

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

Prepared By:

A handwritten signature in cursive script, appearing to read "Fred Holmes".

Fred Holmes
Project Manager
Etech Environmental & Safety Solutions, Inc.

Reviewed By:

A handwritten signature in cursive script, appearing to read "Shane Estep".

Shane Estep
Senior Environmental Scientist
Etech Environmental & Safety Solutions, Inc.

Prepared By:	Etech Environmental & Safety Solutions, Inc.
Date Prepared:	June 21, 2010
Project Number:	094-1749-000

Table of Contents

Executive Summary 1

Introduction 2

Remediation Summary 2

Validation Procedures and Analyses 6

Closure..... 6

Conclusion 8

Attachments

Attachment ASite Map

Attachment B Finalized C-141 Reports

Attachment C Field Screening Results

Attachment D In-House Laboratory Analyses

Attachment E Third Party Analytical Data

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 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 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.

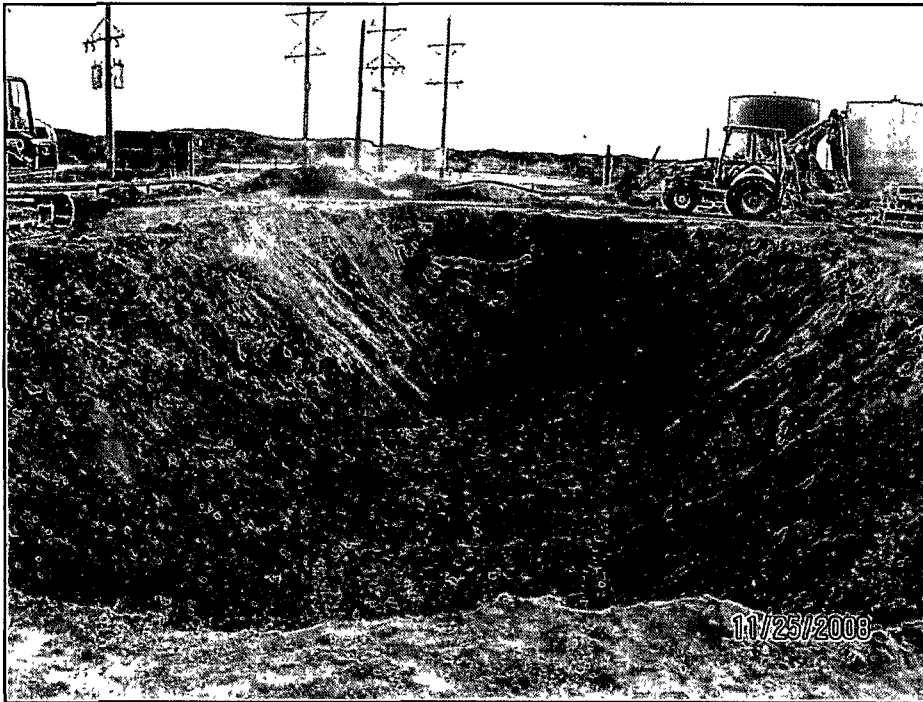


Photo 1: View of the cell following excavation.



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



Photo 3: View of the completed divider wall to allow 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 being added to the washing side of the treatment cell.



Photo 6: View 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.

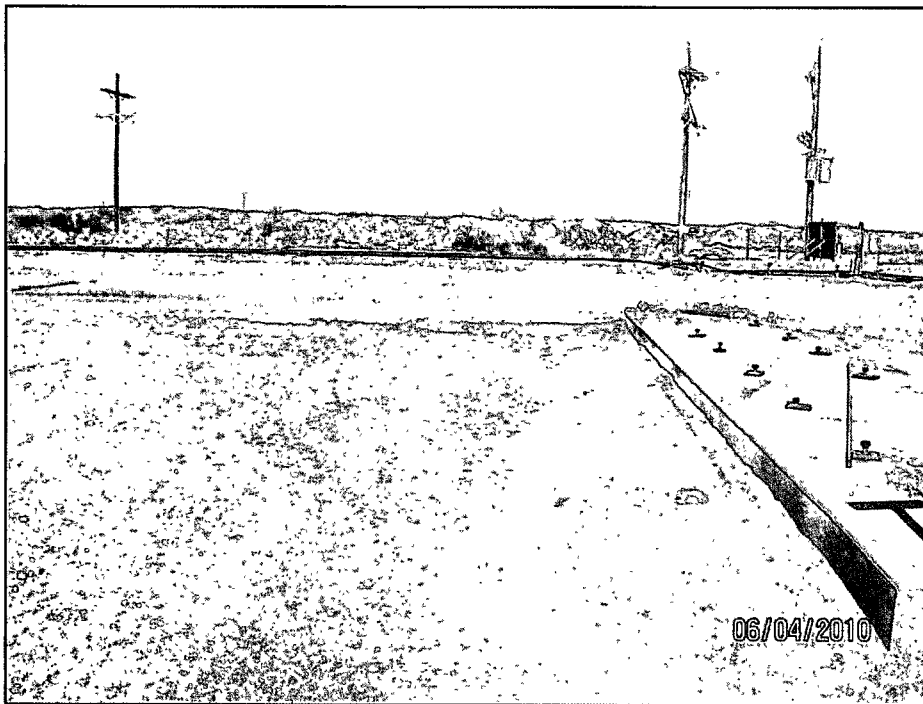


Photo 9: View looking east of the area where the treatment cell was located after completion of closure.

Conclusion

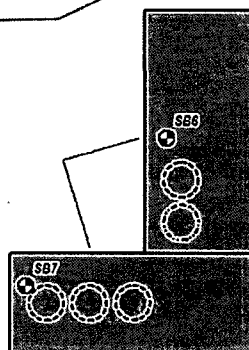
After completion of all of the activities, and the results of the analyses, the impacted soils from the two spills at the NBQU tank battery site have been successfully remediated and complete.

Attachment A
Site Map

Site Map

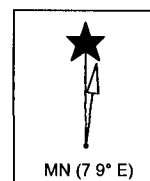
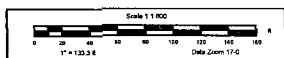
NBQU TANK BATTERY

Spill Containment Areas



DUNN SHAFT RD

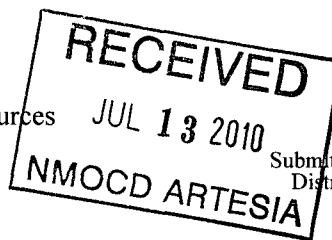
Loco Hills



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
District IV
1220 S St Francis Dr , Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505



Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: Arena Resources, Inc.	Contact: Fred Holmes	
Address: 2130 W. Bender Blvd.	Telephone No.: 575-738-1739/432-563-2200	
Facility Name: North Benson Queen Battery	Facility Type: Oil and Produced Water Tank Battery	
Surface Owner: BLM	Mineral Owner: BLM	Lease No.: 33129

LOCATION OF RELEASE

Unit Letter J	Section 28	Township 18S	Range 30E	Feet from the 1743	North/South Line FSL	Feet from the 784	East/West Line FEL	County Lea
------------------	---------------	-----------------	--------------	-----------------------	-------------------------	----------------------	-----------------------	---------------

Latitude: N32 43' 03.1" Longitude: W103 58' 24.4"

NATURE OF RELEASE

Type of Release: Produced Water & Oil	Volume of Release: 700	Volume Recovered: 0
Source of Release: Power Failure and Lightning Strike	Date and Hour of Occurrence: 08/28/2008 0100 hrs	Date and Hour of Discovery: 08/29/08 0700 hrs
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Sherry Bonham, OCD/ James Amos, BLM	
By Whom? Fred Holmes - Consultant	Date and Hour 08/29/08 0800	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*:

Describe Cause of Problem and Remedial Action Taken.*: Battery wash involved in two spills, one from a backflow when an electrical storm shut power down to the system causing the tanks to overflow and a second where lightning struck the tank battery produced water tanks setting a portion of them on fire.

Describe Area Affected and Cleanup Action Taken.* : Affected area measured 200' x 100' x 6' vertical. Soil was excavated and a soil washing system conducted in the excavated area. The cleaned soil was then used to backfill the site once remediation was completed.

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

Signature:	OIL CONSERVATION DIVISION		
Printed Name: Colleen Robinson	Approved by District Supervisor:		
Title: Regulatory Affairs Liason	Approval Date:	Expiration Date:	
E-mail Address: crobinson@arenaresourcesinc.com	Conditions of Approval:	Attached <input type="checkbox"/>	
Date: 06/21/10 Phone: 575-738-1739			

* Attach Additional Sheets If Necessary

Attachment C
Field Analysis Results

Quantab Chloride Test Strip Analysis Sheet

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

Site: N. Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technician: Latta

Strip Lot Number(s): A9167

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

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

Soil Sample Volume: 25 Grams

Distilled Water Volume = 100 ml

Quantab Chloride Test Strip Analysis Sheet

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

Site: N. Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technician: Latta

Strip Lot Number(s): A9167

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

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

Soil Sample Volume: 25 Grams

Distilled Water Volume = 100 ml

Quantab Chloride Test Strip Analysis Sheet

Date: 4/30/2009 Client: Arena Resources, Inc.

Site: N. Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technician: Latta

Strip Lot Number(s): A9167

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

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

Soil Sample Volume: 25 Grams

Distilled Water Volume = 100 ml

Quantab Chloride Test Strip Analysis Sheet

Date: 9/11/2009 Client: Arena Resources, Inc

Site: N. Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technician: Latta

Strip Lot Number(s): A9167

Sample ID	Titration Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
09/11/09	A	4	60.0	240.00	Rewash soil
09/14/09	A	4	29.0	116.00	Rewash soil
09/15/09	A	4	411.0	1644.00	Rewash soil
09/16/09	A	4	193.0	772.00	Rewash soil
09/22/09	A	4	138.0	552.00	Rewash soil
09/23/09	A	4	68.0	272.00	Rewash soil
09/24/09	A	4	40.0	160.00	Move to clean area
09/29/09	A	4	115.0	460.00	Rewash soil
10/05/09	A	4	104.0	416.00	Rewash soil
10/07/09	A	4	85.0	340.00	Rewash soil
10/12/09	A	4	60.0	240.00	Rewash soil
10/14/09	A	4	34.0	136.00	Move to clean area
10/20/09	A	4	60.0	240.00	Rewash soil
10/26/09	A	4	29.0	116.00	Rewash soil
10/27/09	A	4	85.0	340.00	Rewash soil
10/28/09	A	4	60.0	240.00	Rewash soil
10/29/09	A	4	46.0	184.00	Move to clean area
11/03/09	A	4	29.0	116.00	Move to clean area
11/09/09	A	4	126.0	504.00	Rewash soil
11/10/09	A	4	104.0	416.00	Rewash soil
11/12/09	A	4	46.0	184.00	Move to clean area
11/16/09	A	4	355.0	1420.00	Rewash soil
11/17/09	A	4	104.0	416.00	Rewash soil
11/18/09	A	4			Washed soil down and worked on pump
11/19/09	A	4	85.0	340.00	Rewash soil
11/20/09	A	4	53.0	212.00	Rewash soil
11/23/09	A	4	53.0	212.00	Rewash soil
11/24/09	A	4	34.0	136.00	Move to clean area
11/25/09	A	4	193.0	772.00	Rewash soil
11/30/09	A	4	245.0	980.00	Rewash soil
12/08/09	A	4	53.0	212.00	Rewash soil
12/10/09	A	4	53.0	212.00	Rewash soil
12/11/09	A	4	53.0	212.00	Rewash soil

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

Soil Sample Volume: 25 Grams

Distilled Water Volume = 100 ml

Quantab Chloride Test Strip Analysis Sheet

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

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

Project Number: 094-1749 & 1748 - 000

Technican: Latta

Strip Lot Number(s): A9167

[illegible]

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

Soil Sample Volume: 25 Grams

Distilled Water Volume = 100 ml

Quantab Chloride Test Strip Analysis Sheet

Date: 1/4/2010 **Client:** Arena Resources, Inc.

Site: N. Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technician: Latta

Strip Lot Number(s): A9167

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

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

Soil Sample Volume: 25 Grams

Distilled Water Volume = 100 ml

Quantab Chloride Test Strip Analysis Sheet

Date: 3/13/2010 Client: Arena Resources, Inc.

Site: N. Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technician: Latta

Strip Lot Number(s): A9167

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

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

Soil Sample Volume: 25 Grams

Distilled Water Volume = 100 ml

Quantab Chloride Test Strip Analysis Sheet

Date: 4/26/2010 **Client:** Arena Resources, Inc.

Site: N. Benson Queen Unit

Project Number: 094-1749 & 1748 - 000

Technician: Latta

Strip Lot Number(s): A9167

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

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

Soil Sample Volume: 25 Grams

Distilled Water Volume = 100 ml

Attachment D
In-House Analytical Data

In-House Sample Analysis Sheet

Date: 5/24/2010 **Client:** Arena Resources, Inc.
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	AgNO ₃ 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	AgNO ₃ 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

F = (ml AgNO₃)(N)(35450)/ml. sample used
 Soil Sample Volume: 25 Grams
 Deionized Water Volume = 100 ml

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 Holmes **Contaminant:** Chlorides
Method: Standard Method 4500-CIB **QA/QC Standard:** 500 mg/kg

Treated Sample Lot (Date)	Milliliters of Sample Used	Dilution	AgNO ₃ 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 AgNO₃)(N)(35450)/ml. sample used

Soil Sample Volume: 25 Grams

Deionized Water Volume = 100 ml



ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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 through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.2	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

This report conforms with NELAP requirements.



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

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

METHOD: Standard Methods 4500-Cl'B

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

05/05/10

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

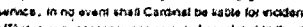
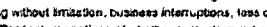
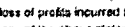


101 East Marland, Hobbs, NM 88240

(575) 393-2326 Fax (575) 393-2476

Page _____ of _____

PLEASE NOTE: Lability 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 the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Sampler Relinquished:  Relinquished By:	Date: 5-4-10 Time:	Received By:  Date: 5/4/10 Time: 3:45	Phone Result: <input type="checkbox"/> No Add'l Phone #: Fax Result: <input type="checkbox"/> No Add'l Fax #: REMARKS:
Delivered By: (Circle One) (Sampler) UPS - Bus - Other:	Temp: 10°C	Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials) 

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2496.

#26



ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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 03/29/10 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 through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.2	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

This report conforms with NELAP requirements.




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

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

[illegible]

4500-C/B

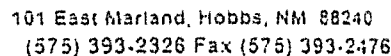
Note: Analysis performed on a 1:4 w:v aqueous extract.


Chemist

04/01/10
Date

H19570 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 negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



* Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.

#26



CARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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.

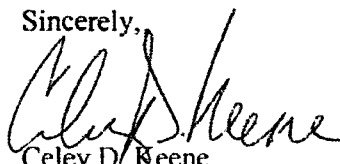
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.2	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

This report conforms with NELAP requirements.



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 86240

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

LAB NO.	SAMPLE ID	Cd ⁺ (mg/kg)
H19376-1	WASHED SOIL	208
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		2.0

METHOD: Standard Methods

4500-CIB

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

Alfred H. Kene
Chemist

03/08/10
Date

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

**CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240

(575) 393-2326 Fax (575) 393-2476

Page ____ of ____

Company Name: <u>E-Tech</u>				BILL TO		ANALYSIS REQUEST															
Project Manager: <u>Fred Holmes</u>				P.O. #:																	
Address:				Company:																	
City: <u>Midland</u> State: <u>TX</u> Zip: <u>79708</u>				Attn:																	
Phone #: _____ Fax #: _____				Address:																	
Project #: <u>094-001749-000</u> Project Owner: <u>Asana</u>				City:																	
Project Name: <u>NBOEF</u>				State: _____ Zip: _____																	
Project Location: <u>Carlsbad NM</u>				Phone #: _____																	
Sampler Name: <u>Jay Latta</u>				Fax #: _____																	
FOR LAB USE ONLY				MATRIX		PRESERV		SAMPLING													
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:	ACID/BASE: ICE / COOL OTHER:	DATE	TIME														
<u>HA376-1</u>	<u>Washed Soil</u>	<u>/</u>				<u>2-9-16</u>	<u>3:00 PM</u>	<u>chlorides</u>													

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 the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Sampler Relinquished: <u>1</u>		Date: <u>5-4-16</u>	Received By: _____	Phone Result: <input type="checkbox"/> No	Add'l Phone #: _____
Relinquished By: <u>[Signature]</u>		Time: <u>2:35 PM</u>		Fax Result: <input type="checkbox"/> No	Add'l Fax #: _____
Delivered By: (Circle One)		Date: _____	Received By: <u>[Signature]</u>	REMARKS:	
Sampler - UPS - Bus - Other:		Time: _____			
		Temp. _____	Sample Condition		
			Cool Intact		
			<input type="checkbox"/> Yes <input type="checkbox"/> Yes		
			<input type="checkbox"/> No <input type="checkbox"/> No		
			CHECKED BY: <u>[Signature]</u>		
			(Initials)		

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

#26



ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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)

Sincerely,

Celey D. Keene
Laboratory Director

This report conforms with NELAP requirements.



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

Analysis Date: 06/30/09
Sampling Date: 01/14/09
Sample Type: SOIL
Sample Condition: INTACT @ 24°C
Sample Received By: ML
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl ⁻ (mg/kg)
H17718-1	01-14-2009	160
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		<0.1

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

H17718 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 negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



(505) 393-2326 Fax (505) 393-2476

Page 1 of 1

*** Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.**

#26



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

Analysis Date: 11/02/09
Sampling Date: 10/29/09
Sample Type: SOIL
Sample Condition: INTACT
Sample Received By: ML
Analyzed By: HM

METHOD: Standard Methods 4500-Cl'B

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

11/03/09
Date

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

**CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240

(505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUESTPage 1 of 1

Company Name: Etech Env. & Safety Solutions, Inc. Project Manager: Fred Holmes Address: P.O. Box 8469 City: Midland State: TX Zip: 79708 Phone #: 432-563-2200 Fax #: 432-563-2213 Project #: 094-1749-000 Project Owner: Project Name: NBQU Injection - Soil Washing Project Location: Eddy County, NM Sampler Name: Jay Latta - Fred Holmes				BILL TO P.O. #: 941749000 Company: Attn: Address: City: State: Zip: Phone #: Fax #:		ANALYSIS REQUEST													
FOR LAB USE ONLY	Lab I.D.	Sample I.D.	Q	QIRAB OR (C)OMP.	# CONTAINERS	MATRIX	PRESERV.	SAMPLING	TPH (8015)	TPH Ext (TX 1005)	Chlorides								
	H/18612-1	102909 Wash	Q		1	GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:	ACID/BASE: ICE / COOL OTHER:	DATE TIME											
						X		29-Oct 1247			X								

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 the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

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, and all costs of collections including attorney's fees.

Sampler Relinquished: Relinquished By: Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Date: 10/30/09 Time: 1:30 P Received By: Date: 10/30/09 Time: 4:10 P Received By: Temp. Sample Condition Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No REMARKS: Add'l Phone #: Add'l Fax #:
--	--	---

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



ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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 through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.2	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

This report conforms with NELAP requirements.



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

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

LAB NO.	SAMPLE ID	Cl ⁻ (mg/kg)
H18112-1	082509 WASH	160
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		2.0

4500-CI'B

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

R. S. Kane
Chemist

Date 08/28/09

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



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

[illegible]

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



ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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 through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.2	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

This report conforms with NELAP requirements.



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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

LAB NO.	SAMPLE ID	Cl ⁻ (mg/kg)
H18227-1	090909 WASH COMPOSITE	144
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		< 0.1

METHOD: Standard Methods

4500-CIB

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

Chemist

09/14/09
Date

H18227 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 negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

[illegible]

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



CARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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	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 through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.2	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

This report conforms with NELAP requirements.



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

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

Date _____

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


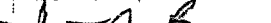

ARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240

(575) 393-2326 Fax (575) 393-2476

Page of [illegible]

CLAIMS FOR Damages. Damages for any and all claims arising out of this agreement shall be limited to the amount paid by the client for the services rendered, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable services. No claim shall be made for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Sampler Relinquished: 		Date: <u>8/24/09</u>		Received By: 		Phone Result: <input type="checkbox"/> No Add'l Phone #: _____	
		Time: <u>8:30a</u>				Fax Result: <input type="checkbox"/> No Add'l Fax #: _____	
Relinquished By: _____		Date: _____		Received By: _____		REMARKS: _____ _____ _____	
		Time: _____					
Delivered By: (Circle One)				Temp: <u>#26 24°</u>		CHECKED BY:  (Initials)	
Sample - UPS - Bus - Other: _____				Sample Condition: Cool Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> No			

† Do not fax 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

Analysis Date: 06/18/09
Sampling Date: 06/17/09
Sample Type: SOIL
Sample Condition: INTACT @ 33°C
Sample Received By: ML
Analyzed By: AB

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

4500-CIB

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

Chemíšt

Date _____

H17644 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 negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page of

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



ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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

This report conforms with NELAP requirements.



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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

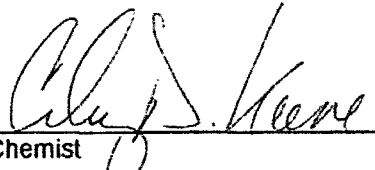
Receiving Date: 06/30/09
Reporting Date: 06/30/09
Project Number: 094-1749
Project Name: NBQU INJECTION-SOIL WASHING
Project Location: EDDY COUNTY, NM

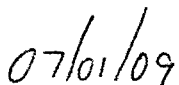
Analysis Date: 06/30/09
Sampling Date: 06/15/09
Sample Type: SOIL
Sample Condition: INTACT @ 24°C
Sample Received By: ML
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl ⁻ (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

H17722 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 negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.






CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

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 the client for the services. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated exceptions or otherwise.

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, and all costs of collections, including attorney's fees.

Sampler Relinquished: 		Date: 1/18/2005 Time: 9:30		Received By: 		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #:	
Relinquished By:		Date:		Received By:		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Temp: 74°C		Sample Condition Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CHECKED BY: (Initials) 	
REMARKS:							

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

#26



ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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

This report conforms with NELAP requirements.



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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: 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: 04/29/09
Sample Type: SOIL
Sample Condition: INTACT @ 24°C
Sample Received By: ML
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl ⁻ (mg/kg)
H17721-1	04-29-2009	224
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent 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.

Chad Keene
Chemist

07/01/09
Date

H17721 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 negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

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

#26



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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: 03/27/09
Reporting Date: 03/30/09
Project Numbner: 094-1749-000
Project Name: NBQU INJECTION FACILITY
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

LAB NO.	SAMPLE ID	Cl ⁻ (mg/kg)
H17148-1	CLEAN	368
H17148-2	IN PROGRESS	400
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		< 0.1

METHOD: Standard Methods	4500-ClB
--------------------------	----------

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

Alfred Keene
Chemist

Date 03/30/09

H17148 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 analysis. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



(505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

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



ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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

This report conforms with NELAP requirements.



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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: 06/30/09
Reporting Date: 06/30/09
Project Number: 094-1749
Project Name: NBQU INJECTION-SOIL WASHING
Project Location: EDDY COUNTY, NM

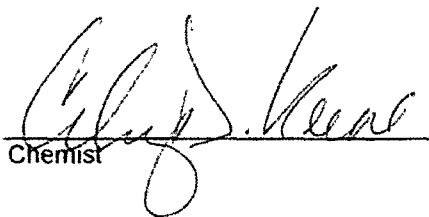
Analysis Date: 06/30/09
Sampling Date: 03/09/09
Sample Type: SOIL
Sample Condition: INTACT @ 24°C
Sample Received By: ML
Analyzed By: HM

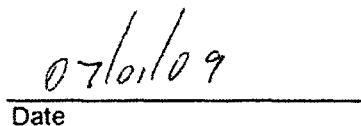
LAB NO.	SAMPLE ID	Cl ⁻ (mg/kg)
H17720-1	03-09-2009	160
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		<0.1

METHOD: Standard Methods

4500-Cl⁻B

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


Chemist


Date

H17720 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 negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

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

#26



CARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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	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

This report conforms with NELAP requirements.



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

07/01/09
Date

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



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

Company Name: Etech Env. & Safety Solutions, Inc.				BILL TO				ANALYSIS REQUEST																									
Project Manager: Fred Holmes				P.O. #: 941749000																													
Address: P.O. Box 8469				Company:																													
City: Midland		State: TX		Zip: 79708		Attn:																											
Phone #: 432-563-2200		Fax #: 432-563-2213		Address:																													
Project #: 094-1749		Project Owner:		City:																													
Project Name: NBQU Injection - Soil Washing				State: Zip:																													
Project Location: Eddy County, NM				Phone #:																													
Sampler Name: Jay Latta - Fred Holmes				Fax #:																													
FOR LAB USE ONLY				MATRIX				PRESERV.				SAMPLING																					
Lab I.D.		Sample I.D.		GIRAB OR (COMP. # CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE														OTHER:		ACID/BASE:		ICE / COOL	
H17719-1		02/16/2009		C-1						X														2/16/09		1430						X	
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 the client for the analysis. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.				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 and all costs of collections, including attorney's fees																													
Sampler Relinquished:		Date: 2/16/09		Received By: [Signature]		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:																									
Relinquished By: [Signature]		Time: 9:29		Received By: [Signature]		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:																									
Delivered By: (Circle One)		Temp: 24C		Sample Condition: Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CHECKED BY: (Initials) [Signature]																											
Sampler - UPS - Bus - Other:																																	

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

#24



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

**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: 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

LAB NO.	SAMPLE ID	CF (mg/kg)
H16534-1	BATCH 12-15	240
Quality Control		490
True Value QC		500
% Recovery		98.0
Relative Percent Difference		<0.1

METHOD: Standard Methods	4500-CIB
--------------------------	----------

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

Chemist

Date _____

H16534 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 negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.






101 East Marland, Hobbs, NM 88240

(575) 393-2326 Fax (575) 393-2476

Page _____ of _____

PLEADING NOTE: Liability and Damages. Cardinal's liability and other's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the services. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable services. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated theories or otherwise.

Relinquished By:  Date: 12-16-08 Time: 1:20		Received By:  Date: Time:		Phone Result: <input type="checkbox"/> No Add'l Phone #: Fax Result: <input type="checkbox"/> No Add'l Fax #: REMARKS:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Temp.	Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No	CHECKED BY: (Initials) 	

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



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

**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: 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

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

METHOD: Standard Methods 4500-CrB

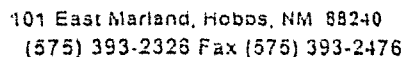
Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

Date

H16470 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 negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service, in no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories



* Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2478.