1R - 425-3

GENERAL CORRESPONDENCE

YEAR(S):

2007 - 2006

IR425-03
Gen. Cor.

YAHOO! SMALL BUSINESS Email

Print - Close Window

Date:	Tue, 20 Mar 2007 13:54:46 -0700 (PDT)
From:	"L. Peter Galusky, Jr. P.E." <lpg@texerra.com>
Subject:	Addenda for Vacuum N-6-1, K-35-1 and E-2
To:	"Edward J. Hansen" <edwardj.hansen@state.nm.us>
CC:	"Kristin Pope" <kpope@riceswd.com>

Dear Edward,

I offer the following in reply to your request for additional information to supplement the Corrective Action Plans th recently submitted for Vacuum N-6-1, K-35-1 and E-2.

Disposition of recovered water: Rice intends to employ MacLaskey Oilfield Services to collect the recovered wate site. We anticipate that that will use trucks of 130 +/- bbl capacity. The recovered water will be trucked to the Stat facility at Arkansas Junction (operated by Alliance). Rice will obtain manifests of each load and retain these in the

As constructed cross-sections of clay liners: Please find the attached images for each site, which were prepared b I have also included photographs to supplement the drawings.

I am providing this information via e-mail so that you may have it at your fingertips more quickly. I will forward har the same to you in the mail.

Again, I greatly appreciate OCD's consideration of these proposed Corrective Action Plans for these projects.

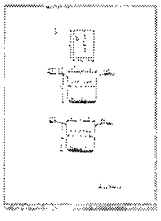
Sincerely,

Pete G.

L. Peter Galusky, Jr. Ph.D.
Principal
Texerra
Energy Square
505 N. Big Spring, Suite 404
Midland, Texas 79701
E-mail: lpg@texerra.com
Web: www.texerra.com
Office Telephone/Fax: 877-534-9001

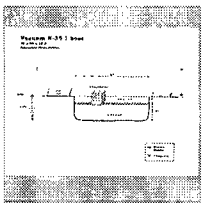
Attachments

Photos:

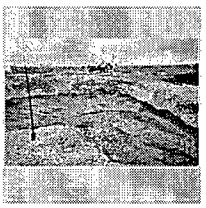


Vacuum_N_6_1_schematic_of_clay_liner.jpg (360k) [View]

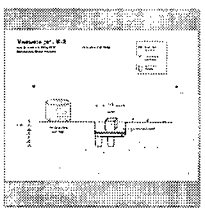
Vacuum_N_6_1_clay_liner_photo_9_14_04.JPG (5



Vacuum_K_35_1_schematic_of_clay_liner.jpg (459k) [View]



Vacuum_K_35_1_clay_liner_photo_10_25_04.JPG (



Vacuum_E_2_jct_schematic_of_clay_liner.jpg (573k) [View]

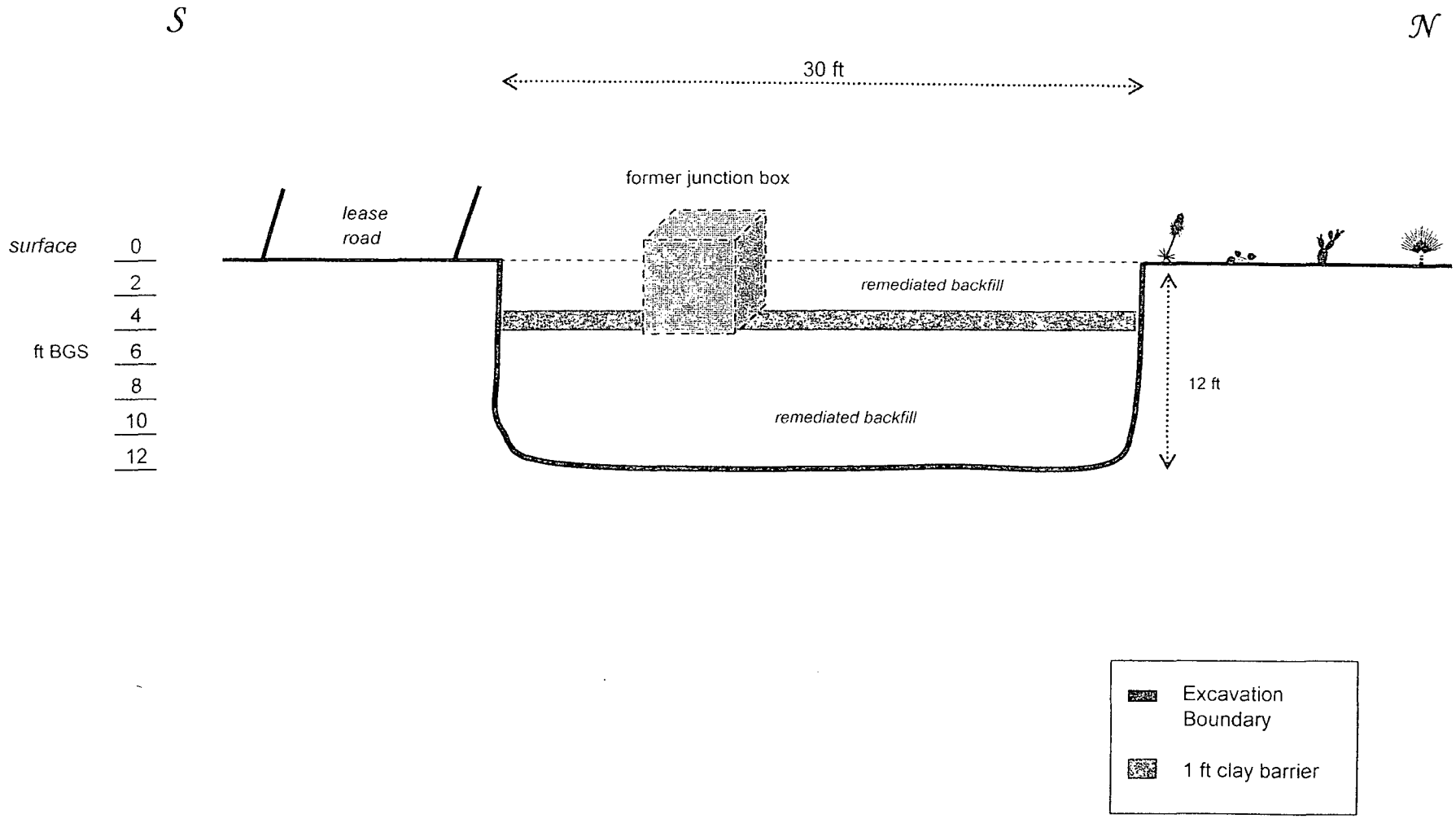
Vacuum_E_2_clay_liner_photo_9_14_04.JPG (52

Save All to Yahoo! Photos

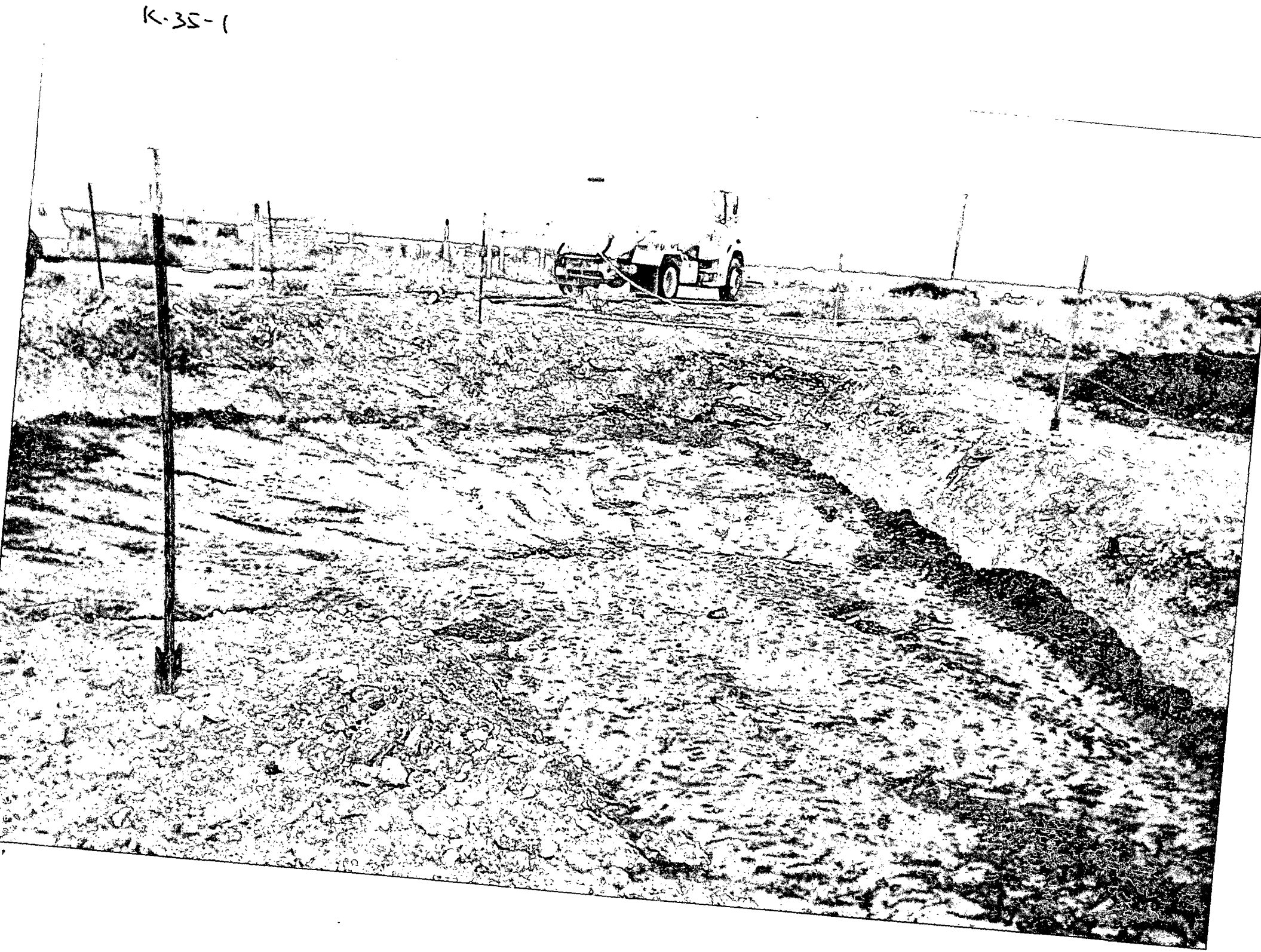
Vacuum K-35-1 boot

30 x 30 x 12 ft

Excavation Cross-Section



K-35-1



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

March 2nd, 2007

2007 MAR 8 AM 11 36

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: Rice Operating Company
Vacuum K-35-1 Boot
UL K Sec 35 T17S R35E
OCD Case Number 1R0425-03
Corrective Action Plan

CERTIFIED MAIL/RETURN RECEIPT No. 7005 0390 0002 9898 2686

Dear Edward,

In follow-up to our meeting of last week please find enclosed a Corrective Action Plan for the above-referenced project. As we discussed, we are most anxious to proceed with the corrective action measures that we propose, and would therefore greatly appreciate your timely consideration.

Please contact Kristin Pope at Rice if you have any questions or need additional information regarding this submittal. Please note, also, that I will put a hard-copy of this submittal in tomorrow's mail.

Thank you.

Sincerely,

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

Cc: Kristin Pope, Rice Operating Company

Enclosures: CAP report

Corrective Action Plan

Vacuum K-35-1 Boot

UL K Sec 35 T17S R35E
OCD Case Number 1R0425-03

February 28th, 2007

Prepared by:

L. Peter Galusky, Jr. Ph.D.
Texerra
505 N. Big Spring, Suite 404
Midland, Texas 79701
Web: www.texerra.com
E-mail: lpg@texerra.com

Corrective Action Plan

Vacuum K-35-1 Boot
UL K Sec 35 T17S R35E
OCD Case Number 1R0425-03

Contents

Figures

Appendix

Corrective Action Plan

Vacuum K-35-1 Boot
UL K Sec 35 T17S R35E
OCD Case Number 1R0425-03

Executive Summary

1. **Groundwater chloride removal and monitoring**. Groundwater will be withdrawn from the monitor well (MW-4) at the boot location to determine if limited pumping will effectively attenuate chloride concentrations. We anticipate withdrawing as much water as the well will deliver over the course of (approximately) a few hours twice weekly for about a month. We will monitor groundwater chloride concentrations during each pumping event to determine if this effort is successful in substantially attenuating chloride levels, or if further pumping or another remedy seems warranted. All chloride-laden groundwater removed from the well will be handled according to regulations and protocols appropriate for oil field produced waters.

   If a few rounds of aggressive pumping effectively diminish groundwater chlorides near the boot, this will demonstrate that the groundwater impact has been minor and localized. If chloride levels do not substantially diminish, the information gained during this effort will be nevertheless be useful in developing subsequent corrective measures.

2. **Surface ecological restoration.** An area of approximately 135 ft by 115 ft around (mostly north of) the boot is largely devoid of vegetation (Figures 5 and 8). The most impacted area near the former boot may be partially an effect of earth moving activity and maintenance traffic as much as salt contamination. Nevertheless, in order to determine an appropriate soil remedy to facility re-vegetation, near-surface soil samples will be taken at selected, representative locations and sampled for chlorides. These results will be used develop appropriate soil remedies, which may include soil amendments (likely gypsum), watering, and/or the addition of clean soil where this is warranted. The re-establishment of native vegetation will serve to substantially enhance evapo-transpiration, and to thus limit the downward migration of water and chlorides.

The above work will be scheduled as soon as possible upon approval of this CAP by OCD. Data will be analyzed and a summary report prepared and submitted to OCD. The information thus gained from these efforts will be used to finalize the Corrective Action Plan, in consultation with OCD.

Physiographic Setting

The subject site is located approximately 2 miles ESE of Buckeye, NM, approximately 3,000 ft south-southwest of the intersection of Buckeye Road and County Road 53; (Figure 1). Topography is gently sloping toward the southeast, which is also the likely direction of groundwater flow; (Figure 2). Soils across the site are mapped[1] as belonging to the Kimbrough gravelly loam soil series, which are characterized by gravelly loam to a depth of approximately 6 inches and underlain by several feet of calcium indurated caliche. This overlies the Ogallala[2] aquifer, where groundwater occurs in unconfined, mixed alluvial deposits. Vegetation is open range grassland and desert scrub. The location of the former boot relative to water wells recorded in the NM Office of the State Engineer database is given in Figure 3. Groundwater was measured at the boot location at a depth of approximately 54 feet in October, 2006.

Figure 1- Aerial photograph showing **site location**.

[1] USDA SCS. Soil Survey of Lea County, New Mexico. Issued January, 1974.
[2] New Mexico Bureau of Geology & Mineral Resources. 1982. Circular 175 – Western extent of the Ogallala Formation in New Mexico.

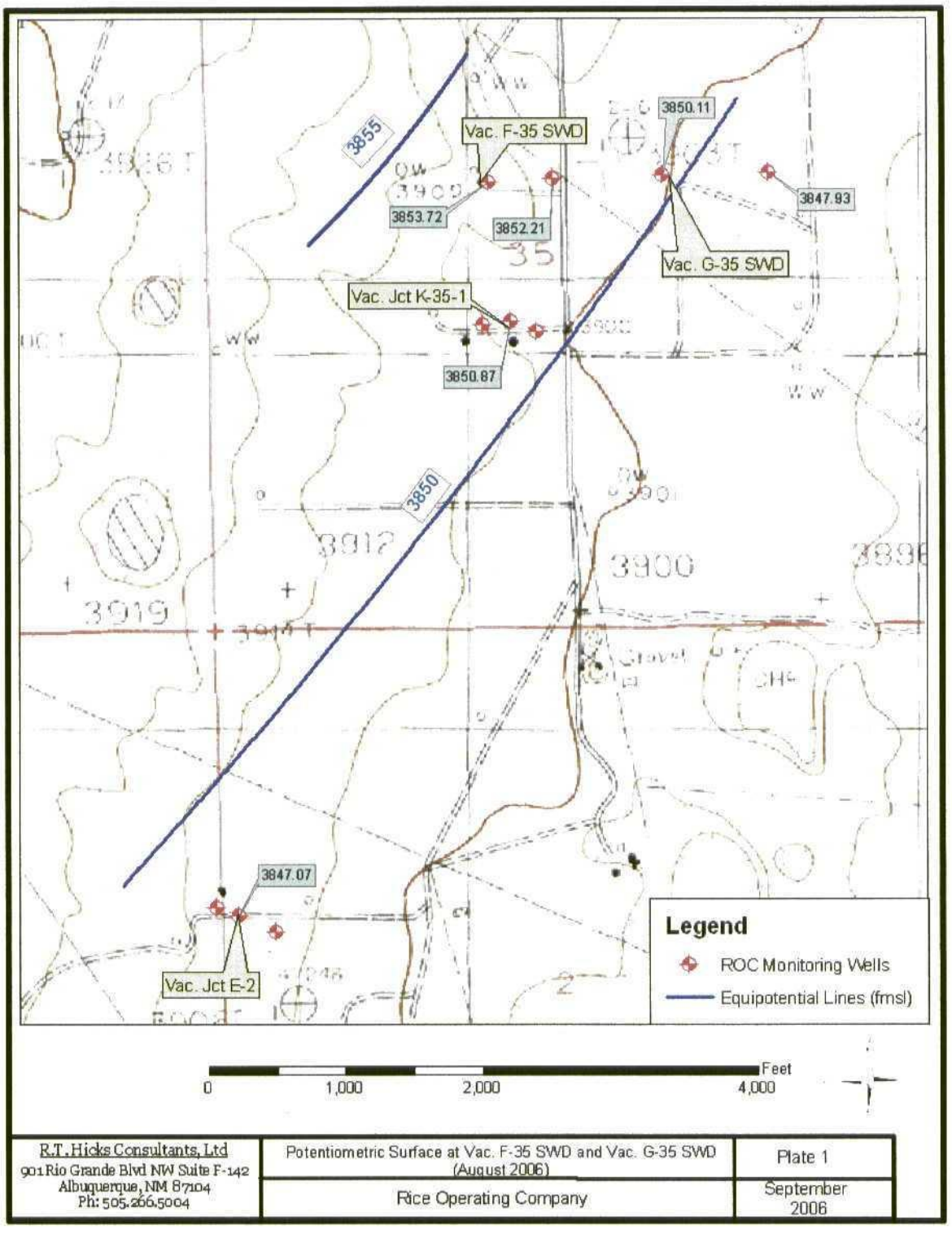


Figure 2 – Topographic map, showing potentiometric (water table) surface. The presumed direction of groundwater flow is toward the southeast.

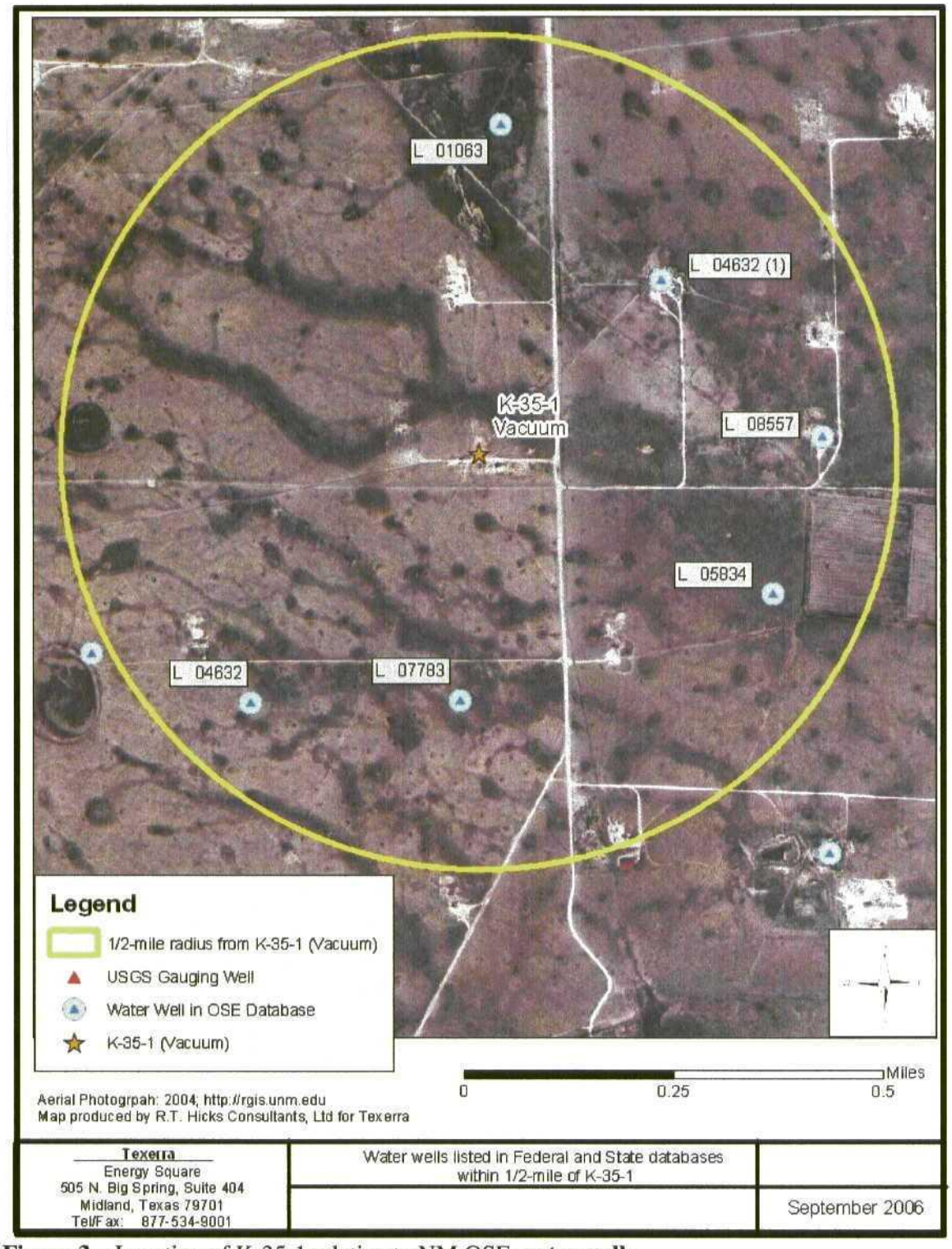


Figure 3 – Location of K-35-1 relative to NM OSE **water wells**.

Project History

In October of 2004, ROC addressed a junction box (boot) at the referenced site, in accordance with the OCD-approved Junction Box Upgrade Work Plan (Rev. July 2003). Subsequent soil investigation (using field titration kits) revealed detectable levels of chlorides, ranging from approx. 500 ppm near the surface to approximately 7,000 ppm at the limit of excavation, 12 ft below ground surface; (please see Appendix B). PID measure of hydrocarbon revealed insignificant levels (less than 10 ppm).

The old, wooden junction box was removed and soils beneath it were excavated to a depth of approximately 12 feet over a 30 by 30 ft area. The excavated soil was blended on site and then backfilled into the excavation to a depth of 4 feet below ground surface. At 4 feet depth, a compacted clay barrier was installed to inhibit further downward migration of any remaining chlorides, by limiting downward infiltration below the barrier and by facilitating evapo-transpiration above it. The excavation was then backfilled with native material.

The surface (ecological) impact at K-35-1 was local in extent. However, as the potential for groundwater contamination existed, this warranted further evaluation for chlorides and petroleum hydrocarbons, the constituents of concern. Therefore, ROC proposed additional investigative work as outlined in an Investigation and Characterization Plan submitted to OCD on December 12th, 2005 and approved on May 19th, 2006; (the scope of work from this ICP is copied in the Appendix). The following report also incorporates concerns expressed by OCD during a meeting in Hobbs on February 21st, 2007.

Results of Field Investigation

Harrison and Cooper, Inc. of Lubbock, Texas was retained to drill soil boring and install monitoring wells on this site. The site was drilled on June 22nd and 23rd, 2006, with an additional monitor well installed on October 17th, 2006. L. Peter Galusky, Jr. was present to mark the desired locations of soil borings and monitor wells, and to log drill cuttings.

A photograph of drilling activities is given in Figure 4, below. A schematic map showing the approximate locations of soil borings and monitor wells is given in Figure 5, below. A surveyed plat is given in the Appendix.

Figure 4 – Harrison and Cooper drilling K-35-1. View looking south from edge of affected area. Photograph taken Friday, June 23rd, 2006.

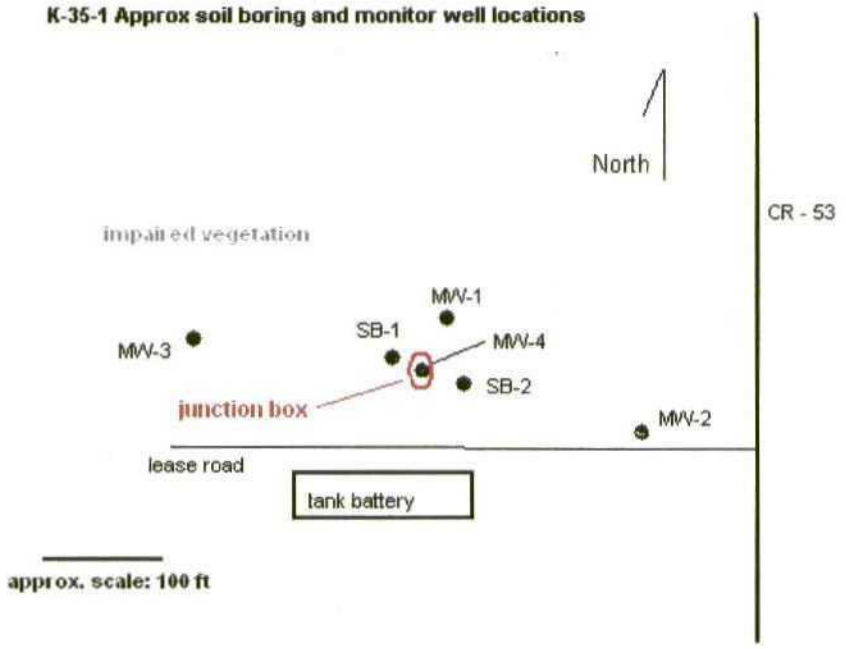


Figure 5 – Approximate soil boring and monitor well locations.

Soil samples were tested in the field for chlorides, and to a more limited extent for organic vapors, using Rice field procedure described previously. A subset of samples was sent to a commercial laboratory for verification. Soil boring logs and the results of field chloride sampling and laboratory analysis are given in Tables 1 through 6 in the Appendix.

Soils

Field measurement, confirmed by laboratory analysis, revealed that soils near the boot were impacted by chlorides from the surface to the present water table; (Figure 6). There were no hydrocarbons revealed by field organic vapor analysis, also confirmed by laboratory analysis.

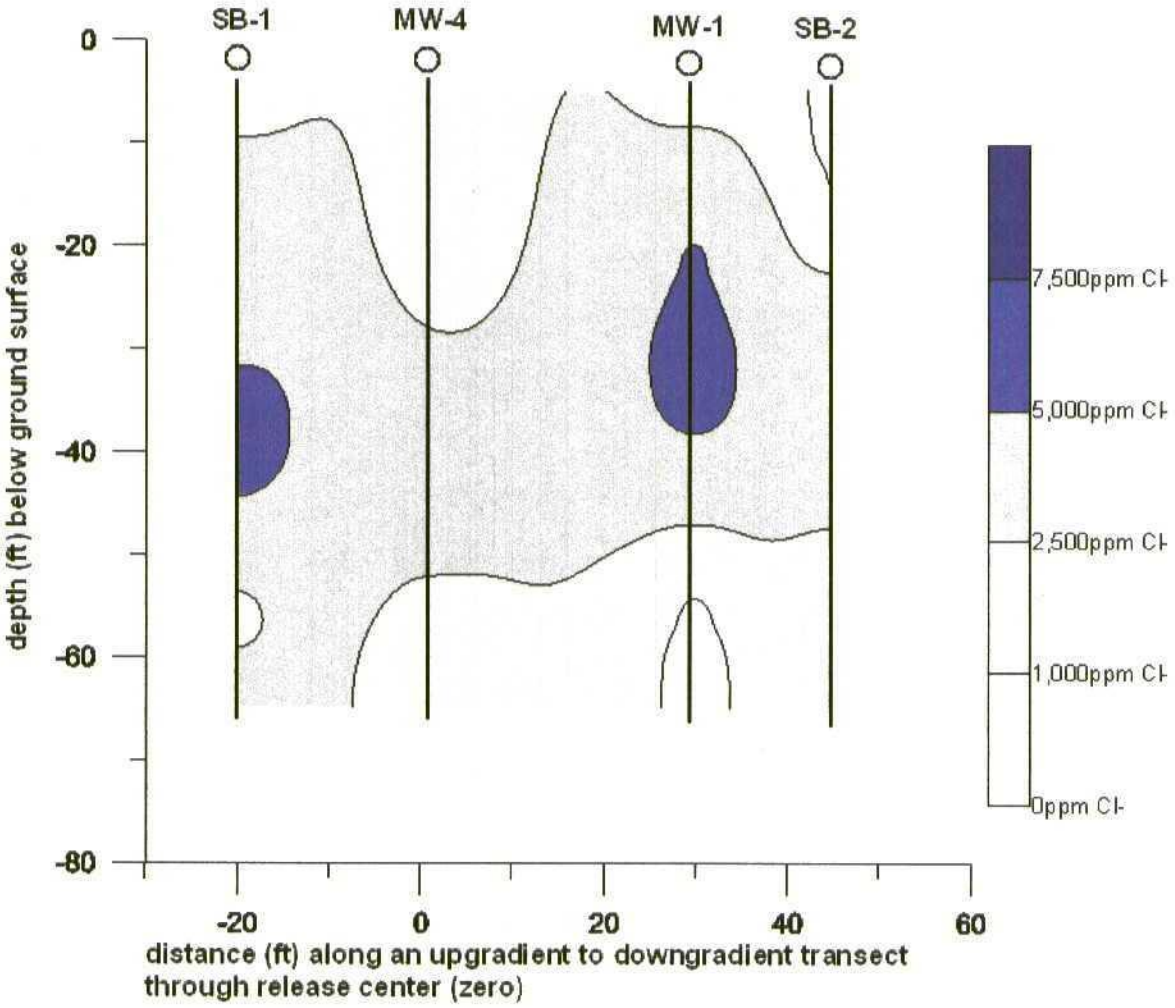


Figure 6 – Interpolated soil chloride concentrations in a vertical slice along an upgradient to downgradient transect across the former boot (from SB-1 to SB-2, w/ estimated equivalent downgradient distance for MW-1).

Elevated soil chloride concentrations were found near the surface and with depth in samples taken at the boot and approximately 50 ft downgradient. All of these sampling points were located within an area of impaired vegetation (outlined in Figure 5). More distant soil samples taken when installing upgradient (MW-3) and downgradient (MW-2) monitor wells had chloride levels below 125 ppm throughout their depth. It is of note that measured soil chloride contamination is correlated with the apparent surface effects on vegetation.

Groundwater

well id	chloride concentration (mg/kg) 10/19/2006	6/28/2006
MW-1	508	859
MW-2	32	26
MW-3	140	165
MW-4		1,980

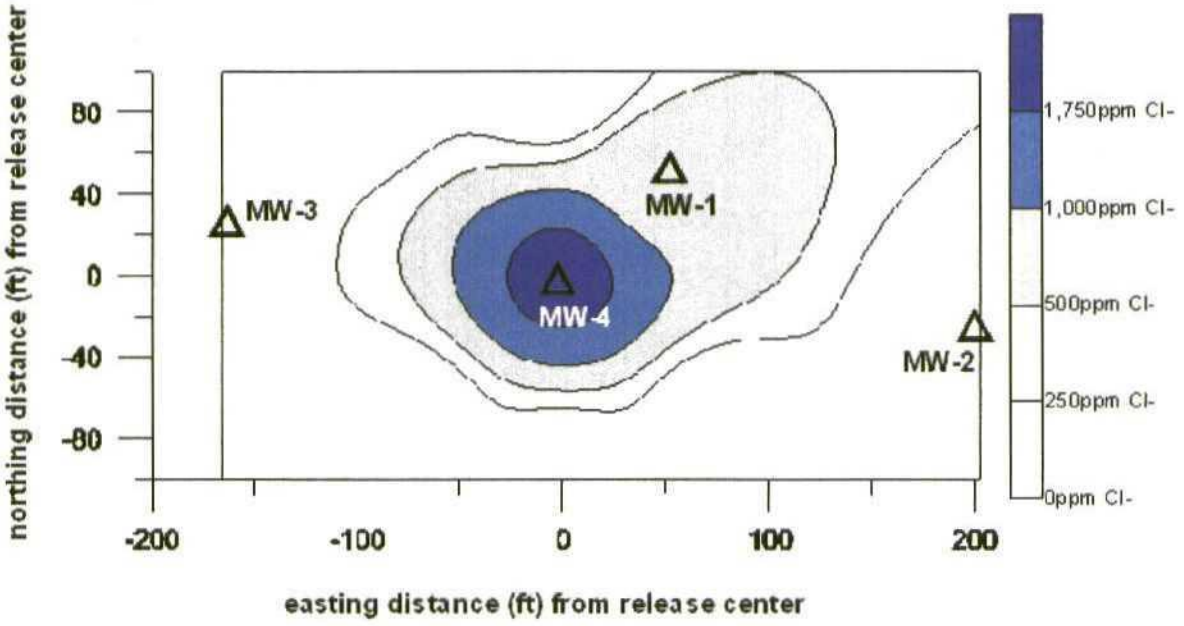


Figure 7- Interpolated groundwater chloride concentrations sampled October 19th, 2006 (plan-view).

The center of mass of groundwater chlorides, measured on 10/19/2006, is clearly located beneath the boot (MW-4). Although the concentration observed (2,000 ppm) is above the NM groundwater standard of 250, it is not alarming. Rather, this relatively moderate elevation in groundwater chlorides over the effected area is within the range that natural dilution would be expected to attenuate without substantial downgradient effects.

The data presented in tabular form with Figure 7 indicate that there has been some apparent change in chloride concentrations from the initial sampling date in June to October. However, it will require one or two follow-up quarterly measurements in order to determine if groundwater chloride concentrations are, in fact, changing, or if these short term variances reflect sampling or measurement error.

Vegetation

Figure 8 – View across the K-35-1 boot, looking south; (photograph taken October, 2006). The area of impacted vegetation measures approximately 135 ft north/south by 115 ft east/west. See also Figure 5.

Vegetation has been affected over an approximate area of 135 by 115 ft, centered mostly north of the former K-35-1 boot (Figure 8). Nevertheless, it appears that vegetation is gradually becoming reestablished along the margins of this area, suggesting that soil amendments (gypsum and water) would likely be sufficient to effectively restore plant life to its natural state.

Overall Effects of Jct K-35-1 Boot

These data indicate that **the impact at K-35-1 has been primarily on soils and surface vegetation, with relatively minor impact to groundwater.** These effects appear to be localized in aerial extent. Subsurface sampling indicates that soil impacts are focused near the center of the former boot. Effects on vegetation are visually evident across about a third of an acre, where produced water has apparently run downhill over the surface.

These results suggest the corrective action measures, described below.

Corrective Action Measures

Concept

The recommended path forward which will constitute a **Corrective Action Plan** encompasses the following:

1. **Groundwater chloride removal and monitoring**. Groundwater will be withdrawn from the monitor well (MW-4) near the former boot to determine if limited pumping will effectively attenuate chloride concentrations. We anticipate withdrawing as much water as the well will deliver over the course of (approximately) a few hours twice weekly for about a month. We will monitor groundwater chloride concentrations during each pumping event to determine if this effort is successful in substantially attenuating chloride levels, or if further pumping or another remedy seems warranted. All chloride-laden groundwater removed from the well will be handled according to regulations and protocols appropriate for oil field produced waters.

   If a few rounds of aggressive pumping effectively diminish groundwater chlorides near the former boot, this will demonstrate that the groundwater impact has been minor and localized. If chloride levels do not substantially diminish, the information gained during this effort will be nevertheless be useful in developing subsequent corrective measures.

2. **Surface ecological restoration.** An area of approximately 135 ft by 115 ft around (mostly north of) the former boot is largely devoid of vegetation (Figures 5 and 8). The most impacted area near the former boot may be partially an effect of earth moving activity and maintenance traffic as much as salt contamination. Nevertheless, in order to determine an appropriate soil remedy to facility re-vegetation, near-surface soil samples will be taken at selected, representative locations and sampled for chlorides. These results will be used develop appropriate soil remedies, which may include soil amendments (likely gypsum), watering, and/or the addition of clean soil where this is warranted. The re-establishment of native vegetation will serve to substantially enhance evapo-transpiration, and to thus limit the downward migration of water and chlorides.

Data Analysis and Finalization of the Path Forward

The above work will be scheduled as soon as possible upon approval of this CAP by OCD. Data will be analyzed and a summary report prepared and submitted to OCD. The information thus gained from these efforts will be used to finalize the path forward for this project.

Appendix – Soil Boring Logs and Chloride Concentrations

Soil Boring Log
Rice Operating Company
Vacuum Field SWD System
K-35-1

Identification: **MW-1**
Location: approx 60 ft northeast of former junction box.
Date: 6/22/2006
Ground surface elevation: 3,902.81 ft above mean sea level
Top of pvc (monitor well stick-up) elevation: 3,905.90 ft above mean sea level
Height of casing: 3.09 ft
Driller: Ken Cooper (Harrison and Cooper, Inc.)
Drill method: Air Rotary
Logged by: L. Peter Galusky, Jr.
Monitor well screened interval : top 45 ft below ground surface
bottom 65 "

Depth	Field Chloride Test (ppm)	Lab Chloride Test (ppm)	Field OVM test (ppm)	Lab BTEX test (ppm)	Cutting Description	Well Schematic
0					light gray caliche	solid pipe
-5	117		0		"	"
-10	3,497		0		"	"
-15	2,271		0		light brown sand	"
-20	6,737		0		"	"
-25	5,898		0		"	"
-30	7,464		0		"	"
-35	7,891	4,415	0		"	"
-40	5,142		0		" (thin sandstone layer at 45 ft)	"
-45	3,112		0		"	screen
-50	693		0		reddish brown sand	"
-55	149	144	0		"	"
-60	110		0		"	"
-65	189		0			

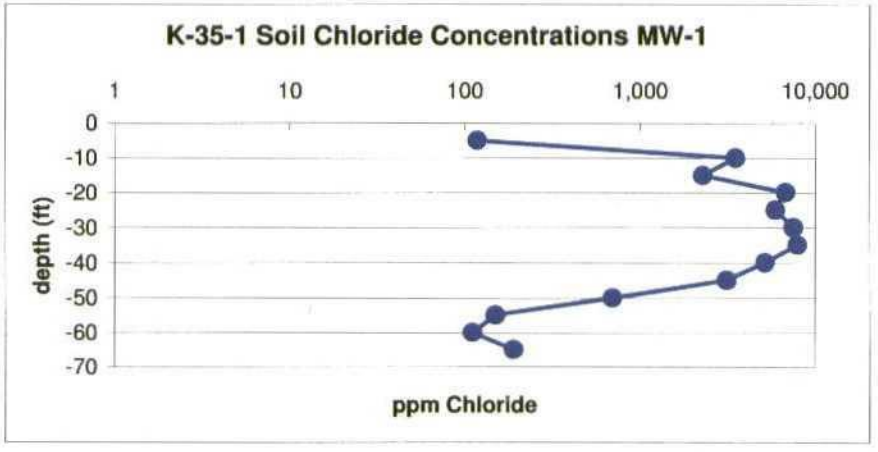


Table 1 – Soil boring log and chloride levels for MW-1.

Soil Boring Log
Rice Operating Company
Vacuum Field SWD System
K-35-1

Identification: **MW-2**
Location: approximately 250 ft southeast of former junction box.
Date: 6/22/2006
Ground surface elevation: 3,902.15 ft above mean sea level
Top of pvc (monitor well stick-up) elevation: 3,904.69 ft above mean sea level
Height of casing: 2.54 ft
Driller: Ken Cooper (Harrison and Cooper, Inc.)
Drill method: Air Rotary
Logged by: L. Peter Galusky, Jr.
Monitor well screened interval : top 45 ft below ground surface
bottom 65 "

Depth	Field Chloride Test (ppm)	Lab Chloride Test (ppm)	Field OVM test (ppm)	Lab BTEX test (ppm)	Cutting Description	Well Schematic
0					light gray caliche	solid pipe
-5					"	"
-10	60		0		"	"
-15	87				light brown sand	"
-20	114		0		"	"
-25	99				"	"
-30	83		0		"	"
-35	71				"	"
-40	59		0		reddish brown sand	"
-45	58				"	screen
-50	56		0		"	"
-55	43				"	"
-60	30	32	0		"	"
-65						

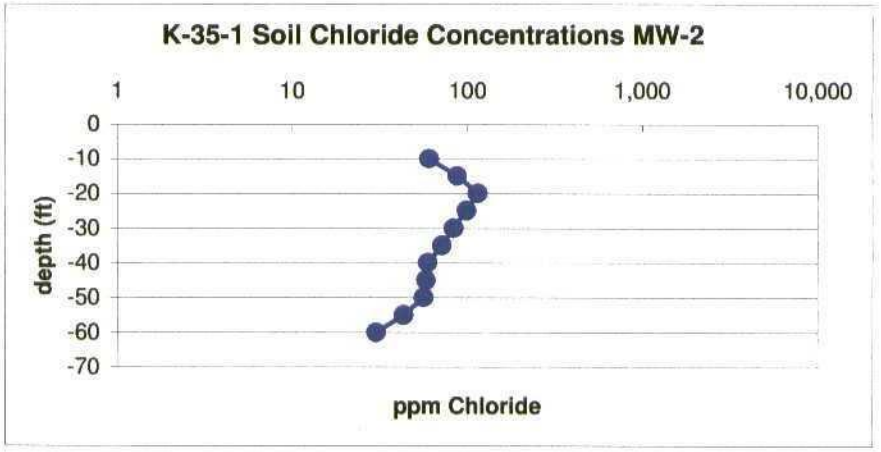


Table 2 – Soil boring log and chloride levels for MW-2. Values in red are interpolated.

Soil Boring Log
Rice Operating Company
Vacuum Field SWD System
K-35-1

Identification: **MW-3**
Location: approx. 180 ft west/northwest of former junction box.
Date: 6/22/2006
Ground surface elevation: 3,905.90 ft above mean sea level
Top of pvc (monitor well stick-up) elevation: 3,908.54 ft above mean sea level
Height of casing: 2.64 ft
Driller: Ken Cooper (Harrison and Cooper, Inc.)
Drill method: Air Rotary
Logged by: L. Peter Galusky, Jr.
Monitor well screened interval : top 44 ft below ground surface
bottom 64 "

Depth	Field Chloride Test (ppm)	Lab Chloride Test (ppm)	Field OVM test (ppm)	Lab BTEX test (ppm)	Cutting Description	Well Schematic
0					light gray caliche	solid pipe
-5					"	"
-10	89		0		"	"
-15	91				light brown sand	"
-20	92		0		"	"
-25	89				"	"
-30	86		0		"	"
-35	73				"	"
-40	60		0		reddish brown sand	"
-45	72				"	screen
-50	83		0		"	"
-55	56				"	"
-60	29	<16	0		"	"
-65						

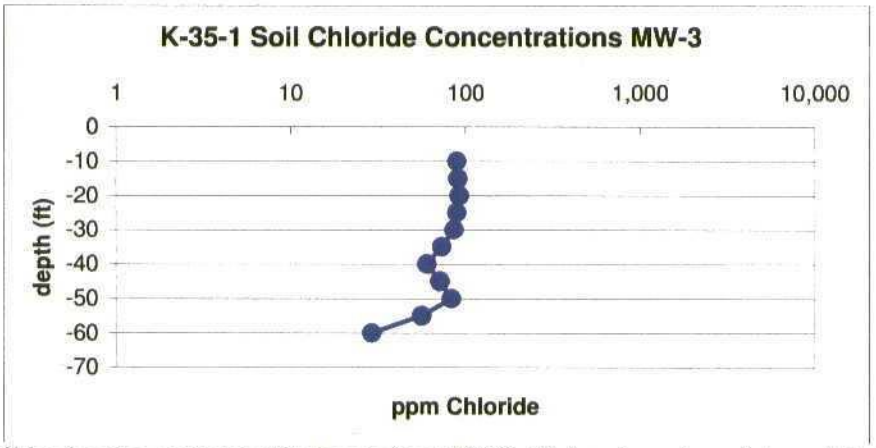


Table 3 – Soil boring log and chloride levels for MW-3. Values in red are interpolated.

Soil Boring Log
Rice Operating Company
Vacuum Field SWD System
K-35-1

Identification: **MW-4**
Location: at former junction box location
Date: 10/17/2006
Ground surface elevation: 3,905.6 ft above mean sea level
Top of pvc (monitor well stick-up) elevation: 3,908.2 ft above mean sea level
Height of casing: 2.5 ft
Driller: Claiborne Harrison (Harrison and Cooper, Inc.)
Drill method: Air Rotary
Logged by: L. Peter Galusky, Jr.
Monitor well screened interval : top 45 ft below ground surface
bottom 65 "

Depth	Field Chloride Test (ppm)	Lab Chloride Test (ppm)	Field OVM test (ppm)	Lab BTEX test (ppm)	Cutting Description	Well Schematic
0					reddish brown sandy clay fill	solid pipe
-5	1,600		8		"	"
-10	2,000		61		olive brown caliche/sand	"
-15	933		27		light gray caliche/sand	"
-20	606		58		"	"
-25	1,877		4		tan sand	"
-30	2,524		5		"	"
-35	3,005		3		"	"
-40	3,430		3		"	"
-45	3,258		2		"	screen
-50	3,264		3		light olive brown sand	"
-55	1,260		1		"	"
-60	360		1		"	"
-65						

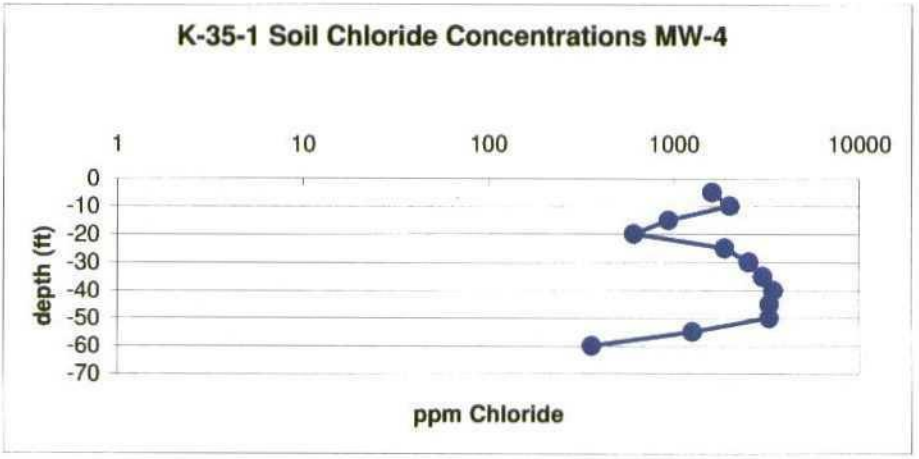


Table 4 – Soil boring log and chloride levels for MW-4.

Soil Boring Log
Rice Operating Company
Vacuum Field SWD System
K-35-1

Identification: **SB-1**
Location: approx. 20 ft nw of center of former junction box.
Date: 6/22/2006
Driller: Ken Cooper (Harrison and Cooper, Inc.)
Drill method: Air Rotary
Logged by: L. Peter Galusky, Jr.

Depth	Field Chloride Test (ppm)	Lab Chloride Test (ppm)	Field OVM test (ppm)	Lab BTEX test (ppm)	Cutting Description
0					light gray caliche
-5	468		0		"
-10	2,609		0		"
-15	3,561		0		light brown sand
-20	4,145		0		"
-25	3,611		0		"
-30	4,095		0		"
-35	8,347		0		"
-40	7,780		0		"
-45	5,132		0		reddish brown sand
-50	3,147	3,839	1	ND	"
-55	1,356		0		
-60					

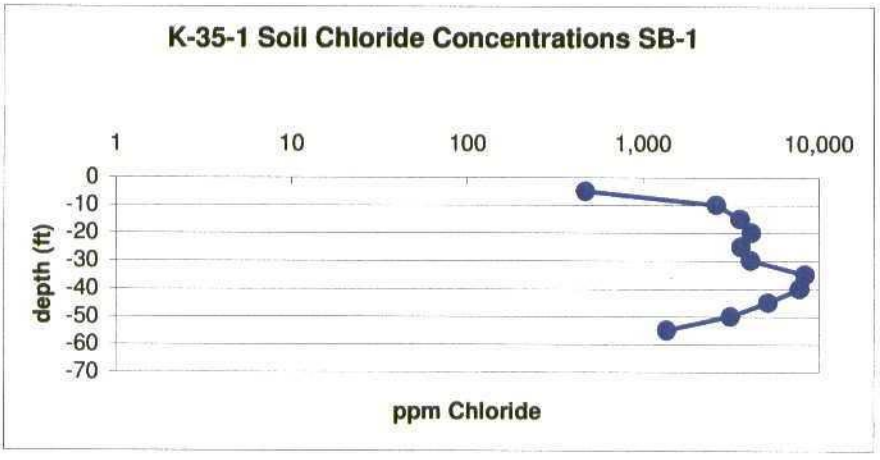


Table 5 – Soil boring log and chloride levels for SB-1.

Soil Boring Log
Rice Operating Company
Vacuum Field SWD System
K-35-1

Identification: **SB-2**
Location: approx. 50 ft east of center of former junction box.
Date: 6/23/2006
Driller: Ken Cooper (Harrison and Cooper, Inc.)
Drill method: Air Rotary
Logged by: L. Peter Galusky, Jr.

Depth	Field Chloride Test (ppm)	Lab Chloride Test (ppm)	Field OVM test (ppm)	Lab BTEX test (ppm)	Cutting Description
0					light gray caliche
-5	85		0		"
-10	85		0		"
-15	170		0		light brown sand
-20	486		0		"
-25	3,504		0		"
-30	4,627		0		"
-35	4,332		0		"
-40	4,115		0		" (thin sandstone layer at 45 ft)
-45	2,929		0		"
-50	1,589		0		reddish brown sand
-55	848	1,104	0		"
-60					"

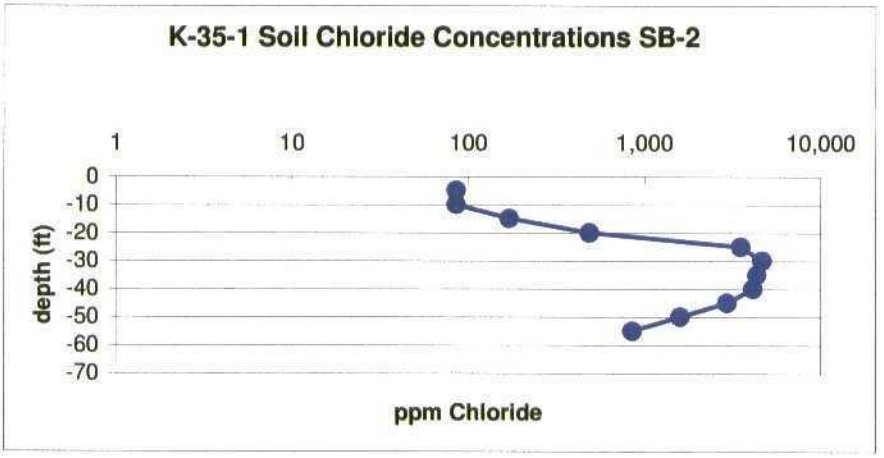


Table 6 – Soil boring log and chloride levels for SB-2.

Appendix: New Mexico Office of the State Engineer Water Well Records

Water wells listed in the OSE database within 1/2-mile of K-35-1 (Vacuum)

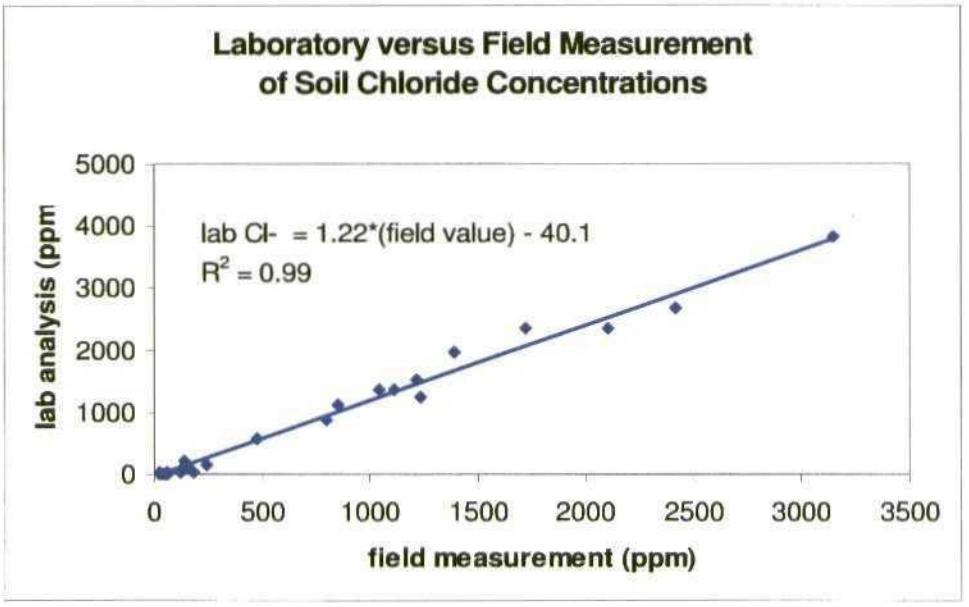
Database File Number	USE	OSE Well Number	Start Date	Finish Date	Depth of Well	Depth to Water
L 01063	DOM	L 01063			0	0
L 04632 (1)	PRO	L 04632 (1) APPRO			0	0
L 04632 (2)	PRO	L 04632 (2)			0	0
L 04632 (3)	PRO	L 04632 (3)			0	0
L 04632	PRO	L 04632 APPRO	4/21/1961	4/23/1961	130	40
L 05834	IND	L 05834 X-2			0	0
L 07783	IND	L 07783			225	0
L 08557 (1)	PRO	L 08557 (1) EXP			0	0
L 08557 (2)	PRO	L 08557 (2) EXP			0	0
L 08557 (3)	PRO	L 08557 (3)			0	0
L 08557 (4)	PRO	L 08557 (4)			0	0
L 08557 (5)	PRO	L 08557 (5) EXP			0	0
L 08557	STK	L 08557 EXP			0	0

NO USGS WELLS WITHIN 1/2-MILE OF k-35-1 (VACUUM)

Appendix:

Comparison of Field Chloride Results to Laboratory Results

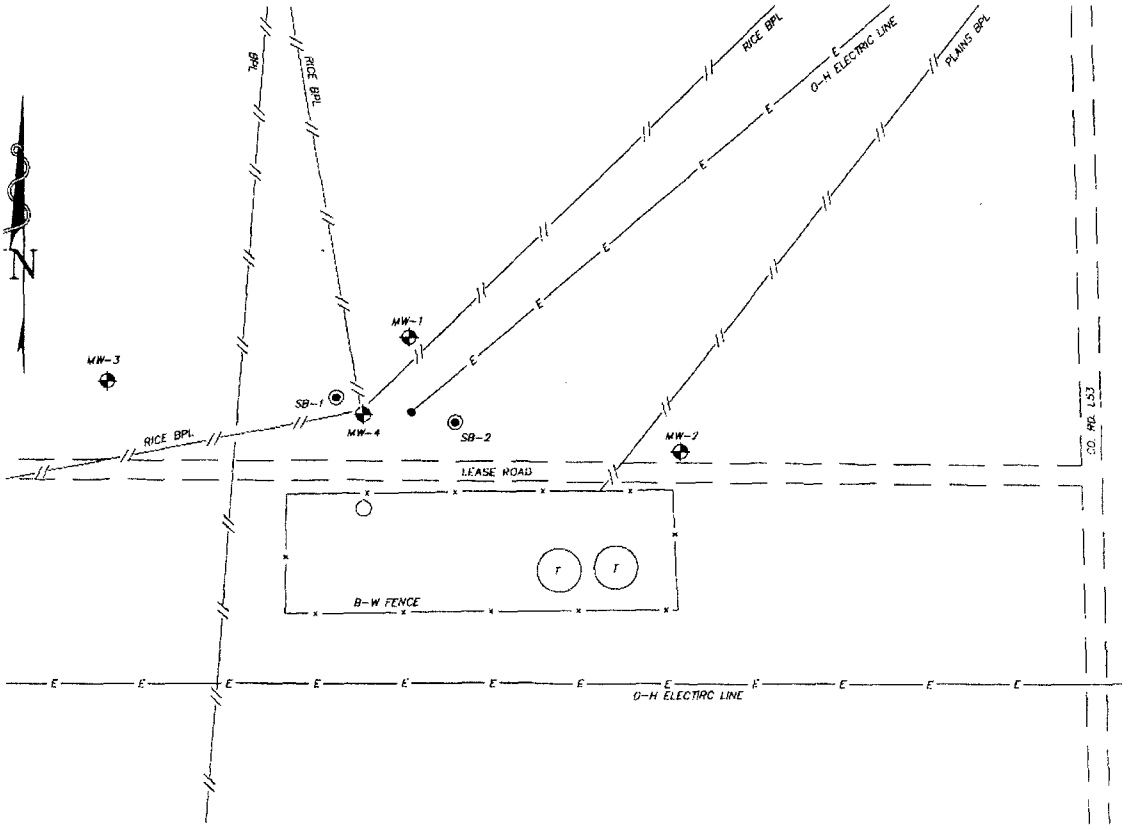
Soil chloride concentrations determined by the commercial laboratory are compared against Rice's field measurements in the graph, below. These data were from nearly 20 samples taken at Rice Vacuum locations K-35-1, E-2 and N-6-1.



These data indicate that field measurements are an extremely reliable measure of the relative magnitudes of chloride contamination.

Appendix – Surveyed Plat of Monitor Wells and Soil Boring Locations

SECTION 35, TOWNSHIP 17 SOUTH, RANGE 35 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.



NEW MEXICO STATE PLANE COORDINATES (NAD83)

WELL	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEV. PVC	ELEV. GRND
MW-1	652394.636	819003.676	N 32°47'24.7"	W 103°25'47.2"	3905.90'	3902.61'
MW-2	652315.477	819189.252	N 32°47'23.9"	W 103°25'45.0"	3904.69'	3902.15'
MW-3	652365.006	818797.121	N 32°47'24.5"	W 103°25'49.6"	3908.54'	3905.95'
MW-4	652341.252	818972.282	N 32°47'24.2"	W 103°25'47.6"	3908.16'	3905.62'
SB-1	652353.301	818954.081	N 32°47'24.4"	W 103°25'47.8"		3904.05'
SB-2	652335.760	819035.010	N 32°47'24.2"	W 103°25'46.8"		3903.36'

100 0 100 200 FEET

SCALE: 1" = 100'

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THE STATE.

GARY L. JONES N.M. No. 7977
N.S. No. 5074

ASIN SURVEYS P.O. BOX 1786 – HOBBS, NEW MEXICO

RICE OPERATING COMPANY

REF: VAC. JCT K-35-1

MONITOR WELLS LOCATED IN
SECTION 35, TOWNSHIP 17 SOUTH, RANGE 35 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO.

O. Number: 17418	Drawn By: J. M. SMALL		
e: 11-14-2006	Disk: JMS 17418MW	Survey Date: 11-15-2006	Sheet 1 of 1 Sheets

Appendix: Scope of Investigation from Incident Characterization Plan

Scope of Investigation[3]

Task 1 - Collect Regional Hydrogeological Data

Published maps and reports of surficial geology, soils, hydrogeology and ecosystem characteristics will be reviewed and summarized to provide a context and baseline from which to evaluate the results of subsequent analysis. State and county records of water wells will be reviewed and summarized to identify downgradient receptors which could potentially be affected.

Task 2 - Evaluate Concentrations of Constituents of Concern in Soil (and Ground Water)

Soils samples will be taken from a sufficient number of selected representative locations and depths in order to quantify the aerial extent and depth of contamination with respect to chlorides and hydrocarbons. Soil samples will be taken and tested for chlorides, using field titration methods, and for BTEX, using EPA-standard PID methodology. A small sub-set of samples at key locations (such as the total sampled depth, apparent "hot spots", etc.) will be sent to a commercial laboratory for verification/calibration of the field tests, according to standard EPA sampling and laboratory methods.

A limited number of monitoring wells may be constructed in selected, representative locations, generally where WQCC standards are exceeded within 10+/- feet of the water table and where the location of such wells will useful for hydrogeological analysis . All such monitoring wells will be constructed (with the annular space sealed with a cement/bentonite mix) per NM Dept. Environment standards; (*see Appendix C*).

Task 3 - Evaluate Risk of Groundwater Impact

The data gathered from this study will be summarized and presented in simple and clear graphs and maps. This will provide a means for an intuitive evaluation of the apparent potential for groundwater impacts. Additionally, simple spreadsheet vadose zone /or groundwater dilution models may be used as a supplemental, interpretive tool. The information thus obtained from this work will be evaluated to determine if there exists any substantial risk for groundwater impacts resulting from this release of produced water.

If the evaluation demonstrates that residual constituents pose no threat to ground water quality, then only a surface restoration plan will be proposed to OCD. If, as a result of this work, it is believed that this produced water leak does pose a present or future risk of impacting groundwater quality, then a *risk-based* corrective action plan (CAP) will be developed and proposed to OCD which addresses the identified risks.

[3] Taken from: Investigation and Characterization Plan submitted to NM OCD on May 19th, 2006.

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to: 12-8-06

Kristen Farris Pope
RIC Operating Company
122 West Taylor
Hobbs, NM 88240

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery
Marla Harrington 12/12/06

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7001 1940 0004 3929 4418

PS Form 3811, August 2001 Domestic Return Receipt 102595-01-M-2509

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

CERTIFIED MAIL
RETURN RECEIPT NO: 3929 4418

December 8, 2006

Kristen Farris Pope
Rice Operating Company
122 West Taylor
Hobbs, New Mexico 88240

RE: REQUIREMENT TO SUBMIT ABATEMENT PLAN

Dear Ms. Pope:

The New Mexico Oil Conservation Division (OCD) has determined after reviewing your Notification of Groundwater Impact for each of the following five sites:

1) Rice Hobbs SWD Jct E-32-1
Unit E, Section 32, T18S, R38E
Lea County, New Mexico
OCD Case #1R0428-65

2) Rice Vacuum Jct E-2
Unit E, Section 2, T18S, R35E
Lea County, New Mexico
OCD Case #1R0425-01

3) Rice Vacuum K-35-1 Boot
Unit K, Section 35, T17S, R35E
Lea County, New Mexico
OCD Case #1R0425-03

4) Rice N-6-1 Junction Box
Unit N, Section 6, T18S, R35E
Lea County, New Mexico
OCD Case #1R0479

5) Rice BD H-35 Emergency Overflow Pit
Unit H, Section 35, T22S, R37E
Lea County, New Mexico
OCD Case #1R0216

that the Rice Operating Company (ROC) must submit for each of the five sites a separate Stage 1 Abatement Plan in accordance with OCD Rule 19 (19.15.1.19 NMAC) to investigate the ground water contamination at each of these sites. The Stage 1 Abatement Plans must be submitted to the OCD Santa Fe Office with a copy provided to the OCD Hobbs District Office and must meet of all the requirements specified in OCD Rule 19 (19.15.1.19 NMAC), including, but not limited to, the public notice and participation requirements specified in Rule 19G. The Stage 1 Abatement Plan is due sixty (60) days from the receipt by ROC of this written notice.

ROC's Stage 1 Abatement Plans must specifically meet all of the requirements specified in OCD Rule 19E.3, including, but not limited to, a site investigation work plan and monitoring program that will enable it to characterize the release using an appropriate number of isoconcentration maps and cross sections that depict the contamination that has been released from the sites and to provide the data necessary to select and design an effective abatement option. ROC may, if it chooses, concurrently submit a Stage 2 Abatement Plan that addresses appropriate proactive abatement options.

ROC should submit one paper copy and an electronic copy on CD for each of the Plans and for all future workplans and/or reports for each of the Plans. Please be sure to include the current corresponding OCD Case # on each of the respective Abatement Plans. An Abatement Plan # will be assigned as each of the Plans are submitted to the OCD. If you have any questions, please contact Edward J. Hansen of my staff at (505) 476-3489 or mailto:edwardj.hansen@state.nm.us.

Sincerely,

Wayne Price
Environmental Bureau Chief

WP:EJH:ejh

cc: Chris Williams, OCD Hobbs District Supervisor
Larry Johnson, OCD Hobbs