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:

 Head south on N Turner St toward W Taylor St 	0.4 mi
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		

<u>Contaminated Area Delineated</u>: 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.

<u>OCD Site Ranking</u>: 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: <u>Conduct "Dig & Haul"</u> 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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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 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 <u>Chlorides</u> 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 <u>Total Petroleum Hydrocarbons</u> (<u>TPH</u>), 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	ТРН РРМ
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
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C - 1.5' depth	293	C - 1.5' depth	<50.0
D - 2.5' depth	341	D - 2.5' depth	630
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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:

- <u>Conduct "Dig & Haul"</u> 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.
- **<u>Complete Closing Report</u>** 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

Andy B. Price

Registered Environmental Professional Registry #9116

APPENDIXES

- A. Site Photos
- B. Lab Report
- C. Hydrology
- D. OCD Form C141 Spill Report
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Certifications

WBE HUB **NCTRCA** DBE NELAP DoD LELAP Oklahoma ISO 17025 Kansas

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 #1Project Number: Blue Quail #1

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	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	\mathbf{F} - \mathbf{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.

This report consists of a total of 29 pages and shall not be reproduced except in its entirety, without written approval of

TraceAnalysis, Inc.

Blain Lepturch

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

Report Contents

Case Narrative Analytical Report Sample 374875 (A-1') Sample 374876 (B-1') Sample 374877 (C-1.5') Sample 374878 (D-2.5') Sample 374879 (E-2') Method Blanks QC Batch 115665 - Method Blank (1) QC Batch 115702 - Method Blank (1) QC Batch 115735 - Method Blank (1) QC Batch 115777 - Method Blank (1) Laboratory Control Spikes

Matrix Spikes

QC Batch 115665 - xMS	(1) .	 	 		 	•	 										23
QC Batch 115702 - MS (1) .	 	 		 	•	 										23
QC Batch 115735 - MS (1) .	 	 		 		 										24
QC Batch 115777 - MS (1) .	 	 		 	•	 										24

Calibration Standards

QC Batch $115665 - CCV (1)$	
QC Batch 115665 - CCV (2)	
QC Batch 115665 - CCV (3)	
QC Batch 115702 - CCV (1)	
QC Batch 115702 - CCV (2)	
QC Batch 115702 - CCV (3)	
QC Batch 115735 - ICV (1)	
QC Batch 115735 - CCV (1)	
QC Batch 115777 - ICV (1)	
QC Batch 115777 - CCV (1)	

Appendix

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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.

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	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: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 115735 97883	Date A	ical Method: .nalyzed: e Preparation:	SM 4500-Cl B 2014-09-24 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			100	mg/Kg	5	4.00

Sample: 374869 - A-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NH 115665 97793	EW	Date	lytical Metho e Analyzed: ple Preparati	2014-0	9-22	Prep Me Analyzec Prepared	l By: SC
				F	Ł			
Parameter		Flag	Cert	Resu	ılt	Units	Dilution	RL
DRO		$_{ m Qr,Qs}$	5	31	18	m 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

Analysis: 7 QC Batch: 1	Midland FPH GRO 115702 97821			Date An	al Methoo alyzed: Preparatio	2014-0	9-23		Prep Metho Analyzed B Prepared B	y: AK
						RL				
Parameter		Flag		Cert		Result	Uni	ts	Dilution	RL
GRO		Qs,U		5		<4.00	mg/K	g	1	4.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluen	e (TFT)				1.99	mg/Kg	1	2.00	100	70 - 130
							cont	inued		

Report Date: September 26, 2014	Work Order: 14091825	Page Number: 7 of 29
Blue Quail $\#1$	Blue Quail $\#1$	Sec 7, T23S, R32E Lea Co, NM $$

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

Sample: 374870 - B-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 115735 97883		Date A	ical Method: .nalyzed: e Preparation:	SM 4500-Cl B 2014-09-24 2014-09-24	Prep Method: Analyzed By: Prepared By:	N/A MM MM
				RL			
Parameter	F	lag	Cert	Result	Units	Dilution	RL
Chloride				100	mg/Kg	5	4.00

Sample: 374870 - B-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DR 115665 97793		W	Date	lytical Metho e Analyzed: ple Preparati	2014-0	9-22	Prep Me Analyzed Prepared	•
					F	RL			
Parameter			Flag	Cert	Resu	ılt	Units	Dilution	RL
DRO			$_{ m Qr,Qs}$	5	1040	00	mg/Kg	5	50.0
Sumogata		Flor	Cont	Docult	Units	Dilution	Spike	Percent	Recovery
Surrogate		Flag	Cert	Result			Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		760	m mg/Kg	5	100	760	70 - 130

Sample: 374870 - B-S

Analysis: QC Batch:	Midland TPH GRO 115702 97821		Analytical M Date Analyz Sample Prep		-23	Prep Method: Analyzed By: Prepared By:	AK
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
GRO		$_{\rm Qs,U}$	5	<4.00	m mg/Kg	1	4.00

Report Date: September 26, 2014 Blue Quail $\#1$	- ,					Page Number: 8 of 29 Sec 7, T23S, R32E Lea Co, NM			
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$2.02 \\ 1.71$	m mg/Kg $ m mg/Kg$	1 1	$2.00 \\ 2.00$	101 86	70 - 130 70 - 130	

Sample: 374871 - C-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 115735 97883	Date A	cical Method: Analyzed: e Preparation:	SM 4500-Cl B 2014-09-24 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			7800	mg/Kg	5	4.00

Sample: 374871 - C-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DR 115665 97793	RO - NEV	V	Date	lytical Metho e Analyzed: ple Preparati	2014-09	-22	Prep Me Analyzec Prepared	v
					Ι	RL			
Parameter			Flag	Cert	Rest	ılt	Units	Dilution	RL
DRO			$_{\rm Qr,Qs}$	5	171	00	m mg/Kg	5	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		861	m mg/Kg	5	100	861	70 - 130

Sample: 374871 - C-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 115702 97821		Analytical M Date Analyz Sample Prep		23	Prep Method: Analyzed By: Prepared By:	AK
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
GRO		Qs	5	8.97	m mg/Kg	1	4.00

Report Date: September 26, 2014 Blue Quail $\#1$		Work Order: 14091825 Blue Quail #1					Page Number: 9 of 29 Sec 7, T23S, R32E Lea Co, NM		
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	m mg/Kg	1	2.00	144	70 - 130	

Sample: 374872 - D-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration 115735 97883)	Date An	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-09-24 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
				RL			
Parameter	Ι	Flag	Cert	Result	Units	Dilution	RL
Chloride				7200	mg/Kg	5	4.00

Sample: 374872 - D-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DF 115665 97793		N	Date	lytical Metho e Analyzed: ple Preparati	2014-09	S 8015 D 2014-09-22 2014-09-19		thod: N/A l By: SC l By: SC
					I	RL			
Parameter			Flag	Cert	Rest	ılt	Units	Dilution	RL
DRO			$_{\rm Qr,Qs}$	5	73	00	m 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

		Analytical Date Anal Sample Pi		09-23	Prep Method Analyzed By: Prepared By:	AK
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Qs,U	5	<4.00	m mg/Kg	1	4.00

Report Date: September 26, 2014 Blue Quail $\#1$	Work Order: 14091825 Blue Quail #1					Page Number: 10 of 29 Sec 7, T23S, R32E Lea Co, NM			
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$2.01 \\ 1.87$	m mg/Kg $ m mg/Kg$	1 1	$2.00 \\ 2.00$	$\frac{100}{94}$	70 - 130 70 - 130	

Sample: 374873 - E-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 115735 97883	Date	tical Method: Analyzed: e Preparation:	SM 4500-Cl B 2014-09-24 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			2800	mg/Kg	5	4.00

Sample: 374873 - E-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DF 115665 97793	RO - NEV	N	Date	lytical Metho e Analyzed: ple Preparati	2014-09	S 8015 D 2014-09-22 2014-09-19		thod: N/A l By: SC l By: SC
					I	RL			
Parameter			Flag	Cert	Rest	ılt	Units	Dilution	RL
DRO			$_{\rm Qr,Qs}$	5	23'	70	m mg/Kg	5	50.0
a			G		TT 1 .		Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		272	m mg/Kg	5	100	272	70 - 130

Sample: 374873 - E-S

Analysis: TP	dland PH GRO 5702 321	Analytical M Date Analyz Sample Prep		-23	Prep Method: Analyzed By: Prepared By:	AK
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Qs,U	5	<4.00	m mg/Kg	1	4.00

Report Date: September 26, 2014 Blue Quail $\#1$		W	ork Order: Blue Qu	14091825 ail #1	Page Number: 11 of 29 Sec 7, T23S, R32E Lea Co, NM			
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$\begin{array}{c} 1.99 \\ 1.94 \end{array}$	m mg/Kg $ m mg/Kg$	1 1	$2.00 \\ 2.00$	$\frac{100}{97}$	70 - 130 70 - 130

Sample: 374874 - F-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration 115735 97883	.)	Date Ana	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-09-24 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
				RL			
Parameter]	Flag	Cert	Result	Units	Dilution	RL
Chloride				1150	mg/Kg	5	4.00

Sample: 374874 - F-S

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DF 115665 97793		N	Date	lytical Metho e Analyzed: ple Preparati	2014-09	S 8015 D 2014-09-22 2014-09-19		thod: N/A l By: SC l By: SC
					I	RL			
Parameter			Flag	Cert	Rest	ılt	Units	Dilution	RL
DRO			$_{ m Qr,Qs}$	5	564	40	m mg/Kg	5	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		450	m mg/Kg	5	100	450	70 - 130

Sample: 374874 - F-S

Analysis: QC Batch:	Midland TPH GRO 115702 97821		Analytical M Date Analyz Sample Prep		-23	Prep Method: Analyzed By: Prepared By:	AK
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
GRO		$_{\rm Qs,U}$	5	<4.00	m mg/Kg	1	4.00

Report Date: September 26, 2014 Blue Quail $\#1$	Work Order: 14091825 Blue Quail #1					Page Number: 12 of 29 Sec 7, T23S, R32E Lea Co, NM			
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			1.99 1.90	mg/Kg mg/Kg	1 1	$2.00 \\ 2.00$	100 95	70 - 130 70 - 130	

Sample: 374875 - A-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 115735 97883	Date	ytical Method: Analyzed: ble Preparation:	SM 4500-Cl B 2014-09-24 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 374875 - A-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NI 115665 97793	EW	Date	lytical Metho e Analyzed: ple Preparat	2014-0	9-22	Prep Me Analyzec Preparec	v
					RL			
Parameter		Flag	Cert	Res	sult	Units	Dilution	RL
DRO		$_{\rm Qr,Qs,U}$	5	<5	0.0	m mg/Kg	1	50.0
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			82.6	mg/Kg	1	100	83	70 - 130

Sample: 374875 - A-1'

Analysis: T	Iidland PH GRO 15702 7821	Analytical M Date Analyz Sample Prej		-23	Prep Method: Analyzed By: Prepared By:	AK
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Qs,U	5	<4.00	m mg/Kg	1	4.00

Report Date: September 26, 2014 Blue Quail $\#1$		W	ork Order: Blue Qu	14091825 ail $\#1$	Page Number: 13 of 29 Sec 7, T23S, R32E Lea Co, NM			
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$1.97 \\ 1.83$	m mg/Kg $ m mg/Kg$	1 1	$2.00 \\ 2.00$	98 92	70 - 130 70 - 130

Sample: 374876 - B-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 115735 97883	Date A	cal Method: nalyzed: Preparation:	SM 4500-Cl B 2014-09-24 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	-0		150	mg/Kg	5	4.00

Sample: 374876 - B-1'

Laboratory: Analysis: QC Batch:	Midland TPH DRO - NE 115665	EW		lytical Methe Analyzed:	od: S 8015 2014-0		Prep Me Analyzeo	thod: N/A l By: SC
Prep Batch:	97793			ple Preparat		-	Prepared	v
					RL			
Parameter		Flag	Cert	Re	sult	Units	Dilution	RL
DRO		$_{\rm Qr,Qs,U}$	5	<;	50.0	m mg/Kg	1	50.0
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			84.3	m mg/Kg	1	100	84	70 - 130

Sample: 374876 - B-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 115702 97821		Analytical M Date Analyz Sample Prep		23	Prep Method: Analyzed By: Prepared By:	AK
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
GRO		$_{\rm Qs,U}$	5	<4.00	m mg/Kg	1	4.00

Report Date: September 26, 2014 Blue Quail $\#1$	Work Order: 14091825 Blue Quail #1					Page Number: 14 of 29 Sec 7, T23S, R32E Lea Co, NM			
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	m mg/Kg	1	2.00	91	70 - 130	

Sample: 374877 - C-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 115777 97916	Date	tical Method: Analyzed: le Preparation:	SM 4500-Cl B 2014-09-25 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			293	mg/Kg	5	4.00

Sample: 374877 - C-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NE 115665 97793	ŻW	Date	lytical Metho e Analyzed: ple Preparat	2014-0)9-22	Prep Me Analyzec Prepared	•
					RL			
Parameter		Flag	Cert	Res	sult	Units	Dilution	RL
DRO		$_{\rm Qr,Qs,U}$	5	<5	60.0	m mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			85.9	m mg/Kg	1	100	86	70 - 130

Sample: 374877 - C-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 115702 97821		Analytical M Date Analyz Sample Prep		23	Prep Method: Analyzed By: Prepared By:	AK
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
GRO		$_{\rm Qs,U}$	5	<4.00	m mg/Kg	1	4.00

Report Date: September 26, 2014 Blue Quail $\#1$	Work Order: 14091825 Blue Quail #1					Page Number: 15 of 29 Sec 7, T23S, R32E Lea Co, NM			
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$1.99 \\ 1.78$	mg/Kg mg/Kg	1 1	$2.00 \\ 2.00$	100 89	70 - 130 70 - 130	

Sample: 374878 - D-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 115777 97916	Date A	ical Method: nalyzed: e Preparation:	SM 4500-Cl B 2014-09-25 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
D		C I	RL	TT 1.		DI
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			341	mg/Kg	5	4.00

Sample: 374878 - D-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	115665 Da		lytical Metho e Analyzed: ple Preparat	2014-0)9-22	Prep Me Analyzec Preparec	v	
					RL			
Parameter		Flag	Cert	Res	ult	Units	Dilution	RL
DRO		$_{ m Qr,Qs}$	5	6	30	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 GF QC Batch: 115702 Prep Batch: 97821	O	Analytical Date Analy Sample Pre		9-23	Prep Method Analyzed By: Prepared By:	AK
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Qs	5	24.8	m mg/Kg	1	4.00

Report Date: September 26, 2014 Blue Quail $\#1$	Work Order: 14091825 Blue Quail #1					Page Number: 16 of 29 Sec 7, T23S, R32E Lea Co, NM			
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$\begin{array}{c} 1.93 \\ 2.48 \end{array}$	m mg/Kg $ m mg/Kg$	1 1	$2.00 \\ 2.00$	$96\\124$	70 - 130 70 - 130	

Sample: 374879 - E-2'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 115777 97916	hloride (Titration) Analytic 15777 Date Ar		cal Method: nalyzed: Preparation:	SM 4500-Cl B 2014-09-25 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
				RL			
Parameter	F	lag	Cert	Result	Units	Dilution	RL
Chloride				439	mg/Kg	5	4.00

Sample: 374879 - E-2'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NE 115665 97793	ĊW	Date	lytical Metho e Analyzed: ple Preparat	2014-0	9-22	Prep Me Analyzed Prepared	•
					RL			
Parameter		Flag	Cert	Res	sult	Units	Dilution	RL
DRO		$_{\rm Qr,Qs,U}$	5	<5	0.0	m mg/Kg	1	50.0
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			87.2	m mg/Kg	1	100	87	70 - 130

Sample: 374879 - E-2'

Analysis: 7 QC Batch: 1	Midland TPH GRO 115702 97821	Date	ytical Method: Analyzed: ble Preparation:	S 8015 D 2014-09-23 2014-09-22		Prep Method: Analyzed By: Prepared By:	AK	
				RL				
Parameter	F	lag Ce	ert Re	sult	Units	Dilution	RL	
GRO	(Qs,U S	5 <4	4.00	mg/Kg	1	4.00	
Report Date: September 26, 2014 Blue Quail $\#1$		We	ork Order: Blue Qu	14091825 ail #1		Sec 7, 7	Page Numb 723S, R32E I	
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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$1.99 \\ 1.79$	mg/Kg mg/Kg	1 1	$2.00 \\ 2.00$	100 90	70 - 130 70 - 130

Sample: 374880 - F-2'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 115777 97916	Date	tical Method: Analyzed: le Preparation:	SM 4500-Cl B 2014-09-25 2014-09-24	Prep Method: Analyzed By: Prepared By:	ŃМ
_			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			341	mg/Kg	5	4.00

Sample: 374880 - F-2'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NH 115665 97793	EW	Date	lytical Metho Analyzed: ple Preparat	2014-0	9-22	Prep Me Analyzed Prepared	•
					RL			
Parameter		Flag	Cert	Res	sult	Units	Dilution	RL
DRO		$_{\rm Qr,Qs,U}$	5	<5	50.0	m mg/Kg	1	50.0
G	ות			TT •/		Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			88.3	m mg/Kg	1	100	88	70 - 130

Sample: 374880 - F-2'

Analysis: 7 QC Batch: 1	Midland TPH GRO 115702 97821	Date	ytical Method: Analyzed: ble Preparation:	S 8015 D 2014-09-23 2014-09-22		Prep Method: Analyzed By: Prepared By:	AK
				RL			
Parameter	F	lag Ce	ert Re	sult	Units	Dilution	RL
GRO	(Qs,U S	5 <4	4.00	mg/Kg	1	4.00

Report Date: September 26, 2014 Blue Quail $\#1$		W	ork Order: Blue Qu	14091825 ail $\#1$		Sec 7, 7	Page Numb F23S, R32E I	er: 18 of 29 Lea Co, NM
Cumerate	Flag	Cont	Result	Units	Dilution	Spike Amount	Percent	Recovery Limits
Surrogate Trifluorotoluene (TFT)	гıag	Cert	2.04	mg/Kg	1	2.00	Recovery 102	$\frac{1111115}{70 - 130}$
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

Method Blanks

Method Bla	ank (1)	QC B	atch: 1156	65					
QC Batch: Prep Batch:	$115665 \\ 97793$				Analyzed: eparation:	2014-09-22 2014-09-19		•	ed By: SC ed By: SC
							MDL		
Parameter			Fla	g	Cert		Result	Units	RL
DRO					5		<7.41	m mg/Kg	50
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	n Amount	Recovery	Limits
n-Tricosane				112	mg/Kg	1	100	112	70 - 130

Method Blank (1)	QC Batch: 115702
------------------	------------------

QC Batch: 115702 Prep Batch: 97821			nalyzed: eparation:	2014-09-2 2014-09-2	-		•	By: AK By: AK
					MDL			
Parameter	Flag		Cert		Result		Units	RL
GRO			5		<2.32		m mg/Kg	4
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	1 148	0010	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

	Date Analyzed:	2014-09-24	Analyzed By:	MM
	QC Preparation:	2014-09-24	Prepared By:	MM
		MDL		
Flag	Cert	Result	Units	RL
		<3.85	mg/Kg	4
	Flag	QC Preparation:	Flag Cert Result	QC Preparation: 2014-09-24 Prepared By: MDL Flag Cert Result Units

Report Date: Septembe Blue Quail #1	er 26, 2014	Work Order: Blue Qua			Page Number: 20 Sec 7, T23S, R32E Lea C	
Method Blank (1)	QC Batch: 115777					
QC Batch: 115777 Prep Batch: 97916		Date Analyzed: QC Preparation:	2014-09-25 2014-09-24		Analyzed By: Prepared By:	
Parameter	Flag	Cert		MDL Result	Units	RL
Chloride				< 3.85	mg/Kg	4

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 115665 Prep Batch: 97793				analyzed: eparation		14-09-22 14-09-19					yzed H ared E	
			LO	CS			Spike	M	atrix			Rec.
Param	\mathbf{F}	\mathbf{C}	Res	sult	Units	Dil.	Amount	Re	esult	Re	ec.	Limit
DRO		5	26	64 r	ng/Kg	1	250	<	7.41	10)6	70 - 130
Percent recovery is based on the	he spike re	sult. R	PD is	based on	n the sp	pike and s	pike duplica	ate resi	ult.			
		LCS	$^{\mathrm{SD}}$			Spike	Matrix		Re	ec.		RPD
Param	F (C Res		Units	Dil.	Amount	Result	Rec.	Lin		RPD	
DRO		5 25	59 i	mg/Kg	1	250	<7.41	104	70 -	130	2	20
Percent recovery is based on the	he spike re	sult. R	PD is	based on	n the sp	pike and s	pike duplica	ate res	ult.			
	LCS		LCSD				Spike	LC		LCSI		Rec.
Surrogate	Resul		Result	Uni		Dil.	Amount	Rec		Rec.		Limit
n-Tricosane	91.9		91.4	mg/	′Kg	1	100	92		91		70 - 130
Laboratory Control Spike	(LCS-1)											
Laboratory Control Spike QC Batch: 115702 Prep Batch: 97821	(LCS-1)		QC Pre	nalyzed: eparation		4-09-23 4-09-22				v	vzed B ared B	•
QC Batch: 115702 Prep Batch: 97821	. ,	C	QC Pre	eparation CS	n: 201	4-09-22	Spike		atrix	Prepa	ared B	y: AK Rec.
QC Batch: 115702 Prep Batch: 97821 Param	(LCS-1) F		QC Pre L(Res	eparation CS sult	n: 201 Units	4-09-22 Dil.	Amount	Re	atrix esult	Prepa Re	ared B	y: AK Rec. Limit
QC Batch: 115702 Prep Batch: 97821	. ,	C	QC Pre	eparation CS sult	n: 201	4-09-22 Dil.	-	Re	atrix	Prepa	ared B	y: AK Rec.
QC Batch: 115702 Prep Batch: 97821 Param	F	C 5	QC Pro	eparation CS sult 8 r	n: 201 Units ng/Kg	L4-09-22 Dil.	Amount 20.0	Re <	atrix esult 2.32	Prepa Re	ared B	y: AK Rec. Limit
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based on the	F he spike re	$\frac{C}{\frac{5}{\text{csult. R}^{3}}}$	$\begin{array}{c} \text{QC Pre} \\ \text{LC} \\ \text{Res} \\ \hline 21 \\ \text{PD is} \\ \text{SD} \end{array}$	eparation CS <u>sult</u> 8 r based on	$\frac{\text{Units}}{\text{ng/Kg}}$	L4-09-22 Dil.	Amount 20.0	Re ate rest	atrix esult 2.32 ult. Re	Prepa Re 10	ec.	y: AK Rec. Limit 70 - 130 RPD
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based on the Param	F he spike re	C $\frac{C}{5}$ $\frac{5}{2}$	QC Pre L(Res 21 PD is SD sult	eparation CS sult 8 r based on Units	n: 201 Units ng/Kg	Dil. Dil. Dike and sj Spike Amount	Amount 20.0 pike duplica Matrix Result	Rec.	atrix esult 2.32 ult. Re Lin	Prepa Re 10 ec. nit	ec. 99 RPD	y: AK Rec. Limit 70 - 130 RPD Limit
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based on the	F he spike re F ($\frac{C}{\frac{5}{\text{csult. R}^{3}}}$	QC Pre L(Res 21 PD is SD sult	eparation CS <u>sult</u> 8 r based on	$\frac{\text{Units}}{\text{ng/Kg}}$	Dil. Dil. 1 pike and spike	Amount 20.0 pike duplica Matrix	Re ate rest	atrix esult 2.32 ult. Re	Prepa Re 10 ec. nit	ec.	y: AK Rec. Limit 70 - 130 RPD
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based on the Param	F he spike re F (C $\frac{C}{5}$ c	QC Pre LC Res 21 PD is SD sult .6 1	eparation CS sult 8 r based on Units mg/Kg	n: 201 <u>Units</u> ng/Kg n the sp Dil. 1	Dil. Dil. Dike and spike Amount 20.0	Amount 20.0 pike duplica Matrix Result <2.32	Rec. Rec. 118	atrix esult 2.32 ult. Re Lir 70 -	Prepa Re 10 ec. nit	ec. 99 RPD	y: AK Rec. Limit 70 - 130 RPD Limit
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based on the Param GRO	F he spike re F (C $\frac{C}{5}$ c	QC Pre LC Res 21 PD is SD sult .6 1	eparation CS sult 8 r based on Units mg/Kg	$\frac{\text{Units}}{\text{ng/Kg}}$ $\frac{\text{Dil.}}{1}$ 1 1 1	Dil. Dil. Dike and spike Amount 20.0	Amount 20.0 pike duplica Matrix Result <2.32	Rec. Rec. 118 ate rest	atrix esult 2.32 ult. Re Lir 70 -	Prepa Re 10 ec. nit	ec. 99 RPD 8	y: AK Rec. Limit 70 - 130 RPD Limit
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based on the Param GRO	F he spike re F (C $\frac{C}{5}$ $E Sult. R.$ $C Res$ $\frac{5}{5} 23$ $E Sult. R.$	QC Pre LC Res 21 PD is SD sult .6 1 PD is	eparation CS sult 8 r based on Units mg/Kg based on LCSI	n: 201 <u>Units</u> <u>ng/Kg</u> n the sp <u>Dil.</u> 1 n the sp D	Dil. Dil. Dike and spike Amount 20.0 Dike and spike	Amount 20.0 pike duplica Matrix Result <2.32 pike duplica	Rec. Ate resu Rec. 118 Ate resu ke	atrix essult 2.32 ult. Re Lin 70 - ult.	Re IC Prepa	ec. 99 RPD 8 SD	y: AK Rec. Limit 70 - 130 RPD Limit 20
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based on the Param GRO Percent recovery is based on the Percent recovery is based on the Percent recovery is based on the	F he spike re F (he spike re	C $\frac{C}{5}$ $E Sult. R.$ $C Res$ $\frac{5}{5} 23$ $E Sult. R.$	QC Pre LC Res 21 PD is SD sult .6 1 PD is LCS	eparation CS sult 8 r based on Units mg/Kg based on LCSI	$\begin{array}{c} \text{Units} \\ \underline{\text{Units}} \\ \underline{\text{ng/Kg}} \\ \underline{\text{ng/Kg}} \\ \underline{\text{nthe sp}} \\ \hline \\ \underline{\text{Dil.}} \\ 1 \\ \underline{1} \\ 1$	Dil. Dil. Dike and spike Amount 20.0 Dike and spike	Amount 20.0 pike duplica Matrix Result <2.32 pike duplica Spi	Rec. Ate results 118 Ate results ke unt 00	atrix esult 2.32 alt. Re Lin 70 - alt. LCS	Prepa Re 10 ec. nit 130 LC	ec. 09 RPD 8 SD ec. 00	y: AK Rec. Limit 70 - 130 RPD Limit 20 Rec.

Blue Quail #1				Work Ore Blue	ler: 1409 Quail #			Sec 7	0	Number: R32E Lea	
Laboratory Control Spike (LC	CS-1	.)									
QC Batch: 115735				e Analyze		4-09-24				alyzed By	
Prep Batch: 97883			QU	Preparatio	on: 201	4-09-24			Pr	epared By	: MM
				LCS			Spike	М	atrix		Rec.
Param		F	\mathbf{C}	Result	Units	Dil.	Amount		esult	Rec.	Limit
Chloride				2850	mg/Kg	5	2500	<	19.2	114	85 - 115
Percent recovery is based on the sp	pike	resu	lt. RPI) is based	on the sp	oike and sp	ike duplica	ate res	ult.		
			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	Result		Dil.	Amount	Result	Rec.	Limi		Limit
								110	05 1	1 1	00
Chloride Percent recovery is based on the sp	pike	resu	2750 lt. RPE	mg/Kg) is based		2500 bike and sp	<19.2 vike duplica	110 ate res	85 - 11 ult.	15 4	20
Percent recovery is based on the sp	-			0, 0						15 4	20
Percent recovery is based on the sp Laboratory Control Spike (LC	-		lt. RPI) is based	on the sp	oike and sp			ult.		
Percent recovery is based on the sp Laboratory Control Spike (LC QC Batch: 115777	-		lt. RPI	0, 0	on the sp d: 201				ult. Ar	alyzed By epared By	7: MM
Percent recovery is based on the sp Laboratory Control Spike (LC QC Batch: 115777	-		lt. RPI) is based e Analyzee Preparatie	on the sp d: 201	oike and sp 4-09-25	ike duplica	ate res	ult. Ar Pr	alyzed By	7: MM : MM
Percent recovery is based on the sp Laboratory Control Spike (LC QC Batch: 115777 Prep Batch: 97916	-	.)	lt. RPI Dat QC) is based e Analyzed Preparatio LCS	on the sp d: 201 on: 201	pike and sp 4-09-25 4-09-24	ike duplica Spike	ate res	ult. Ar Pr	alyzed By epared By	r: MM : MM Rec.
Percent recovery is based on the sp Laboratory Control Spike (LC QC Batch: 115777 Prep Batch: 97916 Param	-		lt. RPI	e Analyzee Preparatie LCS Result	on the sp d: 201 on: 201 Units	Dike and sp 4-09-25 4-09-24 Dil.	ike duplica Spike Amount	ate res M R	ult. Ar Pr atrix esult	alyzed By epared By Rec.	r: MM : MM Rec. Limit
Percent recovery is based on the sp Laboratory Control Spike (LC QC Batch: 115777 Prep Batch: 97916 Param	-	.)	lt. RPI Dat QC) is based e Analyzed Preparatio LCS	on the sp d: 201 on: 201	Dike and sp 4-09-25 4-09-24 Dil.	ike duplica Spike	ate res M R	ult. Ar Pr	alyzed By epared By	r: MM : MM Rec.
Percent recovery is based on the sp Laboratory Control Spike (LC QC Batch: 115777	CS-1	.) F	lt. RPI Dat QC C	e Analyzee Preparatie LCS Result 2580	on the sp d: 201 on: 201 Units mg/Kg	Dike and sp 4-09-25 4-09-24 Dil. 5	ike duplica Spike Amount 2500	ate res M R <	ult. Ar Pr atrix esult 19.2	alyzed By epared By Rec.	r: MM : MM Rec. Limit
Percent recovery is based on the sp Laboratory Control Spike (LC QC Batch: 115777 Prep Batch: 97916 Param Chloride	CS-1	.) F	lt. RPI Dat QC C	e Analyzee Preparatie LCS Result 2580) is based	on the sp d: 201 on: 201 Units mg/Kg	Dike and sp 4-09-25 4-09-24 Dil. 5	ike duplica Spike Amount 2500	ate res M R <	ult. Ar Pr atrix esult 19.2	alyzed By epared By <u>Rec.</u> 103	r: MM : MM Rec. Limit
Percent recovery is based on the sp Laboratory Control Spike (LC QC Batch: 115777 Prep Batch: 97916 Param Chloride	CS-1	.) F	lt. RPI Dat QC C It. RPI	e Analyzee Preparatie LCS Result 2580 D is based	on the sp d: 201 on: 201 <u>Units</u> <u>mg/Kg</u> on the sp Dil.	Dike and sp 4-09-25 4-09-24 Dil. 5 Dike and sp	Spike Amount 2500 ike duplica	ate res M R <	ult. Ar Pr atrix esult 19.2 ult.	alyzed By epared By Rec. 103 t RPD	7: MM 1: MM Rec. Limit 85 - 115

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 Sampl	e: 374900						
QC Batch: 115665		Date A	nalyzed: 2	014-09-22			Analy	yzed By: SC
Prep Batch: 97793			v	2014-09-19				ared By: SC
		Ν	IS		Spike	Mat	rix	Rec.
Param	\mathbf{F}		sult Uni	ts Dil.	Amount	Res		c. Limit
DRO	Qs Qs	5 1	72 mg/l	Kg 1	250	35	.6 54	4 70 - 130
Percent recovery is based of	on the spike resu	lt. RPD is l	based on the	spike and sp	ike duplica	te result	t.	
		MSD		Spike	Matrix		Rec.	RPD
Param	\mathbf{F}	C Result	Units 1	Dil. Amoun	t Result	Rec.	Limit	RPD Limit
DRO	Qr,Qs Qr,Qs	5 140	m mg/Kg	1 250	35.6	42	70 - 130	20 20
Percent recovery is based of	on the spike resu	lt. RPD is l	based on the	spike and sp	ike duplica ⁻	te result	t.	
	MS	MSD			Spike	MS	MSI) Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	
n-Tricosane	100	97.3	mg/Kg	1	100	100	97	70 - 130
Matrix Spike (MS-1) QC Batch: 115702 Prep Batch: 97821	Spiked Sample	Date A		014-09-23 014-09-22			•	zed By: AK red By: AK
QC Batch: 115702	Spiked Sample	Date A QC Pre			Spike	Mat	Prepa	v
QC Batch: 115702 Prep Batch: 97821 Param	Spiked Sample	Date A QC Pre M C Re	paration: 2 IS sult Uni	014-09-22	Amount	Res	Prepa rix ult Re	red By: AK Rec. c. Limit
QC Batch: 115702 Prep Batch: 97821		Date A QC Pre M C Re	paration: 2	014-09-22 ts Dil.	-		Prepa rix ult Re	red By: AK Rec. c. Limit
QC Batch: 115702 Prep Batch: 97821 Param	F Qs Qs	Date A QC Pre M C Re 5 6.	$\begin{array}{ll} \text{paration:} & 2\\ \text{IS}\\ \text{sult} & \text{Uni}\\ 47 & \text{mg/l} \end{array}$	014-09-22 ts Dil. Kg 1	Amount 20.0	Res <2.	Prepa rix ult Re 32 32	red By: AK Rec. c. Limit
QC Batch: 115702 Prep Batch: 97821 Param GRO	F Qs Qs	Date A QC Pre M C Re 5 6.	$\begin{array}{ll} \text{paration:} & 2\\ \text{IS}\\ \text{sult} & \text{Uni}\\ 47 & \text{mg/l} \end{array}$	014-09-22 ts Dil. Kg 1	Amount 20.0	Res <2.	Prepa rix ult Re 32 32	red By: AK Rec. c. Limit
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based of Param	F Qs Qs	Date A QC Pre M C Re 5 6. It. RPD is MSD Result	$\begin{array}{ll} \text{paration:} & 2\\ \text{IS}\\ \frac{\text{sult} & \text{Uni}}{47 & \text{mg/I}}\\ \text{based on the}\\ \text{Units} & \text{Dil} \end{array}$	014-09-22 ts Dil. Kg 1 spike and sp Spike	Amount 20.0 ike duplica Matrix Result	Res <2. te result Rec.	$\begin{array}{c} \text{Prepa}\\ \text{arix}\\ \underline{\text{ult}} & \text{Re}\\ \underline{32} & \underline{32}\\ \text{t.}\\ \text{Rec.}\\ \text{Limit} \end{array}$	red By: AK Rec. c. Limit 2 70 - 130
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based of	$\frac{F}{Q_{s} Q_{s}}$ on the spike resu	Date A QC Pre M C Re 5 6. It. RPD is MSD Result	paration: 2 IS $\frac{\text{sult}}{47 \text{ mg/l}}$ based on the	014-09-22 ts Dil. Kg 1 spike and sp Spike	Amount 20.0 ike duplica Matrix	Res <2. te result Rec.	Prepa ult Re 32 $32t.Rec.$	red By: AK Rec. c. Limit 2 70 - 130 RPD
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based of Param	F Qs Qs on the spike resu $F C$ Qs Qs 5	Date A: QC Pre M C Re 5 6. It. RPD is 1 MSD Result 6.46	$\begin{array}{r} \text{paration:} & 2\\ \text{IS}\\ \frac{\text{sult} & \text{Uni}}{47 & \text{mg/I}}\\ \text{based on the}\\ \frac{\text{Units} & \text{Dil}}{\text{mg/Kg} & 1} \end{array}$	ts Dil. Kg 1 spike and sp Spike . Amount 20.0	Amount 20.0 ike duplica Matrix Result <2.32	Ress <2. te result Rec. 32	$\begin{array}{c} \text{Prepa}\\ \text{rix}\\ \frac{\text{ult}}{32} & \text{Re}\\ \frac{32}{32}\\ \text{t.}\\ \text{Rec.}\\ \frac{\text{Rec.}}{10}\\ \frac{130}{70} - 130 \end{array}$	red By: AK Rec. cc. Limit 2 70 - 130 RPD RPD RPD Limit
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based of Param GRO	F Qs Qs on the spike resu $F C$ Qs Qs 5	Date A: QC Pre M C Re 5 6. It. RPD is 1 MSD Result 6.46	$\begin{array}{r} \text{paration:} & 2\\ \text{IS}\\ \frac{\text{sult} & \text{Uni}}{47 & \text{mg/I}}\\ \text{based on the}\\ \frac{\text{Units} & \text{Dil}}{\text{mg/Kg} & 1} \end{array}$	ts Dil. Kg 1 spike and sp Spike . Amount 20.0	Amount 20.0 ike duplica Matrix Result <2.32	Ress <2. te result Rec. 32 te result	$\begin{array}{c} \text{Prepa}\\ \text{rix}\\ \frac{\text{ult}}{32} & \text{Re}\\ \frac{32}{32}\\ \text{t.}\\ \text{Rec.}\\ \frac{\text{Rec.}}{10}\\ \frac{130}{70} - 130 \end{array}$	red By: AK Rec. c. Limit $2 ext{ 70 - 130}$ RPD RPD Limit $0 ext{ 20}$
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based of Param GRO	F Qs Qs on the spike resu $F C$ Qs Qs 5	Date A QC Pres C Re 5 6. It. RPD is MSD Result 6.46 It. RPD is	$\begin{array}{r} \text{paration:} & 2\\ \text{IS}\\ \frac{\text{sult} & \text{Uni}}{47 & \text{mg/I}}\\ \text{based on the}\\ \frac{\text{Units} & \text{Dil}}{\text{mg/Kg} & 1}\\ \text{based on the}\\ \text{MSD} \end{array}$	ts Dil. Kg 1 spike and sp Spike . Amount 20.0 spike and sp	Amount 20.0 ike duplica Matrix Result <2.32 ike duplica	Ress <2. te result Rec. 32 te result ke	$\begin{array}{c} \text{Prepa}\\ \text{trix}\\ \underline{\text{ult}} & \text{Re}\\ 32 & 32\\ \text{t.}\\ \\ \hline \\ \text{Rec.}\\ \underline{\text{Limit}}\\ 70 - 130\\ \text{t.}\\ \end{array}$	red By: AK Rec. Limit 2 70 - 130 RPD RPD Limit 0 20 SD Rec.
QC Batch: 115702 Prep Batch: 97821 Param GRO Percent recovery is based of Param GRO Percent recovery is based of	F $Q_{s} Q_{s}$ on the spike resu $F C$ $Q_{s} Q_{s} 5$ on the spike resu	Date A QC Pre M C Re 5 6. It. RPD is M MSD Result 6.46 It. RPD is M MS	$\begin{array}{r} \text{paration:} & 2\\ \text{IS}\\ \frac{\text{sult} & \text{Uni}}{47 & \text{mg/I}}\\ \text{based on the}\\ \frac{\text{Units} & \text{Dil}}{\text{mg/Kg} & 1}\\ \text{based on the}\\ \text{MSD} \end{array}$	014-09-22 ts Dil. Kg 1 spike and sp Spike . Amount 20.0 spike and sp Units I	Amount 20.0 ike duplica Matrix Result <2.32 ike duplica Spil	Res <2. te result Rec. 32 te result ke unt I	$\begin{array}{c} \text{Prepa} \\ \text{crix} \\ \text{ult} & \text{Re} \\ \hline 32 & 32 \\ \text{t.} \\ \\ \text{Rec.} \\ \text{Limit} \\ \hline 70 - 130 \\ \text{t.} \\ \\ \text{MS} & \text{MS} \end{array}$	red By: AK Rec. c. Limit 2 70 - 130 RPD RPD Limit 0 20 SD Rec. ec. Limit

Report Date: September 26, 2014 Blue Quail #1		Work Order: 14091825 Blue Quail #1					Page Number: 24 of 29 Sec 7, T23S, R32E Lea Co, NM			
Matrix Spike (MS-1) Spiked S	ample	: 374876								
QC Batch: 115735 Prep Batch: 97883		Date Anal QC Prepa	/)14-09-24)14-09-24				zed By: red By:		
Param Chloride	F	MS C Result 2900	Units mg/Kg	Dil. g 5	Spike Amount 2500	Matri Resul 150]	Rec. Limit 9 - 121	
Percent recovery is based on the spik	e resi	lt. RPD is bas	ed on the	spike and s	spike dupli	cate resul	t.			
Param F Chloride Percent recovery is based on the spik	С	MSD Result Uni 2800 mg/	Kg 5	Spike Amount 2500	Matrix Result 150		Rec. Limit 8.9 - 121	RPD 4	RPD Limit 20	
Matrix Spike (MS-1) Spiked Sa					1 1					
QC Batch: 115777 Prep Batch: 97916		Date Anal QC Prepa	/)14-09-25)14-09-24			v	zed By: red By:	MM MM	
Param Chloride	F	MS C Result 3560	Units mg/Kg	Dil. g 5	Spike Amount 2500	Matri Resul 1070	lt Rec.		Rec. Limit 9 - 121	
Percent recovery is based on the spik	e resi	ult. RPD is bas	ed on the	spike and s	spike dupli	cate resul	t.			
Param F Chloride	С	MSD Result Uni 3660 mg/		Spike Amount 2500	Matrix Result 1070	Rec.	Rec. Limit 8.9 - 121	RPD 3	RPD Limit 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	65 Date Analy			2014-09-22		Analyzed By: SC		
				CCVs	CCVs	CCVs	Percent		
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	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			
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		5	m mg/Kg	250	237	95	80 - 120	2014-09-22

Standard (CCV-3)

QC Batch:	115665	365 Da			2014-09-22		Analyzed By: SC		
				$\rm CCVs$	$\rm CCVs$	CCVs	Percent		
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
DRO		5	m mg/Kg	250	222	89	80 - 120	2014-09-22	

Standard (CCV-1)

QC Batch:	115702	Date Analyzed: 2014-09-23				Analy	zed By: AK	
				CCVs True	$\begin{array}{c} \mathrm{CCVs} \\ \mathrm{Found} \end{array}$	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		5	m mg/Kg	1.00	0.927	93	80 - 120	2014-09-23

Report Date: Blue Quail #1		, 2014	Work Order: 14091825 Blue Quail #1			S	Page Number: 26 of 29 Sec 7, T23S, R32E Lea Co, NM			
Standard (C	CV-2)									
QC Batch: 11	15702		Date	Analyzed:	2014-09-23		Analy	zed By: AK		
				CCVs	CCVs	CCVs	Percent			
				True	Found	Percent	Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
GRO		5	m mg/Kg	1.00	0.903	90	80 - 120	2014-09-23		
Standard (C	CV-3)									
QC Batch: 11	15702		Date	Analyzed:	2014-09-23		Analy	zed By: AK		
				$\rm CCVs$	CCVs	CCVs	Percent			
				True	Found	Percent	Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
GRO	1 1008	5	mg/Kg	1.00	0.810	81	80 - 120	2014-09-23		
Standard (ICV-1) QC Batch: 115735		Date .	Analyzed:	2014-09-24		·	zed By: MM			
				ICVs	ICVs	ICVs	Percent	_		
Ð		a i	TT 1	True	Found	Percent	Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride			mg/Kg	100	101	101	85 - 115	2014-09-24		
Standard (C	CV-1)									
QC Batch: 11	15735		Date .	Analyzed:	2014-09-24		Analyz	zed By: MM		
				CCVs	CCVs	CCVs	Percent			
					Found	Percent	Recovery	Date		
				True	round	I CICCIIU	recovery	Date		
Param	Flag	Cert	Units	True Conc.	Conc.	Recovery	Limits	Analyzed		

Standard (ICV-1)

QC Batch: 115777

Date Analyzed: 2014-09-25

Analyzed By: MM

Report Date: S Blue Quail #1	· /	W	ork Order: Blue Quai		Se	Page Number: 27 of 29 Sec 7, T23S, R32E Lea Co, NM		
Param Chloride	Flag	Cert	Units mg/Kg	ICVs True Conc. 100	ICVs Found Conc. 100	ICVs Percent Recovery 100	Percent Recovery Limits 85 - 115	Date Analyzed 2014-09-25
Standard (CO	,							
QC Batch: 11	.5777		Date A	Analyzed: 2	014-09-25		Analyz	ed By: MM
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2014-09-25

Work Order: 14091825 Blue Quail #1 Page Number: 28 of 29 Sec 7, T23S, R32E Lea Co, NM

Appendix

Report Definitions

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

Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	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.

Report Date: September 26, 2014 Blue Quail #1 Work Order: 14091825 Blue Quail #1

Page Number: 29 of 29 Sec 7, T23S, R32E Lea Co, NM

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.



original copy

82S	
14091	
LAB Order ID #	

Page 2 of 2

TraceAnalysis, I email: lab@traceanalysis.com	v Name: ENER-Vest Operat, (Street, City, Zip)	Person: A 1 A .
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5002 Basin Street, Suite A1 Midland, Taxas 79703 Tel (432) 689-6301 Fax (432) 689-6313) - - - -		EO)1×E	50 26 H AHC 1002 E 1 654	ST / 5 T / 0 F / 1 T / 0 F / 1 F	25 25 25 25 25 25 25 25 25 25 25 25 25 2	(1208 1 / 1.81 1 /	MTBE BTEX TPH 4 TPH 8 PAH 82 PAH 82			5)	0	 	~					333° (ONLY	c Intact X / M	C Log-in-Review	carrier #
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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				
1976-12-09		420.37			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	Р	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



Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

API No. 025-33222

71.1

Release Notification and Corrective Action

	OPERATOR	Initial Report	Final Report
Name of Company - EnerVest Operating LLC	Contact Elroy Ardoin – Enviro	onmental Director, Hou	ston
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	1	

Surface Owner

CD 1

LOCATION OF RELEASE

Mineral Owner - BLM

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

20111

37.1

Type of Release off and produce water	Volume of Release - 50001s	water	overed – Sobis – mostry					
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		ur of Discovery oximately 1:00					
Was Immediate Notice Given?	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?	If YES, Volume Impacting the Wat	ercourse.						
Yes X No								
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.								
The affected area was identified as being 10,125sq.ft. or an averag was to vacuum up any free standing fluid, which was 5bbls. A cons Carlsbad office has been notified as well. The remediation plan of	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: Anoly B. Price	OIL CONSERV	ATION DI	<u>IVISION</u>					
Printed Name: Andy Price (Registered Environmental Manager)	Approved by Environmental Specialist:							
Title: Environmental Consultant for EnerVest Operating	Approval Date:	Expiration Date	e:					
E-mail Address: andyprice1@clear.net	Conditions of Approval:		Attached					
Date: 7/30/14 Phone: (713) 495 6534 (EnerVest Op)								

Google

Drive 57.8 miles, 1 h 7 min

Directions from Hobbs, NM to 32.31338,-103.7119



O Hobbs, NM

t	1. Head south on N Turner St toward W Taylor St	
L,	 2. Turn right onto US-180 W/US-62 W/W Marland Blvd i) Continue to follow US-180 W/US-62 W 	0.4 mi
41	3. Turn left onto Campbell Rd	
1	4. Continue straight to stay on Campbell Rd	12.4 mi 0.1 mi
1	5. Continue onto Red Rd	5.4 mi
4	6. Turn left	1.7 mi
	22 21 222 -102 71 10	

32.31338,-103.7119

https://www.google.com/maps/dir/Hobbs,+NM/'32.31338,-103.7119'/@32.5967546,-103.... 11/20/2014

Google Maps

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.

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