

1R - 427-288

WORKPLANS

Date:

10-11-11



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RETURN RECEIPT NO. 7006 0100 0001 2434 3634

October 11, 2011

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

RE: **ICP REPORT AND CAP
EME C-8 VENT (1R427-288)
UNIT "C", SEC. 8, T20S, R37E
LEA COUNTY, NEW MEXICO**

Mr. Hansen:

RICE Operating Company (ROC) has completed soil bore drilling, sampling and analysis at the Eunice Monument Eumont (EME) SWD System C-8 Vent site. 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 EME SWD system is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis. See Figures 1 and 2 for site location maps.

BACKGROUND & PREVIOUS WORK

As part of the ROC Junction Box Upgrade Workplan, starting on August 17, 2006, the junction box was removed and a new, watertight junction box was installed 50 feet north of the former junction box. The former junction box site was excavated to dimensions of 30 feet by 30 feet by 12 feet deep with a backhoe. Photo-ionization detector (PID) readings and chloride field tests were conducted at regular intervals. PID readings exceeded 100 parts per million (ppm) at the source and to within 10 feet of the source with depths ranging from 6 to 12 feet bgs. A vertical delineation trench was installed approximately 15 feet south of the source. Chloride levels within the trench were relatively stable from the surface to 11 feet bgs ranging from 336 mg/kg to 566 mg/kg. At 12 feet bgs, the chlorides increased to 800 mg/kg. A four wall composite sample from the excavation was collected and submitted for analysis of TPH (GRO/DRO) and chlorides. The total TPH for the composite was 21.9 mg/kg, while the chlorides were 64 mg/kg. A composite was also collected from the bottom of the excavation and submitted for analysis of BTEX, TPH, and chlorides. Analytical results show concentrations of <0.015 mg/kg total BTEX, 325 mg/kg TPH, and 576 mg/kg chlorides. In addition a composite backfill sample was also collected and submitted for analysis of TPH and chlorides. Analytical results for the backfill are 269 mg/kg TPH and 352 mg/kg chlorides. One water well was located within Section 8 which contains the

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site. The water well is listed on the New Mexico State Engineers Well Reports, with a depth to groundwater of 35 feet bgs.

Upon completion of the excavation, the soils were blended on site and then backfilled within the excavation to surface grade. Clean, imported soil was utilized to cap the location. On October 25, 2008, the site was reseeded with a blend of native vegetation and is expected to return to a productive capacity at a normal rate. The NMOCD was notified of a potential groundwater impact on July 31, 2008. In March 2009, ROC submitted a Junction Box Disclosure Report to the NMOCD with all the 2008 junction box closure and disclosure reports. In addition, on October 1, 2009, ROC submitted an Investigation & Characterization Plan (ICP) for the site to the NMOCD. The NMOCD granted approval of the ICP via an email dated January 28, 2010.

SITE INVESTIGATION

As part of the ICP, ROC was onsite June 8, 2010 to install five soil borings (SB-1 through SB-5) in the vicinity of the former junction box. See Figure 3 detailing the soil boring locations. The soil borings were extended to a maximum depth of 25 feet below ground surface (bgs) with samples collected every five feet and analyzed in the field for chlorides using a field test kit and volatile organic compounds utilizing a PID meter. Select samples were submitted to Cardinal Labs of Hobbs, New Mexico for analysis of chlorides utilizing EPA method 4500-ClB, TPH utilizing EPA method 8015M, and BTEX utilizing EPA method 8021B. Laboratory results indicate the chlorides ranged from 48 mg/kg in SB-2 at 15 feet bgs to 752 mg/kg at SB-4 at 15 feet bgs. Of the analysis performed, TPH was detected in all soil borings (with the exception of SB-2 and SB-3) and ranged from 21.3 mg/kg in SB-5 at 5 feet bgs to 1,917 mg/kg in SB-1 at 25 feet bgs. Soil boring SB-1 at 15 and 25 feet bgs were further analyzed for BTEX. Benzene was not detected in the two samples collected and analyzed. In addition, soil concentrations for the remaining BTEX constituents are below both NMOCD guidelines and receptive groundwater protection values for these constituents. Upon completion of the sampling, each of the borings was backfilled with bentonite and brought up to surface grade.

HYDROGEOLOGIC DATA

During drilling activities, groundwater was encountered at a depth of approximately 30 feet bgs in soil boring SB-1. Immediately upon completion, the soil boring was grouted to the surface with bentonite. No other soil borings were extended beyond a depth of 25 feet bgs.

WORK PLAN

ROC proposes to excavate an area measuring 45 feet by 40 feet by 4-5 feet deep and install a 20 mil. polyethylene liner at approximately 4 feet bgs in order to impede further vertical migration of the remaining TPH within the soil. The liner will extend from the initial junction box and cover all of the soil borings. See attached Figure 4 for the proposed soil liner location and dimensions. The site will be backfilled with



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soils containing a chloride concentration of less than 500 mg/kg and a PID reading of 100 parts per million (ppm) or less. Excavated soil will be evaluated for use as backfill, and any soil requiring disposal will be properly disposed of at an NMOCD approved facility. Upon completion of the liner and backfilling, the site will be seeded with native grasses. The vegetative cover and synthetic liner will impede further vertical migration of the chlorides, thereby protecting the underlying groundwater.

Since the BTEX within the soils are less than NMOCD standards, it does not appear that the remaining BTEX in the soil would cause groundwater to exceed NMWQCC standards. In addition, although TPH remains within the soil at 25 feet bgs, the potential for the TPH concentrations impacting groundwater would be minimal.

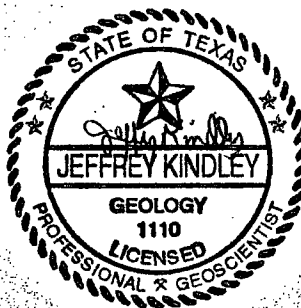
Should you have any questions, please contact either Hack Conder of ROC at (575) 393-9174 or myself at (432) 682-4559. Your prompt review of this submission is appreciated. Thank you for your attention to this matter.

Tetra Tech, Inc.

Jeffrey Kindley, P.G.
Senior Environmental Geologist

cc: ROC-Hack Conder

enclosures: figures



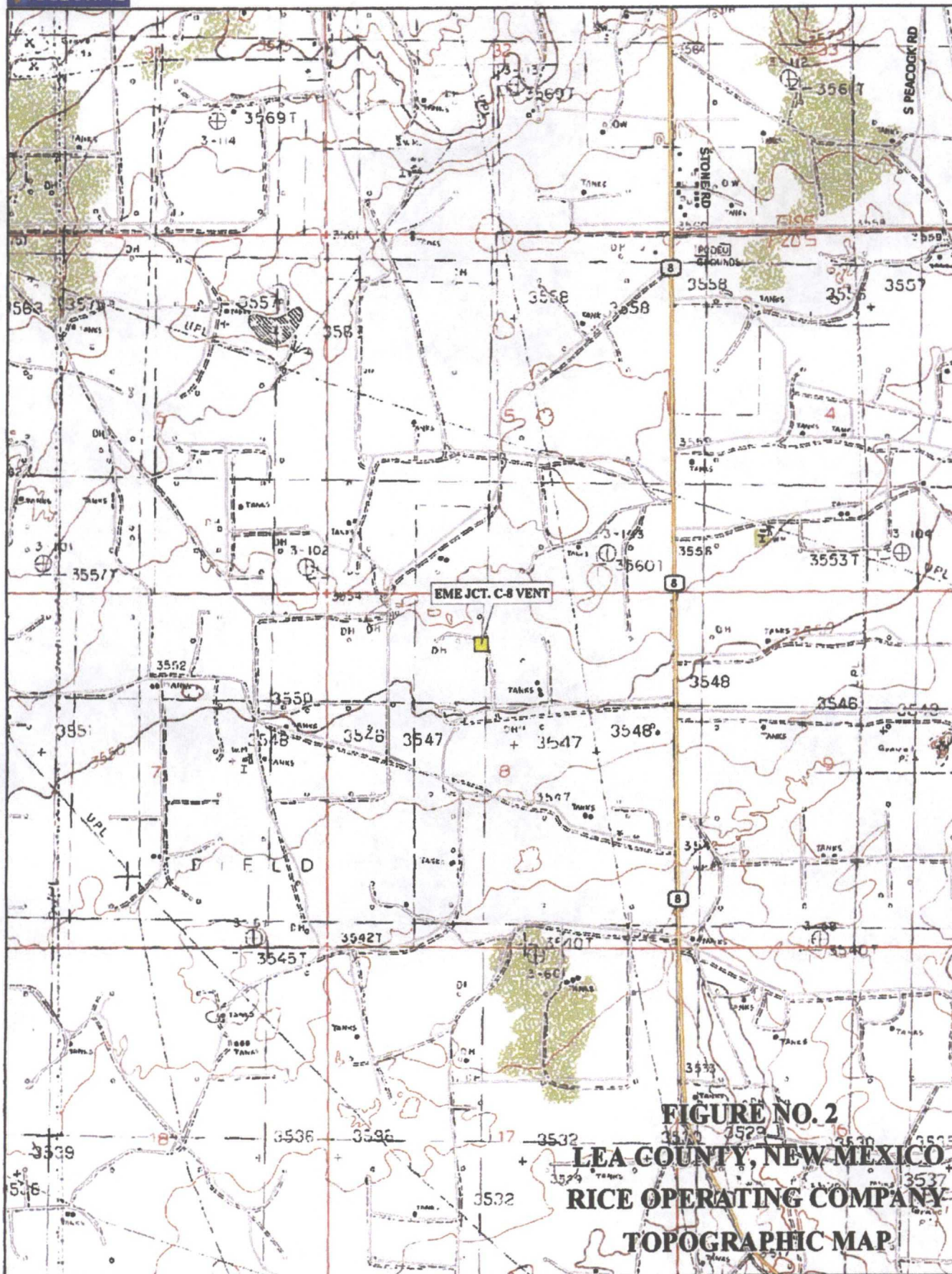


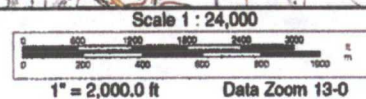
FIGURE NO. 2

LEA COUNTY, NEW MEXICO
RICE OPERATING COMPANY
TOPOGRAPHIC MAP

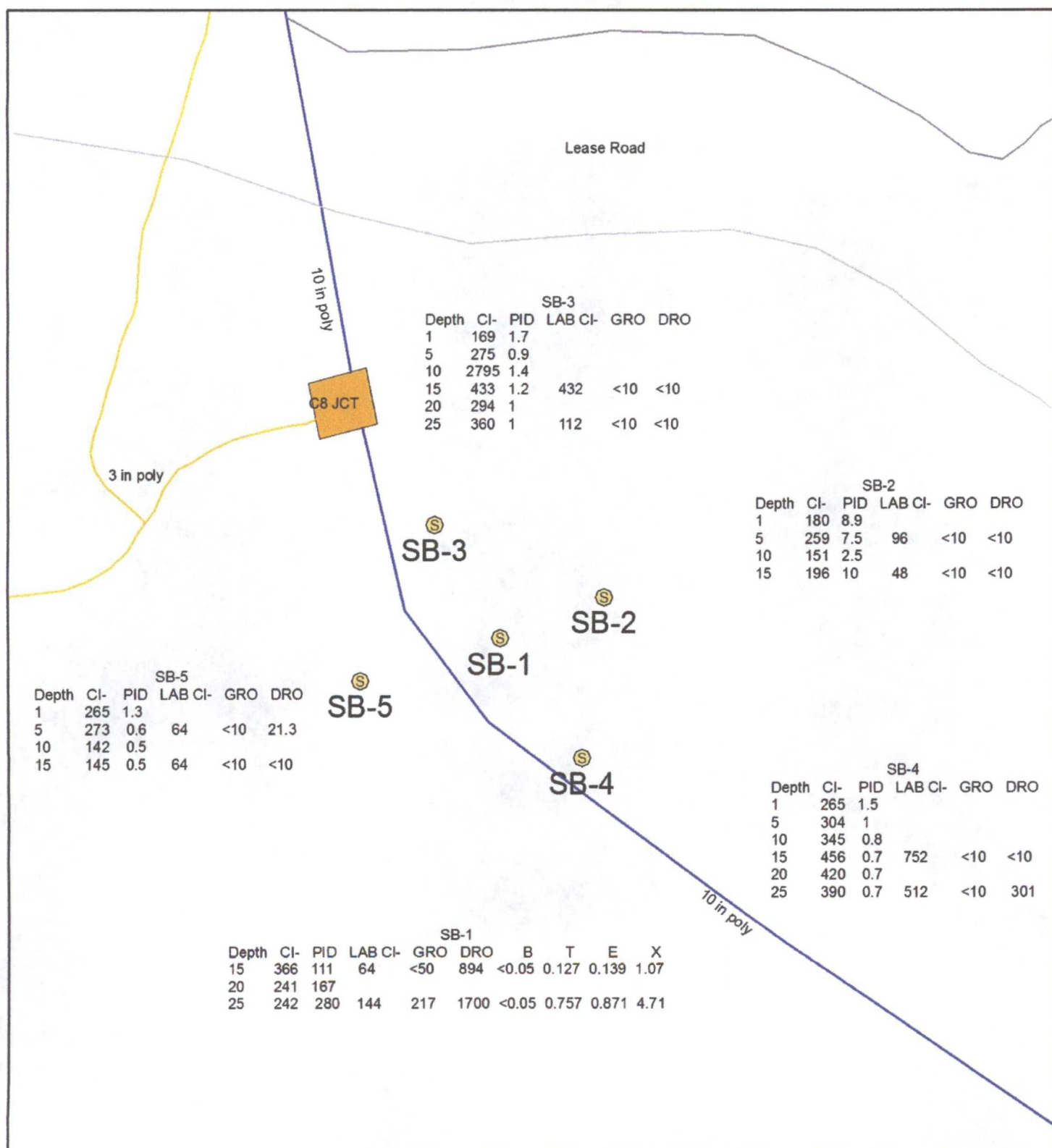
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Soil bore information



EME C-8 vent

Legals: UL/C sec. 8
T20S R37E

Case #: 1R427-288

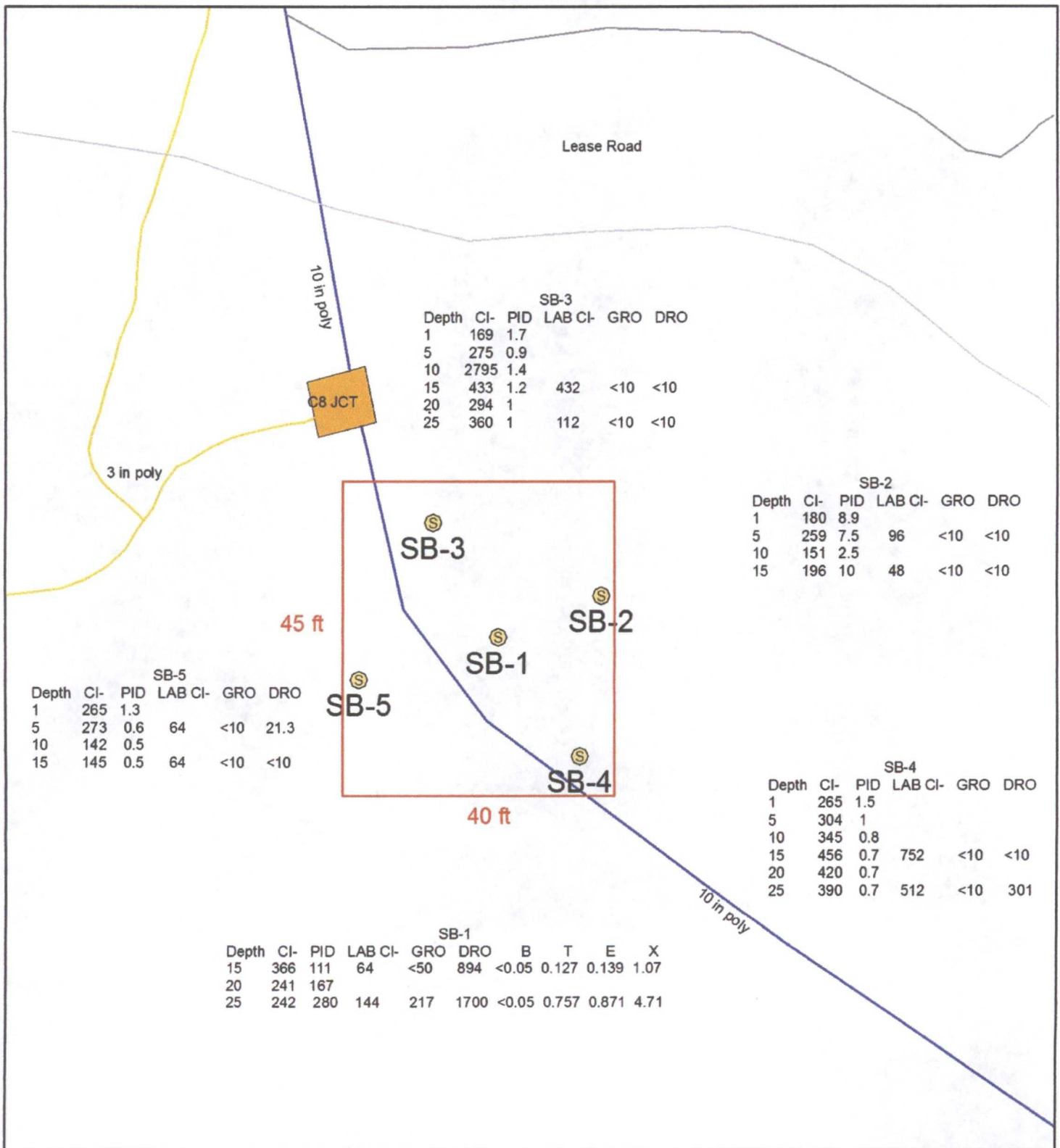
Figure 3



0 5 10 20
Feet

Drawing date: 1-5-11
Drafted by: L. Weinheimer

Proposed liner



EME C-8 vent

Legals: UL/C sec. 8
T20S R37E

Case #: 1R427-288

Figure 4



0 5 10 20
Feet

Drawing date: 1-5-11
Drafted by: L. Weinheimer



ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

June 11, 2010

Hack Conder
Rice Operating Company
112 West Taylor
Hobbs, NM 88240

Re: EME C-8 Vent

Enclosed are the results of analyses for sample number H20073, received by the laboratory on 06/09/10 at 8:52 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

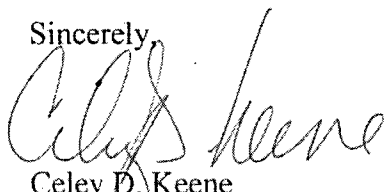
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.2	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 4 (includes Chain of Custody)

Sincerely,


Celey D. Keene
Laboratory Director

This report conforms with NELAP requirements.



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
112 W. TAYLOR
HOBBS, NM 88240

Receiving Date: 06/09/10
Reporting Date: 06/11/10
Project Number: NOT GIVEN
Project Name: EME C-8 VENT
Project Location: EME C-8 VENT

Sampling Date: 06/08/10
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: JH
Analyzed By: AB

LAB NUMBER	SAMPLE ID	GRO	DRO	CI*
		(C ₆ -C ₁₀) (mg/kg)	(>C ₁₀ -C ₂₈) (mg/kg)	(mg/kg)

ANALYSIS DATE		06/10/10	06/10/10	06/11/10
H20073-1	SB#1 @ 15'	<50.0	894	64
H20073-2	SB#1 @ 25'	217	1,700	144
H20073-3	SB#2 @ 5'	<10.0	<10.0	96
H20073-4	SB#2 @ 15'	<10.0	33.5	48
H20073-5	SB#3 @ 15'	<10.0	<10.0	432
H20073-6	SB#3 @ 25'	<10.0	<10.0	112
H20073-7	SB#4 @ 15'	<10.0	<10.0	752
H20073-8	SB#4 @ 25'	<10.0	301	512
H20073-9	SB#5 @ 5'	<10.0	21.3	64
H20073-10	SB#5 @ 15'	<10.0	<10.0	64
Quality Control		493	474	500
True Value QC		500	500	500
% Recovery		98.6	94.8	100
Relative Percent Difference		0.2	0.9	<0.1

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; CI: Std. Methods 4500-CI/B

*Analyses performed on 1:4 w:v aqueous extracts.

Reported on wet weight.


Chemist


Date

H20073 TCL RICE

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ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
112 W. TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471


Receiving Date: 06/09/10
Reporting Date: 06/10/10
Project Number: NOT GIVEN
Project Name: EME C-8 VENT
Project Location: EME C-8 VENT

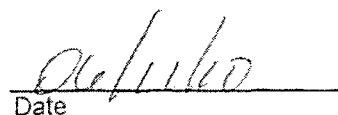
Sampling Date: 06/08/10
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: JH
Analyzed By: ZL

LAB NUMBE SAMPLE ID	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)
ANALYSIS DATE	06/09/10	06/09/10	06/09/10	06/09/10
H20073-1 SB#1 @ 15'	<0.050	0.127	0.139	1.07
H20073-2 SB#1 @ 25'	<0.050	0.757	0.871	4.71
Quality Control	0.017	0.017	0.017	0.051
True Value QC	0.020	0.020	0.020	0.060
% Recovery	85.0	85.0	85.0	85.0
Relative Percent Difference	2.7	1.1	2.7	1.8

METHOD: EPA SW-846 8021B

TEXAS NELAP CERTIFICATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE,
AND TOTAL XYLENES. Reported on wet weight.


Chemist


Date

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