

Remediation Summary Report North Benson Queen Unit Tank Battery Produced Water Spill

Prepared By:

Fred Holmes Project Manager

Etech Environmental & Safety Solutions, Inc.

Reviewed By:

Shane Estep

Senior Environmental Scientist

Etech Environmental & Safety Solutions, Inc.

Prepared By:

Etech Environmental & Safety Solutions, Inc.

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094-1749-000

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Executive Summary

On August 3, 2008, a produced water release occurred at the Arena Resources, Inc. (Arena) NBQU Tank Battery facility located in Lea County, New Mexico. Before cleanup of the spills, a second release occurred on August 28, 2008 at the NBQU Tank Battery.

Arena Resources, Inc. (Arena) contracted Etech Environmental and Safety Solutions, Inc. (Etech) to; 1. Prepare and submit a corrective action plan (CAP) to the State of New Mexico, Oil Conservation Division (OCD) and, 2. Implement the CAP once approved. The approved CAP called for the construction of an on-site soil washing system to remove the chlorides from the soils. Once the soils reached a threshold level of 500 mg/kg or less of chlorides, the soils would be removed and the process repeated until all soils associated with the above releases had been mitigated. On October of 2008 Etech began excavation of the impacted soils and construction of the washing unit. Soils washing operations started in December of 2008 and were concluded in May of 2010. It should be noted that the unit was also used to wash chloride impacted soils from a flowline leak which had occurred at the NBQU Well # 16. A remediation report for that section was prepared and submitted to the OCD. The site was considered mitigated in August of 2009 and consequently is not part of this report

A three-tiered sampling and analysis plan was utilized to field screen and laboratory validate that the soils were remediated to the proper levels. All samples analyzed by Etech and by the third party laboratory confirmed the soils were cleaned to the objective levels of the corrective action plan.

Following the completion of the remediation of all of the excavated soils, the geotextile membrane and majority of the filter rock were removed from the treatment cell. As per approval from the OCD, the polyethylene liners were left in place. The cell was backfilled in 6-12 inch lifts and tire compacted to surface. The final surface area was contoured so that any water or spills would flow back towards the center of the site.

After completion of all of the activities, and the results of the analyses, the impacted soils from the two spills at the NBQU tank battery site have been successfully remediated.

Introduction

On August 3, 2008, a produced water release occurred at the Arena Resources, Inc. (Arena) NBQU Tank Battery facility located in Lea County, New Mexico. Before cleanup of the spills, a second release occurred on August 28, 2008 at the NBQU Tank Battery. Particulars on each spill are as follows:

 Site:
 NBQU Tank Battery

 Unit No:
 NMNM70993X

 Latitude:
 N32° 42' 57.100"

 Longitude:
 W103° 58" 17.900"

 Quantity Released:
 580 BBLs.

Cause: Electrical storm shut down power to the facility. Sand tanks continued to send water to

the water tank causing it to run over.

 Site:
 NBQU Tank Battery

 Unit No:
 NMNM70993X

 Latitude:
 N32° 42' 57.100"

 Longitude:
 W103° 58" 17.900"

Quantity Released:120 BBLs.

Cause: Lightning struck the north tank. A fire ensued causing the tank adjacent to the south to

explode.

Arena Resources, Inc. (Arena) contracted Etech Environmental and Safety Solutions, Inc. (Etech) to; 1. Prepare and submit a corrective action plan (CAP) to the State of New Mexico, Oil Conservation Division and, 2. Implement the CAP once approved. The approved CAP called for the construction of an on-site soil washing system to remove the chlorides from the soils. Once the soils reached a threshold level of 500 mg/kg or less of chlorides, the soils would be removed and the process repeated until all soils associated with the above releases had been mitigated. On October of 2008 Etech began excavation of the impacted soils and construction of the washing unit. Soils washing operations started in December of 2008 and were concluded in May of 2010. It should be noted that the unit was also used to was chloride impacted soils from a flowline leak which had occurred at the NBQU Well # 16. A remediation report for that section was prepared and submitted to the OCD. The site was considered mitigated in August of 2009 and consequently is not part of this report. A site location map is provided in Attachment A. A copy of the final NM C-141 Spill Reports is provided in Attachment B.

Remediation Summary

The process involved using freshwater as a solvent to remove the chlorides from the soil. Once the soil and water were added to the treatment cell, they were agitated to promote a uniform mixture then allowed to filter through a rock sieve covered with a geotextile membrane and flow to a separate collection area. The wash water was then transferred to a produced water tank at the facility and disposed of along with produced water from production operations at the fields produced water injection well. Photographs of the construction and cell operation are provided in Photos 1-6 on the following pages.

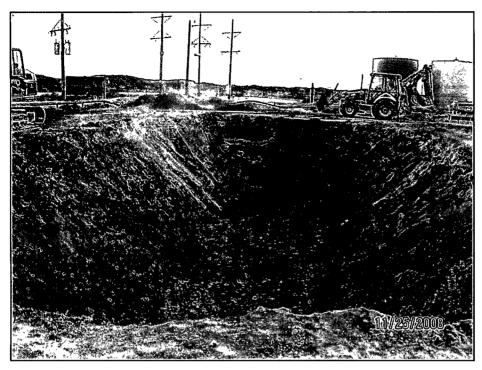


Photo 1: View of the cell following excavation.

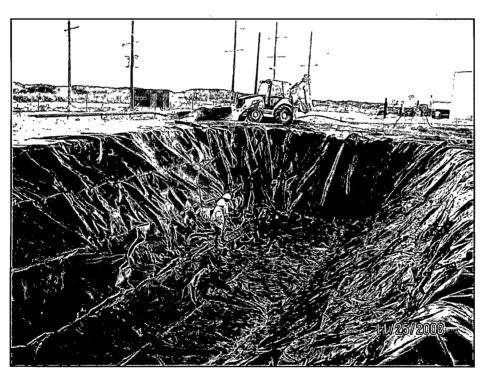


Photo 2: View of the cell following the installation of the primary, 40 mil polyethylene liner.

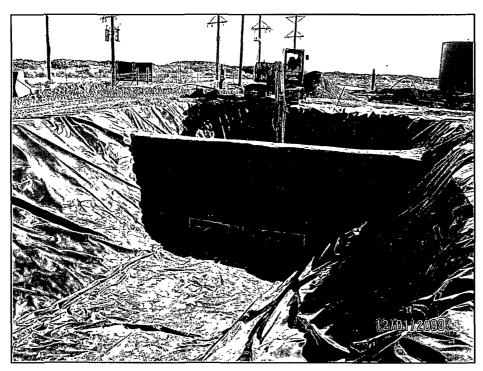


Photo 3: Vie w of the c ompleted di vider wall to allo w washing and the collection of rinsate.



Photo 4: View with secondary 40 mil polyethylene liner, filter rock, and geotextile membrane in place. Cell is ready to wash soil.



Photo 5 : Soil and water are bein g added to the washing side of the treatment cell.



Photo 6: Vie w of water entering the collection area from the other side of the wash area. Pump (middle right is used to transfer water to the produced water tank for disposal.

Validation Procedures and Analyses

Samples were collected daily by Etech's operations technician. A 25 gram aliquot of soil was placed in a sample jar along with 100 ml of distilled water and 1/8 of a tsp of calcium sulfate. The sample was agitated for 1-2 minutes then allowed to settle. Once settled, the clear phase of the liquid was extracted and placed in a clean sample vial and a HACH Quantab ® low-range titrator was inserted into the liquid. When the titrator indicated it had reached its end point, the value was read on the titrator and the result recorded. When the titrator indicated the sample was near 100 mg/kg, the soil was removed and stockpiled. Otherwise, the soil was washed again until it reached the targeted results. A copy of the field analysis sheets is provided in Attachment C.

Samples were collected from the stockpiles and tested monthly at Etech using Standard Method 4500 CIB which is identical to the sample procedure used by third party laboratories for the analysis of chlorides. If the analytical results determined the washed soil it was within the CAP objectives of 500 mg/kg or less the stockpiled material was staged to a clean area. A copy of the in-house analytical results is provided in Attachment D.

Etech also periodically collected samples from the stockpiles and sent them to Cardinal laboratories in Hobbs, NM for validation analyses. A portion of these sampling events were also witnessed by a representative of the OCD. A copy of the results of all laboratory validation analyses are provided in Attachment E.

All samples analyzed by Etech and by the third party laboratory confirmed the soils were cleaned to the objective levels of the corrective action plan.

Closure

Following the completion of the remediation of all of the excavated soils, the geotextile membrane and majority of the filter rock were removed from the treatment cell. As per approval from the OCD, the polyethylene liners were left in place. However a two-foot deep trench was excavated around the perimeter of the soil-washing unit. The primary and secondary liners were trimmed and folded into this trench then backfilled. The rationale for this approach was that Arena had plans in place to potentially construct and install a produced water tank battery over this area. It was decided that it would be technically a sound idea to leave the liners in place in the event another major upset of this type occurred again, that there would be a lower level of containment underneath the tanks.

Once this was completed, the cell was backfilled in 6-12 inch lifts and tire compacted to surface. The final surface area was contoured so that any water or spills would flow back towards the center of the site. Photographs of the closure process are presented on the following pages.



Photo 7: View of the removal of the geotextile fabric in progress.

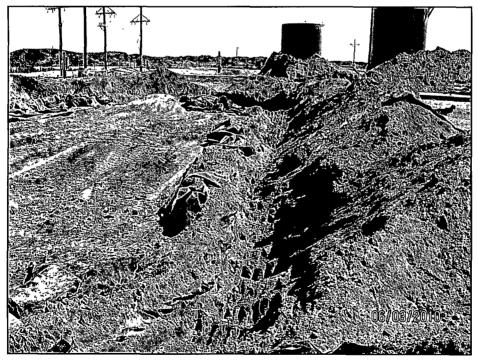


Photo 8: View of the trench for folding back the near surface sections of the primary and secondary liners. Note the near completion of the filling of the cell.

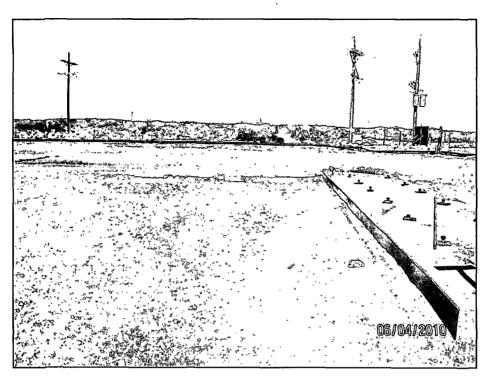
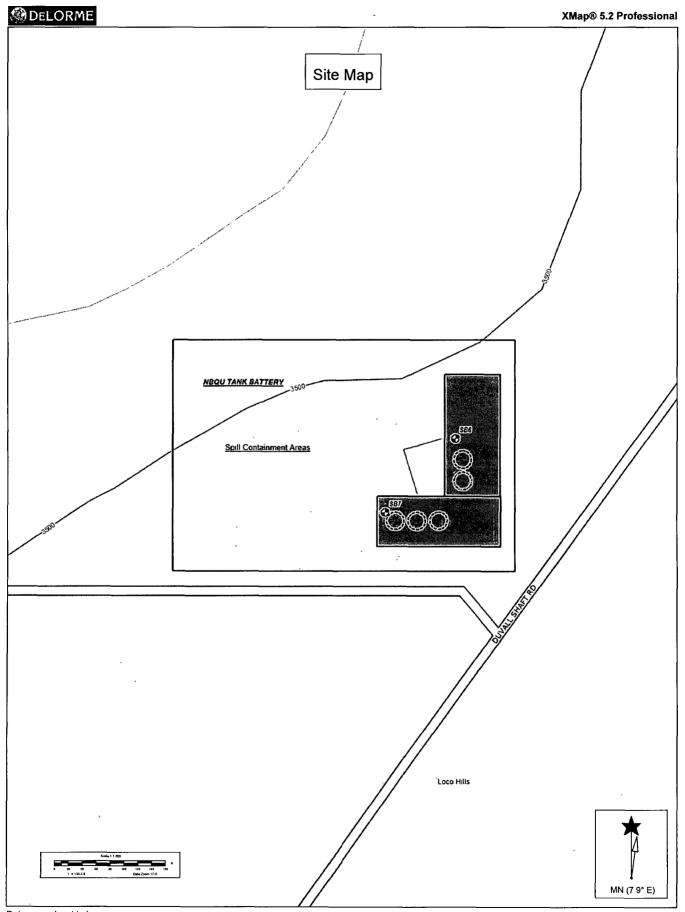


Photo 9: View looking east of the area where the treatment cell was located after completion of closure.

Conclusion

After completion of all of the activities, and the results of the analyses, the impacted soils from the two spills at the NBQU tank battery site have been successfully remediated and complete.

Attachment A Site Map



Data use subject to license
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www delorme.com

Attachment B Finalized C-141 Report

District I 1625 N French Dr , Hobbs, NM 88240 District II 1301 W Grand Avenue, Artesia, NM 88210 District III 000 Rio Brazos Road, Aztec, NM 87410 1220 S St Francis Dr , Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources

RECEIVED
Form C-141
Revised October 10, 2003
Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Santa Fe, NM 87505 **Release Notification and Corrective Action**

Oil Conservation Division 1220 South St. Francis Dr.

						OPERATOR Initial Report Final Re				Report			
		rena Resoure		Contact: Fred Holmes									
Address: 21				Telephone No.: 575-738-1739/432-563-2200									
Facility Name: North Benson Queen Battery						Facility Type: Oil and Produced Water Tank Battery							
Surface Ow	ner: BLM	-		Mineral O	wner:								
		-		LOCA	TIO	N OF DEI	FACE						
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	Latitude: N32 43' 03.1" Longitude: W103 58' 24.4"												
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was minicula	ne ronce (Yes [No Not Re	quired		ham, OCD/ Jame	es Amos,	BLM				
By Whom? F	red Holmes	s - Consultant					our 08/29/08 080						
Was a Water	course Read			1 57		If YES, Vo	lume Impacting t	he Water	rcourse.				
			Yes 🗵	No									
If a Watercon	ırse was Im	pacted, Descr	ibe Fully.	*:									
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fire.													
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Printed Name	: Colleen R	tobinson				Approved by	District Supervis	or:					
Title: Regula	tory Affairs	Liason				Approval Date: Expiration Date:							
Title, Regula	ory Arrairs	Liasuii				Approvai Dat	С.	<u> </u>	apiration i	Jaie:			
E-mail Addre	ss: crobins	on@arenaresc	ourcesinc.c	om		Conditions of	`Approval:			Attached			
Date: 06/21/1				-738-1739									

^{*} Attach Additional Sheets If Necessary

Attachment C Field Analysis Results

Date: 12/4/2008 Client: Arena Resources, Inc

Site: N Benson Queen Unit Project Number: 094-1749 & 1748 - 000

Technican: Latta Strip Lot Number(s): A9167

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
12/04/08	Α	4	76.0	304.00	Move to clean area- Sample to Lab
12/05/08	Α	4	94.0	376.00	Move to clean area
12/08/08	Α	4	60.0	240.00	Move to clean area
12/09/08	Α	4	104.0	416.00	Move to clean area
12/11/08	Α	4	68.0	272.00	Move to clean area
12/12/08	Α	4	94.0	376.00	Move to clean area
12/15/08	Α	4	34.0	136.00	Move to clean area
12/16/08	Α	4	94.0	376.00	Move to clean area
12/17/08	Α	4	94.0	376.00	Pump Frozen - Left in Cell
12/19/08	Α	4	34.0	136.00	Move to clean area
12/23/08	Α	4	46.0	184.00	Move to clean area
12/24/08	Α	4	68.0	272.00	Move to clean area - SD for Holiday
12/31/08	Α	4	29.0	116.00	Move to clean area
01/05/09	Α	4	34.0	136.00	Move to clean area
01/06/09	Α	4	150.0	600.00	Rewash Soil
01/07/09	Α	4	104.0	416.00	Move to clean area
01/08/09	Α	4	178.0	712.00	Rewash Soil
01/09/09	Α	4	94.0	376.00	Move to clean area
01/13/09	Α	4	60.0	240.00	Move to clean area
01/14/09	Α	4	94.0	376.00	Move to clean area
01/15/09	Α	4	68.0	272.00	Move to clean area
01/16/09	Α	4	104.0	416.00	Move to clean area
01/19/09	Α	4	60.0	240.00	Move to clean area
01/20/09	Α	4	60.0	240.00	Move to clean area
01/21/09	Α	4	178.0	712.00	Rewash Soil
01/22/09	Α	4	94.0	376.00	Move to clean area
01/23/09	Α	4	60.0	240.00	Move to clean area
01/26/09	Α	4	34.0	136.00	Move to clean area
01/28/09	Α	4	40.0	160.00	Move to clean area
01/29/09	Α	4	60.0	240.00	Move to clean area
01/30/09	A	4	68.0	272.00	Move to clean area
02/02/09	Α	4	94.0	376.00	Move to clean area
02/03/09	Α	4	104.0	416.00	Move to clean area

Titrator Range: A= 30-600 B=300-6000 ppm

Date: 2/4/2009 Client: Arena Resources, Inc

Site: N. Benson Queen Unit Project Number: 094-1749 & 1748 - 000

Technican: Latta Strip Lot Number(s): A9167

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
02/04/09	Α	4	193.0	772.00	Rewash Soil
02/05/09	Α	4	178.0	712.00	Rewash Soil-Clean Filtration Area
02/06/09	Α	4	164.0	656.00	Rewash Soil
02/09/09	Α	4	53.0	212.00	Move to clean area
02/10/09	Α	4	104.0	416.00	Move to clean area
02/12/09	Α	4	68.0	272.00	Move to clean area
02/13/09	Α	4	126.0	504.00	Rewash Soil
02/16/09	Α	4	68.0	272.00	Move to clean area
02/17/09	Α	4	85.0	340.00	Move to clean area
02/18/09	Α	4	76.0	304.00	Move to clean area
02/19/09	Α	4	94.0	376.00	Move to clean area
02/23/09	А	4			Prod. water pump leaked and sprayed on some of the stacks on the south side containment. Removed soils for rewashing.
03/02/09	Α	4	138.0	552.00	Rewashing Soil
03/03/09	Α	4	94.0	376.00	Rewashing Soil - Move to clean area
03/04/09	Α	4	68.0	272.00	Rewashing Soil - Move to clean area
03/05/09	Α	4	76.0	304.00	Rewashing Soil - Move to clean area
03/09/09	Α	4	53.0	212.00	Move to clean area
03/25/09	Α	4	94.0	376.00	Move to clean area
03/26/09	Α	4	126.0	504.00	Rewash Soil
03/27/09	Α	4	60.0	240.00	Move to clean area
03/30/09	Α	4	193.0	772.00	Rewash Soil
03/31/09	Α	4	126.0	504.00	Rewash Soil - Lg amount of silt
04/01/09	Α	4	76.0	304.00	Move to clean area
04/02/09	Α	4	68.0	272.00	Move to clean area
04/09/09	Α	4	76.0	304.00	Move to clean area
04/13/09	Α	4	126.0	504.00	Rewash Soil
04/15/09	Α	4	76.0	304.00	Move to clean area
04/20/09	Α	4	29.0	116.00	Move to clean area
04/21/09	Α	4	126.0	504.00	Rewash Soil
04/22/09	Α	4	209.0	836.00	Rewash Soil
04/23/09	Α	4	138.0	552.00	Rewash Soil - Lg amount of silts
04/28/09	Α	4	104.0	416.00	Rewash Soil - Clear Drain Area
04/29/09 Titrator Pango: A= 30,600	Α	4	53.0	212.00	Move to clean area

Titrator Range: A= 30-600 B=300-6000 ppm

Date:

4/30/2009

Client: Arena Resources, Inc.

Site:

N. Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technican: Latta

Strip Lot Number(s): A9167

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
04/30/09	Α	4	46.0	184.00	Move to clean area
05/01/09	А	4	68.0		Move to clean area - SD to move to reclaim area
06/10/09	Α	4	34.0	136.00	Move to clean area
06/11/09	Α	4	68.0	272.00	Move to clean area
06/15/09	Α	4	85.0	340.00	Move to clean area
06/16/09	Α	4	85.0	340.00	Move to clean area
06/29/09	Α	4	40.0	160.00	Rewash soil
06/30/09	Α	4	29.0	116.00	Move to clean area
07/01/09	Α	4	65.0	260.00	Rewash soil
07/07/09	Α	4	76.0	304.00	Rewash soil
07/08/09	Α	4	60.0	240.00	Rewash soil
07/09/09	Α	4	76.0	304.00	Rewash soil
07/10/09	Α	4	245.0	980.00	Rewash soil
07/10/09	Α	4	94.0	376.00	Took sample to lab
07/13/09	Α	4	164.0	656.00	Rewash soil
07/14/09	Α	4	76.0	304.00	Rewash soil
07/20/09	, A	4	60.0	240.00	Rewash soil
08/05/09	Α	4	29.0	116.00	Move to clean area
08/06/09	Α	4	46.0	184.00	Cleaning out wash pit
08/18/09	Α	4	29.0	116.00	Move to clean area
08/19/09	Α	4	60.0	240.00	Rewash soil
08/20/09	Α	4	29.0	116.00	Move to clean area
08/21/09	Α	4	34.0	136.00	Rewash soil
08/24/09	Α	4	29.0	116.00	Move to clean area
08/25/09	Α	4	40.0	160.00	Move to clean area
08/26/09	Α	4	40.0	160.00	Move to clean area
08/27/09	Α	4	245.0	980.00	Rewash soil
08/28/09	Α	4	126.0	504.00	Rewash soil
09/01/09	Α	4	53.0	212.00	Rewash soil
09/03/09	Α	4	34.0	136.00	Move to clean area
09/08/09	Α	4	138.0	552.00	Rewash soil
09/09/09	Α	4	104.0	416.00	Rewash soil
09/10/09	Α	4	85.0	340.00	Rewash soil

Titrator Range: A= 30-600 B=300-6000 ppm

Date:

9/11/2009

Client: Arena Resources, Inc.

Site:

N. Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technican: Latta

Strip Lot Number(s): A9167

Latta				t italiiber(3).	
Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
09/11/09	Α	4	60.0	240.00	Rewash soil
09/14/09	Α	4	29.0	116.00	Rewash soil
09/15/09	Α	4	411.0	1644.00	Rewash soil
09/16/09	Α	4	193.0	772.00	Rewash soil
09/22/09	Α	4	138.0	552.00	Rewash soil
09/23/09	Α	4	68.0	272.00	Rewash soil
09/24/09	Α	4	40.0	160.00	Move to clean area
09/29/09	Α	4	115.0	460.00	Rewash soil
10/05/09	Α	4	104.0	416.00	Rewash soil
10/07/09	Α	4	85.0	340.00	Rewash soil
10/12/09	Α	4	60.0	240.00	Rewash soil
10/14/09	Α	4	34.0	136.00	Move to clean area
10/20/09	Α	4	60.0	240.00	Rewash soil
10/26/09	Α	4	29.0	116.00	Rewash soil
10/27/09	Α	4	85.0		Rewash soil
10/28/09	Α	4	60.0	240.00	Rewash soil
10/29/09	Α	4	46.0	184.00	Move to clean area
11/03/09	Α	4	29.0	116.00	Move to clean area
11/09/09	Α	4	126.0		Rewash soil
11/10/09	Α	4	104.0		Rewash soil
11/12/09	Α	4	46.0		Move to clean area
11/16/09	Α	4	355.0		Rewash soil
11/17/09	Α	4	104.0	416.00	Rewash soil
11/18/09	Α	4			Washed soil down and worked on pump
11/19/09	Α	4	85.0	340.00	Rewash soil
11/20/09	Α	4	53.0	212.00	Rewash soil
11/23/09	Α	4	53.0	212.00	Rewash soil
11/24/09	Α	4	34.0	136.00	Move to clean area
11/25/09	Α	4	193.0		Rewash soil
11/30/09	Α	4	245.0		Rewash soil
12/08/09	Α	4	53.0		Rewash soil
12/10/09	Α	4	53.0		Rewash soil
12/11/09	Α	4	53.0		Rewash soil

Titrator Range: A= 30-600 B=300-6000 ppm

Date: 12/14/2009 Client: Arena Resources, Inc.

Site: N. Benson Queen Unit Project Number: 094-1749 & 1748 - 000

Technican: Latta Strip Lot Number(s): A9167

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
12/14/09	Α	4	29.0	116.00	Rewash soil
12/15/09	Α	4	104.0	416.00	Rewash soil
12/16/09	Α	4	138.0	552.00	Rewash soil
12/17/09	Α	4	85.0	340.00	Rewash soil
12/18/09	Α	4	95.0	380.00	Rewash soil
12/22/09	Α	4	34.0	136.00	Move to clean area
12/23/09	Α	4	115.0	460.00	Rewash soil
12/30/09	Α	4	104.0	416.00	Rewash soil
12/31/09	Α	4	40.0	160.00	Rewash soil
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Titrator Range: A= 30-600 B=300-6000 ppm

Date:

1/4/2010

Client: Arena Resources, Inc.

Site:

N. Benson Queen Unit

Project Number: <u>094-1749 & 1748 - 000</u>

Technican: Latta

Strip Lot Number(s): A9167

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
01/04/10	Α	4	60.0	240.00	Rewash soil
01/05/10	Α	4	29.0	116.00	Move to clean area
01/06/10	Α	4	34.0	136.00	Rewash soil
01/11/10	Α	4	60.0	240.00	Rewash soil
01/12/10	Α	4	53.0	212.00	Rewash soil
01/13/10	Α .	4	46.0	184.00	Rewash soil
01/14/10	Α	4	85.0	340.00	Rewash soil
01/18/10	Α	4	138.0	552.00	Rewash soil
01/19/10	Α	4	60.0	240.00	Rewash soil
01/20/10	Α	4	53.0	212.00	Rewash soil
01/22/10	Α	4	60.0	240.00	Rewash soil
02/02/10	Α	4	29.0	116.00	Move to clean area
02/05/10	Α	4	178.0	712.00	Rewash soil
02/08/10	Α	4	164.0	656.00	Rewash soil
02/10/10	Α	4	85.0	340.00	Rewash soil
02/11/10	Α	4	60.0	240.00	Rewash soil
02/12/10	Α	4	104.0	416.00	Rewash soil
02/15/10	Α	4	76.0	304.00	Rewash soil
02/18/10	Α	4	76.0	304.00	Rewash soil
02/19/10	Α	4	60.0	240.00	Rewash soil
02/22/10	Α	4	29.0	116.00	Move to clean area
02/25/10	Α	4	307.0	1228.00	Rewash soil
03/01/10	Α	4	60.0	240.00	Rewash soil
03/02/10	Α	4	53.0	212.00	Rewash soil
03/03/10	Α	4	53.0	212.00	Rewash soil
03/04/10	Α	4	40.0	160.00	Move to clean area
03/05/10	Α	4	126.0	504.00	Rewash soil
03/06/10	Α	4	76.0	304.00	Rewash soil
03/08/10	Α	4	104.0	416.00	Rewash soil
03/09/10	Α	4	60.0	240.00	Rewash soil
03/10/10	Α	4	85.0	340.00	Rewash soil
03/11/10	Α	4	53.0	212.00	Rewash soil
03/12/10	Α	4	46.0	184.00	Rewash soil

Titrator Range: A= 30-600 B=300-6000 ppm

Date:

3/13/2010

Client: Arena Resources, Inc.

Site:

N. Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technican: Latta

Strip Lot Number(s): A9167

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
03/13/10	Α	4	33.0	132.00	Move to clean area
03/15/10	Α	4	115.0	460.00	Rewash soil
03/16/10	Α	4	245.0	980.00	Rewash soil
03/17/10	Α	4	85.0	340.00	Rewash soil
03/18/10	Α	4	46.0	184.00	Rewash soil
03/19/10	Α	4	60.0	240.00	Rewash soil
03/20/10	Α	4	40.0	160.00	Rewash soil
03/22/10	Α	4	126.0	504.00	Rewash soil
03/23/10	Α	4	85.0	340.00	Rewash soil
03/24/10	Α	4	46.0	184.00	Rewash soil
03/25/10	Α	4	71.0	284.00	Rewash soil
03/26/10	Α	4	40.0	160.00	Move to clean area
03/29/10	Α	4	214.0	856.00	Rewash soil
03/30/10	Α	4	109.0	436.00	Rewash soil
03/31/10	Α	4	109.0	436.00	Rewash soil
04/01/10	Α	4	60.0	240.00	Rewash soil
04/02/10	Α	4	109.0	436.00	Rewash soil
04/03/10	Α	4	46.0	184.00	Move to clean area
04/05/10	Α	4	606.0	2424.00	Rewash soil
04/06/10	Α	4	214.0	856.00	Rewash soil
04/08/10	Α	4	156.0	624.00	Rewash soil
04/09/10	Α	4	63.0	252.00	Rewash soil
04/10/10	Α	4	99.0	396.00	Rewash soil
04/12/10	Α	4	63.0	252.00	Rewash soil
04/13/10	Α	4	63.0	252.00	Rewash soil
04/14/10	Α	4	53.0	212.00	Rewash soil
04/15/10	Α	4	40.0	160.00	Move to clean area
04/19/10	Α	4	231.0	924.00	Rewash soil
04/20/10	Α	4	169.0	676.00	Rewash soil
04/21/10	Α	4	109.0	436.00	Rewash soil
04/22/10	Α	4	89.0	356.00	Move to clean area
04/23/10	Α	4			No Sample - Changed out pump
04/24/10	Α	4	99.0	396.00	Rewash soil

Titrator Range: A= 30-600 B=300-6000 ppm

Date:

4/26/2010

Client: Arena Resources, Inc.

Site:

N Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technican: Latta

Strip Lot Number(s): A9167

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
04/26/10	Α	4	63.0	252.00	Rewash soil
04/27/10	Α	4			No Sample - cleaned sump
04/28/10	Α	4			No Sample - cleaned sump
04/29/10	Α	4			No Sample - cleaned sump
04/30/10	Α	4	71.0	284.00	Rewash soil
05/01/10	Α	4	33.0	132.00	Move to clean area
05/03/10	Α	4			No Sample - washing new batch
05/04/10	Α	4	416.0	1664.00	Rewash soil
05/05/10	Α	4	214.0	856.00	Rewash soil
05/07/10	Α	4	289.0	1156.00	Rewash soil
05/08/10	Α	4	214.0	856.00	Rewash soil
05/10/10	Α	4	214.0	856.00	Rewash soil
05/10/10	Α	4	126.0	504.00	Afternoon test
05/11/10	Α	4	169.0	676.00	Rewash soil
05/12/10	Α	4	99.0	396.00	Rewash soil
05/14/10	A	4	120.0	480.00	Rewash soil
05/17/10	Α	4	89.0	356.00	Rewash soil
05/18/10	Α	4	63.0	252.00	Rewash soil
05/19/10	Α	4	33.0	132.00	Rewash soil
05/20/10	Α	4	249.0	996.00	Rewash soil
05/21/10	Α	4	335.0	1340.00	Rewash soil
05/22/10	Α	4	180.0	720.00	Rewash soil
05/23/10	Α	4	71.0	284.00	Move to clean area

Titrator Range: A= 30-600 B=300-6000 ppm

Attachment D In-House Analytical Data



Date:

In-House Sample Analysis Sheet

5/24/2010	Client: Arena Resources, In	nc.
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Site: NBQU Soil Washing Project Number: 094-1748 & 1749

Pro. Mgr. Fred Holmes Contaminant: Chlorides

Method: Standard Method 4500-CIB QA/QC Standard: 500 mg/kg

Treated Sample Lot (Date)	Milliliters of Sample Used	Dilution	AgNO3 0.028(N)	Result (mg/kg)	Lab Result (mg/kg)	Notations
12/4/2008	10	4	0.700	277.928	272	Sample to Lab for Verification
1/5/2009	10	4	0 600	238.224	N/A	Treated pile spot check. Passed
1/14/2009	10	4	0.450	178.668	160_	Treated pile monthly composite, sample to lab for verification
2/3/2009	10	4	0 550	218.372	N/A	Treated pile spot check. Passed
2/16/2009	10	4	1 200	476.448	432	Treated pile monthly composite, sample to lab for verification
3/9/2009	10	4	0 500	198.52	160	Treated pile monthly composite, sample to lab for verification
4/6/2009	10	4	0 600	238.224	N/A	Treated pile spot check. Passed
4/29/2009	10	4	0.650	258.076	224	Treated pile monthly composite, sample to lab for verification
6/1/2009	10	4	0 550	218.372	N/A_	Treated pile spot check. Passed
6/15/2009	10	4	0.250	99.26	96	Treated pile monthly composite, sample to lab for verification
8/20/2009	10	4	0 500	198.52	160	Treated pile monthly composite, sample to lab for verification
9/6/2009	10	4	0.450	178.668	144	Treated pile monthly composite, sample to lab for verification
10/28/2009	10	4	0 400	158.816	144	Treated pile monthly composite, sample to lab for verification
12/14/2009	10	4	0.600	238.224	256	Treated pile monthly composite, sample to lab for verification
1/11/2010	10	4	0.700	277.928	256	Treated pile monthly composite, sample to lab for verification
3/1/2010	10	4	0.600	238.224	208_	Treated pile monthly composite, sample to lab for verification
3/25/2010	_10	4	0.800	317.632	272_	Treated pile monthly composite, sample to lab for verification
4/29/2010	10	4	0.900	357.336	368	Treated pile monthly composite, sample to lab for verification
Clearance Sampling For Pooled Areas	Milliliters of Sample Used	Dilution	AgNO3 0.028(N)	Result (mg/kg)	Lab Results (mg/kg)	Notations
N. Pool Area Clearance	10	4	1.150	456.596	480	Clearance sample, split to lab
W. Pool Area Clearance	10	4	0.400	158.816	144	Clearance sample, split to lab
Storm Water Drainage Clearance	10	4	0.450	178 668	176_	Clearance sample, split to lab

Attachment E Third Party Laboratory Analyses Data



Project Sample Analysis Lab Validation Sheet

Date: 5/24/2010 Client: Arena Resources, Inc.

Site: NBQU Soil Washing Project Number: 094-1748 & 1749

Pro. Mgr.Fred HolmesContaminant: ChloridesMethod:Standard Method 4500-CIBQA/QC Standard: 500 mg/kg

Treated Sample Lot (Date)	Milliliters of Sample Used	Dilution	AgNO3 0.028(N)	Result (mg/kg)	Lab Result (mg/kg)	Notations
1/14/2009					160	Batch complete, moved to staging
2/16/2009					432	Batch complete, moved to staging
3/9/2009	,				160	Batch complete, moved to staging
4/29/2009					224	Batch complete, moved to staging
6/15/2009					192	Batch complete, moved to staging
6/17/2009					144	Batch complete, moved to staging
8/21/2009					1,120	Nonwashed soil
8/21/2009					96	Batch complete, moved to staging
8/25/2009					160	Batch complete, moved to staging
9/9/2009					144	Batch complete, moved to staging
10/30/2009					144	Batch complete, moved to staging
12/16/2009					256	Batch complete, moved to staging
1/13/2010					256	Batch complete, moved to staging
3/4/2010					208	Batch complete, moved to staging
3/29/2010					272	Batch complete, moved to staging
5/4/2010					368	Batch complete, moved to staging

 $F = (ml AgNO_3)(N)(35450)/ml$. sample used



May 5, 2010

Fred Holmes ETECH Environmental & Safety Solutions, Inc. P.O. Box 8469 Midland, TX 79708

Re: NBQIF

Enclosed are the results of analyses for sample number H19816, received by the laboratory on 05/04/10 at 3:45 pm.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260 Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005 Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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

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

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely

Laboratory Director



ANALYTICAL RESULTS FOR

ETECH ENVIRONMENTAL & SAFETY SOLUTIONS, INC.

ATTN: FRED HOLMES

P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 05/04/10 Reporting Date: 05/05/10

Project Number: 094001749000 Project Name: NBQIF

Project Location: CARLSAD, NM

True Value QC

Relative Percent Difference

% Recovery

Analysis Date: 05/05/10 Sampling Date: 05/04/10 Sample Type: SOIL

Sample Condition: COOL & INTACT @ 6°C

Sample Received By: JH

Analyzed By: HM

CI

500 100

< 0.1

LAB NO. SAMPLE ID (mg/kg)

H19816-1 APRIL COMPOSITE SAMPLE 368

WASHED SOIL

Quality Control 500

METHOD: Standard Methods 4500-Cl'B

Note: Analysis performed on a 1:4 w:v aqueous extract.

Chemist

Date



01 East Marland, Hobbs, NM 88240 (575) 393-2326 Fax (575) 393-2476

(575) 393-2326 Fax (575) 393-2476		raye									
Company Name: E-tech	BILL TO	ANALYSIS REQUEST									
Project Manager: fred Halmas Address: P.O.Box 8469	P.O. #:										
Address: P.O.Box 8469	Company:										
City: M. Ila. State: T Zin: 707 AC	Attn:										
Phone #: 433-631-3757 Fax#:	Address:										
Project #: 094001749000 Project Owner:	City:										
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#26

[†] Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2446.



April 1, 2010

Fred Holmes ETECH Environmental & Safety Solutions, Inc. P.O. Box 8469 Midland, TX 79708

Re: NBQIF (094 001749-000)

Enclosed are the results of analyses for sample number H19570, received by the laboratory on 03/2910 at 4:20 pm.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method SW-846 8260

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005

Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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

Method EPA 552.2

Haloacetic Acids (HAA-5)

Method EPA 524.2

Total Trihalomethanes (TTHM)

Method EPA 524.2

Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely,

Laboratory Director



ANALYTICAL RESULTS FOR ETECH ENVIRONMENTAL & SAFETY SOLUTIONS, INC.

ATTN: FRED HOLMES P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 03/29/10 Reporting Date: 03/30/10

Project Number: 094 001749-000 (ARENA)

Project Name: NBQIF

Project Location: CARLSBAD, NM

Analysis Date: 03/30/10 Sampling Date: 03/29/10 Sample Type: SOIL

Sample Condition: COOL & INTACT @ 4°C

Sample Received By: JH

Analyzed By: HM

CI

LAB NO.	SAMPLE ID	(mg/kg)
H19570-1	WASHED SOIL 094001749000	272
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and the state of t		
		THE RESIDENCE OF STREET, STREE
Quality Contr	ol	500
True Value C		500
% Recovery		100
Relative Per	cent Difference	< 0.1

METHOD: Standard Methods 4500-CI'B

Note: Analysis performed on a 1:4 w:v aqueous extract.

Chemist

Date

04/01/10

H19570 Etech



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ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240

(575) 393-2326 Fax (575) 393-2476															-age	of							
Company Name: F. tech Environmental					T	BILL TO							ANA	LYSI	SRE	QUE	ST						
Project Manager: Fred Holmes						P.O. #:								1	-	1		1					
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Cliv: Midland State: T. Zip: 79708						Attn:				1					1		1		1	1			
Pnone 7: 432	/31-3757 Fax #:						Address:								-								
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Project Location	ri Carlsbid , NM						Phone #:												İ	ļ	1		
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March 8, 2010

Fred Holmes ETECH Environmental & Safety Solutions, Inc. P.O. Box 8469 Midland, TX 79708

Re: 094-001749-000 (Arena)

Enclosed are the results of analyses for sample number H19376, received by the laboratory on 03/04/10 at 3:35 pm.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method SW-846 8260

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005

Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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

Method EPA 552.2

Haloacetic Acids (HAA-5)

Method EPA 524.2

Total Trihalomethanes (TTHM)

Method EPA 524.2

Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely.

Celey D/ Neene Laboratory Director



ANALYTICAL RESULTS FOR

ETECH ENVIRONMENTAL & SAFETY SOLUTIONS, INC.

ATTN: FRED HOLMES

P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 03/04/10 Reporting Date: 03/05/10

Project Number: 094-001749-000 (ARENA)

Project Name: NBQIF

Project Location: CARLSBAD, NM

Analysis Date: 03/05/10 Sampling Date: 03/04/10 Sample Type: SOIL

Sample Condition: INTACT @ 24°C

Sample Received By: JH

Analyzed By: HM

 C_{1}^{-}

4500-CIB

		C)
LAB NO.	SAMPLE ID	(mg/kg)
H19376-1	WASHED SOIL	208
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	managarangan, a sang amangan managarangan managarangan kanagarangan kanagarangan kanagarangan kanagarangan kan	AND THE PROPERTY OF THE PARTY O
Quality Con	trol	500
True Value	ac	500
% Recovery		100
Relative Per	rcent Difference	2.0

Note: Analysis performed on a 1:4 w:v aqueous extract.

METHOD: Standard Methods

H19376 Etech

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



(575) 393-2326 Fax (575) 393-2476		Pageof
Company Name: E-Tech	BILL TO	ANALYSIS REQUEST
Project Manager: Fled Holmes	P.O. #:	
Address:	Company:	
City: Midland State: Tx Zip: 79708	Attn:	
Phone #: Fax #:	Address:	
Project #: 094-001749-000 Project Owner: Acon q	City:	
Project Name: NBQ FF	State: Zip:	
Project Location: Earls bad NM	Phone #:	
Sampler Name: Jan Lafta	Fax #:	
Lab-I.D. Sample I.D. (G)AB OR (C)OMP (G)AB OR (C)OMP (G) (G)AB OR (C)OMP (G) (G) (G) (G) (G) (G) (G) (G) (G) (G)	PRESERV. SAMPLING OTHER: OTH	
PLEASE NOTE: Unbirty and Damages: Cardina's bability and client's exclusive remedy for any claim arising whether based in containables. All claims including those for negligance and any other cause whetsoever shall be geened warved unless made in writing		
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Sampler - UPS - Bus - Other, 24° Yes No	Yes (Initials)	

[†] Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



July 1, 2009

Fred Holmes
Etech Environmental & Safety Solutions, Inc.
P.O. Box 8469
Midland, TX 79708

Re: NBQU Injection - Soil Washing

Enclosed are the results of analyses for sample number H17718, received by the laboratory on 06/30/09 at 9:29 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method SW-846 8260

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005

Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Celey D. Reene

Sincerely!

Laboratory Director



ATTN: FRED HOLMES P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 06/30/09 Reporting Date: 06/30/09 Project Number: 094-1749

Project Name: NBQU INJECTION-SOIL WASHING

Project Location: EDDY COUNTY, NM

Analysis Date: 06/30/09 Sampling Date: 01/14/09 Sample Type: SOIL

Sample Condition: INTACT @ 240C

Sample Received By: ML

Analyzed By: HM

CI

LAB NO.	SAMPLE ID	(mg/kg)
	01-14-2009	160
П17710-1	01-14-2009	100
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##harana		
Quality Con	trol	500
True Value	QC	500
% Recovery	/	100
Relative Pe	rcent Difference	<0.1

METHOD: Standard Methods

Note: Analysis performed on a 1:4 w:v aqueous extract. Analyzed outside
EPA recommended hold time, however sample results should not be

affected.

Chemist

07/01/09 Date

RDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

101 East Marland, Hobbs, NM 88240 (505) 393-2326 Fax (505) 393-2476 Company Name: Etech Env. & Safety Solutions, Inc. BILLTO ANALYSIS REQUEST 941749000 Project Manager: Fred Holmes P.O. #: Address: P.O. Box 8469 Company: Midland State: TX Zip: 79708 Attn: Phone #: 432-563-2200 Fax #: 432-563-2213 Address: Project #: 094-1749 City: **Project Owner:** Project Name: NBQU Injection - Soil Washing State: Project Location: Eddy County, NM Phone #: Jay Latta - Fred Holmes Sampler Name: Fax #: FOR LAB USE ONLY MATRIX PRESERV. SAMPLING (G)RAB OR (C)OMP **IPH Ext (TX 1005)** WASTEWATER ACID/BASE: ICE / COOL Sample I.D. Lab I.D. OIL SOF DATE TIME H 17718-1 101-14-2009 114/09 1500 Х 30 days nest due at the rate of 24% per annum from the primal date of money. 15 shali Cardinal be liable for encidental or consequental damages, excluding without tensistion, business intermedians, loss of use, nu loss of profas i and all costs of collections, including attorney's feet re around out of or related to the performance of aboveces horounder by Cambral recordings of whother such claim is beyon upon any of the above stated reasons or otherwise C Yes U No Add'I Phone #: Sampler Rolinguished: Phone Result: Received By: 6:3009 Fax Result: ☐ Yes REMARKS: Relinquished By: Date: Time: CHECKED BY: Delivered By: (Circle One) Sample Condition Cool Intact (Initials) Yes Yes Sampler - UPS - Bus - Other:

[&]quot; '†" Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



ANALYTICAL RESULTS FOR ETECH ENVIRONMENTAL & SAFETY SOLUTIONS, INC. ATTN: FRED HOLMES P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 10/30/09 Reporting Date: 11/02/09 Project Number: 094-1749-000

Project Name: NBQU INJECTION - SOIL WASHING

Project Location: EDDY COUNTY, NM

METHOD: Standard Methods

Note: Analysis performed on a 1:4 w:v aqueous extract.

Analysis Date: 11/02/09 Sampling Date: 10/29/09 Sample Type: SOIL

Sample Condition: INTACT Sample Received By: ML

Analyzed By: HM

		CI
LAB NO.	SAMPLE ID	(mg/kg)
H18612-1	102909 WASH	144
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+ +	•	,
Quality Cont	rol	500
True Value C		500
% Recovery		100
	cent Difference	2.0

Chemist

Date

4500-CI'B

H18612 Etech

ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

<u></u>	(505) 393-2326 Fax (505) 393-2	4/6				-			121 122 1252 T												
Company Name								The second secon	1441.	,				ANA	YSIS	RE	QUE	ST			
Project Manage	r: Fred Holmes					P.C). #: 94	1749000													
Address: P.C	D. Box 8469					Ço	mpany:	* * * *	-												
City: Midland	State: TX	Zip:			79708	Att	n:	mar v											l	1	
Phone #: _432	-563-2200 Fax #:	432-5	63-2	2213		Ad	dress:		-												
Project#: 094	-1749-000 Project Owne	r:			~~	Cit	ÿ:														
Project Name:	NBQU Injection - Soil Washing	***********				Sta	ite:	Zip:	*												
Project Location	n: Eddy County, NM	·				Ph	one#:													1	
Sampler Name:	Jay Latta - Fred Holmes					Fa	x #:			J											
FOR LAB USE ONLY			-	MA	TRIX	*	PRESERV.	SAMPLI	ÄĞ	1											
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	WASTEWATER SOIL	OIL	OTHER:	ACID/BASE: ICE / COOL OTHER:	DATE	TIME	TPH (8015)	TPH Ext (TX 1005)	Chloridos									
H18612-1	102909 Wash	С	1	×				29-Oct	1247			×									
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[†] Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



August 28, 2009

Fred Holmes ETECH Environmental & Safety Solutions, Inc. P.O. Box 8469 Midland, TX 79708

Re: NBQU Injection - Soil Washing

Enclosed are the results of analyses for sample number H18112, received by the laboratory on 08/28/09 at 7:25 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Benzene, Toluene, Ethyl Benzene, and Total Xylenes Method SW-846 8260 Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005 Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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

Method EPA 552.2 Haloacetic Acids (HAA-5)

Method EPA 524.2 Total Trihalomethanes (TTHM)

Method EPA 524.2 Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely,

Celey D. Keene Laboratory Director



ANALYTICAL RESULTS FOR ETECH ENVIRONMENTAL & SAFETY SOLUTIONS, INC. ATTN: FRED HOLMES

P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 08/28/09 Reporting Date: 08/28/09 Project Number: 094-1749

Project Name: NBQU INJECTION - SOIL WASHING

Project Location: EDDY COUNTY, NM

Analysis Date: 08/28/09 Sampling Date: 08/25/09 Sample Type: SOIL

Sample Condition: INTACT @ 10°C

Sample Received By: AB

Analyzed By: HM

METHOD: Standard Methods 4500-Cl'B

Note: Analysis performed on a 1:4 w:v aqueous extract.

•

H18112 Etech

ARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240



Page __1__of '__1_

	(505) 393-2326 Fa	ix (505) 393-2	4/6																							
Company Name	: Etech Env. & Safety	Solutions, Inc.							34	i., i.		BII	L TO						ANA	LYSI	RE	QUE	ST			
Project Manage	r: Fred Holmes								P.	O. #	! :	941	1749000											1		
Address: P.C	Box 8469								Co	mp	any	r:					ŀ									
City: Midland	St	ate: TX	Zip):			79	708	At	tn:		····														
Phone #: 432	-563-2200	Fax #:	43	2-56	3-2	213	Deccess 31009	Danish e Ville	Ad	ldre	ss:		ang nggagawa ay ng mananang sa ng m	PROFES SERVICES S. SERVICES						İ						
Project #: 094	-1749	Project Owne	r:			****	*****		CI	ty:		**********	5 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 - 145 -	**************												
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Project Location	n: Eddy County, NM	**************************************	·····					***************************************	Ph	one	0#:			nadio dinasa, sanganindinka						1						
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[†] Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



September 14, 2009

Fred Holmes ETECH Environmental & Safety Solutions, Inc. P.O. Box 8469 Midland, TX 79708

Re: NBQU Injection - Soil Washing

Enclosed are the results of analyses for sample number H18227, received by the laboratory on 09/11/09 at 8:00 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260 Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005 Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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

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

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely,

Celey D. Keene Laboratory Director



ANALYTICAL RESULTS FOR ETECH ENVIRONMENTAL & SAFETY SOLUTIONS, INC. ATTN: FRED HOLMES P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 09/11/09 Reporting Date: 09/13/09 Project Number: 094-1749

Project Name: NBQU INJECTION - SOIL WASHING

Project Location: EDDY COUNTY, NM

Analysis Date: 09/11/09 Sampling Date: 09/09/09 Sample Type: SOIL

Sample Condition: INTACT @ 22.5°C

Sample Received By: CK Analyzed By: HM

METHOD: Standard Methods 4500-CIB

Note: Analysis performed on a 1:4 w:v aqueous extract.

Chemist

Date

09/14/09

H18227 Etech

ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

	(505) 393-2326 Fax (505) 393-2	476																							
Company Name	: Etech Env. & Safety Solutions, Inc.							11	; .:.	, ,	BI	LL TO		:				ANA	LYSI	S RE	QUE	ST			
Project Manage	r: Fred Holmes							P.	O. #	<i>t</i> :	94	1749000													
Address: P.O	. Box 8469							Co	mp	any	<u>/:</u>														
City: Midland	State: TX	Zip	:			79	708	Att	in:					ŀ											
Phone #: 432	-563-2200 Fax #:	432	-56	3-22	13			Ad	dre	SS:															
Project #: 094	4-1749 Project Owner:							City:													l				
Project Name:	NBQU Injection - Soil Washing				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			St	ate:		an degrada a	Zip:					1	Į		1					
Project Location	n: Eddy County, NM			w				Ph	one	e #:				İ											
Sampler Name:	Jay Latta - Fred Holmes							Fa	x #:												ł				
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Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	TPH (8015)	TPH Ext (TX 1005)	Chlorides									
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[†] Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



August 25, 2009

Fred Holmes ETECH Environmental & Safety Solutions, Inc. P.O. Box 8469 Midland, TX 79708

Re: North Benson Queen Injection Facility

Enclosed are the results of analyses for sample number H18061, received by the laboratory on 08/24/09 at 8:30 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021. Method SW-846 8260 Benzene, Toluene, Ethyl Benzene, and Total Xylenes Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005

Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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

Method EPA 552.2

Haloacetic Acids (HAA-5)

Method EPA 524.2

Total Trihalomethanes (TTHM)

Method EPA 524.2

Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely.

Celey D/Keene

Laboratory Director



ATTN: FRED HOLMES P.O. BOX 8469 MIDLAND, TX 79708

FAX TO: (432) 563-2213

Receiving Date: 08/24/09
Reporting Date: 08/24/09
Project Number: NOT GIVEN

Project Name: NORTH BENSON QUEEN INJECTION FACILITY

Project Location: NOT GIVEN

Analysis Date: 08/24/09 Sampling Date: 08/21/09 Sample Type: SOIL

Sample Condition: INTACT @ 21°C

Sample Received By: ML

Analyzed By: HM

 CI^{-}

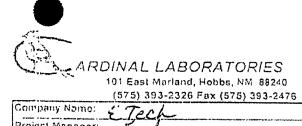
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LAB NO. SAMPLE ID	(mg/kg)
H18061-1 NON-WASHED) SOIL 1,120
H18061-2 WASHED SOIL	96
Quality Control	500
True Value QC	500
% Recovery	100
Relative Percent Difference	< 0.1

METHOD: Standard Methods 4500-CIB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

Date



	(575) 393-2326 Fax (575) 393-2	476																		<u></u> 61	***********		
Company Namo:	T. IECK		******		-			BI	LLTO)					,	ANA	LYS	IS R	EQU	EST			
Project Manager	Fred	······································	*******	*********	****	F	.O. t	!;		et.e.u 1000000											1	1	
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City:	State:	Zip:				<u> </u>	ttn:																
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Project #:	Project Owner	:					ity:															ļ	
Project Name:	North Benson Queen	Ini	عاد	tion	1 Fi	ci s	tate		Zip:													i	ļ
Project Location	:		3		11		hon	e #:															
Sampler Name:	,					F	ax#	:														-	, 1
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¹ Described compating the the second verbal changes. Please fax written changes to 575-393-2476.



ATTN: FRED HOLMES

P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 06/17/09
Reporting Date: 06/18/09
Project Number: 094-1749-000
Project Name: NBQU INJ.

Project Location: NOT GIVEN

Analysis Date: 06/18/09 Sampling Date: 06/17/09 Sample Type: SOIL

Sample Condition: INTACT @ 33°C

Sample Received By: ML

06/13/09 Date

Analyzed By: AB

	CI ⁻
LAB NO. SAMPLE ID	(mg/kg)
H17644-1 TREATED 0617	144
Quality Control	500
True Value QC	500
% Recovery	100
Relative Percent Difference	<0.1

METHOD: Standard Methods 4500-Cl'B

Note: Analysis performed on a 1:4 w:v aqueous extract.

H17644 Etech



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page _____ of ____

(505) 393-2326 Fax (505) 393-2476		
Company Name: Elech Env. & Safety Solutions, Inc.	BILL TO	ANALYSIS REQUEST
Project Manager: Fred Holmes	P.O. #: 0941749	
Address: P.O. Box 8469	Company:	
City: Midland State: TX Zip: 7970	8 Attn:	
Phone #: 432-563-2200 Fax #: 432-563-2213	Address:	
Project #: 094-1748-いつみ Project Owner:	City:	
Project-Name: NBQ O INT.	State: Zip:	
Project Location:	Phone #:	
Sampler Name:	Fax #:	
FOR LAB USE ONLY MATRIX	PRESERV SAMPLING	
Tap I.D. Sample I.D. #176AATER OR (C)OMP Sool Out	Studge OTHER. OTHER. OTHER. OTHER: OTHER:	TPH (8015) TPH Ext (TX 1005)
PLEASE NOTE: Liability and Damages. Cardinal's flability and client's enclusive remedy for any claim arising whether based in conta analyses. All claims excluding those for negigeence and any other cause whatsoever shall be deemed waived unless misde in writing service. In no event shall be table for incidental or consequental damages, including without limitation, business interruption efficients or successory arising out of or related to the performance of services horizontally. Caudinal, regardless of ynother such claims.	and received by Cardinal within 30 days effor completion of th his, loss of use, or loss of profits incurred by client, 4s subsidiari am is based upon any of the above stated reasons of otherwis	ne applicable 30 days past due at the rate of 24% per annum from the original date of snook ries, and all costs of collections, including afformer's fees, se.
Relinquished By: Date: Received By: Received	Phone Re- Fax Resul REMARKS	lt: ☐ Yes ☐ No Add'I Fax#:
Delivered By: (Circle One) Temp. Sample Cond	dition CHECKED BY: (
Sampler - UPS - Bus - Other: Cool Infact Ves [] No []	Yes Col Pa	stic Bags.

[†] Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



July 1, 2009

Fred Holmes Etech Environmental & Safety Solutions, Inc. P.O. Box 8469 Midland, TX 79708

Re: NBQU Injection - Soil Washing

Enclosed are the results of analyses for sample number H17722, received by the laboratory on 06/30/09 at 9:30 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method SW-846 8260

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005

Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely,

Celey D. Keene Laboratory Director



ATTN: FRED HOLMES P.O. BOX 8469

MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 06/30/09 Reporting Date: 06/30/09 Project Number: 094-1749

Project Name: NBQU INJECTION-SOIL WASHING

Project Location: EDDY COUNTY, NM

Analysis Date: 06/30/09 Sampling Date: 06/15/09 Sample Type: SOIL

Sample Condition: INTACT @ 24°C

Sample Received By: ML

Analyzed By: HM

LAB NO. SAMPLE ID	CI¯ (mg/kg)
H17722-1 06-15-2009	192
Quality Control	500
True Value QC	500
% Recovery	100
Relative Percent Difference	<0.1

METHOD: Standard Methods 4500-Cl'B

Note: Analysis performed on a 1:4 w:v aqueous extract.

Chemist

Date

ARDINAL LABORATORIES 101 Fast Marland Hobbs, NM, 88240

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 (505) 393-2326 Fax (505) 393-2476

Page	1	of	1

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Company Name	***************************************	Inc.	BILL TO			, , , , , , , ,	ANALYSI	S REQUEST	
Project Manager	r: Fred Holmes	and the state of t	P.O. #: 941749000		1	1 1	1 1		
Address: P.O	. Box 8469	enaverance relative paradities different and constraints are not increased acceptable	Company:						
City: Midland	State: TX	Zip: 7970	8 Attn:	900×1-00 Naj ya					
Phone #: 432	-563-2200 Fax #:	432-563-2213	Address:						
Project #: 094	-1749 Project O	wner:	City:	-4					
Project Name:	NBQU Injection - Soil Washing		State: Zip:						
Project Location	n: Eddy County, NM		Phone #:			1 1	1 1		
Sampler Name:	Jay Latta - Fred Holmes		Fax #:						
FOR LAB USE ONLY		MATRIX	PRESERV SAMP	LING					
Lab I.D.	Sample I.D.	CIGIRAB OR (C)OMP # CONTAINERS GROUNDWATER WASTEWATER SOIL	ACIDIBASE: ICE / COOL OTHER:	TIME	TPH (8015) TPH Ext (TX 1005)	Chlorides			
H17722-1	06-15-2009		1 06/15	1445					

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Delivered By:	(Circle One)	Temp. Sample Conc	lition CHECKED BY:	1					
	- Bus - Other:	Z40C ON O	(Igitials)						



July 1, 2009

Fred Holmes
Etech Environmental & Safety Solutions, Inc.
P.O. Box 8469
Midland, TX 79708

Re: NBQU Injection - Soil Washing

Enclosed are the results of analyses for sample number H17721, received by the laboratory on 06/30/09 at 9:30 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Benzene, Toluene, Ethyl Benzene, and Total Xylenes Method SW-846 8260 Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005 Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely,

Celey D. Keene Laboratory Director



ATTN: FRED HOLMES P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 06/30/09 Reporting Date: 06/30/09 Project Number: 094-1749

Project Number: 094-1749
Project Name: NBQU INJECTION-SOIL WASHING

Project Location: EDDY COUNTY, NM

Analysis Date: 06/30/09 Sampling Date: 04/29/09 Sample Type: SOIL

Sample Condition: INTACT @ 240C

Sample Received By: ML

Analyzed By: HM

METHOD:	Standa	ard Meth	ods			450	0-C	ľB	

Note: Analysis performed on a 1:4 w:v aqueous extract. Analyzed outside EPA recommended hold time, however sample results should not be affected.

Chemist

07/01/09 Date

ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

	(505) 393-2326 Fax (505) 393-																								
Company Name	Etech Env. & Safety Solutions, Inc.								11,	B	11	L TO		1				ANA	LYSI	S RE	QUE	ST			
Project Manage	r: Fred Holmes		******				_[/	P.O.	#:	S	41	749000													
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City: Midland	State: TX	Ziç): 	u . : : ;	441441	797	08	Attn	:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,									l	l		l			
Phone #: 432	-563-2200 Fax #:	43	2-56	3-2	213		_/	Add	res	s:								1							
Project #: 094	-1749 Project Own	er:						City		*											İ				
Project Name:	NBQU Injection - Soil Washing		~~~			attached to a		Stat	e:			Zip:													
Project Location	n: Eddy County, NM		-				_]	Pho	ne	#:								İ			1				
Sampler Name:	Jay Latta - Fred Holmes						Fax #:							1				1	1	l		l			
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† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.

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#26



ATTN: FRED HOLMES

P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 03/27/09 Reporting Date: 03/30/09

Project Numbner: 094-1749-000

Project Name: NBQU INJECTION FACILITY

Quality Control

True Value QC

Relative Percent Difference

% Recovery

Project Location: CARLSBAD

Analysis Date: 03/30/09 Sampling Date: 03/26/09 Sample Type: SOIL

Sample Condition: INTACT Sample Received By: NF

Analyzed By: HM

500 500

100

< 0.1

CI

LAB NO. SAMPLE ID (mg/kg)
H17148-1 CLEAN 368
H17148-2 IN PROGRESS 400

METHOD: Standard Methods	4500-CIB
INCTIOD. Olandara Mellioda	1 4000 010

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

Date

ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page __1_ of __1_

(505) 393-2326 Fax (505) 393-2476 Company Name: Etech Env. & Safety Solutions, Inc. BILL TO ANALYSIS REQUEST Fred Holmes O941749000 Project Manager: P.O. #: Address: P.O. Box 8469 Company: Etech 79708 Attn: Citv: Midland State: TX Zip: 432-563-2200 Phone #: Fax #: 432-563-2213 Address: Project #: 094-1749-000 **Project Owner:** City: Project Name: NBQU Injection Facility State: Zip: Project Location: Carlsbad Phone #: Fax #: Sampler Name: Jay Latta MATRIX PRESERV SAMPLING FOR LAB USE ONLY G)RAB OR (C)OMP TPH Ext (TX 1005) GROUNDWATER # CONTAINERS Sample I.D. OTHER: ACID/BASE: ICE / COOL TPH (8015) Lab I.D. Chlorides SLUDGE SOIL ਰ DATE TIME 117148-1 Clean С 26-Mar 1500 X С In Process 26-Mar 1430 x PLEASE NOTE: Lististy and Carrages. Cardman's lististing and client's exclusive remedy for any claim arising whether based in contract or tori, shall be limited to the amount paid by the client for the Terms and Conditions: interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice. analyses. All claims including those for negigence and any other cause whatsoever shall be deemed walved unless made in wrong and received by Caronal within 10 days after compission of the applicable and all costs of collections, including attorney's fees service. In no event shall Cardinal be bable for incidental or consequental damages, including without firmlation, business interruptions, loss of use, or loss of profits incurred by chant, its subcidenes, effiliates or successors arising out of or related to the performance of servine hereunder by Cardnal, regardless of schedule such claim is based upon any of the above tritiod reasons or otherwise Sampler Relinguished: Phone Result: ☐ Yes O No |Add'| Phone #: Received By: ☐ Yes □ No Add'I Fax #: Fax Result: REMARKS: Relinguished By: Received By: Date: Time: Delivered By: (Circle One) Sample Condition CHECKED BY:, (Initials) Cool Intact Sampler - UPS - Bus - Other: Yes -Yes □ No □ No

[†] Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



July 1, 2009

Fred Holmes Etech Environmental & Safety Solutions, Inc. P.O. Box 8469 Midland, TX 79708

Re: NBQU Injection - Soil Washing

Enclosed are the results of analyses for sample number H17720, received by the laboratory on 06/30/09 at 9:30 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method SW-846 8260

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005

Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely.

Celey D.(Keene Laboratory Director



ATTN: FRED HOLMES

P.O. BOX 8469 MIDLAND, TX 79708 FAX TO: (432) 563-2213

Receiving Date: 06/30/09 Reporting Date: 06/30/09 Project Number: 094-1749

Project Name: NBQU INJECTION-SOIL WASHING

Project Location: EDDY COUNTY, NM

Analysis Date: 06/30/09 Sampling Date: 03/09/09 Sample Type: SOIL

Sample Condition: INTACT @ 240C

Sample Received By: ML

Analyzed By: HM

METHOD: Standard Methods 4500-Cl'B

Note: Analysis performed on a 1:4 w:v aqueous extract. Analyzed outside EPA recommended hold time, however sample results should not be affected.

Chemis

Date

H17720 Etech

ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page __1 _ of __1

Company Name: Elech Env. & Safety Solutions, Inc. Project Manager: Fred Holmes Address: P.O. 8xx 8469 Company: City: Midland State: TX Zip: 79708 Attn: Phone #: 432-563-2200 Fax #: 432-563-2213 Address: Project #: 094-1749 Project Owner: City: Zip: 79708 Attn: Project Name: NBQU Injection - Soil Washing Project Location: Eddy County, NM Phone #: Sampler Name: Jay Latta - Fred Holmes Fax #: For LAD USE CHILL ANALYSIS REQUEST Address: P.O. #: 941749000 Company: City: 79708 Attn: Address: City: Zip: Project Name Safety Solutions, Inc. MATRIX PRESERV. SAMPLING (\$690	-
Address: P.O. Box 8469 Company:	
City: Midland	
Phone #: 432-563-2200 Fax #: 432-563-2213 Address:	
Project #: 094-1749]
Project Name: NBQU Injection - Soil Washing Project Location: Eddy County, NM Phone #: Sampler Name: Jay Latta - Fred Holmes Fax #: FOR LAD USE ONLY Lab I.D. Sample I.D.	
Project Location: Eddy County, NM Sampler Name: Jay Latta - Fred Holmes Fax #: FOR LAB USE ONLY Lab I.D. Sample I.D. Sample I.D.	
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Time:	
Delivered By: (Circle One) Temp. Sample Condition CHECKED BY: Cool Intact (Initials) Sampler - UPS - Bus - Other: Yes Yes No No No	

[†] Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



July 1, 2009

Fred Holmes
Etech Environmental & Safety Solutions, Inc.
P.O. Box 8469
Midland, TX 79708

Re: NBQU Injection - Soil Washing

Enclosed are the results of analyses for sample number H17719, received by the laboratory on 06/30/09 at 9:29 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Method SW-846 8260 Benzene, Toluene, Ethyl Benzene, and Total Xylenes Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005

Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely,

Celey D. Keene Laboratory Director



ATTN: FRED HOLMES P.O. BOX 8469 MIDLAND. TX 79708

FAX TO: (432) 563-2213

Receiving Date: 06/30/09 Reporting Date: 06/30/09 Project Number: 094-1749

Project Name: NBQU INJECTION-SOIL WASHING

Project Location: EDDY COUNTY, NM

Analysis Date: 06/30/09 Sampling Date: 02/16/09 Sample Type: SOIL

Sample Condition: INTACT @ 24°C

Sample Received By: ML

Analyzed By: HM

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		C)
LAB NO.	SAMPLE ID	(mg/kg)
H17719-1	02-16-2009	432
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		Address to the state of the sta
Quality Cont	rol	500
True Value		500
% Recovery		100
Relative Per	cent Difference	<0.1

METHOD: Standard Methods 4500-CIB

Note: Analysis performed on a 1:4 w.v aqueous extract. Analyzed outside EPA recommended hold time, however sample results should not be affected.

Chemist

Date

07/01/09

H17719 Etech

ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

	(505) 393-2326 Fax (505) 393		i																					
Company Name	Etech Env. & Safety Solutions, In-).								L	3//	LL TO		1				ANA	LYSI	S RI	EQUE	ST		
Project Manager	r: Fred Holmes							P.0	. #:		94	1749000												
Address: P.O	. Box 8469	~~~~			andrope sequen	-	. [Cor	npa	ıny:		Proposition of the Contract of												
City: Midland	State: TX	Zij):			7970	28	Attr	1:											İ				
Phone #: 432	-563-2200 Fax #:	43	2-56	3-2	213		_ [Ado	ires	s:		and the second s	and the same of th											
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ATTN: FRED HOLMES P.O. BOX 8469 MIDLAND, TX 79708

FAX TO: (432) 563-2213

Receiving Date: 12/16/08 Reporting Date: 12/17/08 Project Number: 094-1749-000

Project Name: NBQU

Project Location: CARLSBAD, NM

Analysis Date: 12/17/08 Sampling Date: 12/15/08 Sample Type: SOIL

Sample Condition: COOL & INTACT

Sample Received By: ML

Analyzed By: TR

METHOD: Standard Methods 4500-CIB

Note: Analysis performed on a 1:4 w:v aqueous extract.

Chemist

Date



	(575) 393-2326 Fax (575) 393-2																Page_	of							
Company Name				BILL TO						ANALYSIS REQUEST															
Project Manage	r: F. HOLDLES							P.C), #.																
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[†] Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



ATTN: FRED HOLMES P.O. BOX 8469 MIDLAND, TX 79708

FAX TO: (432) 563-2213

Receiving Date: 12/04/08 Reporting Date: 12/04/08

Project Owner: NOT GIVEN

Project Name: NORTH BENSON QUEEN INJECTION

FACILITY

Project Location: NOT GIVEN

Analysis Date: 12/04/08

Sampling Date: 12/04/08

Sample Type: SOIL

Sample Condition: COOL & INTACT

Sample Received By: AB

Analyzed By: HM

		C
LAB NO.	SAMPLE ID	(mg/kg)
H16470-1	POST SAMPLE #1	272
H16470-2	PRE SAMPLE	1,500
Quality Contro		500
True Value QC		500
% Recovery		100
Relative Perce	nt Difference	2.0

METHOD: Standard Methods 4500-CFB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

Date

H16470 Etech



(675) 393,2326 Fax (675) 393,2476

	(575) 393-2326 Fax (575) 393	3-2476															Page	of			
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[†] Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2478.