1R - 426-104

REPORTS

DATE:

April 22, 2009

ARCADIS

Infrastructure, buildings, environment, communications

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

Brad Jones
New Mexico Oil Conservation Division
1220 So. Saint Francis Drive
Santa Fe, New Mexico 87505

Certified Mail Receipt No. 7002 2410 0001 5813 0196

Subject:
Investigation and Characterization Plan Report and Termination Request
Blinebry-Drinkard (BD) Junction B-25, NMOCD Case# 1R426-104
T21S, R37E, Section 25, Unit B, Eunice, Lea County, New Mexico

Date:
April 22, 2009

Contact:
Sharon Hall

Phone:
432 687-5400

Email:
shall@arcadis-us.com

Dear Mr. Jones,

RICE Operating Company (ROC) has retained ARCADIS U.S., Inc. to address potential environmental concerns at the above-referenced site. ROC is the service provider (agent) for the Blinebry-Drinkard (BD) SWD System and has no ownership of any portion of the pipeline, well, or facility. The BD System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis.

On behalf of ROC, ARCADIS respectfully submits this Investigation and Characterization Plan (ICP) Report and Termination Request for the above-referenced site.

SITE HISTORY AND BACKGROUND

The site is located west of the town of Eunice, New Mexico (Figure1). Elevated chlorides in this area have been reported since as early as 1952 (Ground-Water Report 6, Geology and Ground-Water Conditions in Southern Lea County, Alexander Nicholson, Jr. and Alfred Clebsch, Jr.). The expected depth to groundwater at this site was approximately 37 feet below ground surface.

The junction was eliminated and replaced with a new junction box located 20 feet south of the former junction box location (Figure 2). Initial delineation began on May 26, 2004 and was completed on June 24, 2004. A backhoe was used to collect soil samples to a depth of 12 feet below ground surface (bgs) at the removed junction box location and 15 feet and 25 feet north, 10 feet east and 10 feet west of the junction box location. Backhoe soil samples were collected to a depth of six feet bgs at a location five feet south of the former junction box. Soil samples were analyzed in the field for chlorides using field-adapted Method 9253 and screened in the field using a photoionization detector (PID).

A backhoe was used to excavate soils from an excavation around the former junction box measuring 30 feet by 30 feet by 6 feet deep. A wall composite sample was collected from each of the four walls and 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 203 milligrams per kilogram (mg/kg) in the four-wall composite wall sample and at a concentration of 36.8 mg/kg in the five-point composite bottom sample. GRO was not detected. Elevated chlorides were detected in both the samples submitted to the lab and the samples analyzed in the field. Field and Laboratory analytical results are summarized in Tables 1 and 2.

Based on the results of the soil sampling analytical results, elevated chloride and hydrocarbon concentrations were identified at the subject site (Figure 2).

A one-foot thick clay barrier was installed at a depth of 5 to 6 feet bgs to inhibit downward chloride migration. The clay layer was compacted to a dry density of 99.4% and 16.3% moisture. The excavated soils were blended on-site and returned to the excavation to backfill the excavation to ground surface and to contour the surrounding area. An identification plate was placed on the surface at the location of the former junction box to mark the presence of the clay liner.

A sample of the blended backfill material was submitted to Cardinal Laboratories for GRO, DRO and chloride analysis. GRO was not detected. DRO was detected at a concentration of 15.3 mg/kg and chlorides were detected at a concentration of 2,160 mg/kg.

ROC disclosed potential groundwater impact at the site to NMOCD via e-mail on 11/4/2004. A disclosure report was submitted to NMOCD with all of the ROC 2007 Junction Box Reports in March 2005 per the ROC Junction Box Upgrade Work Plan. The source of this impact is historical and has been removed

On behalf of ROC, ARCADIS submitted an ICP to NMOCD on June 16, 2008. The plan proposed three tasks:

Task 1- Collect Regional Hydrogeologic Data

A one-half mile water well inventory that includes a review of water well records listed on the New Mexico State Engineer Office and United States Geological Survey (USGS) websites and windmills indicated on applicable USGS topographic maps.

Chloride impacted regional groundwater has been reported in this area near the towns of Eunice and Monument since as early as 1952 (Groundwater Report 6, Geology and Ground-Water Conditions in Southern Lea County , New Mexico, Nicholson and Clebsch, United States Geological Survey).

Task 2- Evaluate Concentrations of Constituents of Concern in Soil and Groundwater

Installation of one soil boring at the site near the former Junction box location. Additional soil borings were proposed to evaluate soil impacts. One soil boring was proposed in each direction from the former junction box location (north, south, east and west of the excavated area) in order to delineate the lateral extent of impacts to soil. It was proposed that if chloride and/or hydrocarbon concentrations do not decline sufficiently with depth or exceed 250 mg/kg or PID readings of 100 within 10 feet of the suspected groundwater depth one soil boring would be converted to a monitor well. The monitoring well would be placed near-source to observe soil impacts.

Task 3 Evaluate Potential Flux from the Vadose Zone to Ground Water

As proposed in the ICP, the information gathered from Tasks 1 and 2 would be evaluated and utilized to design a groundwater remedy if needed. The groundwater remedy that offers the greatest environmental benefit while causing the least environmental impairment would be selected. If the evaluation demonstrates that residual constituents pose no threat to groundwater quality, only a surface restoration plan protective of groundwater would be proposed. Such recommendations and findings would be presented to NMOCD in a subsequent Corrective Action Plan (CAP). The proposed ICP was approved by NMOCD on July17, 2008.

ICP INVESTIGATION RESULTS

A boring was installed at the site six feet northeast of the former junction box location on March 4, 2009. Groundwater was expected at a depth of 37 feet below ground surface. The boring was installed to a depth of 80 feet below ground surface where Triassic clays were encountered. No moist soils were encountered and the decision was made to leave the boring open for 24 hours to determine whether or not a saturated interval exists. After the 24-hour period no moisture was detected in the borehole. A letter to that effect from the driller is attached.

RECOMMENDATIONS

Based on the fact that a boring was installed to a depth that encountered Triassic clay and no moisture was detected, that elevated chlorides in groundwater have been reported in this area since the early 1950s and that a clay barrier was installed at the former junction box location ARCADIS recommends termination of this site. Your approval to terminate this site is requested.

If you have any questions or need additional information please contact Hack Conder at 575 393-9174 or me.

Very truly yours,

ARCADIS U.S, Inc.

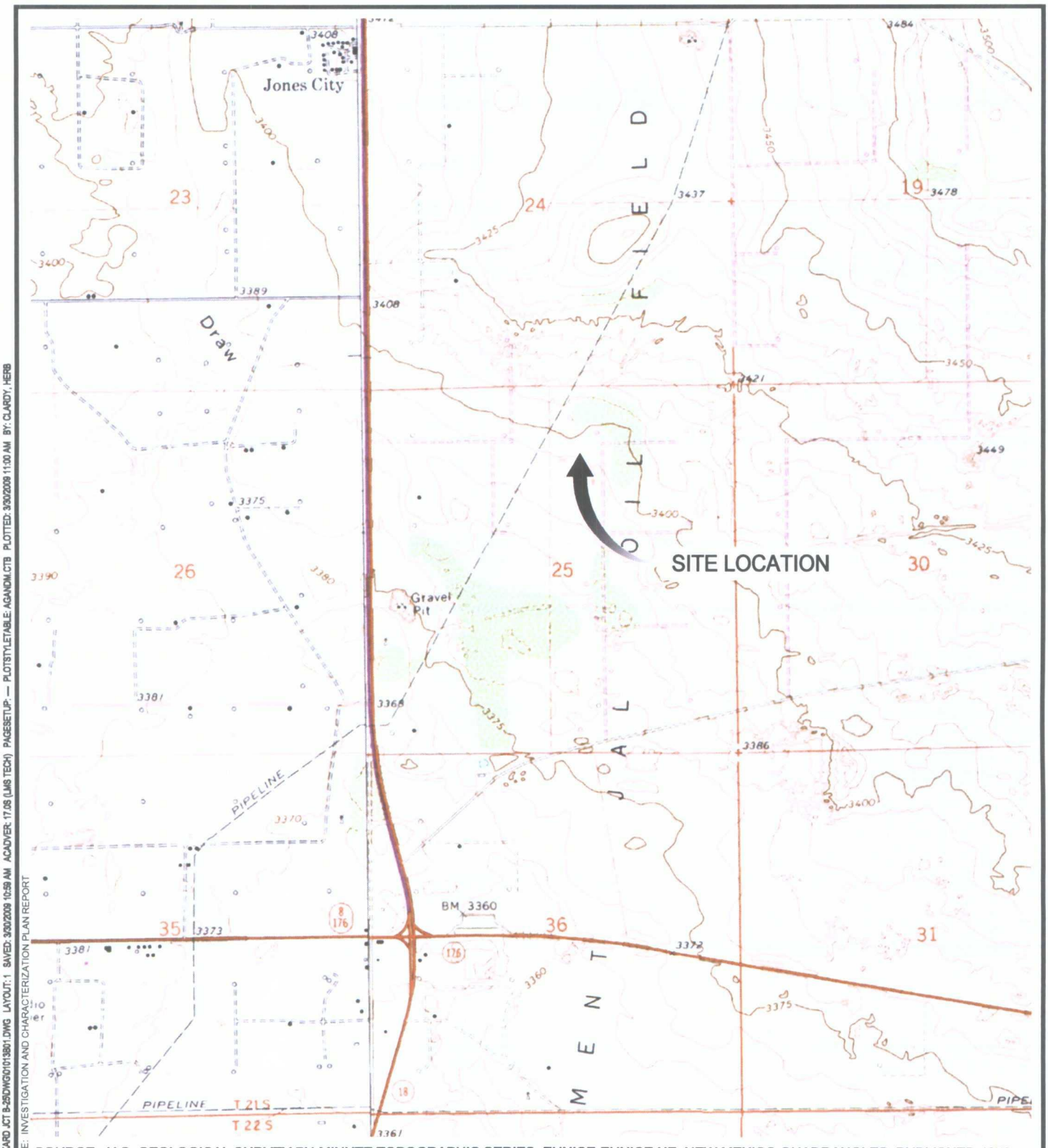
Sharon E. Hall

Sharon E. Hall
Associate Vice President

Copies:

Hack Conder- Rice Operating Company
Marvin Burrows- Rice Operating Company
Ed Hansen- NMOCD

Attachments:
Boring Log
Site Location Map
Boring Location and Chloride Concentration Map
Driller's No Groundwater Letter



SOURCE: U.S. GEOLOGICAL SURVEY 7½ MINUTE TOPOGRAPHIC SERIES, EUNICE-EUNICE NE, NEW MEXICO QUADRANGLES, PUBLISHED 1979.

0 2000' 4000'

APPROXIMATE SCALE: 1" = 2000'

RICE OPERATING COMPANY
LEA COUNTY, NEW MEXICO

BLINEBRY-DRINKARD (BD) JUNCTION B-25
INVESTIGATION AND CHARACTERIZATION PLAN REPORT

SITE LOCATION MAP

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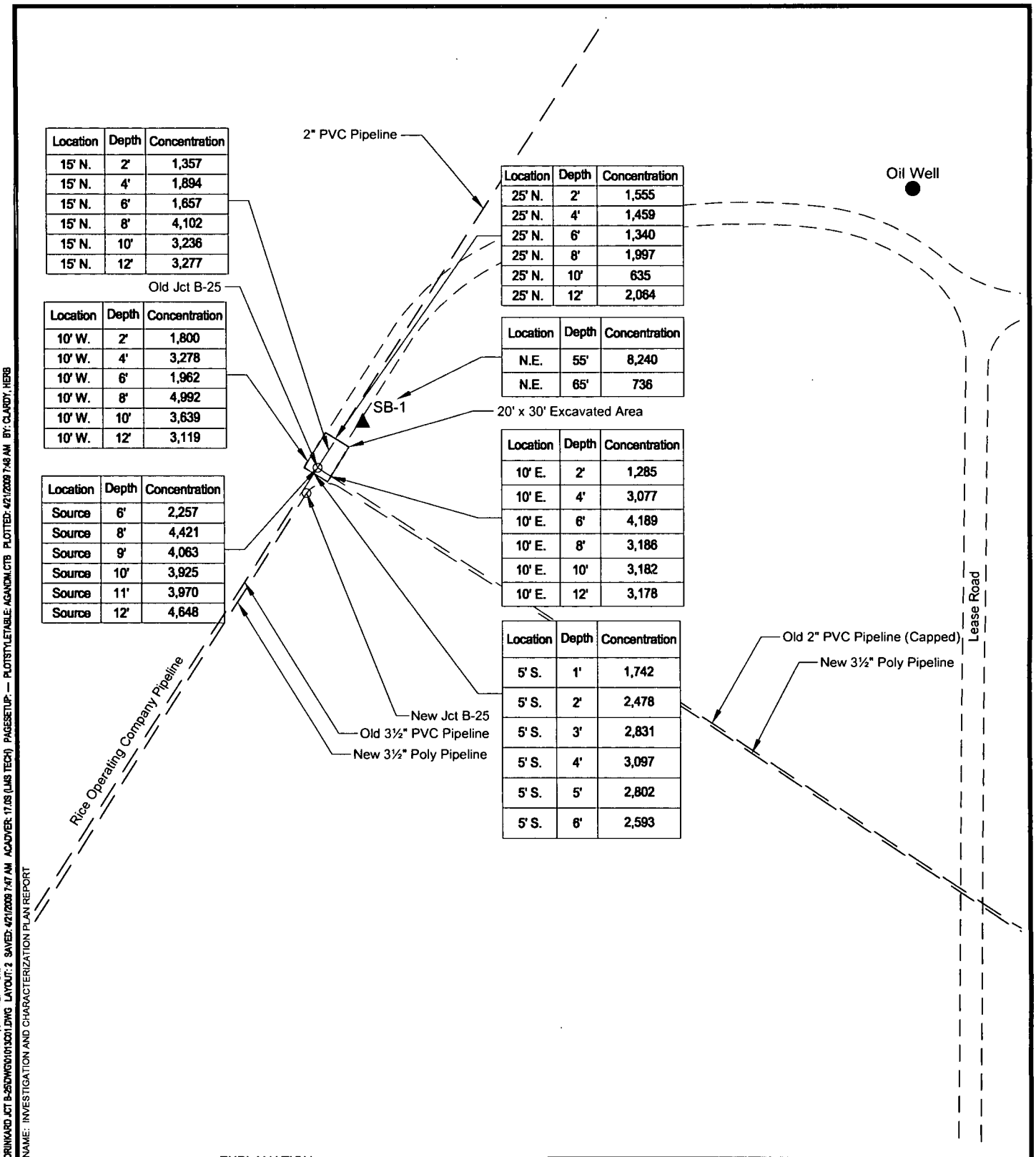
FIGURE 1



Location	Depth	Concentration
15' N.	2'	1,357
15' N.	4'	1,894
15' N.	6'	1,657
15' N.	8'	4,102
15' N.	10'	3,236
15' N.	12'	3,277

Location	Depth	Concentration
10' W.	2'	1,800
10' W.	4'	3,278
10' W.	6'	1,962
10' W.	8'	4,992
10' W.	10'	3,639
10' W.	12'	3,119

Location	Depth	Concentration
Source	6'	2,257
Source	8'	4,421
Source	9'	4,063
Source	10'	3,925
Source	11'	3,970
Source	12'	4,648

Location	Depth	Concentration
25' N.	2'	1,555
25' N.	4'	1,459
25' N.	6'	1,340
25' N.	8'	1,997
25' N.	10'	635
25' N.	12'	2,064

Location	Depth	Concentration
N.E.	55'	8,240
N.E.	65'	736

Location	Depth	Concentration
10' E.	2'	1,285
10' E.	4'	3,077
10' E.	6'	4,189
10' E.	8'	3,186
10' E.	10'	3,182
10' E.	12'	3,178

Location	Depth	Concentration
5' S.	1'	1,742
5' S.	2'	2,478
5' S.	3'	2,831
5' S.	4'	3,097
5' S.	5'	2,802
5' S.	6'	2,593

EXPLANATION

PIPELINE TRACE

LEASE ROADS

BERMED AREAS

SOIL BORING

0 100' 200'

APPROXIMATE SCALE: 1" = 100'

RICE OPERATING COMPANY
LEA COUNTY, NEW MEXICO
BLINEBRY-DRINKARD (BD) JUNCTION B-25
INVESTIGATION AND CHARACTERIZATION PLAN REPORT

CHLORIDE CONCENTRATIONS MILLIGRAM PER KILOGRAM (mg/kg) AND SOIL BORING LOCATION

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FIGURE 2

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BORING LOG

BORING NO. SB-1

1004 N. Big Spring St. Suite 300, Midland, TX 79701-3383 Tel: 432/687-5400 Fax: 432/687-5401

PROJECT NUMBER: MT001013.0001.00001
CLIENT NAME: RICE OPERATING COMPANY
PROJECT NAME: INVESTIGATION AND CHARACTERIZATION PLAN
SITE LOCATION: BLINEBRY-DRINKARD (BD) JUNCTION B-25
LEA COUNTY, NEW MEXICO
UNIQUE NUMBER: 31-014-00918

DRILLING CO: HARRISON-COOPER
DRILLING METHOD: AIR ROTARY
DRILLER: KEN COOPER
LOGGER: R. LANG
DATE BEGUN: 2/4/09 DATE COMPLETED: 2/4/09
FILE NAME SB-1.DAT

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	CHLORIDES	LITHOLOGY	DESCRIPTION
0									CALICHE Backfill
-5									
-10									
-15		SS			2'	0.4			SANDSTONE 2.5YR light reddish brown, fine to medium grained, subrounded, moderately sorted, very soft, dry, interval -20.0' to -25.0' contained oxidized black hydrocarbon streaks.
-20		SS			2'	0.2	897		
		SS			1'	0.5	894		CLAY/SAND Clay–2.5YR 5/6 red, firm,dry; Sand–2.5YR light reddish brown, fine to medium grained, subrounded, moderately sorted.
-25		SHOVEL				0.4'	4,049		
		SHOVEL					5,868		SAND & GRAVEL Sand–2.5YR 5/6 red, fine grained, dry; Gravel–chert to 1 cm diameter, dry.
-30		SHOVEL					7,548		SANDSTONE 2.5Y 5/6 red, well rounded, well sorted, dry.
-35									Note: At -50.0', encountered hard sandstone 2.5YR 8/4 pink, as interbeds, very hard silica cement.
		SHOVEL					6,898		
-40		SHOVEL					4,513		
-45		SHOVEL					4,116		
-50		SHOVEL					7,178		
-55		SHOVEL					1,817		
-60		SHOVEL					1,053		SANDSTONE 5YR 4/3 reddish brown, fine sand to silt, some very fine chert gravel, poorly sorted, soft, dry.
-65		SHOVEL					1,057		CLAY 10R 5/8 very weak red, firm, dry, slightly silty, forms a string when wet.
-70		SHOVEL					762		
-75		SHOVEL					903		
-80									

CITY: MIDLAND, TX DIV/GROUP: ENV DB: H.CLARDY LD: PIC: PM: S.HALL TM: S.HALL
G:\ENVCAD\MIDLAND\ACT\MT001013\0001\00001\BLINEBRY-DRINKARD JCT B-25\DAT\SB-1.DAT

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 harrisoncooper-drilling.com

March 10, 2009

Rice Operating Co.
122 W. Taylor
Hobbs, NM 88240

Attn: Lara Weinheimer

RE: BD Jct. B-25, Eunice, NM
Bore Hole Condition

To whom it may concern:

On March 4, 2009, Harrison and Cooper were contracted by Rice Operating to drill and sample a soil boring at the subject site. The soil boring was drilled to approximately eighty feet in an effort to determine whether or not a saturated interval existed. After a twenty-four hour holdover time the moisture content at that depth was NON-detectable.

If any questions arise from this issue, do not hesitate to contact a representative with Harrison and Cooper.

Sincerely,

Kenny R. Cooper
Operations Manager

Copies: File
Mail (Rice, Hobbs)
Email (Lara Weinheimer)

Hansen, Edward J., EMNRD

From: Hack Conder [hconder@riceswd.com]
Sent: Tuesday, September 08, 2009 5:56 PM
To: Hansen, Edward J., EMNRD
Cc: Katie Jones
Subject: RE: plugging info for Remediation Plan (1R-426-104) Termination (BD Jct. B-25 Site)

Ed,

On March 4th, 2009 a soil boring was drill at BD B-25 (1R-426-104) to depth of 80 feet this boring was backfilled with bentonite chips by Harrison Cooper Drilling the full depth of the boring.

Thanks

Hack Conder
Enviromental Manager
Rice Operating Company
575-393-9174
fax 575-397-1471

From: Hansen, Edward J., EMNRD [mailto:edwardj.hansen@state.nm.us]
Sent: Tuesday, September 08, 2009 5:07 PM
To: Hack Conder
Cc: Marvin Burrows; Scott Curtis; Johnson, Larry, EMNRD; shall@arcadis-us.com
Subject: Remediation Plan (1R-426-104) Termination (BD Jct. B-25 Site)

RE: Investigation and Characterization Plan Report and Termination Request for the Rice Operating Company's
BD Jct. B-25 Site
Unit Letter B, Section 25, T21S, R37E, NMPM, Lea County, New Mexico
Remediation Plan (1R-426-104) Termination

Dear Mr. Conder:

The New Mexico Oil Conservation Division (OCD) has received Rice Operating Company's report and request to close the above-referenced site (dated April 22, 2009). The report is acceptable to the OCD.

The above-referenced report, submitted in accordance with 19.15.29 NMAC (Part 29; formally, Rule 116), indicates that Rice Operating Company has met the requirements of 19.15.29 NMAC; therefore, the OCD approves the report and hereby notifies you that the remediation plan (1R-426-104) is terminated in accordance with 19.15.29 NMAC.

Please be advised that OCD approval of this report does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau