

3709 S. Eunice HWY P.O. Box 1058 Hobbs, NM 88241 Office: 575-393-3386 Fax: 575-391-4585 info@hungry-horse.com DIRT WORK \* ON-SITE REMEDIATION
SOIL TESTING \* EXCAVATION \* ELECTRICAL

**APPROVED** By Olivia Yu at 2:18 pm, May 15, 2017

4May17

To: Olivia Yu, New Mexico Oil Conservation Division, District 1 Reference: Remediation Closure Plan Operator: Wishbone Texas Operating, LLC Location: H. H. Harris #2 API: 30-025-20931 Legals: Ul. O. Sec. 35, T12S, R38E GPS: 33.2297, -103.0658 1RP-4543

NMOCD approves the delineation workplan for 1RP-4543.

This Remediation Closure Plan is in response to the unplanned release, recovery, and remediation activities that have occurred at the site from the date of release, 19Dec16, until the present date.

## <u>Site Information</u>

This site is located is rural Lea County, New Mexico approximately 15 miles east of Tatum, New Mexico and is approximately 600 yards west of the New Mexico/Texas state line. The area where this site is located is predominantly used for cattle grazing and the vegetation consists mainly of native grasses and mesquite bushes. The New Mexico Office of the State Engineer's web site indicates the average depth to ground water to be 68' (see attached document). This is consist with the depth to groundwater data on the Lea County Water Trend Map. There are no known water wells or surface bodies of water within 1000' of this site. Thus, this site is give a Site Ranking Score of "10"

## <u>Work Conducted to Date</u>

Wishbone Texas Operating experienced an unplanned release of crude oil/produced water on or about 19Dec16, due to equipment failure. Immediate action was taken to shut in the well and repair the broken line. An estimated 40 bbls of fluid were released with the recovery of 20 bbls of fluid by vacuum truck. A third party contractor was immediately summoned to begin the remedial activities of recovering and stockpiling the impacted soil in preparation for disposal. Due to the rapid response of the contractor, downward migration of the released fluid was limited to the first 24" of soil. Upon reaching the referenced depth and witnessing no visual evidence of contaminants and experiencing no odors of hydrocarbons, further excavation was halted until soil samples of the excavated area could be obtained and laboratory analysis conducted. At this point, Hungry Horse, LLC was contracted to collected "bottom hole" soil samples from three sample points within the excavation. The three samples were transported under chain of custody to the lab. Lab analysis was conducted for Chlorides, TPH, and BTEX. Sample results were presented to Ms. Yu at NM OCD who requested additional sampling of sample points 1-3 at 12' BGS and of the side wall before closure would be granted. The additional sampling was conducted with the results being presented in an analytical summary.

## Proposed Remediation Plan

The services of Hungry Horse, LLC have been solicited by Wishbone Texas Operating, LLC to assist with the closure of this project. Based upon work conducted to date and laboratory analysis I propose the following Remediation Closure Plan:

- 1) Continue excavation of the east and west side walls until soil sample analysis indicates a chloride level of 250 ppm or less. Due to TPH and BTEX not being contaminants of concern, only chloride analysis will be conducted.
- 2) Upon reaching the closure level, results will be presented to Ms. Yu for closure approval.
- 3) Obtain fresh soil from a local source and backfill, compact, and level the impacted area.
- 4) Submit a closure report with a final C-141 to New Mexico Oil Conservation Division.



## **Analytical Summary**

Operator: Wishbone Texas Operating, LLC

Location: H H Harris #2 Confirmation Sampling 24-Apr-17 Summary of Remediation Sampling Analytical Results as Parts Per Million (PPM)

## **BTEX**

Sample Point	Depth	LAB
SP #1	12'	ND
SP #2	12'	ND
SP #3	12'	ND
North Wall	2'	ND
South Wall	2'	ND
East Wall	2'	ND
West Wall	2'	ND
BackGround	6"	ND

## Chlorides

Sample Point	Depth	LAB
SP #1	12'	208 ppm
SP #2	12'	240 ppm
SP #3	12'	160ppm
North Wall	2'	144 ppm
South Wall	2'	240 ppm
East Wall	2'	2440 ppm
West Wall	2'	29600 ppm
BackGround	6"	32 ppm

## TPH

Sample Point	Depth	LAB
SP #1	12'	ND
SP #2	12'	ND
SP #3	12'	154 ppm
North Wall	2'	412 ppm
South Wall	2'	755 ppm
East Wall	2'	422ppm
West wall	2'	230 ppm
BackGround	6"	ND



May 01, 2017

VERNON BLACK Hungry Horse Environmental P.O. Box 1058 Hobbs, NM 88240

RE: H-H HARRIS #2

Enclosed are the results of analyses for samples received by the laboratory on 04/24/17 12:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/ga/lab\_accred\_certif.html">www.tceq.texas.gov/field/ga/lab\_accred\_certif.html</a>.

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



Hungry Horse Environmental VERNON BLACK P.O. Box 1058 Hobbs NM, 88240 Fax To: (505) 391-4585

Received:	04/24/2017	Sampling Date:	04/24/2017
Reported:	05/01/2017	Sampling Type:	Soil
Project Name:	H-H HARRIS #2	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	WISHBONE OPER.		

## Sample ID: SP1 (H701083-01)

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	04/27/2017	ND	2.08	104	2.00	0.841	
Toluene*	<0.050	0.050	04/27/2017	ND	1.95	97.6	2.00	0.586	
Ethylbenzene*	<0.050	0.050	04/27/2017	ND	1.96	98.2	2.00	1.15	
Total Xylenes*	<0.150	0.150	04/27/2017	ND	5.57	92.9	6.00	1.03	
Total BTEX	<0.300	0.300	04/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	% 72-148							
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	04/27/2017	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	04/25/2017	ND	201	101	200	6.71	
DRO >C10-C28	<10.0	10.0	04/25/2017	ND	210	105	200	4.91	
Surrogate: 1-Chlorooctane	96.4	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	91.4	% 34.7-15	7						

## **Cardinal Laboratories**

\*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Hungry Horse Environmental VERNON BLACK P.O. Box 1058 Hobbs NM, 88240 Fax To: (505) 391-4585

Received:	04/24/2017	Sampling Date:	04/24/2017
Reported:	05/01/2017	Sampling Type:	Soil
Project Name:	H-H HARRIS #2	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	WISHBONE OPER.		

## Sample ID: SP2 (H701083-02)

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	04/27/2017	ND	2.08	104	2.00	0.841	
Toluene*	<0.050	0.050	04/27/2017	ND	1.95	97.6	2.00	0.586	
Ethylbenzene*	<0.050	0.050	04/27/2017	ND	1.96	98.2	2.00	1.15	
Total Xylenes*	<0.150	0.150	04/27/2017	ND	5.57	92.9	6.00	1.03	
Total BTEX	<0.300	0.300	04/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	% 72-148	2						
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	04/27/2017	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	04/25/2017	ND	211	105	200	3.68	
DRO >C10-C28	<10.0	10.0	04/25/2017	ND	215	107	200	6.38	
Surrogate: 1-Chlorooctane	90.1	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	89.9	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



Hungry Horse Environmental VERNON BLACK P.O. Box 1058 Hobbs NM, 88240 Fax To: (505) 391-4585

Received:	04/24/2017	Sampling Date:	04/24/2017
Reported:	05/01/2017	Sampling Type:	Soil
Project Name:	H-H HARRIS #2	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	WISHBONE OPER.		

## Sample ID: SP3 (H701083-03)

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	04/27/2017	ND	2.08	104	2.00	0.841	
Toluene*	<0.050	0.050	04/27/2017	ND	1.95	97.6	2.00	0.586	
Ethylbenzene*	<0.050	0.050	04/27/2017	ND	1.96	98.2	2.00	1.15	
Total Xylenes*	<0.150	0.150	04/27/2017	ND	5.57	92.9	6.00	1.03	
Total BTEX	<0.300	0.300	04/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	105 %	% 72-148	}						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	04/27/2017	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	<50.0	50.0	04/25/2017	ND	211	105	200	3.68	
DRO >C10-C28	154	50.0	04/25/2017	ND	215	107	200	6.38	
Surrogate: 1-Chlorooctane	89.5	28.3-16	4						
Surrogate: 1-Chlorooctadecane	94.6	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



Hungry Horse Environmental VERNON BLACK P.O. Box 1058 Hobbs NM, 88240 Fax To: (505) 391-4585

Received:	04/24/2017	Sampling Date:	04/24/2017
Reported:	05/01/2017	Sampling Type:	Soil
Project Name:	H-H HARRIS #2	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	WISHBONE OPER.		

## Sample ID: NORTH (H701083-04)

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	04/27/2017	ND	2.08	104	2.00	0.841	
Toluene*	<0.050	0.050	04/27/2017	ND	1.95	97.6	2.00	0.586	
Ethylbenzene*	<0.050	0.050	04/27/2017	ND	1.96	98.2	2.00	1.15	
Total Xylenes*	<0.150	0.150	04/27/2017	ND	5.57	92.9	6.00	1.03	
Total BTEX	<0.300	0.300	04/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	% 72-148	3						
Chloride, SM4500Cl-B	mg/	′kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	04/27/2017	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	<50.0	50.0	04/25/2017	ND	211	105	200	3.68	
DRO >C10-C28	412	50.0	04/25/2017	ND	215	107	200	6.38	
Surrogate: 1-Chlorooctane	81.5	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	104 9	% 34.7-15	7						

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Received:	04/24/2017	Sampling Date:	04/24/2017
Reported:	05/01/2017	Sampling Type:	Soil
Project Name:	H-H HARRIS #2	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	WISHBONE OPER.		

## Sample ID: SOUTH (H701083-05)

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	04/27/2017	ND	2.08	104	2.00	0.841	
Toluene*	<0.050	0.050	04/27/2017	ND	1.95	97.6	2.00	0.586	
Ethylbenzene*	<0.050	0.050	04/27/2017	ND	1.96	98.2	2.00	1.15	
Total Xylenes*	<0.150	0.150	04/27/2017	ND	5.57	92.9	6.00	1.03	
Total BTEX	<0.300	0.300	04/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	99.4	% 72-148	3						
Chloride, SM4500Cl-B	mg/	kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	04/27/2017	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	<50.0	50.0	04/25/2017	ND	211	105	200	3.68	
DRO >C10-C28	755	50.0	04/25/2017	ND	215	107	200	6.38	
Surrogate: 1-Chlorooctane	85.5	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	106 9	34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager



Hungry Horse Environmental VERNON BLACK P.O. Box 1058 Hobbs NM, 88240 Fax To: (505) 391-4585

Received:	04/24/2017	Sampling Date:	04/24/2017
Reported:	05/01/2017	Sampling Type:	Soil
Project Name:	H-H HARRIS #2	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	WISHBONE OPER.		

## Sample ID: EAST (H701083-06)

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	04/27/2017	ND	2.08	104	2.00	0.841	
Toluene*	<0.050	0.050	04/27/2017	ND	1.95	97.6	2.00	0.586	
Ethylbenzene*	<0.050	0.050	04/27/2017	ND	1.96	98.2	2.00	1.15	
Total Xylenes*	<0.150	0.150	04/27/2017	ND	5.57	92.9	6.00	1.03	
Total BTEX	<0.300	0.300	04/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	96.5 %	% 72-148	2						
Chloride, SM4500Cl-B	mg/	kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2440	16.0	04/27/2017	ND	432	108	400	0.00	QM-07
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	<50.0	50.0	04/25/2017	ND	211	105	200	3.68	
DRO >C10-C28	422	50.0	04/25/2017	ND	215	107	200	6.38	
Surrogate: 1-Chlorooctane	75.2 9	28.3-16	4						
Surrogate: 1-Chlorooctadecane	92.9 9	% 34.7-15	7						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Hungry Horse Environmental VERNON BLACK P.O. Box 1058 Hobbs NM, 88240 Fax To: (505) 391-4585

Received:	04/24/2017	Sampling Date:	04/24/2017
Reported:	05/01/2017	Sampling Type:	Soil
Project Name:	H-H HARRIS #2	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	WISHBONE OPER.		

## Sample ID: WEST (H701083-07)

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	04/27/2017	ND	2.08	104	2.00	0.841	
Toluene*	<0.050	0.050	04/27/2017	ND	1.95	97.6	2.00	0.586	
Ethylbenzene*	<0.050	0.050	04/27/2017	ND	1.96	98.2	2.00	1.15	
Total Xylenes*	<0.150	0.150	04/27/2017	ND	5.57	92.9	6.00	1.03	
Total BTEX	<0.300	0.300	04/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	108 9	% 72-148	2						
Chloride, SM4500Cl-B	mg/	'kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	29600	16.0	04/27/2017	ND	432	108	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	04/25/2017	ND	211	105	200	3.68	
DRO >C10-C28	230	10.0	04/25/2017	ND	215	107	200	6.38	
Surrogate: 1-Chlorooctane	89.6	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	95.0	% 34.7-15	7						

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\*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Hungry Horse Environmental VERNON BLACK P.O. Box 1058 Hobbs NM, 88240 Fax To: (505) 391-4585

Received:	04/24/2017	Sampling Date:	04/24/2017
Reported:	05/01/2017	Sampling Type:	Soil
Project Name:	H-H HARRIS #2	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	WISHBONE OPER.		

## Sample ID: PASTURE (H701083-08)

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	04/27/2017	ND	2.08	104	2.00	0.841	
Toluene*	<0.050	0.050	04/27/2017	ND	1.95	97.6	2.00	0.586	
Ethylbenzene*	<0.050	0.050	04/27/2017	ND	1.96	98.2	2.00	1.15	
Total Xylenes*	<0.150	0.150	04/27/2017	ND	5.57	92.9	6.00	1.03	
Total BTEX	<0.300	0.300	04/27/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	104 %	6 72-148							
Chloride, SM4500Cl-B	mg/	kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	04/27/2017	ND	432	108	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	04/25/2017	ND	211	105	200	3.68	
DRO >C10-C28	<10.0	10.0	04/25/2017	ND	215	107	200	6.38	
Surrogate: 1-Chlorooctane	84.2 9	28.3-16	4						
Surrogate: 1-Chlorooctadecane	86.69	34.7-15	7						

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\*=Accredited Analyte

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 SM4500CI-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

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any daim 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 whatscever 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 those of use, or loss of profits incurred by client, its subsidiaries, affiliates or successor arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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



Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

Page 11 of 11



January 23, 2017

VERNON BLACK Hungry Horse Environmental P.O. Box 1058 Hobbs, NM 88240

RE: WISHBONE HARRIS LEASE WELL #2

Enclosed are the results of analyses for samples received by the laboratory on 01/18/17 9:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/ga/lab\_accred\_certif.html">www.tceq.texas.gov/field/ga/lab\_accred\_certif.html</a>.

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



Hungry Horse Environmental VERNON BLACK P.O. Box 1058 Hobbs NM, 88240 Fax To: (505) 391-4585

Received:	01/18/2017	Sampling Date:	01/16/2017
Reported:	01/23/2017	Sampling Type:	Soil
Project Name:	WISHBONE HARRIS LEASE WELL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	YOAKUM CO, TX		

## Sample ID: SP 1 2" BGS (H700114-01)

BTEX 8021B	mg/	′kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	01/19/2017	ND	1.90	95.0	2.00	0.304	
Toluene*	<0.050	0.050	01/19/2017	ND	1.88	93.8	2.00	0.0865	
Ethylbenzene*	<0.050	0.050	01/19/2017	ND	1.90	95.0	2.00	0.169	
Total Xylenes*	<0.150	0.150	01/19/2017	ND	5.38	89.7	6.00	0.0756	
Total BTEX	<0.275	0.275	01/19/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	102 9	% 73.6-14	0						
Chloride, SM4500Cl-B	mg/	′kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	01/18/2017	ND	432	108	400	0.00	
ТРН ТХ1005	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C12	<25.0	25.0	01/19/2017	ND	198	98.8	200	1.24	
DRO >C12-C28	<25.0	25.0	01/19/2017	ND	199	99.6	200	0.233	
DRO >C28-C35	<25.0	25.0	01/19/2017	ND					
Total TPH C6-C35*	<25.0	25.0	01/19/2017	ND	399	99.7	400	0.457	
Surrogate: 1-Chlorooctane	93.0	% 70-130	1						
Surrogate: 1-Chlorooctadecane	90.3	% 70-130	1						

## Cardinal Laboratories

## \*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Hungry Horse Environmental VERNON BLACK P.O. Box 1058 Hobbs NM, 88240 Fax To: (505) 391-4585

Received:	01/18/2017	Sampling Date:	01/16/2017
Reported:	01/23/2017	Sampling Type:	Soil
Project Name:	WISHBONE HARRIS LEASE WELL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	YOAKUM CO, TX		

## Sample ID: SP 2 2" BGS (H700114-02)

BTEX 8021B	mg/	′kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	01/19/2017	ND	1.90	95.0	2.00	0.304	
Toluene*	<0.050	0.050	01/19/2017	ND	1.88	93.8	2.00	0.0865	
Ethylbenzene*	<0.050	0.050	01/19/2017	ND	1.90	95.0	2.00	0.169	
Total Xylenes*	<0.150	0.150	01/19/2017	ND	5.38	89.7	6.00	0.0756	
Total BTEX	<0.275	0.275	01/19/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	103	% 73.6-14	0						
Chloride, SM4500Cl-B	mg,	′kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	01/18/2017	ND	416	104	400	3.77	
ТРН ТХ1005	mg,	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C12	<25.0	25.0	01/19/2017	ND	198	98.8	200	1.24	
DRO >C12-C28	<25.0	25.0	01/19/2017	ND	199	99.6	200	0.233	
DRO >C28-C35	<25.0	25.0	01/19/2017	ND					
Total TPH C6-C35*	<25.0	25.0	01/19/2017	ND	399	99.7	400	0.457	
Surrogate: 1-Chlorooctane	76.9	% 70-130	)						
Surrogate: 1-Chlorooctadecane	84.6	% 70-130	)						

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## \*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Hungry Horse Environmental VERNON BLACK P.O. Box 1058 Hobbs NM, 88240 Fax To: (505) 391-4585

Received:	01/18/2017	Sampling Date:	01/16/2017
Reported:	01/23/2017	Sampling Type:	Soil
Project Name:	WISHBONE HARRIS LEASE WELL #2	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	YOAKUM CO, TX		

## Sample ID: SP 3 2"BGS (H700114-03)

BTEX 8021B	mg/	kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	01/19/2017	ND	1.90	95.0	2.00	0.304	
Toluene*	<0.050	0.050	01/19/2017	ND	1.88	93.8	2.00	0.0865	
Ethylbenzene*	<0.050	0.050	01/19/2017	ND	1.90	95.0	2.00	0.169	
Total Xylenes*	<0.150	0.150	01/19/2017	ND	5.38	89.7	6.00	0.0756	
Total BTEX	<0.275	0.275	01/19/2017	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 9	% 73.6-14	0						
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	01/18/2017	ND	416	104	400	3.77	
TPH TX1005	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C12	<25.0	25.0	01/19/2017	ND	198	98.8	200	1.24	
DRO >C12-C28	<25.0	25.0	01/19/2017	ND	199	99.6	200	0.233	
DRO >C28-C35	<25.0	25.0	01/19/2017	ND					
Total TPH C6-C35*	<25.0	25.0	01/19/2017	ND	399	99.7	400	0.457	
Surrogate: 1-Chlorooctane	91.5	% 70-130	)						
Surrogate: 1-Chlorooctadecane	96.0	% 70-130	)						

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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 SM4500CI-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

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

(2/2) 222-2220 FMA (2/2) 22-2410		
Company Name: HUNGRY HOTSE, LLC	BILL TO	ANALYSIS REQUEST
Project Manager: Vernon K. Black	P.O. #:	
82	Company:	
Hobbs	State: NM Zip: 8824 Attn:	
e#575-631-2253 F	Fax #: 575-391-4585 Address:	
	Project Owner: wish Oow City:	
ame: wishbore Harris	Lense welt 2 State: Zip:	
Project Location: Jockum	Phone #:	es
-	Fax #:	
	MATRIX PRESERV SAMPLING	ric
Lab I.D. Sample I.D.	(G)RAB OR (C)OMF # CONTAINERS GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER : ACID/BASE: ICE / COOL OTHER :	Chlor TPH BTE>
I Spl 2"Bas		9:00 + + + 1 00;p
2 Spz 2" Bas	1 1 1 1-16-17	
er cause w sequental	e deemed waked unless made in writing and received by Cardinal within 30 days affing writiout limitation, business interruptions, loss of use, or loss of profits incurred by Cardinal same function of the above stated to cardinal same function.	r completion of the applicable dent its subsidiaries. acone or otherwise
Relinquished By: Relinquished By: Relinquished By: Time:	18-17 Received By: 18-17 Received By: 10: 45 Received By: 10: 10: 10: 10: 10: 10: 10: 10: 10: 10:	Phone Result:
Delivered By: (Circle One) Sampler - UPS - Bus - Other: #15	4.76 Cool Infact Vintact No No No	

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

Page 6 of 6

								- • •	~J`			Water	
(A CLW##### in the POD suffix indicates the POD has been(R=POD I replaced, O=orphan													
replaced & no longer serves a water right	C=the file	e is	(qu	arters	are 1	=NW	/ 2=NE	E 3=SW					
file.)	closed)		(quarters are smallest to largest)						(NAD83 UTM in meters)			(In feet)	
		POD		0.0	0								
POD Number	Code	Sub- basin (	County	Q Q 64 16	-	Sec	Tws	Rnø	х	Y	DenthWellD	Wate Water Colui	
L 02461	0000	L	LE		1	35	12S	38E	679446	3679617*	125	27	98
L 03355		L	LE	1	4	35	12S	38E	680265	3678828*	110	110	(
										Average Depth t	o Water:	68 feet	
										Minimu	ım Depth:	27 feet	
										Maximu	m Depth:	110 feet	
Record Count: 2													
PLSS Search:													
Section(s): 35		Township	<b>p:</b> 12S	Ra	nge	38E	Ξ						
*UTM location was derived	d fuons DI CC	ass Halm											

WATER



**Sample Points # 1-3** - Soil samples were obtained at 2' BGS (Bottom Hole) and confirmation samples at 12' BGS

Side wall samples were obtained at 2' BGS from each wall.