1R - 427-168

GENERAL CORRESPONDENCE

YEAR(S):

2007

ARCADIS
Infrastructure, buildings, environment, communications

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

Certified Mail Receipt No. 7002 2410 0001 5812 9879

Subject:
Investigation and Characterization Plan
Eunice Monument Eumont (EME) Jct. F-18
T20S, R37E, Section 18, Unit F, Eunice, Lea County, New Mexico

Date:
6 July 2007

Contact:
Sharon Hall

Phone:
432 687-5400

Email:
shall@arcadis-us.com

Dear Mr. Hansen,

RICE Operating Company (ROC) has retained ARCADIS to address potential environmental concerns at the above-referenced site. ROC is the service provider (agent) for the Eunice Monument Eumont (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 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

ROC disclosed potential groundwater impact at the site to New Mexico Oil Conservation Division (NMOCD) via e-mail on October 19, 2004. A disclosure report was submitted to NMOCD with all of the ROC 2004 Junction Box Reports in March 2005 per the ROC Junction Box Upgrade Workplan. The site location is shown in Figure 1.

The junction box F-18 was eliminated and replaced with poly piping that bypasses this junction. Initial delineation began on August 16, 2004 and was completed on August 24, 2004 with a backhoe by trenching to 12 feet below ground surface (bgs). An area of 25 x 15 x 12 ft-deep was excavated and back filled with blended soils to a depth 6 feet bgs. A one-foot thick compacted clay barrier was installed to inhibit downward chloride migration. The excavated area was then backfilled with the remaining blended excavation soil. The disturbed surface has been seeded with a blend of native vegetation and 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, and remediated backfill and sent to Environmental Lab of Texas for Total Petroleum Hydrocarbons (TPH) and Chloride analysis. PID readings were all low and laboratory analysis confirms 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.

The expected depth to groundwater at this site is approximately 30 feet below ground surface.

The source of this impact is historical. There is no longer a threat of compounded at this site because the junction has been eliminated and replaced with poly piping that bypasses this junction.

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. 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 used to evaluate soil impacts. One soil boring will be installed in each direction (north, south east and west of the excavated area). 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 one soil boring will be converted to a monitor well. 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 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 G&M, Inc.

Sharon E. Hall

Sharon E. Hall
Site Evaluation Department Manager

Copies:
Carolyn Haynes- Rice Operating Company

Attachments:

Figures 1 & 2

Disclosure report with field sampling results

RICE OPERATING COMPANY
JUNCTION BOX **DISCLOSURE*** REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
EME	F-18	F	18	20S	37E	Lea	no box--junction eliminated		

LAND TYPE: BLM _____ STATE _____ FEE LANDOWNER Jimmie T. Cooper OTHER _____

Depth to Groundwater 30 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20

Date Started 8/16/2004 Date Completed 8/24/2004 OCD Witness No

Soil Excavated 167 cubic yards Excavation Length 25 Width 15 Depth 12 feet

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

FINAL ANALYTICAL RESULTS: **Sample Date** 8/20/2004 **Sample Depth** 12 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
4-WALL COMP.	0.0	<10.0	<10.0	266
BOTTOM COMP.	0.0	<10.0	<10.0	1320
REMED. BACKFILL	0.0	<10.0	<10.0	308

CHLORIDE FIELD TESTS

LOCATION	DEPTH (ft)	ppm
vertical at junction	7	119
	8	149
	9	300
	10	330
	11	450
	12	630
10 ft west of junction	8	420
	9	989
	10	809
	11	990
	12	1709
5 ft north of junction	7	330
	8	540
	9	570
	10	600
	11	780
	12	1050
4-wall comp.	n/a	270
bottom comp.	12	1049
remed. backfill	n/a	330

General Description of Remedial Action: This junction was eliminated with a new poly pipeline replacement. The box lumber was removed and the site was delineated using a backhoe while PID field screenings and chloride field tests were conducted at regular intervals. Throughout the 25 x 15 x 12-ft-deep excavation, all PID readings were relatively low and NMOCD guidelines were met. Lab results also confirmed TPH concentrations well below NMOCD guidelines. Chloride concentrations, however, did not exhibit a conclusive decline with depth. The excavated soil was blended on site and backfilled to 6 ft BGS. At 6 ft, a 1-ft-thick compacted clay barrier was installed to hinder further downward migration of chloride. The remaining soils were backfilled on top of the clay. The excavated was surrounded by healthy native vegetation. The disturbed surface was seeded on 9/17/2004 with a blend of native vegetation and is expected to return to productive capacity at a normal rate.

ADDITIONAL EVALUATION IS *HIGH* PRIORITY

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

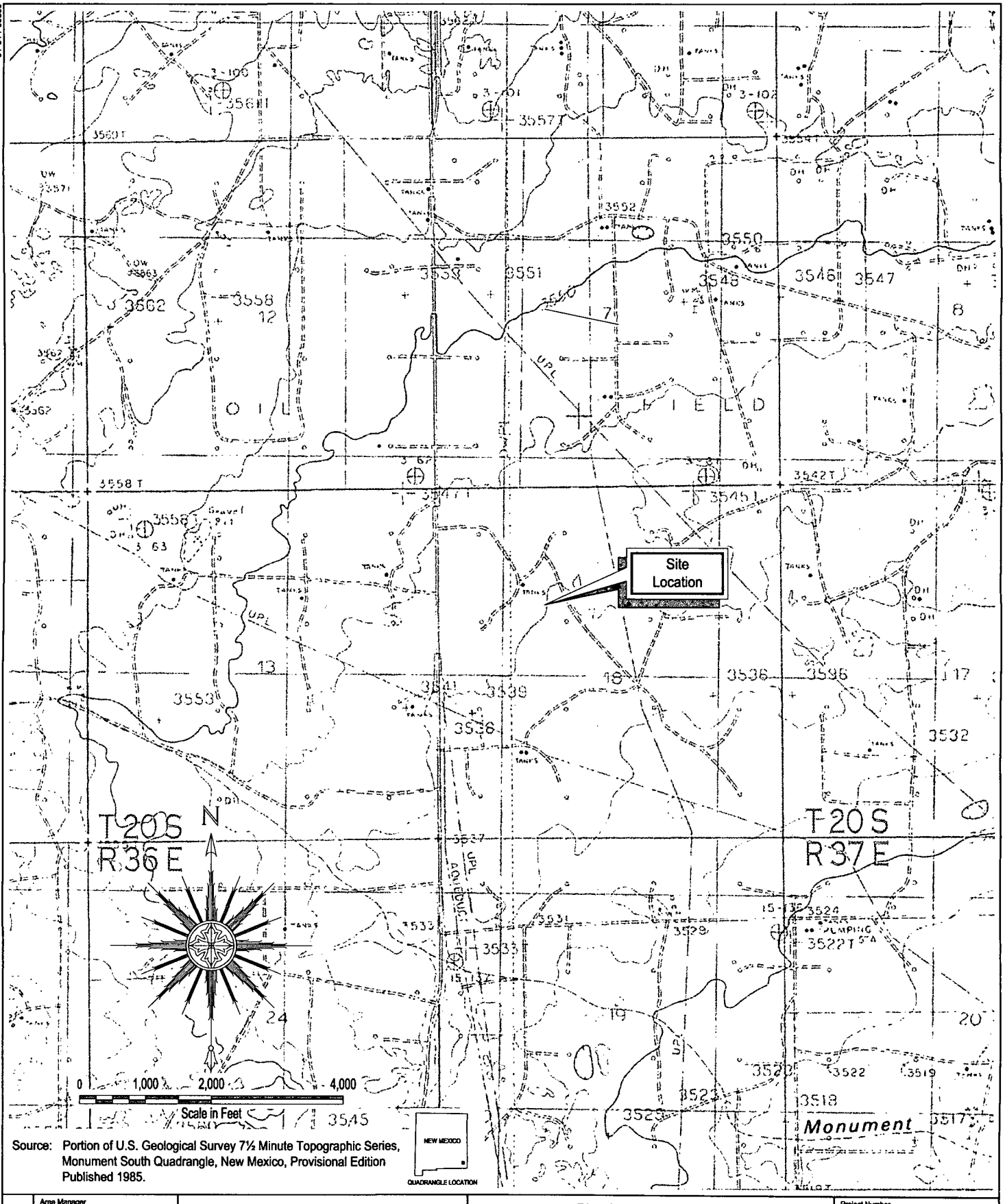
I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SITE SUPERVISOR Rob Elam SIGNATURE not available COMPANY Curt's Environmental--Odessa, TX

REPORT ASSEMBLED BY Kristin Farris Pope SIGNATURE Kristin Farris Pope

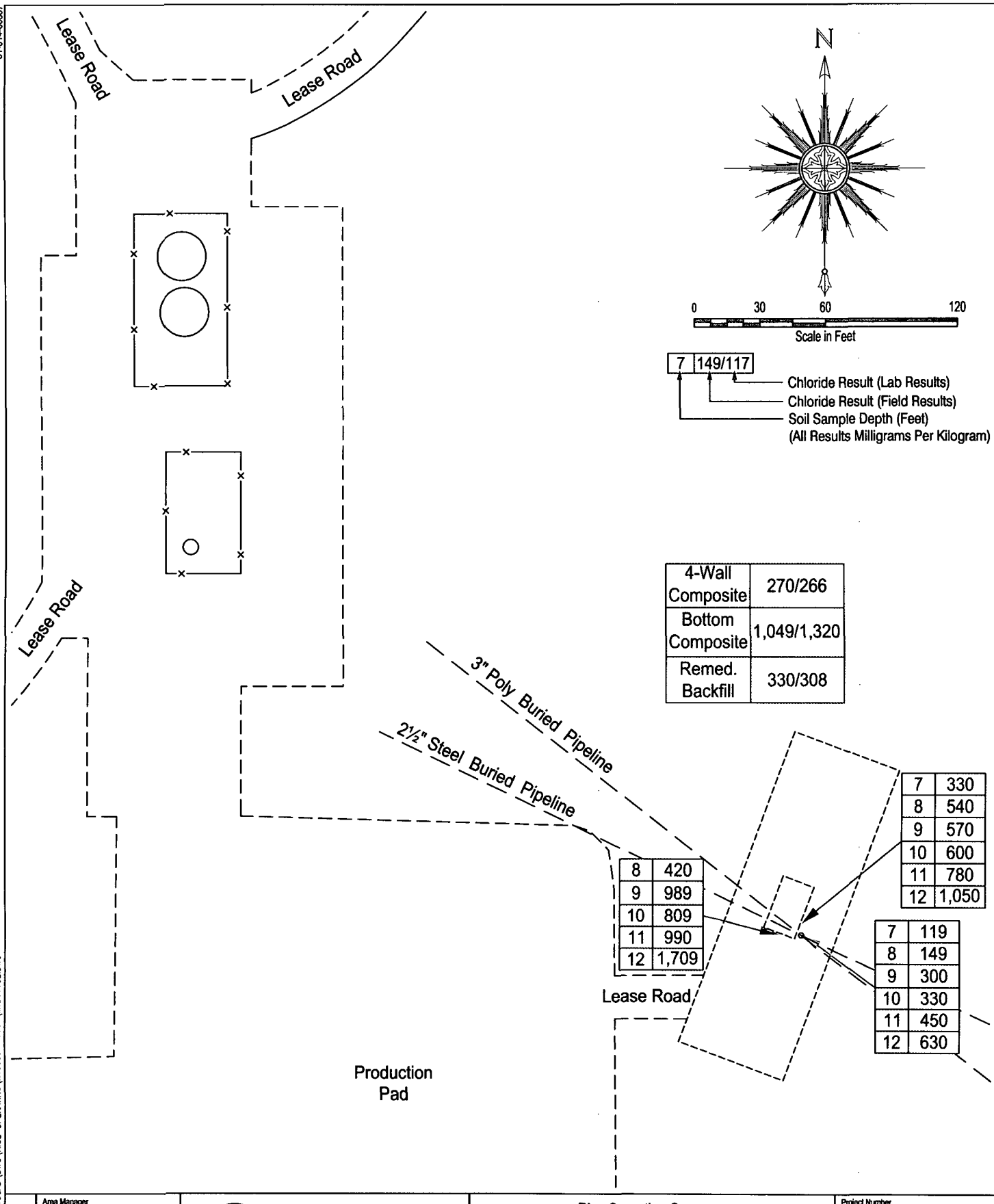
DATE 10/19/2004 TITLE Project Scientist

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



Source: Portion of U.S. Geological Survey 7½ Minute Topographic Series, Monument South Quadrangle, New Mexico, Provisional Edition Published 1985.

Area Manager: A. Schmidt Project Manager: S. Hall Task Manager: R. Nanny Technical Review: S. Tischer	ARCADIS 1004 North Big Spring Street Suite 300 Midland, TX 79701-3383 Tel: 432-687-5400 Fax: 432-687-5401 www.arcadis-us.com	Rice Operating Company Eunice Monument Eumont (EME) SWD System – Jct. F-18 Site Location Map Lea County, New Mexico	Project Number: MT000911.0001 Drawing Date: 27 November 2006 Figure: 1



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

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Rice Operating Company
Eunice Monument Eumont (EME) SWD System – Jct. F-18

Soil Excavation and Sampling Results Chlorides (mg/Kg)

Lea County, New Mexico

Project Number	MT000911.0001
Drawing Date	27 November 2006
Figure	2