



Monday April 30, 2018

Mike Bratcher

**New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau – District II
811 S. First Street
Artesia, NM 88210**

**Re: Remediation Work Plan Request
Devon Energy – Blackjack 1 Federal #2
UL/J, S01, T24S, R30E
API No. – 30-015-33383**

Mr. Bratcher,

Devon Energy has retained White Buffalo Environmental to address potential environmental concerns for the site detailed herein.

The site is located in Eddy County. The incident occurred as a result of a poly flowline located north of the well pad in the pasture area. Sometime on or before July 16, 2017 the 2" line ruptured and fluid traversed at a downward slope, pooling at the bottom of a low lined sandy area. Impact was more significant in and around the pooling area. The impacted surface area totaled 1904 sq. ft. of primarily pasture area. WBE has attached the corresponding C-141 for this incident.

WBE has also conducted a groundwater study of the area and has determined that according to the New Mexico Office of the State Engineer there is one verifiable record of groundwater in the immediate vicinity to the site mentioned above. The depth to groundwater in this area was last reported in 1991 to be at a depth of 192' below land surface. This well is completed in the Rustler Formation (312RSLR) local aquifer. The water well is located 4.34 miles (SSW) at 254.6 degree. Therefore, no eminent danger of groundwater impact.

Background

The site had an accidental discharge of fluids associated with the Blackjack 1 Federal #2. A poly line failed at a fused section of pipe causing a release of mixed fluids onto the pasture area north of the facility pad. It was estimated that a total of 8bbls of fluid was released consisting of 1bbl of oil and 7bbls of

produced water. The well was immediately shut in and line was repaired. A total of ½ bbl. of oil and 5bbls of produced water was recovered via use of a vacuum truck.

On April 16, 2018, White Buffalo Environmental personnel-initiated delineation of the site as per the Condition of Approval (COA) received from the NMOCD. Surface soil samples were collected and field tested for chloride. The site was fully delineated, horizontally and vertically to show migration of chloride contamination. Soil samples were taken from seven sample points starting at 1' intervals by use of hand and were field tested for Chlorides and Hydrocarbons. SP1 thru SP7 were sampled to a depth of 3' when a porous caliche layer was encountered. At that time a backhoe was used to delineate the remainder of the vertical extent using 2' sampling intervals. SP1-SP4, SP7 were delineated to 11'bgs and 13'bgs, respectively, and the chloride levels were determined to be acceptable limits under the 600-ppm chloride allowable concentration. Although the greatest area of impact was in the pooling area of SP5 and SP6. Both of these sample points, chloride levels reached the acceptable limits under the 600-ppm chloride allowable concentration.

The vertical bottom sample results from the commercial laboratory are as follows:

SP1 at 13'bgs for chloride was 80-ppm
SP2 at 11'bgs for chloride was 112-ppm
SP3 at 11'bgs for chloride was 48-ppm
SP4 at 11'bgs for chloride was 320-ppm
SP5 at 19'bgs for chloride was 80-ppm
SP6 at 19'bgs for chloride was 176-ppm
SP7 at 13'bgs for chloride was 64-ppm

The site was then fully delineated for horizontal extent. The horizontal delineation was sampled in 2' intervals until field samples indicated that we had reached the end of the horizontal investigation. SW1 thru SW8 showed that the chloride concentrations ended 5' from each of the following vertical sample points:

SW1 was delineated from the southeast side of SP2
SW2 was delineated from the south side of SP1
SW3 was delineated from the west side of SP3
SW4 was delineated from outside the visual impacted area
SW5 was delineated from the west of SP6
SW6 was delineated between the SP4 & SP7 visual impacted area
SW7 was delineated from the north side of SP6
SW8 was delineated from the north side of SP7

Please note the flowline that caused this release is shown to go through the area dividing SP1-SP3 and SP4-SP6.

The horizontal sidewall sample results from the commercial laboratory are as follows:

SW1 at 5'bgs for chloride was 32-ppm
SW2 at 5'bgs for chloride was 96-ppm
SW3 at 5'bgs for chloride was 32-ppm
SW4 at 5'bgs for chloride was 16-ppm
SW5 at 5'bgs for chloride was 32-ppm
SW6 at 5'bgs for chloride was 16-ppm
SW7 at 5'bgs for chloride was 32-ppm
SW8 at 5'bgs for chloride was 32-ppm

Conclusion

WBE is proposing to excavate to a total depth of 4'bgs, the contaminated soil will be removed and taken to an NMOCD approved facility which at that time we will install a 20-mil polyurethane liner and backfilled with topsoil. With the added area in the horizontal impact the proposed excavation is a total of 2493 sq. ft. The entire site excavation and disturbed area will then be contoured and seeded with a native mixture per BLM and NMOCD guidelines.

Thank you for allowing White Buffalo Environmental to assist you in this matter. Please contact me with any questions and/or comments.

Sincerely,



Natalie Gladden
Environmental & Regulatory Director
White Buffalo Environmental
407 East Broadway
Hobbs, NM 88240
Office (575) 738-0424
Fax (575) 738-0430
Cell (575) 390-6397
Email: natalie.gladden@whitebuffalo.com

Attachments:

- C-141 & COA
- Groundwater Data
- Site Photographs & Site Diagram
- Sample Data and Lab Analyses

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

NM OIL CONSERVATION State of New Mexico
ARTESIA DISTRICT Energy Minerals and Natural Resources

Form C-141
Revised August 8, 2011

JUL 28 2017

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

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

RECEIVED

Release Notification and Corrective Action

NAB1721429878

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Devon Energy Production Company	Contact	Wesley Ryan- Production Foreman
Address	6488 Seven Rivers Hwy Artesia, NM 88210	Telephone No.	575-390-5436
Facility Name	Blackjack 1 Federal #2	Facility Type	Oil

Surface Owner	Federal	Mineral Owner	Federal	API No	30-015-33383
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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
J	01	24S	30E	1980	South	1980	East	Eddy

Latitude: 32.2451248

Longitude: -103.8320541

NATURE OF RELEASE

Type of Release	Oil & Produced Water	Volume of Release	1 BBL Oil & 7 BBL Produced Water	Volume Recovered	1/2 BBL Oil & 5 BBL Produced Water
Source of Release	Poly Flow Line	Date and Hour of Occurrence	July 16, 2017 10:15	Date and Hour of Discovery	July 16, 2017 10:15
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	BLM- Shelly Tucker & OCD-Mike Bratcher		
By Whom?	Harry Linam-Assistant Production Foreman	Date and Hour BLM:	July 16, 2017 10:20 AM	OCD	July 16, 2017 10:30 AM
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.*
Polyline failed at a fused section resulting in the release. The well was shut in to prevent any further release. The polyline has been repaired.

Describe Area Affected and Cleanup Action Taken.*
1 BBL of Oil & 7 BBL of Produced Water was released. A vacuum truck was dispatched and 1/2 BBL of Oil & 5 BBL of Produced Water was recovered. The release originated from the poly flow line that is located off the well pad on the North side. An area approximately 25ft X 15FT off well pad was affected by the release. An environmental contractor will be contacted to assist with the delineation and remediation.

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: Jennifer Reyna	OIL CONSERVATION DIVISION		
Printed Name:	Approved by Environmental Specialist <i>[Signature]</i>		
Title: Field Admin Support	Approval Date: 8/7/17	Expiration Date: N/A	
E-mail Address: jennifer.reyna@dvn.com	Conditions of Approval: see attached	Attached <input checked="" type="checkbox"/>	
Date:	Phone: 575.746.5588		

* Attach Additional Sheets If Necessary

2RP-4319

Operator/Responsible Party,

The OCD has received the form C-141 you provided on **7/28/17** regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number ARP-4319 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District II office in Artesia on or before 8/28/17. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold

OCD Environmental Bureau Chief

1220 South St. Francis Drive

Santa Fe, New Mexico 87505

505-476-3465

jim.griswold@state.nm.us

Weaver, Crystal, EMNRD

From: Reyna, Jennifer <Jennifer.Reyna@dvn.com>
Sent: Friday, July 28, 2017 1:07 PM
To: Weaver, Crystal, EMNRD; Bratcher, Mike, EMNRD; Amber Groves (agroves@slo.state.nm.us)
Cc: Ryan, Wesley; Aguilar, Leonard; Fulks, Brett; Shoemaker, Mike
Subject: Blackjack 1 Fed 2_1bbl oil & 7 bbl pw_7-16-17
Attachments: Blackjack 1 Fed 2_1bbl oil & 7 bbl pw_7-16-17 intial C-141.doc; Blackjack 1 Fed 2_1bbl oil & 7 bbl pw_7-16-17 GIS Image.pdf

Good Afternoon,

Attached please find the Initial C-141 and GIS Image for the 1bbl oil & 7 bbl of produced water release at the Blackjack 1 Fed 2 on 7.16.17.

If you have any questions please feel free to contact me.

Thank you,

Jennifer Reyna

Field Admin Support
Production
B-Schedule

Devon Energy Corporation
P.O. Box 250
Artesia, NM 88211
575 746 5588



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USGS Water Resources

Data Category:

Groundwater ▼

Geographic Area:

New Mexico ▼

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Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

Agency code = usgs

site_no list =

- 321339103541801

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 321339103541801 24S.30E.08.33222

Available data for this site

Groundwater: Field measurements ▼

GO

Eddy County, New Mexico

Hydrologic Unit Code --

Latitude 32°13'39", Longitude 103°54'18" NAD27

Land-surface elevation 3,207 feet above NAVD88

The depth of the well is 192 feet below land surface.

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

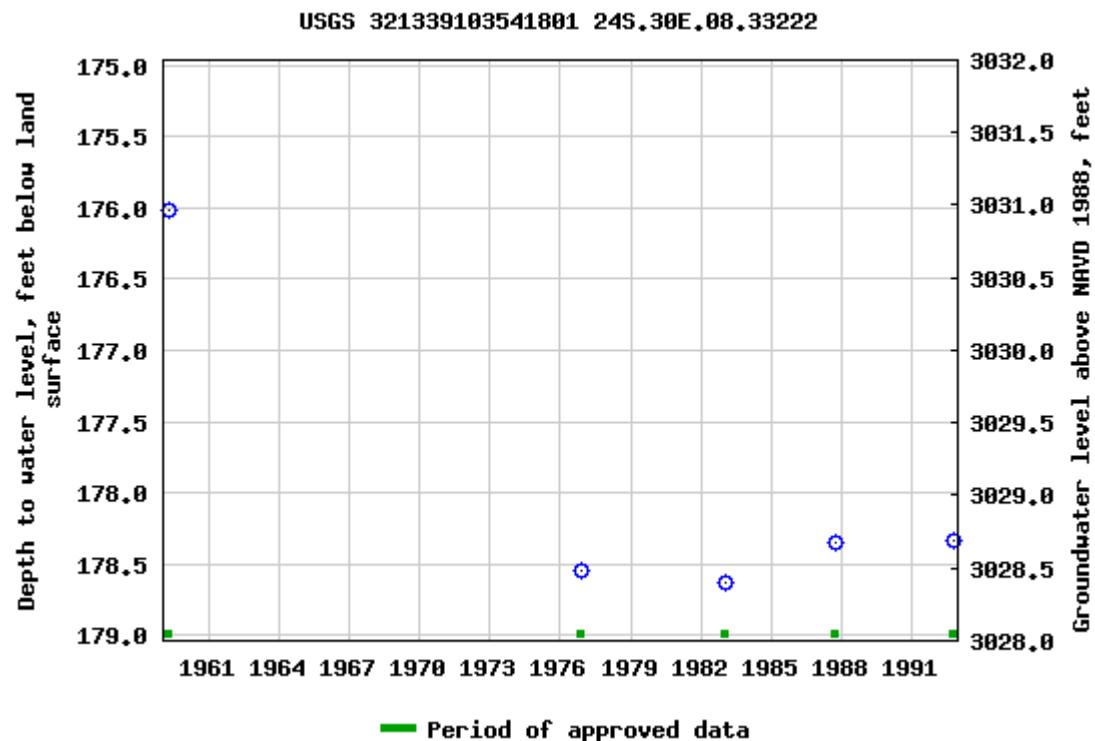
Output formats

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Breaks in the plot represent a gap of at least one year between field measurements.

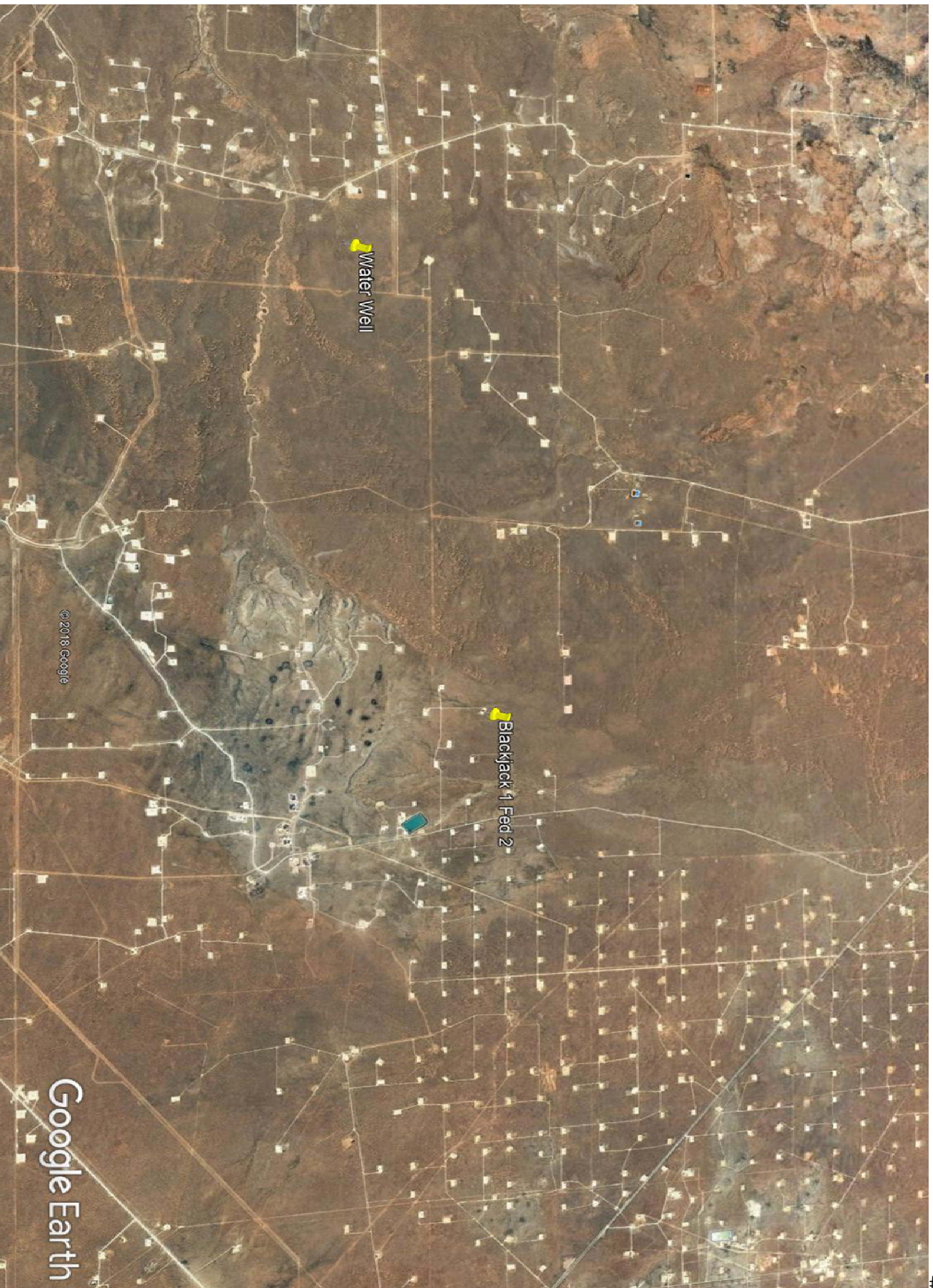
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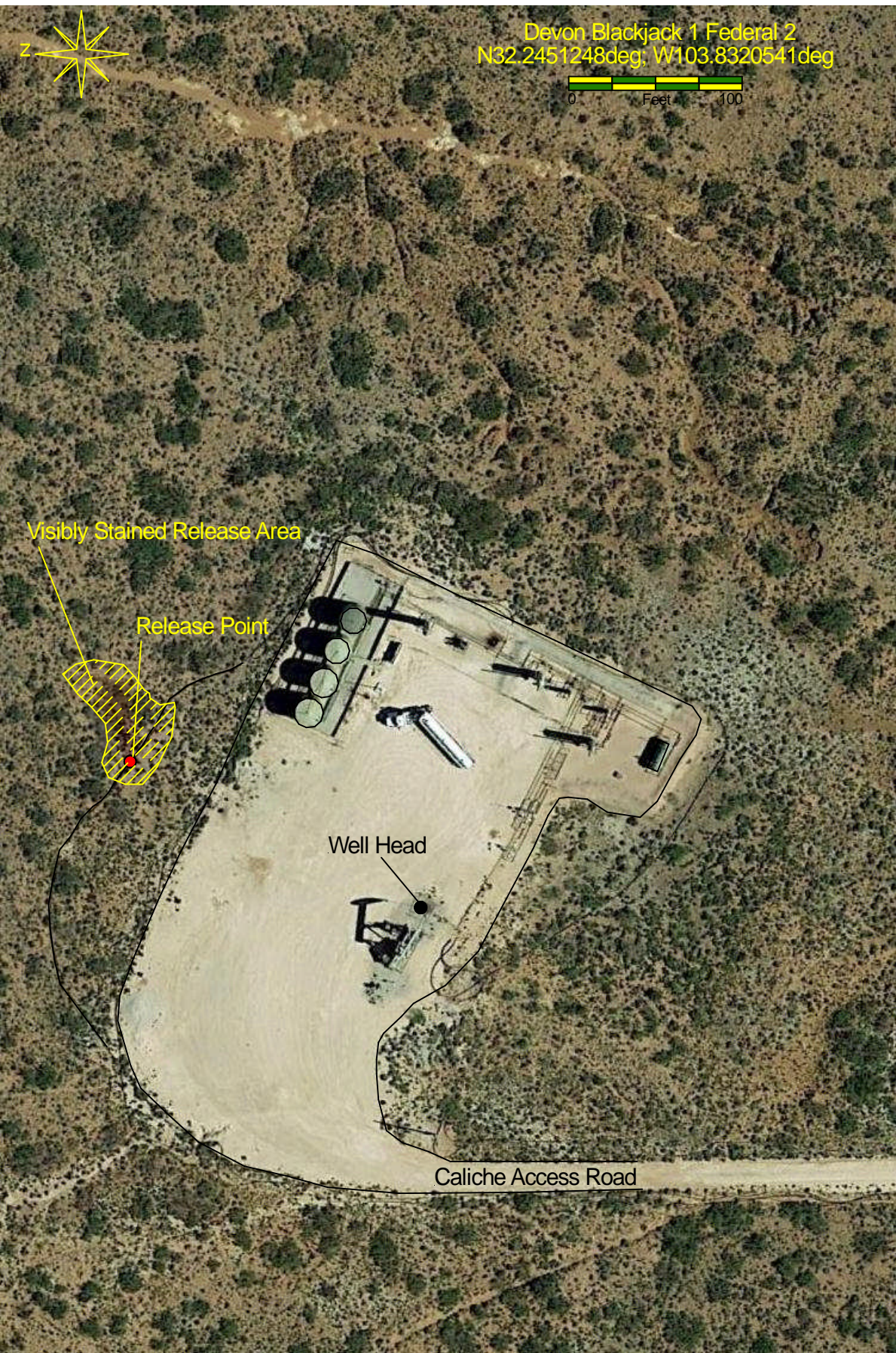
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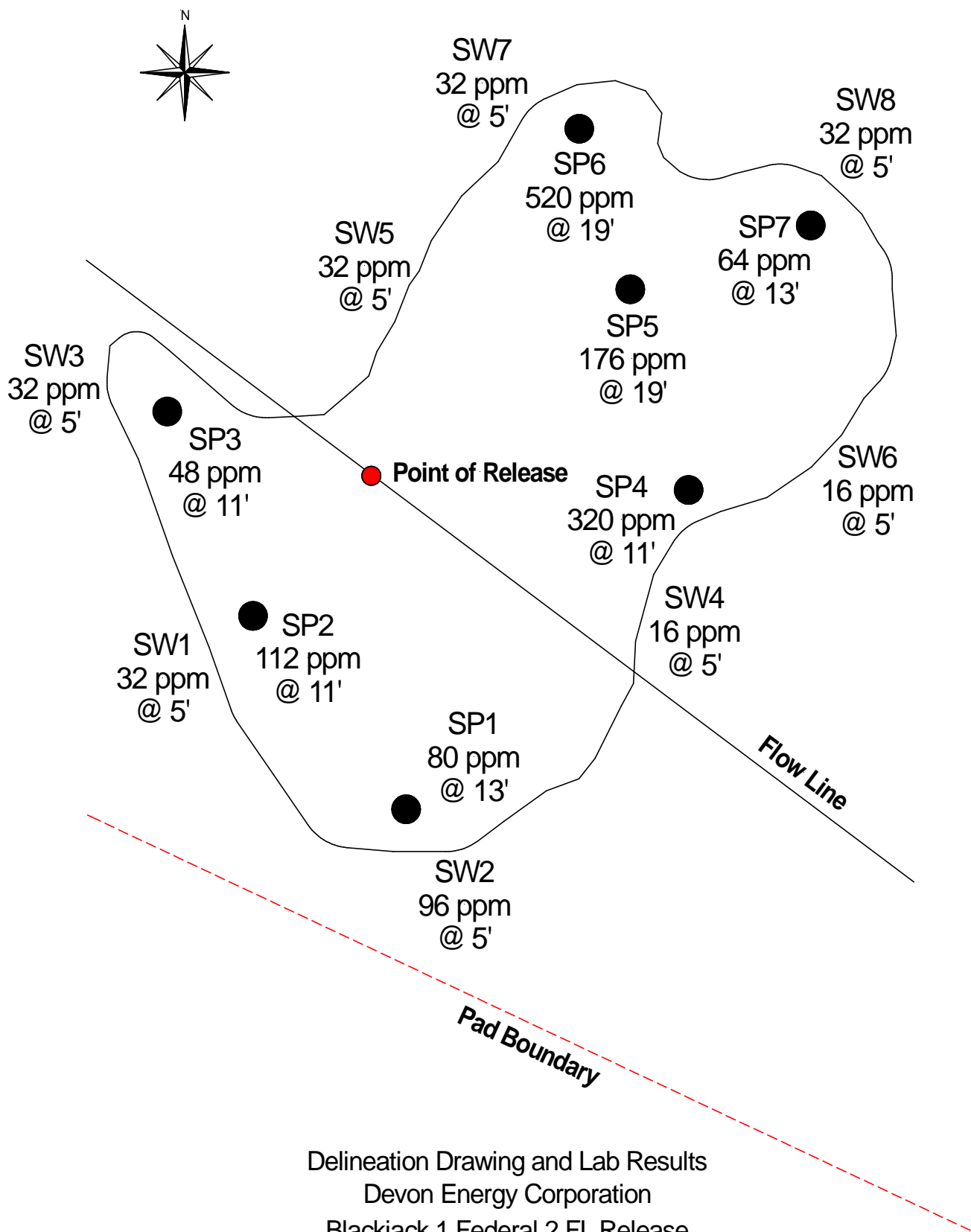
[Help](#)



Blackjack 1 Federal #2 – Site & Delineation Photos







Devon Energy Corporation
Blackjack 1 Federal #2

FT	SP1	FT	SP2	FT	SP3	FT	SP4	FT	SP5	FT	SP6	FT	SP7
SFC	2800	SFC	250	SFC	250	SFC	6858	SFC	4260	SFC	12554	SFC	4658
1'	952	1'	1140	1'	2589	1'	4260	1'	1042	1'	4260	1'	2384
2'	1876	2'	784	2'	1524	2'	4260	2'	708	2'	3904	2'	2032
3'	3904	3'	952	3'	855	3'	3038	3'	1470	3'	4260	3'	3288
5'	11850	5'	1500	5'	190	5'	12554	5'	1352	5'	2552	5'	3817
7'	910	7'	910	7'	510	7'	6858	7'	260	7'	1519	7'	798
9'	689	9'	910	9'	240	9'	866	9'	120	9'	4273	9'	280
11'	465	11'	410	11'	540	11'	340	11'	680	11'	2329	11'	546
13'	190	11'	112	11'	48	11'	320	13'	1440	13'	<600	13'	420
13'	80							15'	1280	15'	1016	13'	64
								17'	60	17'	200		
								19'	540	19'	520		
								19'	176				
FT	SW1	FT	SW2	FT	SW3	FT	SW4	FT	SW5	FT	SW6	FT	SW7
1'	900	1'	320	1'	460	1'	640	1'	600	1'	580	1'	980
3'	300	3'	280	3'	180	3'	320	3'	600	3'	580	3'	522
5'	60	5'	240	5'	80	5'	60	5'	120	5'	180	5'	200
5'	32	5'	96	5'	32	5'	16	5'	32	5'	16	5'	32
FT	SW8												
1'	1012												
3'	501												
5'	100												
5'	32												

Lab data results



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

April 27, 2018

NATALIE GLADDEN
WHITE BUFFALO
8908 YALE AVE #210
TULSA, OK 74137

RE: BLACKJACK 1 FEDERAL #2

Enclosed are the results of analyses for samples received by the laboratory on 04/26/18 8:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. 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.

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,

Celey D. Keene
Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/17/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SP 1 @ 13' (H801154-01)

BTX 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	04/26/2018	ND	2.06	103	2.00	0.537	
Toluene*	<0.050	0.050	04/26/2018	ND	2.03	102	2.00	0.370	
Ethylbenzene*	<0.050	0.050	04/26/2018	ND	1.99	99.4	2.00	1.11	
Total Xylenes*	<0.150	0.150	04/26/2018	ND	6.05	101	6.00	0.887	
Total BTX	<0.300	0.300	04/26/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 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	80.0	16.0	04/26/2018	ND	416	104	400	3.92	

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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 78.2 % 41-142

Surrogate: 1-Chlorooctadecane 69.4 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/17/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SP 2 @ 11' (H801154-02)

BTX 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	04/26/2018	ND	2.06	103	2.00	0.537		
Toluene*	<0.050	0.050	04/26/2018	ND	2.03	102	2.00	0.370		
Ethylbenzene*	<0.050	0.050	04/26/2018	ND	1.99	99.4	2.00	1.11		
Total Xylenes*	<0.150	0.150	04/26/2018	ND	6.05	101	6.00	0.887		
Total BTX	<0.300	0.300	04/26/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.7 % 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	112	16.0	04/26/2018	ND	416	104	400	3.92	

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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 79.5 % 41-142

Surrogate: 1-Chlorooctadecane 68.1 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/17/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SP 3 @ 11' (H801154-03)

BTX 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	04/26/2018	ND	2.06	103	2.00	0.537		
Toluene*	<0.050	0.050	04/26/2018	ND	2.03	102	2.00	0.370		
Ethylbenzene*	<0.050	0.050	04/26/2018	ND	1.99	99.4	2.00	1.11		
Total Xylenes*	<0.150	0.150	04/26/2018	ND	6.05	101	6.00	0.887		
Total BTX	<0.300	0.300	04/26/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.0 % 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	48.0	16.0	04/26/2018	ND	416	104	400	3.92	

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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 80.6 % 41-142

Surrogate: 1-Chlorooctadecane 69.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/17/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SP 4 @ 11' (H801154-04)

BTX 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	04/26/2018	ND	2.06	103	2.00	0.537		
Toluene*	<0.050	0.050	04/26/2018	ND	2.03	102	2.00	0.370		
Ethylbenzene*	<0.050	0.050	04/26/2018	ND	1.99	99.4	2.00	1.11		
Total Xylenes*	<0.150	0.150	04/26/2018	ND	6.05	101	6.00	0.887		
Total BTX	<0.300	0.300	04/26/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.9 % 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	320	16.0	04/26/2018	ND	416	104	400	3.92	

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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 76.8 % 41-142

Surrogate: 1-Chlorooctadecane 64.1 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/17/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SP 6 @ 19' (H801154-05)

BTX 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	04/26/2018	ND	2.06	103	2.00	0.537		
Toluene*	<0.050	0.050	04/26/2018	ND	2.03	102	2.00	0.370		
Ethylbenzene*	<0.050	0.050	04/26/2018	ND	1.99	99.4	2.00	1.11		
Total Xylenes*	<0.150	0.150	04/26/2018	ND	6.05	101	6.00	0.887		
Total BTX	<0.300	0.300	04/26/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 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	176	16.0	04/26/2018	ND	416	104	400	3.92	

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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 75.3 % 41-142

Surrogate: 1-Chlorooctadecane 62.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 WHITE BUFFALO
 NATALIE GLADDEN
 8908 YALE AVE #210
 TULSA OK, 74137
 Fax To:

Received:	04/26/2018	Sampling Date:	04/17/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SP 7 @ 13' (H801154-06)

BTX 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	04/26/2018	ND	2.06	103	2.00	0.537		
Toluene*	<0.050	0.050	04/26/2018	ND	2.03	102	2.00	0.370		
Ethylbenzene*	<0.050	0.050	04/26/2018	ND	1.99	99.4	2.00	1.11		
Total Xylenes*	<0.150	0.150	04/26/2018	ND	6.05	101	6.00	0.887		
Total BTX	<0.300	0.300	04/26/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.2 % 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	64.0	16.0	04/26/2018	ND	416	104	400	3.92	

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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 80.7 % 41-142

Surrogate: 1-Chlorooctadecane 69.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/20/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SW 1 @ 5' (H801154-07)

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	04/27/2018	ND	1.87	93.5	2.00	0.292	
Toluene*	<0.050	0.050	04/27/2018	ND	1.85	92.7	2.00	0.517	
Ethylbenzene*	<0.050	0.050	04/27/2018	ND	1.79	89.4	2.00	1.68	
Total Xylenes*	<0.150	0.150	04/27/2018	ND	5.41	90.1	6.00	1.68	
Total BTEX	<0.300	0.300	04/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.5 % 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	32.0	16.0	04/26/2018	ND	416	104	400	3.92	

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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 76.5 % 41-142

Surrogate: 1-Chlorooctadecane 62.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/20/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SW 2 @ 5' (H801154-08)

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	04/27/2018	ND	1.87	93.5	2.00	0.292		
Toluene*	<0.050	0.050	04/27/2018	ND	1.85	92.7	2.00	0.517		
Ethylbenzene*	<0.050	0.050	04/27/2018	ND	1.79	89.4	2.00	1.68		
Total Xylenes*	<0.150	0.150	04/27/2018	ND	5.41	90.1	6.00	1.68		
Total BTEX	<0.300	0.300	04/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.3 % 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	96.0	16.0	04/26/2018	ND	448	112	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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 77.8 % 41-142

Surrogate: 1-Chlorooctadecane 64.1 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/20/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SW 3 @ 5' (H801154-09)

BTX 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	04/27/2018	ND	1.87	93.5	2.00	0.292		
Toluene*	<0.050	0.050	04/27/2018	ND	1.85	92.7	2.00	0.517		
Ethylbenzene*	<0.050	0.050	04/27/2018	ND	1.79	89.4	2.00	1.68		
Total Xylenes*	<0.150	0.150	04/27/2018	ND	5.41	90.1	6.00	1.68		
Total BTX	<0.300	0.300	04/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.3 % 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	32.0	16.0	04/26/2018	ND	448	112	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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 78.9 % 41-142

Surrogate: 1-Chlorooctadecane 64.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/20/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SW 4 @ 5' (H801154-10)

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	04/27/2018	ND	1.87	93.5	2.00	0.292		
Toluene*	<0.050	0.050	04/27/2018	ND	1.85	92.7	2.00	0.517		
Ethylbenzene*	<0.050	0.050	04/27/2018	ND	1.79	89.4	2.00	1.68		
Total Xylenes*	<0.150	0.150	04/27/2018	ND	5.41	90.1	6.00	1.68		
Total BTEx	<0.300	0.300	04/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.0 % 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	16.0	16.0	04/26/2018	ND	448	112	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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 83.4 % 41-142

Surrogate: 1-Chlorooctadecane 72.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/20/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SW 5 @ 5' (H801154-11)

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	04/27/2018	ND	1.87	93.5	2.00	0.292		
Toluene*	<0.050	0.050	04/27/2018	ND	1.85	92.7	2.00	0.517		
Ethylbenzene*	<0.050	0.050	04/27/2018	ND	1.79	89.4	2.00	1.68		
Total Xylenes*	<0.150	0.150	04/27/2018	ND	5.41	90.1	6.00	1.68		
Total BTEX	<0.300	0.300	04/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.4 % 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	32.0	16.0	04/26/2018	ND	448	112	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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 79.4 % 41-142

Surrogate: 1-Chlorooctadecane 68.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 WHITE BUFFALO
 NATALIE GLADDEN
 8908 YALE AVE #210
 TULSA OK, 74137
 Fax To:

 Received: 04/26/2018
 Reported: 04/27/2018
 Project Name: BLACKJACK 1 FEDERAL #2
 Project Number: NONE GIVEN
 Project Location: ENVIRONMENTAL

 Sampling Date: 04/20/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SW 6 @ 5' (H801154-12)

BTX 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	04/27/2018	ND	1.87	93.5	2.00	0.292	
Toluene*	<0.050	0.050	04/27/2018	ND	1.85	92.7	2.00	0.517	
Ethylbenzene*	<0.050	0.050	04/27/2018	ND	1.79	89.4	2.00	1.68	
Total Xylenes*	<0.150	0.150	04/27/2018	ND	5.41	90.1	6.00	1.68	
Total BTX	<0.300	0.300	04/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.3 % 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	04/26/2018	ND	448	112	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	04/26/2018	ND	188	94.0	200	1.27	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.5	200	1.14	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 82.9 % 41-142

Surrogate: 1-Chlorooctadecane 71.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/20/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SW 7 @ 5' (H801154-13)

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	04/27/2018	ND	1.87	93.5	2.00	0.292		
Toluene*	<0.050	0.050	04/27/2018	ND	1.85	92.7	2.00	0.517		
Ethylbenzene*	<0.050	0.050	04/27/2018	ND	1.79	89.4	2.00	1.68		
Total Xylenes*	<0.150	0.150	04/27/2018	ND	5.41	90.1	6.00	1.68		
Total BTEX	<0.300	0.300	04/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.9 % 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	32.0	16.0	04/26/2018	ND	448	112	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	04/26/2018	ND	202	101	200	0.819	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.7	200	0.456	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 91.1 % 41-142

Surrogate: 1-Chlorooctadecane 69.1 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/20/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SW 8 @ 5' (H801154-14)

BTX 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	04/27/2018	ND	1.87	93.5	2.00	0.292		
Toluene*	<0.050	0.050	04/27/2018	ND	1.85	92.7	2.00	0.517		
Ethylbenzene*	<0.050	0.050	04/27/2018	ND	1.79	89.4	2.00	1.68		
Total Xylenes*	<0.150	0.150	04/27/2018	ND	5.41	90.1	6.00	1.68		
Total BTX	<0.300	0.300	04/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.7 % 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	32.0	16.0	04/26/2018	ND	448	112	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	04/26/2018	ND	202	101	200	0.819	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.7	200	0.456	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 90.9 % 41-142

Surrogate: 1-Chlorooctadecane 72.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
NATALIE GLADDEN
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received:	04/26/2018	Sampling Date:	04/20/2018
Reported:	04/27/2018	Sampling Type:	Soil
Project Name:	BLACKJACK 1 FEDERAL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	ENVIRONMENTAL		

Sample ID: SP 5 @ 19' (H801154-15)

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	04/27/2018	ND	1.87	93.5	2.00	0.292	
Toluene*	<0.050	0.050	04/27/2018	ND	1.85	92.7	2.00	0.517	
Ethylbenzene*	<0.050	0.050	04/27/2018	ND	1.79	89.4	2.00	1.68	
Total Xylenes*	<0.150	0.150	04/27/2018	ND	5.41	90.1	6.00	1.68	
Total BTEx	<0.300	0.300	04/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.5 % 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	80.0	16.0	04/26/2018	ND	448	112	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	04/26/2018	ND	202	101	200	0.819	
DRO >C10-C28*	<10.0	10.0	04/26/2018	ND	199	99.7	200	0.456	
EXT DRO >C28-C36	<10.0	10.0	04/26/2018	ND					

Surrogate: 1-Chlorooctane 91.6 % 41-142

Surrogate: 1-Chlorooctadecane 70.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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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Celey D. Keene, Lab Director/Quality Manager



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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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