1R - 478

GENERAL CORRESPONDENCE

YEAR(S):

2007-2005

Hansen, Edward J., EMNRD

From: L. Peter Galusky, Jr. P.E. [lpg@texerra.com]
Sent: Friday, February 09, 2007 8:40 AM
To: Hansen, Edward J., EMNRD
Cc: Kristin Pope; Carolyn Haynes
Subject: OCD Case No. 1R0478 - Rice Operating Company - Vacuum Field M-26 Vent

Mr. Hansen,

Rice Operating Company and I share OCD's concern for the protection of the State's groundwater. However, we believe that your request that Rice "dig and haul" most of the chloride affected soils at the Vacuum M-26 location to a landfill does not represent the best path forward for this project. Based upon the conservative calculations that we presented in our closure request, we believe to have demonstrated that the risk of groundwater impact from this small release (approx. 15 bbls) of produced water is nonexistent. Aside from the standpoint of financial cost to benefit, we believe that ecological cost to benefit is a large negative for the following reasons:

1- It has been determined that the relatively small amount of residual chlorides in the soil poses no demonstrable risk of impact to groundwater quality. Therefore, the potential hydrological benefit to a dig and haul remedy is, at best, zero.

2- Native vegetation is presently becoming re-established across the small surface footprint of this release. To disturb the ecological (re) succession that is naturally occurring would be to needlessly re-set the ecological clock by two to three years. Thus, the ecological "benefit" of such an action would be negative.

All of this said, we do understand that to grant regulatory closure, OCD must be assured that the environment is protected. We would therefore propose that we conduct the following additional, focused evaluation:

a- Sample soils at depth beneath the release site for chlorides. This will not be easy, as mentioned in our ICP/closure report ... but we will do what is possible given the proximity of the release footprint to operating underground pipelines.

b- Sample surficial soil material for chloride (say, the upper 12 inches) at sufficient locations across the release footprint to determine if the application of amendments (gypsum and water) would accelerate the natural re-vegetation that is presently occurring.

We do not ask for a written response from OCD on these points at this time, but instead wish to discuss these matters with you during our meeting in Hobbs on February 21st.

Thank you for your consideration of these matters.

Sincerely,
Pete Galusky

L. Peter Galusky, Jr. P.E.
Principal Environmental Engineer
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

Hansen, Edward J., EMNRD

From: Hansen, Edward J., EMNRD
Sent: Wednesday, January 17, 2007 1:46 PM
To: 'lpg@texerra.com'; Kristin Pope
Cc: Price, Wayne, EMNRD
Subject: RE: OCD Case No. 1R0478 (Rice Operating Company M-26 Vent) Request for Closure

Dear Dr. Galusky and Ms. Pope:
The New Mexico Oil Conservation Division (OCD) has reviewed the above referenced Request for Closure. The OCD cannot approve the request as submitted. Further corrective action must be completed at this site. The majority of the contaminated soils at this site must be excavated and disposed at an approved OCD disposal site. The resulting excavation must be backfilled with "clean" material approved by the OCD. The corrective action at this site may also include an infiltration layer (clay layer) placed in the excavated pit. In addition, the site will need to be revegetated. Please submit a remediation plan to include the above corrective actions within 30 days of receipt of this message.
If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

From: L. Peter Galusky, Jr. P.E. [mailto:lpg@texerra.com]
Sent: Thu 12/28/2006 3:37 PM
To: Price, Wayne, EMNRD
Cc: Kristin Pope
Subject: OCD Case No. 1R0478 (Rice Operating Company M-26 Vent) Request for Closure

Wayne,

Please find attached (in .pdf format) a closure request letter, a final C-141, and an ICP report for the above referenced project. These documents will also be sent to you in hard copy by U.S. mail.

I look forward to your review of this request.

Sincerely,

Pete G.

L. Peter Galusky, Jr. P.E.
Principal Environmental Engineer
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

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

December 28th, 2006

2007 JAN 5 PM 1 02

Mr. Wayne Price
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

RE: **Investigation and Characterization Report and Closure Request**
Vacuum M-26 Produced Water Discharge, UL C Sec 35 T17S R35E
NM OCD Case Number: 1R0478

Sent via E-mail and U.S. Mail w/ Return Receipt No. 7005 0390 0002 9898 2679

Dear Mr. Price:

We have completed our incident characterization for this site per the ICP that we originally submitted last December. The results of this work indicate that the magnitude of the release was of small and localized extent, being insufficient to affect soils as close to the release site as we were able to drill. Modeling analysis indicates that the amount of residual chloride believed to be in the soil column is insufficient to materially affect groundwater quality under the most conservative (protective of the environment) assumptions. Further, natural vegetation is becoming effectively reestablished across the release site.

These lines of evidence taken together indicate that the effects of this release have had negligible effect on soils and vegetation, and are almost certain not to pose a threat to groundwater quality. We therefore believe that it would be reasonable for OCD to grant closure status to this release, and we respectfully request such action.

I would be happy to answer any questions or address any concerns that you have regarding this work. I appreciate your consideration of this request.

Sincerely,

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

Copies: Patricia Caperton , NM OCD District I office
Kristin Pope, Rice Operating Company

Enclosures: C-141 (final)
ICP report

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

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 of Company Rice Operating Company	Contact Kristin Farris Pope
Address 122 W. Taylor St., Hobbs, NM 88240	Telephone No. (505) 393-9174
Facility Name Vacuum SWD System	Facility Type SWD Transport/Disposal Pipeline

Surface Owner State of New Mexico	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	35	17S	35E					LEA

Latitude 32° 47.909' N **Longitude** 103°25.928' W

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 15 bbls	Volume Recovered 10 bbls
Source of Release SWD Pipeline	Date and Hour of Occurrence unknown	Date and Hour of Discovery 7/1/2003
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The ground settled and caused the 6-in. asbestos-cement pipeline to break. Repaired with a clamp on the pipeline. Abandonment of the Vacuum SWD System began in 2004. This System no longer transports produced water.

Describe Area Affected and Cleanup Action Taken.*

Refer to Report submitted to OCD by L. Peter Galusky, Jr., Ph.D. (Dec. 2006)

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD 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, surface water, human health or the environment. In addition, NMOCD 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: Kristin Farris Pope	OIL CONSERVATION DIVISION	
Printed Name: Kristin Farris Pope	Approved by District Supervisor:	
Title: Project Scientist	Approval Date:	Expiration Date:
E-mail Address: kpope@riceswd.com	Conditions of Approval:	Attached ☐
Date: 10/27/2006 Phone: (505) 393-9174		

* Attach Additional Sheets If Necessary

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

December 12th, 2005

Mr. Wayne Price
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

RE: **Investigation and Characterization Plan**
Vacuum M-26 Produced Water Discharge, UL C Sec 35 T17S R35E

CERTIFIED MAIL, RETURN RECEIPT 7005 0390 0002 9698 2631

Mr. Price:

RICE Operating Company (ROC) has retained L. Peter Galusky, Jr. Ph.D. to address potential environmental concerns at the above-referenced site. ROC is the service provider (operator) 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 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 would be greatly appreciated.

For all such 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 generally have three submissions, as described below:

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) if this is warranted.

3. Finally, after implementing the remedy, a Closure Report with final documentation will be submitted.

Background and Previous Work

On July 1st, 2003 Rice Operating Company (ROC) discovered an accidental discharge of approximately 15 bbls of produced water at the referenced location, immediately south of CR-50 and approximately 4 ¼ miles east of Buckeye, New Mexico; (*please see Appendix A for site location map*). The produced water was released where a six-inch flow line had apparently settled and broken. This release affected approximately 225 square feet of soil material near the ground surface, based upon visual observation. The pipe was repaired at the break with a six inch clamp, and returned to service.

On August 20th, 2003 soils were excavated at the location of the break using a backhoe. Field tests were performed for chlorides (using field silver nitrate titration kits), the primary constituent of concern. The presence of hydrocarbons was also noted visually. Soils were evaluated to the practical reach of the backhoe (12 ft). Following this, the resulting pit was backfilled with the excavated soil material. In brief, chlorides exceeded 10,000 ppm to the limit of evaluation (12 ft), and there was a slight odor of hydrocarbons throughout, becoming very slight in soils taken from the bottom of the excavation. *Please see Appendix B for the correspondence record with OCD, as well as the results and photographs from the initial soils evaluation.*

The surface (ecological) impact of this release was relatively small. However, as the potential for groundwater contamination exists, this warrants further evaluation for chlorides and petroleum hydrocarbons, the constituents of concern. Therefore, ROC proposes additional investigative work, as outlined in the Investigation and Characterization Plan (ICP) below, to more definitively evaluate the extent of contamination caused by the release, and to then evaluate the potential for groundwater degradation. Yet, it should be noted that the source of this impact is historical. There is no longer a threat of continued, compounded impact at this site as the source of the release has been corrected.

The release site is located immediately south of CR-50, a few hundred feet east of a large Conoco-Phillips battery. The topography is gently sloping toward the southeast, and the release site is adjacent to a southeasterly trending surface ephemeral drainageway. Soils on the site are mapped (as KO) in the Lea County Soil Survey[1] as belonging to the Kimbrough gravelly loam soil series. These are characterized by gravelly loam to a depth of approximately 6 inches, and this is underlain by several feet of calcium indurated caliche. Groundwater is estimated to occur at a depth of approximately 51 feet, occurring in unconsolidated Tertiary alluvium of the Ogallala Formation[2].

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[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.

It should be noted that the source of this impact is historical. There is no longer a threat of continued, compounded impact at this site as the source of the release has been corrected and the Vacuum SWD System is no longer in service.

Investigation and Characterization Plan

Task 1 - Collect Regional Hydrogeologic 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 areal 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 bentonite) per standard EPA methodology.

Task 3 - Evaluate Risk of Groundwater Impact

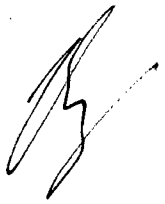
The data gathered from this study will be summarized and presented in simple and clear graphs and maps. This will provide a means for an intuitive evaluation of the apparent potential for groundwater impacts. Additionally, simple spreadsheet vadose zone /or groundwater dilution models may be used as 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.

I appreciate the opportunity to work with you on this project. Please call either myself, at the number below, or Kristin Farris Pope (ROC) at 505-393-9174, if you have any questions or wish to discuss these matters.

Thank you for your consideration.

Sincerely,



L. Peter (**Pete**) Galusky, Jr. Ph.D., P.G.
Consulting Hydrogeologist

505 N. Big Spring, Suite 404
Midland, Texas 79701
Tel: 432-967-2128
E-mail: lpg@texerra.com
Web site: www.texerra.com

cc: CDH, KFP, file

attachments: site map, correspondence and photos as noted in the Appendix

Appendix A – Site Map

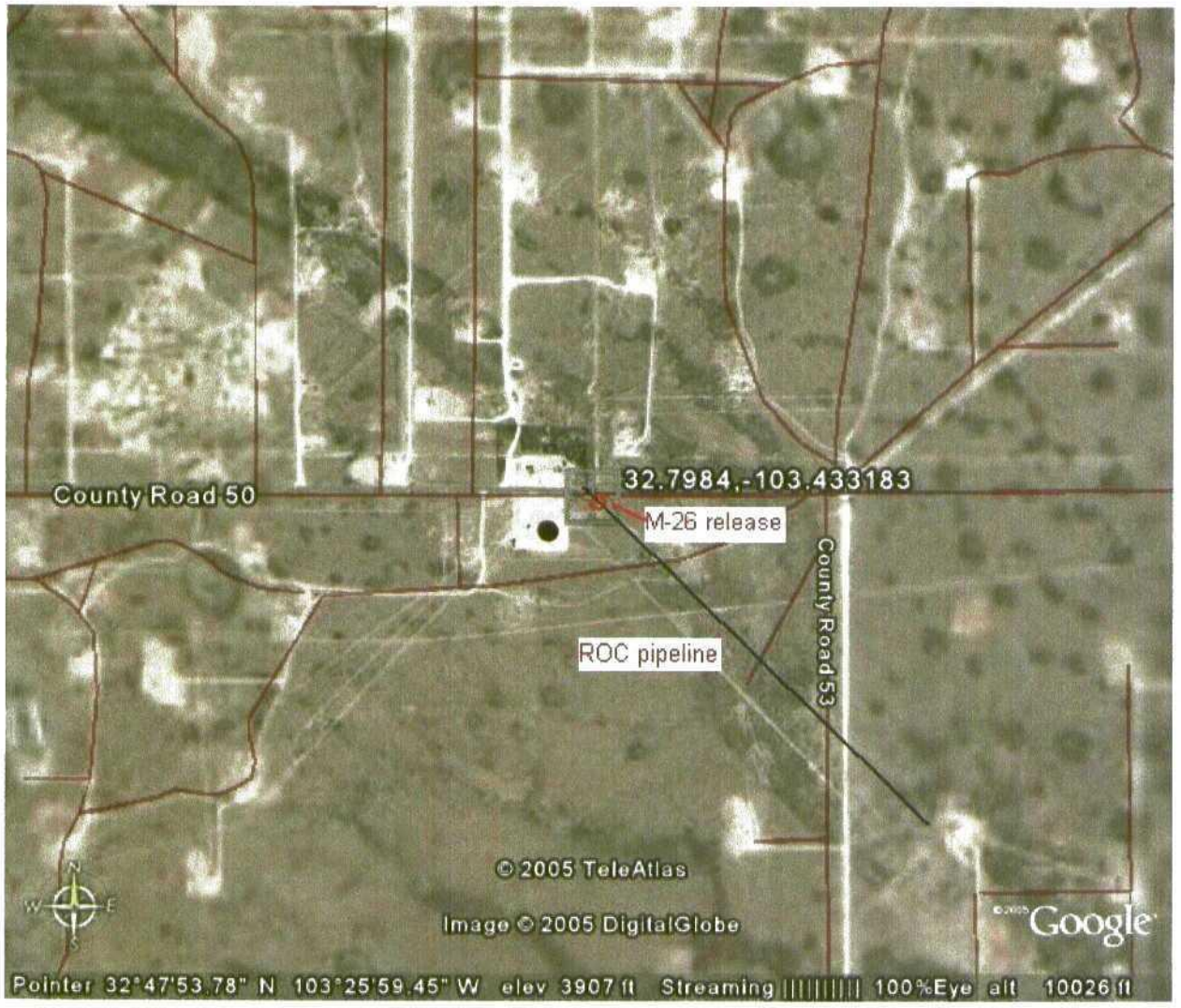


Figure 1 – Satellite photo (10,000 ft view) of M-26 ROC produced water release[3].

[3] From www.earth.google.com .

Vacuum M-26 leak

unit 'C', sec. 35, T17S, R37E

August 20, 2003 Backhoe Delineation with Field Tests

ft BGS	Soil Sample Lithology	Hydrocarbon Odor	[Cl-] ppm
6	dark brown caliche	slight	7243
7	light brown caliche	slight	10099
8	light brown caliche	slight	9009
9	light brown caliche	slight	12659
10	light brown caliche & sand	slight	11398
12	light brown caliche & sand	very slight	12337

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

Surface Owner	Mineral Owner	Lease No.
State		

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South line	Feet from the	East/West Line	County
M	35	T17S	R35E					LEA

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Produced Water	15 bbls	10 bbls
Source of Release	**Date and Hour of Occurrence**	**Date and Hour of Discovery**
Pipeline	unknown	07/01/2003
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	**If YES, To Whom?**	
By Whom?	**Date and Hour**	
Was a Watercourse Reached? ☐ Yes ☒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)
Ground settled on 6" A/C pipe and pipe broke all the way around. Placed 6" clamp on pipe.

Describe Area Affected and Cleanup Action Taken. (Attach Additional Sheets If Necessary)
The released consisted of 15 bbls, which affected 225 square feet. Vertical delineation was done with a backhoe up to 12' bgs. It has been determined that the impact is out of the scope of ROC's Generic Spill and leak plan and may have the potential for groundwater impact. ROC will now prioritize and place this site the major projects list for further characterization and if necessary, remediation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD 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, NMOCD 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: Joe Gatts	OIL CONSERVATION DIVISION	
Printed Name: Joe Gatts	Approved by District Supervisor:	
Title: Environmental Technician	Approval Date:	Expiration Date:
Date: 01/19/04 Phone: 505-393-9174	Conditions of Approval:	Attached ☐

Hand Delivery OCD 1/19/04

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

January 19, 2004

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

Re: Vacuum SWD System
ULM Sec. 35 T17S R35E
Lea County, New Mexico

Dear Mr. Paul Sheeley:

On July 1, 2003 Rice Operating Company (ROC) discovered an accidental discharge at the above referenced site. The release consisted of 15 bbls, which affected 225 square feet. ROC now wishes to notify the NMOCD of the future actions to be taken at this site.

On August 20, 2003 a vertical delineation was done with a backhoe. ROC trenched to 12' bgs sampling at every foot. At 12' bgs, a field test showed the chloride numbers remained at 12,000 ppm. The depth to groundwater is 51 feet. ROC has come to the conclusion that this site may have the potential for groundwater impact. ROC notified NMOCD Environmental Bureau Chief Roger Anderson on 1/16/04.

As for the surface. ROC feels that it will revegetate with natural attenuation, due to the small area affected.

Because this sites impact is beyond the scope of the ROC Generic Spill Work Plan, it will be prioritized and placed on the major project list for further characterization and if necessary, remediation. ROC will notify NMOCD and or submit a RBCA once the plan of action has been determined.

ROC requests approval of this C-141 as the Final Report. If you have any questions please call me at the above referenced number.

Sincerely,

Joe Gatts
Environmental Technician

Hand Delivery to OCD 1/19/04