1R-426-99

REPORTS

DATE:
2-2-12

Texerra LLC

627 Forest View Way Monument, CO 80132
Tel: 719-339-6791 E-mail: lpg@texerra.com

February 2nd, 2012

Mr. Edward Hansen
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

RE: **Corrective Action Plan (CAP) Progress Report and Soil Closure Request**
Rice Operating Company – BD SWD System
BD O-23 Vent UL O, Sect 23, Township 21S, Range 37E
NMOCD Case Number 1R426-99

Sent via Email and U.S. Certified Mail Return Receipt No. 7011 0110 0001 5863 4837

Mr. Hansen,

This Progress Report summarizes work completed to date by Rice Operating Company (ROC) at the BD O-23 vent location (Figure 1). ROC has completed the soil restoration and vadose zone protection work elements specified in the Corrective Action Plan (CAP) Addendum for this project, as summarized below. The CAP Addendum was approved by the NMOCD on February 2nd, 2011.

During March and April 2011, chloride impacted soils were removed across the affected area, approximately 70 x 90 ft, to a depth of 5 ft below ground surface (bgs, Figures 2 &3). Six inches of clean blow sand (padding) were added to the bottom of the excavation and a 20 mil synthetic, impermeable liner was carefully installed. An additional 6 inches of clean blow sand was padded on top of the liner before blended, excavated soil material was placed above it. Eight-point composite samples were taken of blended backfill material on March 15th and March 25th. The March 15th sample tested 288 mg/kg for chlorides and 5.9 ppm for PID hydrocarbons. The March 25th sample tested 256 mg/kg for chlorides and 3.9 ppm for PID hydrocarbons. Laboratory chloride and field PID reports are given in Figures 4 through 7. Clean, imported topsoil was amended with peanut hay and spread over the work area and the lease road was repaired using imported base coarse. The site was seeded using 30 pounds (lbs) of Pecos District Mix, 15 lbs of BLM #2 and 20 lbs of Race Horse Oats (Figure 8) and silt fencing was installed to preclude wildlife during seedling growth.

On January 21, 2011, ROC plugged and abandoned the initial near-source monitoring well (MW-1) using a cement grout with 1-3% bentonite and a 3 foot cap of cement at the surface (Figure 9). The near-source well was replaced with a 4 inch well (MW-1R) installed on January 13, 2011 (Figure 10). To further enhance recovery of the NMOCD approved chloride mass, ROC installed an additional 4-inch recovery well (RW-2) on April 12, 2011 (Figure 11).

Groundwater recovery equipment is being obtained and we anticipate this system to be operational this summer. We will subsequently report the removal of the requisite mass of groundwater chlorides and at that time request that final project remediation termination status be granted.

Having thus ensured that groundwater is protected from historical operations of this facility we respectfully request that OCD grant 'Soil Closure' or similar regulatory closure status with respect to the vadose (unsaturated soil) zone at this location.

ROC is the service provider (agent) for the BD 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.

We appreciate your consideration of this report. Please do not hesitate to contact either Rice Operating Company or myself if you have any questions or need additional information.

Sincerely,

L. Peter Galusky, Jr. Ph.D., P.G.
Principal

Copy: Rice Operating Company

Attachments:

- Figure 1 - Site location map
- Figure 2 - NMOCD approved liner dimensions and monitor well/recovery well locations
- Figure 3 - Photographs of soil excavation & restoration
- Figure 4 - Laboratory chloride analysis reports (for 3/15/2011 soil restoration work)
- Figure 5 - Field PID hydrocarbon reports (for 3/15/2011 soil restoration work)
- Figure 6 - Laboratory chloride analysis reports (for 3/25/2011 soil restoration work)
- Figure 7 - Field PID hydrocarbon reports (for 3/25/2011 soil restoration work)
- Figure 8 - Re-vegetation seeding summary
- Figure 9 - Driller's P&A report for MW-1
- Figure 10 - Drilling log for installation of MW-1R
- Figure 11 - Drilling log for installation of RW-2

BD O-23 vent

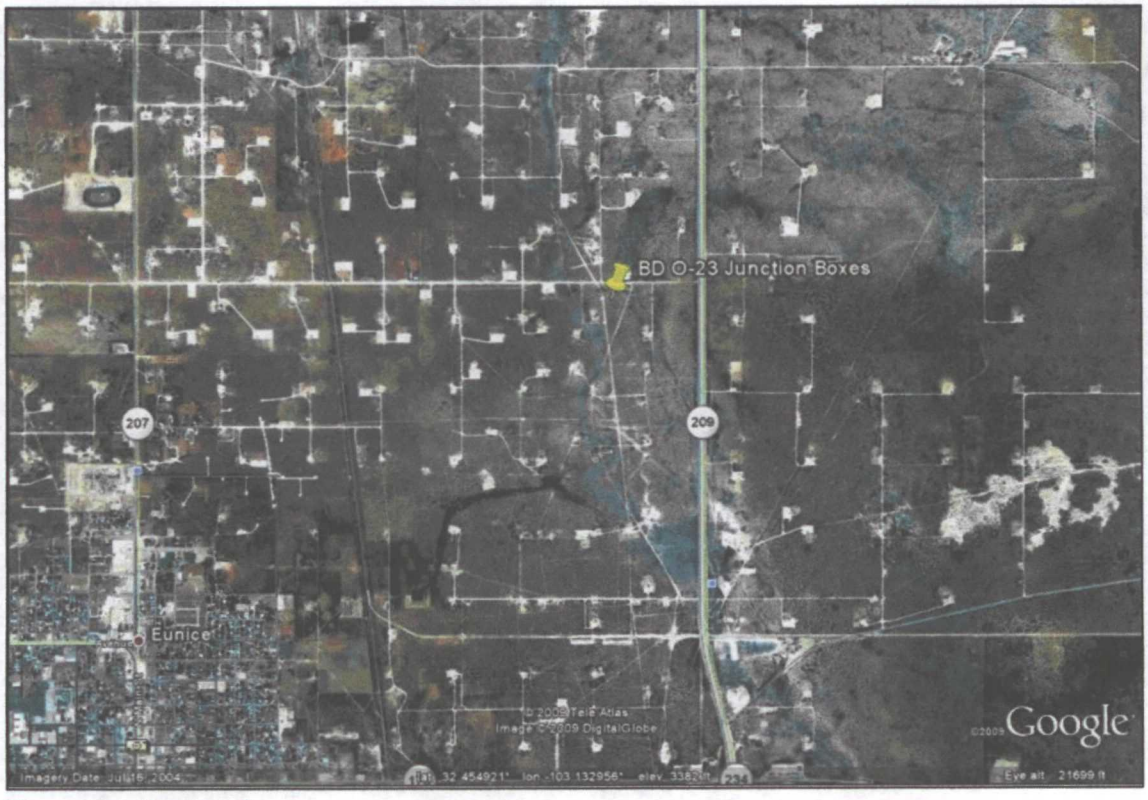


Figure 1 – Site location.

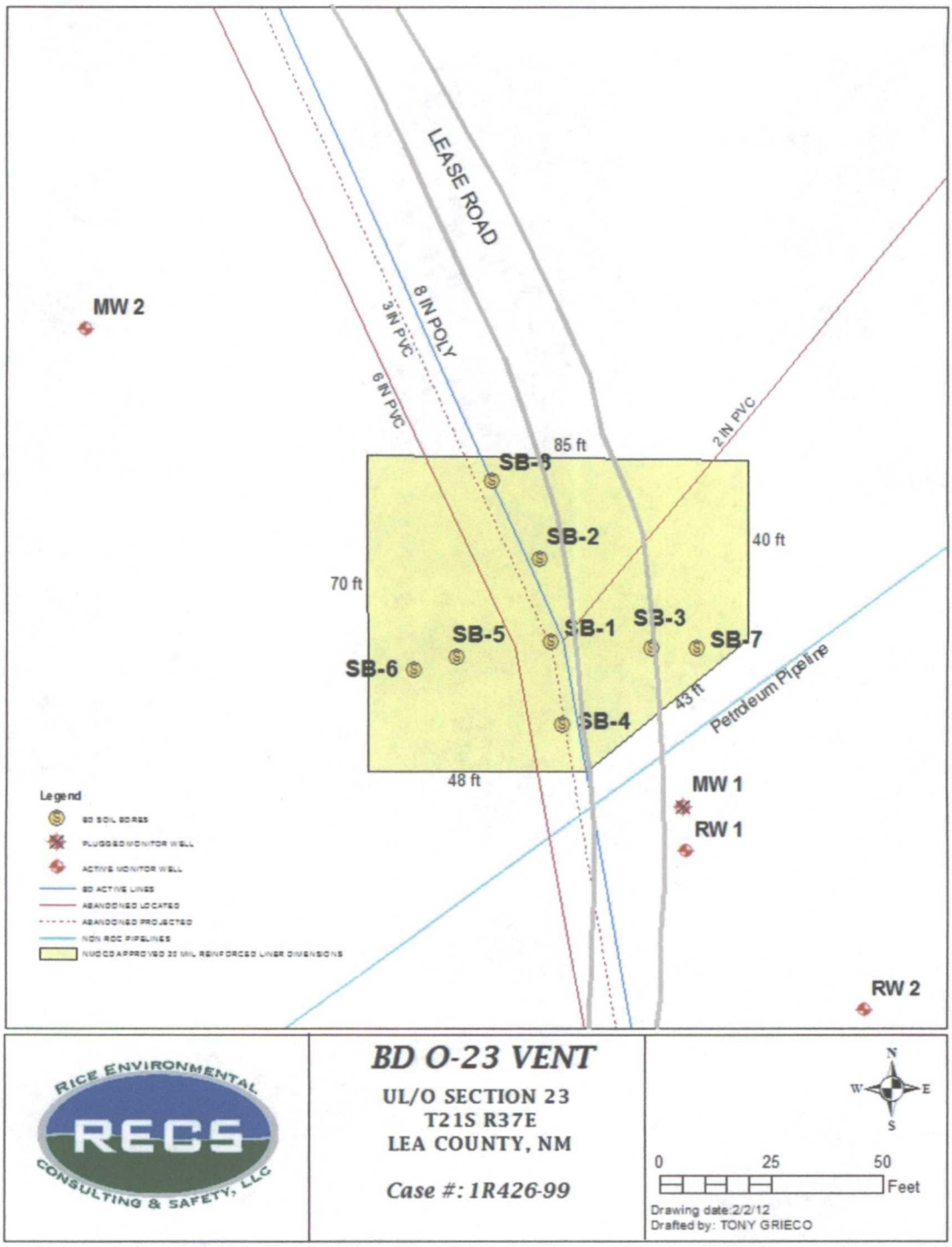


Figure 2– NMOCD approved liner dimensions and monitor well/ recovery well locations at BD O-23 Vent.

BD O-23 vent (1R426-99)
Unit Letter O, Section 23, T21S, R37E

site prior to excavation, facing south

excavating the site, facing west

hauling off soil to Sundance

padding the base of the excavation with 6" of blow sand, facing northeast

70x90 ft, 20-mil reinforced liner installed at 4.5 ft bgs, facing southwest

padding above the liner with 6" of blow sand, facing northeast

Figure 3a – Photographic chronology of soil removal, liner installation and soil restoration.

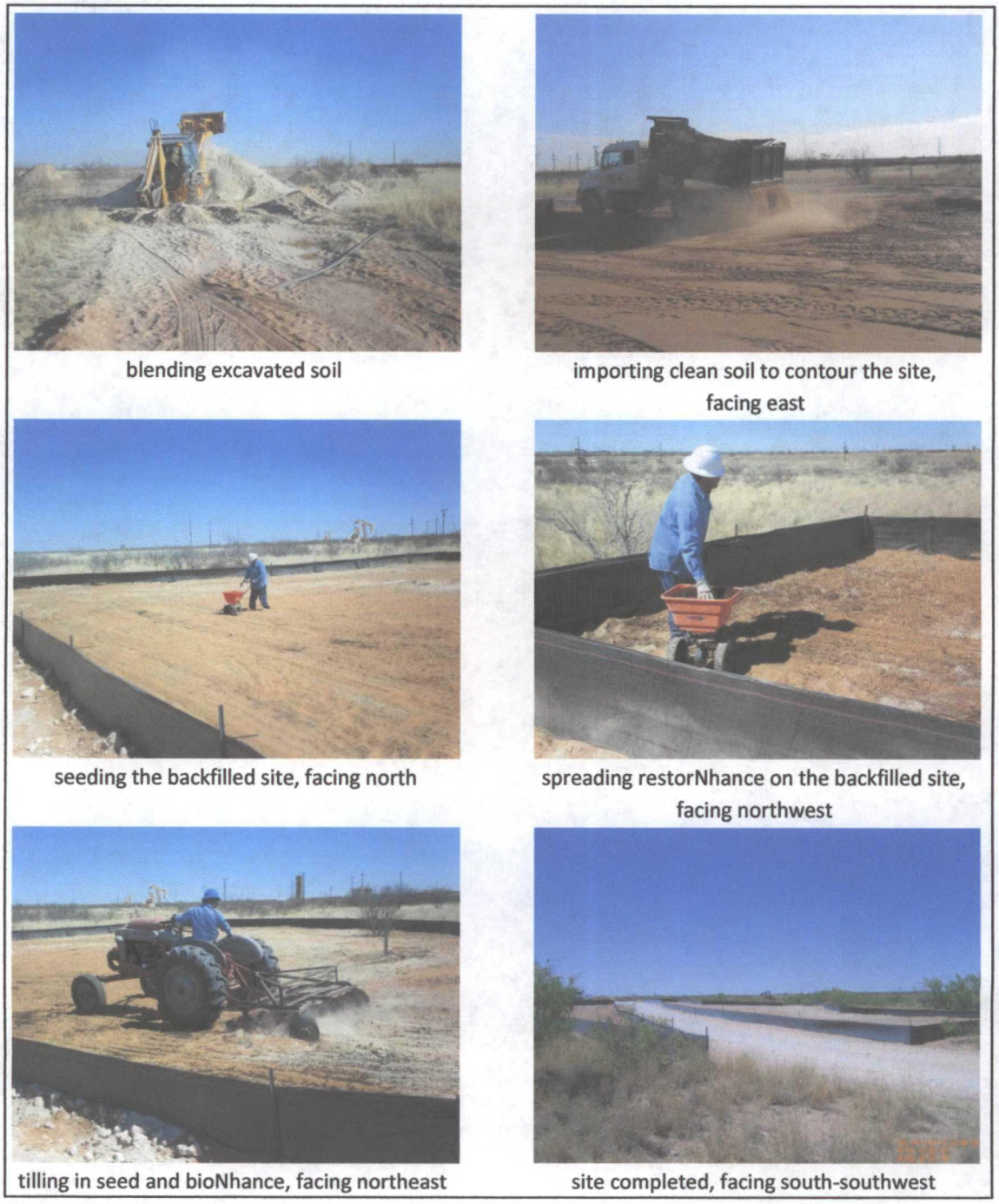


Figure 3b – Photographic chronology of soil removal, liner installation and soil restoration.

BD O-23 vent

Figure 4a - March 15th, 2011 backfill composite sample: laboratory report soil chloride analysis.

CARDINAL Laboratories

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

March 17, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD O-23 VENT (SOIL)

Enclosed are the results of analyses for samples received by the laboratory on 03/16/11 8:00.

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

Celey D. Keene

Lab Director/Quality Manager

BD O-23 vent

Figure 4b - March 15th, 2011 backfill composite sample: laboratory report soil chloride analysis.

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:	03/16/2011	Sampling Date:	03/15/2011
Reported:	03/17/2011	Sampling Type:	Soil
Project Name:	BD O-23 VENT (SOIL)	Sampling Condition:	** (See Notes)
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SOUTH BLENDED BACKFILL (H100506-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**288**	16.0	03/16/2011	ND	400	100	400	0.00	

Cardinal Laboratories *=Accredited Analyte

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 the 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.

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Figure 4c - March 15th, 2011 backfill composite sample: laboratory report soil chloride analysis.

CARDINAL Laboratories

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

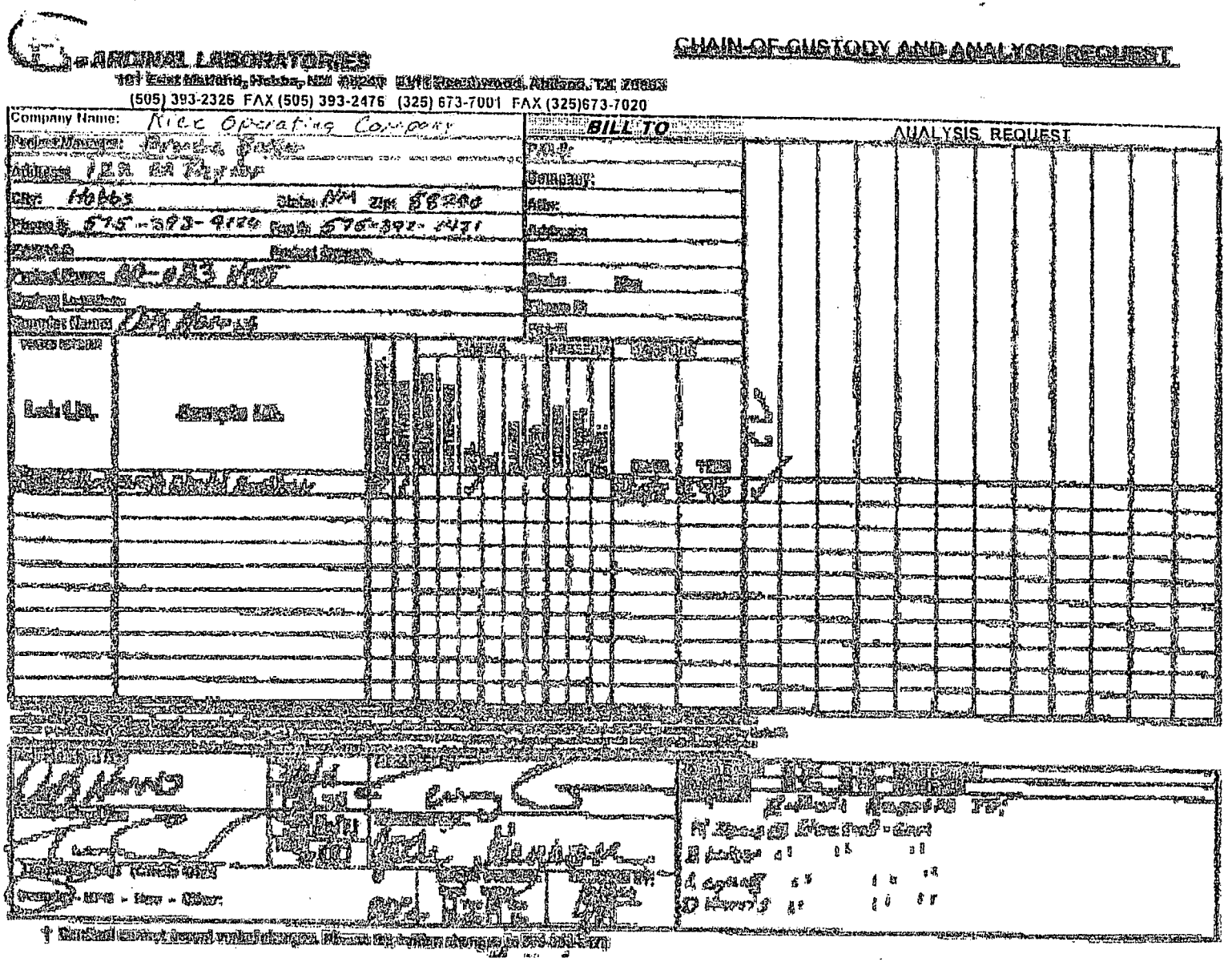
Notes and Definitions

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

Figure 4d- March 15th, 2011 backfill composite sample: laboratory report soil chloride analysis.



ARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: Rice Operating Company

BILL TO

ANALYSIS REQUEST

Figure 5 - March 15th, 2011 backfill composite sample: field PID analysis.

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: 110-02
	Model: PGM 7300	Serial No: 590-000508		Model: PGM 7600	Serial No: 110-01
	Model: PGM 7300	Serial No: 590-000504		Model: PGM 7600	Serial No: 110-01

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO: 927041	EXPIRATION DATE: 11/16/12
FILL DATE:	METER READING ACCURACY: 100

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	O-23 vent	O	23	T21S	R37E

SAMPLE ID	PID	SAMPLE ID	PID
Blended Backfill	5.9		

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

SIGNATUE: Dale Harris DATE: 3/15/11

Figure 6a - March 25th, 2011 backfill composite sample: laboratory report soil chloride analysis.

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 882

March 26, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD O-23 VENT

Enclosed are the results of analyses for samples received by the laboratory on 03/25/11 14:37.

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,

Hope Moreno

Inorganic Technical Director

Figure 6b- March 25th, 2011 backfill composite sample: laboratory report soil chloride analysis.

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:	03/25/2011	Sampling Date:	03/25/2011
Reported:	03/26/2011	Sampling Type:	Soil
Project Name:	BD O-23 VENT	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: BLENDED BACKFILL (H100586-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**256**	16.0	03/26/2011	ND	416	104	400	0.00	

Cardinal Laboratories *=Accredited Analyte

Hope Moreno, Inorganic Technical Director

Figure 6c - March 25th, 2011 backfill composite sample: laboratory report soil chloride analysis.

CARDINAL Laboratories

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

Notes and Definitions

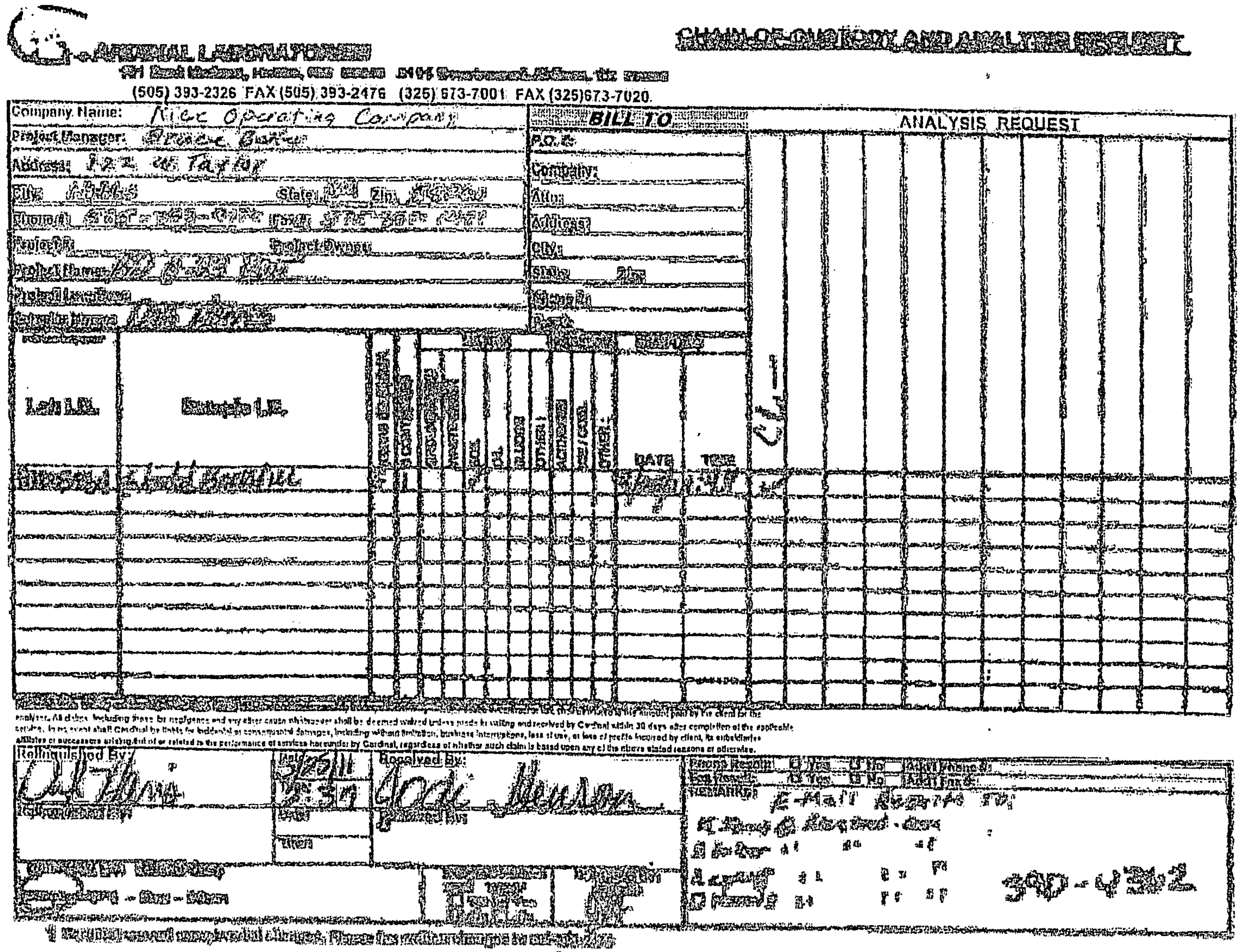
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited

Hope S. Moreno

Hope Moreno, Inorganic Technical Director

Figure 6d - March 25th, 2011 backfill composite sample: laboratory report soil chloride analysis.



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

Company Name: Rice Operating Company

Project Manager:

Address:

City: State: Zip:

Phone #: Fax #:

Project #: Project Owner:

Project Name:

Project Location:

Sampler Name:

BILL TO

P.O. #:

Company:

Attn:

Address:

City:

State: Zip:

Phone #:

Fax #:

ANALYSIS REQUEST

Lab I.D.

Sample I.D.

DATE

TIME

Cl-

Relinquished By:

Received By:

Phone Result: ☐ Yes ☐ No Add'l Phone #:

Fax Result: ☐ Yes ☐ No Add'l Fax #:

REMARKS: E-Mail Results To:

Figure 7 - March 25th, 2011 backfill composite sample: field PID analysis.

RICE OPERATING COMPANY

122 West Taylor Hobbs, NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471
PID METER CALIBRATION & FIELD REPORT FORM

CK.	✓	MODEL: PGM 7300	SERIAL NO: 590-000508
MODEL		MODEL: PGM 7300	SERIAL NO: 590-000504
NO.		MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM 7300	SERIAL NO: 590-000183

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 927041	EXPIRATION DATE: 11-16-12
METER READING ACCURACY: 100	

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	O-23 VENT	O	23	T21S	R37E

SAMPLE ID	PID	SAMPLE ID	PID
Blended Backfill	3.9		

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

SIGNATURE: Dale Harris DATE: 3/25/11

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

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

REVEGETATION FORM

1. General Information

Site name: BD O-23 VENT						
U/L	Section	Township	Range	County	Latitude	Longitude
O	23	21S	37E	LEA	N 32*27'597"	W 103*07'867"
Contact Name: BRUCE BAKER						
Email: bbaker@riceswd.com						
Site size: 20,000 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):
Texture:	Describe soil & subsoil:			
Soil prep methods:	Rip ☐ Depth(in):	Disc ☒ Depth (in): 6	Rollerpack ☐	
Date completed: 4/5/2011				

3. Bioremediation

Fertilizer ☒	Hay ☒	Other ☒
Type:		Describe: 1,000 LBS OF RESTORENHANCE
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:	30 LBS. OF PECOS DISTRICT MIX, 15 LBS. OF BLM MIX, AND 20 LBS. OF RACE HORSE OATS	Seeding date: 4/5/2011
Broadcast ☒ Method: SEED SPREADER				
Soil conditions during seeding:	Dry ☒	Damp ☐	Wet ☐	
Photos attached ☐ Number of photos:	Observations:			

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: 4/5/2011
Signature: Robert Egans		

Figure 8 – Re-vegetation seeding summary.

HARRISON & COOPER, INC.
Drilling & Pump Professionals

7414 85th Street, Lubbock, Texas 79424-4951
P.O. Box 96, Wolfforth, Texas 79382-0096

Ph: (806) 866-4026 Fax (806) 866-4044 heidrill.com

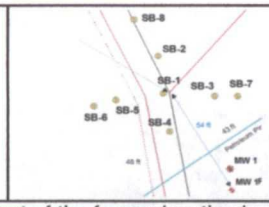
Plugging Report

Client	Rice Operating
Contractor	Harrison & Cooper
Date Completed	1/21/2011
Site	BD O-23
Well ID	MW-1
Casing Diameter	2"
Well Depth	50'
Casing Material	PVC
Plugging Material	Portland/Bentonite Slurry
Slurry Interval	3'-50'
Cement Interval	0'-3'

Copies: File
Email (Lara Weinheimer; Katie Jones)

Regulated by: Texas Dept. of Licensing & Regulation, Water Well Division, P.O. Box 12157, Austin, TX 78711, (800) 803-9202

Figure 9 – Driller's P&A report for MW-1.

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** BD O-23 vent **Well ID:** MW-1R
Start Date:	1/13/2011		**Project Consultant:** Texerra
End Date:	1/13/2011		
Comments: Located 54 ft south east of the former junction box site.			**Location:** UL/O sec. 23 T21S R37E
DRAFTED BY: L.Weinheimer			**Lat:** 32°27'35.494"N **County**: LEA
TD = 90 ft	GW = 45 ft		**Long:** 103°7'51.782"W **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
5 ft				NO SAMPLES TAKEN		4 in. PVC; bentonite seal
10 ft						
15 ft						
20 ft						
25 ft						
30 ft						
35 ft						
40 ft						
45 ft						
50 ft						

Figure 10a – Drilling log for the installation of a recovery well (MW-1R) at BD O-23 Vent.

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
55 ft						
60 ft						
65 ft						
70 ft						
75 ft						
80 ft						
85ft						
90 ft						

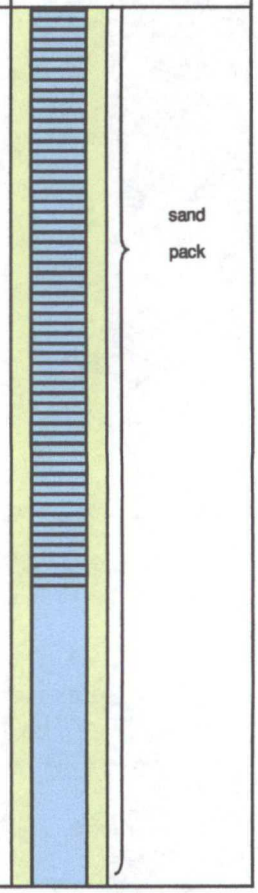
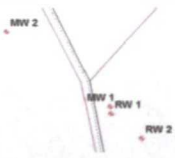


Figure 10b – Drilling log (continued from Figure 10a, above) for the installation of a recovery well (MW-1R) at BD O-23 Vent.

Logger:	Jordan Woodfin		**Project Name:** BD O-23 vent **Well ID:** RW-2
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** Texerra
Drilling Method:	Mud rotary		
Start Date:	4/12/2011		
End Date:	4/12/2011		
Comments: No samples were taken from the installation. Located 56 ft south east of the former junction box site. **DRAFTED BY:** TD = 88 ft GW = 45 ft			**Location:** UL/O sec. 23 T21S R37E **Lat:** 32°27'35.136"N **Long:** 103°7'51.334"W **County**: LEA **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
5 ft				NO SAMPLES TAKEN		bentonite seal
10 ft						
15 ft						
20 ft						
25 ft						
30 ft						
35 ft						
40 ft						

Figure 11a – Drilling log for the installation of a recovery well (RW-2) at BD O-23 Vent.

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
45 ft						
50 ft						
55 ft						
60 ft						
65 ft						
70 ft						
75 ft						
80 ft						
85 ft						
88 ft						

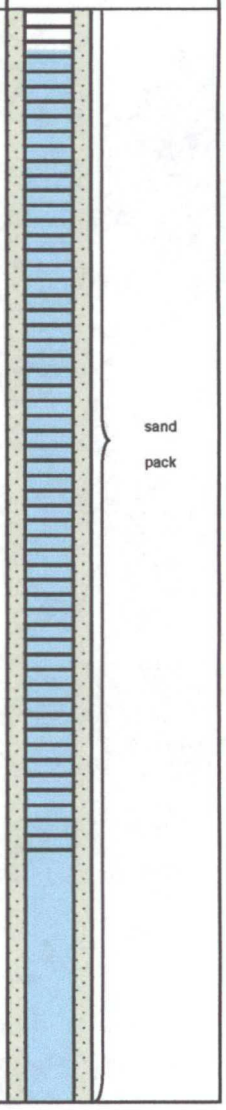


Figure 11b – Drilling log (continued from Figure 11a, above) for the installation of a recovery well (RW-2) at BD O-23 Vent.