PHASE II
ENVIRONMENTAL SAMPLING ASSESSMENT

EnerVest Operating, LLC

Blue Quail #1

(Saltwater and oil release from polyline leak)

Section 7, T23S – R32E
API #025-33222
Lea County, NM
Coordinates: **Latitude** 32.31338 **Longitude** -103.71185

November 20TH, 2014

A Report For:
New Mexico Oil Conservation Division, Hobbs District
&
EnerVest Operating LLC
Mr. Elroy Ardoin

Prepared by:
Baseline Solutions LLC
Andy Price
1030 Andrews Hwy, Suite 207
Midland, Texas 79701

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EXECUTIVE SUMMARY

EnerVest Operating, LLC of Houston Texas, contracted Baseline Solutions to conduct an environmental remediation project the spill site east of Carlsbad, New Mexico. Google map driving directions from Hobbs are listed below:

1. Head south on N Turner St toward W Taylor St	0.4 mi
2. Turn right onto US-180 W/US-62 W/W Marland Blvd	37.8 mi
Continue to follow US-180 W/US-62 W	
3. Turn left onto Campbell Rd	12.4 mi
4. Continue straight to stay on Campbell Rd	0.1 mi
5. Continue onto Red Rd	5.4 mi
6. Turn left	1.7 mi

Site location is described as:

- API #30-025-01153 - Section 26, T14S – R33E
- Lea County, NM
- Coordinates: Latitude 33.08115 Longitude -103.59174

The Blue Quail #1 feeds into the Sharbro Federal #1 tank battery. A testing unit was in use at the Sharbro Federal #1 Tank Battery, separator. The Sharbro Federal #1 tank battery API #025-33054. The testing unit had a failure resulting in elevated pressure from fluid being pumped from the Blue Quail #1. The poly flowline at the Blue Quail #1 ruptured due to increased pressure resulting in a spill occurrence. The spill area occurred on the location and partially immediately adjacent to the location on the north side. The well was shut in. A vacuum truck was called and recovered 5bbls of fluid, most of which was produced water. The polyline was repaired. The remediation plan of choice is to conduct "dig and haul" operations, with contaminated soil being delivered to Lea Land Disposal. A sampling investigation was completed 9/19/14 to delineate the extent of contamination.

A summary of the lab analysis data is listed below:

Sample field code	**Chloride PPM**		Sample field code	**TPH PPM**
A-S - surface	100		A-S - surface	318
B-S - surface	100		B-S - surface	10,400
C-S - surface	7,800		C-S - surface	17,100
D-S - surface	7,200		D-S - surface	7,300
E-S - surface	2,800		E-S - surface	2,370
F-S - surface	1,150		F-S - surface	5,640
A - 1' depth	<20		A - 1' depth	<50.0
B - 1' depth	150		B - 1' depth	<50.0
C - 1.5' depth	293		C - 1.5' depth	<50.0
D - 2.5' depth	341		D - 2.5' depth	630
E - 2' depth	439		E - 2' depth	<50.0
F - 2' depth	341		F - 2' depth	<50.0

Contaminated Area Delineated: Soil borings with field and laboratory analysis indicate the saltwater/oil spill to be an approximate averaged surface area of 714 square yards, and an average depth of 1ft. to 2ft.

OCD Site Ranking: No Surface hydrology issues were identified for surface run-off due to topographical gradient and rain fall average. Subsurface hydrology data indicates groundwater for this area to be at an estimated average depth of 96ft. **The OCD site ranking is considered to be 10 or less (please see section 5 in the body of this report).**

Conclusion:

Recommendation: Conduct "Dig & Haul" remediation for spill area to an average depth of 2 ft. Perform field screening with formal lab analysis to insure proper abatement.

1.0 INTRODUCTION

EnerVest Operating, LLC of Houston Texas, contracted Baseline Solutions to conduct an environmental remediation project the spill site east of Carlsbad, New Mexico. Google map driving directions from Hobbs are listed below:

1. Head south on N Turner St toward W Taylor St	0.4 mi
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The Blue Quail #1 feeds into the Sharbro Federal #1 tank battery. A testing unit was in use at the Sharbro Federal #1 Tank Battery, separator. The Sharbro Federal #1 tank battery is described as:

- API#025-33054
- SESE Sec 7-T23S-R32E
- GPS Lat. 32.31339, Long. -103.70765

The testing unit had a failure resulting in elevated pressure from fluid being pumped from the Blue Quail #1. The poly flowline at the Blue Quail #1 ruptured due to increased pressure resulting in a spill occurrence. The spill area occurred on the location and partially immediately adjacent to the location on the north side. The well was shut in. A vacuum truck was called and recovered 5bbls of fluid, most of which was produced water.
The affected area was identified as being 10,125sq.ft. or an average area being 225ft long by 45ft wide. Clean up action taken at this point was to vacuum up any free standing fluid, which was 5bbls.
The polyline was repaired. The remediation plan of choice is to conduct “dig and haul” operations, with contaminated soil being delivered to Lea Land Disposal.

2.0 PURPOSE

The purpose of this investigation was to quantify the level of Chlorides and Total Petroleum Hydrocarbons (TPH), and to delineate the area of contamination for spill site.

3.0 PROCEDURES AND METHODS

The procedures and methods for this project were conducted according to EPA protocol and conducted in a professional manner within parameters established by regulatory and industry standards.

A. Sampling Methods and Procedures

- Visual site reconnaissance of entire property with photos
- Grab samples were taken and screened for Chlorides with an Electrical Conductivity Meter (Milwaukee Model SM802). This process is used to identify any elevated levels for chlorides for a specific depth and area.

- Grab samples were taken and screened for Total Petroleum Hydrocarbons (TPH), with a Photoionization Detector (Mini Rae Plus - model # PGM-76IS). This process is used to identify any elevated levels for TPH for a specific depth and area.
- The parameter of the spill area was delineated first by visual reconnaissance and screening surface samples and then with soil borings.
- A site grid was developed from data collected with grab sample screening.
- Grid samples were taken and combined within specific areas which made up the identified composite samples.
- Samples were systematically taken from soil borings at surface and 1ft intervals. Samples were screened with an EC meter and PID detector.
- Sampling Grid: Areas were identified as A, B, C, D, E, F.
  - **Chlorides:** Highest chloride levels were 31,500**ppm** at surface level. Acceptable levels for chlorides are expected to be reached at 1' to 3' depths depending on each grid area.
  - **TPH:** Highest TPH levels were 811**ppm** at surface level. Acceptable levels for TPH are expected to be reached at 1' to 2' depths depending on each grid area.
- Lab Samples: Composite samples were taken from grid areas A, B, C, D.
- Decontamination procedures were maintained
- All samples were kept on ice until delivered to lab
- A field log was maintained
- A formal chain of custody was maintained
- Composite samples were delivered to Trace Analysis in Midland, TX - an EPA approved lab.

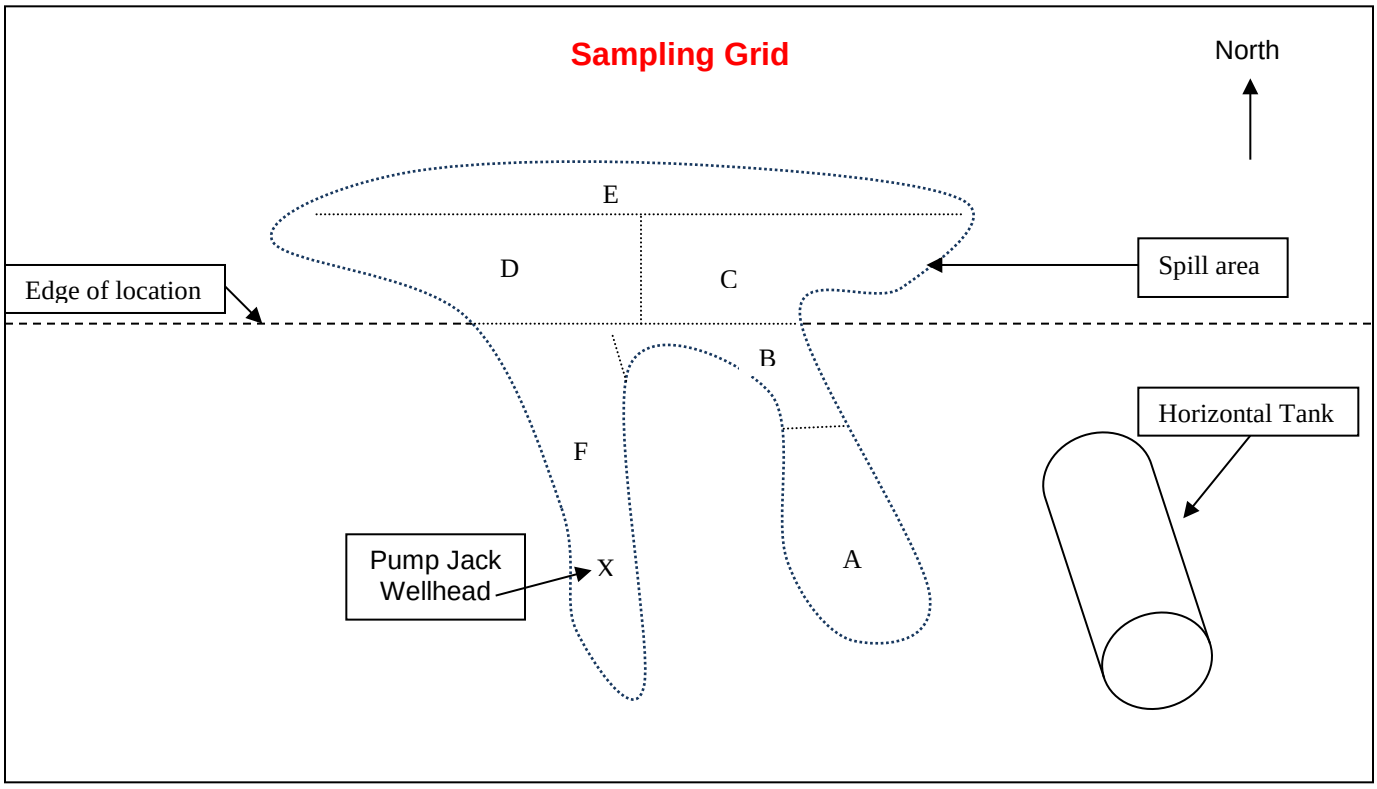
4.0 INVESTIGATION RESULTS

Lab results are listed below (please see app. B).

NMOCD acceptable level for Chlorides is 1000ppm or less and TPH levels at 1000ppm or less.

A summary of the lab analysis data is listed below:

Sample field code	Chloride PPM		Sample field code	TPH PPM
A-S - surface	100		A-S - surface	318
B-S - surface	100		B-S - surface	10,400
C-S - surface	7,800		C-S - surface	17,100
D-S - surface	7,200		D-S - surface	7,300
E-S - surface	2,800		E-S - surface	2,370
F-S - surface	1,150		F-S - surface	5,640
A - 1' depth	<20		A - 1' depth	<50.0
B - 1' depth	150		B - 1' depth	<50.0
C - 1.5' depth	293		C - 1.5' depth	<50.0
D - 2.5' depth	341		D - 2.5' depth	630
E - 2' depth	439		E - 2' depth	<50.0
F - 2' depth	341		F - 2' depth	<50.0



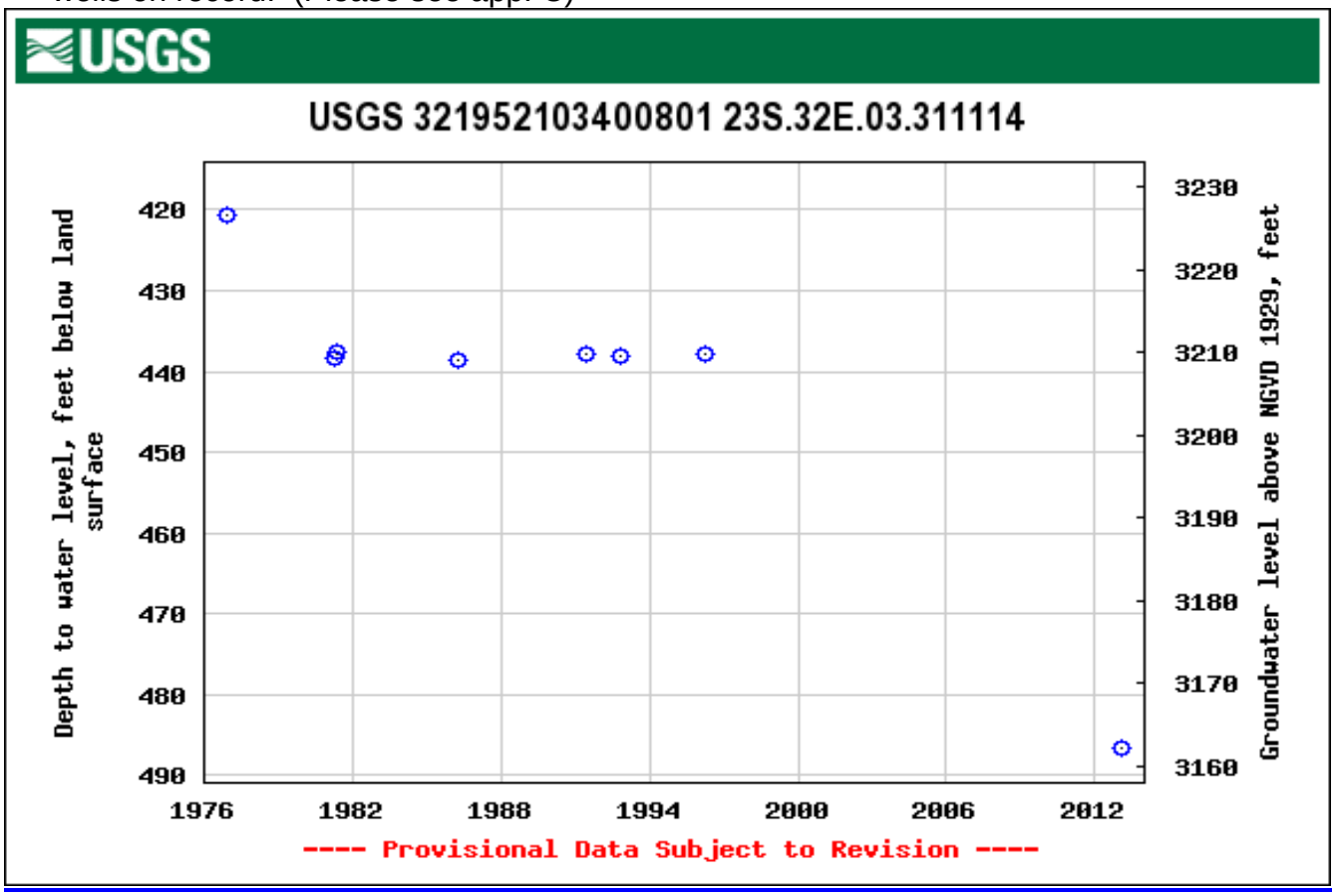
5.0 NMOCD SITE RANKING (see app. D)

<u>SITE RANKING</u> – According to NMOCD "Spill Clean up Guidelines" for "Unsaturated Contaminated Soils"

The general site characteristics obtained during the site assessment were used to determine the appropriate soil remediation action level. A risk based approach was taken for the site evaluation. Site soils were contaminated by saltwater and petroleum constituents. The site was scored according to the ranking criteria below to determine the relative threat (if any), to public health, fresh waters and the environment.

Ranking Criteria

- **Depth to ground water is an estimated 96'**, according to available information within the USGS web site database. Measurements were taken from the nearest available water wells on record. (Please see app. C)



- **Depth To Ground Water**

<50 feet	20
50 - 99	10
>100	**0**

- **Wellhead Protection Area**

<1000 feet from a water source, or;
<200 feet from private domestic water source

Yes	20
No	**0**

- **Distance To Surface Water Body**

<200 horizontal feet	20
200 - 1000 horizontal feet	10
>1000 horizontal feet	**0**

From NMOCD "Spill Clean up Guidelines"
Recommended remediation action level. The total ranking score determines the degree of remediation that may be required at any given site. The total ranking score is the sum of all ranking criteria listed in Section IV.A.2.a.

Total Ranking Score for this spill site is considered to be 0.

6.0 REGULATORY REVIEW

A. The NMOCD form C141 was submitted on December 8, 2010. This sampling investigation is intended to be in compliance with New Mexico Oil Conservation Division:

- Rule 116 RELEASE NOTIFICATION AND CORRECTIVE ACTION [1-1-50...2-1-96; A, 3-15-97]
  1. 116.D. CORRECTIVE ACTION: The responsible person must complete Division approved corrective action for releases which endanger public health or the environment. Releases will be addressed in accordance with a remediation plan submitted to and approved by the Division or with an

  abatement plan submitted in accordance with Rule 19 (19 NMAC 15.A. 19). [3-15-97]
- Rule 19 (19 NMAC 15.A. 19). [3-15-97].

7.0 CONCLUSIONS / RECOMMENDATIONS

Conclusion:
- Chloride & TPH contamination for spill area has an average depth of 1' to 2'.
- According to NMOCD guidelines – this site is considered to have a ranking of 10.

Recommendation:
- **Conduct "Dig & Haul"** remediation for spill area to an estimated average depth of 2 ft. Perform field screening with formal lab analysis to insure proper abatement. Deliver excavated soil to the nearest approved NMOCD disposal site.

- **Complete Closing Report** in compliance with OCD and BLM requirements.
  - Lab analysis insuring chloride contamination has been removed to less than 250ppm
  - Lab analysis insuring TPH removed to less than 1000ppm
  - List OCD approved disposal site where contaminated soil disposed of.
  - Grade site to match original topography and reseed with appropriate seed mix.
  - Submit formal closing report to NMOCD office in Hobbs, NM and to BLM Carlsbad office.

8.0 Limitations

This report was prepared exclusively for use by EnerVest Operating. The contents of the report shall not be disseminated to, or used by any other party without EnerVest Operating written consent.

Baseline Solutions hereby gives notice that any statement or opinion in this report shall not be construed to create any warranty or representation that the real property on which the investigation was conducted is free of pollution or complies with any or all applicable regulatory or statutory requirements, or that the property is fit for any particular purpose.

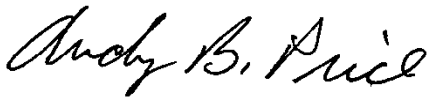
Unless otherwise indicated in this report, no attempt was made to check on the compliance of present or past owners of the site with federal, state or local laws and regulations.

The conclusions presented in this report were based on the services described, and not on specific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by EnerVest Operating.

Person or entity considering use, acquisition, or other involvement or activity concerning the property shall be solely responsible for determining the adequacy of the property for any and all uses for which that person or entity shall use the property. Any person or entity considering the use, acquisition, or other involvement or activity concerning the property which is the subject of this report should enter into any use, occupation, acquisition, or the like on sole reliance of its own judgment and on its own personal investigation of such property, and not in reliance on any representation made by Baseline Solutions regarding such property, the character quality, or its value. Baseline Solutions performed environmental services in a professional manner using that degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. Baseline Solutions shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the environmental services were conducted.

QUALIFICATIONS AND SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

Prepared By:
Andy B. Price



Registered Environmental Professional Registry #9116

APPENDIXES

A. Site Photos
B. Lab Report
C. Hydrology
D. OCD Form C141 – Spill Report
E. Maps

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972•242•7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Andy Price
EnerVest Operating LLC
1001 Fannin Street
Suite 800
Houston, TX, 77002

Report Date: September 26, 2014

Work Order: 14091825

Project Location: Sec 7, T23S, R32E Lea Co, NM
Project Name: Blue Quail #1
Project Number: Blue Quail #1

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
374869	A-S	soil	2014-09-17	16:00	2014-09-18
374870	B-S	soil	2014-09-17	16:05	2014-09-18
374871	C-S	soil	2014-09-17	16:10	2014-09-18
374872	D-S	soil	2014-09-17	16:15	2014-09-18
374873	E-S	soil	2014-09-17	16:20	2014-09-18
374874	F-S	soil	2014-09-17	16:25	2014-09-18
374875	A-1'	soil	2014-09-17	09:10	2014-09-18
374876	B-1'	soil	2014-09-17	09:55	2014-09-18
374877	C-1.5'	soil	2014-09-17	10:45	2014-09-18
374878	D-2.5'	soil	2014-09-17	11:50	2014-09-18
374879	E-2'	soil	2014-09-17	12:30	2014-09-18
374880	F-2'	soil	2014-09-17	13:10	2014-09-18

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Brian Pellam, Operations Manager

Report Contents

Case Narrative

Samples for project Blue Quail #1 were received by TraceAnalysis, Inc. on 2014-09-18 and assigned to work order 14091825. Samples for work order 14091825 were received intact at a temperature of 3.2 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	97883	2014-09-24 at 10:19	115735	2014-09-24 at 12:55
Chloride (Titration)	SM 4500-Cl B	97916	2014-09-24 at 16:05	115777	2014-09-25 at 10:21
TPH DRO - NEW	S 8015 D	97793	2014-09-19 at 14:18	115665	2014-09-22 at 10:52
TPH GRO	S 8015 D	97821	2014-09-22 at 12:22	115702	2014-09-23 at 11:03

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 14091825 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 374869 - A-S

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115735	Date Analyzed:	2014-09-24	Analyzed By:	MM
Prep Batch:	97883	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**100**	mg/Kg	5	4.00

Sample: 374869 - A-S

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs	5	**318**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			104	mg/Kg	1	100	104	70 - 130

Sample: 374869 - A-S

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs,U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	70 - 130

continued ...

sample continued . . .

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			1.85	mg/Kg	1	2.00	92	70 - 130

Sample: 374870 - B-S

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115735	Date Analyzed:	2014-09-24	Analyzed By:	MM
Prep Batch:	97883	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**100**	mg/Kg	5	4.00

Sample: 374870 - B-S

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr,Qs	5	**10400**	mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		760	mg/Kg	5	100	760	70 - 130

Sample: 374870 - B-S

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs,U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1	2.00	101	70 - 130
4-Bromofluorobenzene (4-BFB)			1.71	mg/Kg	1	2.00	86	70 - 130

Sample: 374871 - C-S

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115735	Date Analyzed:	2014-09-24	Analyzed By:	MM
Prep Batch:	97883	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7800**	mg/Kg	5	4.00

Sample: 374871 - C-S

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr,Qs	5	**17100**	mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		861	mg/Kg	5	100	861	70 - 130

Sample: 374871 - C-S

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	5	**8.97**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	2.89	mg/Kg	1	2.00	144	70 - 130

Sample: 374872 - D-S

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115735	Date Analyzed:	2014-09-24	Analyzed By:	MM
Prep Batch:	97883	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**7200**	mg/Kg	5	4.00

Sample: 374872 - D-S

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs	5	**7300**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	451	mg/Kg	5	100	451	70 - 130

Sample: 374872 - D-S

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs,U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70 - 130

Sample: 374873 - E-S

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115735	Date Analyzed:	2014-09-24	Analyzed By:	MM
Prep Batch:	97883	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2800**	mg/Kg	5	4.00

Sample: 374873 - E-S

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs	5	**2370**	mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		272	mg/Kg	5	100	272	70 - 130

Sample: 374873 - E-S

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs,U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1	2.00	97	70 - 130

Sample: 374874 - F-S

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115735	Date Analyzed:	2014-09-24	Analyzed By:	MM
Prep Batch:	97883	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**1150**		mg/Kg	5	4.00

Sample: 374874 - F-S

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
DRO	Qr,Qs	5	**5640**		mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		450	mg/Kg	5	100	450	70 - 130

Sample: 374874 - F-S

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
GRO	Qs,U	5	<4.00		mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	1	2.00	95	70 - 130

Sample: 374875 - A-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115735	Date Analyzed:	2014-09-24	Analyzed By:	MM
Prep Batch:	97883	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 374875 - A-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs,U	5	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			82.6	mg/Kg	1	100	83	70 - 130

Sample: 374875 - A-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs,U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.83	mg/Kg	1	2.00	92	70 - 130

Sample: 374876 - B-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115735	Date Analyzed:	2014-09-24	Analyzed By:	MM
Prep Batch:	97883	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**150**	mg/Kg	5	4.00

Sample: 374876 - B-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr,Qs,U	5	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			84.3	mg/Kg	1	100	84	70 - 130

Sample: 374876 - B-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs,U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1	2.00	101	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	1	2.00	91	70 - 130

Sample: 374877 - C-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115777	Date Analyzed:	2014-09-25	Analyzed By:	MM
Prep Batch:	97916	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**293**	mg/Kg	5	4.00

Sample: 374877 - C-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs,U	5	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			85.9	mg/Kg	1	100	86	70 - 130

Sample: 374877 - C-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs,U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.78	mg/Kg	1	2.00	89	70 - 130

Sample: 374878 - D-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115777	Date Analyzed:	2014-09-25	Analyzed By:	MM
Prep Batch:	97916	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**341**	mg/Kg	5	4.00

Sample: 374878 - D-2.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs	5	**630**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			110	mg/Kg	1	100	110	70 - 130

Sample: 374878 - D-2.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs	5	**24.8**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.93	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			2.48	mg/Kg	1	2.00	124	70 - 130

Sample: 374879 - E-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115777	Date Analyzed:	2014-09-25	Analyzed By:	MM
Prep Batch:	97916	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**439**	mg/Kg	5	4.00

Sample: 374879 - E-2'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr,Qs,U	5	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			87.2	mg/Kg	1	100	87	70 - 130

Sample: 374879 - E-2'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs,U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1	2.00	90	70 - 130

Sample: 374880 - F-2'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	115777	Date Analyzed:	2014-09-25	Analyzed By:	MM
Prep Batch:	97916	Sample Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**341**	mg/Kg	5	4.00

Sample: 374880 - F-2'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	115665	Date Analyzed:	2014-09-22	Analyzed By:	SC
Prep Batch:	97793	Sample Preparation:	2014-09-19	Prepared By:	SC

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs,U	5	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			88.3	mg/Kg	1	100	88	70 - 130

Sample: 374880 - F-2'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	115702	Date Analyzed:	2014-09-23	Analyzed By:	AK
Prep Batch:	97821	Sample Preparation:	2014-09-22	Prepared By:	AK

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs,U	5	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

Method Blanks

Method Blank (1) QC Batch: 115665

QC Batch: 115665 | Date Analyzed: 2014-09-22 | Analyzed By: SC
Prep Batch: 97793 | QC Preparation: 2014-09-19 | Prepared By: SC

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		5	<7.41	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			112	mg/Kg	1	100	112	70 - 130

Method Blank (1) QC Batch: 115702

QC Batch: 115702 | Date Analyzed: 2014-09-23 | Analyzed By: AK
Prep Batch: 97821 | QC Preparation: 2014-09-22 | Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		5	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.66	mg/Kg	1	2.00	83	70 - 130

Method Blank (1) QC Batch: 115735

QC Batch: 115735 | Date Analyzed: 2014-09-24 | Analyzed By: MM
Prep Batch: 97883 | QC Preparation: 2014-09-24 | Prepared By: MM

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 115777

QC Batch:	115777	Date Analyzed:	2014-09-25	Analyzed By:	MM
Prep Batch:	97916	QC Preparation:	2014-09-24	Prepared By:	MM

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 115665 | Date Analyzed: 2014-09-22 | Analyzed By: SC
Prep Batch: 97793 | QC Preparation: 2014-09-19 | Prepared By: SC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		[5]	264	mg/Kg	1	250	<7.41	106	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		[5]	259	mg/Kg	1	250	<7.41	104	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	91.9	91.4	mg/Kg	1	100	92	91	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 115702 | Date Analyzed: 2014-09-23 | Analyzed By: AK
Prep Batch: 97821 | QC Preparation: 2014-09-22 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		[5]	21.8	mg/Kg	1	20.0	<2.32	109	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		[5]	23.6	mg/Kg	1	20.0	<2.32	118	70 - 130	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.99	2.00	mg/Kg	1	2.00	100	100	70 - 130
4-Bromofluorobenzene (4-BFB)	1.81	1.81	mg/Kg	1	2.00	90	90	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 115735 | Date Analyzed: 2014-09-24 | Analyzed By: MM
Prep Batch: 97883 | QC Preparation: 2014-09-24 | Prepared By: MM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2850	mg/Kg	5	2500	<19.2	114	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2750	mg/Kg	5	2500	<19.2	110	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 115777 | Date Analyzed: 2014-09-25 | Analyzed By: MM
Prep Batch: 97916 | QC Preparation: 2014-09-24 | Prepared By: MM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2580	mg/Kg	5	2500	<19.2	103	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2630	mg/Kg	5	2500	<19.2	105	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

Matrix Spike (xMS-1) Spiked Sample: 374900

QC Batch: 115665 | Date Analyzed: 2014-09-22 | Analyzed By: SC
Prep Batch: 97793 | QC Preparation: 2014-09-19 | Prepared By: SC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	Qs	Qs	5	172	mg/Kg	1	250	35.6	54	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	Qr,Qs	Qr,Qs	5	140	mg/Kg	1	250	35.6	42	70 - 130	20	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	100	97.3	mg/Kg	1	100	100	97	70 - 130

Matrix Spike (MS-1) Spiked Sample: 374872

QC Batch: 115702 | Date Analyzed: 2014-09-23 | Analyzed By: AK
Prep Batch: 97821 | QC Preparation: 2014-09-22 | Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs	5	6.47	mg/Kg	1	20.0	<2.32	32	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	Qs	Qs	5	6.46	mg/Kg	1	20.0	<2.32	32	70 - 130	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.99	2.00	mg/Kg	1	2	100	100	70 - 130
4-Bromofluorobenzene (4-BFB)	1.89	1.88	mg/Kg	1	2	94	94	70 - 130

Matrix Spike (MS-1) Spiked Sample: 374876

QC Batch: 115735 | Date Analyzed: 2014-09-24 | Analyzed By: MM
Prep Batch: 97883 | QC Preparation: 2014-09-24 | Prepared By: MM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2900	mg/Kg	5	2500	150	110	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2800	mg/Kg	5	2500	150	106	78.9 - 121	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 374946

QC Batch: 115777 | Date Analyzed: 2014-09-25 | Analyzed By: MM
Prep Batch: 97916 | QC Preparation: 2014-09-24 | Prepared By: MM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3560	mg/Kg	5	2500	1070	100	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			3660	mg/Kg	5	2500	1070	104	78.9 - 121	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-1)

QC Batch: 115665 | Date Analyzed: 2014-09-22 | Analyzed By: SC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		5	mg/Kg	250	246	98	80 - 120	2014-09-22

Standard (CCV-2)

QC Batch: 115665 | Date Analyzed: 2014-09-22 | Analyzed By: SC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		5	mg/Kg	250	237	95	80 - 120	2014-09-22

Standard (CCV-3)

QC Batch: 115665 | Date Analyzed: 2014-09-22 | Analyzed By: SC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		5	mg/Kg	250	222	89	80 - 120	2014-09-22

Standard (CCV-1)

QC Batch: 115702 | Date Analyzed: 2014-09-23 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		5	mg/Kg	1.00	0.927	93	80 - 120	2014-09-23

Standard (CCV-2)

QC Batch: 115702 | Date Analyzed: 2014-09-23 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		5	mg/Kg	1.00	0.903	90	80 - 120	2014-09-23

Standard (CCV-3)

QC Batch: 115702 | Date Analyzed: 2014-09-23 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		5	mg/Kg	1.00	0.810	81	80 - 120	2014-09-23

Standard (ICV-1)

QC Batch: 115735 | Date Analyzed: 2014-09-24 | Analyzed By: MM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2014-09-24

Standard (CCV-1)

QC Batch: 115735 | Date Analyzed: 2014-09-24 | Analyzed By: MM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.0	99	85 - 115	2014-09-24

Standard (ICV-1)

QC Batch: 115777 | Date Analyzed: 2014-09-25 | Analyzed By: MM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2014-09-25

Standard (CCV-1)

QC Batch: 115777 Date Analyzed: 2014-09-25 Analyzed By: MM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2014-09-25

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	PJLA	L14-93	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-14-10	Lubbock
5	NELAP	T104704392-14-8	Midland
6		2014-018	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.

F	Description
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

LAB Order ID # 14091825

TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

5002 Basin Street, Suite A1
Midland, Texas 79703
Tel (432) 689-6301
Fax (432) 689-6313

200 East Sunset Rd., Suite E
El Paso, Texas 79922
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

BioAquatic Testing
2501 Mayes Rd., Ste 100
Carrollton, Texas 75006
Tel (972) 242-7750

Company Name: EnerVest Operating **Phone #:** 432-352-6400

Address: (Street, City, Zip) 1001 Fannin St., Houston TX 77002 **Fax #:**

Contact Person: Andy Price **E-mail:** andyprice1@clearnet

Invoice to: (If different from above) Attn. Elroy Ardoin

Project #: **Project Name:** Blue Quail #1

Project Location (including state): Sec 7, T23S, R32E **Sampler Signature:** Andy Price

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
374869	A-S				✓							✓		9/17/14	4:00
870	B-S				✓							✓			4:05
871	C-S				✓							✓			4:10
872	D-S				✓							✓			4:15
873	E-S				✓							✓			4:20
874	F-S				✓							✓			4:25

MTBE 8021 / 602 / 8260 / 624	BTEX 8021 / 602 / 8260 / 624	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270 / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 / 624	GC/MS Semi. Vol. 8270 / 625	PCB's 8082 / 608	Pesticides 8081 / 608	BOD, TSS, pH	Moisture Content	Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity	Na, Ca, Mg, K, TDS, EC	Chlorides			Turn Around Time if different from standard	Hold
		✓	✓																✓				

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
Andy Price		9/18/14	16:14		TA	9/18/14	16:14	INST 1101 OBS 3.3 °C COR 3.2 °C
								INST ____ OBS ____ °C COR ____ °C
								INST ____ OBS ____ °C COR ____ °C

LAB USE ONLY
Intact Y / N
Headspace Y / N / NA
Log-in-Review

REMARKS:

☐ Dry Weight Basis Required
☐ TRRP Report Required
☐ Check If Special Reporting Limits Are Needed

Carrier # Carry

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

ORIGINAL COPY

LAB Order ID # 14091825

TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
Tel (806) 794-1296
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5002 Basin Street, Suite A1
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BioAquatic Testing
2501 Mayes Rd., Ste 100
Carrollton, Texas 75006
Tel (972) 242-7750

Company Name: EnerVest Operating **Phone #:** 432-352-6400

Address: (Street, City, Zip) **Fax #:**

Contact Person: Andy Price **E-mail:** andyprice1@clear.net

Invoice to: (If different from above) Attn. Elroy Ardoin

Project #: **Project Name:** Blue Quail #1

Project Location (including state): Sec 7, T23S, R32E Lea Co. NM **Sampler Signature:** Andy Price

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE		SAMPLING: DATE	TIME
875	A-1'				X								X			2/18/14	9:10
876	B-1.				X								X			〃	9:55
877	C-1.5'				X								X			〃	10:45
878	D-2.5'				X								X			〃	11:50
879	E-2'				X								X			〃	12:30
880	F-2'				X								X			〃	1:10

LAB #	MTBE 8021 / 602 / 8260 / 624	BTEX 8021 / 602 / 8260 / 624	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270 / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 / 624	GC/MS Semi. Vol. 8270 / 625	PCB's 8082 / 608	Pesticides 8081 / 608	BOD, TSS, pH	Moisture Content	Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity	Na, Ca, Mg, K, TDS, EC	Chlorides			Turn Around Time if different from standard	Hold
875				X																X				
876				X																X				
877				X																X				
878				X																X				
879				X																X				
880				X																X				

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
Andy Price		9/18/14	1624	[signature]	TA	9/18/14	14:16	INST 1Ky; OBS 3.3 °C; COR 3.2 °C
								INST ___; OBS ___ °C; COR ___ °C
								INST ___; OBS ___ °C; COR ___ °C

LAB USE ONLY
Intact Y / N
Headspace Y / N / NA
Log-in-Review

REMARKS:

- [ ] Dry Weight Basis Required
- [ ] TRRP Report Required
- [ ] Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Carrier # Carr

ORIGINAL COPY

Date	Time	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Measuring Agency
1976-12-09		420.57				
1981-03-26		438.34			R	
1981-05-21		437.67				
1986-04-17		438.68				
1991-05-30		437.93				
1992-11-05		438.12				
1996-03-15		437.82				
2013-01-16	18:00 MST	486.60			P	USGS

Explanation

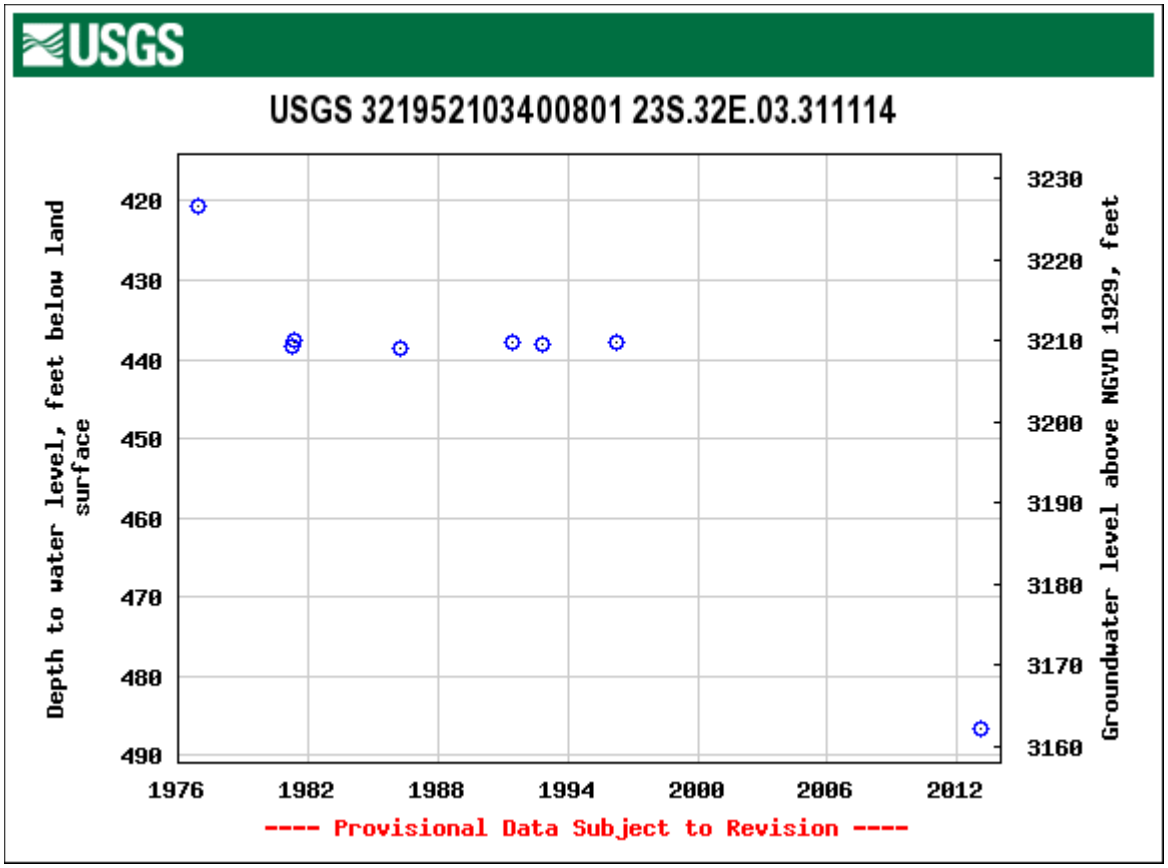
Section	Code	Description
Status		The reported water-level measurement represents a static level
Status	P	Site was being pumped.
Status	R	Site had been pumped recently.
MeasuringAgency		Not determined
MeasuringAgency	USGS	US GEOLOGICAL SURVEY

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility Plug-Ins FOIA Privacy Policies and Notices
U.S. Department of the Interior | U.S. Geological Survey

Title: Groundwater for New Mexico: Water Levels
URL: http://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?

Page Contact Information: New Mexico Water Data Maintainer


USGS
USGS 321952103400801 23S.32E.03.311114
Depth to water level, feet below land surface
420
430
440
450
460
470
480
490
Groundwater level above NGVD 1929, feet
3230
3220
3210
3200
3190
3180
3170
3160
1976
1982
1988
1994
2000
2006
2012
---- Provisional Data Subject to Revision ----

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

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

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company - EnerVest Operating LLC	Contact Elroy Ardoin – Environmental Director, Houston
Address–1001 Fannin Street, Suite 800, Houston, TX 77002	Telephone No. (713) 495 6534
Facility Name Blue Quail Federal #1	Facility Type – Oil well location

Surface Owner	Mineral Owner - BLM	API No. 025-33222

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	7	T23S	R32E					Lea County

Latitude 103.71185 **Longitude** 32.31338

NATURE OF RELEASE

Type of Release Oil and produce water	Volume of Release - 30bbls	Volume Recovered – 5bbls – mostly water
Source of Release - polyline failure due to increase in pressure caused by failure of testing unit.	Date and Hour of Occurrence 7/24/14 approximately 11:00 or 12:00	Date and Hour of Discovery 7/24/14 approximately 1:00
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Tomas Oberding – Hobbs office	
By Whom? Andy Price – EnerVest Consultant	Date and Hour 7/24/14 at 2:25 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
A testing unit was in use at the Sharbro Tank Battery, separator. The testing unit had a failure resulting in elevated pressure from fluid being pumped from the Blue Quail #1. The poly flowline at the Blue Quail #1 ruptured due to increased pressure resulting in a spill occurrence. The spill area occurred on the location and partially immediately adjacent to the location on the north side. The well was shut in. A vacuum truck was called and recovered 5bbls of fluid, most of which was produced water. The polyline was repaired. An environmental consultant was contracted to conduct a spill evaluation on 7/25/14. The remediation plan of choice is to conduct "dig and haul" operations, with contaminated soil being delivered to Lea Land Disposal.

Describe Area Affected and Cleanup Action Taken.*
The affected area was identified as being 10,125sq.ft. or an average area being 225ft long by 45ft wide. Clean up action taken at this point was to vacuum up any free standing fluid, which was 5bbls. A consultant has been contracted to conduct remediation operations. BLM Carlsbad office has been notified as well. The remediation plan of choice is to conduct a sampling investigation and "dig and haul" operations, with contaminated soil being delivered to Lea Land Disposal. Please side attached field evaluation report.

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.

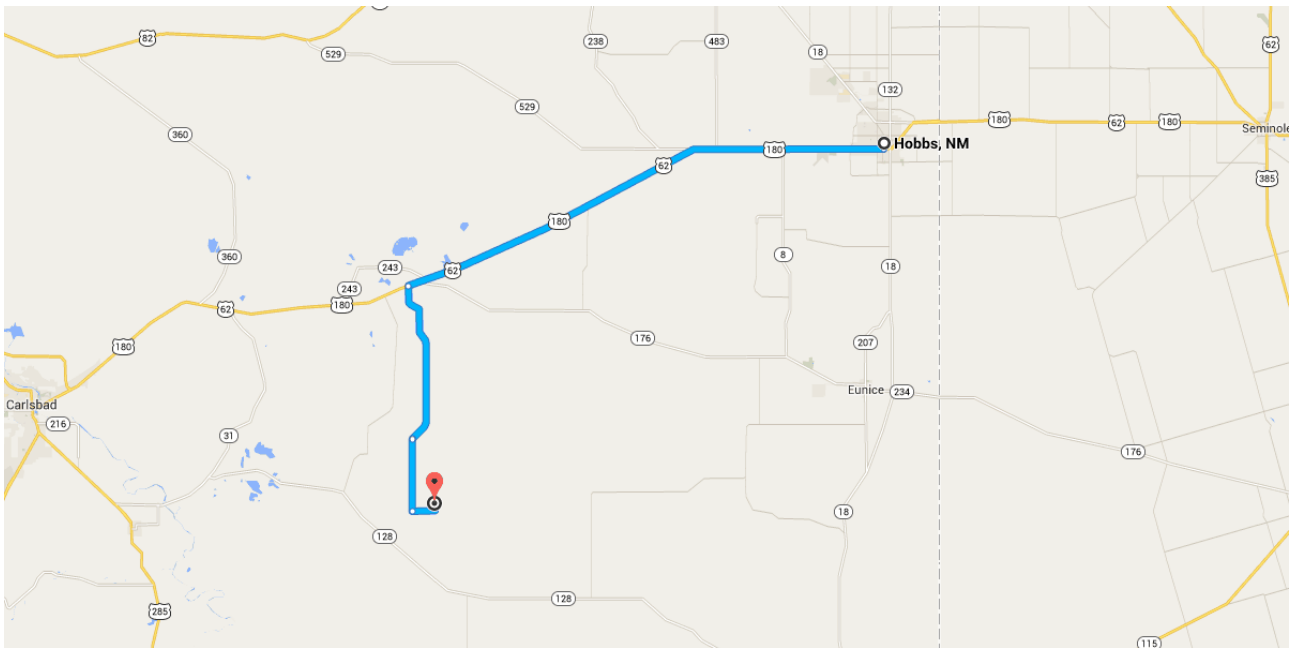
Signature: Andy B. Price	OIL CONSERVATION DIVISION	
Printed Name: Andy Price (Registered Environmental Manager)	Approved by Environmental Specialist:	
Title: Environmental Consultant for EnerVest Operating	Approval Date:	Expiration Date:
E-mail Address: andyprice1@clear.net	Conditions of Approval:	Attached ☐
Date: 7/30/14 Phone: (713) 495 6534 (EnerVest Op)		

* Attach Additional Sheets If Necessary

Google

Drive 57.8 miles, 1 h 7 min

Directions from **Hobbs, NM** to **32.31338,-103.7119**



Hobbs, NM

1. Head **south** on **N Turner St** toward **W Taylor St**

0.4 mi

2. Turn **right** onto **US-180 W/US-62 W/W Marland Blvd**

Continue to follow US-180 W/US-62 W

37.8 mi

3. Turn **left** onto **Campbell Rd**

12.4 mi

4. Continue straight to stay on **Campbell Rd**

0.1 mi

5. Continue onto **Red Rd**

5.4 mi

6. Turn **left**

1.7 mi

32.31338,-103.7119

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.