

AP - 59

F-35

**ANNUAL GW MONITORING
REPORT**

**DATE:
2003**

AP-59
F-35 Annual GW Mon
Report
2003

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 1244

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FEB 10 2004

**Oil Conservation Division
Environmental Bureau**

February 9, 2004

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

**RE: 2003 MONITOR WELL REPORT/SAMPLING SUMMARY
VACUUM SWD SYSTEM
SEC. 35, T17S, R35E**

Mr. Olson:

Rice Operating Company (ROC) takes this opportunity to submit the 2003 Monitor Well Report for the Vacuum Salt Water Disposal System. There are 2 sites in this system that have monitor wells that are sampled quarterly pursuant to NMOCD guidelines. These groundwater impacts became evident during the removal of redwood tanks.

Site Name	Unit Letter	Section	Township/Range
F-35	F	35	T17S, R35E
G-35	G	35	T17S, R35E

The 2003 sampling was conducted by ROC. These samples were analyzed by Environmental Lab of Texas, of Odessa. In 2004, ROC will continue to sample these monitor wells with Environmental Lab of Texas providing the water analysis. Closure advancement for the F-35 and G-35 sites is currently suspended due to System Partner negotiations.

ROC is the service provider (operator) for the Vacuum Salt Water Disposal System and has not ownership of any portion of pipeline, well, or facility. The Vacuum 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

Kristin Farris
Project Scientist

Enclosures: Summary table & graph for each site
 Analytical results

Cc: LBG, CDH, file, Chris Williams
 NMOCD, District I Office
 1625 N. French Drive
 Hobbs, NM 88240

Rice Operating Co. Monitor Well Data Sheet

Vacuum F-35 (west Buckeye)
F, 35, 17S, 35E SWD facility

All parameter concentrations are in mg/L.

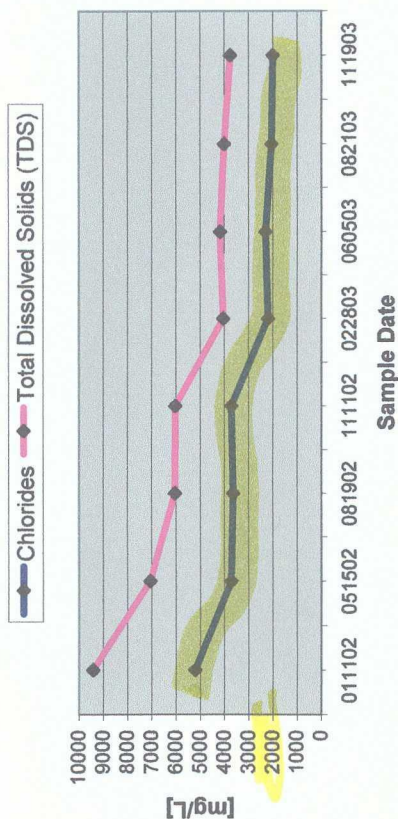
MW #	WATER LEVEL (ft)	TOTAL DEPTH (ft)	WELL VOLUME (gal)	VOLUME BAILED	SAMPLE DATE	TIME	CL-	TDS	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES
1	58.00	66.00	1.300	3.90	011102	1455	5200	9425	0.050	0.053	0.050	0.090
1	57.78	65.62	1.250	4.25	051502	1330	3720	7050	0.744	0.510	0.207	0.309
1	57.91	65.22	1.170	5.50	081902	1125	3630	6040	0.705	0.112	0.172	0.076
1	57.90	64.89	1.118	3.70	111102	1015	3720	6020	1.210	0.835	0.343	0.431
1	57.90	64.28	1.020	3.00	022803	1330	2200	4040	0.909	0.840	0.321	0.374
1	58.00	64.20	0.992	2.90	060503	1100	2300	4180	0.632	0.134	0.061	0.067
1	58.06	64.25	0.990	2.90	082103	1011	2060	4000	0.617	0.360	0.202	0.192
1	58.14	64.12	0.957	2.80	111903	1030	2000	3760	0.797	0.301	0.264	0.248

greenish-gray, TPH odor
TPH odor

TPH odor, greenish gray

* Depth to water is measured from the top of the casing
Casing is 3.271 ft

Vacuum F-35 Monitor Well #1



ANALYTICAL REPORT

Prepared for:

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Project: Vac F-35

PO#:

Order#: G0305852

Report Date: 03/05/2003

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Rice Operating
122 W. Taylor
Hobbs, NM 88240
505-397-1471

Order#: G0305852
Project:
Project Name: Vac F-35
Location: Vacuum

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

<u>Lab ID:</u>	<u>Sample :</u>	<u>Matrix:</u>	<u>Date / Time</u> <u>Collected</u>	<u>Date / Time</u> <u>Received</u>	<u>Container</u>	<u>Preservative</u>
0305852-01	MW 1	WATER	2/28/03	2/28/03 19:40	See COC	See COC
<u>Lab Testing:</u>		Rejected: No	Temp:	3.5 C		
8021B/5030 BTEX						
Anions						
Cations						
Total Dissolved Solids (TDS)						

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0305852
Project:
Project Name: Vac F-35
Location: Vacuum

Lab ID: 0305852-01
Sample ID: MW 1

8021B/5030 BTEX

Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u>	Sample <u>Amount</u>	Dilution <u>Factor</u>	<u>Analyst</u>	<u>Method</u>
0004817-02		3/4/03 10:20	1	5	CK	8021B

Parameter	Result mg/L	RL
Benzene	0.909	0.005
Toluene	0.840	0.005
Ethylbenzene	0.321	0.005
p/m-Xylene	0.250	0.005
o-Xylene	0.124	0.005

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	120%	80	120
Bromofluorobenzene	96%	80	120

Approval:

Raland K. Tuttle 3-05-03

Raland K. Tuttle, Lab Director, QA Officer

Date

Coley D. Keene, Org. Tech. Director

Jeanne McMurrey, Inorg. Tech. Director

Sandra Biezugbe, Lab Tech.

Sara Molina, Lab Tech.

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0305852
Project:
Project Name: Vac F-35
Location: Vacuum

Lab ID: 0305852-01
Sample ID: MW 1

Anions

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Bicarbonate Alkalinity	441	mg/L	1	2.00	310.1	3/3/03	SB
Carbonate Alkalinity	<0.10	mg/L	1	0.10	310.1	3/3/03	SB
Chloride	2200	mg/L	1	5.00	9253	3/3/03	SB
Hydroxide Alkalinity	<0.10	mg/L	1	0.10	310.1	3/3/03	SB
SULFATE, 375.4	26.2	mg/L	1	0.5	375.4	3/4/03	SB

Cations

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Calcium	81.1	mg/L	10	0.10	6010B	3/3/03	SM
Magnesium	29.6	mg/L	10	0.010	6010B	3/3/03	SM
Potassium	6.41	mg/L	10	0.50	6010B	3/3/03	SM
Sodium	1200	mg/L	1000	10.0	6010B	3/3/03	SM

Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Total Dissolved Solids (TDS)	4040	mg/L	1	5.0	160.1	3/3/03	TAL

Approval:

Raland K. Tuttle 3-05-03
Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0305852

BLANK	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0004817-02			<0.001		
Toluene-mg/L		0004817-02			<0.001		
Ethylbenzene-mg/L		0004817-02			<0.001		
p/m-Xylene-mg/L		0004817-02			<0.001		
o-Xylene-mg/L		0004817-02			<0.001		
CONTROL	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0004817-03		0.1	0.100	100.0%	
Toluene-mg/L		0004817-03		0.1	0.101	101.0%	
Ethylbenzene-mg/L		0004817-03		0.1	0.100	100.0%	
p/m-Xylene-mg/L		0004817-03		0.2	0.206	103.0%	
o-Xylene-mg/L		0004817-03		0.1	0.099	99.0%	
CONTROL DUP	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0004817-04		0.1	0.095	95.0%	5.1%
Toluene-mg/L		0004817-04		0.1	0.095	95.0%	6.1%
Ethylbenzene-mg/L		0004817-04		0.1	0.094	94.0%	6.2%
p/m-Xylene-mg/L		0004817-04		0.2	0.193	96.5%	6.5%
o-Xylene-mg/L		0004817-04		0.1	0.094	94.0%	5.2%
SRM	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0004817-05		0.1	0.093	93.0%	
Toluene-mg/L		0004817-05		0.1	0.095	95.0%	
Ethylbenzene-mg/L		0004817-05		0.1	0.094	94.0%	
p/m-Xylene-mg/L		0004817-05		0.2	0.194	97.0%	
o-Xylene-mg/L		0004817-05		0.1	0.094	94.0%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Cations

Order#: G0305852

BLANK	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0004810-01			<0.010		
Magnesium-mg/L		0004810-01			<0.001		
Potassium-mg/L		0004810-01			<0.050		
Sodium-mg/L		0004810-01			<0.010		
DUPLICATE	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0305851-01	95.8		98.8		3.1%
Magnesium-mg/L		0305851-01	54.3		53.5		1.5%
Potassium-mg/L		0305851-01	9.4		9.42		0.2%
Sodium-mg/L		0305851-01	265		261		1.5%
SRM	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0004810-04		2	2.08	104.%	
Magnesium-mg/L		0004810-04		2	2.22	111.%	
Potassium-mg/L		0004810-04		2	1.72	86.%	
Sodium-mg/L		0004810-04		2	1.79	89.5%	

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

Phone: 915-563-1800
Fax: 915-563-1713

Project Manager:

Kristin Farris

Company Name

PICE Operating

Company Address:

22 W. Taylor

City/State/Zip:

6665, NM 88240

Telephone No. (

25) 393-9174

Sampler Signature:

James Galt

Fax No:

(505) 397-1471

Project Name:

vac F-35

Project #:

Project Loc:

Lacuna

PO#

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

[illegible]

ANALYTICAL REPORT

Prepared for:

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Project: F-35
PO#: 570
Order#: G0306663
Report Date: 06/10/2003

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Rice Operating
122 W. Taylor
Hobbs, NM 88240
505-397-1471

Order#: G0306663
Project:
Project Name: F-35
Location: Vacuum

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<u>Lab ID:</u>	<u>Sample :</u>	<u>Matrix:</u>	<u>Date / Time</u> <u>Collected</u>	<u>Date / Time</u> <u>Received</u>	<u>Container</u>	<u>Preservative</u>
0306663-01	MW1	WATER	6/5/03 11:00	6/5/03 19:50	See COC	See COC
<u>Lab Testing:</u>		Rejected: No	Temp:	4.0 C		
8021B/5030 BTEX						
Anions						
Cations						
Total Dissolved Solids (TDS)						

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0306663
Project:
Project Name: F-35
Location: Vacuum

Lab ID: 0306663-01
Sample ID: MW1

8021B/5030 BTEX

Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u>	Sample <u>Amount</u>	Dilution <u>Factor</u>	Analyst	Method
0005784-02		6/10/03 0:24	1	10	CK	8021B

Parameter	Result mg/L	RL
Benzene	0.632	0.010
Toluene	0.134	0.010
Ethylbenzene	0.061	0.010
p/m-Xylene	0.045	0.010
o-Xylene	0.022	0.010

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	100%	80	120
Bromofluorobenzene	97%	80	120

Approval:

Celestine Keene 06/10/03
Raland K. Tuttle, Lab Director, QA Officer
Celestine D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

Date

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0306663
Project:
Project Name: F-35
Location: Vacuum

Lab ID: 0306663-01
Sample ID: MW1

Anions

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution</u> <u>Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date</u> <u>Analyzed</u>	<u>Analyst</u>
Bicarbonate Alkalinity	494	mg/L	1	2.00	310.1	6/6/03	SB
Carbonate Alkalinity	<0.10	mg/L	1	0.10	310.1	6/6/03	SB
Chloride	2300	mg/L	1	5.00	9253	6/6/03	SB
Hydroxide Alkalinity	<0.10	mg/L	1	0.10	310.1	6/6/03	SB
SULFATE, 375.4	20.5	mg/L	1	0.5	375.4	6/6/03	SB

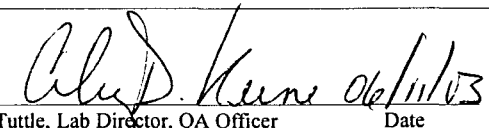
Cations

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution</u> <u>Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date</u> <u>Analyzed</u>	<u>Analyst</u>
Calcium	75.3	mg/L	10	0.10	6010B	6/6/03	SM
Magnesium	27.9	mg/L	10	0.010	6010B	6/6/03	SM
Potassium	7.38	mg/L	10	0.50	6010B	6/6/03	SM
Sodium	1140	mg/L	1000	10.0	6010B	6/6/03	SM

Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution</u> <u>Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date</u> <u>Analyzed</u>	<u>Analyst</u>
Total Dissolved Solids (TDS)	4,180	mg/L	1	5.0	160.1	6/6/03	SB

Approval:


Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

Date

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0306663

BLANK							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0005784-02			<0.001		
Toluene-mg/L		0005784-02			<0.001		
Ethylbenzene-mg/L		0005784-02			<0.001		
p/m-Xylene-mg/L		0005784-02			<0.001		
o-Xylene-mg/L		0005784-02			<0.001		
MS							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0306653-15	0	0.1	0.105	105.%	
Toluene-mg/L		0306653-15	0	0.1	0.095	95.%	
Ethylbenzene-mg/L		0306653-15	0	0.1	0.086	86.%	
p/m-Xylene-mg/L		0306653-15	0	0.2	0.171	85.5%	
o-Xylene-mg/L		0306653-15	0	0.1	0.082	82.%	
MSD							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0306653-15	0	0.1	0.097	97.%	7.9%
Toluene-mg/L		0306653-15	0	0.1	0.090	90.%	5.4%
Ethylbenzene-mg/L		0306653-15	0	0.1	0.086	86.%	0.%
p/m-Xylene-mg/L		0306653-15	0	0.2	0.170	85.%	0.6%
o-Xylene-mg/L		0306653-15	0	0.1	0.083	83.%	1.2%
SRM							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0005784-05		0.1	0.104	104.%	
Toluene-mg/L		0005784-05		0.1	0.099	99.%	
Ethylbenzene-mg/L		0005784-05		0.1	0.094	94.%	
p/m-Xylene-mg/L		0005784-05		0.2	0.194	97.%	
o-Xylene-mg/L		0005784-05		0.1	0.093	93.%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Anions

Order#: G0306663

BLANK						
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery
Bicarbonate Alkalinity-mg/L		0005759-01			<2.00	
Carbonate Alkalinity-mg/L		0005760-01			<0.10	
Chloride-mg/L		0005758-01			<5.00	
Hydroxide Alkalinity-mg/L		0005761-01			<0.10	
SULFATE, 375.4-mg/L		0005762-01			<0.5	
DUPLICATE						
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery
Bicarbonate Alkalinity-mg/L		0306663-01	494		492	0.4%
Carbonate Alkalinity-mg/L		0306663-01	0		<0.10	0.0%
Hydroxide Alkalinity-mg/L		0306663-01	0		<0.10	0.0%
SULFATE, 375.4-mg/L		0306663-01	20.5		19.5	5.0%
MS						
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery
Chloride-mg/L		0306663-01	2300	2500	4786	99.4%
MSD						
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery
Chloride-mg/L		0306663-01	2300	2500	4830	101.2%
SRM						
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery
Bicarbonate Alkalinity-mg/L		0005759-04		0.05	0.0496	99.2%
Carbonate Alkalinity-mg/L		0005760-04		0.05	0.0496	99.2%
Chloride-mg/L		0005758-04		5000	4960	99.2%
Hydroxide Alkalinity-mg/L		0005761-04		0.05	0.0496	99.2%
SULFATE, 375.4-mg/L		0005762-04		50	51.8	103.6%

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Cations

Order#: G0306663

BLANK							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0005755-02			<0.010		
Magnesium-mg/L		0005755-02			<0.001		
Potassium-mg/L		0005755-02			<0.050		
Sodium-mg/L		0005755-02			<0.010		
DUPLICATE							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0306666-01	54.5		53.7		1.5%
Magnesium-mg/L		0306666-01	16.5		16.1		2.5%
Potassium-mg/L		0306666-01	37.6		37.6		0.0%
Sodium-mg/L		0306666-01	1080		1090		0.9%
SRM							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0005755-05		2	2.00	100.0%	
Magnesium-mg/L		0005755-05		2	2.12	106.0%	
Potassium-mg/L		0005755-05		2	1.80	90.0%	
Sodium-mg/L		0005755-05		2	1.92	96.0%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0306663

BLANK	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Total Dissolved Solids (TDS)-mg/L		0005772-01			<5.0		
DUPLICATE	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Total Dissolved Solids (TDS)-mg/L		0306663-01	4184		4312		3.%

ANALYTICAL REPORT

Prepared for:

**Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240**

Project: SWD F-35

PO#:

Order#: G0307300

Report Date: 08/27/2003

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Rice Operating
122 W. Taylor
Hobbs, NM 88240
505-397-1471

Order#: G0307300
Project:
Project Name: SWD F-35
Location: Vacuum

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

<u>Lab ID:</u>	<u>Sample :</u>	<u>Matrix:</u>	<u>Date / Time</u> <u>Collected</u>	<u>Date / Time</u> <u>Received</u>	<u>Container</u>	<u>Preservative</u>
0307300-01	MW1	WATER	8/21/03 10:11	8/25/03 9:03	See COC	See COC
<u>Lab Testing:</u>		Rejected: No	Temp: 4.5 C			
8021B/5030 BTEX						
Anions						
Cations						
Total Dissolved Solids (TDS)						

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0307300
Project:
Project Name: SWD F-35
Location: Vacuum

Lab ID: 0307300-01
Sample ID: MW1

8021B/5030 BTEX

Method	Date	Date	Sample	Dilution		
<u>Blank</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Amount</u>	<u>Factor</u>	<u>Analyst</u>	<u>Method</u>
0006638-02		8/26/03	1	5	JMM	8021B

Parameter	Result mg/L	RL
Benzene	0.617	0.005
Toluene	0.360	0.005
Ethylbenzene	0.202	0.005
p/m-Xylene	0.135	0.005
o-Xylene	0.057	0.005

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	164%	80	120
Bromofluorobenzene	111%	80	120

Approval:

Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

Date

Celey D. Keene 08/27/03

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0307300
Project:
Project Name: SWD F-35
Location: Vacuum

Lab ID: 0307300-01
Sample ID: MW1

Anions

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Bicarbonate Alkalinity	500	mg/L	2	4.0	310.1	8/25/03	SB
Carbonate Alkalinity	< 0.20	mg/L	2	0.20	310.1	8/25/03	SB
Chloride	2060	mg/L	1	5.00	9253	8/27/03	SB
Hydroxide Alkalinity	< 0.20	mg/L	2	0.20	310.1	8/25/03	SB
SULFATE, 375.4	4.90	mg/L	1	0.5	375.4	8/26/03	SB

Cations

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Calcium	78.1	mg/L	10	0.10	6010B	8/26/03	SM
Magnesium	30.4	mg/L	10	0.010	6010B	8/26/03	SM
Potassium	5.82	mg/L	10	0.50	6010B	8/26/03	SM
Sodium	1150	mg/L	1000	10.0	6010B	8/26/03	SM

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Total Dissolved Solids (TDS)	4000	mg/L	1	5.0	160.1	8/25/03	TAL

Approval:

Coley D. Keene 08/27/03
Raland K. Tuttle, Lab Director, QA Officer
Coley D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

Date

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0307300

BLANK	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0006638-02			<0.001		
Toluene-mg/L		0006638-02			<0.001		
Ethylbenzene-mg/L		0006638-02			<0.001		
p/m-Xylene-mg/L		0006638-02			<0.001		
o-Xylene-mg/L		0006638-02			<0.001		
CONTROL	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0006638-03		0.1	0.111	111.1%	
Toluene-mg/L		0006638-03		0.1	0.114	114.1%	
Ethylbenzene-mg/L		0006638-03		0.1	0.105	105.1%	
p/m-Xylene-mg/L		0006638-03		0.2	0.222	111.1%	
o-Xylene-mg/L		0006638-03		0.1	0.100	100.1%	
DUPLICATE	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0307295-06	0		<0.001		0.0%
Toluene-mg/L		0307295-06	0		<0.001		0.0%
Ethylbenzene-mg/L		0307295-06	0		<0.001		0.0%
p/m-Xylene-mg/L		0307295-06	0		<0.001		0.0%
o-Xylene-mg/L		0307295-06	0		<0.001		0.0%
SRM	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0006638-05		0.1	0.109	109.1%	
Toluene-mg/L		0006638-05		0.1	0.114	114.1%	
Ethylbenzene-mg/L		0006638-05		0.1	0.104	104.1%	
p/m-Xylene-mg/L		0006638-05		0.2	0.227	113.5%	
o-Xylene-mg/L		0006638-05		0.1	0.104	104.1%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Anions

Order#: G0307300

BLANK							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L		0006617-01			<2.00		
Carbonate Alkalinity-mg/L		0006618-01			<0.10		
Chloride-mg/L		0006640-01			<5.00		
Hydroxide Alkalinity-mg/L		0006619-01			<0.10		
SULFATE, 375.4-mg/L		0006634-01			<0.50		
DUPLICATE							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L		0307300-01	500		502		0.4%
Carbonate Alkalinity-mg/L		0307300-01	0		< 0.20		0.0%
Hydroxide Alkalinity-mg/L		0307300-01	0		< 0.20		0.0%
SULFATE, 375.4-mg/L		0307300-01	4.9		5.00		2.0%
MS							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L		0307300-01	2060	1000	3050	99.0%	
MSD							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L		0307300-01	2060	1000	3070	101.0%	0.7%
SRM							
	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L		0006617-04		0.05	0.0496	99.2%	
Carbonate Alkalinity-mg/L		0006618-04		0.05	0.0496	99.2%	
Chloride-mg/L		0006640-04		5000	4960	99.2%	
Hydroxide Alkalinity-mg/L		0006619-04		0.05	0.0496	99.2%	
SULFATE, 375.4-mg/L		0006634-04		50	50.7	101.4%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Cations

Order#: G0307300

BLANK	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0006632-01			<0.010		
Magnesium-mg/L		0006632-01			<0.001		
Potassium-mg/L		0006632-01			<0.050		
Sodium-mg/L		0006632-01			<0.010		
DUPLICATE	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0307300-01	78.1		77.3		1.0%
Magnesium-mg/L		0307300-01	30.4		29.8		2.0%
Potassium-mg/L		0307300-01	5.82		4.95		16.2%
Sodium-mg/L		0307300-01	1150		1160		0.9%
SRM	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0006632-04		2	2.05	102.5%	
Magnesium-mg/L		0006632-04		2	2.04	102.0%	
Potassium-mg/L		0006632-04		2	1.73	86.5%	
Sodium-mg/L		0006632-04		2	1.73	86.5%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0307300

BLANK						
WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Total Dissolved Solids (TDS)-mg/L	0006633-01			<5.0		
DUPLICATE						
WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Total Dissolved Solids (TDS)-mg/L	0307303-01	2550		2830		10.4%

CASE NARRATIVE

ENVIRONMENTAL LAB OF TEXAS

Prepared for:

Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0307300

Project: SWD F-35

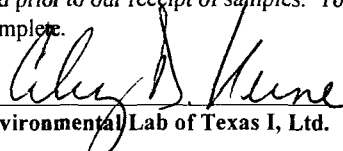
The following samples were received as indicated below and on the attached Chain of Custody record. All analyses were performed within the holding time and with acceptable quality control results unless otherwise noted.

SAMPLE ID	LAB ID	MATRIX	Date Collected	Date Received
MW1	0307300-01	WATER	08/21/2003	08/25/2003

Surrogate recoveries on BTEX are outside control limits due to matrix interference (0307300-01)

The enclosed results of analyses are representative of the samples as received by the laboratory. Environmental Lab of Texas makes no representations or certifications as to the methods of sample collection, sample identification, or transportation handling procedures used prior to our receipt of samples. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved By:


Environmental Lab of Texas I, Ltd.

Date:

08/27/03

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

12800 West 1-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

Project Manager: Kristin Farris

Project Name: SKD F-35

Company Name RICE Operating

Project #:

Company Address: 122 W. Taylor

Project Loc: Vacuum

City/State/Zip: Fla 335, NM 88240

PO #:

Telephone No (505) 393-9174

Fax No: (505) 397-1471

Sample Signature:

[illegible]

ANALYTICAL REPORT

Prepared for:

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Project: F-35
PO#: 570
Order#: G0307980
Report Date: 11/25/2003

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Rice Operating
122 W. Taylor
Hobbs, NM 88240
505-397-1471

Order#: G0307980
Project:
Project Name: F-35
Location: Vacuum

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

<u>Lab ID:</u>	<u>Sample :</u>	<u>Matrix:</u>	<u>Date / Time</u> <u>Collected</u>	<u>Date / Time</u> <u>Received</u>	<u>Container</u>	<u>Preservative</u>
0307980-01	MW-1	WATER	11/19/03 10:30	11/19/03 19:40	See COC	See COC
<u>Lab Testing:</u>		Rejected: No	Temp: 4.0 C			
8021B/5030 BTEX						
Anions						
Cations						
Total Dissolved Solids (TDS)						

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0307980
Project:
Project Name: F-35
Location: Vacuum

Lab ID: 0307980-01
Sample ID: MW-1

8021B/5030 BTEX

Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u>	Sample <u>Amount</u>	Dilution <u>Factor</u>	Analyst	Method
0007531-02		11/22/03	1	1	CK	8021B

Parameter	Result mg/L	RL
Benzene	0.797	0.001
Toluene	0.301	0.001
Ethylbenzene	0.264	0.001
p/m-Xylene	0.166	0.001
o-Xylene	0.082	0.001

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	150%	80	120
Bromofluorobenzene	99%	80	120

Approval:

Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

Date

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0307980
Project:
Project Name: F-35
Location: Vacuum

Lab ID: 0307980-01
Sample ID: MW-1

Anions

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Bicarbonate Alkalinity	522	mg/L	1	2.00	310.1	11/20/03	SB
Carbonate Alkalinity	<0.10	mg/L	1	0.10	310.1	11/20/03	SB
Chloride	2000	mg/L	1	5.00	325	11/20/03	SB
Hydroxide Alkalinity	<0.10	mg/L	1	0.10	310.1	11/20/03	SB
SULFATE, 375.4	5.10	mg/L	1	0.5	375.4	11/24/03	SB

Cations

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Calcium	91.7	mg/L	10	0.10	6010B	11/21/03	SM
Magnesium	33.2	mg/L	10	0.010	6010B	11/21/03	SM
Potassium	8.87	mg/L	1	0.050	6010B	11/21/03	SM
Sodium	1150	mg/L	1000	10.0	6010B	11/21/03	SM

Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Total Dissolved Solids (TDS)	3760	mg/L	1	5.0	160.1	11/20/03	SB

Approval:

Celey D. Keene 11/25/03
Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

Date

RL = Reporting Limit N/A = Not Applicable

Page 1 of 1

ENVIRONMENTAL LAB OF TEXAS I, LTD.

12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Anions

Order#: G0307980

BLANK	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L		0007510-01			<2.00		
Carbonate Alkalinity-mg/L		0007512-01			<0.10		
Chloride-mg/L		0007516-01			<5.00		
Hydroxide Alkalinity-mg/L		0007514-01			<0.10		
SULFATE, 375.4-mg/L		0007546-01			<0.50		
DUPLICATE	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L		0307979-01	468		466		0.4%
Carbonate Alkalinity-mg/L		0307979-01	0		<0.10		0.0%
Hydroxide Alkalinity-mg/L		0307979-01	0		<0.10		0.0%
SULFATE, 375.4-mg/L		0307979-01	20.9		21.6		3.3%
MS	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L		0307979-01	1930	500	2430	100.0%	
MSD	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L		0307979-01	1930	500	2420	98.0%	0.4%
SRM	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L		0007510-04		0.05	0.0496	99.2%	
Carbonate Alkalinity-mg/L		0007512-04		0.05	0.0496	99.2%	
Chloride-mg/L		0007516-04		5000	4960	99.2%	
Hydroxide Alkalinity-mg/L		0007514-04		0.05	0.0496	99.2%	
SULFATE, 375.4-mg/L		0007546-04		50	49.0	98.0%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0307980

BLANK	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0007531-02			<0.001		
Toluene-mg/L		0007531-02			<0.001		
Ethylbenzene-mg/L		0007531-02			<0.001		
p/m-Xylene-mg/L		0007531-02			<0.001		
o-Xylene-mg/L		0007531-02			<0.001		
CONTROL	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0007531-03		0.1	0.096	96.0%	
Toluene-mg/L		0007531-03		0.1	0.092	92.0%	
Ethylbenzene-mg/L		0007531-03		0.1	0.091	91.0%	
p/m-Xylene-mg/L		0007531-03		0.2	0.182	91.0%	
o-Xylene-mg/L		0007531-03		0.1	0.090	90.0%	
CONTROL DUP	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0007531-04		0.1	0.101	101.0%	5.1%
Toluene-mg/L		0007531-04		0.1	0.097	97.0%	5.3%
Ethylbenzene-mg/L		0007531-04		0.1	0.092	92.0%	1.1%
p/m-Xylene-mg/L		0007531-04		0.2	0.183	91.5%	0.5%
o-Xylene-mg/L		0007531-04		0.1	0.087	87.0%	3.4%
SRM	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0007531-05		0.1	0.099	99.0%	
Toluene-mg/L		0007531-05		0.1	0.094	94.0%	
Ethylbenzene-mg/L		0007531-05		0.1	0.091	91.0%	
p/m-Xylene-mg/L		0007531-05		0.2	0.181	90.5%	
o-Xylene-mg/L		0007531-05		0.1	0.087	87.0%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Cations

Order#: G0307980

BLANK		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
	WATER						
Calcium-mg/L		0007495-02			<0.010		
Magnesium-mg/L		0007495-02			<0.001		
Potassium-mg/L		0007495-02			<0.050		
Sodium-mg/L		0007495-02			<0.010		
DUPLICATE		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
	WATER						
Calcium-mg/L		0307979-01	81		81.6		0.7%
Magnesium-mg/L		0307979-01	20.1		19.9		1.1%
Potassium-mg/L		0307979-01	7.1		7.25		2.1%
Sodium-mg/L		0307979-01	1290		1280		0.8%
SRM		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
	WATER						
Calcium-mg/L		0007495-05		2	1.76	88.1%	
Magnesium-mg/L		0007495-05		2	2.17	108.5%	
Potassium-mg/L		0007495-05		2	1.93	96.5%	
Sodium-mg/L		0007495-05		2	2.21	110.5%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0307980

BLANK						
WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Total Dissolved Solids (TDS)-mg/L	0007518-01			<5.00		
DUPLICATE						
WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Total Dissolved Solids (TDS)-mg/L	0307979-01	3590		3600		0.3%

CASE NARRATIVE

ENVIRONMENTAL LAB OF TEXAS

Prepared for:

Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0307980

Project: F-35

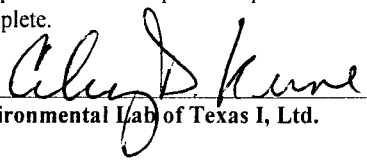
The following samples were received as indicated below and on the attached Chain of Custody record. All analyses were performed within the holding time and with acceptable quality control results unless otherwise noted.

SAMPLE ID	LAB ID	MATRIX	Date Collected	Date Received
MW-1	0307980-01	WATER	11/19/2003	11/19/2003

**Surrogate recoveries on the 8021B BTEX are outside control limits due to matrix interference.
(G0307980-01)**

The enclosed results of analyses are representative of the samples as received by the laboratory. Environmental Lab of Texas makes no representations or certifications as to the methods of sample collection, sample identification, or transportation handling procedures used prior to our receipt of samples. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved By:


Environmental Lab of Texas I, Ltd.

Date:

11/25/03

12500 West 420 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Kristin Farris

Project Name: F-35

Company Name RICE Operating

Project #:

Company Address: 222 W. Taylor

Project Loc: V954447

City/State/Zip: Hobbs, NM 88240

PO# 570

Telephone No. (505) 393-9174

Fax No: (505) 397-1471

Sample Signature: 

[illegible]