

February 14, 2019

Incident ID pending
District RP pending
Facility ID pending
Application ID pending

Mike Bratcher & Robert Hamlet
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division, District 2
811 S. First Street
Artesia, NM 88210

Ryan Mann Hobbs Field Office New Mexico State Land Office 2827 North Dal Paso Street, Suite 117 Hobbs, NM 88240

Re: Site Assessment Report and Proposed Remediation Plan

Site Name: Tomb Raider 1-12 Fed 718H

GPS: Latitude: 32.34271 Longitude: -103.73229

Legals: UL "A", Sec. 1, T23S, R31E

EddyCounty, New Mexico NMOCD Ref. No. pending

Lowry Environmental & Associates, LLC (LEA), on behalf of Fluid Delivery Solutions, LLC, has prepared this Site Assessment Report and Proposed Remediation Plan for the Release Site known as the Tomb Raider 1-12 Fed 718H. Details of the release are summarized on the table below:

Nature and Volume of Release							
Date Release Discovered	10/26/2018	Source of Release	Lay Flat Hose				
		Volume Released (bbls)	44.6				
Type of Release	Produced and Fresh Water Mix						
		Volume Recovered (bbls)	0				
Cause of Release							
The release was attributed	to the failure of a lay flat hose as a resu	ult of a valve inadvertantly being left o	closed.				
The release was attributed	to the failure of a lay flat hose as a resu	ult of a valve inadvertantly being left o	closed.				
The release was attributed  Affected Area	to the failure of a lay flat hose as a resu	ult of a valve inadvertantly being left o	closed.				
Affected Area	to the failure of a lay flat hose as a resu a on the north side of the caliche acces	, -					
Affected Area	,	ss road measuring approximately 1,80					
Affected Area The release affected an are Was this a major release?	a on the north side of the caliche acces	ss road measuring approximately 1,80 considered a major release?	0 sq. ft.				
<b>Affected Area</b> The release affected an are	a on the north side of the caliche acces	ss road measuring approximately 1,80	0 sq. ft.				
Affected Area The release affected an are Was this a major release? Yes	a on the north side of the caliche acces	os road measuring approximately 1,80 considered a major release?  End release of a volume of liquids excee	0 sq. ft.				

A copy of the Release Notification (NMOCD Form C-141) is provided as Attachment #9.

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Site Assessment/Characterization						
What is the shallowest depth to groundwater beneath the area affected by the release?	50-100 Ft.					
Did this release impact groundwater or surface water?	No					
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	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)?	No					
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	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?	No					
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	No					
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	No					
Are the lateral extents of the release within 300 feet of a wetland?	No					
Are the lateral extents of the release overlying a subsurface mine?	No					
Are the lateral extents of the release overlying an unstable area such as karst geology?	No					
Are the lateral extents of the release within a 100-year floodplain?	No					
Did the release impact areas <b>not</b> on an exploration, development, production or storage site?	Yes					

A search of groundwater databases maintained by the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey was conducted in an effort to determine the average depth to groundwater within a 1 Mile radius of the Site and identify any registered water wells within a 1/2 Mile radius of the Site. If none where identified, or the results were inconclusive, the approximate depth to groundwater was extrapolated from available data including the Depth to Groundwater Map utilized by the NMOCD.

Based on the volume and nature of the release, inferred depth to groundwater and NMOCD Siting Criteria, the NMOCD Closure Criteria for the Site is as follows:

Closure Criteria for Soil Impacted by a Release						
Benzene	10 mg/kg					
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)	50 mg/kg					
Total Petroleum Hydrocarbons	2,500 mg/kg					
Combined GRO and DRO	1,000 mg/kg					
Chloride	20,000 mg/kg					

NMOCD Siting Criteria data was gathered from available resources including Bureau of Land Management (BLM) shapefiles; topographic maps; NMOSE and USGS databases; and aerial imagery. The results are depicted on Figures 1 & 2. Depth to groundwater information is provided as Attachment #4. A Photographic Log is provided as Attachment #8.

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# **INITIAL SITE ASSESSMENT**

On **January 25, 2019**, an initial assessment was conducted at the Site. During the initial assessment, twelve (12) soil samples were collected from within the release margins in an effort to determine if soil was affected above the NMOCD Closure Criteria and/or the vertical and horizontal extent. The collected soil samples were submitted to an NMOCD-approved laboratory for analysis of BTEX, TPH and/or chloride concentrations. Laboratory analytical results indicated BTEX, TPH and/or chloride concentrations were below the NMOCD Closure Criteria in each of the submitted soil samples. Analytical results indicated BTEX, TPH and/or chloride concentrations were below the BLM Reclamation Standards in each of the submitted soil samples with the exception of soil samples SP #3 0-4", SP #3 18", SP #4 0-4", SP #5 0-4" and SP #6 0-4", which exhibited chloride concentrations of 2,080, 656, 768, 1,870, and 1,800 mg/kg, respectively.

A table summarizing laboratory analytical results from soil samples collected during the initial site assessment is provided below:

Concentrations of BTEX, TPH and/or Chloride in Soil											
					SW 846 8021B		SW 846 8015M Ext.				4500Cl
Sample ID	Date	Depth	Soil Status	Benzene (mg/kg)	BTEX (mg/kg)	GRO C <sub>6</sub> -C <sub>10</sub> (mg/kg)	DRO C <sub>10</sub> -C <sub>28</sub> (mg/kg)	$\begin{aligned} GRO + DRO \\ C_6\text{-}C_{28} \\ (mg/kg) \end{aligned}$	ORO C <sub>28</sub> -C <sub>36</sub> (mg/kg)	TPH C <sub>6</sub> -C <sub>36</sub> (mg/kg)	Chloride (mg/kg)
SP #1 0-4"	1/25/19	0-4"	In-Situ	-	-	-	-	-	-	-	80.0
SP #1 18"	1/25/19	18"	In-Situ	-	-	-	-	-	-	-	160
SP #2 0-4"	1/25/19	0-4"	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	464
SP #2 18"	1/25/19	18"	In-Situ	1	•	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SP #3 0-4"	1/25/19	0-4"	In-Situ	1	•	-	-	-	-	-	2,080
SP #3 18"	1/25/19	18"	In-Situ	-	-	-	-	-	-	-	656
SP #4 0-4"	1/25/19	0-4"	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	768
SP #4 18"	1/25/19	18"	In-Situ	-	-	-	-	-	-	-	64.0
SP #5 0-4"	1/25/19	0-4"	In-Situ	-	-	-	-	-	-	-	1,870
SP #5 18"	1/25/19	18"	In-Situ	-	-	-	-	-	-	-	336
SP #6 0-4"	1/25/19	0-4"	In-Situ	-	-	-	-	-	-	-	1,800
SP #6 18"	1/25/19	18"	In-Situ	-	-	-	-	-	-	-	176
	Closure Criteria				50	-	-	1,000	-	2,500	20,000

A "Site & Sample Location Map" is provided as Attachment #3. Field Data, if applicable, is provided as Attachment #5. Soil profile observations are provided on Attachment #6. Laboratory analytical reports are provided as Attachment #7.

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# PROPOSED REMEDIATION PLAN

Based on laboratory analytical results, site characteristics and field observations made during the initial site assessment, Fluid Delivery Solutions, LLC proposes the following remediation activities designed to advance the Site toward an approved closure:

- •Utilizing mechanical equipment, excavate impacted soil within the release margins in the area characterized by sample point SP #3 to a depth beyond 18 in. bgs, until laboratory analytical results from confirmation soil samples indicate concentrations of chloride are below the applicable BLM Reclamation Standards. Impacted soil in the areas characterized by sample points SP #4, SP #5 and SP #6 will be excavated to a depth beyond 4 in. bgs, or until laboratory analytical results from confirmation soil samples indicate concentrations of chloride are below the applicable BLM Reclamation Standards.
- Excavated soil will be temporarily stockpiled on-site, pending transportation under manifest to an NMOCD-approved disposal facility.
- Upon receiving favorable laboratory analytical results from confirmation soil samples (below the NMOCD Closure Criteria and BLM Reclamation Standards) excavated areas will be backfilled with locally sourced, non-impacted "like" material. Excavation backfill will be placed at or near original relative positions. The affected area will be contoured and/or compacted to achieve erosion control, stability and preservation of surface water flow to the extent practicable.

# SAMPLING PLAN

Upon completion of excavation activities, representative five-point composite excavation confirmation soil samples will be collected from the excavation sidewalls in each cardinal direction, representing no more than **50 linear ft**. A minimum of **one (1)** representative five-point composite excavation confirmation soil sample will be collected from the base of the excavated area representing every **200 square feet**. Additional, "discrete" confirmation soil samples will be collected from wet or visibly stained areas inferred to have been affected by the release, as necessary. Excavation confirmation soil samples will be analyzed for constituents of concern present above the NMOCD Closure Criteria as determined during the Initial Site Assessment.

# TIMELINE AND ESTIMATED VOLUME OF SOIL TO BE REMEDIATED.

Remediation activities are expected to be completed **within 90 days** of receiving necessary approval(s) of this Site Assessment Summary and Proposed Remediation Plan. Based on laboratory analytical results, site characteristics and field observations made during the initial site assessment it is estimated that approximately **200 cubic yards** of soil has been affected above the NMOCD Closure Criteria and BLM Reclamation Standards.

Incident ID	pending
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# RESTORATION, RECLAMATION AND RE-VEGETATION PLAN

Areas affected by remediation and closure activities will be substantially restored to the condition that existed prior to the release, to the extent practicable. Excavated areas will be backfilled with locally sourced, non-impacted "like" material placed at or near original relative positions. The affected area will be contoured and/or compacted to achieve erosion control, stability and preservation of surface water flow to the extent practicable. Affected areas not on production pads and/or lease roads will be reseeded with a BLM-approved seed mixture during the first favorable growing season following closure of the site.

If you have any questions, or need any additional information, please feel free to contact Jess Foshee or the undersigned by phone or email.

Respectfully,

Joel W. Lowry

**Environmental Professional** 

Lowry Environmental & Associates, LLC

**Attachments:** Attachment #1- Figure 1 - Topographic Map

Attachment #2- Figure 2 - Aerial Map

Attachment #3- Figure 3 - Site & Sample Location Map
Attachment #4- Depth to Groundwater Information

Attachment #5 Field Data
Attachment #6- Soil Profile

Attachment #7- Laboratory Analytical Reports

Attachment #8- Photographic Log

Attachment #9- Release Notification (FORM C-141)

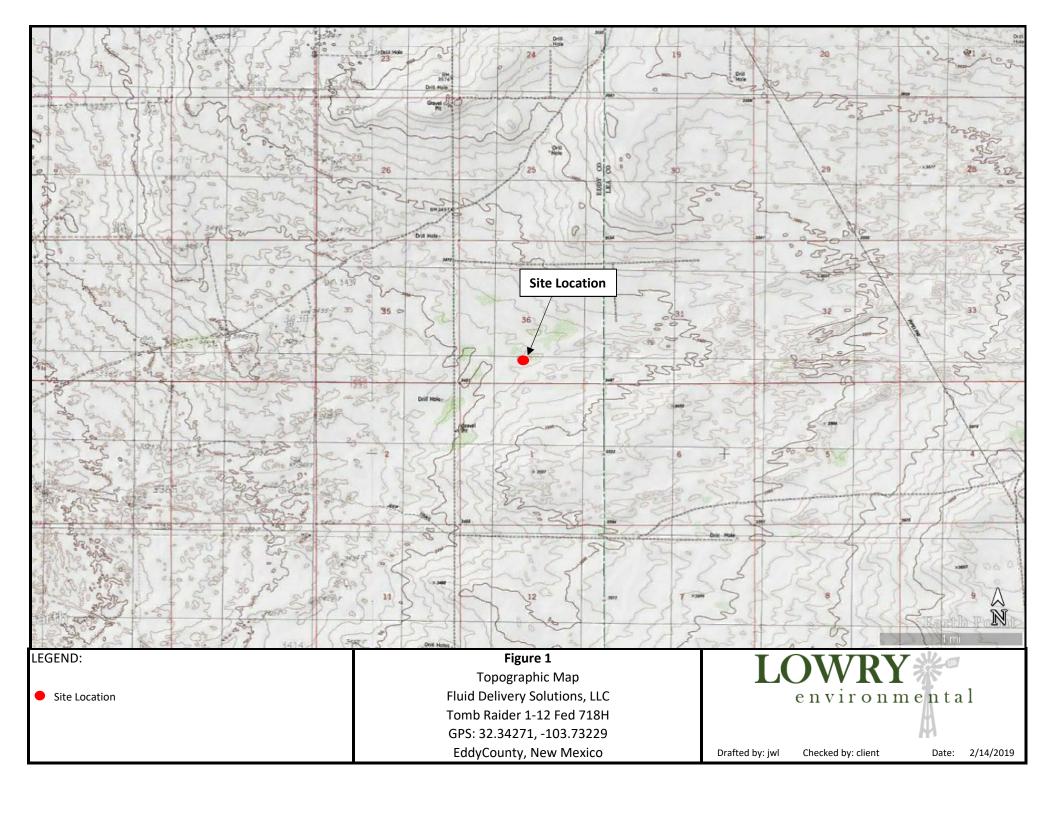
# **LIMITATIONS**

This document has been prepared on behalf of Fluid Delivery Solutions, LLC. Use of information contained in this report, including exhibits and attachments, by any other party without the consent of LEA and/or Fluid Delivery Solutions, LLC is prohibited.

This document has been prepared in a professional manner, using the degree of skill and care exercised by similar environmental professionals. LEA notes that the facts and conditions referenced in this document may change over time and that the conclusions and recommendations are only applicable to the facts and conditions as described at the time this document was prepared.

LEA has prepared this report to the best of its ability. No other warranty, expressed or implied, is made or intended.

# Attachment #1 Figure 1 - Topographic Map



# Attachment #2 Figure 2 - Aerial Map



OSE Fresh Water Well

100-Year Floodplain High/Critical Karst



Non-Inustrial Building Subsurface Mine



1/2 Mile Radius



Aerial Map Fluid Delivery Solutions, LLC Tomb Raider 1-12 Fed 718H GPS: 32.34271, -103.73229 EddyCounty, New Mexico

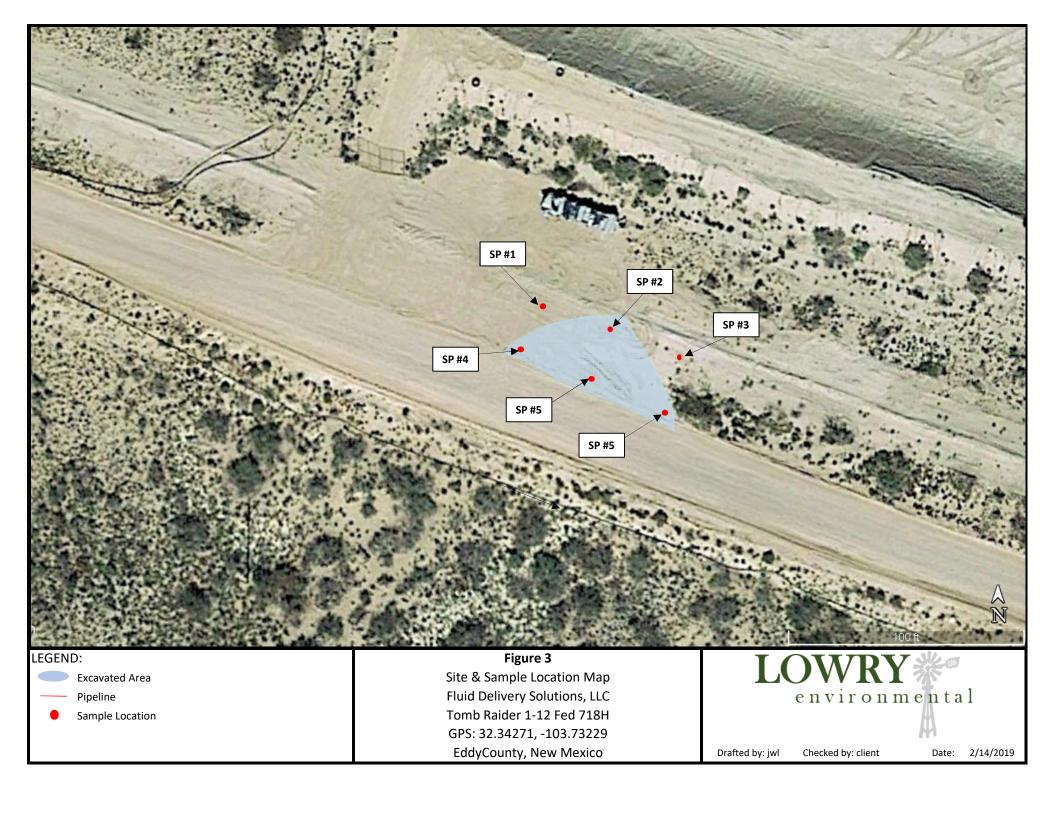
environmental

Drafted by: jwl

Checked by: client

Date: 2/14/2019

# Attachment #3 Figure 3 - Site & Sample Location Map



# Attachment #4 Depth to Groundwater Information



# New Mexico Office of the State Engineer Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

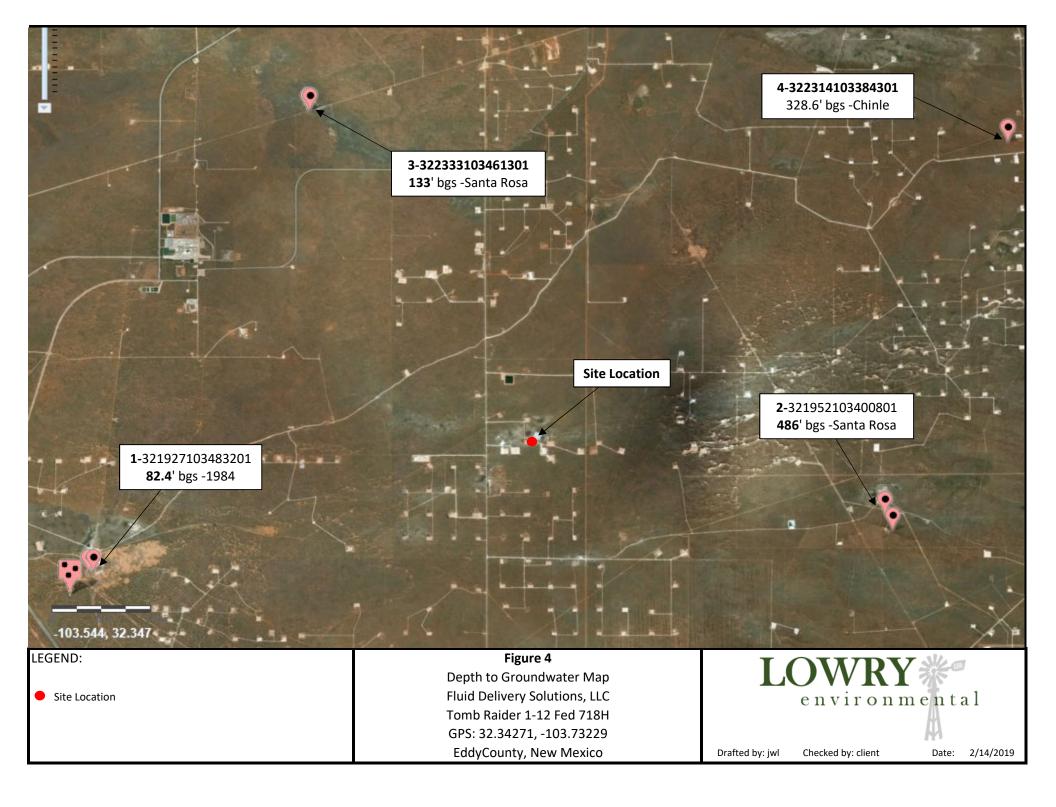
**UTMNAD83 Radius Search (in meters):** 

**Easting (X):** 617248 **Northing (Y):** 3552683 **Radius:** 1610

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.

2/13/19 4:30 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER





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**USGS Water Resources** 

Data Category: Groundwater Geographic Area:

Vinited States ✓ GO

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# Search Results -- 1 sites found

Agency code = usgs site\_no list =

• 320643103465002

#### Minimum number of levels = 1

Save file of selected sites to local disk for future upload

# USGS 320643103465002 25S.31E.21.413314A

Eddy County, New Mexico Latitude 32°06'46.0", Longitude 103°46'56.3" NAD83 Land-surface elevation 3,374.00 feet above NGVD29

The depth of the well is 400 feet below land surface.

This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

## **Output formats**

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water- level date- time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water- level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurem
1959-02-17	7	D	318.02				2	Ρ (	J	
2013-01-17	7 12:40 MST	m					[	) 5	USGS	

# Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level date-time accuracy	m	Date is accurate to the Minute
Water-level accuracy		Not determined
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status	D	Site was dry (no water level was recorded).
Status	Р	Site was being pumped.
Method of measurement	S	Steel-tape measurement.
Method of measurement	U	Unknown method.
Measuring agency		Not determined
Measuring agency	USGS	U.S. Geological Survey
Source of measurement	R	Reported by person other than the owner, driller, or another government agency.
Source of measurement	U	Source is unknown.
Water-level approval status	Α	Approved for publication Processing and review completed.

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Title: Groundwater for USA: Water Levels

URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: <u>USGS Water Data Support Team</u> Page Last Modified: 2019-02-12 18:28:06 EST 0.53 0.49 nadww01





**National Water Information System: Web Interface** 

**USGS Water Resources** 

Data Category:		Geographic Area:		
Groundwater	$\overline{}$	United States	~	GO

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Agency code = usgs site\_no list =

• 320932103443801

#### Minimum number of levels = 1

Save file of selected sites to local disk for future upload

# USGS 320932103443801 25S.31E.02.23441

Eddy County, New Mexico Latitude 32°09'37.4", Longitude 103°44'29.6" NAD83 Land-surface elevation 3,460.00 feet above NGVD29 The depth of the well is 1,016 feet below land surface.

This well is completed in the Rustler Formation (312RSLR) local aquifer.

## **Output formats**

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water- level date- time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water- level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurem
1966-08-18		D	400.00			2		U		
1976-01-28		D	390.27			2		U		

## Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Method of measurement	U	Unknown method.
Measuring agency		Not determined
Source of measurement	U	Source is unknown.
Water-level approval status	Α	Approved for publication Processing and review completed.

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V United States Data Category: Groundwater ✓ GO

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Agency code = usgs site\_no list =

• 321005103402301

#### Minimum number of levels = 1

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# USGS 321005103402301 24S.32E.33.42241

Lea County, New Mexico Latitude 32°10'21.6", Longitude 103°40'18.9" NAD83 Land-surface elevation 3,499.00 feet above NGVD29

The depth of the well is 367 feet below land surface.

This well is completed in the Chinle Formation (231CHNL) local aquifer.

## **Output formats**

Table of data	
Tab-separated data	
Graph of data	
Reselect period	

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water- level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurem
1959-02-18		D	313.40			2		U		
1981-06-12		D	304.40			2		U		
1986-03-11		D	305.21			2		U		
1991-05-29		0	287.45			2		U		
1996-03-14		D	285.40			2		S		
2001-02-27		D	288.68			2		S		
2013-01-17	09:30 MST	m	289.69			2		S	USGS	

#### Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level date-time accuracy	m	Date is accurate to the Minute
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Method of measurement	S	Steel-tape measurement.
Method of measurement	U	Unknown method.
Measuring agency		Not determined
Measuring agency	USGS	U.S. Geological Survey
Source of measurement	R	Reported by person other than the owner, driller, or another government agency.
Source of measurement	U	Source is unknown.

Section	Code	Description
Water-level approval status	Α	Approved for publication Processing and review completed.

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**National Water Information System: Web Interface** 

**USGS Water Resources** 

Data Category: Groundwater Geographic Area:

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## Search Results -- 1 sites found

Agency code = usgs site\_no list =

• 320424103415401

#### Minimum number of levels = 1

Save file of selected sites to local disk for future upload

# USGS 320424103415401 26S.31E.01.421322

Eddy County, New Mexico Latitude 32°04'24", Longitude 103°41'54" NAD27 Land-surface elevation 3,294 feet above NAVD88

This well is completed in the Santa Rosa Sandstone (231SNRS) local aquifer.

## **Output formats**

Table of data	
Tab-separated data	
Graph of data	
Reselect period	

Date	Time	? Water- level date- time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water- level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurem
1983-01-26		D	290.12			2		U		
1983-02-14		D	289.42			2		U		
1987-10-21		D	289.90			2		U		

#### Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Method of measurement	U	Unknown method.
Measuring agency		Not determined
Source of measurement	U	Source is unknown.
Water-level approval status	Α	Approved for publication Processing and review completed.

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Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

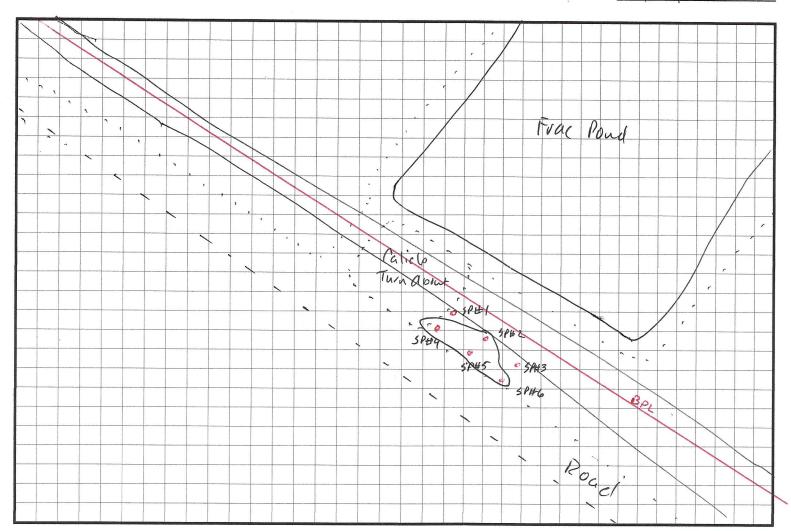
Page Contact Information: <u>USGS Water Data Support Team</u> Page Last Modified: 2019-02-13 18:48:10 EST 0.51 0.49 nadww01



# Attachment #5 Field Data

Site Name: Tomb Raider 1-12 Fed 7184

Date: 10/26/2018



Visit Release Site Surtain Staining visible on East Side of Turnabout, Low away brid Sample to Look for Inputs
Run Chievide field 70st

Field ID	Odor/PID	Chloride
SPEI	Nop	6170
50 HI	٠, '	4120
×		

Field ID	Odor/PID	Chloride
3P#2	1000	436
51HZ	'(	6170

Field ID	Odor/PID	Chloride
5P#3	lnore	1780
59#3	٠,	564

Field ID	Odor/PID	Chloride
5PH4	Mor	588
3PH4	٠,	6170

Field ID	Odor/PID	Chloride
3845	Wore	1908
SPHS	εţ	144
***************************************		

Field ID	Odor/PID	Chloride
5P#6	Worp	1360
4PH 6	v ç	1170

# Attachment #6 Soil Profile

# **SOIL PROFILE**

Site Name: Tomb Ruider 1-12 Fed 7181+

Date: 10/26/2018

Description	_	Depth (ft. bgs)
Road Buse I Caliche		1
Red   Brown Soil	~~~~	. 2
		3
		4
		5
		6
		7
		8
		9
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		9
	. 1	0

# Attachment #7 Laboratory Analytical Reports



February 01, 2019

JOEL LOWRY

LOWRY ENVIROMENTAL & ASSOCIATES

PO BOX 296

LOVINGTON, NM 88260

RE: TOMB RAIDER 718 PUMP

Enclosed are the results of analyses for samples received by the laboratory on 01/30/19 13:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/ga/lab">www.tceq.texas.gov/field/ga/lab</a> accred certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2 Haloacetic Acids (HAA-5)
Method EPA 524.2 Total Trihalomethanes (TTHM)
Method EPA 524.4 Regulated VOCs (V1, V2, V3)

Celey D. Keine

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



# Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES JOEL LOWRY PO BOX 296 LOVINGTON NM, 88260

Fax To:

Received: 01/30/2019 Sampling Date: 01/25/2019

Reported: 02/01/2019 Sampling Type: Soil

Project Name: TOMB RAIDER 718 PUMP Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Jodi Henson

Project Location: FLUID DELIVERY - LEA CO NM

# Sample ID: SP # 1 0-4" (H900329-01)

Chloride, SM4500Cl-B	mg,	mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	01/31/2019	ND	416	104	400	0.00	

# Sample ID: SP # 1 18" (H900329-02)

Chloride, SM4500Cl-B	mg,	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	01/31/2019	ND	416	104	400	0.00	

# Sample ID: SP # 2 0-4" (H900329-03)

Analyte	mg,	mg/kg		Analyzed By: ms					
	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/31/2019	ND	2.36	118	2.00	0.804	
Toluene*	<0.050	0.050	01/31/2019	ND	2.24	112	2.00	0.837	
Ethylbenzene*	<0.050	0.050	01/31/2019	ND	2.20	110	2.00	1.03	
Total Xylenes*	<0.150	0.150	01/31/2019	ND	6.73	112	6.00	1.10	
Total BTEX	<0.300	0.300	01/31/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID 101 % 73.3-129

Surrogate: 4-Bromojtuorovenzene (F1D	101	70 /3.3-12	9						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	464	16.0	01/31/2019	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier

# Cardinal Laboratories \*=Accredited Analyte

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Celey D. Keine



# **Analytical Results For:**

LOWRY ENVIROMENTAL & ASSOCIATES JOEL LOWRY

PO BOX 296

LOVINGTON NM, 88260

Fax To:

Received: 01/30/2019 Sampling Date: 01/25/2019

Reported: 02/01/2019 Sampling Type: Soil

Project Name: TOMB RAIDER 718 PUMP Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Jodi Henson

Project Location: FLUID DELIVERY - LEA CO NM

# Sample ID: SP # 2 0-4" (H900329-03)

TPH 8015M	mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	BS % Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/31/2019	ND	171	85.3	200	1.48	
DRO >C10-C28*	<10.0	10.0	01/31/2019	ND	177	88.5	200	1.49	
EXT DRO >C28-C36	<10.0	10.0	01/31/2019	ND					
Surrogate: 1-Chlorooctane	91.1 9	% 41-142	?						
Surrogate: 1-Chlorooctadecane	84.0 %	% 37.6-14	7						

# Sample ID: SP # 2 18" (H900329-04)

Chloride, SM4500Cl-B	mg/kg		Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	01/31/2019	ND	416	104	400	0.00	
TPH 8015M	8015M mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/31/2019	ND	171	85.3	200	1.48	
DRO >C10-C28*	<10.0	10.0	01/31/2019	ND	177	88.5	200	1.49	
EXT DRO >C28-C36	<10.0	10.0	01/31/2019	ND					
Surrogate: 1-Chlorooctane	94.0	% 41-142							
Surrogate: 1-Chlorooctadecane	83.1	% 37.6-14	7						

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Celeg D. Freene

01/25/2019

Cool & Intact

Jodi Henson



# Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES JOEL LOWRY

Sampling Condition:

Sample Received By:

PO BOX 296

LOVINGTON NM, 88260

Fax To:

Received: 01/30/2019 Sampling Date:

Reported: 02/01/2019 Sampling Type: Soil

Project Name: **TOMB RAIDER 718 PUMP** Project Number: NONE GIVEN

Project Location: FLUID DELIVERY - LEA CO NM

# Sample ID: SP # 3 0-4" (H900329-05)

Chloride, SM4500CI-B	ride, SM4500Cl-B mg/kg			Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2080	16.0	01/31/2019	ND	416	104	400	0.00	

# Sample ID: SP # 3 18" (H900329-06)

Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	656	16.0	01/31/2019	ND	416	104	400	0.00		

# Sample ID: SP # 4 0-4" (H900329-07)

Chloride, SM4500Cl-B	mg/	'kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	768	16.0	01/31/2019	ND	416	104	400	0.00	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/31/2019	ND	171	85.3	200	1.48	
DRO >C10-C28*	<10.0	10.0	01/31/2019	ND	177	88.5	200	1.49	
EXT DRO >C28-C36	<10.0	10.0	01/31/2019	ND					
Surrogate: 1-Chlorooctane	82.6	% 41-142	,						

Surrogate: 1-Chlorooctadecane 72.8 % 37.6-147

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Celeg D. Keine



# Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES

JOEL LOWRY PO BOX 296

LOVINGTON NM, 88260

Fax To:

Received: 01/30/2019

Sampling Date: 01/25/2019

Reported: 02/01/2019

Sampling Type: Soil

Project Name: TOMB RAIDER 718 PUMP
Project Number: NONE GIVEN

Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Project Number: NONE GIVEN

Project Location: FLUID DELIVERY - LEA CO NM

# Sample ID: SP # 4 18" (H900329-08)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	01/31/2019	ND	416	104	400	0.00	
Sample ID: SP # 5 0-4"	(H900329-09)								
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1870	16.0	01/31/2019	ND	416	104	400	0.00	
Sample ID: SP # 5 18" (	H900329-10)								
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	01/31/2019	ND	416	104	400	0.00	
Sample ID: SP # 6 0-4"	(H900329-11)								
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1800	16.0	01/31/2019	ND	416	104	400	0.00	QM-07
Sample ID: SP # 6 18" (	H900329-12)								
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	01/31/2019	ND	416	104	400	0.00	

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# **Notes and Definitions**

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS

recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

\*\* Samples not received at proper temperature of 6°C or below.

\*\*\* Insufficient time to reach temperature.

- Chloride by SM4500Cl-B does not require samples be received at or below 6°C

Samples reported on an as received basis (wet) unless otherwise noted on report

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# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

	Fluid Delivery				BI	BILL TO					ANALYSIS	S REQUEST	EST		
Project Manager: Joel Lowry				P.O.	#			4	4	4	1			$\exists$	$\dashv$
Address: PO 896	*			င္ပ	Company:	Lowry Environmental	mental								
City: Lovington	State: NM Zip	#		At	Attn: CO Joe	CO Joel Lowry									
Phone #: 432-466-4450	Fax #:			Ad	Address:							_			
Project #:	Project Owner:			C <sub>i</sub>	City:							_			
Project Name: Tomb Raider 718 Pump	8 Pump			St	State:	Zip:									
Project Location: Lea County, New Mexico	v Mexico			Ph	Phone #:										
Sampler Name: Joel Lowry				Fa	Fax #:										
FOR LAB USE ONLY			MA	MATRIX	PRESERV.	SAMPLING	NG								
Lab I.D. Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER WASTEWATER SOIL	OIL SLUDGE OTHER:	ACID/BASE: ICE / COOL OTHER :	DATE	TIME	Chloride	TPH 8015	BTEX 8021			9		
SP #1 0-4"	G		×		×	1/25/19	·	×							
2 SP #1 18"	G		×		×	1/25/19		×							
3 SP #2 0-4"	G		×		×	1/25/19		×	×	_					
4 SP #2 18"	G	_	×		×	1/25/19	8	×	×						
SP #3 0-4"	G	_	×		×	1/25/19		×							
6 SP #3 18"	G	->	×		×	1/25/19		×							
7 SP #4 0-4"	G	ح	×		×	1/25/19		×	×						
<b>3</b> SP #4 18"	6	_	×		×	1/25/19		×							
SP #5 0-4"	G	7	×		×	1/25/19		×							
(C) SP #5 18"	G	_	×		×	1/25/19		×							
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 the client for the analyses. All claims including those for negligence and any other cause what damasees we shall exclude the second to the policable handyses. All claims including those for negligence and any other cause what damasees, including whether what had the second to the policable handyses. All claims including those for negligence and any other cause what damasees, including whether what damases including the property of the	d client's exclusive remedy for any claim rer cause whatsoever shall be deemed v	arising w waived ur	whether based in inless made in wr	contract or tort, si riting and received potions, loss of use	hall be limited to the by Cardinal within or loss of profits	e amount paid by the amount paid by the 30 days after compinguished by client, it	ne client for the letion of the applical s subsidiaries	ble							
Tiffiates 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.	ance of services hereunder by Cardinal,	regardle	ess of whether su	uch claim is based	upon any of the al	regardless of whether such claim is based upon any of the above stated reasons	or otherwise.	1							
Relinquisned By:	Dale 30/10	egeiv	Regeived By:		>	•	Fax Result:	ı	□ Yes	O O	Add'l Fax #:	#			
Callon	Times.	3	2	Mo	かっとくと	1	REMARKS:								

Sampler - UPS - Bus - Other: 5,80 Delivered By: (Circle One) #97

Time:

Refinquished by:

()well Jou

Sample Condition
Cool Intact
Tyes Tyes
No No CHECKED BY:

ioel@lowryenvironmental.com

FORM-006 R 2.0



# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476

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company Name:											Q	F	BILL 10					l der	ANA	ANALYSIS		چ	REQUEST	1	1	1	
Project Manager: Joel Lowry						1		P.O.	9.#	1.4	1																
Address: PO 896								CC	Company:	an	÷:	2	Lowry Environmental	mental	60												
City: Lovington State: NM	Zip	#						Αt	Attn:	S	20	<u>e</u>	CO Joel Lowry														
Phone #: 432-466-4450 Fax #:								Ac	Address:	SS															_		
Project #: Project Owner:	3							City:	₹.																		
ame: Tomb Raider 718 Pu								St	State:			N	Zip:														
Project Location: Lea County, New Mexico								Ph	Phone #:	#																	
Sampler Name: Joel Lowry								Fa	Fax #:																		
FOR LAB USE ONLY	IP.				MATRIX	공			P	PRESERV.	뮈		SAMPLING	ื่อ													
Lab I.D. Sample I.D.	(G)RAB OR (C)OMI	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	OTTIER.	DATE	TIME	Chloride	TPH 8015	BTEX 8021										
1) SP #6 0-4"	۵	_			×					×		_	1/25/19		×												
)2 SP #6 18"	റ				×				_	×	-	+	1/25/19		×												
											+																
												+												+++			
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 the client for the 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 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries,	y claim ar semed wa	rising v	vhethe nless i	er basi made ness in	ed in c	contra ing ar	ct or t	eived of use	hall b by C	e limit ardina	ed to	in 30	mount paid by th days after compl urred by client, it	e client for the etion of the applic subsidiaries,	able						-			-	_		
Relinquished By: Date Date Description	Re	Received By:	ed	, By:	3500					>	5			Phone Result: Fax Result:	t:	□ Yes		N N	Add'	Add'l Phone #: Add'l Fax #:	: e #:						
Rélinquished By: Tinb95:40	Sec	Received By:	e C	By:	0	2	7	enson	2	0	Ø	3	5	REMARKS:	ioel@	: ioel@lowrvenvironmental.com	envir	onme	ental.	com							
Time:						)				)	į	Š	, i														
Delivered By: (Circle One)	ž			Sample Condition Cool Intact	₹ ple	Col	ct ndit	ion		C			CHECKED BY: (Initials)														

Sampler - UPS - Bus - Other: 5.8% # 47

Cool Intact

Eyes Pyes

No No

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

Attachment #8
Photographic Log

# **PHOTOLOG**

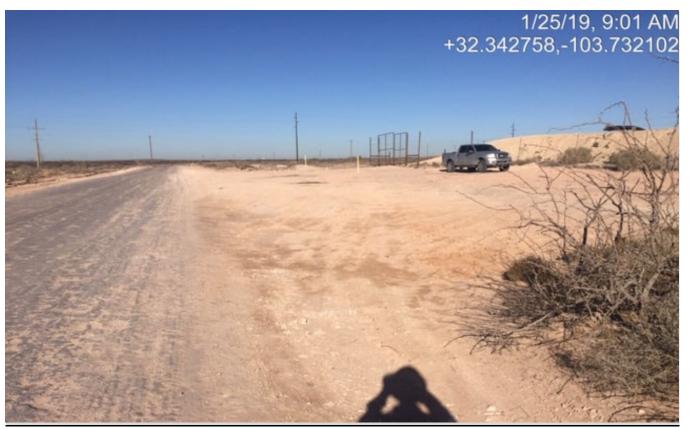


Photo 1: View of the affected area and sample location, facing Northwest.



Photo 2: View of the affected area and sample location, facing Southwest.

# **PHOTOLOG**



Photo 3: View of the affected area and sample location, facing Southeast.



Photo 4: View of the affected area and sample location, facing Southeast.

# **PHOTOLOG**



Photo 5: View of the affected area and sample location, facing Southeast.



Photo 6: View of the affected area and sample location, facing Northwest.

# Attachment #9 Release Notification (FORM C-141)

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources Department

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
lication ID المجاد	

# **Release Notification**

# **Responsible Party**

· · · · · · · · · · · · · · · · · · ·

# State of New Mexico Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major	If YES, for what reason(s) does the respon	sible party consider this a major release?
release as defined by 19.15.29.7(A) NMAC?		
☐ Yes ☐ No		
If VES was immediate no	otice given to the OCD? By whom? To wh	om? When and by what means (phone, email, etc)?
II 125, was ininediate no	since given to the OCD. By whom. To wik	when and by what means (phone, email, etc).
	Initial Re	sponse
The responsible p	party must undertake the following actions immediately	unless they could create a safety hazard that would result in injury
☐ The source of the rele	ease has been stopped.	
	s been secured to protect human health and t	he environment.
	-	kes, absorbent pads, or other containment devices.
All free liquids and re	ecoverable materials have been removed and	managed appropriately.
If all the actions described	d above have <u>not</u> been undertaken, explain w	hy:
Dar 10 15 20 8 D (4) NIM	AC the responsible party may commence re	mediation immediately after discovery of a release. If remediation
has begun, please attach a	a narrative of actions to date. If remedial e	fforts have been successfully completed or if the release occurred ease attach all information needed for closure evaluation.
regulations all operators are public health or the environm failed to adequately investigated to adequate the control of the c	required to report and/or file certain release notified nent. The acceptance of a C-141 report by the Otate and remediate contamination that pose a threat	est of my knowledge and understand that pursuant to OCD rules and cations and perform corrective actions for releases which may endanger CD does not relieve the operator of liability should their operations have t to groundwater, surface water, human health or the environment. In esponsibility for compliance with any other federal, state, or local laws
Printed Name:		Title:
Signature:		Date:
email:		Telephone:
OCD Only		
Received by:		Date:

# State of New Mexico Oil Conservation Division

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?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	Yes 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)?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☐ 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?	Yes No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☐ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☐ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☐ No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	☐ Yes ☐ No
Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertecontamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.	tical extents of soil
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 well 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	s.

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

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:	Date:	
email:	Telephone:	
OCD Only		
Received by:	Date:	

# State of New Mexico Oil Conservation Division

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)		
<u>Deferral Requests Only</u> : Each of the following items must be con	firmed 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:	Date:	
email:	Telephone:	
OCD Only		
Received by:	Date:	
☐ Approved ☐ Approved with Attached Conditions of	Approval	
Signature:	Date:	

# State of New Mexico Oil Conservation Division

Closure Report Attachment Checklist: Each of the following items must be included in the closure report.

Incident ID	
District RP	
Facility ID	
Application ID	

# Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC		
Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)		
Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)		
Description of remediation activities		
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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.  Printed Name:  Title:  Title:		
Signature:	Date:	
email:	Telephone:	
OCD Only		
Received by:	Date:	
Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.		
Closure Approved by:	Date:	
Printed Name:	Title:	