

1R - 425-80

# WORKPLANS

Date:

5-2-11

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

Texerra

RECEIVED OCD

75 Wuthering Hts Drive Colorado Springs, CO 80921

Tel: 917-339-6791 E-mail: lpg@texerra.com

May 2<sup>nd</sup>, 2011

2011 MAY 12 A 11: 49

**Mr. Edward Hansen**

New Mexico Energy, Minerals, & Natural Resources  
Oil Conservation Division, Environmental Bureau  
1220 S. St. Francis Drive  
Santa Fe, New Mexico 87505

RE: **INVESTIGATION & CHARACTERIZATION PLAN (ICP)  
Rice Operating Company – Vacuum SWD System  
Vacuum Jct D-31-2: UL/D, Sec. 31, T17S, R35E (formerly Vacuum Jct C-31-2)  
NMOCD Case Number: 1R425-80**

Sent via U.S. Mail w/ Certified Receipt No. 7011 0110 00015863 8163

Mr. Hansen:

RICE Operating Company (ROC) has retained Texerra to address potential environmental concerns at the above-referenced site in the Abandoned Vacuum Salt Water Disposal (SWD) system. This site was previously referred to as Vacuum Jct C-31-2. The name is being changed to Vacuum Jct D-31-2 to reflect the geographical location of the site. All future correspondence will be addressed as Vacuum Jct D-31-2. ROC is the service provider (agent) for the Vacuum 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 Parties, who provide all operating capital on a percentage/usage basis. Environmental projects of this nature require System Party AFE approval prior to work commencing at the site. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission is greatly appreciated.

For all such environmental projects, ROC will choose the 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 generally have three submissions:

1. This Investigation and Characterization Plan (ICP) is proposed for gathering data 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) if warranted.
3. Finally, after implementing the remedy, a Termination Request with final documentation will be submitted.

## Background and Previous Work

This site is located approximately 0.5 miles southeast of Buckeye, New Mexico in UL/D, Sec. 31, T17S, R35E as shown on the Site Location Map (Figure 1). NM OSE records indicate that groundwater will likely be encountered at a depth of approximately 100 +/- feet.

In 2008 ROC initiated work on the former Vacuum D-31-2 junction as part of the system abandonment. The site was delineated using a backhoe to form an excavation with dimensions 5x3x12-ft deep and soil samples were screened at regular intervals for both hydrocarbons and chlorides. (Field and laboratory results are summarized in the attached Junction Box Disclosure Report). Diesel range organics (DRO) and gasoline range organics (GRO) were detected in the 12 ft bgs grab sample (DRO 4,760 mg/kg; GRO 452 mg/kg). Soil chlorides from the same sample tested relatively low at 320 mg/kg. A soil bore was subsequently advanced at the former junction box location, with samples taken at 15 ft, 40 ft and 60 ft bgs for laboratory analysis. GRO was not detectable in any of these samples and DRO dropped to 645 mg/kg at 15 ft but was non-detectable in the 40 ft and 60 ft bgs samples. Soil chlorides measured 1,880 mg/kg, 3,120 mg/kg and 2,280 mg/kg at the 15 ft, 40 ft and 60 ft bgs sampling intervals, respectively. The entire borehole was plugged with bentonite to the ground surface. NMOCD was notified of potential groundwater impact on November 11<sup>th</sup>, 2009.

ROC proposes additional investigative and characterization work at the site to determine if there is potential for groundwater degradation from residual chlorides at the site.

## Proposed Work Elements

1. Summarize information and data collected by ROC to date.
2. Summarize additional, publicly available regional and local hydrological information.
3. Conduct vertical and lateral delineation of residual soil chlorides from samples taken using a drill rig, hand auger and/or backhoe.
  - a. Vertical sampling will be conducted until the following criteria are met in the field.
    - i. Three samples in which the chloride concentration decreases and the third sample has a chloride concentration of  $\leq 250$  ppm; and,
    - ii. Three samples in which PID readings decrease and the third sample has a PID reading of  $\leq 100$  ppm; or,
    - iii. The sampling reaches the capillary fringe.
  - b. Lateral sampling will be conducted until the following criteria are met in the field.
    - i. A decrease is observed in chloride concentrations between lateral bores at similar depths; and,
    - ii. A chloride concentration of  $\leq 250$  ppm is observed in a lateral surface sample; or,
    - iii. Safety concerns impede further lateral delineation.
4. If warranted, install a monitor well to provide a direct measurement of potential groundwater impact. (All monitoring wells will be constructed per EPA, NMOCD, and industry standards).
5. Evaluate the risk of groundwater impact in light of the information obtained.

**VAC Jct D-31-2**

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 this work indicates that there is a present or future risk of impacting groundwater quality from past operations at this location, then a corrective action plan (CAP) will be developed and proposed to OCD.

Thank you for your time and consideration on this project. Please call Hack Conder at (575) 393-9174 or myself if you have any questions or wish to discuss this project.

Sincerely,

A handwritten signature in black ink, appearing to be 'L. Peter Galusky, Jr.', written in a cursive style.

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

Copy: Rice Operating Company

Attachments: Junction Box Disclosure Report

VAC Jct D-31-2

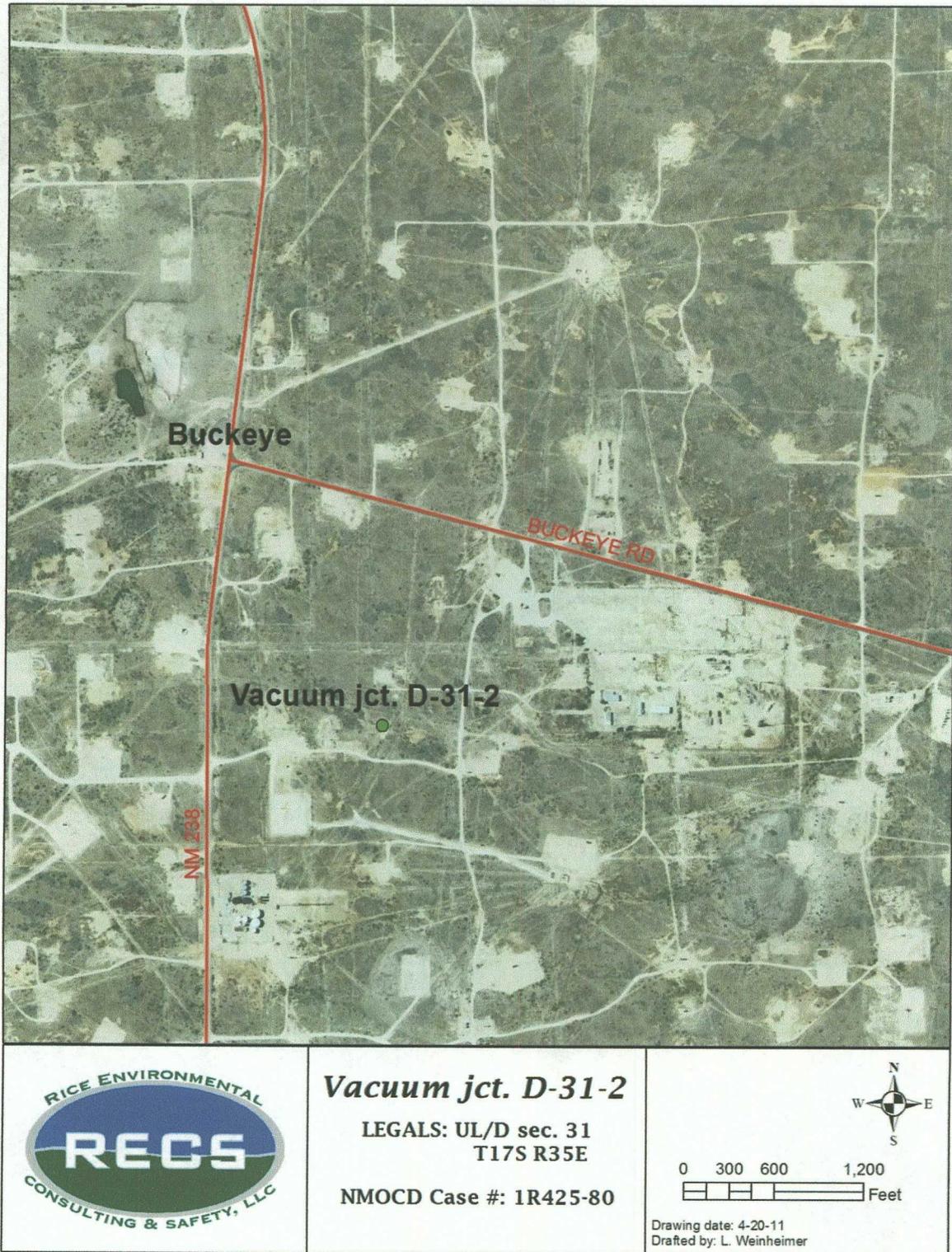
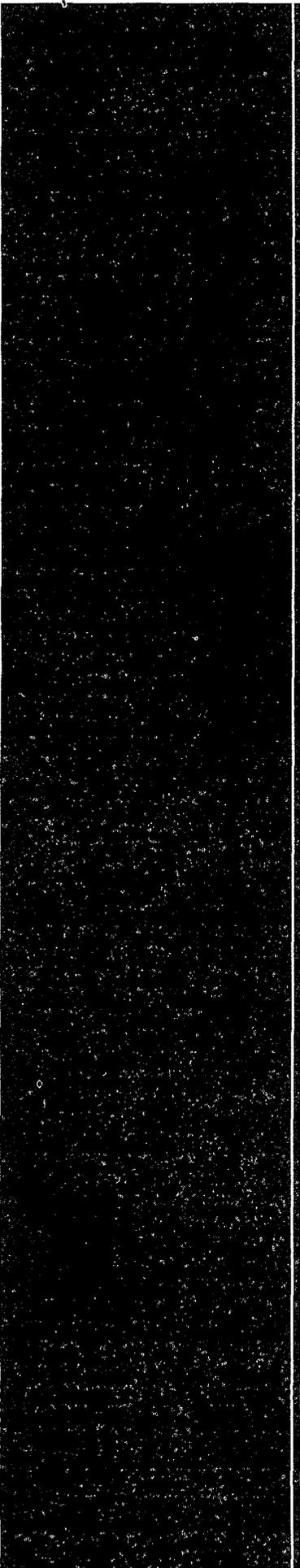


Figure 1 – Site location map.



# Junction Box Disclosure Report

**RICE Environmental Consulting and Safety (RECS)**

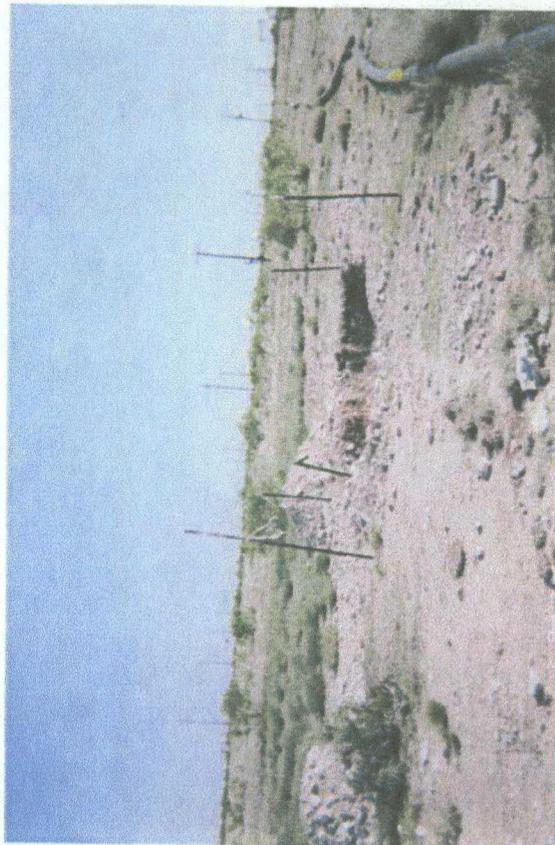
P.O. Box 5630 Hobbs, NM 88241

Phone 575.393.4411 Fax 575.393.0293



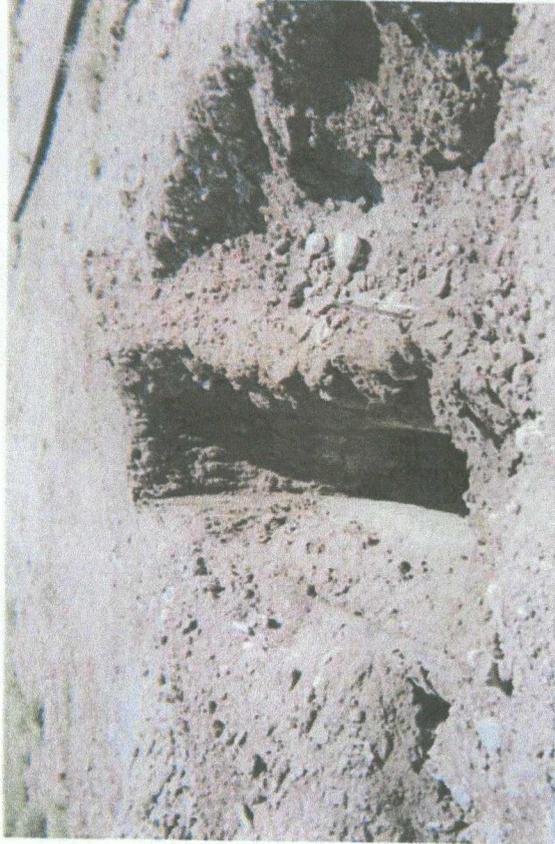
# Vacuum Jct. C-31-2

Unit C, Section 31, T17S, R35E



prior to excavation, facing north

5/29/2008



vertical at the source, facing north

6/4/2008



drilling SB #1 at the former junction box site

6/19/2009



plugging SB #1 with bentonite

6/19/2009



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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JUN 11 2008

RICE OPERATING  
HOBBS, NM

ANALYTICAL RESULTS FOR  
RICE OPERATING COMPANY  
ATTN: ROY R. RASCON  
122 W. TAYLOR  
HOBBS, NM 88240  
FAX TO: (575) 397-1471

Receiving Date: 06/04/08  
Reporting Date: 06/10/08  
Project Owner: NOT GIVEN  
Project Name: NOT GIVEN  
Project Location: VAC JCT. C-31-2

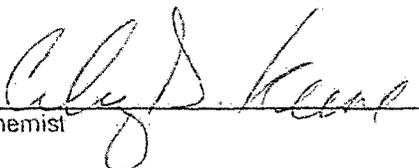
Sampling Date: 06/04/08  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: ML  
Analyzed By: CK/AB

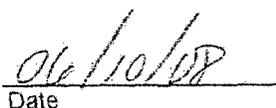
COPY

LAB NUMBER	SAMPLE ID	GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/kg)	DRO (>C <sub>10</sub> -C <sub>28</sub> ) (mg/kg)	CI* (mg/kg)
ANALYSIS DATE		06/05/08	06/05/08	06/05/08
H14926-1	VERT @ SOURCE @ 12' BGS GRAB	452	4,760	320
Quality Control		497	573	490
True Value QC		500	500	500
% Recovery		99.4	115	98.0
Relative Percent Difference		1.6	0.7	2.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; CI: Std. Methods 4500-CI'B

\*Analysis performed on a 1:4 w/v aqueous extract.

  
Chemist

  
Date

H14926TCL RICE

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<b>Logger:</b>	Lara Weinheimer	<b>Client:</b>	RICE Operating Company	<b>Well ID:</b>  SB - 1
<b>Driller:</b>	Harrison & Cooper, Inc. Drilling	<b>Project Name:</b>	Vacuum jct. C-31-2	
<b>Drilling Method:</b>	Air rotary	<b>Location:</b>	VACUUM SWD System	
<b>Start Date:</b>	6-19-09	unit 'C' Sec.31 T17S, R35E		
<b>End Date:</b>	6-19-09	Lea County, NM		
<b>Comments:</b> Located: 1 ft north of former jct. box site  TD = 60 ft				

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Depth (feet)	chloride field	PID	Description	Lithology	Soil Bore Construction
			0 - 15 ft VERY FINE TO FINE SAND caliche, light brown, dry		
15	1391	82			
LAB	1880	GRO <10 DRD = 846			
	BTE <0.05 X <0.03				
20	3890	5.1	15 - 30 ft VERY FINE TO FINE SAND light brown, slightly moist		
25	3299				
30	3660				
35	3231		30 - 45 ft VERY FINE TO FINE SAND reddish-brown, slightly moist		} bentonite seal
40	3050				
LAB	3120	GRO <10 DRD <10			
45	2460				
50	2411		45 - 50 ft VERY FINE TO FINE SAND light brown, dry		
55	2533		50 - 55 ft VERY FINE TO FINE SAND quartzite, reddish-brown, slightly moist		
60	2584		55 - 60 ft VERY FINE TO FINE SAND reddish-brown, moist		
LAB	2280	GRO <10 DRD <10			



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ANALYTICAL RESULTS FOR  
 RICE OPERATING COMPANY  
 ATTN: HACK CONDER  
 122 W. TAYLOR  
 HOBBS, NM 88240  
 FAX TO: (575) 397-1471

Receiving Date: 06/23/09  
 Reporting Date: 06/24/09  
 Project Owner: NOT GIVEN  
 Project Name: VACUUM JCT C-31-2  
 Project Location: VACUUM JCT C-31-2

Sampling Date: 06/19/09  
 Sample Type: SOIL  
 Sample Condition: COOL & INTACT  
 Sample Received By: HM  
 Analyzed By: AB/HM

COPY

LAB NUMBER	SAMPLE ID	GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/kg)	DRO (>C <sub>10</sub> -C <sub>28</sub> ) (mg/kg)	Cl <sup>-</sup> (mg/kg)
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ANALYSIS DATE		02/10/09	02/10/09	06/23/09
H17688-1	SB #1 @ 15'	<10.0	645	1,880
H17688-2	SB #1 @ 40'	<10.0	<10.0	3,120
H17688-3	SB #1 @ 60'	<10.0	<10.0	2,280
Quality Control		590	600	490
True Value QC		500	500	500
% Recovery		118	120	98.0
Relative Percent Difference		1.6	1.0	2.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl<sup>-</sup>: Std. Methods 4500-Cl<sup>-</sup>B

\*Analyses performed on 1:4 w:v aqueous extracts. Reported on wet weight.

Not accredited for GRO/DRO and Chloride.

Chemist

06/26/09  
 Date

H17688 TCL RICE

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ANALYTICAL RESULTS FOR  
 RICE OPERATING COMPANY  
 ATTN: HACK CONDER  
 122 W. TAYLOR  
 HOBBS, NM 88240  
 FAX TO: (575) 397-1471

Receiving Date: 06/23/09  
 Reporting Date: 06/26/09  
 Project Owner: NOT GIVEN  
 Project Name: VACUUM JCT C-31-2  
 Project Location: VACUUM JCT C-31-2

**COPY**

Sampling Date: 06/19/09  
 Sample Type: SOIL  
 Sample Condition: COOL & INTACT  
 Sample Received By: HM  
 Analyzed By: ZL

LAB NO.	SAMPLE ID	ETHYL TOTAL			
		BENZENE	TOLUENE	BENZENE	XYLENES
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)

ANALYSIS DATE:		06/25/09	06/25/09	06/25/09	06/25/09
H17688-1 SB#1 @ 15'		<0.050	<0.050	<0.050	<0.300
Quality Control		0.057	0.055	0.057	0.171
True Value QC		0.050	0.050	0.050	0.150
% Recovery		114	110	114	114
Relative Percent Difference		3.8	3.9	3.8	4.4

METHODS: BTEX - SW-846 8021B

TEXAS NELAP ACCREDITATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE, AND TOTAL XYLENES. Reported on wet weight.

Ally D. Kune  
 Lab Director

06/26/09  
 Date

H17688 B RICE

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# RICE OPERATING COMPANY

122 West Taylor ~ Hobbs, NM 88240  
 PHONE: (575) 393-9174 FAX: (575) 397-1471  
 PID METER CALIBRATION & FIELD REPORT FORM

CK	<input checked="" type="checkbox"/>
MODEL	<input type="checkbox"/>
NO.	<input type="checkbox"/>

MODEL: PGM 7300 SERIAL NO: 590-000183  
 MODEL: PGM 7300 SERIAL NO: 590-000504  
 MODEL: PGM 7600 SERIAL NO: 110-12383  
 MODEL: PGM 7600 SERIAL NO: 110-02920

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO: 08-3425	EXPIRATION DATE: 6-29-09
FILL DATE: 2-29-09	METER READING ACCURACY: 100.0

ACCURACY: +/- 2%

SYSTEM	SITE	UNIT	SECTION	TOWNSHIP	RANGE
Vacuum	J4 C-31-2	C	31	T17S	R35E

SAMPLE ID: Soil box #1

DEPTH	PID	DEPTH	PID	DEPTH	PID	DEPTH	PID
15'	82						
20'	5.1						

COPY

I verify that I have calibrated the above instrument in accordance to the manufacture's operation manual.

Signature [Signature] Date 6-16-09

SITE MAP

CHLORIDE CONCENTRATION CURVE

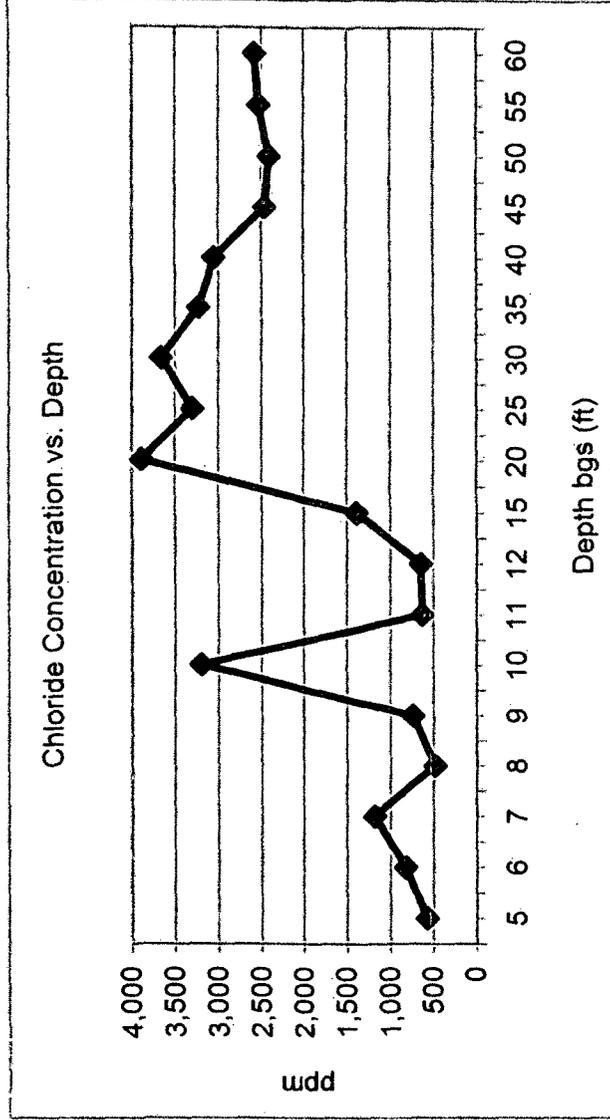
RICE Operating Company

**Vacuum Jct. C-31-2**

Unit 'C', Sec. 31, T17S, R35E

Backhoe and Soil Bore samples at the junction (source)

Depth bgs (ft)	[Cl <sup>-</sup> ] ppm
5	573
6	825
7	1,183
8	483
9	737
10	3,198
11	627
12	646
15	1,391
20	3,890
25	3,299
30	3,660
35	3,231
40	3,050
45	2,460
50	2,411
55	2,533
60	2,584



Groundwater = 100 ft