

1R - 427-74

APPROVALS

YEAR(S):

2013

Hansen, Edward J., EMNRD

From: Hansen, Edward J., EMNRD
Sent: Tuesday, June 18, 2013 3:03 PM
To: Hack Conder (hconder@riceswd.com)
Cc: Leking, Geoffrey R, EMNRD; Laura Pena (lpna@riceswd.com); Katie Jones <kjones@riceswd.com> (kjones@riceswd.com); Scott Curtis (scurtis@riceswd.com)
Subject: Remediation Plan (1R427-74) Termination - ROC EME E-2 Site

**RE: Termination Request
for the Rice Operating Company's
EME E-2 Site
Unit Letter E, Section 2, T20S, R36E, NMPM, Lea County, New Mexico
Remediation Plan (1R427-74) Termination**

Dear Mr. Conder:

The New Mexico Oil Conservation Division (OCD) has received Rice Operating Company's report and request to close the above-referenced site, dated June 12, 2013 (received June 14, 2013). The reports are acceptable to the OCD.

The above-referenced report, submitted in accordance with 19.15.29 NMAC (Rule 29; formally, Rule 116), indicates that Rice Operating Company has met the requirements of 19.15.29 NMAC; therefore, the OCD approves the report and hereby notifies you that the remediation plan (1R427-74) is terminated in accordance with 19.15.29 NMAC.

Please be advised that OCD approval of this report does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

RICE *Operating Company*

122 West Taylor • Hobbs, New Mexico 88240

Phone: (575) 393-9174 • Fax: (575) 397-1471

RECEIVED OGD

2013 JUN 14 P 2: 05

CERTIFIED MAIL

RETURN RECEIPT NO. 7007 2560 0000 4569 8883

June 12, 2013

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

RE: Termination Request
EME E-2 (1R427-74): UL/E, Sec. 2, T20S, R36E
RICE Operating Company – Eunice Monument Eumont SWD System

Mr. Hansen:

Rice Operating Company (ROC) is the service provider (agent) for the EME Saltwater Disposal (SWD) System and has no ownership of any portion of the pipeline, well, or facility. The System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

Background

In 2002, ROC initiated work on the former E-2 junction box. The site is located in UL/E, Sec. 2, T20S, R36E. NM OSE records indicate that groundwater would likely be encountered at a depth of approximately 47 +/- feet. To investigate the depth of the chloride and TPH presence, a soil boring was initiated on 2/28/2002 at the former junction box. Each sample was field titrated for chlorides, resulting in concentrations that decreased with depth. The 30 ft sample was taken to a commercial laboratory for analysis of chloride and TPH, resulting in a chloride concentration of 408 mg/kg and concentrations of gasoline range organics (GRO), diesel range organics (DRO) and BTEX below detectable limits. The hole was plugged with bentonite.

The site was delineated using a backhoe to collect soil samples at regular intervals, creating a 20x15x7 ft deep excavation. Each sample was field titrated for chlorides. A representative sample of the sidewalls and bottom were sent to a commercial for analysis of chloride, TPH, and BTEX resulting in a sidewalls chloride concentration of 742 mg/kg, a GRO and BTEX concentration below detectable limits and a DRO concentration of 16 mg/kg. The bottom composite resulted in a chloride concentration of 738 mg/kg, a GRO and BTEX concentration below detectable limits and a DRO

concentration of 11 mg/kg. A total of 60 yards of excavated soil was hauled to a NMOCD approved facility. The remaining excavated soil was blended with clean imported soil and used for backfill. A one foot thick clay layer was installed and a water proof junction box was installed. The clay layer will provide a barrier that will inhibit the downward migration of chlorides to groundwater. Vegetation has rebounded at the site so no re-vegetation efforts are needed. The junction box has since been removed, and is no longer needed at the site.

To determine what affect the residual chlorides may have on the groundwater beneath the site, ROC personnel ran the U.S. Environmental Protection Agency Exposure Assessment Multimedia Model – Multimed (Version 1.50, 2005). The model predicted that the chlorides in the vadose zone will reach groundwater with a maximum concentration of 178 mg/L in 52 years. Therefore, the residual chlorides in the vadose zone will not impact groundwater above WQCC standards.

The junction box site location map, area map, final report, laboratory analysis, soil bore log, disposal manifest, Multimed output, chloride graph and current photodocumentation are attached.

Recommendations

Site investigation demonstrates that residual chloride and hydrocarbons in the vadose zone will not with reasonable probability contaminate groundwater in excess of NMOCD standards. This site meets the requirements of the NMOCD-approved Revised Junction Box Upgrade Work Plan (July 16, 2003). As such, ROC request termination of the regulatory file, or similar closure status.

Please contact me at (575)393-9174 if you have any questions or wish to discuss this site. Thank you for your time and consideration.

Sincerely,
RICE Operating Company

A handwritten signature in black ink, appearing to read 'H. Conder', with a stylized flourish at the end.

Hack Conder
Environmental Manager

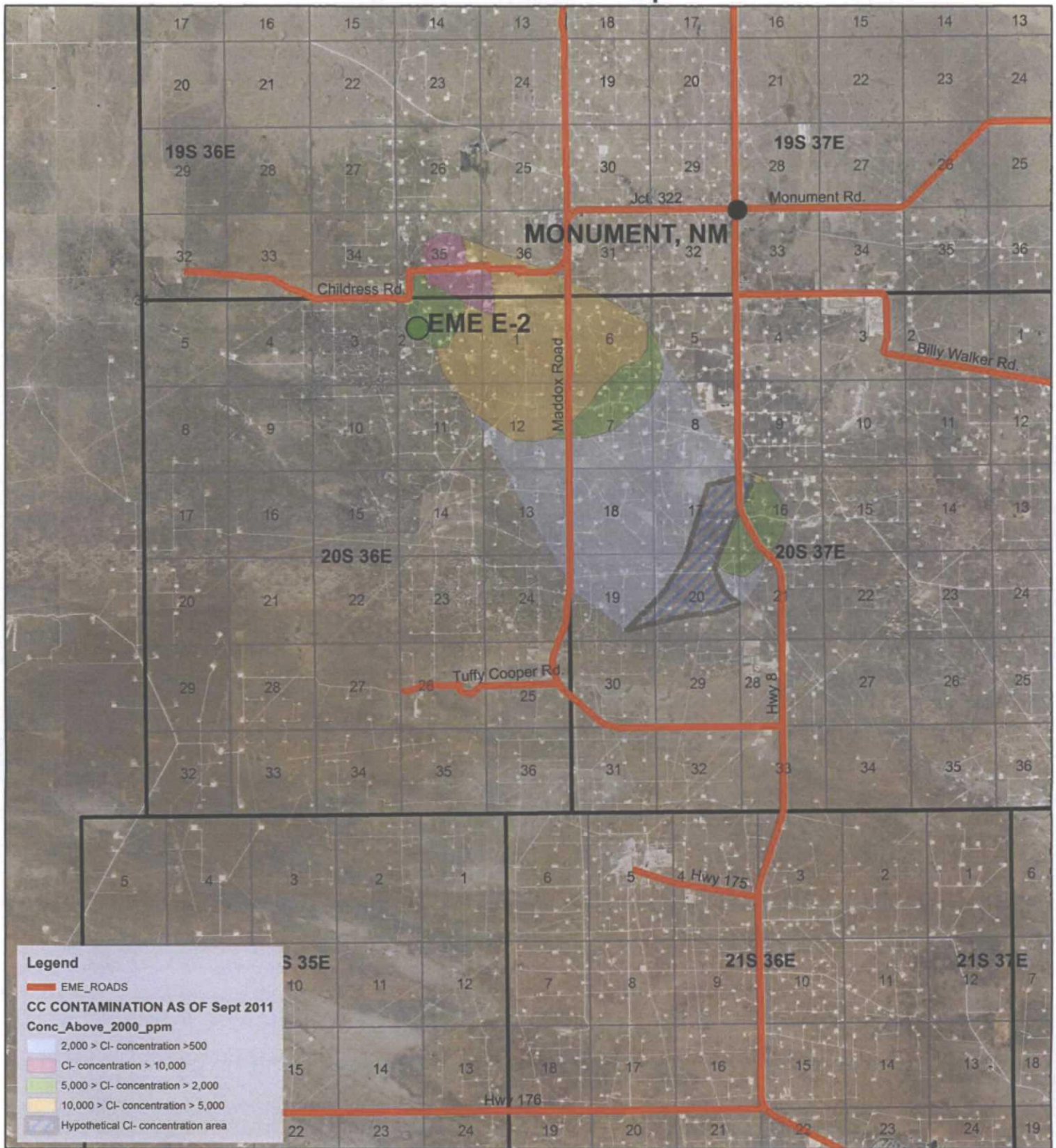
enclosures



Site Maps

RICE *Operating Company* (ROC)
112 West Taylor Hobbs, NM 88240
Phone: (575) 393-9174 Fax: (575) 397-1471

Site Location Map



Legend

- EME_ROADS
- CC CONTAMINATION AS OF Sept 2011
- Conc. Above 2000 ppm
- 2,000 > CI- concentration > 500
- CI- concentration > 10,000
- 5,000 > CI- concentration > 2,000
- 10,000 > CI- concentration > 5,000
- Hypothetical CI- concentration area



EME E-2
(1R427-74)

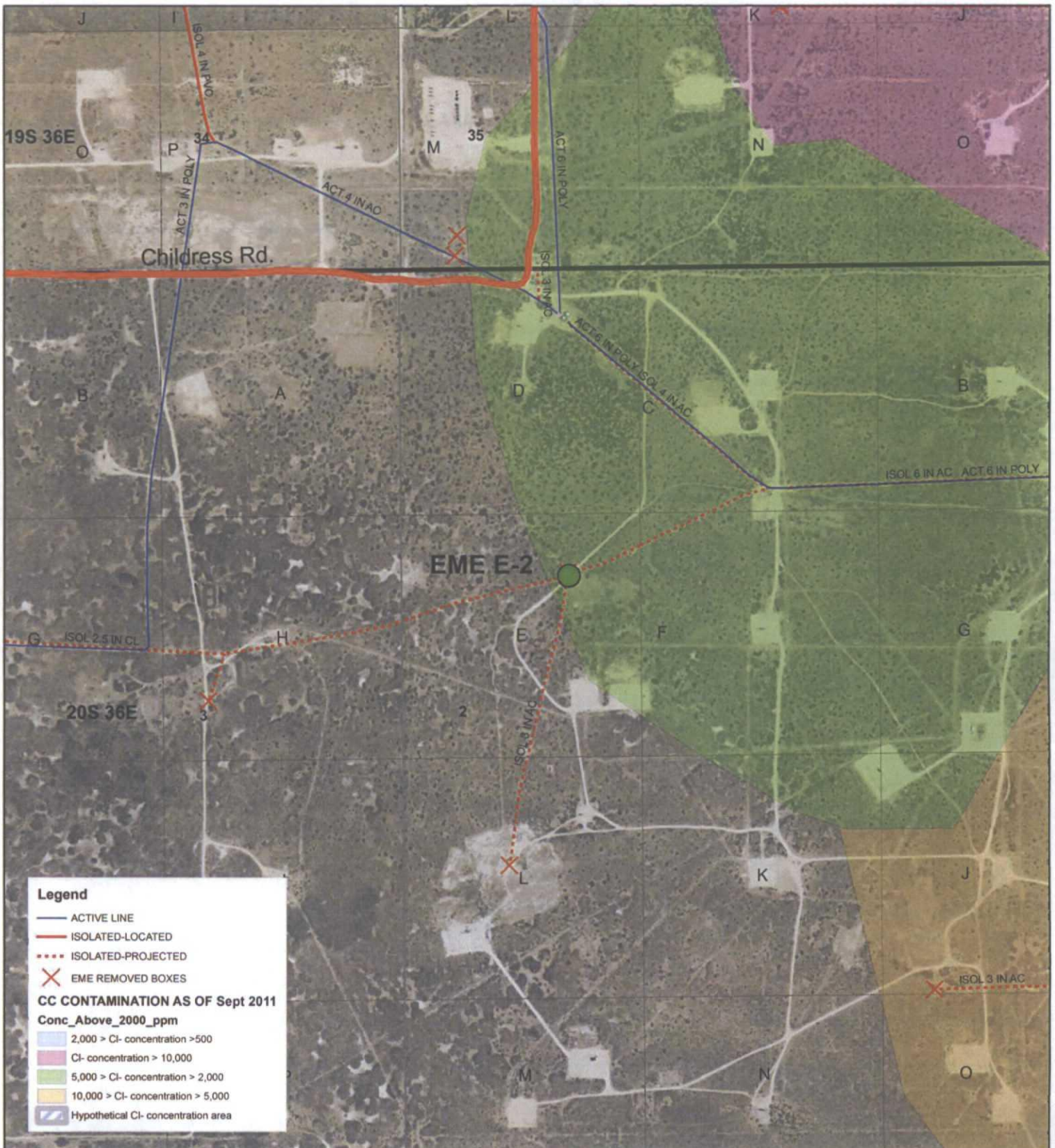
UL/E SECTION 2
T20S, R36E
LEA COUNTY, NM



0 1 2
Miles

Drawing date: 5/6/13 LS

Area Map



EME E-2
(1R427-74)

UL/E SECTION 2
 T20S, R36E
 LEA COUNTY, NM



0 710 1,420
 Feet

Drawing date: 5/6/13 LS



Junction Box Report

RICE *Operating Company* (ROC)
112 West Taylor Hobbs, NM 88240
Phone: (575) 393-9174 Fax: (575) 397-1471

**RICE OPERATING COMPANY
JUNCTION BOX FINAL REPORT**

BOX LOCATION

| SWD SYSTEM | JUNCTION | UNIT | SECTION | TOWNSHIP | RANGE | COUNTY | BOX DIMENSIONS - FEET | | |
|------------|----------|------|---------|----------|-------|--------|-----------------------|-------------|------------|
| EME | E-2 | E | 2 | 20S | 36E | LEA | Length 12 | Width 10 | Depth 5 |

LAND TYPE: BLM _____ STATE X FEE LANDOWNER _____ OTHER _____

Depth to Groundwater < 50 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20

Date Started 1/16/2002 Date Completed 3/7/2002 OCD Witness NO

Soil Excavated 70 cubic yards Excavation Length 20 Width 15 Depth 7' feet

Soil Disposed 60 cubic yards Offsite Facility SOUTH MONUMENT Location MONUMENT, NM

FINAL ANALYTICAL RESULTS: Sample Date 3/6/2002 Sample Depth 7'

Procure 5-point composite sample of bottom and 4-point composite sample of sidewalls. TPH, BTEX and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines.

| Sample Location | Benzene mg/kg | Toluene mg/kg | Ethyl Benzene mg/kg | Total Xylenes mg/kg | GRO mg/kg | DRO mg/kg | Chlorides mg/kg |
|-----------------|---------------|---------------|---------------------|---------------------|-----------|-----------|-----------------|
| SIDEWALLS | <0.025 | <0.025 | <0.025 | <0.025 | <10 | 16 | 742 |
| BOTTOM | <0.025 | <0.025 | <0.025 | <0.025 | <10 | 11 | 738 |
| Boring @ 30' | <0.025 | <0.025 | <0.025 | <0.025 | <10 | <10 | 408 |

General Description of Remedial Action: Delineated vertical and lateral extent.

Vertical delineation found chlorides of 800 ppm @ 15' bgs. Field tests on a soil boring showed chlorides declined from 820 ppm @ 20' bgs to 240 ppm @ 30' bgs. These results indicate impact probably stopped before reaching groundwater. The high impact soil was hauled to a permitted disposal facility and fresh soil was blended and used for backfill. A compacted clay barrier and water proof junction box were installed.

CHLORIDE FIELD TESTS

| LOCATION | DEPTH | mg/kg |
|-------------|-------|-------|
| SIDEWALLS | 5' | 300 |
| BOTTOM | 16' | 100 |
| Soil Boring | 5' | 400 |
| | 10' | 490 |
| | 15' | 550 |
| | 20' | 820 |
| | 25' | 460 |
| | 30' | 240 |
| | | |
| | | |

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DATE April 12, 2002 PRINTED NAME D. E. Anderson
SIGNATURE *D. E. Anderson* TITLE Project Leader - Environmental

ANALYTICAL REPORT

Prepared for:

Derek Robinson
RE Environmental
P.O. Box 13418
Odessa, TX 79764

Project: Rice E-2
Order#: G0202753
Report Date: 03/13/2002

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

RE Environmental
P.O. Box 13418
Odessa, TX 79764
366-0804

Order#: G0202753
Project:
Project Name: Rice
Location: E-2

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas.

| <u>ab ID:</u> | <u>Sample :</u> | <u>Matrix:</u> | <u>Date / Time</u> <u>Collected</u> | <u>Date / Time</u> <u>Received</u> | <u>Container</u> | <u>Preservative</u> |
|---------------|-------------------------|----------------|--|---------------------------------------|------------------|---------------------|
| 202753-01 | 4 pt. Wall Comp. @ 6' | SOIL | 03/06/2002 11:00 | 03/07/2002 8:18 | 4 oz glass | Ice |
| | <u>Lab Testing:</u> | Rejected: No | | Temp: 3.5 C | | |
| | 8015M TPH GRO/DRO | | | | | |
| | 8021B/5030 BTEX | | | | | |
| | Chloride | | | | | |
| 202753-02 | 5 pt. Bottom Comp. @ 7' | SOIL | 03/06/2002 14:00 | 03/07/2002 8:18 | 4 oz glass | Ice |
| | <u>Lab Testing:</u> | Rejected: No | | Temp: 3.5 C | | |
| | 8015M TPH GRO/DRO | | | | | |
| | 8021B/5030 BTEX | | | | | |
| | Chloride | | | | | |

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Derek Robinson
RE Environmental
P.O. Box 13418
Odessa, TX 79764

Order#: G0202753
Project:
Project Name: Rice
Location: E-2

Lab ID: 0202753-01
Sample ID: 4 pt. Wall Comp. @ 6'

8015M TPH GRO/DRO

| Method | Date | Date | Sample | Dilution | Analyst | Method |
|--------------|-----------------|-----------------|---------------|---------------|---------|--------|
| <u>Blank</u> | <u>Prepared</u> | <u>Analyzed</u> | <u>Amount</u> | <u>Factor</u> | | |
| | | 03/07/2002 | 1 | 1 | CK | 8015 |

| Parameter | Result mg/kg | RL |
|---------------|-----------------|------|
| GRO, C6-C12 | <10.0 | 10.0 |
| DRO, >C12-C28 | 16.0 | 10.0 |
| Total C6-C28 | 16.0 | 10.0 |

8021B/5030 BTEX

| Method | Date | Date | Sample | Dilution | Analyst | Method |
|--------------|-----------------|---------------------|---------------|---------------|---------|--------|
| <u>Blank</u> | <u>Prepared</u> | <u>Analyzed</u> | <u>Amount</u> | <u>Factor</u> | | |
| 0000830-02 | | 03/13/2002 18:45 | 1 | 1 | CK | 8021B |

| Parameter | Result µg/kg | RL |
|--------------|-----------------|------|
| Benzene | <25.0 | 25.0 |
| Ethylbenzene | <25.0 | 25.0 |
| Toluene | <25.0 | 25.0 |
| p/m-Xylene | <25.0 | 25.0 |
| o-Xylene | <25.0 | 25.0 |

Lab ID: 0202753-02
Sample ID: 5 pt. Bottom Comp. @ 7'

8015M TPH GRO/DRO

| Method | Date | Date | Sample | Dilution | Analyst | Method |
|--------------|-----------------|-----------------|---------------|---------------|---------|--------|
| <u>Blank</u> | <u>Prepared</u> | <u>Analyzed</u> | <u>Amount</u> | <u>Factor</u> | | |
| | | 03/07/2002 | 1 | 1 | CK | 8015 |

| Parameter | Result mg/kg | RL |
|---------------|-----------------|------|
| GRO, C6-C12 | <10.0 | 10.0 |
| DRO, >C12-C28 | 11.0 | 10.0 |
| Total C6-C28 | 11.0 | 10.0 |

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

Page 1 of 2

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Derek Robinson
RE Environmental
P.O. Box 13418
Odessa, TX 79764

Order#: G0202753
Project:
Project Name: Rice
Location: E-2

Lab ID: 0202753-02
Sample ID: 5 pt. Bottom Comp. @ 7'

8021B/5030 BTEX

| Method | Date | Date | Sample | Dilution | Analyst | Method |
|------------|----------|---------------------|--------|----------|---------|--------|
| Blank | Prepared | Analyzed | Amount | Factor | | |
| 0000830-02 | | 03/13/2002 19:32 | 1 | 1 | CK | 8021B |

| Parameter | Result µg/kg | RL |
|--------------|-----------------|------|
| Benzene | <25.0 | 25.0 |
| Ethylbenzene | <25.0 | 25.0 |
| Toluene | <25.0 | 25.0 |
| p/m-Xylene | <25.0 | 25.0 |
| o-Xylene | <25.0 | 25.0 |

Approval:

Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Irene Perry, QA Assistant
Sandra Biezugbe, Lab Tech.
Curt Cowdrey, Lab Tech.
Sara Molina, Lab Tech.

Date

3-13-02

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Derek Robinson
RE Environmental
P.O. Box 13418
Odessa, TX 79764

Order#: G0202753
Project:
Project Name: Rice
Location: E-2

Lab ID: 0202753-01
Sample ID: 4 pt. Wall Comp. @ 6'

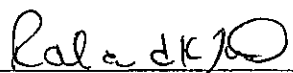
Test Parameters

| <u>Parameter</u> | <u>Result</u> | <u>Units</u> | <u>Dilution Factor</u> | <u>RL</u> | <u>Method</u> | <u>Date Analyzed</u> | <u>Analyst</u> |
|------------------|---------------|--------------|------------------------|-----------|---------------|----------------------|----------------|
| Chloride | 742 | mg/kg | 1 | 10 | 9253 | 03/11/2002 | SB |

Lab ID: 0202753-02
Sample ID: 5 pt. Bottom Comp. @ 7'

Test Parameters

| <u>Parameter</u> | <u>Result</u> | <u>Units</u> | <u>Dilution Factor</u> | <u>RL</u> | <u>Method</u> | <u>Date Analyzed</u> | <u>Analyst</u> |
|------------------|---------------|--------------|------------------------|-----------|---------------|----------------------|----------------|
| Chloride | 738 | mg/kg | 1 | 10 | 9253 | 03/11/2002 | SB |

Approval:  3-13-02
Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Irene Perry, QA Assistant
Sandra Biezugbe, Lab Tech.
Curt Cowdrey, Lab Tech.
Sara Molina, Lab Tech.

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M TPH GRO/DRO

Order#: G0202753

| | | | | | | |
|--------------------|------------|---------------------|--------------------|-------------------|---------------------|------|
| BLANK | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| Total C6-C28-mg/kg | 0000834-02 | | | <10.0 | | |
| MS | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| Total C6-C28-mg/kg | 0202753-01 | 16 | 952 | 962 | 99.4% | |
| MSD | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| Total C6-C28-mg/kg | 0202753-01 | 16 | 952 | 1010 | 104.4% | 4.9% |
| SRM | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| Total C6-C28-mg/kg | 0000834-05 | | 1000 | 867 | 86.7% | 0.0% |

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0202753

| | | | | | | |
|--------------------|-----------------|-----------------------------|----------------------------|---------------------------|-----------------------------|------------|
| BLANK | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| benzene-µg/kg | 0000830-02 | | | <25.0 | | |
| ethylbenzene-µg/kg | 0000830-02 | | | <25.0 | | |
| toluene-µg/kg | 0000830-02 | | | <25.0 | | |
| m-Xylene-µg/kg | 0000830-02 | | | <25.0 | | |
| p-Xylene-µg/kg | 0000830-02 | | | <25.0 | | |
| IS | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| benzene-µg/kg | 0202753-01 | 0 | 100 | 111 | 111.0% | |
| ethylbenzene-µg/kg | 0202753-01 | 0 | 100 | 114 | 114.0% | |
| toluene-µg/kg | 0202753-01 | 0 | 100 | 113 | 113.0% | |
| m-Xylene-µg/kg | 0202753-01 | 0 | 200 | 230 | 115.0% | |
| p-Xylene-µg/kg | 0202753-01 | 0 | 100 | 113 | 113.0% | |
| ISD | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| benzene-µg/kg | 0202753-01 | 0 | 100 | 108 | 108.0% | 2.7% |
| ethylbenzene-µg/kg | 0202753-01 | 0 | 100 | 110 | 110.0% | 3.6% |
| toluene-µg/kg | 0202753-01 | 0 | 100 | 110 | 110.0% | 2.7% |
| m-Xylene-µg/kg | 0202753-01 | 0 | 200 | 225 | 112.5% | 2.2% |
| p-Xylene-µg/kg | 0202753-01 | 0 | 100 | 109 | 109.0% | 3.6% |
| IRM | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| benzene-µg/kg | 0000830-05 | | 100 | 111 | 111.0% | 0.0% |
| ethylbenzene-µg/kg | 0000830-05 | | 100 | 113 | 113.0% | 0.0% |
| toluene-µg/kg | 0000830-05 | | 100 | 113 | 113.0% | 0.0% |
| m-Xylene-µg/kg | 0000830-05 | | 200 | 228 | 114.0% | 0.0% |
| p-Xylene-µg/kg | 0000830-05 | | 100 | 113 | 113.0% | 0.0% |

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0202753

| | | | | | | |
|---------------|------------|---------------------|--------------------|-------------------|---------------------|------|
| LANK | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| oride-mg/kg | 0000815-01 | | | <5.00 | | |
| ONTROL | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| oride-mg/kg | 0000815-02 | | 5000 | 5050 | 101.1% | |
| S | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| oride-mg/kg | 0202753-01 | 742 | 625 | 1370 | 100.5% | |
| SD | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| oride-mg/kg | 0202753-01 | 742 | 625 | 1380 | 102.1% | 0.7% |

Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Derek Robinson

Project Name: Rice

Company Name RT Environmental

Project #:

Company Address:

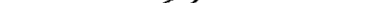
Project Loc: E-2

City/State/Zip:

PO #:

Telephone No: Fax No:

Fax No:

Sampler Signature: 

[illegible]

ANALYTICAL REPORT

Prepared for:

DONNIE ANDERSON
RICE OPERATING CORP.
122 WEST TAYLOR
HOBBS, NM 88242

Project: Jct E-2 box Upgrade

Order#: G0202744

Report Date: 03/07/2002

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

RICE OPERATING CORP.
122 WEST TAYLOR

Order#: G0202744
Project: Soil bore @ 30'
bgs

HOBBS, NM 88242

Project Name: Jct E-2 box Upgrade
Location: EME

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas.

| | | | Date / Time | Date / Time | | |
|-----------|---------------------|--------------|-------------|-------------|------------|-----|
| 202744-01 | Soil bore @ 30' bgs | SOIL | | 3/5/02 | 4 oz Glass | ice |
| | | | | 17:39 | | |
| | <u>Lab Testing:</u> | Rejected: No | Temp: | 7c | | |
| | 8015M TPH GRO/DRO | | | | | |
| | 8021B/5030 BTEX | | | | | |
| | Chloride | | | | | |

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

DONNIE ANDERSON
RICE OPERATING CORP.
122 WEST TAYLOR
HOBBS, NM 88242

Order#: G0202744
Project: Soil bore @ 30' bgs
Project Name: Jet E-2 box Upgrade
Location: EME

Lab ID: 0202744-01
Sample ID: Soil bore @ 30' bgs

8015M TPH GRO/DRO

| Method | Date | Date | Sample | Dilution | Analyst | Method |
|--------------|-----------------|-----------------|---------------|---------------|---------|--------|
| <u>Blank</u> | <u>Prepared</u> | <u>Analyzed</u> | <u>Amount</u> | <u>Factor</u> | | |
| 0000785-02 | | 3/6/02 14:34 | 1 | 1 | CK | 8015 |

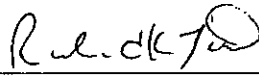
| Parameter | Result mg/kg | RL |
|---------------|-----------------|------|
| GRO, C6-C12 | <10 | 10.0 |
| DRO, >C12-C28 | <10 | 10.0 |

8021B/5030 BTEX

| Method | Date | Date | Sample | Dilution | Analyst | Method |
|--------------|-----------------|-----------------|---------------|---------------|---------|--------|
| <u>Blank</u> | <u>Prepared</u> | <u>Analyzed</u> | <u>Amount</u> | <u>Factor</u> | | |
| 0000783-02 | | 3/6/02 17:45 | 1 | 1 | CK | 8021B |

| Parameter | Result µg/kg | RL |
|--------------|-----------------|------|
| Benzene | <25 | 25.0 |
| Ethylbenzene | <25 | 25.0 |
| Toluene | <25 | 25.0 |
| p/m-Xylene | <25 | 25.0 |
| o-Xylene | <25 | 25.0 |

Approval:

 3-07-02
Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Irene Perry, QA Assistant
Sandra Biezugbe, Lab Tech.
Curt Cowdrey, Lab Tech.
Sara Molina, Lab Tech.

Date

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

DONNIE ANDERSON
RICE OPERATING CORP.
122 WEST TAYLOR
HOBBS, NM 88242

Order#: G0202744
Project: Soil bore @ 30' bgs
Project Name: Jet E-2 box Upgrade
Location: EME

Lab ID: 0202744-01
Sample ID: Soil bore @ 30' bgs

Test Parameters

| <u>Parameter</u> | <u>Result</u> | <u>Units</u> | <u>Dilution Factor</u> | <u>RL</u> | <u>Method</u> | <u>Date Analyzed</u> | <u>Analyst</u> |
|------------------|---------------|--------------|----------------------------|-----------|---------------|--------------------------|----------------|
| Chloride | 408 | mg/kg | 1 | 5.0 | 9253 | 3/6/02 | SB |

Approval: Ral-ck JD 3-07-02
Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Irene Perry, QA Assistant
Sandra Biezugbe, Lab Tech.
Curt Cowdrey, Lab Tech.
Sara Molina, Lab Tech.

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M TPH GRO/DRO

Order#: G0202744

| | | | | | | |
|--------------------|-----------------|-----------------------------|----------------------------|---------------------------|-----------------------------|------------|
| BLANK | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| RO, C6-C12-mg/kg | 0000785-02 | | | <10 | | |
| RO, >C12-C28-mg/kg | 0000785-02 | | | <10 | | |
| MS | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| RO, C6-C12-mg/kg | 0202740-01 | 0 | 476 | 447 | 93.9% | |
| RO, >C12-C28-mg/kg | 0202740-01 | 0 | 476 | 563 | 118.3% | |
| MSD | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| RO, C6-C12-mg/kg | 0202740-01 | 0 | 476 | 424 | 89.1% | 5.3% |
| RO, >C12-C28-mg/kg | 0202740-01 | 0 | 476 | 506 | 106.3% | 10.7% |
| IRM | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| RO, C6-C12-mg/kg | 0000785-05 | | 500 | 441 | 88.2% | 0.0% |
| RO, >C12-C28-mg/kg | 0000785-05 | | 500 | 524 | 104.8% | 0.0% |

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0202744

| | | | | | | |
|--------------------|-----------------|-----------------------------|----------------------------|---------------------------|-----------------------------|------------|
| BLANK | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| benzene-µg/kg | 0000783-02 | | | <25 | | |
| ethylbenzene-µg/kg | 0000783-02 | | | <25 | | |
| toluene-µg/kg | 0000783-02 | | | <25 | | |
| m-Xylene-µg/kg | 0000783-02 | | | <25 | | |
| Xylene-µg/kg | 0000783-02 | | | <25 | | |
| IS | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| benzene-µg/kg | 0202728-02 | 0 | 100 | 112 | 112.0% | |
| ethylbenzene-µg/kg | 0202728-02 | 0 | 100 | 111 | 111.0% | |
| toluene-µg/kg | 0202728-02 | 0 | 100 | 113 | 113.0% | |
| m-Xylene-µg/kg | 0202728-02 | 0 | 200 | 230 | 115.0% | |
| Xylene-µg/kg | 0202728-02 | 0 | 100 | 112 | 112.0% | |
| ISD | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| benzene-µg/kg | 0202728-02 | 112 | 100 | 113 | 113.0% | 0.9% |
| ethylbenzene-µg/kg | 0202728-02 | 111 | 100 | 112 | 112.0% | 0.9% |
| toluene-µg/kg | 0202728-02 | 113 | 100 | 113 | 113.0% | 0.0% |
| m-Xylene-µg/kg | 0202728-02 | 230 | 200 | 228 | 114.0% | 0.9% |
| Xylene-µg/kg | 0202728-02 | 112 | 100 | 114 | 114.0% | 1.8% |
| IRM | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| benzene-µg/kg | 0000783-05 | | 100 | 112 | 112.0% | 0.0% |
| ethylbenzene-µg/kg | 0000783-05 | | 100 | 111 | 111.0% | 0.0% |
| toluene-µg/kg | 0000783-05 | | 100 | 114 | 114.0% | 0.0% |
| m-Xylene-µg/kg | 0000783-05 | | 200 | 229 | 114.5% | 0.0% |
| Xylene-µg/kg | 0000783-05 | | 100 | 112 | 112.0% | 0.0% |

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0202744

| | | | | | | |
|----------------|------------|---------------------|--------------------|-------------------|---------------------|------|
| BLANK | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| chloride-mg/kg | 0000787-01 | | | <5.00 | | |
| IS | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| chloride-mg/kg | 0202739-01 | 248 | 667 | 910 | 99.3% | |
| ISD | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| chloride-mg/kg | 0202739-01 | 248 | 667 | 922 | 101.1% | 1.3% |
| IRM | LAB-ID # | Sample Concentr. | Spike Concentr. | QC Test Result | Pct (%) Recovery | RPD |
| chloride-mg/kg | 0000787-04 | | 5000 | 5050 | 101.1% | 0.1% |

Project Manager: DONNIE ANDERSON.

Project Name: Jct E-2 box Upgrade

Company Name RICE OPERATING COMPANY

Project #: Soil bore @ 30' bgs

Company Address: 122 W. TAYLOR

Project Loc: EME

City/State/Zip: HOBBS, NEW MEXICO, 88240

PO #:

Telephone No: (505) 393-9174

Fax No: (505) 397-1471

Sampler Signature:

[illegible]

| | | | | | | |
|---|--|---|--|--|---|--|
| DRILLING LOG | | Site Name/Location | | | Logged by: DEA | |
| RICE Operating Company 122 West Taylor Hobbs, New Mexico 88240 Phone: (505) 393-9174 Fax: (505) 397-1471 | | Jct. Box E-2 2-T20S-R36E EME SWD System Lea County, NM | | Well No.: N/A Well Depth: N/A Casing Length: N/A Screen Length: N/A | Date Drilled: 2/28/02 Boring Depth: 30' Boring Diameter: 4.75" Drilling Method: Air Rotary | Driller: Eades Well Material: N/A Casing Size: N/A Slot Size: N/A |
| | | | | Construction: Plugged boring w/ 20' bentonite, water & backfill | | |

| TEST | | | | | |
|-------|--------------------------------|-------------|-------|------------|--------|
| DEPTH | SUBSURFACE LITHOLOGY | SAMPLE TYPE | (ppm) | REMARKS | Boring |
| 0 | Ground surface | | CI | | |
| 1 | Topsoil | | | | |
| 2 | Caliche | | | | |
| 3 | Sandy brown clay | | | | |
| 4 | | | | | |
| 5 | | Grab | 400 | Field Test | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | White clay | | | | |
| 9 | | | | | |
| 10 | Dry clay and caliche stringers | Grab | 490 | Field Test | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | Grab | 550 | Field Test | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | Grab | 820 | Field Test | |
| 21 | Red sand and caliche stringers | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | Grab | 460 | Field Test | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |
| 30 | | Grab | 240 | Field Test | |

SOUTH MONUMENT SURFACE WASTE FACILITY

TICKET# 5383

LEASE OPERATOR:

RICE OPERATING
122 WEST TAYLOR
HOBBS, NM 88240
ATTN: DONNIE ANDERSON

ORIGINATING LOCATION:

Sec-2-20s 37 E

TRANSPORTER NAME & ADDRESS:

R&E ENVIRONMENTAL
P.O. BOX 13418
ODESSA, TX 79768-3418

DESCRIPTION OF WASTE:

NON-HAZARDOUS HYDROCARBONS 3 loads

QUANTITY:

36 YDS.

FACILITY CONTACT:

Donnie Anderson
SIGNATURE OF CONTACT

3-7-02

DATE

CELL NUMBER MATERIAL PLACED IN:

B-1

SIGNATURE OF TRANSPORTER (DRIVER):

Donnie Anderson
SIGNATURE OF DRIVER

3-7-02

DATE

DISPOSAL SITE

SOUTH MONUMENT SURFACE WASTE FACILITY
P.O. BOX 418
HOBBS, NM 88241-0418
S25 T20S R36E N/2 NE/4

"As a condition of acceptance for disposal, I hereby certify that this waste is an exempt waste as defined by the Environmental Protection Agency (EPA). The waste are: generated from oil and gas exploration and production operations; exempt from Resource Conservation and Recovery Act (RCRA) Subtitle C Regulations; and not mixed with non-exempt waste."

Donnie Anderson
FACILITY REPRESENTATIVE

3/07/02

DATE

1 Loads Sands

SOUTH MONUMENT SURFACE WASTE FACILITY

TICKET# 5382

LEASE OPERATOR:

RICE OPERATING
122 WEST TAYLOR
HOBBS, NM 88240
ATTN: DONNIE ANDERSON

ORIGINATING LOCATION:

Sec 2 20s 37E
E2

TRANSPORTER NAME & ADDRESS:

R&E ENVIRONMENTAL
P.O. BOX 13418
ODESSA, TX 79768-3418

DESCRIPTION OF WASTE:

NON-HAZARDOUS HYDROCARBONS

2 loads

QUANTITY:

24 YDS.

FACILITY CONTACT:

Donie S. Cogan

SIGNATURE OF CONTACT

3-7-02

DATE

CELL NUMBER MATERIAL PLACED IN:

B-1

SIGNATURE OF TRANSPORTER (DRIVER):

Donie S. Cogan

SIGNATURE OF DRIVER

3-7-02

DATE

DISPOSAL SITE

SOUTH MONUMENT SURFACE WASTE FACILITY
P.O. BOX 418
HOBBS, NM 88241-0418
S25 T20S R36E N/2 NE/4

"As a condition of acceptance for disposal, I hereby certify that this waste is an exempt waste as defined by the Environmental Protection Agency (EPA). The waste are: generated from oil and gas exploration and production operations; exempt from Resource Conservation and Recovery Act (RCRA) Subtitle C Regulations; and not mixed with non-exempt waste."

Donie S. Cogan

FACILITY REPRESENTATIVE

2 Loads Sand

3/07/02

DATE



Multimed File and Graph

RICE *Operating Company* (ROC)
112 West Taylor Hobbs, NM 88240
Phone: (575) 393-9174 Fax: (575) 397-1471

U. S. ENVIRONMENTAL PROTECTION AGENCY
EXPOSURE ASSESSMENT
MULTIMEDIA MODEL
MULTIMED (Version 1.50, 2005)

un options
-- -----

ME E-2

hemical simulated is Chloride

ption Chosen Saturated and unsaturated zone models
un was DETERMIN
nfiltration Specified By User: 3.048E-02 m/yr
un was transient
ell Times: Entered Explicitly
eject runs if Y coordinate outside plume
eject runs if Z coordinate outside plume
aussian source used in saturated zone model

NSATURATED ZONE FLOW MODEL PARAMETERS
input parameter description and value)
P - Total number of nodal points 240
MAT - Number of different porous materials 1
PROP - Van Genuchten or Brooks and Corey 1
MSHGN - Spatial discretization option 1
VFLAYR - Number of layers in flow model 1

PTIONS CHOSEN

an Genuchten functional coefficients
ser defined coordinate system

ayer information

| AYER NO. | LAYER THICKNESS | MATERIAL PROPERTY |
|----------|-----------------|-------------------|
| ----- | ----- | ----- |
| 1 | 5.10 | 1 |

VADOSE ZONE MATERIAL VARIABLES

| VARIABLE NAME | UNITS | DISTRIBUTION | PARAMETERS | | LIMITS | |
|----------------------------------|-------|--------------|------------|---------|--------|-------|
| | | | MEAN | STD DEV | MIN | MAX |
| Saturated hydraulic conductivity | cm/hr | CONSTANT | 3.60 | -999. | -999. | -999. |
| Unsaturated zone porosity | -- | CONSTANT | 0.250 | -999. | -999. | -999. |
| Air entry pressure head | m | CONSTANT | 0.700 | -999. | -999. | -999. |
| Depth of the unsaturated zone | m | CONSTANT | 5.10 | 0.000 | 0.000 | 0.000 |

DATA FOR MATERIAL 1

VADOSE ZONE FUNCTION VARIABLES

| VARIABLE NAME | UNITS | DISTRIBUTION | PARAMETERS | | LIMITS | |
|------------------------------|-------|--------------|------------|---------|--------|-------|
| | | | MEAN | STD DEV | MIN | MAX |
| Residual water content | -- | CONSTANT | 0.116 | -999. | -999. | -999. |
| Brook and Corey exponent, EN | -- | CONSTANT | -999. | -999. | -999. | -999. |
| ALFA coefficient | 1/cm | CONSTANT | 0.500E-02 | -999. | -999. | -999. |
| Van Genuchten exponent, ENN | -- | CONSTANT | 1.09 | -999. | -999. | -999. |

NSATURATED ZONE TRANSPORT MODEL PARAMETERS

LAY - Number of different layers used 1
TSTPS - Number of time values concentration calc 40
UMMY - Not presently used 1
SOL - Type of scheme used in unsaturated zone 2
- Stehfest terms or number of increments 18
TEL - Points in Lagrangian interpolation 3
GPTS - Number of Gauss points 104
IT - Convolution integral segments 2
BOUND - Type of boundary condition 3
TSGEN - Time values generated or input 1
MAX - Max simulation time -- 0.0
TFUN - Weighting factor -- 1.2

PTIONS CHOSEN

onvolution integral approach
xponentially decaying continuous source
omputer generated times for computing concentrations

DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

| VARIABLE NAME | UNITS | DISTRIBUTION | PARAMETERS | | LIMITS | |
|------------------------------------|-------|--------------|------------|---------|--------|-------|
| | | | MEAN | STD DEV | MIN | MAX |
| Thickness of layer | m | CONSTANT | 5.10 | -999. | -999. | -999. |
| Longitudinal dispersivity of layer | m | DERIVED | -999. | -999. | -999. | -999. |
| Percent organic matter | -- | CONSTANT | 0.000 | -999. | -999. | -999. |
| Bulk density of soil for layer | g/cc | CONSTANT | 1.99 | -999. | -999. | -999. |
| Biological decay coefficient | 1/yr | CONSTANT | 0.000 | -999. | -999. | -999. |

CHEMICAL SPECIFIC VARIABLES

| VARIABLE NAME | UNITS | DISTRIBUTION | PARAMETERS | | LIMITS | |
|---|-----------------------|--------------|------------|---------|--------|-------|
| | | | MEAN | STD DEV | MIN | MAX |
| Solid phase decay coefficient | 1/yr | DERIVED | -999. | -999. | -999. | -999. |
| Dissolved phase decay coefficient | 1/yr | DERIVED | -999. | -999. | -999. | -999. |
| Overall chemical decay coefficient | 1/yr | DERIVED | -999. | -999. | -999. | -999. |
| Acid catalyzed hydrolysis rate | 1/M-yr | CONSTANT | 0.000 | -999. | -999. | -999. |
| Neutral hydrolysis rate constant | 1/yr | CONSTANT | 0.000 | -999. | -999. | -999. |
| Base catalyzed hydrolysis rate | 1/M-yr | CONSTANT | 0.000 | -999. | -999. | -999. |
| Reference temperature | C | CONSTANT | 25.0 | -999. | -999. | -999. |
| Normalized distribution coefficient | ml/g | CONSTANT | 0.000 | -999. | -999. | -999. |
| Distribution coefficient | -- | DERIVED | -999. | -999. | -999. | -999. |
| Biodegradation coefficient (sat. zone) | 1/yr | CONSTANT | 0.000 | -999. | -999. | -999. |
| Air diffusion coefficient | cm ² /s | CONSTANT | -999. | -999. | -999. | -999. |
| Reference temperature for air diffusion | C | CONSTANT | -999. | -999. | -999. | -999. |
| Molecular weight | g/M | CONSTANT | -999. | -999. | -999. | -999. |
| Mole fraction of solute | -- | CONSTANT | -999. | -999. | -999. | -999. |
| Vapor pressure of solute | mm Hg | CONSTANT | -999. | -999. | -999. | -999. |
| Henry's law constant | atm-m ³ /M | CONSTANT | -999. | -999. | -999. | -999. |
| Overall 1st order decay sat. zone | 1/yr | DERIVED | 0.000 | 0.000 | 0.000 | 1.00 |
| Not currently used | | CONSTANT | 0.000 | 0.000 | 0.000 | 0.000 |
| Not currently used | | CONSTANT | 0.000 | 0.000 | 0.000 | 0.000 |

SOURCE SPECIFIC VARIABLES

| VARIABLE NAME | UNITS | DISTRIBUTION | PARAMETERS | | LIMITS | |
|-----------------------------------|----------------|--------------|------------|---------|--------|-------|
| | | | MEAN | STD DEV | MIN | MAX |
| Infiltration rate | m/yr | CONSTANT | 0.305E-01 | -999. | -999. | -999. |
| Area of waste disposal unit | m ² | DERIVED | 30.0 | -999. | -999. | -999. |
| Duration of pulse | yr | DERIVED | 50.0 | -999. | -999. | -999. |
| Spread of contaminant source | m | DERIVED | -999. | -999. | -999. | -999. |
| Recharge rate | m/yr | CONSTANT | 0.000 | -999. | -999. | -999. |
| Source decay constant | 1/yr | CONSTANT | 0.250E-01 | 0.000 | 0.000 | 0.000 |
| Initial concentration at landfill | mg/l | CONSTANT | 533. | -999. | -999. | -999. |
| Length scale of facility | m | CONSTANT | 5.00 | -999. | -999. | -999. |
| Width scale of facility | m | CONSTANT | 6.00 | -999. | -999. | -999. |
| Near field dilution | | DERIVED | 1.00 | 0.000 | 0.000 | 1.00 |

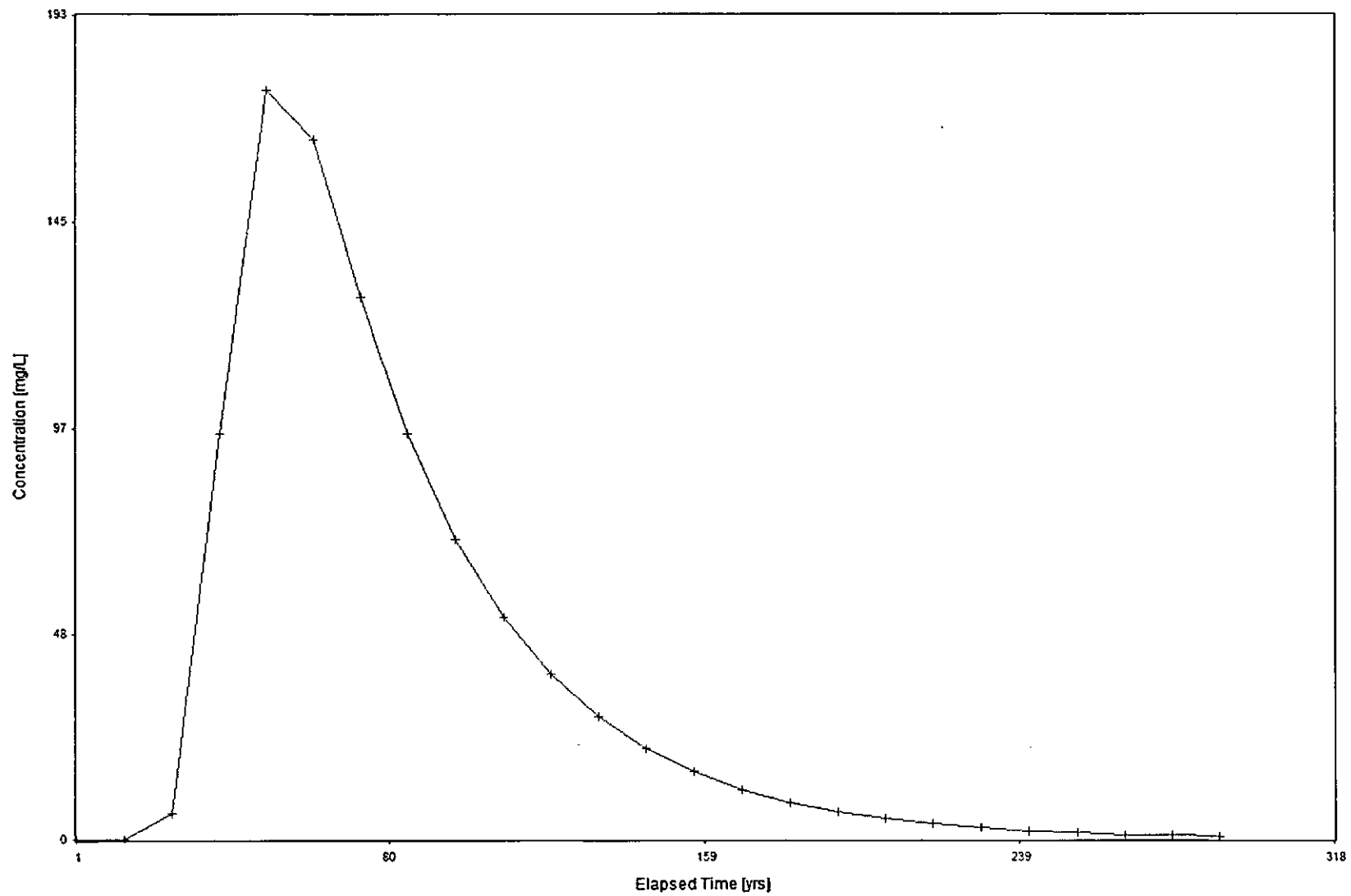
AQUIFER SPECIFIC VARIABLES

| VARIABLE NAME | UNITS | DISTRIBUTION | PARAMETERS | | LIMITS | |
|--------------------------------------|--------|---------------|------------|---------|--------|-------|
| | | | MEAN | STD DEV | MIN | MAX |
| Particle diameter | cm | CONSTANT | -999. | -999. | -999. | -999. |
| Aquifer porosity | -- | CONSTANT | 0.300 | -999. | -999. | -999. |
| Bulk density | g/cc | CONSTANT | 1.86 | -999. | -999. | -999. |
| Aquifer thickness | m | CONSTANT | 6.10 | -999. | -999. | -999. |
| Source thickness (mixing zone depth) | m | DERIVED | -999. | -999. | -999. | -999. |
| Conductivity (hydraulic) | m/yr | CONSTANT | 315. | -999. | -999. | -999. |
| Gradient (hydraulic) | | CONSTANT | 0.300E-02 | -999. | -999. | -999. |
| Groundwater seepage velocity | m/yr | DERIVED | -999. | -999. | -999. | -999. |
| Retardation coefficient | -- | DERIVED | -999. | -999. | -999. | -999. |
| Longitudinal dispersivity | m | FUNCTION OF X | -999. | -999. | -999. | -999. |
| Transverse dispersivity | m | FUNCTION OF X | -999. | -999. | -999. | -999. |
| Vertical dispersivity | m | FUNCTION OF X | -999. | -999. | -999. | -999. |
| Temperature of aquifer | C | CONSTANT | 20.0 | -999. | -999. | -999. |
| pH | -- | CONSTANT | 7.00 | -999. | -999. | -999. |
| Organic carbon content (fraction) | | CONSTANT | 0.000 | -999. | -999. | -999. |
| Well distance from site | m | CONSTANT | 1.00 | -999. | -999. | -999. |
| Angle off center | degree | CONSTANT | 0.000 | -999. | -999. | -999. |
| Well vertical distance | m | CONSTANT | 0.000 | -999. | -999. | -999. |

| TIME | CONCENTRATION |
|------|---------------|
|------|---------------|

| | |
|-----------|-------------|
| 0.100E+01 | 0.00000E+00 |
| 0.130E+02 | 0.00000E+00 |
| 0.250E+02 | 0.61629E+01 |
| 0.370E+02 | 0.95159E+02 |
| 0.490E+02 | 0.17546E+03 |
| 0.610E+02 | 0.16393E+03 |
| 0.730E+02 | 0.12715E+03 |
| 0.850E+02 | 0.95122E+02 |
| 0.970E+02 | 0.70590E+02 |
| 0.109E+03 | 0.52322E+02 |
| 0.121E+03 | 0.38772E+02 |
| 0.133E+03 | 0.28727E+02 |
| 0.145E+03 | 0.21282E+02 |
| 0.157E+03 | 0.15765E+02 |
| 0.169E+03 | 0.11676E+02 |
| 0.181E+03 | 0.86465E+01 |
| 0.193E+03 | 0.64022E+01 |
| 0.205E+03 | 0.47397E+01 |
| 0.217E+03 | 0.35085E+01 |
| 0.229E+03 | 0.25966E+01 |
| 0.241E+03 | 0.19215E+01 |
| 0.253E+03 | 0.14216E+01 |
| 0.265E+03 | 0.10516E+01 |
| 0.277E+03 | 0.77773E+00 |
| 0.289E+03 | 0.57506E+00 |

Chloride Concentration At The Receptor Well
EME E-2





Current Photodocumentation

RICE *Operating Company* (ROC)
112 West Taylor Hobbs, NM 88240
Phone: (575) 393-9174 Fax: (575) 397-1471

EME E-2 (1R427-74)
Unit Letter E, Section 2, T20S, R36E



Facing west

3/26/2013



Facing south

3/26/2013