1R - 426-103

GENERAL CORRESPONDENCE

YEAR(S):
2007

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

Ed Hansen
New Mexico Oil Conservation Division
1220 So. Saint Francis Drive
Santa Fe, New Mexico 87505

Certified Mail Receipt No. 7002 2410 0001 5813 2527

BD H-14 boot IR426-103
BD H-14-1 IR426-102
BD H-14-2 IR426-101

Subject:
Investigation and Characterization Plan
Blinebry Drinkard (BD) H-14
T22S, R37E, Section 14, Unit H, Eunice, Lea County, New Mexico

Date:
24 September 2007

Contact:
Sharon Hall

Phone:
432 687-5400

Email:
shall@arcadis-us.com

Dear Mr. Hansen,

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 System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis. Environmental projects of this magnitude require System Partner AFE approval and work begins as funds are received. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission is requested.

For all environmental projects, ROC will choose a 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 have three submissions or a combination of:

1. This Investigation and Characterization Plan (ICP) is a proposal for data gathering 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).

3. Finally, after implementing the remedy, a closure report with final documentation will be submitted.

On behalf of ROC, ARCADIS respectfully submits this ICP for the above-referenced site.

SITE HISTORY AND BACKGROUND

This site is comprised of a three junction-box group in close proximity to one another (see attachment). Due to their close proximity the sites have been combined as a single site referred the H-14 site. The site is located near the town of Eunice, New Mexico Figure 1. The expected depth to groundwater at this site is approximately 65 feet below ground surface.

The junction box H-14-1 was the main-line box of the three-box group. It was replaced with a new water-tight junction box. The junction box H-14-2 has been eliminated and Junction H-14 contained a boot that has been eliminated. Both junctions have been replaced with poly-piping that bypasses the former locations.

Initial delineation of the three-box group began on May 17, 2004 and was completed on June 8, 2004 by trenching with a backhoe to a depth of 12-15 below ground surface (bgs). An area 38 feet x 36 feet x 6 feet-deep was excavated. A compacted clay barrier was installed at a depth of 6 feet bgs to inhibit downward chloride migration. The excavated area was then backfilled with the remaining blended excavation soil. An identification plate has been placed on the surface in the location of the former junction box for future environmental consideration and to identify the presence of the clay barrier. The disturbed surface has been seeded with a blend of native vegetation and is being monitored for growth.

Soil samples were analyzed in the field for chlorides using field-adapted Method 9253 and screened in the field using a photoionization detector (PID). Confirmation samples were collected from the bottom, side walls (four wall composite sample), and remediated backfill and sent to Environmental Lab of Texas for Total Petroleum Hydrocarbons (TPH) and Chloride analysis. PID readings were all low. Laboratory analysis confirms that gasoline range organics (GRO) and diesel range organics (DRO) were not detected.

Based on the results of the soil sampling analytical results, elevated chloride concentrations are present at the subject site as shown in Figure 2.

ROC disclosed potential groundwater impact at the site to New Mexico Oil Conservation Division (NMOCD) in an e-mail dated July 16, 2004. Disclosure reports were submitted to NMOCD with all of the ROC 2004 Junction Box Reports in March 2005 per the ROC Junction Box Upgrade Workplan. The disclosure reports identified the sites as the junction H-14-1, H-14-2 and H-14 Boot sites. The source of this impact is historical. There is no longer a threat of compounded conditions at this site because two junctions were eliminated and the third was replaced with a water-tight junction box.

INVESTIGATION AND CHARACTERIZATION PLAN

As discussed above existing site data suggest a potential for impairment of ground water quality. Therefore the work elements described below are designed to assist ROC in selecting an appropriate vadose zone remedy and, if necessary, a ground water remedy.

Task 1- Collect Regional Hydrogeologic Data

A one-half mile water well inventory will be performed. The water well inventory will include 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.

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

One soil boring will be installed at the subject site at the former junction box location in order to delineate the depth of impacts to soil. Soil samples will be collected at regular intervals no greater than five feet, screened in the field using a photo ionization detector (PID) and field tested for chlorides. Soil lithology and the presence of any observed staining or odor will be recorded. Representative select samples will be submitted to a laboratory for laboratory analysis as confirmation of the field sampling.

Additional soil borings will be will be installed in each direction (north, south east and west of the excavated area) in order to delineate the lateral extent of impacts to soil. Soil samples will be collected at regular intervals no greater than five feet, screened in the field using a photo ionization detector (PID) and field tested for chlorides. Soil lithology and the presence of any observed staining or odor will be recorded. Representative select samples will be submitted to a laboratory for laboratory analysis as confirmation of the field sampling.

If chloride and/or hydrocarbon concentrations do not decline sufficiently with depth or exceed 250 milligrams per kilogram (mg/kg) or PID readings of 100 within 10 feet of the suspected groundwater depth monitoring well will be installed. The monitoring well will be placed near-source to observed soil impacts.

The monitor well will be constructed, developed and sampled in accordance with Environmental Protection Agency and NMOCD standards. A groundwater sample will be collected and submitted for laboratory analysis for chlorides, BTEX and general chemistry.

If analytical results indicate that chloride and/or BTEX concentrations in groundwater exceed New Mexico Water Quality Control Commission standards, additional monitoring wells may be installed as warranted by the results of the investigation.

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

The information gathered from tasks 1 and 2 will be evaluated and utilized to design a groundwater remedy if needed. The ground water remedy that offers the greatest environmental benefit while causing the least environmental impairment will be selected. If the evaluation demonstrates that residual constituents pose no threat to ground water quality, only a surface restoration plan protective of groundwater will be proposed. Such recommendations and findings will be presented to NMOCD in a subsequent Corrective Action Plan (CAP). When evaluating any proposed remedy or investigative work, ROC will confirm that there is a reasonable relationship between the benefits created by the proposed remedy or assessment and the economic and social costs.

A report that details the investigation activities and results will be submitted to the OCD. The report will include recommendations for further action (CAP) if necessary or for closure of the site.

Very Truly Yours,

ARCADIS U.S., Inc.

Sharon E. Hall

Sharon E. Hall
Site Evaluation Department Manager

Copies:
Carolyn Haynes- Rice Operating Company
Kristin Pope- Rice Operating Company

Attachment:

Figures 1-2

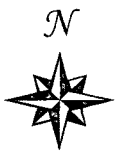
Disclosure reports with field sampling results

Excavation Diagram

BD jct H-14-1

38 x 36 x 6-ft-deep

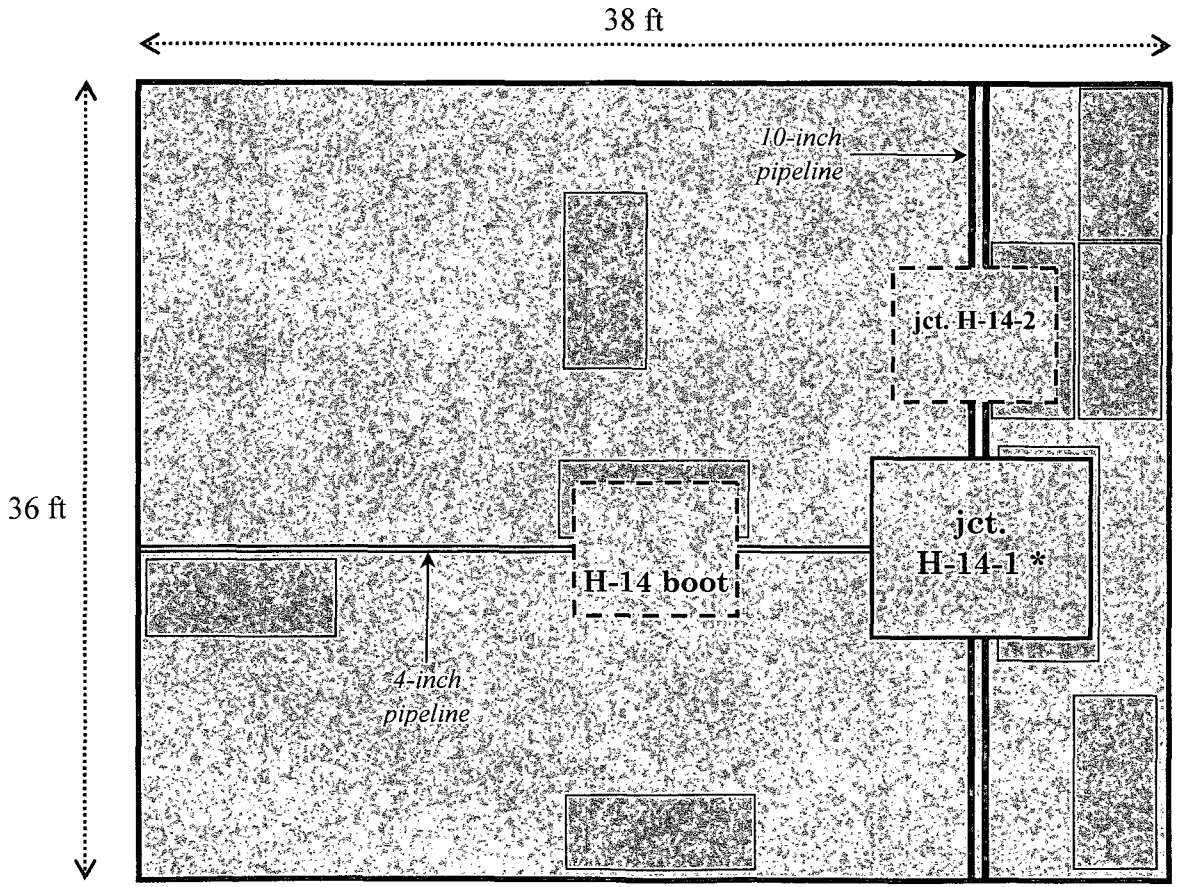
Excavation Cross-Section



= Excavation to 6 ft BGS, with compacted clay barrier

= Excavation trench to 12 ft BGS

= 2 x 2 ft



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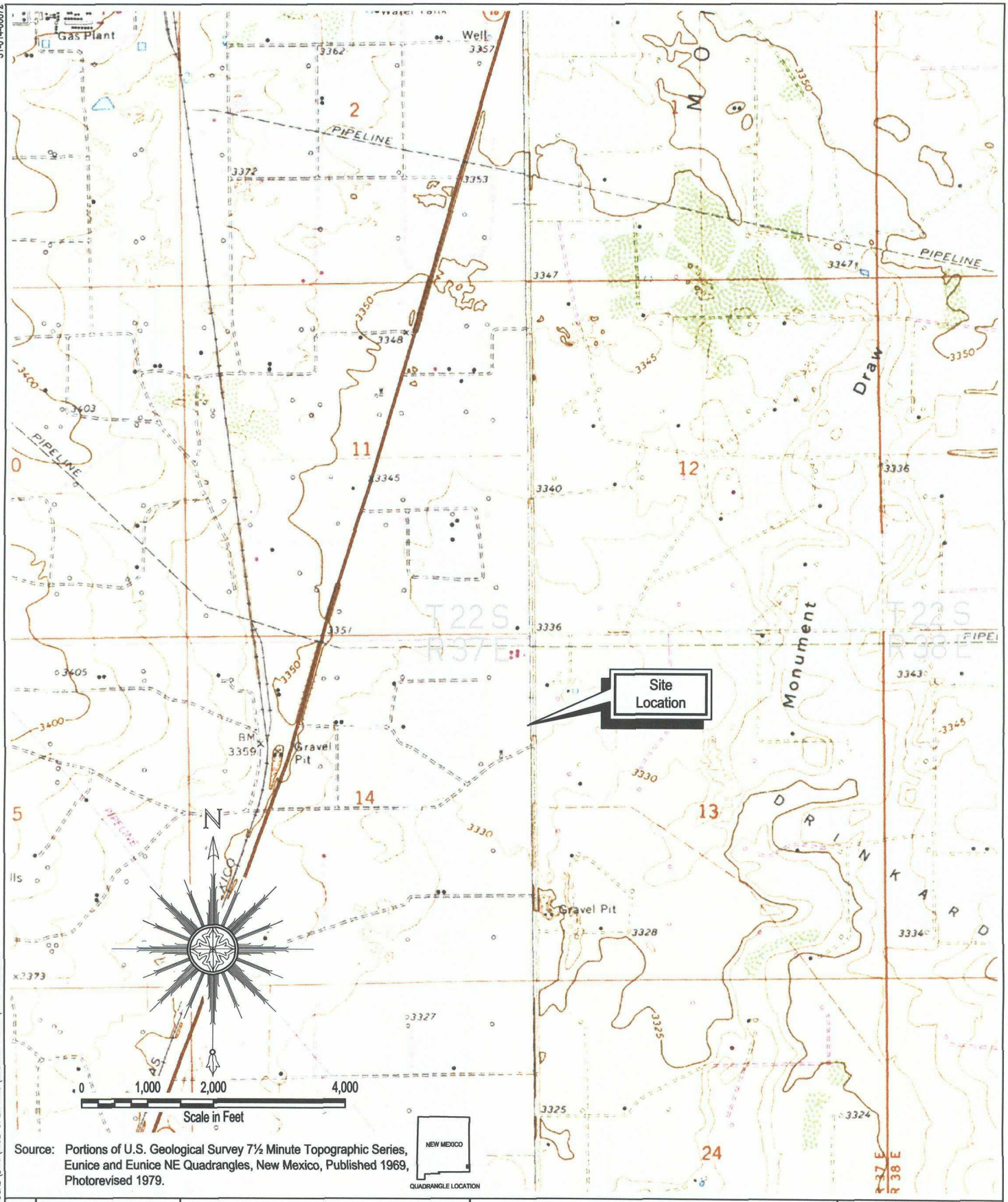
* *New watertight junction box "H-14" has replaced H-14-1; H-14 boot and H-14-2 have been eliminated*



Source: Portions of U.S. Geological Survey 7½ Minute Topographic Series, Eunice and Eunice NE Quadrangles, New Mexico, Published 1969, Photorevised 1979.

Area Manager	A. Schmidt
Project Manager	S. Hall
Task Manager	R. Nanny
Technical Review	S. Tischer

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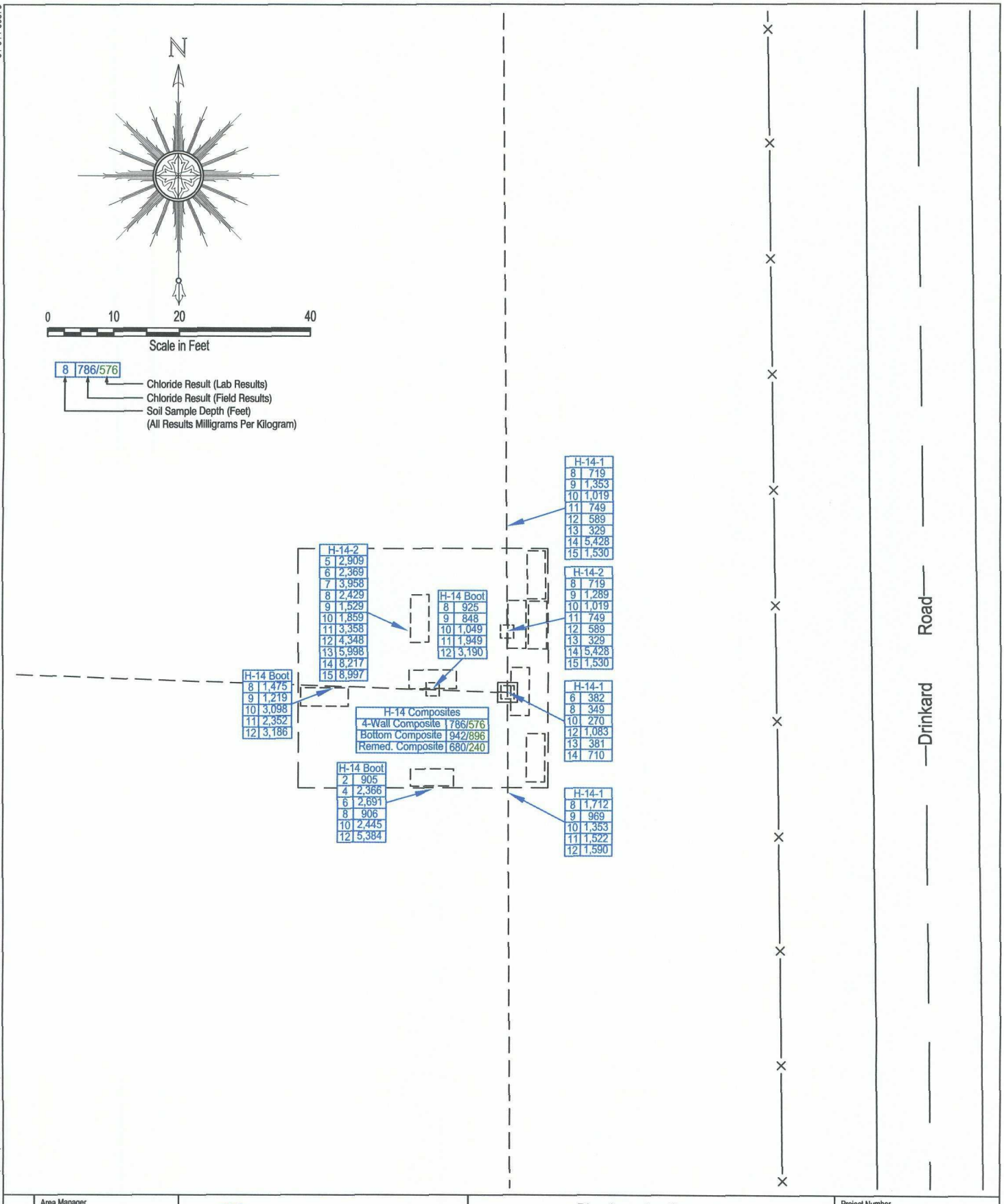
Rice Operating Company
Blinebry Drinkard (BD) SWD System – Jct. H-14

Site Location Map

Lea County, New Mexico

Project Number	MT000914.0001
Drawing Date	27 November 2006
Figure	1



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Rice Operating Company
Blinebry Drinkard (BD) SWD System – Jct. H-14

Soil Excavation and Sampling Results Chlorides (mg/Kg)

Lea County, New Mexico

Project Number	MT000914.0001
Drawing Date	27 November 2006
Figure	2

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
BD	H-14-1	H	14	22S	37E	Lea	10	10	7

LAND TYPE: BLM _____ STATE _____ FEE LANDOWNER Leo V. Sims OTHER _____

Depth to Groundwater 65 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20 *

Date Started 5/17/2004 Date Completed 6/8/2004 OCD Witness No

Soil Excavated 304 cubic yards Excavation Length 38 Width 36 Depth 6 feet

Soil Disposed 0 cubic yards Offsite Facility n/a Location n/a

FINAL ANALYTICAL RESULTS: **Sample Date** 5/21/2004 **Sample Depth** 6 ft

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 ppm	GRO mg/kg	DRO mg/kg	Chloride mg/kg
SIDEWALLS	6.7	<10.0	<10.0	576
BOTTOM	0.1	<10.0	<10.0	896
REMEDIATED	5.2	<10.0	<10.0	240

General Description of Remedial Action: This junction was the main-line box of a three-box cluster in close proximity. Delineation trenches were made with a backhoe to 12 ft as chloride field tests and PID field screenings were conducted at regular intervals. Chloride concentrations did not exhibit a trend of decline with depth or breadth within the excavation. PID readings were minimal and lab results confirmed TPH concentrations well below NMOCD guidelines. A compacted clay barrier was installed in the 38 x 36 x 6-ft-deep excavation and the excavated soil was blended and backfilled on top of the clay (see diagram). An identification plate was set on the surface to mark the site for future considerations and to identify the clay below. A new watertight junction box has been rebuilt at this location. The disturbed surface has been seeded with a blend of native vegetation and will be monitored for growth.

ADDITIONAL EVALUATION IS *HIGH* PRIORITY

* Windmill located 570 ft south of the location.

enclosures: chloride graphs, photos, lab results, clay test, PID field screenings, diagrams

CHLORIDE FIELD TESTS

LOCATION	DEPTH (ft)	ppm
Vertical	6	382
at source	8	349
	10	270
	12	1083
	13	381
	14	710
15 ft South	8	1712
	9	969
	10	1353
	11	1522
	12	1590
25 ft North	8	719
	9	1289
	10	1019
	11	749
	12	589
	13	329
	14	5428
	15	1530
4-wall comp.	n/a	786
bottom comp.	6	942
remed. comp.	n/a	680

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

SITE SUPERVISOR Joe Gatts SIGNATURE _____ COMPANY RICE Operating Company

REPORT ASSEMBLED BY Kristin Farris Pope SIGNATURE _____

DATE 7/19/2004 TITLE Project Scientist

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

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
BD	H-14-2	H	14	22S	37E	Lea	eliminated		

LAND TYPE: BLM _____ STATE _____ FEE LANDOWNER Leo V. Sims OTHER _____

Depth to Groundwater 65 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20 *

Date Started 5/17/2004 Date Completed 6/8/2004 OCD Witness No

Soil Excavated 304 cubic yards Excavation Length 38 Width 36 Depth 6 feet

Soil Disposed 0 cubic yards Offsite Facility n/a Location n/a

FINAL ANALYTICAL RESULTS: Sample Date 5/21/2004 Sample Depth 6 ft

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 ppm	GRO mg/kg	DRO mg/kg	Chloride mg/kg
SIDEWALLS	6.7	<10.0	<10.0	576
BOTTOM	0.1	<10.0	<10.0	896
REMEDIATED	5.2	<10.0	<10.0	240

General Description of Remedial Action: This junction was one of a three-box cluster in close proximity. Delineation trenches were made with a backhoe to 12 ft as chloride field tests and PID field screenings were conducted at regular intervals. Chloride concentrations did not exhibit a trend of decline with depth or breadth within the excavation. PID readings were minimal and lab results confirmed TPH concentrations well below NMOCD guidelines. A compacted clay barrier was installed in the 38 x 36 x 6-ft-deep excavation and the excavated soil was blended and backfilled on top of the clay (see diagram). An identification plate was set on the surface to mark the site for future considerations and to identify the clay below. This junction has been eliminated an re-plumbed straight through. The disturbed surface has been seeded with a blend of native vegetation and will be monitored for growth.

ADDITIONAL EVALUATION IS *HIGH* PRIORITY

* Windmill located 570 ft south of the location.

enclosures: chloride graphs, photos, lab results, clay test, PID field screenings, diagram

CHLORIDE FIELD TESTS

LOCATION	DEPTH (ft)	ppm
Vertical	8	719
at source	9	1289
	10	1019
	11	749
	12	589
	13	329
	14	5428
	15	1530
15 ft West	5	2909
	6	2369
	7	3958
	8	2429
	9	1529
	10	1859
	11	3358
	12	4348
	13	5998
	14	8217
	15	8997
4-wall comp.	n/a	786
bottom comp.	6	942
remed. comp.	n/a	680

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

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REPORT ASSEMBLED BY Kristin Farris Pope SIGNATURE _____

DATE 7/19/2004 TITLE Project Scientist

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RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
BD	H-14 boot	H	14	22S	37E	Lea	eliminated		

LAND TYPE: BLM _____ STATE _____ FEE LANDOWNER Leo V. Sims OTHER _____

Depth to Groundwater 65 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20 *

Date Started 5/17/2004 Date Completed 6/8/2004 OCD Witness No

Soil Excavated 304 cubic yards Excavation Length 38 Width 36 Depth 6 feet

Soil Disposed 0 cubic yards Offsite Facility n/a Location n/a

FINAL ANALYTICAL RESULTS: **Sample Date** 5/21/2004 **Sample Depth** 6 ft

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Sample Location	PID ppm	GRO mg/kg	DRO mg/kg	Chloride mg/kg
SIDEWALLS	6.7	<10.0	<10.0	576
BOTTOM	0.1	<10.0	<10.0	896
REMEDIATED	5.2	<10.0	<10.0	240

General Description of Remedial Action: This junction contained a boot and was one of a three-box cluster in close proximity. Delineation trenches were made with a backhoe to 12 ft as chloride field tests and PID field screenings were conducted at regular intervals. Chloride concentrations did not exhibit a trend of decline with depth or breadth within the excavation. PID readings were minimal and lab results confirmed TPH concentrations well below NMOCD guidelines. A compacted clay barrier was installed in the 38 x 36 x 6-ft-deep excavation and the excavated soil was blended and backfilled on top of the clay (see diagram). An identification plate was set on the surface to mark the site for future considerations and to identify the clay below. This junction has been eliminated. The disturbed surface has been seeded with a blend of native vegetation and will be monitored for growth.

ADDITIONAL EVALUATION IS *HIGH* PRIORITY

* Windmill located 570 ft south of the location.

enclosures: chloride graphs, photos, lab results, clay test, PID field screenings, diagrams

CHLORIDE FIELD TESTS

LOCATION	DEPTH (ft)	ppm
Vertical	8	925
at source	9	848
	10	1049
	11	1949
	12	3190
15 ft South	2	905
	4	2366
	6	2691
	8	906
	10	2445
	12	5384
15 ft West	8	1475
	9	1219
	10	3098
	11	2352
	12	3186
4-wall comp.	n/a	786
bottom comp.	6	942
remed. comp.	n/a	680

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