

**Final Site Reclamation Report
for the
State 1-12 Lease Site
Sedgwick County, Colorado
COGCC Remediation # 8108**

Prepared for:

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Colorado Oil and Gas Conservation Commission
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Nicholson GeoSolutions, LLC
3433 East Lake Drive
Centennial, CO 80121

May 2014

1.0 INTRODUCTION

Nicholson GeoSolutions LLC was retained by Ritchie Exploration, Inc. (Ritchie) to conduct site closure activities at the State 1-12 Lease, a formerly active oil well site located in the NE1/4 SW1/4 of Section 12, T10N, R47W, Sedgwick County, Colorado. Closure activities were conducted in accordance with the Colorado Oil and Gas Conservation Commission (COGCC) Series 900 and 1000 Rules under Remediation Number 8108.

The site formerly consisted of one well with pump jack, a production facility with a treater and produced water tank, two unlined evaporation ponds, and two 300-bbl oil storage tanks.

This report provides a summary of the closure and final site reclamation activities conducted at the site during the period October 16, 2013 to April 11, 2014.

2.0 RECLAMATION PROCEDURES

The final reclamation work consisted of the following activities:

- Plugging and abandonment of the State 1-12 well;
- Removal of all surface facilities including the pump jack, storage tanks, and electric service;
- Removal of all fences and trash;
- Removal of excess piping beneath the storage tank and process area;
- Excavation of impacted soils from the evaporation pit area, storage tank area, treater area, wellhead area, and along two dry drainages;
- Disposal of impacted soil at the Buffalo Ridge Landfill and Sedgwick County Landfill;
- Regrading of the evaporation pit area, storage tank area, wellhead area, and process area to mimic the natural topography;
- Amendment of site soils with compost;
- Ripping and regrading of the two-track access road to the site;
- Reseeding and mulching of all disturbed surfaces on site; and
- Installation of erosion control structures as necessary to protect steep slopes.

Each activity is described below. Appendix A provides photographs of the reclamation procedures and the site before and after reclamation was completed.

2.1 Equipment Removal

Prior to removal of the storage tanks, 137 barrels of oil was drained from the tanks and sent to the Suncor refinery on October 17, 2013. The storage tanks, treater, process equipment, and pump jack were removed from the site for reuse by Patrick Construction of Sterling, Colorado during early November, 2013. The 69K electric line and poles that served the well was removed by Highline Electric of Julesburg, Colorado during early 2014. The well was plugged and abandoned by Yetter Well Services of Sterling, Colorado in March 2014.

2.2 Excavation of Impacted Soils

Removal of excess piping, excavation of impacted soils, ripping of the access road, and regrading and backfilling of the pit area was performed by Kelly Environmental LLC (Kelly) under oversight from Nicholson GeoSolutions.

Impacted soils in the two former evaporation pit bottoms and intervening areas, near the former storage tank area, at the wellhead and treater areas, and along two dry drainages that descend from the ridgetop well pad location were excavated during the periods October 15-18, November 18-20, and November 25-26, 2013 by Kelly with oversight from Nicholson GeoSolutions. Figure 1 shows the approximate areas of excavation. Impacted soils were sent to the Buffalo Ridge Landfill near Keenesburg and the

Sedgwick County Landfill in Julesburg for disposal. A total of 3,402 yards of impacted soil was sent to the landfills (90 yards to Buffalo Ridge and the remainder to Sedgwick County) during these time periods. After the wellhead was plugged and abandoned in March 2014, an additional 144 yards of impacted soil was sent to the Sedgwick County Landfill, making a grand total of 3,546 yards of impacted soil sent to the landfills. Appendix B contains the manifests for Buffalo Ridge and the landfill gatehouse tickets for Sedgwick County Landfill.

About 180 yards of impacted soils were excavated from the storage tank area, 160 yards from the wellhead area, 100 yards from the treater area, 100 yards from the two dry drainages, and the remainder from the evaporation pit complex. Visual observations were conducted by Nicholson GeoSolutions during excavation and used to evaluate when the approximate limits of the impacted soils had been reached.

Eleven confirmation samples were collected from the base and sidewalls of the evaporation pit complex and two samples were collected from the base of the shallow storage tank area excavation on October 18, November 20, and November 26, 2013 and analyzed for Total Volatile Petroleum Hydrocarbons (TVPH-gasoline range), Total Extractable Petroleum Hydrocarbons (TEPH-diesel and motor oil ranges), sodium adsorption ratio (SAR), pH, and conductivity. Figure 1 shows the locations of the confirmation samples collected.

Table 1 provides the results for the confirmation samples and the laboratory analytical reports are contained in Appendix C. All confirmation sample results are below the COGCC standards, except for SAR for eight samples and pH for two samples from the evaporation pit bottoms. Material associated with these exceedances was buried at least three feet deep during the final regrading of the site in compliance with COGCC guidance.

Table 1 Confirmation Sample Results

Sample ID and location	BTEX (mg/kg)	TPH – Gasoline (mg/kg)	TPH – Diesel (mg/kg)	TPH – Motor oil (mg/kg)	SAR (ratio)	pH (units)	SC (umho s/cm)
SP12-LP-C1 (south wall lower pit)	All ND	<0.5	<4.0	NA	36	7.2	3.9
S112-CS-1 (storage tank area)	All ND	<0.5	<4.0	<4.0	5.0	8.7	0.34
S112-CS-2 (storage tank area)	All ND	<0.5	<4.0	<4.0	3.7	8.8	0.38
S112-CS-3 (lower pit bottom)	All ND	<0.5	<4.0	<4.0	12	9.0	0.34
S112-CS-4 (lower pit bottom)	All ND	<0.5	<4.0	<4.0	29	8.7	0.53
S112-CS-5 (lower pit north wall)	All ND	<0.5	<4.0	<4.0	3.9	7.5	3.0
S112-CS-6 (lower pit east wall)	All ND	<0.5	<4.0	<4.0	5.8	8.0	0.30
S112-CS-7 (lower pit south wall)	All ND	<0.5	<4.0	<4.0	44	7.9	2.0
S112-CS-8 (upper pit bottom)	All ND	<0.5	5.0	<4.0	56	10.0	1.1
S112-CS-9 (upper pit south wall)	All ND	<0.5	<4.0	<4.0	32	8.4	2.8
S112-CS-10 (upper pit bottom)	All ND	<0.5	<4.0	<4.0	43	8.9	3.1
S112-CS-11 (upper pit bottom)	All ND	<0.5	<4.0	<4.0	59	9.1	2.9
S112-CS-12 (upper pit north wall)	All ND	<0.5	4.4	<4.0	37	8.7	2.0

ND = Not detected NA = Not analyzed

Bold values exceed COGCC Table 910-1 standards

2.3 Backfilling and Regrading

Following receipt of the analytical results for the confirmation samples, Kelly returned to the site during the period April 5-10, 2014 to backfill the evaporation pit complex and regrade all portions of the site to conform with the surrounding land surface in accordance with the COGCC 1000 Series Rules. The site was graded using a D6N wide-track bulldozer. Sufficient fill material was present on the site to backfill the pit excavations. The top of the ridge had been built into a flat area using imported fill when the site was constructed in the 1950s. This material was used to regrade the evaporation pit complex to bury all remaining soil with SAR greater than 12 at least three feet deep, and to reduce the steep slopes present at the top of the former pit complex to mimic the natural surrounding topography.

2.4 Access Road Removal

The access road to the lease formerly consisted of a two-track road about 0.8 miles in length and extended from the intersection of Sedgwick County Roads 16 and 13 to the lease. After removal of impacted soil and reclamation equipment from the site, this road was removed by ripping the road base to relieve compaction using the D6N dozer and a tractor with deep disc attachment. After ripping, the material was pushed to the sides to fill the drainage ditches, and the surface was regraded to conform with the surrounding topography and seeded.

2.5 Soil Amendment, Reseeding and Erosion Control

Soil amendment, reseeding, placement and crimping of hay mulch, and installation of erosion control was performed by Rocky Mountain Reclamation (RMR) of Laramie, Wyoming with oversight by Nicholson GeoSolutions during the period April 10-11, 2014.

Compost was added to the regraded surface at the rate of 23 tons per acre to enhance revegetation potential in the sandy and rocky soils of the area. Appendix D provides the delivery tickets for the compost.

After spreading and incorporation of compost, seed was drilled into the prepared land surface using a specially designed drill constructed by RMR. The seed mix was recommended by the State Land Board. Table 2 provides the seed mix details.

Table 2 Seed Mix Details

Species	Variety	% Pure Seed and variety	Origin
Seed Mix 1			
Wesetern Wheatgrass	Rosana	23.13	Idaho
Prairie Sandreed	Goshen	15.59	Montana
Sand Bluestem	Woodward	11.21	Oklahoma
Sideoats Grama	Vaughn	6.79	Arizona
Switchgrass	Blackwell	5.94	Washington
Little Bluestem	Pastura	5.11	Minnesota
Blue Grama	Hachita	4.14	Texas
Other Crop		0.14	
Inert Matter		27.30	
Weed Seed		0.65	
Percent Hard Seed		0.00	

Seed provided by Granite Seed Company, Lehi, Utah

Following drilling of seed, hay mulch was applied at the rate of 2.0 tons per acre using tractors and a crimper attachment. Erosion control was used in three areas of the site: a steep embankment between the two former pits, the dry drainage that extends to the west from the former storage tank area, and along one portion of the former access road. Three coconut fiber erosion blankets were installed on the surface of the steep embankment. This area was also protected with by a row of straw waddles above the slope. Six rows of straw waddles were also installed along the dry drainage that extends to the west of the site and at two places on the south edge of the former access road.

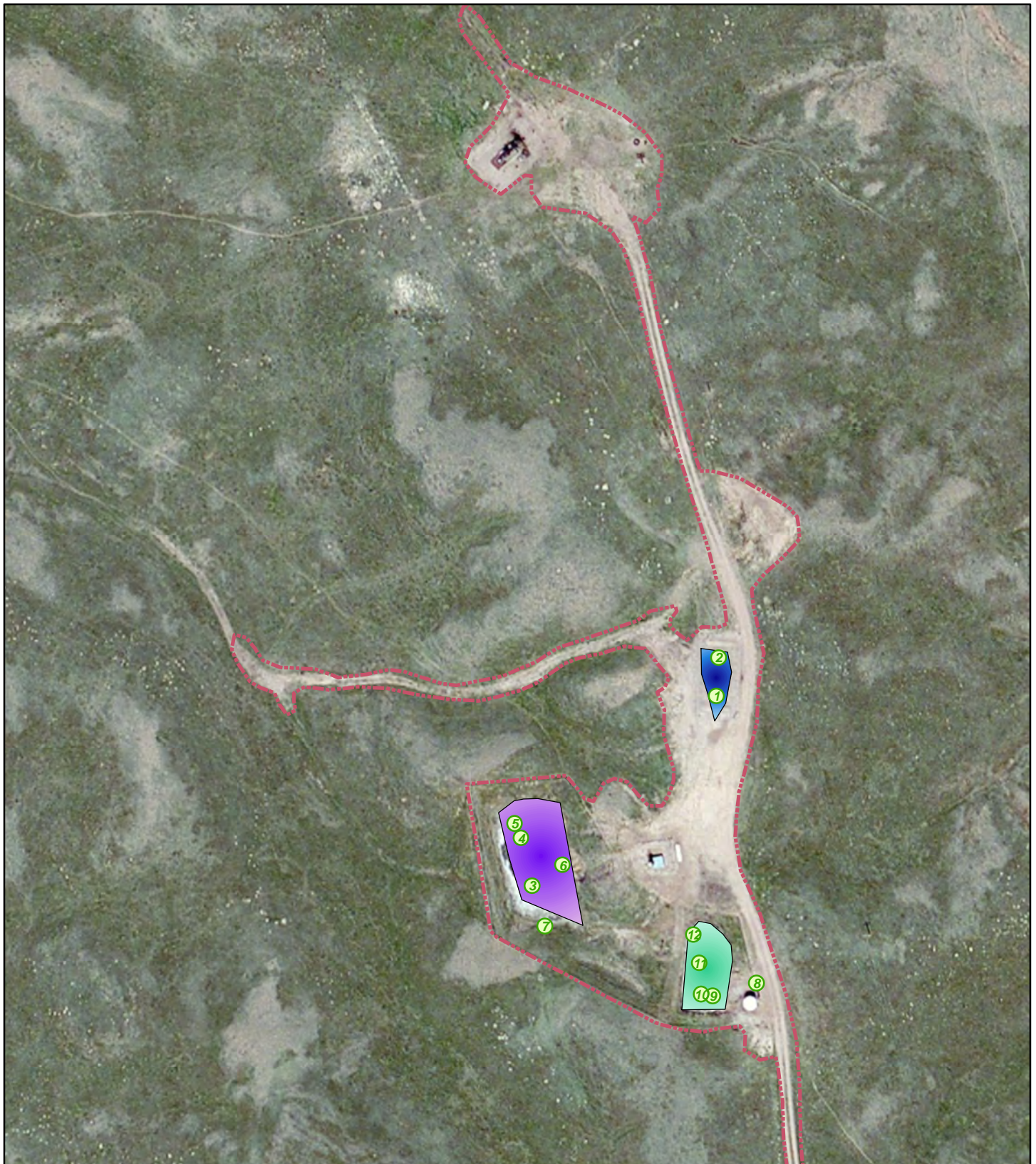


Figure 1

December
2013

GeoSolutions
NICHOLSON

Legend

- Sample Points
- Disturbance (2.3 Acres)
- Pit 1 (0.06 Acres)
- Pit 2 (0.12 Acres)
- Pit Excavation (0.03 Acres)

0 62.5 125 250 Feet 1" = 125'

Ritchie Exploration, Inc.

State 1-12 Lease
Confirmation Sample Locations

APPENDIX A

Photographs



Wellhead area prior to reclamation



Wellhead area



Oil spill north of wellhead



Storage tank area prior to reclamation



Evaporation pit area prior to reclamation



Upper evaporation pit soils



Lower evaporation pit prior to reclamation



Undermined and rusted out tank above pits



Upper pit area prior to reclamation



Oil spill below rusted tank



Lower pit bottom prior to reclamation



Lower pit soils



Wellhead after pump jack removal



Process area after treater shed removal



Tank area after tank removal



Excavation of impacted soils



Removal of excess piping



Excavation of impacted soils at tank battery location



Excavation of impacted soils at treater location



Impacted soils at tank battery location



Loading out impacted soil to landfill



Upper pit area excavation



Non-impacted soil stockpiles



Excavation of impacted soils in upper pit



Pit area after impacted soil removal



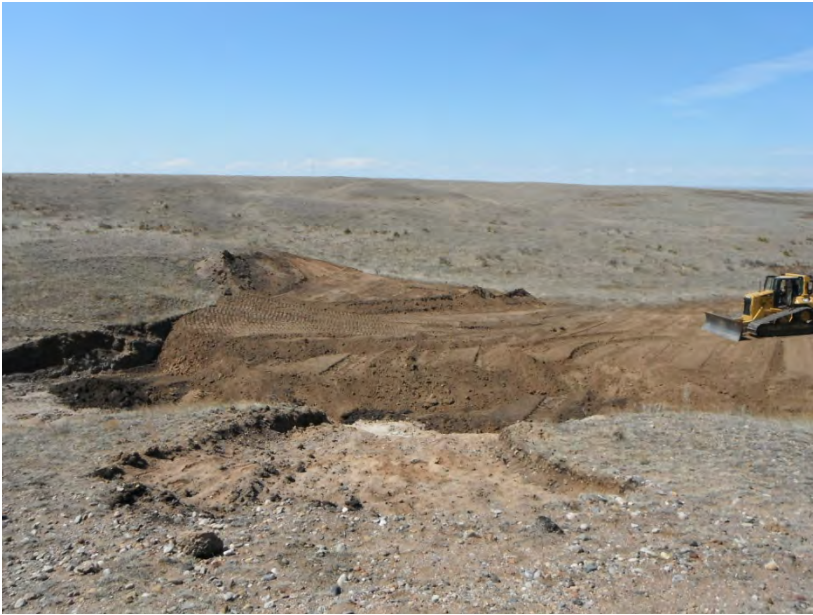
Regrading of lower pit area



Impacted soils from evaporation pits



Upper pit area prior to regrading



Regrading of lower pit area



Pit area after regrading



Regrading of pit area



Pit area after regrading



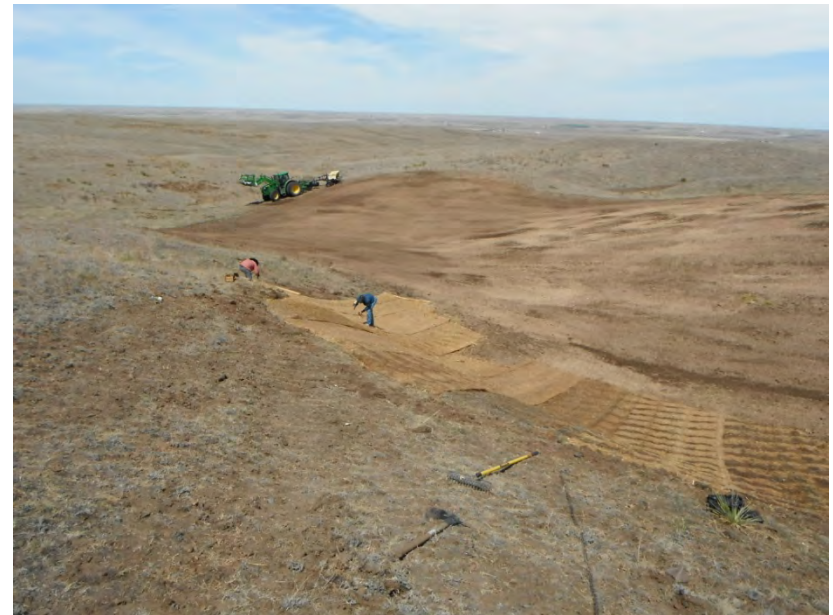
Ripping access road to relieve compaction



Seed drilling in former pit area



Access road after ripping



Installation of erosion control blankets



Pit area after reseeding



Pit area after mulch application



Spreading of hay mulch



Crimping of hay mulch



Reclaimed side drainage



Access road after reclamation



Installation of erosion control along side drainage



Access road after reclamation

APPENDIX B
Landfill Gatehouse Tickets

GENERATOR	NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number N/A		2. Page 1 of 1		3. Emergency Response Phone (800) 424-0300		4. Waste Tracking Number 058401		
	5. Generator's Name and Mailing Address RITCHIE EXPLORATION INC NE SW SEC 12 T10N R 47W SEDCWICK CO 80749					Generator's Site Address (if different than mailing address)					
	Generator's Phone: (303) 915-6308					U.S. EPA ID Number					
	6. Transporter 1 Company Name 286 28					U.S. EPA ID Number					
	7. Transporter 2 Company Name					U.S. EPA ID Number					
	8. Designated Facility Name and Site Address Buffalo Ridge Landfill 11855 WCR 59 Keenesburg CO 80543					U.S. EPA ID Number					
	Facility's Phone: (303) 722-0218										
	9. Waste Shipping Name and Description					10. Containers		11. Total Quantity		12. Unit Wt./Vol.	
						No. Type					
	1. NON REGULATED SOLID (E&P EXEMPT SOIL)							15 yds			
2.											
3.											
4.											
13. Special Handling Instructions and Additional Information											
Customer Acct #: BR 329 Customer Name: KELLY ENVIRONMENTAL, LLC Transporter 1 address & phone #:											
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and governmental regulations.											
Generator's/Offoror's Printed/Typed Name David R. Nicholson					Signature [Signature]			Month 10		Day 17	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.					Port of entry/exit:					Year 13	
Transporter Signature (for exports only):					Date leaving U.S.:						
16. Transporter Acknowledgement of Receipt of Materials											
Transporter 1 Printed/Typed Name David R. Nicholson					Signature [Signature]			Month 10		Day 17	
Transporter 2 Printed/Typed Name					Signature			Month		Day Year	
17. Discrepancy											
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection											
Manifest Reference Number:											
17b. Alternate Facility (or Generator)											
U.S. EPA ID Number											
Facility's Phone:											
17c. Signature of Alternate Facility (or Generator)											
Month Day Year											
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a											
Printed/Typed Name					Signature			Month		Day Year	

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number	
		N/A		(800) 424-5200	058403	
5. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)				
RITCHIE EXPLORATION INC NE SW SEC 12 T10N R 47W SEDCWICK CO 80748						
Generator's Phone:						
6. Transporter 1 Company Name		S+K Trucking			U.S. EPA ID Number	
7. Transporter 2 Company Name					U.S. EPA ID Number	
8. Designated Facility Name and Site Address					U.S. EPA ID Number	
Buffalo Ridge Landfill 11655 WCR 59 Keenesburg CO 80643						
Facility's Phone:		(303) 752-0218				
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
		No.	Type			
1. NON REGULATED SOLID (E&P EXEMPT SOIL)				18 yds		
2.						
3.						
4.						
13. Special Handling Instructions and Additional Information						
Customer Acct #: BR 329 Customer Name: KELLY ENVIRONMENTAL, LLC Transporter 1 address & phone #:						
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and governmental regulations.						
Generator's/Offor's Printed/Typed Name		Signature		Month	Day	Year
David K Nicholson		DK Nicholson		10	17	13
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Transporter Signature (for exports only): _____ Date leaving U.S.: _____						
16. Transporter Acknowledgement of Receipt of Materials						
Transporter 1 Printed/Typed Name		Signature		Month	Day	Year
KOD LANGLEY		Kod Langley		10	17	13
Transporter 2 Printed/Typed Name		Signature		Month	Day	Year
17. Discrepancy						
17a. Discrepancy Indication Space		<input type="checkbox"/> Quantity <input type="checkbox"/> Type		<input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection		
		Manifest Reference Number: _____				
17b. Alternate Facility (or Generator)		U.S. EPA ID Number				
Facility's Phone:						
17c. Signature of Alternate Facility (or Generator)				Month	Day	Year
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a						
Printed/Typed Name		Signature		Month	Day	Year

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number	
5. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)				
RITCHIE EXPLORATION INC NE SW SEC 12 T10N R 47W SEDCWICK CO 80749		(303) 915-5308				
6. Transporter 1 Company Name		U.S. EPA ID Number			058402	
7. Transporter 2 Company Name		U.S. EPA ID Number				
8. Designated Facility Name and Site Address		U.S. EPA ID Number				
Buffalo Ridge Landfill 11655 WCR 59 Keenesburg CO 80643		(303) 732-0218				
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
		No.	Type			
1. NON REGULATED SOLID (E&P EXEMPT SOIL)				18 yrb		
2.						
3.						
4.						
13. Special Handling Instructions and Additional Information						
Customer Acct #: BR_329 Customer Name: KELLY ENVIRONMENTAL, LLC Transporter 1 address & phone #:						
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and governmental regulations.						
Generator's/Offoror's Printed/Typed Name		Signature		Month	Day	Year
David K. Nicholas		DK Nicholas		10	17	13
15. International Shipments		<input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: _____ Date leaving U.S.: _____		
16. Transporter Acknowledgement of Receipt of Materials						
Transporter 1 Printed/Typed Name		Signature		Month	Day	Year
Transporter 2 Printed/Typed Name		Signature		Month	Day	Year
17. Discrepancy						
17a. Discrepancy Indication Space		<input type="checkbox"/> Quantity <input type="checkbox"/> Type		<input type="checkbox"/> Residue	<input type="checkbox"/> Partial Rejection	<input type="checkbox"/> Full Rejection
17b. Alternate Facility (or Generator)		Manifest Reference Number: _____ U.S. EPA ID Number				
Facility's Phone:						
17c. Signature of Alternate Facility (or Generator)		Signature		Month	Day	Year
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a						
Printed/Typed Name		Signature		Month	Day	Year
Kim Hunsicker		Kim Hunsicker		10	17	13

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number N/A	2. Page 1 of 1	3. Emergency Response Phone (800) 424-0300	4. Waste Tracking Number 058404	
5. Generator's Name and Mailing Address RITCHIE EXPLORATION INC NE SW SEC 12 T10N R 47W SEDCWICK CO 80749 Generator's Phone: (303) 915-5308		Generator's Site Address (if different than mailing address)				
6. Transporter 1 Company Name AG Serv		U.S. EPA ID Number				
7. Transporter 2 Company Name		U.S. EPA ID Number				
8. Designated Facility Name and Site Address Buffalo Ridge Landfill 11655 WCR 59 Keenesburg CO 80643 Facility's Phone: (303) 732-0218		U.S. EPA ID Number				
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
		No.	Type			
1. NON REGULATED SOLID (E&P EXEMPT SOIL)				18 yds		
2. 11655 WCR 59						
3.						
4.						
13. Special Handling Instructions and Additional Information Customer Acct #: BR 329 Customer Name: KELLY ENVIRONMENTAL, LLC Transporter 1 address & phone #:						
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and governmental regulations.						
Generator's/Offeror's Printed/Typed Name David K. Nickolsin		Signature DK Nickolsin		Month 10	Day 17	Year 13
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:						
16. Transporter Acknowledgement of Receipt of Materials						
Transporter 1 Printed/Typed Name Scottie Stephens		Signature SAS		Month 10	Day 17	Year 13
Transporter 2 Printed/Typed Name		Signature		Month	Day	Year
17. Discrepancy						
17a. Discrepancy Indication Space		<input type="checkbox"/> Quantity	<input type="checkbox"/> Type	<input type="checkbox"/> Residue	<input type="checkbox"/> Partial Rejection	<input type="checkbox"/> Full Rejection
17b. Alternate Facility (or Generator)		Manifest Reference Number:		U.S. EPA ID Number		
Facility's Phone:						
17c. Signature of Alternate Facility (or Generator)				Month	Day	Year
Landfill		Monofill		Location:		
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a.						
Printed/Typed Name		Signature		Month	Day	Year

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number	
		N/A		(800) 424-8300	058405	
5. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)				
RITCHIE EXPLORATION INC NE SW SEC 12 T10N R 47W SEDGWICK CO 80749						
Generator's Phone:						
6. Transporter 1 Company Name		(303) 815-5308	U.S. EPA ID Number			
7. Transporter 2 Company Name		U.S. EPA ID Number				
8. Designated Facility Name and Site Address		U.S. EPA ID Number				
Buffalo Ridge Landfill 11855 WCR 59 Keenesburg CO 80643						
Facility's Phone:						
		(303) 732-0218				
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
		No.	Type			
1. NON REGULATED SOLID (E&P EXEMPT SOIL)				18 yds		
2.		11553700				
3.						
4.						
13. Special Handling Instructions and Additional Information						
Customer Acct #: BR 329 Customer Name: KELLY ENVIRONMENTAL, LLC						
Transporter 1 address & phone #:						
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and governmental regulations.						
Generator's/Offor's Printed/Typed Name		Signature		Month	Day	Year
David K. Nicholson		DK Nicholson		10	17	13
15. International Shipments		<input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit:		
Transporter Signature (for exports only):		Date leaving U.S.:				
16. Transporter Acknowledgement of Receipt of Materials						
Transporter 1 Printed/Typed Name		Signature		Month	Day	Year
Kurt Jones		Kurt Jones		10		
Transporter 2 Printed/Typed Name		Signature		Month	Day	Year
17. Discrepancy						
17a. Discrepancy Indication Space		<input type="checkbox"/> Quantity <input type="checkbox"/> Type		<input type="checkbox"/> Residue	<input type="checkbox"/> Partial Rejection	<input type="checkbox"/> Full Rejection
		Manifest Reference Number:				
17b. Alternate Facility (or Generator)		U.S. EPA ID Number				
Facility's Phone:						
17c. Signature of Alternate Facility (or Generator)		Signature		Month	Day	Year
Landfill		Mono		Location:		
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a						
Printed/Typed Name		Signature		Month	Day	Year

DATE	Cust#Kell1
11/28/2013	Page 1

Kelly Environmental LLC
P.O. Box 370332
Denver, Co. 80237

[illegible]

DATE	Cust#Kell1
11/28/2013	Page 2

Kelly Environmental, LLC
P.O. Box 370332
Denver, Co. 80237

Date	Commodity	Quantity	Total
11/19/13	Petroleum Contaminated Soil	18	
11/19/13	Petroleum Contaminated Soil	18	
11/19/13	Petroleum Contaminated Soil	18	
11/19/13	Petroleum Contaminated Soil	18	
11/19/13	Petroleum Contaminated Soil	18	
11/19/13	Petroleum Contaminated Soil	18	
11/19/13	Petroleum Contaminated Soil	18	
11/19/13	Petroleum Contaminated Soil	18	
11/19/13	Petroleum Contaminated Soil	18	
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11/19/13	Petroleum Contaminated Soil	18	
11/19/13	Petroleum Contaminated Soil	18	
11/19/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
		Total	1152yds

Sedgwick County Sales
Concrete-Landfill-Road and Bridge
223 S Cedar
Julesburg, CO 80737



Summary

DATE	Cust#Kell1
11/28/2013	Page 4

BILL TO

Kelly Environmental LLC
P.O. Box 370332
Denver, Co. 80237

Date	Commodity	Quantity	Total
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
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11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/20/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
		Total	2304yds

11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
		Total	2880yds

DATE	Cust#Kell1
11/28/2013	Page 6

Date	Commodity	Quantity	Total
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
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11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/26/13	Petroleum Contaminated Soil	18	
11/27/13	Petroleum Contaminated Soil	18	
11/27/13	Petroleum Contaminated Soil	18	
11/27/13	Petroleum Contaminated Soil	18	
11/27/13	Petroleum Contaminated Soil	18	
11/27/13	Petroleum Contaminated Soil	18	
		Total	3312yds

DATE	Cust#Kell1
4/28/14	Page 1

Kelly Environmental, LLC
P.O. Box 370332
Denver, Co. 80237

Date	Commodity	Quantity	Total
4/09/14	Petroleum Contaminated Soil	18	
4/09/14	Petroleum Contaminated Soil	18	
4/09/14	Petroleum Contaminated Soil	18	
4/09/14	Petroleum Contaminated Soil	18	
4/09/14	Petroleum Contaminated Soil	18	
4/09/14	Petroleum Contaminated Soil	18	
4/09/14	Petroleum Contaminated Soil	18	
4/09/14	Petroleum Contaminated Soil	18	
Total			144yds

APPENDIX C

Laboratory Reports



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Tax I.D. 62-0814289

Est. 1970

Dave Nicholson
Ritchie Exploration, Inc.- Wichita, KS
8100 E. 22th St. North
Wichita, KS 67226

Report Summary

Friday October 25, 2013

Report Number: L664309

Samples Received: 10/22/13

Client Project:

Description: State 1-12

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

October 25, 2013

Dave Nicholson
Ritchie Exploration, Inc.- Wichita,
8100 E. 22th St. North
Wichita, KS 67226

Date Received : October 22, 2013
Description : State 1-12

Sample ID : SP12-LP-C1

Collected By :
Collection Date : 10/18/13 10:00

ESC Sample # : L664309-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	7.2		su	9045D	10/24/13	1
Sodium Adsorption Ratio	36.			Calc.	10/25/13	1
Specific Conductance	3900		umhos/cm	9050AMod	10/24/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	10/23/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/23/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/23/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/23/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/23/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.7		% Rec.	8021/8015	10/23/13	5
a,a,a-Trifluorotoluene(PID)	99.9		% Rec.	8021/8015	10/23/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	10/24/13	1
Surrogate recovery(%)						
o-Terphenyl	84.1		% Rec.	3546/DRO	10/24/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 10/25/13 17:58 Printed: 10/25/13 17:59
L664309-01 (PH) - 7.2@18.7c

Summary of Remarks For Samples Printed
10/25/13 at 17:59:02

TSR Signing Reports: 134
R4 - Rush: Three Day

Sample: L664309-01 Account: RITEXPWKS Received: 10/22/13 09:00 Due Date: 10/25/13 00:00 RPT Date: 10/25/13 17:58



YOUR LAB OF CHOICE

Ritchie Exploration, Inc.- Wichita, KS
Dave Nicholson
8100 E. 22th St. North

Wichita, KS 67226

Quality Assurance Report
Level II

L664309

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October 25, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG688524	10/23/13 14:04
Ethylbenzene	< .0005	mg/kg			WG688524	10/23/13 14:04
Toluene	< .005	mg/kg			WG688524	10/23/13 14:04
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG688524	10/23/13 14:04
Total Xylene	< .0015	mg/kg			WG688524	10/23/13 14:04
a,a,a-Trifluorotoluene(FID)		% Rec.	97.00	59-128	WG688524	10/23/13 14:04
a,a,a-Trifluorotoluene(PID)		% Rec.	101.0	54-144	WG688524	10/23/13 14:04
TPH (GC/FID) High Fraction	< 4	mg/kg			WG688463	10/23/13 20:38
o-Terphenyl		% Rec.	80.70	50-150	WG688463	10/23/13 20:38
Specific Conductance	0.980	umhos/cm			WG688370	10/24/13 12:05

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Specific Conductance	umhos/cm	250.	250.	0.723	20	L664261-01	WG688370
pH	su	8.00	8.00	0.374	1	L663644-01	WG688568
pH	su	8.70	8.70	0.344	1	L663772-01	WG688568

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0463	92.6	70-130	WG688524
Ethylbenzene	mg/kg	.05	0.0467	93.4	70-130	WG688524
Toluene	mg/kg	.05	0.0459	91.8	70-130	WG688524
Total Xylene	mg/kg	.15	0.141	94.2	70-130	WG688524
a,a,a-Trifluorotoluene(PID)				100.0	54-144	WG688524
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.42	98.6	63.5-137	WG688524
a,a,a-Trifluorotoluene(FID)				103.0	59-128	WG688524
TPH (GC/FID) High Fraction	mg/kg	60	48.4	80.7	50-150	WG688463
o-Terphenyl				78.60	50-150	WG688463
Specific Conductance	umhos/cm	510	510.	100.	85-115	WG688370
pH	su	6.96	6.90	99.1	98.3-101.7	WG688568

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0422	0.0463	84.0	70-130	9.25	20	WG688524
Ethylbenzene	mg/kg	0.0431	0.0467	86.0	70-130	7.94	20	WG688524
Toluene	mg/kg	0.0421	0.0459	84.0	70-130	8.74	20	WG688524
Total Xylene	mg/kg	0.131	0.141	87.0	70-130	7.65	20	WG688524
a,a,a-Trifluorotoluene(PID)				99.20	54-144			WG688524
TPH (GC/FID) Low Fraction	mg/kg	5.77	5.42	105.	63.5-137	6.17	20	WG688524
a,a,a-Trifluorotoluene(FID)				104.0	59-128			WG688524
TPH (GC/FID) High Fraction	mg/kg	55.2	48.4	92.0	50-150	13.2	20	WG688463
o-Terphenyl				88.20	50-150			WG688463

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Ritchie Exploration, Inc.- Wichita, KS
Dave Nicholson
8100 E. 22th St. North

Wichita, KS 67226

Quality Assurance Report
Level II

L664309

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Est. 1970

October 25, 2013

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Specific Conductance	umhos/	510.	510.	100.	85-115	0.0	20	WG688370
pH	su	6.90	6.90	99.0	98.3-101.7	0.0	20	WG688568

Analyte	Units	MS Res	Matrix Spike		TV	% Rec	Limit	Ref Samp	Batch
			Ref	Res					
Benzene	mg/kg	0.228	0.000254	.05	91.0	49.7-127	L664309-01	WG688524	
Ethylbenzene	mg/kg	0.220	0.000360	.05	88.0	40.8-141	L664309-01	WG688524	
Toluene	mg/kg	0.224	0.000742	.05	89.0	49.8-132	L664309-01	WG688524	
Total Xylene	mg/kg	0.664	0.00200	.15	88.0	41.2-140	L664309-01	WG688524	
a,a,a-Trifluorotoluene(PID)					99.80	54-144		WG688524	
TPH (GC/FID) Low Fraction	mg/kg	25.0	0.0606	5.5	91.0	28.5-138	L664309-01	WG688524	
a,a,a-Trifluorotoluene(FID)					103.0	59-128		WG688524	

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.240	0.228	95.9	49.7-127	5.31	23.5	L664309-01	WG688524
Ethylbenzene	mg/kg	0.233	0.220	93.2	40.8-141	5.73	23.8	L664309-01	WG688524
Toluene	mg/kg	0.235	0.224	93.8	49.8-132	4.83	23.5	L664309-01	WG688524
Total Xylene	mg/kg	0.702	0.664	93.3	41.2-140	5.57	23.7	L664309-01	WG688524
a,a,a-Trifluorotoluene(PID)				99.70	54-144				WG688524
TPH (GC/FID) Low Fraction	mg/kg	24.3	25.0	88.3	28.5-138	2.83	23.6	L664309-01	WG688524
a,a,a-Trifluorotoluene(FID)				102.0	59-128				WG688524

Batch number /Run number / Sample number cross reference

WG688524: R2844419: L664309-01
WG688463: R2844669: L664309-01
WG688370: R2844684: L664309-01
WG688568: R2844722: L664309-01
WG688550: R2845373: L664309-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Ritchie Exploration, Inc.- Wichita, KS
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8100 E. 22th St. North

Wichita, KS 67226

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October 25, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Est. 1970

Dave Nicholson
Ritchie Exploration, Inc.- Wichita, KS
8100 E. 22th St. North
Wichita, KS 67226

Report Summary

Tuesday December 03, 2013

Report Number: L670337

Samples Received: 11/22/13

Client Project:

Description: State 1-12

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Dave Nicholson
Ritchie Exploration, Inc.- Wichita,
8100 E. 22th St. North
Wichita, KS 67226

December 03, 2013

Date Received : November 22, 2013
Description : State 1-12
Sample ID : S112-CS-1
Collected By : DK Nicholson
Collection Date : 11/20/13 10:45

ESC Sample # : L670337-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	8.7		su	9045D	11/27/13	1
Sodium Adsorption Ratio	5.0			Calc.	11/29/13	1
Specific Conductance	340		umhos/cm	9050AMod	12/01/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/29/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/29/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/29/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/29/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/29/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	103.		% Rec.	8021/8015	11/29/13	5
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	11/29/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	4.0	mg/kg	8015	11/24/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	11/24/13	1
Surrogate Recovery						
o-Terphenyl	72.2		% Rec.	8015	11/24/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 12/03/13 09:21 Printed: 12/03/13 09:22
L670337-01 (PH) - 8.7@17.4c



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REPORT OF ANALYSIS

Dave Nicholson
Ritchie Exploration, Inc.- Wichita,
8100 E. 22th St. North
Wichita, KS 67226

December 03, 2013

Date Received : November 22, 2013
Description : State 1-12
Sample ID : S112-CS-2
Collected By : DK Nicholson
Collection Date : 11/20/13 10:50

ESC Sample # : L670337-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	8.8		su	9045D	11/27/13	1
Sodium Adsorption Ratio	3.7			Calc.	11/29/13	1
Specific Conductance	380		umhos/cm	9050AMod	12/01/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/29/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/29/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/29/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/29/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/29/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	103.		% Rec.	8021/8015	11/29/13	5
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	11/29/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	4.0	mg/kg	8015	11/24/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	11/24/13	1
Surrogate Recovery						
o-Terphenyl	77.0		% Rec.	8015	11/24/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 12/03/13 09:21 Printed: 12/03/13 09:22
L670337-02 (PH) - 8.8@16.9c



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REPORT OF ANALYSIS

Dave Nicholson
Ritchie Exploration, Inc.- Wichita,
8100 E. 22th St. North
Wichita, KS 67226

December 03, 2013

Date Received : November 22, 2013
Description : State 1-12
Sample ID : S112-CS-3
Collected By : DK Nicholson
Collection Date : 11/20/13 12:30

ESC Sample # : L670337-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	9.0		su	9045D	11/27/13	1
Sodium Adsorption Ratio	12.			Calc.	11/29/13	1
Specific Conductance	340		umhos/cm	9050AMod	12/01/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/30/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/30/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/30/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/30/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/30/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	103.		% Rec.	8021/8015	11/30/13	5
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021/8015	11/30/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	4.0	mg/kg	8015	11/24/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	11/24/13	1
Surrogate Recovery						
o-Terphenyl	84.8		% Rec.	8015	11/24/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L670337-03 (PH) - 9.0@16.6c



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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Dave Nicholson
Ritchie Exploration, Inc.- Wichita,
8100 E. 22th St. North
Wichita, KS 67226

December 03, 2013

Date Received : November 22, 2013
Description : State 1-12
Sample ID : S112-CS-4
Collected By : DK Nicholson
Collection Date : 11/20/13 12:40

ESC Sample # : L670337-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	8.7		su	9045D	11/27/13	1
Sodium Adsorption Ratio	29.			Calc.	11/29/13	1
Specific Conductance	530		umhos/cm	9050AMod	12/01/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/30/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/30/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/30/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/30/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/30/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	103.		% Rec.	8021/8015	11/30/13	5
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021/8015	11/30/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	4.0	mg/kg	8015	11/24/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	11/24/13	1
Surrogate Recovery						
o-Terphenyl	82.2		% Rec.	8015	11/24/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L670337-04 (PH) - 8.7@16.3c



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REPORT OF ANALYSIS

Dave Nicholson
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8100 E. 22th St. North
Wichita, KS 67226

December 03, 2013

Date Received : November 22, 2013
Description : State 1-12

Sample ID : S112-CS-5

Collected By : DK Nicholson
Collection Date : 11/20/13 13:30

ESC Sample # : L670337-05

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	7.5		su	9045D	11/27/13	1
Sodium Adsorption Ratio	3.9			Calc.	11/29/13	1
Specific Conductance	3000		umhos/cm	9050AMod	12/01/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/30/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/30/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/30/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/30/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/30/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	103.		% Rec.	8021/8015	11/30/13	5
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021/8015	11/30/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	4.0	mg/kg	8015	11/24/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	11/24/13	1
Surrogate Recovery						
o-Terphenyl	82.7		% Rec.	8015	11/24/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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L670337-05 (PH) - 7.5@16.2c



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REPORT OF ANALYSIS

Dave Nicholson
Ritchie Exploration, Inc.- Wichita,
8100 E. 22th St. North
Wichita, KS 67226

December 03, 2013

Date Received : November 22, 2013
Description : State 1-12
Sample ID : S112-CS-6
Collected By : DK Nicholson
Collection Date : 11/20/13 13:40

ESC Sample # : L670337-06

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	8.0		su	9045D	11/27/13	1
Sodium Adsorption Ratio	5.8			Calc.	11/29/13	1
Specific Conductance	300		umhos/cm	9050AMod	12/01/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/27/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/27/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/27/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/27/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/27/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	102.		% Rec.	8021/8015	11/27/13	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	11/27/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	4.0	mg/kg	8015	11/24/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	11/24/13	1
Surrogate Recovery						
o-Terphenyl	84.8		% Rec.	8015	11/24/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L670337-06 (PH) - 8.0@15.7c



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REPORT OF ANALYSIS

Dave Nicholson
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December 03, 2013

Date Received : November 22, 2013
Description : State 1-12
Sample ID : S112-CS-7
Collected By : DK Nicholson
Collection Date : 11/20/13 14:20

ESC Sample # : L670337-07

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	7.9		su	9045D	11/27/13	1
Sodium Adsorption Ratio	44.			Calc.	11/29/13	1
Specific Conductance	2000		umhos/cm	9050AMod	12/01/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/27/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/27/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/27/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/27/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/27/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	102.		% Rec.	8021/8015	11/27/13	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	11/27/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	4.0	mg/kg	8015	11/24/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	11/24/13	1
Surrogate Recovery						
o-Terphenyl	77.3		% Rec.	8015	11/24/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Dave Nicholson
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December 03, 2013

Date Received : November 22, 2013
Description : State 1-12
Sample ID : S112-CS-8
Collected By : DK Nicholson
Collection Date : 11/20/13 14:30

ESC Sample # : L670337-08

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	10.		su	9045D	11/27/13	1
Sodium Adsorption Ratio	56.			Calc.	11/29/13	1
Specific Conductance	1100		umhos/cm	9050AMod	12/01/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/27/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/27/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/27/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/27/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/27/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	101.		% Rec.	8021/8015	11/27/13	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	11/27/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	5.0	4.0	mg/kg	8015	11/24/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	11/24/13	1
Surrogate Recovery						
o-Terphenyl	79.3		% Rec.	8015	11/24/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L670337-08 (PH) - 10@16.6c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L670337-01	WG693968	SAMP	C10-C28 Diesel Range	R2859478	J3
	WG693968	SAMP	C28-C40 Oil Range	R2859478	J3

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
12/03/13 at 09:22:26

TSR Signing Reports: 134
R5 - Desired TAT

Sample: L670337-01 Account: RITEXPWKS Received: 11/22/13 10:00 Due Date: 12/02/13 00:00 RPT Date: 12/03/13 09:21
Sample: L670337-02 Account: RITEXPWKS Received: 11/22/13 10:00 Due Date: 12/02/13 00:00 RPT Date: 12/03/13 09:21
Sample: L670337-03 Account: RITEXPWKS Received: 11/22/13 10:00 Due Date: 12/02/13 00:00 RPT Date: 12/03/13 09:21
Sample: L670337-04 Account: RITEXPWKS Received: 11/22/13 10:00 Due Date: 12/02/13 00:00 RPT Date: 12/03/13 09:21
Sample: L670337-05 Account: RITEXPWKS Received: 11/22/13 10:00 Due Date: 12/02/13 00:00 RPT Date: 12/03/13 09:21
Sample: L670337-06 Account: RITEXPWKS Received: 11/22/13 10:00 Due Date: 12/02/13 00:00 RPT Date: 12/03/13 09:21
Sample: L670337-07 Account: RITEXPWKS Received: 11/22/13 10:00 Due Date: 12/02/13 00:00 RPT Date: 12/03/13 09:21
Sample: L670337-08 Account: RITEXPWKS Received: 11/22/13 10:00 Due Date: 12/02/13 00:00 RPT Date: 12/03/13 09:21



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December 03, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
C10-C28 Diesel Range	< 4	mg/kg			WG693968	11/24/13 20:32
C28-C40 Oil Range	< 4	mg/kg			WG693968	11/24/13 20:32
o-Terphenyl		% Rec.	84.10	50-150	WG693968	11/24/13 20:32
Benzene	< .0005	mg/kg			WG694264	11/27/13 06:35
Ethylbenzene	< .0005	mg/kg			WG694264	11/27/13 06:35
Toluene	< .005	mg/kg			WG694264	11/27/13 06:35
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG694264	11/27/13 06:35
Total Xylene	< .0015	mg/kg			WG694264	11/27/13 06:35
a,a,a-Trifluorotoluene(FID)		% Rec.	102.0	59-128	WG694264	11/27/13 06:35
a,a,a-Trifluorotoluene(PID)		% Rec.	103.0	54-144	WG694264	11/27/13 06:35
Specific Conductance	1.00	umhos/cm			WG694902	12/01/13 12:10
Specific Conductance	1.00	umhos/cm			WG694901	12/01/13 11:49
Benzene	< .0005	mg/kg			WG694029	11/29/13 14:42
Ethylbenzene	< .0005	mg/kg			WG694029	11/29/13 14:42
Toluene	< .005	mg/kg			WG694029	11/29/13 14:42
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG694029	11/29/13 14:42
Total Xylene	< .0015	mg/kg			WG694029	11/29/13 14:42
a,a,a-Trifluorotoluene(FID)		% Rec.	103.0	59-128	WG694029	11/29/13 14:42
a,a,a-Trifluorotoluene(PID)		% Rec.	104.0	54-144	WG694029	11/29/13 14:42

Analyte	Units	Result	Duplicate		Limit	Ref Samp	Batch
			Duplicate	RPD			
pH	su	8.70	8.70	0.0	1	L670337-01	WG694511
pH	su	7.60	7.70	0.782	1	L670402-12	WG694511
Specific Conductance	umhos/cm	340.	340.	1.18	20	L670337-03	WG694902
Specific Conductance	umhos/cm	680.	680.	0.0	20	L670720-02	WG694902
Specific Conductance	umhos/cm	2800	2700	1.83	20	L670284-43	WG694901
Specific Conductance	umhos/cm	380.	380.	0.0	20	L670337-02	WG694901

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0504	101.	70-130	WG694264
Ethylbenzene	mg/kg	.05	0.0486	97.2	70-130	WG694264
Toluene	mg/kg	.05	0.0482	96.3	70-130	WG694264
Total Xylene	mg/kg	.15	0.146	97.5	70-130	WG694264
a,a,a-Trifluorotoluene(PID)				101.0	54-144	WG694264
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.80	105.	63.5-137	WG694264
a,a,a-Trifluorotoluene(FID)				103.0	59-128	WG694264
pH	su	5.93	6.00	101.	98.3-101.7	WG694511
Specific Conductance	umhos/cm	510	510.	100.	85-115	WG694902

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Dave Nicholson
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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Specific Conductance	umhos/cm	510	510.	100.	85-115	WG694901
Benzene	mg/kg	.05	0.0520	104.	70-130	WG694029
Ethylbenzene	mg/kg	.05	0.0508	102.	70-130	WG694029
Toluene	mg/kg	.05	0.0502	100.	70-130	WG694029
Total Xylene	mg/kg	.15	0.154	102.	70-130	WG694029
a,a,a-Trifluorotoluene(PID)				103.0	54-144	WG694029
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.50	100.	63.5-137	WG694029
a,a,a-Trifluorotoluene(FID)				104.0	59-128	WG694029

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0521	0.0504	104.	70-130	3.20	20	WG694264
Ethylbenzene	mg/kg	0.0500	0.0486	100.	70-130	2.90	20	WG694264
Toluene	mg/kg	0.0492	0.0482	98.0	70-130	2.13	20	WG694264
Total Xylene	mg/kg	0.150	0.146	100.	70-130	2.41	20	WG694264
a,a,a-Trifluorotoluene(PID)				103.0	54-144			WG694264
TPH (GC/FID) Low Fraction	mg/kg	5.72	5.80	104.	63.5-137	1.33	20	WG694264
a,a,a-Trifluorotoluene(FID)				103.0	59-128			WG694264

pH	su	6.00	6.00	101.	98.3-101.7	0.0	20	WG694511
Specific Conductance	umhos/	510.	510.	100.	85-115	0.0	20	WG694902
Specific Conductance	umhos/	510.	510.	100.	85-115	0.0	20	WG694901
Benzene	mg/kg	0.0481	0.0520	96.0	70-130	7.85	20	WG694029
Ethylbenzene	mg/kg	0.0466	0.0508	93.0	70-130	8.58	20	WG694029
Toluene	mg/kg	0.0456	0.0502	91.0	70-130	9.66	20	WG694029
Total Xylene	mg/kg	0.140	0.154	93.0	70-130	9.45	20	WG694029
a,a,a-Trifluorotoluene(PID)				103.0	54-144			WG694029
TPH (GC/FID) Low Fraction	mg/kg	5.68	5.50	103.	63.5-137	3.11	20	WG694029
a,a,a-Trifluorotoluene(FID)				103.0	59-128			WG694029

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.275	0.0	.05	110.	49.7-127	L670337-06	WG694264
Ethylbenzene	mg/kg	0.259	0.0	.05	100.	40.8-141	L670337-06	WG694264
Toluene	mg/kg	0.263	0.00119	.05	100.	49.8-132	L670337-06	WG694264
Total Xylene	mg/kg	0.774	0.00288	.15	100.	41.2-140	L670337-06	WG694264
a,a,a-Trifluorotoluene(PID)					102.0	54-144		WG694264
TPH (GC/FID) Low Fraction	mg/kg	26.3	0.201	5.5	95.0	28.5-138	L670337-06	WG694264
a,a,a-Trifluorotoluene(FID)					102.0	59-128		WG694264

Benzene	mg/kg	0.221	0.0	.05	88.0	49.7-127	L670314-01	WG694029
Ethylbenzene	mg/kg	0.203	0.0	.05	81.0	40.8-141	L670314-01	WG694029
Toluene	mg/kg	0.208	0.00129	.05	83.0	49.8-132	L670314-01	WG694029
Total Xylene	mg/kg	0.608	0.00153	.15	81.0	41.2-140	L670314-01	WG694029
a,a,a-Trifluorotoluene(PID)					103.0	54-144		WG694029
TPH (GC/FID) Low Fraction	mg/kg	20.9	0.166	5.5	76.0	28.5-138	L670314-01	WG694029

* Performance of this Analyte is outside of established criteria.

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
a,a,a-Trifluorotoluene(FID)					102.0	59-128				
Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Benzene	mg/kg	0.255	0.275	102.	49.7-127	7.82	23.5	L670337-06		WG694264
Ethylbenzene	mg/kg	0.239	0.259	95.4	40.8-141	8.31	23.8	L670337-06		WG694264
Toluene	mg/kg	0.238	0.263	94.8	49.8-132	9.99	23.5	L670337-06		WG694264
Total Xylene	mg/kg	0.713	0.774	94.7	41.2-140	8.23	23.7	L670337-06		WG694264
a,a,a-Trifluorotoluene(PID)				103.0	54-144					WG694264
TPH (GC/FID) Low Fraction	mg/kg	26.9	26.3	97.0	28.5-138	2.28	23.6	L670337-06		WG694264
a,a,a-Trifluorotoluene(FID)				102.0	59-128					WG694264
Benzene	mg/kg	0.237	0.221	94.6	49.7-127	6.95	23.5	L670314-01		WG694029
Ethylbenzene	mg/kg	0.226	0.203	90.3	40.8-141	10.4	23.8	L670314-01		WG694029
Toluene	mg/kg	0.224	0.208	89.2	49.8-132	7.68	23.5	L670314-01		WG694029
Total Xylene	mg/kg	0.672	0.608	89.4	41.2-140	9.98	23.7	L670314-01		WG694029
a,a,a-Trifluorotoluene(PID)				103.0	54-144					WG694029
TPH (GC/FID) Low Fraction	mg/kg	22.0	20.9	79.5	28.5-138	5.07	23.6	L670314-01		WG694029
a,a,a-Trifluorotoluene(FID)				103.0	59-128					WG694029

Batch number /Run number / Sample number cross reference

WG693968: R2859478: L670337-01 02 03 04 05 06 07 08
WG694264: R2860320: L670337-06 07 08
WG694511: R2860856: L670337-01 02 03 04 05 06 07 08
WG694338: R2860962: L670337-01 02 03 04 05 06 07 08
WG694902: R2861511: L670337-03 04 05 06 07 08
WG694901: R2861545: L670337-01 02
WG694029: R2861622: L670337-01 02 03 04 05

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Ritchie Exploration, Inc.- Wichita, KS
Dave Nicholson
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Wichita, KS 67226

Quality Assurance Report
Level II

L670337

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Tax I.D. 62-0814289

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December 03, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Dave Nicholson
Ritchie Exploration, Inc.- Wichita, KS
8100 E. 22th St. North
Wichita, KS 67226

Report Summary

Thursday December 12, 2013

Report Number: L672798

Samples Received: 12/09/13

Client Project:

Description: State 1-12

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Dave Nicholson
Ritchie Exploration, Inc.- Wichita,
8100 E. 22th St. North
Wichita, KS 67226

December 12, 2013

Date Received : December 09, 2013
Description : State 1-12
Sample ID : S112-CS-9
Collected By : DK Nicholson
Collection Date : 11/26/13 09:40

ESC Sample # : L672798-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	8.4		su	9045D	12/10/13	1
Sodium Adsorption Ratio	32.			Calc.	12/11/13	1
Specific Conductance	2800		umhos/cm	9050AMod	12/11/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	12/09/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	12/09/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	12/09/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	12/09/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	12/09/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.0		% Rec.	8021/8015	12/09/13	5
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021/8015	12/09/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	4.0	mg/kg	8015	12/10/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	12/10/13	1
Surrogate Recovery						
o-Terphenyl	68.6		% Rec.	8015	12/10/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 12/12/13 09:40 Printed: 12/12/13 09:40
L672798-01 (PH) - 8.4@21.2c



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REPORT OF ANALYSIS

Dave Nicholson
Ritchie Exploration, Inc.- Wichita,
8100 E. 22th St. North
Wichita, KS 67226

December 12, 2013

Date Received : December 09, 2013
Description : State 1-12
Sample ID : S112-CS-10
Collected By : DK Nicholson
Collection Date : 11/26/13 09:45

ESC Sample # : L672798-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	8.9		su	9045D	12/10/13	1
Sodium Adsorption Ratio	43.			Calc.	12/11/13	1
Specific Conductance	3100		umhos/cm	9050AMod	12/11/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	12/09/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	12/09/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	12/09/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	12/09/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	12/09/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.0		% Rec.	8021/8015	12/09/13	5
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021/8015	12/09/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	4.0	mg/kg	8015	12/10/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	12/10/13	1
Surrogate Recovery						
o-Terphenyl	73.0		% Rec.	8015	12/10/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 12/12/13 09:40 Printed: 12/12/13 09:40
L672798-02 (PH) - 8.9@20.6c



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REPORT OF ANALYSIS

Dave Nicholson
Ritchie Exploration, Inc.- Wichita,
8100 E. 22th St. North
Wichita, KS 67226

December 12, 2013

Date Received : December 09, 2013
Description : State 1-12

Sample ID : S112-CS-11

Collected By : DK Nicholson
Collection Date : 11/26/13 09:50

ESC Sample # : L672798-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	9.1		su	9045D	12/10/13	1
Sodium Adsorption Ratio	59.			Calc.	12/11/13	1
Specific Conductance	2900		umhos/cm	9050AMod	12/11/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	12/09/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	12/09/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	12/09/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	12/09/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	12/09/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.0		% Rec.	8021/8015	12/09/13	5
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	12/09/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	4.0	mg/kg	8015	12/10/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	12/10/13	1
Surrogate Recovery						
o-Terphenyl	70.3		% Rec.	8015	12/10/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.
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L672798-03 (PH) - 9.1@20.5c



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REPORT OF ANALYSIS

Dave Nicholson
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Wichita, KS 67226

December 12, 2013

Date Received : December 09, 2013
Description : State 1-12
Sample ID : S112-CS-12
Collected By : DK Nicholson
Collection Date : 11/26/13 09:55

ESC Sample # : L672798-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	8.7		su	9045D	12/10/13	1
Sodium Adsorption Ratio	37.			Calc.	12/11/13	1
Specific Conductance	2000		umhos/cm	9050AMod	12/11/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	12/09/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	12/09/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	12/09/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	12/09/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	12/09/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.1		% Rec.	8021/8015	12/09/13	5
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	12/09/13	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	4.4	4.0	mg/kg	8015	12/10/13	1
C28-C40 Oil Range	BDL	4.0	mg/kg	8015	12/10/13	1
Surrogate Recovery						
o-Terphenyl	67.8		% Rec.	8015	12/10/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 12/12/13 09:40 Printed: 12/12/13 09:40
L672798-04 (PH) - 8.7@20.5c

Summary of Remarks For Samples Printed
12/12/13 at 09:40:32

TSR Signing Reports: 134
R5 - Desired TAT

Sample: L672798-01 Account: RITEXPWKS Received: 12/09/13 09:00 Due Date: 12/16/13 00:00 RPT Date: 12/12/13 09:40
Sample: L672798-02 Account: RITEXPWKS Received: 12/09/13 09:00 Due Date: 12/16/13 00:00 RPT Date: 12/12/13 09:40
Sample: L672798-03 Account: RITEXPWKS Received: 12/09/13 09:00 Due Date: 12/16/13 00:00 RPT Date: 12/12/13 09:40
Sample: L672798-04 Account: RITEXPWKS Received: 12/09/13 09:00 Due Date: 12/16/13 00:00 RPT Date: 12/12/13 09:40



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Ritchie Exploration, Inc.- Wichita, KS
Dave Nicholson
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Quality Assurance Report
Level II

L672798

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December 12, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG696000	12/09/13 13:51
Ethylbenzene	< .0005	mg/kg			WG696000	12/09/13 13:51
Toluene	< .005	mg/kg			WG696000	12/09/13 13:51
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG696000	12/09/13 13:51
Total Xylene	< .0015	mg/kg			WG696000	12/09/13 13:51
a,a,a-Trifluorotoluene(FID)		% Rec.	96.20	59-128	WG696000	12/09/13 13:51
a,a,a-Trifluorotoluene(PID)		% Rec.	105.0	54-144	WG696000	12/09/13 13:51
Specific Conductance	1.20	umhos/cm			WG696321	12/11/13 08:16
C10-C28 Diesel Range	< 4	mg/kg			WG696294	12/10/13 18:22
C28-C40 Oil Range	< 4	mg/kg			WG696294	12/10/13 18:22
o-Terphenyl		% Rec.	78.10	50-150	WG696294	12/10/13 18:22

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
pH	su	8.30	8.40	0.717	1	L672798-01	WG696272
Specific Conductance	umhos/cm	1400	1400	0.0	20	L671907-01	WG696321
Specific Conductance	umhos/cm	2000	2000	0.499	20	L672798-04	WG696321

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0473	94.6	70-130	WG696000
Ethylbenzene	mg/kg	.05	0.0484	96.8	70-130	WG696000
Toluene	mg/kg	.05	0.0473	94.6	70-130	WG696000
Total Xylene	mg/kg	.15	0.147	98.0	70-130	WG696000
a,a,a-Trifluorotoluene(PID)				102.0	54-144	WG696000
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.06	92.0	63.5-137	WG696000
a,a,a-Trifluorotoluene(FID)				103.0	59-128	WG696000
pH	su	5.93	6.00	101.	98.3-101.7	WG696272
Specific Conductance	umhos/cm	510	510.	100.	85-115	WG696321

Analyte	Units	Laboratory Control Sample Duplicate		%Rec	Limit	RPD	Limit	Batch
		Result	Ref					
Benzene	mg/kg	0.0461	0.0473	92.0	70-130	2.53	20	WG696000
Ethylbenzene	mg/kg	0.0474	0.0484	95.0	70-130	2.06	20	WG696000
Toluene	mg/kg	0.0462	0.0473	92.0	70-130	2.36	20	WG696000
Total Xylene	mg/kg	0.144	0.147	96.0	70-130	2.18	20	WG696000
a,a,a-Trifluorotoluene(PID)				103.0	54-144			WG696000
TPH (GC/FID) Low Fraction	mg/kg	4.94	5.06	90.0	63.5-137	2.42	20	WG696000
a,a,a-Trifluorotoluene(FID)				101.0	59-128			WG696000
pH	su	5.90	6.00	99.0	98.3-101.7	1.68	20	WG696272
Specific Conductance	umhos/	510.	510.	100.	85-115	0.0	20	WG696321

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/kg	0.227	0.000867	.05	91.0	49.7-127	L672305-03	WG696000
Ethylbenzene	mg/kg	0.225	0.00330	.05	88.0	40.8-141	L672305-03	WG696000
Toluene	mg/kg	0.225	0.00107	.05	89.0	49.8-132	L672305-03	WG696000
Total Xylene	mg/kg	0.672	0.0536	.15	82.0	41.2-140	L672305-03	WG696000
a,a,a-Trifluorotoluene(PID)					102.0	54-144		WG696000
TPH (GC/FID) Low Fraction	mg/kg	26.5	13.2	5.5	48.0	28.5-138	L672305-03	WG696000
a,a,a-Trifluorotoluene(FID)					101.0	59-128		WG696000

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.235	0.227	93.5	49.7-127	3.14	23.5	L672305-03	WG696000
Ethylbenzene	mg/kg	0.236	0.225	93.0	40.8-141	4.80	23.8	L672305-03	WG696000
Toluene	mg/kg	0.232	0.225	92.2	49.8-132	3.01	23.5	L672305-03	WG696000
Total Xylene	mg/kg	0.709	0.672	87.3	41.2-140	5.35	23.7	L672305-03	WG696000
a,a,a-Trifluorotoluene(PID)				103.0	54-144				WG696000
TPH (GC/FID) Low Fraction	mg/kg	26.6	26.5	48.6	28.5-138	0.420	23.6	L672305-03	WG696000
a,a,a-Trifluorotoluene(FID)				100.0	59-128				WG696000

Batch number /Run number / Sample number cross reference

WG696000: R2865403: L672798-01 02 03 04
WG696272: R2865828: L672798-01 02 03 04
WG696321: R2866152: L672798-01 02 03 04
WG696294: R2866440: L672798-01 02 03 04
WG696341: R2866560: L672798-01 02 03 04

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

APPENDIX D
Compost Certifications

Humalfa the Organic Fertilizer Co., LLC
26874 CR 65, Iliff, CO 80736

Date:

Customer/Farmer:

Field #/Name:

Product:

Loaded at:

Trucking Company:

Truck & Trailer Number:

Driver's Signature:

Ticket No: 24719

Humalfa the Organic Fertilizer Co., LLC
26874 CR 65, Iliff, CO 80736

Date:

Customer/Farmer:

Field #/Name: 46

Product:

Loaded at:

Trucking Company:

Truck & Trailer Number:

Driver's Signature: _____

Ticket No: 30206

Humalfa the Organic Fertilizer Co., LLC
26874 CR 65, Iliff, CO 80736

Date:

Customer/Farmer:

Field #/Name:

Product:

Loaded at:

Trucking Company:

Truck & Trailer Number:

Driver's Signature: _____