AP - 99

ANNUAL MONITORING REPORT

YEAR(S): 2008

TETRA TECH

RECEIVED
2009 MAR 19 AM 11 51

CERTIFIED MAIL
RETURN RECEIPT NO. 7006 0100 0001 2434 0077

AP-99

March 13, 2009

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

Re: 2008 Annual Groundwater Summary Report & Project Status Report, Rice Operating Company, Justis Saltwater Disposal System (SWD), E-1 Vent, Unit E, Section 1, T-25-S, R-37-E, Lea County, New Mexico, NMOCD CASE #1R0423-06

Dear Mr. Jones:

Tetra Tech Inc. (Tetra Tech) submits the following 2008 Annual Groundwater Summary Report for the Rice Operating Company (ROC), E-1 Vent, located in the Justis Salt Water Disposal System. ROC is the service provider (agent) for the Justis Salt Water Disposal System and has no ownership of any portion of the pipeline, well or facility. The Justis SWD system is owned by a consortium of oil producers, system partners, who provide all operating capital on a percentage ownership/usage basis.

Background

The E-1 vent was composed of three boxes at the same location. As the boxes did not have individual names, they were collectively referred to as the E-1 vent. As part of the ROC Junction Box Upgrade Workplan, starting on November 11, 2003, the junction boxes were removed and the site was investigated vertically and horizontally with a backhoe. The site was excavated to the approximate dimensions of 20' x 20' x 12'. TPH impact was noted to a depth of at least 12' below the ground surface, and a 4-wall composite sample had a concentration of 1,280 mg/kg.

The excavated soil was landfarmed onsite and replaced into the excavation to a depth of 6' below ground surface (bgs). At 6' bgs, a 1.5' thick compacted clay barrier was installed to inhibit further chloride migration. The remaining soils were backfilled on

Tetra Tech
1910 North Big Spring, Midland,TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

top of the clay barrier and contoured to the surrounding surface. A new junction box was installed 100' north of the old site.

On March 17, 2004, a hollow-stem auger unit was utilized to conduct one soil boring at the former junction box site. Groundwater was encountered at a depth of 89.2' bgs. VOC's ceased at a depth of approximately 25' bgs. The chloride concentrations did not decline with depth. The site was disclosed to the NMOCD as a potential groundwater impact site on March 19, 2004. Additionally, ROC submitted a Junction Box Disclosure Report to the NMOCD dated April 5, 2004.

On September 1, 2006, ROC submitted the ICP to Wayne Price of the NMOCD-Santa Fe office for review. Mr. Ed Hansen granted approval of the ICP in an email dated August 6, 2007.

Between August 6 and 7 and October 1 and 2, 2007, Highlander personnel were onsite to oversee the installation of three monitor wells (MW-1 through MW-3) along with six soil borings (SB-2 through SB-7) located around, up, and down gradient of the release area. The affected surface area measured approximately 20' by 20'. Soil samples were collected every 5 feet for the monitor wells and every 2.5 feet for the soil borings utilizing a split spoon sampler and field screened for chlorides. Field analytical results indicated that soil borings SB-2 through SB-6 had elevated chloride levels in various zones ranging from 6 to 40 feet bgs. The elevated chlorides varied with depth but ranged from 260 mg/Kg in SB-5 at 4 to 6 feet bgs to 4,745 mg/Kg in SB-5 at 18 to 20 feet bgs. Field analytical results for SB-7 ranged from 296 mg/Kg at 20 to 25 feet bgs to 659 mg/Kg at 5 to 10 feet bgs. Of the three monitor wells, MW-1 had the highest levels of elevated chlorides in the soil ranging from 286 mg/Kg at 3 to 5 feet bgs to 1,208 mg/Kg at 23 to 25 feet bgs. The two remaining monitor wells, MW-2 and MW-3, had several horizons exceeding 250 mg/Kg chlorides, which decreased with depth. The boring logs with field chloride results are enclosed in Appendix A.

On March 31, 2008, Highlander personnel were onsite to oversee the installation of two additional monitor wells (MW-4 and MW-5) in order to complete delineation of the groundwater impact at the site. No field analytical results for chlorides were available for the soils since the wells were drilled utilizing water from the surface to the terminus of the borings based upon previous problems with borehole collapse. The boring logs along with the monitor completion diagrams are included in Appendix A.

In October 2008, ROC submitted a Stage 1/Stage 2 Abatement Plan to the NMOCD. The plan included detail information on the possible impact to the site from an upgradient source. ROC proposed removal of 136,000 gallons of impacted water based on mass calculation from the data presented. As of this annual report, no response has been received from the NMOCD on the abatement plan.

Monitor Well Sampling

The monitor wells have been sampled on a quarterly basis since installation in the third quarter of the 2007. For 2008, monitor wells MW-1 through MW-3 were sampled on February 26, while all five monitor wells were sampled on May 22, August 26, and November 25. Prior to sampling, the monitor wells were gauged and approximately three casing volumes of water were purged from the wells prior to sampling. The pump and associated tubing were decontaminated with a laboratory grade detergent and rinsed with deionized water. Cumulative water level measurements and purge volumes for the monitor wells are included in the Tables Section of this report.

The well was also inspected for the presence of phase-separated hydrocarbons (PSH). Groundwater samples were collected as soon as possible after the groundwater returned to its static level. Groundwater samples were collected using clean disposable polyethylene bailers and disposable line. The samples were transferred into labeled and preserved containers provided by the laboratory. The samples were delivered under proper chain-of-custody control to Cardinal Labs of Hobbs, New Mexico. The groundwater samples were analyzed for major anions by methods 310.1, 9253 and 375.4, cations by method 6010B, Total Dissolved Solids (TDS) by method 160.1 and Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) by method EPA 8021B. Copies of the laboratory reports are enclosed in Appendix B.

Monitor Well Sample Results

The chloride concentrations for the five monitor wells were elevated throughout the year and have ranged from a low of 1,680 mg/L in up-gradient MW-4, in November 2008, to 4,100 mg/L in monitor wells MW-1 (source area) and MW-3 (down-gradient) in August and May 2008, respectively. The chloride concentrations for the five wells were relatively stable throughout the year. There were no BTEX constituents at or above the New Mexico Water Quality Control Commission (WQCC) standards for the year. Cumulative analytical data is summarized in the Table Section of this report.

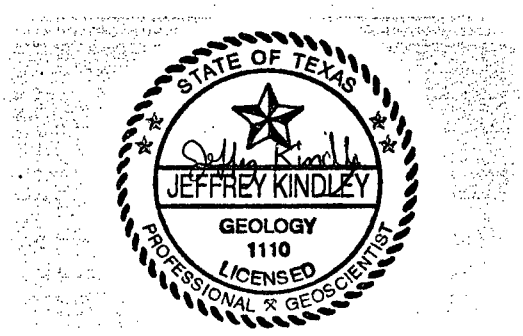
Conclusions

1. In 2008, there were no BTEX constituents detected at or above the New Mexico Water Quality Control Commission (WQCC) standards.

2. Chloride concentrations for the five monitor wells were elevated through the year and have ranged from a low of 1,680 mg/L in up-gradient MW-4, to a high of 4,100 mg/L in source area MW-1 and down-gradient monitor well MW-3. The five wells were relatively stable throughout the year.

3. Quarterly monitoring at the site will continue and an annual report will be prepared and submitted to the NMOCD in the first quarter of 2010.

TETRA TECH



Respectfully Submitted,
Tetra Tech, Inc.

Jeffrey W. Kindley, P.G.
Senior Project Manager

cc: Hack Conder –ROC, Edward Hansen – NMOCD
Enclosures: Figures, Tables, Laboratory Analysis

FIGURES

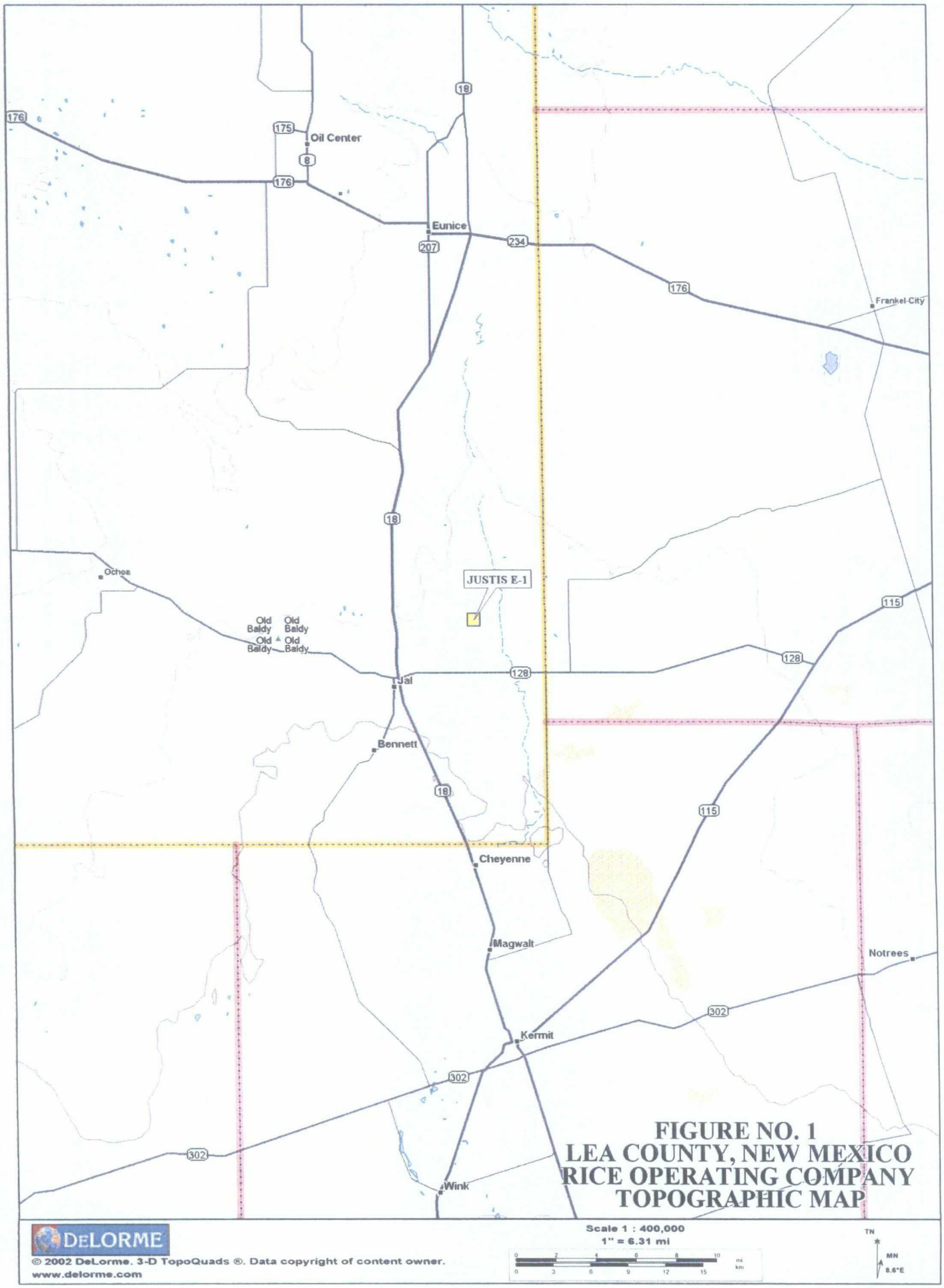


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
RICE OPERATING COMPANY
TOPOGRAPHIC MAP

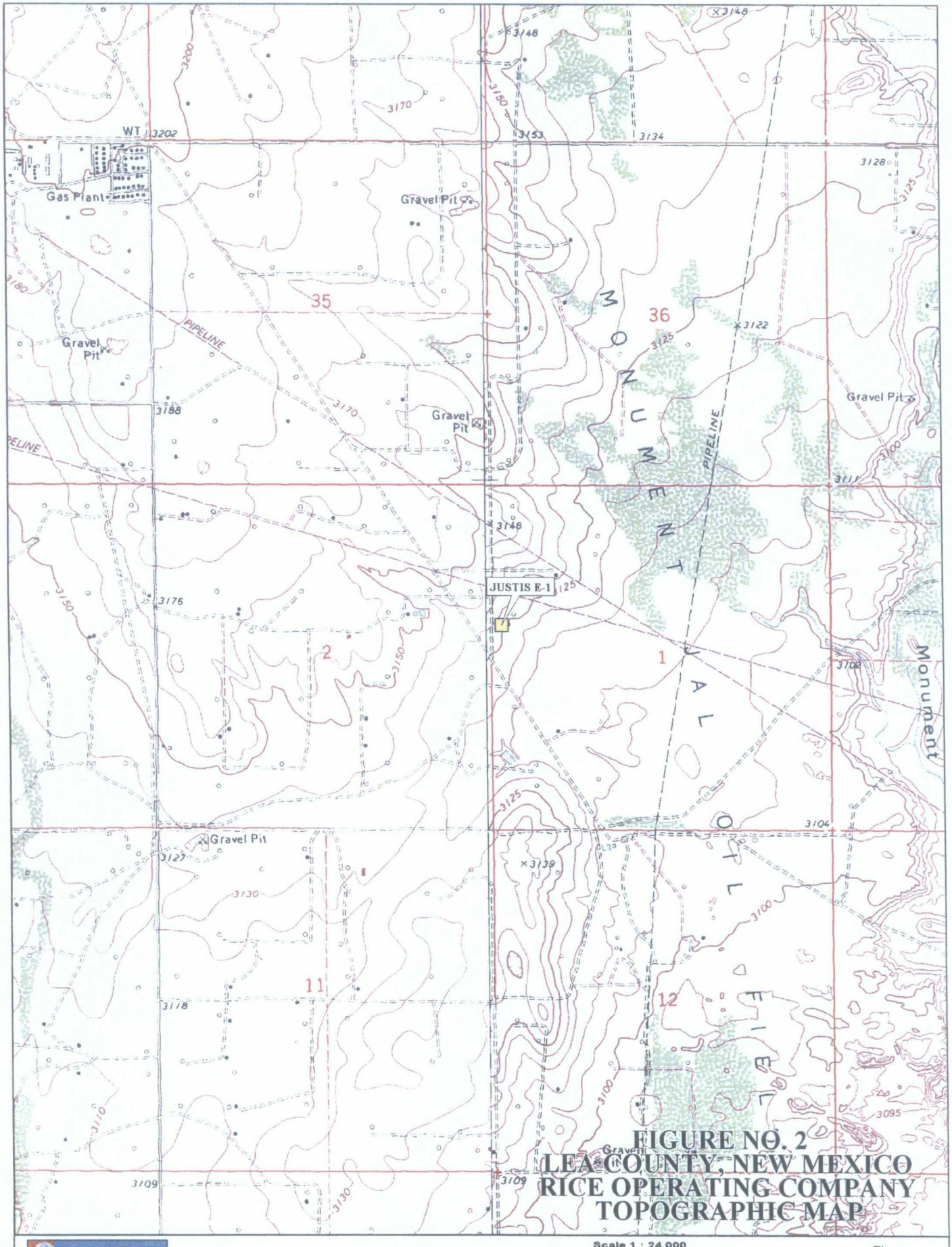
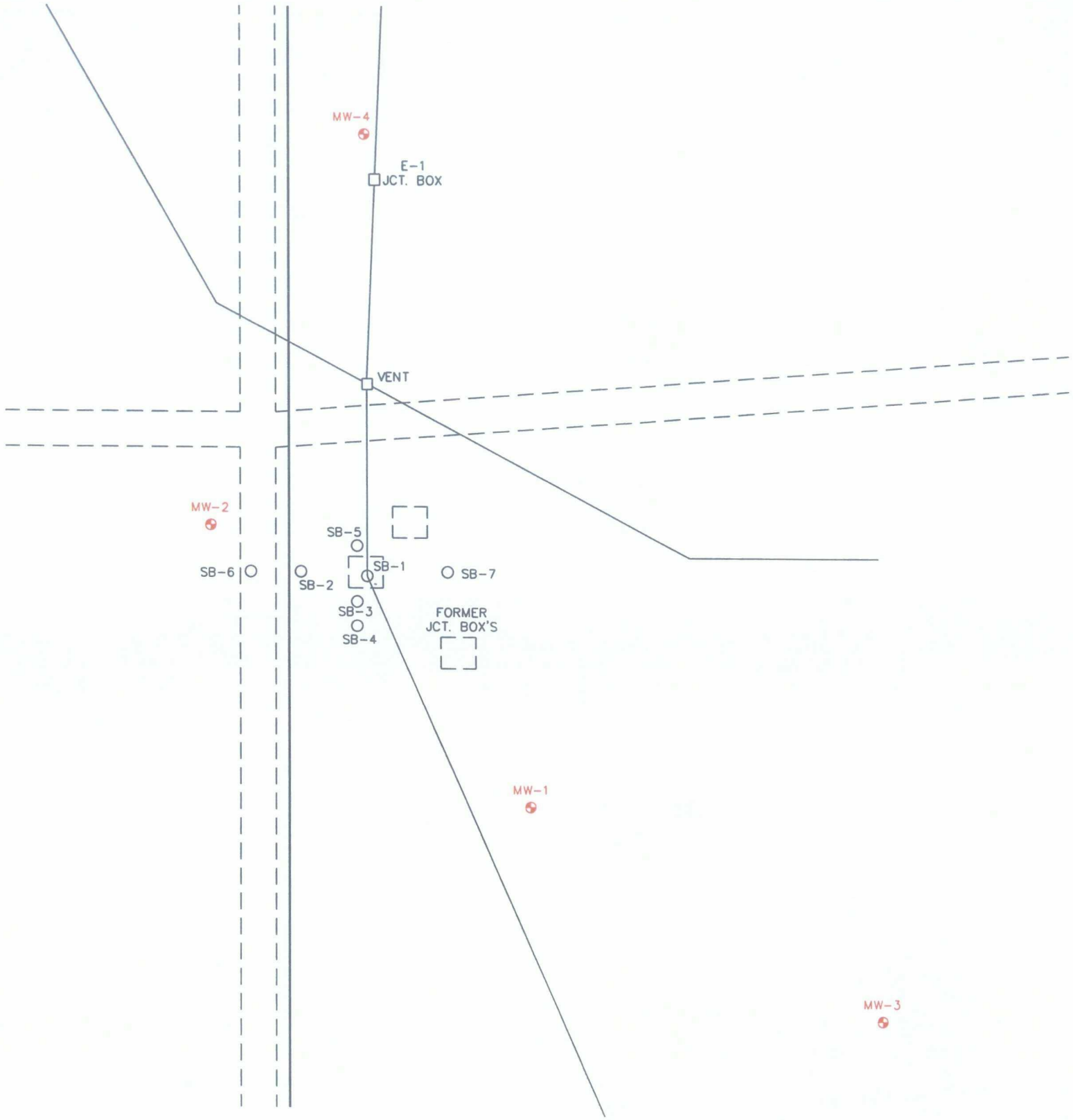


FIGURE NO. 2
LEA COUNTY, NEW MEXICO
RICE OPERATING COMPANY
TOPOGRAPHIC MAP



MONITOR WELL
SOIL BORING

SCALE: 1" = 50'

0 50'

DATE: 8/26/08
DWG. BY: JJ
FILE: SOURCE 28454 SITE MAP

FIGURE NO. 3

LEA COUNTY, NEW MEXICO

RICE OPERATING COMPANY

JUSTIS E-1
SITE MAP

TETRA TECH, INC.
MIDLAND, TEXAS

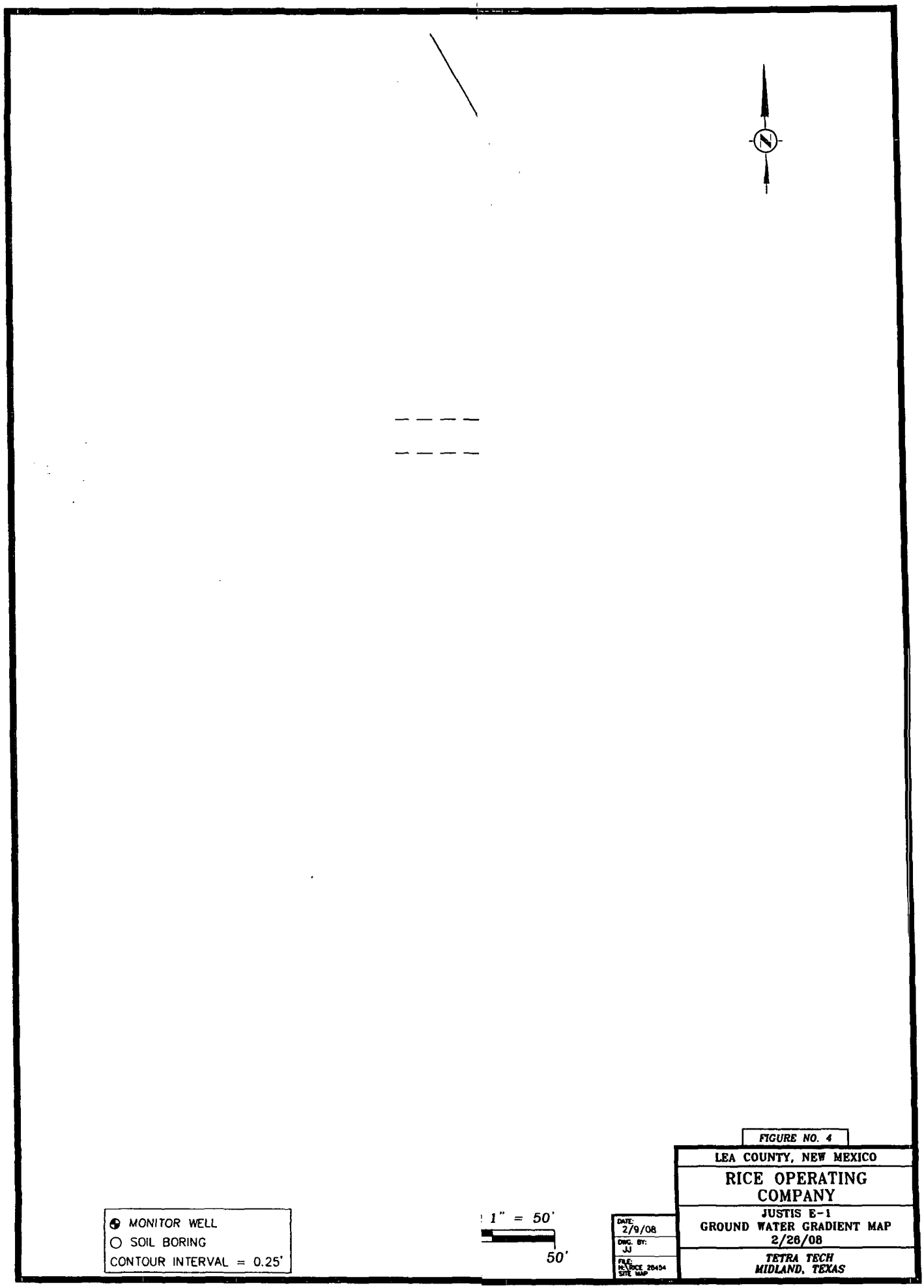


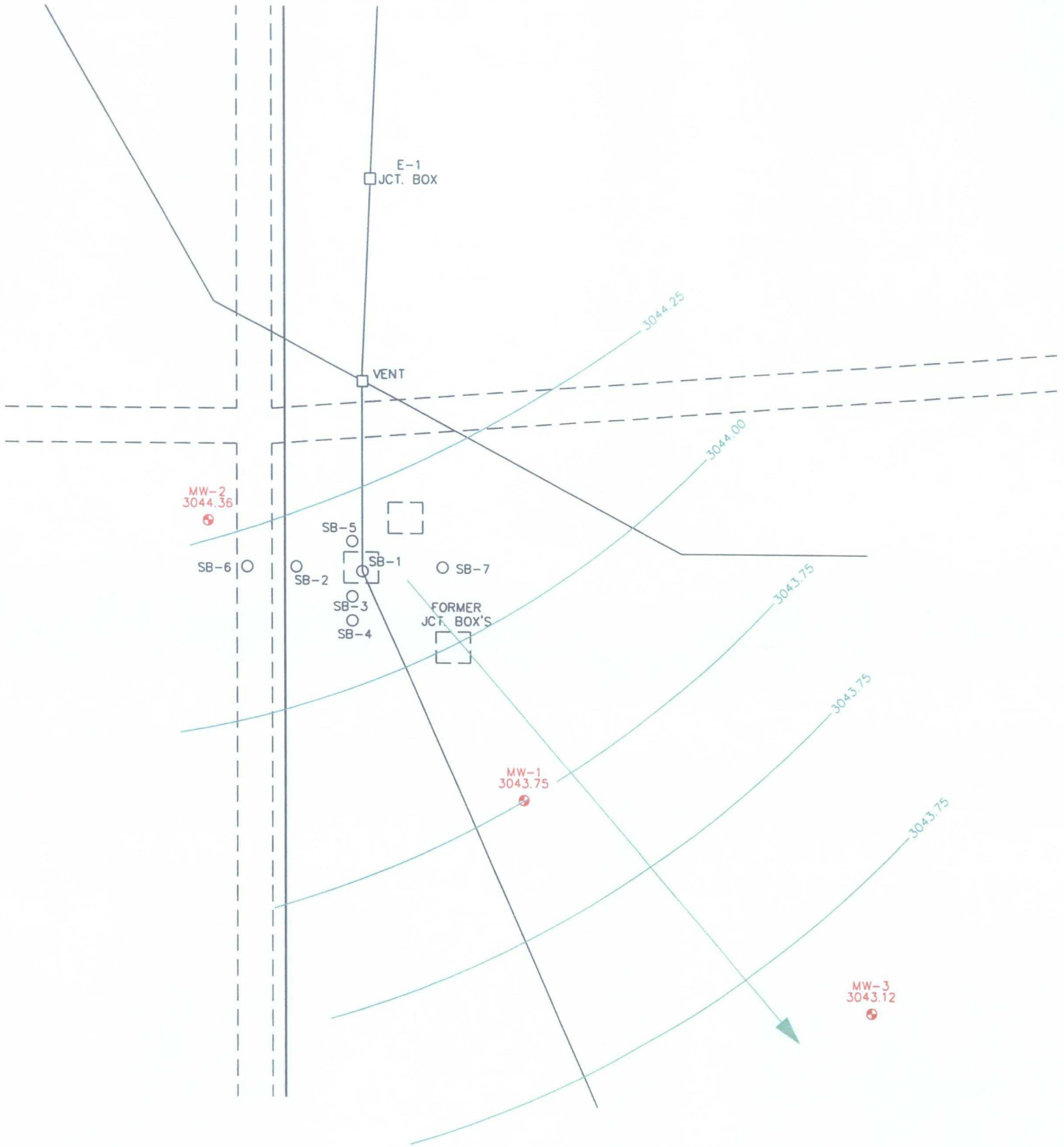
FIGURE NO. 4

LEA COUNTY, NEW MEXICO

RICE OPERATING COMPANY

JUSTIS E-1
GROUND WATER GRADIENT MAP
2/26/08

TETRA TECH
MIDLAND, TEXAS



MONITOR WELL
SOIL BORING
CONTOUR INTERVAL = 0.25'

SCALE: 1" = 50'

0 50'

DATE: 2/9/08
DWG. BY: JJ
FILE: PROJECT 28454 SITE MAP

FIGURE NO. 4

LEA COUNTY, NEW MEXICO

RICE OPERATING COMPANY

JUSTIS E-1
GROUND WATER GRADIENT MAP
2/26/08

TETRA TECH
MIDLAND, TEXAS

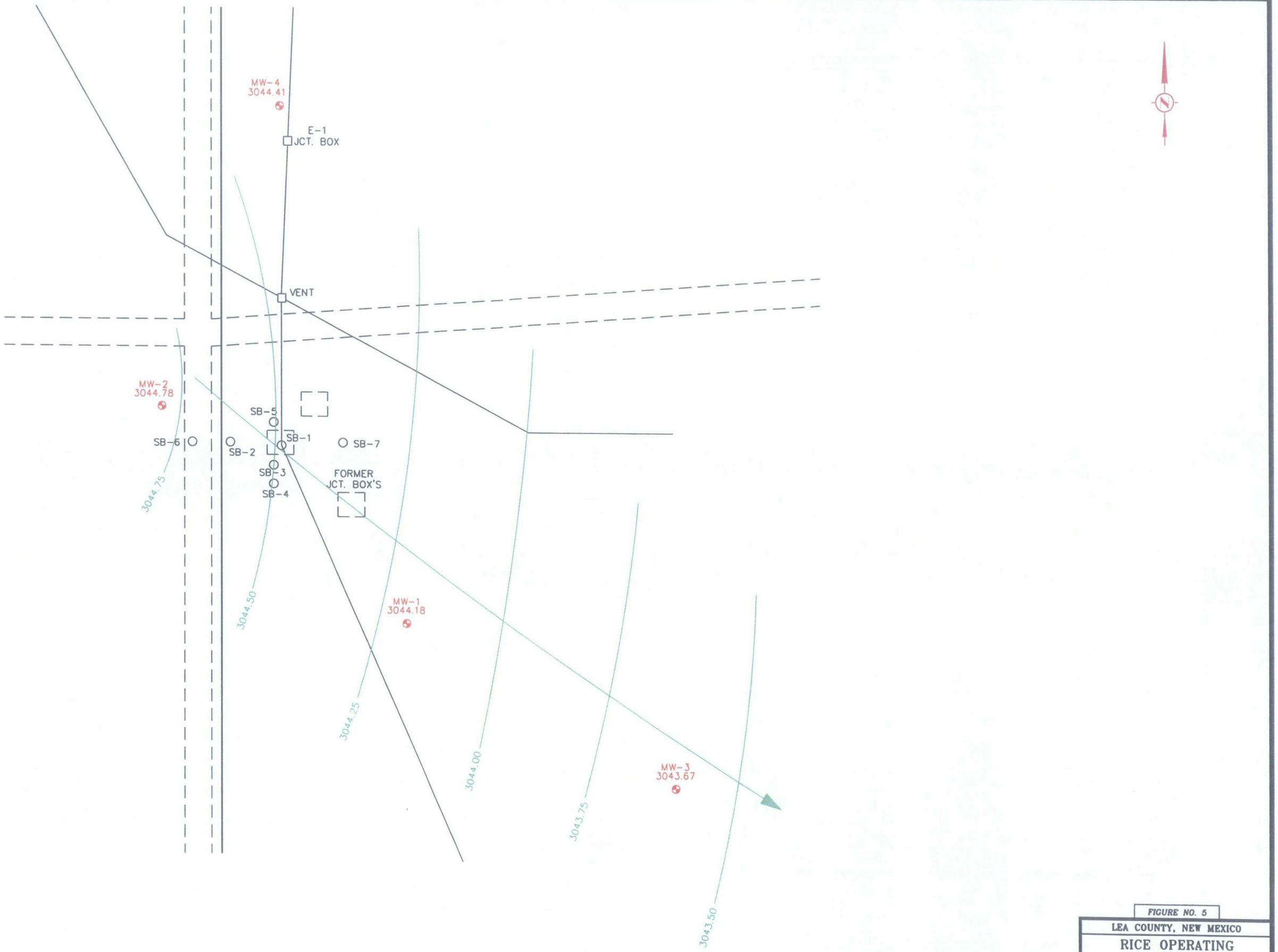


FIGURE NO. 5

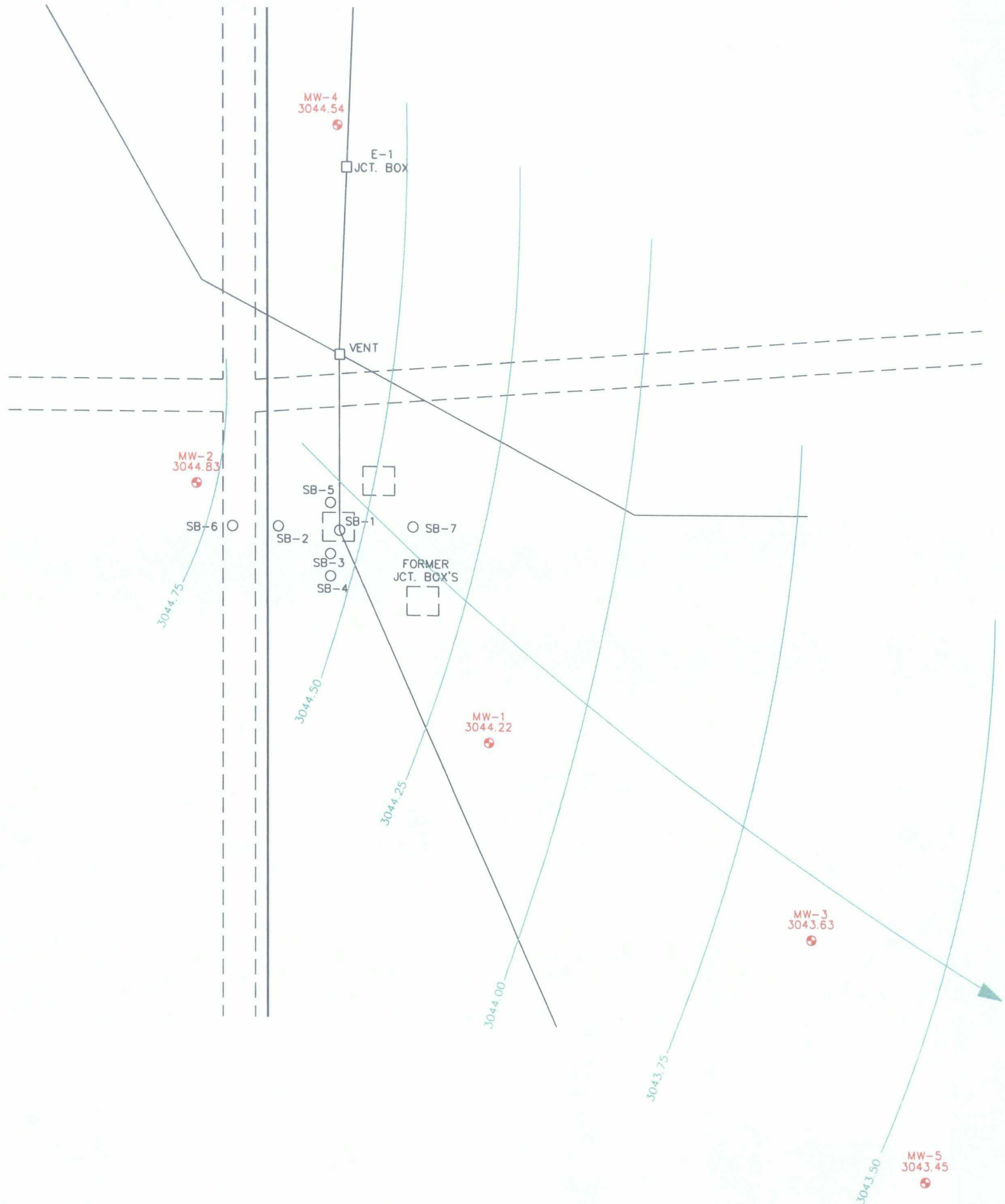
LEA COUNTY, NEW MEXICO

RICE OPERATING COMPANY

JUSTIS E-1
GROUND WATER GRADIENT MAP
5/22/08

TETRA TECH
MIDLAND, TEXAS

DATE: 8/26/08
DWG. BY: JJ
FILE: RICE 28454 SITE MAP



MONITOR WELL
SOIL BORING

SCALE: 1" = 50'

0 50'

DATE: 8/26/08
DWG. BY: JJ
FILE: H:\RICE_2845 SITE MAP

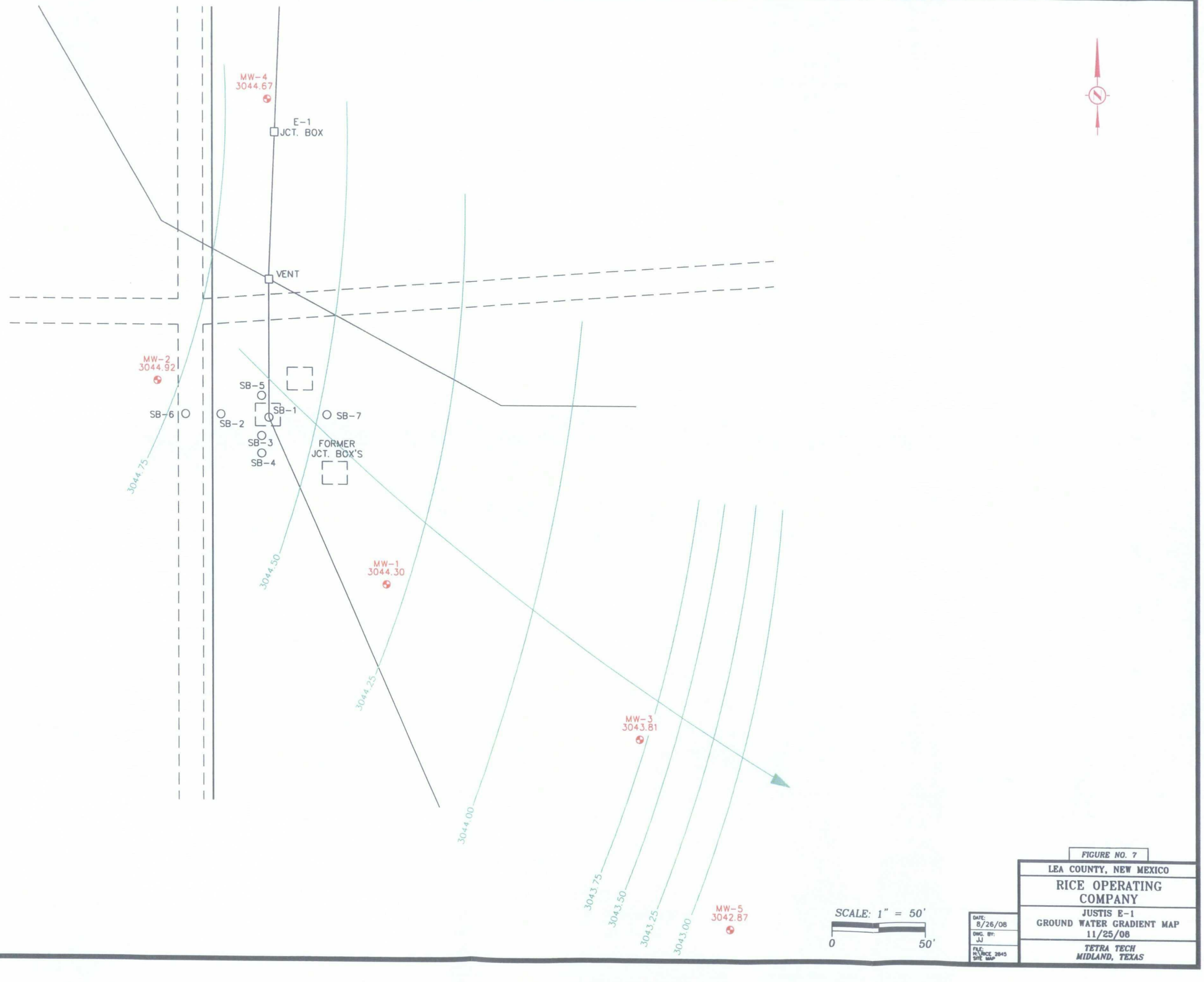
FIGURE NO. 6

LEA COUNTY, NEW MEXICO

RICE OPERATING COMPANY

JUSTIS E-1
GROUND WATER GRADIENT MAP
8/26/08

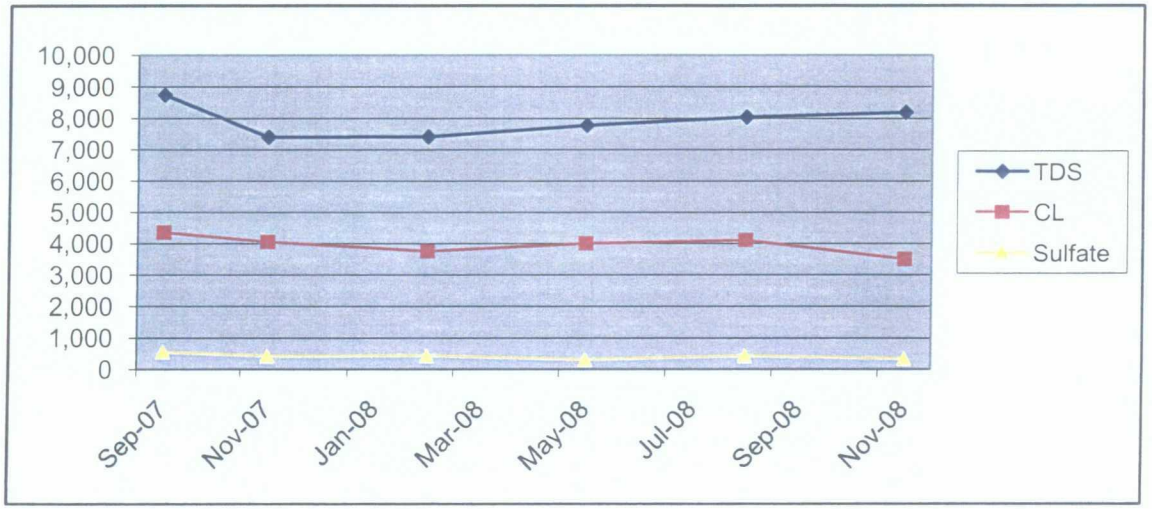
TETRA TECH
MIDLAND, TEXAS


MW-4
3044.67
E-1
JCT. BOX
VENT
MW-2
3044.92
SB-5
SB-6
SB-2
SB-1
SB-7
SB-3
SB-4
FORMER
JCT. BOX'S
3044.75
3044.50
MW-1
3044.30
3044.25
3044.00
MW-3
3043.81
3043.75
3043.50
3043.25
3043.00
MW-5
3042.87
MONITOR WELL
SOIL BORING
SCALE: 1" = 50'
0
50'
DATE: 8/26/08
DWG. BY: JJ
FILE: N:\RICE 2845 SITE MAP
FIGURE NO. 7
LEA COUNTY, NEW MEXICO
RICE OPERATING COMPANY
JUSTIS E-1
GROUND WATER GRADIENT MAP
11/25/08
TETRA TECH
MIDLAND, TEXAS

TABLES

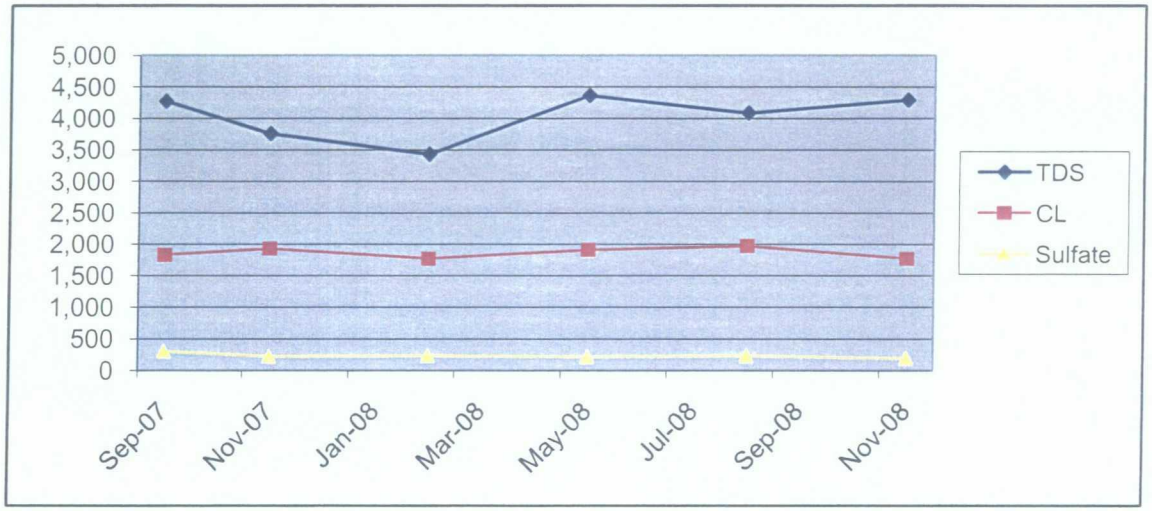
Rice Operating Company
Justis Jct. E-1
Lea County, New Mexico

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	88.25	106.41	2.90	10	09/10/07	4,349	8,734	<0.002	<0.002	<0.002	<0.006	558	Clear no odor
1	88.10	106.41	2.90	10	11/15/07	4,050	7,397	<0.001	<0.001	<0.001	<0.003	424	Clear no odor
1	87.85	106.38	3.00	10	02/26/08	3,750	7,410	<0.001	<0.001	<0.001	<0.003	430	Clear no odor
1	87.42	106.38	3.00	10	05/22/08	4,000	7,770	<0.002	<0.002	<0.002	<0.006	310	Clear no odor
1	87.38	106.38	3.00	10	08/26/08	4,100	8,030	<0.001	<0.001	<0.001	<0.003	435	Clear no odor
1	87.30	106.38	3.10	10	11/25/08	3,500	8,180	<0.001	<0.001	<0.001	<0.003	337	Clear no odor
1													



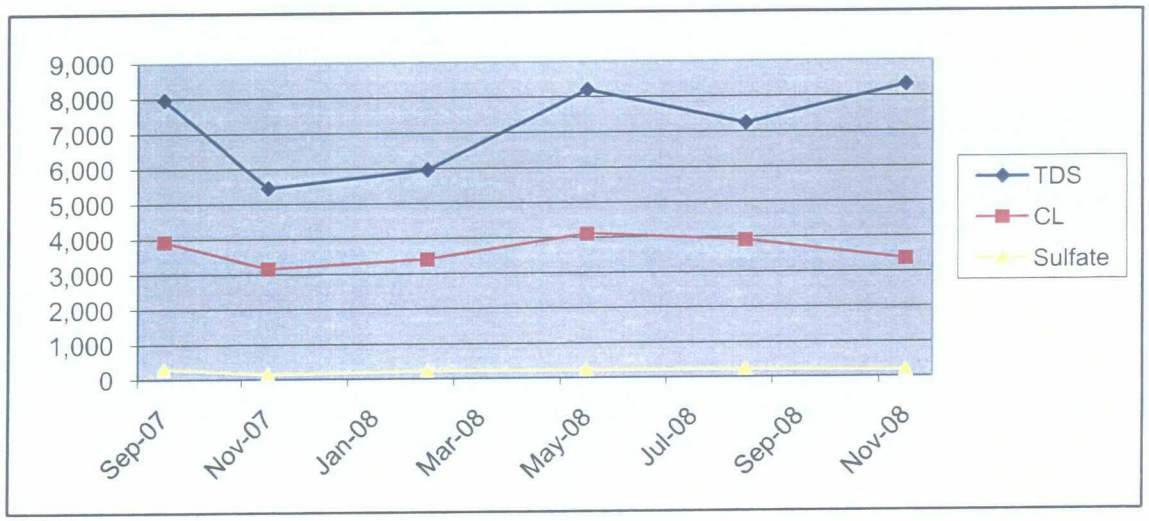
Rice Operating Company
Justis Jct. E-1
Lea County, New Mexico

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	91.71	100.60	1.40	5	09/10/07	1,819	4,268	<0.002	<0.002	<0.002	<0.006	304	Clear no odor
2	91.51	100.60	1.50	5	11/15/07	1,920	3,756	<0.001	<0.001	<0.001	<0.003	223	Clear no odor
2	91.31	100.78	1.50	5	02/26/08	1,760	3,430	<0.001	<0.001	<0.001	<0.003	233	Clear no odor
2	91.89	100.78	1.60	5	05/22/08	1,900	4,360	<0.002	<0.002	<0.002	<0.006	217	Clear no odor
2	90.84	100.78	1.60	5	08/26/08	1,960	4,080	<0.001	<0.001	<0.001	<0.003	232	Clear no odor
2	90.75	100.78	1.60	5	11/25/08	1,760	4,290	<0.001	<0.001	<0.001	<0.003	194	Clear no odor
2													



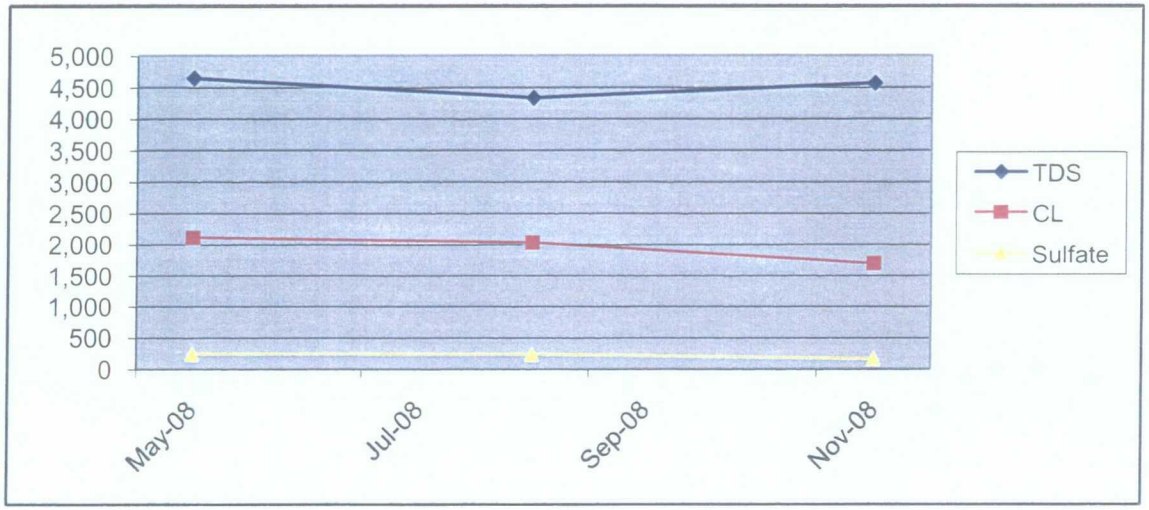
Rice Operating Company
Justis Jct. E-1
Lea County, New Mexico

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
3	86.95	98.90	1.90	7	09/10/07	3,919	7,966	<0.002	<0.002	<0.002	<0.006	305	Clear no odor
3	86.82	98.90	1.90	7	11/15/07	3,150	5,454	<0.001	<0.001	<0.001	<0.003	150	Clear no odor
3	86.58	98.89	2.00	7	02/26/08	3,400	5,960	<0.001	<0.001	<0.001	<0.003	224	Clear no odor
3	86.03	98.89	2.10	7	05/22/08	4,100	8,200	<0.002	<0.002	<0.002	<0.006	225	Clear no odor
3	86.07	98.89	2.10	7	08/26/08	3,900	7,240	<0.001	<0.001	<0.001	<0.003	228	Clear no odor
3	85.89	98.89	2.10	7	11/25/08	3,350	8,320	<0.001	<0.001	<0.001	<0.003	189	Clear no odor
3													



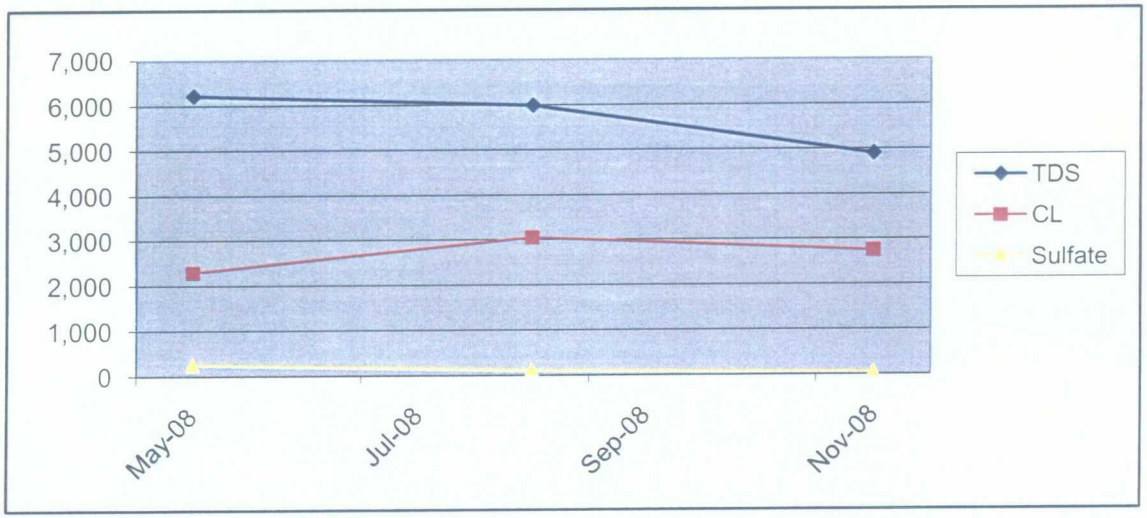
Rice Operating Company
Justis Jct. E-1
Lea County, New Mexico

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
4	91.35	99.98	1.40	50	05/22/08	2,100	4,640	<0.002	<0.002	<0.002	<0.006	240	Clear
4	91.22	99.98	1.40	40	08/26/08	2,020	4,330	<0.001	<0.001	<0.001	<0.003	234	Clear
4	91.09	99.98	1.40	40	11/25/08	1,680	4,560	<0.001	<0.001	<0.001	<0.003	162	Clear



Rice Operating Company
Justis Jct. E-1
Lea County, New Mexico

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
5	84.66	102.70	2.90	50	05/22/08	2,300	6,220	<0.002	<0.002	<0.002	<0.006	251	Clear
5	84.65	102.70	2.90	40	08/26/08	3,050	5,990	<0.001	<0.001	<0.001	<0.003	106	Clear
5	85.23	102.70	2.80	40	11/25/08	2,750	4,900	<0.001	<0.001	<0.001	<0.003	46	Clear



APPENDIX A
LABORATORY ANALYTICAL

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 02/29/08
Reporting Date: 03/05/08
Project Number: NOT GIVEN
Project Name: JUSTIS E-1
Project Location: T25S-R37E-SEC1 E~LEA COUNTY, NM

Sampling Date: 02/26/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: HM/KS

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (u S/cm)	T-Alkalinity ($mgCaCO_3/L$)
ANALYSIS DATE:		03/05/08	03/04/08	03/04/08	03/05/08	03/03/08	03/03/08
H14354-1	MONITOR WELL #1	1,850	492	157	37.1	11,700	208
H14354-2	MONITOR WELL #2	568	422	141	11.6	5,930	164
H14354-3	MONITOR WELL #3	962	785	270	16.2	10,100	164
Quality Control		NR	49.2	50.8	3.04	1,422	NR
True Value QC		NR	50.0	50.0	3.00	1,413	NR
% Recovery		NR	98.5	102	101	101	NR
Relative Percent Difference		NR	2.8	< 0.1	6.7	0.3	NR
METHODS:			SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER	SAMPLE ID	Cl^- (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:		03/03/08	03/04/08	03/03/08	03/03/08	03/03/08	03/03/08
H14354-1	MONITOR WELL #1	3,750	430	0	254	7.10	7,410
H14354-2	MONITOR WELL #2	1,760	233	0	200	7.14	3,430
H14354-3	MONITOR WELL #3	3,400	224	0	200	6.92	5,960
Quality Control		510	24.0	NR	1000	7.07	NR
True Value QC		500	25.0	NR	1000	7.00	NR
% Recovery		102	96.0	NR	100	101	NR
Relative Percent Difference		4.0	3.6	NR	< 0.1	0.7	NR
METHODS:		SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

Kristin Supinobo
Chemist

03/05/08
Date

H14354 RICE

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W.TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 02/29/08
Reporting Date: 03/06/08
Project Number: NOT GIVEN
Project Name: JUSTIS E-1
Project Location: T25S-R37E-SEC1 E ~ LEA COUNTY, NM

Sampling Date: 02/26/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: AB

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		03/05/08	03/05/08	03/05/08	03/05/08
H14354-1	MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
H14354-2	MONITOR WELL #2	<0.001	<0.001	<0.001	<0.003
H14354-3	MONITOR WELL #3	<0.001	<0.001	<0.001	<0.003
Quality Control		0.102	0.096	0.089	0.283
True Value QC		0.100	0.100	0.100	0.300
% Recovery		102	95.5	88.9	94.4
Relative Percent Difference		2.6	2.6	1.7	1.4

METHOD: EPA SW-846 8021B

Chemist

03/06/08
Date

H14354B-R1C4

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company — PO#
Project Manager: Kristin Farris-Pope, Project Scientist	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 — Fax#: (575)397-1471
Phone #: (575) 393-9174 — Fax #: (575)397-1471	
Project #: — Project Name: Justis E-1	
Project Location: T25S-R37E-Sec1 E ~ Lea County - New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2008)	TIME
H14354-1	Monitor Well #1	G	3	X				2				1		2-26	11:55
-2	Monitor Well #2	G	3	X				2				1		2-26	10:00
-3	Monitor Well #3	G	3	X				2				1		2-26	10:50

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content		Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X																X	X	X		
	X																X	X	X		
	X																X	X	X		

Relinquished by: Rozanne Johnson	Date: 2/29/2008	Time: 13:50	Received by: Misty LeBert
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)

Date: 2/29/08 Time: 1:55p

Phone Results		Yes		No	
Fax Results		Yes		No	Additional Fax Number:

REMARKS:

Email Results to: kpope@riceswd.com
lweinheimer@riceswd.com
rozanne@valornet.com

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Sample Condition: Cool: Yes ☑ / No ☐ — Intact: Yes ☑ / No ☐

CHECKED BY: (Initials) MCoB

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 05/21/08
Reporting Date: 05/30/08
Project Number: NOT GIVEN
Project Name: EME JUNCTION A-2-1
Project Location: T20S-R36E-SEC2 A~LEA COUNTY, NM

Sampling Date: 05/20/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: HM/KS

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (uS/cm)	T-Alkalinity ($mgCaCO_3$/L)
ANALYSIS DATE:		05/27/08	05/27/08	05/27/08	05/27/08	05/23/08	05/23/08
H14848-1	MONITOR WELL #1	7,690	413	199	13.0	30,300	716
H14848-2	MONITOR WELL #2	8,120	473	240	13.2	32,300	732
H14848-3	MONITOR WELL #3	6,660	317	168	12.8	26,600	732
Quality Control		NR	52.1	51.0	2.84	1,428	NR
True Value QC		NR	50.0	50.0	3.00	1,413	NR
% Recovery		NR	104	102	94.7	101	NR
Relative Percent Difference		NR	< 0.1	4.8	2.4	1.3	NR
METHODS:			SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER	SAMPLE ID	Cl (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:		05/23/08	05/27/08	05/23/08	05/23/08	05/23/08	05/27/08
H14848-1	MONITOR WELL #1	8,000	6,340	0	874	6.76	22,400
H14848-2	MONITOR WELL #2	8,400	6,990	0	893	6.73	24,200
H14848-3	MONITOR WELL #3	6,600	5,720	0	893	6.84	19,500
Quality Control		510	64.3	NR	976	7.02	NR
True Value QC		500	60.0	NR	1000	7.00	NR
% Recovery		102	107	NR	97.6	100	NR
Relative Percent Difference		< 0.1	7.0	NR	< 0.1	0.7	NR
METHODS:		SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

Kristin Farris-Pope
Chemist

05/30/08
Date

H14848 RICE

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR ST.
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 05/21/08
Reporting Date: 05/30/08
Project Number: NOT GIVEN
Project Name: EME JUNCTION A-2-1
Project Location: T20S-R36E-SEC2 A ~ LEA CO., NM

Sampling Date: 05/20/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: CK/BC

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		05/29/08	05/29/08	05/29/08	05/29/08
H14848-1	MONITOR WELL #1	0.004	<0.002	<0.002	<0.006
H14848-2	MONITOR WELL #2	<0.002	<0.002	<0.002	<0.006
H14848-3	MONITOR WELL #3	<0.002	<0.002	<0.002	<0.006
Quality Control		0.096	0.094	0.103	0.316
True Value QC		0.100	0.100	0.100	0.300
% Recovery		96.2	93.7	103	105
Relative Percent Difference		0.7	6.3	5.5	3.1

METHOD: EPA SW-846 8260B

Chemist

05/30/08
Date

H14848WB RICE

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company — PO#
Project Manager: Kristin Farris-Pope, Project Scientist	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 — Fax#: (575)397-1471
Phone #: (575) 393-9174 — Fax #: (575)397-1471	
Project #: — Project Name: EME Junction A-2-1	
Project Location: T20S-R36E-Sec2 A ~ Lea County - New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2008)	TIME
H14848-1	Monitor Well #1	G	3	X				2				1		5-20	12:45
-2	Monitor Well #2	G	3	X				2				1		5-20	10:20
-3	Monitor Well #3	G	3	X				2				1		5-20	11:16

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X															X	X	X		
	X															X	X	X		
	X															X	X	X		

Relinquished by: Rozanne Johnson	Date: 5/21/08	Time: 9:25	Received by: Misty LeBut	Date: 5/21/08	Time: 9:25
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)	Date:	Time:

Phone Results: Yes / No
Fax Results: Yes / No — Additional Fax Number:

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Sample Condition: Cool: Yes ☑ / No ☐ — Intact: Yes ☑ / No ☐

CHECKED BY: (Initials) MCLB

REMARKS:

Email Results to: kpope@riceswd.com
lweinheimer@riceswd.com
rozanne@valornet.com

CARDINAL LABORATORIES

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

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

Receiving Date: 08/29/08
Reporting Date: 09/04/08
Project Number: NOT GIVEN
Project Name: JUSTIS E-1
Project Location: T25S-R37E-SEC1 E~LEA CO., NM

Sampling Date: 08/26/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: HM/TR

LAB NUMBE SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (u S/cm)	T-Alkalinity ($mgCaCO_3/L$)
ANALYSIS DATE:	09/03/08	09/03/08	09/03/08	09/03/08	09/02/08	09/02/08
H15839-1 MONITOR WELL #1	1,900	561	207	38.1	11,000	196
H15839-2 MONITOR WELL #2	696	425	141	12.0	5,610	168
H15839-3 MONITOR WELL #3	1,070	942	292	18.9	10,200	168
H15839-4 MONITOR WELL #4	772	401	146	12.1	5,960	208
H15839-5 MONITOR WELL #5	581	822	304	15.4	7,730	184
Quality Control	NR	48.1	48.6	2.98	1,408	NR
True Value QC	NR	50.0	50.0	3.00	1,413	NR
% Recovery	NR	96.2	97.2	99.3	99.6	NR
Relative Percent Difference	NR	8.0	<0.1	8.7	0.1	NR
METHODS:		SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBE SAMPLE ID	Cl (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:	09/02/08	09/02/08	09/02/08	09/02/08	09/02/08	09/02/08
H15839-1 MONITOR WELL #1	4,100	435	0	239	6.93	8,030
H15839-2 MONITOR WELL #2	1,960	232	0	205	7.03	4,080
H15839-3 MONITOR WELL #3	3,900	228	0	205	6.83	7,240
H15839-4 MONITOR WELL #4	2,020	234	0	254	7.04	4,330
H15839-5 MONITOR WELL #5	3,050	106	0	224	6.92	5,990
Quality Control	500	45.0	NR	1000	7.01	NR
True Value QC	500	40.0	NR	1000	7.00	NR
% Recovery	100	112	NR	100	100	NR
Relative Percent Difference	< 0.1	2.2	NR	1.2	0.6	NR
METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

Chemist

09-08-08
Date

H15839 RICE

CARDINAL LABORATORIES

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

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

Receiving Date: 08/29/08
Reporting Date: 09/02/08
Project Number: NOT GIVEN
Project Name: JUSTIS E-1
Project Location: T25S-R37E-SEC1 E ~ LEA CO., NM

Sampling Date: 08/26/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: ZL

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		08/29/08	08/29/08	08/29/08	08/29/08
H15839-1	MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
H15839-2	MONITOR WELL #2	<0.001	<0.001	<0.001	<0.003
H15839-3	MONITOR WELL #3	<0.001	<0.001	<0.001	<0.003
H15839-4	MONITOR WELL #4	<0.001	<0.001	<0.001	<0.003
H15839-5	MONITOR WELL #5	<0.001	<0.001	<0.001	<0.003
Quality Control		0.051	0.048	0.050	0.157
True Value QC		0.050	0.050	0.050	0.150
% Recovery		102	96.0	100	105
Relative Percent Difference		1.3	0.9	1.5	0.7

METHOD: EPA SW-846 8021B

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

Chemist

09/03/08
Date

H15839WB RICE

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company PO#
Project Manager: Hack Conder	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575)397-1471
Project #:	Project Name: Justis E-1
Project Location: T25S-R37E-Sec1 E ~ Lea County - New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	NaHSO4	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2008)	TIME
H15839-1	Monitor Well #1	G	3	X				2				1		8-26	15:25
-2	Monitor Well #2	G	3	X				2				1		8-26	10:10
-3	Monitor Well #3	G	3	X				2				1		8-26	14:20
-4	Monitor Well #4	G	3	X				2				1		8-26	11:40
-5	Monitor Well #5	G	3	X				2				1		8-26	13:15

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content		Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X																X	X	X		
	X																X	X	X		
	X																X	X	X		
	X																X	X	X		
	X																X	X	X		

Relinquished by: Rozanne Johnson Date: 8-29-08 Time: 8:20
Received by: Date: 8-29-08 Time: 8:21

Relinquished by: Date: 8/29/08 Time: 10:40
Received By: (Laboratory Staff) Misty LeBeau Date: 8/29/08 Time: 10:40

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Sample Condition: Cool: Yes ☑ No ☐ Intact: Yes ☑ No ☐

CHECKED BY: (Initials) MCLB

Phone Results ☐ Yes ☐ No
Fax Results ☐ Yes ☐ No Additional Fax Number:

REMARKS:

Email Results to: hconder@riceswd.com
lweinheimer@riceswd.com
rozanne@valornet.com

CARDINAL LABORATORIES

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

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

Receiving Date: 11/26/08
Reporting Date: 12/01/08
Project Number: NOT GIVEN
Project Name: JUSTIS E-1
Project Location: T25S-R37E-SEC1 E~ LEA CO., NM

Sampling Date: 11/25/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: AB
Analyzed By: ZL

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		11/27/08	11/27/08	11/27/08	11/27/08
H16436-1	MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
H16436-2	MONITOR WELL #2	<0.001	<0.001	<0.001	<0.003
H16436-3	MONITOR WELL #3	<0.001	<0.001	<0.001	<0.003
H16436-4	MONITOR WELL #4	<0.001	<0.001	<0.001	<0.003
H16436-5	MONITOR WELL #5	<0.001	<0.001	<0.001	<0.003
Quality Control		0.048	0.049	0.047	0.147
True Value QC		0.050	0.050	0.050	0.150
% Recovery		96.0	98.0	94.0	98.0
Relative Percent Difference		3.6	3.6	1.8	2.4

METHOD: EPA SW-846 8021B

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

Chemist

12/02/08
Date

H16436OVS RICE

CARDINAL LABORATORIES

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

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

Receiving Date: 11/26/08
Reporting Date: 12/03/08
Project Number: NOT GIVEN
Project Name: JUSTIS E-1
Project Location: T25S-R37E-SEC1 E ~ LEA CO., NM

Sampling Date: 11/25/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: AB
Analyzed By: HM/TR

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (uS/cm)	T-Alkalinity ($mgCaCO_3/L$)
ANALYSIS DATE:		12/03/08	12/03/08	12/03/08	12/03/08	12/02/08	12/02/08
H16436-1	MONITOR WELL #1	1,700	457	141	41.1	9,270	196
H16436-2	MONITOR WELL #2	626	377	126	12.0	4,780	156
H16436-3	MONITOR WELL #3	979	762	243	17.6	8,450	140
H16436-4	MONITOR WELL #4	648	337	107	9.1	4,880	168
H16436-5	MONITOR WELL #5	384	822	292	14.3	7,300	188
Quality Control		NR	48.1	51.0	3.02	1,426	NR
True Value QC		NR	50.0	50.0	3.00	1,413	NR
% Recovery		NR	96.2	102	101	101	NR
Relative Percent Difference		NR	<0.1	<0.1	<0.1	0.6	NR

METHODS:		SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER	SAMPLE ID	Cl (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:		12/02/08	12/03/08	12/02/08	12/02/08	12/02/08	12/01/08
H16436-1	MONITOR WELL #1	3,500	337	0	239	7.00	8,180
H16436-2	MONITOR WELL #2	1,760	194	0	190	7.11	4,290
H16436-3	MONITOR WELL #3	3,350	189	0	171	6.89	8,320
H16436-4	MONITOR WELL #4	1,680	162	0	205	7.16	4,560
H16436-5	MONITOR WELL #5	2,750	46.4	0	229	7.03	4,900
Quality Control		500	44.2	NR	1000	7.05	NR
True Value QC		500	40.0	NR	1000	7.00	NR
% Recovery		100	110	NR	100	101	NR
Relative Percent Difference		2.0	2.3	NR	1.3	1.0	NR

METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

Chemist

12-5-08
Date

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company — PO#
Project Manager: Hack Conder	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 — Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575)397-1471
Project #: — Project Name: Justis E-1	
Project Location: T25S-R37E-Sec1 E ~ Lea County - New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2-40ml VOA)	HNO_3	NaHSO4	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2008)	TIME
H16436-1	Monitor Well #1	G	3	X				2				1		11-25	15:45
-2	Monitor Well #2	G	3	X				2				1		11-25	10:30
-3	Monitor Well #3	G	3	X				2				1		11-25	14:25
-4	Monitor Well #4	G	3	X				2				1		11-25	11:55
-5	Monitor Well #5	G	3	X				2				1		11-25	13:10

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X															X	X	X		
	X															X	X	X		
	X															X	X	X		
	X															X	X	X		
	X															X	X	X		

Relinquished by: Rozanne Johnson — Date: 11-25-08 — Time: 16:20
Received by: — Date: 11-25-08 — Time: 16:21

Relinquished by: — Date: 11/26/08 — Time: 10:40
Received By: (Laboratory Staff) — Date: 11/26/08 — Time: 10:40a

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Sample Condition: Cool: Yes [X] No [ ] — Intact: Yes [X] No [ ]
CHECKED BY: (Initials)

Phone Results: [ ] Yes [ ] No
Fax Results: [ ] Yes [ ] No — Additional Fax Number:

REMARKS:

Email Results to: hconder@riceswd.com, lweinheimer@riceswd.com, rozanne@valornet.com