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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

IR 427-172

Certified Mail Receipt No. 7002 2410 0001 5812 9909

Subject:
Investigation and Characterization Plan
Eunice Monument Eumont (EME) SWD Gaither Boot
T19S, R36E, Section 34, Unit I, Eunice, Lea County, New Mexico

Date:
17 July 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 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

The site is located near the towns of Eunice and Monument, New Mexico (Figure1). The expected depth to groundwater at this site is approximately 50 feet below ground surface.

The junction was eliminated and replaced with poly piping that bypasses this junction. Initial delineation began on September 23, 2004 and was completed on October 18, 2004 with a backhoe by trenching to 12 feet below ground surface (bgs). Three trenches were excavated and back filled with blended soils. An identification plate was placed on the surface of this site to identify the box location.

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 confirmation sample was collected from the bottom of the box excavation and sent to Environmental Lab of Texas for Total Petroleum Hydrocarbons (TPH) and Chloride analysis. Some elevated PID readings were observed near the surface but dissipated with depth, however, gasoline range organics (GRO) and diesel range organics (DRO) were detected at a concentration of 42.8 milligrams per kilogram (mg/kg) and 1,120 mg/kg, respectively.

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

ROC disclosed potential groundwater impact at the site to New Mexico Oil Conservation Division (NMOCD) via e-mail on November 8, 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 source of this impact is historical. There is no longer a threat of compounded conditions 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

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).

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 used to evaluate soil impacts. Soil borings 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 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 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

Attachment:

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	Gaither boot	I	34	19S	36E	Lea	no box--eliminated		

LAND TYPE: BLM _____ STATE _____ FEE LANDOWNER G.P. Sims OTHER _____

Depth to Groundwater 50.73 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20

Date Started 9/23/2004 Date Completed 10/18/2004 OCD Witness No

Soil Excavated 40 (3 trenches) cubic yards Excavation Length 10 Width 3 Depth 12 feet

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

FINAL ANALYTICAL RESULTS: **Sample Date** 9/24/2004 **Sample Depth** 12 ft

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
GRAB @ 12 ft BGS	43.7	42.8	1120	1870

CHLORIDE FIELD TESTS

LOCATION	DEPTH (ft)	ppm
vertical at junction box	3	209
	4	89
	5	1079
	6	1409
	7	3209
	8	2219
	9	2489
	10	2339
	11	2069
	12	2669
5 ft EAST of junction box	3	989
	4	1229
	5	1139
	6	1229
	7	2699
	8	3778
	9	3328
	10	2999
	11	2249
	12	2579

General Description of Remedial Action: This junction box contained a boot and was located on the south fenceline of an active production facility. The junction was eliminated with a new pipeline replacement. The lumber was moved and the site was delineated using a backhoe while PID screenings and chloride field tests were conducted at every foot of depth. Three trenches were made: at the box, 5 ft east, and 5 ft west. Chloride concentrations did not exhibit a trend of decline in any of the three trenches. Some PID readings were elevated near the surface, but all virtually dissipated with depth. The excavated soils were blended on site and then backfilled into the trenches. An identification plate has been place on the surface of this site to mark the box location for future considerations. NMOCD has been notified of potential groundwater impact at this site.

ADDITIONAL EVALUATION IS *HIGH* PRIORITY

enclosures: chloride graph, photos, lab results, PID field screenings

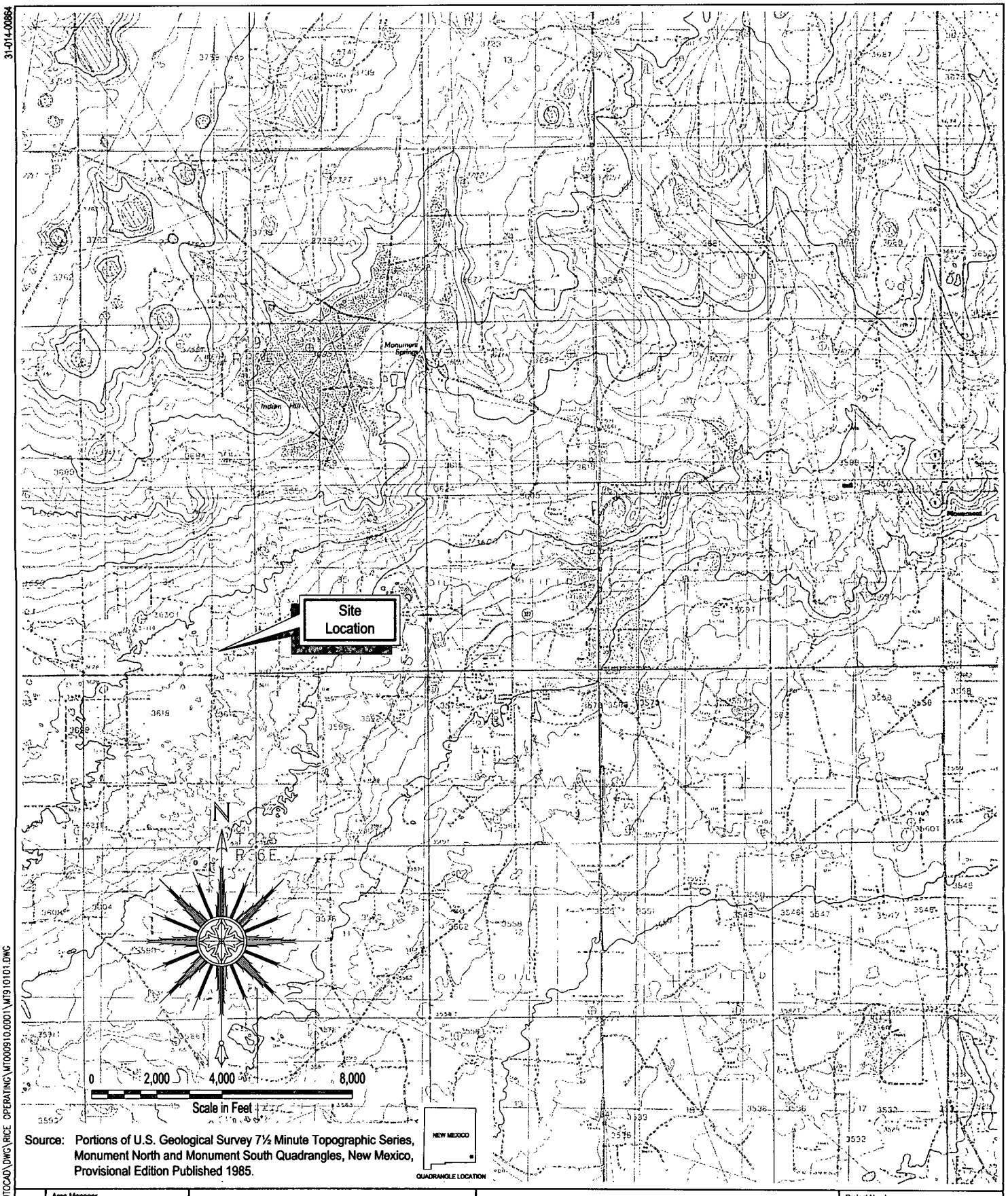
I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

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

REPORT ASSEMBLED BY Kristin Farris Pope SIGNATURE Kristin Pope

DATE 11/16/2004 TITLE Project Scientist

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



Source: Portions of U.S. Geological Survey 7½ Minute Topographic Series, Monument North and Monument South Quadrangles, 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 – Gaither Boot **Site Location Map** Lea County, New Mexico	Project Number: MT000910.0001 Drawing Date: 27 November 2006 Figure: 1

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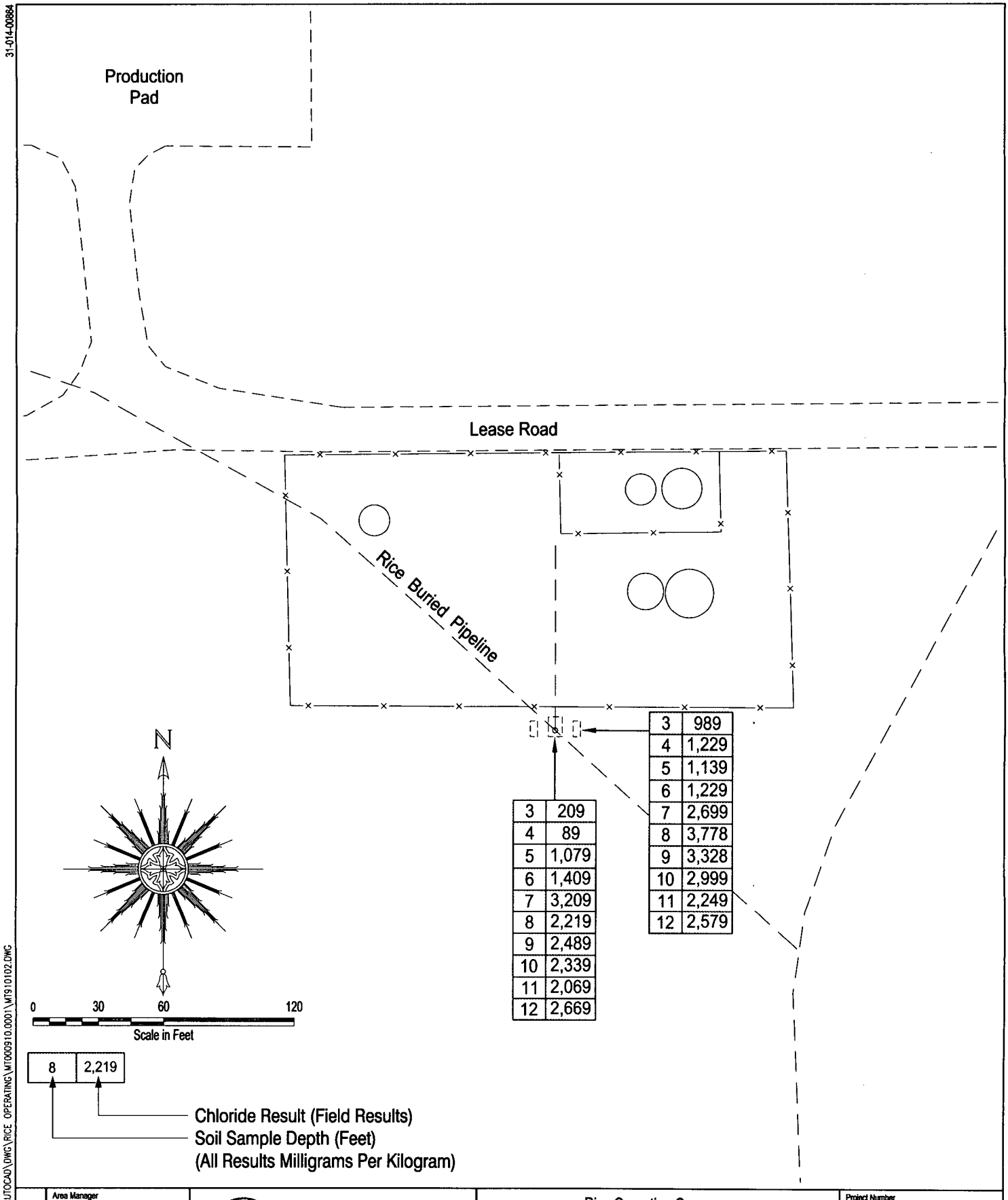

3	209
4	89
5	1,079
6	1,409
7	3,209
8	2,219
9	2,489
10	2,339
11	2,069
12	2,669

3	989
4	1,229
5	1,139
6	1,229
7	2,699
8	3,778
9	3,328
10	2,999
11	2,249
12	2,579

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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 – Gaither Boot

Soil Excavation and Sampling Results Chlorides (mg/Kg)

Lea County, New Mexico

Project Number: MT000910.0001
Drawing Date: 27 November 2006
Figure: 2