



# Hudson Federal Tank Battery #001

## WORK PLAN

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API No. 30-015-21052

Release Date: October 3, 2016

Unit Letter F, Section 1, Township 23 South, Range 30 East

NMOCD Case #: 2R-3956

**June 26, 2017**

**Prepared by:**

Michael Alves

Diversified Field Service, Inc.

206 W. Snyder

Hobbs, NM 88240

Phone: (575)964-8394

Fax: (575)393-8396

Mike Bratcher  
Environmental Protection Specialist  
New Mexico Oil Conservation District  
811 S First St  
Artesia, NM 88210

RE: **XTO – Hudson Federal Tank Battery #001  
Remediation Work Plan**  
UL/F, Section 1, T23S, R30E  
API No. 30-015-31513  
NMOCD Case #: 2R-3956  
NMOCD Score: 0

Mr. Bratcher,

XTO Energy (XTO) has retained Diversified Environmental (DFSI) to address environmental issues for the site detailed herein.

The site is located northwest of Loving, NM, in Eddy County. The spill site resulted from a ruptured gasket, releasing a total of approximately 9 barrels of oil and 24 barrels of produced water, with 3 barrels of oil and 12 barrels of produced water recovered. An initial C-141 was submitted to NMOCD on October 21, 2016 and approved on October 24, 2016 (Appendix I).

### **Site Assessment**

Beginning March 21, 2017 DFSI personnel were on site to obtain samples at regular intervals within the release area (Figure 1). Six samples were obtained and field tested for chloride levels, as well as BTEX (Appendix II). The samples were screened using a Mini Rae Photoionization Detector (PID). Clean field samples were submitted for laboratory analysis at Cardinal Laboratory of Hobbs, NM to obtain confirmation (Appendix III).

DFSI has conducted a groundwater study of the area and has determined, according to the New Mexico Office of the State Engineer, the average depth to groundwater beneath this site is approximately 105 ft (Appendix IV).

## Conclusion

After careful review DFSI, on behalf of XTO, would like to propose the following:

In order to maintain tank integrity, the release area within the battery will be excavated to a depth of 1' bgs. The excavated soil will be properly disposed of at an approved NMOCD facility. The excavation will be backfilled with clean, imported soil to ground surface. The pasture release area will be tilled and seeded with a blend of native vegetation. Any remaining constituents will be addressed at time of site abandonment.

Following the approval and completion of the above plan, DFSI will submit all proper closure documentation to the NMOCD and BLM in accordance to the State and Federal Guidelines set forth.

Please feel free to contact with any questions concerning this remediation plan request.

Sincerely,

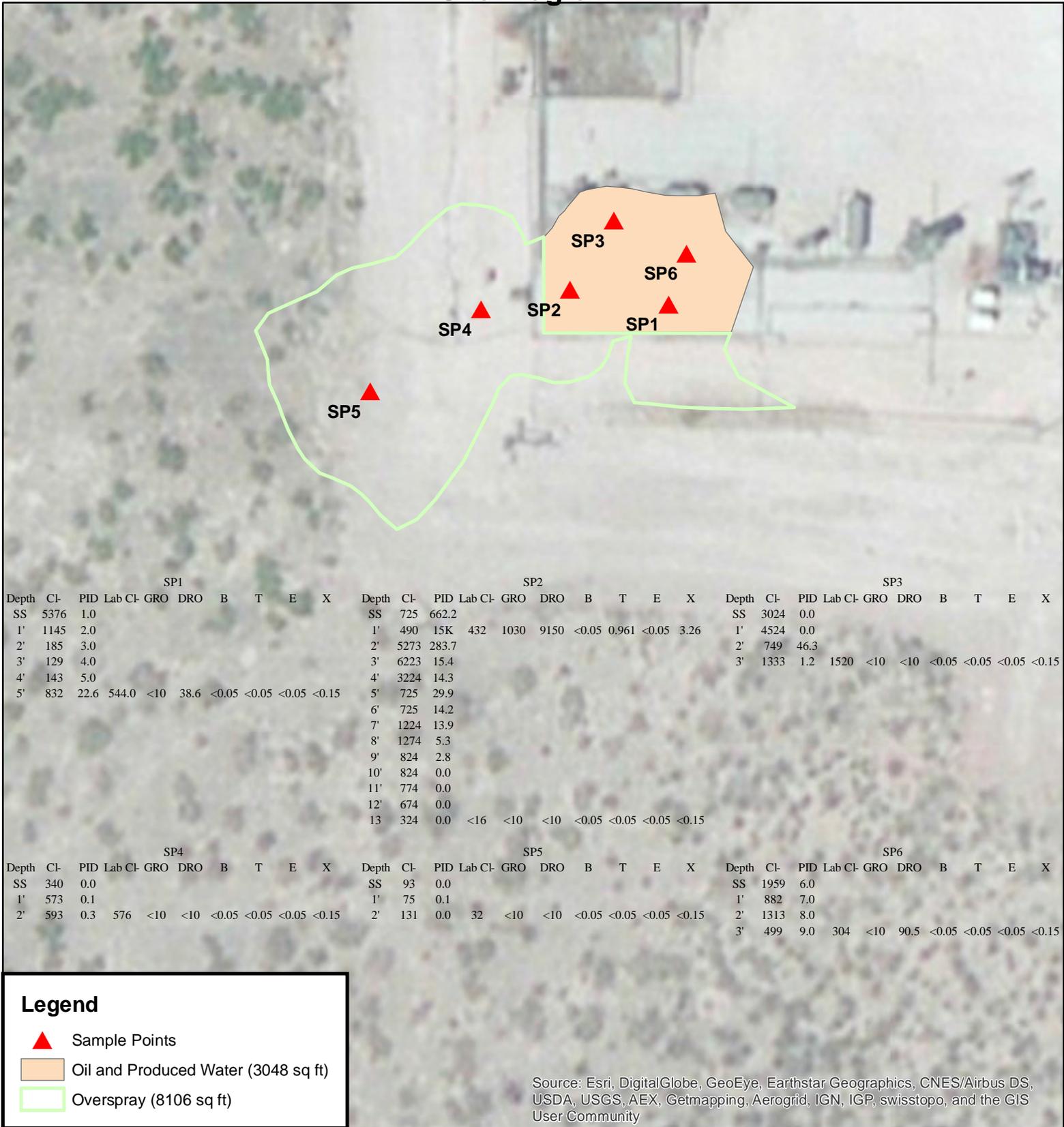
Michael Alves  
Environmental Supervisor | Diversified Field Service, Inc.  
206 West Snyder | Hobbs, NM 88240  
Office: (575)964-8394 | Mobile: (575)631-3364  
Fax: (575)964-8396 | Email: malves@diversifiedfsi.com

Cc: Shelly Tucker, BLM

Figures: Site Diagram  
Proposed Work

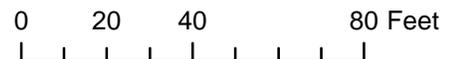
Appendices: Initial C-141  
Site Photos  
Laboratory Analysis  
Groundwater Study

# Site Diagram

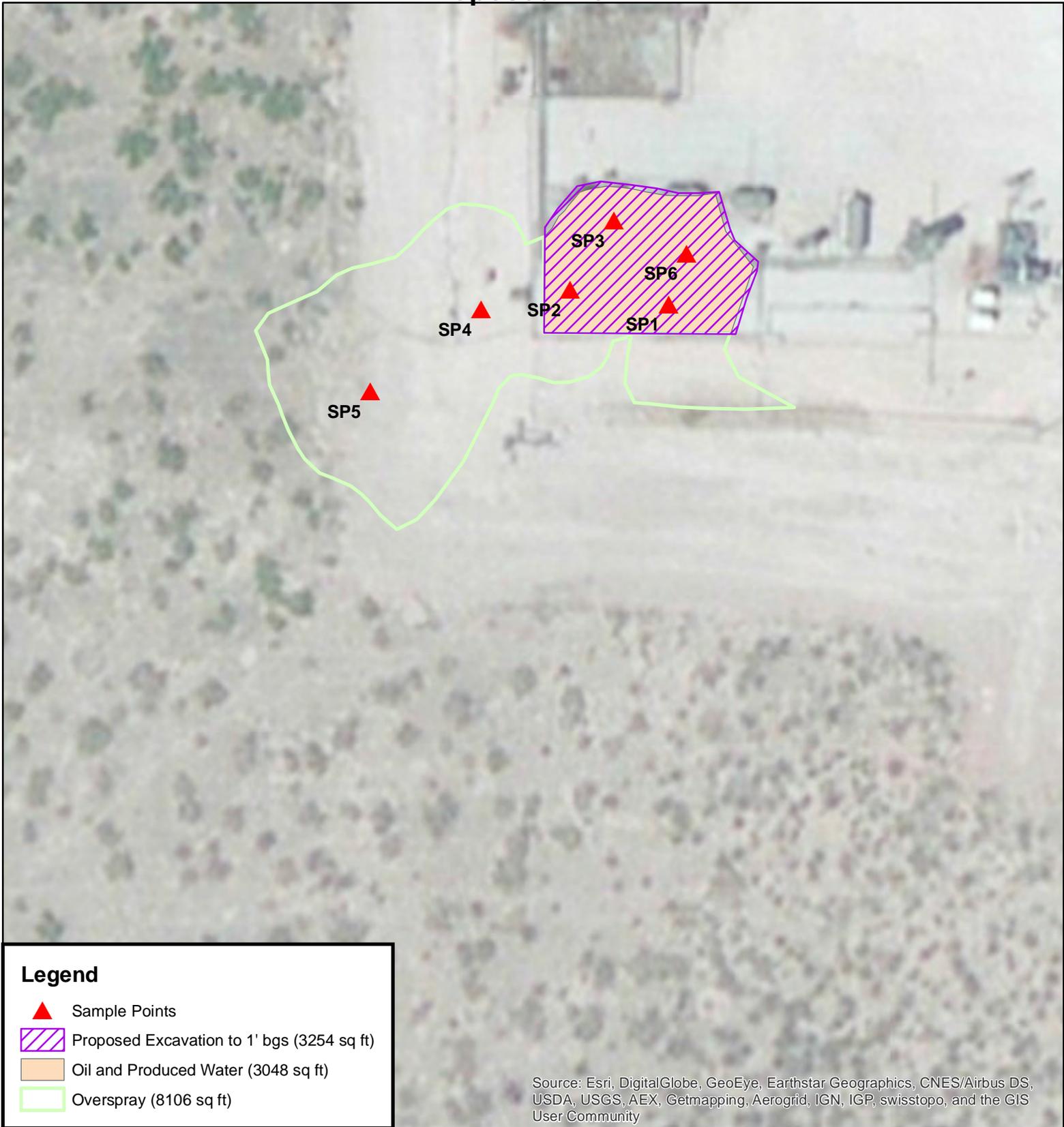


**Hudson Federal Tank Battery #001**  
**Unit Letter F, Section 1, T23S, R30E**  
**Eddy County, NM**  
**API #: 30-015-21052**  
**NMOCD Case #: 2R-3956**

**Figure 1**

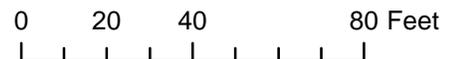


# Proposed Work



**Hudson Federal Tank Battery #001**  
**Unit Letter F, Section 1, T23S, R30E**  
**Eddy County, NM**  
**API #: 30-015-21052**  
**NMOCD Case #: 2R-3956**

**Figure 2**



# Appendix I

INITIAL C-141

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Diversified Field Service, Inc.  
206 W. Snyder  
Hobbs, NM 88240  
(575) 964-8394

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

**NM OIL CONSERVATION**

ARTESIA DISTRICT

OCT 21 2016

Form C-141  
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

RECEIVED

**Release Notification and Corrective Action**

**OPERATOR**  Initial Report  Final Report

*NAB1629852573*

Name of Company: BOPCO, L.P. <i>210137</i>	Contact: Amy Ruth
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: Hudson Federal Battery #1 (at Hudson Federal well #7)	Facility Type: Exploration and Production

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-31513
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	1	23S	30E	2000	North	1875	West	Eddy

Latitude 32.335761° Longitude -103.836860°

**NATURE OF RELEASE**

Type of Release	Crude oil and produced water	Volume of Release	9 bbls Oil 24 bbls PW	Volume Recovered	3 bbls Oil 12 bbls PW
Source of Release	Ruptured Gasket	Date and Hour of Occurrence	10/3/2016 time unknown	Date and Hour of Discovery	10/3/2016 approx. 10 am
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Mike Bratcher and Heather Patterson		
By Whom?	Amy Ruth	Date and Hour	10/3/2016 4:46 pm by email		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	N/A		
If a Watercourse was Impacted, Describe Fully.* N/A					
Describe Cause of Problem and Remedial Action Taken.* Release of fluids was the result of a ruptured gasket on a gas supply pot. The vessel was isolated for repairs.					
Describe Area Affected and Cleanup Action Taken.* Leak affected approximately 5,000 square feet of misted pasture area west of the battery and 3670 square feet of caliche pad and earthen containment. Free standing fluids within the earthen containment were recovered via vacuum truck and Micro-Blaze was applied to the pasture area.					

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.

Signature: <i>[Signature]</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Amy C. Ruth	Approved by Environmental Specialist: <i>[Signature]</i>	
Title: EHS Remediation Specialist	Approval Date: <i>10/24/16</i>	Expiration Date: <i>N/A</i>
E-mail Address: ACRuth@basspet.com	Conditions of Approval: Remediation per O.C.D. Rules & Guidelines <input type="checkbox"/> Attached <input type="checkbox"/>	
Date: 10/21/2016 Phone: 432-661-0571	<b>SUBMIT REMEDIATION PROPOSAL NO</b> <b>LATER THAN: <u>11/24/16</u></b>	

\* Attach Additional Sheets If Necessary

*2RP-3956*

# Appendix II

## SITE PHOTOS

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# HUDSON FEDERAL TANK BATTERY #001

## PHOTO PAGE



Collecting sample



Collecting sample



Collecting sample



Collecting sample

# Appendix III

## LABORATORY ANALYSES

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Diversified Field Service, Inc.  
206 W. Snyder  
Hobbs, NM 88240  
(575) 964-8394



March 22, 2017

MICHAEL ALVES

DIVERSIFIED FIELD SERVICES, INC.

P. O. BOX 5966

HOBBS, NM 88241

RE: HUDSON 7 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 03/21/17 10:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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 [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited 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)

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,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 DIVERSIFIED FIELD SERVICES, INC.  
 MICHAEL ALVES  
 P. O. BOX 5966  
 HOBBS NM, 88241  
 Fax To: (575) 393-2981

Received:	03/21/2017	Sampling Date:	03/21/2017
Reported:	03/22/2017	Sampling Type:	Soil
Project Name:	HUDSON 7 BATTERY	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP1 @ 5' (H700729-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/21/2017	ND	2.01	100	2.00	1.83	
Toluene*	<0.050	0.050	03/21/2017	ND	1.91	95.5	2.00	1.26	
Ethylbenzene*	<0.050	0.050	03/21/2017	ND	1.93	96.3	2.00	1.98	
Total Xylenes*	<0.150	0.150	03/21/2017	ND	5.52	91.9	6.00	2.10	
Total BTEX	<0.300	0.300	03/21/2017	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 104 % 72-148*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>544</b>	16.0	03/21/2017	ND	416	104	400	3.77	

TPH 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	03/21/2017	ND	199	99.3	200	1.21	
<b>DRO &gt;C10-C28</b>	<b>38.6</b>	10.0	03/21/2017	ND	204	102	200	2.04	

*Surrogate: 1-Chlorooctane 84.8 % 25.1-158*
*Surrogate: 1-Chlorooctadecane 90.9 % 26.8-170*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 DIVERSIFIED FIELD SERVICES, INC.  
 MICHAEL ALVES  
 P. O. BOX 5966  
 HOBBS NM, 88241  
 Fax To: (575) 393-2981

Received:	03/21/2017	Sampling Date:	03/21/2017
Reported:	03/22/2017	Sampling Type:	Soil
Project Name:	HUDSON 7 BATTERY	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP2 @ 1' (H700729-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/21/2017	ND	2.01	100	2.00	1.83	
<b>Toluene*</b>	<b>0.961</b>	0.050	03/21/2017	ND	1.91	95.5	2.00	1.26	
Ethylbenzene*	<0.050	0.050	03/21/2017	ND	1.93	96.3	2.00	1.98	
<b>Total Xylenes*</b>	<b>3.26</b>	0.150	03/21/2017	ND	5.52	91.9	6.00	2.10	
<b>Total BTEX</b>	<b>4.22</b>	0.300	03/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 120 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>432</b>	16.0	03/21/2017	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>1030</b>	10.0	03/21/2017	ND	199	99.3	200	1.21		
<b>DRO &gt;C10-C28</b>	<b>9150</b>	10.0	03/21/2017	ND	204	102	200	2.04		

Surrogate: 1-Chlorooctane 176 % 25.1-158

Surrogate: 1-Chlorooctadecane 218 % 26.8-170

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 DIVERSIFIED FIELD SERVICES, INC.  
 MICHAEL ALVES  
 P. O. BOX 5966  
 HOBBS NM, 88241  
 Fax To: (575) 393-2981

Received:	03/21/2017	Sampling Date:	03/21/2017
Reported:	03/22/2017	Sampling Type:	Soil
Project Name:	HUDSON 7 BATTERY	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP3 @ 3' (H700729-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/21/2017	ND	2.01	100	2.00	1.83	
Toluene*	<0.050	0.050	03/21/2017	ND	1.91	95.5	2.00	1.26	
Ethylbenzene*	<0.050	0.050	03/21/2017	ND	1.93	96.3	2.00	1.98	
Total Xylenes*	<0.150	0.150	03/21/2017	ND	5.52	91.9	6.00	2.10	
Total BTEX	<0.300	0.300	03/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1520	16.0	03/21/2017	ND	416	104	400	3.77	

TPH 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	03/21/2017	ND	199	99.3	200	1.21	
DRO >C10-C28	<10.0	10.0	03/21/2017	ND	204	102	200	2.04	

Surrogate: 1-Chlorooctane 84.4 % 25.1-158

Surrogate: 1-Chlorooctadecane 87.7 % 26.8-170

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 DIVERSIFIED FIELD SERVICES, INC.  
 MICHAEL ALVES  
 P. O. BOX 5966  
 HOBBS NM, 88241  
 Fax To: (575) 393-2981

Received:	03/21/2017	Sampling Date:	03/21/2017
Reported:	03/22/2017	Sampling Type:	Soil
Project Name:	HUDSON 7 BATTERY	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP4 @ 2' (H700729-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/21/2017	ND	2.01	100	2.00	1.83	
Toluene*	<0.050	0.050	03/21/2017	ND	1.91	95.5	2.00	1.26	
Ethylbenzene*	<0.050	0.050	03/21/2017	ND	1.93	96.3	2.00	1.98	
Total Xylenes*	<0.150	0.150	03/21/2017	ND	5.52	91.9	6.00	2.10	
Total BTEX	<0.300	0.300	03/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<b>576</b>	16.0	03/21/2017	ND	416	104	400	3.77	

TPH 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	03/21/2017	ND	199	99.3	200	1.21	
DRO >C10-C28	<10.0	10.0	03/21/2017	ND	204	102	200	2.04	

Surrogate: 1-Chlorooctane 85.6 % 25.1-158

Surrogate: 1-Chlorooctadecane 87.4 % 26.8-170

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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 MICHAEL ALVES  
 P. O. BOX 5966  
 HOBBS NM, 88241  
 Fax To: (575) 393-2981

Received:	03/21/2017	Sampling Date:	03/21/2017
Reported:	03/22/2017	Sampling Type:	Soil
Project Name:	HUDSON 7 BATTERY	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP5 @ 2' (H700729-05)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/21/2017	ND	2.01	100	2.00	1.83	
Toluene*	<0.050	0.050	03/21/2017	ND	1.91	95.5	2.00	1.26	
Ethylbenzene*	<0.050	0.050	03/21/2017	ND	1.93	96.3	2.00	1.98	
Total Xylenes*	<0.150	0.150	03/21/2017	ND	5.52	91.9	6.00	2.10	
Total BTEX	<0.300	0.300	03/21/2017	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 104 % 72-148*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>32.0</b>	16.0	03/21/2017	ND	416	104	400	3.77	

TPH 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	03/21/2017	ND	199	99.3	200	1.21	
DRO >C10-C28	<10.0	10.0	03/21/2017	ND	204	102	200	2.04	

*Surrogate: 1-Chlorooctane 75.5 % 25.1-158*
*Surrogate: 1-Chlorooctadecane 76.9 % 26.8-170*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

- S-04            The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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 SM450Cl-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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Celey D. Keene, Lab Director/Quality Manager

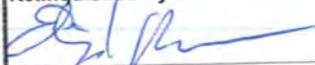
RUSH

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: DFSI		BILL TO				ANALYSIS REQUEST																	
Project Manager: MICHAEL ALVES		P.O. #: 8192		Company: DFSI																			
Address: *BILL LAB FEES TO XTO*		Attn:		Address: *RUSH FEES*																			
City: State: Zip:		City:		State: Zip:																			
Phone #: Fax #:		Phone #:		Fax #:																			
Project #: Project Owner:		Project Name:		Project Location: HUDSON 7 BATT																			
Sampler Name: EUSTAN RASCON		Project #:		Project Owner:																			
FOR LAB USE ONLY		# CONTAINERS	MATRIX					PRESERV.	SAMPLING														
Lab I.D.	Sample I.D.		GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	TPH	BTX	CI-							
H70072A		G			X				X		3-21-17	859	X	X	X								
1	SP1@5'											908											
2	SP2@1'											850											
3	SP3@3'											832											
4	SP4@2'											836											
5	SP5@2'																						

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 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.

Relinquished By: 	Date: 3-21-17 Time: 10:40	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Date: 3-21-17 Time: 10:40	Received By: 	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	22.8c	CHECKED BY: (Initials) TD-#75	REMARKS: Bill RUSH FEES TO DFSI EMAIL ALL ERASCON@DIVERSIFIEDFSI.COM Brought straight to Lab from Field

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326



June 20, 2017

MICHAEL ALVES

DIVERSIFIED FIELD SERVICES, INC.

P. O. BOX 5966

HOBBS, NM 88241

RE: HUDSON TANK BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 06/19/17 8:26.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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 [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited 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)

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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, flowing "C" at the beginning.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 DIVERSIFIED FIELD SERVICES, INC.  
 MICHAEL ALVES  
 P. O. BOX 5966  
 HOBBS NM, 88241  
 Fax To: (575) 393-2981

Received:	06/19/2017	Sampling Date:	06/16/2017
Reported:	06/20/2017	Sampling Type:	Soil
Project Name:	HUDSON TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO NM		

**Sample ID: SP 2 @ 13' (H701575-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2017	ND	1.98	99.2	2.00	0.678	
Toluene*	<0.050	0.050	06/19/2017	ND	1.88	93.9	2.00	2.14	
Ethylbenzene*	<0.050	0.050	06/19/2017	ND	1.98	98.8	2.00	0.672	
Total Xylenes*	<0.150	0.150	06/19/2017	ND	5.31	88.4	6.00	0.551	
Total BTEX	<0.300	0.300	06/19/2017	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 72-148*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/19/2017	ND	432	108	400	3.64	

TPH 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	06/19/2017	ND	187	93.7	200	3.52	
DRO >C10-C28	<10.0	10.0	06/19/2017	ND	192	96.2	200	3.54	

*Surrogate: 1-Chlorooctane 57.2 % 28.3-164*
*Surrogate: 1-Chlorooctadecane 44.8 % 34.7-157*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 DIVERSIFIED FIELD SERVICES, INC.  
 MICHAEL ALVES  
 P. O. BOX 5966  
 HOBBS NM, 88241  
 Fax To: (575) 393-2981

Received:	06/19/2017	Sampling Date:	06/16/2017
Reported:	06/20/2017	Sampling Type:	Soil
Project Name:	HUDSON TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO NM		

**Sample ID: SP 6 @ 3' (H701575-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2017	ND	1.98	99.2	2.00	0.678	
Toluene*	<0.050	0.050	06/19/2017	ND	1.88	93.9	2.00	2.14	
Ethylbenzene*	<0.050	0.050	06/19/2017	ND	1.98	98.8	2.00	0.672	
Total Xylenes*	<0.150	0.150	06/19/2017	ND	5.31	88.4	6.00	0.551	
Total BTEX	<0.300	0.300	06/19/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>304</b>	16.0	06/19/2017	ND	432	108	400	3.64	

TPH 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	06/19/2017	ND	187	93.7	200	3.52	
<b>DRO &gt;C10-C28</b>	<b>90.5</b>	10.0	06/19/2017	ND	192	96.2	200	3.54	

Surrogate: 1-Chlorooctane 68.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 56.3 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- 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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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



# Appendix IV

## GROUNDWATER STUDY

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Diversified Field Service, Inc.  
206 W. Snyder  
Hobbs, NM 88240  
(575) 964-8394



# 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	Code	POD Sub-basin	County	Q 6	Q 4	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
<a href="#">C_03139</a>			ED	4	2	4	01	23S	30E	610424	3577764*	425		
<a href="#">C_03222 EXPLORE</a>			ED	1	1	4	12	23S	30E	609833	3576349*	365		
<a href="#">C_03559 POD1</a>		CUB	ED	4	3	2	01	23S	30E	609928	3578260	50	0	50
<a href="#">C_03559 POD2</a>		CUB	ED	4	3	2	01	23S	30E	609928	3578260	25	0	25
<a href="#">C_03559 POD3</a>		CUB	ED	4	3	2	01	23S	30E	609928	3578260	20	0	20
<a href="#">C_03559 POD4</a>		CUB	ED	4	3	2	01	23S	30E	609928	3578260	25	0	25
<a href="#">C_03559 POD5</a>		CUB	ED	4	3	2	01	23S	30E	609912	3578236	50		

Average Depth to Water: 0 feet  
 Minimum Depth: 0 feet  
 Maximum Depth: 0 feet

Record Count: 7

PLSS Search:

Section(s): 1, 2, 11, 12      Township: 23S      Range: 30E

\*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.

6/21/17 9:24 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER



# 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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
<a href="#">C_02492</a>			ED	4	4	4	06	23S	31E	612056	3577320*	135	85	50
<a href="#">C_02492 POD2</a>		C	ED	3	2	2	07	23S	31E	611767	3576996	400	125	275
<a href="#">C_02865</a>			ED	4	4	4	06	23S	31E	612056	3577320*	174		
<a href="#">C_03520 POD1</a>		C	ED	3	1	1	07	23S	31E	610733	3576905	500		

Average Depth to Water: 105 feet

Minimum Depth: 85 feet

Maximum Depth: 125 feet

Record Count: 4

PLSS Search:

Section(s): 6, 7

Township: 23S

Range: 31E

\*UTM location was derived from PLSS - see Help

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6/21/17 9:25 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER



# 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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
<a href="#">C 02638</a>			ED	4	3	3	35	22S	30E	607558	3578948*	528		
<a href="#">C 03561 POD1</a>		CUB	ED	3	2	3	36	22S	30E	609288	3579393	30	0	30
<a href="#">C 03561 POD2</a>		CUB	ED	3	2	3	36	22S	30E	609314	3579424	25	0	25
<a href="#">C 03561 POD3</a>		CUB	ED	3	2	3	36	22S	30E	609393	3579425	25	0	25
<a href="#">C 03561 POD4</a>		CUB	ED	3	2	3	36	22S	30E	609419	3579425	25	0	25
<a href="#">C 03561 POD5</a>		CUB	ED	3	2	3	36	22S	30E	609419	3579425	20	0	20

Average Depth to Water: 0 feet  
Minimum Depth: 0 feet  
Maximum Depth: 0 feet

Record Count: 6

PLSS Search:

Section(s): 35, 36      Township: 22S      Range: 30E

\*UTM location was derived from PLSS - see Help

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6/21/17 9:25 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER



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# 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.

PLSS Search:

Section(s): 31

Township: 22S

Range: 31E

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6/21/17 9:25 AM

WATER COLUMN/ AVERAGE  
DEPTH TO WATER