

1R - 336

REPORTS

DATE:

3-21-08

CERTIFIED MAIL
RETURN RECEIPT NO. 7099 3400 0017 2053



March 21, 2008

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

RE: **FINAL REPORT AND REQUEST FOR CLOSURE**
EME I-1 SWD Offsite Encroachment Site
T20S, R36E, Section 1, Unit Letter I
NMOCD Case No.: 1R0336

RECEIVED
2008 MAR 28 PM 1 46

Mr. Hansen:

A *Corrective Action Plan* (CAP) for the above-referenced site was sent to the NMOCD last year on February 27, 2007 (Attachment A), in which Rice Operating Company (ROC) presented the following conclusions and recommendations:

1. Hydrocarbon impact is localized in the immediate vicinity of boring B-1 (15-ft to 20-ft interval) with no evidence of hydrocarbon impact observed in the surrounding borings (B-4 and MW-1). Furthermore, the area to the north was excavated during the closure of the former redwood tanks. Previous remedial actions by ROC (excavation, backfilling, and lining of the former redwood tank area) and conversion of the boring B-1 into a passive vapor extraction well has minimized the risk for potential migration of VOCs into groundwater; therefore, no further mitigation is proposed.
2. Chloride concentrations in the vadose zone are statistically close to the range of background concentrations (300-400 mg/kg) in all borings and do not present a threat to groundwater; therefore, no further corrective actions for chlorides within the vadose zone are proposed or recommended.
3. It appears that the cause for the chloride and TDS impacted groundwater at the I-1 SWD facility is from an upgradient offsite source. Groundwater in this area of Monument, New Mexico, has been reported as regionally impacted with chlorides and unusable as early as 1952 (Nicholson and Clebsch, Groundwater Report 6). The exact source of groundwater impact at the I-1 SWD facility is unknown because of the numerous potential facilities, past and present, located upgradient from the facility. Chloride and TDS concentrations at the on site monitoring wells are above Water Quality Control Commission (WQCC) standards however they are below background concentrations as established by samples from an

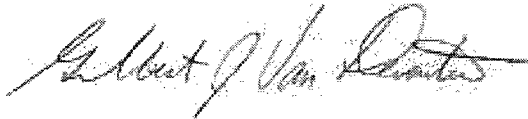
upgradient offsite monitoring well (MW-18 at the Red Bryd #1 site). The excavation, backfilling, and lining activities performed by ROC, as described in the EME SWD I-1 Tank and Pit Closure report submitted to the NMOCD on November 5, 2004, has mitigated any potential threat of chlorides or TDS from the former redwood tank area (Final Form C-103 included in Attachment B).

Evidence from vadose zone characterization and four more quarters of groundwater monitoring continue to support the conclusion that conditions at the site do not meet the criteria that would mandate corrective action under NMOCD Rule 116 or Rule 19; therefore ROC respectfully requests closure of the regulatory file for this site. Upon NMOCD approval of site closure, ROC will plug the monitoring wells and vapor extraction well. The *2007 Annual Groundwater Monitoring Report* is included as a separate submission with this *Final Report and Request for Closure*.

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

Thank you for your consideration concerning this request for site closure. If you have any questions, please contact me at (432) 638-8740 or Kristin Pope at (505) 393-9174.

Sincerely,



Gilbert J. Van Deventer, PG, REM

cc: KFP, JSC

attachments: CAP, ICP, and Final C-103,

ATTACHMENT A

Corrective Action Plan

And

Investigation & Characterization Plan

CERTIFIED MAIL
RETURN RECEIPT NO. 7099 3400 0017 1737 2190



February 27, 2007

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

**RE: CORRECTIVE ACTION PLAN
EME I-1 SWD OFFSITE ENCROACHMENT SITE
NMOCD CASE No.: 1R0464
T20S-R37E-SECTION 1, UNIT LETTER I
LEA COUNTY, NEW MEXICO**

Mr. Hansen:

RICE Operating Company (ROC) retained Trident Environmental to address potential environmental concerns at the above-referenced site. An Investigation and Characterization Plan (ICP), submitted to the OCD Hobbs District office on February 25, 2005, is attached to this Corrective Action Plan (CAP) with the NMOCD approval. This Corrective Action Plan (CAP) incorporates the findings from the Investigation & Characterization Plan (ICP) and proposes recommendations for corrective action.

Site Description

The I-1 SWD Offsite Encroachment site (NMOCD Case No. 1R0464) is operated by ROC and is located on State Land in township 20 south, range 36 east, section 1, unit letter I approximately 1 mile south of the intersection of County Road 322 and County Road 41 in Lea County, NM as shown on the attached topographic map (Figure 1) and aerial photo map (Figure 2). The I-1 SWD facility is used to collect produced water from oil and gas leases within the Eunice-Monument-Eumont (EME) system for injection into a non-oil producing formation. ROC has a Salt Water Disposal Easement (SWD-062) with the New Mexico State Land Office at this location. ROC is the service provider (agent) for the EME SWD System and has no ownership of any portion of the pipeline, well, or facility. The System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis.

The primary structures at the site consist of two 500 barrel sub-grade fiberglass tanks, a junction box; an underground 10-inch polyethylene pipeline, and one saltwater disposal well. Several other oil and gas production facilities are located within and around the I-1 SWD facility including the following:

- A crude oil pipeline operated by Plains Petroleum is located approximately 700 feet north of the SWD well where a groundwater monitoring site (Red Byrd #1) has been undergoing investigation and remediation since February 2000 (NMOCD Case # 1RP-85) with a network of approximately 15 groundwater monitoring wells (Figure 2).
- Two steel gas lines owned by Sid Richardson traverses along the west and north portions of the I-1 SWD site (~260 ft northwest of site).
- A southwest-northeast trending gas pipeline marked as being owned by Texaco is located about 350 feet northwest of the SWD facility.
- The El Paso Natural Gas (EPNG) Monument Booster Station is located approximately ½ mile northwest of the I-1 SWD site (Figure 2).
- The Monument Gas Plant operated by Targa Midstream Services, L.P. (Targa) is located approximately ¾ mile northwest of the I-1 SWD site. According to the Ground Water Discharge Plan (GW-025) this facility has two brine ponds and a network of 18 groundwater monitoring wells associated with it (Figure 2).
- An abandoned hydrochloric acid manufacturing plant (DLD Resources, formerly Climax Chemical Company) is located about one-mile northwest of the I-1 SWD site. There are several groundwater monitoring wells associated with this facility however no active regulatory directives towards further investigation and remediation of this facility are known to be in progress (Figure 2).
- A high concentration of oil & gas wells (active and plugged) and associated structures (tank batteries, pits, pipelines, etc.) are located in this area of Monument. Many of these are obviously visible in Figure 2 (aerial photograph).

Site History

The upgrade of the EME I-1 SWD facility was initiated in February 2002 in accordance with the revised Generic Closure Plan for Emergency Overflow Pits and Below-Grade Redwood Tanks (last revision February 23, 2000). Excavation activities began in October 2002. Because of the existence of an active 10-inch diameter asbestos-concrete saltwater pipeline and an abandoned Conoco 4-inch steel pipeline excavation work did not extend further southwest due to safety concerns and suspected encroachment from an offsite source in that area not associated with the redwood tanks. ROC submitted the EME SWD I-1 Tank and Pit Closure (Partial) Report on November 5, 2004. This report was designated as "partial" because it addressed just the tank and pit closure area and not other suspected offsite encroachment sources. An ICP for assessment of the other suspected offsite encroachment sources was submitted to the NMOCD on February 25, 2005, and approved on January 10, 2006. Field work for the ICP was initiated on February 6, 2006, and resulted in the completion of four soil borings (B-1 through B-4) and three monitoring wells (MW-1 through MW-3). One of the soil borings (B-1) was converted into a 4" diameter passive vapor extraction well.

Regional and Local Geology

According to published information (Nicholson and Clebsch, 1961, Barnes, 1976, and Anderson, Jones, and Green, 1997) the site is underlain by Quaternary eolian and piedmont deposits composed of sand, silt, and gravel deposited by slopewash, and talus from the Ogallala Formation. The eolian and piedmont deposits are often calichified (indurated with cemented calcium carbonate) with caliche layers from 1 to 20 feet thick. The lithology of the eolian and piedmont deposits is very similar to that of the Ogallala since the Ogallala is the source of these re-deposited colluvial sediments. The nearest outcropping of the Ogallala Formation occurs approximately four miles north of the I-1 SWD facility along what is known as the Llano Estacado (caprock). The thickness of the colluvium deposits and Ogallala Formation is approximately 75 feet, however it varies locally as a result of significant paleo-topography at the top of the underlying Triassic Dockum Group. Since Cretaceous Age rocks in the region have been removed by pre-Tertiary erosion, the colluvial deposits and Ogallala Formation rest unconformably on the Triassic Dockum Group. The uppermost unit of the Dockum Group is the Chinle Formation, which primarily consists of micaceous red clay and shale but also contains thin interbeds of fine-grained sandstone and siltstone. The red clays and shale of the Chinle Formation act as an aquitard beneath the water bearing colluvial deposits and therefore limit the amount of recharge to the underlying Dockum Group. The thickness of the Dockum Group is estimated at approximately 300 feet in the site area although its thickness in southern Lea County varies from 0 to 1,270 feet thick (Nicholson and Clebsch, 1961). Figure 3 shows the surface geology of the site.

The subsurface soils at the site are dominated by fine to medium-grained dune sand in the upper few feet. This layer is underlain by a silty fine sand, and then caliche with some fine-grained sand in matrix to a depth of 10 to 15 ft bgs. Below this layer the caliche content generally lessens and sand grain size increases with depth. More detailed descriptions of the subsurface lithology are provided in boring and monitoring well logs (Appendix A).

Regional and Local Hydrogeology

Potable ground water used in southern Lea County is derived primarily from the Ogallala Formation (including the colluvial deposits) and the Quaternary alluvium. Lower yields have also been provided by water bearing zones within the Triassic Dockum Group in a few scattered areas within southern Lea County. No potable water is known to be derived below the Triassic Dockum Group. Water from the Ogallala and alluvium aquifers in southern Lea County is used for irrigation, stock, domestic, industrial, and public supply purposes.

Nicholsen and Clebsch (1961) found that the regional gradient of the Ogallala and interconnected colluvial aquifer in the site area generally flows toward the southeast and the hydraulic gradient varies from approximately 0.001 to 0.01 feet/feet. Recent data from the monitoring wells at the I-1 SWD facility confirm a similar potentiometric surface (south-southeast at 0.003 ft/ft). Depth to ground water beneath the site area is approximately 32 feet bgs. There are no surface water bodies located within a mile of the site.

Concentrations of Constituents of Concern in the Vadose Zone

Between February 6 and 8, 2006, soil samples were collected at 5-foot intervals using an air-rotary drilling rig at 7 locations to depths of approximately 32 feet bgs to determine the horizontal extent of the impacted soils. Three of the borings were converted into monitoring wells. Soil samples were tested for chloride content using field-adapted Method 9253 (QP-03) and headspace readings were recorded using a Thermal Instrument Model 580B photoionization detector (PID) calibrated with 100 isobutylene in accordance with procedures explained in QP-07 (ICP Appendices). Select samples were submitted for laboratory analysis of chlorides (EPA Method 300.0), benzene, toluene, ethylbenzene, and xylenes (BTEX; EPA Method 8021B), and gas and diesel range organics (GRO/DRO; Method TX 1005). Results of all chloride field tests, PID readings, and lab analytical results are summarized in Table 1 and also depicted in Figure 4. Photodocumentation of field activities are included in Appendix B. Laboratory analytical reports and chain of custody documentation are included in Appendix C.

Chloride concentrations in the soil borings ranged from a minimum of 56 ppm at 20 ft bgs in B-1 to a maximum of 609 ppm at 20 ft bgs in B-2. Chloride concentrations in the soil borings generally averaged between 308 ppm to 405 ppm which is representative of background levels.

There was no indication of hydrocarbon impact to the vadose zone in any of the samples, with the exception of boring B-1. PID readings in boring B-1 ranged from 458 ppm to 539 ppm in the upper 17 ft bgs, but quickly diminished to levels at or below 15 ppm to the bottom of the boring at 32 ft bgs. Laboratory analysis of hydrocarbon constituents of concern (benzene, BTEX, and TPH) in boring B-1 indicate impact is limited to the upper 15 to 20 feet of the vadose zone as summarized in Table 1. Boring B-1 was advanced immediately adjacent to the southwestern edge of the excavated area and represents very localized impact. To mitigate potential migration of volatile organic compounds (VOCs) boring B-1 was converted into a passive vapor extraction well which consists of 4-inch diameter PVC, screened across the 5 to 20 ft interval, and fitted with a wind-powered ventilating turbine.

Concentrations of Constituents of Concern in Groundwater

On February 6 and 8, 2006, three monitoring wells were installed on site to assess groundwater conditions. The depth to ground water at the site is approximately 32 feet bgs. Each monitoring well indicates chloride and TDS concentrations above Water Quality Control Commission (WQCC) standards, however after four consecutive quarterly sampling events it is clear that the upgradient monitoring well (MW-2) has higher concentrations of chlorides and total dissolved solids (TDS), which indicates an upgradient (north and/or northwest) source for these constituents. Existence of an upgradient source was further confirmed based on a one-time sampling event from an offsite monitoring well (MW-18) located approximately 600 feet north of the site at the Red Byrd #1 site (NMOCD Case No. 1R085). The chloride and TDS concentrations of the offsite monitoring well MW-18 (4,850 mg/l) taken on September 6, 2006 are considered representative of background

concentrations, based on its upgradient location with respect to the I-1 SWD site. Chloride concentrations of the offsite monitoring well MW-18 was approximately 25% higher than the chloride concentration of MW-2 (3,880 mg/L) taken a week earlier on August 28, 2006. A groundwater gradient map with concentrations of the constituents of concern for the third quarter 2006 sampling event that includes the three on site monitoring wells and the upgradient well (MW-18) at the Red Byrd #1 site is depicted in Figure 5.

BTEX concentrations for the three on site monitoring wells at the I-1 SWD site have been below WQCC standards since February 2006 (four consecutive quarters). Upgradient well MW-2 has indicated detectable levels of BTEX (slightly above laboratory detection limits) which confirms the existence of a known upgradient offsite source Red Byrd #1 site for hydrocarbon constituents.

Depths to groundwater and laboratory analytical results for the three monitoring wells are summarized in Table 2. The 2006 Annual Groundwater Monitoring Report includes the complete historical groundwater data for the I-1 SWD site and has been submitted to the NMOCD as a separate document with this CAP.

Recommendations for Corrective Action to Vadose Zone

Boring B-1 represents a small localized area impacted by hydrocarbons within the upper 15 to 20 feet of the vadose zone. This impact is localized because no evidence of hydrocarbon impact was observed in the surrounding borings (B-4 and MW-1), and the area to the north was excavated during the closure of the former redwood tanks. Previous remedial actions by ROC (excavation, backfilling, and lining of the former redwood tank area) and conversion of the boring B-1 into a passive vapor extraction well has minimized the risk for potential migration of VOCs into groundwater; therefore, no further mitigation is proposed with the exception of leaving the passive vapor extraction well in place.

Chloride concentrations in the vadose zone are statistically close to the range of background concentrations (300-400 mg/kg) in all borings and do not present a threat to groundwater; therefore, no further corrective actions for chlorides within the vadose zone are proposed or recommended.

Recommendations for Corrective Action to Groundwater

It appears that the cause for the chloride and TDS impacted groundwater at the I-1 SWD site is from an upgradient offsite source. Groundwater in this area of Monument, New Mexico, has been reported as regionally impacted with chlorides and unusable as early as 1952 (Nicholson and Clebsch, Groundwater Report 6). A portion of this reference is reproduced in Figure 6. The exact source of groundwater impact at the I-1 SWD site is unknown because of the numerous potential facilities, past and present, located upgradient as partially listed in the previous Site Description section of this CAP. Chloride and TDS concentrations at the on site monitoring wells are above WQCC standards however they are below background concentrations as established by samples from an upgradient offsite monitoring well (MW-18

at the Red Bryd #1 site). The excavation, backfilling, and lining activities performed by ROC, as described in the EME SWD I-1 Tank and Pit Closure report submitted to the NMOCD on November 5, 2004, has mitigated any potential threat of chlorides or TDS from the former redwood tank area.

Evidence from groundwater monitoring and vadose zone characterization support the conclusion that conditions at the site do not meet the criteria that would mandate corrective action under NMOCD Rule 116 or Rule 19. We propose to continue demonstrating that the site poses no environmental threat by sampling each monitoring well for an additional four quarters (2007 calendar year). If quarterly sampling results support this conclusion, a final report will be submitted with a request for final closure in the first quarter of 2008. After site closure, the monitoring wells may remain operational, contributing data on an as-needed basis for the investigation of the upgradient offsite sources of chloride and TDS impacts to groundwater.

We appreciate the opportunity to work with you on this project. Please feel free to call me at 432-638-8740 or Kristin Pope at 505-393-9174, if you have any questions.

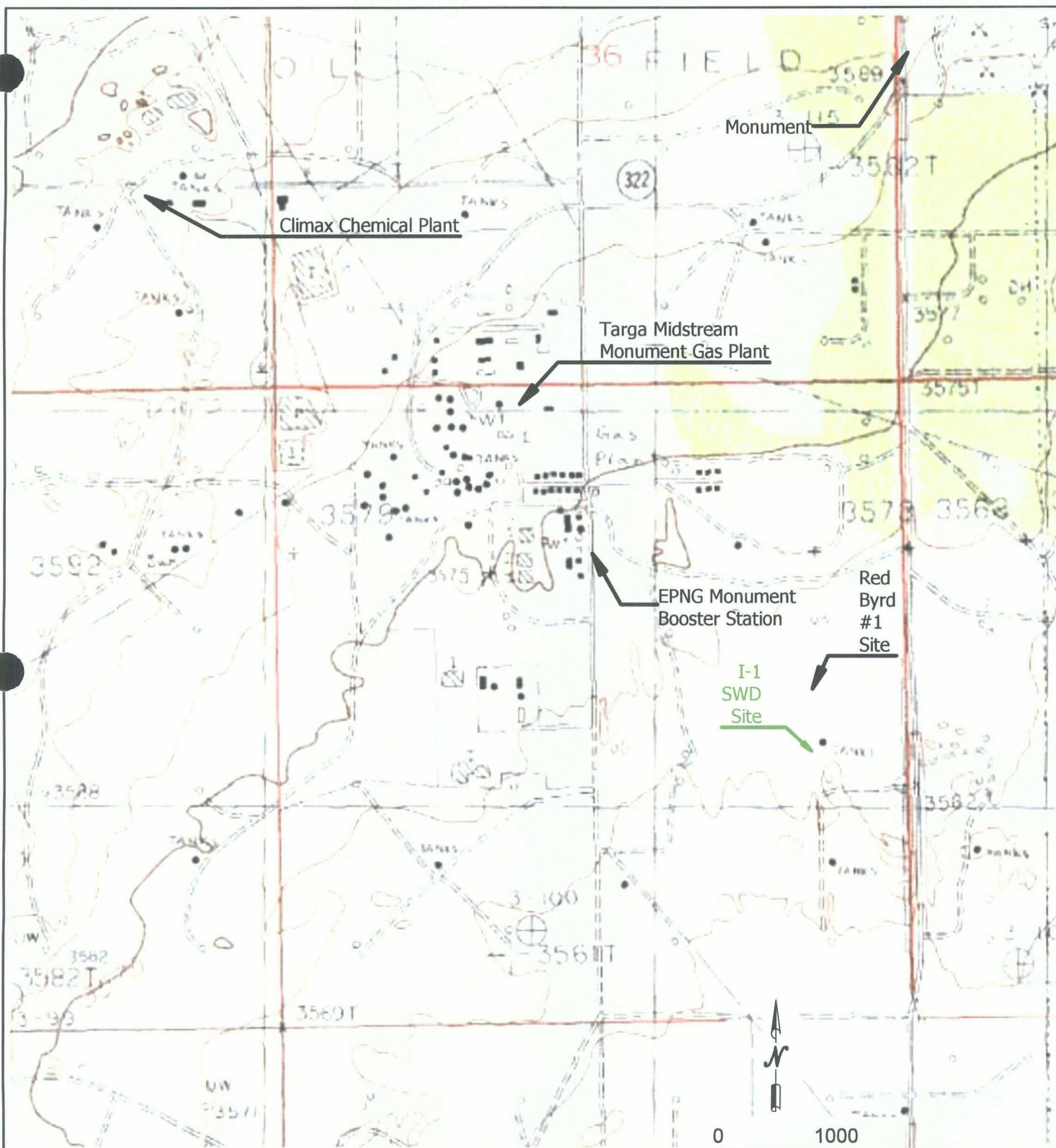


Gilbert J. Van Deventer, REM, PG
Trident Environmental

cc: CDH, JSC, KFP

enclosures: Figures, tables, lithologic logs/well construction diagrams, photodocumentation, and lab reports

Figures



USGS Monument South (NM)
Topographic Quadrangle (1975)

Approximate Scale: 1 inch = 1130 feet



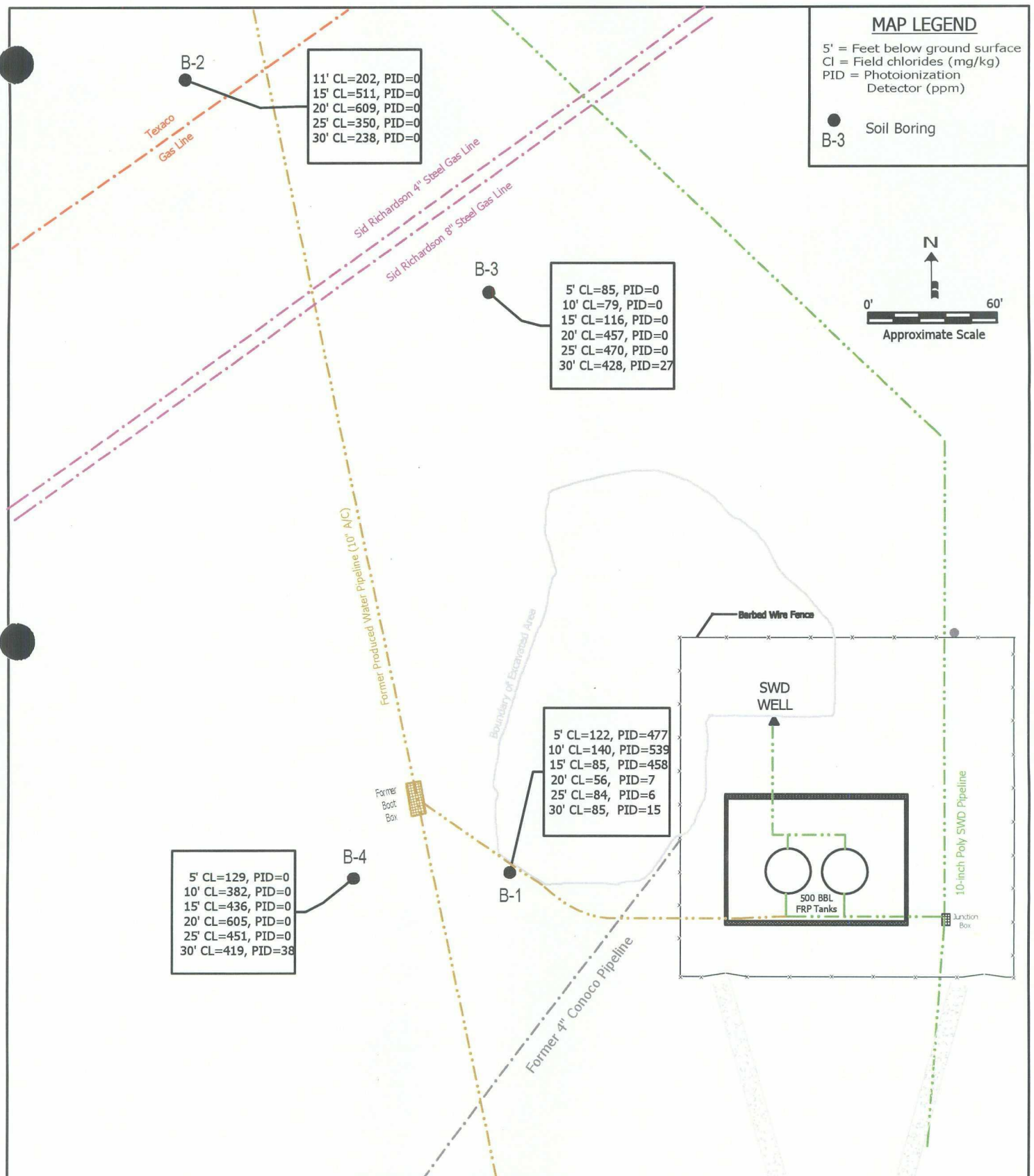
EME I-1 SWD SITE
T20S - R36E - Section 1 - Unit I
RICE Operating Company

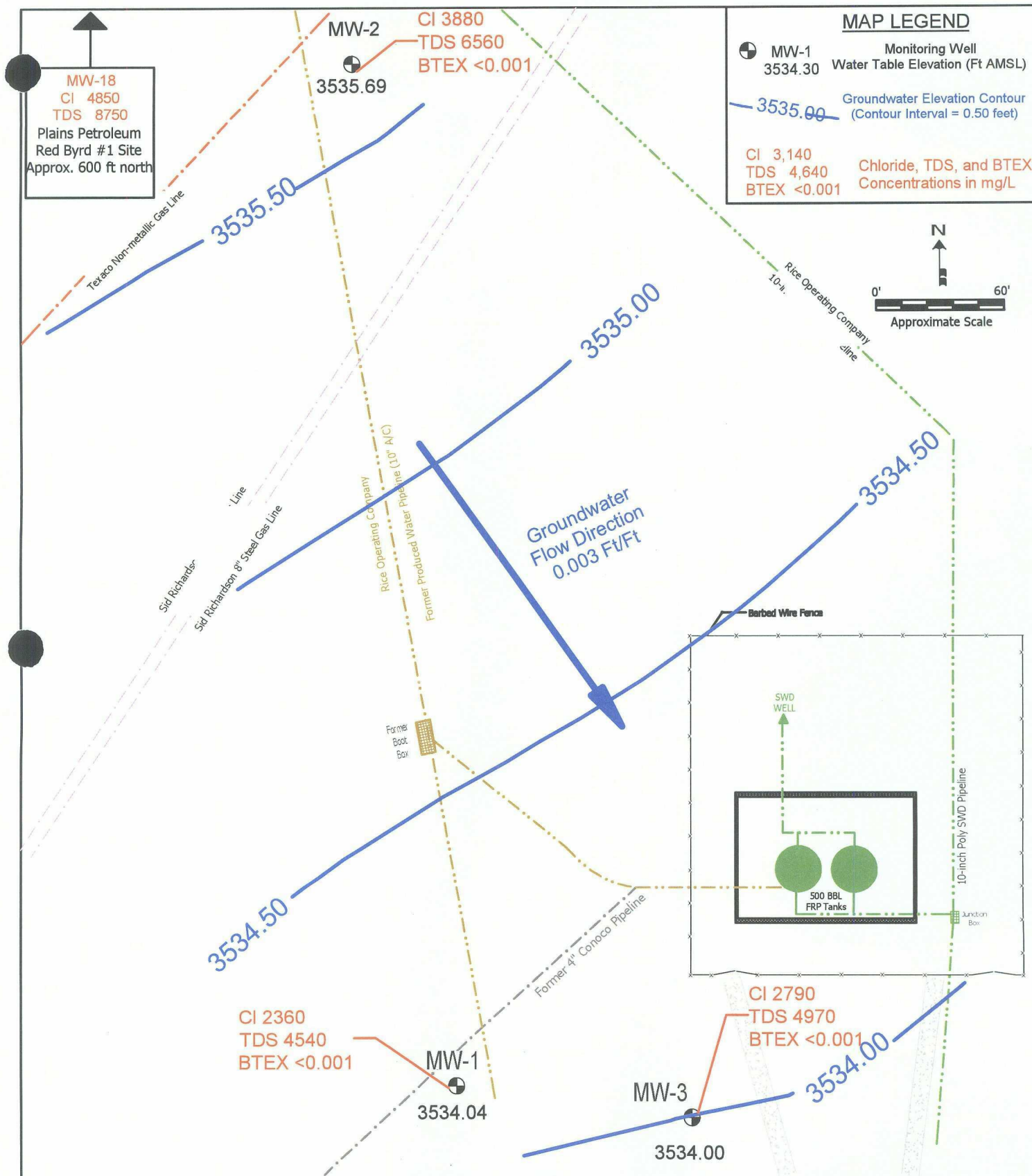
FIGURE 1
TOPOGRAPHIC MAP



EME I-1 SWD SITE
 T20S - R36E - Section 1 - Unit I
RICE *Operating Company*

FIGURE 2
AERIAL PHOTO (2005)





EME I-1 SWD Offsite Encroachment Site
T20S - R36E - Section 1 - Unit I
RICE Operating Company

GROUNDWATER GRADIENT AND
CHLORIDE, TDS, & BTEX
CONCENTRATION MAP
AUGUST 28, 2006

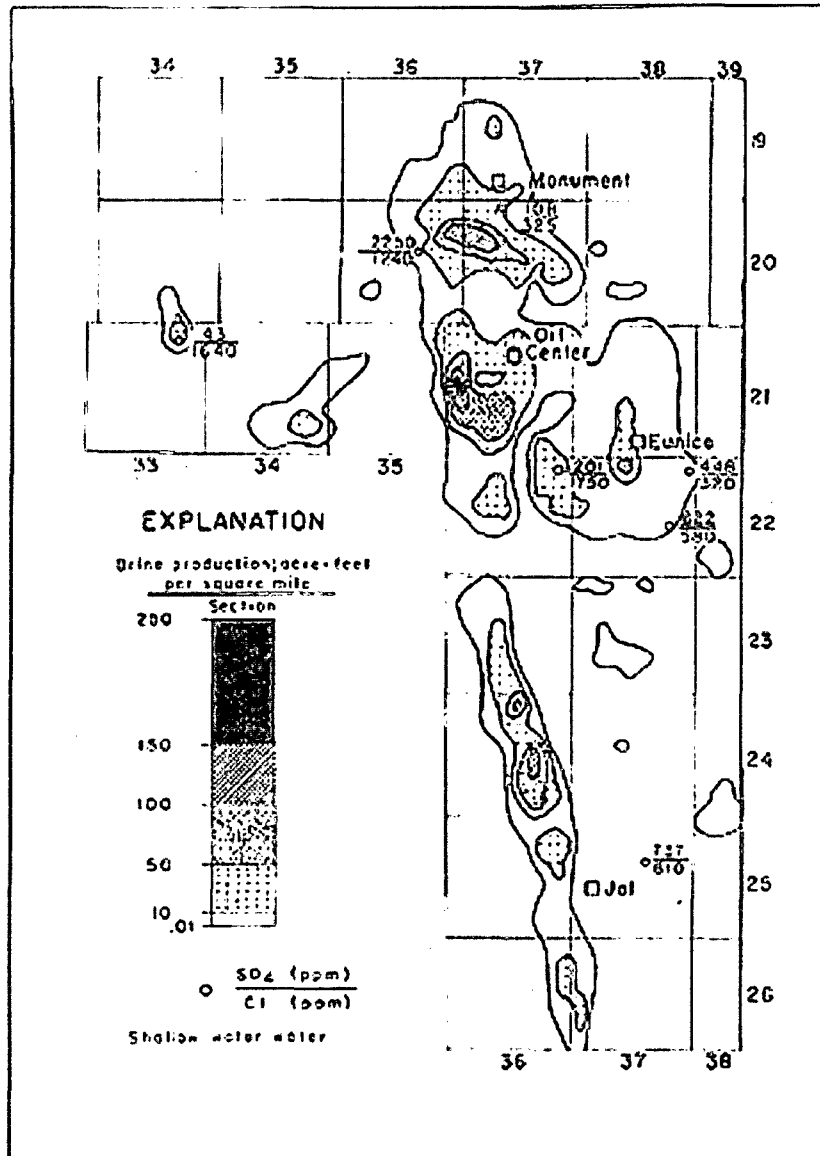


Figure 25

OIL-FIELD BRINE PRODUCTION IN SOUTHERN LEA COUNTY, N. MEX., 1952

Showing locations of selected water wells that have been contaminated by brine. Upper figure adjacent to well symbol is sulfate concentration; lower figure is chloride concentration.

The figure above "shows the distribution of and magnitude of brine production as of 1952. The data were taken from the New Mexico Oil Conservation Commission Annual Report for 1952." Areas with high brine production as "shown on the map constitute potential centers of ground water contamination."

Tables

Corrective Action Plan
EME I-1 SWD Offsite Enviroachment Site
T20S-R36E-Section 1, Unit Letter I

Table 1
Field Testing and Laboratory Analytical Results for Soil Boring Samples

Boring	Depth (ft bgs)	Field Chloride (ppm)	Lab Chloride (mg/kg)	PID (ppm)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)
B-1	5' - 7'	122	---	477	<0.400	<0.400	4.87	25.6	30.47	2090	10475
	10' - 12'	140	---	539	<0.400	<0.400	3.29	8.27	11.56	2780	16781
	15' - 17'	85	---	458	---	---	---	---	---	---	---
	20' - 22'	56	---	7	<0.025	<0.025	<0.025	<0.025	<0.025	---	---
	25' - 27'	84	---	6	---	---	---	---	---	---	---
B-2	30' - 32'	85	---	15	<0.025	<0.025	<0.025	<0.025	<0.025	---	---
	11' - 13'	202	---	0	---	---	---	---	---	---	---
	15' - 17'	511	---	0	---	---	---	---	---	---	---
	20' - 22'	609	---	0	---	---	---	---	---	---	---
	25' - 27'	350	---	0	---	---	---	---	---	---	---
B-3	30' - 32'	238	---	0	---	---	---	---	---	---	---
	5' - 7'	85	---	0	---	---	---	---	---	---	---
	11' - 13'	79	---	0	---	---	---	---	---	---	---
	15' - 17'	116	---	0	---	---	---	---	---	---	---
	20' - 22'	457	---	0	---	---	---	---	---	---	---
B-4	25' - 27'	470	---	0	---	---	---	---	---	---	---
	30' - 32'	428	295	27	---	---	---	---	---	---	---
	5' - 7'	129	---	0	---	---	---	---	---	---	---
	11' - 13'	382	---	0	---	---	---	---	---	---	---
	15' - 17'	436	---	0	---	---	---	---	---	---	---
B-4	20' - 22'	605	---	0	---	---	---	---	---	---	---
	25' - 27'	451	---	0	---	---	---	---	---	---	---
	30' - 32'	419	537	38	<0.025	<0.025	<0.025	<0.025	<0.025	---	---

--- Indicates constituent was not measured or analyzed.

Field chloride values obtained using modified Method 9253 (QP-03). Lab chloride analyzed using EPA Method 300.0

PID readings obtained using a Thermal Instrument Model 580B calibrated with 100 isobutylene (QP-07).

BTEX analyzed by Environmental Lab of Texas using EPA Method 8021B.

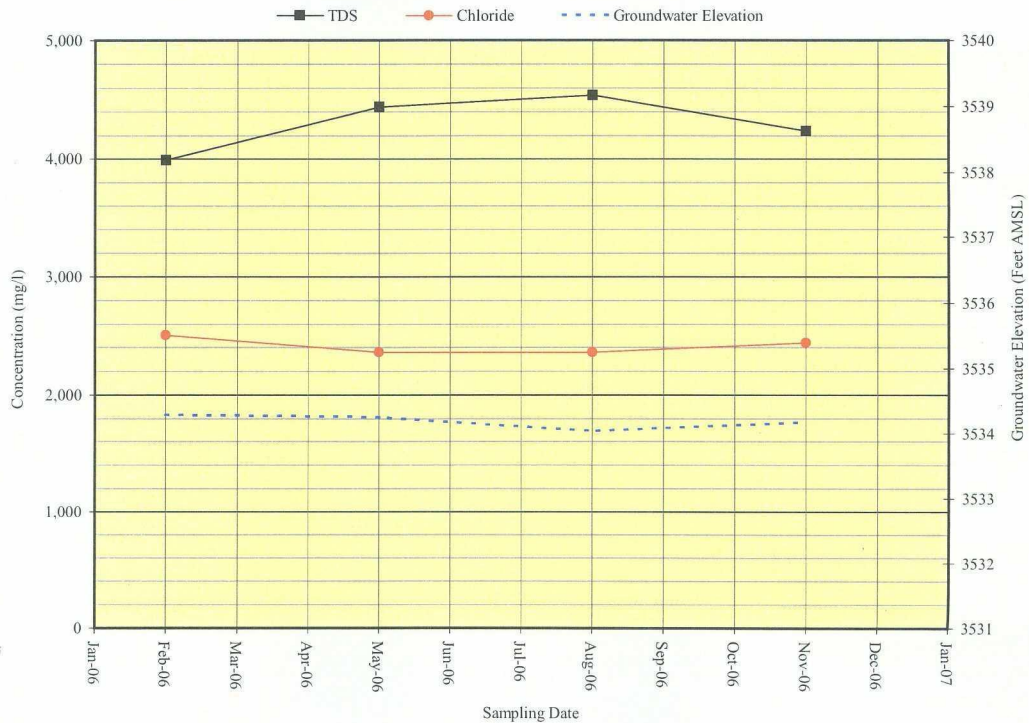
GRO/DRO analyzed by Environmental Lab of Texas using Method TX 1005.

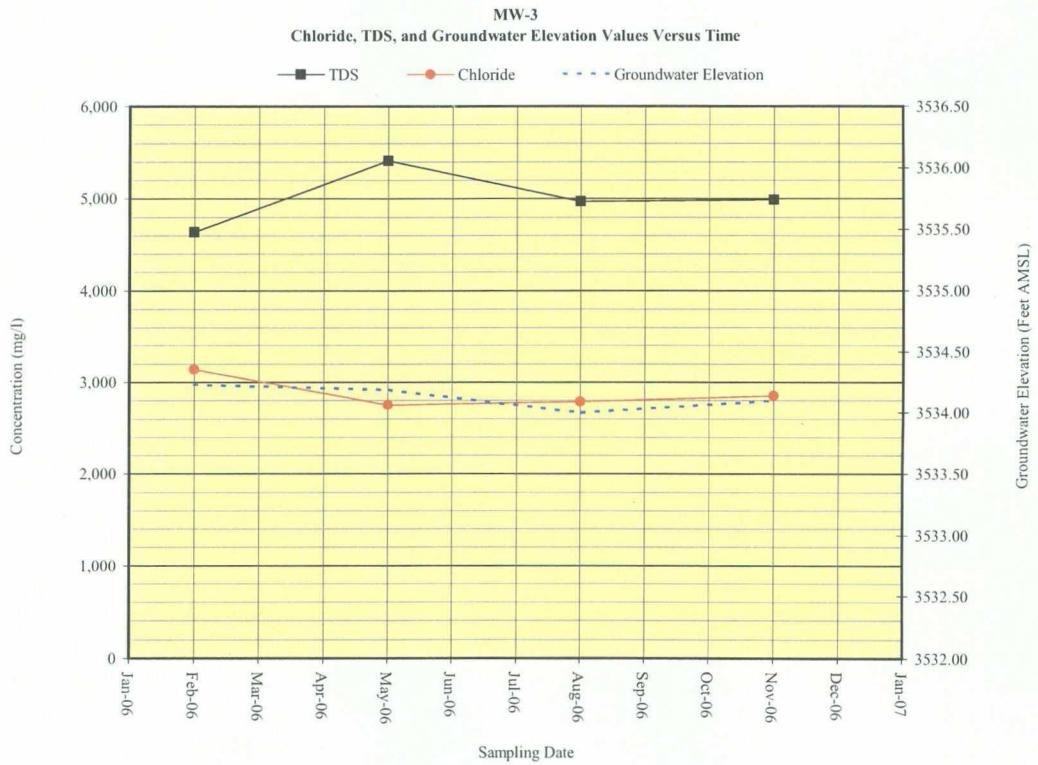
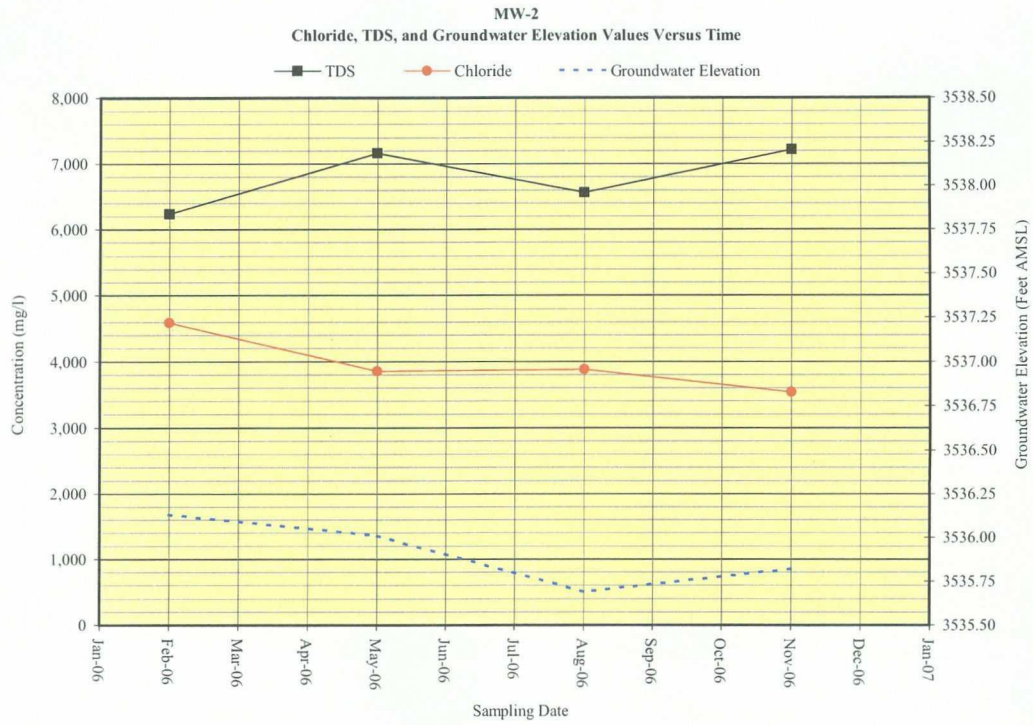
Table 1
Summary of Groundwater Sampling Results
EME I-1 SWD Site

Monitoring Well	Sample Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)	Chloride (mg/L)	TDS (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)
MW-1	02/15/06	35.09	3534.30	2,510	3,990	< 0.001	< 0.001	< 0.001	< 0.001
	05/22/06	35.12	3534.27	2,360	4,440	< 0.001	< 0.001	< 0.001	< 0.001
	08/28/06	35.35	3534.04	2,360	4,540	< 0.001	< 0.001	< 0.001	< 0.001
	11/27/06	35.20	3534.19	2,440	4,240	0.001	0.001	0.001	< 0.001
MW-2	02/15/06	33.52	3536.13	4,590	6,240	0.003	0.003	0.006	0.007
	05/22/06	33.64	3536.01	3,850	7,160	0.001	< 0.001	0.001	< 0.001
	08/28/06	33.96	3535.69	3,880	6,560	0.001	< 0.001	0.007	0.002
	11/27/06	33.83	3535.82	3,540	7,220	0.002	0.001	0.003	0.002
MW-3	02/15/06	34.59	3534.23	3,140	4,640	< 0.001	< 0.001	< 0.001	< 0.001
	05/22/06	34.63	3534.19	2,750	5,410	< 0.001	< 0.001	< 0.001	< 0.001
	08/28/06	34.82	3534.00	2,790	4,970	< 0.001	< 0.001	< 0.001	< 0.001
	11/27/06	34.72	3534.10	2,850	4,990	< 0.001	0.001	< 0.001	< 0.001
WQCC Standards				250	1000	0.01	0.75	0.75	0.62

Total Dissolved Solids (TDS), chloride, and BTEX concentrations listed in milligrams per liter (mg/L).
Analyses performed by Environmental Lab of Texas (Odessa TX) and TraceAnalysis (Midland TX).
Values in boldface type indicate concentrations exceed New Mexico Water Quality Commission (WQCC) standards.
AMSL - Above Mean Sea Level; BTOC - Below Top of Casing
Elevations and state plane coordinates surveyed by Basin Surveys, Hobbs, NM.

MW-1
Chloride, TDS, and Groundwater Elevation Values Versus Time

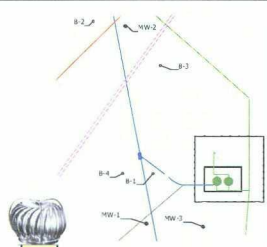




Appendix A

**Lithologic Logs and
Well Construction Diagrams**

LITHOLOGIC LOG AND PASSIVE VAPOR RECOVERY WELL CONSTRUCTION DIAGRAM

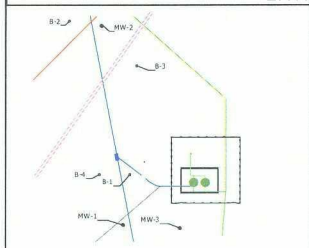


WELL ID.: B-1
 SITE ID: EME I-1 SWD
 CONTRACTOR: Eades Drilling & Pump Service
 DRILLING METHOD: Air Rotary
 START DATE: 02/08/06
 COMPLETION DATE: 02/08/06
 COMMENTS: Located adjacent to southwest corner of excavated area that has been backfilled and lined with clay.
 This boring was converted into a 4" diameter passive vapor extraction well and fitted with a wind-powered turbine (Empire model TV04G).

TOTAL DEPTH: 32 Feet
 CLIENT: Rice Operating Company
 COUNTY: Lea
 STATE: New Mexico
 LOCATION: T20S-R36E-Sec 1-Unit I
 FIELD REP.: G. Van Deventer

USCS	Sample		Chloride (ppm)	PID (ppm)	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE, SORTING, ROUNDING, CONSOLIDATION, DISTINGUISHING FEATURES
	Depth	Type			
SW	Surface	Surface			Tan fine-grained dune sand and caliche cover.
SM	5	Split Spoon	122	477	Light brown (5R 5/6), greenish gray (5Y 6/1), and brownish black (5YR 2/1) silty fine sand, subrounded, moderately sorted, very moist with strong hydrocarbon odor, some oil seepage at 6 ft.
CAL/ SW	10	Split Spoon	140	539	Caliche with some fine-grained sand in matrix and strong hydrocarbon odor. Caliche is soft to moderately hard and is light greenish gray (5 GY 8/1). Sand is pale yellowish brown (10 YR 6/2), moderately sorted, subangular grains.
SM/ CAL	15	Split Spoon	85	458	Pale reddish brown (10R 4/6) silty fine to medium sand, moderately sorted, subrounded with caliche in matrix. Strong hydrocarbon odor. Caliche is soft and is very pale orange (10 YR 8/2). Caliche content decreasing with depth.
SW	20	Split Spoon	56	7	Pale red (10R 6/2) fine to medium sand, moderately sorted, subrounded.
SW	25	Split Spoon	84	6	Pale reddish brown (10R5/4) fine to medium sand, moderately sorted, subrounded.
SW	30	Split Spoon	85	15	Pale red (10R 6/2) fine to medium sand, moderately sorted, subrounded. Groundwater encountered at approximately 31 ft below ground surface.
	35				Bottom of boring at 32 ft below ground surface.
	40				
	45				
	50				

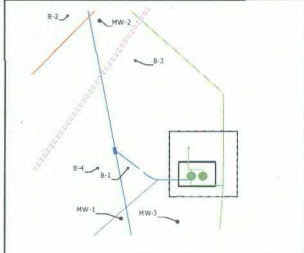
LITHOLOGIC LOG AND MONITORING WELL CONSTRUCTION DIAGRAM



MONITOR WELL NO.: B-2 TOTAL DEPTH: 32 Feet
 SITE ID: EME I-1 SWD CLIENT: Rice Operating Company
 CONTRACTOR: Eades Drilling & Pump Service COUNTY: Lea
 DRILLING METHOD: Air Rotary STATE: New Mexico
 START DATE: 02/08/06 LOCATION: T20S-R36E-Sec 1-Unit I
 COMPLETION DATE: 02/08/06 FIELD REP.: G. Van Deventer
 COMMENTS: Located ~60 ft eastnortheast of where Texaco low pressure gas line crosses former Rice 10" AC water line.

USCS	Sample			Chloride (ppm)	PID (ppm)	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE, SORTING, ROUNDING, CONSOLIDATION, DISTINGUISHING FEATURES
	Depth	Time	Type			
SW			Surface			Tan fine to medium grained dune sand
	5					According to driller, drill pipe "dropped" 6 ft past the 5 ft mark. Either a cavity or the driller forgot he had drilled 5 extra feet. No split spoon or cuttings available for description.
SM	10	1338	Split Spoon	0		Reddish-brown (10R 4/6) and light olive gray (5Y 6/1) silty fine sand, subrounded, moderately sorted.
	15	1347	Split Spoon	511	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded with caliche in matrix. Caliche content decreasing with depth.
SW/ CAL	20	1358	Split Spoon	609	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded with less caliche in matrix.
	25	1418	Split Spoon	350	0	Light brown (5 YR 6/4) fine to medium sand, moderately sorted, subrounded.
SW	30					Light brown (5 YR 6/4) fine to medium sand, moderately sorted, subrounded.
	31	1431	Split Spoon	238	0	Groundwater encountered at approximately 31 ft below ground surface. Bottom of boring at 32 ft below ground surface.
	35					
	40					
	45					
	50					

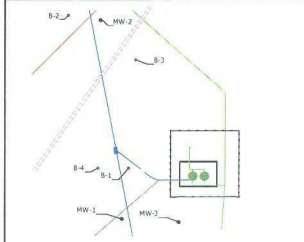
LITHOLOGIC LOG AND MONITORING WELL CONSTRUCTION DIAGRAM



MONITOR WELL NO.: B-3 TOTAL DEPTH: 32 Feet
 SITE ID: EME I-1 SWD CLIENT: Rice Operating Company
 CONTRACTOR: Eades Drilling & Pump Service COUNTY: Lea
 DRILLING METHOD: Air Rotary STATE: New Mexico
 START DATE: 02/08/06 LOCATION: T20S-R36E-Sec 1-Unit I
 COMPLETION DATE: 02/08/06 FIELD REP.: G. Van Deventer
 COMMENTS: Located ~60 ft ENE of where Texaco low pressure gas line crosses former Rice 10" AC water line.

USCS	Sample		Chloride (ppm)	PID (ppm)	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE, SORTING, ROUNDING, CONSOLIDATION, DISTINGUISHING FEATURES
	Depth	Type			
SW		Surface			Tan fine to medium grained dune sand
SW	5				Reddish-brown (10R 4/6) medium-grained sand, subrounded, moderately sorted.
	1606	Split Spoon	85	0	Caliche with some fine-grained sand in matrix. Caliche is soft and is very pale orange (10 YR 8/2). Sand is pale yellowish brown (10 YR 6/2), moderately sorted, subangular grains.
CAL/ SW	10				
SM	15	Split Spoon	79	0	Pale reddish brown (10R 4/6) silty fine to medium sand, moderately sorted, subrounded with veinlets of caliche. Caliche is soft and is very pale orange (10 YR 8/2). Caliche content decreasing with depth.
	1613	Split Spoon			
	1622	Split Spoon	116	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded with caliche in matrix. Caliche content decreasing with depth.
SW/ CAL	20				
	1631	Split Spoon	457	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded with less caliche in matrix. Sample very moist in places at 21 ft.
	25				Light brown (5 YR 6/4) fine to medium sand, moderately sorted, subrounded.
SW	1646	Split Spoon	470	0	Light brown (5 YR 6/4) fine to medium sand, moderately sorted, subrounded.
	30				
	1655	Split Spoon	428	27	Light brown (5 YR 6/4) fine to medium sand, moderately sorted, subrounded. Groundwater encountered at approximately 31 ft below ground surface.
					Bottom of boring at 32 ft below ground surface.
	35				
	40				
	45				
	50				

LITHOLOGIC LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

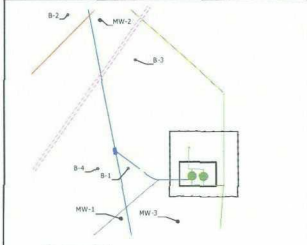


MONITOR WELL NO.: B-4
 SITE ID: EME I-1 SWD
 CONTRACTOR: Eades Drilling & Pump Service
 DRILLING METHOD: Air Rotary
 START DATE: 02/08/06
 COMPLETION DATE: 02/08/06
 COMMENTS: Located ~60 ft southwest of former boot and ~70 ft west of boring B-1.

TOTAL DEPTH: 32 Feet
 CLIENT: Rice Operating Company
 COUNTY: Lea
 STATE: New Mexico
 LOCATION: T20S-R36E-Sec 1-Unit I
 FIELD REP.: G. Van Deventer

USCS	Sample			Chloride (ppm)	PID (ppm)	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE, SORTING, ROUNDING, CONSOLIDATION, DISTINGUISHING FEATURES
	Depth	Time	Type			
SW			Surface			Tan fine to medium grained dune sand
SM	5	1338	Split Spoon	129	0	Alternating thin layers of reddish-brown (10R 4/6) and light olive gray (5Y 6/1) silty fine sand, subrounded, moderately sorted.
	10	1348	Split Spoon	382	0	Pale reddish brown (10R 4/6) silty fine to medium sand, moderately sorted, subrounded with veinlets of caliche. Caliche is soft and is very pale orange (10 YR 8/2).
SW/CAL	15	1358	Split Spoon	436	0	Caliche with some fine-grained sand in matrix. Caliche is soft and is very pale orange (10 YR 8/2). Sand is pale yellowish brown (10 YR 6/2), moderately sorted, subangular grains.
SW	20	1405	Split Spoon	605	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded.
	25	1416	Split Spoon	451	0	Pale reddish brown (10R5/4) fine to medium sand, moderately sorted, subrounded.
SW	30	1429	Split Spoon	419	38	Pale red (10R 6/2) fine to medium sand, moderately sorted, subrounded. Groundwater encountered at approximately 31 ft below ground surface.
	32					Bottom of boring at 32 ft below ground surface.
	35					
	40					
	45					
	50					

LITHOLOGIC LOG AND MONITORING WELL CONSTRUCTION DIAGRAM



MONITOR WELL NO.: MW-1 TOTAL DEPTH: 42 Feet

SITE ID: EME I-1 SWD Offsite Encroachment Site CLIENT: Rice Operating Company

CONTRACTOR: Eades Drilling & Pump Service COUNTY: Lea

DRILLING METHOD: Air Rotary STATE: New Mexico

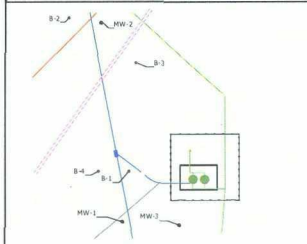
START DATE: 02/06/06 LOCATION: T20S-R36E-Sec 1-Unit I

COMPLETION DATE: 02/06/06 FIELD REP.: G. Van Deventer

COMMENTS: Located ~30 ft southwest of where former Conoco 4" water line crosses former Rice 10" AC water line.

USCS	Sample		Chloride (ppm)	PID (ppm)	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE, SORTING, ROUNDING, CONSOLIDATION, DISTINGUISHING FEATURES
	Depth	Type			
SW		Surface			Tan fine to medium grained dune sand
SM	5	Split Spoon	151	4	Alternating thin layers of reddish-brown (10R 4/6) and light olive gray (5Y 6/1) silty fine sand, subrounded, moderately sorted.
CAL	10	Split Spoon	598	0	Caliche with some fine-grained sand in matrix. Caliche is soft to moderately hard and is very pale orange (10 YR 8/2). Sand is pale yellowish brown (10 YR 6/2), moderately sorted, subangular grains.
CAL/ SW	15	Split Spoon	516	0	Pale reddish brown (10R 4/6) silty fine to medium sand, moderately sorted, subrounded with veinlets of caliche. Caliche is soft and is very pale orange (10 YR 8/2). Caliche content decreasing with depth.
SW	20	Split Spoon	290	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded.
SW	25	Split Spoon	276	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded.
SW	30	Split Spoon	292	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded. Groundwater encountered at approximately 31 ft below ground surface.
	35				
	40				
	45				Bottom of boring at 42 ft below ground surface.
	50				

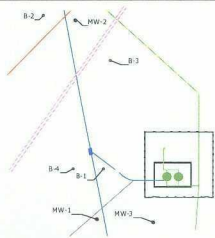
LITHOLOGIC LOG AND MONITORING WELL CONSTRUCTION DIAGRAM



MONITOR WELL NO.: MW-2 TOTAL DEPTH: 42 Feet
 SITE ID: EME I-1 SWD Offsite Encroachment Site CLIENT: Rice Operating Company
 CONTRACTOR: Eades Drilling & Pump Service COUNTY: Lea
 DRILLING METHOD: Air Rotary STATE: New Mexico
 START DATE: 02/06/06 LOCATION: T205-R36E-Sec 1-Unit I
 COMPLETION DATE: 02/08/06 FIELD REP.: G. Van Deventer
 COMMENTS: Located ~25 ft east of where Texaco low pressure gas line crosses former Rice 10" AC water line.

USCS	Sample		Chloride (ppm)	PID (ppm)	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE, SORTING, ROUNDING, CONSOLIDATION, DISTINGUISHING FEATURES
	Depth	Type			
SW		Surface			Tan fine to medium grained dune sand
SM	5				Reddish-brown (10R 4/6) fine sand, subrounded, moderately sorted.
CAL/ SW	1143	Split Spoon	296	0	Caliche with some fine-grained sand in matrix. Caliche is soft to moderately hard and is very pale orange (10 YR 8/2). Sand is pale yellowish brown (10 YR 6/2), moderately sorted, subangular grains.
	10				
	1151	Split Spoon	628	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded with caliche in matrix. Caliche is soft and is very pale orange (10 YR 8/2).
	15				Caliche content decreasing with depth.
SW/ CAL	1156	Split Spoon	282	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded with less caliche in matrix. Caliche content decreasing with depth.
	20				
	1205	Split Spoon	268	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded with much less caliche in matrix.
	25				
	1244	Split Spoon	425	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded.
	30				
	1255	Split Spoon	211	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded. Groundwater encountered at approximately 31 ft below ground surface.
SW	35				
	40				
	45				Bottom of boring at 42 ft below ground surface.
	50				

LITHOLOGIC LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

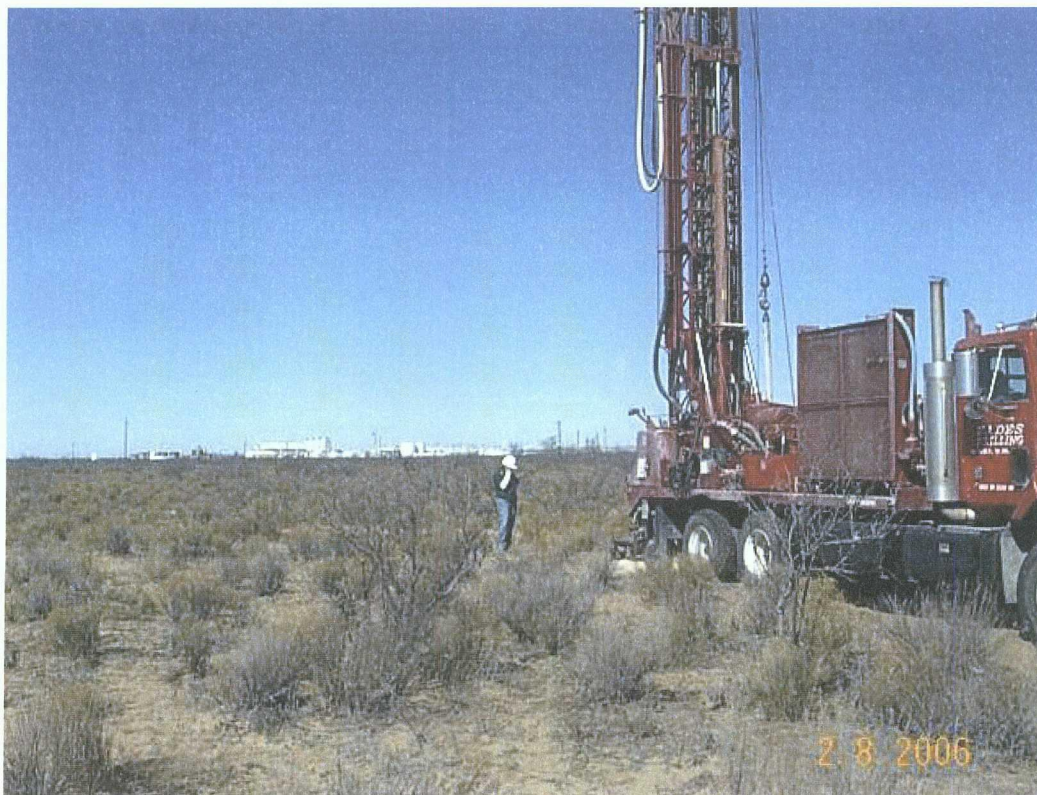


MONITOR WELL NO.: MW-3 TOTAL DEPTH: 41 Feet
 SITE ID: EME I-1 SWD Offsite Encroachment Site CLIENT: Rice Operating Company
 CONTRACTOR: Eades Drilling & Pump Service COUNTY: Lea
 DRILLING METHOD: Air Rotary STATE: New Mexico
 START DATE: 02/08/06 LOCATION: T205-R36E-Sec 1-Unit I
 COMPLETION DATE: 02/08/06 FIELD REP.: G. Van Deventer
 COMMENTS: Located ~170 ft southeast (downgradient) of boring B-1.

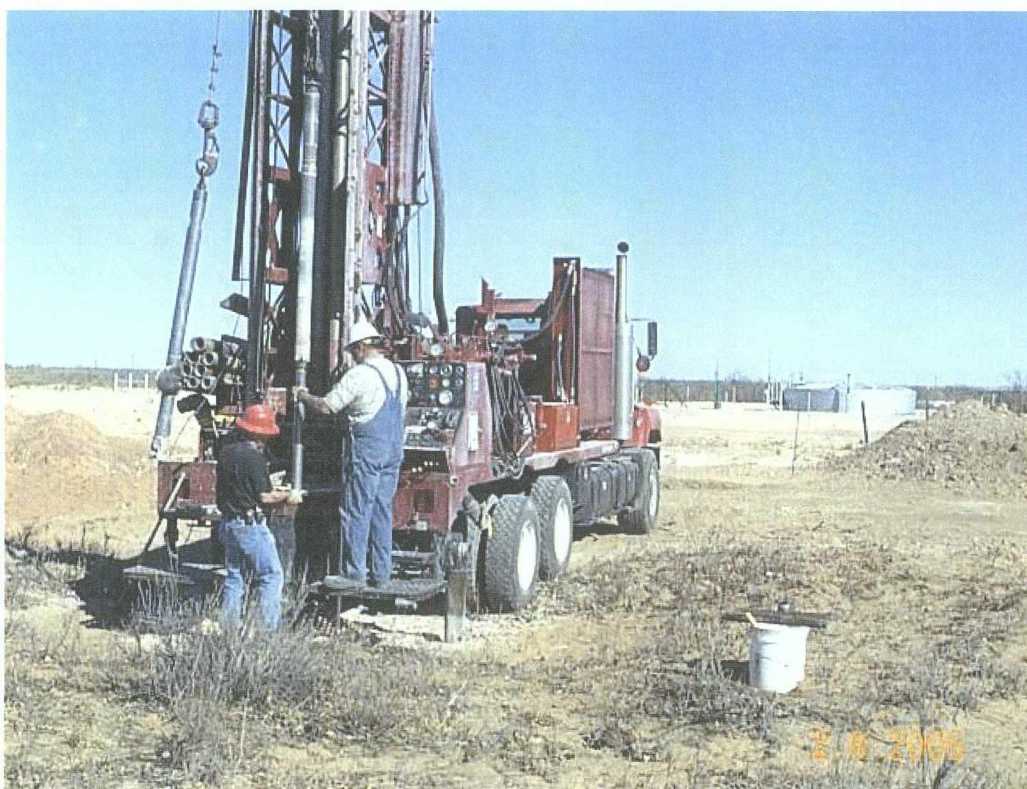
	USCS	Sample			Chloride (ppm)	PID (ppm)	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE, SORTING, ROUNDING, CONSOLIDATION, DISTINGUISHING FEATURES
		Depth	Time	Type			
Cement	SW			Surface			Tan fine to medium grained dune sand
Cement	SM	5	1455	Split Spoon	384	0	Alternating thin layers of reddish-brown (10R 4/6) and light olive gray (5Y 6/1) silty fine sand, subrounded, moderately sorted.
3/8 Bentonite Hole Plug	CAL/ SW	10	1503	Split Spoon	650	0	Caliche with some fine-grained sand in matrix. Caliche is soft to moderately hard and is very pale orange (10 YR 8/2). Sand is pale yellowish brown (10 YR 6/2), moderately sorted, subangular grains.
2" Sched 40 PVC Blank Casing	SW/ CAL	15	1509	Split Spoon	779	0	Pale reddish brown (10R 4/6) silty fine to medium sand, moderately sorted, subrounded with veinlets of caliche. Caliche is soft and is very pale orange (10 YR 8/2). Caliche content decreasing with depth.
3/8 Bentonite Hole Plug		20	1517	Split Spoon	2249	0	Light brown (5R 5/6) fine to medium sand, moderately sorted, subrounded.
12/20 Silica Sand Pack		25	1528	Split Spoon	846	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded.
2" Diameter Screen with 0.010" Slots	SW	30	1538	Split Spoon	892	0	Pale reddish brown (10R 4/6) fine to medium sand, moderately sorted, subrounded. Groundwater encountered at approximately 31 ft below ground surface.
12/20 Silica Sand Pack		35					
		40					
5"							Bottom of boring at 41 ft below ground surface.
		45					
		50					

Appendix B

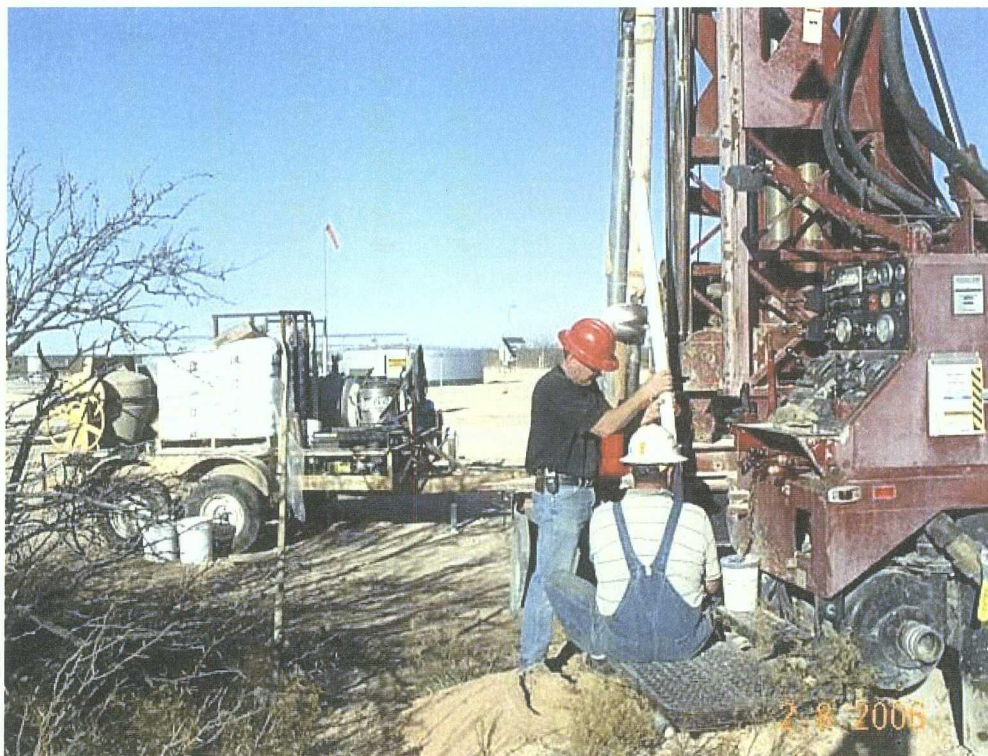
Photodocumentation



View facing north showing drilling activities at monitoring well MW-2.



View facing east showing split spoon sampling activity at boring B-4.



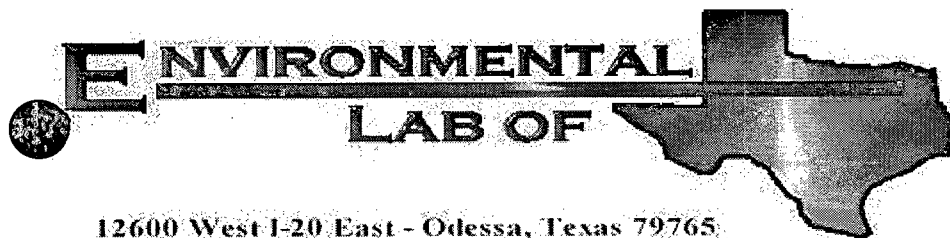
View facing north showing installation PVC casing into monitoring well MW-3.



View facing east showing passive vapor extraction well at location of boring B-1.

Appendix C

**Laboratory Analytical Reports and
Chain of Custody Documentation**



Analytical Report

Prepared for:

Kristin Farris-Pope

Rice Operating Co.

122 W. Taylor

Hobbs, NM 88240

Project: EME I-1

Project Number: None Given

Location: None Given

Lab Order Number: 6B07009

Report Date: 02/14/06

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471
Reported:
02/14/06 10:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2 (10'-12')	6B07009-01	Soil	02/06/06 11:51	02/07/06 14:28
B-3 (30'-31')	6B07009-02	Soil	02/06/06 16:55	02/07/06 14:28

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/14/06 10:17

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2 (10'-12') (6B07009-01) Soil									
Chloride	180	5.00	mg/kg	10	EB61301	02/10/06	02/13/06	EPA 300.0	
B-3 (30'-31') (6B07009-02) Soil									
Chloride	295	10.0	mg/kg	20	EB61301	02/10/06	02/13/06	EPA 300.0	
% Moisture	18.2	0.1	%	1	EB60806	02/07/06	02/08/06	% calculation	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/14/06 10:17

Volatile Organic Compounds by EPA Method 8260B
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
B-3 (30'-31') (6B07009-02) Soil									
Benzene	ND	25.0	ug/kg dry	25	EB61005	02/10/06	02/10/06	EPA 8260B	
Toluene	ND	25.0	"	"	"	"	"	"	
Ethylbenzene	ND	25.0	"	"	"	"	"	"	
Xylene (p/m)	ND	25.0	"	"	"	"	"	"	
Xylene (o)	ND	25.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		117 %	70-139		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		101 %	52-149		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	76-125		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	66-145		"	"	"	"	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471
Reported:
02/14/06 10:17

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EB60806 - General Preparation (Prep)										
Blank (EB60806-BLK1)				Prepared: 02/07/06 Analyzed: 02/08/06						
% Solids	100		%							
Duplicate (EB60806-DUP1)				Source: 6B06017-01 Prepared: 02/07/06 Analyzed: 02/08/06						
% Solids	90.2		%		90.2			0.00	20	
Duplicate (EB60806-DUP2)				Source: 6B06018-07 Prepared: 02/07/06 Analyzed: 02/08/06						
% Solids	97.7		%		97.9			0.205	20	
Duplicate (EB60806-DUP3)				Source: 6B06018-27 Prepared: 02/07/06 Analyzed: 02/08/06						
% Solids	99.4		%		99.3			0.101	20	
Duplicate (EB60806-DUP4)				Source: 6B07006-02 Prepared: 02/07/06 Analyzed: 02/08/06						
% Solids	91.2		%		92.1			0.982	20	
Batch EB61301 - Water Extraction										
Blank (EB61301-BLK1)				Prepared: 02/10/06 Analyzed: 02/13/06						
Chloride	ND	0.500	mg/kg							
LCS (EB61301-BS1)				Prepared: 02/10/06 Analyzed: 02/13/06						
Chloride	8.86		mg/L	10.0		88.6	80-120			
Calibration Check (EB61301-CCV1)				Prepared: 02/10/06 Analyzed: 02/13/06						
Chloride	9.05		mg/L	10.0		90.5	80-120			
Duplicate (EB61301-DUP1)				Source: 6B07009-01 Prepared: 02/10/06 Analyzed: 02/13/06						
Chloride	180	5.00	mg/kg		180			0.00	20	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/14/06 10:17

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EB61005 - EPA 5030C (GCMS)

Blank (EB61005-BLK1)

Prepared & Analyzed: 02/10/06

Benzene	ND	25.0	ug/kg wet							
Toluene	ND	25.0	"							
Ethylbenzene	ND	25.0	"							
Xylene (p/m)	ND	25.0	"							
Xylene (o)	ND	25.0	"							
Surrogate: Dibromofluoromethane	61.8		ug/kg	50.0		124	70-139			
Surrogate: 1,2-Dichloroethane-d4	53.3		"	50.0		107	52-149			
Surrogate: Toluene-d8	49.0		"	50.0		98.0	76-125			
Surrogate: 4-Bromofluorobenzene	51.9		"	50.0		104	66-145			

LCS (EB61005-BS1)

Prepared & Analyzed: 02/10/06

Benzene	1130	25.0	ug/kg wet	1250		90.4	70-130			
Toluene	1330	25.0	"	1250		106	70-130			
Ethylbenzene	1400	25.0	"	1250		112	70-130			
Xylene (p/m)	2800	25.0	"	2500		112	70-130			
Xylene (o)	1500	25.0	"	1250		120	70-130			
Surrogate: Dibromofluoromethane	62.8		ug/kg	50.0		126	70-139			
Surrogate: 1,2-Dichloroethane-d4	55.8		"	50.0		112	52-149			
Surrogate: Toluene-d8	51.1		"	50.0		102	76-125			
Surrogate: 4-Bromofluorobenzene	52.0		"	50.0		104	66-145			

Calibration Check (EB61005-CCV1)

Prepared & Analyzed: 02/10/06

Toluene	52.1		ug/kg	50.0		104	70-130			
Ethylbenzene	51.7		"	50.0		103	70-130			
Surrogate: Dibromofluoromethane	58.8		"	50.0		118	70-139			
Surrogate: 1,2-Dichloroethane-d4	53.7		"	50.0		107	52-149			
Surrogate: Toluene-d8	49.4		"	50.0		98.8	76-125			
Surrogate: 4-Bromofluorobenzene	52.9		"	50.0		106	66-145			

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/14/06 10:17

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch EB61005 - EPA 5030C (GCMS)									
Matrix Spike (EB61005-MS1)		Source: 6B06017-13			Prepared & Analyzed: 02/10/06				
Benzene	1410	25.0	ug/kg dry	1540	ND	91.6	70-130		
Toluene	1650	25.0	"	1540	ND	107	70-130		
Ethylbenzene	1730	25.0	"	1540	ND	112	70-130		
Xylene (p/m)	3480	25.0	"	3090	ND	113	70-130		
Xylene (o)	1860	25.0	"	1540	ND	121	70-130		
Surrogate: Dibromofluoromethane	62.6		ug/kg	50.0		125	70-139		
Surrogate: 1,2-Dichloroethane-d4	55.8		"	50.0		112	52-149		
Surrogate: Toluene-d8	49.8		"	50.0		99.6	76-125		
Surrogate: 4-Bromofluorobenzene	51.5		"	50.0		103	66-145		
Matrix Spike Dup (EB61005-MSD1)		Source: 6B06017-13			Prepared & Analyzed: 02/10/06				
Benzene	1430	25.0	ug/kg dry	1540	ND	92.9	70-130	1.41	20
Toluene	1650	25.0	"	1540	ND	107	70-130	0.00	20
Ethylbenzene	1740	25.0	"	1540	ND	113	70-130	0.889	20
Xylene (p/m)	3490	25.0	"	3090	ND	113	70-130	0.00	20
Xylene (o)	1860	25.0	"	1540	ND	121	70-130	0.00	20
Surrogate: Dibromofluoromethane	62.4		ug/kg	50.0		125	70-139		
Surrogate: 1,2-Dichloroethane-d4	55.4		"	50.0		111	52-149		
Surrogate: Toluene-d8	51.0		"	50.0		102	76-125		
Surrogate: 4-Bromofluorobenzene	52.4		"	50.0		105	66-145		

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/14/06 10:17

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
LCS Laboratory Control Spike
MS Matrix Spike
Dup Duplicate

Report Approved By:

Raland K Tuttle

Date:

2/14/2006

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

12600 West I-20 East
Odessa, Texas 79765
Phone: 432-563-1800
Fax: 432-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Kristin Pope

Rice Operating Company

122 W. Taylor

H. 599. W. N. 04288

05/393-9174

Email: kpricesud@valornet.com and g@rthicksconsult.com

[illegible]

Special Instructions:

Sample Containers Intact?

Labels on container? Y

Custody Seals, Containers / Cooler

Temperature Upon Receipt: 75°C

Relinquished by

1

Date _____

Time.

Received by:

1

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Time

Laboratory Comments:

perceived

 $\frac{1}{2} \times \frac{1}{2}$

2

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[illegible]

THE

Environmental Lab of Texas

Variance / Corrective Action Report – Sample Log-In

Client: Rice Operating Co.

Date/Time: 02-07-06 @ 1428

Order #: 6807009

Initials: JMM

Sample Receipt Checklist

Temperature of container/cooler?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	2.5	C
Shipping container/cooler in good condition?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Custody Seals intact on shipping container/cooler?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<u>Not present</u>	
Custody Seals intact on sample bottles?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Not present	
Chain of custody present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Sample Instructions complete on Chain of Custody?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Chain of custody agrees with sample label(s)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Container labels legible and intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Sample Matrix and properties same as on chain of custody?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Samples in proper container/bottle?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Samples properly preserved?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Sample bottles intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Containers documented on Chain of Custody?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Sufficient sample amount for indicated test?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
All samples received within sufficient hold time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
All samples have zero headspace?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Not Applicable	

hand delivered
by sample

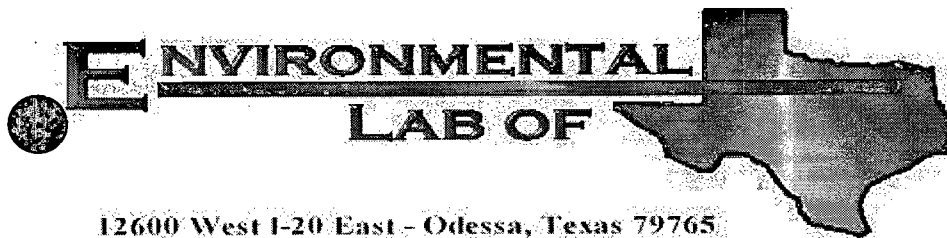
Other observations:

Variance Documentation:

Contact Person: - _____ Date/Time: _____ Contacted by: _____

Regarding:

Corrective Action Taken:



12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Kristin Farris-Pope

Rice Operating Co.

122 W. Taylor

Hobbs, NM 88240

Project: Rice Operating Co.

Project Number: None Given

Location: EME I-1 Site

Lab Order Number: 6B09015

Report Date: 02/21/06

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471
Reported:
02/21/06 15:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-1 6'	6B09015-01	Soil	02/08/06 11:39	02/09/06 15:55
B-1 12'	6B09015-02	Soil	02/08/06 11:49	02/09/06 15:55
B-1 20'	6B09015-03	Soil	02/08/06 12:07	02/09/06 15:55
B-1 30'	6B09015-04	Soil	02/08/06 12:29	02/09/06 15:55
B-4 30'	6B09015-05	Soil	02/08/06 14:29	02/09/06 15:55
MW-3 20'-22'	6B09015-06	Soil	02/08/06 15:17	02/09/06 15:55

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/21/06 15:34

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
B-1 6' (6B09015-01) Soil									
Carbon Ranges C6-C12	2090	50.0	mg/kg dry	2	EB61031	02/13/06	02/13/06	TX 1005	
Carbon Ranges C12-C28	3950	50.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	245	50.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	6280	50.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		86.8 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		60.0 %	70-130		"	"	"	"	S-06
B-1 12' (6B09015-02) Soil									
Carbon Ranges C6-C12	2780	50.0	mg/kg dry	2	EB61031	02/13/06	02/13/06	TX 1005	
Carbon Ranges C12-C28	6740	50.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	261	50.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	9780	50.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		100 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		90.0 %	70-130		"	"	"	"	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471
Reported:
02/21/06 15:34

Fractionation of Aliphatics by TNRCC Method 1006
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
B-1 6' (6B09015-01) Soil									
C6-C8	172	10.0	mg/kg dry	1	EB62002	02/17/06	02/21/06	TX 1006	
>C8-C10	314	10.0	"	"	"	"	"	"	
>C10-C12	318	10.0	"	"	"	"	"	"	
>C12-C16	733	10.0	"	"	"	"	"	"	
>C16-C21	612	10.0	"	"	"	"	"	"	
>C21-C35	568	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	2720	10.0	"	"	"	"	"	"	
B-1 12' (6B09015-02) Soil									
C6-C8	101	10.0	mg/kg dry	1	EB62002	02/17/06	02/21/06	TX 1006	
>C8-C10	382	10.0	"	"	"	"	"	"	
>C10-C12	571	10.0	"	"	"	"	"	"	
>C12-C16	1420	10.0	"	"	"	"	"	"	
>C16-C21	1230	10.0	"	"	"	"	"	"	
>C21-C35	925	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	4630	10.0	"	"	"	"	"	"	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/21/06 15:34

Fractionation of Aromatics by TNRCC Method 1006
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
B-1 6' (6B09015-01) Soil									
C7-C8	ND	10.0	mg/kg dry	1	EB62002	02/17/06	02/21/06	TX 1006	
>C8-C10	56.7	10.0	"	"	"	"	"	"	
>C10-C12	146	10.0	"	"	"	"	"	"	
>C12-C16	409	10.0	"	"	"	"	"	"	
>C16-C21	571	10.0	"	"	"	"	"	"	
>C21-C35	624	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	1810	10.0	"	"	"	"	"	"	

B-1 12' (6B09015-02) Soil

C7-C8	ND	10.0	mg/kg dry	1	EB62002	02/17/06	02/21/06	TX 1006	
>C8-C10	45.6	10.0	"	"	"	"	"	"	
>C10-C12	124	10.0	"	"	"	"	"	"	
>C12-C16	344	10.0	"	"	"	"	"	"	
>C16-C21	469	10.0	"	"	"	"	"	"	
>C21-C35	488	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	1470	10.0	"	"	"	"	"	"	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471
Reported:
02/21/06 15:34

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
B-1 6' (6B09015-01) Soil									
% Moisture	4.4	0.1	%	1	EB61305	02/10/06	02/13/06	% calculation	
B-1 12' (6B09015-02) Soil									
% Moisture	1.0	0.1	%	1	EB61305	02/10/06	02/13/06	% calculation	
B-1 20' (6B09015-03) Soil									
% Moisture	0.4	0.1	%	1	EB61305	02/10/06	02/13/06	% calculation	
B-1 30' (6B09015-04) Soil									
Chloride	19.4	5.00	mg/kg	10	EB61605	02/13/06	02/13/06	EPA 300.0	
% Moisture	3.7	0.1	%	1	EB61305	02/10/06	02/13/06	% calculation	
B-4 30' (6B09015-05) Soil									
Chloride	537	10.0	mg/kg	20	EB61605	02/13/06	02/13/06	EPA 300.0	
% Moisture	2.9	0.1	%	1	EB61305	02/10/06	02/13/06	% calculation	
IW-3 20'-22' (6B09015-06) Soil									
Chloride	2460	50.0	mg/kg	100	EB61605	02/13/06	02/13/06	EPA 300.0	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/21/06 15:34

Volatile Organic Compounds by EPA Method 8260B
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
B-1 6' (6B09015-01) Soil									
Benzene	ND	400	ug/kg dry	400	EB61006	02/10/06	02/10/06	EPA 8260B	
Toluene	ND	400	"	"	"	"	"	"	
Ethylbenzene	4870	400	"	"	"	"	"	"	
Xylene (p/m)	25100	400	"	"	"	"	"	"	
Xylene (o)	500	400	"	"	"	"	"	"	
Naphthalene	4610	400	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		121 %	70-139		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		107 %	70-121		"	"	"	"	
Surrogate: Toluene-d8		97.6 %	84-138		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.0 %	59-145		"	"	"	"	
B-1 12' (6B09015-02) Soil									
Benzene	ND	400	ug/kg dry	400	EB61006	02/10/06	02/10/06	EPA 8260B	
Toluene	ND	400	"	"	"	"	"	"	
Ethylbenzene	3290	400	"	"	"	"	"	"	
Xylene (p/m)	8270	400	"	"	"	"	"	"	
Xylene (o)	ND	400	"	"	"	"	"	"	
Naphthalene	3330	400	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		123 %	70-139		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		111 %	70-121		"	"	"	"	
Surrogate: Toluene-d8		95.4 %	84-138		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.8 %	59-145		"	"	"	"	
B-1 20' (6B09015-03) Soil									
Benzene	ND	25.0	ug/kg dry	25	EB61006	02/10/06	02/10/06	EPA 8260B	
Toluene	ND	25.0	"	"	"	"	"	"	
Ethylbenzene	ND	25.0	"	"	"	"	"	"	
Xylene (p/m)	ND	25.0	"	"	"	"	"	"	
Xylene (o)	ND	25.0	"	"	"	"	"	"	
Naphthalene	J [18.3]	25.0	"	"	"	"	"	"	J
Surrogate: Dibromofluoromethane		113 %	70-139		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		101 %	70-121		"	"	"	"	
Surrogate: Toluene-d8		97.6 %	84-138		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	59-145		"	"	"	"	

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

Page 6 of 15

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/21/06 15:34

Volatile Organic Compounds by EPA Method 8260B
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
B-1 30' (6B09015-04) Soil									
Benzene	ND	25.0	ug/kg dry	25	EB61006	02/10/06	02/10/06	EPA 8260B	
Toluene	ND	25.0	"	"	"	"	"	"	
Ethylbenzene	ND	25.0	"	"	"	"	"	"	
Xylene (p/m)	ND	25.0	"	"	"	"	"	"	
Xylene (o)	ND	25.0	"	"	"	"	"	"	
Naphthalene	J [13.8]	25.0	"	"	"	"	"	"	J
Surrogate: Dibromofluoromethane		121 %	70-139		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		105 %	70-121		"	"	"	"	
Surrogate: Toluene-d8		100 %	84-138		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	59-145		"	"	"	"	
B-4 30' (6B09015-05) Soil									
Benzene	ND	25.0	ug/kg dry	25	EB61006	02/10/06	02/10/06	EPA 8260B	
Toluene	ND	25.0	"	"	"	"	"	"	
Ethylbenzene	ND	25.0	"	"	"	"	"	"	
Xylene (p/m)	ND	25.0	"	"	"	"	"	"	
Xylene (o)	ND	25.0	"	"	"	"	"	"	
Naphthalene	ND	25.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		116 %	70-139		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		104 %	70-121		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	84-138		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	59-145		"	"	"	"	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/21/06 15:34

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EB61031 - Solvent Extraction (GC)

Blank (EB61031-BLK1)

Prepared: 02/10/06 Analyzed: 02/13/06

Carbon Ranges C6-C12	ND	25.0	mg/kg wet							
Carbon Ranges C12-C28	ND	25.0	"							
Carbon Ranges C28-C35	ND	25.0	"							
Total Hydrocarbon C6-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	47.1		mg/kg	50.0		94.2	70-130			
Surrogate: 1-Chlorooctadecane	35.2		"	50.0		70.4	70-130			

LCS (EB61031-BS1)

Prepared: 02/10/06 Analyzed: 02/13/06

Carbon Ranges C6-C12	465	25.0	mg/kg wet	500		93.0	75-125			
Carbon Ranges C12-C28	525	25.0	"	500		105	75-125			
Total Hydrocarbon C6-C35	990	25.0	"	1000		99.0	75-125			
Surrogate: 1-Chlorooctane	56.3		mg/kg	50.0		113	70-130			
Surrogate: 1-Chlorooctadecane	44.9		"	50.0		89.8	70-130			

Calibration Check (EB61031-CCV1)

Prepared: 02/10/06 Analyzed: 02/13/06

Carbon Ranges C6-C12	478		mg/kg	500		95.6	80-120			
Carbon Ranges C12-C28	563		"	500		113	80-120			
Total Hydrocarbon C6-C35	1040		"	1000		104	80-120			
Surrogate: 1-Chlorooctane	58.5		"	50.0		117	70-130			
Surrogate: 1-Chlorooctadecane	54.4		"	50.0		109	70-130			

Matrix Spike (EB61031-MS1)

Source: 6B09002-08

Prepared: 02/10/06 Analyzed: 02/13/06

Carbon Ranges C6-C12	578	25.0	mg/kg dry	569	ND	102	75-125			
Carbon Ranges C12-C28	631	25.0	"	569	ND	111	75-125			
Total Hydrocarbon C6-C35	1210	25.0	"	1140	ND	106	75-125			
Surrogate: 1-Chlorooctane	60.4		mg/kg	50.0		121	70-130			
Surrogate: 1-Chlorooctadecane	49.6		"	50.0		99.2	70-130			

Environmental Lab of Texas

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Page 8 of 15

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/21/06 15:34

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch EB61031 - Solvent Extraction (GC)

Matrix Spike Dup (EB61031-MSD1)	Source: 6B09002-08			Prepared: 02/10/06		Analyzed: 02/13/06				
Carbon Ranges C6-C12	564	25.0	mg/kg dry	569	ND	99.1	75-125	2.45	20	
Carbon Ranges C12-C28	640	25.0	"	569	ND	112	75-125	1.42	20	
Total Hydrocarbon C6-C35	1200	25.0	"	1140	ND	105	75-125	0.830	20	
Surrogate: 1-Chlorooctane	59.5		mg/kg	50.0		119	70-130			
Surrogate: 1-Chlorooctadecane	48.1		"	50.0		96.2	70-130			

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471
Reported:
02/21/06 15:34

Fractionation of Aliphatics by TNRCC Method 1006 - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EB62002 - Solvent Extraction (GC)										
Blank (EB62002-BLK1)										
				Prepared: 02/17/06 Analyzed: 02/21/06						
C6-C8	ND	10.0	mg/kg wet							
>C8-C10	ND	10.0	"							
>C10-C12	ND	10.0	"							
>C12-C16	ND	10.0	"							
>C16-C21	ND	10.0	"							
>C21-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
LCS (EB62002-BS1)										
				Prepared: 02/17/06 Analyzed: 02/21/06						
Total Hydrocarbon C6-C35	788	10.0	mg/kg wet	1000		78.8	60-140			
Calibration Check (EB62002-CCV1)										
				Prepared: 02/20/06 Analyzed: 02/21/06						
Total Hydrocarbon C6-C35	973		mg/kg	1000		97.3	80-120			
Duplicate (EB62002-DUP1)										
				Source: 6B09015-01		Prepared: 02/20/06 Analyzed: 02/21/06				
C6-C8	144	10.0	mg/kg dry		172			17.7	20	
>C8-C10	264	10.0	"		314			17.3	20	
>C10-C12	261	10.0	"		318			19.7	20	
>C12-C16	604	10.0	"		733			19.3	20	
>C16-C21	533	10.0	"		612			13.8	20	
>C21-C35	476	10.0	"		568			17.6	20	
Total Hydrocarbon C6-C35	2280	10.0	"		2720			17.6	20	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471
Reported:
02/21/06 15:34

Fractionation of Aromatics by TNRCC Method 1006 - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD Limit	Notes
Batch EB62002 - Solvent Extraction (GC)								
Blank (EB62002-BLK1)			Prepared: 02/17/06 Analyzed: 02/21/06					
C7-C8	ND	10.0	mg/kg wet					
>C8-C10	ND	10.0	"					
>C10-C12	ND	10.0	"					
>C12-C16	ND	10.0	"					
>C16-C21	ND	10.0	"					
>C21-C35	ND	10.0	"					
Total Hydrocarbon C6-C35	ND	10.0	"					
LCS (EB62002-BS1)			Prepared: 02/17/06 Analyzed: 02/21/06					
Total Hydrocarbon C6-C35	788	10.0	mg/kg wet	1000		78.8	60-140	
Calibration Check (EB62002-CCV1)			Prepared: 02/20/06 Analyzed: 02/21/06					
Total Hydrocarbon C6-C35	973		mg/kg	1000		97.3	80-120	
Duplicate (EB62002-DUP1)			Source: 6B09015-01 Prepared: 02/20/06 Analyzed: 02/21/06					
C7-C8	ND	10.0	mg/kg dry		ND		20	
>C8-C10	51.0	10.0	"		56.7		10.6	20
>C10-C12	133	10.0	"		146		9.32	20
>C12-C16	384	10.0	"		409		6.31	20
>C16-C21	520	10.0	"		571		9.35	20
>C21-C35	579	10.0	"		624		7.48	20
Total Hydrocarbon C6-C35	1670	10.0	"		1810		8.05	20

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471
Reported:
02/21/06 15:34

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch EB61305 - General Preparation (Prep)									
Blank (EB61305-BLK1)		Prepared: 02/10/06 Analyzed: 02/13/06							
% Solids	100		%						
Duplicate (EB61305-DUP1)		Source: 6B09009-01		Prepared: 02/10/06 Analyzed: 02/13/06					
% Solids	97.2		%		96.6		0.619	20	
Duplicate (EB61305-DUP2)		Source: 6B09016-06		Prepared: 02/10/06 Analyzed: 02/13/06					
% Solids	90.4		%		94.9		4.86	20	
Duplicate (EB61305-DUP3)		Source: 6B10001-09		Prepared: 02/10/06 Analyzed: 02/13/06					
% Solids	95.1		%		95.4		0.315	20	
Duplicate (EB61305-DUP4)		Source: 6B10005-05		Prepared: 02/10/06 Analyzed: 02/13/06					
% Solids	73.9		%		75.0		1.48	20	
Batch EB61605 - Water Extraction									
Blank (EB61605-BLK1)		Prepared & Analyzed: 02/13/06							
Chloride	ND	0.500	mg/kg						
LCS (EB61605-BS1)		Prepared & Analyzed: 02/13/06							
Chloride	8.65		mg/L	10.0		86.5	80-120		
Calibration Check (EB61605-CCV1)		Prepared & Analyzed: 02/13/06							
Chloride	9.06		mg/L	10.0		90.6	80-120		
Duplicate (EB61605-DUP1)		Source: 6B10001-05		Prepared & Analyzed: 02/13/06					
Chloride	167	5.00	mg/kg		166		0.601	20	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/21/06 15:34

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch EB61006 - EPA 5030C (GCMS)

Blank (EB61006-BLK1)

Prepared & Analyzed: 02/09/06

Benzene	ND	25.0	ug/kg wet						
Toluene	ND	25.0	"						
Ethylbenzene	ND	25.0	"						
Xylene (p/m)	ND	25.0	"						
Xylene (o)	ND	25.0	"						
Naphthalene	ND	25.0	"						
Surrogate: Dibromofluoromethane	56.3		ug/l	50.0		113	70-139		
Surrogate: 1,2-Dichloroethane-d4	48.1		"	50.0		96.2	70-121		
Surrogate: Toluene-d8	46.9		"	50.0		93.8	84-138		
Surrogate: 4-Bromofluorobenzene	51.3		"	50.0		103	59-145		

LCS (EB61006-BS1)

Prepared: 02/09/06 Analyzed: 02/10/06

Benzene	1380	25.0	ug/kg wet	1250		110	70-130		
Toluene	1400	25.0	"	1250		112	70-130		
Ethylbenzene	1330	25.0	"	1250		106	70-130		
Xylene (p/m)	2730	25.0	"	2500		109	70-130		
Xylene (o)	1380	25.0	"	1250		110	70-130		
Naphthalene	1130	25.0	"	1250		90.4	70-130		
Surrogate: Dibromofluoromethane	56.4		ug/l	50.0		113	70-139		
Surrogate: 1,2-Dichloroethane-d4	57.2		"	50.0		114	70-121		
Surrogate: Toluene-d8	50.1		"	50.0		100	84-138		
Surrogate: 4-Bromofluorobenzene	48.5		"	50.0		97.0	59-145		

Calibration Check (EB61006-CCV1)

Prepared & Analyzed: 02/09/06

Toluene	49.3		ug/l	50.0		98.6	70-130		
Ethylbenzene	53.7		"	50.0		107	70-130		
Surrogate: Dibromofluoromethane	59.0		"	50.0		118	70-139		
Surrogate: 1,2-Dichloroethane-d4	53.6		"	50.0		107	70-121		
Surrogate: Toluene-d8	48.7		"	50.0		97.4	84-138		
Surrogate: 4-Bromofluorobenzene	52.4		"	50.0		105	59-145		

Environmental Lab of Texas

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Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
02/21/06 15:34

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EB61006 - EPA 5030C (GCMS)

Matrix Spike (EB61006-MS1)		Source: 6B08021-01		Prepared: 02/09/06		Analyzed: 02/10/06				
Benzene	1530	25.0	ug/kg dry	1420	ND	108	70-130			
Toluene	1550	25.0	"	1420	ND	109	70-130			
Ethylbenzene	1460	25.0	"	1420	ND	103	70-130			
Xylene (p/m)	3090	25.0	"	2850	ND	108	70-130			
Xylene (o)	1550	25.0	"	1420	ND	109	70-130			
Naphthalene	1420	25.0	"	1420	15.3	98.9	70-130			
Surrogate: Dibromofluoromethane	55.9		ug/l	50.0		112	70-139			
Surrogate: 1,2-Dichloroethane-d4	57.8		"	50.0		116	70-121			
Surrogate: Toluene-d8	48.7		"	50.0		97.4	84-138			
Surrogate: 4-Bromofluorobenzene	48.9		"	50.0		97.8	59-145			

Matrix Spike Dup (EB61006-MSD1)		Source: 6B08021-01		Prepared: 02/09/06		Analyzed: 02/10/06				
Benzene	1590	25.0	ug/kg dry	1420	ND	112	70-130	3.64	20	
Toluene	1600	25.0	"	1420	ND	113	70-130	3.60	20	
Ethylbenzene	1550	25.0	"	1420	ND	109	70-130	5.66	20	
Xylene (p/m)	3180	25.0	"	2850	ND	112	70-130	3.64	20	
Xylene (o)	1610	25.0	"	1420	ND	113	70-130	3.60	20	
Naphthalene	1460	25.0	"	1420	15.3	102	70-130	3.09	20	
Surrogate: Dibromofluoromethane	57.2		ug/l	50.0		114	70-139			
Surrogate: 1,2-Dichloroethane-d4	58.2		"	50.0		116	70-121			
Surrogate: Toluene-d8	49.0		"	50.0		98.0	84-138			
Surrogate: 4-Bromofluorobenzene	50.0		"	50.0		100	59-145			

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: Rice Operating Co.
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471
Reported:
02/21/06 15:34

Notes and Definitions

S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.

J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:

Raland K. Tuttle

Date:

2/21/2006

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

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If you have received this material in error, please notify us immediately at 432-563-1800.

12600 West I-20 East
Odessa, Texas 79762

Phone: 432-563-1800
Fax: 432-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: **Justin Farris**

Project Name: Rice Operating Company

~~Company Name~~ Rice Operating Company

Project #

Current address: 22 West Taylor

Project Loc: EME I-1 Site

City of Albuquerque, New Mexico 88240

ORDER

393-9174

Fax No: 505-397-1471

Sampler

Edw. G. Lindbeck

[illegible]

Special Instructions:

Email results to gil@thicksconsult.com and kpriceswd@valornet.com

Sample Containers Intact?
Temperature Upon Receipt:

Relinquished by:

Date	Time
11/11/11	11:11

Received by:

Date	Time
------	------

Relinquished by:

Received by ELDT

Date	Time
------	------

Wm. W. W.

Wade Seal of

Comments: 402 glass 3.5

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

Client: Pace Op.

Date/Time: 2/9/06 3:55

Order #: LB09015

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	3.5	C
Shipping container/cooler in good condition?	Yes	No		
Custody Seals intact on shipping container/cooler?	Yes	No	Not present	
Custody Seals intact on sample bottles?	Yes	No	Not present	
Chain of custody present?	Yes	No		
Sample Instructions complete on Chain of Custody?	Yes	No		
Chain of Custody signed when relinquished and received?	Yes	No		
Chain of custody agrees with sample label(s)	Yes	No		
Container labels legible and intact?	Yes	No		
Sample Matrix and properties same as on chain of custody?	Yes	No		
Samples in proper container/bottle?	Yes	No		
Samples properly preserved?	Yes	No		
Sample bottles intact?	Yes	No		
Preservations documented on Chain of Custody?	Yes	No		
Containers documented on Chain of Custody?	Yes	No		
Sufficient sample amount for indicated test?	Yes	No		
All samples received within sufficient hold time?	Yes	No		
Samples have zero headspace?	Yes	No	Not Applicable	

Other observations:

Variance Documentation:

Contact Person: _____ Date/Time: _____ Contacted by: _____

Regarding: _____

Corrective Action Taken: _____



12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Kristin Farris-Pope

Rice Operating Co.

122 W. Taylor

Hobbs, NM 88240

Project: EME I-1 SWD

Project Number: None Given

Location: T20S-R36E-Sec1T, Lea County, NM

Lab Order Number: 6H31004

Report Date: 09/06/06

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-I SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Monitor Well #1	6H31004-01	Water	08/28/06 10:25	08-31-2006 10:15
Monitor Well #2	6H31004-02	Water	08/28/06 11:40	08-31-2006 10:15
Monitor Well #3	6H31004-03	Water	08/28/06 09:05	08-31-2006 10:15

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1 SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 (6H31004-01) Water									
Benzene	ND	0.00100	mg/L	1	EH63104	08/31/06	08/31/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		110 %	80-120	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.5 %	80-120	"	"	"	"	"	
Monitor Well #2 (6H31004-02) Water									
Benzene	0.00130	0.00100	mg/L	1	EH63104	08/31/06	08/31/06	EPA 8021B	
Toluene	1 [0.000562]	0.00100	"	"	"	"	"	"	
Ethylbenzene	0.00359	0.00100	"	"	"	"	"	"	
Xylene (p/m)	0.00229	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		110 %	80-120	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		82.8 %	80-120	"	"	"	"	"	
Monitor Well #3 (6H31004-03) Water									
Benzene	ND	0.00100	mg/L	1	EH63104	08/31/06	08/31/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		101 %	80-120	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.3 %	80-120	"	"	"	"	"	

Environmental Lab of Texas

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Page 2 of 10

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EMEI-1 SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 (6H31004-01) Water									
Total Alkalinity	396	4.00	mg/L	2	EH63107	08/31/06	08/31/06	EPA 310.1M	
Chloride	2360	25.0	"	50	EH63108	08/31/06	08/31/06	EPA 300.0	
Total Dissolved Solids	4540	10.0	"	1	EI60503	08/31/06	09/05/06	EPA 160.1	
Sulfate	66.7	25.0	"	50	EH63108	08/31/06	08/31/06	EPA 300.0	
Monitor Well #2 (6H31004-02) Water									
Total Alkalinity	400	4.00	mg/L	2	EH63107	08/31/06	08/31/06	EPA 310.1M	
Chloride	3880	50.0	"	100	EH63108	08/31/06	08/31/06	EPA 300.0	
Total Dissolved Solids	6560	10.0	"	1	EI60503	08/31/06	09/05/06	EPA 160.1	
Sulfate	98.3	50.0	"	100	EH63108	08/31/06	08/31/06	EPA 300.0	
Monitor Well #3 (6H31004-03) Water									
Total Alkalinity	400	4.00	mg/L	2	EH63107	08/31/06	08/31/06	EPA 310.1M	
Chloride	2790	50.0	"	100	EH63108	08/31/06	08/31/06	EPA 300.0	
Total Dissolved Solids	4970	10.0	"	1	EI60503	08/31/06	09/05/06	EPA 160.1	
Sulfate	139	50.0	"	100	EH63108	08/31/06	08/31/06	EPA 300.0	

Environmental Lab of Texas

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Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1 SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Total Metals by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 (6H31004-01) Water									
Calcium	409	4.05	mg/L	50	EH63111	08/31/06	08/31/06	EPA 6010B	
Magnesium	201	1.80	"	"	"	"	"	"	
Potassium	16.9	0.600	"	10	"	"	"	"	
Sodium	852	10.8	"	250	"	"	"	"	
Monitor Well #2 (6H31004-02) Water									
Calcium	609	20.2	mg/L	250	EH63111	08/31/06	08/31/06	EPA 6010B	
Magnesium	340	9.00	"	"	"	"	"	"	
Potassium	25.4	0.600	"	10	"	"	"	"	
Sodium	1260	10.8	"	250	"	"	"	"	
Monitor Well #3 (6H31004-03) Water									
Calcium	449	4.05	mg/L	50	EH63111	08/31/06	08/31/06	EPA 6010B	
Magnesium	195	1.80	"	"	"	"	"	"	
Potassium	18.4	0.600	"	10	"	"	"	"	
Sodium	952	10.8	"	250	"	"	"	"	

Environmental Lab of Texas

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Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1 SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EH63104 - EPA 8030C (GC)										
Blank (EH63104-BLK1)										
Prepared & Analyzed: 08/31/06										
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: <i>a,a,a</i> -Trifluorotoluene	32.0		ug/l	40.0		97.5	80-120			
Surrogate: 4-Bromofluorobenzene	36.9		"	40.0		92.2	80-120			
LCS (EH63104-BS1)										
Prepared & Analyzed: 08/31/06										
Benzene	0.0489	0.00100	mg/L	0.0500		97.8	80-120			
Toluene	0.0518	0.00100	"	0.0500		104	80-120			
Ethylbenzene	0.0507	0.00100	"	0.0500		101	80-120			
Xylene (p/m)	0.119	0.00100	"	0.100		119	80-120			
Xylene (o)	0.0574	0.00100	"	0.0500		115	80-120			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	43.5		ug/l	40.0		109	80-120			
Surrogate: 4-Bromofluorobenzene	47.5		"	40.0		119	80-120			
Calibration Check (EH63104-CCV1)										
Prepared & Analyzed: 08/31/06										
Benzene	51.7		ug/l	50.0		103	80-120			
Toluene	54.4		"	50.0		109	80-120			
Ethylbenzene	52.4		"	50.0		105	80-120			
Xylene (p/m)	109		"	100		109	80-120			
Xylene (o)	52.8		"	50.0		106	80-120			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	44.9		"	40.0		112	80-120			
Surrogate: 4-Bromofluorobenzene	39.8		"	40.0		99.5	80-120			
Matrix Spike (EH63104-MS1)										
Source: 6H31005-03 Prepared & Analyzed: 08/31/06										
Benzene	0.0511	0.00100	mg/L	0.0500	ND	102	80-120			
Toluene	0.0537	0.00100	"	0.0500	ND	107	80-120			
Ethylbenzene	0.0500	0.00100	"	0.0500	ND	100	80-120			
Xylene (p/m)	0.118	0.00100	"	0.100	ND	118	80-120			
Xylene (o)	0.0564	0.00100	"	0.0500	ND	113	80-120			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	43.9		ug/l	40.0		110	80-120			
Surrogate: 4-Bromofluorobenzene	46.1		"	40.0		115	80-120			

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Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1 SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EH63104 - EPA 5030C (GC)										
Matrix Spike Dup (EH63104-MSD1)		Source: 6H31005-03			Prepared & Analyzed: 08/31/06					
Benzene	0.0513	0.00100	mg/L	0.0500	ND	103	80-120	0.976	20	
Toluene	0.0536	0.00100	"	0.0500	ND	107	80-120	0.00	20	
Ethylbenzene	0.0511	0.00100	"	0.0500	ND	102	80-120	1.98	20	
Xylenes (p/m)	0.112	0.00100	"	0.100	ND	112	80-120	5.22	20	
Xylene (o)	0.0531	0.00100	"	0.0500	ND	106	80-120	6.39	20	
Surrogate: a,a,a-Trifluorotoluene	43.9		ug/l	40.0		110	80-120			
Surrogate: 4-Bromofluorobenzene	46.1		"	40.0		115	80-120			

Environmental Lab of Texas

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Page 6 of 10

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1 SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EH63107 - General Preparation (WetChem)										
Blank (EH63107-BLK1)				Prepared & Analyzed: 08/31/06						
Total Alkalinity	ND	2.00	mg/L							
LCS (EH63107-BS1)				Prepared & Analyzed: 08/31/06						
Bicarbonate Alkalinity	186	2.00	mg/L	200		93.0	85-115			
Duplicate (EH63107-DUP1)				Source: 6H29001-02 Prepared & Analyzed: 08/31/06						
Total Alkalinity	136	2.00	mg/L		140			2.90	20	
Reference (EH63107-SRM1)				Prepared & Analyzed: 08/31/06						
Total Alkalinity	252		mg/L	250		101	90-110			
Batch EH63108 - General Preparation (WetChem)										
Blank (EH63108-BLK1)				Prepared & Analyzed: 08/31/06						
Chloride	ND	0.500	mg/L							
Sulfate	ND	0.500	"							
LCS (EH63108-BS1)				Prepared & Analyzed: 08/31/06						
Sulfate	10.6	0.500	mg/L	10.0		106	80-120			
Chloride	10.7	0.500	"	10.0		107	80-120			
Calibration Check (EH63108-CCV1)				Prepared & Analyzed: 08/31/06						
Sulfate	11.0		mg/L	10.0		110	80-120			
Chloride	10.8		"	10.0		108	80-120			
Duplicate (EH63108-DUP1)				Source: 6H31002-01 Prepared & Analyzed: 08/31/06						
Chloride	4150	100	mg/L		4180			0.720	20	
Sulfate	ND	100	"		ND				20	

Environmental Lab of Texas

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Page 7 of 10

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1 SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EH63108 - General Preparation (WetChem)										
Duplicate (EH63108-DUP2)		Source: 6H31006-02			Prepared & Analyzed: 08/31/06					
Chloride	386	12.5	mg/L		386			0.00	20	
Sulfate	516	12.5	"		515			0.194	20	
Matrix Spike (EH63108-MS1)		Source: 6H31002-01			Prepared & Analyzed: 08/31/06					
Sulfate	2000	100	mg/L	2000	ND	100	80-120			
Chloride	6290	100	"	2000	4180	106	80-120			
Matrix Spike (EH63108-MS2)		Source: 6H31006-02			Prepared & Analyzed: 08/31/06					
Sulfate	777	12.5	mg/L	250	515	105	80-120			
Chloride	654	12.5	"	250	386	107	80-120			
Batch EI60503 - Filtration Preparation										
Blank (EI60503-BLK1)		Prepared: 08/30/06 Analyzed: 09/05/06								
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (EI60503-DUP1)		Source: 6H30007-01			Prepared: 08/30/06 Analyzed: 09/05/06					
Total Dissolved Solids	2770	10.0	mg/L		2820			1.79	5	
Duplicate (EI60503-DUP2)		Source: 6H31005-04			Prepared: 08/31/06 Analyzed: 09/05/06					
Total Dissolved Solids	3360	10.0	mg/L		3400			1.18	5	

Environmental Lab of Texas

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Page 8 of 10

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-I SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Total Metals by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EH63111 - 6010B/No Digestion										
Blank (EH63111-BLK1)										
					Prepared & Analyzed: 08/31/06					
Calcium	ND	0.0810	mg/L							
Magnesium	ND	0.0560	"							
Potassium	ND	0.0600	"							
Sodium	ND	0.0430	"							
Calibration Check (EH63111-CCV1)										
					Prepared & Analyzed: 08/31/06					
Calcium	2.23		mg/L	2.00		112	85-115			
Magnesium	2.25		"	2.00		112	85-115			
Potassium	1.72		"	2.00		86.0	85-115			
Sodium	1.83		"	2.00		91.5	85-115			
Duplicate (EH63111-DUP1)										
					Source: GH30007-01 Prepared & Analyzed: 08/31/06					
Calcium	11.8	0.810	mg/L		12.5			5.76	20	
Magnesium	5.41	0.360	"		4.96			8.68	20	
Potassium	6.31	0.600	"		6.38			1.10	20	
Sodium	908	10.8	"		857			5.78	20	

Environmental Lab of Texas

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Page 9 of 10

Ricc Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: EME I-1 SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
LCS Laboratory Control Spike
MS Matrix Spike
Dup Duplicate

Report Approved By:

Raland K. Tuttle

Date:

9/6/2006

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas

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Page 10 of 10

Environmental Lab of Texas
Variance/ Corrective Action Report- Sample Log-In

Client: Fire Op.Date/ Time: 8/31/06 10:15Lab ID #: 6431004Initials: AK

Sample Receipt Checklist

				Client Initials
#1	Temperature of container/ cooler?	Yes	No	1.0 °C
#2	Shipping container in good condition?	Yes	No	
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present
#4	Custody Seals intact on sample bottles/ container?	Yes	No	Not Present
#5	Chain of Custody present?	Yes	No	
#6	Sample instructions complete of Chain of Custody?	Yes	No	
#7	Chain of Custody signed when relinquished/ received?	Yes	No	
#8	Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid
#9	Container label(s) legible and intact?	Yes	No	Not Applicable
#10	Sample matrix/ properties agree with Chain of Custody?	Yes	No	
#11	Containers supplied by ELOT?	Yes	No	
#12	Samples in proper container/ bottle?	Yes	No	See Below
#13	Samples properly preserved?	Yes	No	See Below
#14	Sample bottles intact?	Yes	No	
#15	Preservations documented on Chain of Custody?	Yes	No	
#16	Containers documented on Chain of Custody?	Yes	No	
#17	Sufficient sample amount for indicated test(s)?	Yes	No	See Below
#18	All samples received within sufficient hold time?	Yes	No	See Below
#19	VOC samples have zero headspace?	Yes	No	Not Applicable

Variance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

Corrective Action Taken: _____

Check all that Apply:

- ☐ See attached e-mail/ fax
- ☐ Client understands and would like to proceed with analysis
- ☐ Cooling process had begun shortly after sampling event

Appendix D

Investigation & Characterization Plan

CERTIFIED MAIL
RETURN RECEIPT NO. 7099 3400 0017 1737 2565



February 25, 2005

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

RE: **INVESTIGATION & CHARACTERIZATION PLAN**
EME I-1 Offsite Encroachment
T20S-R36E-Section 1, Unit Letter I
NMOCD CASE # 1R0336

Mr. Price:

RICE Operating Company (ROC) has retained Trident Environmental to address potential environmental concerns at the above-referenced site. ROC would like to retract the earlier submitted work plan dated October 1, 2004, for consideration of the further actions proposed herein as a response to the concerns expressed in your email dated December 8, 2004, which reads in part, as follows:

"The Trident report dated October 01, 2004 included in ROC's plan, mentioned above, does not clearly point out how this site will be remediated and closed. It appears it is a stand alone plan not to be associated with any generic plan previously approved. Therefore, OCD has the following concerns:

1. *What TPH, BTEX and Chlorides levels will be used for delineation.*
2. *Please define most highly contaminated soils. What TPH and Chloride levels?*
3. *Please define uncompacted overburden. What TPH, BTEX and Chloride levels?*
4. *What will be the levels of TPH, BTEX and Chlorides for backfill material. Will these materials be leachable?*
5. *If only one liner is installed and it is at the bottom, what will prevent infiltration from seeping through the backfill and simply running off to the side into groundwater?*
6. *The plan mentions the surface will be contoured, reseeded with native vegetation and monitored for growth, implying this procedure will eliminate any ponding and promote evapotranspiration, thereby minimizing natural infiltration. The plan does not provide any evidence this will work or a plan for future monitoring. OCD understands this year along there has been enormous rainfall in the Hobbs/Monument area. Is this accounted for?*
7. *Upon completion of activities, the plan mentions that closure samples will be collected. Please provide a more detail explanation.*
8. *Will the plan delineate to groundwater if necessary?*

Please respond so OCD may properly evaluate this proposal."

BACKGROUND

The I-1 Offsite Encroachment site is located on State Land in township 20 south, range 36 east, section 1, unit letter I approximately 1 mile south of the intersection of County Road 322 and County Road 41 in Lea County, NM as shown on the attached Site Location Map. ROC has a Salt Water Disposal Easement (SWD-062) with the New Mexico State Land Office at this location. Land in the site area is primarily utilized for crude oil production and cattle ranching. Area crude oil production is operated by ChevronTexaco and Amerada Hess.

PREVIOUS WORK

The upgrade of the EME I-1 SWD facility was initiated in February 2002 in accordance with the revised Generic Closure Plan for Existing Pits and Below-Grade Redwood Tanks (last revision February 23, 2000). Excavation activities began in October 2002. Because of the existence of an active 10-inch diameter asbestos-concrete saltwater pipeline and an abandoned Conoco 4-inch steel pipeline (see site map) excavation work did not extend further southwest due to safety concerns and suspected encroachment from an offsite source in that area not associated with the redwood tanks. ROC submitted the EME SWD I-1 Tank and Pit Closure (Partial) Report on November 5, 2004. This report was designated as "partial" because it addressed just the tank and pit closure area and not other suspected offsite encroachment sources.

RECOMMENDATION FOR FURTHER ACTIONS

Due to the excavation, lining and backfilling of the source area below the former redwood tanks and the emergency overflow pit there no longer remains a threat of impact from the vadose zone in that portion of the site. However, during the excavation activities it was apparent that impacted soils in the southwest portion of the site were from a source *other than* the redwood tanks and/or emergency pit (offsite source and/or historic line leaks). Further northwest of the site along the 10-inch pipeline is another area suspected of possible impact from offsite encroachment. Recently, the 10-inch pipeline and junction box were relocated to the eastern portion of the site allowing for further actions, as recommended below, to address these areas.

Task 1 Evaluate Concentrations of Constituents of Concern in the Vadose Zone

A more complete delineation of the vadose zone in this area of the site and assessment of the potential for groundwater impact are necessary to assist ROC in selecting the appropriate soil and/or groundwater remedy. An environmental drilling firm will be mobilized on site to acquire subsurface soil samples for characterization of the lateral and vertical extent of hydrocarbon- and chloride-impacted soil. Samples will be collected with a split-spoon sampling tool in accordance with the procedures explained in QP-02, QP-03, and QP-07 (attached). Soil samples will be collected periodically (five feet intervals) and field-tested for chloride content using the titration method. Soil samples submitted to the laboratory shall be analyzed for gas and diesel range organics (GRO and DRO) using EPA Method 8015 to determine TPH concentrations. Samples will also be collected for headspace analysis using an organic vapor meter (OVM), which will be calibrated to assume a benzene response factor. Samples with headspace readings or GRO levels above 100 ppm will also be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8021B.

EME I-1 SWD Offsite Encroachment Site
February 25, 2005

The following concentrations of analytes will be used to delineate the lateral and vertical extent of impact to the vadose zone:

- 100 mg/kg TPH
- 100 ppm OVM, and/or 10 mg/kg benzene and 50 mg/kg BTEX
- 250 ppm chloride

Task 2 Evaluate Concentrations of Constituents of Concern in the Groundwater

If the soil sampling conducted in Task 1 indicates groundwater impact from hydrocarbons and/or chlorides is likely, a minimum of one monitoring well will be installed at the location where impact is most suspected. If groundwater impact is confirmed above WQCC standards, additional monitoring wells may be installed to determine the extent of groundwater impact. Groundwater samples will be collected in accordance with procedures explained in QP-04 and QP-05 (attached), and analyzed for BTEX, major ions, and total dissolved solids (TDS).

The information gathered from tasks 1 and 2 will be evaluated and utilized to design a soil and/or ground water remedy if needed. The remedy that offers the greatest environmental benefit while causing the least environmental impairment will be selected. Such recommendations and findings will be presented to NMOCD in a subsequent Corrective Action Plan (CAP). When evaluating any proposed remedy or investigative work, ROC will confirm that there is a reasonable relationship between the benefits created by the proposed remedy or assessment and the economic and social costs.

ROC is the service provider (operator) for the EME SWD System and has no ownership of any portion of the pipeline, well, or facility. The System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis. Environmental projects of this magnitude require System Partner AFE approval and work begins as funds are received. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission is requested.

We appreciate the opportunity to work with you on this project. Please feel free to call me at 432-638-3106 or Kristin Farris Pope at 505-393-9174, if you have any questions.

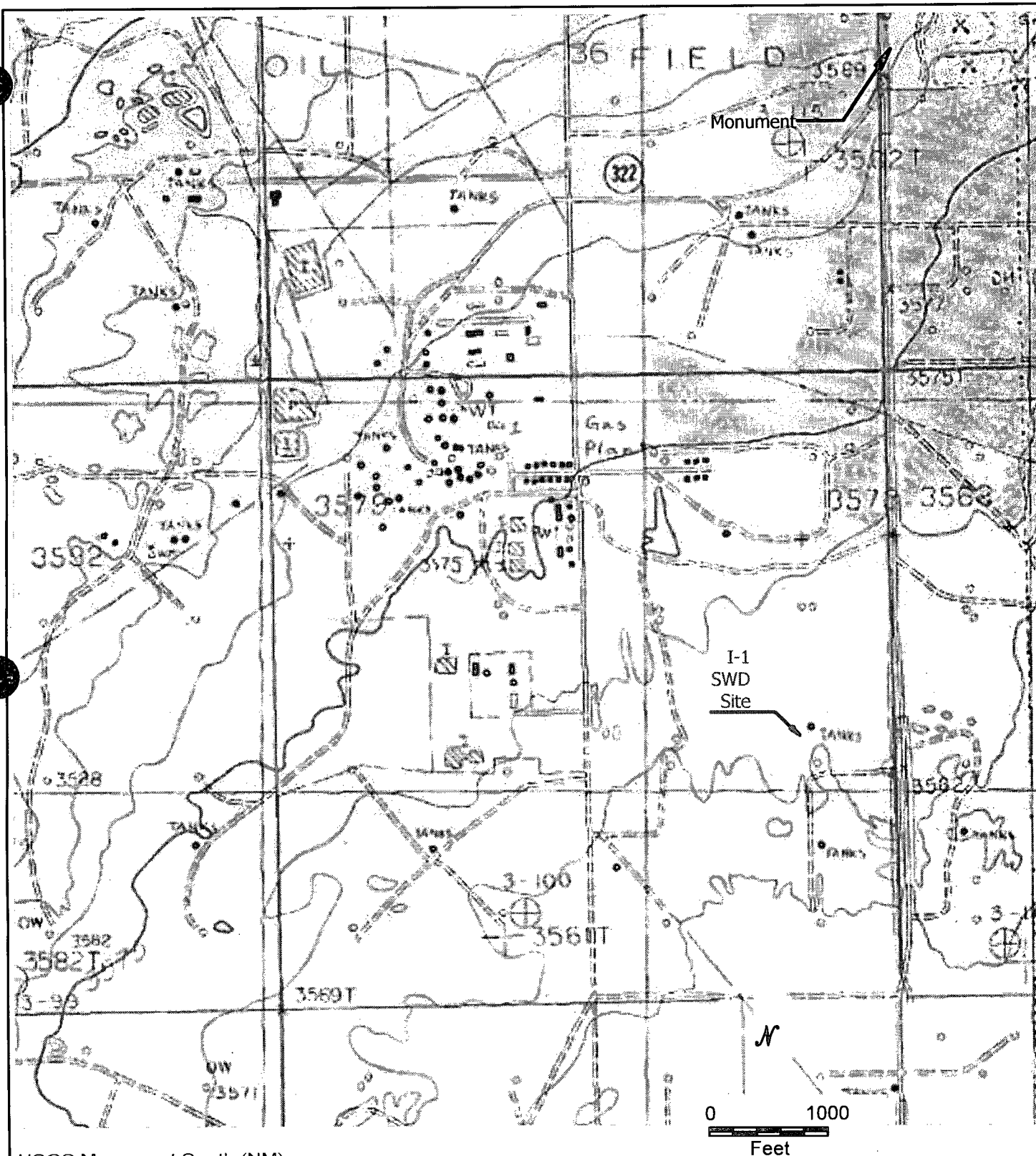
Sincerely,



Gilbert J. Van Deventer, REM, PG, NMCS
Trident Environmental - Project Manager

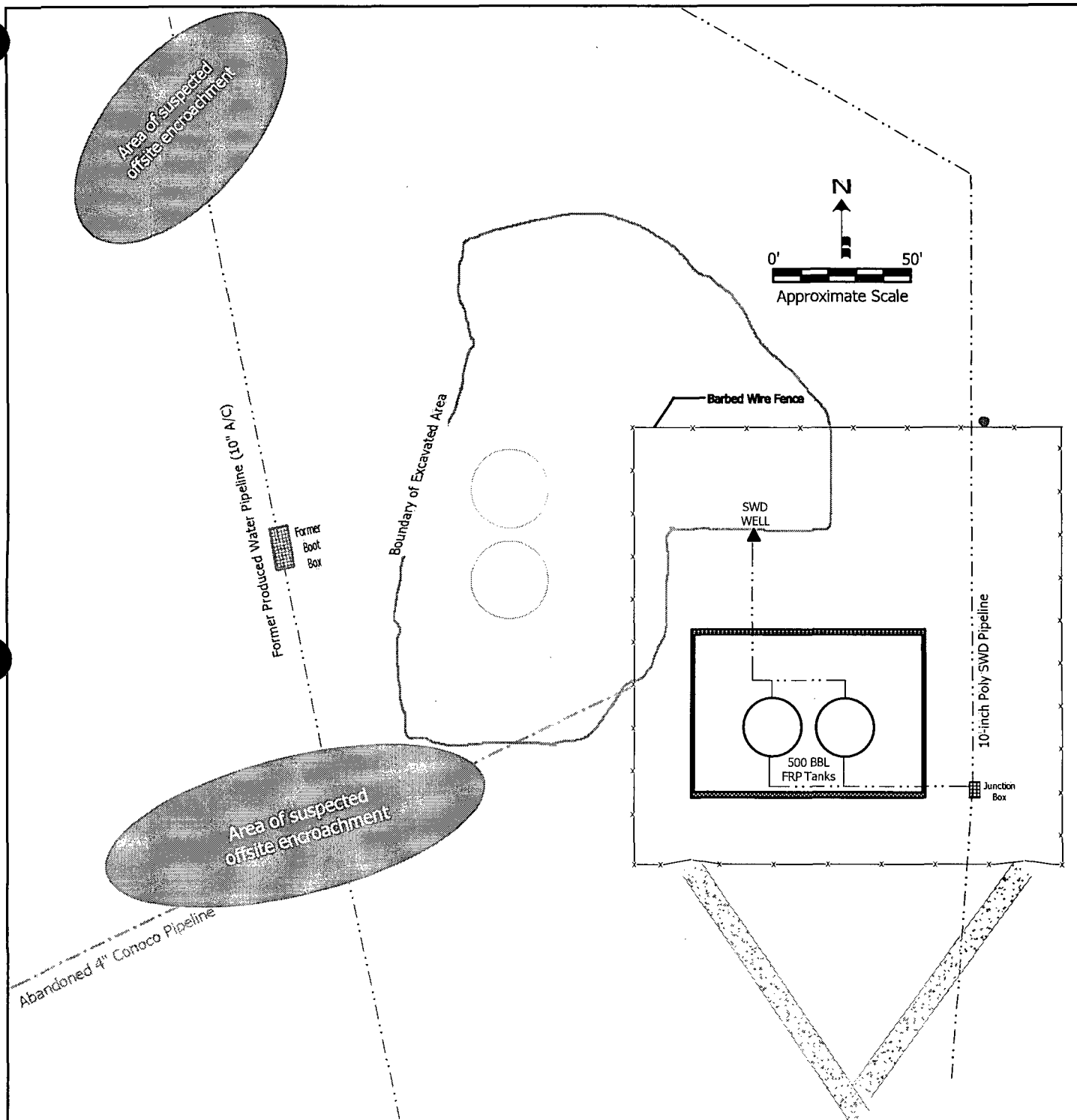
cc: CDH, KFP, file

enclosures: site location map, site map, and sampling procedures



EME I-1 SWD SITE
T20S - R36E - Section 1 - Unit I
RICE *Operating Company*

FIGURE 1
TOPOGRAPHIC MAP



Client: Rice Operating Company

Date: January 31, 2006

Author: GJV

Approximate Scale: 1 inch = 50 feet

SITE MAP

EME I-1 SWD OFFSITE ENCROACHMENT

From: "Gilbert Van Deventer" <gilbertvandeventer@cox.net>
To: "Hansen, Edward J., EMNRD" <edwardj.hansen@state.nm.us>
Cc: "Wayne Price" <wayne.price@state.nm.us>; "Kristin Pope" <kpope@riceswd.com>;
"Carolyn Haynes" <chaynes@riceswd.com>
Subject: Corrective Action Plan - EME I-1 SWD Offsite Encroachment Site (NMOCD
Case No. 1R0464)
Date: Tuesday, February 27, 2007 1:26 PM

Attention: Edward Hansen, New Mexico Oil Conservation Division - Environmental
Bureau

Subject: Corrective Action Plan

Site Name: EME I-1 SWD Offsite Encroachment Site

NMOCD Case No.: ~~1R0464~~ 1R0336

Site Location: T20S-R36E-Section 1, Unit Letter I

Site Agent: RICE Operating Company

Hello Edward:

Trident Environmental is pleased to submit the attached Corrective Action Plan (CAP) for the above-referenced site. Only the text portion is attached herein due to file size limitations. One complete hard copy and one copy on compact disk is being sent via USPS Certified Mail (# 7099 3400 0017 1737 2190).

Thank you for your consideration of this CAP. If you have any questions, please contact me at 432-638-8740, or Kristin Pope at ROC, 505-393-9174.

Sincerely,
Gilbert J. Van Deventer, PG, REM

Trident Environmental
P. O. Box 7624
Midland TX 79708

www.trident-environmental.com
Work/Mobile: 432-638-8740
Fax: 413-403-9968
Home: 432-682-0727□

ATTACHMENT B

Final C-103

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

1220 S. St. Francis, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 S. St. Francis Drive
Santa Fe, NM 87505

Form C-103
Revised March 25, 1999

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.)		WELL API NO. 30-025-04150
1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other SWD Well <input type="checkbox"/>		5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
2. Name of Operator RICE OPERATING COMPANY		6. State Oil & Gas Lease No.
3. Address of Operator 122 W. TAYLOR, HOBBS, NM 88240		7. Lease Name or Unit Agreement Name: Eunice Monument-Eumont (EME)
4. Well Location Unit Letter <u>I</u> : 2310 feet from the <u>SOUTH</u> line and <u>530</u> feet from the <u>EAST</u> line Section <u>1</u> Township <u>20S</u> Range <u>36E</u> NMPM LEA County		8. Well No. I-1
10. Elevation (Show whether DR, RKB, RT, GR, etc.) 3560' GL; 3577' DF		9. Pool name or Wildcat SAN ANDRES

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

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐

TEMPORARILY ABANDON ☐ CHANGE PLANS ☐

PULL OR ALTER CASING ☐ MULTIPLE COMPLETION ☐

OTHER: Redwood Tank and Overflow Pit Closure ☒

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐

COMMENCE DRILLING OPNS. ☐ PLUG AND ABANDONMENT ☐

CASING TEST / CEMENT JOB ☐

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:

Install fiberglass tanks within secondary containment and reroute lines to new tanks. Delineate site for contamination, remove redwood tanks and clean-up pit and tank locations pursuant to NMOCD guidelines. Work to begin late in May, 2002. All major events including boring, sampling events, will be coordinated to allow 48 hrs notice to NMOCD.

Information from the USGS groundwater database estimated depth to ground water at <50' and indicate closest water well to be in Unit Letter "J" of Sec. 1, T20S, R36E which is more than 1000' from the facility at SWD Well I-1. Topographic maps show no indication of surface water bodies within 1000' of the I-1 facility. A site review indicated no water sources within 1000' of I-1.

Depth to Groundwater: <50' = 20;

Water source within 1000' = 0;

No surface water body within 1000' = 0

Site Assessment = 20

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

SIGNATURE Donnie Anderson TITLE Project Leader-Environmental DATE 04/04/02

Type or print name Donnie Anderson

Telephone No. 505-393-9174

(This space for State use)

APPROVED BY _____ TITLE _____ DATE _____