

Callie Karrigan

Huskey-Mckay Federal No.1 Remediation Closure Report

2RP-5131

API NO. 30-005-61616

Release Date: December 14, 2018

Unit Letter O, Section 18, Township 8 South, Range 26 East

Chaves County

1/30/2019

Prepared By:



White Buffalo Environmental, Inc. 407 East Broadway Hobbs, NM 88240 Phone: (575)738-0424 Fax: (575)738-0430



January 30, 2019

Marathon Oil Company C/O Callie Karrigan 4111 S. Tidwell Street Carlsbad, NM 88220

State of New Mexico Oil Conservation Division C/O Mike Bratcher District II 811 S. First Street Artesia, NM 88210

Bureau of Land Management C/O Harley Davis 2909 West Second Street Roswell, NM 88201

RE: Huskey-Mckay Federal No. 1 API No: 30-005-61616

Dear Mr. Bratcher and Mr. Davis,

Marathon Oil Company retained White Buffalo Environmental to address the above environmental release for the site detailed herein.

The site is located in Chaves County. The Huskey-McKay Federal No. 1 release occurred on December 4, 2018. Approximately 6.47bbls of crude oil was released in the pasture area due to a 3rd party contractor who was in the process of flushing the flowline during a wellsite abandonment activity, when one of the fittings failed. The fitting was found to be corroded. No fluid was recovered due to the release occurring in a sandy loom area.

WBE immediately arrived onsite, when notified of the release. The crews working on the line made the appropriate repairs, while WBE began to move the saturated soil from the release point and stockpiled on plastic to minimize the environmental impact of this release. Upon site

assessment, there were two different release points, one labelled North release and the second labelled South release.

Groundwater Data

WBE conducted a groundwater study of the area and has determined that according to the New Mexico Office of the State Engineer the ground water depth in this area is averaged at 43'bgs. With the data collected during the ground water research, all wells within this area range from 12'bgs to 80'bgs. The 12'bgs well is labelled RA-04747. Please see the attached Water Column/Average Depth to Water Sheet.

Reclamation and Remediation Procedures

Immediately upon arrival, WBE assessed the release, measured, mapped, photographed and called in an Emergency One-call. Once the one-call was cleared WBE staff began to sample the surface of impacted area. At this time the heavy saturated soil was excavated and placed on plastic. Further delineation began December 5th of 2018.

The release area was fully delineated, vertically and horizontally to find the extent of the contaminated area. The Closure Criteria for Soils Impacted by a Release is below, based on ground water depth of under 50'bgs.

DGW	Constituent	Method	Limit
≤ 50	Chloride	EPA 300.0 OR SM4500 CLB	600 mg/kg
	TPH (GRO + DRO + MRO)	EPA SW-846 METHOD 8015M	100 mg/kg
	GRO + DRO	EPA SW-846 METHOD 8015M	50 mg/kg
		EPA SW-846 METHOD 8021B OR	
	BTEX	8260B	10 mg/kg
		EPA SW-846 METHOD 8021B OR	
	Benzene	8260B	10 mg/kg

Based on the sample data obtained for this sampling event, all sample points were under the required limits. Please see the sample data, site map and lab analysis attached to this report.

Delineation

On December 5th 2018 White Buffalo Environmental personnel-initiated delineation of this site as per the Condition of Approval (COA) received from the NMOCD. The visually stained area was measured and surface soil samples were collected and field tested for chloride and BTEX. Field testing indicated that soil was impacted, therefore horizontal and vertical delineation of the site was completed to closure limits for the closure criteria for 50'bgs. Please find the sampling data and lab analyses for this site attached to this report herein.

Remediation

The impacted soil was excavated and stockpiled on plastic. WBE then hauled a total of 360 cubic yards to R360 for disposal. Both release areas depth of excavation varied from 4' to 6'bgs. Once the contamination was removed from the impacted area, Harley Davis with the BLM was notified of final sampling event and could not make it to the site. Final samples were extracted then taken to Cardinal Lab for confirmation. The closure sample data can be found in the sampling data sheet for this site as well on the attached analytical reports. Once verified by Cardinal labs backfilling of the excavation area was backfill using 84 yards of caliche/topsoil mix from left over soil from the reclaim from the well pad Huskey-McKay Federal #001. At which point 276 cubic yards of topsoil was purchased and hauled to site from the Cooper Ranch.

The area was fully backfilled and contoured to its natural state. The area was ripped and then reseeded with special seed requested from Cooper Ranch. Which consisted of Blue Grama, Sand Drop Seed, Plains Bristle Grass, Buckwheat, Four-Wing Salt Brush, Desert Globe Mallow and Alkali Sacaton purchased from Curtis and Curtis. Once hand broadcasted, the area was then watered and re-ripped to hold seed in place for revegetation purposes.

Closure Request

White Buffalo Environmental, along with Marathon Oil Permian, LLC would like to request the site closure for the release for 2RP-5131 dated December 4, 2018. Please find all the supporting documentation along with the final C-141 for this release attached herein.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

laden atali

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

Attachments: C141 Groundwater Data Sampling Data and Lab Analyses Site Diagram and Site Photographs Photographs Seed Tag Final C-141 District I 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources Department

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

)

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

Location of Release Source

Latitude	

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

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)

Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	Yes No
Condensate	Volume Released (bbls)	Volume Recovered (bbls)
Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Release		1

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Was this a major release as defined by 19.15.29.7(A) NMAC?	If YES, for what reason(s) does the responsible party consider this a major release?
Yes No	
If YES, was immediate no	otice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Initial Response

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

The source of the release has been stopped.

The impacted area has been secured to protect human health and the environment.

Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

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:	Title:
Signature: Callin Karrigan	Date:
email:	Telephone:
OCD Only	
Received by:	Date:

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

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

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

	Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
	Field data
	Data table of soil contaminant concentration data
	Depth to water determination
	Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
	Boring or excavation logs
	Photographs including date and GIS information
Ц	Photographs including date and GIS information

- Topographic/Aerial maps
- Laboratory data including chain of custody

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

Form C-141	State of New Mexico	Incident ID
Page 4	Oil Conservation Division	District RP
		Facility ID
		Application ID
regulations all operators a public health or the enviro failed to adequately inves addition, OCD acceptance and/or regulations. Printed Name: Signature: <u>Calle Kanigan</u> email:	re required to report and/or file certain release notifi onment. The acceptance of a C-141 report by the OC tigate and remediate contamination that pose a threa e of a C-141 report does not relieve the operator of re	est of my knowledge and understand that pursuant to OCD rules and cations and perform corrective actions for releases which may endanger CD does not relieve the operator of liability should their operations have t to groundwater, surface water, human health or the environment. In esponsibility for compliance with any other federal, state, or local laws Title: Date: Telephone:
OCD Only		
Received by:		Date:

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<u>Remediation Plan Checklist</u>: Each of the following items must be included in the plan.

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Remediation Plan

 Detailed description of proposed remediation technique Scaled sitemap with GPS coordinates showing delineation points Estimated volume of material to be remediated Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required) 										
<u>Deferral Requests Only</u> : Each of the following items must be conj	firmed as part of any request for deferral of remediation.									
Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.										
Extents of contamination must be fully delineated.										
Contamination does not cause an imminent risk to human health,	the environment, or groundwater.									
I hereby certify that the information given above is true and complete rules and regulations all operators are required to report and/or file ce which may endanger public health or the environment. The acceptan liability should their operations have failed to adequately investigate surface water, human health or the environment. In addition, OCD a responsibility for compliance with any other federal, state, or local la	ertain release notifications and perform corrective actions for releases ice of a C-141 report by the OCD does not relieve the operator of and remediate contamination that pose a threat to groundwater, cceptance of a C-141 report does not relieve the operator of									
Printed Name:	Title:									
Signature:	Date:									
email:	Telephone:									
OCD Only										
Received by:	Date:									
Approved Approved with Attached Conditions of A	Approval Denied Deferral Approved									
Signature:]	Date:									

State of New Mexico Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

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

<u>Closure Report Attachment Checklist</u> : Each of the following to	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 must be notified 2 days prior to liner inspection)	s of the liner integrity if applicable (Note: appropriate OCD District office
Laboratory analyses of final sampling (Note: appropriate OD	C District office must be notified 2 days prior to final sampling)
Description of remediation activities	
and regulations all operators are required to report and/or file certain may endanger public health or the environment. The acceptance of should their operations have failed to adequately investigate and re- human health or the environment. In addition, OCD acceptance of	ations. The responsible party acknowledges they must substantially onditions that existed prior to the release or their final land use in
Printed Name:	Title:
Signature:	Date:
email:	Telephone:
OCD Only	
Received by:	Date:
	of liability should their operations have failed to adequately investigate and water, human health, or the environment nor does not relieve the responsible /or regulations.
Closure Approved by:	Date:
Printed Name:	Title:



(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)	(R=POD bccn repl O=orpha C=the fil	laced, ned,		``					2=NE	3=SW 4=SI	3) JAD83 UTM in m	atara)	(In fee	st)	
water right file.)	closed)	DOD		(qua	ner	s are	smane	st to rar	gest) (N		leters)	(m tec)	
		POD Sub-		0	Q	0								W	ater
POD Number	Code		County				Sec	Tws	Rng	Х	Y	DistanceDep	thWellDepth		
RA 11333 POD1		RA	ED	1	4		27	19S	26E	558262	3721747 🌑	2997	160		
<u>RA 04747</u>		RA	CH		2	3	06	08S	26E	561256	3723273* 🌍	3630	105	12	93
RA 04202		RA	СН	3	3	3	25	085	25E	559198	3716305* 🌍	3653	200		
RA 04202 CLW251916	0	RA	СН	3	3	3	25	08S	25E	559198	3716305* 🌍	3653	200		
<u>RA_06879</u>		RA	CH		1	1	36	08S	25E	559300	3716002* 🌍	3906	140	35	105
<u>RA 04807</u>		RA	CH		4	2	01	08S	25E	560473	3723678* 🌍	3950	110	68	42
<u>RA 06860</u>		RA	CH			I	36	08S	25E	559503	3715799* 🌍	4047	182	80	102
<u>RA 04774</u>		RA	CH		2	1	10	08S	25E	556444	3722471* 🌍	4878	43	21	22
											Averag	ge Depth to Wate	er:	43 fee	t
												Minimum Dej	oth:	12 fee	et
												Maximum Dep	oth:	80 fee	t
Record Count: 8													1 IV		
UTMNAD83 Radiu	<u>s Search (i</u>	n meters) <u>:</u>												
Easting (X): 560	0477.41		Nortl	ing	; (Y):	3719	727			Radius: 5000				
*UTM location was derived	from PLSS	- see Help)												
The data is furnished by the	MMOSE/ISC	and in an	antad has th	A	ale l	ant	with (ha ava	meend un	devetanding t	hat the OSE/ISC m	ke no warranties	expressed or imp	lied concer	nine the

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.

11/19/18 3:05 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER



New Mexico Office of the State Engineer Point of Diversion Summary

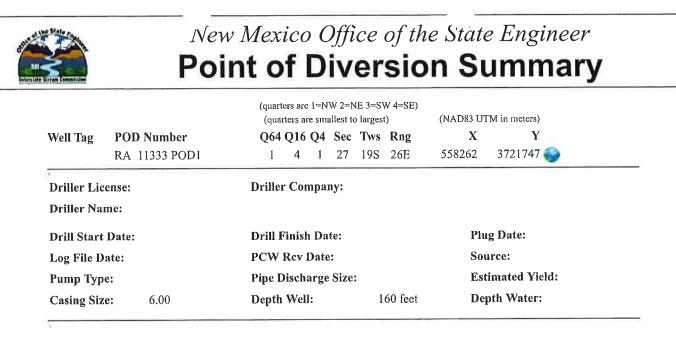
			(quarters au (quarters a					(NAD83 U	TM in meters)		
Well Tag	POD	Number				Tws Rng		X	Υ		
	RA	04747	2	3	06	08S	26E	561256	3723273* 🌍		
Driller Lice	ense:	260	Driller Co	mpa	ny:	CL	ARK, G.	J.			
Driller Nan	ne:	CLARK									
Drill Start Dat		01/01/1963	Drill Finis	h Da	ite:	0	1/01/1963	3 P I	ug Date:		
Log File Da	ite:	01/02/1963	PCW Rev	PCW Rcv Date:					Source:		
Ритр Туре			Pipe Disch	arge	e Size	::		Es			
Casing Size	:	7.00	Depth We	Depth Well:				D	Depth Water:		
	Wate	er Bearing Stratif	ications:	Т	op H	Botton	1 Descri	ption			
	5			18				one/Grave	l/Conglomerate		
					45	4	7 Other/	Unknown			

*UTM location was derived from PLSS - see Help

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

11/19/18 3:07 PM

POINT OF DIVERSION SUMMARY



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.

11/19/18 3:07 PM

POINT OF DIVERSION SUMMARY



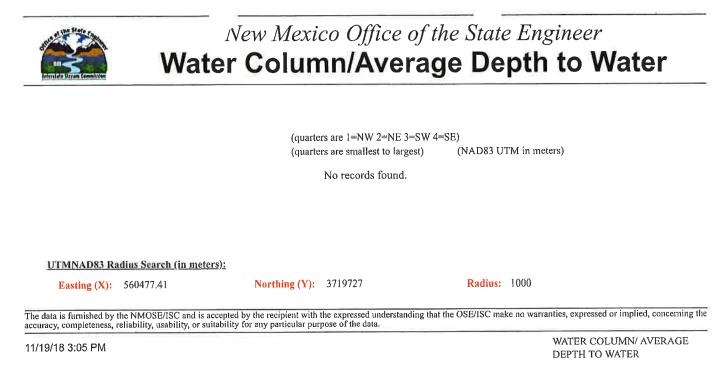
		(quarters are smallest	to largest)	(NAD83 UTM in meters)	
Well Tag	POD Number	Q64 Q16 Q4 Se	c Tws Rng	X Y	
	RA 04202	3 3 3 25	5 08S 25E	559198 3716305* 🝚	
Driller Lic	ense:	Driller Company:			
Driller Nar	ne: STEINBERGER				
Drill Start	Date:	Drill Finish Date:		Plug Date:	
Log File Da	ate:	PCW Rcv Date:		Source:	
Pump Type	e:	Pipe Discharge Siz	:e:	Estimated Yield:	
Casing Size	e: 7.00	Depth Well:	200 feet	Depth Water:	

*UTM location was derived from PLSS - see Help

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

11/19/18 3:08 PM

POINT OF DIVERSION SUMMARY



MARATHO	ARATHON - HUSKEY-MCKAY FED 001													
Sample ID	Ft	Titration	PID	Lab-Chl	Lab-BTEX	Lab-GRO	Lab-DRO	Lab-MRO	TPH	Soil	Notes			
SP1	SUR	240	0								NORTH			
	2'	160	0	80	<0.300	<10	<10	<10	<10	CAL				
SP2	SUR		0											
	2'													
	4'													
	6'	480												
	8'	160	0	32	<0.300	<10	<10	<10	<10	CAL				
SP3	SUR	240	0											
	2'	400	0	272	<0.300	<10	<10	<10	<10	CAL				
SP4	SUR	400	0											
	2'	1280	0											
	4'	480	0											
	6'	560	0	608	<0.300	<10	<10	<10	<10	CAL				
	8'	400	0											
	10'	400	0	160	<0.300	<10	<10	<10	<10	CAL				
SP5	SUR	880	0											
	2'	1840	0											
	4'	1440	0											
	6'	2720	0											
	8'	160	0											
	10'	160	0	176	<0.300	<10	<10	<10	<10	CAL				
SW1	SUR	160	0											
	1'	160	0		<0.300	<10	<10	<10	<10	CAL				
SW2	SUR	360	0											
	1'	160	0	-	<0.300	<10	<10	<10	<10	CAL				
SW3	SUR	160	0											
	1'	160	0	80	<0.300	<10	<10	<10	<10	CAL				
SW4	SUR	160	0											
	1'	160	0	48	<0.300	<10	<10	<10	<10	CAL				

Closure S	Samples										
SW1	SUR	612	0								
	1'	240	0								
	2'	30	0	<16	<0.300	<10	<10	<10	<10	CAL	
SW2	SUR	46	0								
	1'	<16	0	<16	<0.300	<10	<10	<10	<10	CAL	
SW3	1'	160	0	<16	<0.300	<10	<10	<10	<10	CAL	
	2'	160	0	<16	<0.300	<10	<10	<10	<10	CAL	
SW4	1'	80	0								
	2'	160	0	<16	<0.300	<10	<10	<10	<10	CAL	

Sample ID	Ft	Titration	PID	Lab-Chl	Lab-BTEX	Lab-GRO	Lab-DRO	Lab-MRO	TPH	Soil	Notes
SP1	SUR	240	0								SOUTH
	2'	240	0	80	<0.300	<10	<10	<10	<10	CAL	
SP2	SUR	480	0								
	2'	240	0	192	<0.300	<10	<10	<10	<10	CAL	
SP3	SUR	160	0								
	2'	160	0	32	<0.300	<10	<10	<10	<10	CAL	
SW1	SUR	480	0								
	1'	240	0	80	<0.300	<10	<10	<10	<10	CAL	
SW2	SUR	400	0								
	1'	240	0	32	<0.300	<10	<10	<10	<10	CAL	
SW3	SUR	160	0								
	1'	160	0	32	<0.300	<10	<10	<10	<10	CAL	
SW4	SUR	160	0								
	1'	160	0	32	<0.300	<10	<10	<10	<10	CAL	

Closure	Samples										
SW1	1'	80	0								
	2'	80	0	32	<0.300	<10	<10	<10	<10	CAL	
SW2	1'	80	0								
	2'	30	0	<16	<0.300	<10	<10	<10	<10	CAL	
SW3	1'	80	0								
	2'	80	0	<16	<0.300	<10	<10	<10	<10	CAL	
SW4	1'	1040	0								
	2'	1520	0	1720	<0.300	<10	<10	<10	<10	CAL	
	3'	1200									
	4'	945									
	5'	344		240	<0.300	<10	<10	<10	<10	CAL	
COM		320	0	288	<0.300	<10	<10	<10	<10	CAL	



December 12, 2018

NATALIE GLADDEN

WHITE BUFFALO

8908 YALE AVE #210

TULSA, OK 74137

RE: HUSKEY - MCKAY FED #001

Enclosed are the results of analyses for samples received by the laboratory on 12/11/18 8:40.

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/ga/lab_accred_certif.html.

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

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

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. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	12/11/2018	Sampling Date:	12/06/2018
Reported:	12/12/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SP 2 - 8' (NORTH) (H803615-01)

BTEX 8021B	mg/	/kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/11/2018	ND	2.04	102	2.00	3.14	
Toluene*	<0.050	0.050	12/11/2018	ND	1.98	99.1	2.00	1.92	
Ethylbenzene*	<0.050	0.050	12/11/2018	ND	1.88	93.8	2.00	2.99	
Total Xylenes*	<0.150	0.150	12/11/2018	ND	6.02	100	6.00	2.83	
Total BTEX	<0.300	0.300	12/11/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	104 9	% 73.3-12	9						
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	12/11/2018	ND	448	112	400	0.00	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/11/2018	ND	204	102	200	2.82	
DRO >C10-C28*	<10.0	10.0	12/11/2018	ND	214	107	200	1.22	
EXT DRO >C28-C36	<10.0	10.0	12/11/2018	ND					
Surrogate: 1-Chlorooctane	114 9	% 41-142	,						
Surrogate: 1-Chlorooctadecane	121 9	% 37.6-14	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/11/2018	Sampling Date:	12/06/2018
Reported:	12/12/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SP 5 - 10' (NORTH) (H803615-02)

BTEX 8021B	mg	/kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/11/2018	ND	2.04	102	2.00	3.14	
Toluene*	<0.050	0.050	12/11/2018	ND	1.98	99.1	2.00	1.92	
Ethylbenzene*	<0.050	0.050	12/11/2018	ND	1.88	93.8	2.00	2.99	
Total Xylenes*	<0.150	0.150	12/11/2018	ND	6.02	100	6.00	2.83	
Total BTEX	<0.300	0.300	12/11/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	105	% 73.3-12	9						
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	12/11/2018	ND	448	112	400	0.00	
TPH 8015M	mg,	/kg	Analyze	Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/11/2018	ND	204	102	200	2.82	
DRO >C10-C28*	<10.0	10.0	12/11/2018	ND	214	107	200	1.22	
EXT DRO >C28-C36	<10.0	10.0	12/11/2018	ND					
Surrogate: 1-Chlorooctane	111 9	% 41-142	,						
Surrogate: 1-Chlorooctadecane	120	% 37.6-14	7						

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*=Accredited Analyte

Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/11/2018	Sampling Date:	12/06/2018
Reported:	12/12/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SP 1 - 2' (SOUTH) (H803615-03)

BTEX 8021B	mg/	/kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/11/2018	ND	2.04	102	2.00	3.14	
Toluene*	<0.050	0.050	12/11/2018	ND	1.98	99.1	2.00	1.92	
Ethylbenzene*	<0.050	0.050	12/11/2018	ND	1.88	93.8	2.00	2.99	
Total Xylenes*	<0.150	0.150	12/11/2018	ND	6.02	100	6.00	2.83	
Total BTEX	<0.300	0.300	12/11/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	106 9	% 73.3-12	9						
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	12/11/2018	ND	448	112	400	0.00	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/11/2018	ND	204	102	200	2.82	
DRO >C10-C28*	<10.0	10.0	12/11/2018	ND	214	107	200	1.22	
EXT DRO >C28-C36	<10.0	10.0	12/11/2018	ND					
Surrogate: 1-Chlorooctane	102 9	% 41-142	2						
Surrogate: 1-Chlorooctadecane	105 9	% 37.6-14	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/11/2018	Sampling Date:	12/06/2018
Reported:	12/12/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SP 2 - 2' (SOUTH) (H803615-04)

BTEX 8021B	mg/	'kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/11/2018	ND	2.04	102	2.00	3.14	
Toluene*	<0.050	0.050	12/11/2018	ND	1.98	99.1	2.00	1.92	
Ethylbenzene*	<0.050	0.050	12/11/2018	ND	1.88	93.8	2.00	2.99	
Total Xylenes*	<0.150	0.150	12/11/2018	ND	6.02	100	6.00	2.83	
Total BTEX	<0.300	0.300	12/11/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	107 9	73.3-12	9						
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	12/11/2018	ND	448	112	400	0.00	
TPH 8015M	mg/	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/11/2018	ND	204	102	200	2.82	
DRO >C10-C28*	<10.0	10.0	12/11/2018	ND	214	107	200	1.22	
EXT DRO >C28-C36	<10.0	10.0	12/11/2018	ND					
Surrogate: 1-Chlorooctane	105 9	% 41-142	2						
Surrogate: 1-Chlorooctadecane	113 9	% 37.6-14	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/11/2018	Sampling Date:	12/06/2018
Reported:	12/12/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SP 3 - 2' (SOUTH) (H803615-05)

BTEX 8021B	mg/	′kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/11/2018	ND	2.04	102	2.00	3.14	
Toluene*	<0.050	0.050	12/11/2018	ND	1.98	99.1	2.00	1.92	
Ethylbenzene*	<0.050	0.050	12/11/2018	ND	1.88	93.8	2.00	2.99	
Total Xylenes*	<0.150	0.150	12/11/2018	ND	6.02	100	6.00	2.83	
Total BTEX	<0.300	0.300	12/11/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	105 9	% 73.3-12	9						
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	12/11/2018	ND	448	112	400	0.00	
TPH 8015M	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/11/2018	ND	204	102	200	2.82	
DRO >C10-C28*	<10.0	10.0	12/11/2018	ND	214	107	200	1.22	
EXT DRO >C28-C36	<10.0	10.0	12/11/2018	ND					
Surrogate: 1-Chlorooctane	103 9	% 41-142	2						
Surrogate: 1-Chlorooctadecane	110 9	% 37.6-14	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

Sampler - UPS - Bus	••	venniquisitetto).	Mongue	Relinquished By:	analyses. All claims including service. In no event shall Carr affiliates or successors arising	PLEASE NOTE: Liability and				-	CN	N.		14863615	Lab I.D.		FOR LAB USE ONLY	Sampler Name:	Project Location:	Project Name:	Project #:	Phone #:	City:	Address:	Project Manager:	Company Name:	~ 1			Page 8 of 8
Bus - Other:	(Circle One)		Cueto	Ľ	anayses, An cause including index on regignized and any origin cause whatsoers index or share one working and received by cardina within 30 days after completion of the applicable service. In no event shall Cardinate biable for indexnation consequential damages, including without initiation, business interruptions, to so of rests of profits houring by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, repardless of whether such claim is based upon any of the above stated reasons or otherwise.	PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort.	17 5		SP3-2 (592-2' (5	Sr1-2. (S	2-10. (N	2-8' (Sample I.D.		0	Mon	Husken							marat	101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476		abora	D D D
-0.20	9	Time:	40	100	cause whatsoever shall be been equental damages, including with e of services hereunder by Cardin	ient's exclusive remedy for any c			South G	buth G	enth (lorth) G	North) (GIR		NOMP.	_	Custo	-meka		Project Owner:	Fax #:	State: Zi			non Oil	nd, Hobbs, NM 88240 FAX (575) 393-2476		torie	NN
497 Pres Pres	Sample Condition	Received By:	autara	Received By:	red waived unless made in writing and receive out limitation, business interruptions, loss of u rai, regardless of whether such claim is based	aim arising whether based in con			X	-	- - ×	-	- ×	# CO GRO WAS ⁻ SOIL OIL	NTAINER JNDWAT FEWATE	IS TER R	MATRIX		Jud Dol				Zip:						N	
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	BY:	Linu	REMARKS:	Phone Result: Fax Result:	thin 30 days after completion of the ints incurred by client, its subsidiarie above stated reasons or otherwise.	to the amount paid by the client for the			2/6/18 2:38	46/18 2:28	16/18 2:16	16/18 1:40	00:00 81/11	DATE TIME			SAMPLING	-	1010-0999	14137		le Avet	g'	ite Bullalo		8/19/59/69		CHAIN-		
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December 17, 2018

NATALIE GLADDEN

WHITE BUFFALO

8908 YALE AVE #210

TULSA, OK 74137

RE: HUSKEY - MCKAY FED #001

Enclosed are the results of analyses for samples received by the laboratory on 12/14/18 8:50.

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/ga/lab_accred_certif.html.

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

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

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. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	12/14/2018	Sampling Date:	12/10/2018
Reported:	12/17/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 1 - 1' NORTH (H803657-01)

BTEX 8021B	mg,	/kg	Analyze	ed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/14/2018	ND	2.01	101	2.00	3.50	
Toluene*	<0.050	0.050	12/14/2018	ND	1.95	97.7	2.00	2.85	
Ethylbenzene*	<0.050	0.050	12/14/2018	ND	1.91	95.4	2.00	2.71	
Total Xylenes*	<0.150	0.150	12/14/2018	ND	5.79	96.5	6.00	2.22	
Total BTEX	<0.300	0.300	12/14/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	99.7	% 73.3-12	9						
Chloride, SM4500Cl-B	mg,	/kg	Analyze	ed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	12/14/2018	ND	432	108	400	3.64	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/14/2018	ND	195	97.7	200	0.439	
DRO >C10-C28*	<10.0	10.0	12/14/2018	ND	195	97.4	200	0.217	
EXT DRO >C28-C36	<10.0	10.0	12/14/2018	ND					
Surrogate: 1-Chlorooctane	74.9	% 41-142	,						
Surrogate: 1-Chlorooctadecane	75.7	% 37.6-14	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/14/2018	Sampling Date:	12/10/2018
Reported:	12/17/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 2 - 1' NORTH (H803657-02)

BTEX 8021B	mg/	'kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/14/2018	ND	2.01	101	2.00	3.50	
Toluene*	<0.050	0.050	12/14/2018	ND	1.95	97.7	2.00	2.85	
Ethylbenzene*	<0.050	0.050	12/14/2018	ND	1.91	95.4	2.00	2.71	
Total Xylenes*	<0.150	0.150	12/14/2018	ND	5.79	96.5	6.00	2.22	
Total BTEX	<0.300	0.300	12/14/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	73.3-12	9						
Chloride, SM4500Cl-B	mg/kg		Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	12/14/2018	ND	400	100	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/14/2018	ND	195	97.7	200	0.439	
DRO >C10-C28*	<10.0	10.0	12/14/2018	ND	195	97.4	200	0.217	
EXT DRO >C28-C36	<10.0	10.0	12/14/2018	ND					
Surrogate: 1-Chlorooctane	85.7	% 41-142	2						
Surrogate: 1-Chlorooctadecane	84.7	% 37.6-14	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/14/2018	Sampling Date:	12/10/2018
Reported:	12/17/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 3 - 1' NORTH (H803657-03)

BTEX 8021B	mg/	′kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/14/2018	ND	2.01	101	2.00	3.50	
Toluene*	<0.050	0.050	12/14/2018	ND	1.95	97.7	2.00	2.85	
Ethylbenzene*	<0.050	0.050	12/14/2018	ND	1.91	95.4	2.00	2.71	
Total Xylenes*	<0.150	0.150	12/14/2018	ND	5.79	96.5	6.00	2.22	
Total BTEX	<0.300	0.300	12/14/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	99.0	% 73.3-12	9						
Chloride, SM4500Cl-B	mg/	′kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	12/14/2018	ND	400	100	400	0.00	
TPH 8015M	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/14/2018	ND	195	97.7	200	0.439	
DRO >C10-C28*	<10.0	10.0	12/14/2018	ND	195	97.4	200	0.217	
EXT DRO >C28-C36	<10.0	10.0	12/14/2018	ND					
Surrogate: 1-Chlorooctane	84.9	% 41-142	,						
Surrogate: 1-Chlorooctadecane	86.1	% 37.6-14	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/14/2018	Sampling Date:	12/10/2018
Reported:	12/17/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 4 - 1' NORTH (H803657-04)

BTEX 8021B	mg/	′kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/14/2018	ND	2.01	101	2.00	3.50	
Toluene*	<0.050	0.050	12/14/2018	ND	1.95	97.7	2.00	2.85	
Ethylbenzene*	<0.050	0.050	12/14/2018	ND	1.91	95.4	2.00	2.71	
Total Xylenes*	<0.150	0.150	12/14/2018	ND	5.79	96.5	6.00	2.22	
Total BTEX	<0.300	0.300	12/14/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	<i>99.7</i>	% 73.3-12	9						
Chloride, SM4500Cl-B	mg/	′kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	12/14/2018	ND	400	100	400	0.00	
TPH 8015M	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/14/2018	ND	195	97.7	200	0.439	
DRO >C10-C28*	<10.0	10.0	12/14/2018	ND	195	97.4	200	0.217	
EXT DRO >C28-C36	<10.0	10.0	12/14/2018	ND					
Surrogate: 1-Chlorooctane	87.4	% 41-142	,						
Surrogate: 1-Chlorooctadecane	87.0	% 37.6-14	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/14/2018	Sampling Date:	12/10/2018
Reported:	12/17/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 1 - 1' SOUTH (H803657-05)

BTEX 8021B	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/14/2018	ND	2.01	101	2.00	3.50	
Toluene*	<0.050	0.050	12/14/2018	ND	1.95	97.7	2.00	2.85	
Ethylbenzene*	<0.050	0.050	12/14/2018	ND	1.91	95.4	2.00	2.71	
Total Xylenes*	<0.150	0.150	12/14/2018	ND	5.79	96.5	6.00	2.22	
Total BTEX	<0.300	0.300	12/14/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	100 9	73.3-12	9						
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	12/14/2018	ND	400	100	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/14/2018	ND	195	97.7	200	0.439	
DRO >C10-C28*	<10.0	10.0	12/14/2018	ND	195	97.4	200	0.217	
EXT DRO >C28-C36	<10.0	10.0	12/14/2018	ND					
Surrogate: 1-Chlorooctane	75.6	% 41-142	,						
Surrogate: 1-Chlorooctadecane	74.8	% 37.6-14	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/14/2018	Sampling Date:	12/10/2018
Reported:	12/17/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 2 - 1' SOUTH (H803657-06)

BTEX 8021B	mg/	'kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/14/2018	ND	2.01	101	2.00	3.50	
Toluene*	<0.050	0.050	12/14/2018	ND	1.95	97.7	2.00	2.85	
Ethylbenzene*	<0.050	0.050	12/14/2018	ND	1.91	95.4	2.00	2.71	
Total Xylenes*	<0.150	0.150	12/14/2018	ND	5.79	96.5	6.00	2.22	
Total BTEX	<0.300	0.300	12/14/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	99.5	% 73.3-12	9						
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	12/14/2018	ND	400	100	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/14/2018	ND	195	97.7	200	0.439	
DRO >C10-C28*	<10.0	10.0	12/14/2018	ND	195	97.4	200	0.217	
EXT DRO >C28-C36	<10.0	10.0	12/14/2018	ND					
Surrogate: 1-Chlorooctane	92.8	% 41-142	,						
Surrogate: 1-Chlorooctadecane	92.0	% 37.6-14	7						

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Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/14/2018	Sampling Date:	12/10/2018
Reported:	12/17/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 3 - 1' SOUTH (H803657-07)

BTEX 8021B	mg/	'kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/14/2018	ND	2.01	101	2.00	3.50	
Toluene*	<0.050	0.050	12/14/2018	ND	1.95	97.7	2.00	2.85	
Ethylbenzene*	<0.050	0.050	12/14/2018	ND	1.91	95.4	2.00	2.71	
Total Xylenes*	<0.150	0.150	12/14/2018	ND	5.79	96.5	6.00	2.22	
Total BTEX	<0.300	0.300	12/14/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	73.3-12	9						
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	12/14/2018	ND	400	100	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/14/2018	ND	195	97.7	200	0.439	
DRO >C10-C28*	<10.0	10.0	12/14/2018	ND	195	97.4	200	0.217	
EXT DRO >C28-C36	<10.0	10.0	12/14/2018	ND					
Surrogate: 1-Chlorooctane	91.6	% 41-142	,						
Surrogate: 1-Chlorooctadecane	90.5	% 37.6-14	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/14/2018	Sampling Date:	12/10/2018
Reported:	12/17/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 4 - 1' SOUTH (H803657-08)

BTEX 8021B	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/15/2018	ND	2.01	101	2.00	3.50	
Toluene*	<0.050	0.050	12/15/2018	ND	1.95	97.7	2.00	2.85	
Ethylbenzene*	<0.050	0.050	12/15/2018	ND	1.91	95.4	2.00	2.71	
Total Xylenes*	<0.150	0.150	12/15/2018	ND	5.79	96.5	6.00	2.22	
Total BTEX	<0.300	0.300	12/15/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	102 9	73.3-12	9						
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	12/14/2018	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	12/15/2018	ND	195	97.7	200	0.439	
DRO >C10-C28*	<10.0	10.0	12/15/2018	ND	195	97.4	200	0.217	
EXT DRO >C28-C36	<10.0	10.0	12/15/2018	ND					
Surrogate: 1-Chlorooctane	94.9	% 41-142							
Surrogate: 1-Chlorooctadecane	94.9	% 37.6-14	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

Page 10 of 11

101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476 Company Name: Wardthan Oul	88240 -2476	8/14/		ANALYSIS REQUEST
Project Manager: Address:		P.O. #:		
City: State:	Zip:	0	3	
Phone #: Fax #:		ss: 8908 Hale	We#210	
Project #: Project Owner:		city: Julla		
ame:		State: OK Zip: 7413	7	
Project Location: Thuskey - mckay	1 Jed 1	Phone #: 918-660-0	200	
Sampler Name: abod Hornar	diz	Fax #:	de	
	MATRIX	PRESERV. SAMPLING	-	
* RUSH*	RS TER		E H	
Lab I.D. Sample I.D.	RAB OR (DNTAINE DUNDWA STEWATI L DGE	ier : D/Base: / Cool ier :	Chi BT TF	
	# C GF W/ SC OI	AC ICI OT DATE	TIME	
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3 SW3- 1		× 11/10/12/14	V X X V	
Sw4-1' 1	-	12/10/18 1		
S I	G- X	× 12/10/18 12:51	XX	
	G1 X	× 12/10/mg 1:	:24 × × ×	
7 Sw3-1 South	G I X	× 12/10/18 1:	XXX	
8 sw4-1' South	G I X	× 12/0/3 2:	× × × 40:	
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 cald by the client for the	edy for any claim arising whether based in contract	or tort, shall be limited to the amount paid by the	dient for the	
analyses. All claims including those for negligence and any other cause whatsoer shall be denoted whete undest made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be lable for incidental to consequential dranages, including without limitation, business interruptions, loss of vece, in the soft or port incidental to vece the services of ports including the services of each strain of the services of each strain of the service of the services of ports including the services in any other services and any other services the services the services the services the services the services the services of the services of the services of the services the services the services the services the services the services of the services the servi	shall be deemed waived unless made in writing and including without limitation, business interruptions, li der by Cardinal, regardless of whether such claim is	received by Cardinal within 30 days after comple oss of use, or loss of profits incurred by client, its s based upon any of the above stated reasons or	ution of the applicable subsidiaries, otherwise.	
Relinquished By:	18 Received By:	Fax	Phone Result: Ves No	Add'l Phone #: Add'l Fax #:
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Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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December 28, 2018

NATALIE GLADDEN

WHITE BUFFALO

8908 YALE AVE #210

TULSA, OK 74137

RE: HUSKEY - MCKAY FED #001

Enclosed are the results of analyses for samples received by the laboratory on 12/27/18 15:00.

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/ga/lab_accred_certif.html.

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

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

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. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/20/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	CLOSURE	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SOUTH COMPOSITE (H803795-01)

BTEX 8021B	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	103	% 73.3-12	9						
Chloride, SM4500Cl-B	mg,	′kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	12/28/2018	ND	400	100	400	7.69	
TPH 8015M	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	83.0	% 41-142							
Surrogate: 1-Chlorooctadecane	78.7	% 37.6-14	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/20/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	CLOSURE	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: NORTH COMPOSITE - 6' (H803795-02)

BTEX 8021B	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	102 9	% 73.3-12	9						
Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	624	16.0	12/28/2018	ND	400	100	400	7.69	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	84.8	% 41-142	,						
Surrogate: 1-Chlorooctadecane	80.4	% 37.6-14	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/21/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	CLOSURE	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 1 - 2' NORTH (H803795-03)

BTEX 8021B	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	98.7	% 73.3-12	9						
Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	12/28/2018	ND	400	100	400	7.69	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	86.5	% 41-142	,						
Surrogate: 1-Chlorooctadecane	83.0	% 37.6-14	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/20/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	CLOSURE	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 1 - 2' SOUTH (H803795-04)

BTEX 8021B	mg/	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	104 9	73.3-12	9						
Chloride, SM4500Cl-B	mg/	'kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	12/28/2018	ND	400	100	400	7.69	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	84.4	% 41-142	2						
Surrogate: 1-Chlorooctadecane	80.7	% 37.6-14	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/20/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	CLOSURE	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 2 - 1' NORTH (H803795-05)

BTEX 8021B	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	103 9	% 73.3-12	9						
Chloride, SM4500Cl-B	mg/	′kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	12/28/2018	ND	400	100	400	7.69	
TPH 8015M	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	83.5	% 41-142	,						
Surrogate: 1-Chlorooctadecane	81.9	% 37.6-14	7						

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*=Accredited Analyte

Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/20/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	CLOSURE	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 2 - 1' SOUTH (H803795-06)

BTEX 8021B	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	% 73.3-12	9						
Chloride, SM4500Cl-B	mg/	′kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	12/28/2018	ND	400	100	400	7.69	
TPH 8015M	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	80.0	% 41-142	,						
Surrogate: 1-Chlorooctadecane	79.3	% 37.6-14	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/21/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	CLOSURE	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 3 - 2' NORTH (H803795-07)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	73.3-12	9						
Chloride, SM4500Cl-B	mg/	'kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	12/28/2018	ND	400	100	400	7.69	
TPH 8015M	mg/	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	82.5	% 41-142							
Surrogate: 1-Chlorooctadecane	81.1	% 37.6-14	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/21/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	CLOSURE	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 3 - 2' SOUTH (H803795-08)

BTEX 8021B	mg/	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	73.3-12	9						
Chloride, SM4500Cl-B	mg/	'kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	12/28/2018	ND	400	100	400	7.69	
TPH 8015M	mg/	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	80.2	% 41-142							
Surrogate: 1-Chlorooctadecane	78.0	% 37.6-14	7						

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*=Accredited Analyte

Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/21/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	CLOSURE	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 4 - 2' NORTH (H803795-09)

BTEX 8021B	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	99.8	% 73.3-12	9						
Chloride, SM4500Cl-B	mg/	′kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	12/28/2018	ND	400	100	400	7.69	
TPH 8015M	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	83.7	% 41-142	,						
Surrogate: 1-Chlorooctadecane	81.5	% 37.6-14	7						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/21/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	CLOSURE	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SW 4 - 2' SOUTH (H803795-10)

BTEX 8021B	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	73.3-12	9						
Chloride, SM4500Cl-B	mg/	′kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1720	16.0	12/28/2018	ND	416	104	400	0.00	
TPH 8015M	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	82.0	% 41-142							
Surrogate: 1-Chlorooctadecane	80.5	% 37.6-14	7						

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Celez D. Keine

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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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

Company Name: With the second secon	Pricade Pres Difference Pres Differenc	Mongue, and	l	CHEOKED BY: (Initials)	Sample Condition Cool Intact Tes Tes No No	HS .	5.6c	(Circle One) Bus - Other:	Belivered By Sampler - UPS -		
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Marathan Oil Bill IO ANALYSIS Callie Haugan P.O. #: State: Zip: Company: Libritz Build State: Zip: Attn: Steve TYPE For In Fax #: Address: B908 Uple Ave Project Owner: City: Julia Project Owner: State: OK Zip: 74/137 State: OK Zip: 74/137 Fax #: Fax #:	BILL TO ANALYSIS Moxa Hnon Oul P.O. #: Callie Haugan P.O. #: State: Zip: Fax #: Attn: Steve TYPe For In Fax #: Address: BAOB Uple Ave Project Owner: City: Julia Huskey metkay Ind Ool (Closure Phone #: 918 - 640 - 0999 Monique Cuoto Fax #:				MATRIX			U	FOR LAB USE ONLY		
Marathan Oil Relie TO ANALYSIS State: Zip: Company: "Libritz Bullalo State: Zip: Attn: Steve TYPE For In Fax #: Address: 8908 yale Ave. 200 Project Owner: City: Julio Vier 200 State: OK Zip: 74/37 State: OK Zip: 74/37	State: Zip: Analysis Fax #: Tip: Address: 8908 Uple Ave Fax #: Foject Owner: City: Julia Project Owner: State: 0K Zip: 74/137 Huskey mekay 3nd 001 (Closure phone #: 918 - 660 - 0999			#	_		Cueto	Monique (Sampler Name:		
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Name: With Former: BIL Former: ANALYSIS anager: Callie Kaugan P.O. #: ANALYSIS State: Zip: Company: "Librit: Bullab State: Zip: Fax #: Attn: Steve TMC For In Address: B908 Uple Ave: 200 Project Owner: City: Julio	International (1, 1000-000) (575) 393-2326 FAX (575) 393-2476 International (1, 1000-000) International (1, 1000-000) <td <="" colspan="2" td=""><td></td><td>4137</td><td>. Zip: 7</td><td>Sta</td><td>•</td><td></td><td></td><td>Project Name:</td></td>	<td></td> <td>4137</td> <td>. Zip: 7</td> <td>Sta</td> <td>•</td> <td></td> <td></td> <td>Project Name:</td>			4137	. Zip: 7	Sta	•			Project Name:
Moxathon Oil BIL TO ANALYSIS State: Zip: P.O. #: Company: "White Bullalo State: Zip: Attn: Steve TYPE For 1in Fax #: Address: BAOB Uple Avet 210	ST6 ST6 Muxathon Oul State: Zip: State: Zip: Fax #: Address: B908 Uplate Fax #:			Jul	City	••	Project Owner		Project #:		
Marathon Oil BILL TO ANALYSIS Callie Kaugan P.O. #: State: Zip: Attn: Steve Mc Farlin Analysis	State: Zip: Attn: Steve Type For Int		Aver.	1ress: 8908 4	Ado		Fax #:		Phone #:		
Marathon Oil BILL TO ANALYSIS Callie Karigan P.O. # company: White Bullato	575) 393-2326 FAX (575) 393-2476 Marathan Oil ANALYSIS Collie Kougan P.O. #: Collie Kougan company: Whitz Bullalo		R	1 n	Attr	Zip:	State:		City:		
Marathon Oil ANALYSIS	STOL BILL TO ANALYSIS Marathan Kaugan P.o. #: I		F	npany: White	Cor	C			Address:		
Marathan Oil BILL TO ANALYSIS	Maxashon Oil ANALYSIS			.井	P.0	agan	Kar	Calli	Project Manager:		
	(575) 393-2326 FAX (575) 393-2476			BILLTO			n Oil	maratho	Company Name:		

Page 13 of 13

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* RUSH*



December 28, 2018

NATALIE GLADDEN

WHITE BUFFALO

8908 YALE AVE #210

TULSA, OK 74137

RE: HUSKEY - MCKAY FED #001

Enclosed are the results of analyses for samples received by the laboratory on 12/27/18 15:00.

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/ga/lab_accred_certif.html.

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

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

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. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/21/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	LEAK	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SP 1 - 2' (H803796-01)

BTEX 8021B	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	96.3	% 73.3-12	9						
Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	12/28/2018	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	79.1	% 41-142							
Surrogate: 1-Chlorooctadecane	78.1	% 37.6-14	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/21/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	LEAK	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SP 3 - 2' (H803796-02)

BTEX 8021B	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	90.9	% 73.3-12	9						
Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	12/28/2018	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	85.8	% 41-142	,						
Surrogate: 1-Chlorooctadecane	84.3	% 37.6-14	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	12/27/2018	Sampling Date:	12/21/2018
Reported:	12/28/2018	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	LEAK	Sample Received By:	Tamara Oldaker
Project Location:	MARATHON OIL -		

Sample ID: SP 4 - 6' (H803796-03)

BTEX 8021B	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2018	ND	1.70	85.0	2.00	3.29	
Toluene*	<0.050	0.050	12/28/2018	ND	1.76	87.9	2.00	3.13	
Ethylbenzene*	<0.050	0.050	12/28/2018	ND	1.75	87.3	2.00	3.36	
Total Xylenes*	<0.150	0.150	12/28/2018	ND	5.19	86.6	6.00	3.28	
Total BTEX	<0.300	0.300	12/28/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	87.3	% 73.3-12	9						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	12/28/2018	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/28/2018	ND	185	92.4	200	1.69	
DRO >C10-C28*	<10.0	10.0	12/28/2018	ND	223	112	200	5.94	
EXT DRO >C28-C36	<10.0	10.0	12/28/2018	ND					
Surrogate: 1-Chlorooctane	87.5	% 41-142	,						
Surrogate: 1-Chlorooctadecane	84.7	% 37.6-14	7						

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Celeg D. Keine

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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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 sample identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

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January 10, 2019

NATALIE GLADDEN WHITE BUFFALO 8908 YALE AVE #210

TULSA, OK 74137

RE: HUSKEY - MCKAY FED #001

Enclosed are the results of analyses for samples received by the laboratory on 01/09/19 16:15.

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/ga/lab_accred_certif.html.

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

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

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. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	01/09/2019	Sampling Date:	01/07/2019
Reported:	01/10/2019	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MARATHON OIL -		

Sample ID: SW 4 - 5' SOUTH (H900062-01)

BTEX 8021B	mg/	/kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/10/2019	ND	2.09	105	2.00	1.78	
Toluene*	<0.050	0.050	01/10/2019	ND	2.22	111	2.00	3.34	
Ethylbenzene*	<0.050	0.050	01/10/2019	ND	2.21	111	2.00	0.317	
Total Xylenes*	<0.150	0.150	01/10/2019	ND	6.79	113	6.00	0.690	
Total BTEX	<0.300	0.300	01/10/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	99.1	% 73.3-12	9						
Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	01/10/2019	ND	416	104	400	3.77	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/10/2019	ND	240	120	200	1.28	
DRO >C10-C28*	<10.0	10.0	01/10/2019	ND	226	113	200	3.48	
EXT DRO >C28-C36	<10.0	10.0	01/10/2019	ND					
Surrogate: 1-Chlorooctane	89.3	% 41-142	2						
Surrogate: 1-Chlorooctadecane	83.0	% 37.6-14	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	01/09/2019	Sampling Date:	01/07/2019
Reported:	01/10/2019	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MARATHON OIL -		

Sample ID: SP 4 - 8' (NORTH) (H900062-02)

BTEX 8021B	mg/kg		Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/10/2019	ND	2.09	105	2.00	1.78	
Toluene*	<0.050	0.050	01/10/2019	ND	2.22	111	2.00	3.34	
Ethylbenzene*	<0.050	0.050	01/10/2019	ND	2.21	111	2.00	0.317	
Total Xylenes*	<0.150	0.150	01/10/2019	ND	6.79	113	6.00	0.690	
Total BTEX	<0.300	0.300	01/10/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	97.5 % 73.3-12		9						
Chloride, SM4500Cl-B	mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160 16.0		01/10/2019	ND	ND 416	6 104	400	3.77	
TPH 8015M mg/kg		′kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/10/2019	ND	240	120	200	1.28	
DRO >C10-C28*	<10.0	10.0	01/10/2019	ND	226	113	200	3.48	
EXT DRO >C28-C36	<10.0	10.0	01/10/2019	ND					
Surrogate: 1-Chlorooctane	88.9	% 41-142	2						
Surrogate: 1-Chlorooctadecane	82.4	% 37.6-14	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	01/09/2019	Sampling Date:	01/07/2019
Reported:	01/10/2019	Sampling Type:	Soil
Project Name:	HUSKEY - MCKAY FED #001	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MARATHON OIL -		

Sample ID: COM - 8' (NORTH) (H900062-03)

BTEX 8021B	mg/kg		Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/10/2019	ND	2.09	105	2.00	1.78	
Toluene*	<0.050	0.050	01/10/2019	ND	2.22	111	2.00	3.34	
Ethylbenzene*	<0.050	0.050	01/10/2019	ND	2.21	111	2.00	0.317	
Total Xylenes*	<0.150	0.150	01/10/2019	ND	6.79	113	6.00	0.690	
Total BTEX	<0.300	0.300	01/10/2019	ND					
Surrogate: 4-Bromofluorobenzene (PID	97.3	% 73.3-12	9						
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		01/10/2019 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	01/10/2019	ND	240	120	200	1.28	
DRO >C10-C28*	<10.0	10.0	01/10/2019	ND	226	113	200	3.48	
EXT DRO >C28-C36	<10.0	10.0	01/10/2019	ND					
Surrogate: 1-Chlorooctane 90.9 % 41-		% 41-142	,						
Surrogate: 1-Chlorooctadecane	86.6	% 37.6-14	7						

Cardinal Laboratories

*=Accredited Analyte

Celeg D. Keine

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager

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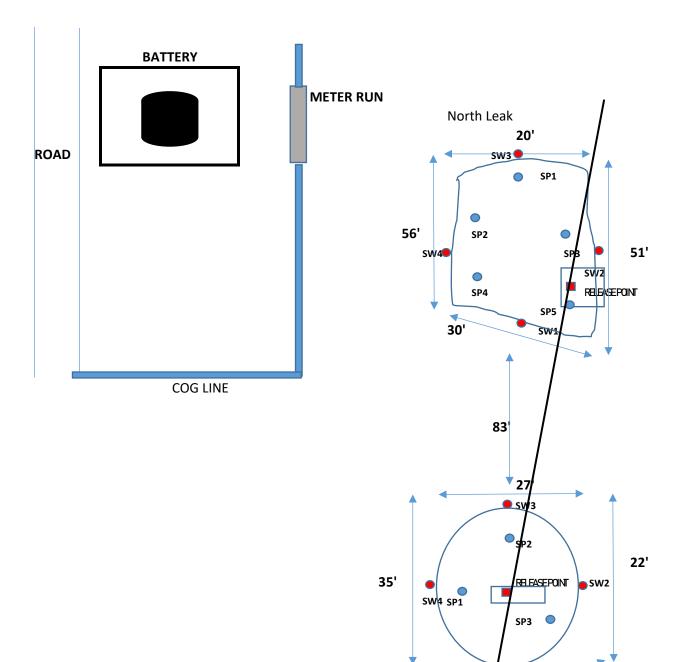
CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Wavethon Oil		ANALYSIS REOLIEST
Project Manager: Cally Kavigan		
Address:	company: White Bullalo	
City: State: Zip:		
Phone #: Fax #:	Address: 8908 Wale Avet 210	
Project #: Project Owner:	las .	
Project Name:	State: OK Zip: 74/37	
Project Location: Huskey - MCKay 2ed #		
Sampler Name:	Fax #:	
FOR LAB USE ONLY	ESERV. SAMPLING	
(C)OMP. ERS		EX
HOOOLOZ (G)RAB OR # CONTAINE GROUNDW/	WASTEWAT SOIL DIL SLUDGE DTHER : ACID/BASE: CE / COOL DTHER : DA THE TIME	BT
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2 SP4-8. North GII	X X 1-7-19 1:30 -	7
">Com - 8' North G 1	× × 1-7-19 1:36 ~	
PLEASE NOTE: Liability and Damages. Cardinat's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the	hether based in contract or tort, shall be limited to the amount paid by the client for the	
anayses. All claims including mose for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applice service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, less of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.	oplic	able
And the stand of t	Fax Result:	Yes No Add'I Phone #: Yes No Add'I Fax #:
Time: 15	JUNDOW REMARKS	
Received By: Time:	Lond	Matalie. Gladden @ white buffelo.com Matalie. Gladden @ white buffelo.com
	Sample Condition CHECKEDBY:	on gue, cuero co un lo
Sampler - UPS - Bus - Other: -6.644	to No ANA	

*=====

+ Cardinal cannot accent verhal channes Dleace fav written channes to 15751 202-2228



South Leak

15'

SW1

12'

MARATHON - HUSKEY-MCKAY FED 001 RELEASE DATE: 12/4/18 API: 30-005-61616



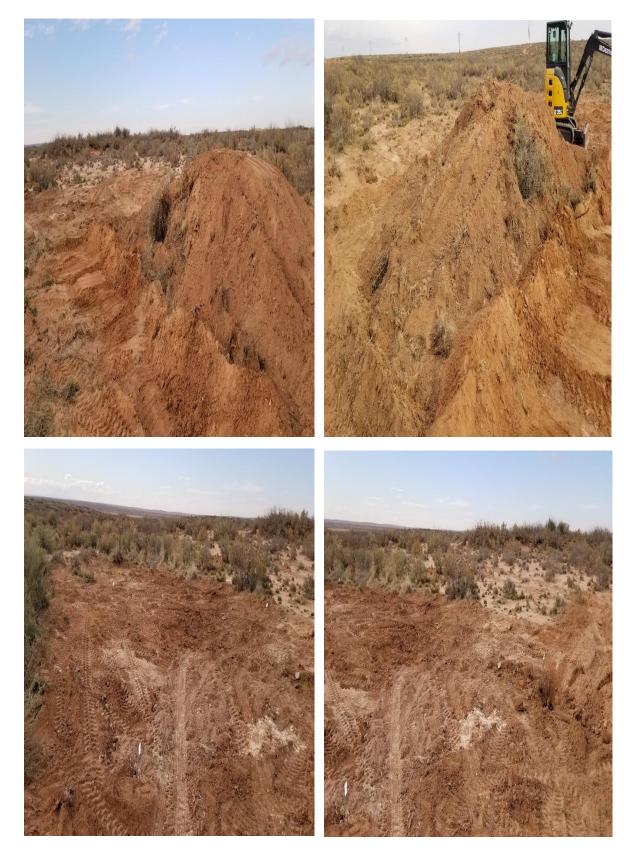


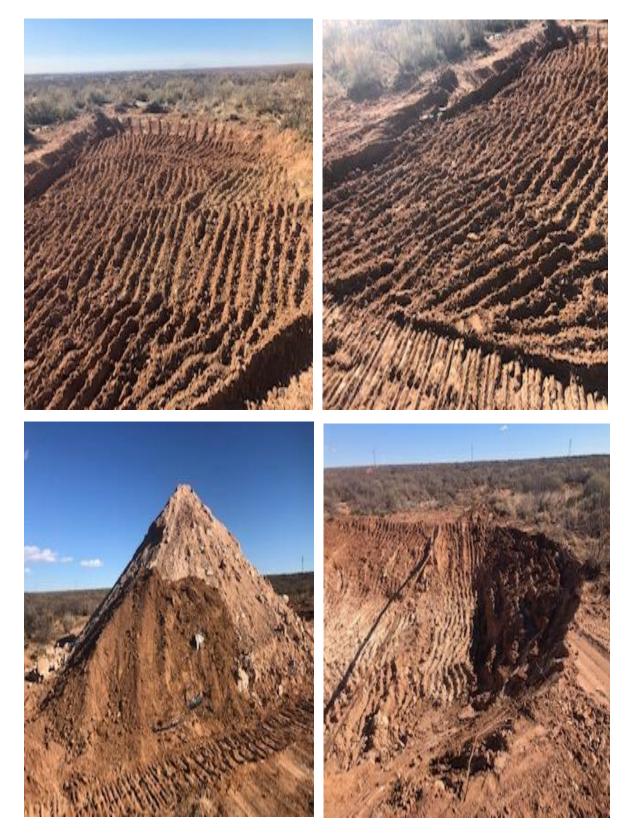








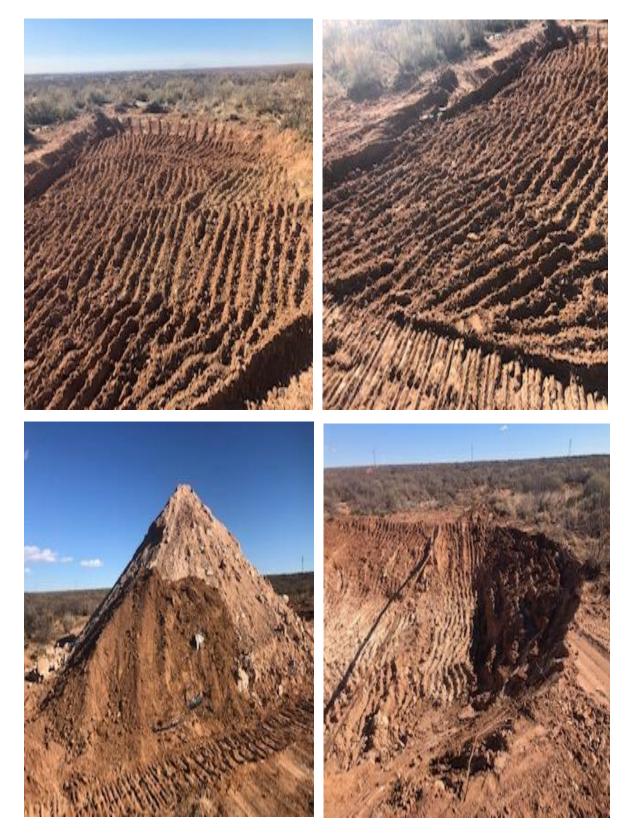










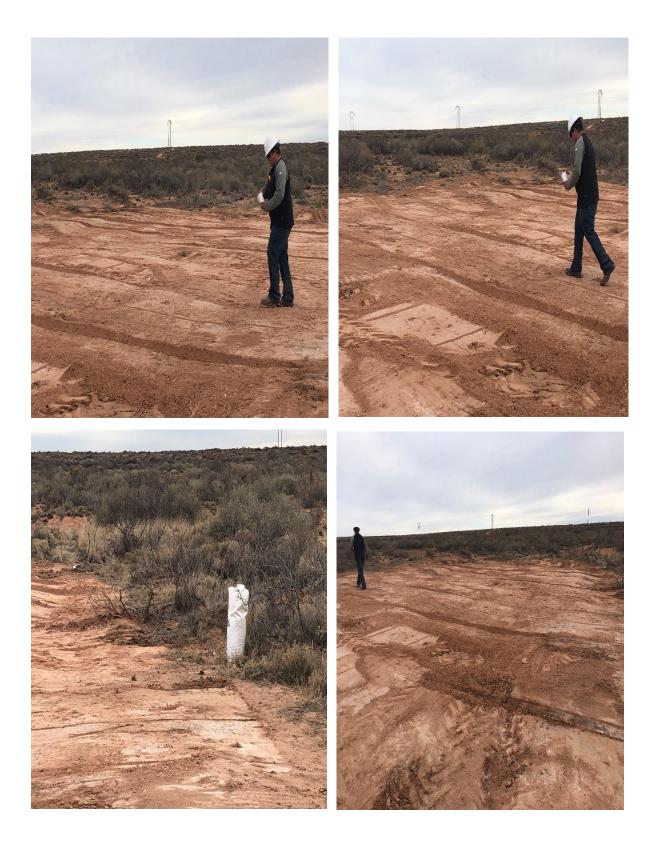




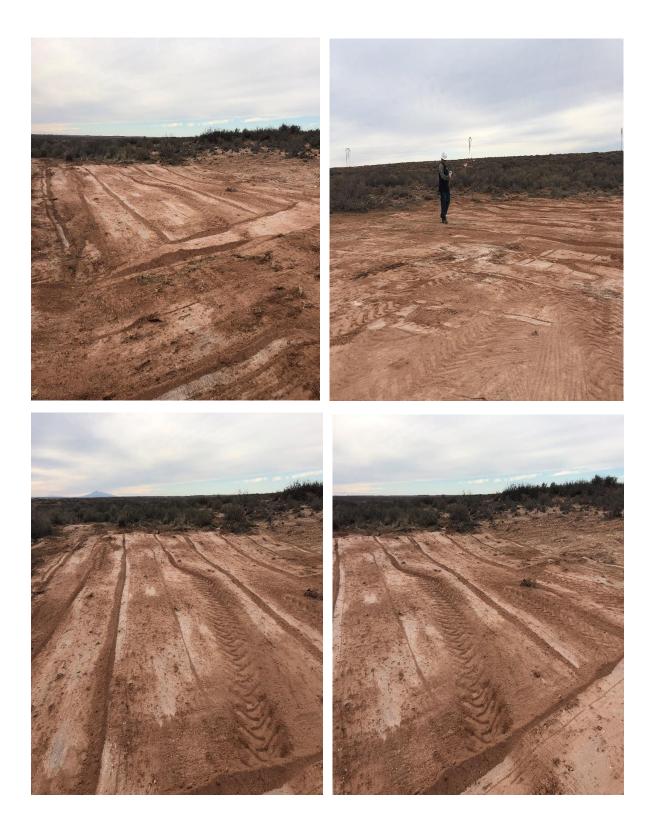




MARATHON HUSKEY-MCKAY 001 FLOWLINE LEAK AFTER SEEDING



MARATHON HUSKEY-MCKAY 001 FLOWLINE LEAK AFTER SEEDING



MARATHON HUSKEY-MCKAY 001 FLOWLINE LEAK AFTER SEEDING



Curtis and Curtis Seed

4500 North Prince Clovis, NM 88101 Phone: (575) 762-4759 www.curtisseed.com

White Buffalo Environmental 2 Acre Custom Mix 1 - 2 Acre Bag @ 20.94 Bulk Pounds

Total Test Total DIC

Lot#: M-15513

							Total	Test	Total PLS	
	Item	Origin		Purity	Germ	Dormant	Germination	Date	Pounds	
	Blue Grama	New Mexic	:0]	10.73%	34.00%	55.00%	89.00%	11/18	2.00	
	Variety Not St	ated								
	Sand Dropseed	Colorado		9.84%	4.00%	93.00%	97.00%	04/18	2.00	
	Variety Not St	ated								
	Plains Bristlegrass	s Texas		9.95%	18.00%	78.00%	96.00%	07/18	2.00	
	Variety Not St	ated								
	Buckwheat	Missouri	1	10.16%	94.00%	0.00%	94.00%	03/18	2.00	
	Variety Not St	ated								
	Four-Wing Saltbu	ishNew Mex	ico 🛛	11.37%	84.00%	0.00%	84.00%	08/18	2.00	
	Variety Not St	ated								
	Desert Globe Mall	low Mexico		9.65%	99.00%	0.00%	99.00%(TZ)	07/18	2.00	
	Variety Not St									
	Alkali Sacaton	New Mexic	:0 2	29.54%	95.00%	2.00%	97.00%	07/18	6.00	
	Variety Not St	ated								
(Other Crop:	o: 0.38% There Are 1 Bags For This Mix					Total Bulk Pe	20.94		
	Weed Seed:	0.06% This Bag Weighs 20.94 Bulk Pounds								
1	nert Matter:	8.32%	Use T	his Bag	For 2 Acres					