes light hydrocarbons in the soil and on the groundwater to volatilize and flow through a moisture knockout tank to the vacuum pump and the IC engine where they burn as part of the normal combustion process. Auxiliary propane powers the engine if the well vapors do not provide the required energy.

The IC engine provides the power necessary to achieve and maintain high induced vacuums and/or high well vapor flows needed to maximize the vacuum radius of influence.

Emissions from the engine pass through two of three catalytic converters to maximize destruction of effluent hydrocarbon vapors. The engine's fuel-to-air ratio is adjusted to maintain efficient combustion. Because the engine powers all equipment, the System stops when the engine stops preventing an uncontrolled release of hydrocarbons. Since the System operates entirely under vacuum, any leaks in the seals or connections leak into the System and not the atmosphere. Vacuum loss, low oil pressure, over-speed, or overheating automatically shut down the engine.

The design of the AcuVac System enables independent control of both the induced well vacuum and the groundwater pumping functions such that the AcuVac team controls the induced hydraulic gradient to increase exposure of the formation to soil vapor extraction (SVE). The ability to separate the vapor and liquid flows within the extraction well improve the LNAPL recovery rates and enabled the AcuVac team to record data specific to each media.

RECOVERY SUMMARY FOR MDPE EVENT #6

The Recovery Summary Table below lists the groundwater and LNAPL recovery data for Event #6 and compares the results with Events #5 and #4 performed on the dates shown.

Recovery Summary
Well VG-4

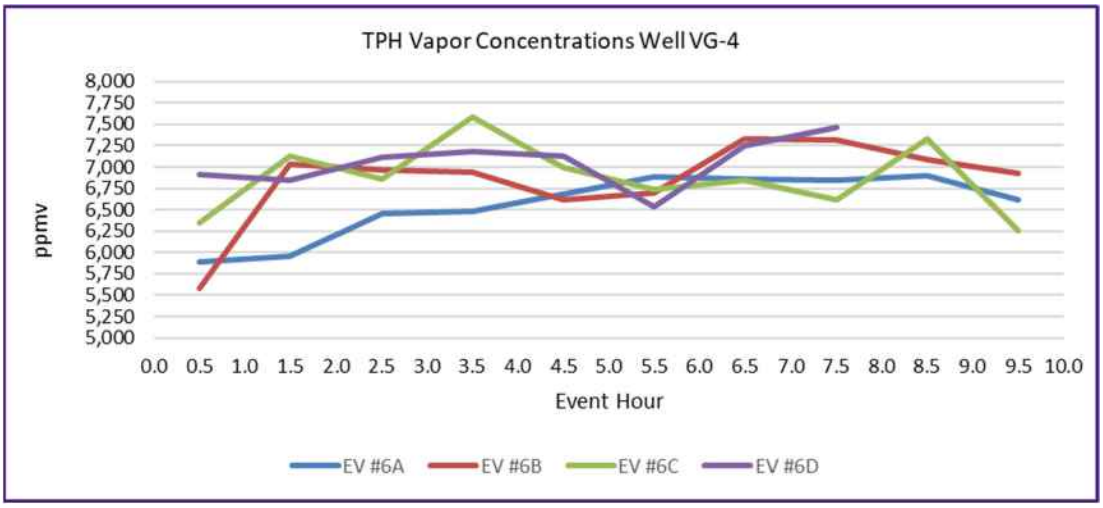
Event Number		Event #6D	Event #6C	Event #6B	Event #6A	Event #6	Event #5	Event #4
Event Date		**05/06/2021**	**05/05/2021**	**05/04/2021**	**05/03/2021**	**Total**	**Total**	**05/07/2020**
Event Hours		**8.0**	**10.0**	**10.0**	**10.0**	**38.0**	**38.0**	**28.0**
Data Element								
Groundwater Recovery	gals	1,470	1,772	2,071	1,921	7,234	7,111	5,065
LNAPL Recovery								
Liquid	gals	0	0	0	0	0	0	0
Vapor	gals	2.25	2.73	2.73	2.63	10.34	7.69	11.88
Total	gals	2.25	2.73	2.73	2.63	10.34	7.69	11.88
Gallons/Hour	gph	**0.28**	**0.27**	**0.27**	**0.26**	**0.27**	**0.20**	**0.42**

- Total vapor hydrocarbons burned as IC engine fuel in the Recovery Summary Table above are based on the HORIBA® data recorded. In the Influent Vapor Data Table below, the HORIBA® analytical data from the influent vapor samples are compared with previous events.

Influent Vapor Data
Well VG-4

Event Number		Event #6D	Event #6C	Event #6B	Event #6A	Event #5D	Event #4C
Event Date		**05/06/2021**	**05/05/2021**	**05/04/2021**	**05/03/2021**	**02/26/2021**	**05/07/2020**
Event Hours		**8.0**	**10.0**	**10.0**	**10.0**	**8.0**	**8.0**
Data Element							
TPH- Maximum	ppmv	7,460	7,580	7,330	6,900	5,580	14,560
TPH- Average	ppmv	7,055	6,870	6,848	6,557	5,214	11,068
TPH- Minimum	ppmv	6,540	6,250	5,580	5,890	4,440	7,850
TPH- Initial	ppmv	6,910	6,350	5,580	5,890	4,910	7,850
TPH- Ending	ppmv	7,460	6,250	6,930	6,610	5,190	13,890
CO_2	%	11.11	10.79	10.80	10.01	9.73	9.51
CO	%	0	0	0	0	0	0.02
O_2	%	4.6	5.11	5.55	6.10	4.50	2.48
H_2S	ppm	0	0	0	0	0	2.94

- The TPH vapor concentrations from the influent vapor samples for Event #6 are presented in the graph below:



- The extraction well induced vacuum and well vapor flow for Event #4 through Event #6 is compared in the table below.

Well Vacuum and Well Vapor Flow
Well VG-4

Event Number		Event #6D	Event #6C	Event #6B	Event #6A	Event #5D	Event #4C
Event Date		05/06/2021	05/05/2021	05/04/2021	05/03/2021	02/26/2021	05/07/2020
Event Hours		8.0	10.0	10.0	10.0	8.0	8.0
Data Element							
Well Vacuum- Maximum	"H_2O	65.00	65.00	65.00	70.00	64.00	90.00
Well Vacuum- Average	"H_2O	65.00	65.00	65.00	65.71	63.06	82.94
Well Vacuum- Minimum	"H_2O	65.00	65.00	65.00	65.00	60.00	80.00
Well Vapor Flow- Maximum	scfm	18.52	18.27	18.34	19.14	18.27	17.13
Well Vapor Flow- Average	scfm	18.42	18.38	18.46	18.58	17.56	16.75
Well Vapor Flow- Minimum	scfm	18.31	18.27	18.34	15.19	15.43	16.17

- The groundwater pump rates for Event #4 through Event #6 are contained in the table below.

Groundwater Pump Data
Well MW-VG-4

Event Number		Event #6D	Event #6C	Event #6B	Event #6A	Event #5D	Event #4C
Event Date		05/06/2021	05/05/2021	05/04/2021	05/03/2021	02/26/2021	05/07/2020
Event Hours		8.0	10.0	10.0	10.0	8.0	8.0
Data Element							
Maximum GW Pump Rate	gpm	3.27	3.53	3.77	3.67	3.60	-
Average GW Pump Rate	gpm	3.06	2.97	3.44	3.20	2.38	-

- The LNAPL thickness recorded at the start and conclusion of each event is contained in the table on the following page.

LNAPL Thickness Data Well VG-4							
Event Number		**Event #6D**	**Event #6C**	**Event #6B**	**Event #6A**	**Event #5D**	**Event #4C**
Event Date		**05/06/2021**	**05/05/2021**	**05/04/2021**	**05/03/2021**	**02/26/2021**	**05/07/2020**
Event Hours	**8.0**	**10.0**	**10.0**	**10.0**	**8.0**	**8.0**	**8.0**
Event Start							
Depth to Groundwater	Ft BTOC	67.09	67.59	67.58	67.58	67.09	66.67
Depth to LNAPL	Ft BTOC	-	-	-	-	-	-
LNAPL Thickness	ft	-	-	-	-	-	-
Hydro Equivalent	Ft BTOC	67.09	67.59	67.58	67.58	67.09	66.67
Event Conclusion							
Depth to Groundwater	Ft BTOC	67.75	67.88	67.92	67.81	67.70	67.35
Depth to LNAPL	Ft BTOC	-	-	-	-	-	-
LNAPL Thickness	ft	-	-	-	-	-	-
Hydro Equivalent	Ft BTOC	67.75	67.88	67.92	67.81	67.70	67.35

ADDITIONAL INFORMATION

- TPH vapor concentrations were higher for Event #6 than Event #5 which was conducted the week following a hard freeze in the area.
- The average TPH concentration readings were on a mostly increasing trend during Event #6 indicating that a significant mass remains in the formation surrounding well VG-4.
- The average and maximum well vapor flows for Event #6 were higher than Event #5 and Event #4 indicating that the pathways are developing in the formation to improve recovery.
- All LNAPL volume recovered, 10.34 gals, was burned as IC engine fuel.

METHOD OF CALIBRATION AND CALCULATIONS

The HORIBA® Analytical instrument is calibrated with Hexane, CO and CO_2.

The formula used to calculate the emission rate is:

$$ER = HC\ (ppmv) \times MW\ (Hexane) \times Flow\ Rate\ (scfm) \times 1.58E^{-7} \frac{(min)(lb\ mole)}{(hr)(ppmv)(ft^3)} = lbs/hr$$

INFORMATION INCLUDED WITH REPORT

- Table #1 Summary Well Data
- Table #2 Summary Recovery Data
- Recorded Data

After you have reviewed the report and if you have any questions, please contact me. We appreciate you selecting AcuVac to provide these services.

Sincerely,
ACUVAC REMEDIATION, LLC

Paul D. Faucher
President

Summary Well Data
Table #1

Event		6A	6B	6C	6D
WELL NO.		**VG-4**	**VG-4**	**VG-4**	**VG-4**
Current Event Hours		10.0	10.0	10.0	8.0
Total Event Hours		136.0	146.0	156.0	164.0
TD (estimated)	ft BGS	72.2	72.2	72.2	72.7
Well Screen	ft BGS	unknown	unknown	unknown	unknown
Well Size	in	4.0	4.0	4..0	4.0
Well Data					
Depth to Groundwater - Static - Start Event	ft BTOC	67.58	67.58	67.59	67.09
Depth to LNAPL - Static - Start Event	ft BTOC	-	-	-	-
LNAPL Thickness	ft	-	-	-	-
Hydro-Equivalent- Beginning	ft BTOC	67.58	67.58	67.59	67.09
Depth to Groundwater - End Event	ft BTOC	67.81	67.92	67.88	67.75
Depth to LNAPL - End Event	ft BTOC	-	-	-	-
LNAPL Thickness	ft	-	-	-	-
Hydro-Equivalent- Ending	ft BTOC	67.81	67.92	67.88	67.75
Extraction Data					
Maximum Extraction Well Vacuum	"H_2O	70.00	65.00	65.00	65.00
Average Extraction Well Vacuum	"H_2O	65.71	65.00	65.00	65.00
Minimum Extraction Well Vacuum	"H_2O	65.00	65.00	65.00	65.00
Maximum Extraction Well Vapor Flow	scfm	19.14	18.34	18.27	18.52
Average Extraction Well Vapor Flow	scfm	18.58	18.46	18.38	18.42
Minimum Extraction Well Vapor Flow	scfm	15.19	18.34	18.27	18.31
Influent Data					
Maximum TPH	ppmv	6,900	7,330	7,580	7,460
Average TPH	ppmv	6,557	6,848	6,870	7,055
Maximum TPH	ppmv	5,890	5,580	6,250	6,540
Initial TPH	ppmv	5,890	5,580	6,350	6,910
Final TPH	ppmv	6,610	6,930	6,250	7,460
Average CO_2	%	10.01	10.80	10.79	11.11
Average CO	%	0	0	0	0
Average O_2	%	6.10	5.55	5.11	4.6
Average H_2S	ppm	0	0	0	0

Summary Recovery Data
Table #2

Event		6A	6B	6C	6D
WELL NO.		**VG-4**	**VG-4**	**VG-4**	**VG-4**
Recovery Data- Current Event					
Total Liquid Volume Recovered	gals	1,921	2,071	1,772	1,470
Total Liquid LNAPL Recovered	gals	-	-	-	-
Total Liquid LNAPL Recovered / Total Liquid	%	-	-	-	-
Total Liquid LNAPL Recovered / Total LNAPL	%	-	-	-	-
Total Vapor LNAPL Recovered	gals	2.63	2.73	2.73	2.25
Total Vapor LNAPL Recovered / Total LNAPL	%	100.00	100.00	100.00	100.00
Total Vapor and Liquid LNAPL Recovered	gals	2.63	2.73	2.73	2.25
Average LNAPL Recovery	gals/hr	0.26	0.27	0.27	0.28
Total LNAPL Recovered	lbs	18.43	19.13	19.10	15.73
Total Volume of Well Vapors	cu. ft	11,148	11,076	11,028	8,842
Recovery Data- Cumulative					
Total Liquid Volume Recovered	gals	22,081	24,152	25,924	27,394
Total Liquid LNAPL Recovered	gals	7.99	7.99	7.99	7.99
Total Vapor LNAPL Recovered	gals	44.58	47.31	50.04	52.29
Total Vapor and Liquid LNAPL Recovered	gals	52.56	55.30	58.03	60.27
Average LNAPL Recovery	gals/hr	0.39	0.38	0.37	0.37
Total LNAPL Recovered	lbs	1,206	1,225	1,244	1,260
Total Volume of Well Vapors	cu. ft	135,046	146,122	157,150	165,992

AcuVac Remediation

OPERATING DATA – EVENT # 6A PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4

	Date		5-3-21					
	Time		0700	0730	0800	0830	0900	0930
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1700	1700	1700
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	170	175	180	175	175	170
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	15	15	15	16	16	16
	Gas Flow Fuel/Propane	cfh	120	120	120	130	130	130
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	70	70	70	65	65	65
	Extraction Well Flow	scfm	18.29	18.29	18.29	18.45	18.41	18.41
	Influent Vapor Temp.	°F	66	66	66	66	68	68
	Air Temp	°F	60	61	63	63	64	66
	Barometric Pressure	"Hg	29.61	29.61	29.61	29.61	29.61	29.61
VAPOR / INFLUENT	TPH	ppmv	—	5890	—	5960	—	6450
	CO_2	%	—	9.48	—	9.56	—	9.98
	CO	%	—	0.0	—	0.6	—	0.0
	O_2	%	—	7.3	—	6.9	—	6.2
	H_2S	ppm	—	—	—	—	—	—

NOTES

Arrived at site 0630. Tailgate Safety meeting. Mobe unit. Started event at 0700. Vacuum ran for approx. 30 minutes to add approx 3' to water column. Started pump slowly. No visible signs in sight glass of debris. ↑ pump rate @ 0800.

RECOVERY	Totalizer 32750	gals	32750	32750	32830	32932	33036	33146
	Pump Rate	gals/min	—	2.67	3.40	3.47	3.67	3.40
	Total Volume	gals	—	0	80	182	286	396
	NAPL	% Vol	—	—	—	—	—	—
	NAPL	Gals	—	—	—	—	—	—
EW	Data Logger Head	.22 ft	.22	3.02	1.10	.76	.76	.70
	GW Depression	— ft	—	2.80	.88	.54	.54	.48
	Extraction Well	DTNAPL	—					
	Extraction Well	DTGW	67.58					

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 6A PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # V6-4

		Date	5-3-21					
		Time	1000	1030	1100	1130	1200	1230
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1700	1700	1700	1700	1700	1700
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	170	170	160	160	150	145
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	16
	Gas Flow Fuel/Propane	cfh	130	125	125	125	125	125
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.41	18.38	18.34	18.34	18.34	18.34
	Influent Vapor Temp.	°F	68	70	72	72	72	72
	Air Temp	°F	66	68	70	72	73	73
	Barometric Pressure	"Hg	29.61	29.60	29.60	29.59	29.54	29.58
VAPOR / INFLUENT	TPH	ppmv	—	6480	—	6690	—	6880
	CO_2	%	—	9.76	—	10.06	—	10.02
	CO	%	—	0.0	—	0.0	—	0.0
	O_2	%	—	6.3	—	5.9	—	5.6
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals	33248	33350	33452	33555	33658	33763
	Pump Rate	gals/min	3.40	3.40	3.43	3.43	3.50	3.33
	Total Volume	gals	498	600	702	805	908	1013
	NAPL	% Vol	—	—	—	—	—	—
	NAPL	Gals	—	—	—	—	—	
EW	Data Logger Head	ft	.22	.60	.58	.56	.54	.50
	GW Depression	ft		.38	.36	.34	.32	.28
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 6A PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

		Date	5-3-21					
		Time	1300	1330	1400	1430	1500	1530
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1700	1700	1700	1700	1700	1700
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	145	150	155	150	150	150
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	16
	Gas Flow Fuel/Propane	cfh	125	125	125	125	125	125
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.33	18.33	18.31	19.14	19.14	19.14
	Influent Vapor Temp.	°F	73	73	73	74	74	74
	Air Temp	°F	74	75	75	75	75	78
	Barometric Pressure	"Hg	29.57	29.56	29.55	29.55	29.55	29.55
VAPOR / INFLUENT	TPH	ppmv	—	6860	—	6850	—	6900
	CO_2	%	—	10.38	—	10.32	—	10.40
	CO	%	—	0.0	—	0.0	—	0.0
	O_2	%	—	5.5	—	5.8	—	5.6
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals	33863	33963	34067	34168	34276	34380
	Pump Rate	gals/min	3.33	3.47	3.37	3.60	3.47	3.60
	Total Volume	gals	1113	1213	1317	1418	1526	1630
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head .22	ft	.46	.42	.42	.40	.40	.40
	GW Depression	ft	.24	.20	.20	.18	.18	.18
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 6A PAGE # 4 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

	Date	5-3-21						
	Time	1600	1630	1700				
	Hr Meter							
ENGINE / BLOWER	Engine Speed RPM	1700	1700	1700				
	Oil Pressure psi	55	55	55				
	Water Temp °F	145	145	145				
	Alternator Volts	14	14	14				
	Intake Vacuum "Hg	16	16	16				
	Gas Flow Fuel/Propane cfh	125	125	125				
ATMOSPHERE VACUUM / AIR	Extraction Well Vac. "H_2O	65	65	65				
	Extraction Well Flow scfm	19.14	19.14	19.14				
	Influent Vapor Temp. °F	74	74	74				
	Air Temp °F	79	79	79				
	Barometric Pressure "Hg	29.55	29.55	29.55				
VAPOR / INFLUENT	TPH ppmv	—	6610	—				
	CO_2 %	—	10.14	—				
	CO %	—	0.0	—				
	O_2 %	—	5.9	—				
	H_2S ppm	—	—	—				
NOTES								
RECOVERY	Totalizer gals	34488	34593	34671				
	Pump Rate gals/min	3.50	2.60	—				
	Total Volume gals	1738	1843	1921				
	NAPL % Vol							
	NAPL Gals							
EW	Data Logger Head , 22 ft	.38	.38	.38				
	GW Depression ft	.16	.16	.16				
	Extraction Well DTNAPL			—				
	Extraction Well DTGW			67.81				

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 6B PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

	Date		5-4-21					
	Time		0630	0700	0730	0800	0830	0900
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1806	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	16
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.54	18.54	1854	18.54	18.54	18.52
	Influent Vapor Temp.	°F	61	61	61	61	61	62
	Air Temp	°F	48	48	50	52	52	52
	Barometric Pressure	"Hg	30.11	30.11	30.11	30.11	30.12	30.12
VAPOR / INFLUENT	TPH	ppmv	—	5580	—	7030	—	6960
	CO_2	%	—	8.98	—	11.26	—	11.18
	CO	%	—	0.0	—	0.0	—	0.0
	O_2	%	—	8.5	—	5.3	—	5.2
	H_2S	ppm	—	—	—	—	—	—

NOTES

Arrived @ site 0610. Tailgate safety meeting. Event started 0630. Started vacuum until approx. 3' ↑ in water column. Started pumping @ 0700. Pulled water sample and observed grit substance in sample. Amps on pump remained constant @ 7-7.5 amps. At 0830 ↑ pump controller to 300. Amps ↑ 7.5 - 7.8 amps.

RECOVERY	Totalizer	34671 gals	34671	34671	34768	34873	34980	35091
	Pump Rate	gals/min	—	3.23	3.50	3.57	3.70	3.77
	Total Volume	gals	0	0	97	202	309	420
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	.52 ft	2.16	3.60	2.03	1.61	1.44	1.18
	GW Depression	ft	1.64	3.08	1.51	1.09	.92	.66
	Extraction Well	DTNAPL	—					
	Extraction Well	DTGW	67.58					

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 6B PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

		Date	5-4-21					
		Time	0930	1000	1030	1100	1130	1200
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1700	1700	1700	1700	1700	1700
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	16
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.52	18.52	18.50	18.50	18.48	18.48
	Influent Vapor Temp.	°F	62	62	63	63	64	64
	Air Temp	°F	52	54	54	54	54	55
	Barometric Pressure	"Hg	30.11	30.11	30.10	30.08	30.06	30.05
VAPOR / INFLUENT	TPH	ppmv	—	6940	—	6610	—	6700
	CO_2	%	—	11.06	—	10.44	—	10.68
	CO	%	—	0.0	—	0.0	—	0.0
	O_2	%	—	5.3	—	6.1	—	5.6
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals	35204	35313	35424	35535	35646	35757
	Pump Rate	gals/min	3.63	3.70	3.70	3.70	3.70	3.70
	Total Volume	gals	533	642	753	864	975	1086
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	.52 ft	1.06	1.04	1.03	.98	.96	.98
	GW Depression	ft	.54	.52	.51	.46	.44	.46
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 6B PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4

		Date	5-4-21					
		Time	1230	1300	1330	1400	1430	1500
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1700	1700	1700	1700	1700	1700
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	140	140	140	140	140	145
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	16
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.45	18.41	18.41	18.41	18.41	18.38
	Influent Vapor Temp.	°F	66	68	68	68	68	70
	Air Temp	°F	56	58	60	61	61	63
	Barometric Pressure	"Hg	30.04	30.00	30.00	29.98	29.97	29.95
VAPOR / INFLUENT	TPH	ppmv	—	7330	—	7310	—	7090
	CO_2	%	—	11.56	—	11.38	—	11.06
	CO	%	—	0.0	—	0.0	—	0.0
	O_2	%	—	4.4	—	4.6	—	5.2
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals	35868	35979	36091	36202	36313	36424
	Pump Rate	gals/min	3.70	3.73	3.70	3.70	3.70	3.70
	Total Volume	gals	1197	1308	1420	1531	1642	1753
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	.52 ft	.96	.94	.90	.90	.91	.89
	GW Depression	ft	.44	.42	.38	.38	.39	.37
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 6B PAGE # 4 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4	Date	5-4-21						
	Time	1530	1600	1636				
	Hr Meter							
ENGINE / BLOWER	Engine Speed RPM	1700	1700	1700				
	Oil Pressure psi	55	55	55				
	Water Temp °F	145	145	145				
	Alternator Volts	14	14	14				
	Intake Vacuum "Hg	16	16	16				
	Gas Flow Fuel/Propane cfh	120	120	120				
ATMOSPHERE VACUUM / AIR	Extraction Well Vac. "H_2O	65	65	65				
	Extraction Well Flow scfm	18.34	18.34	18.34				
	Influent Vapor Temp. °F	72	72	72				
	Air Temp °F	63	64	64				
	Barometric Pressure "Hg	29.94	29.94	29.94				
VAPOR / INFLUENT	TPH ppmv	—	6930	—				
	CO_2 %	—	10.42	—				
	CO %	—	0.0	—				
	O_2 %	—	5.3	—				
	H_2S ppm	—	—	—				
NOTES								
RECOVERY	Totalizer gals	36535	36646	36742				
	Pump Rate gals/min	3.70	3.20	—				
	Total Volume gals	1864	1975	2071				
	NAPL % Vol	—	—	—				
	NAPL Gals	—	—	—				
EW	Data Logger Head ft	1.16	1.10	1.12				
	GW Depression ft	.64	.58	.60				
	Extraction Well DTNAPL			—				
	Extraction Well DTGW			57.92				

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 6C PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4

	Date		5-5-21					
	Time		0630	0700	0730	0800	0830	0900
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	16
	Gas Flow Fuel/Propane	cfh	125	125	125	125	125	125
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18,48	18,48	18,48	18,48	18,45	18,45
	Influent Vapor Temp.	°F	64	64	64	64	66	66
	Air Temp	°F	55	56	57	57	61	63
	Barometric Pressure	"Hg	30,11	30,11	30,11	30,11	30,10	30,09
VAPOR / INFLUENT	TPH	ppmv	—	6350	—	7130	—	6860
	CO_2	%	—	10,26	—	11,32	—	10,98
	CO	%	—	0,0	—	0,0	—	0,0
	O_2	%	—	6,1	—	4,7	—	4,8
	H_2S	ppm	—	—	—	—	—	—

NOTES

Arrived at site 0615. Gauged well. Tailgate safety meeting. Started vacuum event @ 0630. Upwelled appox 3' then started pump. Took water samples & observed the same grit. Subsequent water samples showed less grit.

RECOVERY	Totalizer	36722 gals	36722	36722	36793	36891	36989	37086
	Pump Rate	gals/min	—	2,37	3,27	3,27	3,23	3,23
	Total Volume	gals	0	0	71	169	267	364
	NAPL	% Vol	—	—	—	—	—	—
	NAPL	Gals	—	—	—	—	—	—
EW	Data Logger Head	,37 ft	.60	3,20	2,24	1,57	1,27	1,17
	GW Depression	ft	.23	2,83	1,87	1,20	,90	,80
	Extraction Well	DTNAPL	67,59					
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 6C PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

	Date		5-5-21					
	Time		0930	1000	1030	1100	1130	1200
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1700	1700	1700	1700	1700	1700
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	130	130	130	130	140	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	16
	Gas Flow Fuel/Propane	cfh	125	125	125	125	125	125
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18,45	18,41	18,41	18,38	18,38	18,34
	Influent Vapor Temp.	°F	66	68	68	70	70	72
	Air Temp	°F	64	67	70	73	75	77
	Barometric Pressure	"Hg	30,08	30,07	30,05	30,04	30,03	30,01
VAPOR / INFLUENT	TPH	ppmv	–	7580	–	6990	–	6740
	CO_2	%	–	11,74	–	11,02	–	10,62
	CO	%	–	0,0	–	0,0	–	0,0
	O_2	%	–	3,8	–	4,7	–	5,2
	H_2S	ppm	–	–	–	–	–	–
NOTES	GW pump rate gradually ↓ 0930, then ↑ to 3.53.							
RECOVERY	Totalizer	gals	37183	37279	37385	37471	37567	37663
	Pump Rate	gals/min	3,20	3.53	2.87	3,20	3,20	3.20
	Total Volume	gals	461	557	663	749	845	941
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head ,37	ft	1.19	1.10	1.08	1.05	1.04	1.04
	GW Depression	ft	.82	.73	.71	.68	(0.01)	(0.01)
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 6C PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

	Date		5-5-21					
	Time		1230	1300	1330	1400	1430	1500
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1700	1700	1700	1700	1700	1700
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	140	145	145	145	145	145
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	16
	Gas Flow Fuel/Propane	cfh	125	125	125	125	125	125
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18,34	18,34	18,31	18,31	18,31	18,29
	Influent Vapor Temp.	°F	72	72	74	74	74	75
	Air Temp	°F	78	79	80	81	81	81
	Barometric Pressure	"Hg	30,00	29.98	29.96	29.94	29.93	29.92
VAPOR / INFLUENT	TPH	ppmv	—	6850	—	6620	—	7330
	CO_2	%	—	10.66	—	10.16	—	11.22
	CO	%	—	0.0	—	0.0	—	0.0
	O_2	%	—	5.3	—	5.9	—	4.1
	H_2S	ppm	—	—	—	—	—	—
NOTES	Pump rate slightly ↓ for rest of day.							
RECOVERY	Totalizer	gals	37759	37855	37950	38046	38137	38235
	Pump Rate	gals/min	3.20	3.17	3.20	3.03	3.27	3.27
	Total Volume	gals	1037	1133	1228	1324	1415	1513
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	.37 ft	1.05	1.05	1.10	1.08	1.16	1.11
	GW Depression	ft	68	.68	.73	.71	.79	.74
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 6C PAGE # 4 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # VG-4

	Date	5-5-21						
	Time	1530	1600	1630				
	Hr Meter							
ENGINE / BLOWER	Engine Speed RPM	1700	1700	1700				
	Oil Pressure psi	55	55	55				
	Water Temp °F	145	145	145				
	Alternator Volts	14	14	14				
	Intake Vacuum "Hg	16	16	16				
	Gas Flow Fuel/Propane cfh	125	125	125				
ATMOSPHERE VACUUM / AIR	Extraction Well Vac. "H_2O	65	65	65				
	Extraction Well Flow scfm	18.29	18.27	18.27				
	Influent Vapor Temp. °F	75	76	76				
	Air Temp °F	82	82	80				
	Barometric Pressure "Hg	29.90	29.88	29.88				
VAPOR / INFLUENT	TPH ppmv	—	6250	—				
	CO_2 %	—	9.88	—				
	CO %	—	0.0	—				
	O_2 %	—	6.5	—				
	H_2S ppm	—	—	—				
NOTES								
RECOVERY	Totalizer gals	38333	38428	38794				
	Pump Rate gals/min	3.17	2.20	—				
	Total Volume gals	1611	1706	1772				
	NAPL % Vol							
	NAPL Gals							
EW	Data Logger Head .37 ft	1.07	1.05	1.04				
	GW Depression ft	.70	.68	.67				
	Extraction Well DTNAPL			—				
	Extraction Well DTGW			67.88				

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 6D PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well # V6-4

		Date	5-6-21					
		Time	0600	0630	0700	0730	0800	0830
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1700	1700	1700	1700	1700	1700
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	16
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.52	18.52	18.50	18.50	18.48	18.48
	Influent Vapor Temp.	°F	62	62	63	63	64	64
	Air Temp	°F	52	53	54	57	60	62
	Barometric Pressure	"Hg	30.16	30.16	30.16	30.16	30.16	30.16
VAPOR / INFLUENT	TPH	ppmv	—	6910	—	6850	—	7120
	CO_2	%	—	11.22	—	11.18	—	11.40
	CO	%	—	0.0	—	0.0	—	0.0
	O_2	%	—	4.4	—	4.5	—	4.2
	H_2S	ppm	—	—	—	—	—	—
NOTES	Arrived at site 0545. Tailgate safety meeting. Event start 0600. Run vacuum until approx. 3' upwell then began pumping. Events consistent during the day with vacuum + GPM pump rate.							
RECOVERY	Totalizer	38494 gals	38494	38538	38605	38700	38819	38917
	Pump Rate	gals/min	1.47	2.90	3.23	3.23	3.27	3.23
	Total Volume	gals	—	44	131	228	325	423
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	.40 ft	3.03	1.67	1.39	1.09	1.10	1.11
	GW Depression	ft	2.63	1.27	.99	.69	.70	.71
	Extraction Well	DTNAPL	—					
	Extraction Well	DTGW	67.70					

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 6D PAGE # 6D 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM Project Managers: Hendley / George

Well # VG-4

	Date		5-6-21					
	Time		0900	0930	1000	1030	1100	1130
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1700	1700	1700	1700	1700	1700
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	140	140	140	140	140	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	16
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18,45	18.45	18.45	18.41	18,38	18.38
	Influent Vapor Temp.	°F	66	66	66	68	70	70
	Air Temp	°F	64	64	66	67	68	70
	Barometric Pressure	"Hg	30,18	30,18	30,17	30.16	30,15	30,15
VAPOR / INFLUENT	TPH	ppmv	—	7180	—	7130	—	6540
	CO_2	%	—	11.06	—	11.28	—	10,22
	CO	%	—	0.0	—	0.0	—	0.0
	O_2	%	—	4.5	—	4.5	—	5.8
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals	39014	39112	39209	39306	39403	39500
	Pump Rate	gals/min	3.27	3.23	3.23	3.23	3.23	3.23
	Total Volume	gals	520	618	715	812	909	1006
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft	1.09	1.06	1.03	1.04	1.01	.97
	GW Depression	ft	.69	.66	.63	.64	.61	.57
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 6D PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Well #		Date	5-6-21					
		Time	1200	1230	1300	1330	1400	
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1700	1700	1700	1700	1700	
	Oil Pressure	psi	55	55	55	55	55	
	Water Temp	°F	145	145	145	145	145	
	Alternator	Volts	14	14	14	14	14	
	Intake Vacuum	"Hg	16	16	16	16	16	
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	
	Extraction Well Flow	scfm	18.38	18.34	18.34	18.31	18.31	
	Influent Vapor Temp.	°F	70	72	72	74	74	
	Air Temp	°F	72	72	75	76	76	
	Barometric Pressure	"Hg	30.14	30.12	30.10	30.09	30.09	
VAPOR / INFLUENT	TPH	ppmv	—	7250	—	7460	—	
	CO_2	%	—	11.08	—	11.42	—	
	CO	%	—	0.0	—	0.0	—	
	O_2	%	—	4.5	—	4.4	—	
	H_2S	ppm	—	—	—	—	—	
NOTES								
RECOVERY	Totalizer	gals	39597	39694	39791	39888	39964	
	Pump Rate	gals/min	3.23	3.23	3.23	2.53	—	
	Total Volume	gals	1103	1200	1297	1394	1470	
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft	.40	.93	.92	.91	.90	.92
	GW Depression	ft		.53	.52	.51	.50	.52
	Extraction Well	DTNAPL						—
	Extraction Well	DTGW						67.95 0.00

AcuVac Remediation

August 3, 2021

Ms. Julie Evans
Hydrogeologist/Environmental Project Manager
Tetra Tech
1500 City West Boulevard, Suite 1000
Houston, TX 77042

Dear Julie:

Re: Vacuum Glorietta Site, Lea County, NM, (Event #7)

At your request, AcuVac Remediation, LLC (AcuVac) performed four Soil Vapor Extraction (SVE) Events: #7A, #7B, #7C and #7D as outlined in the table below at the above referenced site (Site). The following is the report and a copy of the operating data collected during Event #7. Additionally, the attached Table #1 contains the Summary Well Data, and Table #2 contains the Summary Recovery Data.

Event Number	Well Number	Event Type	Event Duration (hrs)	Date
#7A	VG-4	SVE	9.0	07/26/2021
#7B	VG-4	SVE	10.0	07/27/2021
#7C	VG-4	SVE	10.0	07/28/2021
#7D	VG-4	SVE	8.0	07/29/2021

The purpose of the events was to enhance recovery of phase separated hydrocarbons (PSH) present at the Site through the removal of petroleum hydrocarbons in both liquid and vapor phases. PSH is referred to as petroleum hydrocarbons and Light Non-Aqueous Phase Liquids (LNAPL). The source of the PSH is a historical pipeline release.

OBJECTIVES

The objectives of the MDPE Events:

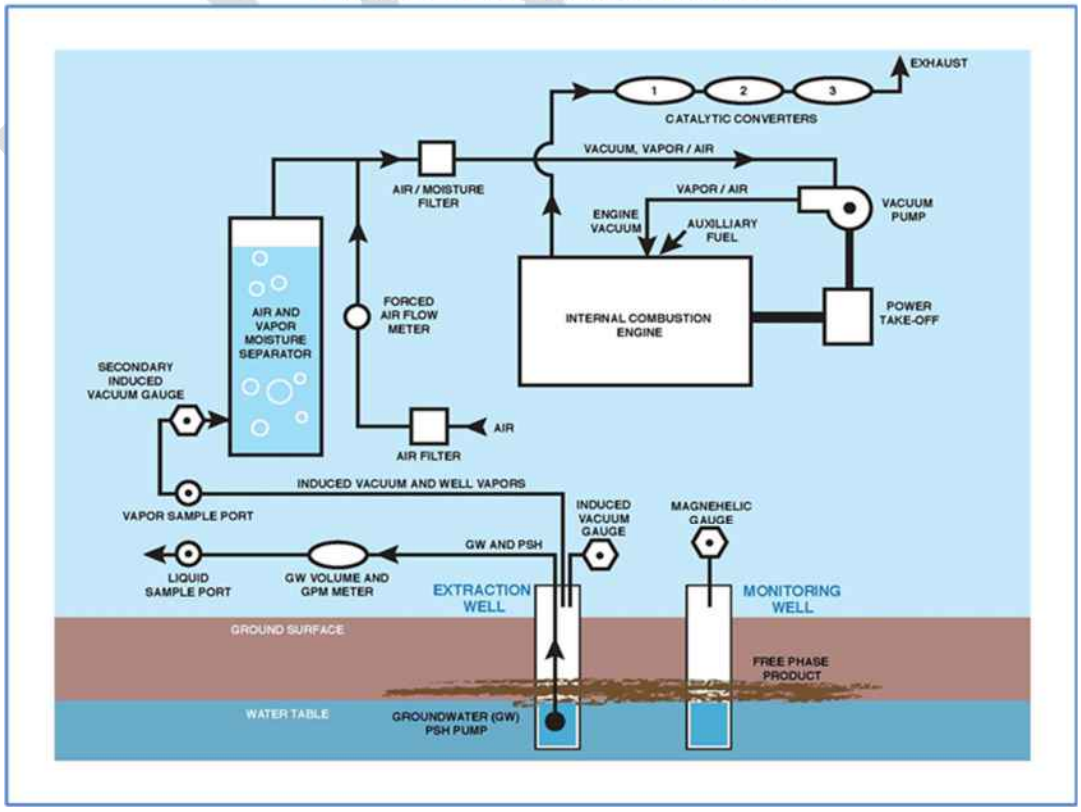
- Evaluate the potential for removing liquid and vapor phase LNAPL from the groundwater and soils in the subsurface formations.
- Expose the capillary fringe area and below to the extraction well induced vacuums.
- Increase the groundwater and contaminant specific yields with high induced vacuums.
- Provide an induced hydraulic gradient to gain hydraulic control of the area during the Event period.

METHODS AND EQUIPMENT

AcuVac owns and maintains an inventory of equipment to perform SVE events and uses no third-party equipment. The events at the Site were conducted using the AcuVac I-6 System (System) with a Roots RAI-33 blower, used as a vacuum pump, and a Roots RAI-22 positive displacement blower. The table below lists additional equipment and instrumentation employed, and the data element captured by each.

Equipment and Instrumentation Employed by AcuVac	
Measurement Equipment	**Data Element**
Extraction Well Induced Vacuum and Flow	
Dwyer Magnehelic Gauges	Extraction Well Vacuum
Dwyer Averaging Pitot Tubes / Magnehelic Gauges	Extraction Well Vapor Flow
Observation Wells	
Dwyer Digital Manometer	Vacuum / Pressure Influence
Extraction Well Vapor Monitoring	
V-1 Vacuum Box	Extraction Well Non-Diluted Vapor Sample Collection
HORIBA® Analyzer	Extraction Well Vapor TPH Concentration
RKI 1200 O_2 Monitor	Extraction Well Vapor Oxygen Content
NAPL Thickness (if present)	
Solinst Interface Probes Model 122	Depth to LNAPL and Depth to Groundwater
Atmospheric Conditions	
Testo Model 511	Relative and Absolute Barometric Pressure

THE ACUVAC MOBILE DUAL PHASE SYSTEM



The vacuum extraction portion of the System consists of a vacuum pump driven by an internal combustion engine (IC engine). The vacuum pump connects to the extraction well, and the vacuum created on the extraction well causes light hydrocarbons in the soil and on the groundwater to volatilize and flow through a moisture knockout tank to the vacuum pump and the IC engine where they burn as part of the normal combustion process. Auxiliary propane powers the engine if the well vapors do not provide the required energy.

The IC engine provides the power necessary to achieve and maintain high induced vacuums and/or high well vapor flows needed to maximize the vacuum radius of influence.

Emissions from the engine pass through two of three catalytic converters to maximize destruction of effluent hydrocarbon vapors. The engine's fuel-to-air ratio is adjusted to maintain efficient combustion. Because the engine powers all equipment, the System stops when the engine stops preventing an uncontrolled release of hydrocarbons. Since the System operates entirely under vacuum, any leaks in the seals or connections leak into the System and not the atmosphere. Vacuum loss, low oil pressure, over-speed, or overheating automatically shut down the engine. The design of the AcuVac System enables independent control of both the induced well vacuum and the groundwater pumping functions such that the AcuVac team controls the induced hydraulic gradient to increase exposure of the formation to soil vapor extraction (SVE). The ability to separate the vapor and liquid flows within the extraction well improve the LNAPL recovery rates and enabled the AcuVac team to record data specific to each media.

RECOVERY SUMMARY FOR MDPE EVENT #7

The Recovery Summary Table below lists the vapor and groundwater and LNAPL recovery data for Event #7 and compares the results with Events #6 and #5 performed on the dates shown.

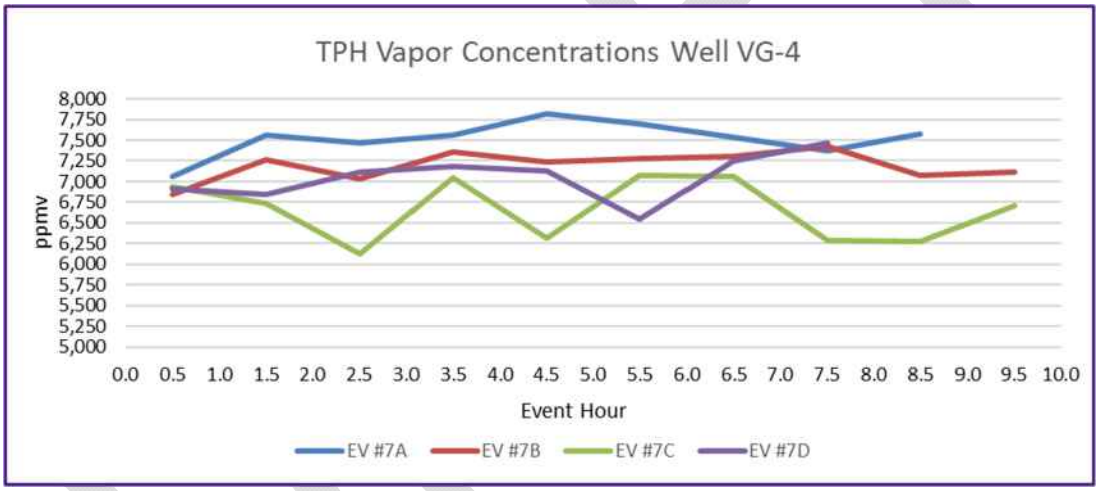
Recovery Summary
Well VG-4

Event Number		Event #7A	Event #7B	Event #7C	Event #7D	Event #7	Event #6	Event #5
Event Date		**07/26/2021**	**07/27/2021**	**07/28/2021**	**07/29/2021**	**Total**	**Total**	**Total**
Event Hours		**9.0**	**10.0**	**10.0**	**8.0**	**37.0**	**38.0**	**38.0**
Data Element								
Groundwater Recovery	gals	0	0	0	0	0	7,234	7,111
LNAPL Recovery								
Liquid	gals	0	0	0	0	0	0	0
Vapor	gals	2.67	2.85	2.63	2.34	10.49	10.34	7.69
Total	gals	2.67	2.85	2.63	2.34	10.49	10.34	7.69
Gallons/Hour	gph	**0.30**	**0.28**	**0.26**	**0.29**	**0.28**	**0.28**	**0.20**

- Total vapor hydrocarbons burned as IC engine fuel in the Recovery Summary Table above are based on the HORIBA® data recorded. In the Influent Vapor Data Table below, the HORIBA® analytical data from the influent vapor samples are compared with previous events.

Influent Vapor Data Well VG-4							
Event Number		Event #7A	Event #7B	Event #7C	Event #7D	Event #6D	Event #5D
Event Date		**07/26/2021**	**07/27/2021**	**07/28/2021**	**07/29/2021**	**05/06/2021**	**02/26/2021**
Event Hours		**9.0**	**10.0**	**10.0**	**8.0**	**8.0**	**8.0**
Data Element							
TPH- Maximum	ppmv	7,820	7,430	7,070	7,560	7,460	5,580
TPH- Average	ppmv	7,516	7,193	6,658	7,229	7,055	5,214
TPH- Minimum	ppmv	7,060	6,840	6,130	6,910	6,540	4,440
TPH- Initial	ppmv	7,060	6,840	6,940	6,980	6,910	4,910
TPH- Ending	ppmv	7,570	7,110	6,710	7,560	7,460	5,190
CO_2	%	11.49	11.01	11.46	11.35	11.11	9.73
CO	%	0	0	0	0	0	0
O_2	%	3.4	4.0	3.8	3.5	4.6	4.5
H_2S	ppm	0	0	0	0	0	0

- The TPH vapor concentrations from the influent vapor samples for Event #7 are presented in the graph below:



- The extraction well induced vacuum and well vapor flow for Event #5 through Event #7 is compared in the table below.

Well Vacuum and Well Vapor Flow Well VG-4							
Event Number		**Event #7A**	**Event #7B**	**Event #7C**	**Event #7D**	**Event #6D**	**Event #5D**
Event Date		**07/26/2021**	**07/27/2021**	**07/28/2021**	**07/29/2021**	**05/06/2021**	**02/26/2021**
Event Hours		**9.0**	**10.0**	**10.0**	**8.0**	**8.0**	**8.0**
Data Element							
Well Vacuum- Maximum	"H_2O	65.00	65.00	65.00	70.00	65.00	64.00
Well Vacuum- Average	"H_2O	65.00	65.00	64.52	67.65	65.00	63.06
Well Vacuum- Minimum	"H_2O	65.00	65.00	60.00	65.00	65.00	60.00
Well Vapor Flow- Maximum	scfm	18.41	18.43	18.45	19.01	18.52	18.27
Well Vapor Flow- Average	scfm	18.28	18.30	18.30	18.73	18.42	17.56
Well Vapor Flow- Minimum	scfm	18.22	18.21	17.79	18.38	18.31	15.43

- The groundwater pump rates for Event #5 through Event #7 are contained in the table below. Events #5 and #6 were MDPE Events and Event #7 was an SVE Event.

Groundwater Pump Data Well MW-VG-4							
Event Number		**Event #7A**	**Event #7B**	**Event #7C**	**Event #7D**	**Event #6D**	**Event #5D**
Event Date		**07/26/2021**	**07/27/2021**	**07/28/2021**	**07/29/2021**	**05/06/2021**	**02/26/2021**
Event Hours		**9.0**	**10.0**	**10.0**	**8.0**	**8.0**	**8.0**
Data Element							
Maximum GW Pump Rate	gpm	-	-	-	-	3.27	3.60
Average GW Pump Rate	gpm	-	-	-	-	3.06	2.38

- The LNAPL thickness recorded at the start and conclusion of each event is contained in the table on the following page.

LNAPL Thickness Data Well VG-4							
Event Number		**Event #7A**	**Event #7B**	**Event #7C**	**Event #7D**	**Event #6D**	**Event #5D**
Event Date		**07/26/2021**	**07/27/2021**	**07/28/2021**	**07/29/2021**	**05/06/2021**	**02/26/2021**
Event Hours		**9.0**	**10.0**	**10.0**	**8.0**	**8.0**	**8.0**
Event Start							
Depth to Groundwater	Ft BTOC	67.61	67.76	67.73	67.75	67.60	67.09
Depth to LNAPL	Ft BTOC	-	-	-	-	-	-
LNAPL Thickness	ft	-	-	-	-	-	-
Hydro Equivalent	Ft BTOC	67.61	67.76	67.73	67.75	67.60	67.09
Event Conclusion							
Depth to Groundwater	Ft BTOC	67.81	67.30	67.41	67.38	67.75	67.70
Depth to LNAPL	Ft BTOC	-	-	-	-	-	-
LNAPL Thickness	ft	-	-	-	-	-	-
Hydro Equivalent	Ft BTOC	67.81	67.30	67.41	67.38	67.75	67.70

ADDITIONAL INFORMATION

- All LNAPL volume recovered, 10.49 gals, was burned as IC engine fuel. The LNAPL recovery for Event #7 was slightly greater than the 10.34 gals recovered during Event #6 indicating that a significant mass remains in the formation surrounding well VG-4.
- Although the average TPH concentration readings were on a slightly decreasing trend during Event #7. Average TPH vapor concentrations remained higher for Event #7 than Event #6.
- The average and maximum well vapor flows for Event #7 were higher than Event #6 and Event #5 indicating that the pathways are developing in the formation to improve recovery.

METHOD OF CALIBRATION AND CALCULATIONS

The HORIBA® Analytical instrument is calibrated with Hexane, CO and CO_2.

The formula used to calculate the emission rate is:

$$ER = HC\ (ppmv) \times MW\ (Hexane) \times Flow\ Rate\ (scfm) \times 1.58E^{-7} \frac{(min)(lb\ mole)}{(hr)(ppmv)(ft^3)} = lbs/hr$$

INFORMATION INCLUDED WITH REPORT

- Table #1 Summary Well Data
- Table #2 Summary Recovery Data
- Recorded Data

After you have reviewed the report and if you have any questions, please contact me. We appreciate you selecting AcuVac to provide these services.

Sincerely,
ACUVAC REMEDIATION, LLC

Paul D. Faucher
President

Summary Well Data
Table #1

Event		7A	7B	7C	7D
WELL NO.		**VG-4**	**VG-4**	**VG-4**	**VG-4**
Current Event Hours		9.0	10.0	10.0	8.0
Total Event Hours		173.0	183.0	193.0	201.0
TD (estimated)	ft BGS	72.2	72.2	72.2	72.2
Well Screen	ft BGS	unknown	unknown	unknown	unknown
Well Size	in	4.0	4.0	4..0	4.0
Well Data					
Depth to Groundwater - Static - Start Event	ft BTOC	67.61	67.76	67.73	67.75
Depth to LNAPL - Static - Start Event	ft BTOC	-	-	-	-
LNAPL Thickness	ft	-	-	-	-
Hydro-Equivalent- Beginning	ft BTOC	67.61	67.76	67.73	67.75
Depth to Groundwater - End Event	ft BTOC	67.81	67.30	67.41	67.38
Depth to LNAPL - End Event	ft BTOC	-	-	-	-
LNAPL Thickness	ft	-	-	-	-
Hydro-Equivalent- Ending	ft BTOC	67.81	67.30	67.41	67.38
Extraction Data					
Maximum Extraction Well Vacuum	"H_2O	65.00	65.00	65.00	70.00
Average Extraction Well Vacuum	"H_2O	65.00	65.00	64.52	67.65
Minimum Extraction Well Vacuum	"H_2O	65.00	65.00	60.00	65.00
Maximum Extraction Well Vapor Flow	scfm	18.41	18.43	18.45	19.01
Average Extraction Well Vapor Flow	scfm	18.28	18.30	18.30	18.73
Minimum Extraction Well Vapor Flow	scfm	18.22	18.21	17.79	18.38
Influent Data					
Maximum TPH	ppmv	7,820	7,430	7,070	7,560
Average TPH	ppmv	7,516	7,193	6,658	7,229
Maximum TPH	ppmv	7,060	6,840	6,130	6,910
Initial TPH	ppmv	7,060	6,840	6,940	6,980
Final TPH	ppmv	7,570	7,110	6,710	7,560
Average CO_2	%	11.49	11.01	11.46	11.35
Average CO	%	0	0	0	0
Average O_2	%	3.4	4.0	3.8	3.5
Average H_2S	ppm	0	0	0	0

Summary Recovery Data
Table #2

Event		7A	7B	7C	7D
WELL NO.		VG-4	VG-4	VG-4	VG-4
Recovery Data- Current Event					
Total Liquid Volume Recovered	gals	-	-	-	-
Total Liquid LNAPL Recovered	gals	-	-	-	-
Total Liquid LNAPL Recovered / Total Liquid	%	-	-	-	-
Total Liquid LNAPL Recovered / Total LNAPL	%	-	-	-	-
Total Vapor LNAPL Recovered	gals	2.67	2.85	2.63	2.34
Total Vapor LNAPL Recovered / Total LNAPL	%	100.00	100.00	100.00	100.00
Total Vapor and Liquid LNAPL Recovered	gals	2.67	2.85	2.63	2.34
Average LNAPL Recovery	gals/hr	0.30	0.28	0.26	0.29
Total LNAPL Recovered	lbs	18.71	19.92	18.43	16.39
Total Volume of Well Vapors	cu. ft	9,871	10,980	10,980	8,990
Recovery Data- Cumulative					
Total Liquid Volume Recovered	gals	27,394	27,394	27,394	27,394
Total Liquid LNAPL Recovered	gals	7.99	7.99	7.99	7.99
Total Vapor LNAPL Recovered	gals	54.96	57.80	60.44	62.78
Total Vapor and Liquid LNAPL Recovered	gals	62.94	65.79	68.42	70.76
Average LNAPL Recovery	gals/hr	0.36	0.36	0.35	0.35
Total LNAPL Recovered	lbs	1,278	1,298	1,317	1,333
Total Volume of Well Vapors	cu. ft	175,863	186,843	197,823	206,813

AcuVac Remediation

OPERATING DATA – EVENT # 7A PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			72621					
Well #	VG-4	Time	0700	0730	0800	0830	0900	0930
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	130	180	140	140	140	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	140
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.41	18.41	18.38	18.34	18.34	18.34
	Influent Vapor Temp.	°F	68	68	70	72	72	72
	Air Temp	°F	72	73	75	79	80	81
	Barometric Pressure	"Hg	29.99	29.94	29.94	29.94	29.94	29.93
VAPOR / INFLUENT	TPH	ppmv	—	7060	—	7560	—	7470
	CO_2	%	—	11.80	—	11.64	—	11.16
	O_2	%	—	3.8	—	3.4	—	3.4
	H_2S	ppm	—	—	—	—	—	—
NOTES	Arrived at site 0635. Tailgate safety meeting. Mobe site. Event start @ 0700. SVE only.							
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL	—					
	Extraction Well	DTGW	67.71					

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 7A PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7-26-21					
Well # V6-4	Time		1000	1030	1100	1130	1200	1230
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	145	150	150	160	160	160
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	140
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.31	18.27	18.27	18.24	18.24	18.24
	Influent Vapor Temp.	°F	74	76	76	78	78	78
	Air Temp	°F	82	84	88	88	89	90
	Barometric Pressure	"Hg	29.93	29.92	29.91	29.90	29.90	29.90
VAPOR / INFLUENT	TPH	ppmv	—	7560	—	7620	—	7690
	CO_2	%	—	11.63	—	11.38	—	11.76
	O_2	%	—	3.7	—	2.9	—	3.0
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 7A PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7-26-21					
Well #	V6-4	Time	1300	1330	1400	1430	1500	1530
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	155	155	155	155	160	160
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	140
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.24	18.24	18.22	18.22	18.22	18.22
	Influent Vapor Temp.	°F	78	78	79	79	79	79
	Air Temp	°F	90	92	92	93	92	91
	Barometric Pressure	"Hg	29.88	29.87	29.86	29.85	29.84	29.84
VAPOR / INFLUENT	TPH	ppmv	—	7540	—	7370	—	7570
	CO_2	%	—	11.34	—	10.62	—	12.14
	O_2	%	—	3.4	—	3.8	—	3.2
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 7A PAGE # 4 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM			Project Managers: Hendley / George					
Date		~~1600~~	7-26-21					
Well # V6-4	Time	1600						
	Hr Meter							
ENGINE / BLOWER	Engine Speed RPM	1800						
	Oil Pressure psi	55						
	Water Temp °F	160						
	Alternator Volts	14						
	Intake Vacuum "Hg	14						
	Gas Flow Fuel/Propane cfh	140						
ATMOSPHERE VACUUM / AIR	Extraction Well Vac. "H_2O	65						
	Extraction Well Flow scfm	18.24						
	Influent Vapor Temp. °F	78						
	Air Temp °F	86						
	Barometric Pressure "Hg	29.88						
VAPOR / INFLUENT	TPH ppmv	—						
	CO_2 %	—						
	O_2 %	—						
	H_2S ppm	—						
NOTES	Stop work called @ 1600 due to thunderstorms w/ ground lightning. Shut down unit and moved to muster area. Check storm status. More storms developing stop work called for remaining 1 hour.							
RECOVERY	Totalizer gals							
	Pump Rate gals/min							
	Total Volume gals							
	NAPL % Vol							
	NAPL Gals							
EW	Data Logger Head ft							
	GW Depression ft							
	Extraction Well DTNAPL							
	Extraction Well DTGW							

AcuVac Remediation

OPERATING DATA – EVENT # 7B PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7-27-21					
Well # V6-4	Time		0630	0700	0730	0800	0830	0900
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	60	60	55	55	55	55
	Water Temp	°F	130	130	130	135	135	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	15	15	15	15	15	15
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	140
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.43	18.41	18.41	18.34	18.38	18.38
	Influent Vapor Temp.	°F	67	68	68	69	70	70
	Air Temp	°F	70	70	72	72	73	76
	Barometric Pressure	"Hg	29.99	29.99	29.99	29.98	29.98	29.98
VAPOR / INFLUENT	TPH	ppmv	—	6840	—	7076	—	7040
	CO_2	%	—	11.46	—	10.86	—	10.34
	O_2	%	—	4.2	—	4.2	—	4.0
	H_2S	ppm	—	—	—	—	—	—
NOTES	Arrived at site 0615. Tailgate safety meeting. Event shut @ 0630. SVE only. gauged V6-4: No NAPL							
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL	—					
	Extraction Well	DTGW	6776					

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 7B PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7/27/21					
Well #	V6-4	Time	0930	1000	1030	1100	1130	1200
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	140	140	145	150	150	150
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	15	15	15	15	15	15
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	140
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.34	18.31	18.31	18.29	18.29	18.27
	Influent Vapor Temp.	°F	72	74	74	75	75	76
	Air Temp	°F	79	81	84	86	86	88
	Barometric Pressure	"Hg	29.98	29.97	29.96	29.95	29.94	29.94
VAPOR / INFLUENT	TPH	ppmv	—	7360	—	7230	—	7280
	CO_2	%	—	11.66	—	10.88	—	11.46
	O_2	%	—	3.8	—	4.1	—	3.8
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 7B PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7-27-21					
Well # V6-4	Time		1230	1300	1330	1400	1430	1500
	Hr Meter							
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	150	150	150	160	160	160
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	15	15	15	15	15	15
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	140
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.26	18.26	18.24	18.24	18.24	18.22
	Influent Vapor Temp.	°F	77	77	78	78	78	79
	Air Temp	°F	90	90	90	91	91	91
	Barometric Pressure	"Hg	29.93	29.92	29.91	29.90	29.90	29.90
VAPOR / INFLUENT	TPH	ppmv	—	7306	7430	—	7070	—
	CO_2	%	—	11.10	10.82	—	11.28	—
	O_2	%	—	3.7	3.5	—	4.2	—
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 7B PAGE # 4 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date		7.27.21						
Well # VE-4	Time	1530	1600	1630				
	Hr Meter							
ENGINE / BLOWER	Engine Speed RPM	1800	1800	1800				
	Oil Pressure psi	55	55	55				
	Water Temp °F	160	160	160				
	Alternator Volts	14	14	14				
	Intake Vacuum "Hg	15	15	15				
	Gas Flow Fuel/Propane cfh	140	140	140				
ATMOSPHERE VACUUM / AIR	Extraction Well Vac. "H_2O	65	65	65				
	Extraction Well Flow scfm	18.21	18.21	18.21				
	Influent Vapor Temp. °F	80	80	80				
	Air Temp °F	92	93	93				
	Barometric Pressure "Hg	29.88	29.87	29.87				
VAPOR / INFLUENT	TPH ppmv	—	7110	—				
	CO_2 %	—	10.24	—				
	O_2 %	—	4.0	—				
	H_2S ppm	—	—	—				
NOTES								
RECOVERY	Totalizer gals							
	Pump Rate gals/min							
	Total Volume gals							
	NAPL % Vol							
	NAPL Gals							
EW	Data Logger Head ft							
	GW Depression ft							
	Extraction Well DTNAPL			—				
	Extraction Well DTGW			67.30				

0.0

AcuVac Remediation

OPERATING DATA – EVENT # 7C PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7-28-21					
Well #	V6-4	Time	0630	0700	0730	0800	0830	0900
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	60	60	55	55	55	55
	Water Temp	°F	130	130	140	140	145	145
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	15	15	15	15	15	15
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	140
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	60	60	65	65	65	65
	Extraction Well Flow	scfm	17.79	17.79	18.45	18.45	18.41	18.38
	Influent Vapor Temp.	°F	64	64	66	66	68	70
	Air Temp	°F	70	70	72	73	76	81
	Barometric Pressure	"Hg	30.02	30.02	30.01	30.01	30.01	30.00
VAPOR / INFLUENT	TPH	ppmv	—	6940	—	6740	—	6130
	CO_2	%	—	10.94	—	10.56	—	10.82
	O_2	%	—	4.4	—	4.2	—	4.8
	H_2S	ppm	—	—	—	—	—	—

NOTES

Arrived at site 0615, Tailgate safety meeting, Gauged V6-4 = No NAPL. Event start @ 0630, SVE only.

RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL	—					
	Extraction Well	DTGW	67.73					

0.00

AcuVac Remediation

OPERATING DATA – EVENT # 7C PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM			Project Managers: Hendley / George					
Date			7-28-21					
Well # V6-4		Time	0930	1000	1030	1100	1130	1200
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	145	145	145	145	145	145
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	15	15	15	15	15	15
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	140
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.34	18.34	18.34	18.34	18.34	18.34
	Influent Vapor Temp.	°F	72	72	72	72	72	72
	Air Temp	°F	82	80	81	80	79	79
	Barometric Pressure	"Hg	29.99	29.99	29.99	29.99	29.98	29.98
VAPOR / INFLUENT	TPH	ppmv	—	7050	—	6310	—	7076
	CO_2	%	—	11.42	—	12.94	—	11.58
	O_2	%	—	2.9	—	3.8	—	3.5
	H_2S	ppm	—	—	—	—	—	—
NOTES	At 1000 wind ↑ and cloud cover.							
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 7C PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7-29-21					
Well #	VG-4	Time	1230	1300	1330	1400	1430	1500
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	145	145	145	145	145	145
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	15	15	15	15	15	15
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	146
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18.34	18,34	18.33	18.33	18,34	18.34
	Influent Vapor Temp.	°F	70	72	73	73	72	72
	Air Temp	°F	79	79	80	81	80	82
	Barometric Pressure	"Hg	29.98	29.98	29.97	29.97	29.96	29.90
VAPOR / INFLUENT	TPH	ppmv	—	7260	—	6290	—	6280
	CO_2	%	—	11.72	—	11.32	—	11.94
	O_2	%	—	3.8	—	3.8	—	3.7
	H_2S	ppm	—	—	—	—	—	—
NOTES								
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 7C PAGE # 4 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7-28-21					
Well #	V6-4	Time	1530	1600	1630			
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800			
	Oil Pressure	psi	55	55	55			
	Water Temp	°F	145	145	145			
	Alternator	Volts	14	14	14			
	Intake Vacuum	"Hg	15	15	15			
	Gas Flow Fuel/Propane	cfh	140	140	140			
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65			
	Extraction Well Flow	scfm	18,34	18,33	18,33			
	Influent Vapor Temp.	°F	72	73	73			
	Air Temp	°F	82	83	83			
	Barometric Pressure	"Hg	29.96	29.96	29.96			
VAPOR / INFLUENT	TPH	ppmv	—	6710	—			
	CO_2	%	—	11.36	—			
	O_2	%	—	3.4	—			
	H_2S	ppm	—	—	—			
NOTES								
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL			—			
	Extraction Well	DTGW			67.~~98~~ 0.00			

AcuVac

OPERATING DATA – EVENT # 7D PAGE # 1 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7-27-21					
Well #	V6-4	Time	0600	0630	0700	0730	0800	0830
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	130	130	135	140	140	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	15	15	15	15	15	15
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	140
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	65	65	65	65
	Extraction Well Flow	scfm	18,50	18,50	18,48	18,48	18,45	18,42
	Influent Vapor Temp.	°F	62	63	64	64	66	68
	Air Temp	°F	63	63	64	66	70	73
	Barometric Pressure	"Hg	30,06	30,06	30,06	30,06	30,06	30,04
VAPOR / INFLUENT	TPH	ppmv	—	6980	—	7120	—	6916
	CO_2	%	—	11,38	—	11,72	—	10,71
	O_2	%	—	3,6	—	3,5	—	4,2
	H_2S	ppm	—	—	—	—	—	—
NOTES	Arrived at site 0545, Tailgate safety meeting/ Gauged V6-4. No NAPL. Event start at 0600, SVE only.							
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL	—					
	Extraction Well	DTGW	67,75					

0,00

AcuVac

OPERATING DATA – EVENT # 7D PAGE # 2 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7-29-21					
Well #	V6-4	Time	0900	0930	1000	1030	1100	1130
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	55	55	55	55	55	55
	Water Temp	°F	145	145	145	145	145	145
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	15	15	15	15	15	15
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	140
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	65	65	70	70	70	70
	Extraction Well Flow	scfm	18.38	18.38	19.01	19.01	18.97	18.97
	Influent Vapor Temp.	°F	70	70	72	73	74	74
	Air Temp	°F	75	77	79	81	83	83
	Barometric Pressure	"Hg	30.05	30.05	30.04	30.04	30.03	30.01
VAPOR / INFLUENT	TPH	ppmv	—	7310	—	7170	—	7260
	CO_2	%	—	11.42	—	11.64	—	11.37
	O_2	%	—	3.4	—	3.4	—	3.4
	H_2S	ppm	—	—	—	—	—	—
NOTES	At 1000 ↑ well vac to 70 H_2O. Added ambient air to cool engine.							
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 7D PAGE # 3 ACUVAC MDPE SYSTEM

Location: Vacuum Glorietta Site, Lea County, NM **Project Managers: Hendley / George**

Date			7-29-21					
Well #	V6-4	Time	1200	1230	1300	1330	1400	
		Hr Meter						
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	
	Oil Pressure	psi	55	55	55	55	55	
	Water Temp	°F	145	145	145	145	145	
	Alternator	Volts	14	14	14	14	14	
	Intake Vacuum	"Hg	15	15	15	15	15	
	Gas Flow Fuel/Propane	cfh	140	140	140	140	140	
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	70	70	70	70	70	
	Extraction Well Flow	scfm	18.97	18.97	18.96	18.96	18.96	
	Influent Vapor Temp.	°F	74	74	75	75	75	
	Air Temp	°F	84	84	86	88	90	
	Barometric Pressure	"Hg	30.00	30.00	29.99	29.99	29.98	
VAPOR / INFLUENT	TPH	ppmv	—	7526	—	7560	—	
	CO_2	%	—	11.64	—	11.54	—	
	O_2	%	—	3.3	—	3.9	—	
	H_2S	ppm	—	—	—	—	—	
NOTES								
RECOVERY	Totalizer	gals						
	Pump Rate	gals/min						
	Total Volume	gals						
	NAPL	% Vol						
	NAPL	Gals						
EW	Data Logger Head	ft						
	GW Depression	ft						
	Extraction Well	DTNAPL					—	
	Extraction Well	DTGW					67.38	

0.00

November 13, 2021

Ms. Julie Evans
Hydrogeologist/Environmental Project Manager
Tetra Tech
1500 City West Boulevard, Suite 1000
Houston, TX 77042

Dear Julie:

Re: Vacuum Glorietta Site, Lea County, NM, (Event #8)

At your request, AcuVac Remediation, LLC (AcuVac) performed four Soil Vapor Extraction (SVE) Events: #8A, #8B, #8C and #8D as outlined in the table below at the above referenced site (Site). The following is the report and a copy of the operating data collected during Event #8. Additionally, the attached Table #1 contains the Summary Well Data, and Table #2 contains the Summary Recovery Data.

Event Number	Well Number	Event Type	Event Duration (hrs)	Date
#8A	VG-4	SVE	10.0	11/08/2021
#8B	VG-4	SVE	10.0	11/09/2021
#8C	VG-4	SVE	10.0	11/10/2021
#8D	VG-4	SVE	8.0	11/11/2021

The purpose of the events was to enhance recovery of phase separated hydrocarbons (PSH) present at the Site through the removal of petroleum hydrocarbons in both liquid and vapor phases. PSH refers to both petroleum hydrocarbons and Non-Aqueous Phase Liquids (NAPL). The source of the PSH is a historical pipeline release.

For Event #8 Enhanced Vapor Recovery was used to attempt to volatilize the dissolved phase LNAPL in the groundwater. Enhanced Vapor Recovery is defined on page 3.

OBJECTIVES

The objectives of the SVE Events:

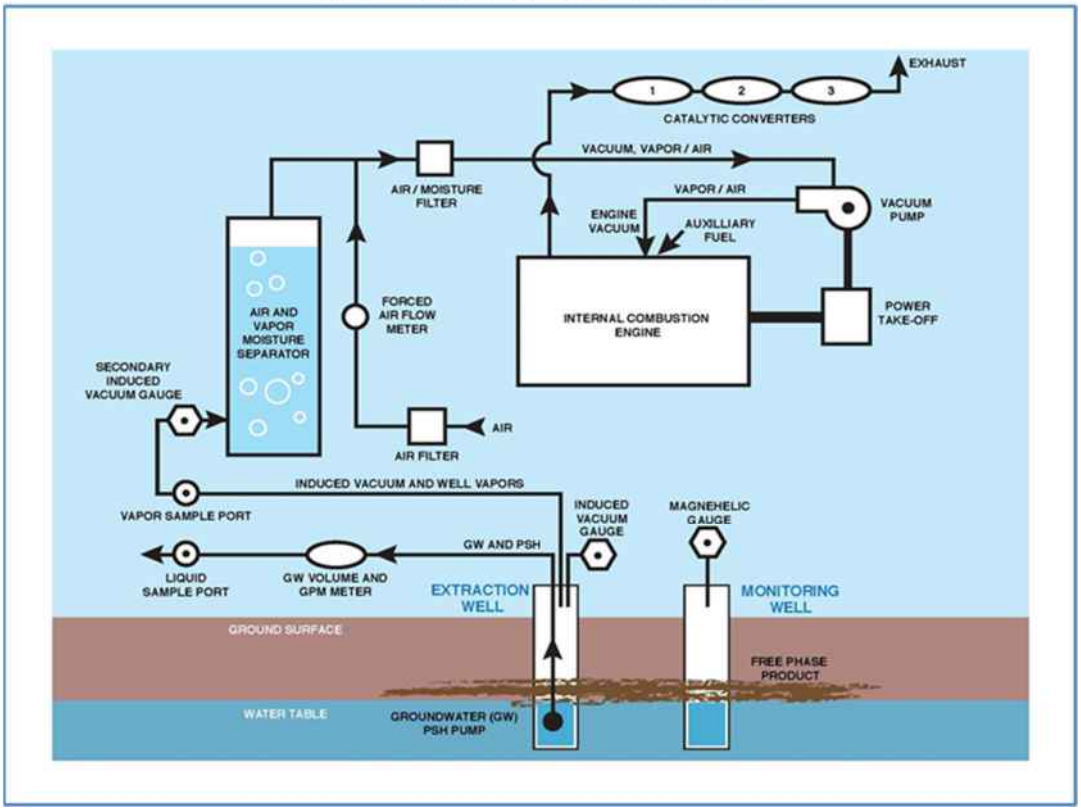
- Maximize liquid and vapor phase petroleum hydrocarbon removal from groundwater and soils in the subsurface formations within the influence of the extraction well.
- Expose the capillary fringe area and below to the extraction well induced vacuums.
- Increase the liquid and vapor phase petroleum hydrocarbon specific yields with high induced vacuums.

METHODS AND EQUIPMENT

AcuVac owns and maintains an inventory of equipment to perform SVE events and uses no third-party equipment. The events at the Site were conducted using the AcuVac I-6 System (System) with a Roots RAI-33 blower, used as a vacuum pump, and a Roots RAI-22 positive displacement blower. The table below lists additional equipment and instrumentation employed, and the data element captured by each.

Equipment and Instrumentation Employed by AcuVac	
Measurement Equipment	**Data Element**
Extraction Well Induced Vacuum and Flow	
Dwyer Magnehelic Gauges	Extraction Well Vacuum
Dwyer Averaging Pitot Tubes / Magnehelic Gauges	Extraction Well Vapor Flow
Observation Wells	
Dwyer Digital Manometer	Vacuum / Pressure Influence
Extraction Well Vapor Monitoring	
V-1 Vacuum Box	Extraction Well Non-Diluted Vapor Sample Collection
HORIBA® Analyzer	Extraction Well Vapor TPH Concentration
RKI 1200 O_2 Monitor	Extraction Well Vapor Oxygen Content
NAPL Thickness (if present)	
Solinst Interface Probes Model 122	Depth to LNAPL and Depth to Groundwater
Atmospheric Conditions	
Testo Model 511	Relative and Absolute Barometric Pressure

THE ACUVAC MOBILE DUAL PHASE SYSTEM



The vacuum extraction portion of the System consists of a vacuum pump driven by an internal combustion engine (IC engine). The vacuum pump connects to the extraction well, and the vacuum created on the extraction well causes light hydrocarbons in the soil and in the groundwater to volatilize and flow through a moisture knockout tank to the vacuum pump and the IC engine where they burn as part of the normal combustion process. Auxiliary propane powers the engine if the well vapors do not provide the required energy.

The IC engine provides the power necessary to achieve and maintain high induced vacuums and/or high well vapor flows needed to maximize the vacuum radius of influence.

Emissions from the engine pass through three catalytic converters to maximize destruction of effluent hydrocarbon vapors. The engine's fuel-to-air ratio is adjusted to maintain efficient combustion. Because the engine powers all equipment, the System stops when the engine stops preventing an uncontrolled release of hydrocarbons. Since the System operates entirely under vacuum, any leaks in the seals or connections leak into the System and not the atmosphere. Vacuum loss, low oil pressure, over-speed, or overheating automatically shut down the engine. The design of the AcuVac System enables independent control of both the induced well vacuum and the groundwater pumping functions such that the AcuVac team controls the induced hydraulic gradient to increase exposure of the formation to soil vapor extraction (SVE). The ability to separate the vapor and liquid flows within the extraction well improve the LNAPL recovery rates and enabled the AcuVac team to record data specific to each media.

ENHANCED VAPOR RECOVERY

Enhanced Vapor Recovery (EVR) is not air sparging. There is often a misunderstanding about the methodology and effectiveness of EVR. EVR is a time tested and proven method for remediating contaminated groundwater. EVR consists of inserting an air hose into the extraction well and injecting 5 to 7 cfm of clean air at 3 to 5 psi, approximately one foot above the well bottom. The clean air is injected into the groundwater through an air diffuser. This enhances the volatilization of the free and dissolved phase contaminant in the groundwater.

The EVR process is controlled because the air is injected into and removed from the well bore. The injected air does not leave the well bore as the SVE vacuum is applied to remove the injected air and contaminant vapors as it rises above the static water level.

The AcuVac System contains a clean air positive displacement blower that is used to inject the clean air into the well. A special manifold has been designed that enables the control of both the volume of air and the pressure under which it is delivered to the well. The air is heated by the process and when mixed with the groundwater creates a natural circulation that draws more contaminant into the well bore.

The EVR process is very similar to an in-well air stripper in that the in-well air diffuser creates an interface between the water and the injected air, volatilizing the contaminant as the air bubbles through the groundwater. The SVE process then removes the contaminant from the well bore and the area immediately surrounding the well. EVR is most effective where the contaminant is NAPL as either free or dissolved phase NAPL.

RECOVERY SUMMARY FOR SVE EVENT #8

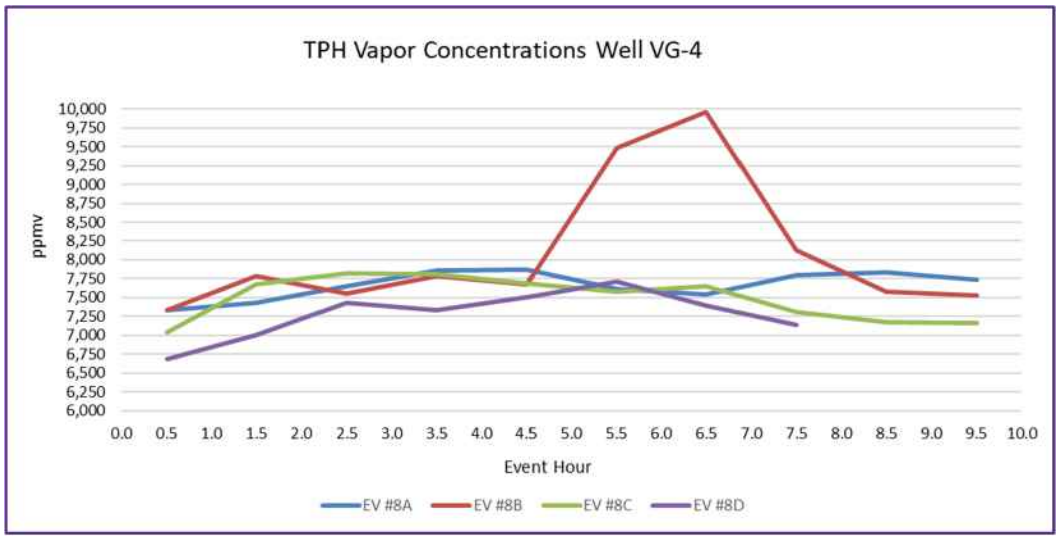
The Recovery Summary Table below lists the vapor and groundwater and LNAPL recovery data for Event #8 and compares the results with Events #7 and #6 performed on the dates shown.

Recovery Summary Well VG-4								
Event Number		**Event #8A**	**Event #8B**	**Event #8C**	**Event #8D**	**Event #8**	**Event #7**	**Event #6**
Event Date		**11/08/2021**	**11/09/2021**	**11/10/2021**	**11/11/2021**	**Total**	**Total**	**Total**
Event Hours		**10.0**	**10.0**	**10.0**	**8.0**	**38.0**	**37.0**	**38.0**
Data Element								
Groundwater Recovery	gals	0	0	0	0	0	0	7,234
LNAPL Recovery								
Liquid	gals	0	0	0	0	0	0	0
Vapor	gals	3.17	3.40	3.19	2.63	12.39	10.49	10.34
Total	gals	3.17	3.40	3.19	2.63	12.39	10.49	10.34
Gallons/Hour	gph	**0.32**	**0.34**	**0.32**	**0.32**	**0.33**	**0.28**	**0.28**

- Total vapor hydrocarbons burned as IC engine fuel in the Recovery Summary Table above are based on the HORIBA® data recorded in the Influent Vapor Data Table below, the HORIBA® analytical data from the influent vapor samples are compared with previous events.

Influent Vapor Data Well VG-4							
Event Number		**Event #8A**	**Event #8B**	**Event #8C**	**Event #8D**	**Event #7D**	**Event #6D**
Event Date		**11/08/2021**	**11/09/2021**	**11/10/2021**	**11/11/2021**	**07/29/2021**	**05/06/2021**
Event Hours		**10.0**	**10.0**	**10.0**	**8.0**	**8.0**	**8.0**
Data Element							
TPH- Maximum	ppmv	7,870	9,960	7,820	7,710	7,560	7,460
TPH- Average	ppmv	7,667	8,081	7,491	7,273	7,229	7,055
TPH- Minimum	ppmv	7,330	7,330	7,040	6,680	6,910	6,540
TPH- Initial	ppmv	7,330	7,330	7,040	6,680	6,980	6,910
TPH- Ending	ppmv	7,740	7,530	7,160	7,140	7,560	7,460
CO_2	%	12.53	12.79	12.40	12.45	11.35	11.11
O_2	%	5.3	2.3	2.8	2.8	3.5	4.6
H_2S	ppm	0	0	0	0	0	0

- The TPH vapor concentrations from the influent vapor samples for Event #8 are presented in the following graph.



- The extraction well induced vacuum and well vapor flow for Event #6 through Event #8 is compared in the following table.

Well Vacuum and Well Vapor Flow
Well VG-4

Event Number		Event #8A	Event #8B	Event #8C	Event #8D	Event #7D	Event #6D
Event Date		**11/08/2021**	**11/09/2021**	**11/10/2021**	**11/11/2021**	**07/29/2021**	**05/06/2021**
Event Hours		**10.0**	**10.0**	**10.0**	**8.0**	**8.0**	**8.0**
Data Element							
Well Vacuum- Maximum	"H_2O	85.00	75.00	85.00	85.00	70.00	65.00
Well Vacuum- Average	"H_2O	75.95	74.29	76.90	79.41	67.65	65.00
Well Vacuum- Minimum	"H_2O	75.00	70.00	70.00	70.00	65.00	65.00
Well Vapor Flow- Maximum	scfm	19.66	19.85	21.72	21.98	19.01	18.52
Well Vapor Flow- Average	scfm	19.11	19.49	19.71	20.90	18.73	18.42
Well Vapor Flow- Minimum	scfm	18.09	18.39	16.72	18.43	18.38	18.31

- The groundwater pump rates for Event #6 through Event #8 are contained in the table below. Event #6 was an MDPE Event, and Events #7 and #8 were an SVE Event.

Groundwater Pump Data
Well MW-VG-4

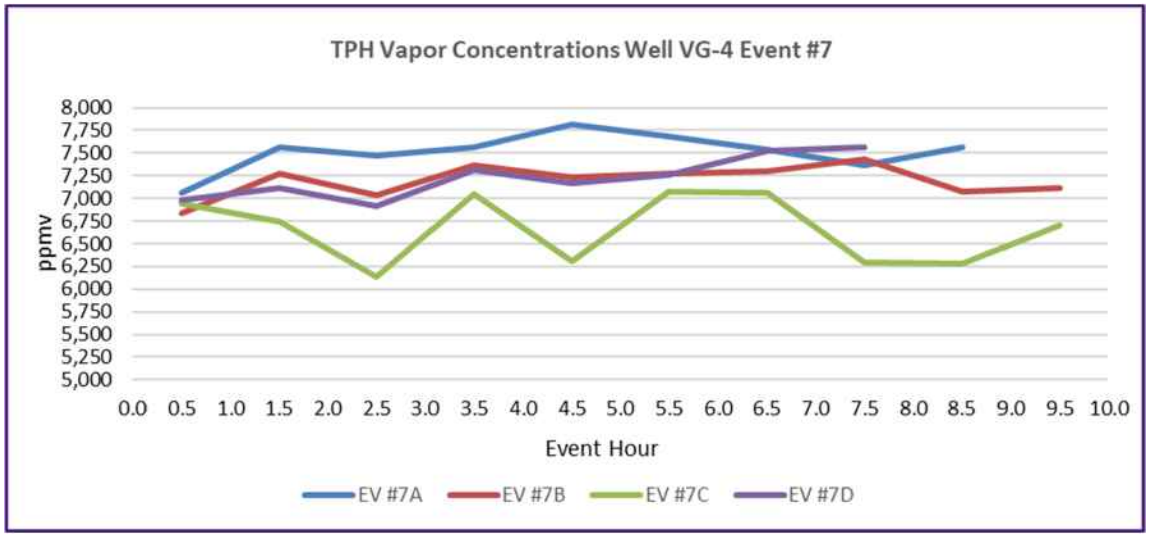
Event Number		Event #8A	Event #8B	Event #8C	Event #8D	Event #7D	Event #6D
Event Date		**11/08/2021**	**11/09/2021**	**11/10/202**	**11/11/202**	**07/29/2021**	**05/06/2021**
Event Hours		**10.0**	**10.0**	**10.0**	**8.0**	**8.0**	**8.0**
Data Element							
Maximum GW Pump Rate	gpm	-	-	-	-	-	3.27
Average GW Pump Rate	gpm	-	-	-	-	-	3.06

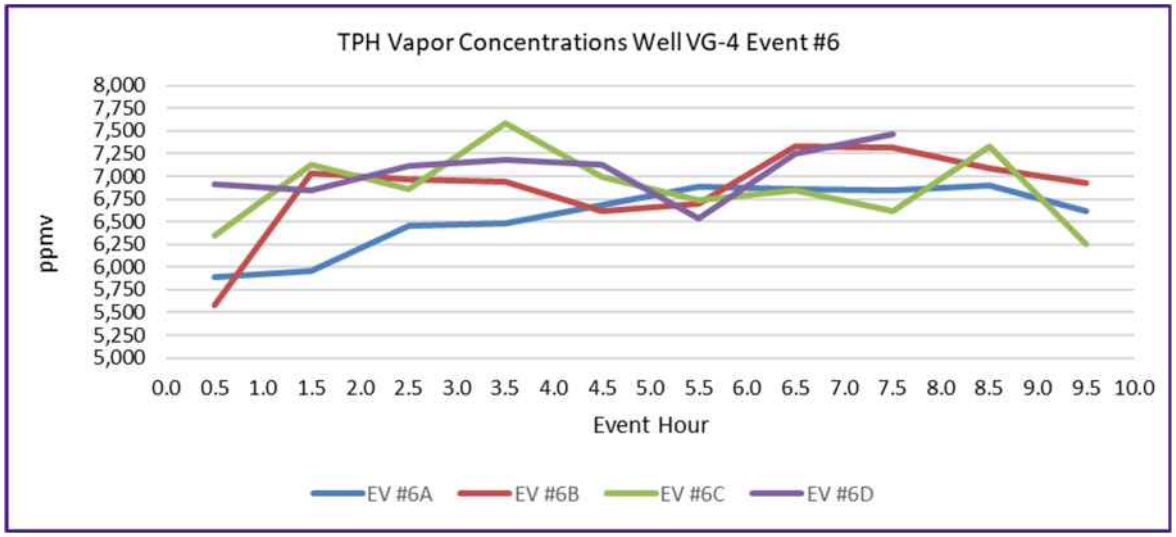
- The LNAPL thickness recorded at the start and conclusion of each event is contained in the table on the following page.

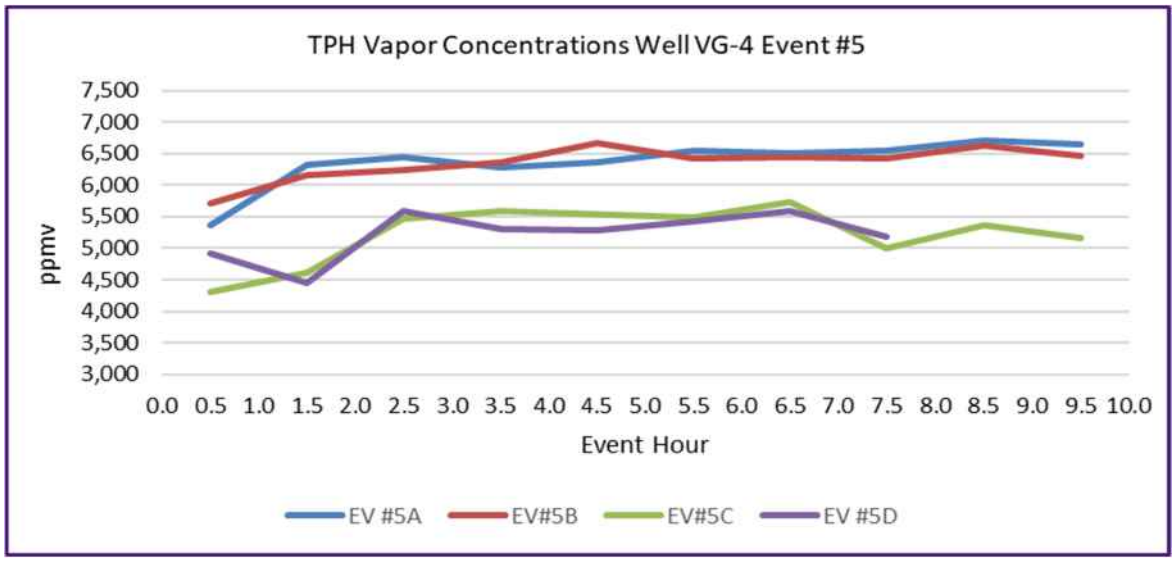
LNAPL Thickness Data Well VG-4							
Event Number		**Event #8A**	**Event #8B**	**Event #8C**	**Event #8D**	**Event #7D**	**Event #6D**
Event Date		**11/08/2021**	**11/09/2021**	**11/10/2021**	**11/11/2021**	**07/29/2021**	**05/06/2021**
Event Hours		10.0	10.0	.0	8.0	8.0	8.0
Event Start							
Depth to Groundwater	Ft BTOC	67.89	67.88	67.88	67.75	67.75	67.60
Depth to LNAPL	Ft BTOC	-	-	-	-	-	-
LNAPL Thickness	ft	-	-	-	-	-	-
Hydro Equivalent	Ft BTOC	67.89	67.88	67.88	67.75	67.75	67.60
Event Conclusion							
Depth to Groundwater	Ft BTOC	67.86	67.88	67.85	67.38	67.38	67.75
Depth to LNAPL	Ft BTOC	-	-	-	-	-	-
LNAPL Thickness	ft	-	-	-	-	-	-
Hydro Equivalent	Ft BTOC	67.86	67.88	67.85	67.38	67.38	67.75

ADDITIONAL INFORMATION

- All LNAPL volume recovered, 12.39 gals, was burned as IC engine fuel. The LNAPL recovery for Event #8 was slightly greater than the 10.49 gals recovered during Event #7 indicating that a mass remains in the formation surrounding well VG-4. The increased LNAPL vapor recovery is most likely the result of:
    - The weighted average TPH concentration readings were 7,647 ppmv for Event #8 compared with 7,145 ppmv for Event #7
    - The weighted average well vapor flows for Event #8 were 19.74 scfm compared with 18.39 scfm for Event #7.
- Graphical representations of the TPH vapor concentrations for the Event #5, #6 and #7, all of which were performed in 2021, are shown on page 6.
- Enhanced Vapor Recovery (EVR) was started after the SVE was commenced each day of Event #8. EVR was performed for approximately 50 minutes and then stopper 10 minutes before the well vapor samples were obtained so the oxygen content would be representative of the well vapors. The oxygen levels of the well vapor samples remained mostly steady, and as stated above the weighted average TPH vapor concentrations were greater for Event #8 over Event #7, and it appears that EVR contributed to the increase along with the increased well flow.







METHOD OF CALIBRATION AND CALCULATIONS

The HORIBA® Analytical instrument is calibrated with Hexane, CO and CO_2 in accordance with the manufacturer's specifications.

The formula used to calculate the emission rate is:

$$ER = HC\ (ppmv) \times MW\ (Hexane) \times Flow\ Rate\ (scfm) \times 1.58E^{-7} \frac{(min)(lb\ mole)}{(hr)(ppmv)(ft^3)} = lbs/hr$$

INFORMATION INCLUDED WITH REPORT

- Table #1 Summary Well Data
- Table #2 Summary Recovery Data
- Recorded Data

After you have reviewed the report and if you have any questions, please contact me. We appreciate you selecting AcuVac to provide these services.

Sincerely,
ACUVAC REMEDIATION, LLC

Paul D. Faucher
President

Summary Well Data
Table #1

Event		8A	8B	8C	8D
WELL NO.		**VG-4**	**VG-4**	**VG-4**	**VG-4**
Current Event Hours		10.0	10.0	10.0	8.0
Total Event Hours		211.0	221.0	231.0	239.0
TD (estimated)	ft BGS	72.2	72.2	72.2	72.2
Well Screen	ft BGS	unknown	unknown	unknown	unknown
Well Size	in	4.0	4.0	4..0	4.0
Well Data					
Depth to Groundwater - Static - Start Event	ft BTOC	67.89	67.88	67.88	67.75
Depth to LNAPL - Static - Start Event	ft BTOC	-	-	-	-
LNAPL Thickness	ft	-	-	-	-
Hydro-Equivalent- Beginning	ft BTOC	67.89	67.88	67.88	67.75
Depth to Groundwater - End Event	ft BTOC	67.86	67.88	67.85	67.38
Depth to LNAPL - End Event	ft BTOC	-	-	-	-
LNAPL Thickness	ft	-	-	-	-
Hydro-Equivalent- Ending	ft BTOC	67.86	67.88	67.85	67.38
Extraction Data					
Maximum Extraction Well Vacuum	"H_2O	85.00	75.00	85.00	85.00
Average Extraction Well Vacuum	"H_2O	75.95	74.29	76.90	79.41
Minimum Extraction Well Vacuum	"H_2O	75.00	70.00	70.00	70.00
Maximum Extraction Well Vapor Flow	scfm	19.66	19.85	21.72	21.98
Average Extraction Well Vapor Flow	scfm	19.11	19.49	19.71	20.90
Minimum Extraction Well Vapor Flow	scfm	18.09	18.39	16.72	18.43
Influent Data					
Maximum TPH	ppmv	7,870	9,960	7,820	7,710
Average TPH	ppmv	7,667	8,081	7,491	7,273
Maximum TPH	ppmv	7,330	7,330	7,040	6,680
Initial TPH	ppmv	7,330	7,330	7,040	6,680
Final TPH	ppmv	7,740	7,530	7,160	7,140
Average CO_2	%	12.53	12.79	12.40	12.45
Average O_2	%	5.3	2.3	2.8	2.8
Average H_2S	ppm	0	0	0	0

Summary Recovery Data
Table #2

Event		8A	8B	8C	8D
WELL NO.		VG-4	VG-4	VG-4	VG-4
Recovery Data- Current Event					
Total Liquid Volume Recovered	gals	-	-	-	-
Total Liquid LNAPL Recovered	gals	-	-	-	-
Total Liquid LNAPL Recovered / Total Liquid	%	-	-	-	-
Total Liquid LNAPL Recovered / Total LNAPL	%	-	-	-	-
Total Vapor LNAPL Recovered	gals	3.17	3.40	3.19	2.63
Total Vapor LNAPL Recovered / Total LNAPL	%	100.00	100.00	100.00	100.00
Total Vapor and Liquid LNAPL Recovered	gals	3.17	3.40	3.19	2.63
Average LNAPL Recovery	gals/hr	0.32	0.34	0.32	0.33
Total LNAPL Recovered	lbs	22.17	23.83	22.34	18.40
Total Volume of Well Vapors	cu. ft	11,486	11,694	11,826	10,032
Recovery Data- Cumulative					
Total Liquid Volume Recovered	gals	27,394	27,394	27,394	27,394
Total Liquid LNAPL Recovered	gals	7.99	7.99	7.99	7.99
Total Vapor LNAPL Recovered	gals	65.95	69.35	72.54	75.17
Total Vapor and Liquid LNAPL Recovered	gals	73.93	77.34	80.53	83.15
Average LNAPL Recovery	gals/hr	0.35	0.35	0.35	0.35
Total LNAPL Recovered	lbs	1,355	1,379	1,401	1,420
Total Volume of Well Vapors	cu. ft	218,279	229,973	241,799	251,831

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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 107890

CONDITIONS

Operator: CONOCOPHILLIPS COMPANY 600 W. Illinois Avenue Midland, TX 79701	OGRID: 217817
	Action Number: 107890
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Review of 2021 Semi-Annual Monitoring and Remedial Activities Report: Content satisfactory 1. Continued groundwater monitoring and sampling on a semi-annual basis. 2. Continue quarterly SVE events at VG-4. 3. Submit the 2022 Annual Monitoring Report to the OCD no later than June 30, 2023.	1/10/2023