1R - 315

REPORTS

DATE:

2001

Price, Wayne

From: Price, Wayne
Sent: Monday, November 05, 2001 9:40 AM
To: 'Mike @ Whole Earth'; Price, Wayne
Cc: Carolyn Haynes
Subject: RE: Abo Closure Revision "C"

OCD approves of the work plan and requires Rice Operating Company to submit a final closure report by December 31, 2001.

Please be advised that NMOCD approval of this work plan does not relieve Rice Operating Company of responsibility should their activities 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 approval does not relieve Rice Operating Company of responsibility for compliance with any other federal, state, or local laws and/or regulations.

-----Original Message-----
From: Mike @ Whole Earth [mailto:whearth@iamerica.net]
Sent: Monday, November 05, 2001 9:24 AM
To: Wayne Price
Cc: Carolyn Haynes
Subject: Abo Closure Revision "C"

Wayne:

In accordance with our telecon of this morning, I've revised the Abo closure plan to reflect the installation of a high density polyethylene upper liner and permanant corner posts to protect the liner in the future, (see paragraph 5.5).

Thank you again for your consideration.

Mike Griffin

Tracking:

Recipient	Delivery	Read
'Mike @ Whole Earth'		
Price, Wayne	Delivered: 11/5/01 9:40 AM	Read: 11/5/01 10:39 AM
Carolyn Haynes		

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

CERTIFIED MAIL
RETURN RECEIPT NO. 7000 1530 0005 9895 4480

January 24, 2002

Mr. Wayne Price
NM Energy, Minerals, and Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, NM 87504

RE: EMERGENCY OVERFLOW PIT CLOSURE REPORT
ABO SWD SITE F-31
Unit Letter F, Sec. 31, T16S, R37E NMPM
Lea County, NM

Dear Mr. Price:

Rice Operating Company (ROC) takes this opportunity to submit the closure report for the emergency overflow pit at the ABO Salt Water Disposal Well F-31, located in Unit F, Sec. 31, T16S, R37E, Lea County, NM. This facility is located on land owned by the City of Lovington. The initial closure plan was submitted to the NMOCD on May 9, 2001, and a plan revision was submitted on October 17, 2001.

ROC is the service provider (operator) for the ABO Salt Water Disposal System and has no ownership of any portion of pipeline, well or facility. The ABO System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis. Replacement/closure projects of this magnitude require System Partner AFE approval and work begins as funds are received.

The Project AFE for the SWD F-31 Facility was approved by the System Partners and work began May 21, 2001 under the site management of Whole Earth Environmental of Houston, TX. Excavation work was suspended in order to re-evaluate the site for a risk-based closure plan that NMOCD could approve and System Partners could economically manage. Extensive soil boring determined the vertical extent of contamination. Installation and sampling of a monitoring well

adjacent to and immediately down-gradient of the site determined groundwater quality was consistent with WQCC standards. Supporting documentation accompanies this letter.

With respect to this site data, Whole Earth and ROC devised a risk-based closure plan that would effectively close the site and cause no hazard to public health or detriment of groundwater above WQCC standards in the foreseeable future. This revised plan was approved by the NMOCD and excavation work was completed at the site in December 2001.

ROC proposes a groundwater monitoring program at this site to record levels of major anions and cations, TDS and BTEX. There are three monitor wells located at and near the site: the new well at the SE edge of the pit excavation and two wells to the south that remain available from the closure of CASE #1R0220 (Groundwater Remediation/Monitoring Lovington Municipal Water Well COL-6). These well locations are described with the attached map of the site. The proposed monitoring program consists of sampling on a semi-annual schedule for two years and then annual sampling for the life of the ABO F-31 SWD Facility. Results will be reported to the NMOCD and the City of Lovington annually. Should any sampling event result exceed WQCC standards, NMOCD and City of Lovington will be immediately notified.

Thank you for your consideration of this emergency overflow pit closure report. ROC hopes to hear from you soon regarding approval or any questions of the groundwater monitoring plan.

RICE OPERATING COMPANY

Carolyn Doran Haynes

Carolyn Doran Haynes
Engineering Manager

Enclosures
cc: LBG, file,

Mr. Chris Williams
NMOCD, District I Office
1625 N. French Drive
Hobbs, NM 88240

Bob Carter
Lovington City Manager
P. O. Box 1268
Lovington, NM 88260

Price, Wayne

From: Mike @ Whole Earth [whearth@iamerica.net]
Sent: Monday, November 05, 2001 9:24 AM
To: Wayne Price
Cc: Carolyn Haynes
Subject: Abo Closure Revision "C"

PR-33C Rice ABO.doc

Wayne:

In accordance with our telecon of this morning, I've revised the Abo closure plan to reflect the installation of a high density polyethylene upper liner and permanant corner posts to protect the liner in the future, (see paragraph 5.5).

Thank you again for your consideration.

Mike Griffin

PR-33C

Remediation Protocol
Rice Operating Company
ABO Facility

1.0 Purpose

This protocol is to provide a detailed outline of the steps to be employed in the remediation of a pit located north of Hobbs, New Mexico.

2.0 Scope

This protocol is site specific for the Rice Operating remediation project.

3.0 Preliminary

Prior to any field operations, Whole Earth Environmental shall conduct the following activities:

3.1 Client Review

3.1.1 Whole Earth shall meet with cognizant personnel within Rice to review this protocol and make any requested modifications or alterations.

3.1.2 Changes to this protocol will be documented and submitted for final review by Client prior to the initiation of actual field work.

4.0 Safety

4.1 Prior to work on the site, Whole Earth shall obtain the location and phone numbers of the nearest emergency medical treatment facility. We will review all safety related issues with the appropriate Client personnel, sub-contractors and exchange phone numbers.

4.2 A tailgate safety meeting shall be held and documented each day. All sub-contractors must attend and sign the daily log-in sheet.

4.3 Anyone allowed on to location must be wearing sleeved shirts, steel toed boots, and long pants. Each vehicle must be equipped with two way communication capabilities.

4.4 Prior to any excavation, New Mexico One Call will be notified. The One Call notification number will be included within the closure report. If lines are discovered within the area to be excavated they shall be marked with pin flags on either side of the line at maximum five-foot intervals.

5.0 Remediation Procedure

5.1 All side-wall soils containing a TPH concentration >100 ppm, chlorides > 1,000 ppm and all soils containing a benzene concentration >10 ppm or a total BTEX concentration >50 ppm will be excavated. Soils containing TPH concentrations >1,000 ppm will be transported to commercial disposal. The side walls and bottom of the excavation will be field tested for TPH and chloride concentrations in accordance with WEQP-06 and WEQP-96.

5.2 The Hobbs branch of the OCD will be notified to witness the final confirmation sampling of the side-walls and bottom of the excavation. Samples will be collected in accordance with WEQP-77 and analyzed for TPH, chlorides and BTEX.

5.3 Upon approval by the NMOCD, Whole Earth will install a clay liner in the bottom and side-walls of the excavation. The minimum depth on the bottom of the excavation shall be 18-24". All clay layers will be watered and compacted to 100% density.

5.4 The remaining soils will be mixed and blended with sub-strait materials to achieve the concentrations of <100 ppm TPH, <10 ppm benzene and < 1,000 ppm chlorides and replaced within the excavation.

5.5 A 20-mil high-density polyethylene liner will be installed atop the excavation at a minimum depth of 5' bgs. Markers will be installed at each corner of the excavation reading: **"WARNING Buried Liner @ 5' bgs".**

6.0 Monitoring

A monitor well will be drilled immediately adjacent to the southeast corner of the pit. The monitor well will be cased and screened in accordance with OCD guidelines. Whole Earth will collect water samples in accordance with our procedure WEQP-76. Confirmation samples will be analyzed by Environmental Labs of Texas for BTEX, and chlorides.

7.0 Closure Report

7.1 At the conclusion of the project, Whole Earth shall prepare a closure report that contains the following minimum information:

- Photographs of the location prior to remediation
- Photographs of the site at the point of maximum excavation
- Detail photographs of the liner installation
- Photographs of the location at time of final closure
- Lab analysis and related chain of custody for THP, BTEX and chloride testing of each side-wall and excavation bottom
- Lab analysis and related chain of custody for chloride testing of each 3'lift composite
- Procter analysis of the clay
- Clay compaction test report
- Copies of this protocol and all testing procedures
- Shipping manifests for all materials taken to disposal
- Disposal manifests for all materials sent to commercial disposal

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

CERTIFIED MAIL
RETURN RECEIPT NO. 7000 1530 0005 9895 4220

October 17, 2001

Mr. Wayne Price
NM Energy, Minerals, and Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, NM 87504

RE: EMERGENCY OVERFLOW PIT CLOSURE PLAN
ABO SWD SITE F-31
Unit Letter F, Sec. 31, T16S, R37E NMPM
Lea County, NM

Dear Mr. Price:

Rice Operating Company (ROC) takes this opportunity to submit a revised closure plan for the emergency overflow pit at the ABO Salt Water Disposal Well F-31, located in Unit F, Sec. 31, T16S, R37E, Lea County, NM. This facility is located on land owned by the City of Lovington. The initial closure plan was submitted to the NMOCD on May 9, 2001.

ROC is the service provider (operator) for the ABO Salt Water Disposal System and has no ownership of any portion of pipeline, well or facility. The ABO System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis. Replacement/closure projects of this magnitude require System Partner AFE approval and work begins as funds are received.

The Project AFE for the SWD F-31 Facility was approved by the System Partners and work began May 21, 2001 under the site management of Whole Earth Environmental of Houston, TX. This closure plan revision, written by Whole Earth, is being submitted consequential to discovery made at the site during closure activities.

The ABO SWD System emergency overflow pit has not been utilized with any frequency over the last several years. During excavation activities it was discovered that there was extensive

lateral and vertical salt-water impact to the pit area. Though the initial plan was to excavate and dispose all soils heavily impacted (unreasonable to blend to <250 ppm Chlorides), funding was not available for this massive amount of impacted soils. Work was suspended in order to re-evaluate the site for a risk-based closure plan that NMOCD could approve and System Partners could economically manage. Extensive soil boring determined the vertical extent of contamination. Installation and sampling of a monitoring well adjacent to and immediately down-gradient of the site determined groundwater quality was consistent with WQCC standards. Supporting documentation accompanies this letter.

With respect to this site data, Whole Earth and ROC devised a risk-based closure plan that would effectively close the site and cause no hazard to public health or detriment of groundwater above WQCC standards in the foreseeable future.

ROC will schedule all major events with a 48-hour advance notice to the NMOCD. Whole Earth Environmental will continue to be the on-site manager of the closure project. The Final Closure Report will follow at the end of the project.

Thank you for your consideration of this revised emergency overflow pit closure plan. ROC hopes to hear from you soon regarding approval or any questions of this plan so that work may be continued toward closure of this site.

RICE OPERATING COMPANY

Carolyn Doran Haynes

Carolyn Doran Haynes
Operations Engineer

Enclosures
cc: LBG, file,

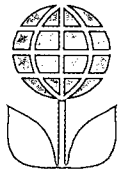
Mr. Chris Williams
NMOCD, District I Office
1625 N. French Drive
Hobbs, NM 88240

Mike Griffin
Whole Earth Environmental, Inc.
19606 San Gabriel
Houston, TX 77084

Bob Carter
Lovington City Manager
P. O. Box 1268
Lovington, NM 88260

RICE Operating

Abo Facility
Closure Project
Protocol Revision



Whole Earth Environmental
19606 San Gabriel
Houston, Tx. 77084
(800) 854-4358
www.wholeearthonline.com

Executive Summary

Location
The facility is located approximately 3.5 miles southeast of Lovington, New Mexico. The legal description is Unit F Section 31 Township 16S Range 37E.

Site History
The land upon which the facility is located was originally leased from the City of Lovington in July, 1974 as a salt water disposal facility. Major facilities include above ground storage tanks, a disposal well, surface impoundment and ancillary equipment. The surface impoundment was used as an emergency overflow pit to receive fluids from the facility in case of process upsets. As the use of the emergency impoundment was always unplanned, there are no accurate records as to what fluid volumes may have been directed to the site.

The impoundment received fluids consisting primarily of untreated salt water from oil and gas extraction operations. These fluids typically contained some hydrocarbon fractions that, over time, condensed into a thick sludge covering the bottom of the pit. Excavation of the site indicated that a clay liner of variable thickness was installed under the pit acting as a barrier to vertical fluid migration.

Land Use
The land surface is primarily used for grazing of cattle, however extensive oil and gas operations including wells, tanks, processing facilities and associated piping surround the site. The area also serves as the primary aquifer for the City of Lovington's water supply. Three fresh water source wells are located within one-quarter mile of the facility. The topography is unremarkable.

Remediation History
On May 9, 2001, a generic closure plan was submitted to the NMOCD. Under this plan, all soils containing TPH values >100 ppm, chloride values >250 ppm and BTEX concentrations >10 ppm benzene and 50 ppm total BTEX would be excavated and transported to commercial disposal. The excavation would then be backfilled with clean topsoils and re-contoured to match the existing topography.

Whole Earth Environmental, Inc. began excavation of the site on May 21, 2001 and continued through June 12th. Approximately 32,000 cubic yards of soil was excavated with 5,088 yards sent to commercial disposal. The present excavation dimensions are approximately 220' X 260' X 13' bgs. Hydrocarbon concentrations in excess of NMOCD standards extended to a distance of approximately 6' bgs immediately below the pit. The chloride plume was found to be far more extensive. The northern, eastern, and western boundaries of the plume were identified and excavated. The southern boundary

appears to extend into the main facility and cannot be defined by means of excavation as major structures such as tanks and flow lines lie atop it.

On September 19, 2001 Whole Earth employed a coring rig to obtain soil samples in order to determine the vertical extent of contamination. A series of five test holes were drilled to various depths within the excavated area and to the northwest of the site. The results of field analysis run on these samples indicate that the plume has a conical shape, with the vertical axis centered at the pit. The chloride concentrations within the vertical profile generally decline with depth. However, there are a series of lenses having lower soil density within the vertical strata. These unconnected pockets contain higher pore diameters thus allowing for greater chloride concentrations within them.

On September 20, 2001, Whole Earth Environmental drilled and completed a water monitoring well at the southeast corner of the site. Water samples obtained on September 25th and analyzed for the presence and concentrations of BTEX, chlorides, carbonates, bicarbonates, sulfates, anions and cations. The laboratory analytical results indicate that all results are within NMWQCC drinking water standards.

Conclusions

Based upon both field and laboratory analytical results, it is clear that the plume extends for a distance of at least 77' below ground surface but has not affected the ground water. Further vertical excavation of the site should be considered imprudent based on reasons of both economy and safety. An alternative method of restricting the vertical transmissibility of the remaining plume by means of constructing an impermeable barrier to future vertical migration will provide an effective method of preventing groundwater contamination. This conclusion is supported by the enclosed VADSAT modeling.

We additionally propose to keep the monitor well active for a minimum period of four years with semi-annual monitoring of the fluids a condition of acceptance of the revised closure protocol.

Exhibit Index

Exhibit 1. U.S.G.S. plat map of the site and associated topography

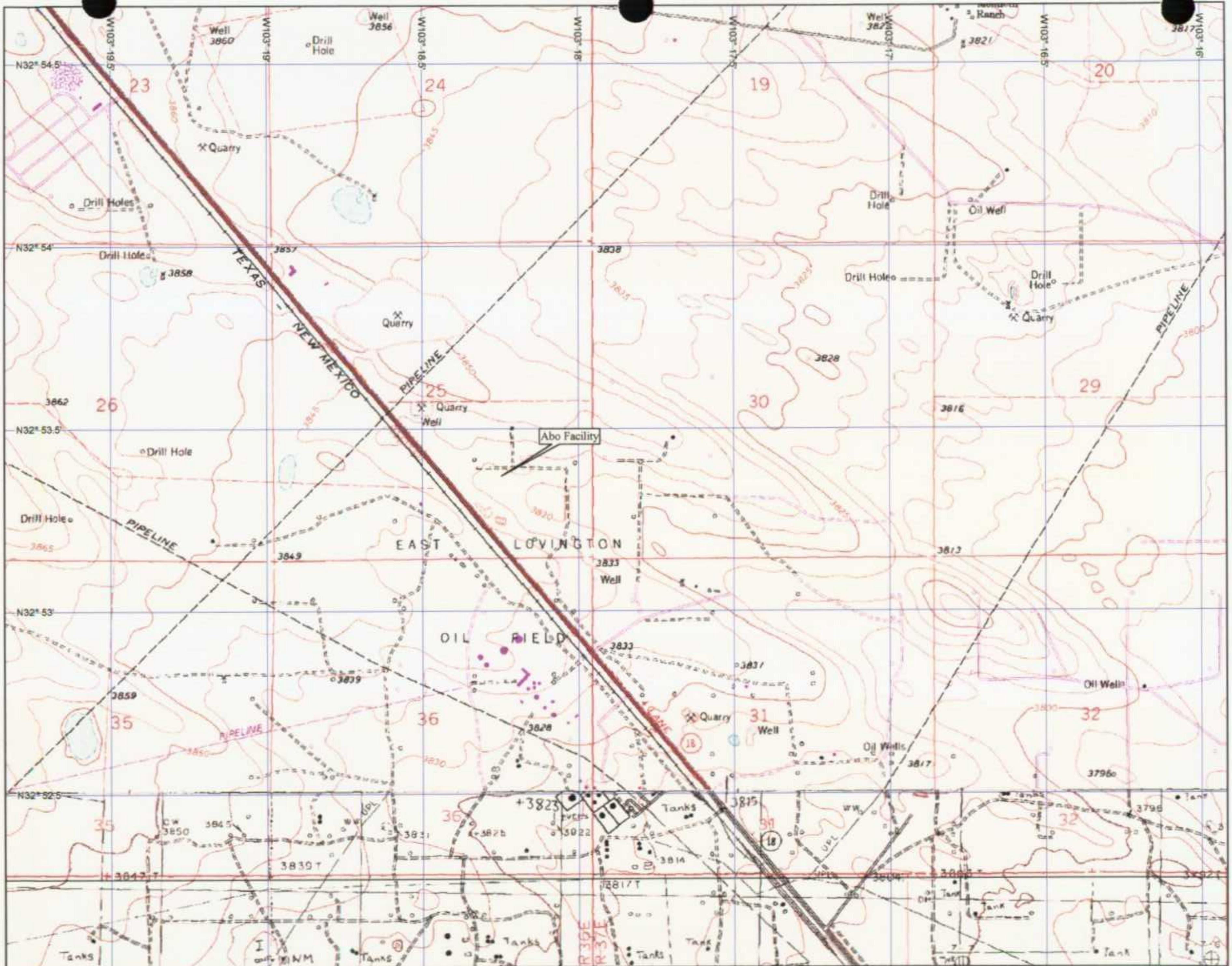
Exhibit 2. Chart summary of the results of field chloride titration conducted at five test sites within and adjacent to the site.

Exhibit 3. Schematic showing the location of the test bores and water monitoring well.

Exhibit 4. Plat map showing the relative location and distance of the site to water source wells.

Exhibit 5. Typical boring log of test bores located within the excavation

Exhibit 6. Boring log of the water monitoring well.



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS 1000 ft Scale: 1 : 25,000 Detail: 13-0 Datum: WGS84

Whole Earth Environmental, Inc.
Field Test Report
Rice Operating Company
Abo Battery

Date	Time	Test Point	Depth bgl (ft.)	Chlorides	TPH
9/19/01		1	5	759	
9/19/01		1	10	691	
9/19/01		1	15	404	
9/19/01		1	20	602	
9/19/01		1	25	460	
9/19/01		1	30	779	
9/19/01		1	35	779	
9/19/01		1	40	436	
9/19/01		1	45	521	
9/19/01		1	50	805	
9/19/01		1	55	585	
9/19/01		1	60	1,170	
9/19/01		1	65	815	
9/19/01		1	70	319	
9/19/01		1	75	422	
9/19/01		1	77	394	

Test Point Located Approx. 13' bgs

Whole Earth Environmental, Inc.
Field Test Report
Rice Operating Company
Abo Battery

Date	Time	Test Point	Depth bgl (ft.)	Chlorides	TPH
9/19/01		2	15	50	
9/19/01		2	20	32	
9/19/01		2	25	35	
9/19/01		2	30	35	

Test Point @ Ground Level

9/20/01		3	10	727	
9/20/01		3	15	762	
9/20/01		3	30	663	
9/20/01		3	40	624	
9/20/01		3	50	812	
9/20/01		3	60	709	
9/20/01		3	70	709	

Test Point Approx. 12' bgs

9/20/01		4	10	780	
9/20/01		4	20	542	
9/20/01		4	30	404	
9/20/01		4	40	188	
9/20/01		4	50	60	
9/20/01		4	60	60	

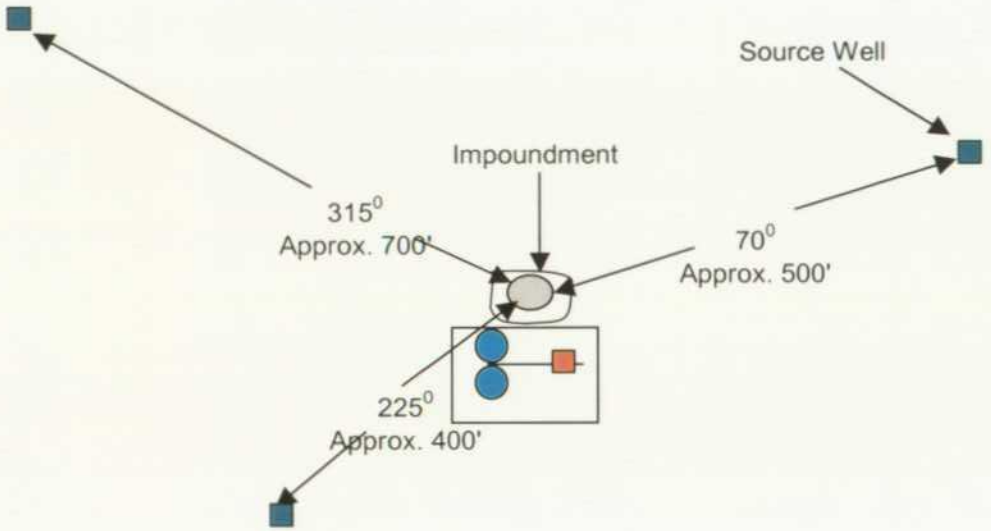
Test Point Approx. 12' bgs

9/20/01		5	10	493	
9/20/01		5	20	152	
9/20/01		5	30	798	
9/20/01		5	40	542	
9/20/01		5	50	479	
9/20/01		5	60	184	
9/20/01		5	70	92	
9/20/01		5	75	32	

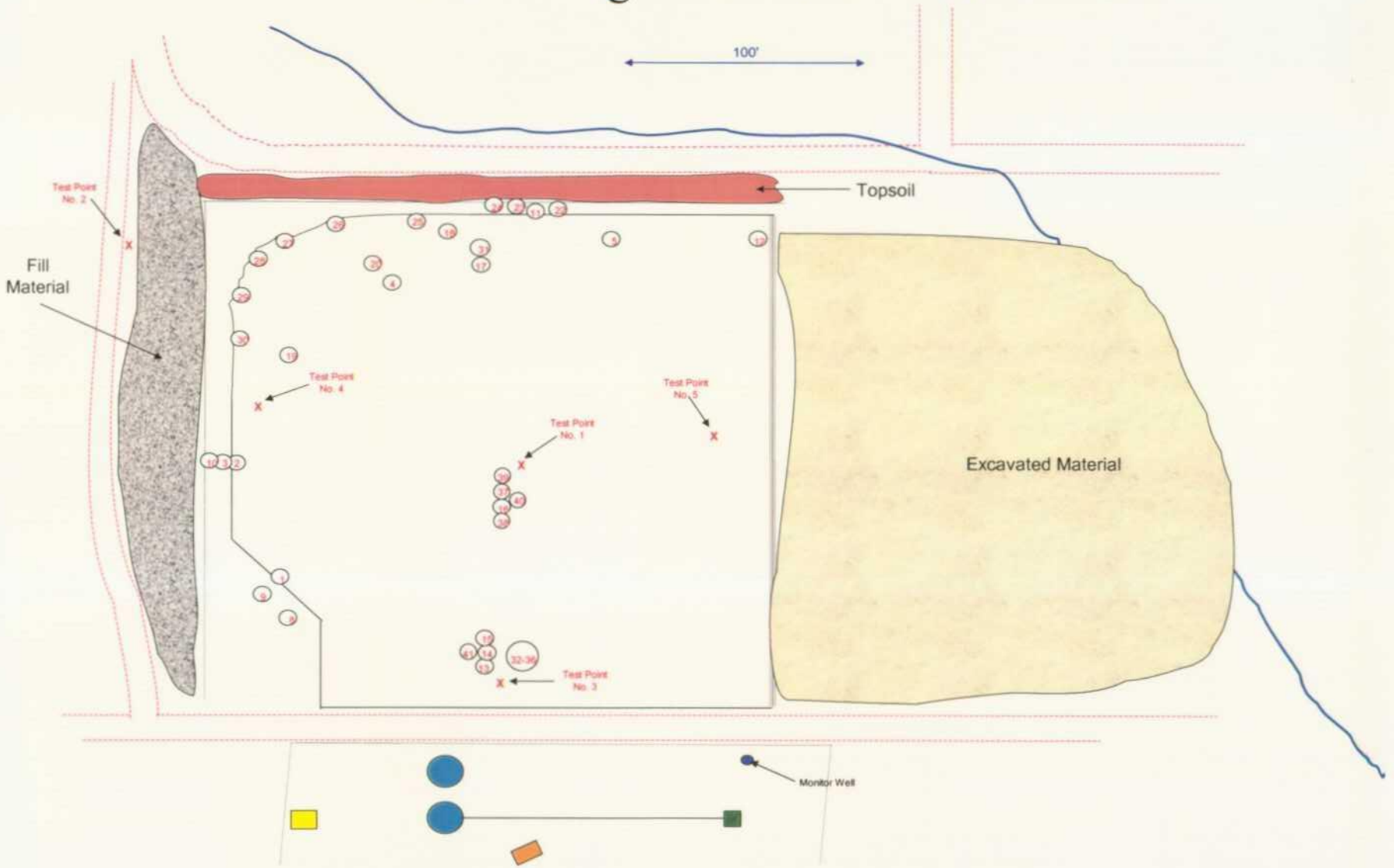
Test Point Approx. 5' bgs

Rice Operating Company

ABO Facility
Relationship of Impoundment
To Water Source Wells



Rice Operation Company
Abo Remediation Project
Test Boring & Monitor Well Locations



Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156	LOG OF BORING Rice ABO (Page 1 of 2)

Whole Earth 19606 San Gabriel Houston, TX 77084 Contact: Mike Griffin Job#: WHOLETH.AIR.01			
Date	: 09-19-01	Site Location	: Near Lovington, NM
Drill Start/End	: 1200/1630	Auger Type	: Hollow Stem
Boring Location	: S Lovington 4 mi & : ¼ mi E	Logged By	: Mort Bates

Depth in Feet	GRAPHIC	USCS	Samples	DESCRIPTION	Lab	Well: ABO
0				Caliche w/sand, tan, loose, dry		
5				Sand, tan, loose, dry		
10		SP				
15						
20				Sand w/sandstone, tan, firm, damp		Grout
25						
30		SP				
35						
40						

09-26-2001 C:\MTECH46\RICE\abo.bor

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156	LOG OF BORING Rice ABO (Page 2 of 2)
Whole Earth 19606 San Gabriel Houston, TX 77084 Contact: Mike Griffin Job#: WHOLETH.AIR.01	Date : 09-19-01 Drill Start/End : 1200/1630 Boring Location : S Lovington 4 mi & : ¼ mi E Site Location : Near Lovington, NM Auger Type : Hollow Stem Logged By : Mort Bates

Depth in Feet	GRAPHIC	USCS	Samples	DESCRIPTION	Lab	Well: ABO
40				Sand w/sandstone, tan, firm, damp		
45						
50						
55						
		SP				Grout
60						
65						
70						
75						
				Total depth 77'		
80						

09-26-2001 C:\MTECH46\RICE\abo.bor

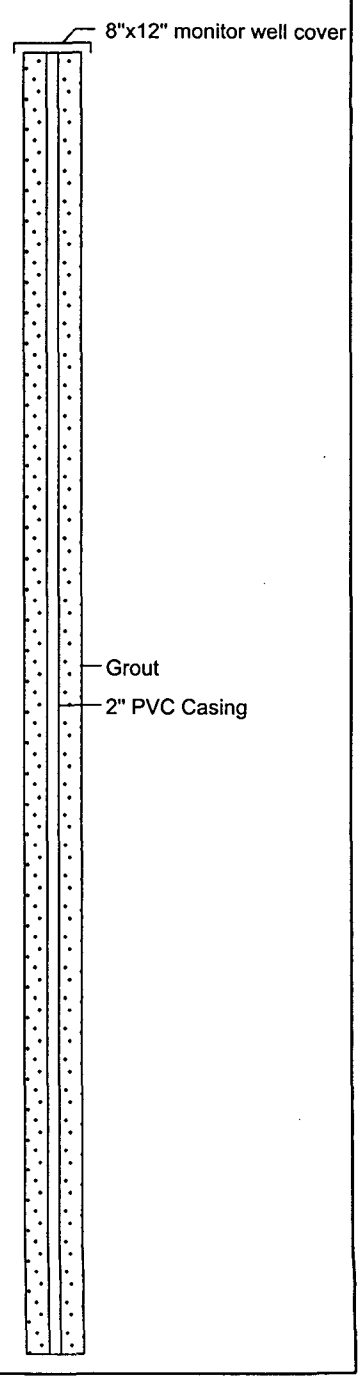
Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156	LOG OF BORING Rice ABO-MW (Page 1 of 2)

Whole Earth
19606 San Gabriel
Houston, TX 77084
Contact: Mike Griffin
Job#: WHOLETH.AIR.01

Date	: 09-20-01	Site Location	: Near Lovington, NM
Drill Start/End	: 1200/1700	Auger Type	: Hollow Stem
Boring Location	: S Lovington 4 mi & : ¼ mi E (SE of pit)	Logged By	: Mort Bates

Depth in Feet	GRAPHIC	USCS	Samples	DESCRIPTION	Lab
0				Caliche, tan, firm, dry	
20				Caliche w/sand, tan, firm, dry	
40		SP		Sand, tan, loose, dry	
60					

Well: ABO

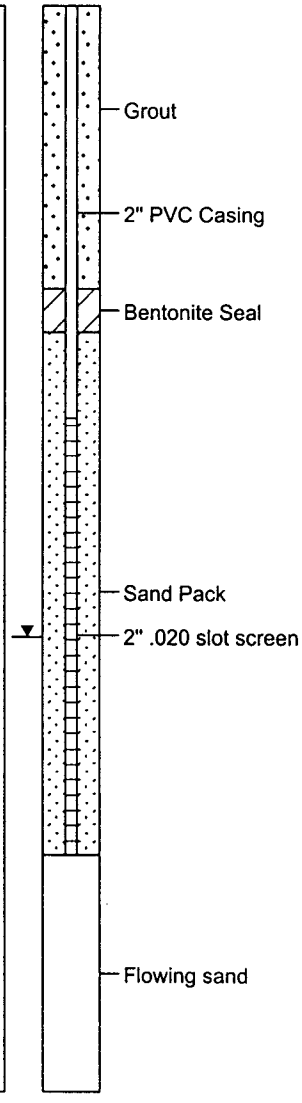


09-26-2001 C:\MTECH46\RICE\abo-mw.bor

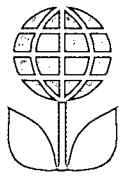
Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156	LOG OF BORING Rice ABO-MW (Page 2 of 2)
Whole Earth 19606 San Gabriel Houston, TX 77084 Contact: Mike Griffin Job#: WHOLETH.AIR.01	Date : 09-20-01 Drill Start/End : 1200/1700 Boring Location : S Lovington 4 mi & : ¼ mi E (SE of pit) Site Location : Near Lovington, NM Auger Type : Hollow Stem Logged By : Mort Bates

Depth in Feet	GRAPHIC	USCS	Samples	DESCRIPTION	Lab
60		SP			
65				Sand w/sandstone, tan, firm, dry	
70					
75		SP			
80					
85					
90					
95		SP		Sand, tan, loose, damp	
				Sand, tan, soft, wet	
100		SP			
105					
110				Total depth 110' Note: Sand is flowing and was only able to land the casing to 99'	
115					
120					

Well: ABO



09-26-2001 C:\MTECH46\RICE\abo-mw.bor



Protocol

This section contains a copy of the revised closure protocol requested for this project.

PR-33B

Remediation Protocol
Rice Operating Company
ABO Facility

1.0 Purpose

This protocol is to provide a detailed outline of the steps to be employed in the remediation of a pit located north of Hobbs, New Mexico.

2.0 Scope

This protocol is site specific for the Rice Operating remediation project.

3.0 Preliminary

Prior to any field operations, Whole Earth Environmental shall conduct the following activities:

3.1 Client Review

3.1.1 Whole Earth shall meet with cognizant personnel within Rice to review this protocol and make any requested modifications or alterations.

3.1.2 Changes to this protocol will be documented and submitted for final review by Client prior to the initiation of actual field work.

4.0 Safety

4.1 Prior to work on the site, Whole Earth shall obtain the location and phone numbers of the nearest emergency medical treatment facility. We will review all safety related issues with the appropriate Client personnel, sub-contractors and exchange phone numbers.

4.2 A tailgate safety meeting shall be held and documented each day. All sub-contractors must attend and sign the daily log-in sheet.

4.3 Anyone allowed on to location must be wearing sleeved shirts, steel toed boots, and long pants. Each vehicle must be equipped with two way communication capabilities.

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5.0 Remediation Procedure

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5.2 The Hobbs branch of the OCD will be notified to witness the final confirmation sampling of the side-walls and bottom of the excavation. Samples will be collected in accordance with WEQP-77 and analyzed for TPH, chlorides and BTEX.

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5.5 The remaining soils will be mixed and blended with sub-strait materials to achieve the concentrations of <100 ppm TPH, <10 ppm benzene and < 1,000 ppm chlorides and replaced within the excavation.

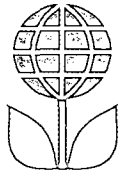
6.0 Monitoring

A monitor well will be drilled immediately adjacent to the southeast corner of the pit. The monitor well will be cased and screened in accordance with OCD guidelines. Whole Earth will collect water samples in accordance with our procedure WEQP-76. Confirmation samples will be analyzed by Environmental Labs of Texas for BTEX, and chlorides.

7.0 Closure Report

7.1 At the conclusion of the project, Whole Earth shall prepare a closure report that contains the following minimum information:

- Photographs of the location prior to remediation
- Photographs of the site at the point of maximum excavation
- Detail photographs of the liner installation
- Photographs of the location at time of final closure
- Lab analysis and related chain of custody for THP, BTEX and chloride testing of each side-wall and excavation bottom
- Lab analysis and related chain of custody for chloride testing of each 3'lift composite
- Procter analysis of the clay
- Clay compaction test report
- Copies of this protocol and all testing procedures
- Shipping manifests for all materials taken to disposal
- Disposal manifests for all materials sent to commercial disposal



Procedures

This section contains copies of the detailed sample collection, transportation and on site analytical procedures employed on this project.

QP-06 Rev. C

WHOLE EARTH ENVIRONMENTAL
QUALITY PROCEDURE

Procedure for Conducting Field TPH Analysis

Completed By:	Approved By:	Effective Date: 02/15/97

1.0 Purpose

To define the procedure to be used in conducting total percentage hydrocarbon testing in accordance with EPA Method 418.1 (modified) using the "MEGA" TPH Analyzer.

2.0 Scope

This procedure is to be used for field testing and on site remediation information.

3.0 Procedure

3.1 The G.A.C. "MEGA" TPH analyzer is an instrument that measures concentrations of aliphatic hydrocarbons by means of infra-red spectrometry. It is manufactured to our specifications and can accurately measure concentrations from two parts per million through 100,000 parts per million. The unit is factory calibrated however minor calibration adjustments may be made in the field. Quality Procedure 25 defines the field calibration methods to be employed.

3.2 Prior to taking the machine into the field, insert a 500 ppm and 5,000 ppm calibration standard into the sample port of the machine. Zero out the Range dial until the instrument records the exact standard reading.

3.3 Once in the field, insert a large and small cuvette filled with clean Freon 113 into the sample port of the machine. Use the range dial to zero in the reading. If the machine does not zero, do not attempt to adjust the span dial. Immediately implement Quality Procedure 25 .

3.4 Place a 100 g. weight standard on the field scale to insure accuracy. Zero out the scale as necessary.

3.5 Tare a clean 100 ml. sample vial with the Teflon cap removed. Add 10 g. (+/- .01 g), of sample soil into the vial taking care to remove rocks or vegetable matter from the sample to be tested. If the sample is wet, add up to 5 g. silica gel or anhydrous sodium sulfate to the sample after weighing.

3.6 Dispense 10 ml. Freon 113 into the sample vial.

3.7 Cap the vial and shake for five minutes.

3.8 Carefully decant the liquid contents of the vial into a filter/desiccant cartridge and affix the cartridge cap. Recap the sample vial and set aside.

3.9 Insert the metal tip of the pressure syringe into the cap opening and slowly pressurize. WARNING: APPLY ONLY ENOUGH PRESSURE ON THE SYRINGE TO EFFECT FLOW THROUGH THE FILTERS. TOO MUCH PRESSURE MAY CAUSE THE CAP TO SEPARATE FROM THE BODY OF THE CARTRIDGE. Once flow is established through the cartridge direct the flow into the 5 cm. cuvette until the cuvette is full. Reverse the pressure on the syringe and remove the syringe tip from the cartridge cap. Set the cartridge aside in vertical position.

3.10 The cuvette has two clear and two frosted sides. Hold the cuvette by the frosted sides and carefully insert into the sample port of the machine. Read the right hand digital read-out of the instrument. If the reading is less than 1,000 ppm. the results shall be recorded in the field Soil Analysis Report. If the result is higher than 1,000 ppm, continue with the dilution procedure.

4.0 Dilution Procedure

4.1 When initial readings are greater than 1,000 ppm using the 5 cm. cuvette, pour the contents of the 5 cm. cuvette into a 1 cm. cuvette. Insert the 1. cm cuvette into the metal holder and insert into the test port of the instrument.

4.1 Read the left hand digital read-out of the machine. If the results are less than 10,000 ppm, record the results into the field Soil Analysis Report. If greater than 10,000 ppm, continue the dilution process. Concentrations >10,000 ppm are to be used for field screen purposes only.

4.2 Pour the contents of the small cuvette into a graduated glass pipette. Add 10 ml. pure Freon 113 into the pipette. Shake the contents and pour into the 1cm. cuvette. Repeat step 4.2. adding two zeros to the end of the displayed number. If the reported result is greater than 100,000 ppm. the accuracy of further readings through additional dilutions is extremely questionable. Do not use for reporting purposes.

4.4 Pour all sample Freon into the recycling container.

5.0 Split Samples

5.1 Each tenth test sample shall be a split sample. Decant approximately one half of the extraction solvent through a filter cartridge and insert into the instrument to obtain a concentration reading. Clean and rinse the cuvette and decant the remainder of the fluid to obtain a second concentration reading from the same sample. If the second reading varies by more than 1% from the original, it will be necessary to completely recalibrate the instrument.

QP-76 (Rev. A)

WHOLE EARTH ENVIRONMENTAL
QUALITY PROCEDURE

Procedure for Obtaining Water Samples (Cased Wells) Using One Liter Bailer

Completed By: Approved By: Effective Date: / /

1.0 Purpose

This procedure outlines the methods to be employed in obtaining water samples from cased monitoring wells.

2.0 Scope

This procedure shall be used for developed, cased water monitoring wells. It is not to be used for standing water samples such as ponds or streams.

3.0 Preliminary

3.1 Obtain sterile sampling containers from the testing laboratory designated to conduct analyses of the water. The shipment should include a Certificate of Compliance from the manufacturer of the collection bottle or vial and a Serial Number for the lot of containers. Retain this Certificate for future documentation purposes.

3.2 The following table shall be used to select the appropriate sampling container, preservative method and holding times for the various elements and compounds to be analyzed.

Compound to be Analyzed	Sample Container Size	Sample Container Description	Cap Requirements	Preservative	Maximum Hold Time
BTEX	40 ml.	VOA Container	Teflon Lined	HCl	7 days
TPH	1 liter	clear glass	Teflon Lined	HCl	28 days
PAH	1 liter	clear glass	Teflon Lined	Ice	7 days
Cation / Anion	1 liter	clear glass	Teflon Lined	None	48 Hrs.
Metals	1 liter	HD polyethylene	Any Plastic	Ice / HNO_3	28 Days
TDS	300 ml.	clear glass	Any Plastic	Ice	7 Days

4.0 Chain of Custody

4.1 Prepare a Sample Plan. The plan will list the well identification and the individual tests to be performed at that location. The sampler will check the list against the available inventory of appropriate sample collection bottles to insure against shortage.

4.2 Transfer the data to the Laboratory Chain of Custody Form. Complete all sections of the form except those that relate to the time of delivery of the samples to the laboratory.

4.3 Pre-label the sample collection jars. Include all requested information except time of collection. (Use a fine point Sharpie to insure that the ink remains on the label). Affix the labels to the jars.

5.0 Bailing Procedure

5.1 Identify the well from the site schematics. Place pre-labeled jar(s) next to the well. Remove the bolts from the well cover and place the cover with the bolts nearby. Remove the plastic cap from the well bore by first lifting the metal lever and then unscrewing the entire assembly.

5.2 The well may be equipped with an individual 1 liter bailing tube. If so, use the tube to bail a volume of water from the well bore equal to 10 liters for each 5' of well bore in the water table. (This assumes a 2" dia. well bore).

5.3 Take care to insure that the bailing device and string do not become cross-contaminated. A clean pair of rubber gloves should be used when handling either the retrieval string or bailer. The retrieval string should not be allowed to come into contact with the ground.

6.0 Sampling Procedure

6.1 Once the well has been bailed in accordance with 5.2 of this procedure, a sample may be decanted into the appropriate sample collection jar directly from the bailer. The collection jar should be filled to the brim. Once the jar is sealed, turn the jar over to detect any bubbles that may be present. Add additional water to remove all bubbles from the sample container.

6.2 Note the time of collection on the sample collection jar with a fine Sharpie.

6.3 Place the sample directly on ice for transport to the laboratory. The preceding table shows the maximum hold times between collection and testing for the various analyses.

6.4 Complete the Chain of Custody form to include the collection times for each sample. Deliver all samples to the laboratory.

7.0 Documentation

7.1 The testing laboratory shall provide the following minimum information:

A. Client, Project and sample name.
B. Signed copy of the original Chain of Custody Form including data on the time the sample was received by the lab.
C. Results of the requested analyses
D. Test Methods employed
E. Quality Control methods and results

QP-77

WHOLE EARTH ENVIRONMENTAL
QUALITY PROCEDURE

Procedure for Obtaining Soil Samples for Transportation to a Laboratory

Completed By: Approved By: Effective Date: / /

1.0 Purpose

This procedure outlines the methods to be employed when obtaining soil samples to be taken to a laboratory for analysis.

2.0 Scope

This procedure is to be used when collecting soil samples intended for ultimate transfer to a testing laboratory.

3.0 Preliminary

3.1 Obtain sterile sampling containers from the testing laboratory designated to conduct analyses of the soil. The shipment should include a Certificate of Compliance from the manufacturer of the collection bottle or vial and a Serial Number for the lot of containers. Retain this Certificate for future documentation purposes.

3.2 If collecting TPH, BTEX, RCRA 8 metals, cation / anions or O&G, the sample jar may be a clear 4 oz. container with Teflon lid. If collecting PAH's, use an amber 4 oz. container with Teflon lid.

4.0 Chain of Custody

4.1 Prepare a Sample Plan. The plan will list the number, location and designation of each planned sample and the individual tests to be performed on the sample. The sampler will check the list against the available inventory of appropriate sample collection bottles to insure against shortage.

4.2 Transfer the data to the Laboratory Chain of Custody Form. Complete all sections of the form except those that relate to the time of delivery of the samples to the laboratory.

4.3 Pre-label the sample collection jars. Include all requested information except time of collection. (Use a fine point Sharpie to insure that the ink remains on the label). Affix the labels to the jars.

5.0 Sampling Procedure

5.1 Go to the sampling point with the sample container. If not analyzing for ions or metals, use a trowel to obtain the soil. Do not touch the soil with your bare hands. Use new latex gloves with each sample to help minimize any cross-contamination.

5.2 Pack the soil tightly into the container leaving the top slightly domed. Screw the lid down tightly. Enter the time of collection onto the sample collection jar label.

5.3 Place the sample directly on ice for transport to the laboratory.

5.4 Complete the Chain of Custody form to include the collection times for each sample. Deliver all samples to the laboratory.

6.0 Documentation

6.1 The testing laboratory shall provide the following minimum information:

A. Client, Project and sample name.
B. Signed copy of the original Chain of Custody Form including data on the time the sample was received by the lab.
C. Results of the requested analyses
D. Test Methods employed
E. Quality Control methods and results

QP-96

WHOLE EARTH ENVIRONMENTAL
QUALITY PROCEDURE

Sampling and Testing Protocol Chloride Titration Using .1 Normal Silver Nitrate Solution

Completed By:	Approved By:	Effective Date: / /

1.0 Purpose

This procedure is to be used to determine the concentrations of chlorides in soils.

2.0 Scope

This procedure is to be used as the standard field measurement for soil chloride concentrations.

3.0 Sample Collection and Preparation

3.1 Collect at least 80 g. of soil from the sample collection point. Take care to insure that the sample is representative of the general background to include visible concentrations of hydrocarbons and soil types. If necessary, prepare a composite sample of soils obtained at several points in the sample area. Take care to insure that no loose vegetation, rocks or liquids are included in the sample(s).

3.2 The soil sample(s) shall be immediately inserted into a one quart or larger polyethylene freezer bag. Care should be taken to insure that no cross-contamination occur between the soil sample and the collection tools or sample processing equipment.

3.3 The sealed sample bag should be massaged to break up any clods.

4.0 Sample Preparation

4.1 Tare a plastic cup having a minimum six-ounce capacity. Add between 80-120 grams of the soil sample and record the weight.

4.2 Add the same weight of distilled water to the soil sample and stir thoroughly using a glass or plastic stir stick.

4.3 Allow the sample to set for a period of thirty minutes. The sample should be stirred at least three times before fluid extraction.

4.4 Carefully pour off the free liquid from the sample through a paper filter into a clean plastic cup.

5.0 Titration Procedure

5.1 Using a graduated pipette, remove 10 ml extract and dispense into a clean plastic cup.

5.2 Add 2-3 drops potassium chromate (K_2CrO_4) to mixture.

5.3 If the sample contains any sulfides (hydrogen or iron sulfides are common to oilfield soil samples) add 2-3 drops of hydrogen peroxide (H_2O_2) to mixture. Allow the mixture to set for a minimum of five minutes.

5.4 Using a 1 ml pipette, carefully add .1 normal silver nitrate solution to sample until solution turns salmon red when viewed with yellow goggles. Be consistent with endpoint recognition.

6.0 Calculation

Multiply the amount of silver nitrate used in step 5.4 by 354.5 to obtain the chloride concentration in mg / L.

Laboratory Analytical Results

This section contains a copy of the chain of custody and laboratory analytical results for the monitor well situated immediately southeast of the Abo excavation.

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager:

Company Name: Whole Earth Environmental, Inc.

Company Address: 19606 San Gabriel

City/State/Zip: Houston, Tx. 77084

Telephone No: 800.854.4358

Fax No: 281.646.8996

Sampler Signature:

Project Name: Rice Operating Abo Facility

Project #:

Project Loc: Hobbs, NM

PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO_3 (Jean)	Preservative: HCl (BTEX as per M. Griffin)	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify)	Analyze For: TDS / CL / SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	Chlorides	Cation/Anion					RUSH TAT (Pre-Schedule)	Standard TAT
[illegible]	MW-1	9/25/01	12:55	3	X	X	X					X											X	X	X						

TCLP:
TOTAL:

Special Instructions:

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
M. Griffin	9/26/01	8:18			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
				9-26-01	08:18

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 646-8996

Sample Type: Water
Sample Condition: Intact/ Iced/ 0.0 deg C
Project #: None Given
Project Name: Rice Operating Abo Facility
Project Location: Hobbs, NM

Sampling Date: 09/25/01
Receiving Date: 09/26/01
Analysis Date: 10/03/01

ELT#	FIELD CODE	Ca mg/L	K mg/L	Mg mg/L	Na mg/L
0101639-01	MW-1	118	12.4	18.3	130

REPORT LIMIT	0.01	0.05	0.001	0.01
QUALITY CONTROL	1.96	1.73	2.09	1.76
TRUE VALUE	2.00	2.00	2.00	2.00
% INSTRUMENT ACCURACY	98	86	105	88
SPIKED AMOUNT	1.00	1.00	1.00	1.00
ORIGINAL SAMPLE	<0.01	<0.05	<0.001	<0.01
SPIKE	1.01	0.832	1.05	0.945
SPIKE DUP	0.960	0.832	1.04	0.852
% EXTRACTION ACCURACY	101	83	105	94
BLANK	<0.002	<0.05	<0.001	<0.01
RPD	4.78	0.05	2.04	10.3

METHODS: SW846-6010B

Raland K. Tuttle

10-03-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Sample Type: Water
Sample Condition: Intact/ Iced/ HCl/ 0.0 deg C
Project #: None Given
Project Name: Rice Operating Abo Facility
Project Location: Hobbs, NM

Sampling Date: 09/25/01
Receiving Date: 09/26/01
Analysis Date: 09/26/01

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
0101639-01	MW-1	<0.001	<0.001	<0.001	<0.001	<0.001

QUALITY CONTROL	0.097	0.095	0.092	0.186	0.089
TRUE VALUE	0.100	0.100	0.100	0.200	0.100
% IA	97	95	92	93	89
SPIKED AMOUNT	0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE	<0.001	<0.001	<0.001	<0.001	<0.001
SPIKE	0.099	0.098	0.094	0.189	0.090
SPIKE DUP	0.099	0.098	0.095	0.191	0.090
%EA	99	98	94	94	90
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001
RPD	0.00	0.00	1.06	2.10	0.00

METHODS: SW 846-8021B, 5030

Raland K. Tuttle

10-2-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Sample Type: Water
Sample Condition: Intact/ 0.0 deg. C
Project #: None Given
Project Name: Rice Operating Abo Facility
Project Location: Hobbs, NM

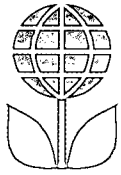
Sampling Date: 09/25/01
Receiving Date: 09/26/01
Analysis Date: See Below

ELT#	FIELD CODE	Carbonate mg/L	Bicarbonate mg/L	Sulfate mg/L	Chloride mg/L
0101639-01	MW-1	<0.10	380	158	177
	REPORT LIMIT	0.10	2.00	0.50	5.00
	QUALITY CONTROL	0.02	0.02	44.1	5050
	TRUE VALUE	0.02	0.02	50	5000
	% INSTRUMENT ACCURACY	100	100	88	101
	SPIKED AMOUNT	N/A	N/A	N/A	500
	ORIGINAL SAMPLE	N/A	N/A	N/A	177
	SPIKE	N/A	N/A	N/A	674
	% EXTRACTION ACCURACY	N/A	N/A	N/A	682
	BLANK	<0.10	<2.00	<0.50	<5.00
	RPD	0.90	0.90	0.630	1.18
	ANALYSIS DATE	10/01/01	10/01/01	10/01/01	9/27/01

METHODS: EPA 310.1, 375.4, SW 846-9253

Raland K. Tuttle

10-02-01
Date



VADSAT Contaminant Plume Migration Model

This section contains a copy of the VADSAT plume migration model and supporting data entry.

Whole Earth Environmental, Inc
Rice Operating Company
Abo Spill Chloride Loading Calculations

E&P Waste Management / Exposure Assessment Model

Control Data	Entry	U / M
Deterministic	Yes	
Final Time	36,500	Days
Time Interval	365	Days
Monte Carlo	No	
Low Permeability Layer Below Contamination	No	

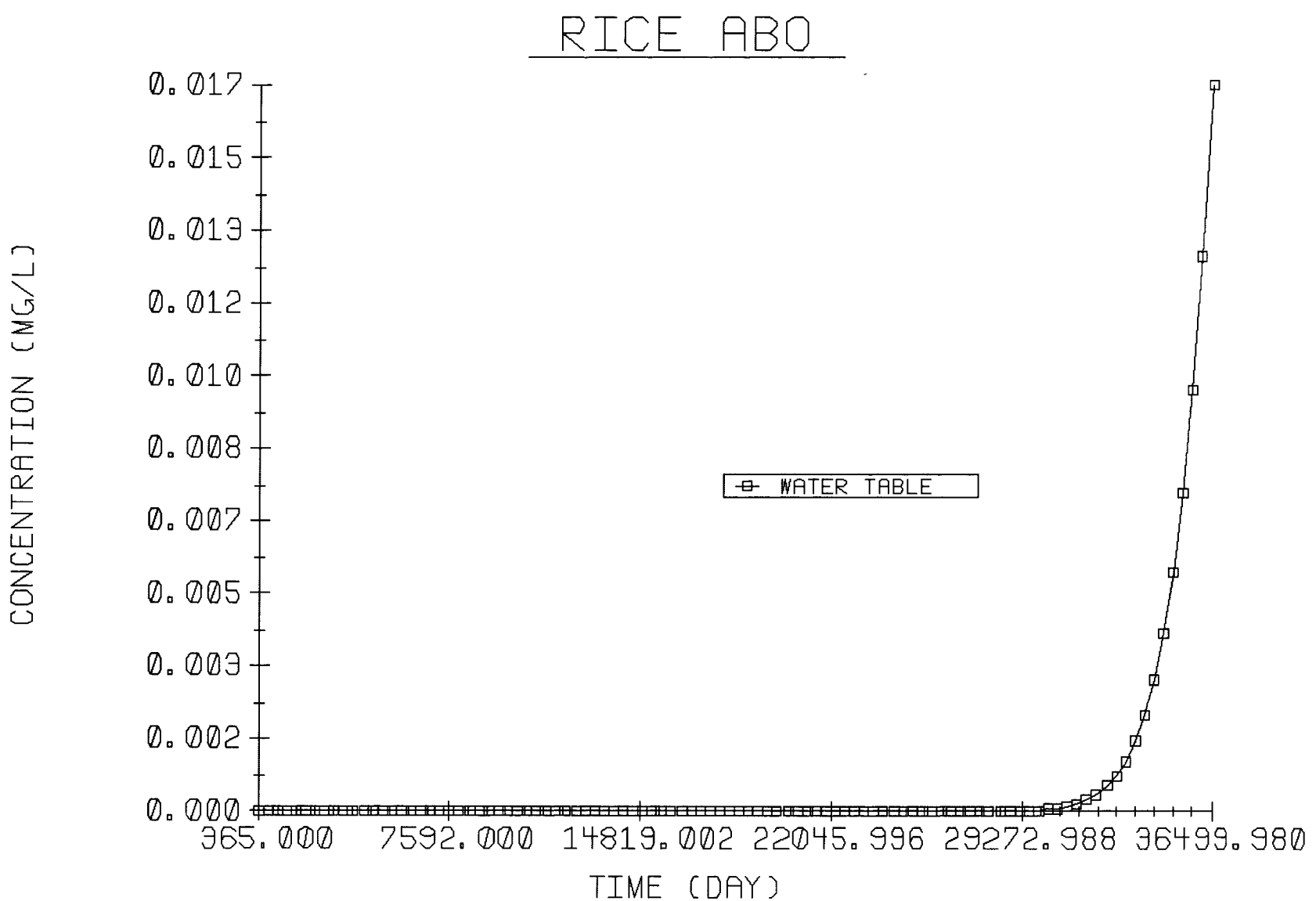
Source Data		
Waste Zone thickness	4	meters
Waste Zone Area	500	sq. meter
Ratio of Length to Width	1.0	
Initial Total Concentration in Waste	700	ppm

Chemical Data	
NaCl	Yes

Unsaturated Zone		
Soil Database	Clay	
Hydraulic Conductivity	0.00011	meters / day
Hydrological Database	Bedded Sedimentary	
Unsaturated Zone Thickness	22	meters
Soil Database	Clay	
van Genuchten	1.09	(Default)
Residual Water Content	0.068	
Unsaturated Zone Dispersivity	0	(Internally)

Saturated Zone		
Aquifer Porosity	0.011	
Longitudinal Dispersivity	0	(Internally)
Ratio of Long. / Trans. Dispersivities	1	
Ratio of Trans. / Vert. Dispersivities	10	
Hydrological Database	Bedded Sedimentary	
Aquifer Thickness	40.4	meters
Aquifer Gradient	0.023	
Saturated Hydraulic Conductivity	0.0001	meters / day

Net Infiltration Rate	0.0001	ft. / day


RICE ABO
0.017
0.015
0.013
0.012
0.010
0.008
0.007
0.005
0.003
0.002
0.000
CONCENTRATION (MG/L)
WATER TABLE
365.000
7592.000
14819.002
22045.996
29272.988
36499.980
TIME (DAY)

Price, Wayne

From: Price, Wayne
Sent: Tuesday, June 12, 2001 3:20 PM
To: 'riceswd@gte.net'
Cc: Sheeley, Paul; 'lovington@leaco.net'; 'whearth@iamerica.net'
Subject: Rice SWD ABO Emergency Overflow Pit F-31

Attention: Carolyn Haynes

Please find enclosed an approval letter with conditions for the above referenced site. The Hard copy is being placed in the US mail today.

Abof31.doc

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

June 12, 2001

Lori Wrotenbery
Director
Oil Conservation Division

CERTIFIED MAIL
RETURN RECEIPT NO. 5357 7812

Carolyn Doran Haynes
Rice Operating Company
122 West Taylor
Hobbs, New Mexico 88240

Re: Emergency Overflow Pit Closure Plan
ABO SWD Site F-31
Unit Letter F, Sec. 31, T16S, R37E
Lea County, NM

Dear Ms. Haynes:

The New Mexico Oil Conservation Division (NMOCD) is in receipt of Rice Operating Company's (ROC) work plan dated May 09, 2001 and addendum PR-33A dated June 12, 2001 submitted by E-mail by Whole Earth Environmental. The NMOCD hereby approves of the work plan with the following conditions:

1. OCD must witness and split bottom hole samples. ROC shall contact the OCD Hobbs Office, Mr. Paul Sheeley 505-393-6161 ext 113 and make arrangements.

2. The excavated pit area shall not be back-filled until OCD approves.

3. Provide for OCD approval a cross-section view showing the depth and location of all liner(s). Provide information concerning the design, construction, and hydrogeologic properties, etc.

4. ROC shall provide a plan for OCD approval demonstrating how the buried liners will be protected in the foreseeable future. (i.e. deed recording, signs, etc.)

5. Provide a final closure report by July 30, 2001.

Please be advised that NMOCD approval of this work plan does not relieve Rice Operating Company of responsibility should their closure activities fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve Rice Operating Company of responsibility for compliance with any other federal, state, or local laws and/or regulations.

If you have any questions please call me at 505-476-3487 or E-mail WPRICE@state.nm.us.

Sincerely;

Wayne Price-Pet. Engr. Spec.

Cc: OCD Hobbs Office-Mr. Paul Sheeley
City of Lovington, NM -Mr. Bob Carter
Whole Earth Environmental

Price, Wayne

From: Mike Griffin[SMTP:whearth@iamerica.net]
Sent: Tuesday, June 12, 2001 11:40 AM
To: Wayne Price
Subject: Rice Abo Facility

PR-33A Rice ABO.doc

Wayne:
In accordance with our telecon this morning with Bob Carter, attached please find a copy of the new revised protocol for this site.

Thanks again for the quick review.

Mike

PR-33A

Remediation Protocol
Rice Operating Company
ABO Facility

1.0 Purpose

This protocol is to provide a detailed outline of the steps to be employed in the remediation of a pit located north of Hobbs, New Mexico.

2.0 Scope

This protocol is site specific for the Rice Operating remediation project.

3.0 Preliminary

Prior to any field operations, Whole Earth Environmental shall conduct the following activities:

3.1 Client Review

3.1.1 Whole Earth shall meet with cognizant personnel within Rice to review this protocol and make any requested modifications or alterations.

3.1.2 Changes to this protocol will be documented and submitted for final review by Client prior to the initiation of actual field work.

4.0 Safety

4.1 Prior to work on the site, Whole Earth shall obtain the location and phone numbers of the nearest emergency medical treatment facility. We will review all safety related issues with the appropriate Client personnel, sub-contractors and exchange phone numbers.

4.2 A tailgate safety meeting shall be held and documented each day. All sub-contractors must attend and sign the daily log-in sheet.

4.3 Anyone allowed on to location must be wearing sleeved shirts, steel toed boots, and long pants. Each vehicle must be equipped with two way communication capabilities.

4.4 Prior to any excavation, New Mexico One Call will be notified. The One Call notification number will be included within the closure report. If lines are discovered within the area to be excavated they shall be marked with pin flags on either side of the line at maximum five-foot intervals.

5.0 Remediation Procedure

5.1 All soils containing a TPH concentration >100 ppm, chlorides > 250 ppm and all soils containing a benzene concentration >10 ppm or a total BTEX concentration >50 ppm will be excavated. Soils containing TPH concentrations >1,000 ppm will be transported to commercial disposal. The side walls and bottom of the excavation will be field tested for TPH and BTEX concentrations in accordance with WEQP-06 and WEQP-96.

5.2 The Hobbs branch of the OCD will be notified to witness the final confirmation sampling of the side walls and bottom of the excavation. Samples will be collected in accordance with WEQP-77 and analyzed for TPH and BTEX.

5.3 Upon approval by the NMOCD, Whole Earth will install a clay liner in the bottom of the excavation to a minimum depth of 24" and compacted to 100% density.

5.4 An additional 20 mil high-density polyethylene liner will be installed atop the clay liner and extended to within 5' of the ground level.

5.5 The remaining soils will be mixed and blended with sub-strait materials to achieve the concentrations of <100 ppm TPH, <10 ppm benzene and < 1,000 ppm chlorides and replaced within the excavation.

5.6 An additional liner will be extended atop the backfilled materials and overlapped with the lower liner to insure that no leakage into the encapsulation area may occur. Clean topsoils will be placed atop the upper liner and the elevation matched to surrounding contours.

6.0 Closure Report

6.1 At the conclusion of the project, Whole Earth shall prepare a closure report which contains the following minimum information:

- Photographs of the location prior to remediation
- Photographs of the location at time of final closure
- Contaminant concentrations at the conclusion of the project
- Copies of this protocol and all testing procedures
- Independent laboratory analyses
- Shipping manifests for all materials taken to disposal
- Disposal manifests for all materials sent to commercial disposal

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

CERTIFIED MAIL
RETURN RECEIPT NO. 7099 3220 0001 9928 4522

May 9, 2001

Mr. Wayne Price
NM Energy, Minerals, and Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, NM 87504

RE: EMERGENCY OVERFLOW PIT CLOSURE PLAN
ABO SWD SITE F-31
Unit Letter F, Sec. 31, T16S, R37E NMPM
Lea County, NM

Dear Mr. Price:

Rice Operating Company (ROC) takes this opportunity to submit the closure plan for the emergency overflow pit at the ABO Salt Water Disposal Well F-31, located in Unit F, Sec. 31, T16S, R37E, Lea County, NM. This facility is located on land owned by the City of Lovington.

ROC is the service provider (operator) for the ABO Salt Water Disposal System and has no ownership of any portion of pipeline, well or facility. The ABO System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis. Replacement/closure projects of this magnitude require System Partner AFE approval and work begins as funds are received.

The Project AFE for the SWD F-31 Facility has been approved by the System Partners and work is scheduled to begin May 21.

The ABO SWD Well F-31 facility is included in the ROC generic closure plan for emergency pits and below-grade redwood tanks (there are no redwood tanks at this facility) and is the eighth ROC-operated facility to apply under the generic plan. The ABO SWD System installed a pipeline connecting the two ABO disposal wells in January 2001. This pipeline provides overflow capability from the F-31 SWD to the C-2 SWD, thus eliminating the need for the emergency overflow pit at the F-31 facility. The emergency overflow pit at this facility will be

closed pursuant to NMOCD guidelines and the ROC generic work plan for emergency overflow pits. ROC expects to delineate the area for any residual environmental impact pursuant to NMOCD guidelines. The enclosed C-103 form addresses this intention and defines the site-specific assessment for OCD guidelines. Supporting documentation is also enclosed.

A temporary tank system will not be necessary at this site.

ROC will schedule all major events with a 48-hour advance notice to the NMOCD. Whole Earth Environmental will be the on-site manager of the excavation project. The Final Closure Report will follow at the end of the project.

Thank you for your consideration of this emergency overflow pit closure plan.

RICE OPERATING COMPANY

Carolyn Doran Haynes

Carolyn Doran Haynes
Operations Engineer

Enclosures
cc: LBG, file,

Mr. Chris Williams
NMOCD, District I Office
1625 N. French Drive
Hobbs, NM 88240

Mike Griffin
Whole Earth Environmental, Inc.
19606 San Gabriel
Houston, TX 77084

Bob Carter
Lovington City Manager
P. O. Box 1268
Lovington, NM 88260

RICE *Operating Company*
122 West Taylor · Hobbs, NM 88240
Phone: (505) 393-9174 · Fax: (505) 397-1471

SITE PROFILE

Location
The ABO SWD Facility F-31 is situated approximately 3 ½ miles southeast of Lovington, NM. A map of the area is included in this report.

Site History
The site is used as a flow-through collection and injection facility for salt-water disposal of the ABO Salt Water Disposal System. The facility uses two 15.5' diameter 500-barrel above-ground steel tanks as flow-through collection vessels. There is an emergency overflow pit to be closed at this site. A pipeline connecting SWD Well F-31 to SWD Well C-2 has been installed to provide for overflow capability.

The SWD Well F-31 is located at this site. This facility is an active disposal facility that uses pressure to dispose of approximately 2500 barrels of produced fluid per day.

A map of the facility is included in this report. This upgrade is scheduled to start May 21, 2001 and is targeted for completion by August 1, 2001.

Land Use
This facility is located on land owned by the City of Lovington. The 2.5-acre disposal facility site has been in use since 1974. Included in this report is a copy of the renewed lease agreement.

The primary use of this land is oil and gas production. There is a refinery located to the northwest (across Highway 18) of the F-31 SWD Facility. The topography is unremarkable. This area is also developed for the City of Lovington Municipal Water Supply Field.

Distance to Surface and Ground Water
There are no domestic water wells within 200' of the facility at this time. There are two municipal water supply wells within 1000' of the facility, one to the northwest and one to the northeast. The vertical distance to groundwater at this site is 84' BGS, according to the most recent water-level measurement in three monitor wells located south of the F-31 facility yard. The water quality of these monitor wells meets WQCC standards for domestic water.

Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 87240
District II
811 South First, Artesia, NM 87210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-103
Revised March 25, 1999

WELL API NO.
30-025-25211

5. Indicate Type of Lease
STATE ☐ FEE ■

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well:
Oil Well ☐ Gas Well ☐ Other SWD Well

7. Lease Name or Unit Agreement Name:
ABO SWD SYSTEM

2. Name of Operator
RICE OPERATING COMPANY

8. Well No.
F-31

3. Address of Operator
122 W. TAYLOR, HOBBS, NM 88240

9. Pool name or Wildcat

4. Well Location
Unit Letter F : 2310 feet from the NORTH line and 2626 feet from the WEST line

Section 31 Township 16S Range 37E NMPM LEA County

10. Elevation *(Show whether DR, RKB, RT, GR, etc.)*
3823' GL

11. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPLETION	☐	CASING TEST / CEMENT JOB	☐		
OTHER: Close Emergency Overflow Pit			■	OTHER:			☐

12. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompilation.

Proposed work according to NMOCD approved generic closure plan for below-grade redwood tanks and emergency overflow pits:

Delineate emergency overflow pit site for contamination, remove and properly dispose of highly impacted soils, sample and evaluate pursuant to NMOCD guidelines. All major events including boring, sampling events, etc. will be coordinated to allow 48 hours notice to NMOCD.
Information from the NMSEO groundwater database estimated depth to ground water is 84' BGS. This facility is located in the midst of the City of Lovington fresh water supply well field. There are several monitor wells just to the south of this facility that have been monitored for several years with eleven consecutive quarters of acceptable results.

Depth to GroundWater: 84' = 10; Water Source within 1000' = 20; No surface water body within 1000' = 0

Site Assessment = 30

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE _____ TITLE: OPERATIONS ENGINEER DATE: 05/07/01

Type or print name CAROLYN DORAN HAYNES Telephone No. 505-393-9174

(This space for State use)

APPPROVED BY _____ TITLE _____ DATE _____

Conditions of approval, if any:

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

CERTIFIED MAIL
RETURN RECEIPT NO. Z 577 009 529

February 23, 2000

Mr. Wayne Price
NM Energy, Minerals and Natural Resources Department
Oil Conservation Division, Environmental Bureau
2040 S. Pacheco
Santa Fe, NM 87505

Re: Revision: Generic Closure Plan for Existing Pits and Below-Grade Redwood Tanks

Mr. Price:

As discussed in our telephone conversation February 22, Rice Operating Company (ROC) is submitting a further revision of the generic work plan for closing redwood tanks and emergency overflow pits that are presently inventoried in the ROC-operated SWD systems in Lea County. (ROC has no ownership of pipelines, wells, or facilities. Each system is owned by a consortium of oil producers, System Partners, who provide operating capital based on percent ownership or usage. Closure projects require AFE approval and work begins as funds are received.)

The revisions ROC proposes involve the on-site disposal of non-impacted concrete when practical and the use of a compacted clay layer rather than poly-liner for lining excavations. Also proposed is a revision to the closure procedure, adding an OCD verbal approval step in order for ROC to timely continue with installation of new surface facilities.

Closure reports for two locations, F-29 (two-year sampling of groundwater) and H-35 (closed), have been processed with the OCD. The P-25 location closure report has been submitted. Locations C-2 and L-21 are in remediation activity right now and Donna Williams has visited both sites. The C-2 site excavation will be managed with RE Environmental and the L-21 site will be managed with Whole Earth. ROC expects to be able to schedule final sampling for early March at both sites. The AFE has been approved for two additional sites in the Eunice-Monument-Eumont area with work start-up planned for early summer.

Thank you for your consideration of these revisions. If you have any questions, please call.

Carolyn Doran Haynes

Carolyn Doran Haynes
Operations Engineer

Cc KH; file; Ms. Donna Williams, OCD District I, Hobbs, NM

REVISED
4-23-99
2-23-00

Closure Plan for Below Grade Redwood Tank

1. Submit C-103 form to NMOCD along with the site-specific location, site assessment, work plan, time schedule, sampling and testing plan, etc., all pursuant to NMOCD guidelines.

2. Procure soil samples from 3' below bottom of tanks (9-11' below grade) at tank sides.
   A. If soil samples are < 100ppm TPH and < 250ppm Chlorides, proceed to Step 4.
   B. If soil samples are > 100ppm THP or > 250ppm Chlorides, proceed to Step 3.

3. Delineate any portion of tank site that is > 100ppm TPH or > 250ppm Chlorides with a backhoe or soil boring machine, obtaining samples for field and lab analysis at 5' intervals.
   A. When field analysis of bored-sample determines < 100ppm TPH and < 250ppm Cl, boring will be suspended pending laboratory analysis confirmation. Proceed to Step 4.
   B. If these parameter levels are not identified, then boring and sampling will continue to ground water. Upon reaching groundwater, the borehole will be cased and developed. Ground water samples will be procured and tested for major cations and anions, TDS and BETX levels. If ground water is found to exceed the WQCC standards, NMOCD will be notified immediately and the closure plan will move into Rule 19 procedures.

4. Write AFE to System Partners as directed by results of delineation of redwood tank site and of emergency pit (if both are at facility). Await approval and funding for site closing.

5. Move onto SWD facility site with temporary tank system. Re-route fluid flow from below grade redwood tanks into the temporary tank system. Plumb to SWD well.

6. Empty and clean redwood tanks, properly disposing of any BS & W. Excavate sides of redwood tanks to allow for working space to manipulate tank support banding. Remove redwood tanks reserving boards for proper disposal.

7. Excavate ramp into redwood tank hole. Remove and properly dispose of concrete base if impacted. If concrete is not impacted, use as fill (below plow depth) in excavation area.

8. Remove impacted soil (as practical) to eliminate hot spots; dispose per NMOCD guidelines.

9. Procure random 5-point composite bottom sample from 3'below tank bottom and random 4-point composite side sample for lab TPH, Benzene, and BTEX testing.
   A. If <100ppm TPH; BTEX, Benzene <10ppm; <250ppm Chlorides; proceed to Step 11.
   B. If >100ppm TPH; BTEX, Benzene >10ppm; >250ppm Chlorides; in the vadose zone but not reaching groundwater, proceed to Step 10.

10. Evaluate site for risk assessment: delineate to assess depth and horizontal extent of impact corresponding to NMOCD guidelines for site assessment value; excavate bottom and sides as practical to minimize risk; install compacted clay liner to meet or exceed 95% of a Proctor Test ASTM-D-698 with permeability (hydraulic conductivity) equal or less than $1x10^{-7}$ cm/sec for containment/isolation of impact.

11. Discuss results/risk assessment with NMOCD for verbal approval to proceed with backfill/installation of new tanks and plumbing within engineered secondary containment system.

12. Apply to NMOCD for closure of redwood tank site per NMOCD guidelines and site results.

REVISED
4-23-99
2-23-00

Closure Plan for Permitted Emergency Pits

1. Submit C-103 form to NMOCD along with the site-specific location, site assessment, work plan, time schedule, sampling and testing plan, etc., all pursuant to NMOCD guidelines.

2. Remove and properly dispose of visibly contaminated soil pursuant to NMOCD guidelines.

3. Procure soil samples from surface and 3' below excavation bottom and excavation sides.
   A. If soil samples are < 100ppm TPH and < 250ppm Chlorides, proceed to Step 6.
   B. If soil samples are > 100ppm THP or > 250ppm Chlorides, proceed to Step 4.

4. Delineate any portion of excavation that is > 100ppm TPH or > 250ppm Chlorides with a backhoe or soil boring machine, obtaining samples for field and lab analysis at 5' intervals.
   A. When field analysis of bored-sample determines < 100ppm TPH and < 250ppm Cl, boring will be suspended pending laboratory analysis confirmation. Proceed to Step 5.
   B. If these parameter levels are not identified, then boring and sampling will continue to ground water. Upon reaching groundwater, the borehole will be cased and developed. Ground water samples will be procured and tested for major cations and anions, TDS and BETX levels. If ground water is found to exceed the WQCC standards, NMOCD will be notified immediately and the closure plan will move into Rule 19 procedures.

5. Write AFE to System Partners as directed by results of delineation of redwood tank site and of emergency pit (if both are at facility). Await approval and funding for site closing

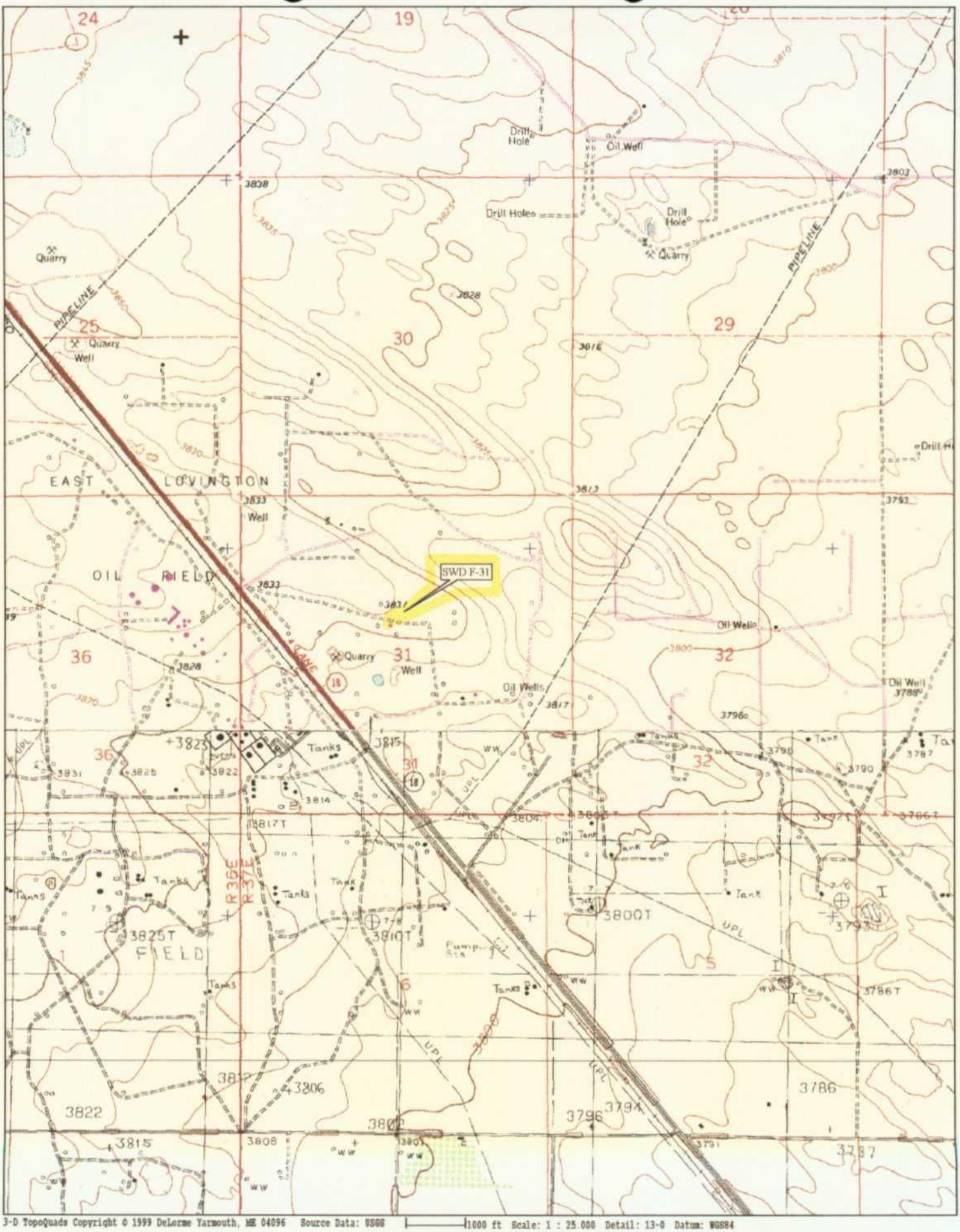
6. Remove impacted soil (as practical) to eliminate hot spots; dispose per NMOCD guidelines.

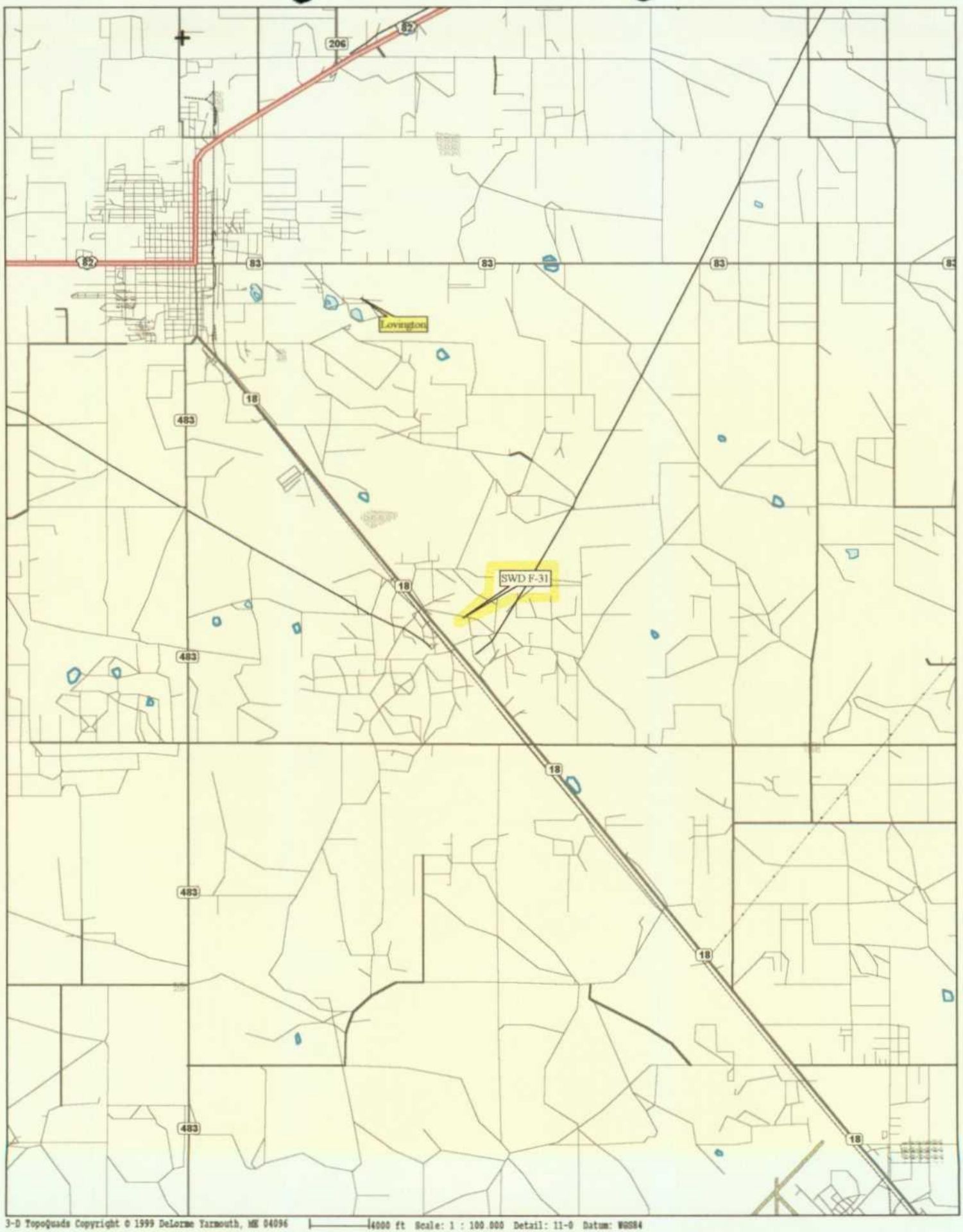
7. Procure random 5-point composite bottom sample and random 4-point composite side sample for laboratory TPH, Benzene, and BTEX testing.
   A. If <100ppm TPH; BTEX, Benzene <10ppm; <250ppm Chlorides; proceed to Step 9.
   B. If >100ppm TPH; BTEX, Benzene >10ppm; >250ppm Chlorides; in the vadose zone but not reaching groundwater, proceed to Step 8.

8. Evaluate site for risk assessment: delineate to assess depth and horizontal extent of impact corresponding to NMOCD guidelines for site assessment value; excavate bottom and sides as practical to minimize risk; install compacted clay liner to meet or exceed 95% of a Proctor Test ASTM-D-698 with permeability (hydraulic conductivity) equal or less than $1x10^{-7}$ cm/sec for containment/isolation of impact.

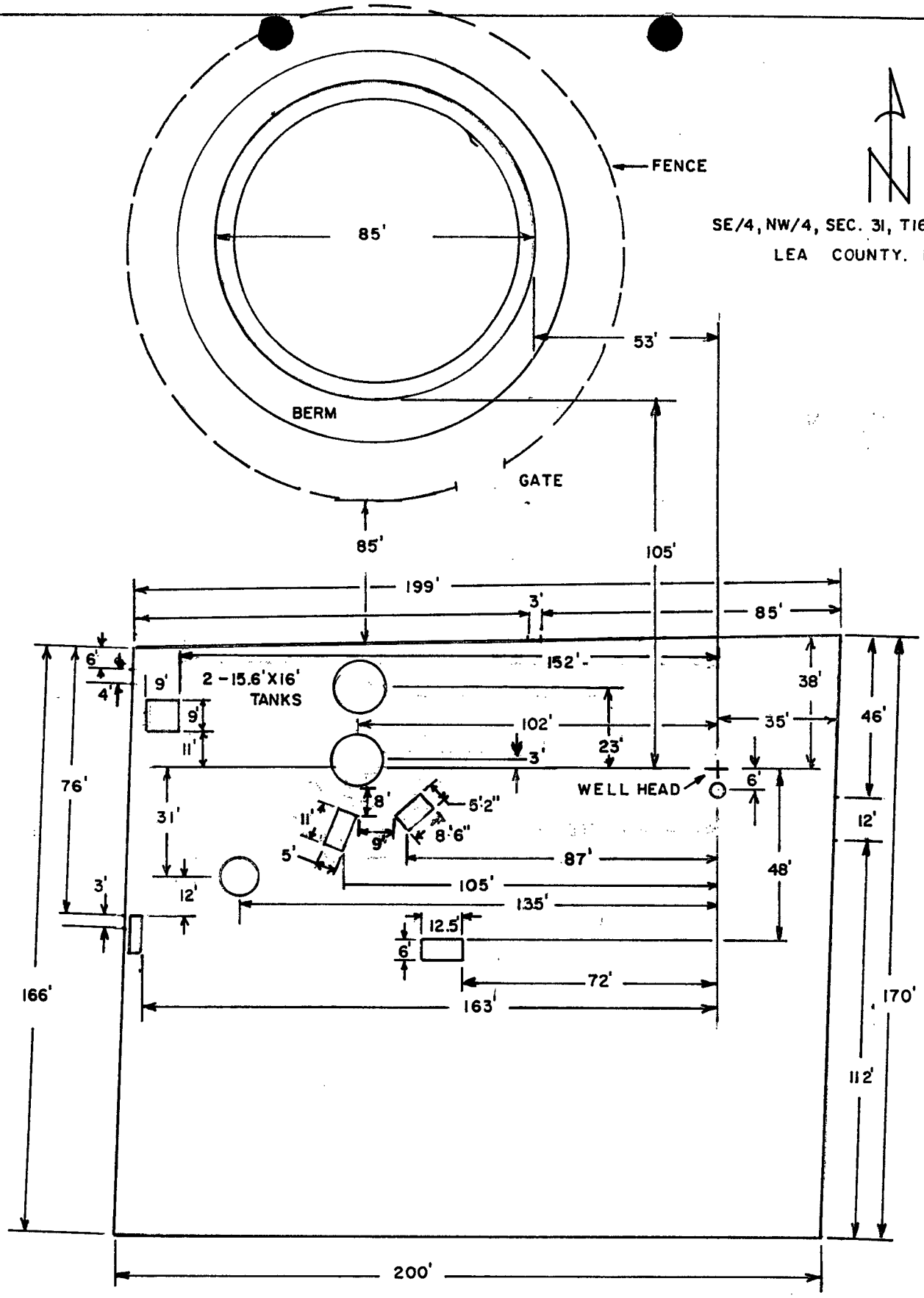
9. Discuss results/risk assessment with NMOCD for verbal approval to proceed with backfill.

10. Apply to NMOCD for closure of permitted emergency pit site per NMOCD guidelines and site results.





 4000 ft Scale: 1 : 100,000 Detail: 11-0 Datum: WGS84



DWN	SRT	12-3-99	ABO SWD SYSTEM F-31 WELL LOCATION	SCALE 1"= 40'
			Rice Engineering & Operating, Inc. Hobbs, New Mexico	DWG NO.

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Originated 6/27/97

Submit Original
Plus 1 Copy
to Santa Fe

PIT INVENTORY FORM

Operator: RICE OPERATING COMPANY

Address: 122 WEST TAYLOR

HOBBS, NEW MEXICO 88240

Phone Number: (505) 393-9174

Previous Operator(s): Getty

Is the pit permitted: Yes [X] No [ ]

Unit Letter: F Section: 31 Township: 16S Range: 37E

County: Lea

Location Name: Abo Salt Water Disposal System Well F-31

Number of wells to the pit: 1

Are the wells to the pit operated by one operator [XX] or multiple operators [ ]

Total daily volume (in barrels) to the pit: None

Pit Type: Emergency

(Emergency, Production, Workover, Reserve/Drilling(greater than 6 months old),Flare, Blowdown, Seperator, Dehydrator, Line Drip, BS&W/Tank Bottoms, Compressor, Pigging, Washdown, or other)

What types of wastes are accepted in the pit (Exempt, Non-exempt, Both, None): Exempt (Production water)

Pit age (years): 1

Is the pit lined [ ] or unlined [XX]

Type of liner (None, Synthetic, Clay) : None

Is leak detection present: Yes [ ] No [X]

Is the pit netted: Yes [ ] No [X]

Pit dimensions (LxWxD): 60'dia.X5'deep

CERTIFICATION

I hereby certify that the information submitted is true and correct to the best of my knowledge and belief.

Name: Roger Hall Title: Operations Engineer

Signature: Roger Hall Date: 10/28/97

A pit is defined as any below grade or surface feature which receives any materials other than fresh water

Submit 4 Copies
to Appropriate
District Office

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980

DISTRICT II
.O. Drawer DD, Artesia, NM 88211-0719

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
.nergy, Minerals and Natural Resources Dep. .t

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Form C-134
Aug. 1, 1989

F-31

Permit No. H-67
(For Division Use Only)

APPLICATION FOR EXCEPTION TO DIVISION ORDER R-8952
FOR PROTECTION OF MIGRATORY BIRDS Rule 8(b), Rule 105(b), Rule 312(h), Rule 313, or Rule711(I)

Operator Name: Rice Engineering Corporation

Operator Address: 122 W. Taylor, Hobbs, New Mexico 88240

Lease or Facility Name Abo SWD System Well F-31 Location F 31 16S 37E
Ut. Ltr. Sec. Twp. Rge

Size of pit or tank: 60' dia. x 5' deep, approx. 2500 bbls.

Operator requests exception from the requirement to screen, net or cover the pit or tank at the above-described facility.

x The pit or tank is not hazardous to migratory waterfowl. Describe completely the reason pit is non-hazardous.

The pit is used only in emergencies such as major well remedial work.

Normally kept empty.

1) If any oil or hydrocarbons should reach this facility give method and time required for removal:

Method: Vacuum truck

Time: Within 24 hours of discovery

2) If any oil or hydrocarbons reach the above-described facility the operator is required to notify the appropriate District Office of the OCD with 24 hours.

____ Operator proposes the following alternate protective measures:

CERTIFICATION BY OPERATOR: I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature S. A. Haktanir Title Division Manager Date 7-26-90

Printed Name S. A. Haktanir Telephone No. 393-9174

FOR OIL CONSERVATION DIVISION USE

Date Facility Inspected 8/2/90

Inspected by Eddie W Seay

Approved by

Title

Date

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

July 6, 2000

City of Lovington
P O Box 1268
Lovington, NM 88260

RE: ABO SWD System
SWD Well F-31

Dear Sir or Madam:

Please find the enclosed check #2565 in the amount of $ 250.00 covering the annual Salt Water Disposal lease rental for SWD Well F-31, in the SE/4 NW/4 of Section 31, T16S, R37E, Lea County, New Mexico, for the period of July 1, 2000 to July 1, 2001.

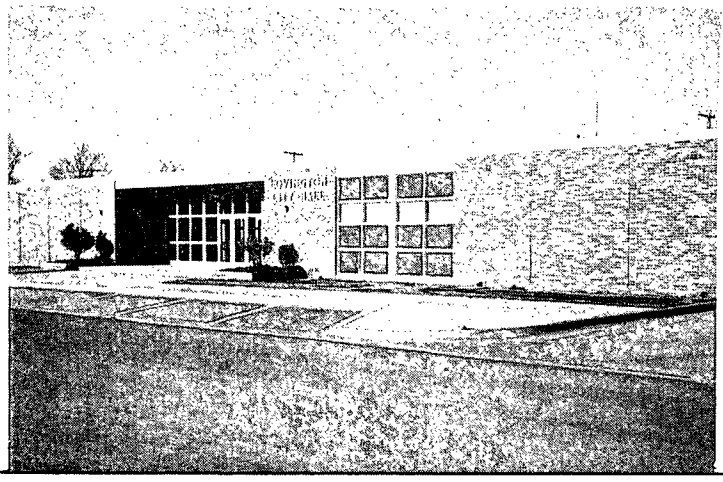
If you should have any questions, please do not hesitate to call us at the above numbers.

Sincerely,

Jo Ann Norrell
Office Manager

Enclosure: Check # 2565

CITY OF LOVINGTON



PHONE 505 396-2884 P. O. BOX 1268
LOVINGTON, NEW MEXICO 88260

July 10,1974

Rice Engineering & Operating, Inc.
P.O. Box 1142
Hobbs, N.M. 88240

Re: Abo SWD System
SWD Well F-31

Attention: L.B. Goodheart

Dear Sir:

The City Commission approved the Salt Water Disposal Lease at their regular commission meeting last night and I am returning a copy for your files.

The City Attorney reviewed the lease and gave his approval except for the wording that we acknowledged the receipt of the $250.00 which we have not received yet, but I felt that this would be forthcoming upon learning that the lease was approved.

Sincerely,

CITY OF LOVINGTON
Peggy Mann, Clerk-Treasurer

Peggy Mann

Encl. 1

RECEIVED
JUL 15 1974
RICE ENGINEERING & OPERATING, INC.
HOBBS, N. M.

GT. BEND

TO	
LAW	✓
DPM	✓
FILE	

SALT WATER DISPOSAL LEASE

THIS AGREEMENT, made and entered into this 1st day of July, 1974, between The City of Lovington, hereinafter called Lessor (whether one or more), and Rice Engineering & Operating, Inc., hereinafter called Lessee,

WITNESSETH:

That Lessor, for and in consideration of Two Hundred and Fifty ($250.00) Dollars, the receipt of which is hereby acknowledged, does hereby demise, lease and let unto Lessee, its successors or assigns, the following described tract of land located in Lea County, New Mexico:

> All that certain parcel or tract of land in the SE/4 NW/4 of Section 31, Township 16 South, Range 37 East, Lea County, New Mexico, being more fully described as follows:
>
> Beginning at a point from which the Southeast corner of said Section 31 bears S. 0° 10' W., a distance of 2811.4 feet and S. 89° 50' E., a distance of 2852.7 feet, which is the Southeast corner of this tract; thence N. 0° 10' E. 330 feet to a point, the Northeast corner of this tract; thence N. 89° 50' W. 330 feet to a point, the Northwest corner of this tract; thence S. 0° 10' W. 330 feet to a point, the Southwest corner of this tract; thence S. 89° 50' E. to the place of beginning, said tract contains 2.5 acres, more or less,

together with the right of ingress and egress to and from the lease premises, for the uses and term hereinafter set forth:

1. Lessee shall have the exclusive right to use the leased premises and a disposal well to be located thereon, in connection with the injection and disposal of oil field brine and other waste water and their injection into the substrata of land; and for the digging of pits; for the erection of tanks and receptacles necessary in receiving, treating and disposing of said brine and waste water, and for the erection of structures, appliances, engines and machinery necessary in connection with the operation of the well as a salt water disposal input well.

2. This lease shall terminate on the 1st day of July, 1975, unless on or before said date Lessee pays or tenders to Lessor the sum of Two Hundred and Fifty ($250.00) Dollars which shall be considered as a rental, continuing the lease in effect for one year thereafter. Upon like annual payments or tenders, Lessee may continue the lease in effect from year to year for a period of twenty (20) years from the lease date and so long thereafter as the tract is used for salt water disposal. All payments and tenders may be made by draft or check of Lessee deposited in any post office in an envelope with sufficient postage, addressed to Lessor. No change in the ownership of the above described land shall be binding on Lessee until and unless it shall have first been furnished a certificate or photostatic copy of the recorded conveyance effecting such transfer of title.

3. Lessee shall have the right to use the leased premises and the disposal well for the injection of oil field brine and waste water into the substrata of said lands, whether produced on lands operated for oil and gas by Lessee or those so operated by others.

4. Lessee agrees to pay Lessor for damages to growing crops arising out of or incident to the exercise of the rights granted by this lease. Lessee shall bury its pipelines below plow depth.

5. Lessee shall have the right, during the term of this lease or within 90 days thereafter, to remove from the leased premises all materials, equipment and other personal property placed thereon by Lessee.

6. Lessee, in operating the disposal well, shall not inject the brine or other waste water into fresh water bearing sands or oil and gas bearing strata.

7. Lessee agrees to conduct its operations in accordance with rules and regulations of the Conservation Commission, or other proper authority.

8. The terms of this lease shall extend to and be binding on the parties hereto, their heirs, successors or assigns.

EXECUTED this 9th day of July, 1974.

Dr. L E Smith

Keith Spradlin

Bill Walker

Jack E Riggs

STATE OF

COUNTY OF

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this 9th day of July, 1974, personally appeared Dr. L E Smith, Keith Spradlin, Bill Walker, Jack E. Riggs to me known to be the identical person who executed the within and foregoing instrument and acknowledged to me that he executed the same as his free and voluntary act and deed for the uses and purposes therein set forth, and in the capacity therein stated.

Given under my hand and seal the day and year last above written.

La Juana Hall
Notary Public

My Commission Expires:

My Commission Expires November 22, 1975

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

AUG 3 1979

at 1:20 o'clock P. M
and recorded in Book 361
Page 475
Jane Rice Smith County Clerk
By [illegible] Deputy

9527

Rice Engineering
P.B. Goodheart
122 West Taylor - Hobbs, N.M. 88240

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

May 9, 2001

Mr. Bob Carter
Lovington City Manager
P. O. Box 1268
Lovington, NM 88260

RE: ABO SWD Facility F-31 Pit Closure
Unit Letter F, Section 31-T16S-R37E
Lea County, NM

Dear Mr. Carter:

Rice Operating Company (ROC) appreciates opportunities to work with land owners/managers such as you in order to optimize and improve our operation. It is our goal to keep you informed of situations that arise during routine operations concerning the land that is leased to the various salt water disposal systems operated by ROC.

This letter is regarding the 2.5-acre leased area located at Unit Letter F, Section 31-T16S-R37E, Lea County, NM, where ROC operates the F-31 Disposal Facility for the ABO Salt Water Disposal System. The Lease on this land is current.

ROC will conduct upgrade activities at the ABO F-31 Facility in order to close the emergency overflow pit. Earlier this year, ROC installed a new polyethylene pipeline that connected the two disposal wells of the ABO SWD System, relieving the need for the overflow pit at the F-31 location. This pit and the surrounding area will be evaluated for environmental impact and will be remediated to levels designated and/or approved by the New Mexico Oil Conservation Division (NMOCD). The firm of Whole Earth Environmental, Inc. has been retained to conduct the on-site closure activities and are scheduled to begin May 21, 2001.

At the completion of this upgrade, a copy of the NMOCD Closure Report will be forwarded to you. If you have any questions, comments or concerns pertaining to this upgrade, please don't hesitate to call Rice Operating Company at the above phone number.

Sincerely,

RICE OPERATING COMPANY

Carolyn Doran Haynes

Carolyn Doran Haynes
Operations Engineer

cc LBG, NMOCD, file, Whole Earth Env. Inc.