

February 19, 2018

VERNON BLACK

Hungry Horse Environmental

P.O. Box 1058

Hobbs, NM 88240

RE: EMERALD PWU 201 H

Enclosed are the results of analyses for samples received by the laboratory on 02/14/18 11:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

 Received: 02/14/2018
 Reported: 02/19/2018
 Project Name: EMERALD PWU 201 H
 Project Number: NONE GIVEN
 Project Location: EDDY COUNTY, NM

 Sampling Date: 02/09/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 1 SURFACE (H800457-01)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	02/16/2018	ND	1.93	96.4	2.00	0.257	
Toluene*	0.244	0.100	02/16/2018	ND	1.87	93.4	2.00	1.08	
Ethylbenzene*	0.939	0.100	02/16/2018	ND	1.86	92.9	2.00	0.341	
Total Xylenes*	5.72	0.300	02/16/2018	ND	5.51	91.8	6.00	0.357	
Total BTX	6.90	0.600	02/16/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 134 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	02/15/2018	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	285	50.0	02/15/2018	ND	197	98.6	200	5.05		
DRO >C10-C28*	22500	50.0	02/15/2018	ND	216	108	200	24.8		
EXT DRO >C28-C36	3990	50.0	02/15/2018	ND						

Surrogate: 1-Chlorooctane 129 % 41-142

Surrogate: 1-Chlorooctadecane 505 % 37.6-147

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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VERNON BLACK
P.O. Box 1058
Hobbs NM, 88240
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Received: 02/14/2018
Reported: 02/19/2018
Project Name: EMERALD PWU 201 H
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 02/09/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 1 1' (H800457-02)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	02/16/2018	ND	1.93	96.4	2.00	0.257	
Toluene*	<0.200	0.200	02/16/2018	ND	1.87	93.4	2.00	1.08	
Ethylbenzene*	<0.200	0.200	02/16/2018	ND	1.86	92.9	2.00	0.341	
Total Xylenes*	5.29	0.600	02/16/2018	ND	5.51	91.8	6.00	0.357	
Total BTX	5.29	1.20	02/16/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 126 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	02/15/2018	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	448	10.0	02/15/2018	ND	197	98.6	200	5.05	
DRO >C10-C28*	8620	10.0	02/15/2018	ND	216	108	200	24.8	
EXT DRO >C28-C36	1230	10.0	02/15/2018	ND					

Surrogate: 1-Chlorooctane 151 % 41-142

Surrogate: 1-Chlorooctadecane 175 % 37.6-147

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Received: 02/14/2018
Reported: 02/19/2018
Project Name: EMERALD PWU 201 H
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 02/09/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 1 2' (H800457-03)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/16/2018	ND	1.93	96.4	2.00	0.257	
Toluene*	<0.050	0.050	02/16/2018	ND	1.87	93.4	2.00	1.08	
Ethylbenzene*	<0.050	0.050	02/16/2018	ND	1.86	92.9	2.00	0.341	
Total Xylenes*	<0.150	0.150	02/16/2018	ND	5.51	91.8	6.00	0.357	
Total BTX	<0.300	0.300	02/16/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1800	16.0	02/15/2018	ND	432	108	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	02/15/2018	ND	197	98.6	200	5.05	
DRO >C10-C28*	134	10.0	02/15/2018	ND	216	108	200	24.8	
EXT DRO >C28-C36	<10.0	10.0	02/15/2018	ND					

Surrogate: 1-Chlorooctane 97.0 % 41-142

Surrogate: 1-Chlorooctadecane 96.2 % 37.6-147

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Received: 02/14/2018
Reported: 02/19/2018
Project Name: EMERALD PWU 201 H
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 02/09/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 2 SURFACE (H800457-04)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	02/16/2018	ND	1.93	96.4	2.00	0.257	
Toluene*	<0.100	0.100	02/16/2018	ND	1.87	93.4	2.00	1.08	
Ethylbenzene*	0.412	0.100	02/16/2018	ND	1.86	92.9	2.00	0.341	
Total Xylenes*	3.00	0.300	02/16/2018	ND	5.51	91.8	6.00	0.357	
Total BTX	3.41	0.600	02/16/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 118 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	880	16.0	02/15/2018	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	177	10.0	02/15/2018	ND	197	98.6	200	5.05	
DRO >C10-C28*	10100	10.0	02/15/2018	ND	216	108	200	24.8	
EXT DRO >C28-C36	1580	10.0	02/15/2018	ND					

Surrogate: 1-Chlorooctane 125 % 41-142

Surrogate: 1-Chlorooctadecane 210 % 37.6-147

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 Received: 02/14/2018
 Reported: 02/19/2018
 Project Name: EMERALD PWU 201 H
 Project Number: NONE GIVEN
 Project Location: EDDY COUNTY, NM

 Sampling Date: 02/09/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 2 1' (H800457-05)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/16/2018	ND	1.93	96.4	2.00	0.257	
Toluene*	<0.050	0.050	02/16/2018	ND	1.87	93.4	2.00	1.08	
Ethylbenzene*	<0.050	0.050	02/16/2018	ND	1.86	92.9	2.00	0.341	
Total Xylenes*	<0.150	0.150	02/16/2018	ND	5.51	91.8	6.00	0.357	
Total BTX	<0.300	0.300	02/16/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	736	16.0	02/15/2018	ND	432	108	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*	24.6	10.0	02/15/2018	ND	197	98.6	200	5.05	
DRO >C10-C28*	2230	10.0	02/15/2018	ND	216	108	200	24.8	
EXT DRO >C28-C36	264	10.0	02/15/2018	ND					

Surrogate: 1-Chlorooctane 95.7 % 41-142

Surrogate: 1-Chlorooctadecane 146 % 37.6-147

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

Received: 02/14/2018
Reported: 02/19/2018
Project Name: EMERALD PWU 201 H
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 02/09/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 2 2' (H800457-06)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/16/2018	ND	1.93	96.4	2.00	0.257	
Toluene*	<0.050	0.050	02/16/2018	ND	1.87	93.4	2.00	1.08	
Ethylbenzene*	<0.050	0.050	02/16/2018	ND	1.86	92.9	2.00	0.341	
Total Xylenes*	<0.150	0.150	02/16/2018	ND	5.51	91.8	6.00	0.357	
Total BTX	<0.300	0.300	02/16/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	02/15/2018	ND	432	108	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	02/15/2018	ND	197	98.6	200	5.05	
DRO >C10-C28*	<10.0	10.0	02/15/2018	ND	216	108	200	24.8	
EXT DRO >C28-C36	<10.0	10.0	02/15/2018	ND					

Surrogate: 1-Chlorooctane 97.1 % 41-142

Surrogate: 1-Chlorooctadecane 97.3 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

BILL TO

ANALYSIS REQUEST

Company Name: **Hungry Horse, LLC**

Project Manager: **Vernon K. Black**

Address: **P.O. Box 1058**

City: **Hobbs**

State: **NM** Zip: **88241**

Phone #: **575-393-3381**

Fax #: **575-811-4585**

Project #:

Project Owner: **Devon**

Project Name: **Emerald PUD**

City: State: Zip:

Project Location:

Sample Name: **Alberto Baraza**

Phone #: Fax #:

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

H800457

SP1 Surface

SP1 1' Surface
SP2 1' Surface
SP2 2' Surface

(G)RAB OR (C)OMP

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

10

BTEX

PH

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

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Relinquished By:

Relinquished By:

Date: **11/14/18**

Date: **11/14/18**

Received By:

Received By:

Phone Result: ☐ Yes ☐ No Add'l Phone #:

Fax Result: ☐ Yes ☐ No Add'l Fax #:

REMARKS:

Delivered By: (Circle One) **#75**

Sampler - UPS - Bus - Other:

Sample Condition
Cool ☒ Intact ☒
Yes ☒ No ☒

CHECKED BY: **[Signature]**