1R - 427-364

WORKPLANS

Date:
6-5-12

ARCADIS

Infrastructure, environment, buildings

RECEIVED OCD

2012 JUN 11 P 1:50

ARCADIS U.S., Inc.
1004 North Big Spring Street
Suite 300
Midland
Texas 79701
Tel 432.687.5400
Fax 432.687.5401
www.arcadis-us.com

Sent Certified Mail
Return Receipt No. 7002 2410 0001 5813 3982

Mr. Ed Hansen
New Mexico Energy, Minerals, & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Environmental

Subject:

INVESTIGATION & CHARACTERIZATION PLAN (ICP)
EME I-7 EOL
Unit I, SEC. 7, T19S, R37E, Monument, Lea County, New Mexico
NMOCD Case #: 1R427-364

Date:
June 7, 2012

Contact:
Sharon Hall

Phone:
432.687.5400

Email:
sharon.hall@arcadis-us.cor

Our ref:
MT001107.0001

ARCADIS U.S., Inc.
TX Engineering License # F-533

Mr. Hansen:

RICE Operating Company (ROC) has retained ARCADIS U.S., Inc. (ARCADIS) to address potential environmental concerns at the above-referenced site.

ROC is the service provider (agent) for the EME SWD System and has no ownership of any portion of the pipeline, well, or facility. The System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis. Environmental projects of this nature require System Party AFE approval prior to work commencing at the site. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission is greatly appreciated.

For all such environmental projects, ROC will choose the path forward that:

- Protects public health;
- Provides the greatest net environmental benefit;
- Complies with NMOCD rules; and
- Is supported by good science.

Each site shall generally have three submissions:

1. This Investigation and Characterization Plan (ICP) is proposed for gathering data and site characterization and assessment.
2. Upon evaluating the data and results from the ICP, a recommended remedy will be submitted in a Corrective Action Plan (CAP), if warranted.

3. Finally, after implementing the remedy, a Termination Request with final documentation will be submitted.

Background and Previous Work

The site is located approximately five miles northwest of Monument, New Mexico as shown on the Site Location Map. Groundwater at the site occurs at a depth of approximately 35 feet below ground surface (bgs).The junction box was eliminated and initial delineation was conducted from February 15th through May 12th, 2011.

A backhoe was used to excavate soils from an excavation measuring 10 feet by 10 feet by 12 feet deep around the former junction box. Soil samples were collected at regular intervals and analyzed in the field for chlorides using field-adapted Standard Method 4500-Cl⁻B and screened in the field using a photoionization detector (PID).

A five-point wall composite sample was collected from each of the four walls and combined to make a representative four-wall composite sample, and a five-point composite sample was collected from the bottom of the excavation and submitted to Cardinal Laboratories for gasoline range organics (GRO), diesel range organics (DRO) and chloride analysis. DRO was detected at a concentration of 144 milligrams per kilogram (mg/kg) in the four-wall composite sample and 46.8 mg/kg in the five-point bottom composite sample. Chlorides were detected at a concentration of 496 mg/kg in the four-wall composite sample and 48 mg/kg in the five-point composite bottom sample. GRO was not detected in either of the samples.

Based on the results of the soil sampling analytical results, elevated hydrocarbon concentrations are present at the subject site.

Approximately 96 cubic yards of excavated soil was disposed at a NMOCD approved facility. The excavation was backfilled with clean imported soil to ground surface and the area was contoured to the surrounding landscape.

ROC disclosed potential groundwater impact at the site to New Mexico Oil Conservation Division (NMOCD) via e-mail on April 9th, 2012. A disclosure report was submitted to NMOCD in the 2011 junction box closures and disclosures (Appendix A).

ROC proposes additional investigative work at the site to determine if there is a potential for hydrocarbon impacts to groundwater.

Proposed Work Elements

1) Conduct vertical and lateral delineation of residual soil chlorides and hydrocarbons from samples taken using a drilling rig, hand auger, and/or backhoe.

    a) Vertical sampling will be conducted until the following criteria are met in the field:

        i) Three samples in which the chloride concentration decreases and the third sample has a chloride concentration of ≤250 mg/kg; and,
        ii) Three samples in which PID readings decrease and the third sample has a PID reading of ≤100 ppm; or,
        iii) The sampling reaches the capillary fringe.

    b) Lateral sampling will be conducted until the following criteria are met in the field:

        i) A decrease is observed in chloride concentrations between lateral bores at similar depths; and,
        ii) A chloride reading of ≤250 mg/kg is observed in a lateral surface sample; or,
        iii) Safety concerns impede further lateral delineation.

2) If warranted, install a monitor well to provide direct measurement of the potential groundwater impact at the site. (All monitor wells will be installed by EPA, NMOCD and industry standards.)

3) Evaluate the risk of groundwater impact based on information obtained.

If the evaluation of the site shows no potential impact to groundwater from residual chlorides and TPH, only a vadose zone remedy will be undertaken. However, if groundwater shows impact from residual chlorides, a CAP will be developed to address these concerns.

Thank you for your consideration concerning this proposed ICP. If you have any questions, do not hesitate to contact Hack Conder or me.

Sincerely,

ARCADIS U.S., Inc.

Sharon E. Hall

Sharon E. Hall
Associate Vice President

Copies:
Hack Conder, ROC

Attachments:

Site Location Map
Appendix A- Junction Box Disclosure Report

Site Location Map

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME I-7 EOL

Legals: UL/I sec. 7
T-19-S R-37-E
LEA COUNTY, NM

0 0.2 0.4 0.8
Miles

Drawing date: 5-2-12
Drafted by: L. Weinheimer

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE* REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
Eunice Monument Eumont (EME)	I-7 EOL	I	7	19S	37E	Lea	Eliminated		

LAND TYPE: BLM ___ STATE X FEE LANDOWNER _____ OTHER _____

Depth to Groundwater 35 feet NMOCD SITE ASSESSMENT RANKING SCORE: 40**

Date Started 2/15/2011 Date Completed 5/12/2011 OCD Witness No

Soil Excavated 44.4 cubic yards Excavation Length 10 Width 10 Depth 12 feet

Soil Disposed 96 cubic yards Offsite Facility C & C Landfarm Location Monument, NM

FINAL ANALYTICAL RESULTS: **Sample Date** 3/23/2011 **Sample Depth** 12'

Procure 5-point composite sample of bottom and 4-point composite sample of sidewalls. TPH and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines.

Sample Location	PID (field) ppm	GRO mg/kg	DRO mg/kg	Chloride mg/kg
4-WALL COMP.	1.7	<10.0	144	496
BOTTOM COMP.	2.1	<10.0	46.8	48
BLENDED BACKFILL	0.2	<50.0	276	112

CHLORIDE FIELD TESTS		
LOCATION	DEPTH	mg/kg
background	6"	145
4-WALL Comp	n/a	233
Bottom Comp	12'	211
Blended Backfill	n/a	209
Vertical delineation trench at the former junction (source)	1'	152
	2'	148
	3'	155
	4'	148
	5'	140
	6'	137
	7'	147
	8'	151
	9'	147
	10'	138
	11'	139
	12'	142

General Description of Remedial Action: This junction box and line were eliminated during the pipeline replacement/upgrade program. After the former junction box was removed, an investigation was conducted using a backhoe to collect soil samples at regular intervals producing a 10x10x12 ft deep excavation. Chloride field tests were performed on soil samples which yielded low chloride. Organic vapors were measured using a PID which yielded low concentrations. The excavated soil was blended on site and representative composite samples of the excavation bottom, the excavation walls and the blended backfill were sent to a commercial laboratory for analysis of chloride and TPH. Sample analysis showed TPH concentrations above NMOCD guidelines. A total of 94 yards of excavated soil was properly diposed of at a NMOCD approved disposal facility. The excavation was backfilled with clean imported soil to ground surface and contoured to the surounding area. On 5/12/2011, the site seeded with a blended of native vegetation and is expected to return to a productive capacity at a normal rate. NMOCD was notified of potential groundwater impact on 4/9/2012.

**Windmill located 1270 ft south

ADDITIONAL EVALUATION IS HIGH PRIORITY

Enclosures: photos, lab results, PID (field) screenings, chloride graph, revegation form

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SITE SUPERVISOR REPORT ASSEMBLED BY Oscar Frayre SIGNATURE _____

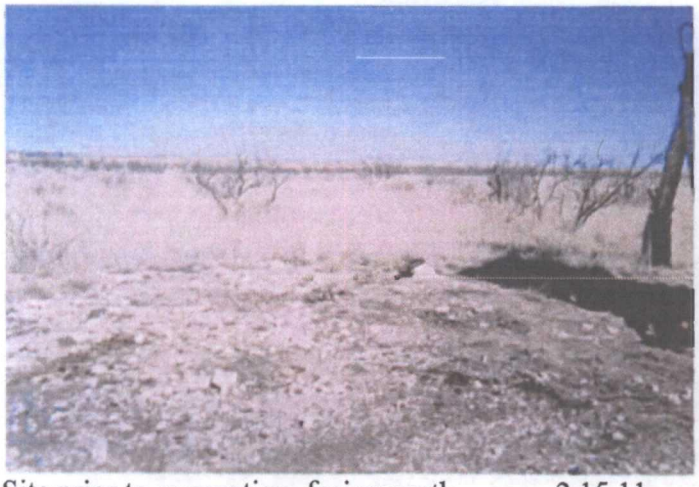
PROJECT LEADER Laura Peña SIGNATURE _____ COMPANY RICE OPERATING COMPANY

PROJECT LEADER Zach Conder SIGNATURE _____ DATE 4-17-12

*This site is a "DISCLOSURE." It will be placed on a prioritized list of similar sites for further consideration.

EME I-7 EOL

Unit I, Section 7, T19S, R37E

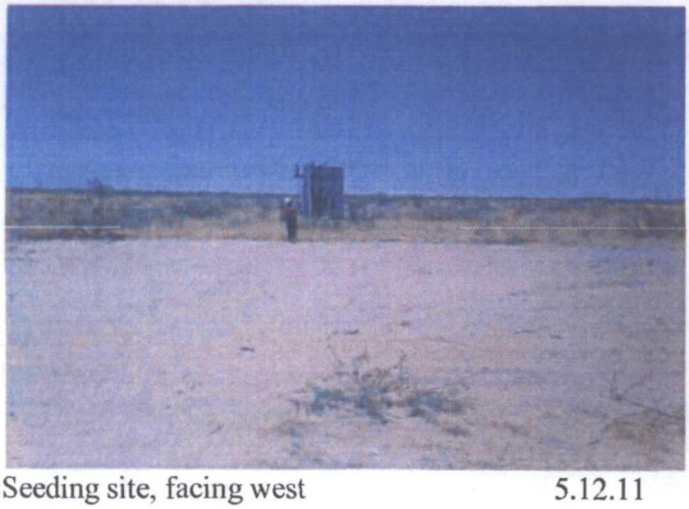


Site prior to excavation, facing north 2.15.11

Collecting sample, facing northwest 3.23.11

Exporting soil, facing east 4.5.11

Importing blow sand, facing east 4.8.11



Seeding site, facing west 5.12.11

Site completed, facing west 5.12.11

CARDINAL Laboratories

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

April 11, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME I-7 EOL (19/37)

Enclosed are the results of analyses for samples received by the laboratory on 04/05/11 16:32.

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 Hydorcarbons

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

Cardinal Laboratories is accreditated 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 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Rice Operating Company
Hack Conder
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	03/23/2011	Sampling Date:	03/23/2011
Reported:	03/29/2011	Sampling Type:	Soil
Project Name:	EME I-7 EOL (19/37)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: 5 PT BOTTOM (H100562-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	03/29/2011	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/27/2011	ND	219	110	200	2.79	
DRO >C10-C28	**46.8**	10.0	03/27/2011	ND	224	112	200	1.19	

Surrogate: 1-Chlorooctane	*107 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*101 %*	*70-130*

Sample ID: 4 WALL (H100562-02)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**496**	16.0	03/29/2011	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/27/2011	ND	219	110	200	2.79	
DRO >C10-C28	**144**	10.0	03/27/2011	ND	224	112	200	1.19	

Surrogate: 1-Chlorooctane	*100 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*90.1 %*	*70-130*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Rice Operating Company
Hack Conder
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	03/23/2011	Sampling Date:	03/23/2011
Reported:	03/29/2011	Sampling Type:	Soil
Project Name:	EME I-7 EOL (19/37)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: BLENDED BACKFILL (H100562-03)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**112**	16.0	03/29/2011	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	03/27/2011	ND	219	110	200	2.79	
DRO >C10-C28	**276**	50.0	03/27/2011	ND	224	112	200	1.19	

Surrogate: 1-Chlorooctane	*97.7 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*95.4 %*	*70-130*

COPY

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

Z-01	Surrogate above historical limits.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Rice	BILL TO
Project Manager: Hack Conder	P.O. #:
Address: 1322 W Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: 393-9174 Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: EME I-7 Eddy Co	Phone #:
Sampler Name: O'Shea Frayne	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	Cl	TPH 8015M
H100562-1	Spt Bottom	C	1			X					X		3-23-11	11:20	X	X
2	4 Wall	C	1			X					X		3-23-11	11:13	X	X
3	Blended Bank	C	1			X					X		3-23-11	11:27	X	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.

Relinquished By:	Date: 3/23/11 Time: 4:30	Received By: Jodi Henson	Phone Result: ☐ Yes ☐ No	Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: HConder@Rice-ecs.com BBaker@Rice-ecs.com OFrayne@Rice-ecs.com ZConder@Rice-ecs.com

2.0 C

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#26

RICE OPERATING COMPANY

122 West Tayor Hobbs, NM 88240
PHONE: (575) 393-9174 FAX: (575) 397-1471
PID METER CALIBRATION & FIELD REPORT FORM

Check Model Number:

	Model: PGM 7300	Serial No: 590-000183		Model: PGM 7600	Serial No: 110-023920
	Model: PGM 7300	Serial No: 590-000508		Model: PGM 7600	Serial No: 110-013744
	Model: PGM 7300	Serial No: 590-000504	x	Model: PGM 7600	Serial No: 592-903318

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 930360	EXPIRATION DATE: 5-24-13
FILL DATE:	METER READING ACCURACY: 100.00

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	I-7 EOL	1	7	19S	37E

SAMPLE ID	PID	SAMPLE ID	PID
5 Pt. Bottom Composite	2.1		
4 Wall Composite	1.7		
Blended Backfill Composite	0.2		

I verify that I have calibrated the above instrument in accordance to the manufacture operation manual.

SIGNATUE:

DATE: 3-23-2011

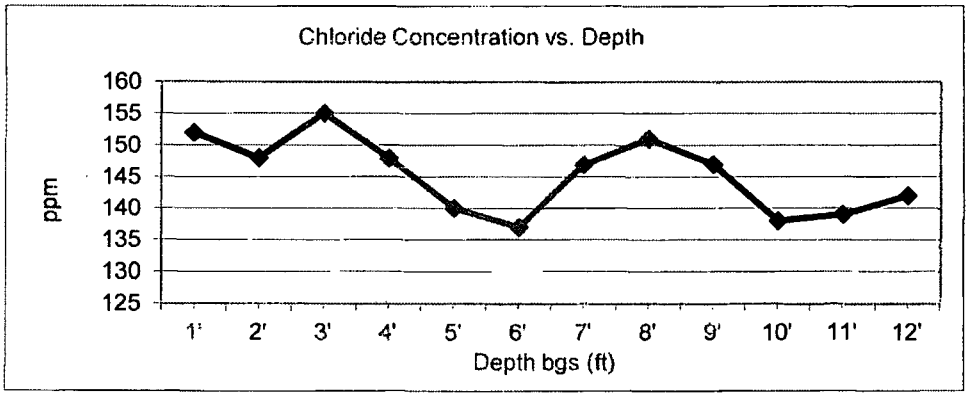
CHLORIDE CONCENTRATION CURVE RICE *Operating Company*

EME I-7 EOL

Unit 'I', Sec.7, T19S, R37E

Backhoe samples at the junction (source)

Depth bgs (ft)	[Cl⁻] ppm
1'	152
2'	148
3'	155
4'	148
5'	140
6'	137
7'	147
8'	151
9'	147
10'	138
11'	139
12'	142



Groundwater = 35 ft

PO Box 5630
Hobbs, NM 88241
Phone: (575) 393-4411
Fax: (575) 393-0293

REVEGETATION FORM

1. General Information

Site name: EME I-7 EOL						
U/L I	Section 7	Township 19S	Range 37E	County Lea	Latitude N 32°40'22.6"	Longitude W 103°17'06.2"
Contact Name: Bruce Baker						
Email: bbaker@rice-esc.com						
Site size. 3,250 square feet			Map detail of site attached ☒			
Additional information:						

2. Soils **Do not rip caliche subsoils; caliche rocks brought to the surface by ripping shall be removed.*

Salvaged from site ☐	Bioremediated ☐	Imported ☒	Blended ☐	Depth (in): 6"
Texture: Sandy	Describe soil & subsoil:	Blow sand and subsoil caliche		
Soil prep methods: Rip ☐	Depth(in):	Disc ☐	Depth (in):	Rollerpack ☐
Date completed: 5/12/2011				

3. Bioremediation

Fertilizer ☐	Hay ☐	Other ☐
Type:		Describe:
Lbs/acre:		

4. Seeding **Attach seed bag tags to this form. Seed bag tags shall contain the site name and S-T-R.*

Custom seed mix ☒	Prescribed mix ☐	Seed mix name: 2.5 lbs. blue grama 1 lb. side oats grama	Seeding date: 5/12/2011
Broadcast ☒ Method: Portable seeder			
Soil conditions during seeding: Dry ☒ Damp ☐ Wet ☐			
Photos attached ☒ Number of photos: 1	Observations: The seed was raked into the site.		

5. Certification I hereby certify that the information in this form and attachments is true and complete to the best of my knowledge and belief.

Name: Robert Egans	Title: Environmental Tech	Date: 5/12/2011
Signature: Robert Egans		

COPY