



February 8, 2021

District Supervisor
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

**Re: Release Characterization and Reclamation Work Plan
ConocoPhillips
MCA #2A Trunk Line Release
Unit Letter A, Section 29, Township 17 South, Range 32 East
Lea County, New Mexico
1RP-798
Incident ID nPAC0608132658**

Sir or Madam:

Tetra Tech, Inc. (Tetra Tech) was contacted by ConocoPhillips (COP) to assess a historical release that occurred at the Maljamar Cooperative Agreement (MCA) #2A produced water trunk line. The release footprint is located approximately 100 feet (ft) west-northwest of the MCA #252 injection well (API No. 30-025-23482) in Public Land Survey System (PLSS) Unit Letter A, Section 29, Township 17 South, Range 32 East, in Lea County, New Mexico (Site). The approximate release point occurred at coordinates 32.809543°, -103.779729°, as shown on Figures 1 and 2.

BACKGROUND

According to the State of New Mexico C-141 Initial Report (Appendix A), the release was discovered on December 16, 1999. The release reportedly occurred due to internal corrosion of buried steel pipe on the MCA #2A produced water trunk line. The release consisted of 230 barrels (bbls) of salt water and affected a 25-ft by 250-ft area of drift sand. During immediate response actions, a vacuum truck recovered 205 bbls of the salt water. The initial C-141 report form was submitted to the New Mexico Oil Conservation District (NMOCD), who subsequently assigned the release the Remediation Permit (RP) number 1RP-798 and the Incident ID nPAC0608132658. The 1RP-798 release is included in an Agreed Compliance Order-Releases (ACO-R) between COP and the NMOCD signed on May 7 and 9, 2019, respectively.

SITE CHARACTERIZATION

A site characterization was performed and no watercourses, sinkholes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, playa lakes, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the distances specified in 19.15.29 New Mexico Administrative Code (NMAC). The Site is in an area of low karst potential.

According to the New Mexico Office of the State Engineers (NMOSE) reporting system, there are fifteen (15) water wells within 2,000 meters (approximately 1.25 miles) of the Site. The average depth to groundwater is 91 ft below ground surface (bgs). The site characterization data is included in Appendix B.

REGULATORY FRAMEWORK

Based upon the release footprint and in accordance with Subsection E of 19.15.29.12 NMAC, per 19.15.29.11 NMAC, the site characterization data was used to determine recommended remedial action

Tetra Tech

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levels (RRALs) for benzene, toluene, ethylbenzene, and xylene (collectively referred to as BTEX), total petroleum hydrocarbons (TPH), and chlorides in soil.

Based on the site characterization and in accordance with Table I of 19.15.29.12 NMAC, the remediation RRALs for the Site are as follows:

Constituent	Remediation RRAL
Chloride	10,000 mg/kg
TPH	2,500 mg/kg
BTEX	50 mg/kg

Additionally, in accordance with the NMOCD guidance *Procedures for Implementation of the Spill Rule (19.15.29 NMAC)* (September 6, 2019), the following reclamation RRALs for surface soils (0-4 ft bgs) outside of active oil and gas operations are as follows:

Constituent	Reclamation RRAL
Chloride	600 mg/kg
TPH	100 mg/kg
BTEX	50 mg/kg

INITIAL ASSESSMENT ACTIVITIES AND SAMPLING RESULTS

Initial assessment activities conducted at the Site were reported to the NMOCD in an Environmental Site Investigation (ESI) report dated November 19, 2001, prepared by BBC International, Inc. (BBC) on behalf of COP (Appendix C). On June 22, 2000 COP collected a three-point composite sample a depth of 6 ft and 8 inches and submitted it to the lab to be analyzed for chlorides. On October 16, 2000, COP engaged BBC to collect one sample at a depth of 8 ft bgs using a backhoe and submitted the sample to Cardinal Laboratories in Hobbs, New Mexico to be analyzed for chlorides. On October 11, 2001, BBC personnel returned to the site to take an additional soil sample at a greater depth. One sample point was drilled to a depth of 34 ft using BBC's tractor mount drilling rig. Field chloride titrations were used to determine samples to be sent for laboratory analysis. A Site diagram of the release extent and sample locations are presented in Figure 1 of the ESI report (Appendix C).

Results from the June 2000, October 2000, and October 2001 sampling events are summarized alongside the Site diagram in Figure 1 of the ESI report (Appendix C). Chloride concentrations were 701 mg/kg in the sample collected at 6 ft and 8 inches bgs, 763 mg/kg in the sample collected at 8 ft bgs, and 416 mg/kg in the sample collected at 34 ft bgs. The laboratory analytical reports are included in Appendix I and Appendix II of the ESI report (Appendix C).

The BBC report concluded that because the depth to groundwater is greater than 55 ft bgs at the Site, and that the subsurface soil lithology consists of caliche and sandstone layers, then migration of chlorides to groundwater is unlikely. BBC recommended that only surface remediation is necessary and that gypsum, ammonium nitrate, Salt Block, or other amendments that will reduce the chloride concentrations in the soil be added to allow for revegetation. During a visual Site inspection conducted by Tetra Tech in June 2020, surficial staining was observed in the western portion of the release footprint in the pasture, and the release area appeared partially revegetated. Photographic documentation of Site conditions taken during the June 2020 Site visit is presented in Appendix D.

ADDITIONAL SITE ASSESSMENT

In order to complete horizontal and vertical delineation of the release extent, Tetra Tech personnel conducted soil sampling on December 3, 2020 on behalf of COP. Four (4) borings (AH-1 through AH-4) were installed along the perimeter of the release extent (to the north, south, east, and west, respectively) to depths of 2 ft bgs to achieve horizontal delineation. Two (2) borings (AH-5 and AH-6) were installed within the release extent to depths of 6 ft bgs to achieve vertical delineation. Surface and subsurface soils

consist of light brown to tan loose silty sands. Figure 3 depicts the release extent and the 2020 soil boring locations. The GPS coordinates for the 2020 soil boring locations are presented in Table 1.

A total of sixteen (16) samples were collected from the six (6) borings (AH-1 through AH-6) and submitted to Pace Analytical National Center for Testing & Innovation (Pace) in Nashville, Tennessee to be analyzed for chlorides via EPA Method 300.0, TPH via EPA Method 8015M, and BTEX via EPA Method 8021B. A copy of the laboratory analytical report and chain-of-custody documentation are included in Appendix E.

SUMMARY OF SAMPLING RESULTS

Results from the December 2020 soil sampling event are summarized in Table 2. The analytical results associated with all samples collected from the six (6) borings (AH-1 through AH-6) were below the appropriate Site reclamation and remediation RRALs for all constituents.

SITE RECLAMATION AND RESTORATION PLAN

Based on the results of the Site assessment, no soil remediation is necessary at the Site. However, as this is an off-pad release, Site reclamation and restoration activities are warranted in order to establish vegetative cover that reflects a life-form ratio of plus or minus fifty percent of pre-disturbance levels and a total percent plant cover of at least seventy percent of pre-disturbance levels. Bare soils in the former release footprint will be ripped, blended with clean topsoil, and contoured to promote drainage and root penetration. The mixing of topsoil with underlying subsoil will promote revegetation (Figure 4).

Unvegetated areas in the former release footprint will be seeded in Spring 2021 (or the first favorable growing season) to aid in revegetation. Based on the soils at the site, the New Mexico State Land Office (NMSLO) Sandy (S) Sites Seed Mixture will be used for seeding and will be planted in the amount specified in the pounds pure live seed (PLS) per acre. The seed mixture will be spread by a drill equipped with a depth regulator or a hand-held broadcaster and raked. If a hand-held broadcaster is used for dispersal, the pounds pure live seed per acre will be doubled.

Site inspections will be performed to assess the revegetation progress and evaluate the site for the presence of primary or secondary noxious weeds. If noxious weeds are identified, the NMSLO will be contacted to determine an effective method for eradication. If the site does not show revegetation after one growing season, the area will be reseeded as appropriate. The NMSLO seed mixture details and corresponding pounds pure live seed per acre are included in Appendix F.

CONCLUSION

ConocoPhillips proposes to begin reclamation activities at the Site within 1 year of NMOCD plan approval. The MCA #2A Trunk Line Release (1RP-798) is included in an Agreed Compliance Order-Releases (ACO-R) between COP and the NMOCD signed on May 7 and 9, 2019, respectively. COP is dedicated to addressing and closing all historical releases included in the ACO-R, and given the number of releases to be addressed, 1 year is anticipated to be a practicable timeline. Upon completion of the proposed work, a final closure report detailing the reclamation activities will be submitted to NMOCD.

If you have any questions concerning the soil assessment or the proposed reclamation activities for the Site, please call me at (512) 739-7874 or Christian at (512) 338-2861.

Release Characterization and Reclamation Work Plan
February 8, 2021

ConocoPhillips

Sincerely,
Tetra Tech, Inc.



Samantha K. Abbott, P.G.
Senior Staff Geologist



Christian M. Llull, P.G.
Project Manager

cc:

Mr. Marvin Soriwei, RMR – ConocoPhillips
Mr. Charles Beauvais, GPBU - ConocoPhillips

LIST OF ATTACHMENTS

Figures:

- Figure 1 – Site Map
- Figure 2 – Topographic Map
- Figure 3 – Release Extent and Assessment Map
- Figure 4 – Proposed Reclamation Extent

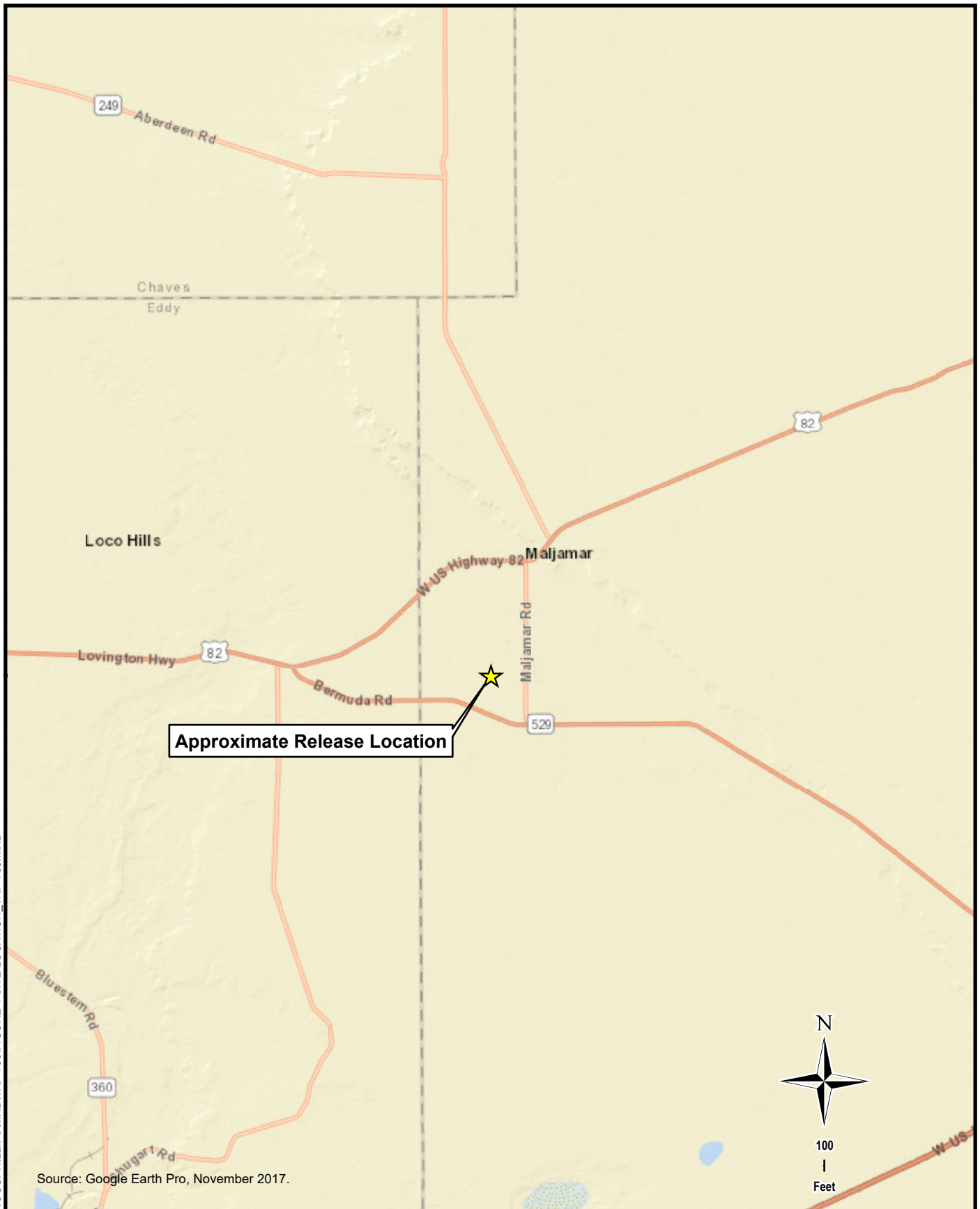
Tables:

- Table 1 – Boring Location Coordinates
- Table 2 – Summary of Analytical Results – Additional Soil Assessment

Appendices:

- Appendix A – C-141 Forms
- Appendix B – Site Characterization Data
- Appendix C – Environmental Site Investigation Report (BBC, November 19, 2001)
- Appendix D – Photographic Documentation
- Appendix E – Laboratory Analytical Data
- Appendix F – NMSLO Seed Mixture Details

FIGURES



Source: Google Earth Pro, November 2017.

DOCUMENT PATH: D:\CONOCOPHILLIPS\MXD\1RP-798\FIGURE 1 SITE LOCATION -1RP-798.MXD



TETRA TECH

www.tetrattech.com

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Midland, Texas 79701
Phone: (432) 682-4559
Fax: (432) 682-3946

CONOCOPHILLIPS

1RP-798

(32.809543°, -103.779729°)
LEA COUNTY, NEW MEXICO

**MCA #2A TRUNK LINE RELEASE
SITE LOCATION MAP**

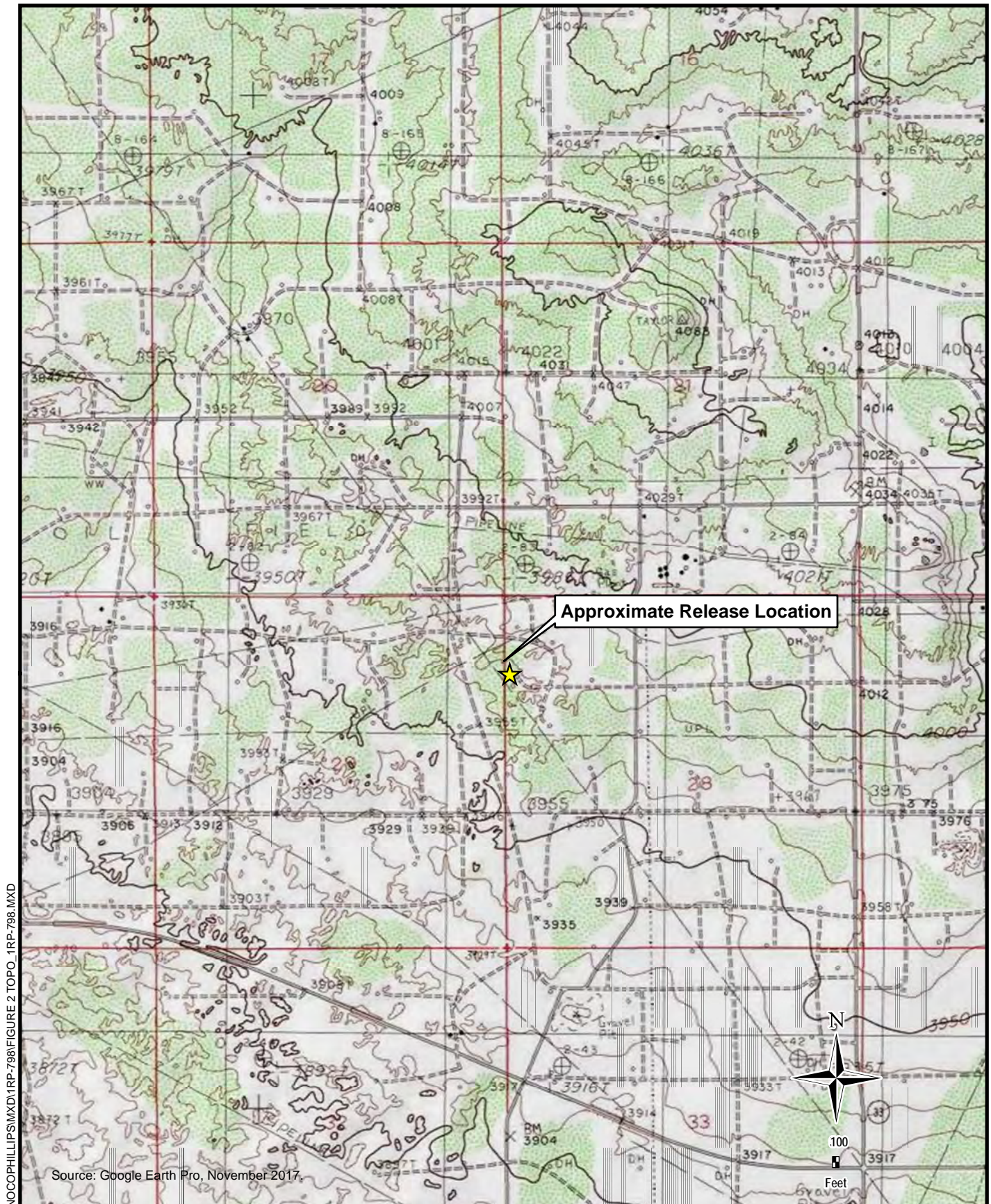
PROJECT NO.: 212C-MD-02152

DATE: DECEMBER 28, 2020

DESIGNED BY: AJW

Figure No.

1



DOCUMENT PATH: D:\CONOCOPHILLIPS\MXD\1RP-798\FIGURE 2 TOPO_1RP-798.MXD



www.tetrattech.com
 901 West Wall Street, Suite 100
 Midland, Texas 79701
 Phone: (432) 682-4559
 Fax: (432) 682-3946

CONOCOPHILLIPS

1RP-798
 (32.809543°, -103.779729°)
 LEA COUNTY, NEW MEXICO

MCA #2A TRUNK LINE RELEASE TOPOGRAPHIC MAP

PROJECT NO.: 212C-MD-02152

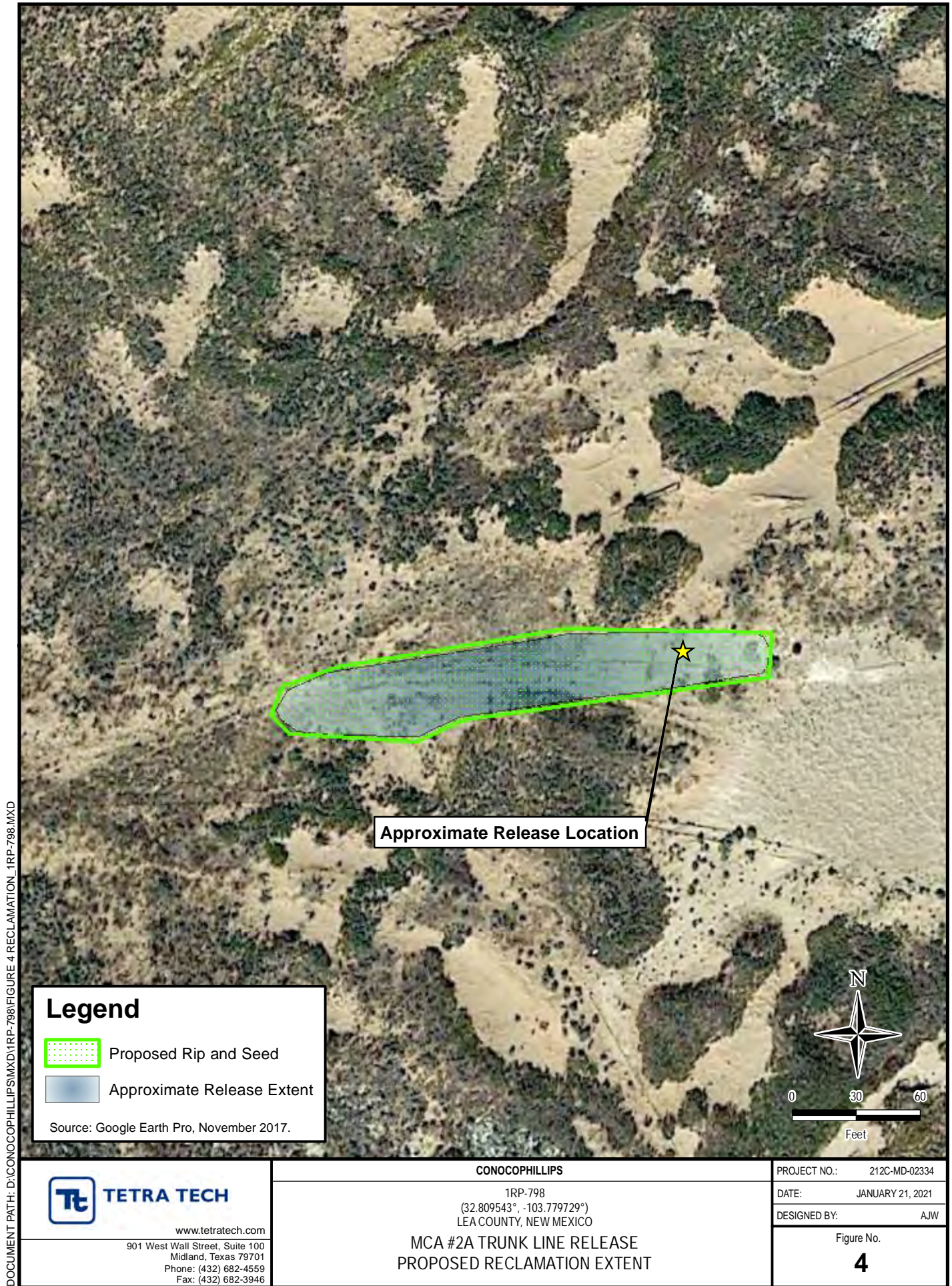
DATE: DECEMBER 28, 2020

DESIGNED BY: AJW

Figure No.

2





TABLES

TABLE 1
BORING LOCACTION COORDINATES
SOIL ASSESSMENT - 1RP-798
CONOCOPHILLIPS
MCA #2A RELEASE
LEA COUNTY, NM

Boring ID	Latitude	Longitude
AH-1	32.809592	-103.780000
AH-2	32.809420	-103.780030
AH-3	32.809561	-103.779559
AH-4	32.809398	-103.780401
AH-5	32.809536	-103.779789
AH-6	32.809505	-103.780092

TABLE 2
SUMMARY OF ANALYTICAL RESULTS
SOIL ASSESSMENT - 1RP-798
CONOCOPHILLIPS
MCA #2A RELEASE
LEA COUNTY, NM

Sample ID	Sample Date	Sample Depth Interval	Chloride ¹		BTEX ²								TPH ³								
					Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTEX	GRO ⁴		DRO		ORO		Total TPH (GRO+DRO+ORO)	
														C ₃ - C ₁₀		C ₁₀ - C ₂₈		C ₂₈ - C ₄₀			
		ft. bgs	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg		
AH-1	12/3/2020	0-1	< 20.4		< 0.00104		< 0.00518		< 0.00259		< 0.00673		-		< 0.102		4.37		23.8		28.2
		1-2	< 20.2		< 0.00102		< 0.00508		< 0.00254		< 0.00660		-		< 0.101		2.46	J	12.5		15.0
AH-2	12/3/2020	0-1	< 20.1		< 0.00101		< 0.00506		< 0.00253		< 0.00657		-		< 0.101		7.09		35.7		42.8
		1-2	< 20.1		< 0.00101		< 0.00506		< 0.00253		< 0.00658		-		< 0.101		3.38	J	18.8		22.2
AH-3	12/3/2020	0-1	< 20.1		< 0.00101		< 0.00506		< 0.00253		< 0.00658		-		< 0.101		2.23	J	17.9		20.1
		1-2	< 20.1		< 0.00101		< 0.00506		< 0.00253		< 0.00658		-		0.0326	J	19.9		63.1		83.0
AH-4	12/3/2020	0-1	< 20.1		< 0.00101		< 0.00507		< 0.00254		< 0.00659		-		< 0.101		< 4.03		5.23		5.23
		1-2	< 20.1		< 0.00101		< 0.00503		< 0.00252		< 0.00654		-		< 0.100		< 4.01		1.95	J	1.95
AH-5	12/3/2020	0-1	< 20.1		< 0.00101		< 0.00507		< 0.00254		< 0.00659		-		0.0576	B J	< 4.03		1.67	J	1.73
		1-2	35.8		< 0.00102		< 0.00509		< 0.00255		< 0.00662		-		0.0548	B J	2.33	J	5.97		8.35
		3-4	249		< 0.00113		< 0.00564		< 0.00282		< 0.00733		-		0.0577	B J	< 4.25		2.47	J	2.53
		5-6	228		< 0.00112		< 0.00560		< 0.00280		< 0.00780		-		0.0521	B J	< 4.24		3.39	J	3.44
AH-6	12/3/2020	0-1	14.6	J	< 0.00101		< 0.00504		< 0.00252		< 0.00655		-		0.0550	B J	< 4.02		3.56	J	3.62
		1-2	77.8	J	< 0.00106		< 0.00528		< 0.00264		< 0.00687		-		0.0485	B J	< 4.11		1.85	J	1.90
		3-4	515		< 0.00122		< 0.00609		< 0.00304		< 0.00791		-		0.0558	B J	< 4.43		0.386	J	0.442
		5-6	754		< 0.00122		< 0.00608		< 0.00304		0.00335	J	0.00335		< 0.111		< 4.43		0.379	J	0.379

NOTES:
ft. Feet
bgs Below ground surface
ppm Parts per million
mg/kg Milligrams per kilogram
TPH Total Petroleum Hydrocarbons
GRO Gasoline range organics
DRO Diesel range organics
ORO Oil range organics

Bold and italicized values indicate exceedance of proposed RRALs
1 EPA Method 300.0
2 EPA Method 8260B
3 EPA Method 8015
4 EPA Method 8015D/GRO
QUALIFIERS:
B The same analyte is found in the associated blank.
J The identification of the analyte is acceptable; the reported value is an estimate.

APPENDIX A C-141 Forms

~~District I~~
1625 N. French Dr., Hobbs, NM 88240
~~District II~~
811 South First, Artesia, NM 88210
~~District III~~
1000 Rio Brazos Road, Aztec, NM 87410
~~District IV~~
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-141
Revised March 17, 1999

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company Conoco, Inc.	Contact Steve Wilson
Address 10 Desta Drive, Ste 100W, Midland, Texas 79705	Telephone No. (915) 686-5747
Facility Name 100' WNW of MCA #252 (MCA 2A TRUNK LINE)	Facility Type Injection Well

Surface Owner Caswell	Mineral Owner	Lease No. LC057210 / 6987018
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LOCATION OF RELEASE

Unit Letter D	Section 28	Township 17S	Range 32E	Feet from the 1250'	North/South Line North	Feet from the 200'	East/West Line West	County Lea
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NATURE OF RELEASE

Type of Release Salt Water	Volume of Release 230 bbls of salt water	Volume Recovered 205 bbls of salt water
Source of Release Pipe (2.5 Steel, Buried)	Date and Hour of Occurrence 12/16/99 at 10:00 AM +	Date and Hour of Discovery 12/16/99 at 2:15 PM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? NMOCD - Sylvia (via fax)	
By Whom? Larry Minnick	Date and Hour 12/16/99 at 8:00 PM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Cause of Problem: Internal corrosion to pipe

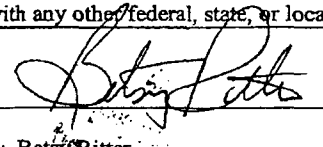
Remedial Action Taken: Replaced section of pipe with new I.P.C.

Describe Area Affected and Cleanup Action Taken.*

All drift sand - 25'x250'. Upon drying, will backdrag, cover and remediate in place

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases, which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

OIL CONSERVATION DIVISION

Signature: 	Approved by District Supervisor:	
Printed Name: Betsy Ritter	Approval Date:	Expiration Date:
Title: Agent for Conoco, Inc.	Attached <input type="checkbox"/>	
Date: March 20, 2000	Phone: (915) 570-6007	Conditions of Approval:

* Attach Additional Sheets If Necessary

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☐ Depth to water determination
- ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____ Title: _____

Signature: Charles R. Beauvais II Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☐ Detailed description of proposed remediation technique
- ☐ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____ Title: _____

Signature: Charles R. Beauvais II Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

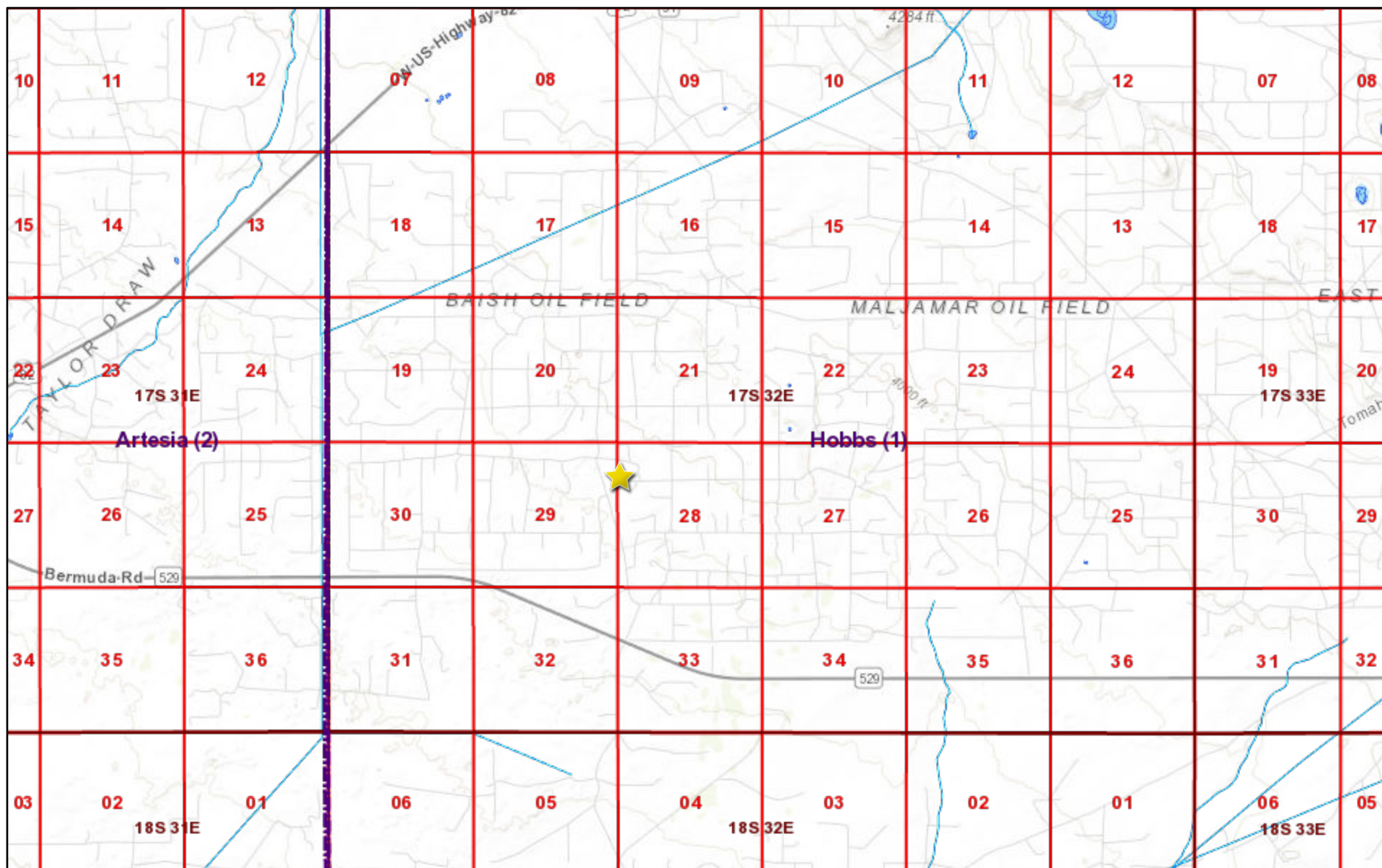
☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

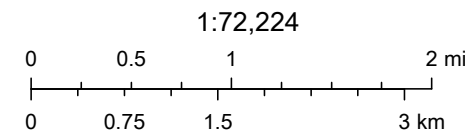
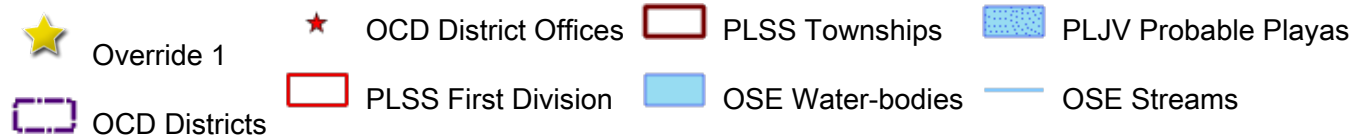
APPENDIX B

Site Characterization Data

1RP-798



2/8/2021, 5:54:11 PM



OCD, Bureau of Land Management, Texas Parks & Wildlife, Esri, HERE,




New Mexico Oil Conservation Division

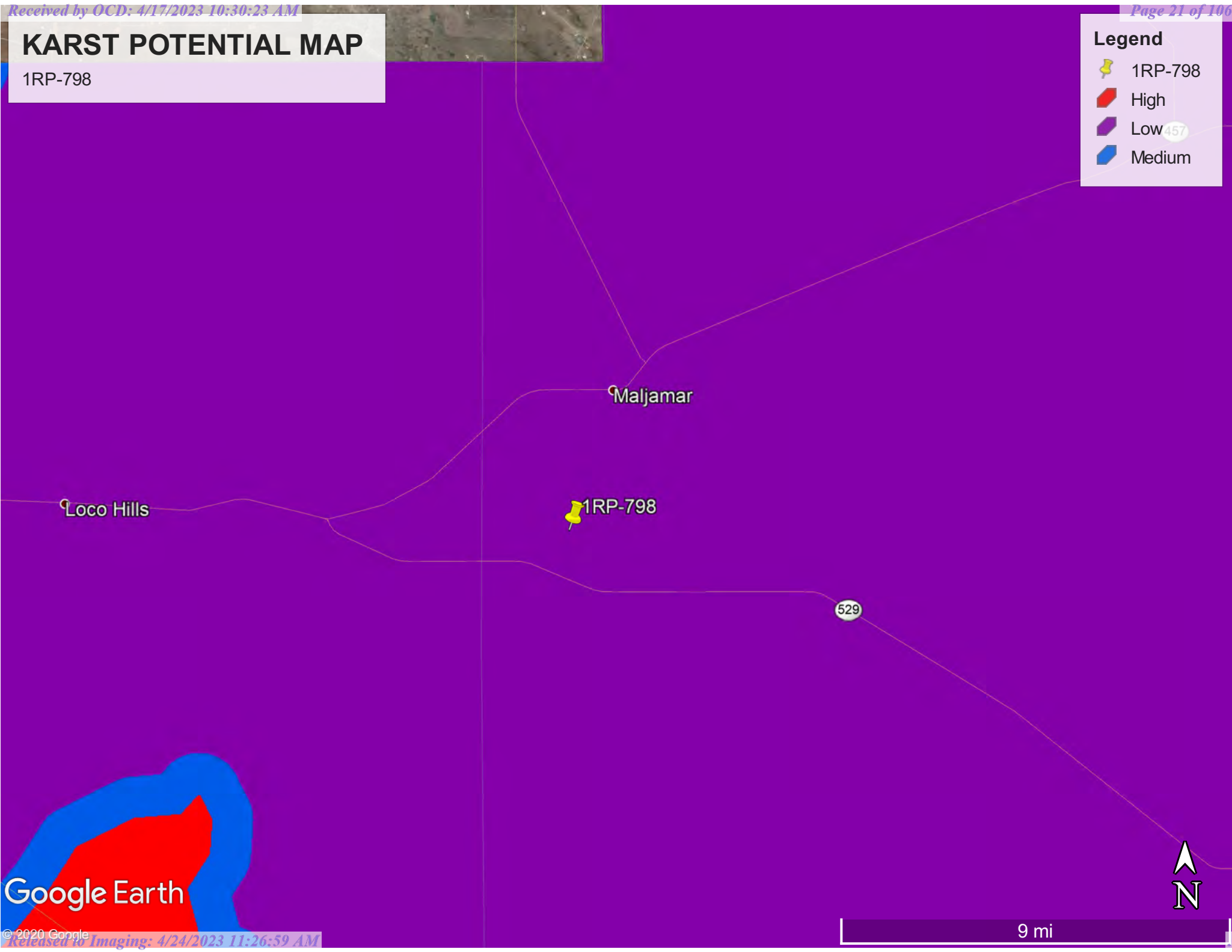
NM OCD Oil and Gas Map. <http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=4d017f2306164de29fd2fb9f8f35ca75>: New Mexico Oil Conservation Division

KARST POTENTIAL MAP

1RP-798

Legend

-  1RP-798
-  High
-  Low
-  Medium



Google Earth



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
RA 10175	RA	LE		2	1	28	17S	32E		614814	3631005*	639	158		
RA 12020 POD1	RA	LE		2	2	1	28	17S	32E	614828	3630954	641	120	81	39
RA 12042 POD1	RA	LE		2	2	1	28	17S	32E	614891	3631181	775	400		
RA 12522 POD2	RA	LE		2	2	1	28	17S	32E	614949	3631098	797	100		
RA 12522 POD1	RA	LE		3	3	4	21	17S	32E	614941	3631122	797	100		
RA 12721 POD1	RA	LE		3	2	3	28	17S	32E	614645	3630141	823	125		
RA 12522 POD3	RA	LE		4	4	3	28	17S	32E	614980	3631093	825	100		
RA 12721 POD2	RA	LE		1	1	4	28	17S	32E	615055	3630407	957	124	75	49
RA 12020 POD3	RA	LE		2	1	2	28	17S	32E	615152	3631019	972	112	83	29
RA 12521 POD1	RA	LE		3	3	4	21	17S	32E	615127	3631271	1027	105	92	13
RA 12721 POD3	RA	LE		2	3	4	28	17S	32E	615417	3629979	1487	115		
RA 12721 POD4	RA	LE		1	1	2	33	17S	32E	615055	3629589	1510	140		
RA 12721 POD5	RA	LE		2	4	4	28	17S	32E	615650	3629961	1693	130	124	6
RA 12721 POD7	RA	LE		1	3	2	33	17S	32E	615064	3629198	1849	130		
RA 12721 POD6	RA	LE		1	2	2	33	17S	32E	615530	3629431	1933	130		

Average Depth to Water: **91 feet**

Minimum Depth: **75 feet**

Maximum Depth: **124 feet**

Record Count: 15

UTMNAD83 Radius Search (in meters):

Easting (X): 614197.71

Northing (Y): 3630832.82

Radius: 2000

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

7/24/20 11:34 AM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER

APPENDIX C
Environmental Site Investigation Report
(BBC, November 19, 2001)



CONOCO INC.

MCA #2A TRUNKLINE LEAK

ENVIRONMENTAL SITE INVESTIGATION

PERFORMED BY:

BBC INTERNATIONAL, INC.
WORLD-WIDE ENVIRONMENTAL SPECIALISTS
1324 W. MARLAND BLVD.
P. O. BOX 805
HOBBS, NEW MEXICO 88240
(505)397-6388 • FAX (505)397-0397
EMAIL: bbc@bbcinternational.com
WEBSITE: www.bbcinternational.com

NOVEMBER 19, 2001

PREPARED FOR:

MR. JOHN COY
CONOCO INC.
PO BOX 180
MALJAMAR, NEW MEXICO 88264

Conoco 217817
facility # PAC0608132578
incident # PAC0608133658 application # *PAC0608132797*



PHONE (505) 397-6388 • FAX (505) 397- 0397 • 1324 W. MARLAND • P.O. BOX 805 • HOBBS, NM 88241-0805
E-MAIL: bbc@bbcinternational.com

April 12, 2002

Chris Williams
NM Oil Conservation Division

Hobbs, NM 88240

RE: Conoco, Inc. – MCA #2A Trunkline Leak

Dear Mr. Williams:

BBC International, Inc. respectfully submits this site investigation report for the MCA #2A Trunkline on behalf of Conoco, Inc.

This site is an area that was investigated due to an injection line leak that occurred on December 16, 1999. Approximately 230 barrels of produced water was released with 205 barrels recovered.

The initial investigation and sampling was conducted on October 16, 2000. In November 2000, the results were discussed with you and you requested additional sampling at a greater depth to track the downward migration of the chlorides. Additional samples were taken at greater depths on October 11, 2001. This report details the results.

As can be found in the report, the chlorides are reduced greatly at depth. The recommendation is to halt any further investigations activities and conduct surface remediation measures only.

I look forward to your review of this report and the agreement to our recommendation. If you have any questions, please do not hesitate to contact me at (505)397-6388 or at the address above.

Sincerely,

BBC International, Inc.

Ken Swinney, CEI, CRS
Director of Operations

KS:js

encl.

ENVIRONMENTAL CONSULTING AND REMEDIATION SERVICES
HOUSTON, TEXAS • WEBSITE: www.bbcinternational.com • CALGARY, ALBERTA

Conoco MCA # 2A Trunkline Leak 12-16-99

1.0 INTRODUCTION

The subject site is located south of Maljamar, New Mexico in Unit Letter D of Section 28, Township 17 South, Range 32 East. The site consists of undeveloped rangeland. On December 16, 1999, an injection line leaked approximately 230 barrels of produced water with 205 barrels being recovered.

2.0 SITE CHARACTERIZATION

The leak area runs East-West for approximately 180 feet on either side of the trunkline. The leak area is approximately 24 feet wide. The surface soil is red sand. There is no water source within 1,000 feet of the site. There is no surface water within 1,000 feet of the site. Based on data from the ground water monitoring well located at the Conoco Maljamar Plant, depth to ground water is approximately 90 feet.

3.0 SITE INVESTIGATION ACTIVITIES

On June 22, 2000, Conoco personnel took a three point composite sample at the site for laboratory analysis. This sample was taken at a depth of 6 feet 8 inches. The lab results are located on Figure 1 and in Appendix II. On October 16, 2000 BBC personnel conducted an inspection of the site. One sample point was collected at the site at a depth of 8 feet using a backhoe. On October 11, 2001, BBC personnel returned to the site to take additional soil samples at a greater depth. One sample point was drilled to a depth of 34 feet, using BBC's tractor mount drilling rig. Field screening techniques were used to determine samples to be sent for laboratory analysis. Field screening consisted of field chloride titrations. Lab results are located on Figure 1 and in Appendix I. Pictures of investigation activities are located in Appendix III.

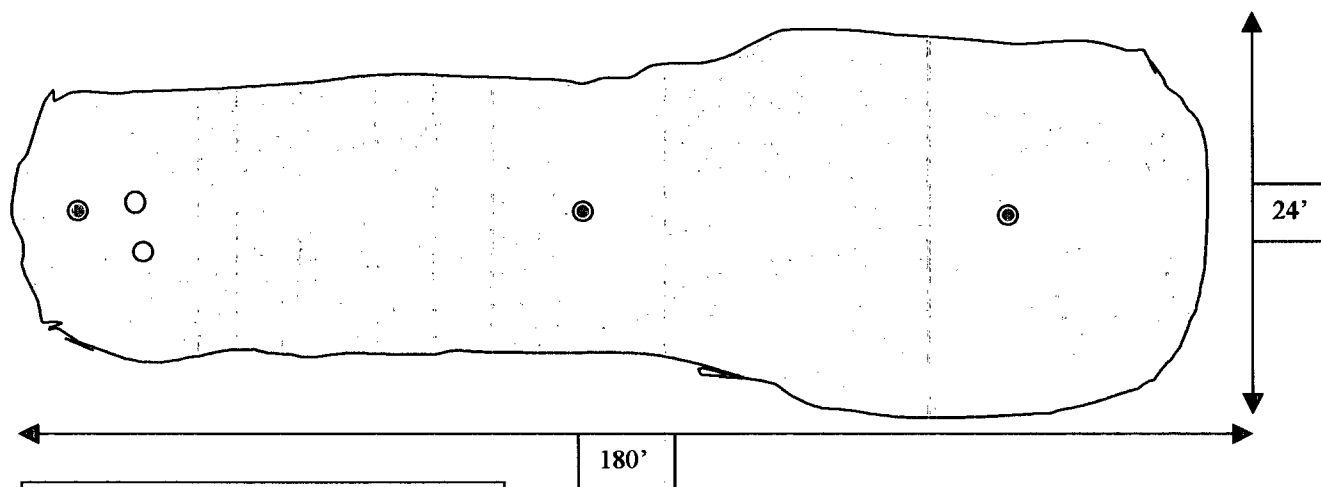
4.0 CONCLUSION AND RECOMMENDATION

The data shows low chloride concentrations of 701 ppm at 6 feet 8 inches, 763 ppm at 8 feet, and 416 ppm at 34 feet. Taking into consideration that the depth to groundwater is greater than fifty-five feet, and the subsurface soil lithology at the site consists of caliche and sandstone layers, it is evident that the migration of chlorides to groundwater is unlikely. Therefore it is recommended that only surface remediation is necessary. This could consist of the addition of gypsum, ammonium nitrate, Salt-Block, or other amendments that will reduce the chloride concentrations in the soil to allow for revegetation.

Figure 1



CONOCO MCA #2A TRUNKLINE LEAK 12-16-99



LEGEND
● CONOCO sample point 6-22-00
composite sample
○ BBC sample point 10-16-00, 10-11-01
grab sample

SAMPLE	DATE	DEPTH	CHLORIDE
CONOCO	6-22-00	6'8"	701 PPM
BBC	10-16-00	8'	763 PPM
BBC	10-11-01	25'	416 PPM

BBC INTERNATIONAL, INC.**CONOCO MCA #2A**

Date: 11-19-01

Drawn By: Ken

Disk:

Sheet of Sheets

Scale: Not to Scale

File Name

~~District I~~
1625 N. French Dr., Hobbs, NM 88240
~~District II~~
811 South First, Artesia, NM 88210
~~District III~~
1000 Rio Brazos Road, Aztec, NM 87410
~~District IV~~
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-141
Revised March 17, 1999

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company Conoco, Inc.	Contact Steve Wilson
Address 10 Desta Drive, Ste 100W, Midland, Texas 79705	Telephone No. (915) 686-5747
Facility Name 100' WNW of MCA #252 (MCA 2A TRUNK LINE)	Facility Type Injection Well

Surface Owner Caswell	Mineral Owner	Lease No. LC057210 / 6987018
--------------------------	---------------	---------------------------------

LOCATION OF RELEASE

Unit Letter D	Section 28	Township 17S	Range 32E	Feet from the 1250'	North/South Line North	Feet from the 200'	East/West Line West	County Lea
------------------	---------------	-----------------	--------------	------------------------	---------------------------	-----------------------	------------------------	---------------

NATURE OF RELEASE

Type of Release Salt Water	Volume of Release 230 bbls of salt water	Volume Recovered 205 bbls of salt water
Source of Release Pipe (2.5 Steel, Buried)	Date and Hour of Occurrence 12/16/99 at 10:00 AM +	Date and Hour of Discovery 12/16/99 at 2:15 PM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? NMOCD - Sylvia (via fax)	
By Whom? Larry Minnick	Date and Hour 12/16/99 at 8:00 PM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Cause of Problem: Internal corrosion to pipe

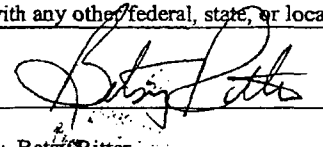
Remedial Action Taken: Replaced section of pipe with new I.P.C.

Describe Area Affected and Cleanup Action Taken.*

All drift sand - 25'x250'. Upon drying, will backdrag, cover and remediate in place

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases, which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

OIL CONSERVATION DIVISION

Signature: 	Approved by District Supervisor:	
Printed Name: Betsy Ritter	Approval Date:	Expiration Date:
Title: Agent for Conoco, Inc.	Conditions of Approval:	Attached <input type="checkbox"/>
Date: March 20, 2000	Phone: (915) 570-6007	

* Attach Additional Sheets If Necessary

Appendix I

**ARDINAL**
LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
BBC INTERNATIONAL, INC.
ATTN: CLIFF BRUNSON
P.O. BOX 805
HOBBS, NM 88241
FAX TO: (505) 397-0397

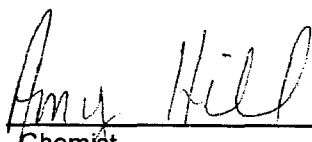
Receiving Date: 10/15/01
Reporting Date: 10/16/01
Project Owner: CONOCO
Project Name: MCA CONOCO
Project Location: MALJAMAR

Analysis Date: 10/16/01
Sampling Date: 10/11/01
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

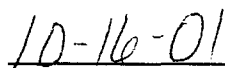
LAB NUMBER	SAMPLE ID	Cl ⁻ (mg/Kg)
H6214-1	MCA 2A-34'	416
Quality Control		1010
True Value QC		1000
% Recovery		101
Relative Percent Difference		1.0

METHOD: Standard Methods	4500-Cl ⁻ B
--------------------------	------------------------

Analysis performed on a 1:4 w:v aqueous extract.



Chemist



Date

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.

H6214



ARDINAL LABORATORIES, INC.

2111 Beechwood, Abilene, TX 79603 101 East Marland, Hobbs, NM 88240
(915) 673-7001 Fax (915) 673-7020 (505) 393-2326 Fax (505) 393-2476

Page 1 of 1

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
 BBC INTERNATIONAL INC.
 ATTN: CLIFF BRUNSON
 1324 W. MARLAND
 HOBBS, NM 88240
 FAX TO: (505) 397-0397

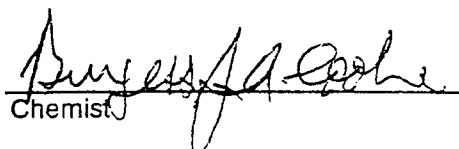
Receiving Date: 10/17/00
 Reporting Date: 10/18/00
 Project Number: NOT GIVEN
 Project Name: MCA CONOCO
 Project Location: MALJAMAR, NM

Sampling Date: 10/16/00
 Sample Type: SOIL
 Sample Condition: COOL & INTACT
 Sample Received By: GP
 Analyzed By: BC/AH

LAB NUMBER	SAMPLE ID	TPH (mg/Kg)	Cl* (mg/Kg)
ANALYSIS DATE:		10/17/00	10/18/00
H5264-1	MCA#21FL 5'6"	2290	267
H5264-2	MCA#21FL 11'	38100	168
H5264-3	MCA#21FL 18'1"C	-	229
H5264-4	MCA#21FL 18'1"T	1500	-
H5264-5	MCA#169-1	-	610
H5264-6	MCA#169-2	-	2000
H5264-7	MCA 2A INJ. LINE	-	763
H5264-8	FILL DIRT	<10	61
Quality Control		218	1039
True Value QC		240	1000
% Recovery		90.9	104
Relative Percent Difference		7.0	1.3

METHODS: TPH-EPA 600/4-79-020 418.1; Cl-Std. Methods 4500-Cl-B

*Analyses performed on 1:4 w:v aqueous extracts.


 Chemist

10/18/00
 Date

H5264.XLS

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services rendered by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.



PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
 BBC INTERNATIONAL INC.
 ATTN: CLIFF BRUNSON
 1324 W. MARLAND
 HOBBS, NM 88240
 FAX TO: (505) 397-0397

Receiving Date: 10/17/00
 Reporting Date: 10/19/00
 Project Number: NOT GIVEN
 Project Name: MCA CONOCO
 Project Location: MALJAMAR, NM

Sampling Date: 10/16/00
 Sample Type: SOIL
 Sample Condition: COOL & INTACT
 Sample Received By: GP
 Analyzed By: BC

LAB NO.	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		10/19/00	10/19/00	10/19/00	10/19/00
H5264-1	MCA#21FL 5'6"	0.020	0.008	0.902	1.02
H5264-2	MCA#21FL 11'	1.30	8.71	42.3	79.6
H5264-4	MCA#21FL 18'1"T	<0.005	0.009	0.006	0.016
H5264-8	FILL DIRT	<0.005	<0.005	<0.005	<0.015
Quality Control		0.089	0.092	0.090	0.273
True Value QC		0.100	0.100	0.100	0.300
% Recovery		89.0	92.4	90.4	91.1
Relative Percent Difference		1.9	2.1	1.9	1.8

METHOD: EPA SW-846 8260

Burgess A. Cooke
 Chemist

10/19/00
 Date

H5264B.XLS

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 154 of 154

[illegible]

**ARDINAL
LABORATORIES**

Company Name: <u>BCE International Inc.</u>					
Project Manager: <u>Cliff R. Brunson</u>					
Address: <u>1324 W. Macdonald</u>					
City: <u>Hobbs</u> State: <u>NM</u> Zip: <u>87401</u>					
Phone #: <u>1-505-397-6388</u>					
Fax #: <u>1-505-397-0397</u>					
Project #: <u>1000</u>					
Project Name: <u>MCA CONOCO</u>					
Project Location: <u>Maljamar</u>					
LAB LD. #	Sample ID.	COMP(C) OR GRAB(G)	# CONTAINERS	GROUNDWATER	WASTEWATER
1	MCA#21FL5'6"	/	/	/	/
2	MCA#21FL 11'	/	/	/	/
3	MCA#21FL 18'1"	/	/	/	/
4	MCA#21FL 18'1"	/	/	/	/
5	MCA#21FL 18'1"	/	/	/	/
6	MCA#169-2 9'	/	/	/	/
7	MCA 2A TRAIL LINE	/	/	/	/
8	FILL DIRT	/	/	/	/

[illegible]

Sampler Relinquished:	Date: 10-16-00	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Additional Fax #: <input type="checkbox"/> Yes <input type="checkbox"/> No
Relinquished By: <i>David Paul Woolley</i>	Time: 5:00 PM	Received By: (Lab Stamp)	Fax Results: <input type="checkbox"/> Yes <input type="checkbox"/> No	REMARKS:
Relinquished By: <i>David Paul Woolley</i>	Date: 10-17-00	<i>[Signature]</i>	CHECKED BY: (Initials)	
Delivered By: (Circle One)	Time: 9:40 AM			
UPS - Fed Ex - Bus - Other: <i>Sample</i>		Sample Condition: Cool <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Appendix II

MR. JOHN COY
CONOCO, INC.
P.O. BOX 180
MALJAMAR, NEW MEXICO 88264

JUNE 28, 2000

DEAR MR. COY:

THE FOLLOWING ARE THE RESULTS OF THE FOUR SOIL SAMPLES,
RECEIVED 06/26/00, LAB NOS. 791-794:

CHLORIDES
mg/Kg

LAB NO. 791: MCA #169 4,746
SITE #1 10:00 AM Comp @ 74"
SAMPLED 06/22/00

LAB NO. 792: MCA #169 7,886
SITE #2 COMP. @ 59"
SAMPLED 06/22/00 2:40 PM

LAB NO. 793: MCA #2A 701
TRUNK LINE COMP. @ 80"
SAMPLED 06/22/00 2:10 PM

LAB NO. 794: MCA #21 564
3 PT COMP @ 14'
SAMPLED 06/23/00 9:30 AM

METHOD:

CHLORIDES - AGRICULTURE HANDBOOK NO. 60 3C(1:10) SMWW 407-C

WE APPRECIATE THE OPPORTUNITY TO WORK WITH YOU ON THESE TESTS.
IF YOU HAVE ANY QUESTIONS OR REQUIRE ANY FURTHER INFORMATION,
PLEASE FEEL FREE TO CONTACT ME AT ANY TIME.

SINCERELY,

STEPHEN REID
SR/md

MR. JOHN COY
CONOCO, INC.
P.O. BOX 180
MALJAMAR, NEW MEXICO 88264

JUNE 29, 2000

DEAR MR. COY:

THE FOLLOWING ARE THE RESULTS OF THE FOUR SOIL SAMPLES FOR
BTEX, RECEIVED 06/26/00, LAB NOS. 791-794:

	BENZENE mg/Kg	TOLUENE mg/Kg	ETHYL BENZENE mg/Kg	XYLENES mg/Kg
LAB NO. 791: MCA #169 SITE #1 10:00 AM 7'4" SAMPLED 06/22/00	< 0.100	< 0.100	< 0.100	< 0.100
LAB NO. 792: MCA #169 SITE #2 COMP. @ 59" SAMPLED 06/22/00 2:40 PM	< 0.100	< 0.100	< 0.100	< 0.100
LAB NO. 793: MCA #2A TRUNK LINE COMP. @ 80" SAMPLED 06/22/00 2:10 PM	< 0.100	< 0.100	< 0.100	< 0.100
LAB NO. 794: MCA #21 3 PT COMP @ 14' SAMPLED 06/23/00 9:30 AM	0.259	0.670	1.040	6.680

NOTE: BTEX RESULTS ARE FROM ANOTHER LABORATORY.

< = LESS THAN

SAMPLE MATRIX: SOIL

METHODS: SW 846-8021B, 5030A

WE APPRECIATE THE OPPORTUNITY TO WORK WITH YOU ON THESE TESTS.
IF YOU HAVE ANY QUESTIONS OR REQUIRE ANY FURTHER INFORMATION,
PLEASE FEEL FREE TO CONTACT ME AT ANY TIME.

SINCERELY,

STEPHEN REID
SR/dt

MR. JOHN COY
CONOCO, INC.
P.O. BOX 180
MALJAMAR, NEW MEXICO 88264

JUNE 28, 2000

DEAR MR. COY:

THE FOLLOWING IS THE RESULT OF THE SOIL SAMPLE FOR TOTAL
PETROLEUM HYDROCARBONS, RECEIVED 06/26/00, LAB NO. 794:

LAB NO. 794; MCA #21
3 PT COMP @ 14'
SAMPLED 06/23/00 9:30 AM

TOTAL PETROLEUM
HYDROCARBONS

mg/Kg

wt%

3,905

0.3905

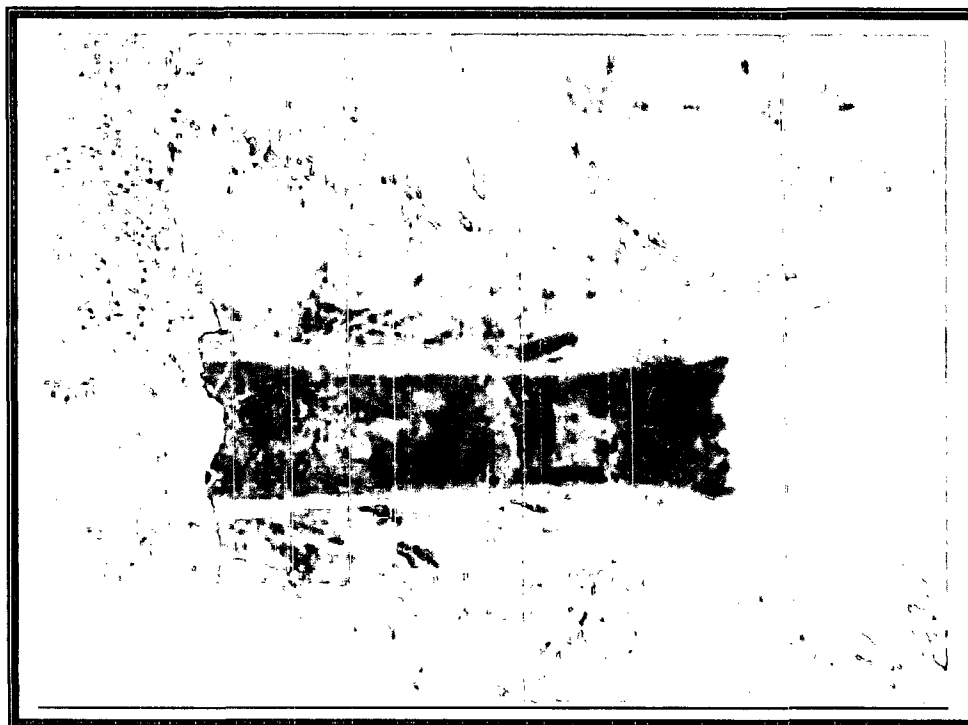
METHOD: EPA 418.1

WE APPRECIATE THE OPPORTUNITY TO WORK WITH YOU ON THESE TESTS.
IF YOU HAVE ANY QUESTIONS OR REQUIRE ANY FURTHER INFORMATION,
PLEASE FEEL FREE TO CONTACT ME AT ANY TIME.

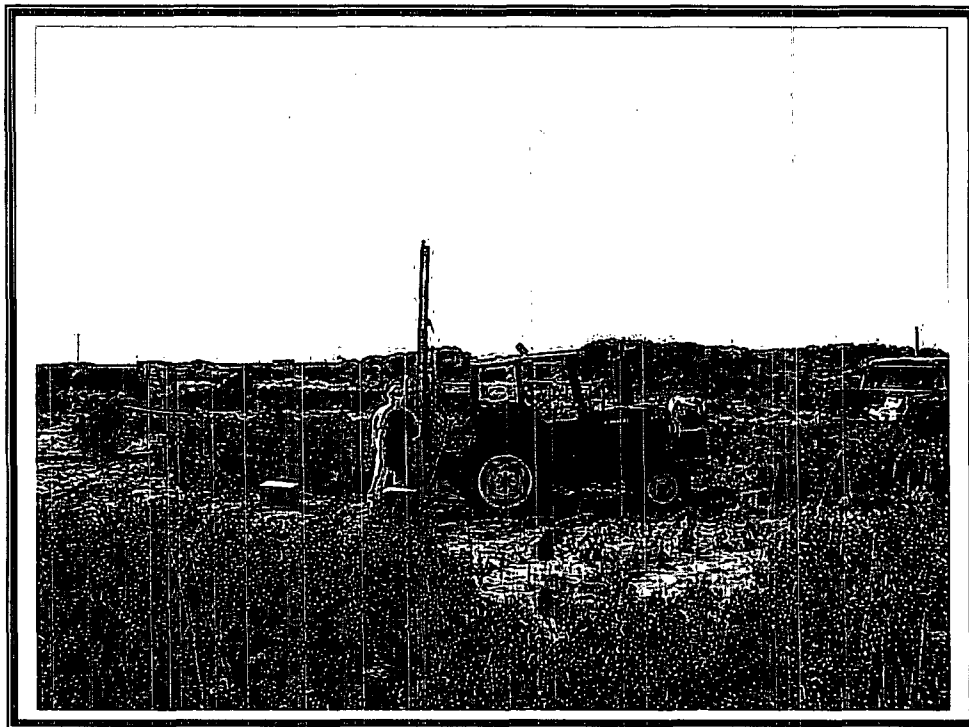
SINCERELY,

STEPHEN REID
SR/dt

Appendix III



MCA #2A Trunkline – Sample taken at 8'.



MCA #2A Trunkline Leak – Sample taken at 34' on 10-11-01



PHONE (505) 397-6388 • FAX (505) 397- 0397 • 1324 W. MARLAND • P.O. BOX 805 • HOBBS, NM 88241-0805
E-MAIL: bbc@bbcinternational.com

April 12, 2002

Chris Williams
NM Oil Conservation Division

Hobbs, NM 88240

RE: Conoco, Inc. – MCA #169 Injection Line Leak #2

Dear Mr. Williams:

BBC International, Inc. respectfully submits this site investigation report for the MCA #169 Injection Line Leak #2 on behalf of Conoco, Inc.

This site is an area that was investigated due to an injection line leak that occurred on May 8, 2000. Approximately 140 barrels of produced water was released with 90 barrels recovered.

The initial investigation and sampling was conducted on October 16, 2000. In November 2000, the results were discussed with you and you requested additional sampling at a greater depth to track the downward migration of the chlorides. Additional samples were taken at greater depths on October 12, 2001. This report details the results.

As can be found in the report, the chlorides are reduced greatly at depth. The recommendation is to halt any further investigations activities and conduct surface remediation measures only.

I look forward to your review of this report and the agreement to our recommendation. If you have any questions, please do not hesitate to contact me at (505)397-6388 or at the address above.

Sincerely,

BBC International, Inc.

Ken Swinney, CEI, CRS
Director of Operations

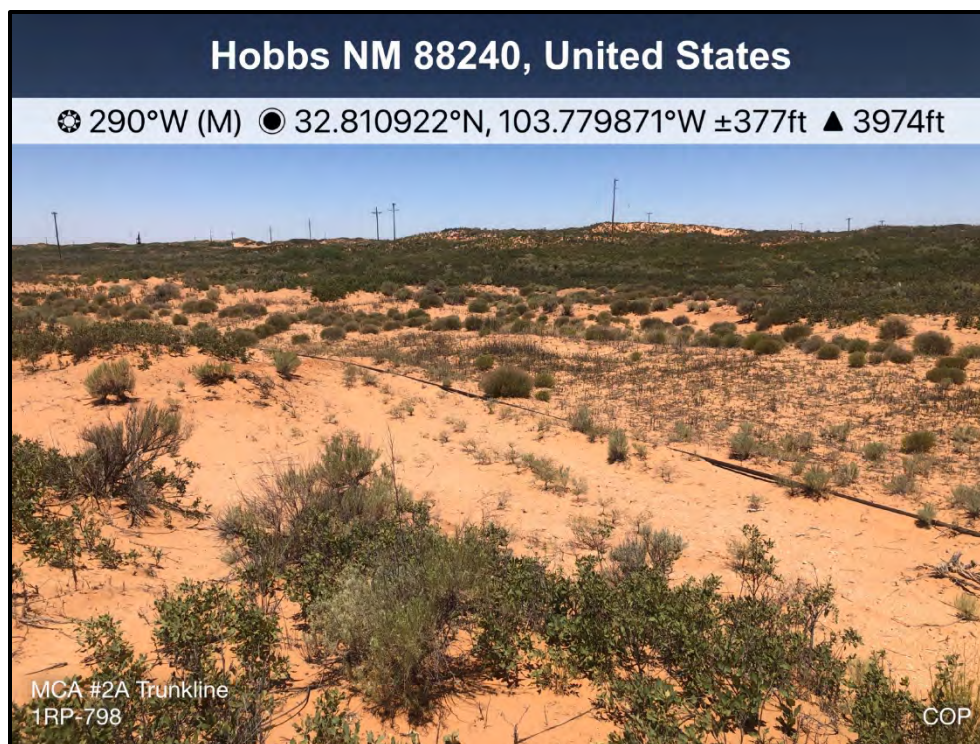
KS:js

encl.

ENVIRONMENTAL CONSULTING AND REMEDIATION SERVICES
HOUSTON, TEXAS • WEBSITE: www.bbcinternational.com • CALGARY, ALBERTA

APPENDIX D

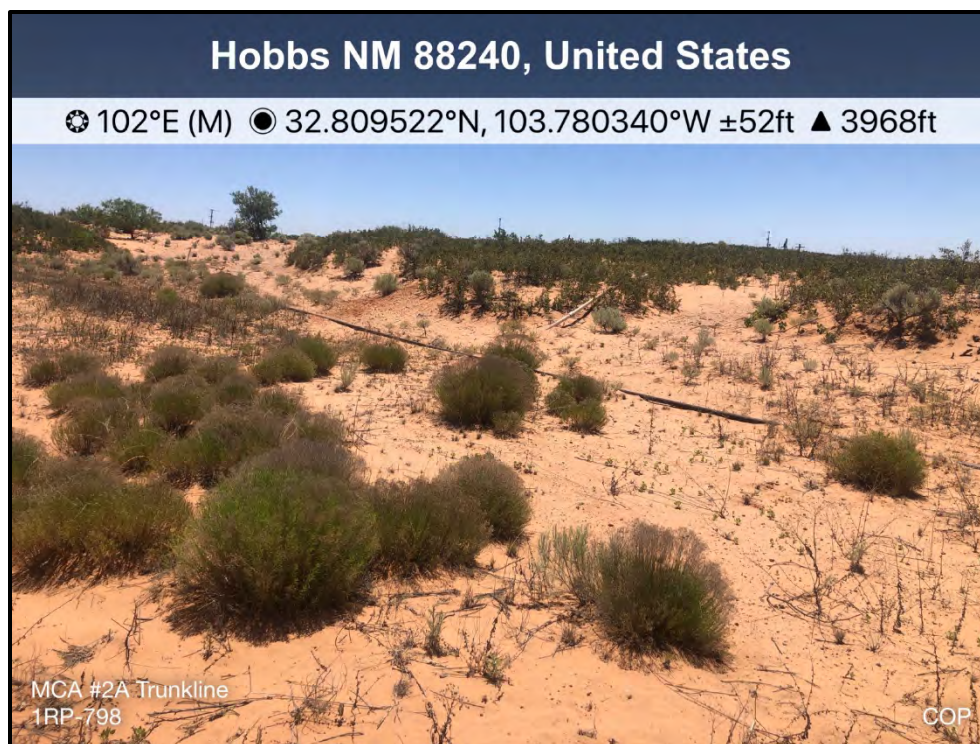
Photographic Documentation



TETRA TECH, INC. PROJECT NO. 212C-MD-02152	DESCRIPTION	View facing northwest of release area.	1
	SITE NAME	MCA #2A Trunk Line Release	6/9/2020



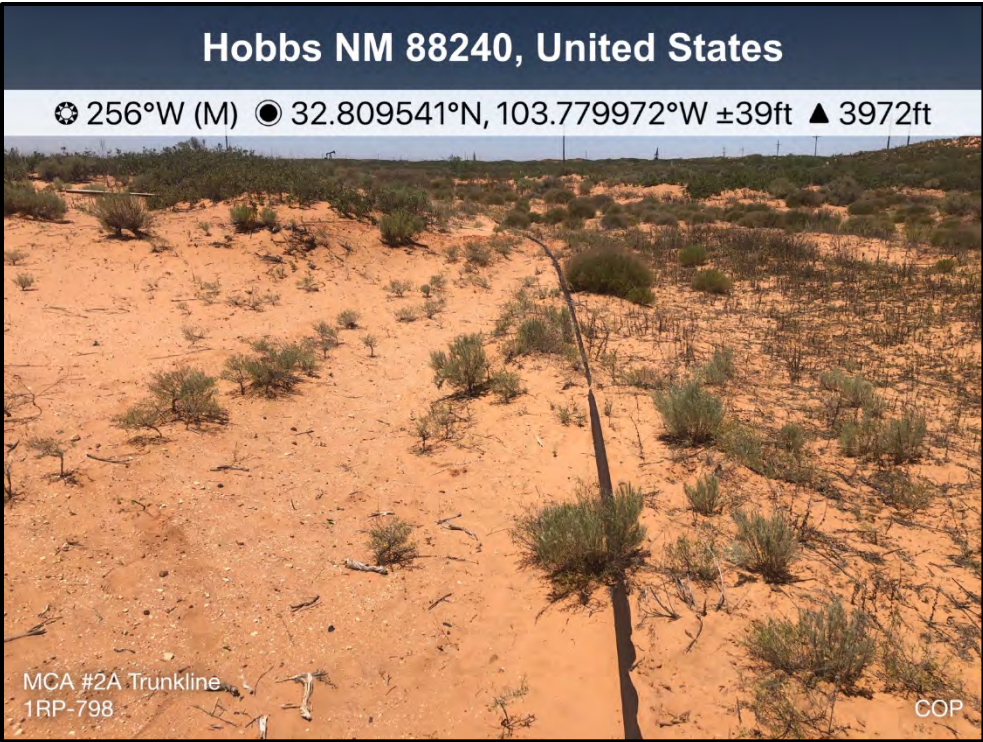
TETRA TECH, INC. PROJECT NO. 212C-MD-02152	DESCRIPTION	View facing south of above ground piping.	2
	SITE NAME	MCA #2A Trunk Line Release	6/9/2020



TETRA TECH, INC. PROJECT NO. 212C-MD-02152	DESCRIPTION	View facing northwest of above ground piping.	3
	SITE NAME	MCA #2A Trunk Line Release	6/9/2020



TETRA TECH, INC. PROJECT NO. 212C-MD-02152	DESCRIPTION	View facing northeast of release area.	4
	SITE NAME	MCA #2A Trunk Line Release	6/9/2020



TETRA TECH, INC. PROJECT NO. 212C-MD-02152	DESCRIPTION	View facing east of release area.	5
	SITE NAME	MCA #2A Trunk Line Release	6/9/2020

APPENDIX E

Laboratory Analytical Data



ANALYTICAL REPORT

December 16, 2020

ConocoPhillips - Tetra Tech

Sample Delivery Group: L1293357
Samples Received: 12/05/2020
Project Number: 212C-MD-02334 TASK07
Description: MCA #2A Release (1RP-798)

Report To: Christian Llull
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.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	7
Sr: Sample Results	8
AH-1 (0'-1') L1293357-01	8
AH-1 (1'-2') L1293357-02	9
AH-2 (0'-1') L1293357-03	10
AH-2 (1'-2') L1293357-04	11
AH-3 (0'-1') L1293357-05	12
AH-3 (1'-2') L1293357-06	13
AH-4 (0'-1') L1293357-07	14
AH-4 (1'-2') L1293357-08	15
AH-5 (0'-1') L1293357-09	16
AH-5 (1'-2') L1293357-10	17
AH-5 (3'-4') L1293357-11	18
AH-5 (5'-6') L1293357-12	19
AH-6 (0'-1') L1293357-13	20
AH-6 (1'-2') L1293357-14	21
AH-6 (3'-4') L1293357-15	22
AH-6 (5'-6') L1293357-16	23
Qc: Quality Control Summary	24
Total Solids by Method 2540 G-2011	24
Wet Chemistry by Method 300.0	27
Volatile Organic Compounds (GC) by Method 8015D/GRO	28
Volatile Organic Compounds (GC/MS) by Method 8260B	31
Semi-Volatile Organic Compounds (GC) by Method 8015	34
Gl: Glossary of Terms	36
Al: Accreditations & Locations	37
Sc: Sample Chain of Custody	38



AH-1 (0'-1') L1293357-01 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 10:00

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591954	1	12/16/20 04:24	12/16/20 04:31	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 20:08	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1590968	1	12/08/20 16:46	12/13/20 20:34	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1588717	1	12/08/20 16:46	12/09/20 08:02	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1591822	1	12/14/20 23:17	12/15/20 12:52	TJD	Mt. Juliet, TN

1Cp

2Tc

3Ss

4Cn

AH-1 (1'-2') L1293357-02 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 10:30

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591954	1	12/16/20 04:24	12/16/20 04:31	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 20:36	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1590968	1	12/08/20 16:46	12/13/20 20:55	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1588717	1	12/08/20 16:46	12/09/20 08:21	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1591822	1	12/14/20 23:17	12/15/20 11:21	TJD	Mt. Juliet, TN

5Sr

6Qc

7Gl

8Al

AH-2 (0'-1') L1293357-03 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 11:00

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591954	1	12/16/20 04:24	12/16/20 04:31	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 20:46	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1590968	1	12/08/20 16:46	12/13/20 21:16	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 20:41	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1591822	1	12/14/20 23:17	12/15/20 13:45	TJD	Mt. Juliet, TN

9Sc

AH-2 (1'-2') L1293357-04 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 11:30

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591954	1	12/16/20 04:24	12/16/20 04:31	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 20:55	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1590968	1	12/08/20 16:46	12/13/20 21:37	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 21:00	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1591822	1	12/14/20 23:17	12/15/20 13:05	TJD	Mt. Juliet, TN

AH-3 (0'-1') L1293357-05 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 12:00

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591957	1	12/16/20 04:12	12/16/20 04:18	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 21:05	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1590968	1	12/08/20 16:46	12/13/20 21:58	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 21:19	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1591822	1	12/14/20 23:17	12/15/20 13:18	TJD	Mt. Juliet, TN

AH-3 (1'-2') L1293357-06 Solid

				Collected by Joe Tyler	Collected date/time 12/03/20 12:30	Received date/time 12/05/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591957	1	12/16/20 04:12	12/16/20 04:18	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 21:14	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1590968	1	12/08/20 16:46	12/13/20 22:19	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 21:38	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1591822	1	12/14/20 23:17	12/15/20 13:32	TJD	Mt. Juliet, TN

AH-4 (0'-1') L1293357-07 Solid

				Collected by Joe Tyler	Collected date/time 12/03/20 13:00	Received date/time 12/05/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591957	1	12/16/20 04:12	12/16/20 04:18	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 21:24	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1590968	1	12/08/20 16:46	12/13/20 22:39	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 21:57	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1592116	1	12/15/20 12:17	12/15/20 16:32	TJD	Mt. Juliet, TN

AH-4 (1'-2') L1293357-08 Solid

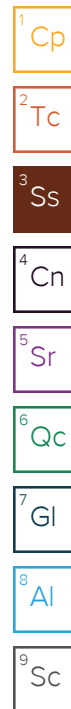
				Collected by Joe Tyler	Collected date/time 12/03/20 13:30	Received date/time 12/05/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591957	1	12/16/20 04:12	12/16/20 04:18	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 21:33	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1590968	1	12/08/20 16:46	12/13/20 23:00	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 22:16	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1592116	1	12/15/20 12:17	12/15/20 16:45	TJD	Mt. Juliet, TN

AH-5 (0'-1') L1293357-09 Solid

				Collected by Joe Tyler	Collected date/time 12/03/20 14:00	Received date/time 12/05/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591957	1	12/16/20 04:12	12/16/20 04:18	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 21:43	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1591855	1	12/08/20 16:46	12/15/20 04:01	TPR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 22:34	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1592116	1	12/15/20 12:17	12/15/20 16:57	TJD	Mt. Juliet, TN

AH-5 (1'-2') L1293357-10 Solid

				Collected by Joe Tyler	Collected date/time 12/03/20 14:20	Received date/time 12/05/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591957	1	12/16/20 04:12	12/16/20 04:18	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 21:53	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1591855	1	12/08/20 16:46	12/15/20 04:24	TPR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 22:53	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1592116	1	12/15/20 12:17	12/15/20 17:10	TJD	Mt. Juliet, TN



AH-5 (3'-4') L1293357-11 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 14:40

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591957	1	12/16/20 04:12	12/16/20 04:18	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	5	12/15/20 13:33	12/15/20 22:02	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1591855	1	12/08/20 16:46	12/15/20 04:47	TPR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 23:12	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1592116	1	12/15/20 12:17	12/15/20 17:23	TJD	Mt. Juliet, TN

1Cp

2Tc

3Ss

4Cn

AH-5 (5'-6') L1293357-12 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 15:00

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591957	1	12/16/20 04:12	12/16/20 04:18	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	5	12/15/20 13:33	12/15/20 22:31	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1591855	1	12/08/20 16:46	12/15/20 05:11	TPR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 23:31	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1592116	1	12/15/20 12:17	12/15/20 17:36	TJD	Mt. Juliet, TN

5Sr

6Qc

7Gl

8Al

AH-6 (0'-1') L1293357-13 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 16:00

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591957	1	12/16/20 04:12	12/16/20 04:18	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 22:41	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1591855	1	12/08/20 16:46	12/15/20 05:34	TPR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/10/20 23:50	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1592116	1	12/15/20 12:17	12/15/20 17:48	TJD	Mt. Juliet, TN

9Sc

AH-6 (1'-2') L1293357-14 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 16:20

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591957	1	12/16/20 04:12	12/16/20 04:18	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	5	12/15/20 13:33	12/15/20 22:50	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1591855	1	12/08/20 16:46	12/15/20 05:57	TPR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/11/20 00:09	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1592116	1	12/15/20 12:17	12/15/20 18:01	TJD	Mt. Juliet, TN

AH-6 (3'-4') L1293357-15 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 16:40

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591959	1	12/16/20 04:01	12/16/20 04:09	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	5	12/15/20 13:33	12/15/20 23:00	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1591855	1	12/08/20 16:46	12/15/20 07:30	TPR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590025	1	12/08/20 16:46	12/11/20 00:28	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1592116	1	12/15/20 12:17	12/15/20 18:13	TJD	Mt. Juliet, TN

AH-6 (5'-6') L1293357-16 Solid

Collected by
Joe Tyler

Collected date/time
12/03/20 17:00

Received date/time
12/05/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1591959	1	12/16/20 04:01	12/16/20 04:09	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1591067	1	12/15/20 13:33	12/15/20 23:09	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1592367	1	12/08/20 16:46	12/15/20 22:07	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1590056	1	12/08/20 16:46	12/10/20 20:33	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1592116	1	12/15/20 12:17	12/15/20 18:26	TJD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

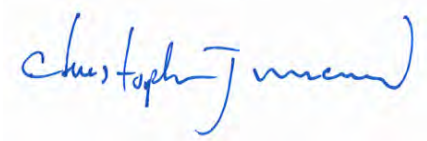
⁶Qc

⁷Gl

⁸Al

⁹Sc

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

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

Collected date/time: 12/03/20 10:00

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	98.2		1	12/16/2020 04:31	WG1591954

Wet Chemistry by Method 300.0

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	U		9.36	20.4	1	12/15/2020 20:08	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0221	0.102	1	12/13/2020 20:34	WG1590968
(S) a,a,a-Trifluorotoluene(FID)	106			77.0-120		12/13/2020 20:34	WG1590968

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000484	0.00104	1	12/09/2020 08:02	WG1588717
Toluene	U		0.00135	0.00518	1	12/09/2020 08:02	WG1588717
Ethylbenzene	U		0.000763	0.00259	1	12/09/2020 08:02	WG1588717
Total Xylenes	U		0.000912	0.00673	1	12/09/2020 08:02	WG1588717
(S) Toluene-d8	106			75.0-131		12/09/2020 08:02	WG1588717
(S) 4-Bromofluorobenzene	97.1			67.0-138		12/09/2020 08:02	WG1588717
(S) 1,2-Dichloroethane-d4	109			70.0-130		12/09/2020 08:02	WG1588717

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.37		1.64	4.07	1	12/15/2020 12:52	WG1591822
C28-C40 Oil Range	23.8		0.279	4.07	1	12/15/2020 12:52	WG1591822
(S) o-Terphenyl	96.0			18.0-148		12/15/2020 12:52	WG1591822

Collected date/time: 12/03/20 10:30

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	99.2		1	12/16/2020 04:31	WG1591954

Wet Chemistry by Method 300.0

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	U		9.27	20.2	1	12/15/2020 20:36	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0219	0.101	1	12/13/2020 20:55	WG1590968
(S) a,a,a-Trifluorotoluene(FID)	108			77.0-120		12/13/2020 20:55	WG1590968

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000474	0.00102	1	12/09/2020 08:21	WG1588717
Toluene	U		0.00132	0.00508	1	12/09/2020 08:21	WG1588717
Ethylbenzene	U		0.000748	0.00254	1	12/09/2020 08:21	WG1588717
Total Xylenes	U		0.000893	0.00660	1	12/09/2020 08:21	WG1588717
(S) Toluene-d8	105			75.0-131		12/09/2020 08:21	WG1588717
(S) 4-Bromofluorobenzene	97.1			67.0-138		12/09/2020 08:21	WG1588717
(S) 1,2-Dichloroethane-d4	110			70.0-130		12/09/2020 08:21	WG1588717

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	2.46	J	1.62	4.03	1	12/15/2020 11:21	WG1591822
C28-C40 Oil Range	12.5		0.276	4.03	1	12/15/2020 11:21	WG1591822
(S) o-Terphenyl	90.4			18.0-148		12/15/2020 11:21	WG1591822

Collected date/time: 12/03/20 11:00

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	99.4		1	12/16/2020 04:31	WG1591954

Wet Chemistry by Method 300.0

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	U		9.25	20.1	1	12/15/2020 20:46	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0218	0.101	1	12/13/2020 21:16	WG1590968
(S) a,a,a-Trifluorotoluene(FID)	109			77.0-120		12/13/2020 21:16	WG1590968

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000472	0.00101	1	12/10/2020 20:41	WG1590025
Toluene	U		0.00131	0.00506	1	12/10/2020 20:41	WG1590025
Ethylbenzene	U		0.000745	0.00253	1	12/10/2020 20:41	WG1590025
Total Xylenes	U		0.000890	0.00657	1	12/10/2020 20:41	WG1590025
(S) Toluene-d8	107			75.0-131		12/10/2020 20:41	WG1590025
(S) 4-Bromofluorobenzene	94.4			67.0-138		12/10/2020 20:41	WG1590025
(S) 1,2-Dichloroethane-d4	111			70.0-130		12/10/2020 20:41	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	7.09		1.62	4.02	1	12/15/2020 13:45	WG1591822
C28-C40 Oil Range	35.7		0.276	4.02	1	12/15/2020 13:45	WG1591822
(S) o-Terphenyl	93.3			18.0-148		12/15/2020 13:45	WG1591822

Collected date/time: 12/03/20 11:30

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	99.4		1	12/16/2020 04:31	WG1591954

Wet Chemistry by Method 300.0

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	U		9.26	20.1	1	12/15/2020 20:55	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0218	0.101	1	12/13/2020 21:37	WG1590968
(S) a,a,a-Trifluorotoluene(FID)	107			77.0-120		12/13/2020 21:37	WG1590968

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000473	0.00101	1	12/10/2020 21:00	WG1590025
Toluene	U		0.00132	0.00506	1	12/10/2020 21:00	WG1590025
Ethylbenzene	U		0.000747	0.00253	1	12/10/2020 21:00	WG1590025
Total Xylenes	U		0.000891	0.00658	1	12/10/2020 21:00	WG1590025
(S) Toluene-d8	105			75.0-131		12/10/2020 21:00	WG1590025
(S) 4-Bromofluorobenzene	93.8			67.0-138		12/10/2020 21:00	WG1590025
(S) 1,2-Dichloroethane-d4	112			70.0-130		12/10/2020 21:00	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	3.38	J	1.62	4.03	1	12/15/2020 13:05	WG1591822
C28-C40 Oil Range	18.8		0.276	4.03	1	12/15/2020 13:05	WG1591822
(S) o-Terphenyl	89.3			18.0-148		12/15/2020 13:05	WG1591822

Collected date/time: 12/03/20 12:00

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.4		1	12/16/2020 04:18	WG1591957

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	U		9.26	20.1	1	12/15/2020 21:05	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0218	0.101	1	12/13/2020 21:58	WG1590968
(S) a,a,a-Trifluorotoluene(FID)	107			77.0-120		12/13/2020 21:58	WG1590968

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

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Benzene	U		0.000473	0.00101	1	12/10/2020 21:19	WG1590025
Toluene	U		0.00132	0.00506	1	12/10/2020 21:19	WG1590025
Ethylbenzene	U		0.000746	0.00253	1	12/10/2020 21:19	WG1590025
Total Xylenes	U		0.000891	0.00658	1	12/10/2020 21:19	WG1590025
(S) Toluene-d8	104			75.0-131		12/10/2020 21:19	WG1590025
(S) 4-Bromofluorobenzene	96.2			67.0-138		12/10/2020 21:19	WG1590025
(S) 1,2-Dichloroethane-d4	118			70.0-130		12/10/2020 21:19	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	2.23	J	1.62	4.03	1	12/15/2020 13:18	WG1591822
C28-C40 Oil Range	17.9		0.276	4.03	1	12/15/2020 13:18	WG1591822
(S) o-Terphenyl	90.1			18.0-148		12/15/2020 13:18	WG1591822

Collected date/time: 12/03/20 12:30

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	99.4		1	12/16/2020 04:18	WG1591957

Wet Chemistry by Method 300.0

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	U		9.26	20.1	1	12/15/2020 21:14	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0326	J	0.0218	0.101	1	12/13/2020 22:19	WG1590968
(S) a,a,a-Trifluorotoluene(FID)	108			77.0-120		12/13/2020 22:19	WG1590968

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000473	0.00101	1	12/10/2020 21:38	WG1590025
Toluene	U		0.00132	0.00506	1	12/10/2020 21:38	WG1590025
Ethylbenzene	U		0.000746	0.00253	1	12/10/2020 21:38	WG1590025
Total Xylenes	U		0.000891	0.00658	1	12/10/2020 21:38	WG1590025
(S) Toluene-d8	104			75.0-131		12/10/2020 21:38	WG1590025
(S) 4-Bromofluorobenzene	94.8			67.0-138		12/10/2020 21:38	WG1590025
(S) 1,2-Dichloroethane-d4	114			70.0-130		12/10/2020 21:38	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	19.9		1.62	4.03	1	12/15/2020 13:32	WG1591822
C28-C40 Oil Range	63.1		0.276	4.03	1	12/15/2020 13:32	WG1591822
(S) o-Terphenyl	91.4			18.0-148		12/15/2020 13:32	WG1591822

Collected date/time: 12/03/20 13:00

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.3		1	12/16/2020 04:18	WG1591957

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	U		9.26	20.1	1	12/15/2020 21:24	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0219	0.101	1	12/13/2020 22:39	WG1590968
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	106			77.0-120		12/13/2020 22:39	WG1590968

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

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Benzene	U		0.000474	0.00101	1	12/10/2020 21:57	WG1590025
Toluene	U		0.00132	0.00507	1	12/10/2020 21:57	WG1590025
Ethylbenzene	U		0.000747	0.00254	1	12/10/2020 21:57	WG1590025
Total Xylenes	U		0.000892	0.00659	1	12/10/2020 21:57	WG1590025
(S) <i>Toluene-d8</i>	107			75.0-131		12/10/2020 21:57	WG1590025
(S) <i>4-Bromofluorobenzene</i>	95.1			67.0-138		12/10/2020 21:57	WG1590025
(S) <i>1,2-Dichloroethane-d4</i>	110			70.0-130		12/10/2020 21:57	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.62	4.03	1	12/15/2020 16:32	WG1592116
C28-C40 Oil Range	5.23		0.276	4.03	1	12/15/2020 16:32	WG1592116
(S) <i>o</i> -Terphenyl	84.4			18.0-148		12/15/2020 16:32	WG1592116

Collected date/time: 12/03/20 13:30

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	99.7		1	12/16/2020 04:18	WG1591957

Wet Chemistry by Method 300.0

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	U		9.23	20.1	1	12/15/2020 21:33	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0218	0.100	1	12/13/2020 23:00	WG1590968
(S) a,a,a-Trifluorotoluene(FID)	108			77.0-120		12/13/2020 23:00	WG1590968

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000470	0.00101	1	12/10/2020 22:16	WG1590025
Toluene	U		0.00131	0.00503	1	12/10/2020 22:16	WG1590025
Ethylbenzene	U		0.000742	0.00252	1	12/10/2020 22:16	WG1590025
Total Xylenes	U		0.000886	0.00654	1	12/10/2020 22:16	WG1590025
(S) Toluene-d8	106			75.0-131		12/10/2020 22:16	WG1590025
(S) 4-Bromofluorobenzene	95.4			67.0-138		12/10/2020 22:16	WG1590025
(S) 1,2-Dichloroethane-d4	112			70.0-130		12/10/2020 22:16	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.62	4.01	1	12/15/2020 16:45	WG1592116
C28-C40 Oil Range	1.95	J	0.275	4.01	1	12/15/2020 16:45	WG1592116
(S) o-Terphenyl	84.0			18.0-148		12/15/2020 16:45	WG1592116

Collected date/time: 12/03/20 14:00

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	99.3		1	12/16/2020 04:18	WG1591957

Wet Chemistry by Method 300.0

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	U		9.26	20.1	1	12/15/2020 21:43	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0576	B J	0.0219	0.101	1	12/15/2020 04:01	WG1591855
(S) a,a,a-Trifluorotoluene(FID)	93.5			77.0-120		12/15/2020 04:01	WG1591855

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000474	0.00101	1	12/10/2020 22:34	WG1590025
Toluene	U		0.00132	0.00507	1	12/10/2020 22:34	WG1590025
Ethylbenzene	U		0.000747	0.00254	1	12/10/2020 22:34	WG1590025
Total Xylenes	U		0.000892	0.00659	1	12/10/2020 22:34	WG1590025
(S) Toluene-d8	107			75.0-131		12/10/2020 22:34	WG1590025
(S) 4-Bromofluorobenzene	96.0			67.0-138		12/10/2020 22:34	WG1590025
(S) 1,2-Dichloroethane-d4	113			70.0-130		12/10/2020 22:34	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.62	4.03	1	12/15/2020 16:57	WG1592116
C28-C40 Oil Range	1.67	J	0.276	4.03	1	12/15/2020 16:57	WG1592116
(S) o-Terphenyl	85.2			18.0-148		12/15/2020 16:57	WG1592116

Collected date/time: 12/03/20 14:20

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	99.1		1	12/16/2020 04:18	WG1591957

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
Chloride	35.8		9.28	20.2	1	12/15/2020 21:53	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0548	B J	0.0219	0.101	1	12/15/2020 04:24	WG1591855
(S) a,a,a-Trifluorotoluene(FID)	93.5			77.0-120		12/15/2020 04:24	WG1591855

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

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
Benzene	U		0.000475	0.00102	1	12/10/2020 22:53	WG1590025
Toluene	U		0.00132	0.00509	1	12/10/2020 22:53	WG1590025
Ethylbenzene	U		0.000750	0.00255	1	12/10/2020 22:53	WG1590025
Total Xylenes	U		0.000896	0.00662	1	12/10/2020 22:53	WG1590025
(S) Toluene-d8	107			75.0-131		12/10/2020 22:53	WG1590025
(S) 4-Bromofluorobenzene	92.2			67.0-138		12/10/2020 22:53	WG1590025
(S) 1,2-Dichloroethane-d4	111			70.0-130		12/10/2020 22:53	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	2.33	J	1.62	4.04	1	12/15/2020 17:10	WG1592116
C28-C40 Oil Range	5.97		0.276	4.04	1	12/15/2020 17:10	WG1592116
(S) o-Terphenyl	85.7			18.0-148		12/15/2020 17:10	WG1592116

Collected date/time: 12/03/20 14:40

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	94.0		1	12/16/2020 04:18	WG1591957

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
Chloride	249		48.9	106	5	12/15/2020 22:02	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0577	B J	0.0231	0.106	1	12/15/2020 04:47	WG1591855
(S) a,a,a-Trifluorotoluene(FID)	93.6			77.0-120		12/15/2020 04:47	WG1591855

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

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
Benzene	U		0.000527	0.00113	1	12/10/2020 23:12	WG1590025
Toluene	U		0.00147	0.00564	1	12/10/2020 23:12	WG1590025
Ethylbenzene	U		0.000832	0.00282	1	12/10/2020 23:12	WG1590025
Total Xylenes	U		0.000993	0.00733	1	12/10/2020 23:12	WG1590025
(S) Toluene-d8	106			75.0-131		12/10/2020 23:12	WG1590025
(S) 4-Bromofluorobenzene	95.6			67.0-138		12/10/2020 23:12	WG1590025
(S) 1,2-Dichloroethane-d4	113			70.0-130		12/10/2020 23:12	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.71	4.25	1	12/15/2020 17:23	WG1592116
C28-C40 Oil Range	2.47	J	0.291	4.25	1	12/15/2020 17:23	WG1592116
(S) o-Terphenyl	76.4			18.0-148		12/15/2020 17:23	WG1592116

Collected date/time: 12/03/20 15:00

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.4		1	12/16/2020 04:18	WG1591957

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	228		48.7	106	5	12/15/2020 22:31	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0521	B J	0.0230	0.106	1	12/15/2020 05:11	WG1591855
(S) a,a,a-Trifluorotoluene(FID)	93.4			77.0-120		12/15/2020 05:11	WG1591855

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

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Benzene	U		0.000523	0.00112	1	12/10/2020 23:31	WG1590025
Toluene	U		0.00146	0.00560	1	12/10/2020 23:31	WG1590025
Ethylbenzene	U		0.000825	0.00280	1	12/10/2020 23:31	WG1590025
Total Xylenes	U		0.000985	0.00728	1	12/10/2020 23:31	WG1590025
(S) Toluene-d8	105			75.0-131		12/10/2020 23:31	WG1590025
(S) 4-Bromofluorobenzene	95.1			67.0-138		12/10/2020 23:31	WG1590025
(S) 1,2-Dichloroethane-d4	114			70.0-130		12/10/2020 23:31	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.71	4.24	1	12/15/2020 17:36	WG1592116
C28-C40 Oil Range	3.39	J	0.290	4.24	1	12/15/2020 17:36	WG1592116
(S) o-Terphenyl	83.7			18.0-148		12/15/2020 17:36	WG1592116

Collected date/time: 12/03/20 16:00

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	99.6		1	12/16/2020 04:18	WG1591957

Wet Chemistry by Method 300.0

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	14.6	J	9.24	20.1	1	12/15/2020 22:41	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0550	B J	0.0218	0.100	1	12/15/2020 05:34	WG1591855
(S) a,a,a-Trifluorotoluene(FID)	93.1			77.0-120		12/15/2020 05:34	WG1591855

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000471	0.00101	1	12/10/2020 23:50	WG1590025
Toluene	U		0.00131	0.00504	1	12/10/2020 23:50	WG1590025
Ethylbenzene	U		0.000743	0.00252	1	12/10/2020 23:50	WG1590025
Total Xylenes	U		0.000887	0.00655	1	12/10/2020 23:50	WG1590025
(S) Toluene-d8	106			75.0-131		12/10/2020 23:50	WG1590025
(S) 4-Bromofluorobenzene	95.9			67.0-138		12/10/2020 23:50	WG1590025
(S) 1,2-Dichloroethane-d4	110			70.0-130		12/10/2020 23:50	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.62	4.02	1	12/15/2020 17:48	WG1592116
C28-C40 Oil Range	3.56	J	0.275	4.02	1	12/15/2020 17:48	WG1592116
(S) o-Terphenyl	79.2			18.0-148		12/15/2020 17:48	WG1592116

Collected date/time: 12/03/20 16:20

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	97.3		1	12/16/2020 04:18	WG1591957

Wet Chemistry by Method 300.0

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	77.8	J	47.3	103	5	12/15/2020 22:50	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0485	B J	0.0223	0.103	1	12/15/2020 05:57	WG1591855
(S) a,a,a-Trifluorotoluene(FID)	93.5			77.0-120		12/15/2020 05:57	WG1591855

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000493	0.00106	1	12/11/2020 00:09	WG1590025
Toluene	U		0.00137	0.00528	1	12/11/2020 00:09	WG1590025
Ethylbenzene	U		0.000779	0.00264	1	12/11/2020 00:09	WG1590025
Total Xylenes	U		0.000930	0.00687	1	12/11/2020 00:09	WG1590025
(S) Toluene-d8	107			75.0-131		12/11/2020 00:09	WG1590025
(S) 4-Bromofluorobenzene	96.4			67.0-138		12/11/2020 00:09	WG1590025
(S) 1,2-Dichloroethane-d4	113			70.0-130		12/11/2020 00:09	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.66	4.11	1	12/15/2020 18:01	WG1592116
C28-C40 Oil Range	1.85	J	0.282	4.11	1	12/15/2020 18:01	WG1592116
(S) o-Terphenyl	78.8			18.0-148		12/15/2020 18:01	WG1592116

Collected date/time: 12/03/20 16:40

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.2		1	12/16/2020 04:09	WG1591959

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	515		51.0	111	5	12/15/2020 23:00	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0558	B J	0.0241	0.111	1	12/15/2020 07:30	WG1591855
(S) a,a,a-Trifluorotoluene(FID)	93.3			77.0-120		12/15/2020 07:30	WG1591855

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

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Benzene	U		0.000568	0.00122	1	12/11/2020 00:28	WG1590025
Toluene	U		0.00158	0.00609	1	12/11/2020 00:28	WG1590025
Ethylbenzene	U		0.000897	0.00304	1	12/11/2020 00:28	WG1590025
Total Xylenes	U		0.00107	0.00791	1	12/11/2020 00:28	WG1590025
(S) Toluene-d8	104			75.0-131		12/11/2020 00:28	WG1590025
(S) 4-Bromofluorobenzene	94.9			67.0-138		12/11/2020 00:28	WG1590025
(S) 1,2-Dichloroethane-d4	111			70.0-130		12/11/2020 00:28	WG1590025

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.78	4.43	1	12/15/2020 18:13	WG1592116
C28-C40 Oil Range	0.386	J	0.304	4.43	1	12/15/2020 18:13	WG1592116
(S) o-Terphenyl	71.9			18.0-148		12/15/2020 18:13	WG1592116

Collected date/time: 12/03/20 17:00

L1293357

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.3		1	12/16/2020 04:09	WG1591959

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	754		10.2	22.2	1	12/15/2020 23:09	WG1591067

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0240	0.111	1	12/15/2020 22:07	WG1592367
(S) a,a,a-Trifluorotoluene(FID)	109			77.0-120		12/15/2020 22:07	WG1592367

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

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Benzene	U		0.000568	0.00122	1	12/10/2020 20:33	WG1590056
Toluene	U		0.00158	0.00608	1	12/10/2020 20:33	WG1590056
Ethylbenzene	U		0.000897	0.00304	1	12/10/2020 20:33	WG1590056
Total Xylenes	0.00335	J	0.00107	0.00791	1	12/10/2020 20:33	WG1590056
(S) Toluene-d8	102			75.0-131		12/10/2020 20:33	WG1590056
(S) 4-Bromofluorobenzene	106			67.0-138		12/10/2020 20:33	WG1590056
(S) 1,2-Dichloroethane-d4	97.0			70.0-130		12/10/2020 20:33	WG1590056

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.78	4.43	1	12/15/2020 18:26	WG1592116
C28-C40 Oil Range	0.379	J	0.304	4.43	1	12/15/2020 18:26	WG1592116
(S) o-Terphenyl	71.6			18.0-148		12/15/2020 18:26	WG1592116

Total Solids by Method 2540 G-2011 [L1293357-01,02,03,04](#)

Method Blank (MB)

(MB) R3604177-1 12/16/20 04:31

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.00100			

L1293357-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1293357-01 12/16/20 04:31 • (DUP) R3604177-3 12/16/20 04:31

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	98.2	98.2	1	0.0701		10

Laboratory Control Sample (LCS)

(LCS) R3604177-2 12/16/20 04:31

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Total Solids by Method 2540 G-2011 [L1293357-05,06,07,08,09,10,11,12,13,14](#)

Method Blank (MB)

(MB) R3604219-1 12/16/20 04:18

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	%		%	%
Total Solids	0.00100			

L1293357-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1293357-12 12/16/20 04:18 • (DUP) R3604219-3 12/16/20 04:18

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	%	%		%		%
Total Solids	94.4	94.3	1	0.101		10

Laboratory Control Sample (LCS)

(LCS) R3604219-2 12/16/20 04:18

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Total Solids by Method 2540 G-2011 [L1293357-15,16](#)

Method Blank (MB)

(MB) R3604173-1 12/16/20 04:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.00100			

L1293357-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1293357-16 12/16/20 04:09 • (DUP) R3604173-3 12/16/20 04:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	90.3	90.2	1	0.0648		10

Laboratory Control Sample (LCS)

(LCS) R3604173-2 12/16/20 04:09

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Wet Chemistry by Method 300.0

[L1293357-01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16](#)

Method Blank (MB)

(MB) R3603969-1 12/15/20 18:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	U		9.20	20.0

L1293318-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1293318-02 12/15/20 19:29 • (DUP) R3603969-5 12/15/20 19:39

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	U	U	1	0.000		20

L1293357-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1293357-16 12/15/20 23:09 • (DUP) R3603969-6 12/15/20 23:19

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	754	735	1	2.54		20

Laboratory Control Sample (LCS)

(LCS) R3603969-2 12/15/20 18:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	196	98.0	90.0-110	

L1293318-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1293318-01 12/15/20 19:01 • (MS) R3603969-3 12/15/20 19:10 • (MSD) R3603969-4 12/15/20 19:20

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	520	U	514	522	99.0	100	1	80.0-120			1.49	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC) by Method 8015D/GRO [L1293357-01,02,03,04,05,06,07,08](#)

Method Blank (MB)

(MB) R3603303-2 12/13/20 14:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3603303-1 12/13/20 13:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.49	99.8	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			105	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC) by Method 8015D/GRO [L1293357-09,10,11,12,13,14,15](#)

Method Blank (MB)

(MB) R3603643-2 12/15/20 03:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0525	⬇	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	95.9			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3603643-1 12/15/20 01:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.13	111	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			105	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC) by Method 8015D/GRO [L1293357-16](#)

Method Blank (MB)

(MB) R3603945-3 12/15/20 20:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3603945-2 12/15/20 19:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.63	102	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			104	77.0-120	

L1293917-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1293917-04 12/15/20 23:31 • (MS) R3603945-4 12/16/20 04:45 • (MSD) R3603945-5 12/16/20 05:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	129	U	95.6	104	74.1	80.6	25	10.0-151			8.42	28
(S) a,a,a-Trifluorotoluene(FID)					104	104		77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3601820-3 12/09/20 03:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	105			75.0-131
(S) 4-Bromofluorobenzene	99.9			67.0-138
(S) 1,2-Dichloroethane-d4	113			70.0-130

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

(LCS) R3601820-1 12/09/20 01:35 • (LCSD) R3601820-2 12/09/20 01:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.145	0.135	116	108	70.0-123			7.14	20
Ethylbenzene	0.125	0.132	0.129	106	103	74.0-126			2.30	20
Toluene	0.125	0.132	0.123	106	98.4	75.0-121			7.06	20
Xylenes, Total	0.375	0.395	0.383	105	102	72.0-127			3.08	20
(S) Toluene-d8				101	100	75.0-131				
(S) 4-Bromofluorobenzene				98.0	103	67.0-138				
(S) 1,2-Dichloroethane-d4				120	118	70.0-130				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

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

[L1293357-03,04,05,06,07,08,09,10,11,12,13,14,15](#)

Method Blank (MB)

(MB) R3602465-2 12/10/20 18:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	105			75.0-131
(S) 4-Bromofluorobenzene	98.7			67.0-138
(S) 1,2-Dichloroethane-d4	114			70.0-130

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS)

(LCS) R3602465-1 12/10/20 17:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.119	95.2	70.0-123	
Ethylbenzene	0.125	0.111	88.8	74.0-126	
Toluene	0.125	0.105	84.0	75.0-121	
Xylenes, Total	0.375	0.335	89.3	72.0-127	
(S) Toluene-d8			98.4	75.0-131	
(S) 4-Bromofluorobenzene			101	67.0-138	
(S) 1,2-Dichloroethane-d4			125	70.0-130	

L1293357-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1293357-03 12/10/20 20:41 • (MS) R3602465-3 12/11/20 00:47 • (MSD) R3602465-4 12/11/20 01:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.126	U	0.125	0.134	99.2	106	1	10.0-149			6.25	37
Ethylbenzene	0.126	U	0.116	0.122	92.0	96.8	1	10.0-160			5.08	38
Toluene	0.126	U	0.115	0.123	91.2	97.6	1	10.0-156			6.78	38
Xylenes, Total	0.379	U	0.334	0.366	88.0	96.5	1	10.0-160			9.25	38
(S) Toluene-d8					101	103		75.0-131				
(S) 4-Bromofluorobenzene					93.4	98.2		67.0-138				
(S) 1,2-Dichloroethane-d4					115	118		70.0-130				

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

[L1293357-16](#)

Method Blank (MB)

(MB) R3602888-2 12/10/20 16:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	116			75.0-131
(S) 4-Bromofluorobenzene	120			67.0-138
(S) 1,2-Dichloroethane-d4	107			70.0-130

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS)

(LCS) R3602888-1 12/10/20 15:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.109	87.2	70.0-123	
Ethylbenzene	0.125	0.109	87.2	74.0-126	
Toluene	0.125	0.111	88.8	75.0-121	
Xylenes, Total	0.375	0.346	92.3	72.0-127	
(S) Toluene-d8			99.5	75.0-131	
(S) 4-Bromofluorobenzene			109	67.0-138	
(S) 1,2-Dichloroethane-d4			102	70.0-130	

Semi-Volatile Organic Compounds (GC) by Method 8015

[L1293357-01,02,03,04,05,06](#)

Method Blank (MB)

(MB) R3603820-1 12/15/20 09:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	86.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3603820-2 12/15/20 09:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	43.4	86.8	50.0-150	
(S) o-Terphenyl			89.0	18.0-148	

L1293353-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1293353-01 12/15/20 10:28 • (MS) R3603820-3 12/15/20 10:41 • (MSD) R3603820-4 12/15/20 10:54

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	52.1	9.50	41.9	48.0	62.2	74.0	1	50.0-150			13.7	20
(S) o-Terphenyl					58.4	71.8		18.0-148				

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Semi-Volatile Organic Compounds (GC) by Method 8015 L1293357-07,08,09,10,11,12,13,14,15,16

Method Blank (MB)

(MB) R3603885-1 12/15/20 16:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	80.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3603885-2 12/15/20 16:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	42.8	85.6	50.0-150	
(S) o-Terphenyl			92.6	18.0-148	

L1293392-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1293392-01 12/15/20 18:39 • (MS) R3603885-3 12/15/20 18:52 • (MSD) R3603885-4 12/15/20 19:05

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	68.5	U	52.1	55.3	76.1	81.2	1	50.0-150			5.89	20
(S) o-Terphenyl					83.3	85.8		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Guide to Reading and Understanding Your Laboratory Report

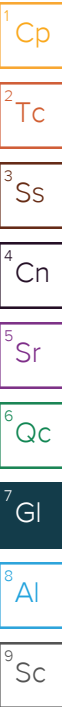
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	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
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.



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* 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	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	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-20-18
Maine	TN00003	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	998093910
Montana	CERT0086	Wyoming	A2LA

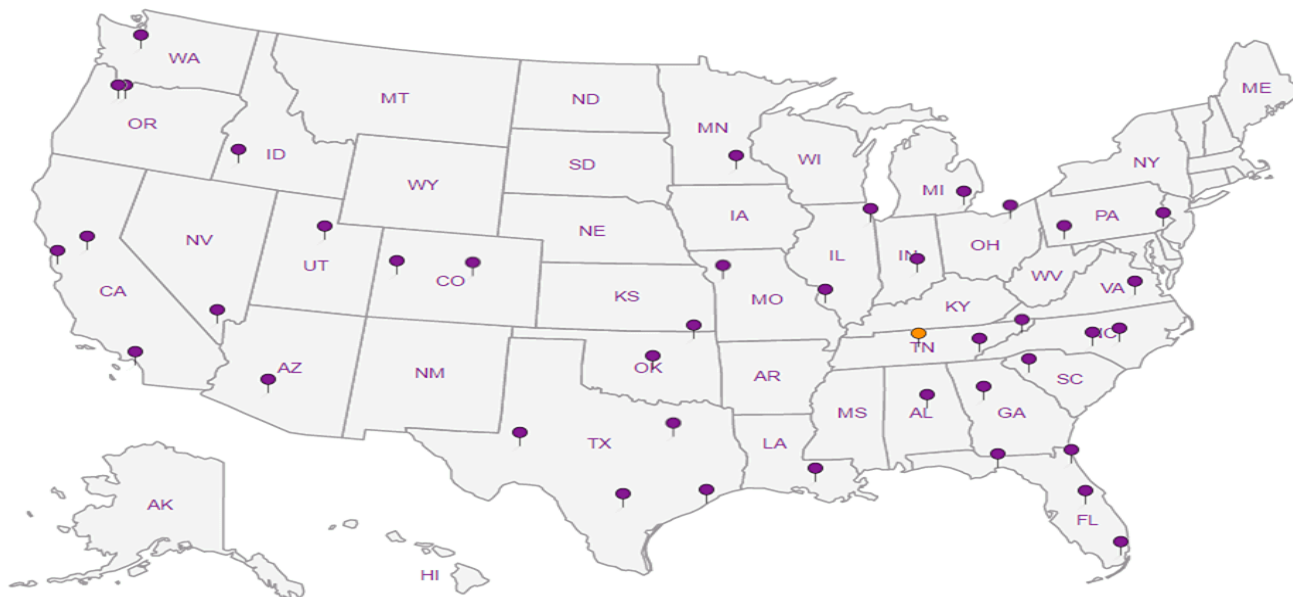
Third Party Federal Accreditations

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.



**Tetra Tech, Inc.**901 West Wall Street, Suite 100
Midland, Texas 79701
Tel (432) 682-4559
Fax (432) 682-3946

J226

Client Name:	Conoco Phillips	Site Manager:	Christian Llull
Project Name:	MCA #2A Release (1RP-798)	Contact Info:	Email: christian.llull@tetrattech.com Phone: (512) 338-1667
Project Location: (county, state)	Lea County, New Mexico	Project #:	212C-MD-02334, Task No. 07
Invoice to:	Accounts Payable 901 West Wall Street, Suite 100 Midland, Texas 79701		
Receiving Laboratory:	Pace Analytical	Sampler Signature:	Joe Tyler
Comments:	COPTETRA Acctnum		

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)	BTEX 8021B	BTEX 8021B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DPH)	PAH 8270C	Total Metals Ag As Ba C	TCLP Metals Ag As Ba C	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride 300.0	Chloride Sulfate TD	General Water Chemistry	Anion/Cation Balance	TPH 8015R	HOLD		
		YEAR: 2020		WATER	SOIL	HCL	HNO3	ICE	NONE																									
		DATE	TIME																															
-01	AH-1 (0'-1')	12/03/20	1000		X			X		1	N	X	X														X							
-02	AH-1 (1'-2')	12/03/20	1030		X			X		1	N	X	X														X							
-03	AH-2 (0'-1')	12/03/20	1100		X			X		1	N	X	X														X							
-04	AH-2 (1'-2')	12/03/20	1130		X			X		1	N	X	X														X							
-05	AH-3 (0'-1')	12/03/20	1200		X			X		1	N	X	X														X							
-06	AH-3 (1'-2')	12/03/20	1230		X			X		1	N	X	X														X							
-07	AH-4 (0'-1')	12/03/20	1300		X			X		1	N	X	X														X							
-08	AH-4 (1'-2')	12/03/20	1330		X			X		1	N	X	X														X							
-09	AH-5 (0'-1')	12/03/20	1400		X			X		1	N	X	X														X							
-10	AH-5 (1'-2')	12/03/20	1420		X			X		1	N	X	X														X							

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
<i>Joe Tyler</i>	12-04-20	14:00	<i>Christian Llull</i>	12.4.20	14:00
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
<i>Joe Tyler</i>	12.4.20	16:30	<i>Joe Tyler</i>	12.4.20	16:30
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
			<i>Joe Tyler</i>	12/5/20	8:45

LAB USE ONLY

Sample Temperature

REMARKS:

- ☒ Standard
- ☐ RUSH: Same Day 24 hr. 48 hr. 72 hr.
- ☐ Rush Charges Authorized
- ☐ Special Report Limits or TRRP Report

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19.1 = 1.0



Tetra Tech, Inc.

901 West Wall Street, Suite 100
Midland, Texas 79701
Tel (432) 682-4559
Fax (432) 682-3946

Client Name:	Conoco Phillips	Site Manager:	Christian Llull
Project Name:	MCA #2A Release (1RP-798)	Contact Info:	Email: christian.llull@tetratech.com Phone: (512) 338-1667
Project Location: (county, state)	Lea County, New Mexico	Project #:	212C-MD-02334, Task No. 07
Invoice to:	Accounts Payable 901 West Wall Street, Suite 100 Midland, Texas 79701		
Receiving Laboratory:	Pace Analytical	Sampler Signature:	Joe Tyler
Comments:	COPTETRA Acctnum		

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX			PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)	BTEX 8021B	BTEX 8260B / 608	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 608	GC/MS Semi. Vol. 8270C/825	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride 300.0	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	TPH 8015R	HOLD
		YEAR: 2020		WATER	SOIL	HCL	HNO3	ICE	NONE																								
		DATE	TIME																														
-11	AH-5 (3'-4')	12/03/20	1440		X				X			1	N	X	X													X					
-12	AH-5 (5'-6')	12/03/20	1500		X					X		1	N	X	X													X					
-13	AH-6 (0'-1')	12/03/20	1600		X					X		1	N	X	X													X					
-14	AH-6 (1'-2')	12/03/20	1620		X					X		1	N	X	X													X					
-15	AH-6 (3'-4')	12/03/20	1640		X					X		1	N	X	X													X					
-16	AH-6 (5'-6')	12/03/20	1700		X					X		1	N	X	X													X					

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N If Applicable

COC Signed/Accurate: ☒ Y ☐ N VOA Zero Headspace: ☒ Y ☐ N

Bottles arrive intact: ☒ Y ☐ N Pres. Correct/Check: ☒ Y ☐ N

Correct bottles used: ☒ Y ☐ N

Sufficient volume sent: ☒ Y ☐ N

RAD Screen <0.5 mR/hr: ☒ Y ☐ N

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
<i>Joe Tyler</i>	12-04-20	14:00	<i>Joe Tyler</i>	12-4-20	14:00
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
<i>Joe Tyler</i>	12-4-20	16:30	<i>SWA</i>	12-4-20	16:30
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
<i>Joe Tyler</i>	12-5-20	9:45	<i>Joe Tyler</i>	12-5-20	9:45

ORIGINAL COPY

LAB USE ONLY

Sample Temperature

- ☒ Standard
- ☐ RUSH: Same Day 24 hr. 48 hr. 72 hr.
- ☐ Rush Charges Authorized
- ☐ Special Report Limits or TRRP Report

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APPENDIX F

NMSLO Seed Mixture Details



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Lea County, New Mexico**

1RP-798



December 30, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface..... 2

How Soil Surveys Are Made.....5

Soil Map..... 8

 Soil Map.....9

 Legend.....10

 Map Unit Legend..... 11

 Map Unit Descriptions.....11

 Lea County, New Mexico..... 13

 KM—Kermit soils and Dune land, 0 to 12 percent slopes..... 13

References..... 15

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils

 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit


 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip


 Sodic Spot

 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals


Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 17, Jun 8, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Custom Soil Resource Report

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KM	Kermit soils and Dune land, 0 to 12 percent slopes	1.5	100.0%
Totals for Area of Interest		1.5	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Custom Soil Resource Report

Lea County, New Mexico**KM—Kermit soils and Dune land, 0 to 12 percent slopes****Map Unit Setting**

National map unit symbol: dmpx
Elevation: 3,000 to 4,400 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Kermit and similar soils: 46 percent
Dune land: 44 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kermit**Setting**

Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex
Parent material: Calcareous sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: fine sand
C - 8 to 60 inches: fine sand

Properties and qualities

Slope: 5 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R042XC022NM - Sandhills
Hydric soil rating: No

Custom Soil Resource Report

Description of Dune Land**Setting**

Landform: Dunes

Landform position (two-dimensional): Shoulder, backslope, footslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear, concave

Across-slope shape: Convex

Typical profile

A - 0 to 6 inches: fine sand

C - 6 to 60 inches: fine sand

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components**Palomas**

Percent of map unit: 3 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Pyote

Percent of map unit: 3 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Wink

Percent of map unit: 2 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Maljamar

Percent of map unit: 2 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

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Custom Soil Resource Report

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NMSLO Seed Mix**Sandy (S)****SANDY (S) SITES SEED MIXTURE:**

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
Grasses:			
Sand bluestem	Elida, VNS, So.	2.0	F
Little bluestem	Cimarron, Pastura	3.0	F
Black grama	VNS, Southern	1.0	D
Sand dropseed	VNS, Southern	4.0	S
Plains bristlegrass	VNS, Southern	2.0	D
Forbs:			
Firewheel (Gaillardia)	VNS, Southern	1.0	D
Annual Sunflower	VNS, Southern	1.0	D
Shrubs:			
Fourwing Saltbush	VNS, Southern	1.0	F
Total PLS/acre		16.0	

S = Small seed drill box, D = Standard seed drill box, F = Fluffy seed drill box
VNS = Variety Not Stated, PLS = Pure Live Seed

- Seed mixes should be provided in bags separating seed types into the three categories: small (S), standard (D) and fluffy (F).
- VNS, Southern – Seed should be from a southern latitude collection of this species.
- Double seed application rate for broadcast or hydroseeding.
- If one species is not available, contact the SLO for an approved substitute; alternatively the SLO may require other species proportionately increased.
- Additional information on these seed species can be found on the USDA Plants Database website at <http://plants.usda.gov>.



District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 208267

CONDITIONS

Operator: CONOCOPHILLIPS COMPANY 600 W. Illinois Avenue Midland, TX 79701	OGRID: 217817
	Action Number: 208267
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
jharimon	The submitted Restroation/Reclamation and Re-Vegetation Plan is approved with the following conditions: (1) The reclamation must contain a minimum of four feet of non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0, or other test methods approved by the division. The soil cover must include a top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater. (2) The responsible party must reseed disturbed area in the first favorable growing season following closure of the site.	4/24/2023
jharimon	(3) The division will consider reclamation of all disturbed areas complete when uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent of pre-disturbance levels and a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds. (4) For any major or minor release containing liquids, the responsible party must notify the division when reclamation and re-vegetation are complete.	4/24/2023