ETECH

Environmental & Safety Solutions, Inc.

Remediation of Chloride Impacted Soils North Benson Queen Unit Well #16

Prepared for: **Arena Resources, Inc.**
2130 W Bender Blvd.
Hobbs, NM 88240

Prepared By: **Etech Environmental & Safety Solutions, Inc.**
Date Prepared: **June 30, 2009**
Project Number: **094-1749-000**

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised 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 Well #16	Facility Type: Produced Water Injection

Surface Owner: BLM	Mineral Owner: BLM	Lease No.: 33129

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	28	18S	30E	1650	FSL	1651	FEL	Eddy

Latitude: N32 42' 56.300" **Longitude:** W103 58' 26.600"

NATURE OF RELEASE

Type of Release: Produced Water & Oil	Volume of Release: 125	Volume Recovered: 50
Source of Release: Injection Line Break	Date and Hour of Occurrence: 07/29/08 0700	Date and Hour of Discovery: 07/29/08 0900
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom? Sherry Bonham, OCD/ James Amos, BLM	
By Whom? Tony Tucker - Foreman	Date and Hour 07/29/08-1000	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*:

Describe Cause of Problem and Remedial Action Taken.*: Break in a 2" produced water line. Line was repaired.

Describe Area Affected and Cleanup Action Taken.* : Affected areas include 2 pooled areas of produced water west and north of the wellhead as well as stormwater drainge channels spill used to reach pooled area. Soils were excavated and processed via soil washing to remove chlorides to acceptable levels per corrective action plan. Once soils were treated, they were placed back into the excavation the areas contoured and seeded as per the corrective action plan and BLM requirements. Final report prepared on 06/30/2009 and presented to OCD Artesia on 07/10/09. Closure was approved. Site will move to monitoring for the next two years per BLM requirements to ensure that reclaimed areas properly vegetate.

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: Fred Holmes	OIL CONSERVATION DIVISION
Printed Name: Fred Holmes	Approved by District Supervisor: Randy Dade by
Title: Consultant	Approval Date: 8-26-09 Expiration Date: N/A
E-mail Address: fred@etechenv.com	Conditions of Approval: N/A ☐ Attached
Date: 07/10/09 Phone: 432-563-2200	

* Attach Additional Sheets If Necessary

2RP-226

ETECH

Environmental & Safety Solutions, Inc.

Remediation of Chloride Impacted Soils North Benson Queen Unit Well #16

Prepared By:

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

Reviewed By:

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

Date Prepared: June 30, 2009
Project Number: 094-1749-000

Table of Contents

Attachments

Executive Summary

On July 29, 2008, a release of produced water occurred at the Arena Resources, Inc (Arena) North Benson Queen Unit (NBQU) Well No. 16. On August 4, 2008, Arena contracted Etech Environmental & Safety Solutions, Inc. (Etech) to assess and remediate the spills.

Remediation of the chloride-impacted soils consisted of the construction of a soil-washing unit at the NBQU Tank Battery and the addition of soil amendments to the storm water channels. The unit was constructed to allow the batch treatment of soils on the site. Soils in the stormwater channels were treated with calcium nitrate which was blended into the soils along the bottom of the channels where the water flowed from the release to the pooled areas.

A sampling and analysis procedure was developed to ensure that the washed soils meet the corrective action plan goal of 500 mg/kg of total chlorides. Samples of the wash samples and treated areas were collected and the results of all formal analyses determined that the soils were cleaned to levels that meet the corrective action plan goals of 500 mg/kg or less of total chlorides.

After soil washing was completed the treated soils were transferred back into the excavated areas. The surface was then contoured to meet the existing slopes then seeded with BLM #2 seed mixture. Soil samples were collected from the reclaimed areas and analyzed for chlorides. The results of the analyses indicated that all soils were within the corrective action plan goals.

In conclusion, the impacted soils associated with the produced water spill at the NBQU Well #16 have been remediated. The site will now go to monitoring to ensure that the seeding will germinate. As normal for sites under the Bureau of Land Management's jurisdiction, the site will be monitored for up to 2 years to ensure that the site properly vegetates.

Introduction

On July 29, 2008, a release of produced water occurred at the Arena Resources, Inc (Arena) North Benson Queen Unit (NBQU) Well No. 16. The particulars on this spill are as follows:

Site: ..... NBQU Well 16
Unit No: NMNM70993X
Latitude: ..... N32° 42' 56.300"
Longitude: ..... W103° 58' 26.600"
Quantity Released: ..... 125 BBLs.
Cause: ..... Ruptured injection line

On August 4, 2008, Arena contracted Etech Environmental & Safety Solutions, Inc. (Etech) to assess and remediate the spills. A site map is provided in Attachment A.

Assessment

When the spill occurred, the release moved west and north following storm water erosional pathways where the liquids eventually pooled. The first segment flowed west approximately 450 feet before pooling in an area approximately 30 feet in diameter. The other segment flowed northward approximately 150 feet before dividing and flowing around a large sand dune then converging and pooling in an area approximately 30 feet in diameter. The liquids eventually overfilled this area and pooled in a second area adjoining the northeast side of the first. This second area measured approximately 30 feet in diameter. Oil staining associated with the west segment was spotty and confined to the pooled area. The oil staining on the north segment appeared to be largely confined to the pooled areas and to a depth of the first ¼ inch of the surface. There was some spot staining observed in two areas along the spill pathway.

Remediation

Remediation of the chloride-impacted soils consisted of the construction of a soil-washing unit at the NBQU Tank Battery. The unit was constructed to allow the batch treatment of soils on the site. As the soils were cleaned, the solvent (water) was transferred to a holding tank and pumped into the facilities injection well system. Soils from the washing unit were stockpiled in a designated area located directly south of the soil-washing unit. Soils in the stormwater channels were treated with calcium nitrate which was blended into the soils along the bottom of the channels where the water flowed from the release to the pooled areas.

Sampling and Analysis

A sampling and analysis procedure was developed to ensure that the washed soils meet the corrective action plan goal of 500 mg/kg of total chlorides. The plan consisted of daily testing of the soils in the treatment cell using Quantab 30-600 ppm titrators for chlorides. When the results of the testing reached less than 400 ppm of total chlorides, the soils were then transferred to the clean area.

A composite sample was collected approximately every two weeks and taken to Etech's office in Odessa, Texas where the sample was analyzed for chlorides using EPA Standard Method 4500-Cl⁻B. If the analytical results were less than the levels stated in the corrective action plan, the sample was set aside.

If the results were greater 500 mg/kg, the soil was washed again. Also periodic spot checks were performed on samples collected from the treated pile.

In addition, a split sample composite of the treated soils was sent monthly to Cardinal Laboratories in Hobbs, New Mexico to be analyzed for chlorides via EPA standard Method 4500-Cl^-B. All analyses performed at both Etech's and Cardinals facilities determined the chloride levels in the treated soils were less than the 500 mg/kg goal of the corrective action plan. Copies of the field and laboratory analysis are provided in Attachment B.

Reclamation

In May of 2009, treatment operations were suspended and the treated soils were placed into the excavated areas associated with the north and west pool areas. Once placed, the soils were contoured to meet the existing slopes then seeded with BLM #2 seed mixture. Soil samples were collected from the reclaimed areas and analyzed for chlorides. The results of the analyses indicated that all soils were within the corrective action plan goals. Photographs of the sites following reclamation are provided in Attachment C.

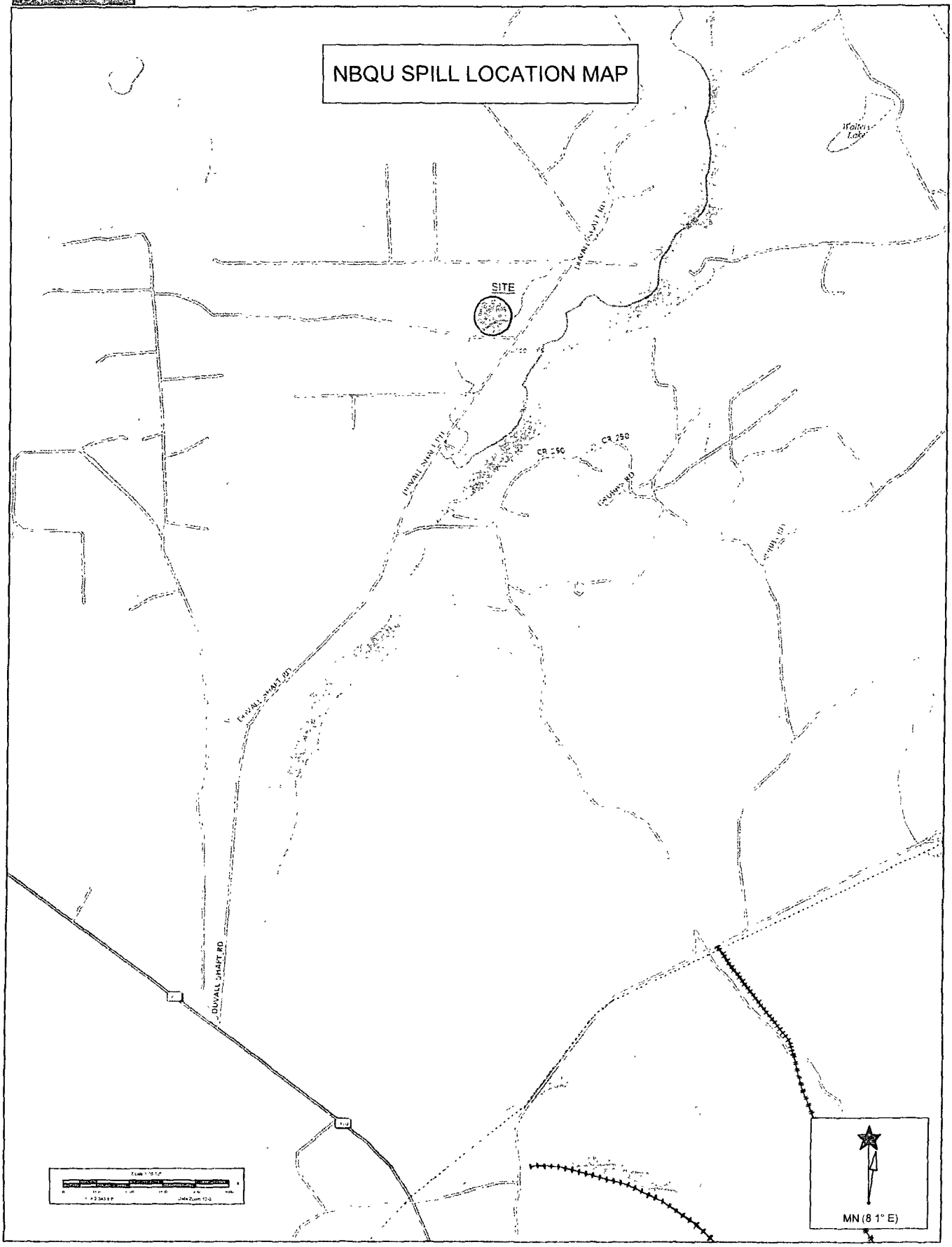
Conclusion

In conclusion, the impacted soils associated with the produced water spill at the NBQU Well #16 have been remediated. The site will now go to monitoring to ensure that the seeding will germinate. As normal for sites under the Bureau of Land Management's jurisdiction, the site will be monitored for up to 2 years to ensure that the site properly vegetates.

Attachment A
Site Location Map

DeLORME

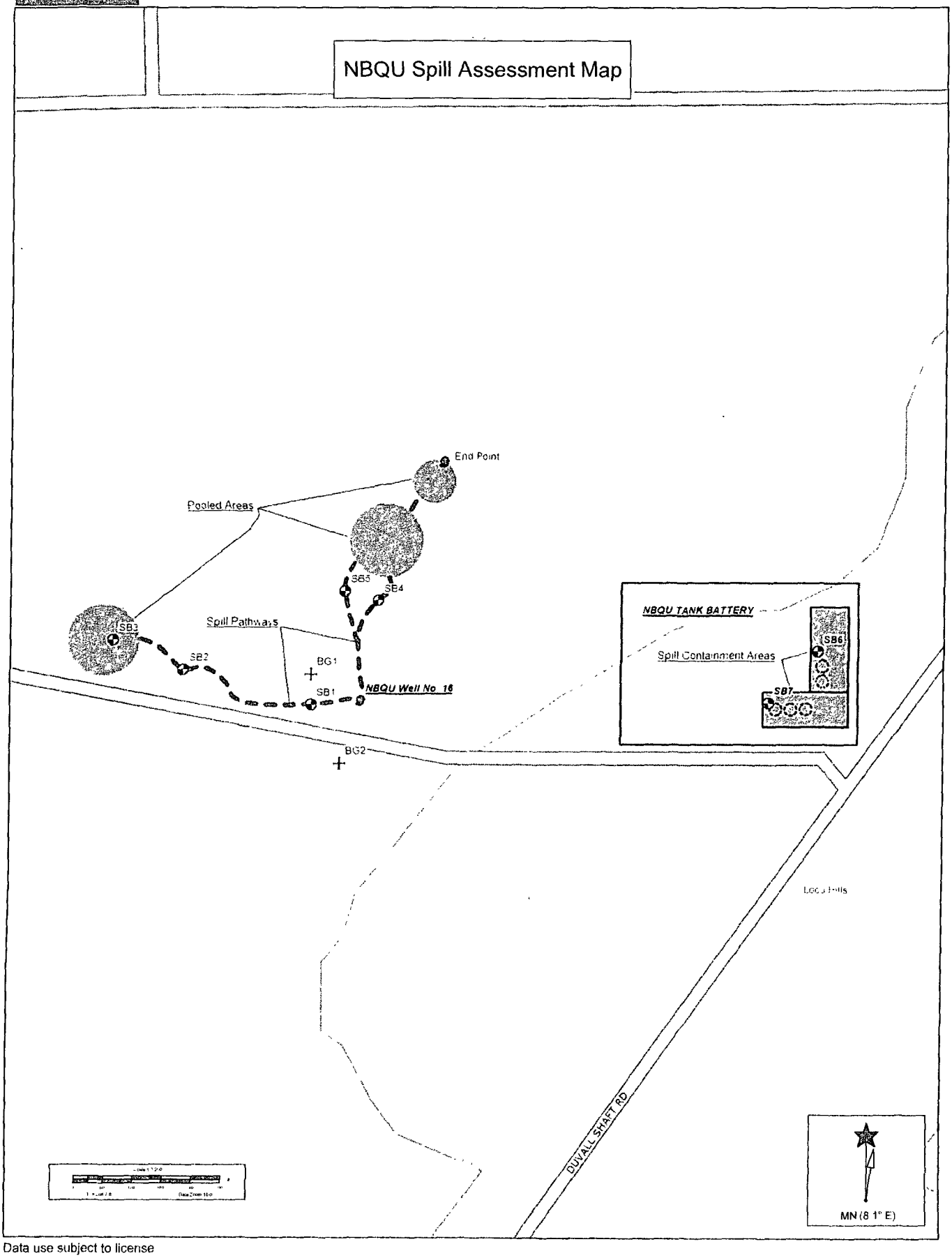
XMap® 5.2 Professional



DELORME

XMap® 5.2 Professional

NBQU Spill Assessment Map



Attachment B
Analytical Results

eTECH
Environmental & Safety Solutions, Inc.

Project Sample Analysis Sheet

Date: 6/30/2009 **Client:** Arena Resources, Inc.

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

Pro. Mgr. Fred Holmes **Contaminant:** Chlorides

Method: Standard Method 4500-ClB **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	0.500	198.52	192	Treated pile monthly composite, sample to lab for verification
Clearance Sampling	**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

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

Soil Sample Volume: 25 Grams

Deionized Water Volume = 100 ml

CARDINAL LABORATORIES

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

Summary Report

LAB NO.	SAMPLE ID	Cl^- (mg/kg)
H16470-1	12/4/2008	272
H17718-1	1/14/2009	160
H17719-1	2/16/2009	432
H17720-1	3/9/2009	160
H17721-1	4/29/2009	224
H17722-1	6/15/2009	192

METHOD: Standard Methods	4500-Cl B

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

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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^{0}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

07/01/09
Date

H17722 Etech

CARDINAL LABORATORIES

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Etech Env. & Safety Solutions, Inc.	**BILL TO**	
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		ANALYSIS REQUEST											
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	TPH (8015)	TPH Ext (TX 1005)	Chlorides									
H17722-1	06-15-2009	C	1			X							06/15	1445			X									

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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:** 6/16/2009 **Time:** 9:30	**Received By:**	
Relinquished By:	**Date:** **Time:**	**Received By:**	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	**Temp.** 24°C	**Sample Condition** Cool: ☐ Yes ☑ No; Intact: ☑ Yes ☐ No	**CHECKED BY: (Initials)**

Phone Result: ☐ Yes ☐ No **Add'l Phone #:**
Fax Result: ☐ Yes ☐ No **Add'l Fax #:**
REMARKS:

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

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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-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

07/01/09
Date

H17721 Etech

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Etech Env. & Safety Solutions, Inc.	**BILL TO**	
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		ANALYSIS REQUEST		
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	TPH (8015)	TPH Ext (TX 1005)	Chlorides
H17721-1	04-29-09	C	1			X							04/29	1515			X

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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:** 6/30/09	**Received By:**	
	Time: 9:30		
Relinquished By:	**Date:**	**Received By:**	
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Temp.	**Sample Condition** Cool	Intact	**CHECKED BY:** (Initials)
24°C	☐ Yes ☐ No	☑ Yes ☐ No	MC/JB

Phone Result: ☐ Yes ☐ No **Add'l Phone #:**
Fax Result: ☐ Yes ☐ No **Add'l Fax #:**
REMARKS:

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

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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

07/01/09
Date

H17720 Etech

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Etech Env. & Safety Solutions, Inc.	**BILL TO**	
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		ANALYSIS REQUEST		
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	TPH (8015)	TPH Ext (TX 1005)	Chlorides
H17720-1	3-09-2009	C	1			X							3/9	1600			X

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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:** 3/11/2009 **Time:** 9:30	**Received By:**	
Relinquished By:	**Date:** **Time:**	**Received By:**	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	**Temp.** 24C	**Sample Condition** Cool: ☐ Yes ☑ No; Intact: ☑ Yes ☐ No	**CHECKED BY: (Initials)** MCB

Phone Result: ☐ Yes ☐ No **Add'l Phone #:**
Fax Result: ☐ Yes ☐ No **Add'l Fax #:**
REMARKS:

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

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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: 02/16/09
Sample Type: SOIL
Sample Condition: INTACT @ 24°C
Sample Received By: ML
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl^- (mg/kg)
H17719-1	02-16-2009	432
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

07/01/09
Date

H17719 Etech

CARDINAL LABORATORIES

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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 **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				MATRIX							PRESERV.			SAMPLING		TPH (8015)	TPH Ext (TX 1005)	Chlorides									
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**												
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 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:	**Date:** 2/16/2009 **Time:** 9:29	**Received By:**	
Relinquished By:	**Date:** **Time:**	**Received By:**	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	**Temp.** 24°C	**Sample Condition** Cool ☐ Yes ☐ No Intact ☑ Yes ☐ No	**CHECKED BY: (Initials)** MAB

Phone Result: ☐ Yes ☐ No **Add'l Phone #:**
Fax Result: ☐ Yes ☐ No **Add'l Fax #:**
REMARKS:

† 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

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: 01/14/09
Sample Type: SOIL
Sample Condition: INTACT @ 24^{0}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

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

07/01/09
Date

H17718 Etech

CARDINAL LABORATORIES

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Etech Env. & Safety Solutions, Inc.	**BILL TO**	
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		ANALYSIS REQUEST											
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	TPH (8015)	TPH Ext (TX 1005)	Chlorides										
H17718-1	01-14-2009	C	1			X							1/14/09	1500			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:	**Date:** 6-30-09	**Received By:**	
	Time: 9:29		
Relinquished By:	**Date:**	**Received By:**	
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Temp.	**Sample Condition** Cool	Intact	**CHECKED BY: (Initials)**
24°C	☐ Yes ☑ No	☑ Yes ☐ No	MCAB

Phone Result: ☐ Yes ☐ No **Add'l Phone #:**
Fax Result: ☐ Yes ☐ No **Add'l Fax #:**
REMARKS:

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

#24

CARDINAL LABORATORIES

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	Cl^- (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-ClˉB

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

Chemist

12-05-08
Date

H16470 Etech

CARDINAL LABORATORIES

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

Page____ of____

Company Name: ETECH Environmental	**BILL TO**
Project Manager: Fred	P.O. #:
Address:	Company:
City: State: Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: North Beason Ocean Injection Facility	State: Zip:
Project Location:	Phone #:
Sampler Name:	Fax #:

ANALYSIS REQUEST: Cl—

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	Cl—
H16470-1	Post Sample #1					X							12/4/08	10:40a	X
-2	PRE SAMPLE					X							↓	10:50a	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:	Date: 12/04/08	Received By:	
Relinquished By:	Time: 11:20a	Received By:	
	Date:		
	Time:		

Phone Result: ☐ No Add'l Phone #:
Fax Result: ☐ No Add'l Fax #:
REMARKS: Call w/ Results
Jay 432-634-9050

Delivered By: (Circle One) Sampler - UPS - Bus - Other:

Temp.

Sample Condition: Cool ☒ Yes ☐ No; Intact ☒ Yes ☐ No

CHECKED BY: (Initials) JB

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

Attachment C
Photographs

Photo No: **1.**	
Direction Taken: East	
Description: Excavated soils from the west pooled area	

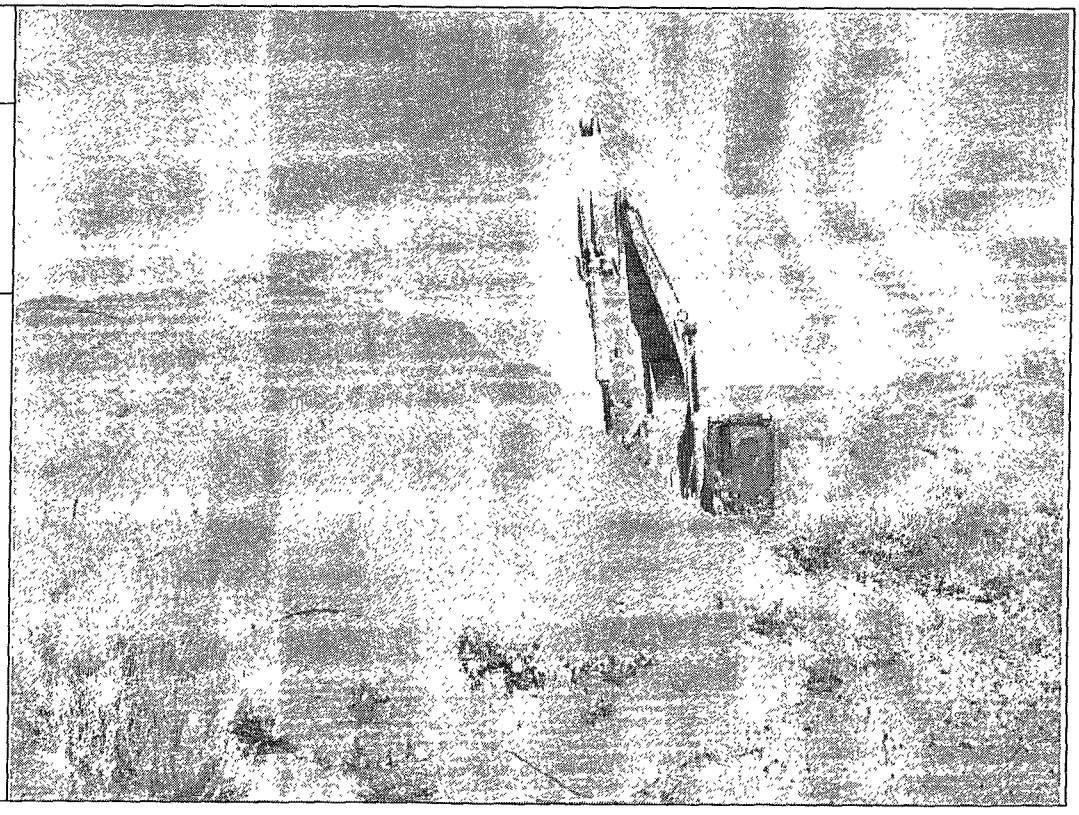
Photo No: **2.**	
Direction Taken: West-Northwest	
Description: Soils being excavated in the north pool area.	

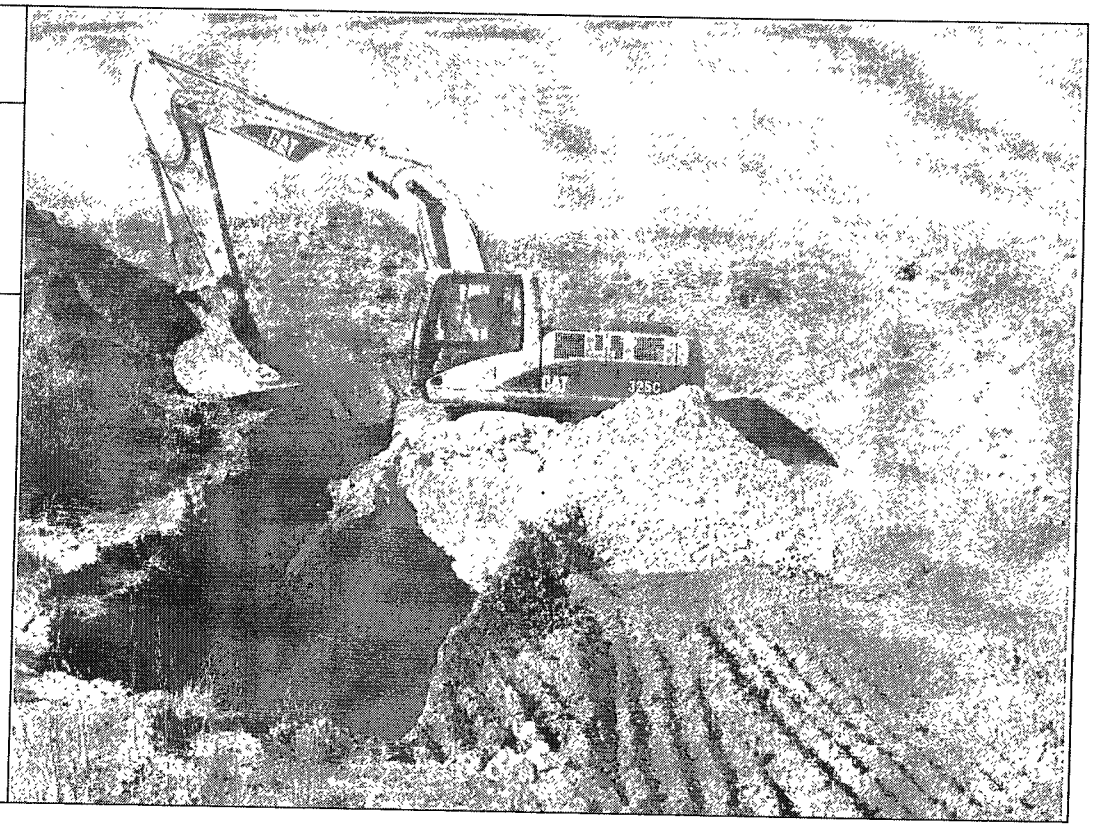
Photo No: **3.**	
Direction Taken: West	
Description: Soils being excavated in the north pool area.	

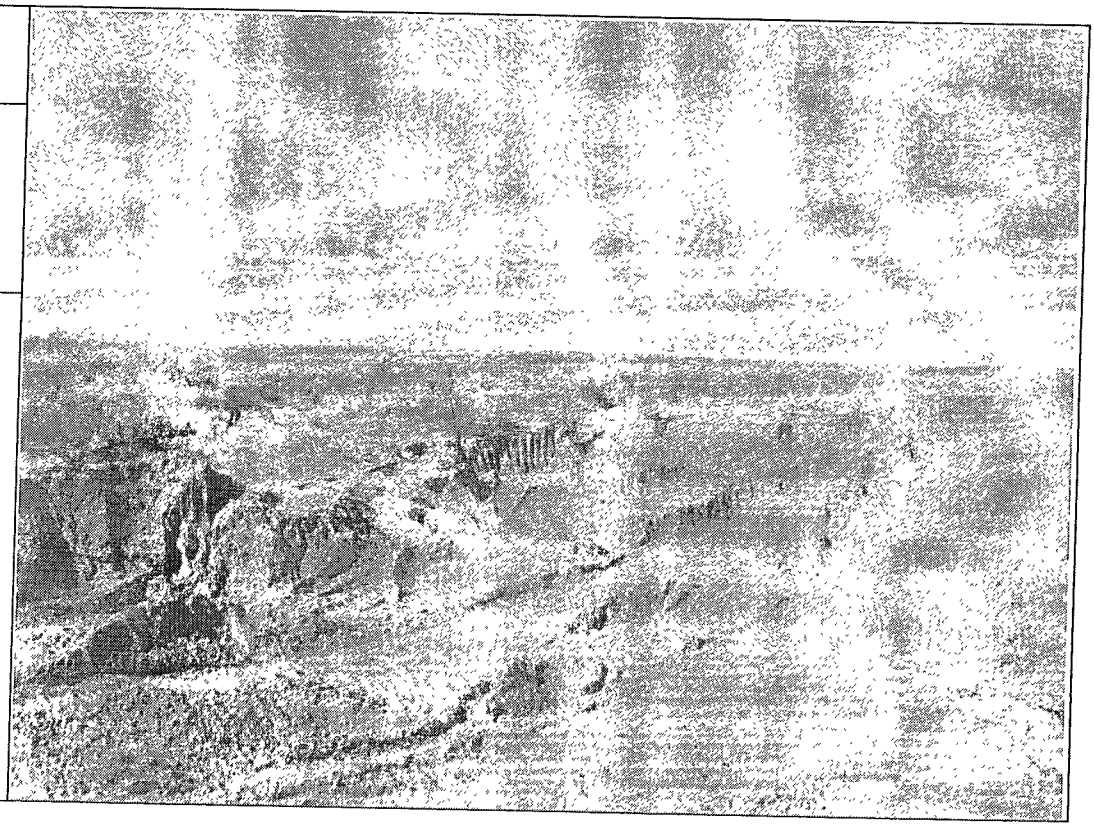
Photo No: **4.**	
Direction Taken: North	
Description: Soils being excavated in the west pool area.	

Photo No: **5.**	
Direction Taken: East	
Description: Soils amendment being applied to stormwater drainage channels.	

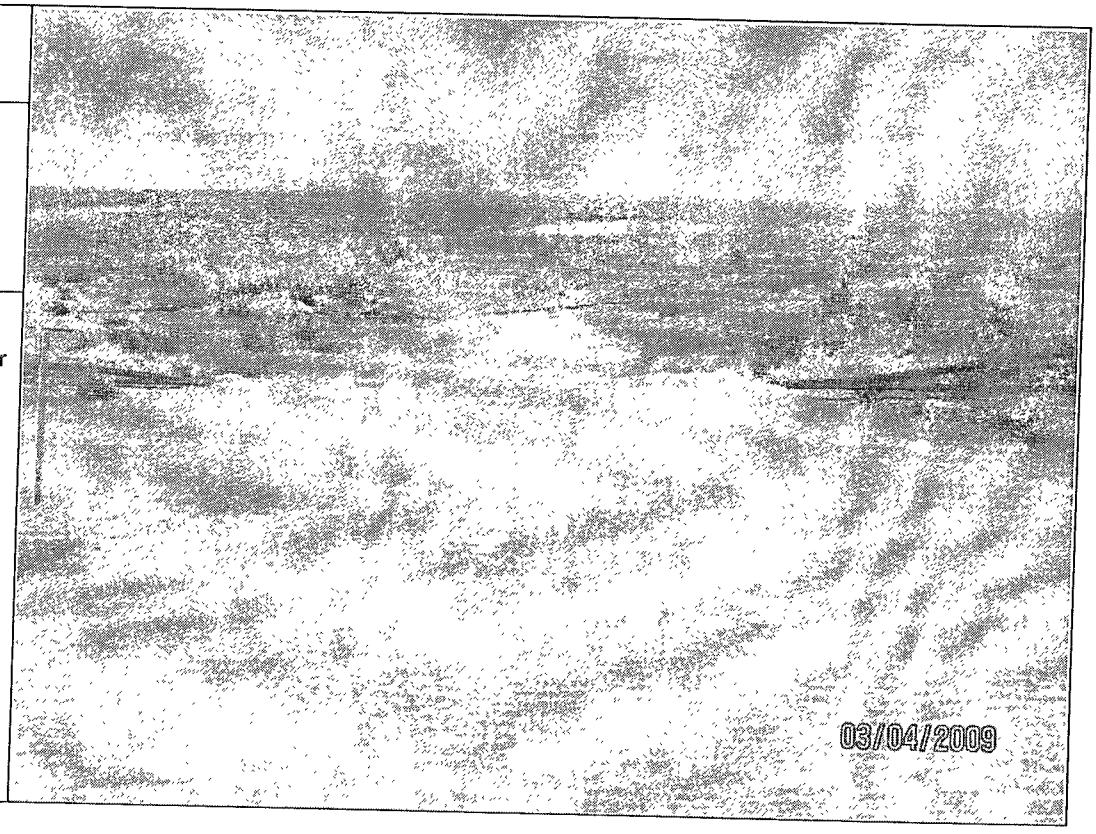
Photo No: **6.**	
Direction Taken: North	
Description: Soil amendment being applied to the stormwater channels (north of well # 16).	

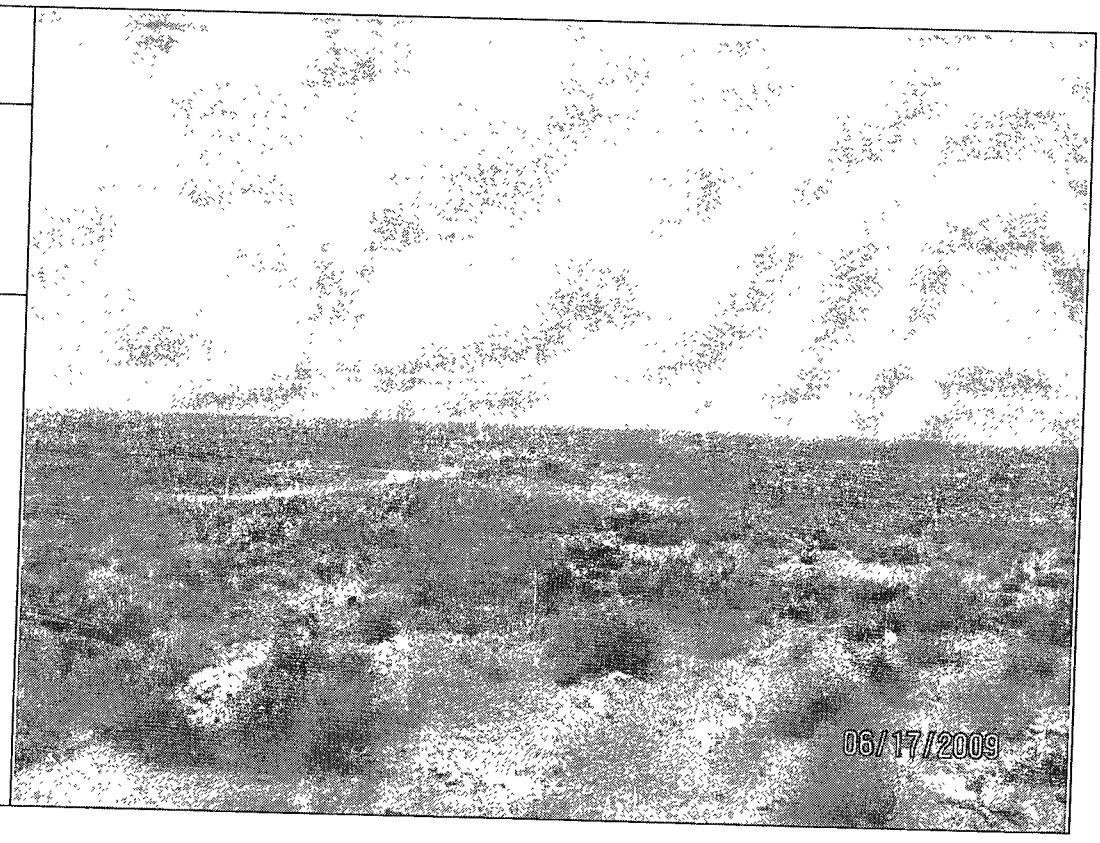
Photo No: **7.**	
Direction Taken: West	
Description: General overview of the west area following reclamation.	

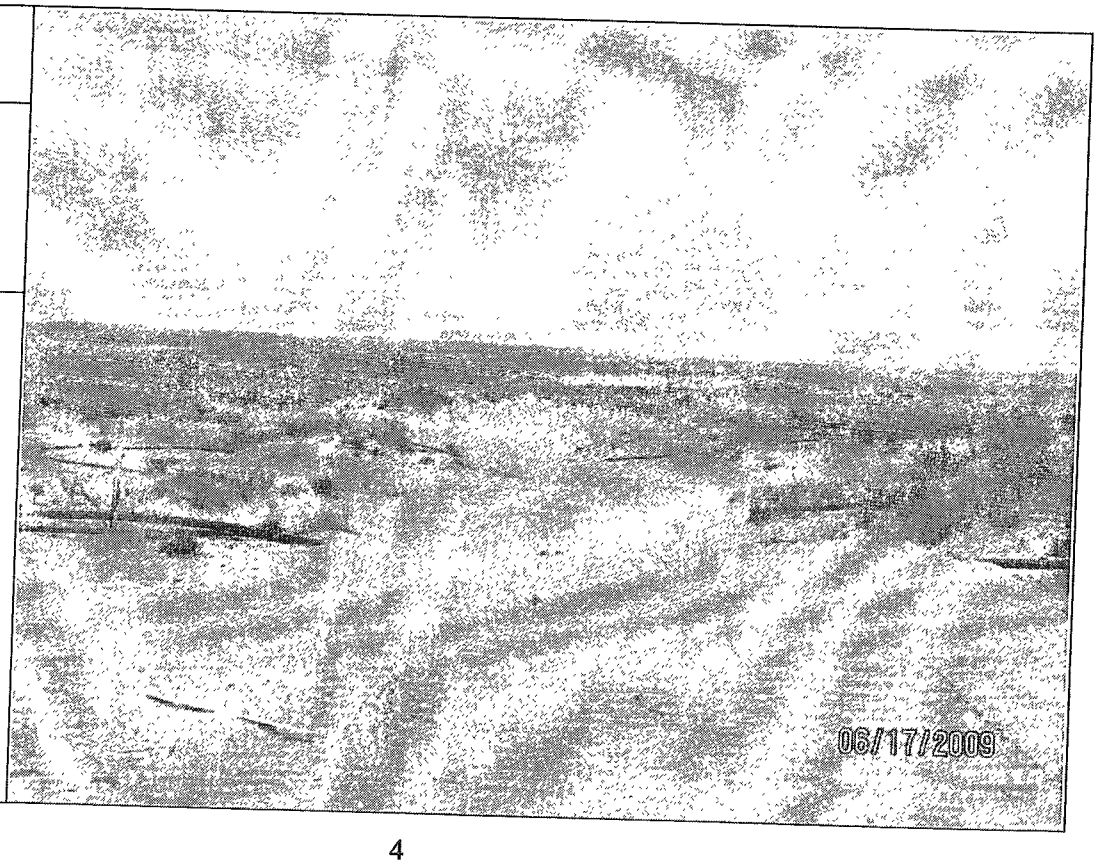
Photo No: **8.**	
Direction Taken: North	
Description: General view of the area north of well No. 16 after reclamation.	

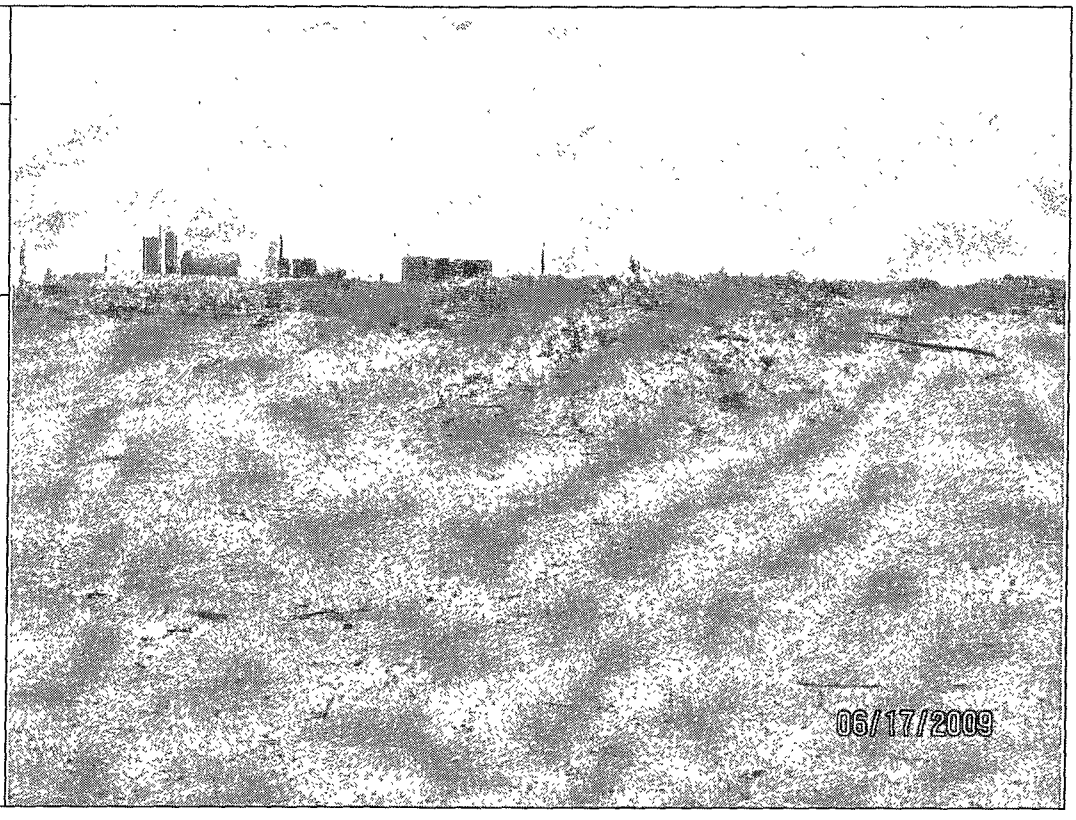
Photo No: **9.**	
Direction Taken: East Southeast	
Description: View of the north pool area following reclamaiton.	

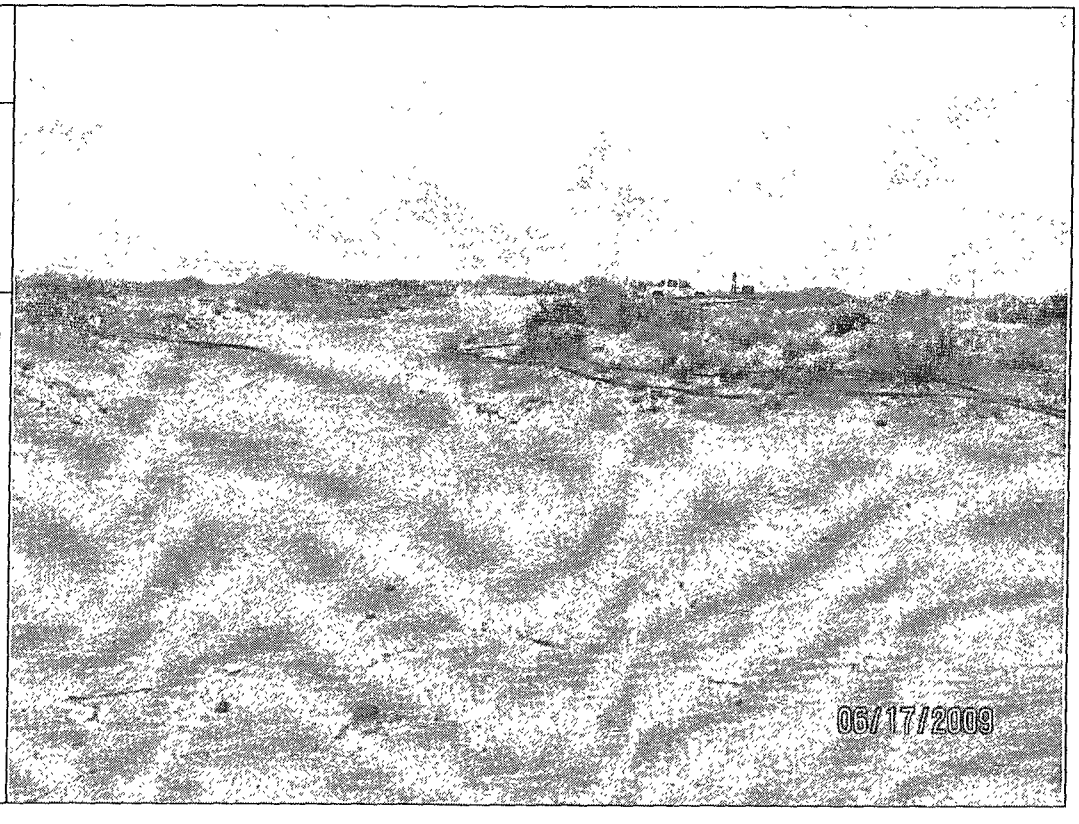
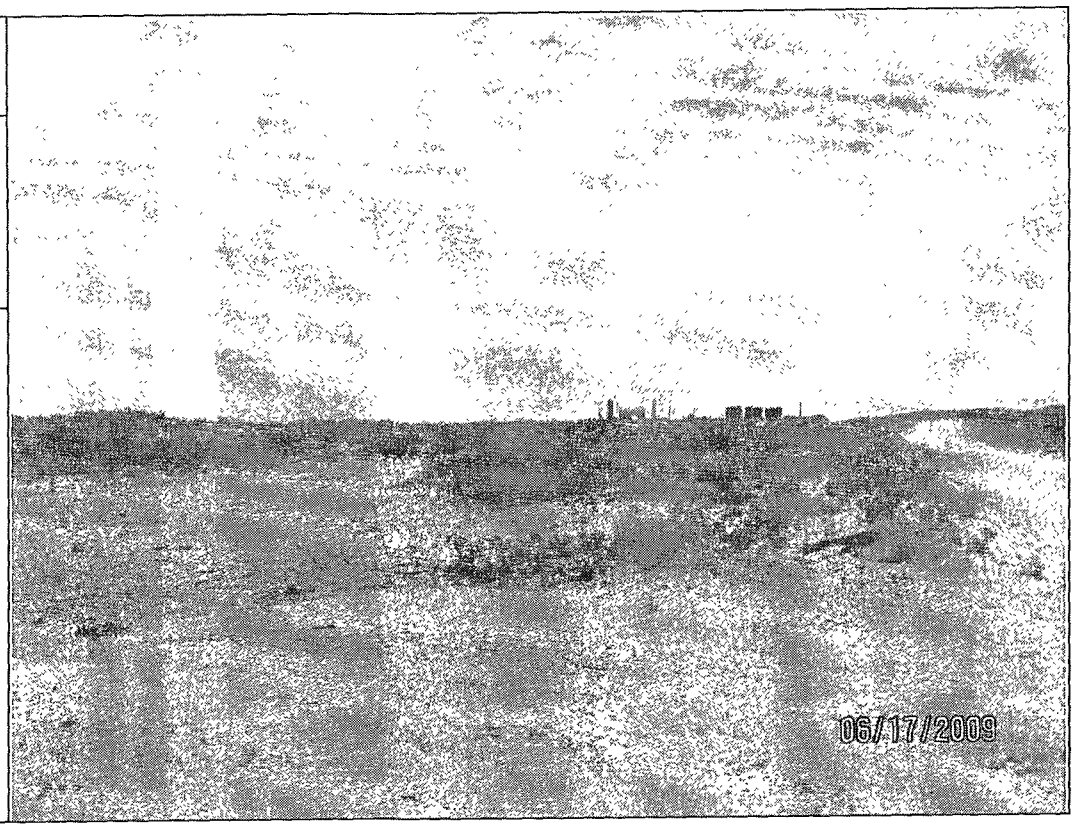
Photo No: **10.**	
Direction Taken: South	
Description: View from the edge of the north pool area and stormwater drainage channel.	

Photo No: **11.**	
Direction Taken: East	
Description: View of the west pool area looking east back towards the battery after reclamation.	