



CLOSURE/DEFERRAL PLAN

SOUTH BOYD FEDERAL 13H & 14H

**API No. 30-015-44880 & 30-015-44881
2RP-5101**

Release Date: 12/3/2018

**U/L A, Section 34, Township 19S, Range 25E
Eddy County, New Mexico**

March 17, 2020

Prepared By:



**Hungry Horse LLC
4024 Plains Hwy**



March 17, 2020

New Mexico Energy, Minerals & Natural Resources
NMOCD District II
C/O Mike Bratcher, Robert Hamlet & Victoria Venegas 811
S. First St.
Artesia, NM 88210

Bureau of Land Management
C/Jim Amos
620 E. Green Street
Carlsbad, NM 88220

Spur Energy (I.E. Percussion Petroleum)
C/O Braidy Moulder
920 Memorial City Way, Ste 1000
Houston, TX 77024

Subject: Closure Request w/deferral for Spur Energy– South Boyd Federal 13H and 14H

To Whom it May Concern,

On behalf of Spur Energy, Hungry Horse, LLC has prepared this CLOSURE REPORT that describes the assessment, delineation and remediation for a release associated with the South Boyd Federal 13H and 14H, dated 12/03/18, with the RP# of 2RP-5101. White Buffalo Environmental performed the delineation and remediation of this site. Hungry Horse, LLC was consulted to review the work completed on this site and to submit the final closure report.

Background

This site is located in Eddy County and the release was found and located on December 3rd of 2018. The release was due to draining the frac tanks prior to removal from the location, a valve was inadvertently left open, which resulted in the release. Approximately 70bbls of crude oil was released to the pad area with recovering approximately 70bbls of crude oil by use of a vacuum truck.

The area of impact measured 18,042 sq. ft. on the pad only. The corresponding C141 for the release is attached.

Ground Water Information

WBE conducted a ground water study of the area. It has been determined that according to the New Mexico Office of the State Engineer, the average depth of ground water is 101'bgs. The wells found are listed below:

RA 02958 – shows well is set at 450'bgs but does not have water level available

RA 03018 – shows well is set at 630'bgs but does not have water level available

RA 03304 – shows well is set at 130'bgs and the water level is at 60'bgs

The RA 03304 water well shows to be only 1,644' from the South Boyd Federal #13 and #14 site. With the data collected during the groundwater research, there is verifiable records of groundwater in the vicinity to the site mentioned above. Specific water well data is shown in the groundwater section of this report. Therefore, no eminent danger of groundwater impact is found at this site.

The Closure Criteria for Soils Impacted by a Release is below, based on the groundwater depth of 60'bgs. Which falls under the 51'-100' depth category.

DGW	Constituent	Method	Limit
51'100'	Chloride	EPA 300.0 OR SM4500 CLB	10,000 mg/kg
	TPH (GRO + DRO + MRO)	EPA SW-846 METHOD 8015M	2,500 mg/kg
	GRO + DRO	EPA SW-846 METHOD 8015M	1,000 mg/kg
	BTEX	EPA SW-846 METHOD 8021B OR 8260B	50 mg/kg
	Benzene	EPA SW-846 METHOD 8021B OR 8260B	10 mg/kg

Karst Mapping

The Karst Mapping data found for this site is located inside the high marked area. When the site was delineated, it was fully delineated to meet BLM and NMOCD standards for Karst areas. Please see map attached.

Site Delineation

WBE fully delineated the site vertically and horizontally starting on February 20, 2018. Soil was field tested for chloride using both the chloride strip method as well as titration. A PID meter was also used to indicate concentrations of BTEX. Soil samples were taken from twelve sample points within the unlined earthen containment. This area was sampled using 2' intervals for each sample point by use of track-hoe. All of the delineation samples were taken to Cardinal Lab for confirmation.

**** Please see sample trending data and attached workplan sent to Percussion for this information****

Site Remediation

White Buffalo Environmental fully remediated the pad including the around the frac tanks. Production is still using the frac tanks to take in fluid from this well until the facility can take the extra production. Once the frac tanks are removed, Hungry Horse, will excavate and remediate this area according to the NMOCD and BLM regulations. During the delineation process, we found that with SP6, SP10 and SP11 which is around the frac tanks will need to be excavated to 2'bgs. But once the frac tanks are removed, further delineation will take place under the frac tanks. The remainder of the pad was remediated immediately due to the activity on this well and to remove the surface contamination. The pad was excavated to 6"bgs, backfilled with clean caliche, contoured and put back to its original state for the disturbed and impacted pad area by use of track-hoe. The area around the wellhead was hand excavated to 6" as well.

The BLM and NMOCD was notified on March 28th for final witnessing of closure samples.

A total of 408 cubic yards of contaminated soil was loaded and hauled to Lea Land Disposal and 414 cubic yards of clean caliche was brought in from Lea Land Disposal for backfill. The pad was back-dragged, compacted and contoured.

Scope and Limitations w/Partial Closure Request

The scope of our services consisted of the performance of assessment sampling, verification of release stabilization, regulatory liaison, and preparation of this closure report. All work has been performed in accordance with generally accepted professional environmental consulting and remediation practices for oil and gas releases in the New Mexico.

Please accept this closure on behalf of Percussion Petroleum , now Spur Energy.

Deferral Request

At this time, we would like to ask for a deferral in the area around the frac tanks. An additional remediation of the frac tank area and closure will be sent in when the frac tanks are moved.

If you have any questions or concerns regarding this report, please contact me at the number below.

Sincerely,



Natalie Gladden

Director of Environmental and Regulatory Services

Hungry Horse, LLC

4024 Plains Highway

Lovington, NM 88260

Cell: 575-390-6397

Email: ngladden@hungry-horse.com

Attachments:

C-141 & COA/Final C141

Groundwater Data

Site Photographs & Site Diagram

Karst Map's

Sample Map

Final Sampling Results with Labs

Final C141

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	NAB1834651412
District RP	2RP-5101
Facility ID	
Application ID	pAB1834650305

Release Notification Responsible Party

Responsible Party Percussion Petroleum	OGRID 371755
Contact Name Tobin Rhodes	Contact Telephone (575) 748-5359
Contact email Toby@percussionpetroleum.com	Incident # (assigned by OCD) NAB1834651412
Contact mailing address 919 Milam Street, Suite 2475 Houston, TX 77002	

Location of Release Source

Latitude 32.62356 Longitude -104.465952
(NAD 83 in decimal degrees to 5 decimal places)

Site Name South Boyd Federal #13H & #14H	Site Type Producing Wellsite
Date Release Discovered 12/03/18	API# (if applicable) 30-015-44880, 30-015-44881

Unit Letter	Section	Township	Range	County
A	34	19S	25E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) Up to 100 bbls	Volume Recovered (bbls) 70 bbls
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release



While draining frac tanks prior to removal from location, a valve was inadvertently left open, which resulted in the release.

Incident ID	NAB1834651412
District RP	2RP-5101
Facility ID	
Application ID	pAB1834650305

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, by Michael Martin, by email of Mike Bratcher, Maria Purett, Jim Griswold (NMOCD) and Jim Amos (BLM) on 12/3/2018 at 6:00 PM.	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: This is a preliminary report. The soiled material is being accumulated into a pile so that it can be removed to a disposal site ASAP	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
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: <u>Michael Martin</u>	Title: <u>Petroleum Engineer</u>
Signature: <u></u>	Date: <u>12/3/2018</u>
email: <u>Michael@percussionpetroleum.com</u>	Telephone: <u>(713) 429-4249</u>
OCD Only Received by: <u></u>	
Date: <u>12/12/2018</u>	



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): 550099.62

Northing (Y): 3609681.91

Radius: 1000

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.

2/18/19 10:44 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	Distance	DepthWell	DepthWater	Water Column
RA 02958		RA	ED	1	4	34	19S	25E		549681	3608740*	1030	450		
RA 03018		RA	ED	3	2	4	34	19S	25E	549987	3608639*	1048	530		
RA 03304		RA	ED		1	27	19S	25E		549081	3610973*	1644	130	60	70
RA 08986		RA	ED	1	3	3	22	19S	25E	548825	3611507	2226	320	220	100
RA 02909		RA	ED		1	3	22	19S	25E	548864	3611989*	2617	188	130	58
RA 10496		RA	ED	3	3	4	25	19S	25E	552801	3609865*	2707	110	40	70
RA 10155		RA	ED	4	3	4	25	19S	25E	553001	3609865*	2907	225	60	165
RA 10898 POD1		RA	ED	2	1	3	01	20S	25E	552198	3607248*	3213	810	121	689
RA 05458		RA	ED		3	3	01	20S	25E	552101	3606747*	3552	500	95	405
RA 07026		RA	ED		3	3	30	19S	26E	553699	3609975*	3611	135	105	30
RA 10779		RA	ED	1	3	2	10	20S	25E	549580	3606026*	3692	1300		
RA 10817		RA	ED	1	1	1	12	20S	25E	552002	3606443*	3756	743	102	641
RA 10002		RA	ED	2	2	1	31	19S	26E	554208	3609675*	4108	200	95	105
RA 05450		RA	CH		4	2	15	19S	25E	550057	3614015*	4333	204	80	124
RA 09295		RA	ED	4	3	4	13	19S	25E	552979	3613115*	4480	250	85	165
RA 10918 POD1		RA	ED	3	2	4	11	20S	25E	551600	3605434*	4505	694	70	624
RA 10818		RA	ED	1	3	2	12	20S	25E	552807	3606039*	4538	692	72	620
RA 09293		RA	ED	3	4	4	13	19S	25E	553180	3613114*	4611	250	60	190
RA 09294		RA	ED	3	4	4	13	19S	25E	553180	3613114*	4611	194	76	118
RA 05973		RA	ED		4	3	10	20S	25E	549280	3605111	4643	200	130	70
RA 01952		RA	ED	3	1	3	12	20S	25E	552005	3605437*	4652			
RA 10949 POD1		RA	ED	3	1	2	06	20S	26E	554409	3607867*	4675	807	71	736
RA 08611		RA	ED	1	1	1	19	19S	26E	553583	3612909*	4748	235	90	145
RA 10826		RA	ED	4	2	4	31	19S	25E	545405	3608659	4805	330	250	80
RA 09497		RA	ED	3	3	2	06	20S	26E	554410	3607460*	4849	200		
RA 08974		RA	ED	4	2	4	31	19S	25E	545344	3608658*	4864	270		
RA 07446		RA	ED		4	2	12	20S	25E	553310	3605940*	4930	185	135	50
RA 12222 POD1		RA	ED	2	4	2	30	19S	25E	545284	3610884	4963			
RA 09988		RA	ED	2	4	1	19	19S	26E	554190	3612507*	4971	100	65	35
RA 03942		RA	ED	3	2	4	30	19S	25E	545141	3610277*	4994	270	222	48

Average Depth to Water:	105 feet
Minimum Depth:	40 feet
Maximum Depth:	250 feet

Record 30

Count:

UTMNAD83 Radius Search (in meters):

Easting (X): 550099.62

Northing (Y): 3609681.91

Radius: 5000

*UTM location was derived from PLSS - see Help

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2/18/19 10:47 AM

WATER COLUMN/ AVERAGE DEPTH TO
WATER



New Mexico Office of the State Engineer

Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
RA	03304			1	27	19S	25E	549081	3610973*

Driller License:	62	Driller Company:	BEATTY, J.R.	
Driller Name:	BEATTY, J.R.			
Drill Start Date:	10/13/1954	Drill Finish Date:	10/15/1954	Plug Date:
Log File Date:	11/22/1954	PCW Rev Date:		Source: Shallow
Pump Type:		Pipe Discharge Size:		Estimated Yield:
Casing Size:	7.00	Depth Well:	130 feet	Depth Water: 60 feet

Water Bearing Stratifications:	Top	Bottom	Description
	90	100	Sandstone/Gravel/Conglomerate
	103	118	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	90	118

*UTM location was derived from PLSS - see Help

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2/18/19 11:19 AM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer

Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE)					(NAD83 UTM in meters)		
		(quarters are smallest to largest)							
Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	RA 02958	1	4	34	19S	25E	549681	3608740*	
Driller License: 46		Driller Company:				ABBOTT BROTHERS COMPANY			
Driller Name:									
Drill Start Date:		Drill Finish Date:				Plug Date:			
Log File Date:		PCW Rcv Date:				Source:			
Pump Type:		Pipe Discharge Size:				Estimated Yield:			
Casing Size:	7.00	Depth Well:				450 feet		Depth Water:	

*UTM location was derived from PLSS - see Help

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2/18/19 11:18 AM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer

Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE)							(NAD83 UTM in meters)	
		(quarters are smallest to largest)								
Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	
	RA 03018	3	2	4	34	19S	25E	549987	3608639* 	
Driller License:	46	Driller Company:				ABBOTT BROTHERS COMPANY				
Driller Name:	ABBOTT BROS.									
Drill Start Date:		Drill Finish Date:				02/01/1953		Plug Date:		
Log File Date:	08/26/1953	PCW Rcv Date:				Source:				
Pump Type:		Pipe Discharge Size:				Estimated Yield:				
Casing Size:	7.00	Depth Well:				530 feet		Depth Water:		

*UTM location was derived from PLSS - see Help

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POINT OF DIVERSION SUMMARY

**PERCUSSION PETROLEUM
SOUTH BOYD FED 13
BEFORE PHOTOS**



**PERCUSSION PETROLEUM
SOUTH BOYD FED 13
BEFORE PHOTOS**



**PERCUSSION PETROLEUM
SOUTH BOYD FED 13
BEFORE PHOTOS**



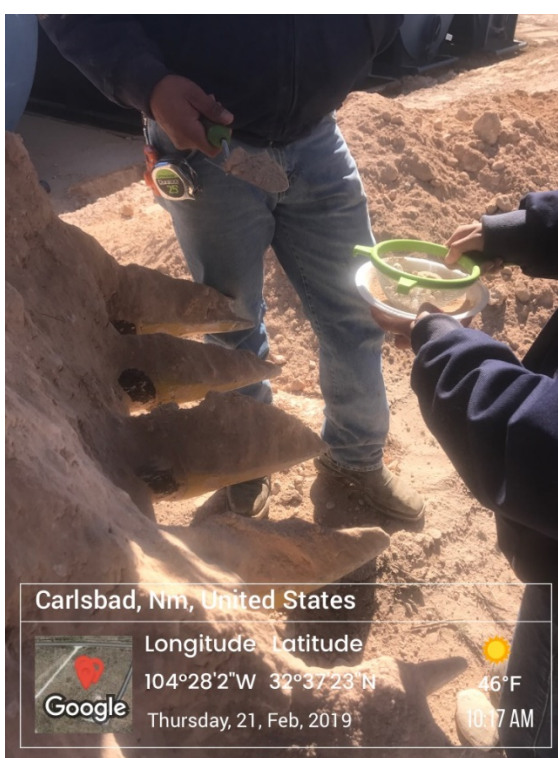
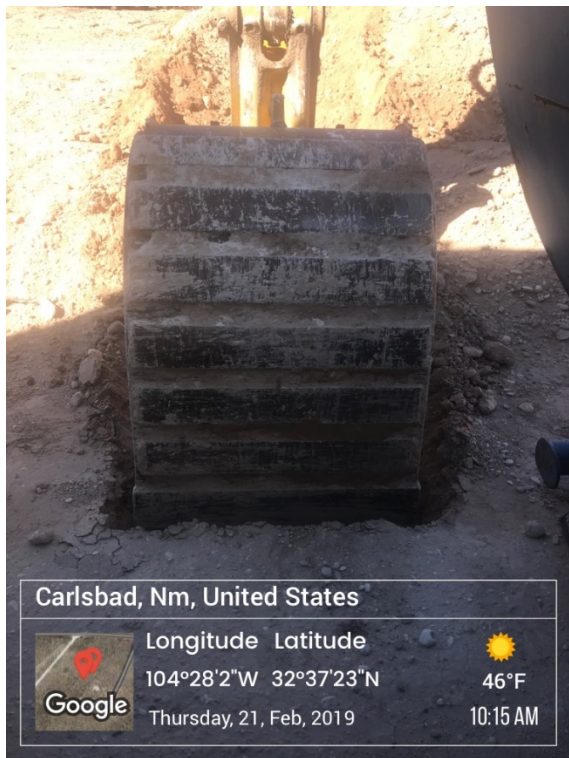
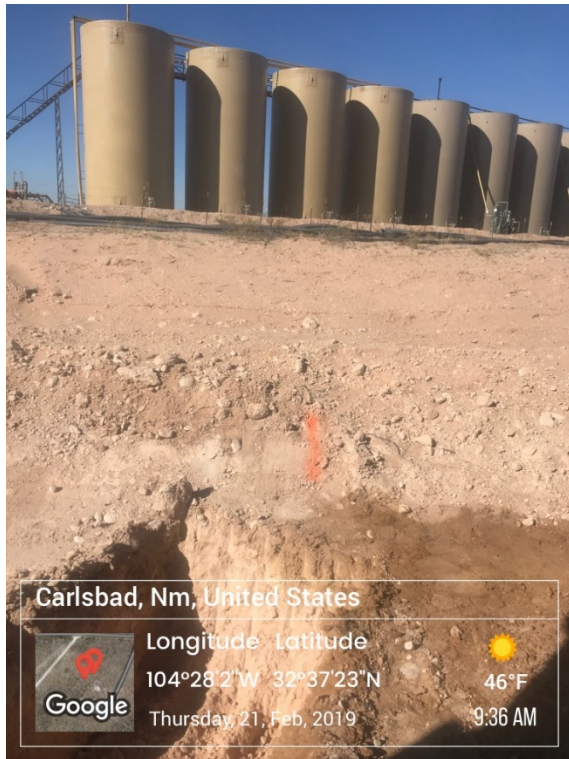
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SOUTH BOYD FED 13
BEFORE PHOTOS**



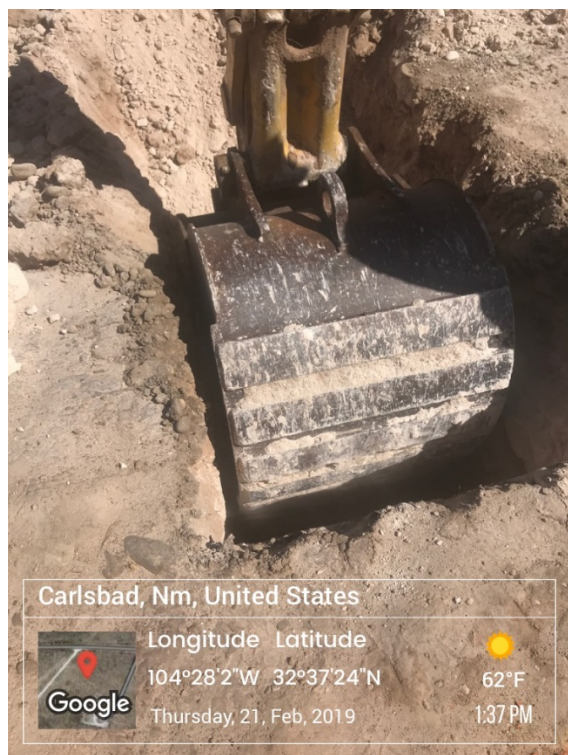
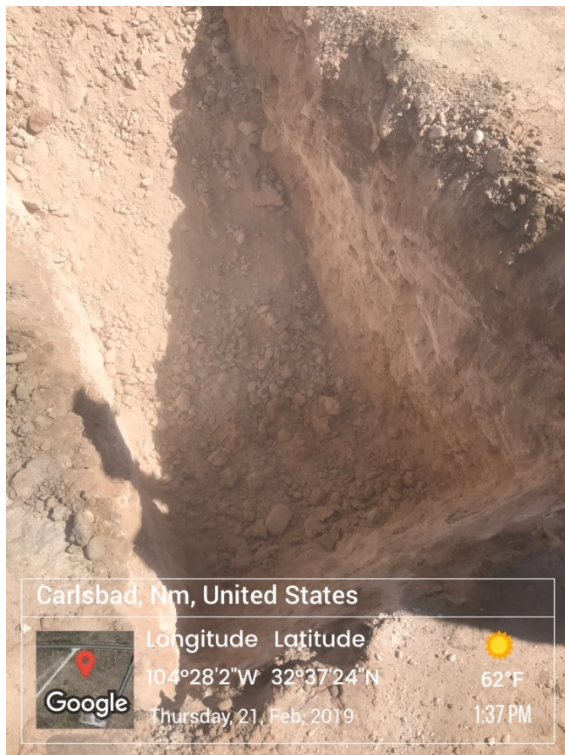
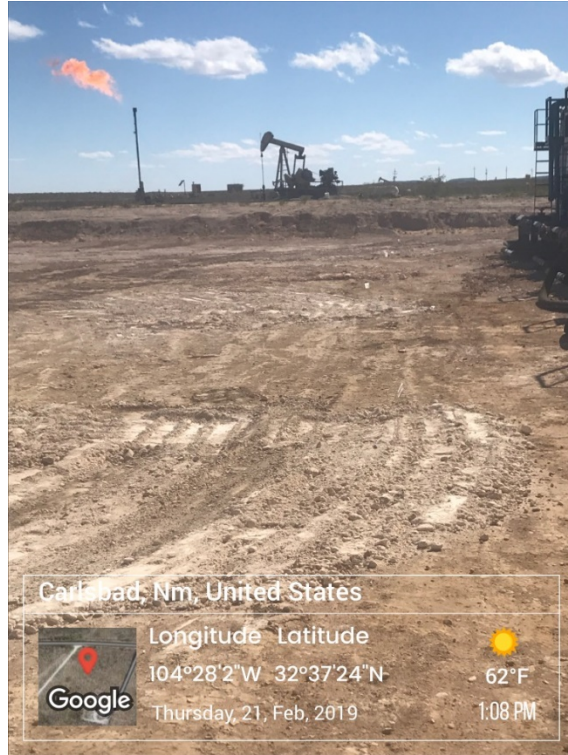
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SOUTH BOYD FED 13
DURING PHOTOS**



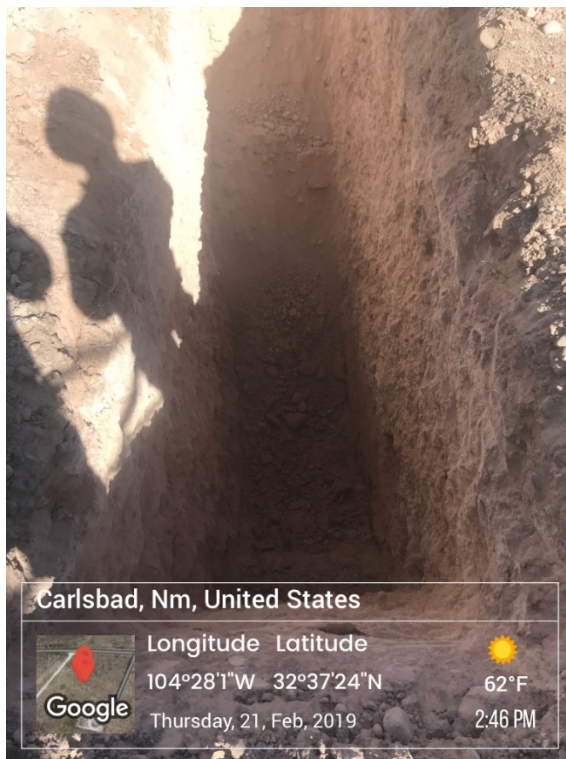
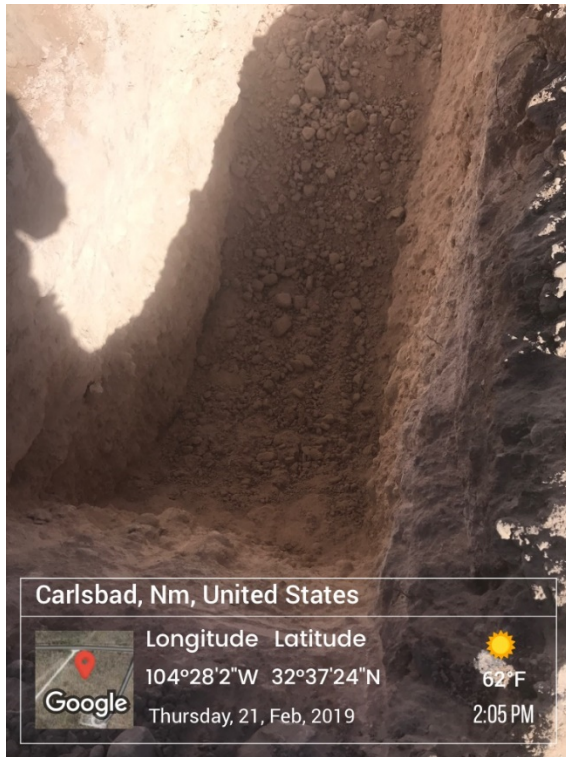
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DURING PHOTOS



PERCUSSION PETROLEUM
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DURING PHOTOS



**PERCUSSION PETROLEUM
SOUTH BOYD FED 13
DURING PHOTOS**



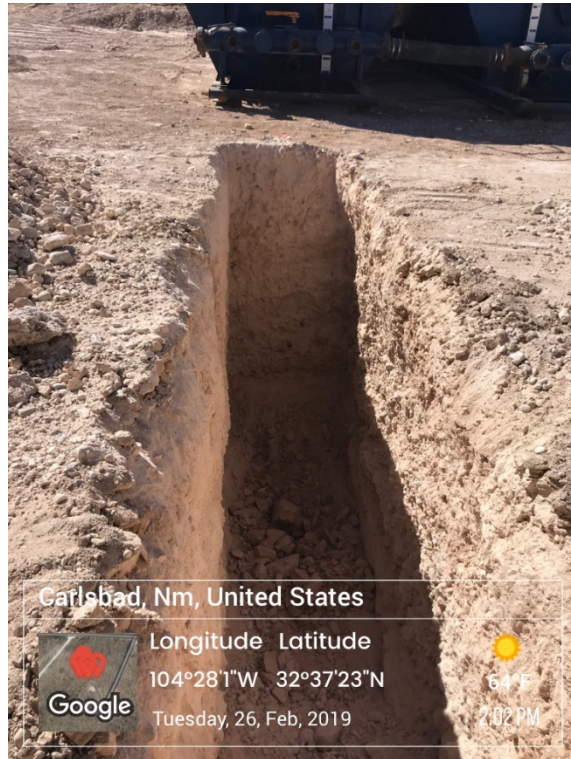
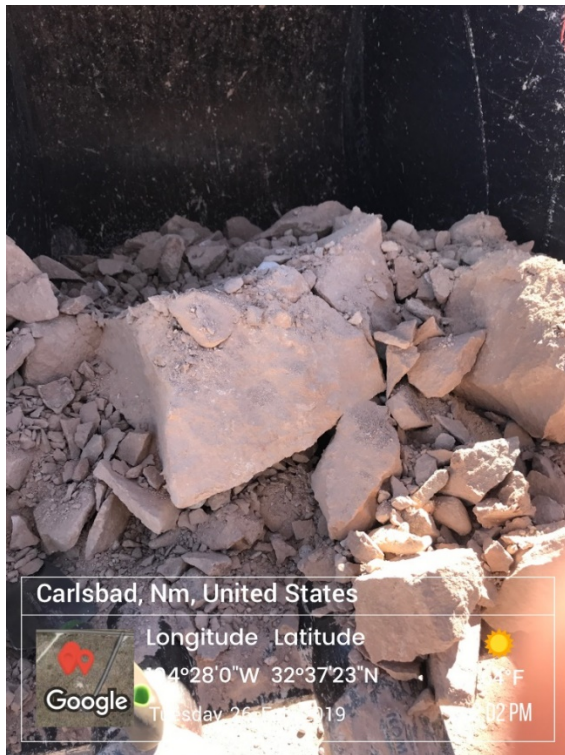
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DURING PHOTOS



PERCUSSION
SOUTH BOYD
AFTER PHOTOS

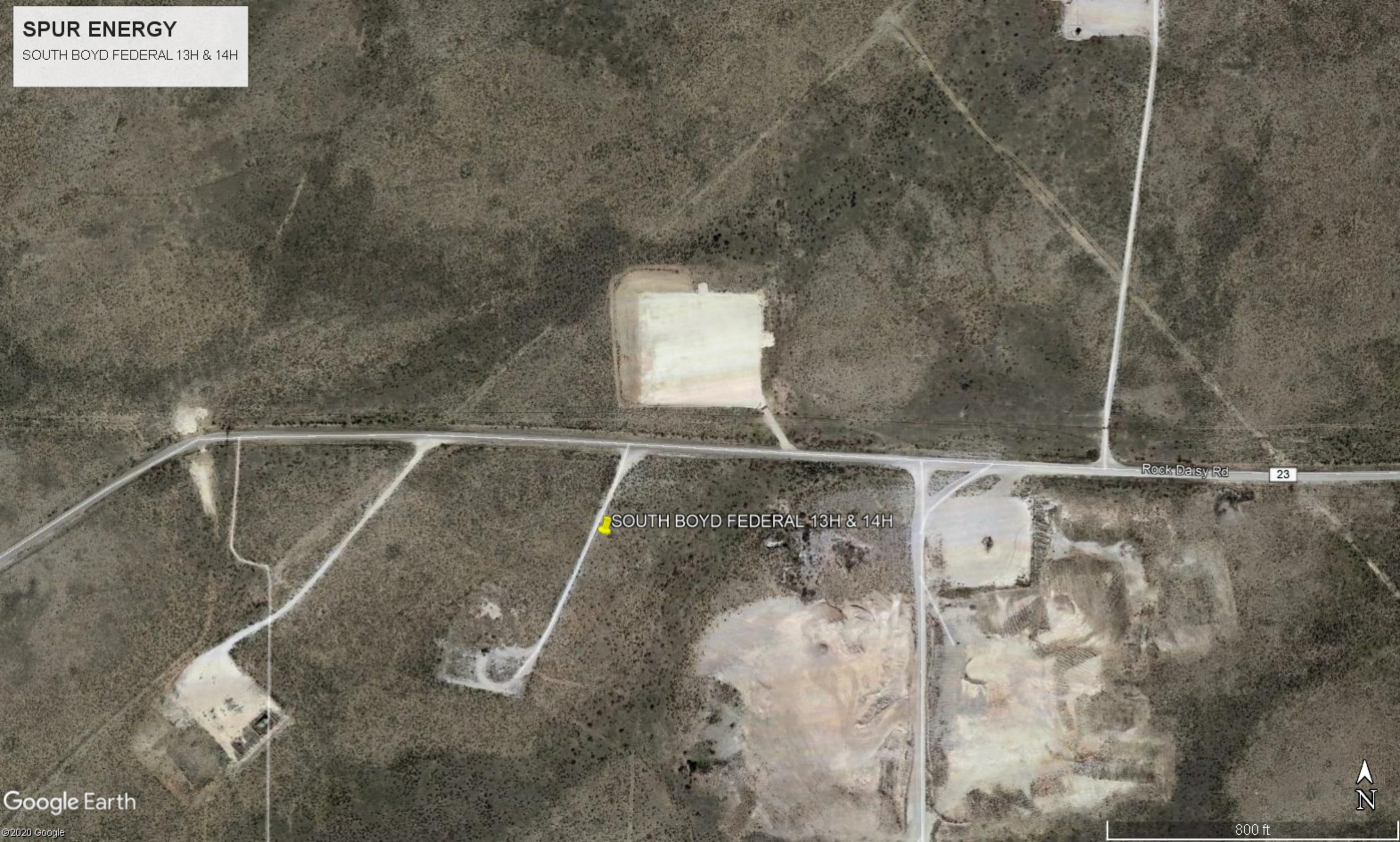



PERCUSSION
SOUTH BOYD
AFTER PHOTOS



PERCUSSION
SOUTH BOYD
AFTER PHOTOS






 SOUTH BOYD FEDERAL 13H & 14H

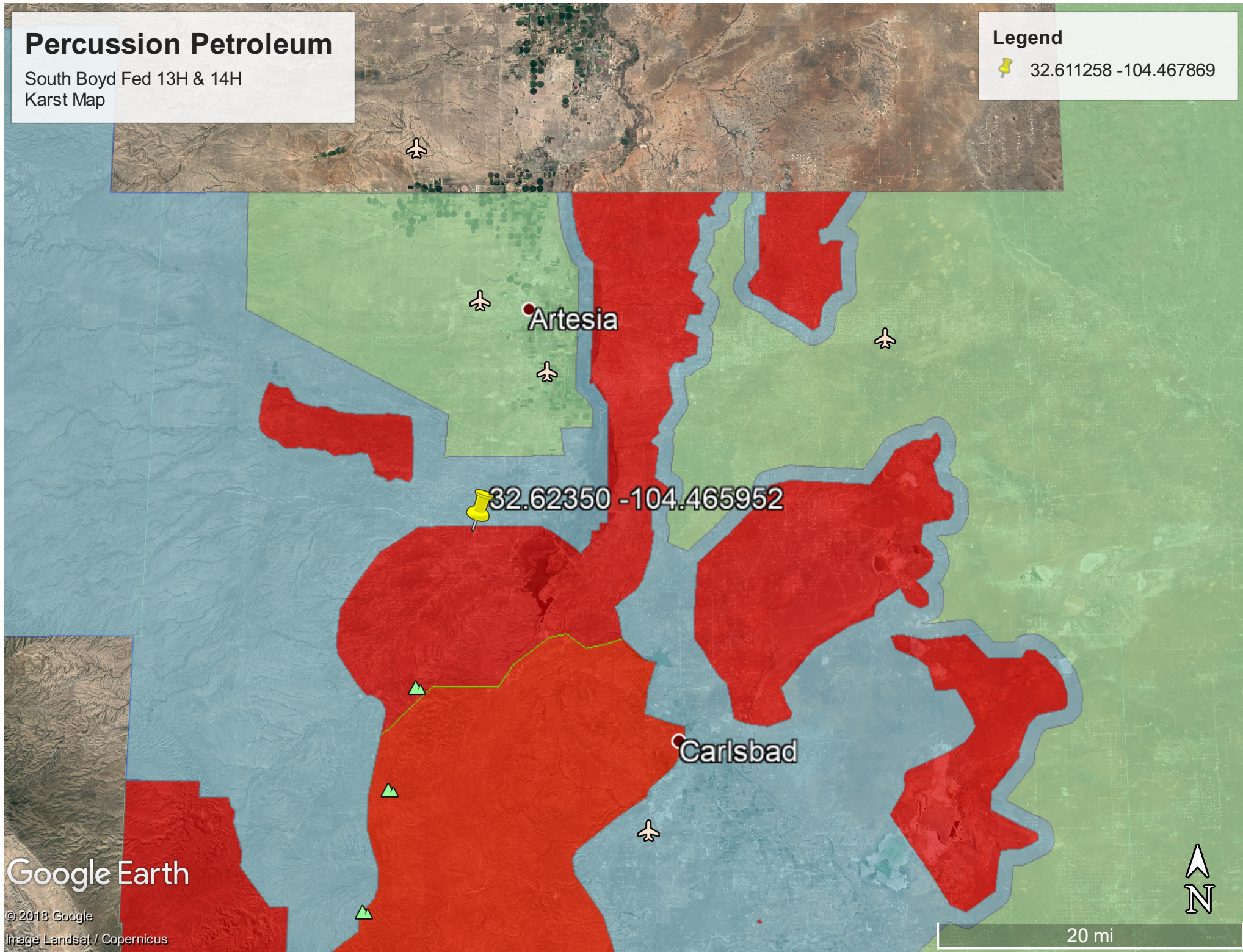
Rock Daisy Rd 23

Percussion Petroleum

South Boyd Fed 13H & 14H
Karst Map

Legend

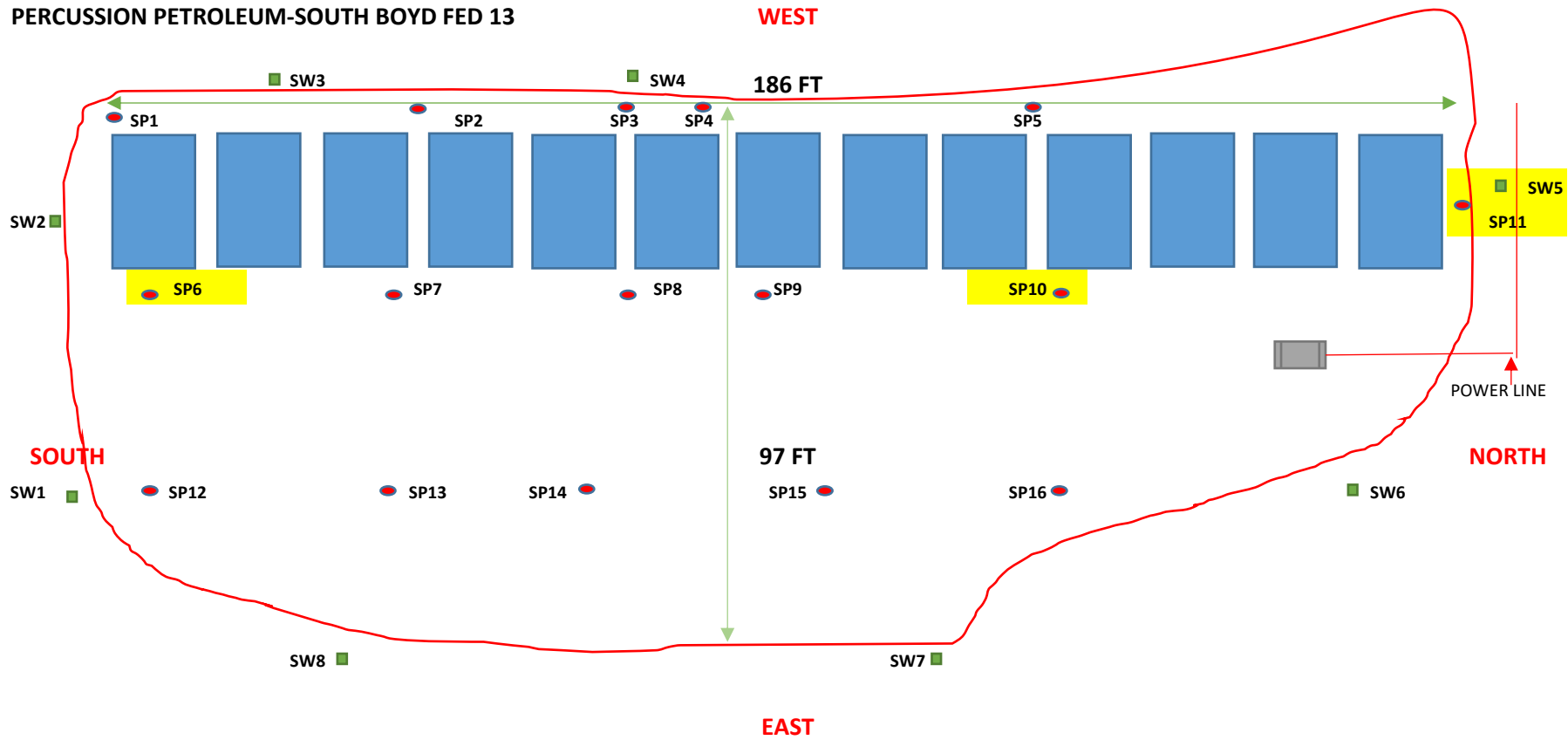
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Google Earth

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Image Landsat / Copernicus

PERCUSSION PETROLEUM-SOUTH BOYD FED 13



SQ FT OF AREA - 186 FT X 97 FT

- FRAC TANKS
- 2'bgs excavation
- ELECTRICAL BOX
- SAMPLE POINTS
- SIDE WALLS

PERCUSSION PETROLEUM - SOUTH BOYD FED 13

Sample ID	Ft	TITRATION	PID	Lab-Chl	Lab-BTEX	Lab-GRO	Lab-DRO	Lab-MRO	TPH	Soil	Notes
SP1	SUR	320									
	2'	400									
	4'	480		336	<0.300	<10	<10	<10	<10	CAL	
SP2	SUR	320									
	2'	320		48	<0.300	<10	<10	<10	<10	CAL	
SP3	SUR	320									
	2'	320		224	<0.300	<10	<10	<10	<10	CAL	
SP4	SUR	240									
	2'	320		112	<0.300	<10	<10	<10	<10	CAL	
SP5	SUR	320									
	2'	400		176	<0.300	<10	<10	<10	<10	CAL	
SP6	SUR	320									
	2'	240									
	4'	480									
	6'	400									
	8'	400									
	10'	480									
	12'	640		224	<0.300	<10	<10	<10	<10	CAL	
SP7	SUR	320									
	2'	320		80	<0.300	<10	<10	<10	<10	CAL	
SP8	SUR	240									
	2'	320		176	<0.300	<10	<10	<10	<10	CAL	
SP9	SUR	240									
	2'	480		96	<0.300	<10	<10	<10	<10	CAL	

	4'	480		192	<0.300	<10	<10	<10	<10	CAL	
SP16	SUR	320									
	2'	320									
	4'	320		64	<0.300	<10	<10	<10	<10	CAL	
SW1	SUR	480									
	1'	640									
	2'	880		832	<0.300	<10	<10	<10	<10	CAL	
SW2	SUR	480									
	1'	320									
	2'	400		208	<0.300	<10	120	17.3	137.3	CAL	
SW3	SUR	320									
	1'	240									
	2'	240		48	<0.300	<10	26.8	<10	26.8	CAL	
SW4	SUR	240									
	1'	320									
	2'	240		32	<0.300	<10	<10	<10	<10	CAL	
SW5	SUR	320									
	1'	320									
	2'	320		32	<0.300	<10	<10	<10	<10	CAL	
SW6	SUR	240									
	1'	320									
	2'	320		64	<0.300	<10	<10	<10	<10	CAL	
SW7	SUR	320									
	1'	320									
	2'	320		32	<0.300	<10	<10	<10	<10	CAL	

[illegible]

February 27, 2019

JERRY MATTHEWS

WHITE BUFFALO

8908 YALE AVE #210

TULSA, OK 74137

RE: SOUTH BOYD FED 13

Enclosed are the results of analyses for samples received by the laboratory on 02/26/19 15:30.

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 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
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/26/2019
Reported: 02/27/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/22/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 10 - 22 (H900734-01)

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	02/27/2019	ND	1.96	97.8	2.00	2.25	
Toluene*	<0.050	0.050	02/27/2019	ND	2.14	107	2.00	2.73	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.35	117	2.00	0.733	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	7.08	118	6.00	0.239	
Total BTEX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 119 % 73.3-129

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AC				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	02/27/2019	ND	416	104	400	0.00	

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	02/27/2019	ND	232	116	200	1.60	
DRO >C10-C28*	<10.0	10.0	02/27/2019	ND	276	138	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane 99.9 % 41-142

Surrogate: 1-Chlorooctadecane 104 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/26/2019
Reported: 02/27/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/25/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 11 - 8 (H900734-02)

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	02/27/2019	ND	1.96	97.8	2.00	2.25	
Toluene*	<0.050	0.050	02/27/2019	ND	2.14	107	2.00	2.73	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.35	117	2.00	0.733	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	7.08	118	6.00	0.239	
Total BTEX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	02/27/2019	ND	416	104	400	0.00	

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	02/27/2019	ND	232	116	200	1.60	
DRO >C10-C28*	<10.0	10.0	02/27/2019	ND	276	138	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane 89.5 % 41-142

Surrogate: 1-Chlorooctadecane 93.3 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/26/2019
Reported: 02/27/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/25/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 12 - 4 (H900734-03)

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	02/27/2019	ND	1.96	97.8	2.00	2.25	
Toluene*	<0.050	0.050	02/27/2019	ND	2.14	107	2.00	2.73	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.35	117	2.00	0.733	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	7.08	118	6.00	0.239	
Total BTX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 117 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	02/27/2019	ND	416	104	400	0.00	

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	02/27/2019	ND	232	116	200	1.60	
DRO >C10-C28*	<10.0	10.0	02/27/2019	ND	276	138	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane 89.7 % 41-142

Surrogate: 1-Chlorooctadecane 92.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/26/2019
Reported: 02/27/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/25/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 13 - 4 (H900734-04)

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	02/27/2019	ND	1.96	97.8	2.00	2.25	
Toluene*	<0.050	0.050	02/27/2019	ND	2.14	107	2.00	2.73	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.35	117	2.00	0.733	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	7.08	118	6.00	0.239	
Total BTEX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 118 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	02/27/2019	ND	416	104	400	0.00	

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	02/27/2019	ND	232	116	200	1.60	
DRO >C10-C28*	<10.0	10.0	02/27/2019	ND	276	138	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane 92.2 % 41-142

Surrogate: 1-Chlorooctadecane 96.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/26/2019
Reported: 02/27/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/25/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 14 - 4 (H900734-05)

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	02/27/2019	ND	1.96	97.8	2.00	2.25	
Toluene*	<0.050	0.050	02/27/2019	ND	2.14	107	2.00	2.73	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.35	117	2.00	0.733	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	7.08	118	6.00	0.239	
Total BTX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 118 % 73.3-129

Chloride, SM4500Cl-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	02/27/2019	ND	416	104	400	0.00	

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	02/27/2019	ND	232	116	200	1.60	
DRO >C10-C28*	<10.0	10.0	02/27/2019	ND	276	138	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane 89.9 % 41-142

Surrogate: 1-Chlorooctadecane 94.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/26/2019
Reported: 02/27/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/25/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 15 - 4 (H900734-06)

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	02/27/2019	ND	2.20	110	2.00	1.43	
Toluene*	<0.050	0.050	02/27/2019	ND	2.05	103	2.00	1.71	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.15	108	2.00	0.696	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	6.46	108	6.00	0.107	
Total BTEX	<0.300	0.300	02/27/2019	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	02/27/2019	ND	416	104	400	0.00	

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	02/27/2019	ND	232	116	200	1.60	
DRO >C10-C28*	<10.0	10.0	02/27/2019	ND	276	138	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane 88.5 % 41-142

Surrogate: 1-Chlorooctadecane 93.5 % 37.6-147

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 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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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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

+ Cardinal cannot accept verbal changes. Please for written changes to (575) 302.7326



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

March 05, 2019

JERRY MATTHEWS

WHITE BUFFALO

8908 YALE AVE #210

TULSA, OK 74137

RE: SOUTH BOYD FED 13

Enclosed are the results of analyses for samples received by the laboratory on 02/27/19 14:10.

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 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
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/27/2019
Reported: 03/05/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/21/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 1 - 4' (H900749-01)

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	03/02/2019	ND	2.14	107	2.00	5.25	
Toluene*	<0.050	0.050	03/02/2019	ND	2.19	110	2.00	4.01	
Ethylbenzene*	<0.050	0.050	03/02/2019	ND	2.18	109	2.00	0.361	
Total Xylenes*	<0.150	0.150	03/02/2019	ND	6.39	107	6.00	0.0946	
Total BTX	<0.300	0.300	03/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 83.1 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	336	16.0	03/04/2019	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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 93.0 % 41-142

Surrogate: 1-Chlorooctadecane 94.8 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/27/2019
Reported: 03/05/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/21/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 2 - 2' (H900749-02)

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	03/02/2019	ND	2.14	107	2.00	5.25	
Toluene*	<0.050	0.050	03/02/2019	ND	2.19	110	2.00	4.01	
Ethylbenzene*	<0.050	0.050	03/02/2019	ND	2.18	109	2.00	0.361	
Total Xylenes*	<0.150	0.150	03/02/2019	ND	6.39	107	6.00	0.0946	
Total BTEx	<0.300	0.300	03/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 86.8 % 73.3-129

Chloride, SM4500Cl-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	03/04/2019	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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 96.1 % 41-142

Surrogate: 1-Chlorooctadecane 96.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/27/2019
Reported: 03/05/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/21/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 3 - 2' (H900749-03)

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	03/02/2019	ND	2.14	107	2.00	5.25	
Toluene*	<0.050	0.050	03/02/2019	ND	2.19	110	2.00	4.01	
Ethylbenzene*	<0.050	0.050	03/02/2019	ND	2.18	109	2.00	0.361	
Total Xylenes*	<0.150	0.150	03/02/2019	ND	6.39	107	6.00	0.0946	
Total BTEx	<0.300	0.300	03/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	03/04/2019	ND	400	100	400	0.00	

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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 95.4 % 41-142

Surrogate: 1-Chlorooctadecane 97.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/27/2019
Reported: 03/05/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/21/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 4 - 2' (H900749-04)

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	03/01/2019	ND	2.15	107	2.00	0.883	
Toluene*	<0.050	0.050	03/01/2019	ND	2.12	106	2.00	0.852	
Ethylbenzene*	<0.050	0.050	03/01/2019	ND	2.10	105	2.00	0.872	
Total Xylenes*	<0.150	0.150	03/01/2019	ND	5.93	98.8	6.00	1.58	
Total BTX	<0.300	0.300	03/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.1 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	03/04/2019	ND	400	100	400	0.00	

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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 95.3 % 41-142

Surrogate: 1-Chlorooctadecane 97.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/27/2019
Reported: 03/05/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/21/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 5 - 2' (H900749-05)

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	03/01/2019	ND	2.15	107	2.00	0.883	
Toluene*	<0.050	0.050	03/01/2019	ND	2.12	106	2.00	0.852	
Ethylbenzene*	<0.050	0.050	03/01/2019	ND	2.10	105	2.00	0.872	
Total Xylenes*	<0.150	0.150	03/01/2019	ND	5.93	98.8	6.00	1.58	
Total BTX	<0.300	0.300	03/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 73.3-129

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	03/04/2019	ND	400	100	400	0.00	

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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 96.0 % 41-142

Surrogate: 1-Chlorooctadecane 96.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 WHITE BUFFALO
 JERRY MATTHEWS
 8908 YALE AVE #210
 TULSA OK, 74137
 Fax To:

 Received: 02/27/2019
 Reported: 03/05/2019
 Project Name: SOUTH BOYD FED 13
 Project Number: NONE GIVEN
 Project Location: PERCUSSION PETROLEUM

 Sampling Date: 02/26/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 6 - 12' (H900749-06)

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	03/01/2019	ND	2.15	107	2.00	0.883	
Toluene*	<0.050	0.050	03/01/2019	ND	2.12	106	2.00	0.852	
Ethylbenzene*	<0.050	0.050	03/01/2019	ND	2.10	105	2.00	0.872	
Total Xylenes*	<0.150	0.150	03/01/2019	ND	5.93	98.8	6.00	1.58	
Total BTX	<0.300	0.300	03/01/2019	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	03/04/2019	ND	400	100	400	0.00	

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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 98.7 % 41-142

Surrogate: 1-Chlorooctadecane 98.5 % 37.6-147

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Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/27/2019
Reported: 03/05/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/20/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 7 - 2' (H900749-07)

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	03/01/2019	ND	2.15	107	2.00	0.883	
Toluene*	<0.050	0.050	03/01/2019	ND	2.12	106	2.00	0.852	
Ethylbenzene*	<0.050	0.050	03/01/2019	ND	2.10	105	2.00	0.872	
Total Xylenes*	<0.150	0.150	03/01/2019	ND	5.93	98.8	6.00	1.58	
Total BTEx	<0.300	0.300	03/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.6 % 73.3-129

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	03/04/2019	ND	400	100	400	0.00		

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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 102 % 37.6-147

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Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/27/2019
Reported: 03/05/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/20/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 8 - 2' (H900749-08)

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	03/01/2019	ND	2.15	107	2.00	0.883	
Toluene*	<0.050	0.050	03/01/2019	ND	2.12	106	2.00	0.852	
Ethylbenzene*	<0.050	0.050	03/01/2019	ND	2.10	105	2.00	0.872	
Total Xylenes*	<0.150	0.150	03/01/2019	ND	5.93	98.8	6.00	1.58	
Total BTEx	<0.300	0.300	03/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 73.3-129

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	03/04/2019	ND	400	100	400	0.00	

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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 96.3 % 41-142

Surrogate: 1-Chlorooctadecane 98.3 % 37.6-147

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Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/27/2019
Reported: 03/05/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/21/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 9 - 2' (H900749-09)

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	03/01/2019	ND	2.15	107	2.00	0.883	
Toluene*	<0.050	0.050	03/01/2019	ND	2.12	106	2.00	0.852	
Ethylbenzene*	<0.050	0.050	03/01/2019	ND	2.10	105	2.00	0.872	
Total Xylenes*	<0.150	0.150	03/01/2019	ND	5.93	98.8	6.00	1.58	
Total BTEx	<0.300	0.300	03/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.9 % 73.3-129

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	03/04/2019	ND	400	100	400	0.00		

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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 97.8 % 41-142

Surrogate: 1-Chlorooctadecane 98.6 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/27/2019
Reported: 03/05/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/26/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 16 - 4' (H900749-10)

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	03/01/2019	ND	2.15	107	2.00	0.883	
Toluene*	<0.050	0.050	03/01/2019	ND	2.12	106	2.00	0.852	
Ethylbenzene*	<0.050	0.050	03/01/2019	ND	2.10	105	2.00	0.872	
Total Xylenes*	<0.150	0.150	03/01/2019	ND	5.93	98.8	6.00	1.58	
Total BTEX	<0.300	0.300	03/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 92.5 % 73.3-129

Chloride, SM4500Cl-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	03/04/2019	ND	400	100	400	0.00	

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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 96.8 % 41-142

Surrogate: 1-Chlorooctadecane 97.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/27/2019
Reported: 03/05/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/26/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SW 1 - 2' (H900749-11)

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	03/01/2019	ND	2.15	107	2.00	0.883	
Toluene*	<0.050	0.050	03/01/2019	ND	2.12	106	2.00	0.852	
Ethylbenzene*	<0.050	0.050	03/01/2019	ND	2.10	105	2.00	0.872	
Total Xylenes*	<0.150	0.150	03/01/2019	ND	5.93	98.8	6.00	1.58	
Total BTEX	<0.300	0.300	03/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	832	16.0	03/04/2019	ND	400	100	400	0.00	

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	03/01/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	03/01/2019	ND	220	110	200	8.01	
EXT DRO >C28-C36	<10.0	10.0	03/01/2019	ND					

Surrogate: 1-Chlorooctane 96.0 % 41-142

Surrogate: 1-Chlorooctadecane 96.0 % 37.6-147

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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Celey D. Keene, Lab Director/Quality Manager

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

[illegible]

March 06, 2019

JERRY MATTHEWS

WHITE BUFFALO

8908 YALE AVE #210

TULSA, OK 74137

RE: SOUTH BOYD FED 13

Enclosed are the results of analyses for samples received by the laboratory on 02/28/19 14:40.

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 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
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/28/2019
Reported: 03/06/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/27/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SW 2 - 2' (H900800-01)

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	03/04/2019	ND	2.07	103	2.00	1.45	
Toluene*	<0.050	0.050	03/04/2019	ND	1.89	94.6	2.00	1.59	
Ethylbenzene*	<0.050	0.050	03/04/2019	ND	1.93	96.6	2.00	2.62	
Total Xylenes*	<0.150	0.150	03/04/2019	ND	6.05	101	6.00	3.08	
Total BTEX	<0.300	0.300	03/04/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 73.3-129

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AC				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	03/05/2019	ND	432	108	400	0.00	

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	03/02/2019	ND	187	93.6	200	2.00	
DRO >C10-C28*	120	10.0	03/02/2019	ND	208	104	200	0.631	
EXT DRO >C28-C36	17.3	10.0	03/02/2019	ND					

Surrogate: 1-Chlorooctane 84.0 % 41-142

Surrogate: 1-Chlorooctadecane 91.1 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/28/2019
Reported: 03/06/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/27/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SW 3 - 2' (H900800-02)

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	03/04/2019	ND	2.07	103	2.00	1.45	
Toluene*	<0.050	0.050	03/04/2019	ND	1.89	94.6	2.00	1.59	
Ethylbenzene*	<0.050	0.050	03/04/2019	ND	1.93	96.6	2.00	2.62	
Total Xylenes*	<0.150	0.150	03/04/2019	ND	6.05	101	6.00	3.08	
Total BTEx	<0.300	0.300	03/04/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.1 % 73.3-129

Chloride, SM4500Cl-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	03/05/2019	ND	432	108	400	0.00	

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	03/02/2019	ND	187	93.6	200	2.00	
DRO >C10-C28*	26.8	10.0	03/02/2019	ND	208	104	200	0.631	
EXT DRO >C28-C36	<10.0	10.0	03/02/2019	ND					

Surrogate: 1-Chlorooctane 81.8 % 41-142

Surrogate: 1-Chlorooctadecane 83.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 WHITE BUFFALO
 JERRY MATTHEWS
 8908 YALE AVE #210
 TULSA OK, 74137
 Fax To:

 Received: 02/28/2019
 Reported: 03/06/2019
 Project Name: SOUTH BOYD FED 13
 Project Number: NONE GIVEN
 Project Location: PERCUSSION PETROLEUM

 Sampling Date: 02/27/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SW 4 - 2' (H900800-03)

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	03/04/2019	ND	2.07	103	2.00	1.45	
Toluene*	<0.050	0.050	03/04/2019	ND	1.89	94.6	2.00	1.59	
Ethylbenzene*	<0.050	0.050	03/04/2019	ND	1.93	96.6	2.00	2.62	
Total Xylenes*	<0.150	0.150	03/04/2019	ND	6.05	101	6.00	3.08	
Total BTEx	<0.300	0.300	03/04/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.0 % 73.3-129

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	03/05/2019	ND	432	108	400	0.00	

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	03/02/2019	ND	187	93.6	200	2.00	
DRO >C10-C28*	<10.0	10.0	03/02/2019	ND	208	104	200	0.631	
EXT DRO >C28-C36	<10.0	10.0	03/02/2019	ND					

Surrogate: 1-Chlorooctane 77.3 % 41-142

Surrogate: 1-Chlorooctadecane 86.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/28/2019
Reported: 03/06/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/27/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SW 5 - 2' (H900800-04)

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	03/04/2019	ND	2.07	103	2.00	1.45	
Toluene*	<0.050	0.050	03/04/2019	ND	1.89	94.6	2.00	1.59	
Ethylbenzene*	<0.050	0.050	03/04/2019	ND	1.93	96.6	2.00	2.62	
Total Xylenes*	<0.150	0.150	03/04/2019	ND	6.05	101	6.00	3.08	
Total BTEX	<0.300	0.300	03/04/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.3 % 73.3-129

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	03/05/2019	ND	432	108	400	0.00	

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	03/02/2019	ND	187	93.6	200	2.00	
DRO >C10-C28*	<10.0	10.0	03/02/2019	ND	208	104	200	0.631	
EXT DRO >C28-C36	<10.0	10.0	03/02/2019	ND					

Surrogate: 1-Chlorooctane 79.1 % 41-142

Surrogate: 1-Chlorooctadecane 79.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/28/2019
Reported: 03/06/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/27/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SW 6 - 2' (H900800-05)

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	03/04/2019	ND	2.07	103	2.00	1.45	
Toluene*	<0.050	0.050	03/04/2019	ND	1.89	94.6	2.00	1.59	
Ethylbenzene*	<0.050	0.050	03/04/2019	ND	1.93	96.6	2.00	2.62	
Total Xylenes*	<0.150	0.150	03/04/2019	ND	6.05	101	6.00	3.08	
Total BTEx	<0.300	0.300	03/04/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.6 % 73.3-129

Chloride, SM4500Cl-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	03/05/2019	ND	400	100	400	0.00	

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	03/02/2019	ND	187	93.6	200	2.00	
DRO >C10-C28*	<10.0	10.0	03/02/2019	ND	208	104	200	0.631	
EXT DRO >C28-C36	<10.0	10.0	03/02/2019	ND					

Surrogate: 1-Chlorooctane 86.9 % 41-142

Surrogate: 1-Chlorooctadecane 87.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/28/2019
Reported: 03/06/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/27/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SW 7 - 2' (H900800-06)

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	03/04/2019	ND	2.07	103	2.00	1.45	
Toluene*	<0.050	0.050	03/04/2019	ND	1.89	94.6	2.00	1.59	
Ethylbenzene*	<0.050	0.050	03/04/2019	ND	1.93	96.6	2.00	2.62	
Total Xylenes*	<0.150	0.150	03/04/2019	ND	6.05	101	6.00	3.08	
Total BTEx	<0.300	0.300	03/04/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.4 % 73.3-129

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	03/05/2019	ND	400	100	400	0.00	

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	03/02/2019	ND	187	93.6	200	2.00	
DRO >C10-C28*	<10.0	10.0	03/02/2019	ND	208	104	200	0.631	
EXT DRO >C28-C36	<10.0	10.0	03/02/2019	ND					

Surrogate: 1-Chlorooctane 89.2 % 41-142

Surrogate: 1-Chlorooctadecane 89.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHITE BUFFALO
JERRY MATTHEWS
8908 YALE AVE #210
TULSA OK, 74137
Fax To:

Received: 02/28/2019
Reported: 03/06/2019
Project Name: SOUTH BOYD FED 13
Project Number: NONE GIVEN
Project Location: PERCUSSION PETROLEUM

Sampling Date: 02/27/2019
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SW 8 - 2' (H900800-07)

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	03/04/2019	ND	2.07	103	2.00	1.45	
Toluene*	<0.050	0.050	03/04/2019	ND	1.89	94.6	2.00	1.59	
Ethylbenzene*	<0.050	0.050	03/04/2019	ND	1.93	96.6	2.00	2.62	
Total Xylenes*	<0.150	0.150	03/04/2019	ND	6.05	101	6.00	3.08	
Total BTEx	<0.300	0.300	03/04/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.7 % 73.3-129

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	03/05/2019	ND	400	100	400	0.00	

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	03/02/2019	ND	187	93.6	200	2.00	
DRO >C10-C28*	<10.0	10.0	03/02/2019	ND	208	104	200	0.631	
EXT DRO >C28-C36	<10.0	10.0	03/02/2019	ND					

Surrogate: 1-Chlorooctane 88.4 % 41-142

Surrogate: 1-Chlorooctadecane 87.8 % 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.
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

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

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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	
Application ID	

Release Notification

Responsible Party

Responsible Party Spur Energy	OGRID 328947
Contact Name Kenny Kidd	Contact Telephone 575-616-5400
Contact email kkidd@spurepllc.com	Incident # (assigned by OCD) NAB183465141 (2RP-5101)
Contact mailing address 920 Memorial City Way, Ste. 1000 Houston, TX 77024	

Location of Release Source

Latitude 32.62356 Longitude -104.465952
(NAD 83 in decimal degrees to 5 decimal places)

Site Name South Boyd Federal #13H & 14H	Site Type Well Pad
Date Release Discovered 12/3/18	API# (if applicable) 30-015-44880 30-015-44881

Unit Letter	Section	Township	Range	County
A	34	19S	25E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) Up to 100bbls	Volume Recovered (bbls) 70bbls
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

While draining frac tanks prior to removal from the location, a valve was inadvertently left open, which resulted in the release.

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Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, by Michael Martin, by email of Mike Bratcher, Maria Purett, Jim Griswold (NMOCD) and Jim Amos (BLM) on 12/3/18 at 6pm	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: This is a preliminary report. The soiled material is being accumulated into a pile so that it can be removed to a disposal site ASAP.	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
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: <u>See initial C141 for signature</u> Title: _____ Signature: _____ Date: _____ email: _____ Telephone: _____	
<u>OCD Only</u> Received by: _____ Date: _____	

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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?	____60'____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

<p>Characterization Report Checklist: <i>Each of the following items must be included in the report.</i></p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.<input checked="" type="checkbox"/> Field data<input checked="" type="checkbox"/> Data table of soil contaminant concentration data<input checked="" type="checkbox"/> Depth to water determination<input checked="" type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release<input checked="" type="checkbox"/> Boring or excavation logs<input checked="" type="checkbox"/> Photographs including date and GIS information<input checked="" type="checkbox"/> Topographic/Aerial maps<input checked="" type="checkbox"/> Laboratory data including chain of custody

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

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Printed Name: Natalie Gladden Title: Director of Environmental & Regulatory

Signature: _____ Date: 3/18/2020

email: ngladden@hungry-horse.com Telephone: 575-390-6397

OCD Only

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Remediation Plan

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

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

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

- ☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated. **(will be done when frac tanks are moved)**
- ☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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Printed Name: _____ Natalie Gladden _____ Title: _____ Director of Environmental & Regulatory _____

Signature: _____ Date: _____ 3/18/20 _____

email: _____ ngladden@hungry-horse.com _____ Telephone: _____ (575) 390-6397 _____

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

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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.

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

- ☒ 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

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Printed Name: Natalie Gladden Title: Director of Environmental & Regulatory

Signature: _____ Date: 3/18/20

email: ngladden@hungry-horse.com Telephone: 575-390-6397

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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: _____