

AP - 48

ANNUAL MONITORING REPORT

YEAR(S):

2008



TETRA TECH

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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) Jct. L-1, Unit L, Section 1, T-25-S, R-37-E, Lea County, New Mexico, NMOCD CASE #1R0423-0 (AP-48)

Mr. Jones:

Tetra Tech, inc. (Tetra Tech) submits the following 2008 Annual Groundwater Summary Report for the Rice Operating (ROC), Jct. L-1 site (AP-48), 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

As part of the RICE Operating Company (ROC) Junction Box Upgrade Workplan, the original Justis L-1 junction box was removed and replaced with a new water tight junction box located 50 feet south of the old box. Once the junction box was removed, evaluation of the surrounding and subsurface soils was initiated. Delineation was conducted with a backhoe. Chloride testing and PID field screening were performed at regular intervals. The final excavation measured 20 feet x 22 feet x 12 feet deep. PID concentrations were minimal and laboratory analysis confirmed TPH concentrations were well below NMOCD regulatory guidelines. Chloride concentrations, however, did not appear to decline with depth.

On 12/29/2003, a soil boring was placed into the center of the excavation and advanced to a depth of 80' below ground surface, encountering a saturated zone at 75'

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below ground surface. The borehole was plugged and a 1.5 foot thick clay barrier was placed into the excavation at 6 feet below ground surface. The remainder of the excavation was backfilled with excavated soils. No TPH impact to groundwater was indicated. On February 24, 2004, ROC submitted a Junction Box Disclosure Form to the NMOCD.

On June 15, 2004, Highlander submitted a work plan for a confirmation borehole and possible monitor well placement at the site. The NMOCD responded with requested revisions to the workplan and on November 3, 2004, Highlander submitted a revised workplan to address NMOCD concerns. The workplan was approved by the NMOCD on November 4, 2004. Highlander supervised the installation of Monitor Well (MW-1) on December 19, 2004. The well was purged and sampled on December 21, 2004. On January 14, 2005, Rice submitted a Notification of Groundwater Impact to the NMOCD. Groundwater has been sampled and analyzed on a quarterly basis. Traces of benzene and ethylbenzene found in the original sampling have not been evident in subsequent sampling events.

On May 5, 2005, Daniel Sanchez with the NMOCD requested a Rule 19, Stage I Abatement Plan for this site. On July 12, 2005 a Stage I Abatement Plan was submitted to the NMOCD. The Stage I Abatement Plan approval was received, dated February 23, 2006.

Stage 1 Abatement Plan

As part of the Stage 1 Abatement Plan two additional monitor wells were proposed for the site. These two monitor wells (MW-2 and MW-3) were installed on March 21, 2006. MW-2 was placed down-gradient of MW-1 and MW-3 was placed up-gradient. An oil well location and open reserve pit, were located up-gradient of MW-1, necessitating the placement of MW-3 up-gradient of the open reserve pit. The wells were developed and sampled on March 28, 2006. MW-3 exhibited apparent background chloride concentrations of 96 mg/L. The down-gradient monitor well (MW-2) displayed similar qualities to the monitor well placed at the removed junction box site (MW-1), with a chloride concentration of 564 mg/L and total dissolved solids of 1,730 mg/L. However, since the March 2006 sampling, monitor well MW-1 has had a significant increase in chlorides (up to 2,250 mg/L) and TDS (up to 7,305) while MW-2 has remained relatively stable.

Also as part of the Stage I Abatement Plan, a water well database search was performed to encompass a ½ mile radius around the site. The database search revealed one well in Section 1 and 3 wells in adjoining sections to this site. The field inspection revealed processing plant wells up-gradient of the site, one inaccessible well at the booster or compressor station (4/10 mile south) and one inactive domestic well with no access (1/2 mile south). An open reserve pit located 135' up-gradient was sampled and had a chloride concentration of 42,286 mg/L.

ROC submitted a report titled "Results of Stage 1 Implementation and Request for Suspension from Rule 19 Requirements", dated August 10, 2006 to the NMOCD. On



September 27, 2006, ROC received a response from the NMOCD. In a telephone conference with the NMOCD, it was discussed that the plan should be re-issued as a Stage 1/Stage 2 Abatement Plan for continued monitoring. Additionally, the NMOCD verbally approved the placement of one additional down-gradient monitoring well. As approved, on October 9, 2006, one additional monitor well (MW-4) was installed down-gradient and constructed according to EPA and industry standards.

A meeting was held with the NMOCD on February 21, 2007, to determine if chloride concentrations in monitor well MW-1 is from an offsite source. At that meeting, Wayne Price requested that an additional monitor well be installed. On April 17, 2007, monitor well MW-5 was installed between MW-1 and a reserve pit located up-gradient. The well was constructed according to EPA and industry standards.

Stage1/Stage2 Abatement Plan

On December 12, 2006, a Stage 1/Stage 2 Abatement Plan was submitted to the NMOCD. Based upon the results of the Stage 1 Abatement Plan implementation, it appeared that the water quality at the original junction box site is improving over time. The Stage 1/Stage 2 Plan proposed to continue to monitor all four wells on a quarterly basis to ensure continued improvement of groundwater quality.

As part of the Stage 1/Stage 2 Abatement Plan, a Corrective Action Plan (CAP) for final soil remediation was presented. In order to complete horizontal delineation of the soil impact, soil borings will be placed beyond the edges of the existing clay barrier and soil samples will be collected for field chloride testing. Once the results of the delineation are completed, the data will be evaluated to determine if further excavation and extension of clay barrier is warranted. If warranted, the site will be excavated down to a depth of approximately 6' and the existing clay barrier will be extended, prior to backfilling with excavated material. NMOCD approval of this Stage1/Stage2 Abatement Plan is pending. In an e-mail dated January 9, 2009, Edward J. Hansen of the NMOCD deemed the Stage 1/Stage 2 Abatement Plan administratively complete.

Monitor Well Sampling

The monitor wells were sampled on February 27, May 23, August 28, and December 17, 2008. Prior to sampling, the monitor wells were gauged and approximately three casing volumes of water were purged from the wells. 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 wells were 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 Lab 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 A.

Monitor Well Sample Results

Monitor well MW-1, had elevated chlorides ranging from 2,150 mg/L to 3,000 mg/l throughout the year. Monitor well MW-5 located up-gradient of MW-1 has chloride concentrations that decreased from 1,180 mg/L in the third quarter to 416 mg/L in the last quarter of the year. The chloride and TDS concentrations in monitor wells MW-3 (up-gradient), and MW-4 (down-gradient) were below WQCC standards and remained relatively stable throughout the year. The chloride concentration in MW-2 has remained stable throughout the year and has ranged from 412 mg/L in the first quarter to 500 mg/L in the fourth quarter of 2008. All monitor wells were sampled on a quarterly basis.

In 2008, there were no BTEX constituents detected at or above reporting limits for any of the monitor wells. Cumulative analytical data is summarized in the Table Section of this report.

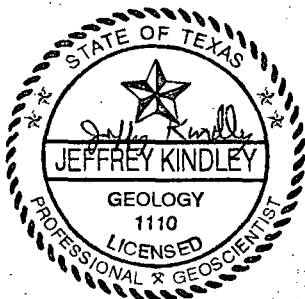
Conclusions

1. In 2008, there were no BTEX constituents at or above the New Mexico Water Quality Control Commission (WQCC) standards.
2. Chloride and total dissolved solid (TDS) concentrations have remained elevated and relatively stable in monitor wells MW-1, MW-2, and MW-5 with results ranging from 412 mg/L in MW-5 to 3,000 mg/L in MW-1. The chloride and TDS concentrations in monitor wells MW-3 and MW-4 were below the WQCC standards and remained relatively stable through the year. Based on the data, a closed reserve pit located between MW-3 and MW-5 may be contributing to chloride impact to groundwater.
3. Quarterly monitoring at this site will continue and an annual report will be prepared and submitted to the NMOCD in the first quarter of 2010.
4. In order to complete horizontal delineation of the soil impact, soil borings will be placed beyond the edges of the existing clay barrier and soil samples will be collected for field chloride testing. Once the results of the delineation are completed, the data will be evaluated to determine if further excavation and extension of clay barrier is warranted. If warranted, the site will be excavated down to a depth of approximately 6' and the existing clay barrier

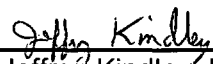


TETRA TECH

will be extended, prior to backfilling with excavated material.



Respectfully Submitted,
Tetra Tech, Inc.



Jeffrey Kindley, P.G.
Senior Environmental Geologist

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

FIGURES

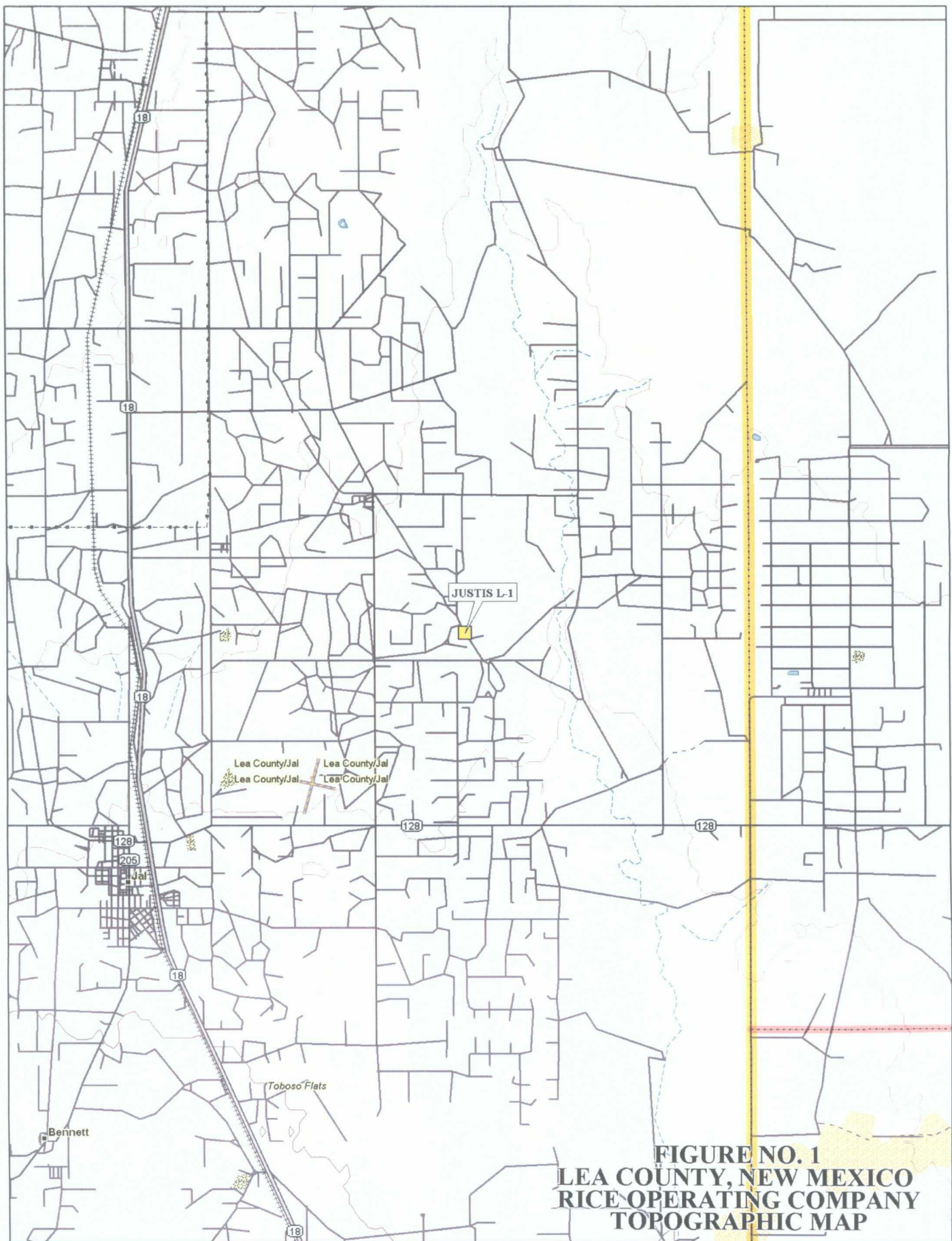


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
RICE OPERATING COMPANY
TOPOGRAPHIC MAP



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www.delorme.com

Scale 1 : 100,000
 1" = 1.58 mi



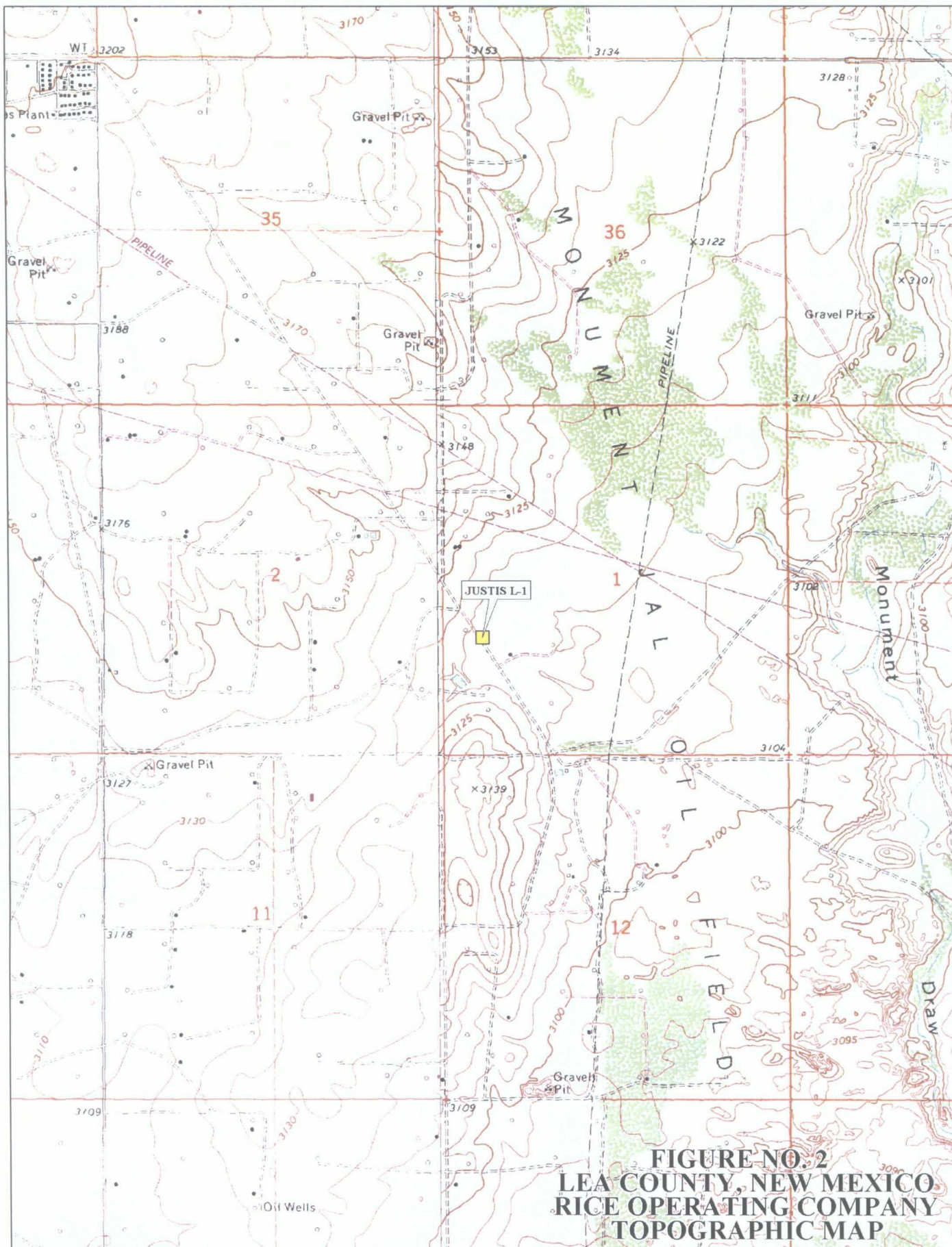
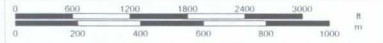


FIGURE NO. 2
LEA COUNTY, NEW MEXICO
RICE OPERATING COMPANY
TOPOGRAPHIC MAP



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www.delorme.com

Scale 1 : 24,000
1" = 2000 ft



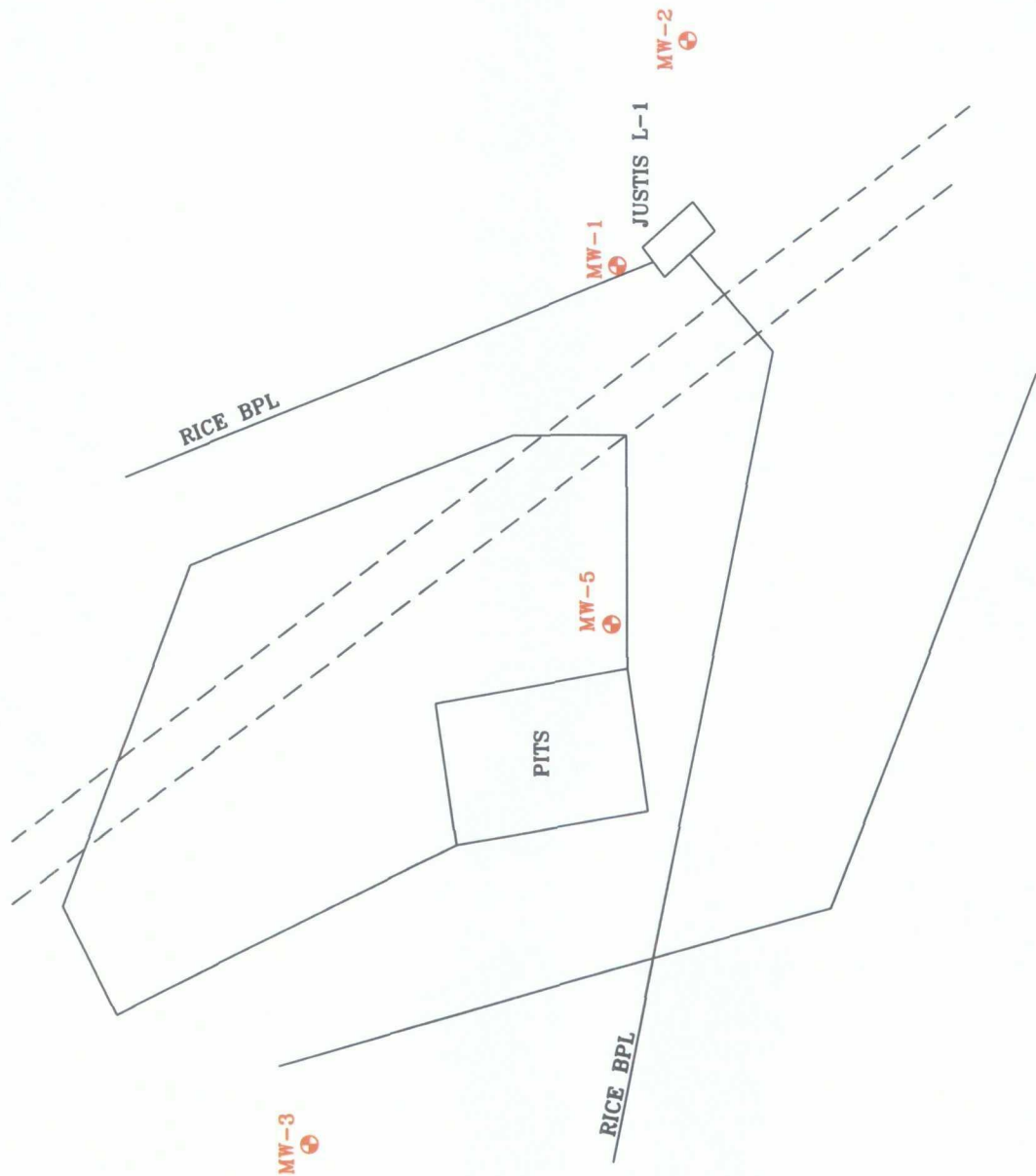


FIGURE NO. 3

LEA COUNTY, NEW MEXICO

RICE OPERATING COMPANY

JUSTIS L-1

SITE MAP

TETRA TECH, INC.

MIDLAND, TEXAS

DATE:	1/22/08
DWN. BY:	RC
FILE:	GW-1, MW-3
	SITE MAP

SCALE: 1" = 83'

MONITOR WELL LOCATIONS

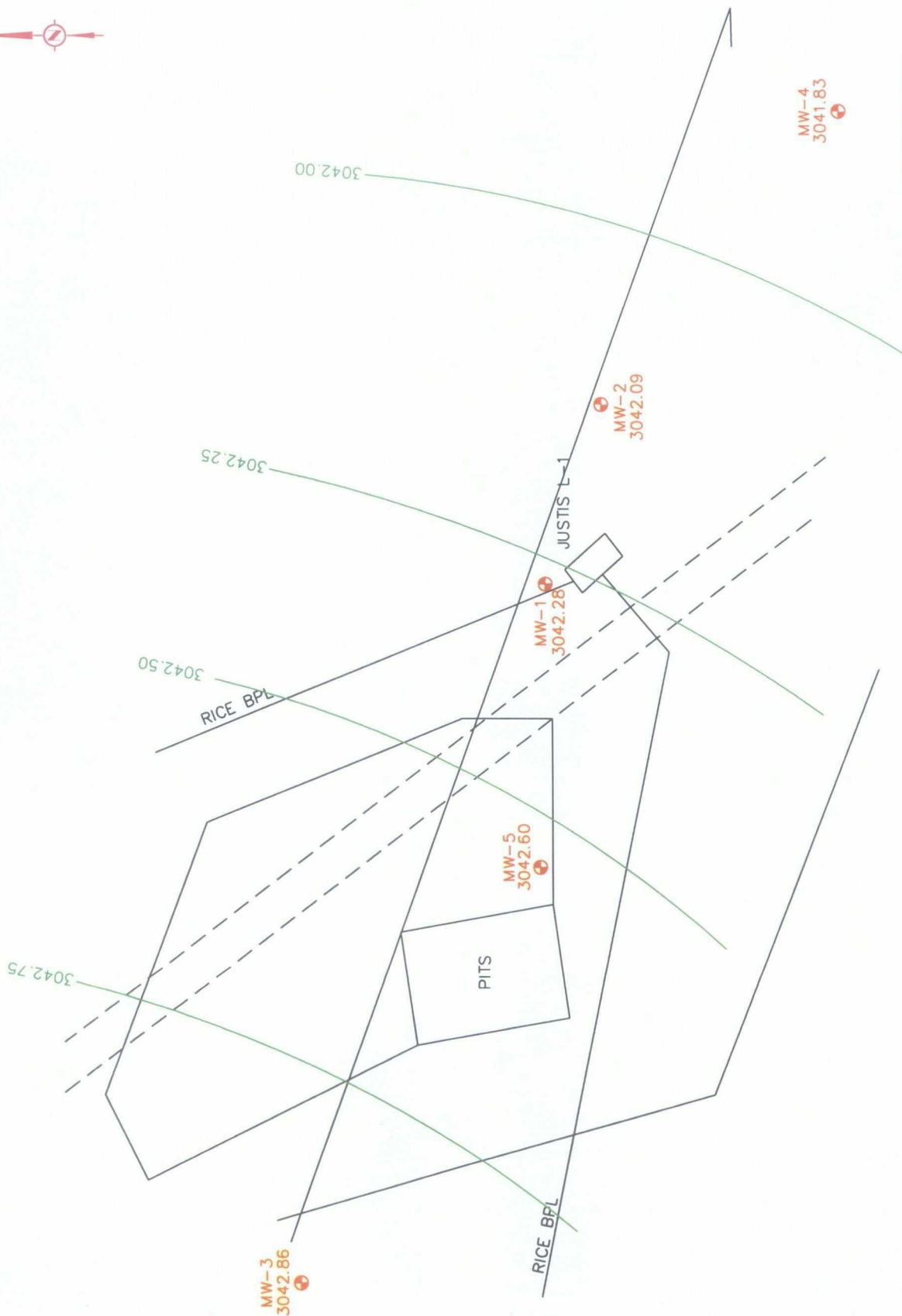
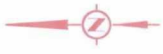


FIGURE NO. 4

LEA COUNTY, NEW MEXICO
RICE OPERATING COMPANY
JUSTIS L-1
GROUNDWATER GRADIENT MAP
GAUGED ON 2/27/08
TETRA TECH, INC.
MIDLAND, TEXAS

DWN. BY: JJ
FILE: C:\PROJECTS\142
SITE MAP

SCALE: 1" = 83'
0 83'

CONTOUR INTERVAL = 0.25'
MONITOR WELL LOCATIONS

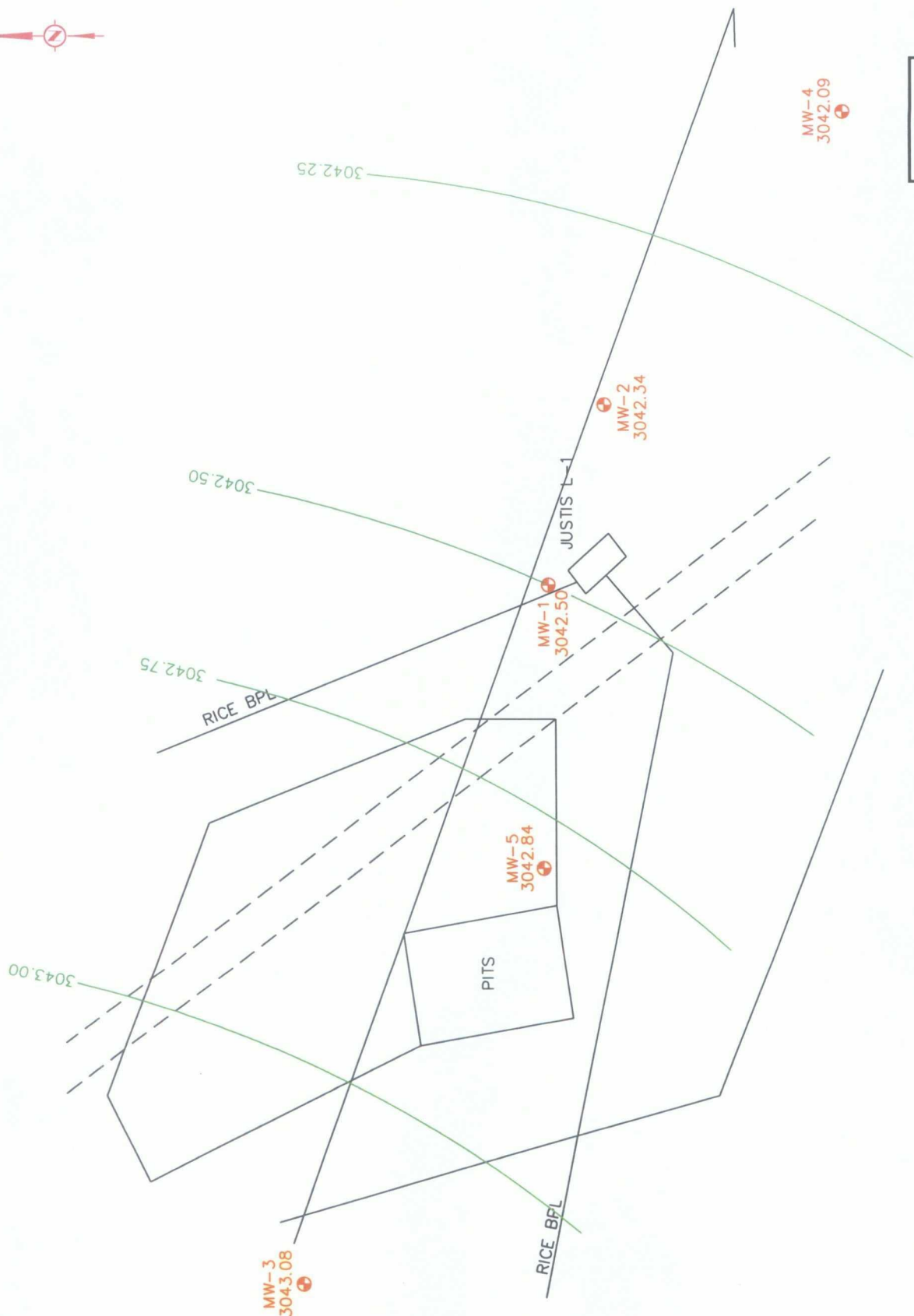


FIGURE NO. 5

LEA COUNTY, NEW MEXICO
RICE OPERATING COMPANY
JUSTIS L-1
GROUNDWATER GRADIENT MAP
GAUGED ON 5/23/08
TETRA TECH, INC.
MIDLAND, TEXAS

DWN BY:
JJ
FILE:
C:\PROJECTS\142
SITE MAP

SCALE: 1" = 83'
0 83'

CONTOUR INTERVAL = 0.25'
+ MONITOR WELL LOCATIONS

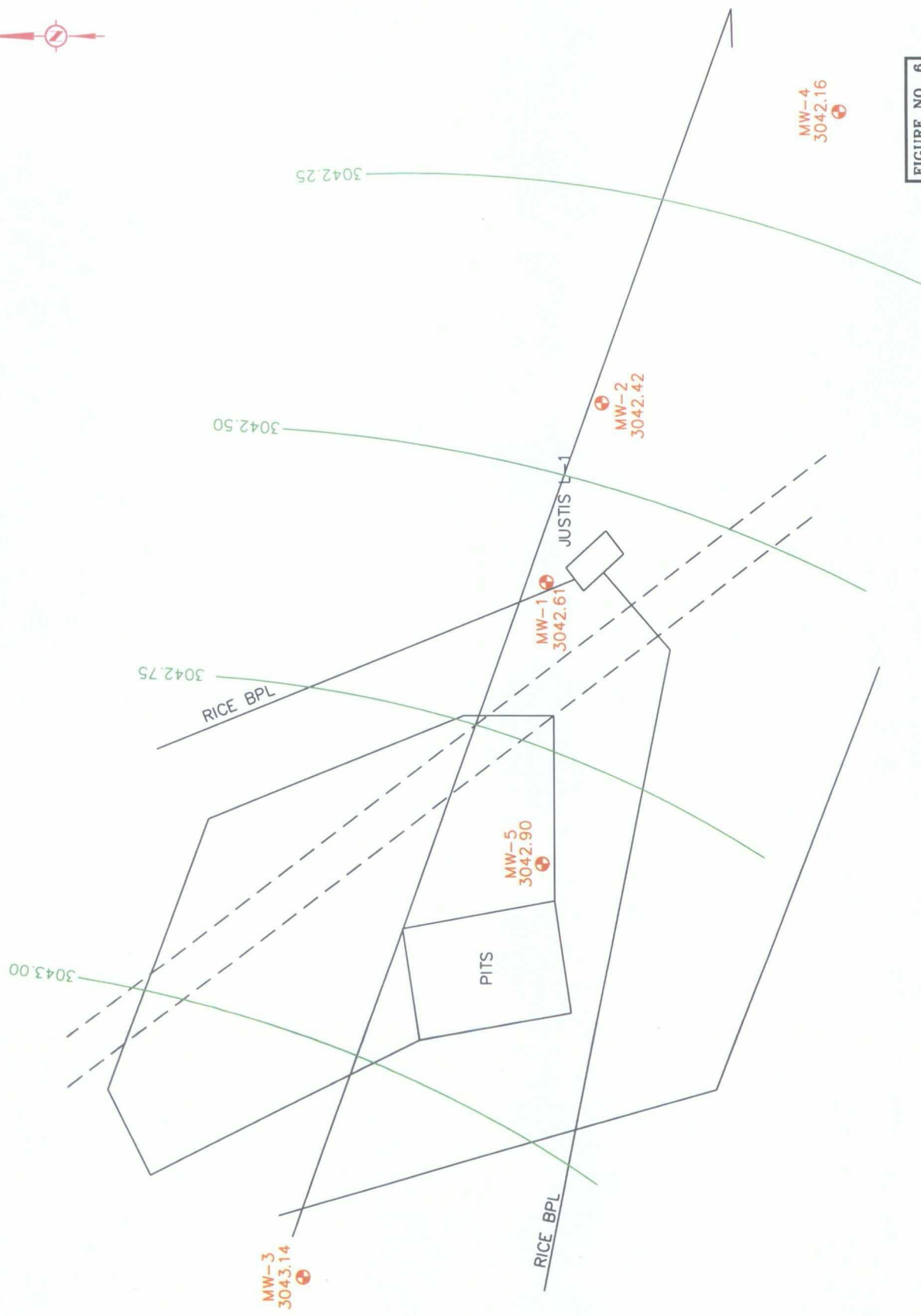


FIGURE NO. 6

LEA COUNTY, NEW MEXICO
RICE OPERATING COMPANY
JUSTIS L-1
GROUNDWATER GRADIENT MAP
GAUGED ON 8/28/08
TETRA TECH, INC.
MIDLAND, TEXAS

DWN. BY:
JJ
FILE:
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SITE MAP

SCALE: 1" = 83'
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CONTOUR INTERVAL = 0.25'
MONITOR WELL LOCATIONS

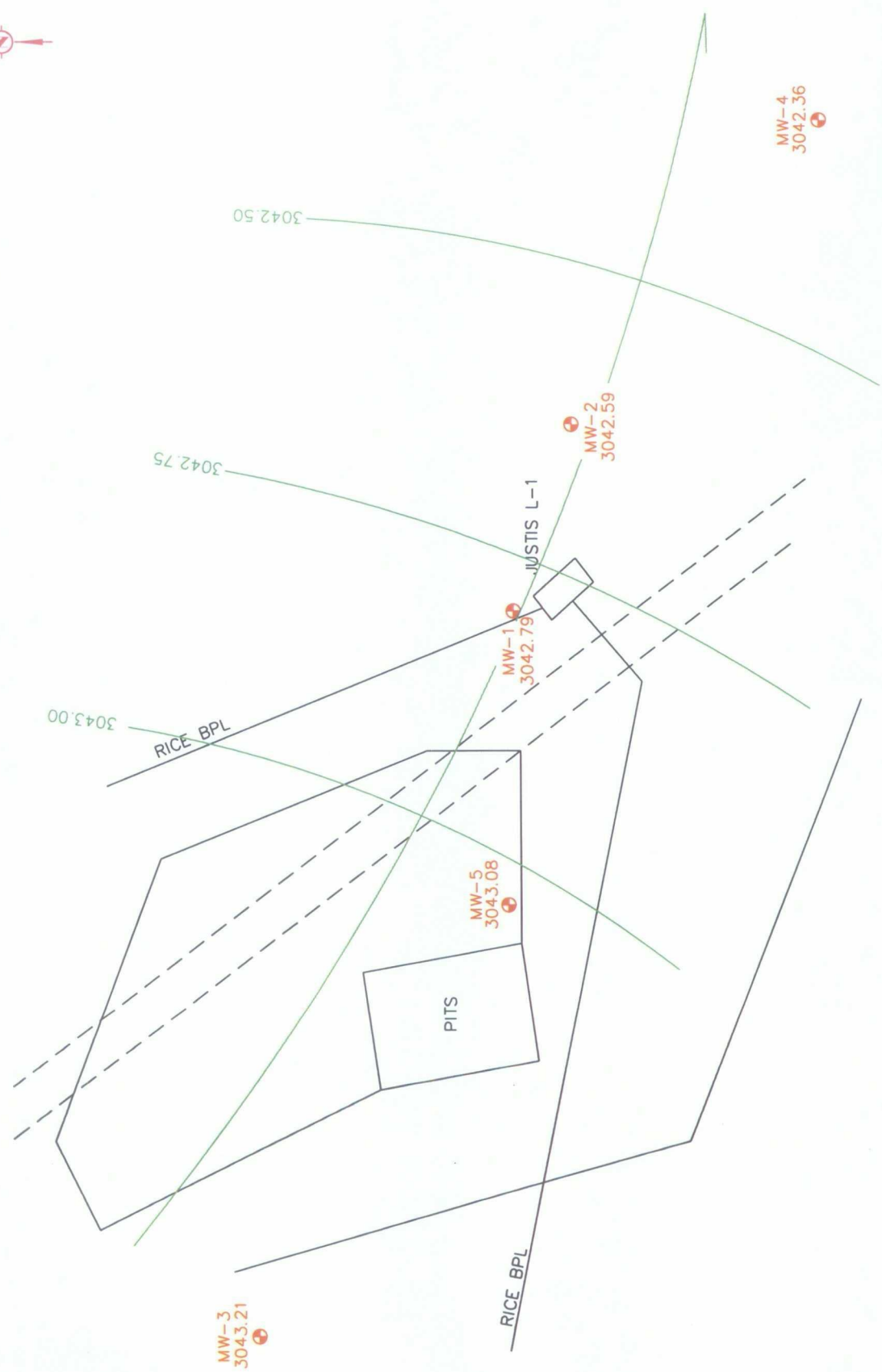
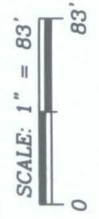


FIGURE NO. 7

LEA COUNTY, NEW MEXICO
RICE OPERATING COMPANY JUSTIS L-1
GROUNDWATER GRADIENT MAP GAUGED ON 12/17/08
TETRA TECH, INC. MIDLAND, TEXAS

DWN. BY: JJ
FILE: C:\MCA\3142 SITE MAP



CONTOUR INTERVAL = 0.25'

● MONITOR WELL LOCATIONS

TABLES

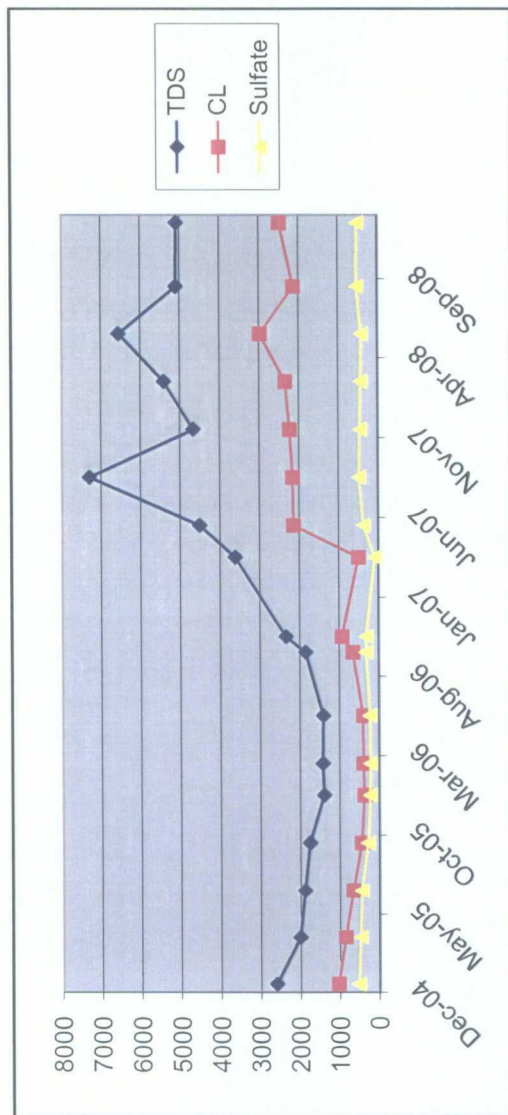
Rice Operating Company

Justis L-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	78.43	92.00		20	12/21/04	1060	2620	0.0158	<0.001	0.00209	<0.001	550	
1	78.19	92.00		20	03/29/05	873	2020	0.000904	<0.001	<0.001	<0.001	502	
1	78.11	92.00		20	06/16/05	684	1900	<0.001	<0.001	<0.001	<0.001	468	
1	77.95	92.00		2.5	09/15/05	464	1770	<0.001	<0.001	<0.001	<0.001	307	
1	77.80	92.00	2.30	8	12/05/05	390	1410	<0.001	<0.001	<0.001	0.000666	245	
1	77.56	92.00	2.30	8	02/27/06	413	1440	<0.001	<0.001	<0.001	<0.001	236	
1	77.51	92.00	2.30	10	05/24/06	420	1430	<0.001	<0.001	<0.001	<0.001	246	
1	77.25	92.00	2.40	10	09/14/06	672	1870	<0.001	<0.001	<0.001	<0.001	339	
1	77.12	92.00	2.40	10	10/30/06	943	2360	<0.001	<0.001	<0.001	<0.001	339	Clear no odor
1	76.95	91.85	2.40	10	03/16/07	519	3630	<0.001	<0.001	<0.001	<0.001	112	Clear no odor
1	76.80	91.85	2.40	10	05/15/07	2160	4530	<0.001	<0.001	<0.001	<0.001	397	Clear no odor
1	76.48	91.85	2.50	10	08/29/07	2179	7305	<0.002	<0.002	<0.002	<0.006	500	Clear no odor
1	76.30	91.85	2.50	10	11/14/07	2250	4679	<0.002	<0.002	<0.002	<0.006	477	Clear no odor
1	76.10	91.83	2.50	10	02/27/08	2360	5420	<0.002	<0.002	<0.002	<0.006	455	Clear no odor
1	75.88	91.83	2.80	10	05/23/08	3000	6560	<0.002	<0.002	<0.002	<0.006	439	Clear no odor
1	75.77	91.83	2.60	10	08/28/08	2150	5110	<0.001	<0.001	<0.001	<0.003	550	Clear no odor
1	75.59	91.83	2.60	10	12/17/08	2500	5100	<0.001	<0.001	<0.001	<0.003	538	Clear no odor

Rice Operating Company
Justis L-1
Lea County, New Mexico
MW-1



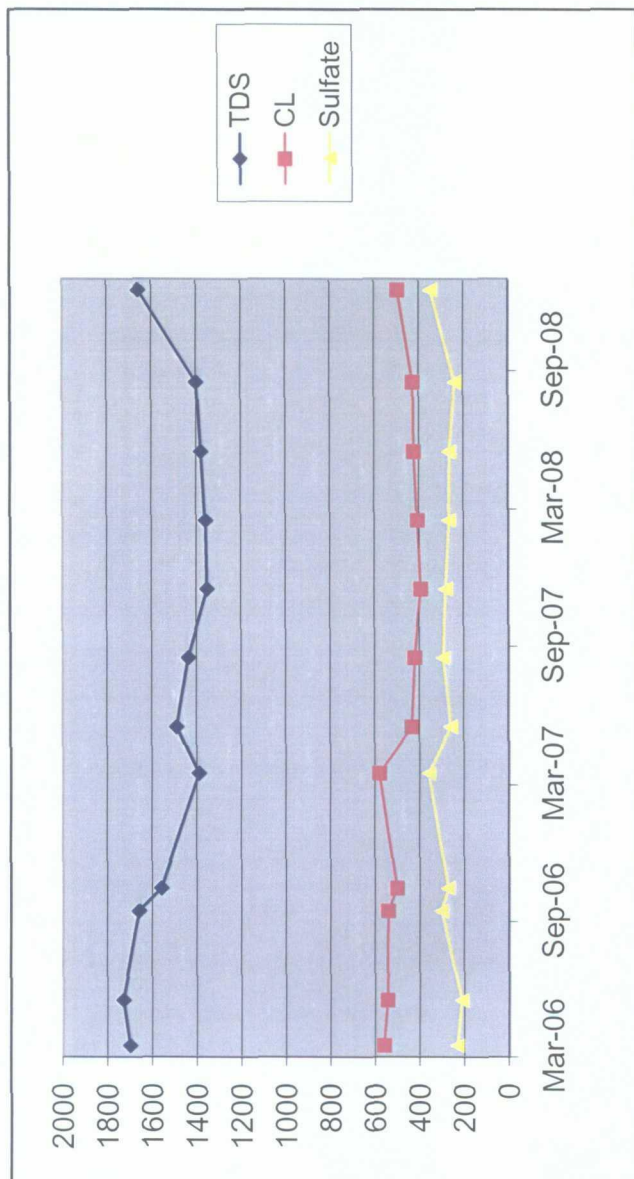
Rice Operating Company

Justis L-1

Lea County, New Mexico

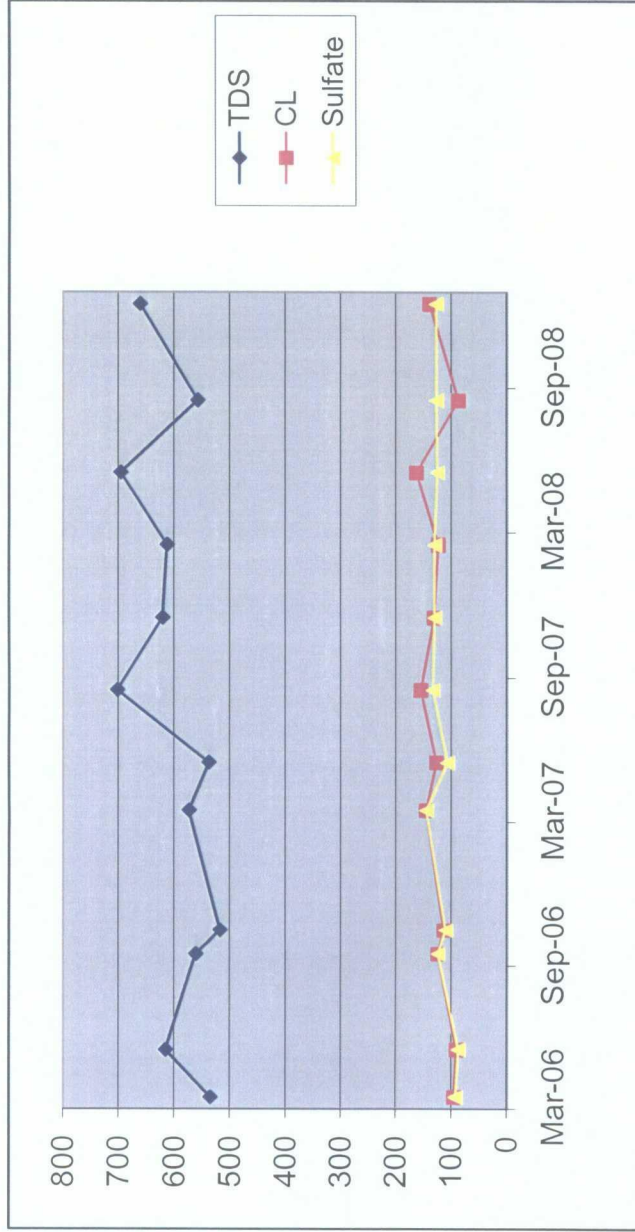
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	77.72	93.05	2.50	12	03/28/06	564	1700	<0.001	<0.001	<0.001	<0.001	233	
2	77.48	93.05	2.50	15	05/24/06	549	1730	<0.001	<0.001	<0.001	<0.001	215	
2	77.23	93.05	2.50	10	09/14/06	546	1660	<0.001	<0.001	<0.001	<0.001	306	
2	77.11	93.05	2.60	10	10/30/06	505	1560	<0.001	<0.001	<0.001	<0.001	275	Clear no odor
2	76.93	92.88	2.60	10	03/16/07	584	1392	<0.001	<0.001	<0.001	<0.001	362	Clear no odor
2	76.78	92.88	2.60	10	05/15/07	437	1490	<0.001	<0.001	<0.001	<0.001	262	Clear no odor
2	76.47	92.88	2.60	10	08/29/07	424	1438	<0.002	<0.002	<0.002	<0.006	295	Clear no odor
2	76.3	92.88	2.70	10	11/14/07	396	1353	<0.002	<0.002	<0.002	<0.006	283	Clear no odor
2	76.07	92.65	2.70	10	02/27/08	412	1360	<0.002	<0.002	<0.002	<0.006	269	Clear no odor
2	75.82	92.65	2.70	10	05/23/08	428	1380	<0.002	<0.002	<0.002	<0.006	267	Clear no odor
2	75.74	92.65	2.70	10	08/28/08	430	1400	<0.001	<0.001	<0.001	<0.003	240	Clear no odor
2	75.57	92.65	2.70	10	12/17/08	500	1660	<0.001	<0.001	<0.001	<0.003	351	Clear no odor

Rice Operating Company
Justis L-1
Lea County, New Mexico
MW-2



Rice Operating Company Justis L-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	78.21	93.00	2.40	12	03/28/06	96.3	536	<0.001	<0.001	<0.001	<0.001	93.4	
3	77.99	93.00	2.40	10	05/24/06	91.4	616	<0.001	<0.001	<0.001	<0.001	88.3	
3	77.99	93.00	2.40	10	09/14/06	125	562	<0.001	<0.001	<0.001	<0.001	125	
3	77.61	93.00	2.50	10	10/30/06	114	518	<0.001	<0.001	<0.001	<0.001	111	Clear no odor
3	77.47	92.84	2.50	10	03/16/07	146	574	<0.001	<0.001	<0.001	<0.001	146	Clear no odor
3	77.30	92.84	2.50	10	05/15/07	128	538	<0.001	<0.001	<0.001	<0.001	108	Clear no odor
3	76.98	92.84	2.50	10	08/29/07	156	702	<0.002	<0.002	<0.002	<0.006	134	Clear no odor
3	76.84	92.84	2.60	10	11/14/07	132	621	<0.002	0.002	0.003	0.007	131	Clear no odor
3	76.58	92.48	2.50	10	02/27/08	124	613	<0.002	<0.002	<0.002	<0.006	131	Clear no odor
3	76.36	92.48	2.60	10	05/23/08	164	696	<0.002	<0.002	<0.002	<0.006	126	Clear no odor
3	76.30	92.48	2.60	10	08/28/08	88	558	<0.001	<0.001	<0.001	<0.003	128	Clear no odor
3	76.23	92.48	2.60	10	12/17/08	140	661	<0.001	<0.001	<0.001	<0.003	128	Clear no odor

Rice Operating Company
Justis L-1
Lea County, New Mexico
MW-3



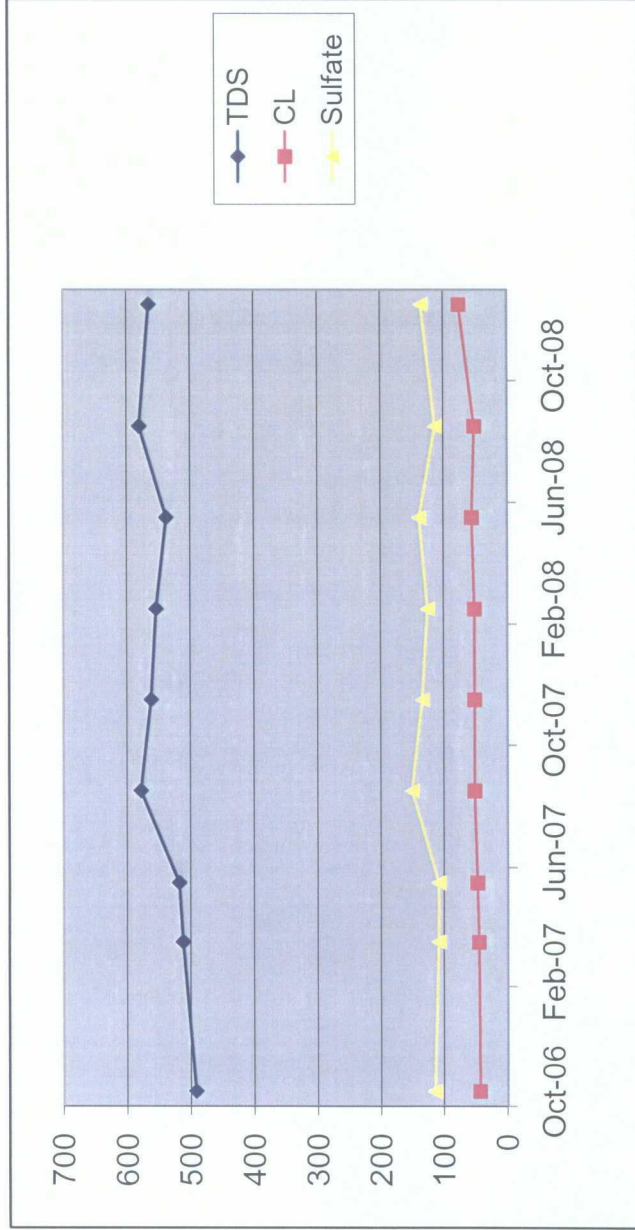
Rice Operating Company

Justis L-1

Lea County, New Mexico

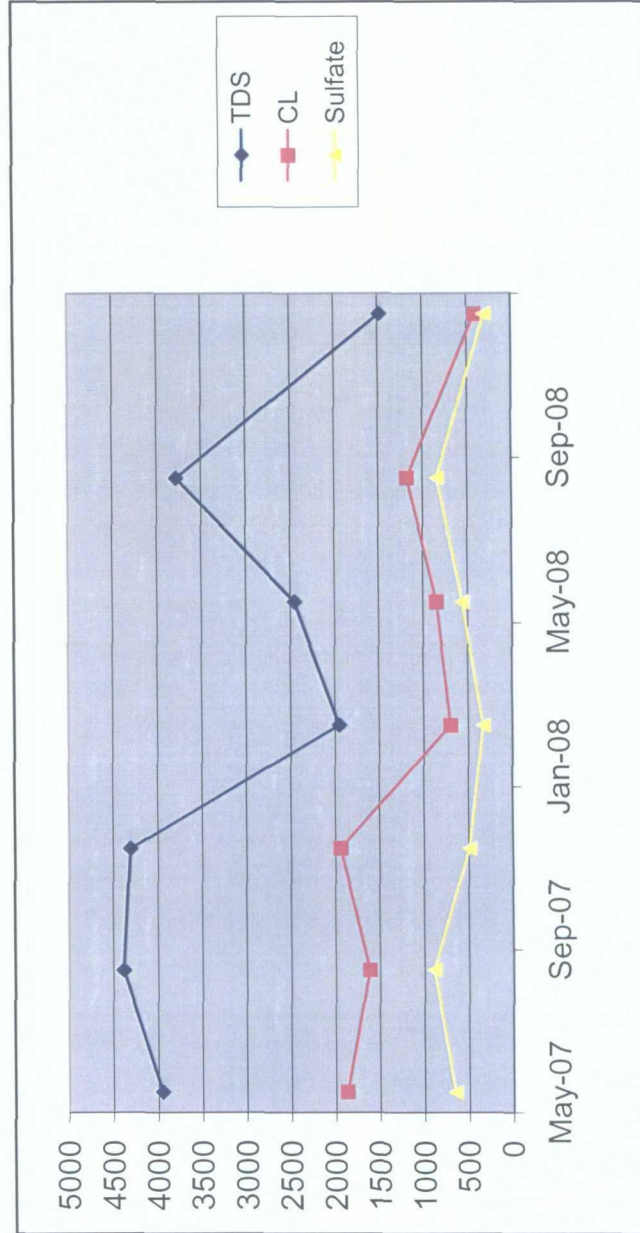
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
4	78.44	91.24	2.00	10	10/30/06	44.2	492	<0.001	<0.001	<0.001	<0.001	115	Clear no odor
4	78.32	90.62	2.00	10	03/16/07	45.8	512	<0.001	<0.001	<0.001	<0.001	109	Clear no odor
4	78.11	90.62	2.00	8	05/15/07	48.0	518	<0.001	<0.001	<0.001	<0.001	109	Clear no odor
4	77.84	90.62	2.00	8	08/29/07	52.0	578	<0.002	<0.002	<0.002	<0.006	151	Clear no odor
4	77.67	90.62	2.10	8	11/14/07	52.0	562	<0.002	<0.002	<0.002	<0.006	135	Clear no odor
4	77.44	90.51	2.10	8	02/27/08	52.0	554	<0.002	<0.002	<0.002	<0.006	126	Clear no odor
4	77.18	90.51	2.10	8	05/23/08	56.0	538	<0.002	<0.002	<0.002	<0.006	139	Clear no odor
4	77.11	90.51	2.10	8	08/28/08	52.0	580	<0.001	<0.001	<0.001	<0.003	114	Clear no odor
4	76.91	90.51	2.20	8	12/17/08	76.0	565	<0.001	<0.001	<0.001	<0.003	136	Clear no odor

Rice Operating Company
Justis L-1
Lea County, New Mexico
MW-4



Rice Operating Company
Justis L-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	75.94	87.20	1.80	8	05/15/07	1870	3950	<0.001	<0.001	<0.001	<0.001	655	Clear no odor
5	75.61	87.20	1.90	8	08/29/07	1619	4386	<0.002	<0.002	<0.002	<0.006	894	Clear no odor
5	75.44	87.20	1.90	8	11/14/07	1940	4306	<0.002	<0.002	<0.002	<0.006	490	Clear no odor
5	75.24	87.70	2.00	8	02/27/08	700	1950	<0.002	<0.002	<0.002	<0.006	333	Clear no odor
5	75.00	87.70	2.00	8	05/23/08	850	2450	<0.002	<0.002	<0.002	<0.006	560	Clear no odor
5	74.94	87.70	2.00	8	08/28/08	1180	3780	<0.001	<0.001	<0.001	<0.003	842	Clear no odor
5	74.76	87.70	2.10	8	12/17/08	416	1480	<0.001	<0.001	<0.001	<0.003	307	Clear no odor



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 JUNCTION L-1 VENT
Project Location: T25S-R37E-SEC1 L-LEA COUNTY, NM

Sampling Date: 02/27/08
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 (μ 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
H14353-1 MONITOR WELL #1	519	698	282	9.95	7,930	248
H14353-2 MONITOR WELL #2	276	129	40.3	6.10	2,130	236
H14353-3 MONITOR WELL #3	68	83.8	29.0	5.28	927	172
H14353-4 MONITOR WELL #4	64	73.2	28.2	5.04	825	240
H14353-5 MONITOR WELL #5	355	190	67.8	4.74	3,070	200
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
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	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
H14353-1 MONITOR WELL #1	2,360	455	0	302	6.98	5,420
H14353-2 MONITOR WELL #2	412	269	0	288	7.59	1,360
H14353-3 MONITOR WELL #3	124	131	0	210	7.75	613
H14353-4 MONITOR WELL #4	52	126	0	293	7.65	554
H14353-5 MONITOR WELL #5	700	333	0	244	7.45	1,950
Quality Control	510	24.9	NR	1000	7.07	NR
True Value QC	500	25.0	NR	1000	7.00	NR
% Recovery	102	99.5	NR	100	101	NR
Relative Percent Difference	4.0	8.2	NR	< 0.1	0.7	NR

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

03/05/08
Date

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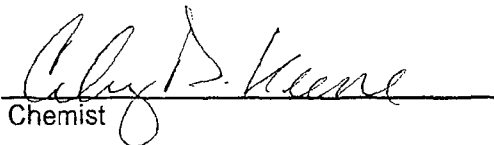
ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

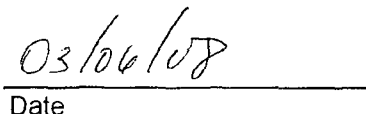
Receiving Date: 02/29/08
Reporting Date: 03/04/08
Project Number: NOT GIVEN
Project Name: JUSTIS JUNCTION L-1 VENT
Project Location: T25S-R37E-SEC1 L ~ LEA COUNTY, NM

Sampling Date: 02/27/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: BC

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		02/29/08	02/29/08	02/29/08	02/29/08
H14353-1	MONITOR WELL #1	<0.002	<0.002	<0.002	<0.006
H14353-2	MONITOR WELL #2	<0.002	<0.002	<0.002	<0.006
H14353-3	MONITOR WELL #3	<0.002	<0.002	<0.002	<0.006
H14353-4	MONITOR WELL #4	<0.002	<0.002	<0.002	<0.006
H14353-5	MONITOR WELL #5	<0.002	<0.002	<0.002	<0.006
Quality Control		0.096	0.105	0.099	0.282
True Value QC		0.100	0.100	0.100	0.300
% Recovery		96.0	105	99.3	95.2
Relative Percent Difference		6.1	7.3	2.0	3.5

METHOD: EPA SW-846 8260


Chemist


Date

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Cardinal Laboratories, Inc. 101 East Merland - Hobbs, New Mexico 88240 Tel (575) 393-2328 Fax (575) 393-2476		CHAIN-OF-CUSTODY AND ANALYSIS REQUEST LAB Order ID # _____	
Company Name: RICE Operating Company Project Manager: Kristin Farris-Pope, Project Scientist Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240 Phone #: (575) 393-9174 Fax #: (575) 397-1471		ANALYSIS REQUEST (Circle or Specify Method No.)	
Project Name: Justis Junction L-1 Vent Project Location: T25S-R37E-Sec1 L ~ Lea County - New Mexico Supplier Signature: Rozanne Johnson (575) 831-9310 rozanne@valornet.com		Turn Around Time ~ 24 Hours Chlorides Total Dissolved Solids Anions (Cl, SO4, CO3, HCO3) Cations (Ca, Mg, Na, K) Moisture Content BOD, TSS, pH Pesticides 8081A/608 PCBs 8082/608 GC/MS Semi. Vol. 8270C/625 GC/MS Vol. 8260B/624 RCI TCLP Pesticides TCLP Semi Volatiles TCLP Volatiles TCLP Metals Ag As Ba Cd Cr Pb Se Hg Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 PAH 8270C TPH 418.1/TX1005 / TX1005 Extended (C35) BTEX 8021B/602 MTBE 8021B/602	
Matrix WATER SOIL AIR SLUDGE HCL (2.40ml VOA) HNO3 NaHSO4 H2SO4 ICE (1-litler HDPE) NONE DATE (2008) TIME		Phone Results Yes No Fax Results Yes No Additional Fax Number:	
FIELD CODE Monitor Well #1 Monitor Well #2 Monitor Well #3 Monitor Well #4 Monitor Well #5		Received by: <i>[Signature]</i> Date: 2/29/08 Time: 1:55p Received By: (Laboratory Staff) Date: Time:	
LAB # (LAB USE ONLY) H14353-1 -2 -3 -4 -5		Relinquished by: <i>[Signature]</i> Date: 2/29/08 Time: 13:50 Relinquished by: <i>[Signature]</i> Date: Time:	
Delivered By: (Circle One) Sampler UPS - Bus - Other:		Checked By: <i>[Signature]</i> (Initials)	
Email Results to: kpope@riceswd.com lweinheimer@riceswd.com rozanne@valornet.com		REMARKS:	



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

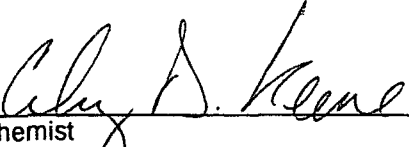
ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR ST.
HOBBS, NM 88240
FAX TO: (575) 397-1471

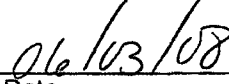
Receiving Date: 05/27/08
Reporting Date: 06/03/08
Project Number: NOT GIVEN
Project Name: JUSTIS JUNCTION L-1 VENT
Project Location: T25S-R37E-SEC1 L ~ LEA CO., NM

Sampling Date: 05/23/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: CK/BC
Analysis Date: 05/29/08 & 05/30/08

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
H14872-1	MONITOR WELL #1	<0.002	<0.002	<0.002	<0.006
H14872-2	MONITOR WELL #2	<0.002	<0.002	<0.002	<0.006
H14872-3	MONITOR WELL #3	<0.002	<0.002	<0.002	<0.006
H14872-4	MONITOR WELL #4	<0.002	<0.002	<0.002	<0.006
H14872-5	MONITOR WELL #5	<0.002	<0.002	<0.002	<0.006
Quality Control		0.090	0.084	0.097	0.310
True Value QC		0.100	0.100	0.100	0.300
% Recovery		90.3	84.4	97.1	103
Relative Percent Difference		6.4	3.5	6.6	10.1

METHOD: EPA SW-846 8260B


Cheryl S. Keene
Chemist


Date 06/03/08

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

Receiving Date: 05/27/08
Reporting Date: 05/30/08
Project Number: NOT GIVEN
Project Name: JUSTIS JUNCTION L-1 VENT
Project Location: T25S-R37E-SEC1 L-LEA COUNTY, NM

Sampling Date: 05/23/08
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:		05/30/08	05/29/08	05/29/08	05/29/08	05/28/08	05/28/08
H14872-1	MONITOR WELL #1	782	778	311	11.0	8,990	256
H14872-2	MONITOR WELL #2	269	136	42	6.36	2,120	224
H14872-3	MONITOR WELL #3	71	96	31	4.08	1,010	164
H14872-4	MONITOR WELL #4	73	77	25	3.89	783	236
H14872-5	MONITOR WELL #5	564	192	70	4.14	3,700	220
Quality Control		NR	48.1	51.0	2.73	1,402	NR
True Value QC		NR	50.0	50.0	3.00	1,413	NR
% Recovery		NR	96.2	102	91.0	99.2	NR
Relative Percent Difference		NR	8.0	< 0.1	9.4	1.8	NR

METHODS:	SM3500-Ca-D	3500-Mg E	8049	120.1	310.1
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		Cl (mg/L)	SO ₄ (mg/L)	CO ₃ (mg/L)	HCO ₃ (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:		05/28/08	05/30/08	05/28/08	05/28/08	05/28/08	05/28/08
H14872-1	MONITOR WELL #1	3,000	439	0	312	6.69	6,560
H14872-2	MONITOR WELL #2	428	267	0	273	7.29	1,380
H14872-3	MONITOR WELL #3	164	126	0	200	7.42	696
H14872-4	MONITOR WELL #4	56	139	0	288	7.35	538
H14872-5	MONITOR WELL #5	850	560	0	268	7.23	2,450
Quality Control		510	43.3	NR	1000	7.04	NR
True Value QC		500	40.0	NR	1000	7.00	NR
% Recovery		102	108	NR	100	100	NR
Relative Percent Difference		< 0.1	0.9	NR	2.4	0.3	NR

METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1
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Kristin Suprioko
Chemist

05/30/08
Date

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Cardinal Laboratories, Inc.

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

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

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	PRESERVATIVE METHOD				DATE (2008)	TIME
				WATER	SOIL	AIR	SLUDGE		
H/4872-1	Monitor Well #1	G	3	X				5-23	13:30
-2	Monitor Well #2	G	3	X				5-23	12:35
-3	Monitor Well #3	G	3	X				5-23	10:45
-4	Monitor Well #4	G	3	X				5-23	11:40
-5	Monitor Well #5	G	3	X				5-23	14:25

Relinquished by: <i>Rozanne Johnson</i>	Date: 5-27-08	Time: 11:10
Received by: <i>John Robert</i>	Date: 5/27/08	Time: 11:10
Delivered By: (Circle One)	CHECKED BY: <i>MRB</i>	
Sample Condition	(Initials)	
Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Sampler - UPS - Bus - Other:		

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #

ANALYSIS REQUEST

(Circle or Specify Method No.)

Method No.	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, SO ₄ , CO ₃ , HCO ₃)	Total Dissolved Solids	Chlorides
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, SO ₄ , CO ₃ , HCO ₃)										
Total Dissolved Solids										
Chlorides										
Turn Around Time - 24 Hours										

REMARKS:

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



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 JUNCTION L-1 VENT
Project Location: T25S-R37E-SEC1 L-LEA CO., NM

Sampling Date: 08/28/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: CK
Analyzed By: HM/TR

LAB NUMBE SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (uS/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
H15844-1 MONITOR WELL #1	552	633	262	15.4	6,410	280
H15844-2 MONITOR WELL #2	238	128	53.5	5.4	1,960	208
H15844-3 MONITOR WELL #3	60	72.1	29.2	4.8	740	180
H15844-4 MONITOR WELL #4	56	64.1	34.0	7.8	715	240
H15844-5 MONITOR WELL #5	927	184	82.6	5.8	5,070	284
Quality Control	NR	48.1	48.6	2.98	1,410	NR
True Value QC	NR	50.0	50.0	3.00	1,410	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
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	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
H15844-1 MONITOR WELL #1	2,150	550	0	342	6.77	5,110
H15844-2 MONITOR WELL #2	430	240	0	254	7.20	1,400
H15844-3 MONITOR WELL #3	88	128	0	220	7.41	558
H15844-4 MONITOR WELL #4	52	114	0	293	7.26	580
H15844-5 MONITOR WELL #5	1,180	842	0	346	7.12	3,780
Quality Control	500	43.5	NR	1000	7.01	NR
True Value QC	500	40.0	NR	1000	7.00	NR
% Recovery	100	109	NR	100	100	NR
Relative Percent Difference	< 0.1	3.4	NR	1.2	0.6	NR

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

09-08-08
Date

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

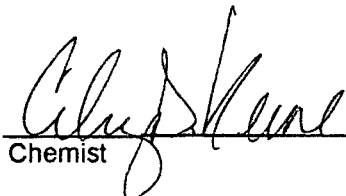
Receiving Date: 08/29/08
Reporting Date: 09/04/08
Project Number: NOT GIVEN
Project Name: JUSTIS JUNCTION L-1 VENT
Project Location: T25S-R37E-SEC1 L ~ LEA CO., NM

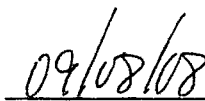
Sampling Date: 08/28/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: CK
Analyzed By: ZL

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		09/03/08	09/03/08	09/03/08	09/03/08
H15844-1	MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
H15844-2	MONITOR WELL #2	<0.001	<0.001	<0.001	<0.003
H15844-3	MONITOR WELL #3	<0.001	<0.001	<0.001	<0.003
H15844-4	MONITOR WELL #4	<0.001	<0.001	<0.001	<0.003
H15844-5	MONITOR WELL #5	<0.001	<0.001	<0.001	<0.003
Quality Control		0.048	0.048	0.049	0.165
True Value QC		0.050	0.050	0.050	0.150
% Recovery		96.0	96.0	98.0	110
Relative Percent Difference		1.1	4.3	4.4	3.8

METHOD: EPA SW-846 8021B

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


Chemist


Date



ARDINAL 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: 12/18/08
Reporting Date: 12/23/08
Project Number: NOT GIVEN
Project Name: JUSTIS JUNCTION L-1 VENT
Project Location: T25S-R37E-SEC1 L ~ LEA CO., NM

Sampling Date: 12/17/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: TR

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (μ S/cm)	T-Alkalinity (mgCaCO ₃ /L)
ANALYSIS DATE:		12/23/08	12/23/08	12/23/08	12/22/08	12/19/08	12/19/08
H16551-1	MONITOR WELL #1	662	681	292	10.5	6,710	276
H16551-2	MONITOR WELL #2	293	164	55.9	7.8	2,270	216
H16551-3	MONITOR WELL #3	81	80.2	29.2	5.0	893	172
H16551-4	MONITOR WELL #4	70	68.9	23.3	4.4	752	176
H16551-5	MONITOR WELL #5	278	120	48.6	3.4	1,960	204
Quality Control		NR	48.1	51.0	2.80	14,223	NR
True Value QC		NR	50.0	50.0	3.00	1,413	NR
% Recovery		NR	96.2	102	93.3	101	NR
Relative Percent Difference		NR	<0.1	<0.1	2.8	0.2	NR

METHODS:	SM3500-Ca-D	3500-Mg E	8049	120.1	310.1
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		Cl (mg/L)	SO ₄ (mg/L)	CO ₃ (mg/L)	HCO ₃ (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:		12/22/08	12/22/08	12/19/08	12/19/08	12/19/08	12/22/08
H16551-1	MONITOR WELL #1	2,500	538	0	337	6.81	5,100
H16551-2	MONITOR WELL #2	500	351	0	264	7.26	1,660
H16551-3	MONITOR WELL #3	140	128	0	210	7.49	661
H16551-4	MONITOR WELL #4	76	136	0	215	7.53	565
H16551-5	MONITOR WELL #5	416	307	0	249	7.49	1,480
Quality Control		500	43.5	NR	1000	7.07	NR
True Value QC		500	40.0	NR	1000	7.00	NR
% Recovery		100	109	NR	100	101	NR
Relative Percent Difference		<0.1	3.5	NR	<0.1	0.4	NR

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

12-24-08
Date

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CARDINAL LABORATORIES

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


Receiving Date: 12/18/08
Reporting Date: 12/23/08
Project Number: NOT GIVEN
Project Name: JUSTIS JUNCTION L-1 VENT
Project Location: T25S-R37E-SEC1 L~ LEA CO., NM

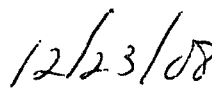
Sampling Date: 12/17/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: ZL

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		12/22/08	12/22/08	12/22/08	12/22/08
H16551-1	MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
H16551-2	MONITOR WELL #2	<0.001	<0.001	<0.001	<0.003
H16551-3	MONITOR WELL #3	<0.001	<0.001	<0.001	<0.003
H16551-4	MONITOR WELL #4	<0.001	<0.001	<0.001	<0.003
H16551-5	MONITOR WELL #5	<0.001	<0.001	<0.001	<0.003
Quality Control		0.045	0.046	0.046	0.141
True Value QC		0.050	0.050	0.050	0.150
% Recovery		90.0	92.0	92.0	94.0
Relative Percent Difference		2.7	5.9	7.0	7.4

METHOD: EPA SW-846 8021B

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


Cheryl D. Keene
Chemist


12/23/08
Date

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