

# R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

August 31, 2004

Mr. Wayne Price  
New Mexico Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

RE: Abo 1G Leak Site: Section 1, 17S 36E Unit G

Dear Wayne:

Due to the close proximity of the City of Lovington water supply wells to this release, we prepared the Corrective Action Plan of June 7, 2004 using highly "conservative" input values for the HYDRUS-1D model simulation. Specifically, we employed:

- the highest observed chloride values observed in boreholes
- a 10-foot aquifer thickness rather than the full thickness penetrated by the nearby supply wells,
- the absence of a vegetative cover that would reduce infiltration.

The predicted chloride concentration in an imaginary ground water monitoring well located immediately down gradient from the release site was less than 250 mg/L. We also predicted the potential impact to the closest Lovington water supply wells if the simulated chloride flux from this release actually intercepted ground water. Our predictions suggest the impact to the City of Lovington wells is smaller than the measurement error of most laboratory instruments.

We expected these results. Our modeling study for the American Petroleum Institute examined over 2000 brine release scenarios, many of which were similar to the Abo 1G release. We found that in an arid climate, such as Lovington, these types of releases rarely impair ground water quality. We also knew that many "dig and haul" responses to produced water releases actually cause more environmental damage than they cure. Therefore, we counseled Rice Operating Company (ROC) to examine the science first and then implement a remedy. This remains good advice for brine releases.

## August 2004 Field Event

On August 16, 2004, ROC staff obtained shallow soil samples from the release site. Plate 1 shows the location of these samples and the field chloride values. ROC designed this field program to identify areas of residual chloride in shallow soil.

We can see from Figure 1 that recent rainfall has driven some of the chloride mass below the root zone, permitting vegetation. As our work with API and the site-specific modeling demonstrates, the relatively small mass of chloride below the root zone represents no threat to fresh water, human health or the environment. This evidence of natural restoration is good news. Vegetation over this spill site will reduce infiltration of precipitation and reduce the chloride flux to ground water.

Rice 19174  
facility - FLWP0421958523  
incident - NPAC0604034877  
application - PLWP0421958385

### Remedy Amendment

Rice Operating Company and Hicks Consultants were surprised and pleased by the rapid natural restoration of the ground surface at this site. However, despite the recent rains, some areas remain barren due to high chloride in soil (See also Plate 1). ROC proposes to accelerate the surface restoration process and establish a vegetative cap over the release. As stated above, a vegetative cove will significantly reduce the infiltration of precipitation and thereby reduce the flux of chloride to ground water, creating a "belt and suspenders" response action.

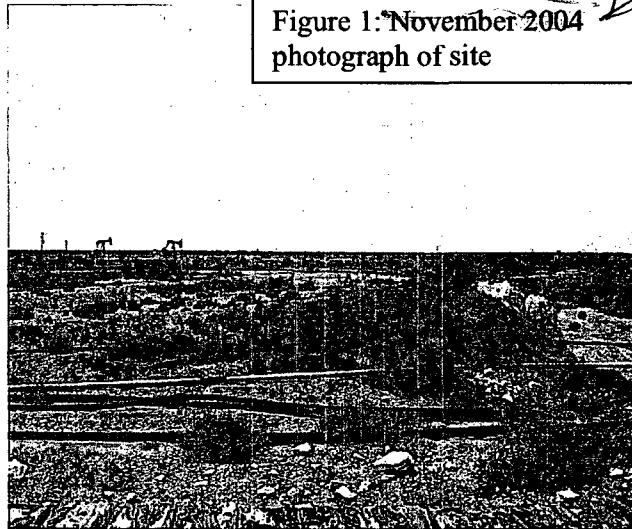


Figure 1: November 2004  
photograph of site

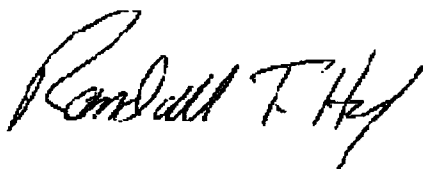
SOMEONE IS  
PAYING ATTENTION  
OR NATURE IS TOO  
ACCUSTOMED TO  
MAKING UP NUMBERS

ROC proposes the following actions:

1. Remove as much of sterile topsoil from the site as possible without tearing the underlying caliche.
2. Remove any weeds with seed and till the areas now supporting growth.
3. Import sufficient topsoil to cover the spill site and raise the elevation of the site to prevent any ponding of stormwater.
4. Seed the site with an appropriate mix.
5. Monitor the progress of vegetation growth at the site on a monthly basis and add fresh water to assist the growth if necessary.
6. Provide NMOCD with a brief letter report upon completion of this proposed action.
7. Provide NMOCD with photographic evidence of re-vegetation in 12 months.

We look forward to NMOCD approval of this supplement to our Corrective Action Plan. Please contact Kristin Pope or me if you have any questions regarding this proposed action.

Sincerely,  
R.T. Hicks Consultants, Ltd.



Randall Hicks  
Principal

Copy: Kristin Pope, Rice Operating Company

T17S R36E  
 Sec. 1  
 Unit letter G

North

Junction

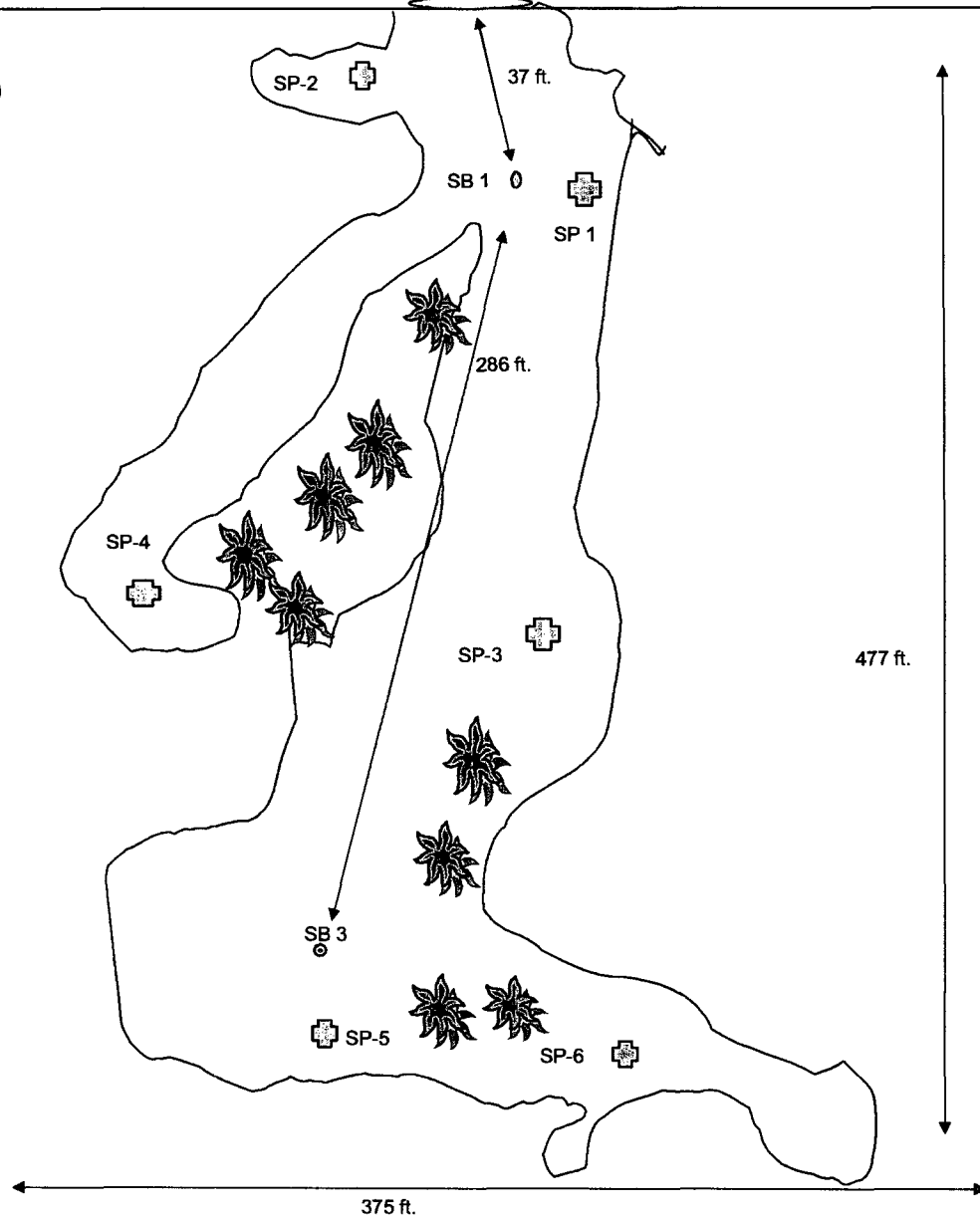
Failure

SB 2 Upgradient

10 ft.

Chloride (ppm) Depth (in)

SP-1	5262	4
SP-2	3563	6
SP-3	5965	6
SP-4	3999	8
SP-5	4523	8
SP-6	3208	8



R.T. Hicks Consultants  
 901 Rio Grande NW  
 Albuquerque, NM

Rice Operating Company

Plate 1

Abo Release Site Sketch Map

Aug-04

District I  
P.O. Box 1980, Hobbs, NM 88241-1980  
District II  
811 South First, Artesia, NM 88210  
District III  
1000 Rio Brazos, Aztec, NM 87410  
District IV  
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
2040 South Pacheco  
Santa Fe, NM 87505  
**OPERATOR'S MONTHLY REPORT**

Form C-141  
Originated 2/13/97

Submit 2 copies to  
Appropriate District  
Office in accordance  
with Rule 116 on  
back side of form

**Release Notification and Corrective Action**

**OPERATOR**

☒ Initial Report

☐ Final Report

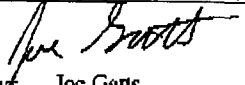
Name Rice Operating Company	Contact Joe Gatts
Address 122 West Taylor Hobbs, NM 88240	Telephone No. 505-393-9174
Facility Name ABO	Facility Type SWD Disposal Line

Surface Owner City of Lovington	Mineral Owner	Lease No.
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**LOCATION OF RELEASE**

Unit Letter G	Section 1	Township 17s	Range 36e	Feet from the	North/South line	Feet from the	East/West Line	County LEA
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**NATURE OF RELEASE**

Type of Release Produced Water	Volume of Release Approx. 200 bbls	Volume Recovered 130 bbls
Source of Release Pipeline	Date and Hour of Occurrence Unknown	Date and Hour of Discovery 10/18/03 10:30 am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Paul Sheeley	
By Whom? Joe Gatts	Date and Hour 10/20/03 11:55 am	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse	
If a Watercourse was impacted, Describe Fully. (Attach Additional Sheets if Necessary)		
Describe Cause of Problem and Remedial Action Taken. (Attach Additional Sheets if Necessary) 4" poly spilt at fuse. Cut out remaining slack and refused.		
Describe Area Affected and Cleanup Action Taken. (Attach Additional Sheets if Necessary) The release consisted of approx. 200 bbls, which affected 30,818 square feet. 130 bbls were recovered.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCDD rules and regulations all operators are required to report and /or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCDD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, human health or the environment. In addition, NMOCDD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and /or regulations.		
Signature: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Joe Gatts	Approved by District Supervisor:	
Title: Environmental Technician	Approval Date:	Expiration Date:
Date: 10/20/03 Phone: 505-393-9174	Conditions of Approval:	Attached <input type="checkbox"/>

**Johnson, Larry**

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**From:** Price, Wayne  
**Sent:** Friday, October 01, 2004 11:42 AM  
**To:** Carolyn Doran Haynes (E-mail); Randall Hicks (E-mail); Pat McCasland (E-mail)  
**Cc:** Johnson, Larry; Sheeley, Paul; Olson, William  
**Subject:** FW: Rice ABO IG release site

Dear Ms Haynes, Mr. Randy Hicks, and Mr. Pat Wise:

OCD is in receipt of the revised work plan (attached below) Dated August 31, 2004. The revised plan contains actions that will remove as much of the sterile topsoil as possible, import sufficient topsoil, re-vegetate, add water if necessary and monitor.

OCD supports source removal particular in this case because of the proximity to the City of Lovington fresh water well field. By removing the bulk of the contaminated soil, which still lies near the surface, OCD feels the future impairment of groundwater will be minimal if any. To make sure OCD is protecting the water supply of the City of Lovington we will also require a monitor well to be located in the spill area. If this method fails to protect fresh water then OCD would require additional actions.

I am asking for comments and concurrence so we may proceed ASAP.

-----Original Message-----

**From:** Randall Hicks [mailto:R@rthicksconsult.com]  
**Sent:** Friday, October 01, 2004 10:25 AM  
**To:** 'Price, Wayne'  
**Cc:** 'Carolyn Doran Haynes'  
**Subject:**

Wayne

Indeed, this was to be delivered to you on the 30<sup>th</sup>, when we finished it. I fear that if you do not have a record of it in your email, it slipped through the cracks in my office. I will see if we have a record of it being sent from another machine.

I apologise.

Randy Hicks  
 505-266-5004 - office  
 505-238-9515 - cell

Confidentiality Notice: This electronic communication and any accompanying documents contain information belonging to the sender, which may be confidential, legally privileged, and exempt from disclosure under applicable law. The information is intended only for the use of the individual or entity to which it is addressed, as indicated above. If you are not the intended recipient, any disclosure, copying, distribution, or action taken in reliance on the information contained in this electronic communication is strictly prohibited. If you have received this transmission in error, please notify us immediately by telephone and return the original message to us at the address listed above. Thank you.

*Paul;  
 DID THESE COLKS SEND  
 A C-141 IN ON THIS?? LOOKS  
 AS THOUGH THERE HAS BEEN LITTLE  
 OR NO DELIVERY VERTICALLY.  
 L, Kristin sending C-141*

10/1/2004

# TRANSACTION REPORT

Oct-04-04 Mon 9:17 AM

Type	Receiving				
Date	Start	Sender	TX/RX Time	Pages	Note
Oct-04	9:16 AM		54s	3	OK

# RICE Operating Company

122 West Taylor  
Hobbs, NM 88240  
Phone: (505) 393-9174  
Fax: (505) 397-1471

TO:

FROM:

Paul SheeleyK. Farris Pope

FAX NUMBER:

DATE:

393-072010-4-04

COMPANY:

TOTAL NO. OF PAGE INCLUDING COVER:

NMOC D3

RE:

Abo leak

NOTES/COMMENTS:

IF YOU DO NOT RECEIVE ALL PAGES INCLUDED, PLEASE CALL THE OFFICE PHONE NUMBER LISTED AT THE TOP OF THIS PAGE-THANK YOU

# RICE Operating Company

122 West Taylor • Hobbs, New Mexico 88240  
Phone: (505)393-9174 • Fax: (505) 397-1471

October 20, 2003

Paul Sheeley  
NMOCD Hobbs Office  
1625 N. French Drive  
Hobbs, New Mexico

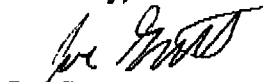
Re: ABO SWD System  
UL G-Sec 1 T17S R36E  
Lea County, New Mexico

Dear Mr. Paul Sheeley:

Rice Operating Company (ROC) discovered an accidental discharge at the above referenced site the occurred on October 18, 2003. The failure occurred when a 4" poly line spilt at the fusion point. The release consisted of approximately 200 bbls of produced water affecting 30, 818 square feet. 130 bbls were recovered. Landowner, City of Lovington, has been notified. ROC is evaluating the site to determine the remedial plan of action.

ROC requests approval of this C-141 form as an initial report. If you have any questions, please call me at the above number.

Sincerely,



Joe Gatts  
Environmental Technician

Enclosed: C-141 Initial Report  
Copy of Initial Spill  
Generic Spill and Leak Plan

COPY