TETRA TECH

September 10, 2019

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

Re: 2018 Semi-Annual Monitoring and Remedial Activities Report
ConocoPhillips, Vacuum Glorietta East Unit
Lea County, New Mexico (1RP-744).

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 on Figures 1 and 2. The site was assigned the identifier order No. 1RP-744 by the New Mexico Oil Conservation Division (NMOCD).

1.0 BACKGROUND

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

2.0 PREVIOUS INVESTIGATIONS

Excavation of affected soil began in August 2004 and was extended to a depth of approximately 20 feet below ground surface (bgs). Approximately 3,240 cubic yards (yd^3) of petroleum-impacted soil were excavated from the site and disposed of at a regulated facility. However, historical hydrocarbon concentrations were observed during excavation and additional assessment work was required. The excavation was backfilled and additional soil borings and monitoring wells were installed.

The additional excavation work removed approximately 1,000 yd^3 of soil was performed in November and December 2008. Monitoring well VG-1 was abandoned because it was located within the footprint of the excavation.

Tetra Tech
901 West Wall Street, Suite 100, Midland, TX 79701
Tel 432.682.3946 Fax 432.682.3946 www.tetratech.com

Backfilling and reseeding of the excavation was approved and performed in July 2009. Following backfilling and reseeding, monitoring wells VG-2 was installed down gradient of the excavation, VG-3 was installed up gradient 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 4 and December 13, 2013. The additional wells were installed to further assess the northern, western, and southern extent of hydrocarbons and chlorides in the groundwater.

The use of mobile dual phase extraction (MDPE) was used at the site due to the presence of light non-aqueous phase liquid (LNAPL). The first MDPE event at the site took place on September 8 and 9, 2014. MDPE was performed for a total of eight hours and approximately 1,636 gallons of total fluids were extracted from monitoring well VG-4. Approximately 6.06 gallons of hydrocarbons (liquid and vapor) were extracted from VG-4. The second MDPE event performed at the site occurred from May 4 to 6, 2015. Approximately 6,349 gallons of total fluids were extracted from monitoring well VG-4, and approximately 14.51 gallons of hydrocarbons (liquid and vapor) were extracted from VG-4. Approximately 8.16 gallons of the total amount of hydrocarbons were removed as vapors. Both MDPE events were performed by AcuVac Remediation, LLC (AcuVac) of Houston, Texas.

The previous consultant, GHD, submitted a 2016 Annual Groundwater Monitoring Report summarizing the groundwater data from the April and October 2016 sampling events. The report documented trace LNAPL in VG-4 observed during the April 2016 event, benzene, toluene, ethylbenzene, and total xylenes (collectively referred to as BTEX) and chloride exceedances in VG-4, and a chloride exceedance in VG-5 in October 2016. GHD installed an oxygenating compound sock in VG-4 on July 21, 2016 to assist with the degradation of the hydrocarbons.

3.0 HYDROLOGY/GROUNDWATER

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 bgs with static groundwater water levels approximately 65 feet bgs.

4.0 2018 GROUNDWATER MONITORING

4.1 Groundwater Sampling and Analysis

Prior to purging the wells, each well was gauged to measure the depth to groundwater and phase separated hydrocarbons (PSH), if any. The water levels and the PSH measurements are summarized in Table 1, and well locations are shown on Figure 3. Monitoring wells containing PSH are gauged, but not sampled. Each monitoring well not containing PSH was sampled utilizing low flow sampling techniques. The semi-annual groundwater monitoring events occurred in July and

November 2018. 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 2018 sampling events. Table 2 presents a summary of the groundwater analyses. The analytical report and chain-of-custody is presented in Appendix B.

4.2 Groundwater Gradient

Groundwater gradient maps were generated for the July and November 2018 sampling events. The hydraulic gradient for the aquifer was generally to the southeast, and consistent with historical data. The July 2018 and November 2018 groundwater gradient maps are included as Figure 4 and Figure 5, respectively.

4.3 Phase Separated Hydrocarbon (PSH)

The monitoring wells were gauged for the presence of PSH during groundwater sampling events. Monitoring well VG-4 exhibited 0.79 feet of PSH during the July 2018 sampling event and 1.08 feet of PSH during the November 2018 sampling event. VG-4 was not sampled during either sampling event.

5.0 GROUNDATER ANALYTICAL RESULTS

5.1 July 2018 Sampling Event

During the July 2018 sampling event, monitoring wells VG-2, VG-3, VG-5, VG-6, and VG-7 were sampled. The concentration of chlorides in VG-7 (254 milligrams per liter [mg/L]) exceeded the applicable New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standard for chloride of 250 mg/L. No additional exceedances of NMWQCC standards were found.

5.2 November 2018 Sampling Event

During the November 2018 monitoring event, the monitoring wells, VG-2, VG-3, VG-5, VG-6, and VG-7, were sampled. No exceedances of the applicable NMWQCC standards were found.

6.0 WORK PLAN

Groundwater monitoring and sampling of the monitoring wells will be continued on a semi-annual basis, with annual reporting to the NMOCD. Tetra Tech will continue to monitor the oxygen release compound (ORC) sock in VG-4 and replace as needed. Furthermore, MDPE events are planned for this well in 2019.

If you have any questions please call me at (432) 258-3451.

Sincerely,
Tetra Tech, Inc.

Julie Evans
Project Manager

Reviewed By:

Greg W. Pope, P.G.
Program Manager

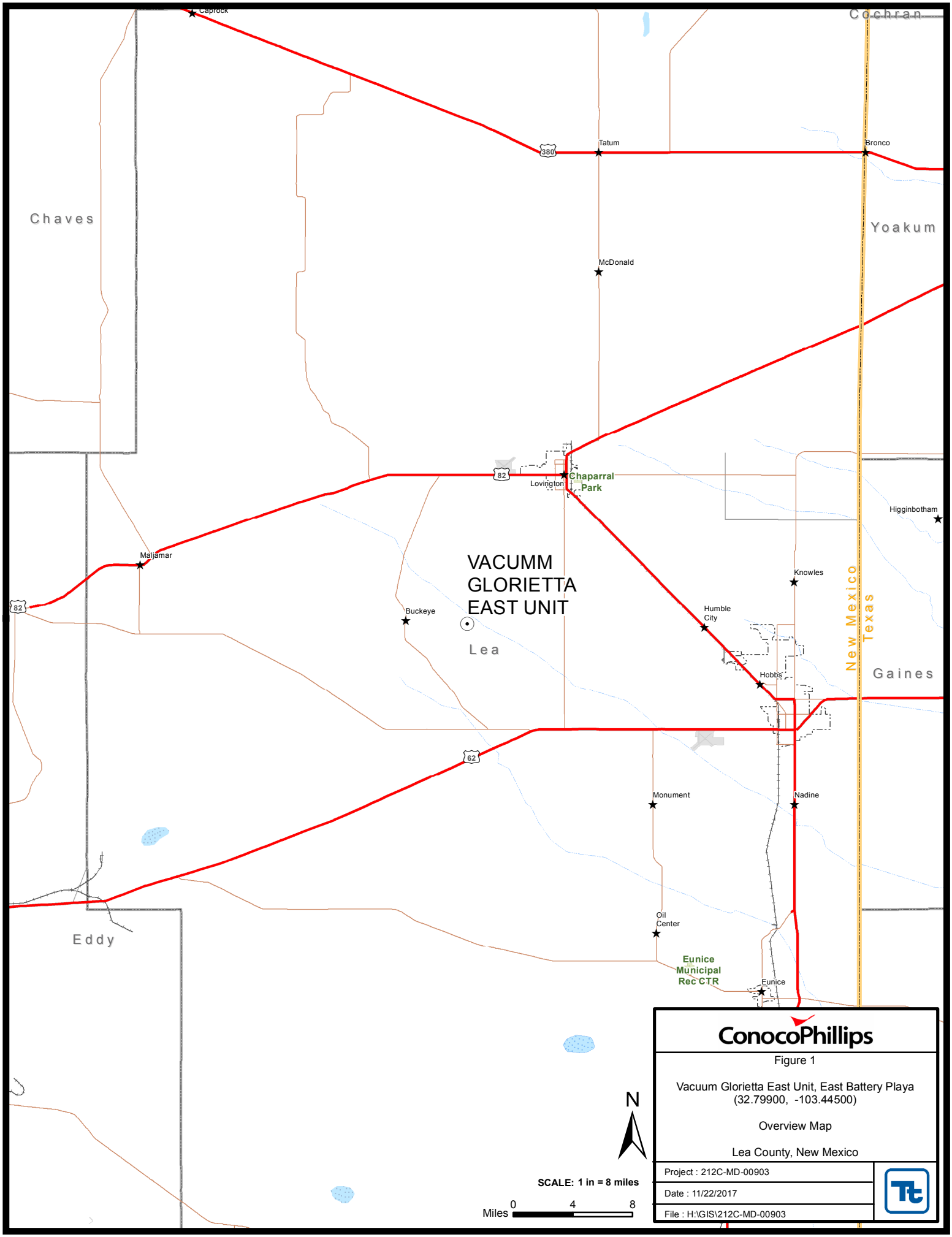
cc: Ms. Jenni Fortunato – ConocoPhillips

Attachments:

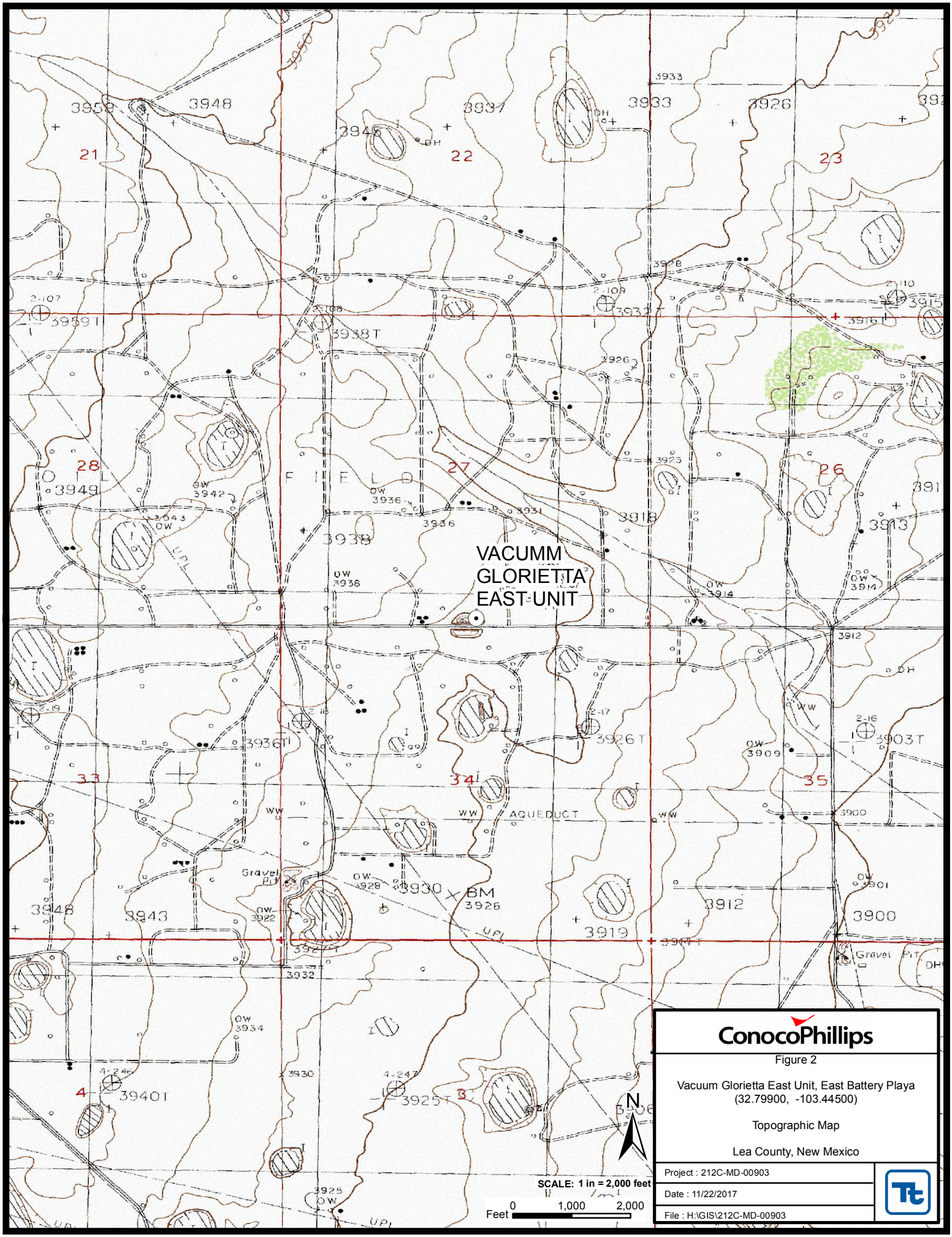
- Figure 1 – Overview Map
- Figure 2 – Topographic Map
- Figure 3 – Site Plan Map
- Figure 4 – Groundwater Gradient Map – July 2018
- Figure 5 – Groundwater Gradient Map – November 2018
- Table 1 – Summary of Groundwater Elevations and PSH Thickness
- Table 2 – Summary of Groundwater Analytical Data
- Appendix A – Laboratory Analytical Data Packages

TETRA TECH

FIGURES



Mapped By: Isabel Marmolejo



ConocoPhillips

Figure 2

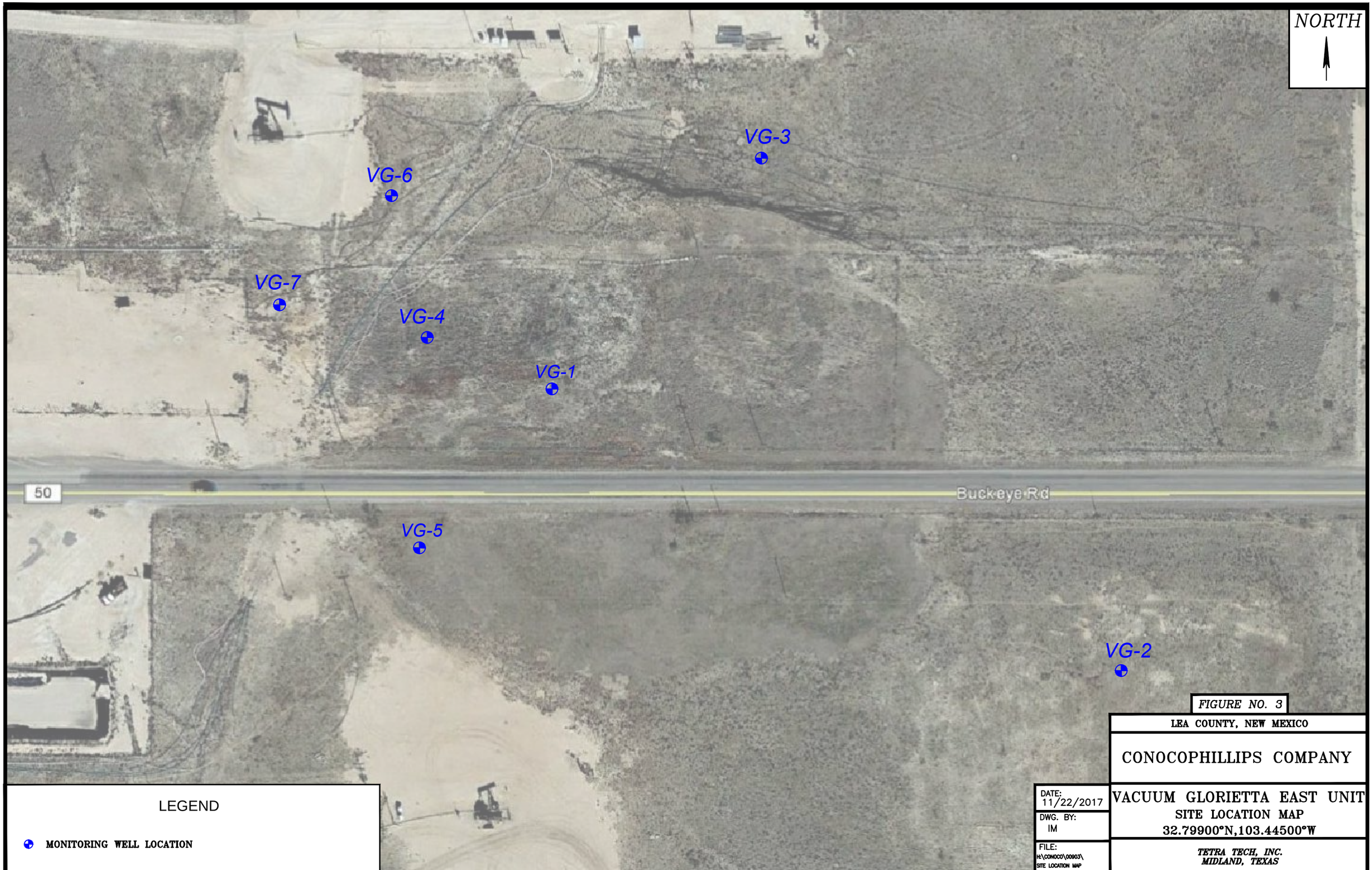
Vacuum Glorietta East Unit, East Battery Playa
(32.79900, -103.44500)

Topographic Map

Lea County, New Mexico

Project : 212C-MD-00903	
Date : 11/22/2017	
File : H:\GIS\212C-MD-00903	

Mapped By: Isabel Marmolejo



LEGEND

MONITORING WELL LOCATION

FIGURE NO. 3

LEA COUNTY, NEW MEXICO

CONOCOPHILLIPS COMPANY

VACUUM GLORIETTA EAST UNIT
SITE LOCATION MAP
32.79900°N,103.44500°W

DATE: 11/22/2017
DWG. BY: IM
FILE: H:\CONOCO\00903\SITE LOCATION MAP

TETRA TECH, INC.
MIDLAND, TEXAS

Drawn By: Isabel Marmolejo

NORTH

VG-3
3,866.13

VG-6
3,866.47

3,866.50'

VG-7
3,866.20

VG-4*
3,866.64

3,866.00'

50

Buckeye Rd

VG-5
3,865.68

3,865.50'

APPARENT GROUNDWATER GRADIENT

3,865.00'

VG-2
3,864.77

3,864.50'

0 50 100ft

LEGEND

- MONITORING WELL LOCATION
- 3865.68 ELEVATION OF GROUNDWATER (ft.)
- 3866.50' GROUNDWATER ELEVATION CONTOUR INTERVAL = 0.5 (ft.)
- APPARENT GROUNDWATER GRADIENT FLOW DIRECTION
- 3,866.64 * NOT USED TO CALCULATE GRADIENT

FIGURE NO. 4

LEA COUNTY, NEW MEXICO

CONOCOPHILLIPS COMPANY

VACUUM GLORIETTA EAST UNIT
GROUNDWATER GRADIENT MAP
JULY 2018 MONITORING EVENT

DATE: 09/03/2018
DWG. BY: MM
FILE: H:\CONOCO\00903\GW GRADIENT 8-18

TETRA TECH, INC.
MIDLAND, TEXAS

NORTH

3,866.50'

3,866.00'

3,865.50'

3,865.00'

3,864.50'

VG-6
3,866.30

VG-3
3,865.94

VG-7
3,866.13

VG-4
3,865.65 *

VG-5
3,865.54

VG-2
3,864.66

50

Buckeye Rd

APPARENT
GROUNDWATER
GRADIENT

0 50 100ft

LEGEND

- MONITORING WELL LOCATION
- 3865.68 ELEVATION OF GROUNDWATER (ft.)
- 3866.50' GROUNDWATER ELEVATION CONTOUR INTERVAL = 0.5 (ft.)
- APPARENT GROUNDWATER GRADIENT FLOW DIRECTION
- 3,865.65 * NOT USED TO CALCULATE GRADIENT

FIGURE NO. 5

LEA COUNTY, NEW MEXICO

CONOCOPHILLIPS COMPANY

VACUUM GLORIETTA EAST UNIT
GROUNDWATER GRADIENT MAP
NOVEMBER 2018 MONITORING EVENT

DATE: 09/03/2018
DWG. BY: MM
FILE: H:\CONOCO\00903\GW GRADIENT 8-18

TETRA TECH, INC.
MIDLAND, TEXAS

TETRA TECH

TABLES

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

Well Borehole/ID	Date Measured	Well Total Depth (ft)	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	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	67.70	-	65.90	-	-	3,930.56	**3,864.66**
VG-3	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**
VG-4	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**
VG-5	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	75.30	-	64.98	-	-	3,930.52	**3,865.54**
VG-6	8/16/2017	80	-	68.53	-	-	3,935.16	**3,866.63**
	11/30/2017	80	-	68.57	-	-	3,935.16	**3,866.59**
	7/24/2018	-	-	68.69	-	-	3,935.16	**3,866.47**
	11/14/2018	80.00		68.86	-	-	3,935.16	**3,866.30**
VG-7	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	79.80		68.65	-	-	3,934.78	**3,866.13**

Notes:

PSH	Phase separated hydrocarbon
ft	feet
-	No measurement
TOC	Top of casing
AMSL	Above mean sea level

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

Sample ID	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**	**0.75**	**0.75**	**0.62**	**250**
VG-2	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**
VG-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**
VG-4	8/16/2017	**0.77**	<0.0050	**0.12**	**0.035**	**1,180**
	11/30/2017	**0.96**	**0.0065**	**0.25**	**0.11**	**1,060**
Dup 1	11/30/2017	**1.5**	**0.0065**	**0.39**	**0.11**	**1,090**
	7/25/2018	**0.79' PSH**				
	11/14/2018	**1.08' PSH**				
VG-5	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**
VG-6	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**
VG-7	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**

Notes:

mg/L	milligrams per liter
NMWQCC	New Mexico Water Quality Control Commission
	Exceeds NMWQCC groundwater quality standards

TETRA TECH

APPENDIX A

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

August 03, 2018

Tetra Tech EMI - Houston, TX

Sample Delivery Group:	L1012973
Samples Received:	07/27/2018
Project Number:	212C-MD-01268
Description:	Vacuum Glorietta

Report To: Todd Wells
2901 Wilcrest Drive, Ste 410
Houston, TX 77042

Entire Report Reviewed By:

Chris McCord
Project Manager

TABLE OF CONTENTS

VG-2 L1012973-01 GW

Collected by	Collected date/time	Received date/time
CM	07/25/18 15:00	07/27/18 08:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1144712	5	07/30/18 10:18	07/30/18 10:18	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1144362	1	07/28/18 00:17	07/28/18 00:17	TJJ

VG-3 L1012973-02 GW

Collected by	Collected date/time	Received date/time
CM	07/25/18 11:05	07/27/18 08:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1144712	1	07/30/18 10:33	07/30/18 10:33	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1144362	1	07/28/18 00:37	07/28/18 00:37	TJJ

VG-5 L1012973-03 GW

Collected by	Collected date/time	Received date/time
CM	07/25/18 15:50	07/27/18 08:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1144712	5	07/30/18 11:04	07/30/18 11:04	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1144362	1	07/28/18 00:57	07/28/18 00:57	TJJ

VG-6 L1012973-04 GW

Collected by	Collected date/time	Received date/time
CM	07/25/18 12:30	07/27/18 08:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1144712	5	07/30/18 11:34	07/30/18 11:34	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1144362	1	07/28/18 01:17	07/28/18 01:17	TJJ

VG-7 L1012973-05 GW

Collected by	Collected date/time	Received date/time
CM	07/25/18 13:40	07/27/18 08:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1144712	10	07/30/18 11:50	07/30/18 11:50	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1144362	1	07/28/18 01:37	07/28/18 01:37	TJJ

DUP L1012973-06 GW

Collected by	Collected date/time	Received date/time
CM	07/25/18 00:00	07/27/18 08:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1144712	5	07/30/18 12:36	07/30/18 12:36	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1144362	1	07/28/18 01:57	07/28/18 01:57	TJJ

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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

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

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

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

Chris McCord
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: ESC Lab Sciences	LRC Date: 08/03/2018 16:35
Project Name: Vacuum Glorietta	Laboratory Job Number: L1012973-01, 02, 03, 04, 05 and 06
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1144362 and WG1144712

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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

Laboratory Review Checklist: Supporting Data

Laboratory Name: ESC Lab Sciences	LRC Date: 08/03/2018 16:35
Project Name: Vacuum Glorietta	Laboratory Job Number: L1012973-01, 02, 03, 04, 05 and 06
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1144362 and WG1144712

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

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

Laboratory Review Checklist: Exception Reports

Laboratory Name: ESC Lab Sciences	LRC Date: 08/03/2018 16:35
Project Name: Vacuum Glorietta	Laboratory Job Number: L1012973-01, 02, 03, 04, 05 and 06
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1144362 and WG1144712

ER #[1]	Description
	The Exception Report intentionally left blank, there are no exceptions applied to this SDG.

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

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	173		0.260	1.00	5.00	5	07/30/2018 10:18	WG1144712

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	07/28/2018 00:17	WG1144362
Toluene	U		0.000412	0.00100	0.00100	1	07/28/2018 00:17	WG1144362
Ethylbenzene	U		0.000384	0.00100	0.00100	1	07/28/2018 00:17	WG1144362
Total Xylenes	U		0.00106	0.00300	0.00300	1	07/28/2018 00:17	WG1144362
(S) Toluene-d8	*103*				*80.0-120*		*07/28/2018 00:17*	WG1144362
(S) Dibromofluoromethane	*104*				*76.0-123*		*07/28/2018 00:17*	WG1144362
(S) a,a,a-Trifluorotoluene	*93.8*				*80.0-120*		*07/28/2018 00:17*	WG1144362
(S) 4-Bromofluorobenzene	*82.0*				*80.0-120*		*07/28/2018 00:17*	WG1144362

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	44.8		0.0519	1.00	1.00	1	07/30/2018 10:33	WG1144712

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	07/28/2018 00:37	WG1144362
Toluene	U		0.000412	0.00100	0.00100	1	07/28/2018 00:37	WG1144362
Ethylbenzene	U		0.000384	0.00100	0.00100	1	07/28/2018 00:37	WG1144362
Total Xylenes	U		0.00106	0.00300	0.00300	1	07/28/2018 00:37	WG1144362
(S) Toluene-d8	*100*				*80.0-120*		*07/28/2018 00:37*	WG1144362
(S) Dibromofluoromethane	*101*				*76.0-123*		*07/28/2018 00:37*	WG1144362
(S) a,a,a-Trifluorotoluene	*94.1*				*80.0-120*		*07/28/2018 00:37*	WG1144362
(S) 4-Bromofluorobenzene	*82.7*				*80.0-120*		*07/28/2018 00:37*	WG1144362

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	225		0.260	1.00	5.00	5	07/30/2018 11:04	WG1144712

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	07/28/2018 00:57	WG1144362
Toluene	U		0.000412	0.00100	0.00100	1	07/28/2018 00:57	WG1144362
Ethylbenzene	U		0.000384	0.00100	0.00100	1	07/28/2018 00:57	WG1144362
Total Xylenes	U		0.00106	0.00300	0.00300	1	07/28/2018 00:57	WG1144362
(S) Toluene-d8	*103*				*80.0-120*		*07/28/2018 00:57*	WG1144362
(S) Dibromofluoromethane	*105*				*76.0-123*		*07/28/2018 00:57*	WG1144362
(S) a,a,a-Trifluorotoluene	*93.9*				*80.0-120*		*07/28/2018 00:57*	WG1144362
(S) 4-Bromofluorobenzene	*84.4*				*80.0-120*		*07/28/2018 00:57*	WG1144362

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	117		0.260	1.00	5.00	5	07/30/2018 11:34	WG1144712

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	07/28/2018 01:17	WG1144362
Toluene	U		0.000412	0.00100	0.00100	1	07/28/2018 01:17	WG1144362
Ethylbenzene	U		0.000384	0.00100	0.00100	1	07/28/2018 01:17	WG1144362
Total Xylenes	U		0.00106	0.00300	0.00300	1	07/28/2018 01:17	WG1144362
(S) Toluene-d8	*103*				*80.0-120*		*07/28/2018 01:17*	WG1144362
(S) Dibromofluoromethane	*102*				*76.0-123*		*07/28/2018 01:17*	WG1144362
(S) a,a,a-Trifluorotoluene	*94.1*				*80.0-120*		*07/28/2018 01:17*	WG1144362
(S) 4-Bromofluorobenzene	*82.4*				*80.0-120*		*07/28/2018 01:17*	WG1144362

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	254		0.519	1.00	10.0	10	07/30/2018 11:50	WG1144712

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	07/28/2018 01:37	WG1144362
Toluene	U		0.000412	0.00100	0.00100	1	07/28/2018 01:37	WG1144362
Ethylbenzene	U		0.000384	0.00100	0.00100	1	07/28/2018 01:37	WG1144362
Total Xylenes	U		0.00106	0.00300	0.00300	1	07/28/2018 01:37	WG1144362
(S) Toluene-d8	*104*				*80.0-120*		*07/28/2018 01:37*	WG1144362
(S) Dibromofluoromethane	*103*				*76.0-123*		*07/28/2018 01:37*	WG1144362
(S) a,a,a-Trifluorotoluene	*94.8*				*80.0-120*		*07/28/2018 01:37*	WG1144362
(S) 4-Bromofluorobenzene	*84.1*				*80.0-120*		*07/28/2018 01:37*	WG1144362

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	169		0.260	1.00	5.00	5	07/30/2018 12:36	WG1144712

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	07/28/2018 01:57	WG1144362
Toluene	U		0.000412	0.00100	0.00100	1	07/28/2018 01:57	WG1144362
Ethylbenzene	U		0.000384	0.00100	0.00100	1	07/28/2018 01:57	WG1144362
Total Xylenes	U		0.00106	0.00300	0.00300	1	07/28/2018 01:57	WG1144362
(S) Toluene-d8	*101*				*80.0-120*		*07/28/2018 01:57*	WG1144362
(S) Dibromofluoromethane	*107*				*76.0-123*		*07/28/2018 01:57*	WG1144362
(S) a,a,a-Trifluorotoluene	*91.7*				*80.0-120*		*07/28/2018 01:57*	WG1144362
(S) 4-Bromofluorobenzene	*84.9*				*80.0-120*		*07/28/2018 01:57*	WG1144362

Method Blank (MB)

(MB) R3329949-1 07/30/18 09:13

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

L1012973-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1012973-02 07/30/18 10:33 • (DUP) R3329949-4 07/30/18 10:48

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	44.8	45.0	1	0.517		15

L1013014-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1013014-01 07/31/18 09:35 • (DUP) R3329949-9 07/31/18 09:51

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	16500	17400	200	5.50		15

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

(LCS) R3329949-2 07/30/18 09:28 • (LCSD) R3329949-3 07/30/18 09:44

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 %
Chloride	40.0	38.9	39.0	97.2	97.6	80.0-120			0.461	15

L1013010-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1013010-01 07/30/18 13:07 • (MS) R3329949-5 07/30/18 13:22 • (MSD) R3329949-6 07/30/18 13:38

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	11.8	60.6	61.3	97.8	99.0	1	80.0-120			1.02	15

L1013037-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1013037-01 07/30/18 14:09 • (MS) R3329949-7 07/30/18 14:24

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	24.4	73.7	98.5	1	80.0-120	

Method Blank (MB)

(MB) R3329465-6 07/27/18 22:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.000331	0.00100
Ethylbenzene	U		0.000384	0.00100
Toluene	U		0.000412	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*101*			*80.0-120*
(S) Dibromofluoromethane	*104*			*76.0-123*
(S) a,a,a-Trifluorotoluene	*91.8*			*80.0-120*
(S) 4-Bromofluorobenzene	*84.3*			*80.0-120*

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

(LCS) R3329465-1 07/27/18 20:39 • (LCSD) R3329465-2 07/27/18 20:59

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	0.0250	0.0256	0.0249	102	99.7	69.0-123			2.48	20
Ethylbenzene	0.0250	0.0226	0.0228	90.5	91.4	77.0-120			0.915	20
Toluene	0.0250	0.0232	0.0233	92.7	93.2	77.0-120			0.532	20
Xylenes, Total	0.0750	0.0684	0.0699	91.2	93.2	77.0-120			2.17	20
(S) Toluene-d8				*97.0*	*100*	*80.0-120*				
(S) Dibromofluoromethane				*103*	*98.8*	*76.0-123*				
(S) a,a,a-Trifluorotoluene				*91.6*	*93.9*	*80.0-120*				
(S) 4-Bromofluorobenzene				*86.3*	*85.7*	*80.0-120*				

Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

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

Qualifier	Description

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

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

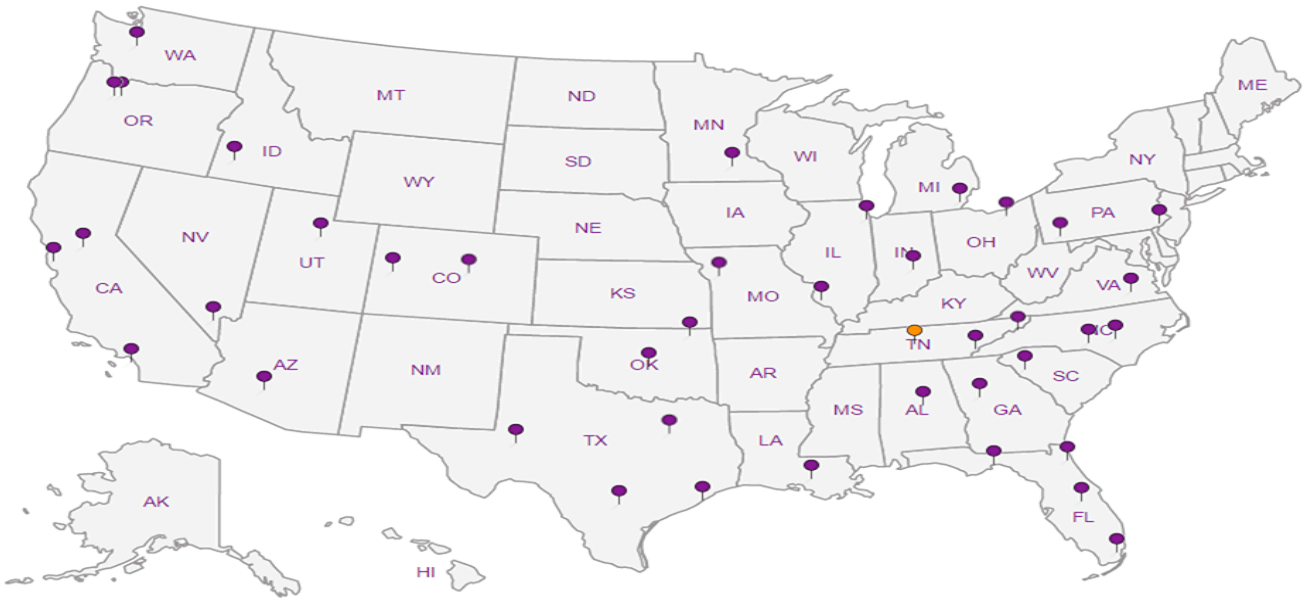
Third Party Federal Accreditations

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

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

Our Locations

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



Chain of Custody Page 1 of 1

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1012973
C031

Company Name/Address:
Tetra Tech
4000 N Big Spring St.
Ste. 401
Midland, TX 79705

Billing Information:

Report to: Todd Wells
Email To: todd.wells@tetratech

Project Description: Vacuum Glorieta
City/State Collected: Lea Co, NM

Phone:
Fax:
Client Project # 212C-MD-01268
Lab Project #

Collected by (print): Clint Merritt
Site/Facility ID #
P.O. #

Collected by (signature):
Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed
Email? ___No ___Yes
FAX? ___No ___Yes

Acctnum: TetraHTX
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX 40 mL Amber - HCl	Chlorides	Rem./Contaminant	Sample # (lab only)
VG-2	—	GW	—	7/25	15:00	3	X	X		-01
VG-3	—		—		11:05	3	X	X		-02
VG-5	—		—		15:50	3	X	X		-03
VG-6	—		—		12:30	3	X	X		-04
VG-7	—		—		13:40	3	X	X		-05
Dup	—	↓	—	↓	—	3	X	X		-06

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Hold #

Condition: (lab use only)

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	7/26	14:00	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____
Temp: 1.3 °C Bottles Received: 17
Date: 7/27/18 Time: 0825

COC Seal Intact: ___Y ___N ___NA
pH Checked: NCF:

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: TETRA HTX	SDG#	L1012973
Cooler Received/Opened On: 7/11/18	Temperature:	1-3
Received By: Patrick Nshizirungu		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?			
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?		✓	
Preservation Correct / Checked?			

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 23, 2018

ConocoPhillips - Tetra Tech

Sample Delivery Group:	L1045280
Samples Received:	11/16/2018
Project Number:	212C-MD-01268
Description:	Vacuum Glorietta

Report To: Todd Wells
4001 N. Big Spring St., Ste. 401
Midland, TX 79705

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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

VG-6 L1045280-01 GW

Collected by: Preston P | Collected date/time: 11/14/18 12:05 | Received date/time: 11/16/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1199280	5	11/20/18 18:21	11/20/18 18:21	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1198678	1	11/18/18 16:36	11/18/18 16:36	JHH

VG-3 L1045280-02 GW

Collected by: Preston P | Collected date/time: 11/14/18 13:15 | Received date/time: 11/16/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1199280	1	11/20/18 18:38	11/20/18 18:38	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1198678	1	11/18/18 16:55	11/18/18 16:55	JHH

VG-7 L1045280-03 GW

Collected by: Preston P | Collected date/time: 11/14/18 14:05 | Received date/time: 11/16/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1199280	10	11/20/18 20:16	11/20/18 20:16	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1198678	1	11/18/18 17:14	11/18/18 17:14	JHH

VG-5 L1045280-04 GW

Collected by: Preston P | Collected date/time: 11/14/18 15:15 | Received date/time: 11/16/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1199280	5	11/20/18 20:33	11/20/18 20:33	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1198678	1	11/18/18 17:34	11/18/18 17:34	JHH

VG-2 L1045280-05 GW

Collected by: Preston P | Collected date/time: 11/14/18 16:25 | Received date/time: 11/16/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1199280	5	11/20/18 20:49	11/20/18 20:49	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1198678	1	11/18/18 17:53	11/18/18 17:53	JHH

DUP L1045280-06 GW

Collected by: Preston P | Collected date/time: 11/14/18 00:00 | Received date/time: 11/16/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1199280	5	11/20/18 21:05	11/20/18 21:05	ELN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1198678	1	11/18/18 18:12	11/18/18 18:12	JHH

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	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	134		0.260	1.00	5.00	5	11/20/2018 18:21	WG1199280

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	11/18/2018 16:36	WG1198678
Toluene	U		0.000412	0.00100	0.00100	1	11/18/2018 16:36	WG1198678
Ethylbenzene	U		0.000384	0.00100	0.00100	1	11/18/2018 16:36	WG1198678
Total Xylenes	U		0.00106	0.00300	0.00300	1	11/18/2018 16:36	WG1198678
(S) Toluene-d8	*107*				*80.0-120*		*11/18/2018 16:36*	WG1198678
(S) Dibromofluoromethane	*89.5*				*75.0-120*		*11/18/2018 16:36*	WG1198678
(S) a,a,a-Trifluorotoluene	*106*				*80.0-120*		*11/18/2018 16:36*	WG1198678
(S) 4-Bromofluorobenzene	*94.4*				*77.0-126*		*11/18/2018 16:36*	WG1198678

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	46.6		0.0519	1.00	1.00	1	11/20/2018 18:38	WG1199280

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	11/18/2018 16:55	WG1198678
Toluene	U		0.000412	0.00100	0.00100	1	11/18/2018 16:55	WG1198678
Ethylbenzene	U		0.000384	0.00100	0.00100	1	11/18/2018 16:55	WG1198678
Total Xylenes	U		0.00106	0.00300	0.00300	1	11/18/2018 16:55	WG1198678
(S) Toluene-d8	*108*				*80.0-120*		*11/18/2018 16:55*	WG1198678
(S) Dibromofluoromethane	*90.8*				*75.0-120*		*11/18/2018 16:55*	WG1198678
(S) a,a,a-Trifluorotoluene	*106*				*80.0-120*		*11/18/2018 16:55*	WG1198678
(S) 4-Bromofluorobenzene	*94.2*				*77.0-126*		*11/18/2018 16:55*	WG1198678

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	229		0.519	1.00	10.0	10	11/20/2018 20:16	WG1199280

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	11/18/2018 17:14	WG1198678
Toluene	U		0.000412	0.00100	0.00100	1	11/18/2018 17:14	WG1198678
Ethylbenzene	U		0.000384	0.00100	0.00100	1	11/18/2018 17:14	WG1198678
Total Xylenes	U		0.00106	0.00300	0.00300	1	11/18/2018 17:14	WG1198678
(S) Toluene-d8	*108*				*80.0-120*		*11/18/2018 17:14*	WG1198678
(S) Dibromofluoromethane	*90.3*				*75.0-120*		*11/18/2018 17:14*	WG1198678
(S) a,a,a-Trifluorotoluene	*103*				*80.0-120*		*11/18/2018 17:14*	WG1198678
(S) 4-Bromofluorobenzene	*93.4*				*77.0-126*		*11/18/2018 17:14*	WG1198678

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	180		0.260	1.00	5.00	5	11/20/2018 20:33	WG1199280

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	11/18/2018 17:34	WG1198678
Toluene	U		0.000412	0.00100	0.00100	1	11/18/2018 17:34	WG1198678
Ethylbenzene	U		0.000384	0.00100	0.00100	1	11/18/2018 17:34	WG1198678
Total Xylenes	U		0.00106	0.00300	0.00300	1	11/18/2018 17:34	WG1198678
(S) Toluene-d8	*108*				*80.0-120*		*11/18/2018 17:34*	WG1198678
(S) Dibromofluoromethane	*90.6*				*75.0-120*		*11/18/2018 17:34*	WG1198678
(S) a,a,a-Trifluorotoluene	*107*				*80.0-120*		*11/18/2018 17:34*	WG1198678
(S) 4-Bromofluorobenzene	*96.9*				*77.0-126*		*11/18/2018 17:34*	WG1198678

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	175		0.260	1.00	5.00	5	11/20/2018 20:49	WG1199280

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	11/18/2018 17:53	WG1198678
Toluene	U		0.000412	0.00100	0.00100	1	11/18/2018 17:53	WG1198678
Ethylbenzene	U		0.000384	0.00100	0.00100	1	11/18/2018 17:53	WG1198678
Total Xylenes	U		0.00106	0.00300	0.00300	1	11/18/2018 17:53	WG1198678
(S) Toluene-d8	*106*				*80.0-120*		*11/18/2018 17:53*	WG1198678
(S) Dibromofluoromethane	*89.9*				*75.0-120*		*11/18/2018 17:53*	WG1198678
(S) a,a,a-Trifluorotoluene	*103*				*80.0-120*		*11/18/2018 17:53*	WG1198678
(S) 4-Bromofluorobenzene	*94.5*				*77.0-126*		*11/18/2018 17:53*	WG1198678

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Chloride	177		0.260	1.00	5.00	5	11/20/2018 21:05	WG1199280

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000331	0.00100	0.00100	1	11/18/2018 18:12	WG1198678
Toluene	U		0.000412	0.00100	0.00100	1	11/18/2018 18:12	WG1198678
Ethylbenzene	U		0.000384	0.00100	0.00100	1	11/18/2018 18:12	WG1198678
Total Xylenes	U		0.00106	0.00300	0.00300	1	11/18/2018 18:12	WG1198678
(S) Toluene-d8	*109*				*80.0-120*		*11/18/2018 18:12*	WG1198678
(S) Dibromofluoromethane	*91.5*				*75.0-120*		*11/18/2018 18:12*	WG1198678
(S) a,a,a-Trifluorotoluene	*106*				*80.0-120*		*11/18/2018 18:12*	WG1198678
(S) 4-Bromofluorobenzene	*96.3*				*77.0-126*		*11/18/2018 18:12*	WG1198678

Method Blank (MB)

(MB) R3361873-1 11/20/18 16:26

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

L1045280-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1045280-02 11/20/18 18:38 • (DUP) R3361873-3 11/20/18 18:54

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	46.6	46.7	1	0.191		15

L1045353-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1045353-01 11/20/18 22:27 • (DUP) R3361873-6 11/20/18 22:44

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	7.41	7.44	1	0.368		15

Laboratory Control Sample (LCS)

(LCS) R3361873-2 11/20/18 16:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	39.5	98.9	80.0-120	

L1045280-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1045280-02 11/20/18 18:38 • (MS) R3361873-4 11/20/18 19:10 • (MSD) R3361873-5 11/20/18 19:27

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	46.6	95.1	94.9	97.0	96.5	1	80.0-120			0.259	15

L1045353-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1045353-01 11/20/18 22:27 • (MS) R3361873-7 11/20/18 23:33

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	7.41	59.2	104	1	80.0-120	

Method Blank (MB)

(MB) R3361199-4 11/18/18 11:09

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.000331	0.00100
Ethylbenzene	U		0.000384	0.00100
Toluene	U		0.000412	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*107*			*80.0-120*
(S) Dibromofluoromethane	*90.2*			*75.0-120*
(S) a,a,a-Trifluorotoluene	*106*			*80.0-120*
(S) 4-Bromofluorobenzene	*95.7*			*77.0-126*

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

(LCS) R3361199-1 11/18/18 09:51 • (LCSD) R3361199-2 11/18/18 10:11

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	0.0250	0.0228	0.0228	91.2	91.1	70.0-123			0.0887	20
Ethylbenzene	0.0250	0.0275	0.0285	110	114	79.0-123			3.67	20
Toluene	0.0250	0.0267	0.0274	107	110	79.0-120			2.41	20
Xylenes, Total	0.0750	0.0831	0.0854	111	114	79.0-123			2.73	20
(S) Toluene-d8				*105*	*109*	*80.0-120*				
(S) Dibromofluoromethane				*90.0*	*89.6*	*75.0-120*				
(S) a,a,a-Trifluorotoluene				*104*	*104*	*80.0-120*				
(S) 4-Bromofluorobenzene				*92.4*	*92.6*	*77.0-126*				

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.

Abbreviations and Definitions

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

Qualifier	Description

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

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

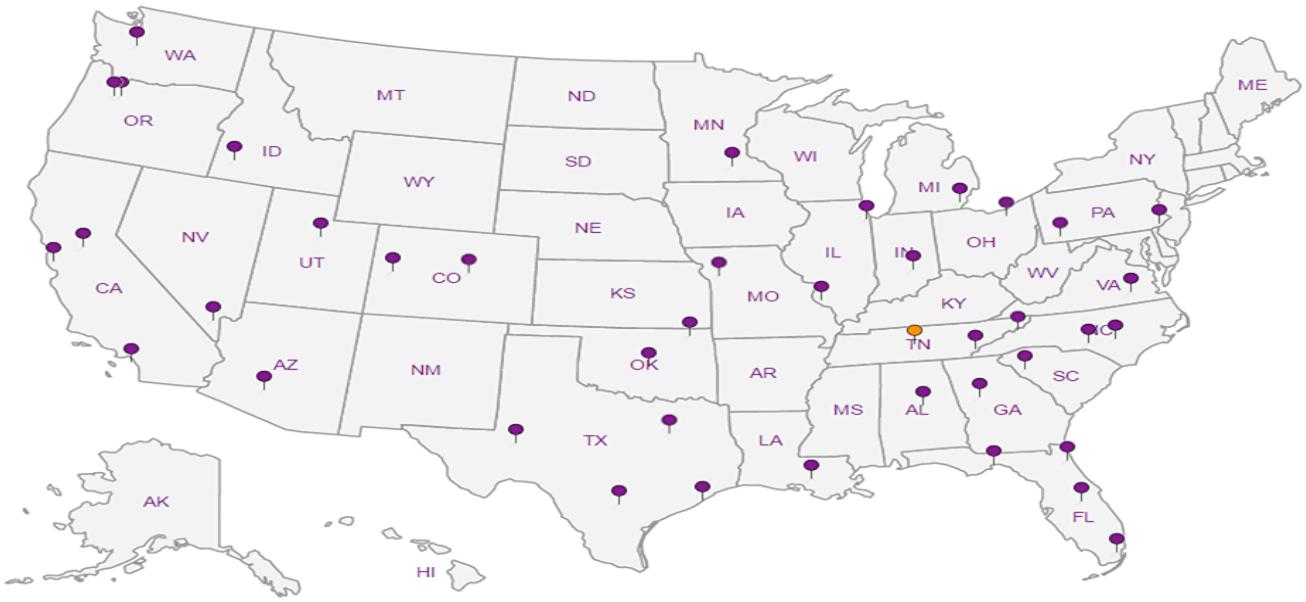
Third Party Federal Accreditations

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

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

Our Locations

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



ConocoPhillips - Tetra Tech

Billing Information:

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical®

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

Report to: **Todd Wells**

Email To: **To: todd.wells@tetratech.com**

Project Description: **Vacuum Glorietta**

City/State Collected:

Phone: **432-687-8137**
Fax:

Client Project #

Lab Project #

L# [illegible]

Table # L104528D

Collected by (print): Preston Biteviat

Site/Facility ID #

P.O. #

Acctnum: **COPTETRA**

Collected by (signature): [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

Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX 8260 40ml-HCL	Chlorides 125ml - NoPres								Remarks	Sample # (lab only)
VG-6		GW		11-14-18	1205	3	X	X									-01
VG-3		GW		11-14-18	1315	3	X	X									-02
VG-7		GW		11-14-18	1405	3	X	X									-03
VG-5		GW		11-14-18	1515	3	X	X									-04
VG-2		GW		11-14-18	1625	3	X	X									-05
DUP		GW		11-14-18		3	X	X									-06
		GW															

* 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
RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
[signature]	11-15-18	1330	[signature]	

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C	Bottles Received:	If preservation required by Login: Date/Time
				0.4+0.1=0.5	18	

Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:	Hold:	Condition: NCF / OK
			[signature]	11/16	8:45		OK