

1R - 426-35

# REPORTS

DATE:

2004

# RICE Operating Company

122 West Taylor • Hobbs, New Mexico 88240  
Phone: (505)393-9174 • Fax: (505) 397-1471

CERTIFIED MAIL  
RETURN RECEIPT NO. 7002 2410 0000 4940 1763

January 21, 2005

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

RE: **2004 MONITOR WELL REPORT/SAMPLING SUMMARY**  
**JCT. I-27, BD SWD SYSTEM**  
**UNIT '1', SEC. 27, T21S, R37E**

1R426-35  
case #  
closed  
1-3-06 Approved  
D&D W.P.

Mr. Price:

Rice Operating Company (ROC) takes this opportunity to submit the 2002 Monitor Well Report for the BD jct. I-27 site located in the Blinebry Drinkard (BD) Salt Water Disposal (SWD) System. One monitoring well was installed in 2003 during delineation as part of the Junction Box Upgrade Program. This well is sampled quarterly pursuant to NMOCD guidelines. In 2004, ROC and Arcadis G&M, Inc. (Arcadis) of Midland, Texas sampled the well. In 2005, Arcadis will sample the well and Environmental Lab of Texas of Odessa will continue to conduct analytical tests of the water samples.

Arcadis has been contracted by ROC to address groundwater concerns at this. NMOCD may expect the submission of an Investigation & Characterization Plan (ICP) this year.

ROC is the service provider (operator) for the BD Salt Water Disposal System and has no ownership of any portion of pipeline, well, or facility. The BD 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 annual summary of groundwater monitoring information. If you have any questions, do not hesitate to contact me.

RICE OPERATING COMAPANY

*Kristin Farris Pope*

Kristin Farris Pope  
Project Scientist

enclosures:      Summary table & graph  
                         Analytical results  
                         Map

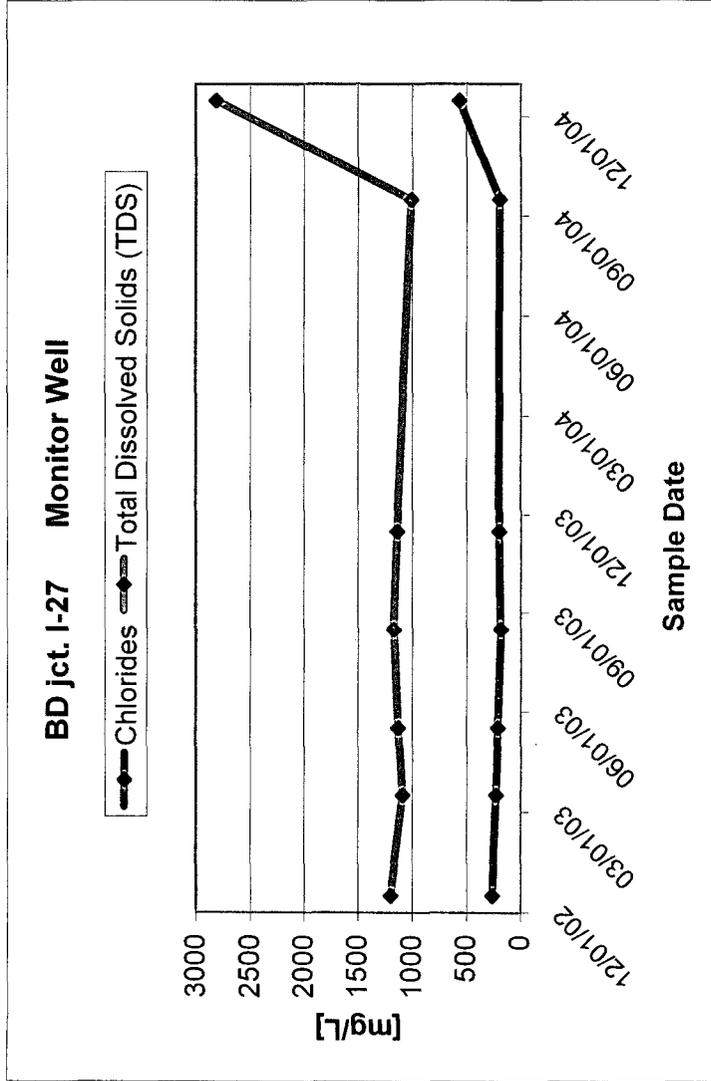
cc: LBG, CDH, Arcadis, file, Rob Roy Industries,

Chris Williams  
NMOCD, District I Office  
1625 N. French Drive  
Hobbs, NM 88240

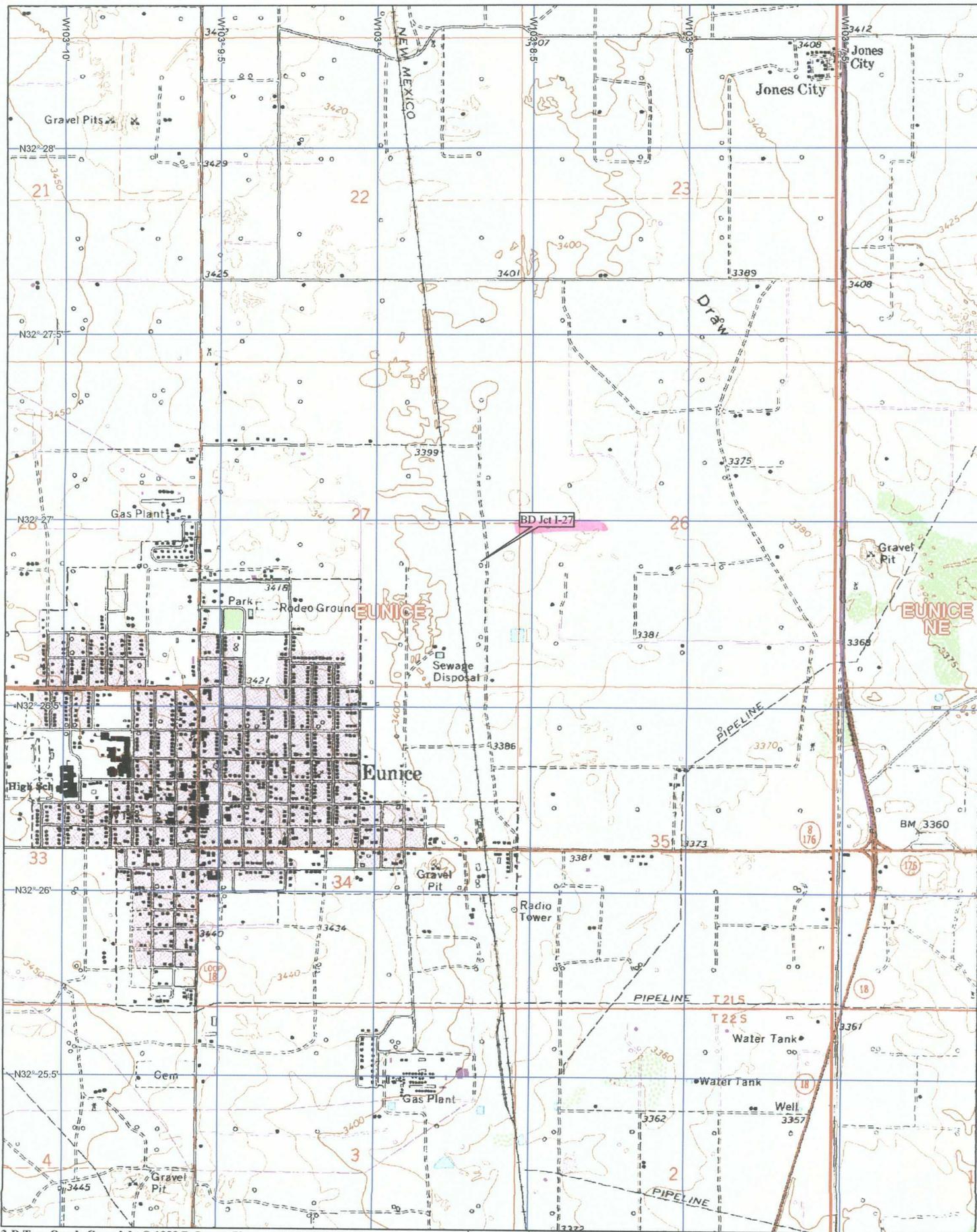
**BD jct. I-27**  
unit 'I', Sec. 27, T21S, R37E

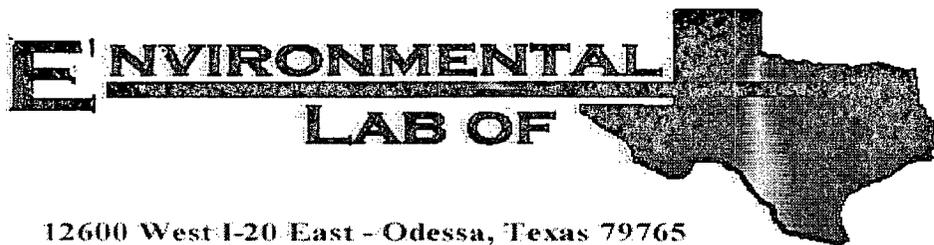
All concentrations are in mg/L

MW #	DEPTH TO WATER * (ft)	TOTAL DEPTH (ft)	WELL VOLUME (gal)	VOLUME PURGED (gal)	SAMPLE DATE	Cl <sup>-</sup>	TDS	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	COMMENTS
1	48.39	51.10	0.434	1.45	12/2/02	266	1200	<0.001	<0.001	<0.001	<0.001	silty; bailer
1	46.92	51.01	0.659	1.90	3/24/03	230	1090	0.002	<0.001	<0.001	<0.001	
1	48.01	51.10	0.488	1.40	5/29/03	213	1130	<0.001	<0.001	<0.001	<0.001	
1	49.10	51.01	0.300	1.00	8/22/03	186	1170	<0.001	<0.001	<0.001	<0.001	
1	49.85	51.44	0.254	0.70	11/20/03	204	1140	<0.001	<0.001	<0.001	<0.001	
1	49.20	51.25	XXX	1.00	9/2/04	195	1010	<0.001	<0.001	<0.001	<0.001	
1	43.95	51.00	XXX	3.59	12/21/04	567	2810	<0.001	<0.001	<0.001	<0.001	



\* Depth to water is measured from top of casing  
Casing is 2.875 ft





12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Sharon Hall

ARCADIS

1004 N. Big Spring Street

Midland, TX 79701

Project: Jct. I-27/505

Project Number: Jct I-27/505

Location: Rice Operating/BD

Lab Order Number: 4I03011

Report Date: 09/19/04

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401  
**Reported:**  
09/19/04 11:22

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	4I03011-01	Water	09/02/04 16:35	09/03/04 14:40

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
09/19/04 11:22

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (4103011-01) Water</b>									
Benzene	ND	0.00100	mg/L	1	EI41004	09/08/04	09/08/04	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-Trifluorotoluene</i>		101 %	80-120		"	"	"	"	
Surrogate: <i>4-Bromofluorobenzene</i>		88.0 %	80-120		"	"	"	"	

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
09/19/04 11:22

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (4I03011-01) Water</b>									
Carbonate Alkalinity	ND	0.100	mg/L	1	EI41608	09/03/04	09/03/04	EPA 310.2M	
Bicarbonate Alkalinity	380	2.00	"	"	"	"	"	"	
Hydroxide Alkalinity	ND	0.100	"	"	"	"	"	"	
Chloride	195	5.00	"	"	EI40805	09/07/04	09/07/04	EPA 325.3M	
Total Dissolved Solids	1010	5.00	"	"	EI41607	09/09/04	09/09/04	EPA 160.1	
Sulfate	240	2.50	"	5	EI41312	09/10/04	09/10/04	EPA 375.4	

ARCADIS 1004 N. Big Spring Street Midland TX, 79701	Project: Jct. I-27/505 Project Number: Jct I-27/505 Project Manager: Sharon Hall	Fax: (432) 687-5401  <b>Reported:</b> 09/19/04 11:22
---	--	---

**Total Metals by EPA / Standard Methods  
Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (4103011-01) Water</b>									
Calcium	67.3	1.00	mg/L	100	EI41506	09/15/04	09/15/04	EPA 6010B	
Magnesium	58.5	0.0100	"	10	"	"	"	"	
Potassium	6.36	0.500	"	"	"	"	"	"	
Sodium	130	1.00	"	100	"	"	"	"	

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
09/19/04 11:22

**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 EI41004 - EPA 5030C (GC)**

**Blank (EI41004-BLK1)**

Prepared & Analyzed: 09/08/04

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	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	23.4		ug/l	20.0		117	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	18.3		"	20.0		91.5	80-120			

**LCS (EI41004-BS1)**

Prepared: 09/08/04 Analyzed: 09/10/04

Benzene	93.0		ug/l	100		93.0	80-120			
Toluene	95.0		"	100		95.0	80-120			
Ethylbenzene	95.1		"	100		95.1	80-120			
Xylene (p/m)	196		"	200		98.0	80-120			
Xylene (o)	104		"	100		104	80-120			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	16.7		"	20.0		83.5	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	18.6		"	20.0		93.0	80-120			

**LCS Dup (EI41004-BSD1)**

Prepared: 09/08/04 Analyzed: 09/10/04

Benzene	96.3		ug/l	100		96.3	80-120	3.49	20	
Toluene	99.4		"	100		99.4	80-120	4.53	20	
Ethylbenzene	99.5		"	100		99.5	80-120	4.52	20	
Xylene (p/m)	206		"	200		103	80-120	4.98	20	
Xylene (o)	105		"	100		105	80-120	0.957	20	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	18.0		"	20.0		90.0	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	21.9		"	20.0		110	80-120			

**Calibration Check (EI41004-CCV1)**

Prepared & Analyzed: 09/08/04

Benzene	94.3		ug/l	100		94.3	80-120			
Toluene	95.8		"	100		95.8	80-120			
Ethylbenzene	102		"	100		102	80-120			
Xylene (p/m)	207		"	200		104	80-120			
Xylene (o)	105		"	100		105	80-120			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	23.0		"	20.0		115	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	18.6		"	20.0		93.0	80-120			

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
09/19/04 11:22

**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 EI41004 - EPA 5030C (GC)**

<b>Matrix Spike (EI41004-MS1)</b>		<b>Source: 4I07001-01</b>		<b>Prepared: 09/08/04</b>		<b>Analyzed: 09/10/04</b>	
Benzene	97.5		ug/l	100	ND	97.5	80-120
Toluene	101		"	100	ND	101	80-120
Ethylbenzene	97.8		"	100	ND	97.8	80-120
Xylene (p/m)	203		"	200	ND	102	80-120
Xylene (o)	102		"	100	ND	102	80-120
<i>Surrogate: a,a,a-Trifluorotoluene</i>	<i>17.2</i>		<i>"</i>	<i>20.0</i>		<i>86.0</i>	<i>80-120</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>20.9</i>		<i>"</i>	<i>20.0</i>		<i>104</i>	<i>80-120</i>

<b>Matrix Spike Dup (EI41004-MSD1)</b>		<b>Source: 4I07001-01</b>		<b>Prepared: 09/08/04</b>		<b>Analyzed: 09/10/04</b>	
Benzene	99.0		ug/l	100	ND	99.0	80-120 1.53 20
Toluene	101		"	100	ND	101	80-120 0.00 20
Ethylbenzene	99.6		"	100	ND	99.6	80-120 1.82 20
Xylene (p/m)	201		"	200	ND	100	80-120 1.98 20
Xylene (o)	100		"	100	ND	100	80-120 1.98 20
<i>Surrogate: a,a,a-Trifluorotoluene</i>	<i>16.5</i>		<i>"</i>	<i>20.0</i>		<i>82.5</i>	<i>80-120</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>19.3</i>		<i>"</i>	<i>20.0</i>		<i>96.5</i>	<i>80-120</i>

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
09/19/04 11:22

**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 EI40805 - General Preparation (WetChem)**

**Blank (EI40805-BLK1)**

Prepared & Analyzed: 09/07/04

Chloride	ND	5.00	mg/L							
----------	----	------	------	--	--	--	--	--	--	--

**Matrix Spike (EI40805-MS1)**

Source: 4I07001-06

Prepared & Analyzed: 09/07/04

Chloride	1670	5.00	mg/L	500	1170	100	90-110			
----------	------	------	------	-----	------	-----	--------	--	--	--

**Matrix Spike Dup (EI40805-MSD1)**

Source: 4I07001-06

Prepared & Analyzed: 09/07/04

Chloride	1660	5.00	mg/L	500	1170	98.0	90-110	0.601	20	
----------	------	------	------	-----	------	------	--------	-------	----	--

**Reference (EI40805-SRM1)**

Prepared & Analyzed: 09/07/04

Chloride	4960		mg/L	5000		99.2	80-120			
----------	------	--	------	------	--	------	--------	--	--	--

**Batch EI41312 - General Preparation (WetChem)**

**Blank (EI41312-BLK1)**

Prepared & Analyzed: 09/10/04

Sulfate	ND	0.500	mg/L							
---------	----	-------	------	--	--	--	--	--	--	--

**Calibration Check (EI41312-CCV1)**

Prepared & Analyzed: 09/10/04

Sulfate	48.9		mg/L	50.0		97.8	80-120			
---------	------	--	------	------	--	------	--------	--	--	--

**Duplicate (EI41312-DUP1)**

Source: 4I03010-01

Prepared & Analyzed: 09/10/04

Sulfate	76.4	0.500	mg/L		74.6			2.38	20	
---------	------	-------	------	--	------	--	--	------	----	--

**Batch EI41607 - Filtration Preparation**

**Blank (EI41607-BLK1)**

Prepared & Analyzed: 09/09/04

Total Dissolved Solids	ND	5.00	mg/L							
------------------------	----	------	------	--	--	--	--	--	--	--

ARCADIS  
 1004 N. Big Spring Street  
 Midland TX, 79701

Project: Jct. I-27/505  
 Project Number: Jct I-27/505  
 Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
 09/19/04 11:22

**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 EI41607 - Filtration Preparation**

**Duplicate (EI41607-DUP1)** Source: 4I03010-01 Prepared & Analyzed: 09/09/04

Total Dissolved Solids	1610	5.00	mg/L		1640			1.85	20	
------------------------	------	------	------	--	------	--	--	------	----	--

**Batch EI41608 - General Preparation (WetChem)**

**Blank (EI41608-BLK1)** Prepared & Analyzed: 09/03/04

Carbonate Alkalinity	ND	0.100	mg/L							
Bicarbonate Alkalinity	ND	2.00	"							
Hydroxide Alkalinity	ND	0.100	"							

**Duplicate (EI41608-DUP1)** Source: 4I03010-01 Prepared & Analyzed: 09/03/04

Carbonate Alkalinity	0.00	0.100	mg/L		0.00				20	
Bicarbonate Alkalinity	444	2.00	"		446			0.449	20	
Hydroxide Alkalinity	0.00	0.100	"		0.00				20	

**Reference (EI41608-SRM1)** Prepared & Analyzed: 09/03/04

Carbonate Alkalinity	0.0501		mg/L	0.0500		100	80-120			
----------------------	--------	--	------	--------	--	-----	--------	--	--	--

ARCADIS  
 1004 N. Big Spring Street  
 Midland TX, 79701

Project: Jct. I-27/505  
 Project Number: Jct I-27/505  
 Project Manager: Sharon Hall

Fax: (432) 687-5401  
 Reported:  
 09/19/04 11:22

**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 EI41506 - General Preparation (Metals)**

**Blank (EI41506-BLK1)**

Prepared & Analyzed: 09/15/04

Calcium	ND	0.0100	mg/L							
Magnesium	ND	0.00100	"							
Potassium	ND	0.0500	"							
Sodium	ND	0.0100	"							

**Blank (EI41506-BLK2)**

Prepared & Analyzed: 09/15/04

Calcium	ND	0.0100	mg/L							
Magnesium	ND	0.00100	"							
Potassium	ND	0.0500	"							
Sodium	ND	0.0100	"							

**Calibration Check (EI41506-CCV1)**

Prepared & Analyzed: 09/15/04

Calcium	2.03		mg/L	2.00		102	85-115			
Magnesium	2.04		"	2.00		102	85-115			
Potassium	1.75		"	2.00		87.5	85-115			
Sodium	1.79		"	2.00		89.5	85-115			

**Calibration Check (EI41506-CCV2)**

Prepared & Analyzed: 09/15/04

Calcium	1.93		mg/L	2.00		96.5	85-115			
Magnesium	2.02		"	2.00		101	85-115			
Potassium	1.76		"	2.00		88.0	85-115			
Sodium	1.77		"	2.00		88.5	85-115			

**Duplicate (EI41506-DUP1)**

Source: 4103009-01

Prepared & Analyzed: 09/15/04

Calcium	281	1.00	mg/L	280		0.357	20			
Magnesium	110	0.100	"	111		0.905	20			
Potassium	8.18	0.500	"	8.31		1.58	20			
Sodium	359	1.00	"	365		1.66	20			

ARCADIS  
 1004 N. Big Spring Street  
 Midland TX, 79701

Project: Jct. I-27/505  
 Project Number: Jct I-27/505  
 Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
 09/19/04 11:22

**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 EI41506 - General Preparation (Metals)**

**Duplicate (EI41506-DUP2)**

**Source: 4110015-01**

**Prepared & Analyzed: 09/15/04**

Calcium	20.2	0.100	mg/L		20.2			0.00	20	
Magnesium	28.4	0.0100	"		28.6			0.702	20	
Potassium	16.4	0.500	"		16.6			1.21	20	
Sodium	103	0.100	"		103			0.00	20	

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
09/19/04 11:22

### 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:

9-18-04

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

Jeanne Mc Murrey, Inorg. Tech Director  
James L. Hawkins, Chemist/Geologist  
Sandra Biezugbe, 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  
Variance / Corrective Action Report – Sample Log-In**

Client: Archadis

Date/Time: 9-3-04

Order #: 4 J03011-01

Initials: RA

**Sample Receipt Checklist**

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

Other observations:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Variance Documentation:**

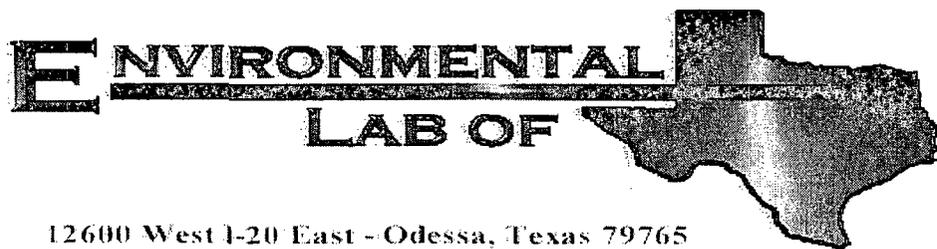
Contact Person: - \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted by: \_\_\_\_\_  
 Regarding: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Corrective Action Taken:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Sharon Hall

ARCADIS

1004 N. Big Spring Street

Midland, TX 79701

Project: Jct. I-27/ 505

Project Number: Jct I-27/505

Location: Rice Operating/ BD

Lab Order Number: 4L22011

Report Date: 12/30/04

-ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/ 505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401  
**Reported:**  
12/30/04 15:44

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	4L22011-01	Water	12/21/04 15:30	12/21/04 18:00

ARCADIS 1004 N. Big Spring Street Midland TX, 79701	Project: Jct. I-27/ 505 Project Number: Jct I-27/505 Project Manager: Sharon Hall	Fax: (432) 687-5401  <b>Reported:</b> 12/30/04 15:44
---	---	---

**Organics by GC  
Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (4L22011-01) Water</b>									
Benzene	ND	0.00100	mg/L	1	EL43007	12/29/04	12/30/04	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		88.5 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		91.7 %	80-120		"	"	"	"	

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/ 505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
12/30/04 15:44

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (4L22011-01) Water</b>									
Total Alkalinity	306	2.00	mg/L	1	EL42907	12/29/04	12/29/04	EPA 310.2M	
Chloride	567	5.00	"	"	EL42908	12/29/04	12/29/04	EPA 325.3M	
Total Dissolved Solids	2810	5.00	"	"	EL42301	12/22/04	12/23/04	EPA 160.1	
Sulfate	283	2.50	"	5	EL42909	12/29/04	12/29/04	EPA 375.4	

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/ 505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

**Reported:**  
01/03/05 15:12

**Total Metals by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (4L22011-01) Water</b>									
Calcium	188	1.00	mg/L	100	EL42302	12/23/04	12/23/04	EPA 6010B	
Magnesium	139	0.100	"	"	"	"	"	"	
Potassium	8.47	0.500	"	10	"	"	"	"	
Sodium	211	1.00	"	100	"	"	"	"	

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/ 505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
12/30/04 15:44

**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
<b>Batch EL43007 - EPA 5030C (GC)</b>										
<b>Blank (EL43007-BLK1)</b> Prepared: 12/29/04 Analyzed: 12/30/04										
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: a,a,a-Trifluorotoluene	90.9		ug/l	100		90.9	80-120			
Surrogate: 4-Bromofluorobenzene	80.2		"	100		80.2	80-120			
<b>LCS (EL43007-BS1)</b> Prepared: 12/29/04 Analyzed: 12/30/04										
Benzene	87.9		ug/l	100		87.9	80-120			
Toluene	88.5		"	100		88.5	80-120			
Ethylbenzene	97.5		"	100		97.5	80-120			
Xylene (p/m)	219		"	200		110	80-120			
Xylene (o)	111		"	100		111	80-120			
Surrogate: a,a,a-Trifluorotoluene	109		"	100		109	80-120			
Surrogate: 4-Bromofluorobenzene	119		"	100		119	80-120			
<b>Calibration Check (EL43007-CCV1)</b> Prepared: 12/29/04 Analyzed: 12/30/04										
Benzene	87.8		ug/l	100		87.8	80-120			
Toluene	89.0		"	100		89.0	80-120			
Ethylbenzene	95.3		"	100		95.3	80-120			
Xylene (p/m)	213		"	200		106	80-120			
Xylene (o)	104		"	100		104	80-120			
Surrogate: a,a,a-Trifluorotoluene	113		"	100		113	80-120			
Surrogate: 4-Bromofluorobenzene	116		"	100		116	80-120			
<b>Matrix Spike (EL43007-MS1)</b> Source: 4L22009-05 Prepared: 12/29/04 Analyzed: 12/30/04										
Benzene	88.6		ug/l	100	ND	88.6	80-120			
Toluene	85.4		"	100	ND	85.4	80-120			
Ethylbenzene	87.9		"	100	ND	87.9	80-120			
Xylene (p/m)	186		"	200	ND	93.0	80-120			
Xylene (o)	94.2		"	100	ND	94.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	107		"	100		107	80-120			
Surrogate: 4-Bromofluorobenzene	119		"	100		119	80-120			

ARCADIS  
 1004 N. Big Spring Street  
 Midland TX, 79701

Project: Jct. I-27/ 505  
 Project Number: Jct I-27/505  
 Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
 12/30/04 15:44

**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 EL43007 - EPA 5030C (GC)**

**Matrix Spike Dup (EL43007-MSD1)**

Source: 4L22009-05

Prepared: 12/29/04

Analyzed: 12/30/04

Benzene	92.9		ug/l	100	ND	92.9	80-120	4.74	20	
Toluene	86.0		"	100	ND	86.0	80-120	0.700	20	
Ethylbenzene	87.2		"	100	ND	87.2	80-120	0.800	20	
Xylene (p/m)	164		"	200	ND	82.0	80-120	12.6	20	
Xylene (o)	86.7		"	100	ND	86.7	80-120	8.29	20	
Surrogate: a,a,a-Trifluorotoluene	112		"	100		112	80-120			
Surrogate: 4-Bromofluorobenzene	117		"	100		117	80-120			

\*ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/ 505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
12/30/04 15:44

**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
<b>Batch EL42301 - 413.1</b>										
<b>Blank (EL42301-BLK1)</b> Prepared: 12/22/04 Analyzed: 12/23/04										
Total Dissolved Solids	ND	5.00	mg/L							
<b>Duplicate (EL42301-DUP1)</b> Source: 4L21010-01 Prepared: 12/22/04 Analyzed: 12/23/04										
Total Dissolved Solids	590	5.00	mg/L		567			3.98	20	
<b>Batch EL42907 - General Preparation (WetChem)</b>										
<b>Blank (EL42907-BLK1)</b> Prepared & Analyzed: 12/29/04										
Total Alkalinity	ND	2.00	mg/L							
<b>Duplicate (EL42907-DUP1)</b> Source: 4L22002-01 Prepared & Analyzed: 12/29/04										
Total Alkalinity	181	2.00	mg/L		182			0.551	20	
<b>Reference (EL42907-SRM1)</b> Prepared & Analyzed: 12/29/04										
Carbonate Alkalinity	0.0501		mg/L	0.0500		100	80-120			
<b>Batch EL42908 - General Preparation (WetChem)</b>										
<b>Blank (EL42908-BLK1)</b> Prepared & Analyzed: 12/29/04										
Chloride	ND	5.00	mg/L							
<b>Matrix Spike (EL42908-MS1)</b> Source: 4L21010-01 Prepared & Analyzed: 12/29/04										
Chloride	390	5.00	mg/L	250	155	94.0	80-120			
<b>Matrix Spike Dup (EL42908-MSD1)</b> Source: 4L21010-01 Prepared & Analyzed: 12/29/04										
Chloride	394	5.00	mg/L	250	155	95.6	80-120	1.02	20	

ARCADIS  
 1004 N. Big Spring Street  
 Midland TX, 79701

Project: Jct. I-27/ 505  
 Project Number: Jct I-27/505  
 Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
 12/30/04 15:44

**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 EL42908 - General Preparation (WetChem)**

**Reference (EL42908-SRM1)**

Prepared & Analyzed: 12/29/04

Chloride	4960		mg/L	5000		99.2	80-120			
----------	------	--	------	------	--	------	--------	--	--	--

**Batch EL42909 - General Preparation (WetChem)**

**Blank (EL42909-BLK1)**

Prepared & Analyzed: 12/29/04

Sulfate	ND	0.500	mg/L							
---------	----	-------	------	--	--	--	--	--	--	--

**Calibration Check (EL42909-CCV1)**

Prepared & Analyzed: 12/29/04

Sulfate	48.9		mg/L	50.0		97.8	80-120			
---------	------	--	------	------	--	------	--------	--	--	--

**Duplicate (EL42909-DUP1)**

Source: 4L21010-01

Prepared & Analyzed: 12/29/04

Sulfate	96.6	1.00	mg/L		99.8			3.26	20	
---------	------	------	------	--	------	--	--	------	----	--

ARCADIS  
 1004 N. Big Spring Street  
 Midland TX, 79701

Project: Jct. I-27/ 505  
 Project Number: Jct I-27/505  
 Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
 01/03/05 15:12

**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 EL42302 - 6010B/No Digestion**

**Blank (EL42302-BLK1)**

Prepared & Analyzed: 12/23/04

Calcium	ND	0.0100	mg/L							
Magnesium	ND	0.00100	"							
Potassium	ND	0.0500	"							
Sodium	ND	0.0100	"							

**Calibration Check (EL42302-CCV1)**

Prepared & Analyzed: 12/23/04

Calcium	2.00		mg/L	2.00		100	85-115			
Magnesium	2.28		"	2.00		114	85-115			
Potassium	1.78		"	2.00		89.0	85-115			
Sodium	1.92		"	2.00		96.0	85-115			

**Duplicate (EL42302-DUP1)**

Source: 4L21010-01RE1 Prepared & Analyzed: 12/23/04

Calcium	55.1	0.100	mg/L		57.3			3.91	20	
Magnesium	13.2	0.0100	"		13.0			1.53	20	
Potassium	12.5	0.500	"		13.2			5.45	20	
Sodium	105	1.00	"		112			6.45	20	

ARCADIS  
1004 N. Big Spring Street  
Midland TX, 79701

Project: Jct. I-27/ 505  
Project Number: Jct I-27/505  
Project Manager: Sharon Hall

Fax: (432) 687-5401

Reported:  
12/30/04 15:44

### 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: \_\_\_\_\_

*Coley D. Keene*

Date: \_\_\_\_\_

*01/03/05*

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

Jeanne Mc Murrey, Inorg. Tech Director  
James L. Hawkins, Chemist/Geologist  
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  
Variance / Corrective Action Report – Sample Log-In**

Client: Arcadis

Date/Time: 12-21-04 @ 1800

Order #: 4L22011

Initials: JMM

**Sample Receipt Checklist**

Temperature of container/cooler?	<input checked="" type="checkbox"/> Yes	No	1.0	C
Shipping container/cooler in good condition?	<input checked="" type="checkbox"/> Yes	No		
Custody Seals intact on shipping container/cooler?	Yes	No	<del>Not present</del>	
Custody Seals intact on sample bottles?	Yes	No	<del>Not present</del>	
Chain of custody present?	<input checked="" type="checkbox"/> Yes	No		
Sample Instructions complete on Chain of Custody?	<input checked="" type="checkbox"/> Yes	No		
Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/> Yes	No		
Chain of custody agrees with sample label(s)	<input checked="" type="checkbox"/> Yes	No		
Container labels legible and intact?	<input checked="" type="checkbox"/> Yes	No		
Sample Matrix and properties same as on chain of custody?	<input checked="" type="checkbox"/> Yes	No		
Samples in proper container/bottle?	<input checked="" type="checkbox"/> Yes	No		
Samples properly preserved?	<input checked="" type="checkbox"/> Yes	No		
Sample bottles intact?	<input checked="" type="checkbox"/> Yes	No		
Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/> Yes	No		
Containers documented on Chain of Custody?	<input checked="" type="checkbox"/> Yes	No		
Sufficient sample amount for indicated test?	<input checked="" type="checkbox"/> Yes	No		
All samples received within sufficient hold time?	<input checked="" type="checkbox"/> Yes	No		
VOC samples have zero headspace?	<input checked="" type="checkbox"/> Yes	No	Not Applicable	

Other observations:

---



---



---

**Variance Documentation:**

Contact Person: - \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted by: \_\_\_\_\_

Regarding: \_\_\_\_\_

---



---

Corrective Action Taken:

---



---



---



---



---



---



---



ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. \_\_\_\_\_

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name JCI I-27/505

Project Location Rice Operating

Laboratory Environmental Lab of Texas

Project Manager Kristin Farris Pope

Sampler(s)/Affiliation GC/ARCADIS

ANALYSIS / METHOD / SIZE

(2) 40ml VOA  
BTEX  
MCI  
major anions/cations  
Neat  
(1) L plastic  
bottles

Sample ID/Location Matrix Date/Time Lab ID Time

mw.1 L 12-21-04 1530

Remarks

4L22011-01

Total

3

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: [Signature] Organization: ARCADIS

Received by: [Signature] Organization: Env. Lab of TX

Relinquished by: \_\_\_\_\_ Organization: \_\_\_\_\_

Received by: \_\_\_\_\_ Organization: \_\_\_\_\_

Date 12/21/04 Time 1800 Seal Intact? Yes No (N/A)

Date 12/21/04 Time 1800 Seal Intact? Yes No (N/A)

Date \_\_\_\_\_ Time \_\_\_\_\_ Seal Intact? Yes No \_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_ Seal Intact? Yes No \_\_\_\_\_

Total No. of Bottles/Containers 3

Special Instructions/Remarks: 10°C on ice

Delivery Method:  In Person

Common Carrier

Lab Courier

Other

SPECIFY

SPECIFY

AG 05-0597