

**Devon Energy Production Co LP
Black Jack 1 Fed 2 Battery
Delineation Report and Work Plan**

**Unit Letter P, Section 1, T24S, R30E
Eddy County, New Mexico
2RP-3039**

June 11, 2015



Prepared for:

**Devon Energy Production Co., LP
PO Box 250
Artesia, New Mexico 88211**

By:

**Safety & Environmental Solutions, Inc.
703 East Clinton Street
Hobbs, New Mexico 88240
(575) 397-0510**

TABLE OF CONTENTS

I. COMPANY CONTACTS.....	1
II. BACKGROUND.....	1
III. SURFACE AND GROUND WATER.....	1
IV. CHARACTERIZATION.....	1
V. WORK PERFORMED.....	2
VI. ACTION PLAN.....	2
VII. FIGURES & APPENDICES	3
Figure 1 – Vicinity Map.....	5
Figure 2 – Site Plan	7
Appendix A – C-141	9
Appendix B – Site Photographs.....	11
Appendix C – Analytical Results.....	12

I. Company Contacts

Representative	Company	Telephone	E-mail
Brett Fulks	Devon Energy Prod.	575-748-1844	Brett.Fulks@dvn.com
Bob Allen	SESI	575-397-0510	ballen@sesi-nm.com

II. Background

Safety and Environmental Solutions, Inc., hereinafter referred to as (SESI) was engaged by Alfredo's Trucking to perform site delineation on the Black Jack 1 Fed 2 Battery concerning a Fifteen (15) bbls release comprising of a mixture of crude and produced water. The impacted area was primarily contained inside the bermed area with a minimal amount of impact to pasture area that measured approximately 10" x 15". This site is situated in Eddy County, Section 1, Township 24S, and Range 30E.

According to the C-141: the cause of release was due to a sight glass on the production separator failing triggering produced fluid to escape on to the ground inside bermed area. The lease operator closed the ½" valve from the vessel to sight glass fluid cock on the top and bottom preventing further loss of fluid and impact. There was a combined total of approximately 15 bbls of fluid lost. A vacuum truck was utilized to recover 10 bbls., of fluid minimizing the impact to ground surface. The C-141 was filed with the NMOCD on June 08, 2015.

III. Surface and Ground Water

There is no record of groundwater in the immediate vicinity of the site location. According to the topography map for Eddy County the depth to ground water for Section 1, Township 24S, Range 30E is approximately 367' bgs. Further research of the New Mexico Office of the State Engineer records indicate the average depth to groundwater for the area to be 92' bgs. Thereby, posing no eminent threat or danger to life forms in the area.

IV. Characterization

The target cleanup levels are determined using the *Guidelines for Remediation of Leaks, Spills and Releases* published by the NMOCD (August 13, 1993). Based on the ranking criteria presented below, the applicable Recommended Remediation Action Levels (RRAL) are 10 parts per million (ppm) Benzene, 50 ppm combined benzene, toluene, ethyl benzene, and total xylenes (BTEX), and 5,000 ppm Total Petroleum Hydrocarbons (TPH). Characterization of vertical extent of chloride concentration to a level of 250 mg/kg (PPM) is also required.

Depth to Ground Water:			
(Vertical distance from contaminants to seasonal high water elevation of groundwater)	Less than 50 feet	20 points	
	50 feet to 99 feet	10 points	
	>100 feet	0 points	X
Wellhead Protection Area:			
(Less than 200 feet from a private domestic water source; or less than 1000 feet from all other water sources)	Yes	20 points	
	No	0 points	X
Distance to Surface Water:			

(Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet	20 points	
	200 feet to 1000 feet	10 points	
	>1000 feet	0 points	X
RANKING SCORE (TOTAL POINTS)			0

V. Work Performed

On May 14, 2015, SESI was onsite with Alfredo's Trucking, as well as a Devon representative to photograph, assess and map the spill area.

On May 28, 2015, SESI personnel revisited the site to conduct a vertical and horizontal delineation of the impacted area. Whereby, it was determined that Four (4) sample point positions would be sufficient given the dynamics and outlay of the area. Representative soil samples were properly packaged, preserved and transported to Cardinal Laboratories, Hobbs New Mexico and analyzed for Benzene, Toluene, Ethyl benzene, and Xylenes (BTEX), Chloride (Cl⁻) (Method SM 4500Cl-B), as well as Total Petroleum Hydrocarbons (TPH). The results of the analysis are presented in the table below:

Sample Date 5/28/15	BTEX (mg/kg)	Chloride (mg/kg)	GRO (mg/kg)	DRO (mg/kg)
Depth				
AH-2 @ 2'	3.42	<16.0	207	2000
AH-2 @ 3'	<.300	<16.0	<10.0	14.4
AH-3 @ 1'	<.300	<16.0	<10.0	<10.0
AH-3 @ 2'	<.300	<16.0	<10.0	<10.0
AH-4 @ 1'	<.300	<16.0	<10.0	<10.0
AH-5 @ 1'	<.300	80.0	<10.0	<10.0
<ul style="list-style-type: none"> AH1 Field notes indicate Auger refusal @1' Cl- 1000 mg/kg 				

VI. Action Plan

Due to the results listed above the following action plan is proposed:

Excavate and remove all chloride-contaminated soil to the depth where the chloride concentration is 5,000 mg/kg or less as determined by sampling of sidewalls and bottom of the excavation. SESI due to the number of lines inside the area; SESI is proposing to remove approximately 6" bgs., by hand digging. Outside the lined area: remove all impacted surface soils by utilizing blade equipment. Contaminated soils will be transported to an approved NMOCD facility for disposal. Composite confirmation samples will be taken from the sides and bottom of the excavation area. The representative soil samples will be taken to a commercial laboratory for final analysis and confirmation. The excavated area will be backfilled with material similar to that removed, returning to grade and esthetically restoring the area.

VII. Figures & Appendices

Figure 1 – Vicinity Map

Figure 2 – Site Plan

Appendix A – C-141

Appendix B – Photographs

Appendix C – Analytical Results


Figure 1


Vicinity Map

Vicinity Map Devon Black Jack 1 Fed 2

Write a description for your map.

Legend

 Devon Black Jack 1 Fed 2

Devon Black Jack 1 Fed 2 

Google earth

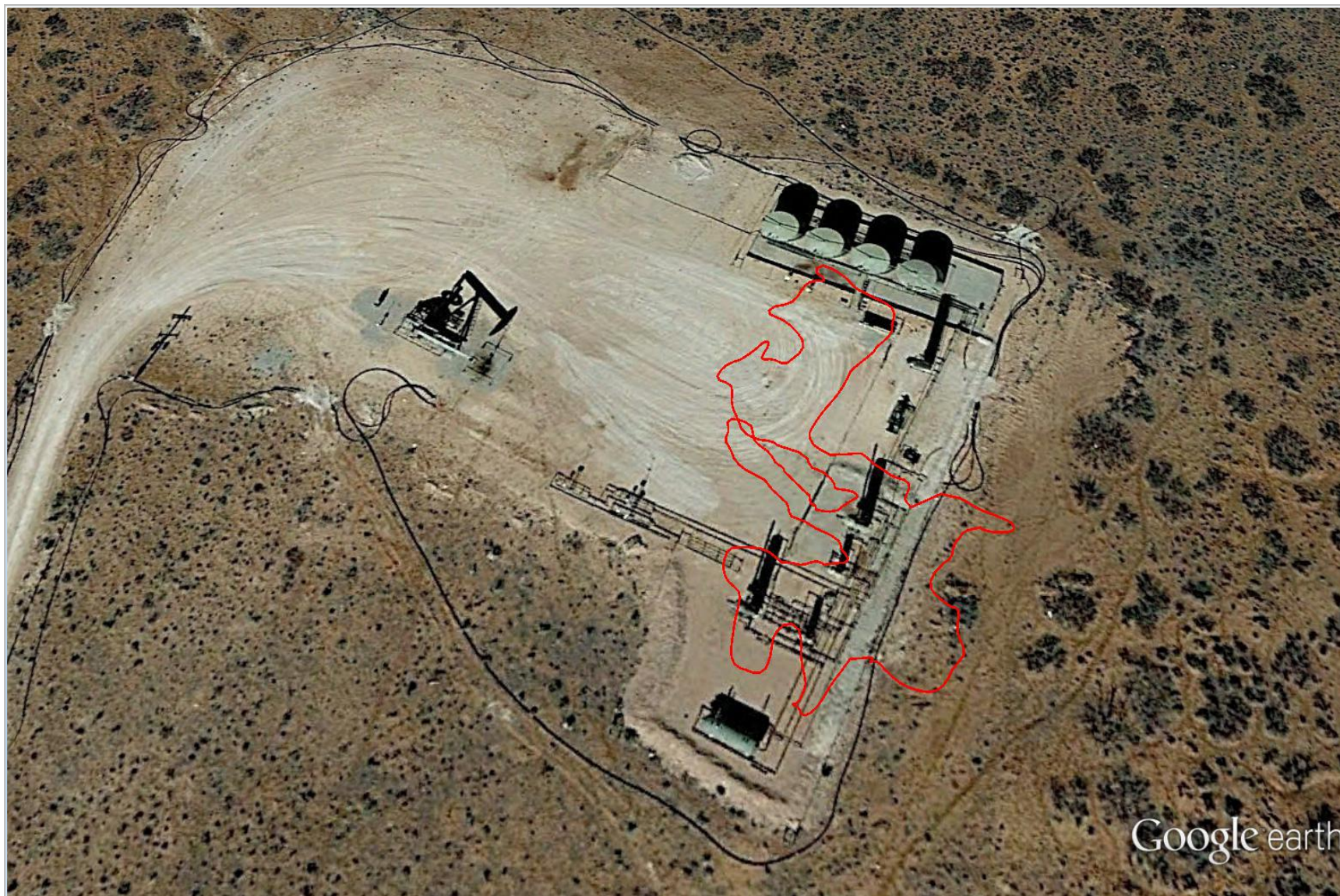
© 2015 Google



3 mi

**Figure 2
Site Plan**

Devon Energy
Black Jack 1 Fed 2 Battery



Appendix A

C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brizos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

NAB1515451992 **OPERATOR** ☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production 6137	Contact Dan Suniga
Address 6488 Seven Rivers Hwy Artesia, NM 88220	Telephone No. 575.390.5850
Facility Name Black Jack 1 Fed 2 Battery	Facility Type Oil

Surface Owner Federal	Mineral Owner Federal	API No. 30-015-31864
------------------------------	------------------------------	-----------------------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
p	1	24S	30E	660	FSL	660	FEL	EDDY

Latitude: 32.14425

Longitude: 103.49554

NATURE OF RELEASE

Type of Release Spill 14 BBL oil & 1 BBL produced water	Volume of Release 15 BBL	Volume Recovered 10
Source of Release The sight glass on production separator failed	Date and Hour of Occurrence 5/10/15 6:30 am	Date and Hour of Discovery 5/10/15 6:30 am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? BLM Jeff Robertson OCD left message	
By Whom? Leonard Aguilar	Date and Hour 5/10/15 7:00 am	NM OIL CONSERVATION ARTESIA DISTRICT JUN 8 2015
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse RECEIVED	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Black Jack Fed 2 Battery 5.10.15 at 6:45 am - The sight glass on production separator failed causing produced fluid to escape on to ground. Lease operator closed the 1/2 inch valve from vessel to sight glass fluid cock on the top and bottom, this stopped the loss of fluid.

Describe Area Affected and Cleanup Action Taken.*

14 BBL of oil and 1 BBL of produced water spilled on pad. A light mist went into the pasture on the east side of pad 10" X 15" area. 10 BBL of oil was recovered. An environmental group will be called out for cleanup.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Jeanette Barron	OIL CONSERVATION DIVISION	
Printed Name: Jeanette Barron	Approved by Environmental Specialist: <i>[Signature]</i>	
Title: Field Admin Support	Approval Date: 6/18/15	Expiration Date: N/A
E-mail Address: Jeanette.barron@dvn.com	Conditions of Approval:	
Date: 5/12/15 Phone: 575.748.1813	Attached <input type="checkbox"/>	

Remediation per O.C.D. Rules & Guidelines
SUBMIT REMEDIATION PROPOSAL NO
LATER THAN: 6/19/15

2EP-3039

* Attach Additional Sheets If Necessary

Appendix B

Site Photographs

Devon Energy
Black Jack 1 Fed 2 Battery
API 30-015-31864



Location produced water and oil impact 05-14-15



Inside bermed area looking West 05-14-15



Lines inside bermed area 05-14-15



Sample point 1 center of lines auger refusal 05-14-15



Sample point 2 between heaters 05-14-15



Close up of leak source 05-14-15

Appendix C – Analytical Results

June 04, 2015

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: DEVON BLACK JACK 1 FED #2

Enclosed are the results of analyses for samples received by the laboratory on 05/29/15 8:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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:

Safety & Environmental Solutions
 Bob Allen
 703 East Clinton
 Hobbs NM, 88240
 Fax To: (575) 393-4388

Received:	05/29/2015	Sampling Date:	05/28/2015
Reported:	06/04/2015	Sampling Type:	Soil
Project Name:	DEVON BLACK JACK 1 FED #2	Sampling Condition:	Cool & Intact
Project Number:	ALF-15-008	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: AH-2 2' (H501350-01)

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	06/01/2015	ND	1.89	94.3	2.00	3.38	
Toluene*	0.114	0.100	06/01/2015	ND	1.95	97.6	2.00	2.92	
Ethylbenzene*	0.532	0.100	06/01/2015	ND	1.81	90.6	2.00	4.06	
Total Xylenes*	2.77	0.300	06/01/2015	ND	5.33	88.8	6.00	3.79	
Total BTX	3.42	0.600	06/01/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 117 % 61-154

Chloride, SM4500Cl-B			mg/kg		Analyzed By: CK				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/01/2015	ND	400	100	400	3.92	

TPH 8015M			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	207	10.0	05/30/2015	ND	172	85.8	200	4.29	
DRO >C10-C28	2000	10.0	05/30/2015	ND	183	91.5	200	7.92	

Surrogate: 1-Chlorooctane 129 % 47.2-157

Surrogate: 1-Chlorooctadecane 145 % 52.1-176

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	05/29/2015	Sampling Date:	05/28/2015
Reported:	06/04/2015	Sampling Type:	Soil
Project Name:	DEVON BLACK JACK 1 FED #2	Sampling Condition:	Cool & Intact
Project Number:	ALF-15-008	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: AH-2 3' (H501350-02)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/01/2015	ND	1.89	94.3	2.00	3.38	
Toluene*	<0.050	0.050	06/01/2015	ND	1.95	97.6	2.00	2.92	
Ethylbenzene*	<0.050	0.050	06/01/2015	ND	1.81	90.6	2.00	4.06	
Total Xylenes*	<0.150	0.150	06/01/2015	ND	5.33	88.8	6.00	3.79	
Total BTEx	<0.300	0.300	06/01/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/01/2015	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/30/2015	ND	172	85.8	200	4.29	
DRO >C10-C28	14.4	10.0	05/30/2015	ND	183	91.5	200	7.92	

Surrogate: 1-Chlorooctane 106 % 47.2-157

Surrogate: 1-Chlorooctadecane 122 % 52.1-176

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Safety & Environmental Solutions
 Bob Allen
 703 East Clinton
 Hobbs NM, 88240
 Fax To: (575) 393-4388

Received:	05/29/2015	Sampling Date:	05/28/2015
Reported:	06/04/2015	Sampling Type:	Soil
Project Name:	DEVON BLACK JACK 1 FED #2	Sampling Condition:	Cool & Intact
Project Number:	ALF-15-008	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: AH-3 1' (H501350-03)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/01/2015	ND	1.89	94.3	2.00	3.38	
Toluene*	<0.050	0.050	06/01/2015	ND	1.95	97.6	2.00	2.92	
Ethylbenzene*	<0.050	0.050	06/01/2015	ND	1.81	90.6	2.00	4.06	
Total Xylenes*	<0.150	0.150	06/01/2015	ND	5.33	88.8	6.00	3.79	
Total BTEx	<0.300	0.300	06/01/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/01/2015	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/30/2015	ND	172	85.8	200	4.29	
DRO >C10-C28	<10.0	10.0	05/30/2015	ND	183	91.5	200	7.92	

Surrogate: 1-Chlorooctane 115 % 47.2-157

Surrogate: 1-Chlorooctadecane 133 % 52.1-176

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	05/29/2015	Sampling Date:	05/28/2015
Reported:	06/04/2015	Sampling Type:	Soil
Project Name:	DEVON BLACK JACK 1 FED #2	Sampling Condition:	Cool & Intact
Project Number:	ALF-15-008	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: AH-3 2' (H501350-04)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/01/2015	ND	1.89	94.3	2.00	3.38	
Toluene*	<0.050	0.050	06/01/2015	ND	1.95	97.6	2.00	2.92	
Ethylbenzene*	<0.050	0.050	06/01/2015	ND	1.81	90.6	2.00	4.06	
Total Xylenes*	<0.150	0.150	06/01/2015	ND	5.33	88.8	6.00	3.79	
Total BTEx	<0.300	0.300	06/01/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/01/2015	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/30/2015	ND	172	85.8	200	4.29	
DRO >C10-C28	<10.0	10.0	05/30/2015	ND	183	91.5	200	7.92	

Surrogate: 1-Chlorooctane 109 % 47.2-157

Surrogate: 1-Chlorooctadecane 133 % 52.1-176

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 Safety & Environmental Solutions
 Bob Allen
 703 East Clinton
 Hobbs NM, 88240
 Fax To: (575) 393-4388

Received:	05/29/2015	Sampling Date:	05/28/2015
Reported:	06/04/2015	Sampling Type:	Soil
Project Name:	DEVON BLACK JACK 1 FED #2	Sampling Condition:	Cool & Intact
Project Number:	ALF-15-008	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: AH-4 1' (H501350-05)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/01/2015	ND	1.89	94.3	2.00	3.38		
Toluene*	<0.050	0.050	06/01/2015	ND	1.95	97.6	2.00	2.92		
Ethylbenzene*	<0.050	0.050	06/01/2015	ND	1.81	90.6	2.00	4.06		
Total Xylenes*	<0.150	0.150	06/01/2015	ND	5.33	88.8	6.00	3.79		
Total BTEx	<0.300	0.300	06/01/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	06/01/2015	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/30/2015	ND	172	85.8	200	4.29	
DRO >C10-C28	<10.0	10.0	05/30/2015	ND	183	91.5	200	7.92	

Surrogate: 1-Chlorooctane 108 % 47.2-157

Surrogate: 1-Chlorooctadecane 131 % 52.1-176

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	05/29/2015	Sampling Date:	05/28/2015
Reported:	06/04/2015	Sampling Type:	Soil
Project Name:	DEVON BLACK JACK 1 FED #2	Sampling Condition:	Cool & Intact
Project Number:	ALF-15-008	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: AH-5 1' (H501350-06)

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	06/02/2015	ND	1.91	95.5	2.00	1.33	
Toluene*	<0.050	0.050	06/02/2015	ND	1.96	97.8	2.00	1.11	
Ethylbenzene*	<0.050	0.050	06/02/2015	ND	1.85	92.5	2.00	0.0191	
Total Xylenes*	<0.150	0.150	06/02/2015	ND	5.39	89.8	6.00	0.167	
Total BTX	<0.300	0.300	06/02/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	06/01/2015	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/30/2015	ND	172	85.8	200	4.29	
DRO >C10-C28	<10.0	10.0	05/30/2015	ND	183	91.5	200	7.92	

Surrogate: 1-Chlorooctane 114 % 47.2-157

Surrogate: 1-Chlorooctadecane 131 % 52.1-176

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

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

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

