

# REPORTS



# RECEIVED

MAY 03 2004

Oil Conservation Division Environmental Bureau

1 B

#### ANNUAL GROUNDWATER MONITORING REPORT NEW MEXICO "F" STATE TANK BATTERY LEA COUNTY, NEW MEXICO

**Prepared for:** 

ChevronTexaco Exploration & Production Company 15 Smith Road Midland, Texas

Prepared by:

Larson and Associates, Inc. 507 North Marienfeld St., Ste. 202 Midland, Texas 79701 (432) 687-0901

April 29, 2004

1

I sain Χ.

Cindy K. Crain, CPG Project Manager

#### **Table of Contents**

Ì

<u>Secti</u>	<u>ion</u>		<u>Page</u>
LIST	Г OF Т.	ABLES	ii
LIST	<b>F OF F</b>	IGURES	iii
LIST	<b>FOFA</b>	PPENDICES	iv
1.0	INT	RODUCTION	1
2.0	BAC	CKGROUND	1
3.0	GRC	OUNDWATER MONITORING	2
5.0	3.1	Groundwater Assessment	2
	3.2	Waste Management and Disposition	4
	3.3	Phase-Separated Hydrocarbons	4
	3.4	Remediation System Installation and Start-up	4
4.0	CON	ICLUSIONS	5

1 ja

#### List of Tables

#### <u>Table</u>

- 1. Summary of Depth-to- Groundwater Measurements from Monitoring and Recovery Wells
- 2. Summary of BTEX Analysis of Groundwater Samples from Monitoring and Water Wells
- 3. Summary of General Chemistry Analysis of Groundwater Samples from Monitoring and Water Wells

#### List of Figures

ļ

ļ

1

### <u>Figure</u>

1.

2.

3.

4.

5.

6.

П

Topographic Map
Site Drawing
Groundwater Potentiometric Surface Map, June 5, 2003
Groundwater Potentiometric Surface Map, December 3, 2003
Apparent PSH Thickness Map, June 5, 2003
Apparent PSH Thickness Map, December 3, 2003

11

List of Appendices

#### <u>Appendix</u>

11

A. Laboratory Analysis and Chain of Custody Documentation

: 1

#### 1.0 INTRODUCTION

ChevronTexaco Exploration and Production Company (ChevronTexaco), as successor to Texaco Exploration and Production Inc. (Texaco) has retained Larson and Associates, Inc. (LA) to conduct groundwater remediation and monitoring activities at the former location of the New Mexico "F" State Tank Battery (Site). The Site is located approximately 2.6 miles northwest of Monument, New Mexico, and is situated in the northeast quarter (NE/4) of the southeast quarter (SE/4), Section 24, Township 19 South, Range 36 East, Lea County, New Mexico. Figure 1 presents a Site location and topographic map.

#### 2.0 BACKGROUND

In July 1998, eight monitoring wells were installed, in order to investigate soil and groundwater contamination at the Site. Details of that investigation were submitted to the New Mexico Oil Conservation Division (NMOCD) in a Subsurface Investigation Report dated September 1998. In that report, Texaco made three proposals, as follows:

- Remove phase separated hydrocarbon (PSH) observed on the groundwater at well MW-1 and MW-2, by utilizing wells MW-1 and MW-2 as extraction wells.
- Place stockpiled soil from the excavation and monitoring well installations in the excavation, with a clay liner at the bottom of the pit.
- Conduct semi-annual groundwater monitoring at the Site.

The proposed activities were approved by the NMOCD in a letter dated January 20, 1999, with several conditions. The NMOCD agreed that the compacted clay should be placed over the filled excavation and compacted to 95% proctor density.

An Annual Groundwater Monitoring Report was submitted to the NMOCD on March 5, 2003, that included details of the installation of three recovery wells (RW-1, RW-2, and RW-3), excavation

closure activities, and results of groundwater monitoring activities for 2002.

#### 3.0 GROUNDWATER MONITORING

#### 3.1 Groundwater Assessment

LA completed monitoring at the Site for the period of June 2003 through December 2003. Depth to groundwater measurements were collected from all monitoring wells (MW-3 through MW-8) and recovery wells (RW-1 through RW-3) on June 5, 2003 and December 3, 2003. Depth to groundwater measurements were also collected from two water wells (WW-1 and WW-2) on June 5, 2003. Depth to groundwater ranged from 53.24 feet (RW-2) to 68.54 feet (WW-2) below top of casing (TOC) on the June 5 event, and from 53.23 feet (RW-3) to 67.61 feet (MW-6) below TOC on the December 3 event. The groundwater gradient was approximately 0.005 feet per foot during each monitoring event. Groundwater flow at the Site has remained consistent, and is to the south and southeast. Table 1 provides a summary of depth to groundwater measurements. Figure 3 shows the groundwater gradient on June 5, 2003. Figure 4 shows the groundwater gradient on December 3, 2003.

Groundwater samples were collected on June 6, 2003, from all monitoring wells (MW-3 through MW-8) and water wells WW-1 and WW-2. A duplicate sample was collected from monitoring well MW-6. The groundwater samples were submitted under chain-of-custody control to TraceAnalysis, Inc. (Trace), and analyzed for benzene, toluene, ethylbenzene, and xylenes (collectively referred to as BTEX) and chloride. Prior to sample collection, the wells were purged of a minimum of three (3) casing volumes of groundwater. The groundwater samples were collected using dedicated disposable PVC bailers. Table 2 presents a summary of the BTEX analysis. Table 3 presents a summary of the chloride analysis. Appendix A presents the laboratory report.

Referring to Table 2, BTEX was not reported above test method detection limits in any groundwater sample, except MW-4, where xylene was reported at a concentration of 0.0026 milligrams per liter (mg/L). The New Mexico Water Quality Conservation Commission (NMWQCC) human health standard for xylene is 0.62 mg/L.

Referring to Table 3, the highest reported chloride concentration was 244 mg/L in up-gradient monitoring well MW-8. Chloride was below the NMWQCC standard (250 mg/L) in groundwater from all wells.

On December 4, 2003, groundwater samples were collected from all monitoring wells (MW-3 through MW-8), water wells WW-1 and WW-2, and recovery well RW-3. A duplicate sample was collected from MW-8. The groundwater samples were submitted under chain-of-custody control to Trace, and analyzed for BTEX and chloride. Prior to sample collection, the wells were purged of a minimum of three (3) casing volumes of groundwater. The groundwater samples were collected using dedicated disposable PVC bailers. Table 2 presents a summary of the BTEX analysis. Table 3 presents a summary of the chloride analysis. Appendix A presents the laboratory report.

Referring to Table 2, BTEX was not reported above test method detection limits in any groundwater sample, except MW-3, where xylene was reported at a concentration of 0.0017 mg/L, and MW-4, where benzene was reported at a concentration of 0.0015 mg/L. The NMWQCC human health standard for xylene is 0.62 mg/L, and 0.01 mg/L for benzene.

Referring to Table 3, chloride concentrations were below the NMWQCC standard (250 mg/L) in groundwater from all wells, except up-gradient well MW-8 (251 mg/L). The duplicate groundwater sample collected from well MW-8 reported a chloride concentration of 254 mg/L.

#### 3.2 Waste Management and Disposition

Purged groundwater from the sampling activities was disposed at an NMOCD permitted salt water disposal facility operated by Chapparel Services, Inc., located in Eunice, New Mexico. Approximately 43.5 gallons of purged groundwater was disposed following each sampling event, for a total of approximately 87 gallons.

#### 3.3 Phase-Separated Hydrocarbons

Phase-separated hydrocarbons (PSH) were observed in three (3) recovery wells (RW-1, RW-2, and RW-3) on June 5, 2003. Wells RW-1, RW-2, and RW-3, installed in the vicinity of the pit, reported an apparent PSH thickness of 0.16, 0.01, and 0.16 feet, respectively. Figure 5 presents a drawing showing the apparent thickness of PSH on June 5, 2003. Table 1 presents a summary of PSH thicknesses.

Phase-separated hydrocarbons were observed in two (2) recovery wells (RW-1 and RW-2) on December 3, 2003. Wells RW-1 and RW-2 reported an apparent PSH thickness of 0.65 feet and 0.13 feet, respectively. The PSH appears to be restricted to the area in the immediate vicinity of the former tank battery and pit. Figure 6 presents a drawing showing the apparent thickness of PSH on December 3, 2003. Table 1 presents a summary of PSH thicknesses.

#### 3.4 Remediation System Installation and Start-up

On February 17, 2003, the State of New Mexico, Office of the State Engineer (NMSE) approved an application submitted by Texaco for allocating water resources for remediation of the phase-separated hydrocarbons, subject to conditions. Texaco will initiate phase separated hydrocarbon remediation in accordance with the conditions stipulated by the NMSE, upon their approval of the amendment to the existing monitoring well easement.

Annual Groundwater Monitoring Report New Mexico "F" State Tank Battery

Lea County, New Mexico

#### 4.0 <u>CONCLUSIONS</u>

- Depth to groundwater ranged from 53.24 feet (RW-2) to 68.54 feet (WW-2) below top of casing (TOC) on June 5, 2003.
- Depth to groundwater ranged from 53.23 feet (RW-3) to 67.61 feet (MW-6) below TOC on December 3, 2003.
- 3. The groundwater gradient was approximately 0.005 feet per foot during each monitoring event.
- 4. Groundwater flow at the Site has remained consistent, and is to the south and southeast.
- 5. From the June 6, 2003 sampling event, BTEX was not reported above test method detection limits in any groundwater sample, except MW-4, where xylene was reported at a concentration of 0.0026 mg/L. The highest reported chloride concentration was 244 mg/L in up-gradient monitoring well MW-8. Chloride was below the NMWQCC standard (250 mg/L) in groundwater from all wells.
- 6. From the December 4, 2003 sampling event, BTEX was not reported above test method detection limits in any groundwater sample, except MW-3, where xylene was reported at a concentration of 0.0017 mg/L, and MW-4, where benzene was reported at a concentration of 0.0015 mg/L. Chloride concentrations were below the NMWQCC standard (250 mg/L) in groundwater from all wells, except up-gradient well MW-8 (251 mg/L). The duplicate groundwater sample collected from well MW-8 reported a chloride concentration of 254 mg/L.
- 7. Phase-separated hydrocarbons (PSH) were observed in three (3) recovery wells (RW-1, RW-2, and RW-3) on June 5, 2003, with thicknesses of 0.16 feet, 0.01 feet, and 0.16 feet, respectively.
- 8. PSH were observed in two (2) recovery wells (RW-1 and RW-2) on December 3, 2003, with thicknesses of 0.65 feet and 0.13 feet, respectively.



i Ì

1

ΠH

Summary of Depth-to-Groundwater Measurements from Monitoring and Recovery Wells Texaco Exploration and Production Inc., State of New Mexico "F" Tank Battery NE/4, SE/4, Section 24, Township 19 South, Range 36 East Table 1:

	LEO VUUILY.													
Date	1-WW-	**MW-2	S-WM	MW-4	MW-5	9-MW	7-WM	8-WW	6-WM+++	RW-1	RW-2	RW-3	1-WW	WW-2
07/07/08	E1 DE	and the second se			-	-		1	1	1	1	1	1	1
Della lin	2010													
07/17/98	60.15 (4.78)	ľ	1	1	1	1	1	1	1	1	r	1	1	E
07/28/98	60.09 (4.96)	54.77 (1.71)	59.53	69.72	56.53	67.86	58.08	56.84	I	1	1	ï	1	T
03/23/99	1	1	1	1	56.30	(F		1	1	1	1	1	1	Į.
06/25/99	59.61 (4.44)	54.59 (3.06)	59.06	62.31	56.21	67.25	57.96	56.56	52.40	1	1	Ē	1	1
10/14/99	-	-	1	1	ī	t	IJ	1	1	3	53.28	45.82	1	1
11/02/00	,	,		1	1	1	Į	1	ĩ	62.17	53.95	52.82	E	ŧ.
00140104			50 53	67.67	56.31	67 45	58.09	56.49	I	62.37 (0.04)	54.01	52.88	1	ġ.
10/01/20			50.18	62 39	56.29	67 19	58.07	56.56	1	62.26 (0.40)	54.01 (0.03)	52.91	66.35	66.18
11/06/07			59.54	62.76	56.13	67.09	57.92	56.88	1	62.60 (0.53)	54.28 (0.21)	53.22 (0.07)	67.18****	66.18
06/05/03	1		59.45	62.71	56.53	67.57	58.29	56.89	1	63.00 (0.16)	53.24 (0.01)	54.56 (0.16)	68.25	68.54
12/03/03	ſ	1	59.47	62.67	56.57	67.61	58.33	56.91	1	63.26 (0.65)	54.51 (0.13)	53.23	1	15

Notes:

Depth-to-groundwater corrected for PSH Thickness - PSH thickness shown in parenthesis

Well replaced by recovery well RW-1 Well replaced by recovery well RW-2 Well replaced by recovery well RW-3 No data available Questionable data 

# Summary of BTEX Analysis of Groundwater Samples from Monitoring and Water Wells Texaco Exploration and Production Inc., State of New Mexico "F" Tank Battery NE/4, SE/4, Section 24, Township 19 South, Range 36 East Lea County, New Mexico Table 2:

Page 1 of 2

Well	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylene mg/L	Total BTEX mg/L
NMWQCC	Standard	0.01 mg/L	0.75 mg/L	0.75 mg/L	0.62 mg/L	State of the second
1-WW-1	28-July-98	N/S	N/S	N/S	N/S	N/S
MW2	28-July-98	N/S	N/S	N/S	N/S	N/S
MW-3	28-July-98	0.003	<0.001	<0.001	0.002	0.005
	16-Feb-01	<0.005	<0.005	<0.005	<0.005	<0.020
	12-June-02	<0.005	<0.005	<0.005	<0.005	<0.005
	26-Nov-02	<0.001	<0.001	<0.001	<0.001	<0.005
	6-Jun-03	<0.001	<0.001	<0.001	<0.001	<0.004
	4-Dec-03	<0.001	<0.001	<0.001	0.0017	0.0017
MW-4	28-July-98	<0.001	<0.001	<0.001	<0.001	<0.001
	16-Feb-01	<0.005	<0.005	<0.005	0.008	0.008
	12-June-02	<0.005	<0.005	<0.005	<0.005	<0.005
	26-Nov-02	0.002	<0.001	<0.001	<0.005	<0.009
	6-Jun-03	<0.001	<0:001	<0.001	0.0026	<0.0056
	4-Dec-03	0.0015	<0.001	<0.001	<0.001	0.0015
MW-5	28-July-98	<0.001	<0.001	<0.001	<0.001	<0.001
	16-Feb-01	<0.005	<0.005	<0.005	<0.005	<0.020
	12-June-02	<0.005	<0.005	<0.005	<0.005	<0.005
	26-Nov-02	0.002	<0.001	0.003	<0.002	<0.008
	6-Jun-03	<0.001	<0.001	<0.001	<0.001	<0.004
	4-Dec-03	<0.001	<0.001	<0.001	<0.001	<0.004
MW-6	28-July-98	<0.001	<0.001	<0.001	<0.001	<0.001
	16-Feb-01	<0.005	<0.005	0.006	0.006	0.012
	12-June-02	<0.001	<0.001	<0.001	<0.001	<0.001
	26-Nov-02	<0.001	<0.001	<0.001	<0.002	<0.005
	06-Jun-03	<0.001	<0.001	<0.001	<0.001	<0.004
	4-Dec-03	<0.001	<0.001	<0.001	<0.001	<0.004
7-WM	28-July-98	<0.001	<0.001	<0.001	<0.001	<0.001
	16-Feb-01	<0.005	<0.005	<0.005	<0.005	<0.020
	12-June-02	<0.005	<0.005	<0.005	<0.005	<0.005
	26-Nov-02	<0.001	<0.001	<0.001	<0.002	<0.005
	06-Jun-03	<0.001	<0.001	<0.001	<0.001	<0.004
	04-Dec-03	<0.001	<0.001	<0.001	<0.001	<0.004

# Summary of BTEX Analysis of Groundwater Samples from Monitoring and Water Wells Texaco Exploration and Production Inc., State of New Mexico "F" Tank Battery NE/4, SE/4, Section 24, Township 19 South, Range 36 East Table 2:

Lea County, New Mexico

Page 2 of 2

Well	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylene mg/L	Total BTEX mg/L
NMWQCC St	andard	0.01 mg/L	0.75 mg/L	0.75 mg/L	0.62 mg/L	and the second s
MW-8	28-July-98	<0.001	<0.001	<0.001	<0.001	<0.001
	16-Feb-01	<0.005	<0.005	<0.005	<0.005	<0.020
	11-June-02	<0.005	<0.005	<0.005	<0.005	<0.005
	26-Nov-02	<0.001	<0.001	<0.001	<0.002	<0.005
	06-Jun-03	<0.001	<0.001	<0.001	<0.001	<0.004
	04-Dec-03	<0.001	<0.001	<0.001	<0.001	<0.004
6-WW++	I	1	1	,	1	1
RW-3	11-June-02	<0.005	<0.005	<0.005	<0.005	<0.005
	4-Dec-03	<0.001	<0.001	<0.001	<0.001	<0.004
WW-1	28-July-98	<0.001	<0.001	<0.001	<0.001	<0.001
	12-June-02	<0.001	<0.001	<0.001	<0.001	<0.001
	26-Nov-02	<0.001	<0.001	<0.001	<0.002	<0.005
	06-Jun-03	<0.001	<0.001	<0.001	<0.001	<0.004
	04-Dec-03	<0.001	<0.001	<0.001	<0.001	<0.004
WW-2	12-June-02	<0.001	<0.001	<0.001	<0.001	<0.001
	26-Nov-02	<0.001	<0.001	<0.001	<0.002	<0.005
	6-Jun-03	<0.001	<0.001	<0.001	<0.001	<0.004
	04-Dec-03	<0.001	<0.001	<0.001	<0.001	<0.004
cate (MV-3)	28-July-98	0.003	<0.001	<0.001	0.002	0.005
cate (MVV-6)	16-Feb-01	<0.005	<0.005	<0.005	<0.005	<0.020
cate (MV-4)	26-Nov-02	0.002	<0.001	<0.001	<0.004	<0.008
cate (MV-6)	6-Jun-03	<0.001	<0.001	<0.001	<0.001	<0.004
cate (MV-8)	4-Dec-03	<0.001	<0.001	<0.001	<0.001	<0.004

Notes: Analysis performed by Trace Analysis, Inc., Lubbock, Texas

:Analysis of 11/26/02 performed by Environmental Lab of Texas I, Ltd., Odessa, Texas Milligrams per litter 1. mg/L:

 Table 3:
 Summary of General Chemistry Analysis of Groundwater Samples from Monitoring and Water Wells

 Texaco Exploration and Production Inc., State of New Mexico "F" Tank Battery (Closed)

 NE/4, SE/4, Section 24, Township 19 South, Range 36 East

 Lea County, New Mexico

I/am 1,000 SQL 1000 N/S 330 420 410 640 640 N/S 520 360 1 1 1 ŧ 1 1 1 1 1 1 t Page 1 of 3 Hardness mg/L N/S N/S 1 1 1 1 1 1 1 1 1 t 1 1 1 1 1 1 1 1 1 Sodium I/am 86.6 34.0 32.2 N/S 29.8 N/S 46 1 27 63 28 1 1 1 1 I, 1 : 1 t t 1 1 t ı 1 Potassium Ing/L <5.0 5.52 <5.0 \$5.0 S/N N/S 3.9 5.6 3.8 3.5 t 1 1 1 1 1 1 1 I 1 I 1 1 1 I 1 Magnesium mg/L 9.75 11.3 15.2 12.7 N/S N/S 6.5 5.9 20 2.9 1 1 t 1 1 1 1 1 t 1 t 1 1 t 1 1 Calcium J/Sun N/S 83.3 115 240 149 118 N/S 76 69 1 86 t t 1 \$ t 1 1 1 1 1 t ; 1 1 1 Sulfate Ing/L SN N/S 120 i 58 55 1 42 42 1 1 93 16 1 8 1 1 1 1 1 t 1 1 t 1 Nitrate mg/L 3.6 1.7 4.4 1 4.4 1 10 1 : 1 1 : 1 1 1 t 1 1 1 1 1 1 : 1 t 1 1 Fluoride mg/L 1.6 2.0 1.9 1.7 1.6 i 1 I 1 1 1 1 1 1 1 1 ł. 1 1 1 1 t 1 1 1 1 Chloride mg/L N/S 31.9 170 85.6 160 90.2 48.6 43.7 250 N/S 27.5 360 120 59.1 36.5 45.3 27.1 26.1 111 54.1 36 31 5 43 52 65 Alkalinity I/Bun Total N/S 160 236 150 N/S 204 170 192 140 170 ı 1 1 1 1 1 1 1 t 1 1 1 1 1 Bicarbonate Alkalinity mg/L N/S 160 236 150 192 140 NNS 170 170 t 1 : 1 1 1 1 1 : 1 1 1 1 1 Alkalinity Cabonate mg/L <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 1.0 N/S N/S 1 1 1 t 1 1 1 1 1 1 1 1 1 1 1 1 Hd N/S S/N 7.6 7.6 7.6 7.2 : 1 t 1 1 1 1 ; 1 1 t 1 1 1 1 1 1 1 1 1 28-July-98 28-July-98 28-July-98 28-July-98 26-Nov-02 04-Dec-03 28-July-98 28-July-98 12-June-02 26-Nov-02 12-June-02 26-Nov-02 06-Jun-03 12-June-02 12-June-02 26-Nov-02 06-Jun-03 04-Dec-03 16-Feb-01 04-Dec-03 16-Feb-01 04-Dec-03 16-Feb-01 16-Feb-01 06-Jun-03 06-Jun-03 Sample NMWOCC Standards Date 2-WIN\*\* Number I-MM. E-WM MW-4 9-MM S-WM Well

Summary of General Chemistry Analysis of Groundwater Samples from Monitoring and Water Wells Texaco Exploration and Production Inc., State of New Mexico "F" Tank Battery (Closed) NE/4, SE/4, Section 24, Township 19 South, Range 36 East Table 3:

Lea County, New Mexico

Sample	PH	Cabonate	Bicarbonate	Total	Chloride	Fluoride	Nitrate	Sulfate	Calcium	Magnesium	Potassium	Sodium	Hardness	TDS
Date	s.u.	Alkalinity	Alkalinity	Alkalinity	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Statistics of		mg/L	J/gm	mg/L	A DECEMBER							1000		
C Standards					250	1.6	10			The second se	time the same	Service and	Australia (	1000
28-July-98	7.6	<1.0	160	160	82	E.	1	93	117	10	3.9	36	1	510
16-Feb-01	1	<1.0	200	200	150	1.6	6.7	96	170	17.5	<5.0	38.7	1	700
12-June-02	1		1	1	96.7	ų	Ē	I.	1	T	1	1	1	1
26-Nov-02	1	ī	ī	I	133		1	1	-		1	1	4	1
06-Jun-03	1	1	1		199	R	30	1		1	1	1	1	1
04-Dec-03	1	ľ	1	E	230	1	1	1				1	i	1
28-July-98	7.5	<1.0	170	170	29	1	1	100	96	8.3	3.6	27	1	390
16-Feb-01	1	<1.0	172	172	94	1.7	4.2	75	129	12.8	<5.0	31.3	ï	560
11-June-02	1	1	1	1	180	1	1	1	1	1	1	1	ı	1
26-Nov-02	1	1	a		239	1	1	1	1	1	1	į	1	r
06-Jun-03	1	1	1		244	1	1	1	1	I.	I	Į.	1	1
04-Dec-03	1	1	1	1	251	1	1	ĩ	1		1	Ę	1	1
	1	1	1	1	1	1	1	1	Ŀ	ł.	L	:	1	r
28-July-98	7.4	<1.0	180	180	100	Ĩ	I.	71	102	14	3.2	33	313	480
12-June-02	1	1		I	43.6	Ĩ	E.	1	i	1	1	1	1	1
26-Nov-02	1	1	1	1	80	ij	£	6	Ū,	1	1	1	1	1
06-Jun-03	1	1	1	ľ	73.4	1	F	1	1	1	1	1	1	3
04-Dec-03	I.	1	ı	ı	65.3	1	1	1	1	1	1	1	1	1
11-June-02	1	ï	1		53.7	1	1	1	1	1	1	1	ï	1
26-Nov-02	1	1	1	1	70.9	1	a	1	120	1	ï	Ì	1	1
06-Jun-03	1	1	1	1	1.17	1	1	1	1		1	1	1	1
04-Dec-03	1	1	1		52.4	1	1	1	1	1	1	1	:	1
11-June-02	1	1	1	1	25.9	1	1	3	ï	1	1	:	I	1
04-Dec-03	1	1	1	1	36.3	I	r	t	1		e	1	1	1
	Sample           Date           Date           Date           Date           Date           Date           Date           Date           C Standards           28-July-98           16-Feb-01           12-June-02           26-Nov-02           06-Jun-03           04-Dec-03           11-June-02           11-June-02           11-June-02           04-Dec-03           04-Dec-03           04-Dec-03	Sample         PH           Date         s.u.           Date         s.u.           Date         s.u.           Date         s.u.           C Standards         7.6           I 16-Feb-01         -           12-June-02         -           28-July-98         7.6           12-June-03         -           26-Nov-02         -           04-Dec-03         -           11-June-02         -           04-Dec-03         -           04-Dec-03         -           26-Nov-02         -           04-Dec-03         -           04-Dec	Sample         PH         Cabonate           Date         s.u.         Alkalinity           Date         s.u.         Alkalinity           C Standards         s.u.         Alkalinity           C Standards         s.u.         Alkalinity           C Standards         r         ang/L           C Standards         r         r           C Standards         r         r           C Standards         r         r           C Standards         r         r           D (-Jun-02)         r         r	SamplepHCabonateBicarbonateDates.nAlkalinityAlkalinityDates.nAlkalinityAlkalinity $ragL$ mgLmgLmgL $ragLards$ $ragL$ mgL $ragLup-98$ 7.6 $<1.0$ 160 $16-Feb-01$ $ <-1.0$ 160 $16-Feb-01$ $ <-1.0$ 160 $12-June-02$ $   26-Nov-02$ $   12-June-02$ $   12-June-02$ $   12-June-02$ $   12-June-02$ $   10-Dec-03$ $   10-Dec-03$ $   11-June-02$ $   28-July-98$ 7.4 $  10-Dec-03$ $   28-July-98$ 7.4 $  28-July-98$ 7.4 $  11-June-02$ $   26-Nov-02$ $   26-Nov-02$ $   26-Nov-02$ $   11-June-02$ $   11-June-02$ $   06-Jun-03$ $   06-Jun-03$ $   06-Jun-03$ $   06-Jun-03$ $  -$ <td>SamplepHCabonateBitarbonateTotalDatesuAlsainityAlsainityAlsainityDatesuAlsainityAlsainityAlsainity<math>T = 10^{10}</math>mg/Lmg/Lmg/Lmg/L<math>T = 10^{10}</math><math>T_0</math><math>T_0</math><math>T_0</math><math>T_0</math><math>T = 10^{10}</math><math>T_0</math>&lt;</td> <td>Sample         pH         Cabonate         Blearbonate         Total         Chloride           Date         su         Alkalinity         Alkalinity         Alkalinity         Alkalinity         mg/L         mg/L<td>SamplePHCabonateBlearbonateTotalChlorideFluorideDatesa.AlkalinityMkalinityAlkalinitymg/Lmg/Lmg/Lmg/LDatesa.Alkalinitymg/Lmg/Lmg/Lmg/Lmg/Lmg/Lmg/LTotalrmg/Lmg/Lmg/Lmg/Lmg/Lmg/Lmg/Lmg/LC Standards7.6<math>\sim 1.0</math>160160821.6C Standardsr<math>\sim 1.0</math>2001501.61.6C Standardsr<math>\sim 1.0</math>2002001501.6C Standardsr<math>\sim 1.0</math>2002001.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.0</math>2002001.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.0</math>1.702.61.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.0</math>1.702.001.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.0</math>1.702.61.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.0</math>1.702.702.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.70</math>1.702.702.7<math>\sim 1.6</math>C Standardsrr<math>\sim 1.70</math>1.702.9<math>\sim 1.6</math>C Standardsrrrr2.7<math>\sim 1.7</math>C Standardsrrrrr2.7C Standardsrrrrr2.7C Standardsrr&lt;</td><td>SampleJHCabonateBicrebonateTotalTotalIntroductIntroductIntroductIntroductIntroductIntroductDate<math>\mathbf{na}</math>AltainityAltainityAltainityAltainity<math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math>&lt;</td><td>SamplepHCabonateBicarbonateTotalTotalFluerideNumberSubflateDate<math>x_{10}</math>AlkalinityAlkalinityMachinityAlkalinitymayLmayLmayLmayLDate<math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math></td><td>Sample         pit         Cabouate         Bicarbonate         Total         Material         Fundation         Sufface         Sufface</td><td>SamplePICabonateReceivantsTotalTotalRupt.SuffactCalciumMagnetiumJunes.uAlsalinitymag.1mag.1mg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1Junes.uAlsalinitymg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1Junes.usupsupmg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1JunesisisisisisisisisisiJunesisisisisisisisisiJunesisisisisisisisisisiJunesisisisisisisisisisisiJunesisisisisisisisisisisiJunesisisisisisisisisisisiJunesisisisisisisisisisisisiJunesisisisisisisisisisisisiJunesisisisisisisisisisisisiJunesisisisisisi<td>Sample         PI         Cabonate         Retremate         Total         Total         Submetality         Retremate         Total         Material         Material         Total         Material         Material&lt;</td><td>Sample         PI         Cohorer         Biterboarde         Trend         Floating         Floating         Magneting         Pertain         &lt;</td><td>Sample         Jet         Cuboate         Train         Chooted         Function         Function         Relation         Hardman           Date         and         Allotiny         Allotiny         Allotiny         Allotiny         Allotiny         Allotiny         angl.         &lt;</td></td></td>	SamplepHCabonateBitarbonateTotalDatesuAlsainityAlsainityAlsainityDatesuAlsainityAlsainityAlsainity $T = 10^{10}$ mg/Lmg/Lmg/Lmg/L $T = 10^{10}$ $T_0$ $T_0$ $T_0$ $T_0$ $T = 10^{10}$ $T_0$ <	Sample         pH         Cabonate         Blearbonate         Total         Chloride           Date         su         Alkalinity         Alkalinity         Alkalinity         Alkalinity         mg/L         mg/L <td>SamplePHCabonateBlearbonateTotalChlorideFluorideDatesa.AlkalinityMkalinityAlkalinitymg/Lmg/Lmg/Lmg/LDatesa.Alkalinitymg/Lmg/Lmg/Lmg/Lmg/Lmg/Lmg/LTotalrmg/Lmg/Lmg/Lmg/Lmg/Lmg/Lmg/Lmg/LC Standards7.6<math>\sim 1.0</math>160160821.6C Standardsr<math>\sim 1.0</math>2001501.61.6C Standardsr<math>\sim 1.0</math>2002001501.6C Standardsr<math>\sim 1.0</math>2002001.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.0</math>2002001.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.0</math>1.702.61.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.0</math>1.702.001.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.0</math>1.702.61.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.0</math>1.702.702.6<math>\sim 1.6</math>C Standardsr<math>\sim 1.70</math>1.702.702.7<math>\sim 1.6</math>C Standardsrr<math>\sim 1.70</math>1.702.9<math>\sim 1.6</math>C Standardsrrrr2.7<math>\sim 1.7</math>C Standardsrrrrr2.7C Standardsrrrrr2.7C Standardsrr&lt;</td> <td>SampleJHCabonateBicrebonateTotalTotalIntroductIntroductIntroductIntroductIntroductIntroductDate<math>\mathbf{na}</math>AltainityAltainityAltainityAltainity<math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math><math>\mathbf{ng}</math>&lt;</td> <td>SamplepHCabonateBicarbonateTotalTotalFluerideNumberSubflateDate<math>x_{10}</math>AlkalinityAlkalinityMachinityAlkalinitymayLmayLmayLmayLDate<math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math>C Standards<math>x_1</math><math>x_{10}</math><math>x_{10}</math><math>x_{10}</math></td> <td>Sample         pit         Cabouate         Bicarbonate         Total         Material         Fundation         Sufface         Sufface</td> <td>SamplePICabonateReceivantsTotalTotalRupt.SuffactCalciumMagnetiumJunes.uAlsalinitymag.1mag.1mg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1Junes.uAlsalinitymg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1Junes.usupsupmg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1JunesisisisisisisisisisiJunesisisisisisisisisiJunesisisisisisisisisisiJunesisisisisisisisisisisiJunesisisisisisisisisisisiJunesisisisisisisisisisisiJunesisisisisisisisisisisisiJunesisisisisisisisisisisisiJunesisisisisisisisisisisisiJunesisisisisisi<td>Sample         PI         Cabonate         Retremate         Total         Total         Submetality         Retremate         Total         Material         Material         Total         Material         Material&lt;</td><td>Sample         PI         Cohorer         Biterboarde         Trend         Floating         Floating         Magneting         Pertain         &lt;</td><td>Sample         Jet         Cuboate         Train         Chooted         Function         Function         Relation         Hardman           Date         and         Allotiny         Allotiny         Allotiny         Allotiny         Allotiny         Allotiny         angl.         &lt;</td></td>	SamplePHCabonateBlearbonateTotalChlorideFluorideDatesa.AlkalinityMkalinityAlkalinitymg/Lmg/Lmg/Lmg/LDatesa.Alkalinitymg/Lmg/Lmg/Lmg/Lmg/Lmg/Lmg/LTotalrmg/Lmg/Lmg/Lmg/Lmg/Lmg/Lmg/Lmg/LC Standards7.6 $\sim 1.0$ 160160821.6C Standardsr $\sim 1.0$ 2001501.61.6C Standardsr $\sim 1.0$ 2002001501.6C Standardsr $\sim 1.0$ 2002001.6 $\sim 1.6$ C Standardsr $\sim 1.0$ 2002001.6 $\sim 1.6$ C Standardsr $\sim 1.0$ 1.702.61.6 $\sim 1.6$ C Standardsr $\sim 1.0$ 1.702.001.6 $\sim 1.6$ C Standardsr $\sim 1.0$ 1.702.61.6 $\sim 1.6$ C Standardsr $\sim 1.0$ 1.702.702.6 $\sim 1.6$ C Standardsr $\sim 1.70$ 1.702.702.7 $\sim 1.6$ C Standardsrr $\sim 1.70$ 1.702.9 $\sim 1.6$ C Standardsrrrr2.7 $\sim 1.7$ C Standardsrrrrr2.7C Standardsrrrrr2.7C Standardsrr<	SampleJHCabonateBicrebonateTotalTotalIntroductIntroductIntroductIntroductIntroductIntroductDate $\mathbf{na}$ AltainityAltainityAltainityAltainity $\mathbf{ng}$ <	SamplepHCabonateBicarbonateTotalTotalFluerideNumberSubflateDate $x_{10}$ AlkalinityAlkalinityMachinityAlkalinitymayLmayLmayLmayLDate $x_{10}$ C Standards $x_1$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ C Standards $x_1$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ C Standards $x_1$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ C Standards $x_1$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ C Standards $x_1$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ C Standards $x_1$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ C Standards $x_1$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ C Standards $x_1$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ C Standards $x_1$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ $x_{10}$ C Standards $x_1$ $x_{10}$ $x_{10}$ $x_{10}$	Sample         pit         Cabouate         Bicarbonate         Total         Material         Fundation         Sufface         Sufface	SamplePICabonateReceivantsTotalTotalRupt.SuffactCalciumMagnetiumJunes.uAlsalinitymag.1mag.1mg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1Junes.uAlsalinitymg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1Junes.usupsupmg/1mg/1mg/1mg/1mg/1mg/1mg/1mg/1JunesisisisisisisisisisiJunesisisisisisisisisiJunesisisisisisisisisisiJunesisisisisisisisisisisiJunesisisisisisisisisisisiJunesisisisisisisisisisisiJunesisisisisisisisisisisisiJunesisisisisisisisisisisisiJunesisisisisisisisisisisisiJunesisisisisisi <td>Sample         PI         Cabonate         Retremate         Total         Total         Submetality         Retremate         Total         Material         Material         Total         Material         Material&lt;</td> <td>Sample         PI         Cohorer         Biterboarde         Trend         Floating         Floating         Magneting         Pertain         &lt;</td> <td>Sample         Jet         Cuboate         Train         Chooted         Function         Function         Relation         Hardman           Date         and         Allotiny         Allotiny         Allotiny         Allotiny         Allotiny         Allotiny         angl.         &lt;</td>	Sample         PI         Cabonate         Retremate         Total         Total         Submetality         Retremate         Total         Material         Material         Total         Material         Material<	Sample         PI         Cohorer         Biterboarde         Trend         Floating         Floating         Magneting         Pertain         <	Sample         Jet         Cuboate         Train         Chooted         Function         Function         Relation         Hardman           Date         and         Allotiny         Allotiny         Allotiny         Allotiny         Allotiny         Allotiny         angl.         <

Summary of General Chemistry Analysis of Groundwater Samples from Monitoring and Water Wells Texaco Exploration and Production Inc., State of New Mexico "F" Tank Battery (Closed) NE/4, SE/4, Section 24, Township 19 South, Range 36 East Table 3:

Lea County, New Mexico

														Page	3 of 3
Well Number	Sample Date	pH s.u.	Cabonate Alkalinity mg/L	Bicarbonate Alkalinity mg/L	Total Alkalinity mg/L	Chloride mg/L	Fluoride mg/L	Nitrate mg/L	Sulfate mg/L	Calcium mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Hardness mg/L	TDS mg/L
NMWQC	C Standards		a succession of		Section 2	250	1.6	10			an and a set of the				1000
Duplicate (MW-3)	28-July-98	00	<1.0	160	160	35	I	1	57	75	6.5	3.7	26	r.	310
Duplicate (MW-6)	16-Feb-01	1	<1.0	168	168	51	1.6	4.3	120	118	12.5	<5.0	32.0	а	510
Duplicate (MW-4)	26-Nov-02	I		Ľ	I.	160	Ē	1	1	ı	1	a	â	-	1
Duplicate (MW-6)	06-Jun-03	T	1	Ţ	I	44.5		1	1	1	ä	3	1	1	1
Duplicate (MW-8)	04-Dec-03	1	1	1	J	254	ĭ	I	Ţ	1	£	t	Ľ	1	I

Notes:

Milligrams per liter 1. mg/L:

No sample collected. Standard units 2. S.U. 3. N/S:

\*

\*\*: Well replaced by recovery well RW-2 on 10/13/99
 \*\*\*: Well installed for monitoring PSH, and replaced by recovery well RW-3 on 10/13/99

7. NMWQCC: New Mexico Water Quality Control Standards presented in mg/L

Well replaced by recovery well RW-1 on 10/14/99



11

1

i i



MW-8 •

#### MONITORING WELL DATA

Monitoring Well	Ground Elevation Feet AMSL	Top-of-Casing Elevation
MW-1	3796.63	3696.65
MW-2	3689.73	3692.48
MW-3	3696.95	3696.85
MW-4	3696.15	3699.50
MW-5	3691.13	3693.52
MW-6	3704.51	3704.81
MW-7	3691.63	3694.58
MW-8	3692.63	3695.61
MW-9	-	-

\* WELL REPLACED by RECOVERY WELL

7

	WATER WELL DATA	
WATER WELL	GROUND ELEVATION FEET AMSL	TOP-OF-CASING ELEVATION, FEET AMSL
WATER WELL 1	3703.17	3704.17
WATER WELL 2	3703.34	3703.84









WW-2 ٠









#### MONITORING WELL DATA

	Monitoring Weil	Ground Elevation Feet AMSL	Top-of-Casing Elevation
≮⊺	MW-1	3796.63	3696.65
≮⁻	MW-2	3689.73	3692.48
1	MW-3	3696.95	3696.85
Γ	MW-4	3696.15	3699.50
Γ	MW-5	3691.13	3693.52
	MW-6	3704.51	3704.81
-	MW-7	3691.63	3694.58
. [	MW-8	3692.63	3695.61
kΓ	MW-9	-	

WELL REPLACED by RECOVERY WELL

	WATER WELL DATA	
WATER WELL	GROUND ELEVATION FEET AMSL	TOP-OF-CASING ELEVATION, FEET AMSL
WATER WELL 1	3703.17	3704.17
WATER WELL 2	3703.34	3703.84





♦ 3635.30



#### MONITORING WELL DATA

Monitoring Well	Ground Elevation Feet AMSL	Top-of-Casing Elevation	
MW-1	3796.63	3696.65	
MW-2	3689.73	3692.48	
MW-3	3696.95	3696.85	
MW-4	3696.15	3699.50	
MW-5	3691.13	3693.52	
MW-6	3704.51	3704.81	
MW-7	3691.63	3694.58	
MW-8	3692.63	3695.61	
MW-9		•	

WELL REPLACED by RECOVERY WELL

	WATER WELL DATA					
WATER WELL	GROUND ELEVATION FEET AMSL	TOP-OF-CASING ELEVATION, FEET AMSL				
WATER WELL 1	3703.17	3704.17				
WATER WELL 2	3703.34	3703.84				







MW-8 .

#### MONITORING WELL DATA

	Monitoring Well	Ground Elevation Feet AMSL	Top-of-Casing Elevation
×	MW-1	3796.63	3696.65
K	MW-2	3689.73	3692.48
	MW-3	3696.95	3696.85
	MW-4	3696.15	3699.50
	MW-5	3691.13	3693 52
	MW-6	3704.51	3704.81
	MW-7	3691.63	3694.58
	MW-8	3692.63	3695.61
K	MW-9		

#### WATER WELL DATA

WATER WELL	GROUND ELEVATION FEET AMSL	TOP-OF-CASING ELEVATION, FEET AMSL				
WATER WELL 1	3703.17	3704.17				
WATER WELL 2	3703.34	3703.84				







**WW-2** 

•

N









MW-8 (2

#### MONITORING WELL DATA

Monito	oring Well	Ground Elevation Feet AMSL	Top-of-Casing Elevation
C M	N-1	3796.63	3696.65
C M	N-2	3689.73	3692.48
M	N-3	3696.95	3696.85
M	N-4	3696.15	3699.50
M	N-5	3691.13	3693.52
M	N-6	3704.51	3704.81
M	N-7	3691.63	3694.58
M	N-8	3692.63	3695.61
C M	N-9		

#### MATTER MITH CATA

WATER WELL DATA						
WATER WELL	GROUND ELEVATION FEET AMSL	TOP-OF-CASING ELEVATION, FEET AMSL				
WATER WELL 1	3703.17	3704.17				
WATER WELL 2	3703.34	3703.84				

#### SCALE IN FEET















N

### APPENDIX A

Ť

" li

Laboratory Analyses and Chain of Custody Documentation



6701 Aberdeen Avenue, Suite 9 155 McCutcheon, Suite H

Lubbock, Texas 79424 El Paso, Texas 79932

800 • 378 • 1296 888•588•3443 E-Mail: lab@traceanalysis.com

806 • 794 • 1296 915 • 585 • 3443

FAX 806 • 794 • 1298 FAX 915•585•4944

#### Analytical and Quality Control Report

Mark Larson Larson and Associates, Inc. P. O. Box 50685 Midland, Tx 79710

Report Date: June 13, 2003

Work Order: 3060917

**Project** Name: New Mexico Project Number: 0-0114

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
9350	MW-4	water	2003-06-06	11:00	2003-06-09
9351	MW-7	water	2003-06-06	11:30	2003-06-09
9352	MW-5	water	2003-06-06	12:00	2003-06-09
9353	MW-8	water	2003-06-06	12:55	2003-06-09
9354	MW-3	water	2003-06-06	13:30	2003-06-09
9355	WW-1	water	2003-06-06	14:05	2003-06-09
9356	WW-2	water	2003-06-06	<b>4</b> 4:10	2003-06-09
9357	MW-6	water	2003-06-06	14:55	2003-06-09
9358	Dup	water	2003-06-06	00:00	2003-06-09

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 12 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

#### **Analytical Report**

#### Sample: 9350 - MW-4

Analysis: BTEX		Analytical M	lethod:	$ m S \ 8021B$		Prep Method:	${ m S}~5030{ m B}$
QC Batch: 2131		Date Analyz	ed:	2003-06-09		Analyzed By:	CG
Prep Batch: 1920		Date Prepar	ed:	2003-06-09		Prepared By:	CG
			$\mathbf{RL}$				
Parameter Fl	ag	Res	ult	Units	Ι	Dilution	$\operatorname{RL}$
Benzene		< 0.00	100	mg/L		1	0.00100
Toluene		< 0.00	100	mg/L	1		0.00100
Ethylbenzene		< 0.00	100	mg/L		1	0.00100
Xylene (isomers)		0.00	260	mg/L		1	0.00100
					Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Result}$	$\operatorname{Unit}$	s Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	1	0.0544	mg/l	L 1	0.100	54	61 - 127
4-Bromofluorobenzene (4-BFB)	2	0.0588	mg/l	ն 1	0.100	59	72.6 - 130

#### Sample: 9350 - MW-4

S= \*\*

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	2088	Date Analyzed:	2003-06-10	Analyzed By:	$_{\rm JSW}$
Prep Batch:	1889	Date Prepared:	2003-06-09	Prepared By:	$_{\rm JSW}$
		RL	1.2.92 M		
Parameter	$\operatorname{Flag}$	Result	Units	Dilution	$\operatorname{RL}$
Chloride		111	mg/L	5	0.500

#### Sample: 9351 - MW-7

Analysis: BTEX		Analytical M	lethod:	S 8021B		Prep Method:	S 5030B
QC Batch: 2131		Date Analyz	ed:	2003-06-09		Analyzed By:	CG
Prep Batch: 1920		Date Prepar	ed:	2003-06-09		Prepared By:	CG
			$\mathbf{RL}$				
Parameter	Flag	Res	sult	Units	]	Dilution	RL
Benzene		< 0.00	100	mg/L		1	0.00100
Toluene		< 0.00	100	$\mathrm{mg/L}$		1	0.00100
Ethylbenzene		< 0.00	100	mg/L		1	0.00100
Xylene (isomers)		< 0.00	100	mg/L		1	0.00100
					Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Result}$	Units	5 Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	3	0.0528	mg/I	1	0.100	53	61 - 127
4-Bromofluorobenzene (4-BFB)	) 4	0.0522	mg/I	. 1	0.100	52	72.6 - 130

#### Sample: 9351 - MW-7

<sup>1</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control. <sup>2</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control. <sup>3</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control. <sup>4</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control.

Report Date: 0-0114	Report Date: June 13, 2003 -0114			Work Order: 3060917 New Mexico			Page Number: 3 of 1		
Analysis: QC Batch: Prep Batch:	Chloride (IC) 2088 1889		Analytic Date An Date Pre	al Method: alyzed: epared:	E 300.0 2003-06-10 2003-06-09		Prep Meth Analyzed E Prepared E	od: N/A 3y: JSW 3y: JSW	
			$\mathbf{RL}$						
Parameter	$\mathbf{F}$ lag		Result		Units	Di	lution	$\operatorname{RL}$	
Chloride			199		mg/L		10	0.500	
Sample: 93	52 - MW-5								
Analysis:	BTEX		Analytical M	ethod: S 80	021B		Prep Method:	S 5030B	
QC Batch:	2131		Date Analyze	d: 200	3-06-09		Analyzed By:	CG	
Prep Batch:	1920		Date Prepare	d: 200	3-06-09		Prepared By:	CG	
			F	RL					
Parameter	Fla	g	Resi	ılt	Units	${ m Di}$	lution	RL	
Benzene			< 0.001	00	mg/L		1	0.00100	
Toluene			< 0.001	00	$\mathrm{mg/L}$		1	0.00100	
Ethylbenzene	9		< 0.001	00	$\mathrm{mg/L}$		1	0.00100	
Xylene (isom	ers)	=-	< 0.001	00	mg/L		1	0.00100	
						Spike	Percent	Recovery	
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotolu	ene (TFT)		0.0676	mg/L	1	0.100	68	61 - 127	
4-Bromofluor	robenzene (4-BFB)	5	0.0649	mg/L	1	0.100	65	72.6 - 130	
Sample: 03	59 MW 5								
sample, ss					<b>T</b> 000 0				
Analysis:	Unioride (IC)		Analytic	cal Method:	E 300.0		Prep Meth	IOD: N/A	
QC Batch:	2088		Date Ar	alyzed:	2003-06-10		Analyzed I	Dy: JOW	
Prep Batch:	1009		Date Pr	epared:	2003-06-09		Prepared 1	5y: J5w	
Donomator	- در ۱- «		RL		TT:4 -	D.	Intion	זת	
Chloride	r iag			<u> </u>	mg/L	D	5	<u></u>	
A 111111111111111111111111111111111111			40.0		1116./ L		0	0.000	

#### Sample: 9353 - MW-8

Analysis:	$\operatorname{BTEX}$		Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	2149		Date Analyzed:	2003-06-10	Analyzed By:	CG
Prep Batch:	1933		Date Prepared:	2003-06-10	Prepared By:	CG
			$\operatorname{RL}$			
Parameter		$\operatorname{Flag}$	Result	Units	Dilution	$\operatorname{RL}$
Benzene			< 0.00100	mg/L	1	0.00100
Toluene			< 0.00100	$\mathrm{mg/L}$	1	0.00100
Ethylbenzene	е		< 0.00100	mg/L	1	0.00100
Xylene (isom	iers)		< 0.00100	mg/L	1	0.00100

 $^{5}$ Low surrogate recovery due to matrix interference. ICV, CCV show the method to be in control.

Report Date: June 13, 2003 0-0114

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Irifluorotoluene (TFT)	6 (CV	0.0823	mg/L	1	0.100	82	78.7 - 110
4-Bromofluorobenzene (4-BF	<u>B)</u>	0.0773	mg/L	1	0.100	77	77.8 - 110
Sample: 9353 - MW-8							
Analysis: Chloride (IC)		Analyti	cal Method:	E 300.0		Prep Me	ethod: N/A
QC Batch: 2088 Prep Batch: 1889		Date Ar Date Pr	nalyzed: repared:	2003-06-10 2003-06-09		Analyze Prepare	d By: JSW d By: JSW
		RL					
Parameter F	lag	Result		Units	Di	lution	RL
Chloride		244		mg/L		10	0.500
Sample: 9354 - MW-3							
Analysis: BTEX		Analytical M	lethod: S 8	021B		Prep Metho	od: S 5030B
QC Batch: 2149		Date Analyz	ed: 200	3-06-10		Analyzed E	By: CG
Prep Batch: 1933		Date Prepare	ed: 200	03-06-10		Prepared B	y: CG
Parameter	Flag	Res	RL ult	Units	Di	lution	RL
Benzene	0	< 0.00	100	mg/L		1	0.00100
Toluene		< 0.001	100	mg/L		1	0.00100
Ethylbenzene		< 0.001	L00	mg/L		1	0.00100
Xylene (isomers)		< 0.00	100	mg/L		1	0.00100
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0829	mg/L	1	0.100	83	78.7 - 110
4-Bromofluorobenzene (4-BI	FB) 7	0.0761	mg/L	1	0.100	76	77.8 - 110
Sample: 9354 - MW-3							
- Analysis: Chloride (IC)		Analyti	ical Method:	E 300.0		Prep M	ethod: N/A
QC Batch: 2088		Date A	nalyzed:	2003-06-10		Analyze	ed By: JSW
Prep Batch: 1889		Date P	repared:	2003-06-09		Prepare	ed By: JSW
Parameter	lag	$\operatorname{RL}$ Result		Units	D	ilution	RI
I at attricted 1							

# Analysis:BTEXAnalytical Method:S 8021BPrep Method:S 5030BQC Batch:2149Date Analyzed:2003-06-10Analyzed By:CGPrep Batch:1933Date Prepared:2003-06-10Prepared By:CG

 $^{6}$ Low surrogate recovery due to matrix interference. ICV, CCV show the method to be in control.

<sup>7</sup>Low surrogate recovery due to matrix interference. ICV, CCV show the method to be in control.

		I	RL				
Parameter F	lag	Res	ult	Units	Di	ilution	$\operatorname{RL}$
Benzene		< 0.00100		mg/L		1	
Toluene			< 0.00100			1	0.00100
Ethylbenzene		< 0.00100		$\mathrm{mg/L}$		1	
Xylene (isomers)		<0.00100		mg/L	1		0.00100
					Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Result}$	$\mathbf{Units}$	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	8	0.0614	mg/L	1	0.100	61	78.7 - 110
4-Bromofluorobenzene (4-BFB)	9	0.0601	mg/L	1	0.100	60	77.8 - 110

#### Sample: 9355 - WW-1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	2172	Date Analyzed:	2003-06-12	Analyzed By:	$_{\rm JSW}$
Prep Batch:	1964	Date Prepared:	2003-06-11	Prepared By:	JSW
		$\mathbf{RL}$			
Parameter	Flag	$\mathbf{Result}$	Units	Dilution	$\operatorname{RL}$
Chloride		73.4	mg/L	5	0.500

#### Sample: 9356 - WW-2

Analysis: BTEX		Analytical M	ethod:	S 8021B	1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -	Prep Metho	d: S 5030B
QC Batch: 2149		Date Analyz	ed:	2003-06-10		Analyzed B	y: CG
Prep Batch: 1933		Date Prepared:		2003-06-10		Prepared By:	
		]	RL				
Parameter	Flag	Res	ult	Units	Di	lution	$\operatorname{RL}$
Benzene		< 0.001	.00	mg/L		1	0.00100
Toluene		< 0.001	00	mg/L		1	0.00100
Ethylbenzene		< 0.001	.00	mg/L		1	0.00100
Xylene (isomers)	·····	< 0.001	.00	mg/L			0.00100
					Spike	Percent	Recovery
Surrogate	$\mathbf{F}$ lag	$\operatorname{Result}$	Unit	s Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	10	0.0681	mg/l	L 1	0.100	68	78.7 - 110
4-Bromofluorobenzene (4-BFB)	11	0.0643	mg/l	L 1	0.100	64	77.8 - 110

#### Sample: 9356 - WW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	2192	Date Analyzed:	2003-06-13	Analyzed By:	$_{\rm JSW}$
Prep Batch:	1985	Date Prepared:	2003-06-12	Prepared By:	JSW

continued ...

<sup>&</sup>lt;sup>8</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control. <sup>9</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control. <sup>10</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control. <sup>11</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control.

#### sample 9356 continued ...

		$\operatorname{RL}$			
Parameter	Flag	Result	Units	Dilution	
		$\mathbf{RL}$			
Parameter	$\mathbf{Flag}$	$\operatorname{Result}$	Units	Dilution	$\operatorname{RL}$
Chloride		71.1	mg/L	5	0.500

#### Sample: 9357 - MW-6

Analysis: BTEX		Analytical M	lytical Method: S 8021B Prep Method: S			od: S 5030B	
QC Batch: 2149		Date Analyz	ed:	2003-06-10		Analyzed 1	By: CG
Prep Batch: 1933		Date Prepar	ed:	2003-06-10		Prepared By:	
			$\mathbf{RL}$				
Parameter	Flag	Res	sult	Units	]	Dilution	$\operatorname{RL}$
Benzene		< 0.00	100	mg/L		1	0.00100
Toluene		< 0.00	100	mg/L		1	0.00100
Ethylbenzene		< 0.00	100	mg/L		1	0.00100
Xylene (isomers)		< 0.00	100	mg/L		1	0.00100
					Spike	Percent	Recovery
Surrogate	$\mathbf{F}$ lag	$\operatorname{Result}$	Unit	s Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	12	0.0767	mg/	L 1	0.100	77	78.7 - 110
4-Bromofluorobenzene (4-BFB)	13	0.0692	mg/	L_1	0.100	. 69	

#### Sample: 9357 - MW-6

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	2192	Date Analyzed:	2003-06-13	Analyzed By:	JSW
Prep Batch:	1985	Date Prepared:	2003-06-12	Prepared By:	JSW
		RL			
Parameter	$\operatorname{Flag}$	Result	Units	Dilution	RL
Chloride		43.7	mg/L	5	0.500

#### Sample: 9358 - Dup

Analysis: QC Batch:	lysis: BTEX Anal Batch: 2149 Date		Analytical Method: Date Analyzed:	S 8021B 2003-06-10	Prep Method: Analyzed By:	S 5030B CG
Prep Batch:	1933		Date Prepared: 2003-06-10		Prepared By:	CG
			$\operatorname{RL}$			
Parameter		$\mathbf{Flag}$	$\operatorname{Result}$	Units	Dilution	$\operatorname{RL}$
Benzene			< 0.00100	mg/L	1	0.00100
Toluene			< 0.00100	mg/L	1	0.00100
Ethylbenzene	2		< 0.00100	mg/L	1	0.00100
Xylene (isom	ers)		< 0.00100	mg/L	1	0.00100

 $^{12}\mathrm{Low}$  surrogate recovery due to prep. ICV, CCV show the method to be in control.  $^{13}\mathrm{Low}$  surrogate recovery due to prep. ICV, CCV show the method to be in control.

Report Date: June 13, 2003 0-0114

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0695	mg/L	1	0.100	70	78.7 - 110
4-Bromofluorobenzene (4-BFB)	15	0.0677	mg/L	1	0.100	68	77.8 - 110
Sample: 9358 - Dup							
Analysis: Chloride (IC) QC Batch: 2192 Prep Batch: 1985		Analyti Date Ar Date Pr	cal Method: nalyzed: repared:	E 300.0 2003-06-13 2003-06-12		Prep Me Analyze Prepareo	ethod: N/A d By: JSW d By: JSW
		RL					
Parameter Flag		Result		Units	Di	lution	RL
Chloride	<u></u>	44.5		mg/L		5	0.500
Method Blank (1) QC Bat	tch: 2088						
	-		Result		Unit	ts	RL
Parameter	Flag		recourt				
Parameter Chloride	F'lag		<0.500		mg/	L	0.5
Parameter Chloride Method Blank (1) QC Bai	Flag tch: 2131	-	<0.500		mg/	- -	0.5
Parameter Chloride Method Blank (1) GC Bai Parameter Benzene	Flag tch: 2131 Flag	-	Res <0.500	ult	mg/ Un	L its	0.5
Parameter Chloride Method Blank (1) ~QC Bat Parameter Benzene Toluene	Flag tch: 2131 Flag	-	Res <0.500	ult 100	mg/ Un: mg, mg	its /L /L	0.5 RL 0.001 0.001
Parameter Chloride Method Blank (1) QC Bai Parameter Benzene Toluene Ethylbenzene	Flag tch: 2131 Flag	-	Res <0.500 Res <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <	ult 100 100	mg/ Un mg, mg, mg,	- - /L /L /L	0.5 RL 0.001 0.001 0.001
Parameter Chloride Method Blank (1) <sup>-</sup> QC Ba Parameter Benzene Toluene Ethylbenzene Xylene (isomers)	Flag tch: 2131 Flag	-	Res <0.500 Res <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <0.000 <	ult 100 100 100	mg/ Un mg, mg, mg, mg	its /L /L /L /L /L	0.5 RL 0.001 0.001 0.001 0.001
Parameter Chloride Method Blank (1) GC Bat Parameter Benzene Toluene Ethylbenzene Xylene (isomers)	Flag tch: 2131 Flag	- P coult	Res <0.500 (0.001 <0.001 <0.001 Units		Uni mg, mg, mg, mg, Spike	its /L /L /L /L /L Percent Recovery	0.5 RL 0.001 0.001 0.001 0.001 Recovery
Parameter Chloride Method Blank (1) QC Bai Parameter Benzene Toluene Ethylbenzene Xylene (isomers) Surrogate Trifluorotoluene (TFT)	Flag Flag Flag Flag	- Result	Res <0.500 <0.001 <0.001 <0.001 <0.001 Units mg/L	ult 100 100 100 100 Dilution	mg/ Uni mg, mg, mg, mg, mg, mg, mg, mg, mg, mg,	its /L /L /L /L /L Percent Recovery 21	0.5 RL 0.001 0.001 0.001 0.001 0.001 Recovery Limits 61 - 127
Parameter Chloride Method Blank (1) QC Bat Parameter Benzene Toluene Ethylbenzene Xylene (isomers) Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	Flag Flag Flag Flag 16 17	Result 0.0207 0.0195	Res <0.500 <0.000 <0.000 <0.000 <0.000 Units mg/L mg/L	ult 100 100 100 100 100 11 1 1	mg/ Un mg, mg, mg, mg, mg, 0.100	its /L /L /L /L /L Percent Recovery 21 20	0.5 RL 0.001 0.001 0.001 0.001 Recovery Limits 61 - 127 72.6 - 130
Parameter         Chloride         Method Blank (1)       QC Bai         Parameter         Benzene         Toluene         Ethylbenzene         Xylene (isomers)         Surrogate         Trifluorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Method Blank (1)       QC Ba         Parameter	Flag Flag Flag 16 17 .tch: 2149 Flag	Result 0.0207 0.0195	Res <0.500 <0.001 <0.001 <0.001 <0.001 Units mg/L mg/L Bes	ult 100 100 100 100 100 11 1	mg/ Uni mg, mg, mg, mg, mg, mg, mg, mg, mg, mg,	its /L /L /L /L /L /L 20	0.5 RL 0.001 0.001 0.001 0.001 Recovery Limits 61 - 127 72.6 - 130
Parameter         Chloride         Method Blank (1)         QC Bai         Parameter         Benzene         Toluene         Ethylbenzene         Xylene (isomers)         Surrogate         Trifluorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Method Blank (1)       QC Ba         Parameter         Benzene	Flag Flag Flag Flag 16 17 tch: 2149 Flag	Result 0.0207 0.0195	Ress <0.500 <0.001 <0.001 <0.001 <0.001 Units mg/L mg/L Ress <0.00	ult 100 100 100 100 11 1 1 1	mg/ Uni mg, mg, mg, mg, mg, mg, mg, mg, mg, mg,	its /L /L /L /L /L /L 20 its /L	0.5 RL 0.001 0.001 0.001 0.001 Recovery Limits 61 - 127 72.6 - 130 RL 0.001
Parameter         Chloride         Method Blank (1)       QC Bat         Parameter         Benzene         Toluene         Ethylbenzene         Xylene (isomers)         Surrogate         Trifluorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Method Blank (1)       QC Bat         Parameter         Benzene         Toluene	Flag Flag Flag Flag 16 17 .tch: 2149 Flag Flag	Result 0.0207 0.0195	Ress <0.500 <0.001 <0.001 <0.001 <0.001 <0.001 Units mg/L mg/L mg/L Ress <0.00 <0.00 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001	ult 100 100 100 Dilution 1 1 1 sult 100 100	mg/ Un mg, mg, mg, mg, mg, content 0.100 0.100 0.100 0.100 0.100	its /L /L /L /L /L 20 its /L /L	0.5 RL 0.001 0.001 0.001 0.001 Recovery Limits 61 - 127 72.6 - 130 RL 0.001 0.001 0.001
Parameter         Chloride         Method Blank (1)       QC Bat         Parameter         Benzene         Toluene         Ethylbenzene         Xylene (isomers)         Surrogate         Trifluorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Method Blank (1)       QC Bat         Parameter         Benzene         Toluene         Ethylbenzene	Flag Flag Flag Flag 16 17 tch: 2149 Flag Flag	Result 0.0207 0.0195	Res <0.500 <0.001 <0.001 <0.001 <0.001 <0.001 Units mg/L mg/L Mg/L Res <0.000 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.	ult 100 100 100 100 100 1 1 1 1 sult 100 100 100 100	mg/ Un mg, mg, mg Spike Amount 0.100 0.100 0.100 Un mg mg	its /L /L /L /L /L /L 20 its /L /L /L /L	0.5 RL 0.001 0.001 0.001 0.001 0.001 Recovery Limits 61 - 127 72.6 - 130 RL 0.001 0.001 0.001 0.001 0.001 0.001

<sup>14</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control. <sup>15</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control. <sup>16</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control. <sup>17</sup>Low surrogate recovery due to prep. ICV, CCV show the method to be in control.

G				~~ .		Spike	Percen	t P	Recovery
Surrogate	(1010/11)	Flag	Result	Units	Dilution	Amount	Recover	<u>.y</u>	Limits
Trifluorotoluene	$e(\mathbf{TFT})$		0.0975	mg/L	1	0.100	98	7	8.7 - 110 7 0 - 110
4-Bromofluorobe	enzene (4-B	ғв)	0.0870	mg/L	<u>l</u>	0.100	87	7	7.8 - 110
Method Blanl	k (1) Q	QC Batch: 2172	2						
Parameter		Flag		Result		Uni	ts		$\operatorname{RL}$
Chloride				< 0.500		mg/	/L		0.5
				Rogult		Uni	its		DI
Parameter Chloride		Flag		<0.500		mg/	/L		0.5
Parameter Chloride Laboratory C	Control Spi LCS	Flag ike (LCS-1)	QC Batcl	<0.500	Matrix	mg/		Rec.	0.5
Parameter Chloride Laboratory C	Control Sp LCS Result	Flag ike (LCS-1) LCSD Result	QC Batc Units Dil	Arount Arount h: 2088 Spike Arount	Matrix Result	Rec.	RPD	Rec. Limit	0.5 RPD Limit

Laboratory Control Spike (LCS-1) QC Batch: 2131

	LCS	LCSD			Spike	Matrix			Rec.	RPD
Param	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dil.	$\operatorname{Amount}$	$\operatorname{Result}$	Rec.	RPD	$\operatorname{Limit}$	$\operatorname{Limit}$
Benzene	0.0910	0.0906	mg/L	1	0.100	< 0.000350	91	0	77.7 - 115	20
Toluene	0.0903	0.0901	$\mathrm{mg/L}$	1	0.100	< 0.000550	90	0	76.5 - 114	20
Ethylbenzene	0.0910	0.0910	m mg/L	1	0.100	< 0.000690	91	0	78.7 - 112	20
Xylene (isomers)	0.266	0.266	mg/L	1	0.300	< 0.00183	89	0	66.3 - 123	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	$\operatorname{Result}$	Units	Dil.	$\operatorname{Amount}$	Rec.	Rec.	$\operatorname{Limit}$
Trifluorotoluene (TFT)	0.0838	0.0826	mg/L	1	0.100	84	83	61 - 127
4-Bromofluorobenzene (4-BFB)	0.0840	0.0825	$\mathrm{mg/L}$	1	0.100	84	82	72.6 - 130

Laboratory Control Spike (LCS-1) QC Batch: 2149

Param	$\begin{array}{c} \mathrm{LCS} \\ \mathrm{Result} \end{array}$	$\begin{array}{c} \mathrm{LCSD} \\ \mathrm{Result} \end{array}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Benzene	0.0903	0.0913	mg/L	1	0.100	< 0.000410	90	1	80.5 - 113	20
Benzene	0.0903	0.0913	$\mathrm{mg/L}$	1	0.100	< 0.000410	90	1	80.5 - 113	20
Toluene	0.0910	0.0927	mg/L	1	0.100	< 0.000760	91	$^{2}$	81.2 - 112	20
Toluene	0.0910	0.0927	$\mathrm{mg/L}$	1	0.100	< 0.000760	91	2	81.2 - 112	20
	· · · · · · · · · · · · · · · · · · ·								contin	ued

Report Date: June 13, 2003 0-0114

control spikes continu	$ed \ldots$									
	LCS	LCSD			Spike	Matri	x		Rec.	RPD
Param	Result	Result	Units	Dil.	Amount	Resul	t Rec.	RPD	Limit	Limit
Ethylbenzene	0.0905	0.0927	mg/L	1	0.100	< 0.001	20 90	2	82.2 - 11	2 20
Ethylbenzene	0.0905	0.0927	$\mathrm{mg/L}$	1	0.100	< 0.001	20 90	2	82.2 - 112	2 20
Xylene (isomers)	0.274	0.281	$\mathrm{mg/L}$	1	0.300	< 0.001	83 91	3	80.6 - 115	2 20
Xylene (isomers)	0.274	0.281	$\mathrm{mg/L}$	1	0.300	< 0.001	83 91	3	80.6 - 113	2 20
Percent recovery is ba	used on the	e spike res	ult. RPD	) is based	on the spi	ke and spi	ke duplicat	e result.		
			LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate		]	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dil.	$\operatorname{Amount}$	Rec.	Rec.	$\operatorname{Limit}$
Trifluorotoluene (TF	Г)		0.0941	0.0956	mg/L	1	0.100	94	96	78.7 - 110
Trifluorotoluene (TF)	Г)	(	0.0941	0.0956	$\mathrm{mg/L}$	1	0.100	94	96	78.7 - 110
4-Bromofluorobenzen	e (4-BFB)	(	0.0901	0.0958	$\mathrm{mg/L}$	1	0.100	90	96	77.8 - 110
4-Bromofluorobenzen	e (4-BFB)		0.0901	0.0958	mg/L	1	0.100	90	96	77.8 - 110
L Param Re	CS L sult R	CSD lesult	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride 1	1.9	11.9	mg/L	1	12.5	<1.49	95	0	90 - 110	20
L Param Re	CS L esult R	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride 1	2.1	12.2	m mg/L	1	12.5	<1.49	97	1	90 - 110	20
Percent recovery is be Matrix Spike (MS	-1) Q	e spike res C Batch:	sult. RPI 2088	) is based	d on the spi	ke and spi	ke duplicat	e result.	Dec	סתת
Porom Po	(15  N	acult	Unita	Dil	Spike	Matrix	Pag	מממ	Rec.	RPD Limit
Chlorido 7	$\frac{1}{26}$	730	$\frac{0 \text{ mts}}{m \pi / I}$	50	Amount 19.5	128	<u></u>	<u></u>	29.7 126	
Percent recovery is b Matrix Spike (MS	ased on th	e spike re C Batch:	sult. RPI	D is based	12.5 1 on the spi	ike and spi	ike duplica	te result.	52.1 - 100	. 20
1	MS N	MSD			Spike	Matrix			Rec.	RPD
Param Re	esult R	lesult	Units	Dil.	Amount	Result	Rec.	RPD	Limit	Limit
Chloride 6	572	676	m mg/L	50	12.5	129	87	0	32.7 - 136	3 20
Percent recovery is b	ased on th	e spike re	sult. RPI	) is base	d on the spi	ike and sp	ike duplica	te result.		

Matrix Spike (MS-1) QC Batch: 2192

continued ...

Report Date: June 13, 2003 0-0114

Work Order: 3060917 New Mexico Page Number: 10 of 12

matrix spikes	continued	MCD			0.1				D	רומית
Param	Result	Result	Uni	ts Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	Limit
Donom	MS Bogult	MSD Desult	I Inci		Spike	Matrix	Dee	ממת	Rec.	RPD Limit
r aram Chloride				$\frac{15}{1}$ $\frac{11}{50}$	Amount 12.5	<74.7	<u>Rec.</u>	<u></u> 0	$\frac{1}{397-13}$	<u>Linit</u> 6 20
Demonstration		on the smil			12.0	< 14.1	00	0	32.7 - 13	0 20
Percent recov	ery is based	on the spir	e result	. RPD is bas	sed on the spi	ke and spu	te duplica	ate result.		
Standard (I	(CV-1)	QC Batch:	2088							
				CCVs	CCVs	CC.	Vs	Percer	nt	
				True	Found	Perc	ent	Recove	ery	Date
Param	Flag	Units		Conc.	Conc.	Reco	very	Limit	s	Analyzed
Chloride		mg/L		12.5	12.7	10	2	90 - 11	10	2003-06-10
Standard (		OC Batak	. 9000							
Stanuaru (	00 •-1)	QU Datei.	. 2000	0.011	0.071			-		
				CCVs	CCVs		Vs	Percei	nt	Dete
Param	Flor	Unite		Cone	Found	Perc	ent	Recove	ery	Date
Chloride	I lag	01115		<u> </u>	12.7	10	2 very	<u>90 - 1</u>	10	2003-06-10
				12.0	12.1			50 - 1		2003 00-10
Standard (	CCV 1)	OC Patal	. 0191							
Stanuaru (	00 •-1)	QU Date	. 2131							
				$\mathrm{CCVs}$	CCVs	(	CVs	$\operatorname{Perc}$	ent	
_				True	Found	P	$\operatorname{ercent}$	Reco	very	Date
Param	F	Flag	Units	Conc.	Conc.	Re	covery	Lim	its	Analyzed
Benzene			mg/L	0.100	0.0884		88	85 -	115	2003-06-09
Toluene	_		mg/L	0.100	0.0889		89	85 -	115	2003-06-09
Xulono (icom	e	18	mg/L mg/I	0.100	0.0853		85	80 - 95	115 115	2003-06-08
Aylene (Isoni			Ing/L	0.300	0.231		04	- 00 -	110	2003-00-08
Standard (	CCV-2)	QC Batcl	n: 2131							
				CCVs	CCVs	(	$CV_{2}$	Perc	ent	
				True	Found	P	ercent	Reco	verv	Date
Param	H	Flag	Units	Conc.	Conc.	Ŕ	coverv	Lim	its	Analyzed
Benzene			mg/L	0.100	0.0872		87	85	115	2003-06-09
Toluene			mg/L	0.100	0.0871		87	85 -	115	2003-06-09
Ethylbenzen	e		mg/L	0.100	0.0883		88	85 -	115	2003-06-09
Xylene (isom	ners)		mg/L	0.300	0.258		86	85 -	115	2003-06-09
Standard (	ICV-1)	QC Batch	: 2149							
				CCVs	CCVs		CCVs	Perc	ent	
				True	Found	l P	ercent	Reco	very	Date
Param	]	Flag	Units	Conc.	Conc.	Re	ecovery	Lim	its	Analyzed
Benzene			mg/L	0.100	0.0895	j	90	85 -	115	2003-06-1
Toluene			$\mathrm{mg/L}$	0.100	0.0919	)	92	85 -	115	2003-06-1
Ethylbenzen	e		mg/L	0.100	. 0.0917	,	92	85 -	115	2003-06-1
									C	ontinued

 $^{18}\mathrm{Average}$  of CCV components within acceptable range.

T T T

Report	Date:	June	13,	2003
0-0114				

standard continued ...

			$\mathrm{CCVs}$	CCVs	$\mathrm{CCVs}$	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Xylene (isomers)		mg/L	0.300	0.278	93	85 - 115	2003-06-10

#### Standard (CCV-1) QC Batch: 2149

			CCVs	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0902	90	85 - 115	2003-06-10
Toluene		m mg/L	0.100	0.0905	90	85 - 115	2003-06-10
Ethylbenzene		$\mathrm{mg/L}$	0.100	0.0908	91	85 - 115	2003-06-10
Xylene (isomers)		mg/L	0.300	0.275	92	85 - 115	2003-06-10

#### Standard (CCV-2) QC Batch: 2149

			$\rm CCVs$	CCVs	$\rm CCVs$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0905	90	85 - 115	2003-06-10
Toluene		mg/L	0.100	0.0924	92	85 - 115	2003-06-10
Ethylbenzene		mg/L	0.100	0.0920	92	85 - 115	2003-06-10
Xylene (isomers)		mg/L	0.300	0.279	93	85 - 115	2003-06-10

#### Standard (ICV-1) QC Batch: 2172

			CCVs	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	12.5	11.7	94	90 - 110	2003-06-12

#### Standard (CCV-1) QC Batch: 2172

			$\mathrm{CCVs}$	$\mathrm{CCVs}$	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	12.5	11.4	91	90 - 110	2003-06-12

#### Standard (ICV-1) QC Batch: 2192

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	12.5	11.3	90	90 - 110	2003-06-13

Standard (CCV-1) QC Batch: 2192

Report Date: June 13, 2003 0-0114			We	ork Order: 3060 New Mexico	9917	Page Number: 12 of 12		
			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date	
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Chloride		mg/L	12.5	11.6	93	90 - 110	2003-06-13	

H III

Report Date: June 13, 2003

3060917

1.27

Work Order:

#### **Summary Report**

Mark Larson Larson and Associates, Inc. P. O. Box 50685 Midland, Tx 79710

Project Name: New Mexico Project Number: 0-0114

Time Date Date Sample Description Received Matrix Taken Taken 9350 MW-4 water 2003-06-06 11:00 2003-06-09 9351 **MW-7** 2003-06-06 2003-06-09 water 11:309352 MW-5 2003-06-06 12:002003-06-09 water 9353 MW-8 2003-06-06 12:552003-06-09 water 9354 MW-3 2003-06-09 2003-06-0613:30water 9355 WW-1 2003-06-09 water 2003-06-0614:05WW-2 93562003-06-06 2003-06-09 water 14:109357MW-6 water 2003-06-06 14:552003-06-09 9358 Dup water 2003-06-06 00:00 2003-06-09

	·····		BTEX	
	Benzene	Toluene	Ethylbenzene	Xylene (isomers)
Sample - Field Code	(mg/L)	(mg/L)	(mg/L)	(mg/L)
9350 - MW-4	<0.00100	< 0.00100	<0.00100	0.00260
9351 - MW-7	< 0.00100	< 0.00100	< 0.00100	< 0.00100
9352 - MW-5	< 0.00100	< 0.00100	< 0.00100	< 0.00100
9353 - MW-8	< 0.00100	< 0.00100	< 0.00100	< 0.00100
9354 - MW-3	< 0.00100	< 0.00100	< 0.00100	< 0.00100
9355 - WW-1	< 0.00100	< 0.00100	< 0.00100	< 0.00100
9356 - WW-2	< 0.00100	< 0.00100	< 0.00100	< 0.00100
9357 - MW-6	< 0.00100	< 0.00100	< 0.00100	< 0.00100
9358 - Dup	< 0.00100	< 0.00100	< 0.00100	< 0.00100

#### Sample: 9350 - MW-4

Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		111	mg/L	0.500

#### Sample: 9351 - MW-7

Param	$\operatorname{Flag}$	Result	Units	$\operatorname{RL}$
Chloride		199	mg/L	0.500

#### Sample: 9352 - MW-5

continued ...

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.

Report Date: June 0-0114	13, 2003	Work Order: 3060917 New Mexico	Page	Number: 2 of 2
sample 9352 contin	ued			
Param	Flag	Result	Units	RL
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride		48.6	mg/L	0.500
Sample: 9353 - N	/IW-8			
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride		244	mg/L	0.500
Sample: 9354 - N	/IW-3			
Param	$\operatorname{Flag}$	Result	Units	$\operatorname{RL}$
Chloride		27.5	mg/L	0.500
Sample: 9355 - V	WW-1			
Param	Flag	Result	Units	RL
Chloride		73.4	mg/L	0.500
Sample: 9356 - V	WW-2	999 - Santa S	- 14 37 1157	
Param	$\operatorname{Flag}$	Result	Units	$\operatorname{RL}$
Chloride		71.1	mg/L	0.500
Sample: 9357 - 1	<b>MW-6</b>			
Param	Flag	Result	Units	RL
Chloride		43.7	mg/L	0.500
Sample: 9358 - I	Dup			
Param	Flag	Result	Units	RL
Chloride	ÿ	44.5	mg/L	0.500

----

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.

			306091-	
AME: SITE MANAGER:	PARAMETER	ERS/METHOD NUMBER	CHAIN-OF-CUSTODY	ECORD
NO: NO: 1 L 1 L OF L LAB PO #	C - 2 - C F CONTRINERS		A arson & Inc. Fax: 915-687 Environmental Consultants 507 N. Marrienfeld, Ste. 202 • Midland	0456 -0901 TX 79701
TIME SAMPLE IDENTIFICATIO	с - Сі х × л × х × х ×		LAB. I.D. REMARKS NUMBER (I.E., FILTERED, UNFILTE RESERVED, UNPRESER (LAB USE ONLY) GRAB COMPOSITE	Û,
11.00 / MW1	<u>.</u>	4350		
11:30 / mw1		15		
12:55 / MU-	1, 1, 2 (8)	53		
13:33 / MU-3	Viv 77	54		
5-mm - 2-mm	2	Slo		
1-17 X 55:41	<u>v</u> iv / ; / ;	587		
DATE 4/6/	Z RELINQUISHED BY (Signature)	DATE: 6 88/03 TIME: 9 88/03	RECEIVED BY: (Signature)	
HENTED, BY: (Sigh ature) DATE: 6/1/	RECEIVED BY: (Signature)	DATE (106 163	SAMPLE SHIPPED BY: ICITCLEI, CANILLY CHU	MM 121. 397.4
INS:	Int New JAK AND IN		EDEX /¿ BUY AIRBILL #: 144 HAND DELIVERED UPS OTHER:	
NG LABORATORY: WWW BS: 25. July JUL STATE TX 7	ZIP. DATE: <b>6-09.03</b> TI	00, 61,	White - Receiving Lab Yellow - Receiving Lab (to be returned to La After Receipt) Pink - Project Manager Gold - Qa/QC Coordinator	
ONDITION WHEN RECEIVED:	LACONTACT PERSON	A hard	SAMPLE TYPE:	2
			MY 21L SM	A 1 ;

6701 Aberdeen Avenue, Suite 9 155 McCutcheon, Suite H

Lubbock, Texas 79424 El Paso, Texas 79932

800 • 378 • 1296 888 • 588 • 3443 E-Mail: lab@traceanalysis.com

806 • 794 • 1296 FAX 806 • 794 • 1298 915•585•3443 FAX 915•585•4944

# Analytical and Quality Control Report

Cindy Crain Larson and Associates, Inc. P. O. Box 50685 Midland, Tx 79710

Report Date: December 11, 2003

Work Order: 3120801

**Project Name:** New Mexico Project Number: 0-0114

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
22673	MW-3	water	2003-12-04	11:42	2003-12-06
22674	MW-8	water	2003-12-04	12:04	2003-12-06
22675	RW-3	water	2003-12-04	12:35	2003-12-06
22676	MW-5	water	2003-12-04	13:14	2003-12-06
22677	MW-7	water	2003-12-04	13:50	2003-12-06
22678	MW-4	water	2003-12-04	14:14	2003-12-06
22679	WW-2	water	2003-12-04	14:30	2003-12-06
22680	WW-1	water	2003-12-04	14:37	2003-12-06
22681	MW-6	water	2003-12-04	14:55	2003-12-06
22682	Dup	water	2003-12-04	00:00	2003-12-06

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 11 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

.

## Analytical Report

#### Sample: 22673 - MW-3

Analysis:	BTEX		Analytical M	ethod: S	8021B		Prep Metho	d: S	5030B
QC Batch:	6225		Date Analyze	ed: 20	03-12-09		Analyzed B	y: M	Т
Prep Batch:	5564		Date Prepare	ed: 20	003-12-09		Prepared B	y: M	Т
			F	21					
Parameter	Flag		Bog	11+	Unite	ы	lution		RI
Banzana	1 lag			00	mg/I		1	0	00100
Toluono			<0.001	00	mg/L		1	0	00100
Fthulbongon			< 0.001	00	mg/L		1	0	.00100
Xylono (isom	org)		< 0.001	70	mg/L mg/I		1	0	00100
Aylene (Isom		•••••	0.001	10	Ing/L		L	0	.00100
						Spike	Percent	Rec	coverv
Surrogate		Flag	$\operatorname{Result}$	Units	Dilution	Amount	Recovery	Li	imits
Trifluorotolu	ene (TFT)	0	0.0999	mg/L	1	0.100	100	65.5	5 - 119
4-Bromofluor	obenzene (4-BFB)		0.0982	mg/L	1	0.100	98	68.6	3 - 120
Sample: 22	673 - MW-3								
Analysis:	Chloride (IC)		Analyti	cal Method	l: E 300.0		Prep Me	ethod:	N/A
QC Batch:	6206		Date Ar	nalvzed:	2003-12-09		Analvze	d By:	JŚW
Prep Batch:	5544		Date Pr	repared:	2003-12-08		Prepare	d By:	JSW
			$\operatorname{RL}$						
Parameter	Flag		Result		Units	D	ilution		$\operatorname{RL}$
Chloride			26.1		mg/L		5		0.500
Sample: 22	674 - MW-8								

Analysis: E QC Batch: 6	3TEX 3225		Analytical M Date Analyz	lethod: ed:	S 8021B 2003-12-09			Prep Method: Analyzed By:	S 5030B MT
Prep Batch: 5	5564		Date Prepar	ed:	2003-12-09	)		Prepared By:	MT
				RL					
Parameter	Fla	g	Res	$\operatorname{ult}$	Ur	nits	D	ilution	RL
Benzene			< 0.00	100	mg	g/L		1	0.00100
Toluene			< 0.00	100	mg	g/L		1	0.00100
Ethylbenzene			< 0.00	100	mg	g/L		1	0.00100
Xylene (isomer	s)		< 0.00	100	mg	g/L		1	0.00100
							Spike	Percent	Recovery
Surrogate		Flag	$\operatorname{Result}$	Unit	s Dilut	tion	Amount	Recovery	Limits
Trifluorotoluen	e (TFT)		0.0958	mg/l	J 1		0.100	96	65.5 - 119
4-Bromofluorol	benzene (4-BFB)		0.0960	mg/l	L 1		0.100	96	68.6 - 120

#### Sample: 22674 - MW-8

Analysis: Chloride (IC)

Report Date: 0-0114	December 1	1, 2003		`	Work Ord New	der: 3120801 Mexico		Page Nur	mber: 3 of 11
QC Batch: Prep Batch:	6206 5544			Date An Date Pre	alyzed: epared:	2003-12-09 2003-12-08		Analyzeo Prepareo	l By: JSW l By: JSW
_				RL					
Parameter Chloride		Flag		Result 251		Units	D	llution	
			<u> </u>	201				10	0.000
Sample: 226	675 - RW-3	;							
Analysis:	BTEX			Analytical M	ethod: S	S 8021B		Prep Metho	d: S 5030B
QC Batch:	6225			Date Analyze	ed: 2	2003-12-09		Analyzed B	y: MT
Prep Batch:	5564			Date Prepare	d: 2	2003-12-09		Prepared B	y: MT
				F	RL				
Parameter		Flag		Resi	ılt	Units	D	ilution	RL
Benzene				< 0.001	00	mg/L		1	0.00100
Toluene				<0.001	00	mg/L		1	0.00100
Xylene (isome	(are			< 0.001	00	mg/L mg/L		1	0.00100
				<0.001		Hg/ L		<u>+</u>	0.00100
~							Spike	Percent	Recovery
Surrogate			Flag	Result	Units	Dilution	Amount	Recovery	Limits
1 Promofium	$ene(\mathbf{TFT})$			0.0946	mg/L	1	0.100	95	65.5 - 119
Analysis: QC Batch: Prep Batch:	Chloride (I 6206 5544	C)		Analytic Date Ar Date Pr	cal Metho nalyzed: repared:	od: E 300.0 2003-12-09 2003-12-08		Prep Me Analyze Prepare	ethod: N/A d By: JSW d By: JSW
				RL			_		
Parameter		Flag		Result		Units	D	ilution 5	
Sample: 220	676 - MW-	5				IIIg/ L		J	0.000
Analysis	BTEX			Analytical M	ethod.	S 8021B		Prep Metho	od: S 5030B
QC Batch:	6225			Date Analyze	ed:	2003-12-09		Analyzed E	v: MT
Prep Batch:	5564			Date Prepare	ed:	2003-12-09		Prepared B	y: MT
				1	рт				
Parameter		Flag		Res	ult	Units	D	vilution	$\operatorname{RL}$
Benzene	······			< 0.001	00	mg/L		1	0.00100
Toluene				< 0.001	.00	mg/L		1	0.00100
Ethylbenzene	,			< 0.001	100	mg/L		1	0.00100
Xylene (isom	ers)		· · · · · · · · · · · · · · · · · · ·	< 0.001	100	mg/L	, <u></u>	1	0.00100
							Spike	Percent	Recoverv
Surrogate			Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)			0.0927	mg/L	1	0.100	93	65.5 - 119
					···· ·				continued

ĽΗ

Report Date: December 11, 2003 0-0114

1

sample continuea	Floor	Rogult	Unite	Dilution	Spike	Percent	Recovery
Bromofluorobonzono (1 BER)	T lag	0.0052				O5	<u> </u>
	)	0.0905	IIIg/ L	1	0.100	90	08.0 - 120
Sample: 22676 - MW-5							
Analysis: Chloride (IC)		Analyti	cal Method:	E 300.0		Prep Me	ethod: N/A
QC Batch: 6206		Date A	nalyzed:	2003-12-09		Analyze	d By: JSV
Prep Batch: 5544		Date Pr	repared:	2003-12-08		Prepare	d By: JSV
		RL		<b>TT I</b> .		<b>1</b>	
Parameter Flag		Result		Units	Di	lution	RI
Chloride		36.5		mg/L		5	0.500
Sample: 22677 - MW-7							
Analysis: BTEX		Analytical M	lethod: S8	021B		Prep Metho	od: S 5030F
QC Batch: 6225		Date Analyz	ed: 200	3-12-09		Analyzed B	y: MT
Prep Batch: 5564		Date Prepare	ed: 200	3-12-09		Prepared B	y: MT
<b>-</b>	-	]	RL	~ .			
Parameter	Flag	Res	ult	Units	Di	lution	RI
Benzene		<0.001	100	mg/L		1	0.0010
Toluene		<0.001	100	mg/L		1	0.0010
Ethylbenzene		<0.00.	100	mg/L		1	0.0010
Xylene (isomers)		<0.001	100	mg/L		<u>I</u>	0.0010
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0932	mg/L	1	0.100	93	65.5 - 11
4-Bromofluorobenzene (4-BFB	5)	0.0939	mg/L	1	0.100	94	68.6 - 12
Sample: 22677 - MW-7							
Analysis: Chloride (IC)		Analyti	ical Method:	E 300.0		Prep M	ethod: $N/A$
QC Batch: 6206		Date A	nalyzed:	2003-12-09		Analyze	ed By: JSV
Prep Batch: 5544		Date P	repared:	2003-12-08		Prepare	d By: JSW
		RL			_		

mg/L	10	0.500

#### Sample: 22678 - MW-4

1

Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	6225	Date Analyzed:	2003-12-09	Analyzed By:	MT
Prep Batch:	5564	Date Prepared:	2003-12-09	Prepared By:	MT

Report Date: December 11, 2003 0-0114

Work Order: 3120801 New Mexico

		I	RL				
Parameter	Flag	Res	ult	Units	D	ilution	$\operatorname{RL}$
Benzene		0.001	.50	mg/L		1	0.00100
Toluene		< 0.001	00	$\mathrm{mg/L}$		1	0.00100
Ethylbenzene		< 0.001	.00	mg/L		. 1	
Xylene (isomers)		< 0.001	.00	m mg/L		1	0.00100
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0920	mg/L	1	0.100	92	65.5 - 119
4-Bromofluorobenzene (4-BFB	)	0.0978	mg/L	1	0.100	98	68.6 - 120

#### Sample: 22678 - MW-4

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6259	Date Analyzed:	2003-12-11	Analyzed By:	JSW
Prep Batch:	5597	Date Prepared:	2003-12-10	Prepared By:	$_{\rm JSW}$
		$\operatorname{RL}$			
Parameter	$\operatorname{Flag}$	Result	Units	Dilution	RL
Chloride		104	mg/L	5	0.500

#### Sample: 22679 - WW-2

Analysis: QC Batch: Prep Batch:	BTEX 6225 5564		Analytical Date Analy Date Prepa	alytical Method:S 8021BPrep. Nte Analyzed:2003-12-09Analyzed:te Prepared:2003-12-09Prepared:		Prep. Method: Analyzed By: Prepared By:	S 5030B MT MT	
				$\mathbf{RL}$				
Parameter		Flag	R	esult	Units	3	Dilution	$\operatorname{RL}$
Benzene			<0.0	0100	mg/L	J	1	0.00100
Toluene			< 0.0	0100	mg/L		1	0.00100
Ethylbenzene	e		< 0.0	0100	mg/I	L	1	0.00100
Xylene (isom	ers)		< 0.0	0100	mg/L		1	0.00100
0				<b>T</b> T •		Spike	Percent	Recovery
Surrogate		Fla	g Result	Unit	s Dilution	n Amount	Recovery	Limits
Trifluorotolu	ene (TFT)		0.0923	mg/	L 1	0.100	92	65.5 - 119
4-Bromofluor	robenzene (4-E	BFB)	0.0952	mg/	L 1	0.100	95	68.6 - 120

#### Sample: 22679 - WW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6259	Date Analyzed:	2003-12-11	Analyzed By:	JŚW
Prep Batch:	5597	Date Prepared:	2003-12-10	Prepared By:	$_{\rm JSW}$
		$\operatorname{RL}$			
Parameter	$\operatorname{Flag}$	Result	Units	Dilution	RL
Chloride		52.4	mg/L	5	0.500

#### Sample: 22680 - WW-1

Analysis: QC Batch: Prep Batch:	BTEX 6225 5564			Analytical M Date Analyze Date Prepare	ethod: ed: ed:	S 802 2003-1 2003-1	1B 12-09 12-09		Prep Method: Analyzed By: Prepared By:	S 5030B MT MT
				F	RL					
Parameter		$\mathbf{Flag}$		Rest	ılt		Units	Di	lution	$\operatorname{RL}$
Benzene	· · · · · · · · · · · · · · · · · · ·			< 0.001	00		mg/L		1	0.00100
Toluene				< 0.001	00		mg/L		1	0.00100
Ethylbenzen	9			< 0.001	00		$\mathrm{mg/L}$		1	0.00100
Xylene (isom	iers)			< 0.001	00		mg/L		1	0.00100
<b>a</b>				<b>-</b> .				Spike	Percent	Recovery
Surrogate	(11)		Flag	Result	Units	3	Dilution	Amount	Recovery	Limits
Triffuorotolu	ene $(TF^{*}T)$			0.0933	mg/L	1	1	0.100	93	65.5 - 119
4-Bromonuol	robenzene (4-)	BFB)		0.0952	mg/L			0.100	95	68.0 - 120
Sample: 22	:680 - WW-:	1								
Analysis:	Chloride (IC	C)		Analyti	cal Meth	nod: ]	E 300.0		Prep Meth	od: N/A
QC Batch:	6259	,		Date A1	nalyzed:	4	2003-12-11		Analyzed 1	By: JŚW
Prep Batch:	5597			Date Pr	epared:	4	2003-12-10		Prepared I	By: JSW
				DĬ						
Parameter		Flog		RL Rocult			Unite	Di	lution	BI
Chloride		riag					$\frac{0000}{mg/L}$		5	0.500
Sample: 22	2681 - MW-6	6								
Analysis:	BTEX			Analytical M	lethod:	S 802	1B		Prep Method:	S 5030B
QC Batch:	6225			Date Analyze	ed:	2003-	12-09		Analyzed By:	$\mathbf{MT}$
Prep Batch:	5564			Date Prepare	ed:	2003-	12-09		Prepared By:	MT
				l	RL.					
Parameter		Flag		Res	ult		Units	Di	lution	$\operatorname{RL}$
Benzene				< 0.001	.00		mg/L		1	0.00100
Toluene				< 0.001	100		mg/L		1	0.00100
Ethylbenzen	e			< 0.001	L00		mg/L		1	0.00100
Xylene (ison	ners)			< 0.001	100		$\mathrm{mg/L}$	, . <u></u>	1	0.00100
-				_				Spike	Percent	Recovery
Surrogate			Flag	$\operatorname{Result}$	Units	s	Dilution	Amount	Recovery	Limits
'Driffuorotolu	· · · · · · · · · · · · · · · · · · ·					······				
1 D 2	iene (TFT)			0.0950	mg/I		1	0.100	95	65.5 - 119

#### Sample: 22681 - MW-6

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6259	Date Analyzed:	2003-12-11	Analyzed By:	JSW
Prep Batch:	5597	Date Prepared:	2003-12-10	Prepared By:	JSW

Report Date: December 11, 2003 0-0114			New M	exico	······································		
Deservator	Els a	RL		11	D:	1	D
Chloride	r lag	45.3		mg/L	DI	5	0.50
			··		·		
Sample: 22682 - D	up						
Analysis: BTEX		Analytical M	lethod: S 8	3021B		Prep Metho	od: S 5030I
QC Batch: 6225		Date Analyz	ed: 200	03-12-09		Analyzed B	y: MT
Prep Batch: 5564		Date Prepare	ed: 200	03-12-09		Prepared B	y: MT
Danamatan	121	]	RL	T7	D	·]+:	D,
Parameter	Flag	Kes		Units	D	1	<u> </u>
Toluene		<0.001 <0.001	.00	mg/L		1	0.0010
Ethylbenzene		< 0.001	100	mg/L		1	0.0010
Xylene (isomers)		<0.001	00	mg/L		1	0.0010
Surrogata	Flor	Popult	Unita	Dilution	Spike	Percent	Recovery
Trifluorotoluene (TF	г Iag	0.0965	mg/L	1	$-\frac{\text{Amount}}{0.100}$	<u> </u>	65.5 - 11
4-Bromofluorobenzen	e (4-BFB)	0.0900	mg/L	1	0.100	98	68.6 - 12
Sample: 22682 - D Analysis: Chlorid	<b>up</b> le (IC)	Analyti Data A	cal Method	: E 300.0		Prep M	ethod: N/A
Sample: 22682 - D Analysis: Chloric QC Batch: 6259 Prep Batch: 5597	up le (IC)	Analyti Date A Date P: RL	cal Method nalyzed: repared:	: E 300.0 2003-12-11 2003-12-10		Prep M Analyze Prepare	ethod: N/A ed By: JSV d By: JSV
Sample: 22682 - D Analysis: Chloric QC Batch: 6259 Prep Batch: 5597 Parameter	<b>up</b> le (IC) Flag	Analyti Date A Date P: RL Result	cal Method nalyzed: repared:	: E 300.0 2003-12-11 2003-12-10 Units	D	Prep M Analyze Prepare ilution	ethod: N/A ed By: JSV ed By: JSV R
Sample: 22682 - D Analysis: Chloric QC Batch: 6259 Prep Batch: 5597 Parameter Chloride	up le (IC) Flag	Analyti Date A Date P: RL Result 254	cal Method nalyzed: repared:	: E 300.0 2003-12-11 2003-12-10 Units mg/L	D:	Prep M Analyze Prepare ilution 10	ethod: N/A ed By: JSV ed By: JSV R R 0.50
Sample: 22682 - D Analysis: Chlorid QC Batch: 6259 Prep Batch: 5597 Parameter Chloride Method Blank (1)	up le (IC) Flag QC Batch: 620	Analyti Date A Date P: RL Result 254	cal Method nalyzed: repared:	: E 300.0 2003-12-11 2003-12-10 Units mg/L	D	Prep M Analyze Prepare ilution 10	ethod: N/A ed By: JSV ed By: JSV R 0.50
Sample: 22682 - D Analysis: Chloric QC Batch: 6259 Prep Batch: 5597 Parameter Chloride Method Blank (1) Parameter	up le (IC) Flag QC Batch: 620 Flag	Analyti Date A Date P: RL Result 254	cal Method nalyzed: repared: 	: E 300.0 2003-12-11 2003-12-10 Units mg/L	D:	Prep M Analyze Prepare ilution 10	ethod: N/A ed By: JSV ed By: JSV R 0.50
Sample: 22682 - D Analysis: Chloric QC Batch: 6259 Prep Batch: 5597 Parameter Chloride Method Blank (1) Parameter Chloride	up le (IC) Flag QC Batch: 620 Flag	Analyti Date A Date P RL Result 254	cal Method nalyzed: repared: 	: E 300.0 2003-12-11 2003-12-10 Units mg/L	Di Uni mg/	Prep M Analyze Prepare ilution 10 ts /L	ethod: N/J ed By: JSV ed By: JSV R 0.50 R 0.50
Sample: 22682 - D Analysis: Chlorid QC Batch: 6259 Prep Batch: 5597 Parameter Chloride Method Blank (1) Parameter Chloride Method Blank (1)	up le (IC) Flag QC Batch: 620 Flag QC Batch: 622	Analyti Date A Date P: RL Result 254	cal Method nalyzed: repared: 	: E 300.0 2003-12-11 2003-12-10 Units mg/L	D	Prep M Analyze Prepare ilution 10 ts /L	ethod: N/A ed By: JSV d By: JSV R 0.50 R 0.50
Sample: 22682 - D Analysis: Chloric QC Batch: 6259 Prep Batch: 5597 Parameter Chloride Method Blank (1) Parameter Chloride Method Blank (1) Parameter	up le (IC) Flag QC Batch: 620 Flag QC Batch: 622 Flag	Analyti Date A Date P: RL Result 254	cal Method nalyzed: repared: 	: E 300.0 2003-12-11 2003-12-10 Units mg/L	D Uni mg/ Un	Prep M Analyze Prepare ilution 10 ts /L	ethod: N/A ed By: JSV ed By: JSV R 0.50 RI
Sample: 22682 - D Analysis: Chloric QC Batch: 6259 Prep Batch: 5597 Parameter Chloride Method Blank (1) Parameter Chloride Method Blank (1) Parameter Benzene	up le (IC) Flag QC Batch: 620 Flag QC Batch: 622 Flag	Analyti Date A Date P: RL Result 254	cal Method nalyzed: repared: 	: E 300.0 2003-12-11 2003-12-10 Units mg/L	D: Uni mg/ Un mg	Prep M Analyze Prepare ilution 10 ts /L	ethod: N/A ed By: JSV d By: JSV R 0.50 R 0.50 R 0.00
Sample: 22682 - D Analysis: Chloric QC Batch: 6259 Prep Batch: 5597 Parameter Chloride Method Blank (1) Parameter Chloride Method Blank (1) Parameter Benzene Toluene	up le (IC) Flag QC Batch: 620 Flag QC Batch: 622 Flag	Analyti Date A Date P: RL Result 254	cal Method nalyzed: repared: 	: E 300.0 2003-12-11 2003-12-10 Units mg/L	Uni mg/ Un mg mg	Prep M Analyze Prepare ilution 10 ts /L	ethod: N/A ed By: JSV d By: JSV <u>R</u> 0.50 <u>R</u> 0.50 <u>R</u> 0.50 0.00 0.00
Sample: 22682 - D Analysis: Chloric QC Batch: 6259 Prep Batch: 5597 Parameter Chloride Method Blank (1) Parameter Chloride Method Blank (1) Parameter Benzene Toluene Ethylbenzene	up le (IC) Flag QC Batch: 620 Flag QC Batch: 622 Flag	Analyti Date A Date P: RL Result 254	cal Method nalyzed: repared:	: E 300.0 2003-12-11 2003-12-10 Units mg/L	Uni Uni 	Prep M Analyze Prepare ilution 10 ts /L ilts ;/L ;/L	ethod: N/A ed By: JSV ed By: JSV R 0.50 R 0.50 R 0.00 0.00 0.00 0.00 0.0

Surrogate	Flag	Result	Units	Dilution	${ m Spike} { m Amount}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0942	mg/L	1	0.100	94	70 - 130
4-Bromofluorobenzene (4-BFB)		0.0975	mg/L	1	0.100	98	70 - 130

#### Method Blank (1) QC Batch: 6259

Parameter	Flag	Result	Units	RL
Chloride		< 0.500	mg/L	0.5

#### Laboratory Control Spike (LCS-1) QC Batch: 6206

	LCS	LCSD			Spike	Matrix			Rec.	RPD
Param	$\operatorname{Result}$	Result	Units	Dil.	Amount	Result	Rec.	RPD	$\operatorname{Limit}$	$\operatorname{Limit}$
Chloride	11.3	11.2	$\mathrm{mg/L}$	1	12.5	<1.49	90	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Laboratory Control Spike (LCS-1) QC Batch: 6225

	LCS	LCSD			Spike	Matrix			Rec.	RPD
Param	$\operatorname{Result}$	Result	Units	Dil.	Amount	$\operatorname{Result}$	Rec.	RPD	$\operatorname{Limit}$	$\operatorname{Limit}$
Benzene	0.0996	0.0994	mg/L	1	0.100	< 0.000410	100	0	79.7 - 110	20
Toluene	0.0986	0.0982	mg/L	1	0.100	< 0.000760	99	0	81.7 - 108	20
Ethylbenzene	0.0920	0.0931	mg/L	1	0.100	< 0.00100	92	1	80.4 - 109	20
Xylene (isomers)	0.300	0.300	mg/L	1	0.300	< 0.00100	100	0	81 - 109	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	$\operatorname{Result}$	Result	Units	Dil.	Amount	Rec.	Rec.	$\operatorname{Limit}$
Trifluorotoluene (TFT)	0.0901	0.0907	mg/L	1	0.100	90	91	65.5 - 119
4-Bromofluorobenzene (4-BFB)	0.0945	0.0959	$\mathrm{mg/L}$	1	0.100	94	96	68.6 - 120

Laboratory Control Spike (LCS-1) QC Batch: 6259

	LCS	LCSD			Spike	Matrix			Rec.	RPD
Param	$\operatorname{Result}$	Result	Units	Dil.	Amount	$\operatorname{Result}$	Rec.	RPD	$\operatorname{Limit}$	$\operatorname{Limit}$
Chloride	11.2	11.2	mg/L	1	12.5	<1.49	90	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Matrix Spike (MS-1) QC Batch: 6206

Param	${ m MS} { m Result}$	$\begin{array}{c} \mathrm{MSD} \\ \mathrm{Result} \end{array}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	$\operatorname{RPD}$ Limit
Chloride	25600	25700	mg/L	1000	12.5	14600	88	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike	e (MS-1)	QC Batch: 62	59					
Param	MS Result	MSD Result Un	its Dil.	Spike Amount	Matrix Result Re	ec. RPD	Rec. Limit	RPD Limit
Chloride	1110	1100 mg	;/L 50	12.5	578 8	5 1	56.4 - 130	20
Percent recove	ery is based	on the spike resul	t. RPD is base	ed on the spil	ke and spike du	plicate result.		
Standard (IC	CV-1)	QC Batch: 6206		•				
			CCVs	CCVs	CCVs	Percen	t	
			True	Found	Percent	Recover	rv	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	š A	nalyzed
Chloride	<u>v</u>	mg/L	12.5	11.3	90	90 - 11	0 20	03-12-09
Standard (C	CV-1)	QC Batch: 6206						
			CCVs	CCVs	CCVs	Percen	ıt	_
<b>T</b>	171	<b>TT N</b>	True	Found	Percent	Recove:	ry	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	$\frac{s}{2}$ A	nalyzed
Chloride		mg/L	12.5	11.3	90	90 - 11	.0	03-12-09
Standard (IC	CV-1)	QC Batch: 6225	CCVs	$\rm CCVs$	CCVs	Perce	ent	
			True	Found	Percent	t Recov	ery	Date
Param		Flag Units	Conc.	Conc.	Recover	y Limi	ts A	nalyzed
Benzene		mg/L	0.100	0.0971	97	85 - 1	.15 20	03-12-0
Toluene		mg/L	0.100	0.0966	97	85 - 1	.15 20	003-12-0
Ethylbenzene	<b></b>	mg/L	0.100	0.0909	91	85 - 1	15 20	103-12-0
Aylene (Isome	rs)	mg/L	0.300	0.294	98	- 68	.15 20	003-12-0
Standard (C	CV-1)	QC Batch: 6225						
			$\mathrm{CCVs}$	CCVs	CCVs	Perce	ent	
			True	Found	Percen	t Recov	very	Date
Param		Flag Units	Conc.	Conc.	Recover	ry Limi	its A	nalyzed
Benzene		mg/L	0.100	0.0985	98	85 - 1	15 20	003-12-0
Loluene		mg/L	0.100	0.0976	98	85 - 1	115 20	03-12-0
Lunyidenzene	<b>vr</b> c)	mg/L	0.100	0.0919	92	85 - J	115 20	JU3-12-0 102-10-0
Aylene (Isome		mg/L	0.300	0.295	98	- 68	20	105-12-0
Standard (I	CV-1)	QC Batch: 6259						
			CCVs	CCVs	CCVs	Percer	nt	
			True	Found	Percent	Becove		Data

Units

mg/L

Conc.

12.5

Conc.

11.2

Recovery

90

Limits

90 - 110

Analyzed

2003-12-11

Flag

 $\operatorname{Param}$ 

Chloride

			g on a week of the second from second second	and and the state of the		- 1945 - 19 Gu						10000					η				1
3120801	JSTODY RECORD	Fax: 915-687-0456 915-687-0901 02 • Midland, TX 79701	Remarks Futered. Unfutered. Eserved. Unverserved. Grab composite)											1		DATE:	2/70E1 97/# 111810	OTHER			
; 1	IAIN-OF-CL	Arson & Landon Arson Ars	AB. I.D. UMBER USE ONLY) PRE	1673	75	16	78	79	20	18	83				-	 ) BY: (Signature)	SHIPPED BY: (Circle)	ELIVERED UPS - RECEIVING LAB	- receiving lab 110 be La After receipt) - project manager - qa/qc coordinato)	TYPE: / S	MA
	ER CF		ILAB N L	30.									 			 A BECEIVEI	O GENEX	WHITE	PINK GOLD	SAMPLE	
	THOD NUMB															 DATE 2/04	DATE 12/05 TIME: 173	ND TIME NEEDED	71:		and the second
	AETERS/ME																	TURNAROU	hure) Mure) S TIME 9	Spu: A	$\overline{}$
	PARAN	9pr 1	मिट्ट इ.स.मि							N N	-					( (Signature)	hajbrey PT		4ED BY: (Signo	CONPACT PER	$\bigcirc$
	survive feature and a second	COQUAINERS	NOWBER OF							>						Houst ter By			RECEIV	TA	
	Ţ	Peris !	ICATION	m	A					6							1 Ed/2		idz.		
	sijennager:	PROJET NAME	U# SAMPLE IDENTIF	- cylu	RW-	Multi-		4) 41 - 2	1-0102	mw-1	D'D	-				DATE	DATE/		D C C C C C C C C C C C C C C C C C C C		
			OTHER AB														ture]	3	T	: IVED:	
		14.	di d	2	200		20 17	2	3-1 /	55 1						 (Signature)	DBY: Signa	ţ,	BORATORY	ION WHEN RECE	
	CLIENT NAME:	PROLECT NO.	PAGE DATE DE	411 1/21	2/	13			114	V 14	12/21					SAMPHED BY:	E STATE	COMMENTS:	ADDRESS	SAMPLE CONDIT	

.

#### Work Order: 3120801 New Mexico

. . .-

,

										Ň			التصريبيين	
3120801	USTODY RECORD	<ul> <li>Fax: 915-687-0456</li> <li>915-687-0901</li> <li>202 • Midland, TX 79701</li> </ul>	REMARKS REMARKS RESERVED, UNRILTERED, RESERVED, UNPRESERVED, GRAB COMPOSITE)						DATE	TIME:   AIRBILL #/ 4 6 /3 0 4 3	OTHER: 35 RETURNED TO	OR		
	HAIN-OF-CI	A drson & ssociates, Inc. Environmental Consultants 07 N. Marrienfeld, Ste. 5	LAB. I.D. NUMBER & USE ONLY	74	76	77	10 18	83	ED BY: (Signature)	E SHIPPED BY: (Circlet)	Delivered UPS - Receiving LAB - Receiving LAB (To B	la After Receipt) - Project Manager - Qa/QC Coordinato	le type: U.S	4Mi
			<u>م</u>	. 9					DATE1 2/0 4/0 38ECEIV	TIME: 12 3 0 DATE: 12 10 5/0 35AMPI TIME: 17 3 0	ID TIME NEEDED HAND		i samp	*
	PARAMETERS/METI	- Opi	রার্মি মহাহা			· ·		>	Ginature)	Leven Lan	TUBNAROUN	BY: (Signature)	HAPT PERSON: M	
		COQUININERS		M-				· n	Sis % dansare	ALCLEN ALVE		RECEIVED		
	SIJEYANAGER:	PROJECT NAME	. PO # SAMPLE IDENTIFICATION	mw-2-mm	74-37 MW-37	mw-4	4140-2	And -	DATE/Z/2/	TIME: 1455 DATH 2/4/63 TIME: 1830	0	STATE: ZIP PHONE: ZIP		
	,		017454 128	121	3.5 / u 4 /	50 /	30 1	222	: (Stanature)_	ED BY: (Signature)		ABORATORY: JM	TION WHEN RECEIVED:	
2473-8	CLIENT NAME:	PROJECT NO.	PAGE	21 1/21	13	14/	141	+1 h/21	SAMPRED BY		comments	RECEIVING L ADDRESS: CITY:	SAMPLE CONDI	

	0	

# LARSON & ASSOCIATES, INC.

P.O. Box 50685 Midland, Texas 79710-0685 Ph. (432) 687-0901