

**CORRESPONDENCE**

**MISC.**

April 22, 2003

Mr. William Olson, Hydrologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

**RECEIVED**

**MAY 19 2003**

ENVIRONMENTAL BUREAU  
OIL CONSERVATION DIVISION

**Annual Sampling 2002  
GROUND-WATER SAMPLING EVENT**

Former Baker Oil Tools Facility  
2800 West Marland  
Hobbs, New Mexico  
Project No. 60260-8-1332-04

Dear Mr. Olson:

Baker Oil Tools performed sampling at the Hobbs, New Mexico on March 12, 2003. This sampling event was unavoidably delayed by scheduling conflicts to this date from the scheduled sampling of December of 2002. The NMOCD had been notified of a sampling delay by telephone. The sampling is being performed in response to the NMOCD request of June 20, 1995 to provide quarterly monitoring data for ground water contamination in the direct vicinity of the former disposal pit on the Baker Oil Tools property located at 2800 West Marland in Hobbs, New Mexico. The NMOCD requested this report discuss relevant background information, execution of services, laboratory analytical results, and a summary of our findings for the subject property.

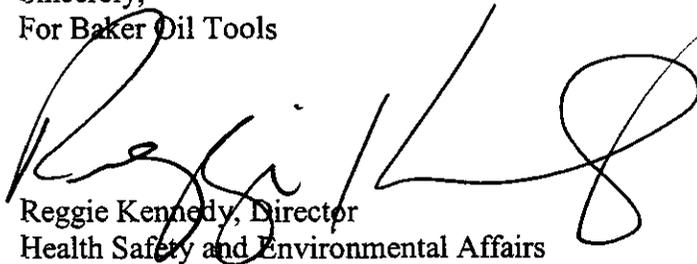
1. BOT performed the monitoring event on March 12, 2003. During this monitoring event, the wells were gauged for depth, purged and sampled. Monitoring tasks began at 9:30 a.m. (MT). Purging of the wells was accomplished by bailing each well with a small electric pump placed in each well. Sampling of the wells was accomplished using dedicated 2" bailers. Monitoring wells MW-1, MW-2 and MW-3 were purged of three volumes of water and allowed to equalize prior to sampling. No sheen or free product was seen on the water bailed from these three wells. However, there was a hydrocarbon type of odor present from the water bailed from MW-3 during sample collection. Water well WW-1 was sampled but not purged due to the depth of the water in the well. No sheen or free product was seen on the water bailed from this well. Monitoring well R-1 was purged of three volumes of water, allowed to equalize and sampled. A slight hydrocarbon odor was noticed on the initial bailer of liquid removed and a very slight spotty sheen was present.
2. Samples were collected from each well and shipped to Ace Technologies Laboratory in The Woodlands, Texas for analysis. The laboratory previously used, Von

Analytical, is no longer in business in Houston which required the move to a new laboratory. A summary of the laboratory analytical results of water quality sampling of the monitoring wells is provided in the attached Table 1A through 1E. This data is presented in tabular form showing the previous four monitoring events sampling results. A copy of the original laboratory analytical results is also attached. All samples were non-detect for the contaminants of concern.

3. Water level and well depth measurements were measured using an electronic water level indicator capable of determining water levels to within 0.01 foot. Table 2 provides cumulative ground water level measurements for the previous four monitoring events. Based on the explanation presented in a previous report, WW-1 is still excluded from water table mapping. R-1 was gauged during this sampling event. An updated ground water elevation map using the recent water table elevations of the ground water in the monitoring wells is presented in Figure 1. The map indicates a low gradient flow to the southeast.

If you have any questions or require additional information, please do not hesitate in contacting me at (713) 466-2445.

Sincerely,  
For Baker Oil Tools



Reggie Kennedy, Director  
Health Safety and Environmental Affairs

Tables  
1A – 1E

TABLE 1A  
MW-1

	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/00	2001 Sampling 12/05/01	2003 Sampling 03/12/03
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
EPA 8270B					
2-Methylnaphthalene	15.9 µg/L	<0.01 mg/l	<0.01mg/l	<0.01mg/l	<0.01 mg/l
Naphthalene	23.1 µg/L	<0.01 mg/l	<0.01mg/l	<0.01mg/l	<0.01 mg/l

notes: N/A indicates the sample was not analyzed for the parameter

BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1B  
MW-2

	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/00	2001 Sampling 12/05/01	2003 Sampling 03/12/03
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Naphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l

notes: N/A indicates the sample was not analyzed for the parameter

BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1C  
MW-3

	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/01	2001 Sampling 12/05/01	2003 Sampling 03/12/03
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	0.0382 mg/l	0.0357 mg/l	<0.001 mg/l	<0.01 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Naphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l

notes: N/A indicates the sample was not analyzed for the parameter

BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1D  
WW-1

	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/00	2001 Sampling 12/05/01	2003 Sampling 03/12/03
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Naphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l

notes: N/A indicates the sample was not analyzed for the parameter check lab report for reason  
BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1E  
R-1

	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/21/99	2001 Sampling 12/05/01	2003 Sampling 03/12/03
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l
EPA 8270B					
2-Methylnaphthalene	84.3 µg/L	73.1 µg/L	<10 µg/L	~13 µg/L	<0.01 mg/l
Naphthalene	138.6 µg/L	164.2 µg/L	21 µg/L	14 µg/L	<0.01 mg/l

notes: N/A indicates the sample was not analyzed for the parameter

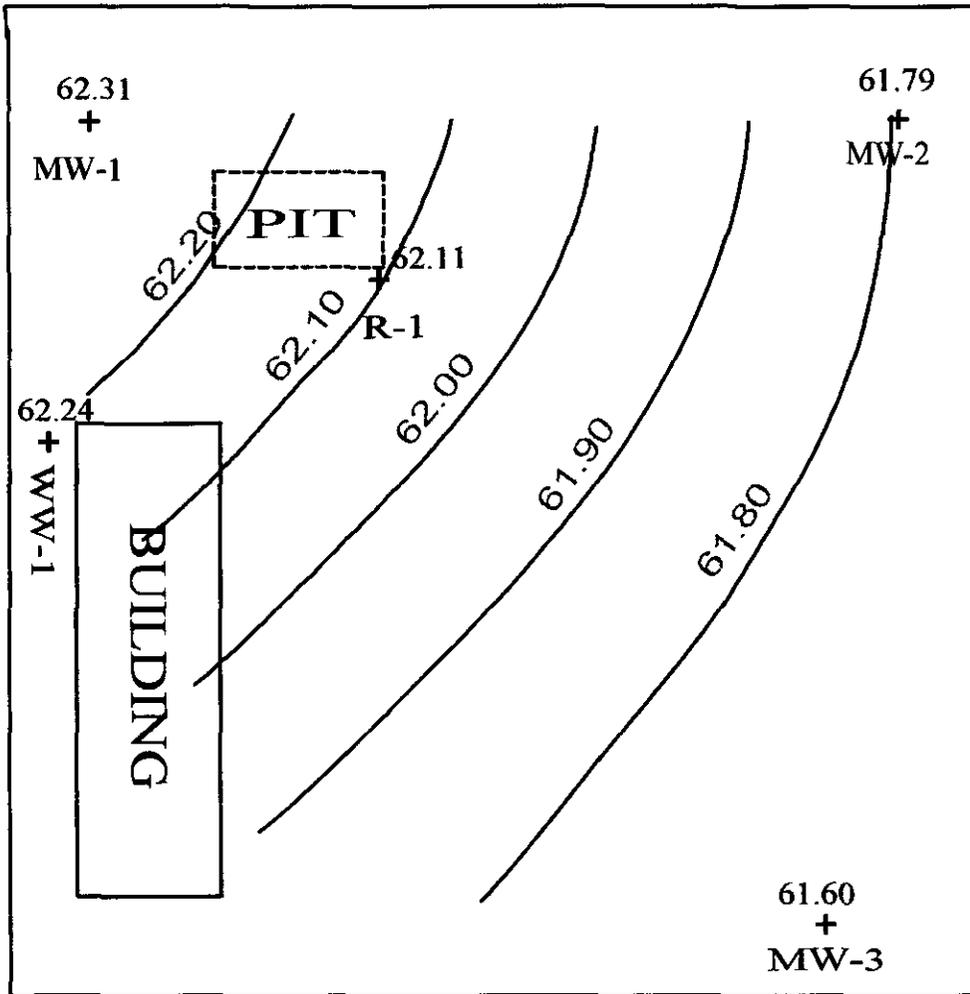
BDL indicates the sum of the individual constituent concentrations is below detectable limits

Table 2

Table 2  
**QUARTERLY CUMULATIVE GROUND-WATER ELEVATIONS**

Monitoring Well No.	Well Depth (ft)	Top of PVC Casing Elevation (ft MSL)	Ground-water Level Elevation (ft MSL)							
			9/30/1999	12/21/1999	3/29/2000	6/27/2000	9/27/2000	12/5/2000	12/5/2001	3/12/2003
MW-1	45.7	100.19	64.89	64.73	64.74	64.56	64.10	64.17	63.42	62.31
MW-2	45.0	99.56	64.46	64.51	64.33	64.28	63.88	63.94	62.97	61.79
MW-3	38.5	99.15	64.50	64.46	64.27	64.16	63.80	63.93	62.87	61.60
WW-1	125.0	99.52	64.79	64.96	64.51	64.11	63.95	64.13	63.29	62.24
R-1	48.0	100.03	64.83	64.63	*	64.78	63.95	64.09	63.18	62.11

Figure 1



<b>Stenbeck and Associates, Inc</b> Houston, Texas	
<b>Figure 1</b> Groundwater Elevations (2002 sampling event) Baker Oil Tools 2800 W. Marland Hobbs, NM	
Prepared by TVS scale 1 = 40' (approx.) 4/22/2003	

# Analytical Data

**CHAIN OF CUSTODY**

**ACE TECHNOLOGIES, INC**

8707 Technology Forest, The Woodlands, TX 77381

Tel(281)363-4777 Fax(281)292-7492

**CHAIN OF CUSTODY RECORD  
AND ANALYSIS REQUEST FORM**

SI. No.

Page 1 of 1

Client Name: STENBECK AND ASSOS INC  
 Client Contact: TOM STENBECK  
 Address: PO Box 841005  
 City, State, Zip Code: Houston, TX 77281-1005  
 Project Name: Hobbs Branch 2003  
 Project Number: Bot Hobbs  
 Project Location: Hobbs, NM  
 Phone/Fax: 2813482310/2812452098 CST

SAMPLE ID	Date	Time	C/G	Temp	matrix	bottle	size	pres.	Number of Containers	Requested Analysis					Lab ID		
										1 = HCl	2 = HNO <sub>3</sub>	3 = H <sub>2</sub> SO <sub>4</sub>	0 = other	1 = liter		4 = 4oz	16 = 16oz
MW-1	3-12-03	11:45A			W	G	140	ice	4	X	X	X	X	X	X	X	88910
MW-2	3-12-03	12:00P			W	G	140	"	4	X	X	X	X	X	X	X	88910
MW-3	3-12-03	12:15P			W	G	140	"	4	X	X	X	X	X	X	X	88910
R-1	3-12-03	12:40P			W	G	140	"	4	X	X	X	X	X	X	X	88910
WW-1	3-12-03	12:30P			W	G	140	"	4	X	X	X	X	X	X	X	88910

matrix: W = water, S = soil, SL = sludge, O = others  
 bottle: P = plastic, A = Amber Glass, G = glass, V = vial  
 size: 1 = liter, 4 = 4oz, 16 = 16oz, 8 = 8oz  
 pres.: 1 = HCl, 2 = HNO<sub>3</sub>, 3 = H<sub>2</sub>SO<sub>4</sub>, 0 = other

Client/Consultant Remarks: Laboratory remarks: pH: Temp: Intact:  Yes  No

Turn Around Time: 24hr  48hr  Standard  Other

Special Reporting Requirements: Standard QC  Level 3 QC  Level 4 QC

1. Relinquished by Sampler: Thomas V. Alford date: 3-12-03 time: 1:00P CST

3. Relinquished by: date: time:

5. Relinquished by: date: 3-12-03 time: 1215

6. Received by Laboratory: Charan Pickens

# SAMPLE LOGIN CHECKLIST/DISCREPANCY REPORT

EPISODE = 8896      DATE/TIME REC'D: 3/13/03      TEMP & ID: 1) 4°c = \_\_\_\_\_  
 CLIENT NAME: Sten Beck & Associates      2) \_\_\_\_\_ = \_\_\_\_\_  
 PROJECT NAME: Hobbs March 2003      3) \_\_\_\_\_ = \_\_\_\_\_  
 PROJECT NUMBER: \_\_\_\_\_      4) \_\_\_\_\_ = \_\_\_\_\_  
 = 5 AQUEOUS      = \_\_\_\_\_ SOIL SAMPLES      5) \_\_\_\_\_ = \_\_\_\_\_  
 COURIER AIRBILL = 838 442 964 691      6) \_\_\_\_\_ = \_\_\_\_\_

SAMPLE CONTAINER SEALS      project    client    initial    date  
 COOLER CONTAINER SEALS      project    client    initial    date      NAME & DATE \_\_\_\_\_  
 HOW MANY AND WHERE \_\_\_\_\_

		YES	NO
Were samples screened for rad activity?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Container sealed, preservative?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Control Documents      Sealed in a plastic bag?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Signed and dated by field personnel?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Filled out properly, in indelible ink?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Signed and dated by lab personnel?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Container Condition - Each container sealed in a separate plastic bag?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Labels (Sample ID, date, time, signature, preservative, etc.)?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Labels agree with other documents?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Received without leakage or breakage? If no, list:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Correct quantity indicated on the cool-container?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample Integrity      Correct containers used for the test indicated? If no, list:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Correct preservatives added to the samples? If no, list:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sufficient sample amount sent for the tests indicated? If no, list:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
NOA kit's dated complete? If no, list:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Analysis variables samples preserved? If no, list:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Discrepancy Report</b>			
Discrepancies to be discussed with the client?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Manager's recommendations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who was notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
By whom?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Date:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Client's comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corrective actions completed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS \_\_\_\_\_

For those sample holding time and instrument and parameters, has a Risk Notification sheet been issued to the lab?

SIGNATURE: [Signature]      DATE: 3/13  
 Reviewer: \_\_\_\_\_

**ACE Technologies, Inc.**  
**1680 Lake Front Circle, Suite B, The Woodlands TX 77380**  
**Sample Log-In Report**

Logged By: VISHNU

Report Date: 3/19/2003 17:51:16

**Client Name:** STENBECK AND ASSOCIATES, INC.  
**Client Project Name:** HOBBS MARCH 2003  
**ClientProject #:** HOBBS, NM  
**P.O. No.:**  
**Courier/No.:**

**Lab Project ID:** Q1788D  
**Date Logged:** 03/13/03  
**Date Received:** 03/13/03  
**Time Received:** 12:15

Lab Sample ID	Client Sample ID	No. Cont.	Sample Matrix	Date Sampled	Time Sampled	Chain Of Custody No.	Analyst Due Date	Remarks
8896.001	MW - 1	4	WATER	03/12/03	11:45			
	<b>Tests Required</b>							
							03/18/03	
							03/18/03	
8896.002	MW - 2	4	WATER	03/12/03	12:00			
	<b>Tests Required</b>							
							03/18/03	
							03/18/03	
8896.003	MW - 3	4	WATER	03/12/03	12:00			
	<b>Tests Required</b>							
							03/18/03	
							03/18/03	
8896.004	R-1	4	WATER	03/12/03	12:40			
	<b>Tests Required</b>							
							03/18/03	
							03/18/03	
8896.005	WW - 1	4	WATER	03/12/03	12:30			
	<b>Tests Required</b>							
							03/18/03	
							03/18/03	

**Instructions To Lab:**

  
 03/19/03

Lab Approval

Client Approval

**BTEX/MTBE**

0000005

**ACE Technologies, Inc.**  
**1680 Lake Front Circle, Suite B, The Woodlands, TX 77380**

**LABORATORY REPORT**  
**VOLATILES BY GC/MS**

CLIENT NAME : STENBECK AND ASSOCIATES, IN	CLIENT SAMPLE ID : MW - 1
PROJECT NAME : HOBBS MARCH 2003	LAB SAMPLE ID : 8896.001
PROJECT NUMBER : HOBBS, NM	METHOD REFERENCE : SW846-8260B
DATE SAMPLED : 3/12/03	DATE RECEIVED : 3/13/03
SAMPLE MATRIX : WATER	PRINTED ON : 4/2/2003 9:49

ANALYST : RKG	CONTAINER ID :
DATE ANALYZED : 3/20/2003	DILUTION : 1
INSTRUMENT FILE : A0744.D	INSTRUMENT ID : A-HP5973
PURGE VOLUME : 10 mL	TIME ANALYZED : 14:25

PARAMETER	QUANTITATION LIMIT	RESULTS	QUALIFIER
Benzene	1.0 UG/L	ND UG/L	
Ethyl benzene	1.0 UG/L	ND UG/L	
m/p-xylene	2.0 UG/L	ND UG/L	
Methyl tert-butyl ether	1.0 UG/L	ND UG/L	
o-Xylene	1.0 UG/L	ND UG/L	
Toluene	1.0 UG/L	ND UG/L	

**QUALITY CONTROL DATA**

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	%RECOVERY
Toluene-d8	10 UG/L	68 - 124	90
1,2-Dichloroethane-d4	10 UG/L	64 - 130	82
4-Bromofluorobenzene	10 UG/L	72 - 137	81
Dibromofluoromethane	10 UG/L	56 - 153	82

**BATCH QUALITY CONTROL SAMPLE IDs**

QC BATCH ID : AVBLK41	PREP BLANK ID : AVBLK41	LCS ID : AVLCS41
LCSD ID : AVLCS41D		

**ACE Technologies, Inc.**  
**1680 Lake Front Circle, Suite B, The Woodlands, TX 77380**

Page 1 of 1

**LABORATORY REPORT**  
**VOLATILES BY GC/MS**

CLIENT NAME	: STENBECK AND ASSOCIATES, IN	CLIENT SAMPLE ID	: MW - 2
PROJECT NAME	: HOBBS MARCH 2003	LAB SAMPLE ID	: 8896.002
PROJECT NUMBER	: HOBBS, NM	METHOD REFERENCE	: SW846-8260B
DATE SAMPLED	: 3/12/03	DATE RECEIVED	: 3/13/03
SAMPLE MATRIX	: WATER	PRINTED ON	: 4/2/2003 9:49

ANALYST	: RKG	CONTAINER ID	:
DATE ANALYZED	: 3/20/2003	DILUTION	: 1
INSTRUMENT FILE	: A0745.D	INSTRUMENT ID	: A-HP5973
PURGE VOLUME	: 10 mL	TIME ANALYZED	: 14:54

PARAMETER	QUANTITATION LIMIT	RESULTS	QUALIFIER
Benzene	1.0 UG/L	ND UG/L	
Ethyl benzene	1.0 UG/L	ND UG/L	
m/p-xylene	2.0 UG/L	ND UG/L	
Methyl tert-butyl ether	1.0 UG/L	ND UG/L	
o-Xylene	1.0 UG/L	ND UG/L	
Toluene	1.0 UG/L	ND UG/L	

**QUALITY CONTROL DATA**

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	%RECOVERY
Toluene-d8	10 UG/L	68 - 124	95
1,2-Dichloroethane-d4	10 UG/L	64 - 130	91
4-Bromofluorobenzene	10 UG/L	72 - 137	82
Dibromofluoromethane	10 UG/L	56 - 153	87

**BATCH QUALITY CONTROL SAMPLE IDs**

QC BATCH ID : AVBLK41	PREP BLANK ID : AVBLK41	LCS ID : AVLCS41
LCSD ID : AVLCS41D		

1000007

**ACE Technologies, Inc.**  
**1680 Lake Front Circle, Suite B, The Woodlands, TX 77380**

**LABORATORY REPORT**  
**VOLATILES BY GC/MS**

CLIENT NAME : STENBECK AND ASSOCIATES, IN	CLIENT SAMPLE ID : MW - 3
PROJECT NAME : HOBBS MARCH 2003	LAB SAMPLE ID : 8896.003
PROJECT NUMBER : HOBBS, NM	METHOD REFERENCE : SW846-8260B
DATE SAMPLED : 3/12/03	DATE RECEIVED : 3/13/03
SAMPLE MATRIX : WATER	PRINTED ON : 4/2/2003 9:49

ANALYST : RKG	CONTAINER ID :
DATE ANALYZED : 3/20/2003	DILUTION : 1
INSTRUMENT FILE : A0749.D	INSTRUMENT ID : A-HP5973
PURGE VOLUME : 10 mL	TIME ANALYZED : 16:47

PARAMETER	QUANTITATION LIMIT	RESULTS	QUALIFIER
Benzene	1.0 UG/L	ND	UG/L
Ethyl benzene	1.0 UG/L	ND	UG/L
m/p-xylene	2.0 UG/L	ND	UG/L
Methyl tert-butyl ether	1.0 UG/L	ND	UG/L
o-Xylene	1.0 UG/L	ND	UG/L
Toluene	1.0 UG/L	ND	UG/L

**QUALITY CONTROL DATA**

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	%RECOVERY
Toluene-d8	10 UG/L	68 - 124	94
1,2-Dichloroethane-d4	10 UG/L	64 - 130	100
4-Bromofluorobenzene	10 UG/L	72 - 137	85
Dibromofluoromethane	10 UG/L	56 - 153	85

**BATCH QUALITY CONTROL SAMPLE IDS**

QC BATCH ID : AVBLK41	PREP BLANK ID : AVBLK41	LCS ID : AVLCS41
LCS D ID : AVLCS41D		

0000008

**ACE Technologies, Inc.**  
**1680 Lake Front Circle, Suite B, The Woodlands, TX 77380**

Page 1 of 1

**LABORATORY REPORT**  
**VOLATILES BY GC/MS**

CLIENT NAME : STENBECK AND ASSOCIATES, IN	CLIENT SAMPLE ID : R-1
PROJECT NAME : HOBBS MARCH 2003	LAB SAMPLE ID : 8896.004
PROJECT NUMBER : HOBBS, NM	METHOD REFERENCE : SW846-8260B
DATE SAMPLED : 3/12/03	DATE RECEIVED : 3/13/03
SAMPLE MATRIX : WATER	PRINTED ON : 4/2/2003 9:49

ANALYST : RKG	CONTAINER ID :
DATE ANALYZED : 3/20/2003	DILUTION : 1
INSTRUMENT FILE : A0750.D	INSTRUMENT ID : A-HP5973
PURGE VOLUME : 10 mL	TIME ANALYZED : 17:15

PARAMETER	QUANTITATION LIMIT	RESULTS	QUALIFIER
Benzene	1.0 UG/L	ND UG/L	
Ethyl benzene	1.0 UG/L	ND UG/L	
m/p-xylene	2.0 UG/L	ND UG/L	
Methyl tert-butyl ether	1.0 UG/L	ND UG/L	
o-Xylene	1.0 UG/L	ND UG/L	
Toluene	1.0 UG/L	ND UG/L	

**QUALITY CONTROL DATA**

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	%RECOVERY
Toluene-d8	10 UG/L	68 - 124	89
1,2-Dichloroethane-d4	10 UG/L	64 - 130	100
4-Bromofluorobenzene	10 UG/L	72 - 137	100
Dibromofluoromethane	10 UG/L	56 - 153	92

<b>BATCH QUALITY CONTROL SAMPLE IDs</b>			
QC BATCH ID : AVBLK41	PREP BLANK ID : AVBLK41	LCS ID : AVLCS41	
LCSD ID : AVLCS41D			

0000009

**ACE Technologies, Inc.**  
**1680 Lake Front Circle, Suite B, The Woodlands, TX 77380**

**LABORATORY REPORT**  
**VOLATILES BY GC/MS**

CLIENT NAME : STENBECK AND ASSOCIATES, IN	CLIENT SAMPLE ID : WW - 1
PROJECT NAME : HOBBS MARCH 2003	LAB SAMPLE ID : 8896.005
PROJECT NUMBER : HOBBS, NM	METHOD REFERENCE : SW846-8260B
DATE SAMPLED : 3/12/03	DATE RECEIVED : 3/13/03
SAMPLE MATRIX : WATER	PRINTED ON : 4/2/2003 9:49

ANALYST : RKG	CONTAINER ID :
DATE ANALYZED : 3/20/2003	DILUTION : 1
INSTRUMENT FILE : A0751.D	INSTRUMENT ID : A-HP5973
PURGE VOLUME : 10 mL	TIME ANALYZED : 17:43

PARAMETER	QUANTITATION LIMIT	RESULTS	QUALIFIER
Benzene	1.0 UG/L	ND UG/L	
Ethyl benzene	1.0 UG/L	ND UG/L	
m/p-xylene	2.0 UG/L	ND UG/L	
Methyl tert-butyl ether	1.0 UG/L	ND UG/L	
o-Xylene	1.0 UG/L	ND UG/L	
Toluene	1.0 UG/L	ND UG/L	

**QUALITY CONTROL DATA**

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	%RECOVERY
Toluene-d8	10 UG/L	68 - 124	88
1,2-Dichloroethane-d4	10 UG/L	64 - 130	91
4-Bromofluorobenzene	10 UG/L	72 - 137	95
Dibromofluoromethane	10 UG/L	56 - 153	85

**BATCH QUALITY CONTROL SAMPLE IDS**

QC BATCH ID : AVBLK41	PREP BLANK ID : AVBLK41	LCS ID : AVLCS41
LCSD ID : AVLCS41D		

**ACE Technologies, Inc.**  
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**LABORATORY REPORT**  
**VOLATILES BY GC/MS**

CLIENT NAME :	CLIENT SAMPLE ID : Prep Blank
PROJECT NAME :	LAB SAMPLE ID : AVBLK41
PROJECT NUMBER :	METHOD REFERENCE : SW846-8260B
DATE SAMPLED :	DATE RECEIVED :
SAMPLE MATRIX : LIQUID	PRINTED ON : 4/2/2003 9:49

ANALYST : RKG	CONTAINER ID :
DATE ANALYZED : 3/20/2003	DILUTION : 1
INSTRUMENT FILE : A0738.D	INSTRUMENT ID : A-HP5973
PURGE VOLUME : 10 mL	TIME ANALYZED : 11:25

	QUANTITATION LIMIT	RESULTS	QUALIFIER
Methyl tert-butyl ether	1.0 UG/L	ND UG/L	
m/p-xylene	2.0 UG/L	ND UG/L	
Ethyl benzene	1.0 UG/L	ND UG/L	
Benzene	1.0 UG/L	ND UG/L	
Toluene	1.0 UG/L	ND UG/L	
o-Xylene	1.0 UG/L	ND UG/L	

**QUALITY CONTROL DATA**

	SPIKE ADDED	QC RECOVERY LIMITS	%RECOVERY
Dibromofluoromethane	10 UG/L	56 - 153	74
4-Bromofluorobenzene	10 UG/L	72 - 137	88
1,2-Dichloroethane-d4	10 UG/L	64 - 130	72
Toluene-d8	10 UG/L	68 - 124	97

**BATCH QUALITY CONTROL SAMPLE IDs**

QC BATCH ID : AVBLK41      PREP BLANK ID : AVBLK41

**ACE Technologies, Inc.**  
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**LCS/LCSD SUMMARY REPORT**  
**VOLATILES BY GC/MS**

CLIENT NAME :	DATE RECEIVED :
PROJECT NAME :	PRINTED ON : 4/2/2003 9:56
PROJECT NUMBER :	

SAMPLE MATRIX : LIQUID	METHOD REFERENCE : SW846-8260B
<u>LAB CONTROL SAMPLE</u>	<u>LAB CONTROL SAMPLE DUPLICATE</u>
LCS SAMPLE ID : AVLCS41	LCSD SAMPLE ID : AVLCS41D
CLIENT SAMPLE ID :	CLIENT SAMPLE ID :
DATE ANALYZED : 3/20/2003	DATE ANALYZED : 3/20/2003
INSTRUMENT FILE : A0739.D	INSTRUMENT FILE : A0740.D

PARAMETER	UNITS	LCS	LCSD	LCS	LCSD	LCS	LCSD	RPD	RPD	QC LIMITS
		TRUE	TRUE	FOUND	FOUND	RECOVERY	RECOVERY			
		VALUE	VALUE	VALUE	VALUE	(%)	(%)		LIMIT	REC.
Benzene	UG/L	10.0	10.0	10.5	9.87	105	99	5.9	25	75 - 143
Ethyl benzene	UG/L	10.0	10.0	12.6	12.0	126	120	4.9	25	71 - 141
m/p-xylene	UG/L	20	20	25	24	125	120	4.1	25	69 - 140
Methyl tert-butyl ether	UG/L	10	10	8.6	9.0	86	90	4.5	25	75 - 140
o-Xylene	UG/L	10	10	11	10	110	100	9.5	25	67 - 145
Toluene	UG/L	10.0	10.0	11.1	10.4	111	104	6.5	25	74 - 139

\* Indicate values outside of QC limits

RPD : 0 out of 6 outside limits  
Spike Recovery : 0 out of 12 outside limits

**SVOA**

**ACE Technologies, Inc.**  
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**LABORATORY REPORT**

**SEMIVOLATILE ORGANICS BY GC/MS**

CLIENT NAME : STENBECK AND ASSOCIATES, IN	CLIENT SAMPLE ID : MW - 1
PROJECT NAME : HOBBS MARCH 2003	LAB SAMPLE ID : 8896.001
PROJECT NUMBER : HOBBS, NM	METHOD REFERENCE : SW846-8270C
DATE SAMPLED : 3/12/03	DATE RECEIVED : 3/13/03
SAMPLE MATRIX : WATER	PRINTED ON : 4/2/2003 9:49

ANALYST : RLP	CONTAINER ID :
DATE ANALYZED : 3/20/2003	DATE EXTRACTED : 03/18/03
DILUTION : 1	EXTRACT VOLUME : 1 mL
INSTRUMENT FILE : D5171.D	INSTRUMENT ID : D-HP5971
SAMPLE VOLUME : 1000 mL	TIME ANALYZED : 23:02

PARAMETER	QUANTITATION LIMIT	RESULTS	QUALIFIER
2-Methylnaphthalene	10 UG/L	ND	UG/L
Naphthalene	10 UG/L	ND	UG/L

**QUALITY CONTROL DATA**

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	%RECOVERY
Nitrobenzene-d5	50 UG/L	35 - 114	35

**BATCH QUALITY CONTROL SAMPLE IDs**

QC BATCH ID : SBLK27      PREP BLANK ID : SBLK27

**ACE Technologies, Inc.**  
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**LABORATORY REPORT**

**SEMIVOLATILE ORGANICS BY GC/MS**

CLIENT NAME : STENBECK AND ASSOCIATES, IN	CLIENT SAMPLE ID : MW - 2
PROJECT NAME : HOBBS MARCH 2003	LAB SAMPLE ID : 8896.002
PROJECT NUMBER : HOBBS, NM	METHOD REFERENCE : SW846-8270C
DATE SAMPLED : 3/12/03	DATE RECEIVED : 3/13/03
SAMPLE MATRIX : WATER	PRINTED ON : 4/2/2003 9:49

ANALYST : RLP	CONTAINER ID :
DATE ANALYZED : 3/20/2003	DATE EXTRACTED : 03/18/03
DILUTION : 1	EXTRACT VOLUME : 1 mL
INSTRUMENT FILE : D5172.D	INSTRUMENT ID : D-HP5971
SAMPLE VOLUME : 1000 mL	TIME ANALYZED : 23:46

PARAMETER	QUANTITATION LIMIT	RESULTS	QUALIFIER
2-Methylnaphthalene	10 UG/L	ND UG/L	
Naphthalene	10 UG/L	ND UG/L	

**QUALITY CONTROL DATA**

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	RECOVERY
Nitrobenzene-d5	50 UG/L	35 - 114	37

**BATCH QUALITY CONTROL SAMPLE IDS**

QC BATCH ID : SBLK27      PREP BLANK ID : SBLK27

0000015

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Page 1 of 1

**LABORATORY REPORT**

**SEMIVOLATILE ORGANICS BY GC/MS**

CLIENT NAME	: STENBECK AND ASSOCIATES, IN	CLIENT SAMPLE ID	: MW - 3
PROJECT NAME	: HOBBS MARCH 2003	LAB SAMPLE ID	: 8896.003
PROJECT NUMBER	: HOBBS, NM	METHOD REFERENCE	: SW846-8270C
DATE SAMPLED	: 3/12/03	DATE RECEIVED	: 3/13/03
SAMPLE MATRIX	: WATER	PRINTED ON	: 4/2/2003 9:49

ANALYST	: RLP	CONTAINER ID	:
DATE ANALYZED	: 3/21/2003	DATE EXTRACTED	: 03/18/03
DILUTION	: 1	EXTRACT VOLUME	: 1 mL
INSTRUMENT FILE	: D5173.D	INSTRUMENT ID	: D-HP5971
SAMPLE VOLUME	: 1000 mL	TIME ANALYZED	: 00:30

PARAMETER	QUANTITATION LIMIT	RESULTS	QUALIFIER
2-Methylnaphthalene	10 UG/L	ND UG/L	
Naphthalene	10 UG/L	ND UG/L	

**QUALITY CONTROL DATA**

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	%RECOVERY
Nitrobenzene-d5	50 UG/L	35 - 114	31

**BATCH QUALITY CONTROL SAMPLE IDS**

QC BATCH ID : SBLK27      PREP BLANK ID : SBLK27

0000016

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Page 1 of 1

**LABORATORY REPORT**

**SEMIVOLATILE ORGANICS BY GC/MS**

CLIENT NAME : STENBECK AND ASSOCIATES, IN	CLIENT SAMPLE ID : R-1
PROJECT NAME : HOBBS MARCH 2003	LAB SAMPLE ID : 8896.004
PROJECT NUMBER : HOBBS, NM	METHOD REFERENCE : SW846-8270C
DATE SAMPLED : 3/12/03	DATE RECEIVED : 3/13/03
SAMPLE MATRIX : WATER	PRINTED ON : 4/2/2003 9:49

ANALYST : RLP	CONTAINER ID :
DATE ANALYZED : 3/21/2003	DATE EXTRACTED : 03/18/03
DILUTION : 1	EXTRACT VOLUME : 1 mL
INSTRUMENT FILE : D5174.D	INSTRUMENT ID : D-HP5971
SAMPLE VOLUME : 1000 mL	TIME ANALYZED : 1:15

PARAMETER	QUANTITATION LIMIT	RESULTS	QUALIFIER
2-Methylnaphthalene	10 UG/L	ND UG/L	
Naphthalene	10 UG/L	ND UG/L	

**QUALITY CONTROL DATA**

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	%RECOVERY
Nitrobenzene-d5	50 UG/L	35 - 114	34

**BATCH QUALITY CONTROL SAMPLE IDS**

QC BATCH ID : SBLK27	PREP BLANK ID : SBLK27
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0000017

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Page 1 of 1

**LABORATORY REPORT**

**SEMIVOLATILE ORGANICS BY GC/MS**

CLIENT NAME	: STENBECK AND ASSOCIATES, IN	CLIENT SAMPLE ID	: WW - 1
PROJECT NAME	: HOBBS MARCH 2003	LAB SAMPLE ID	: 8896.005
PROJECT NUMBER	: HOBBS, NM	METHOD REFERENCE	: SW846-8270C
DATE SAMPLED	: 3/12/03	DATE RECEIVED	: 3/13/03
SAMPLE MATRIX	: WATER	PRINTED ON	: 4/2/2003 9:49

ANALYST	: RLP	CONTAINER ID	:
DATE ANALYZED	: 3/21/2003	DATE EXTRACTED	: 03/18/03
DILUTION	: 1	EXTRACT VOLUME	: 1 mL
INSTRUMENT FILE	: D5175.D	INSTRUMENT ID	: D-HP5971
SAMPLE VOLUME	: 1000 mL	TIME ANALYZED	: 2:00

PARAMETER	QUANTITATION LIMIT	RESULTS	QUALIFIER
2-Methylnaphthalene	10 UG/L	ND UG/L	
Naphthalene	10 UG/L	ND UG/L	

**QUALITY CONTROL DATA**

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	%RECOVERY
Nitrobenzene-d5	50 UG/L	35 - 114	41

**BATCH QUALITY CONTROL SAMPLE IDS**

QC BATCH ID : SBLK27                      PREP BLANK ID : SBLK27

0000018

**ACE Technologies, Inc.**  
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Page 1 of 1

**LABORATORY REPORT**

**SEMIVOLATILE ORGANICS BY GC/MS**

CLIENT NAME :	CLIENT SAMPLE ID : Prep Blank
PROJECT NAME :	LAB SAMPLE ID : SBLK27
PROJECT NUMBER :	METHOD REFERENCE : SW846-8270C
DATE SAMPLED :	DATE RECEIVED :
SAMPLE MATRIX : LIQUID	PRINTED ON : 4/2/2003 9:49

ANALYST : RLP	CONTAINER ID :
DATE ANALYZED : 3/20/2003	DATE EXTRACTED : 03/18/03
DILUTION : 1	EXTRACT VOLUME : 1 mL
INSTRUMENT FILE : D5162.D	INSTRUMENT ID : D-HP5971
SAMPLE VOLUME : 1000 mL	TIME ANALYZED : 15:16

	QUANTITATION LIMIT :	RESULTS	QUALIFIER
2-Methylnaphthalene	10 UG/L	ND UG/L	
Naphthalene	10 UG/L	ND UG/L	

**QUALITY CONTROL DATA**

	SPIKE ADDED	QC RECOVERY LIMITS	RECOVERY
Nitrobenzene-d5	50 UG/L	35 - 114	50

**BATCH QUALITY CONTROL SAMPLE IDS**

QC BATCH ID : SBLK27                      PREP BLANK ID : SBLK27

0000019

**END OF THE REPORT**

**TOTAL NUMBER OF PAGES : 20**

1243

March 15, 2002

Mr. William Olson, Hydrologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

**RECEIVED**

**APR 15 2002**

ENVIRONMENTAL BUREAU  
OIL CONSERVATION DIVISION

**Annual Sampling 2001  
GROUND-WATER SAMPLING EVENT**

Former Baker Oil Tools Facility  
2800 West Marland  
Hobbs, New Mexico  
Project No. 60260-8-1332-04

Dear Mr. Olson:

Baker Oil Tools has shifted to annual sampling (1/yr) for calendar year 2001 and beyond as approved by the State of New Mexico. This report is the first submittal under this new sampling schedule. The sampling was performed on December 5, 2001 and is being performed in response to the NMOCD request of June 20, 1995 to provide quarterly monitoring data for ground water contamination in the direct vicinity of the former disposal pit on the Baker Oil Tools property located at 2800 West Marland in Hobbs, New Mexico. The NMOCD requested this report discuss relevant background information, execution of services, laboratory analytical results, and a summary of our findings for the subject property.

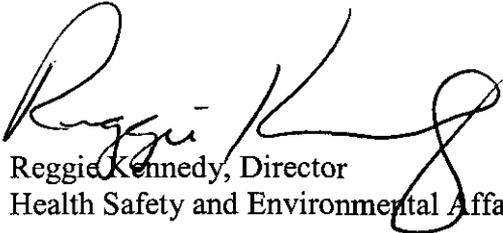
1. BOT performed the 2001 monitoring event on December 5, 2001. During this monitoring event, the wells were gauged for depth, bailed and sampled. Monitoring tasks began at 10:30 a.m. (MT). Purging of the wells was accomplished by hand bailing each well. Sampling of the wells was accomplished using dedicated 2" bailers. Monitoring wells MW-1, MW-2 and MW-3 were purged of three volumes of water and allowed to equalize prior to sampling. No sheen or free product was seen on the water bailed from these three wells. Water well WW-1 was sampled but not purged due to the depth of the water in the well. No sheen or free product was seen on the water bailed from this well. Monitoring well R-1 was purged of three volumes of water, allowed to equalize and sampled. A very slight hydrocarbon odor was noticed on the initial bailer of liquid removed with no sheen present. Samples were collected from each well and shipped to Von Analytical Laboratory in Houston, Texas for analysis.
2. A summary of the laboratory analytical results of water quality sampling of the monitoring wells is provided in the attached Table 1A through 1E. This data is

presented in tabular form showing the previous four monitoring events sampling results. A copy of the original laboratory analytical results is also attached. The only positive result for naphthalene (14 µg/L) was detected in well R-1 with 2-methylnaphthalene present at a level just above the detection limit (~13 µg/L). No other wells yielded positive results for the contaminants.

3. Water level and well depth measurements were measured using an electronic water level indicator capable of determining water levels to within 0.01 foot. Table 2 provides cumulative ground water level measurements for the previous four monitoring events. Based on the explanation presented in a previous report, WW-1 is still excluded from water table mapping. R-1 was gauged during this sampling event. An updated ground water elevation map using the recent water table elevations of the ground water in the monitoring wells is presented in Figure 1. The map indicates a low gradient flow to the southeast.

If you have any questions or require additional information, please do not hesitate in contacting me at (713) 466-2445.

Sincerely,  
For Baker Oil Tools



Reggie Kennedy, Director  
Health Safety and Environmental Affairs

TABLE 1A  
MW-1

	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/00	2001 Sampling 12/05/01
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01mg/l	15.93 g/L	<0.01 mg/l	<0.01mg/l	<0.01mg/l
Naphthalene	<0.01mg/l	23.13 g/L	<0.01 mg/l	<0.01mg/l	<0.01mg/l

notes: N/A indicates the sample was not analyzed for the parameter  
BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1B  
MW-2

	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/00	2001 Sampling 12/05/01
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Naphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l

notes: N/A indicates the sample was not analyzed for the parameter

BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1C  
MW-3

	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/01	2001 Sampling 12/05/01
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	0.0382 mg/l	0.0357 mg/l	<0.001 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Naphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l

notes: N/A indicates the sample was not analyzed for the parameter

BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1D  
WW-1

	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/00	2001 Sampling 12/05/01
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Naphthalene	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l

notes: N/A indicates the sample was not analyzed for the parameter check lab report for reason  
BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1E  
R-1

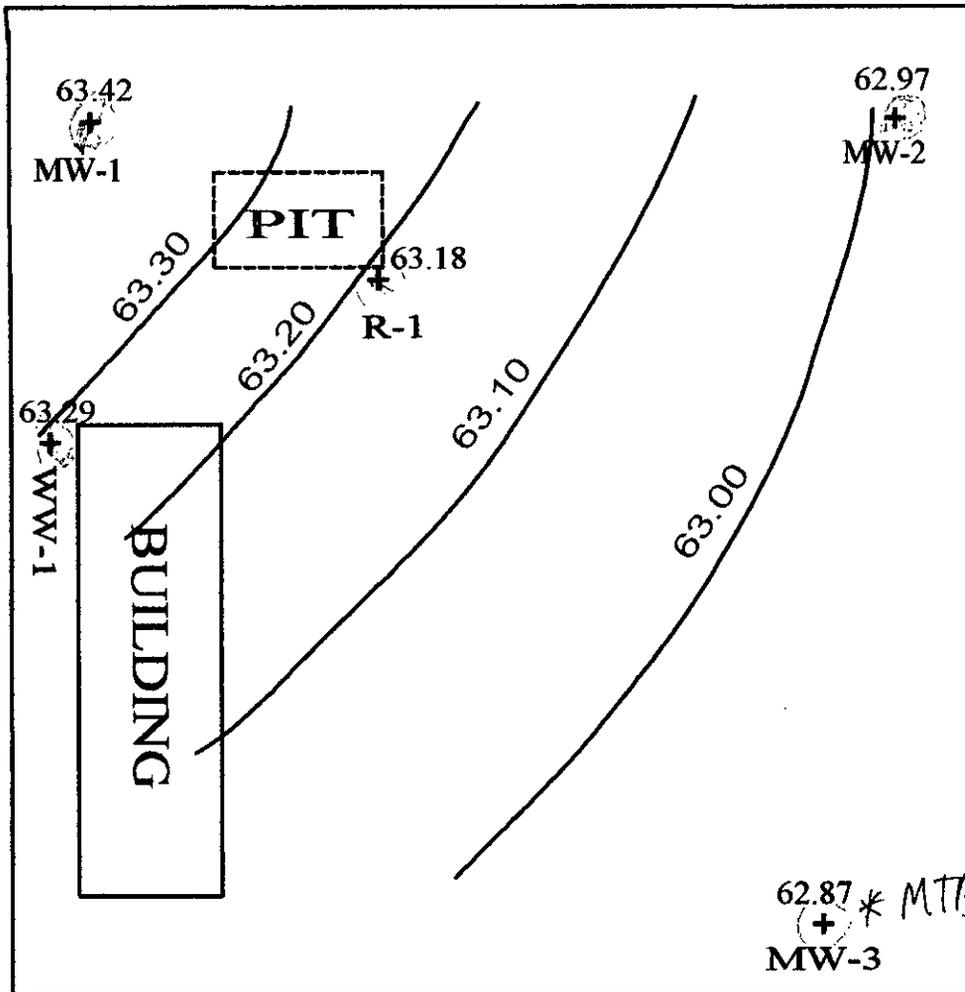
	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/21/99	2001 Sampling 12/05/01
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l
EPA 8270B					
2-Methylnaphthalene	97.5 g/L	84.3 g/L	73.1 g/L	<10 g/L	~13 g/L
Naphthalene	122.1 g/L	138.6 g/L	164.2 g/L	21 g/L	14 g/L

notes: N/A indicates the sample was not analyzed for the parameter

BDL indicates the sum of the individual constituent concentrations is below detectable limits

**Table 2  
QUARTERLY CUMULATIVE GROUND-WATER ELEVATIONS**

Monitoring Well No.	Well Depth (ft)	Top of PVC Casing Elevation (ft MSL)	Ground-water Level Elevation (ft MSL)							
			09/30/1999	12/21/1999	03/29/2000	06/27/2000	09/27/2000	12/05/2000	12/05/2001	
MW-1	45.7	100.19	64.89	64.73	64.74	64.56	64.10	64.17	63.42	
MW-2	45.0	99.56	64.46	64.51	64.33	64.28	63.88	63.94	62.97	
MW-3	38.5	99.15	64.50	64.46	64.27	64.16	63.80	63.93	62.87	
WW-1	125.0	99.52	64.79	64.96	64.51	64.11	63.95	64.13	63.29	
R-1	48.0	100.03	64.83	64.63	*	64.78	63.95	64.09	63.18	



**Stenbeck and Associates, Inc**  
**Houston, Texas**

**Figure 1**  
**Groundwater Elevations (2001 sampling event)**  
**Baker Oil Tools**  
**2800 W. Marland**  
**Hobbs, NM**

Prepared by TVS  
 scale 1 = 40' (approx.)  
 3/15/02

## CERTIFICATE OF ANALYSES

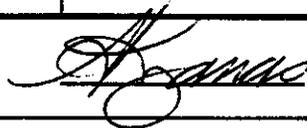
Envirotest Job #:	V01-185	Client Job #:	Stenbeck & Assoc.
Date of Analyses:	December 10, 2001	Reference:	Hobbs 2001 Sampling
Analytical Method:	SW-846 8270C, 8260B		

Client Sample ID:	MW-1	MW-2	MW-3
Laboratory Sample Number:	120109-01A	120109-02A	120109-03A

Analyte	ug/L	ug/L	ug/L
Benzene	< 1	< 1	< 1
Toluene	< 1	< 1	< 1
Ethylbenzene	< 1	< 1	< 1
Total-Xylene	< 1	< 1	< 1
Methyl Tertiary-Butyl Ether	< 1	< 1	< 1
Naphthalene	< 10	< 10	< 10
2-Methyl Naphthalene	< 10	< 10	< 10

Surrogates	% Recovery	% Recovery	% Recovery	QC Limits
4-Bromofluorobenzene	73%	73%	76%	72 - 137%
Dibromofluoromethane	113%	120%	82%	56 - 153%
Toluene-d8	101%	100%	93%	68 - 124%
1,2-Dichloroethane-d4	106%	113%	86%	64 - 130%
2-Fluorobiphenyl	73%	88%	62%	43 - 116%
Nitobenzene-d5	66%	80%	56%	35 - 114%
Terphenyl-d14	39%	65%	47%	33 - 141%

Reviewed By: \_\_\_\_\_



**Performance Detection Limit:** Detection limits are dependent on sample type, matrix interferences, and initial sample weight/dilutions.

**Method Blanks:** Method blanks are analyzed to check preparation and analyses for possible laboratory contamination.

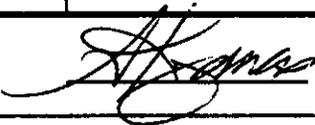
## CERTIFICATE OF ANALYSES

Envirotest Job #:	V01-185	Client Job #:	Stenbeck & Assoc.
Date of Analyses:	December 10, 2001	Reference:	Hobbs 2001 Sampling
Analytical Method:	SW-846 8270C, 8260B		

Client Sample ID:	WW-1	R-1	
Laboratory Sample Number:	120109-04A	120109-05A	Prep. Blank

Analyte	ug/L	ug/L	ug/L	
Benzene	< 1	< 1	< 1	
Toluene	< 1	< 1	< 1	
Ethylbenzene	< 1	< 1	< 1	
Total-Xylene	< 1	< 1	< 1	
Methyl Tertiary-Butyl Ether	< 1	< 1	< 1	
Naphthalene	< 10	14	< 10	
2-Methyl Naphthalene	< 10	~ 13	< 10	

Surrogates	% Recovery	% Recovery	% Recovery	QC Limits
4-Bromofluorobenzene	73%	87%	76%	72 - 137%
Dibromofluoromethane	107%	110%	108%	56 - 153%
Toluene-d8	100%	94%	102%	68 - 124%
1,2-Dichloroethane-d4	101%	104%	103%	64 - 130%
2-Fluorobiphenyl	73%			43 - 116%
Nitobenzene-d5	65%			35 - 114%
Terphenyl-d14	61%			33 - 141%

Reviewed By: 

**Performance Detection Limit:** Detection limits are dependent on sample type, matrix interferences, and initial sample weight/dilutions.

**Method Blanks:** Method blanks are analyzed to check preparation and analyses for possible laboratory contamination.

\_\_\_\_ QA/QC

**CERTIFICATE OF ANALYSES**  
**Lab QA/QC Results**

Envirotest Job #:	V01-185	Client Job #:	Stenbeck & Assoc.
Date of Analyses:	December 10, 2001	Reference:	Hobbs 2001 Sampling
Analytical Method:	SW-846 8270C, 8260B		

	Relative Percent			QC Limit Recovery
	Laboratory Control Spike	Laboratory Control Spike Duplicate	Difference Limit 20%	
1,1-Dichloroethene	92%	92%	0%	64 - 132%
Benzene	103%	104%	1%	74 - 131%
Chlorobenzene	106%	103%	3%	81 - 126%
Toluene	101%	102%	1%	62 - 162%
Trichloroethene	105%	99%	6%	67 - 132%

**Note:**

For sample R-1, lab ID 120109-05A, the one liter sample was broken in transit, therefore the analysis was done by volatile GC/MS analysis. 2-Methyl Naphthalene was analyzed as a Tentatively Identified Compound. (TIC)

Reviewed By: \_\_\_\_\_



**Performance Detection Limit:** Detection limits are dependent on sample type, matrix interferences, and initial sample weight/dilutions.

**Method Blanks:** Method blanks are analyzed to check preparation and analyses for possible laboratory contamination.

QA/QC

**Olson, William**

---

**From:** Schauffler, Richard [Richard.Schauffler@bakerhughes.com]  
**Sent:** Friday, December 06, 2002 9:54 AM  
**To:** 'wolson@state.nm.us'  
**Subject:** Baker Oil Tools Well Monitoring Event FY2002

Dear Mr Olsen:

As a follow-up to your telephone conversation with Thomas Stenbeck on December 5, 2002, Baker Oil Tools is considering delaying the 2002 scheduled monitoring event for the Hobbs, New Mexico location (Project No. 60260-8-1332-04). Events beyond our control may require us to delay this monitoring event until early 2003. We understand that if we delay the monitoring event, it will be necessary to perform two monitoring events during calendar year 2003. The second monitoring event we expect would occur during Quarter 4. We appreciate your understanding regarding this delay. Should you have any additional questions or require any additional information please contact me at (713)625-4628.

Sincerely,  
Richard Schauffler  
HS&E Specialist IV  
Baker Hughes Inteq/Baker Oil Tools/Baker Atlas

12/6/2002



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**GARY E. JOHNSON**  
Governor  
**Jennifer A. Salisbury**  
Cabinet Secretary

**Lori Wrotenberg**  
Director  
Oil Conservation Division

January 4, 2002

**CERTIFIED MAIL**

**RETURN RECEIPT NO: 7000-1670-0012-5357-8185**

Mr. Reggie Kennedy  
Baker Oil Tools  
P.O. Box 40129  
Houston, Texas 77240

**RE: CASE #1R0043  
BAKER OIL TOOLS HOBBS FACILITY**

Dear Mr. Kennedy:

The New Mexico Oil Conservation Division (OCD) has reviewed Baker Oil Tools (BOT) undated "ANNUAL GROUNDWATER MONITORING REPORT AND MONITORING FREQUENCY CHANGE REQUEST FOR PROJECT 60260-8-1332-04" which was received by the OCD on July 23, 2001. This document contains the results of ground water quality monitoring at BOT's Hobbs facility for the 2000 calendar year. The document also contains a request to change the ground water sampling frequency from quarterly to annually.

The above-referenced request is approved. Please be advised that OCD approval does not relieve BOT of responsibility if the sampling program fails to adequately monitor contamination related to BOT's activities. In addition, OCD approval does not relieve BOT of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please contact me at (505) 476-3491.

Sincerely,

William C. Olson  
Hydrologist  
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor  
Tom Stenbeck, Page & Kraemer Environmental Services

L CONSERVATION DIV.  
JUL 23 AM 10: 37

Mr. William Olson, Hydrogeologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
1220 Saint Francis  
Santa Fe, New Mexico 87505

Re: Annual groundwater monitoring report and monitoring frequency change request for Project 60260-8-1332-04

Dear Mr. Olson:

Accompanying this cover letter, Baker Oil Tools is submitting the four quarters of ground water monitoring data for calendar year 2000 for Project Number 60260-8-1332-04. The subject property is located at 2800 West Marland in Hobbs, New Mexico. The property was previously occupied by Baker Oil Tools as an oil field service shop. Currently the property has one building and it is unoccupied.

Well R-1 is the monitoring well closest and immediately down gradient from the on site source of contamination (which was remediated previously). Based on the analytical data from the wells, the last four quarters of monitoring data from well R-1 show a continual decrease in detected amounts of 2-methyl naphthalene. In the fourth quarter of Calendar Year (CY) 2000 2-methyl naphthalene was not detected in the sample from the well. In well R-1, naphthalene contamination indicated a slight increase in contaminant levels during the first 3 quarters with a significant drop in the last quarter.

The only other well with contaminants, believed sourced from the "closed" pit onsite, detected by analysis during the CY 2000 was Well MW-1. In one of the four samples taken during (in the second quarter) CY 2000, the sample was found to contain low levels of 2-methyl naphthalene (15.2 µg/l) and naphthalene (23.1 µg/l). All other quarterly samples from this well were non-detect for all compounds.

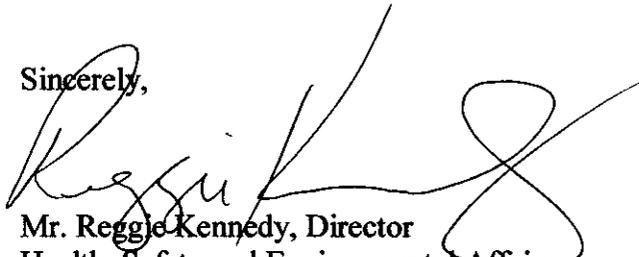
No BTEX (Benzene, Toluene, Ethyl benzene and Xylene) compounds have been detected in the past year in any of the wells.

The only other contaminant detected in any samples from these wells during CY 2000 was MTBE (Methyl tert-butyl ether). This compound was detected by analysis in Well MW-3 in samples taken during the 3<sup>rd</sup> and 4<sup>th</sup> quarter monitoring events. There is no onsite source for this compound. The source must be from an unknown location offsite.

With the decrease in the analytical levels of onsite sourced contaminants, Baker Oil Tools is requesting the State of New Mexico to allow the monitoring frequency to be modified. Based on the data available, it does not appear that the contaminants detected in Well R-1 are migrating to the edges of the property. In addition, Well R-1 has indicated a decreasing amount of contaminant in the groundwater. Therefore, Baker Oil Tools is requesting a decrease in monitoring frequency from the current level of 4 monitoring events per year to 1 monitoring event per year to occur during the second quarter of the year. This change in monitoring frequency will annually assess the levels of contaminants in the aquifer under the site. Should the annual monitoring event indicate a sharp increase in the levels of contaminants present Baker Oil Tools will notify the State of New Mexico and discuss whether the monitoring frequency should be changed back to a quarterly or semi-annual monitoring event.

Should this request prove acceptable to the State of New Mexico, please provide Baker Oil Tools written notification of your agreement to this monitoring change to the attention of Mr. Reggie Kennedy. Should you have any question or require additional information please contact Mr. Reggie Kennedy at the number below.

Sincerely,



Mr. Reggie Kennedy, Director  
Health, Safety and Environmental Affairs  
(713)466-2445



PAGE & KRAEMER ENVIRONMENTAL SERVICES, INC.

P.O. Box 841005 (77284)

5635 Northwest Central Dr., Suite. 100

Houston, Texas 77092

Office: 713/460-3233

Fax: 713/460-8288

Date: 9-14-00

To: Mr. William Olson

Company: NMED

From: Tom Stenbeck

Company: Page and Kraemer - Houston office

Number of Pages (including cover): 3

Re: Groundwater monitoring schedule change for Baker Oil Tools Hobbs site

Dear Bill:

Here is the letter from Baker Oil Tools (BOT) requesting a change in the monitoring frequency we were discussing. Based on our conversation, with the detection of the contaminants in MW-1 to the northwest, BOT will continue to perform two more monitoring sessions this year (Sept. and Dec.) and prepare the Annual Report from this data. If the monitoring data over the next two quarters shows no significant shifts in contaminant levels at any of the wells, BOT will request in the Annual Report a change in the monitoring schedule from quarterly monitoring to annual monitoring for you to consider at that time. Should you need any additional information please contact me at the phone number above or Mr. Robby Hendrick (713-625-6785) the Environmental Compliance coordinator for BOT. Thank you for your time.

Sincerely

A handwritten signature in cursive script that reads "Tom".

Tom Stenbeck



**Baker Oil Tools**

1010 Rankin Road, 3rd Floor  
77073-4606  
P.O. Box 671848  
Houston, Texas  
77267-1848  
Tel: 713/623-6800  
Region Fax: 713/623-6806  
Sales Fax: 713/623-6815

September 8, 2000

Mr. William Olson, Hydrogeologist  
State of New Mexico  
Energy, Mineral and natural Resource Department  
Oil conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

Re: Change to groundwater monitoring schedule for Project No. 60260-8-1332-04  
Baker Oil Tools Facility, 2800 W. Marland, Hobbs, NM

Dear Mr. Olson:

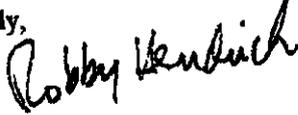
Baker Oil Tools is requesting that the State of New Mexico modify the current quarterly monitoring schedule for the above referenced property to an annual schedule. Baker Oil Tools is requesting this change because of the very low levels of contaminants found in the monitoring wells and the relative lack of change between monitoring sessions in the levels of contaminants detected. Additionally, it appears that free product previously noticed in one of the monitoring wells (Well R-1 adjacent to the "old pit") is no longer present. This lack of free product is evidenced by no product recovery from the passive skimmer installed in this well last year and no free product being detected in this well since the June 24, 1999 monitoring session.

The monitoring data for the property indicates very low levels of naphthalene and 2-methyl-naphthalene in well R-1 and (only in the last quarter's data) well MW-1 (Ref. Quarter 2, 2000 Monitoring Report dated July 31, 2000). Prior to this past quarter's report no contaminants from the pit were detected in MW-1. This low level of contaminants in MW-1 is believed due to an apparent slight change in the groundwater table beneath the property. As interpreted, the groundwater elevation map included in the Quarter 2, 2000 report indicates a slight high beneath the "old pit" with flow outward in all directions. Previous maps indicated more planar flow to the east and/or southeast from the pit with no detection of contaminants in the two wells to the east and southeast.

The change in monitoring schedule is requested because of the lack of significant changes in monitoring data. Baker Oil Tools is proposing to change the monitoring frequency to once per year data because it is believed that the yearly monitoring will be representative of the conditions at this site.

Please contact us by September 28, 2000 regarding your decision on this matter. Should you have any questions or require additional information please contact me at 713-625-6785.

Sincerely,



**Robby Hendrick**  
**Environmental Compliance Coordinator**  
**Baker Oil Tools**



STATE OF NEW MEXICO  
 ENERGY, MINERALS AND NATURAL RESOURCES

OIL CONSERVATION DIVISION  
 2040 S. PACHECO  
 SANTA FE, NEW MEXICO 87505  
 (505) 827-7131

August 17, 1999

**CERTIFIED MAIL**  
**RETURN RECEIPT NO: Z-274-520-694**

Mr. Myk Thornton  
 Baker Oil Tools  
 P.O. Box 40129  
 Houston, Texas 77240

**RE: BAKER OIL TOOLS HOBBS FACILITY**

Dear Mr. Thornton:

The New Mexico Oil Conservation Division (OCD) has reviewed Baker Oil Tools (BOT) May 5, 1999 "BAKER OIL TOOLS - HOBBS, NM, WORK PLAN REQUEST" and April 16, 1999 "FIRST QUARTER OF 1999 GROUND-WATER SAMPLING EVENT, FORMER BAKER OIL TOOLS FACILITY, 2800 WEST MARLAND, HOBBS, NEW MEXICO, PROJECT NO. 60260-8-1332-04". These documents contains the results of ground water quality monitoring and a work plan recovery of free phase hydrocarbons at the former BOT facility in Hobbs, New Mexico.

The hydrocarbon recovery work plan as contained in the above referenced documents is approved.

Please be advised that OCD approval does not relieve BOT of liability should the work plan fail to adequately remediate contamination related to BOT's activities, or if contamination exists which is outside the scope of the work plan. In addition, OCD approval does not relieve BOT of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson  
 Hydrologist  
 Environmental Bureau

xc: Chris Williams, OCD Hobbs District Office

Bill Olson - OCD  
 Z 274 520 694

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NEW MEXICO 87502  
 HOBBS

MAY 17 1999

May 5, 1999

Mr. William C. Olson, Hydrologist  
State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division - Environmental Bureau  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

In reply to: Baker Oil Tools - Hobbs, NM, Work Plan Request

Dear Mr. Olson:

The following work plan is being submitted in response to your correspondence of March 10, 1999 requesting remediation and control of contaminants downgradient of the former unlined disposal pit. Implementation of the work plan will be coordinated with our next scheduled monitoring event in June. Please contact me at 713-625-4200 if you have any questions or comments regarding this plan.

Sincerely,

  
Myk Thornton

Baker Huges Inteq/ Baker Oil Tools/ Baker Atlas HS&E Department

Xc: OCD Hobbs District Office

## Remediation Work Plan

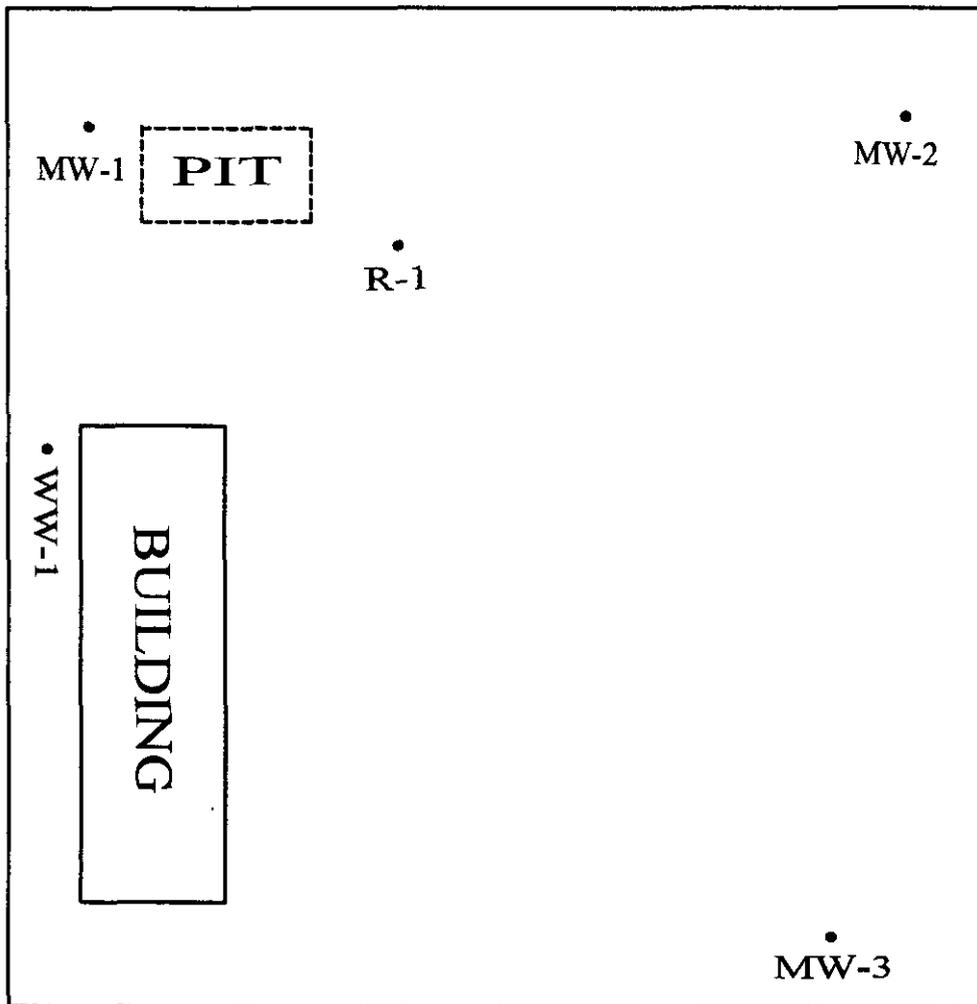
Baker Oil Tools  
2800 W. Marland  
Hobbs, New Mexico

**History and Concerns:** Baker Oil Tools vacated a property at 2800 W. Marland in Hobbs, NM and moved to a new location. The property had been used as an oil field service shop. Upon leaving the property it was revealed that an unlined pit in the back portion of the property had been used periodically. Additionally, prior to Baker Oil Tools vacating the site, contamination was noted in the water well used for water at the property. The contamination in the water well was analyzed. The laboratory results indicated gasoline components in the water.

Monitoring wells were installed at 4 locations on the property (Figure 1 property layout). Quarterly monitoring of the wells began and data has been provided to the State of New Mexico. Some of the monitoring events revealed the presence of gasoline products in the groundwater under the Baker property. MTBE has been detected in the groundwater beneath the Baker property (indicative of a potential off-site gasoline source for some of the hydrocarbon contamination). Several areas of apparent surface hydrocarbon contamination originating from the petroleum jobber's facility have been noted along the property boundary extending onto the Baker property during various quarterly monitoring events.

Monitoring well R-1 was installed apparently down-gradient from the unlined pit. R-1 has begun yielding free hydrocarbon product (a naphthalene – type material) which is thought to be sourced from the old unlined pit upon which a closure attempt had been made in the past. It does not appear that this well (R-1), recharges with hydrocarbon product at a rapid rate. Attachment 1 is the description of the monitoring activities at R-1 during the most recent monitoring event in March of 1999.

A concern at this site is that groundwater flow rate not be affected by an active recovery process. If gasoline contamination is present from an offsite source, an active groundwater recovery system could draw the contamination onto the Baker site. This assumption supports the installation of a passive hydrocarbon recovery system rather than an active system.



**Page and Kraemer Environmental Services, Inc.**  
Lafayette / Houston

**Figure 1**

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM

## **Hydrocarbon Recovery Plan**

Baker proposes to perform Items 1 and 2 during the next groundwater sampling event in June 1999. This will be followed up with Items 3, 4 and 5.

1. Bail well R-1 and document amount of hydrocarbon recovered. Bail R-1 until all apparent free product is recovered.
2. Install a passive groundwater recovery skimmer in Monitoring Well R-1.  
(Attachment 2 has specifics of one of the systems currently under evaluation by Baker for installation. Monitoring Well R-1 is a two inch well and it is proposed to install a skimmer with approximately 1000 ml of hydrocarbon recovery capacity.)
3. During the next two regularly scheduled quarterly monitoring events, document the amount of hydrocarbon product recovered in the passive skimmer and bail well to evaluate if any free product (not recovered by the skimmer) is present.
4. If the 2 quarter evaluation period indicates the hydrocarbon recharge rate produces more free product than the skimmer is designed to handle, then Baker will propose to modify the schedule upon which the skimmer in R-1 is recovered and emptied.
5. Baker will provide to the State of New Mexico the results of the hydrocarbon recovery information for the evaluation period.

Attachment 1

## Attachment 1

### Monitoring Well R-1 Recovery Information March 1999

Monitoring well R-1 was bailed but not sampled due to the presence of free product in the well when bailing initiated. Approximately 10 inches of free product was observed in the first bailer during the sampling of monitoring well R-1. The recovered amount decreased in subsequent bails until after the 12<sup>th</sup> bailer taken the amount of product being recovered was less than  $\frac{1}{8}$ <sup>th</sup> of an inch. The sampling crew left the site for one hour to deliver the samples from the other wells for transport to the laboratory. Samples collected from each well were shipped to Von Analytical Laboratories in Houston, Texas for analysis. (Note: The laboratory was changed for logistical, service and cost considerations.) When the crew returned, R-1 was bailed again. The first bailer yielded water with  $\frac{1}{4}$  inch of free product. The second bailer yielded 2 inches of free product. The third bail contained less than  $\frac{1}{2}$  inch of free product. Subsequent bails from the well produced a diminishing quantity of free product until on the 10<sup>th</sup> bail less than  $\frac{1}{8}$ <sup>th</sup> of an inch of product was recovered. The well was almost bailed dry at this point. Approximately one foot of water sample was being recovered per bail and this material contained a high sediment load. The crew returned the next morning to resample R-1 to determine if recharge of the free product would occur overnight. Bailing of R-1 began at 7:00 a.m. The first bail taken was a full bailer of water with a sheen of free product. The subsequent 13 bails from the well recovered only a hydrocarbon sheen on each. Again the well bailed almost completely dry by the last bail.

Attachment 2

Floating Intake for 4" and 2" wells

The zorbo™ systems offer the greatest flexibility available in a passive LNAPL recovery system and the highest recovery rates possible with today's skimmer technology! The zorbo™ passive discriminating intake system is ideal for clean up of floating free product down to the sheen!

SUPERIOR FILTER MATERIAL!

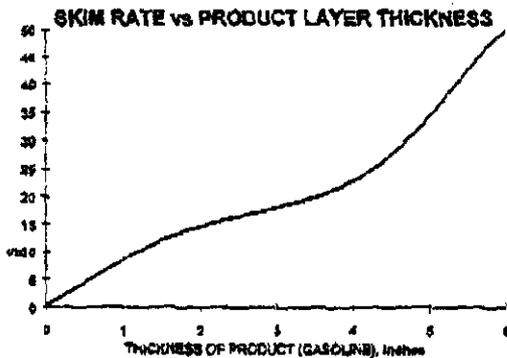
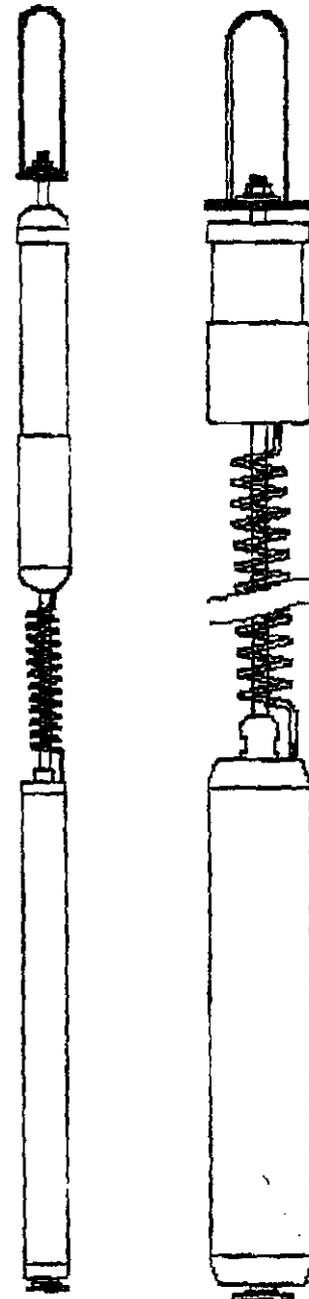
The zorbo™ collects non emulsified hydrocarbons, without water, down to a sheen, through the precision intake float! Exceptional skim rates set the zorbo™ systems apart from any other available products in this class.

SIMPLE INSTALLATION!

If you can use a bailer you can install a complete zorbo™ system! No need for pumps, electrical support or maintenance. This completely passive system begins to work as soon as it is lowered into the well! No more maintenance in the field! Nothing to clean and none of the time and costs associated with cleaning! Geotech can also supply well caps and teflon coated suspension cable!

UNMATCHED RESPONSIVENESS!

No other passive recovery system can match zorbo™ systems for flexibility. The scientifically designed coil tubing and precision intake floats accurately follow LNAPL layers for more efficient recovery. The 4 inch zorbo™ adapts to water table fluctuations of up to 3 feet and has a canister capacity of approximately a gallon. The 2 inch zorbo™ handles water fluctuations of up to 15 inches and has a capacity of up to a quart with the 36 inch canister. A 2 inch, static intake, economy zorbo™ is also available.



Geotech Environmental Equipment, Inc.  
8035 East 40th Avenue  
Denver, Colorado 80207  
(303)320-4764 • (800) 833-7958 • FAX (303) 322-7242  
email: geotech@lc.netcom.com  
website: www.geotechenv.com

Specifications

Zorbo™ 2" skimmer system

<b>Dimensions</b>	
Height/weight with 1 foot canister	49 3/16"; 5.0 lbs
Height/weight with 3 foot canister	73 3/16"; 6.25 lbs
Diameter	1.85" max
Volume of canisters	347 ml (.092 gal), 1056 ml (.279 gal)
Accommodates water fluctuations to:	approximately 15 inches with floating intake
<b>Materials</b>	
Suspension loop	stainless steel
Centering disc	stainless steel
Filter material	polyethylene
Float material	polypropylene
Fittings	brass
Coil tubing	polyurethane, 1/8 x 1/4, with 3/4" id coil
Center shaft	stainless steel
Collection canister	stainless steel
Dispensing valve	brass, 3/8" NPT thread, petcock

Zorbo™ 4" skimmer system

<b>Dimensions</b>	
Height/weight with 1 foot canister	67 5/16"; 15.0 lbs
Height/weight with 3 foot canister	91 5/16"; 19.0 lbs
Diameter	3.75" max
Volume of canisters	1,609 ml (.425 gal), 5,137 ml (1.357 gal)
Accommodates water fluctuations to:	approximately 36 inches with floating intake
<b>Materials</b>	
Suspension loop	stainless steel
Centering disc	stainless steel
Filter material	polyethylene
Float material	polyethylene
Fittings	brass
Coil tubing	polyurethane, 1/8 x 1/4, with 3/4" id coil
Center shaft	stainless steel
Collection canister	stainless steel
Dispensing valve	brass, 3/8" NPT thread, petcock

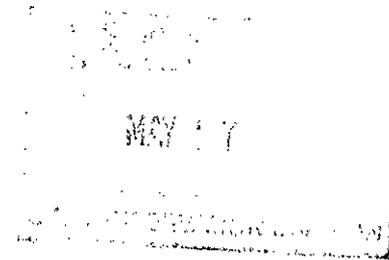
Zorbo™ 2" economy model (not shown)

<b>Dimensions</b>	
Height/weight with 1 foot canister	29", 3.0 lbs
Height/weight with 3 foot canister	59", 5.0 lbs
Diameter	1.8" max
Volume of canisters	328 ml (.087 gal), 685 ml (.280 gal)
Accommodates water fluctuations to:	7 inches with static intake
<b>Materials</b>	
Suspension loop	stainless steel
Filter material	polyethylene
Float material	polyethylene
Fittings	brass
Collection canister	PVC
Dispensing valve	brass, 3/8" NPT thread, petcock

CALL (800) 833-7958  
WE WANT YOUR BUSINESS!!

April 16, 1999

Mr. William Olson, Hydrogeologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505



**First Quarter of 1999  
GROUND-WATER SAMPLING EVENT**

Former Baker Oil Tools Facility  
2800 West Marland  
Hobbs, New Mexico  
Project No. 60260-8-1332-04

Dear Mr. Olson:

Baker Oil Tools is submitting the first quarter of 1999 ground-water monitoring report in response to the NMOCD request of June 20, 1995 to provide quarterly monitoring data for ground water contamination in the direct vicinity of the former disposal pit on the property located at 2800 West Marland in Hobbs, New Mexico. The NMOCD requested this report discuss relevant background information, execution of services, laboratory analytical results, and a summary of our findings for the subject property.

1. BOT performed the first quarter monitoring event on March 25, 1999. During this quarterly monitoring event, the wells were gauged for depth, bailed and sampled. Monitoring tasks began at 2:45 p.m. Purging of the well was accomplished using a low volume electric pump. Bailing and sampling of the wells was accomplished using new 2" bailers. Monitoring wells MW-1, MW-2 and MW-3 were pumped of three volumes and allowed to equalize prior to sampling. Water well WW-1 was sampled but not purged due to the depth of the water in the well. Monitoring well R-1 was bailed but not sampled due to the presence of free product in the well when bailing initiated. Approximately 10 inches of free product was observed in the first bailer during the sampling of monitoring well R-1. The recovered amount decreased in subsequent bails until after the 12<sup>th</sup> bailer taken the amount of product being recovered was less than  $\frac{1}{8}$ <sup>th</sup> of an inch. The sampling crew left the site for one hour to deliver the samples from the other wells for transport to the laboratory. Samples collected from each well were shipped to Von Analytical Laboratories in Houston, Texas for analysis. (Note: The laboratory was changed for logistical, service and cost considerations.) When the crew returned, R-1 was bailed again. The first bailer yielded water with  $\frac{1}{4}$  inch of free product. The second bailer yielded 2 inches of free product. The third bail contained less than  $\frac{1}{2}$  inch of free product. Subsequent bails from the well produced a diminishing quantity of free product until on the 10<sup>th</sup> bail less than  $\frac{1}{8}$ <sup>th</sup> of an inch of product was recovered. The well was almost bailed dry at this point. Approximately one foot of water sample was being recovered per bail and

this material contained a high sediment load. The crew returned the next morning to resample R-1 to determine if recharge of the free product would occur overnight. Bailing of R-1 began at 7:00 a.m. The first bail taken was a full bailer of water with a sheen of free product. The subsequent 13 bails from the well recovered only a hydrocarbon sheen on each. Again the well bailed almost completely dry by the last bail.

2. A summary of the laboratory analytical results of water quality sampling of the monitoring wells is provided in the attached Table 1A through 1E. This data is presented in tabular form showing the previous four monitoring events sampling results. A copy of the original laboratory analytical results is also attached.
3. Water level and well depth measurements were measured using an electronic water level indicator capable of determining water levels to within 0.01 foot. Table 2 provides cumulative ground water level measurements for the previous four monitoring events. An updated ground water elevation map using the recent water table elevations of the ground water in all monitoring wells is presented in Figure 1.

If you have any questions or require additional information, please do not hesitate in contacting me at (713) 625-4492.

Sincerely,  
For Baker Hughes Inteq/Baker Oil Tools/Baker Atlas



Myk Thornton  
Environmental Manager

TABLE 1A  
MW-1

	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
	4/23/98	8/4/98	12/29/98	March 26, 1999
EPA 8020A				
Benzene	<0.002 ppm	<0.002 ppm	<0.002 ppm	< 0.0050 ppm
Ethylbenzene	<0.002 ppm	<0.002 ppm	<0.002 ppm	< 0.0050 ppm
Toluene	<0.002 ppm	<0.002 ppm	<0.002 ppm	< 0.0050 ppm
Xylenes	<0.002 ppm	<0.002 ppm	<0.002 ppm	< 0.0050 ppm
Total BETX	BDL	BDL	BDL	BDL
EPA 8020				
Methyl Tertiary Butyl Ether	< 0.0050	< 0.0050	< 0.0050	< 0.0050 ppm
EPA 8270B				
2-Methylnaphthalene	<0.01 ppm	<0.01 ppm	<0.01 ppm	0.01 mg/l
Naphthalene	<0.01 ppm	<0.01 ppm	<0.01 ppm	0.01 mg/l

notes: N/A indicates the sample was not analyzed for the parameter  
BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1B  
MW-2

	2nd Quarter		3rd Quarter		4th Quarter		1st Quarter	
	4/23/98	8/2/98	8/4/98	12/29/98	March 26, 1999	3rd Quarter	4th Quarter	March 26, 1999
EPA 8020A								
Benzene	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.0050 ppm
Ethylbenzene	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.0050 ppm
Toluene	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.0050 ppm
Xylenes	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.0050 ppm
Total BETX	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
EPA 8020								
Methyl Tertiary Butyl Ether	<0.005 ppm	<0.005 ppm	<0.005 ppm	<0.005 ppm	<0.005 ppm	<0.005 ppm	<0.005 ppm	<0.0050 ppm
EPA 8270B								
2-Methylnaphthalene	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.01 mg/l
Naphthalene	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.01 mg/l

notes: N/A indicates the sample was not analyzed for the parameter  
BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1C  
MW-3

	2nd Quarter 4/23/98	3rd Quarter 8/4/98	4th Quarter 12/29/98	1st Quarter March 26, 1999	2nd Quarter	3rd Quarter	4th Quarter
EPA 8020A							
Benzene	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.0050			
Ethylbenzene	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.0050			
Toluene	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.0050			
Xylenes	<0.002 ppm	<0.002 ppm	<0.002 ppm	<0.0050			
Total BETX	BDL	BDL	BDL	BDL			
EPA 8020							
Methyl Tertiary Butyl Ether	<0.005 ppm	<0.005 ppm	<0.005 ppm	<0.0050 ppm			
EPA 8270B							
2-Methylnaphthalene	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.010 mg/l			
Naphthalene	<0.01 ppm	<0.01 ppm	<0.01 ppm	<0.010 mg/l			

notes: N/A indicates the sample was not analyzed for the parameter

BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1D  
WW-1

	2nd Quarter		3rd Quarter		4th Quarter		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	4/23/98		8/4/98		12/29/98		3/26/99							
EPA 8020A														
Benzene	<0.002 ppm		<0.002 ppm		<0.002 ppm		<0.0050 ppm							
Ethylbenzene	<0.002 ppm		<0.002 ppm		<0.002 ppm		<0.0050 ppm							
Toluene	<0.002 ppm		<0.002 ppm		<0.002 ppm		<0.0050 ppm							
Xylenes	<0.002 ppm		<0.002 ppm		<0.002 ppm		<0.0050 ppm							
Total BETX	BDL		BDL		BDL		BDL							
EPA 8020														
Methyl Tertiary Butyl Ether	<0.005 ppm		<0.005 ppm		<0.005 ppm		<0.0050 ppm							
EPA 8270B														
2-Methylnaphthalene	<0.01 ppm		<0.01 ppm		<0.01 ppm		<0.010 mg/l							
Naphthalene	<0.01 ppm		<0.01 ppm		<0.01 ppm		<0.010 mg/l							

notes: N/A indicates the sample was not analyzed for the parameter  
BDL indicates the sum of the individual constituent concentrations is below detectable limits

TABLE 1E  
R-1

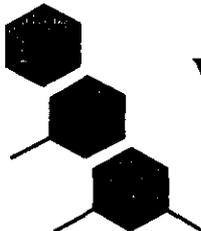
	2nd Quarter 4/23/98	3rd Quarter 8/4/98	4th Quarter 12/29/98	1st Quarter 3/25/99	2nd Quarter	3rd Quarter	4th Quarter
EPA 8020A	N/A	N/A	<0.002 ppm	N/A			
Benzene	N/A	N/A	0.041 ppm	N/A			
Ethylbenzene	N/A	N/A	<0.002 ppm	N/A			
Toluene	N/A	N/A	0.035 ppm	N/A			
Xylenes	N/A	N/A	0.076 ppm	N/A			
Total BETX							
EPA 8020							
Methyl Tertiary Butyl Ether	N/A	N/A	<0.005 ppm	N/A			
EPA 8270B							
2-Methylnaphthalene	N/A	N/A	2.0 ppm	N/A			
Naphthalene	N/A	N/A	1.2 ppm	N/A			

notes: N/A indicates the sample was not analyzed for the parameter

BDL indicates the sum of the individual constituent concentrations is below detectable limits

**QUARTERLY CUMULATIVE GROUND-WATER ELEVATIONS**

Monitoring Well No.	Well Depth (ft)	Top of PVC Casing Elevation (ft MSL)	Ground-water Level Elevation (ft MSL)			
			4/23/98	8/4/98	12/29/98	3/25/99
MW-1	45.7	100.19	66.06	65.70	66.14	65.19
MW-2	45.0	99.56	65.71	65.32	65.21	64.88
MW-3	38.5	99.15	65.56	65.20	65.15	64.83
WW-1	125.0	99.52	65.58	65.62	65.37	65.12
R-1	48.0	100.03	*	*	63.93	*



## Von Analytical Laboratories

10801 Hammerly, #250, Houston, TX 77043  
P.O. Box 841624, Houston, TX 77284-1624  
Ph. (713) 827-0737 • Fax (713) 827-8733  
email: cfb@flash.net

April 8, 1999

**Mr. Tom Steinbeck**  
Page & Kraemer Environmental  
P. O. Box 841005  
Houston, TX 77284-1005

Report: **BOT Hobbs Monitoring**  
Date samples received: **March 26, 1999; 1348**  
VAL Lab Numbers: **B64-039 to B64-042**  
Client Sample Numbers: **MW-1 to WW-1**

Dear Sir:

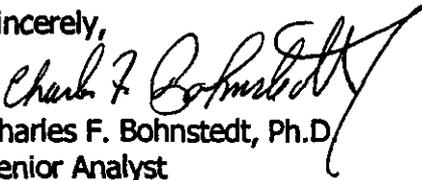
We have completed the requested analyses and have presented those results in this report. We have also reported the quality assurance/quality control data for these samples.

All raw data, spectra and log files shall remain on-file at VAL for a minimum of five years. Unused sample portions shall remain refrigerated at 4°C per EPA requirements for a minimum of 90 days for possible future analyses. After 90 days, we shall dispose of the samples using guidelines stated by state regulations.

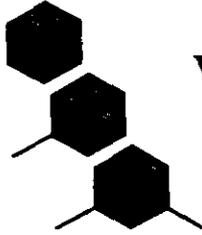
The analytical results pertain only to the samples analyzed as received. Von Analytical Laboratories assumes no responsibility for any subsequent use or interpretation of the analytical results.

We at Von Analytical Laboratories are very pleased to have served you.

Sincerely,



Charles F. Bohnstedt, Ph.D.  
Senior Analyst



# Von Analytical Laboratories

10801 Hammerly, #250, Houston, TX 77043  
P.O. Box 841624, Houston, TX 77284-1624  
Ph. (713) 827-0737 • Fax (713) 827-8733  
email: cfb@flash.net

  
Charles F. Bohnstedt, Ph.D.

Client:  
Submitted by:  
Sample Set Identification:  
Date Received:  
Date Samples Extracted by EPA 8270C:  
Date Samples Analyzed by EPA 8270C:

Page & Kraemer  
Tom Steinbeck  
BOT Hobbs Monitoring  
March 26, 1999; 1348  
March 30, 1999  
March 30, 1999

Client Sample No:	MW-1	MW-2	MW-3	WW-1	
VAL Sample No.:	B64-039	B64-040	B64-041	B64-042	Reagent
Sample Type:	Water	Water	Water	Water	Blank
Units:	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Naphthalene:	< 10	< 10	< 10	< 10	< 10
2-Methylnaphthalene:	< 10	< 10	< 10	< 10	< 10
<u>% Surrogate Recovery</u>					
Nitrobenzene-d8	73.9%	80.8%	81.7%	83.1%	95.9%

Client Sample No:

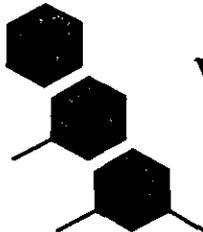
VAL Sample No.:  
Sample Type:  
Units:

Naphthalene:  
2-Methylnaphthalene:

% Surrogate Recovery  
Nitrobenzene-d8

for soils, ug/kg = ppb

for waters, ug/L = ppb



# Von Analytical Laboratories

10801 Hammerly, #250, Houston, TX 77043  
P.O. Box 841624, Houston, TX 77284-1624  
Ph. (713) 827-0737 • Fax (713) 827-8733  
email: cfb@flash.net

  
Charles F. Bohnstedt, Ph.D.

Client:	Page & Kraemer
Submitted by:	Tom Steinbeck
Sample Set Identification:	BOT Hobbs Monitoring
Date Received:	March 26, 1999; 1348
Date Samples Analyzed by EPA 8021B:	March 26, 1999

Client Sample No:	MW-1	MW-2	MW-3	WW-1
VAL Sample No.:	B64-039	B64-040	B64-041	B64-042
Sample Type:	Water	Water	Water	Water
Total BTEX (ppm):	<0.0050	<0.0050	<0.0050	<0.0050
Benzene (ppm):	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Toluene (ppm):	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Et-Benzene (ppm):	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Total Xylene (ppm):	< 0.0050	< 0.0050	< 0.0050	< 0.0050
MTBE (ppm):	< 0.0050	< 0.0050	< 0.0050	< 0.0050

### Quality Control Results

	Blank	Daily Calibration Check	Percent Recovery
Benzene (ppm):	< 0.005	0.0718	95%
Toluene (ppm):	< 0.005	0.0807	108%
Et-Benzene (ppm):	< 0.005	0.0774	103%
p & m-Xylene (ppm):	< 0.005	0.1467	98%
o-Xylene	< 0.005	0.0809	107%
MTBE (ppm):	< 0.005	0.0707	91%
% Surrogate Recovery	105%	93%	

for soils, ppm = mg/kg

for waters, ppm = mg/l

MTBE = Methyl tert-Butyl Ether



# ENVIRONMENTAL LABORATORY

17459 Village Green Drive • Houston, TX 77040 • (713) 466-0958 FAX: (713) 466-9882

## Analysis Request and Chain of Custody Record

Name/Address/Phone/Fax

Page 3 Kramer  
5635 N.W. Central #100 713 466 8288 Fax  
Houston TX 77092

713 960 3233 phone

Project Name/Number

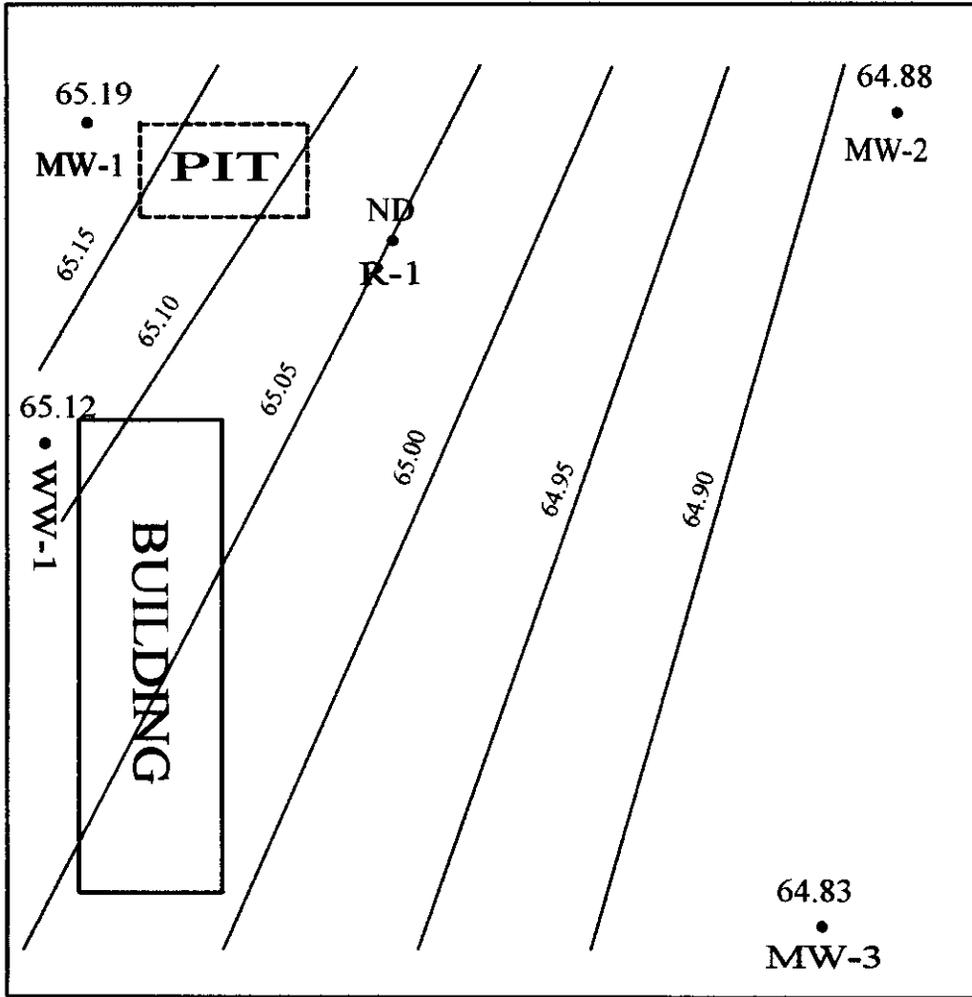
BOT Hobbs Monitoring

B-64

Lab ID No.	Field Sample No. / Identification	Date and Time	g	g	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
	MW-1	3-25-99 5:02 P			18 Glass 240ml vials	Liquid		Naphthalene, 2 methyl naphthalene, BTEX, MTBE	339
	MW-2	3-25-99 4:40 P	X		"	"		"	40
	MW-3	3-25-99 4:30 P	X		"	"		"	41
	MW-1	3-25-99 4:53	X		"	"		"	42
	R-t	3-25-99			"	"		"	

SAMPLER Relinquished by: (signature) *Felix* Date: 3/26/99 Received by: (signature) *[Signature]* Date: 3/26/99  
 (signature) *Felix* 810-998-216955 Time: 1348

REMARKS:



**Page and Kraemer Environmental Services, Inc.**  
Lafayette / Houston

**Figure 1**

Groundwater Elevations (QTR 1, 1999)

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM

Prepared by TVS  
scale 1 = 40' (approx.)  
5/1/99



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

March 10, 1999

**CERTIFIED MAIL**  
**RETURN RECEIPT NO: Z-274-520-630**

Mr. Myk Thornton  
Baker Oil Tools  
P.O. Box 40129  
Houston, Texas 77240

**RE: 4TH QUARTER REPORT  
BAKER OIL TOOLS HOBBS FACILITY**

Dear Mr. Thornton:

The New Mexico Oil Conservation Division (OCD) has reviewed Baker Oil Tools (BOT) February 2, 1999 "FOURTH QUARTER REPORT OF 1998 GROUND-WATER SAMPLING EVENT". This document contains the results of ground water quality monitoring at BOT's Hobbs facility.

The monitoring actions taken to date are satisfactory. However, the report shows that measurable amounts of free phase product have recently been observed in monitor well RW-1 downgradient of the former unlined disposal pit. In order to remediate and control migration of contaminants at the site, the OCD requires that BOT submit a work plan for remediation of ground water downgradient of BOT's former unlined disposal pit. The work plan will be submitted to the OCD Santa Fe Office by May10, 1999 with a copy provided to the OCD Hobbs District Office.

If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson  
Hydrologist  
Environmental Bureau

xc: OCD Hobbs District Office

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PS Form 3800, April 1995



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ENVIRONMENTAL BUREAU  
OIL CONSERVATION DIVISION

February 2, 1999

Mr. William Olson, Hydrogeologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

**FOURTH QUARTER REPORT OF 1998  
GROUND-WATER SAMPLING EVENT**

Former Baker Oil Tools Facility  
2800 West Marland  
Hobbs, New Mexico  
Project No. 60260-8-1332-04

Dear Mr. Olson:

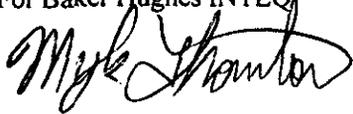
Baker Oil Tools is submitting the fourth quarter of 1999 ground-water monitoring report in response to the NMOCD request of June 20, 1995 to provide quarterly monitoring data for ground water contamination in the direct vicinity of the former disposal pit on the property located at 2800 West Marland in Hobbs, New Mexico. The NMOCD requested this report discuss relevant background information, execution of services, laboratory analytical results, and a summary of our findings for the subject property.

1. BOT performed the fourth quarter monitoring event on December 29, 1999. During this quarterly monitoring event, the wells were gauged for depth, bailed and sampled. Monitoring wells MW-1, MW-2 and MW-3 were bailed of three volumes and allowed to equalize prior to sampling. Monitoring well R-1 and water well WW-1 were sampled but not purged. One foot of product was observed in the bailer during the sampling of monitoring well R-1. Samples collected from each well were shipped to Core Laboratories for analysis.

2. A summary of the laboratory analytical results of water quality sampling of the monitoring wells is provided in the attached Table 1A through 1E. This data is presented in tabular form showing the previous four monitoring events sampling results.
3. Water level and well depth measurements were measured using an electronic water level indicator capable of determining water levels to within 0.01 foot. Table 2 provides cumulative ground-water level measurements for the previous four monitoring events. An updated ground water elevation map using the recent water table elevations of the ground water in all monitoring wells is presented as Figure 1.

If you have any questions or require additional information, please do not hesitate in contacting me at (713) 625-4200.

Sincerely,  
For Baker Hughes INTEQ



Myk Thornton  
Health, Safety and  
Environmental Coordinator

TABLE 1A  
 MW-1

	1 <sup>st</sup> Quarter 2/19/98	2 <sup>nd</sup> Quarter 4/23/98	3 <sup>rd</sup> Quarter 8/4/98	4 <sup>th</sup> Quarter 12/29/98
EPA 8020A				
Benzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Ethylbenzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Toluene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Xylenes	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Total BETX	BDL	BDL	BDL	BDL
EPA 8020				
Methyl Tertiary Butyl Ether	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm
EPA 8270B				
2-Methylnaphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
Naphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
EPA 120.1 & 150.1				
pH (standard units)	6.8	7.1	7.3	7.2
Specific Conductance (µmhos/cm)	1308	1301	1320	1320

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.

(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

TABLE 1B  
 MW-2

	1 <sup>st</sup> Quarter 7/19/98	2 <sup>nd</sup> Quarter 1/23/98	3 <sup>rd</sup> Quarter 8/4/98	4 <sup>th</sup> Quarter 12/29/98
EPA 8020A				
Benzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Ethylbenzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Toluene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Xylenes	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Total BETX	BDL	BDL	BDL	BDL
EPA 8020				
Methyl Tertiary Butyl Ether	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm
EPA 8270B				
2-Methylnaphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
Naphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
EPA 120.1 & 150.1				
pH (standard units)	7.0	7.1	7.5	7.2
Specific Conductance (µmhos/cm)	4150	3970	3570	3630

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.

(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

TABLE 1C  
 MW-3

	1 <sup>st</sup> Quarter 2/19/98	2 <sup>nd</sup> Quarter 4/23/98	3 <sup>rd</sup> Quarter 8/4/98	4 <sup>th</sup> Quarter 12/29/98
EPA 8020A				
Benzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Ethylbenzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Toluene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Xylenes	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Total BETX	BDL	BDL	BDL	BDL
EPA 8020				
Methyl Tertiary Butyl Ether	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm
EPA 8270B				
2-Methylnaphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
Naphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
EPA 120.1 & 150.1				
pH (standard units)	7.0	7.1	7.9	7.1
Specific Conductance (µmhos/cm)	1959	1841	1960	1870

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.

(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

TABLE 1D  
 WW-1

	1 <sup>st</sup> Quarter 2/19/98	2 <sup>nd</sup> Quarter 4/23/98	3 <sup>rd</sup> Quarter 8/4/98	4 <sup>th</sup> Quarter 12/29/98
EPA 8020A				
Benzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Ethylbenzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Toluene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Xylenes	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Total BETX	BDL	BDL	BDL	BDL
EPA 8020				
Methyl Tertiary Butyl Ether	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm
EPA 8270B				
2-Methylnaphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
Naphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
EPA 1201 & 1501				
pH (standard units)	7.0	7.1	7.9	7.7
Specific Conductance (µmhos/cm)	1959	1841	1960	196

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.

(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

TABLE 1E  
 R-1

	1 <sup>st</sup> Quarter 2/19/98	2 <sup>nd</sup> Quarter 4/23/98	3 <sup>rd</sup> Quarter 8/4/98	4 <sup>th</sup> Quarter 12/29/98
EPA 8020A				
Benzene	N/A	N/A	N/A	< 0.002 ppm
Ethylbenzene	N/A	N/A	N/A	0.041 ppm
Toluene	N/A	N/A	N/A	< 0.002 ppm
Xylenes	N/A	N/A	N/A	0.035 ppm
Total BETX	N/A	N/A	N/A	0.076 ppm
EPA 8020				
Methyl Tertiary Butyl Ether	N/A	N/A	N/A	< 0.005 ppm
EPA 8270B				
2-Methylnaphthalene	N/A	N/A	N/A	2.0 ppm
Naphthalene	N/A	N/A	N/A	1.2 ppm
EPA 9201 & 1501				
pH (standard units)	N/A	N/A	N/A	N/A
Specific Conductance (µmhos/cm)	N/A	N/A	N/A	N/A

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.

(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

QUARTERLY CUMULATIVE GROUND-WATER ELEVATIONS

Monitoring Well No.	Well Depth (ft)	Top of PVC Casing Elevation (ft MSL)	Ground-water Level Elevation (ft MSL)			
			2/19/98	4/23/98	8/4/98	12/29/98
MW-1	45.7	100.19	66.61	66.06	65.70	66.14
MW-2	45.0	99.56	65.97	65.71	65.32	65.21
MW-3	38.5	99.15	66.05	65.56	65.20	65.15
WW-1	125.0	99.52	66.19	65.98	65.62	65.37
R-1	48.0	100.03	*	*	*	63.93

\* - Measurement not taken

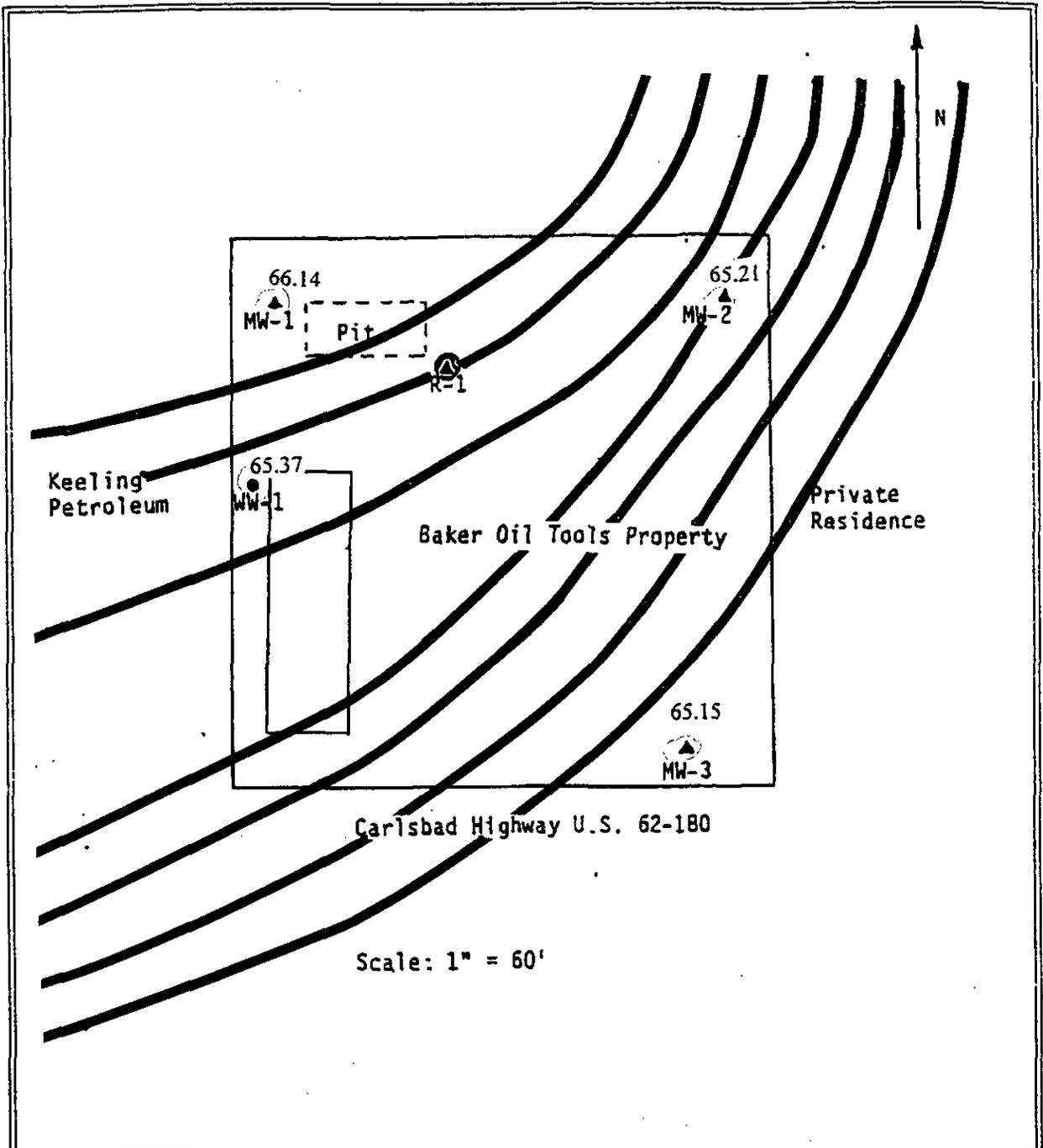


Figure No. 1	Groundwater Gradient Map	Baker Oil Tools 2800 W. Marland Hobbs, NM
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OCT 16 1998

September 30, 1998

Mr. William Olson, Hydrogeologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

**THIRD QUARTER REPORT OF 1998  
GROUND-WATER SAMPLING EVENT**

Former Baker Oil Tools Facility  
2800 West Marland  
Hobbs, New Mexico  
Project No. 60260-8-1332-03

Dear Mr. Olson:

Baker Oil Tools is submitting the third quarter of 1998 ground-water monitoring report in response to the NMOCD request of June 20, 1995 to provide quarterly monitoring data for ground water contamination in the direct vicinity of the former disposal pit on the property located at 2800 West Marland in Hobbs, New Mexico. The NMOCD requested this report discuss relevant background information, execution of services, laboratory analytical results, and a summary of our findings for the subject property.

1. BOT performed the second quarterly monitoring event on August 3, 1998. During this quarterly monitoring event, the wells were gauged for depth, bailed and sampled. Monitoring Wells MW-1, MW-2 and MW-3 were bailed of three volumes and allowed to equalize prior to sampling. The Water Well (WW-1) which is a 125 feet deep was only bailed one volume. Monitoring Well R-1 was not sampled because product was observed during bailing. Samples collected from each well were shipped to Core Laboratories for analysis.

2. A summary of the laboratory analytical results of water quality sampling of the monitoring wells is provided in the attached Table 1A through 1E. This data is presented in tabular form showing the 1998 quarterly sampling results.
3. Water level and well depth measurements were measured using an electronic water level indicator capable of determining water levels to within 0.01 foot. Table 2 provides cumulative ground-water level measurements for the previous four monitoring events. An updated ground water elevation map using the recent water table elevations of the ground water in all monitoring wells is presented as Figure 1.

If you have any questions or require additional information, please do not hesitate in contacting me at (713) 625-4200.

Sincerely,  
For Baker Hughes INTEQ



Myk Thornton  
Health, Safety and  
Environmental Coordinator

**THIRD QUARTER  
REPORT OF  
1998  
GROUND-WATER  
SAMPLING EVENTS**

Baker Oil Tools  
2800 West Marland  
Hobbs, New Mexico

Prepared for:

**BAKER OIL TOOLS**  
Hobbs, New Mexico

Prepared by:  
**BAKER OIL TOOLS**  
**ENVIRONMENTAL DEPARTMENT**  
Houston, Texas

**PROJECT NO. 60260-8-1332-03**  
**AUGUST 1998**

TABLE 1A  
 MW-1

	4 <sup>th</sup> Quarter 12/2/97	1 <sup>st</sup> Quarter 2/19/98	2 <sup>nd</sup> Quarter 4/23/98	3 <sup>rd</sup> Quarter 8/4/98
EPA 8020A				
Benzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Ethylbenzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Toluene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Xylenes	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Total BETX	BDL	BDL	BDL	BDL
EPA 8020				
Methyl Tertiary Butyl Ether	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm
EPA 8270B				
2-Methylnaphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
Naphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
EPA 120.1 & 150.1				
pH (standard units)	N/A	6.8	7.1	7.3
Specific Conductance (µmhos/cm)	N/A	1308	1301	1320

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.  
 (2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

**TABLE 1B  
 MW-2**

	4 <sup>th</sup> Quarter 12/22/97	1 <sup>st</sup> Quarter 2/19/98	2 <sup>nd</sup> Quarter 4/23/98	3 <sup>rd</sup> Quarter 8/4/98
EPA 8020A				
Benzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Ethylbenzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Toluene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Xylenes	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Total BETX	BDL	BDL	BDL	BDL
EPA 8020				
Methyl Tertiary Butyl Ether	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm
EPA 8270B				
2-Methylnaphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
Naphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
EPA 120.1 & 150.1				
pH (standard units)	N/A	7.0	7.1	7.5
Specific Conductance (µmhos/cm)	N/A	4150	3970	3570

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.  
 (2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

TABLE 1C  
 MW-3

	4 <sup>th</sup> Quarter 12/22/97	1 <sup>st</sup> Quarter 4/19/98	2 <sup>nd</sup> Quarter 4/23/98	3 <sup>rd</sup> Quarter 8/4/98
EPA 8020A				
Benzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Ethylbenzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Toluene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Xylenes	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Total BETX	BDL	BDL	BDL	BDL
EPA 8020				
Methyl Tertiary Butyl Ether	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm	< 0.005 ppm
EPA 8270B				
2-Methylnaphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
Naphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
EPA 120.1 & 150.1				
pH (standard units)	N/A	7.0	7.1	7.9
Specific Conductance (µmhos/cm)	N/A	1959	1841	1960

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.

(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

**TABLE 1D  
 WW-1**

	4 <sup>th</sup> Quarter 12/22/97	1 <sup>st</sup> Quarter 2/19/98	2 <sup>nd</sup> Quarter 4/23/98	3 <sup>rd</sup> Quarter 8/4/98
EPA 8020A				
Benzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Ethylbenzene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Toluene	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Xylenes	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm	< 0.002 ppm
Total BETX	BDL	BDL	BDL	BDL
EPA 8020				
Methyl Tertiary Butyl Ether	< 0.005 ppm	<b>0.015 ppm</b>	< 0.005 ppm	< 0.005 ppm
EPA 670B				
2-Methylnaphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
Naphthalene	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm	< 0.01 ppm
EPA 120.1 & 150.1				
pH (standard units)	N/A	7.3	7.5	7.8
Specific Conductance (µmhos/cm)	N/A	742	836	842

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.  
 (2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

TABLE 1E  
 R-1

	4 <sup>th</sup> Quarter 12/22/97	1 <sup>st</sup> Quarter 2/19/98	2 <sup>nd</sup> Quarter 4/23/98	3 <sup>rd</sup> Quarter 8/4/98
EPA 8020A				
Benzene	N/A	N/A	N/A	N/A
Ethylbenzene	N/A	N/A	N/A	N/A
Toluene	N/A	N/A	N/A	N/A
Xylenes	N/A	N/A	N/A	N/A
Total BETX	N/A	N/A	N/A	N/A
EPA 8020				
Methyl Tertiary Butyl Ether	N/A	N/A	N/A	N/A
EPA 8270B				
2-Methylnaphthalene	N/A	N/A	N/A	N/A
Naphthalene	N/A	N/A	N/A	N/A
EPA 20.1 & 150.1				
pH (standard units)	N/A	N/A	N/A	N/A
Specific Conductance (µmhos/cm)	N/A	N/A	N/A	N/A

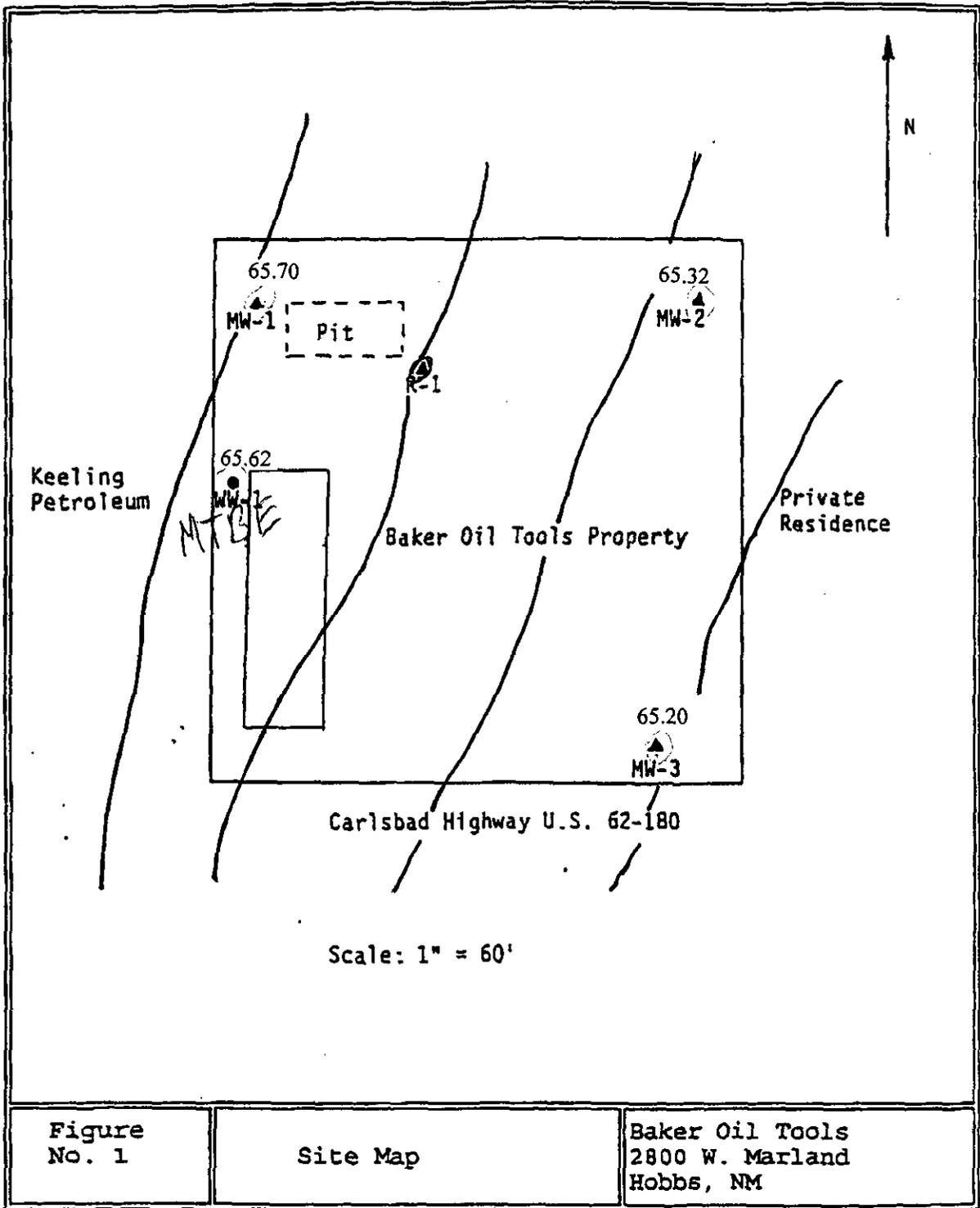
NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.

(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

QUARTERLY CUMULATIVE GROUND-WATER ELEVATIONS

Monitoring Well No.	Well Depth (ft)	Top of PVC Casing Elevation (ft MSL)	Ground-water Level Elevation (ft MSL)			
			12/22/97	2/19/98	4/23/98	8/4/98
MW-1	45.7	100.19	66.34	66.61	66.06	65.70
MW-2	45.0	99.56	66.10	65.97	65.71	65.32
MW-3	38.5	99.15	66.04	66.05	65.56	65.20
WW-1	125.0	99.52	66.26	66.19	65.98	65.62
R-1	48.0	100.03	*	*	*	*

\* - Measurement not taken





State of New Mexico  
**ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT**  
 Santa Fe, New Mexico 87505

STATE OF  
 NEW MEXICO  
 OR  
 CONSERVATION  
 DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

<input checked="" type="checkbox"/> Telephone	<input type="checkbox"/> Personal	Time 1025	Date 6/4/98
---	-----------------------------------	-----------	-------------

<u>Originating Party</u>	<u>Other Parties</u>
Bill Olson - Environmental Bureau	Tom Stanback - Balon O.I. Tool voice mail

Subject  
 Former Hobbs Facility

Discussion  
 Left message to include quarterly water table maps  
 and lab analytical data sheets in next annual report

Conclusions or Agreements

Distribution  
 file  
 Wayne Price - OCD Hobbs

Signed *Bill Olson*

**RECEIVED**

**FEB 20 1998**

Environmental Bureau  
Oil Conservation Division

**ANNUAL REPORT OF  
1997  
GROUND-WATER  
SAMPLING EVENTS**

Baker Oil Tools  
2800 West Marland  
Hobbs, New Mexico

Prepared for:

**BAKER OIL TOOLS**  
Hobbs, New Mexico

Prepared by:

**BAKER OIL TOOLS**  
**ENVIRONMENTAL DEPARTMENT**  
Houston, Texas

**PROJECT NO. 60260-7-1267**  
**JANUARY 1998**



January 21, 1997

Mr. William Olson, Hydrogeologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

**REPORT OF 1997  
GROUND-WATER SAMPLING EVENTS**  
Former Baker Oil Tools Facility  
2800 West Marland  
Hobbs, New Mexico  
Project No. 60260-7-1267

Dear Mr. Olson:

Baker Oil Tools is submitting the 1997 ground-water monitoring report in response to the NMOCD request of June 20, 1995 to provide quarterly monitoring data for groundwater contamination in the direct vicinity of the former disposal pit on the property located at 2800 W. Marland in Hobbs, New Mexico. The NMOCD requested this report discuss relevant background information, execution of services, laboratory analytical results, and a summary of our findings for the subject property.

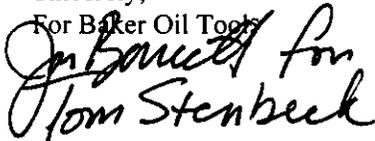
1. BOT performed quarterly monitoring events in January, May, October and December 1997. During each quarterly monitoring event, the wells were gauged for depth, bailed and sampled. Each well was bailed of three volumes and allowed to equalize prior to sampling except for WW-1 which is a 125 feet deep water well (only 1 volume was removed). Samples were collected from each well and shipped to a laboratory for analysis. The Hobbs district office of the NMOCD was notified prior to each sampling event as required.
2. A summary of the laboratory analytical results of water quality sampling of the monitoring wells is provided in the attached Table 1A through 1E. This data is presented in tabular form showing each quarterly sampling results.

3. Water level and well depth measurements were measured using an electronic water level indicator capable of determining water levels to within 0.01 foot. Table 2 provides cumulative ground-water level measurements for the 1997 monitoring events. An updated ground water elevation map using the recent water table elevations of the ground water in all monitoring wells is presented as Figure 1.

If you have any questions or require additional information, please do not hesitate in contacting me at (713)466-2520.

Sincerely,

For Baker Oil Tools

A handwritten signature in black ink that reads "Tom Stenbeck". The signature is written in a cursive style and is positioned over the typed name.

Thomas V. Stenbeck  
Manager of Health, Safety and Environment

**TABLE 1A**  
**1997 CUMULATIVE GROUND-WATER ANALYTICAL RESULTS FOR MW-1**  
**BAKER OIL TOOLS**  
**HOBBS, NEW MEXICO**

	SAMPLING EVENT DATES			
	1/20/97	5/15/97	10/28/97	12/22/97
<b>EPA 8020 COMPOUNDS (ppm)</b>				
Benzene	< 0.002	< 0.002	< 0.002	< 0.002
Ethylbenzene	< 0.002	< 0.002	< 0.002	< 0.002
Toluene	< 0.002	< 0.002	< 0.002	< 0.002
Xylenes	< 0.002	< 0.002	< 0.002	< 0.002
<b>Total (ppm)</b>	<b>BDL</b>	<b>BDL</b>	<b>BDL</b>	<b>BDL</b>
Methyl Tertiary Butyl Ether	< 0.005	< 0.005	< 0.02	< 0.005
<b>EPA 8270 COMPOUNDS (ppm)</b>				
2-Methylnaphthalene	<0.01	<0.01	<0.01	<0.01
Naphthalene	<0.01	<0.01	<0.01	<0.01
pH (standard units)	7.89	7.13	7.2	N/A
Specific Conductance (µmhos/cm)	1400	1550	N/A	N/A

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.  
(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

**TABLE 1B**  
**1997 CUMULATIVE GROUND-WATER ANALYTICAL RESULTS FOR MW-2**  
**BAKER OIL TOOLS**  
**HOBBS, NEW MEXICO**

SAMPLING EVENT DATES

	1/20/97	5/15/97	10/28/97	12/22/97
EPA 8020 COMPOUNDS (ppm)				
Benzene	< 0.002	< 0.002	< 0.002	< 0.002
Ethylbenzene	< 0.002	< 0.002	< 0.002	< 0.002
Toluene	< 0.002	< 0.002	< 0.002	< 0.002
Xylenes	< 0.002	< 0.002	< 0.002	< 0.002
<b>Total (ppm)</b>	<b>BDL</b>	<b>BDL</b>	<b>BDL</b>	<b>BDL</b>
Methyl Tertiary Butyl Ether	< 0.005	< 0.005	< 0.02	< 0.005
EPA 8270 COMPOUNDS (ppm)				
2-Methylnaphthalene	<0.01	<0.01	<0.01	<0.01
Naphthalene	<0.01	<0.01	<0.01	<0.01
pH (standard units)	7.72	7.06	7.1	N/A
Specific Conductance (µmhos/cm)	4120	4120	N/A	N/A

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.

(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

**TABLE 1C**  
**1997 CUMULATIVE GROUND-WATER ANALYTICAL RESULTS FOR MW-3**  
**BAKER OIL TOOLS**  
**HOBBS NEW MEXICO**

	SAMPLING EVENT DATES			
	1/20/97	5/15/97	10/28/97	12/22/97
<b>EPA 8020 COMPOUNDS (ppm)</b>				
Benzene	< 0.002	< 0.002	< 0.002	< 0.002
Ethylbenzene	< 0.002	< 0.002	< 0.002	< 0.002
Toluene	< 0.002	< 0.002	< 0.002	< 0.002
Xylenes	< 0.002	< 0.002	< 0.002	< 0.002
<b>Total (ppm)</b>	<b>BDL</b>	<b>BDL</b>	<b>BDL</b>	<b>BDL</b>
Methyl Tertiary Butyl Ether(ppm)	< 0.005	< 0.005	<b>0.041</b>	< 0.005
<b>EPA 8270 COMPOUNDS (ppm)</b>				
2-Methylnaphthalene	<0.01	<0.01	<0.01	<0.01
Naphthalene	<0.01	<0.01	<0.01	<0.01
pH (standard units)	7.72	7.11	7.1	N/A
Specific Conductance (µmhos/cm)	2250	2230	N/A	N/A

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.  
(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

**TABLE 1D**  
**1997 CUMULATIVE GROUND-WATER ANALYTICAL RESULTS FOR WW-1**  
**BAKER OIL TOOLS**  
**HOBBS, NEW MEXICO**

SAMPLING EVENT DATES

	1/20/97	5/15/97	10/28/97	12/22/97
EPA 8020 COMPOUNDS (ppm)				
Benzene	0.003	0.011	0.003	< 0.002
Ethylbenzene	0.0024	0.0058	< 0.002	< 0.002
Toluene	< 0.002	< 0.002	< 0.002	< 0.002
Xylenes	0.0036	< 0.002	< 0.002	< 0.002
<b>Total (ppm)</b>	<b>0.009</b>	<b>0.0168</b>	<b>0.003</b>	<b>BDL</b>
Methyl Tertiary Butyl Ether(ppm)	0.017	0.045	0.077	< 0.005
EPA 8270 COMPOUNDS (ppm)				
2-Methylnaphthalene	<0.01	<0.01	<0.01	<0.01
Naphthalene	<0.01	<0.01	<0.01	<0.01
pH (standard units)	7.81	7.28	7.5	N/A
Specific Conductance (µmhos/cm)	2000	2140	N/A	N/A

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.

(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

**TABLE 1E**  
**1997 CUMULATIVE GROUND-WATER ANALYTICAL RESULTS FOR R-1**  
**BAKER OIL TOOLS**  
**HOBBS, NEW MEXICO**

SAMPLING EVENT DATES

	1/20/97	5/15/97	10/28/97	12/22/97
<b>EPA 8020 COMPOUNDS (ppm)</b>				
Benzene	< 0.002	< 0.002	N/A	N/A
Ethylbenzene	<b>0.03</b>	<b>0.052</b>	N/A	N/A
Toluene	< 0.002	< 0.002	N/A	N/A
Xylenes	<b>0.048</b>	<b>0.14</b>	N/A	N/A
<b>Total (ppm)</b>	<b>0.078</b>	<b>0.192</b>	BDL	N/A
Methyl Tertiary Butyl Ether(ppm)	< 0.005	< 0.005	N/A	N/A
<b>EPA 8270 COMPOUNDS (ppm)</b>				
2-Methylnaphthalene	<b>0.21</b>	<b>0.12</b>	N/A	N/A
Naphthalene	<b>0.18</b>	<b>0.21</b>	N/A	N/A
pH (standard units)	7.37	7.06	N/A	N/A
Specific Conductance (µmhos/cm)	2170	2170	N/A	N/A

NOTES: (1) The designation "N/A" indicates that the sample was not analyzed for this parameter.  
(2) The designation "BDL" indicates that the sum of the individual constituent concentrations is "below detection limits".

**TABLE 2**  
**1997 CUMULATIVE GROUND-WATER ELEVATION MEASUREMENTS**  
**BAKER OIL TOOLS**  
**HOBBS, NEW MEXICO**

Monitoring Well No.	Well Depth (ft)	Top of PVC Casing Elevation (ft MSL)	Ground-water Level Elevation (ft MSL)			
			1/20/97	5/15/97	10/28/97	12/22/97
MW-1	45.7	100.19	68.19	66.69	66.39	66.34
MW-2	45.0	99.56	67.06	65.66	66.21	66.10
MW-3	38.5	99.15	66.70	65.45	66.18	66.04
WW-1	125.0	99.52	66.62	66.77	66.37	66.26
R-1	48.0	100.03	66.93	*	*	*

\* - Measurement not taken

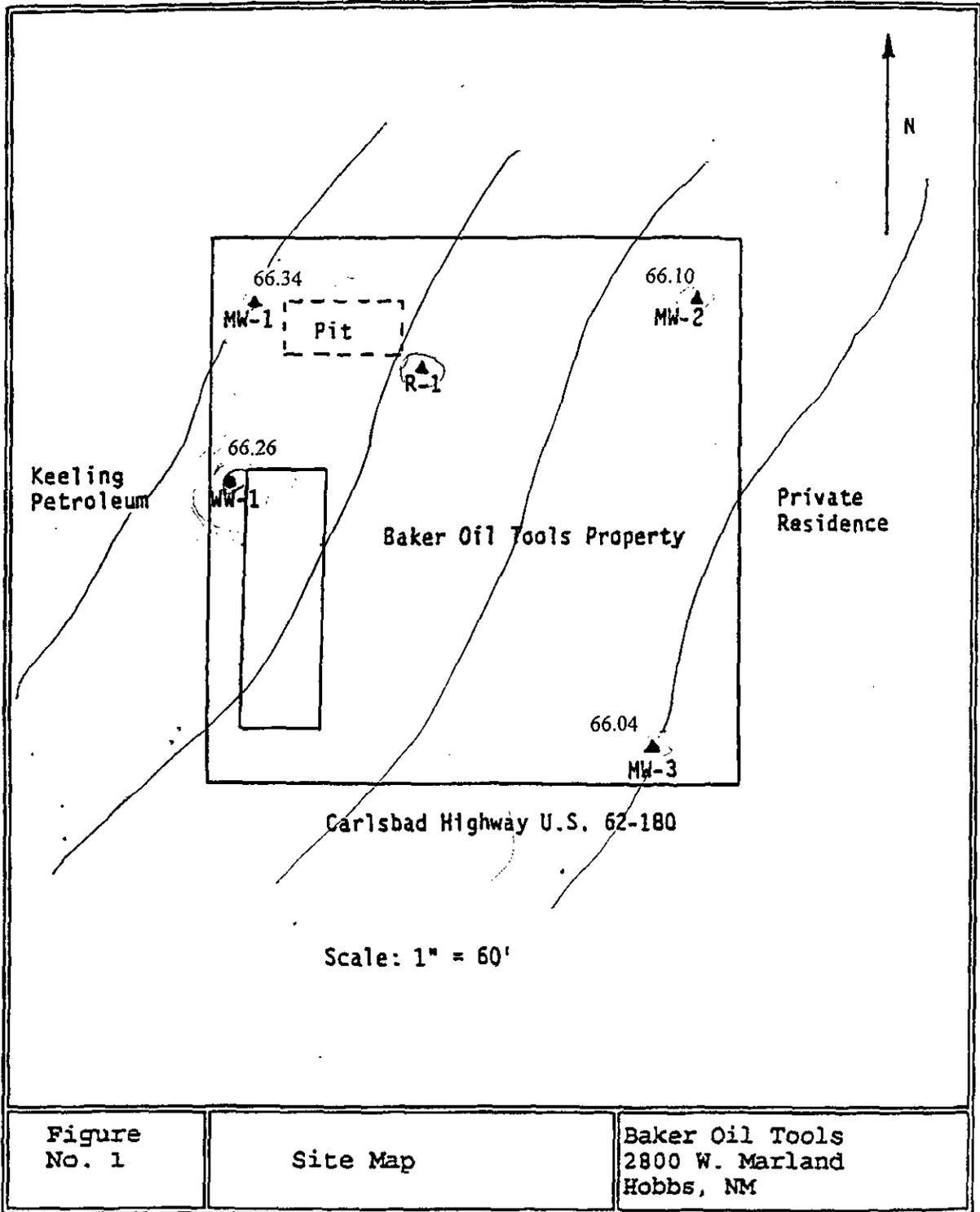


Figure  
No. 1

Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

REPORT TO CLIENT:

13 14 15 16  
OCT 1996

Attn: Rob Pine
Ground Water Quality Bureau
P.O. Box 26110
Santa Fe, New Mexico 87502

**RECEIVED**

SLD No.: OR- 9602623  
REQUEST ID No.: 154590  
RECEIVED AT SLD: 7/31/96  
USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96  
SAMPLING LOCATION: Baker Oil R-1

Environmental Bureau  
Oil Conservation Division

BY: Pin

OCT 1996

Water

REPORTING UNITS: ug/L

Remarks: Hydrochloric acid was used as a preservative in this sample.

EPA METHOD 8021 VOLATILES BY GAS CHROMATOGRAPHY (PID/ELCD)

DATE EXTRACTED: N/A  
DATE ANALYZED: 8/2/96 4 Days; Within EPA Analysis Time  
SAMPLE VOL (ml): 5

ANALYSIS No.: OR- 9602623

SLD BATCH No.: 400  
DILUTION FACTOR: 1.00  
REQUEST ID No.: 154590

SAMPLE PRESERVATION: Sample Temperature when received: 18 Degrees C.; pH = 7

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL ug/L
71-43-2	Benzene	1.3		1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane*		U	1.0
75-25-2	Bromoform*		U	1.0
24-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	10.0
104-51-8	n-Butylbenzene	73		1.0
135-98-8	sec-Butylbenzene	48		1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	10.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene (monochlorobenzene)		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform*		U	1.0
74-87-3	Chloromethane		U	1.0
95-49-8	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	1.0
124-48-1	Dibromochloromethane*		U	1.0
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	1.0
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	1.0
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-2	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene	45		1.0
87-68-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene	9.8		1.0
99-87-6	4-Isopropyltoluene		U	2.0
75-09-2	Methylene chloride (Dichloromethane)		U	2.0
91-20-3	Naphthalene	200		10
103-65-1	Propylbenzene	45		1.0
100-42-5	Styrene		U	1.0

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030-20-0	1,1,1,2-Tetrachloroethane		U	1.0
79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	10.0
108-88-3	Toluene	1.6		1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene	110		10
108-67-8	1,3,5-Trimethylbenzene	12		1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene*	28		1.0
N/A	p- & m-Xylene*	12		1.0
N/A	*Total Xylenes*	41		1.0
N/A	*Total Trihalomethanes*		U	1.0

**Laboratory Remarks:** This sample was diluted and re-analyzed on 8/21/96 to quantitate Naphthalene and 1,2,4-Trimethyl Benzene. The ELCD surrogate recovery was extremely high due to co-eluting peaks, however, the internal standard area was at 94.5% of the expected area. There were 80 compounds observed on the photolization detector at approximately 10-40 ppb, but not identified.

LABORATORY BATCH QUALITY CONTROL SUMMARY			
SURROGATE	SURROGATE COMPOUNDS	CONCENTRATION	% RECOVERY
RECOVERIES:	2-Bromochlorobenzene (Photoionization Detector Surrogate)	132	528.0% High
	2-Bromochlorobenzene (Electrolytic Conductivity Detector Surrogate)	23.9	95.6%
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:		
	COMPOUND	CONCENTRATION (ug/L)	% RECOVERY
	cis-1,2-Dichloroethene	10	79%
LABORATORY BLANKS	No target compounds were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:		
	COMPOUND	CONCENTRATION (ug/L)	
	No Exceptions		

ANALYST: Patrick Basile

QC APPROVED BY: Kent Sherrell 

**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given (~5 \* SDL)
  - U No analyte was detected above the Sample Detection Limit.
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

ED FIELD OFFICE: 

Rob Pine

NMED/Ground Water Bureau

PO Box 26110

Santa Fe, NM 87502

SLD No.: OR- 9602628

REQUEST ID No.: 154595

RECEIVED AT SLD: 7/31/96

 SLD COPY

USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: 0

SAMPLING LOCATION: Baker Oil R-1

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

SAMPLE MATRIX: water

REPORTING UNITS: ug/L<sup>v</sup>

## EPA METHOD 625 NEUTRAL AND BASIC SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

DATE EXTRACTED: 8/5/96 7 Days: Within EPA Holding Time

DATE ANALYZED: 8/5/96 7 Days: Within EPA Analysis Time

SAMPLE VOL (ml): 770

ANALYSIS No.: OR- 9602628

SLD BATCH No.: 405

DILUTION FACTOR: 1.30

REQUEST ID No.: 154595

SAMPLE PRESERVATION: Sample Temperature when received: 22 Degrees C.; pH = 7  
NOT COMPOSITED

EXTRACTION TECHNIQUE: Separatory Funnel

PERCENT MOISTURE: N/A

GPC CLEANUP: Not Used

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL
83-32-9	Acenaphthene	5	J	1.21
208-96-8	Acenaphthylene		U	1.13
120-12-7	Anthracene		U	0.47
103-33-3	Azobenzene		U	1.30
92-87-5	Benzidine		U	1.30
56-55-3	Benzo(a)anthracene		U	0.16
205-99-2	Benzo(b)fluoranthene		U	0.43
207-08-9	Benzo(k)fluoranthene		U	0.43
191-24-2	Benzo(g,h,i)perylene		U	1.29
50-32-8	Benzo(a)pyrene		U	0.03
111-91-1	Bis(2-chloroethoxy)methane		U	0.90
111-44-4	Bis(2-chloroethyl)ether		U	0.51
108-60-1	Bis(2-chloroisopropyl)ether		U	0.58
117-81-7	Bis(2-ethylhexyl)phthalate	6		0.43
101-55-3	4-Bromophenylphenyl ether		U	0.62
85-68-7	Butylbenzyl phthalate		U	0.82
106-47-8	4-Chloroaniline		U	0.74
91-58-7	2-Chloronaphthalene		U	0.66
7005-72-3	4-Chlorophenylphenyl ether		U	0.55
218-01-9	Chrysene		U	0.31
53-70-3	Dibenz(a,h)anthracene		U	12.99
132-64-9	Dibenzofuran		U	0.94
84-74-2	Di-n-butyl phthalate		U	0.62
95-50-1	1,2-Dichlorobenzene		U	0.19
541-73-1	1,3-Dichlorobenzene		U	0.31
106-46-7	1,4-Dichlorobenzene		U	0.43
91-94-1	3,3'-Dichlorobenzidine		U	0.23

84-66-2	Diethylphthalate		U	1.01
131-11-3	Dimethylphthalate		U	0.62
121-14-2	2,4-Dinitrotoluene		U	0.58
606-20-2	2,6-Dinitrotoluene		U	0.51
117-84-0	Di-n-octyl phthalate		U	0.39
206-44-0	Fluoranthene		U	0.97
85-73-7	Fluorene	6		0.97
118-74-1	Hexachlorobenzene		U	0.97
87-68-3	Hexachlorobutadiene		U	0.39
77-47-4	Hexachlorocyclopentadiene		U	12.99
67-72-1	Hexachloroethane		U	0.39
193-39-5	Indeno(1,2,3-cd)pyrene		U	12.99
78-59-1	Isophorone		U	1.17
91-57-6	2-Methylnaphthalene	113		1.29
91-20-3	Naphthalene	81		0.82
88-74-4	2-Nitroaniline		U	0.66
99-09-2	3-Nitroaniline		U	0.43
100-01-6	4-Nitroaniline		U	0.66
98-95-3	Nitrobenzene		U	0.53
86-30-6	N-nitrosodiphenylamine		U	0.62
62-75-9	N-nitrosodimethylamine		U	0.62
621-64-7	N-nitroso-di-n-propylamine		U	0.04
85-01-8	Phenanthrene	2		0.31
129-00-0	Pyrene		U	0.43
120-82-1	1,2,4-Trichlorobenzene		U	0.39

**COMPOUNDS DETECTED AND TENTATIVELY IDENTIFIED BY MASS SPECTROMETRY (TIC's)**

CAS #	TENTATIVE ANALYTE NAME	EST CONC. (ug/L)	LIBRARY MS MATCH	RETENTION TIME (MIN)
13151-29-6	4-Methyl-1-Decene	300	815	19.90
17301-28-9	3,6-Dimethyl-undecane	300	793	18.12
57289-26-6	2-Methyl-1-Dodecanol	200	853	18.30
2217-43-8	5,6,7,8-Tetrahydro-2-Naphthalenamine	200	790	19.53
247183-2	1-Ethylidene-1H-Indene	200	881	20.95
54833-48-6	2,6,10,15-Tetramethyl-Heptadecane	200	797	20.73
56292-65-0	2,5-Dimethyl-Dodecane	200	765	16.50
589-90-2	1,4-Dimethyl-Cyclohexane	200	850	20.34
7058-01-7	1-Methyl-2-(1-Methylethyl)-Benzene	100	869	13.85
934-74-7	1-Ethyl-3,5-Dimethyl-Benzene	100	793	18.87
Comment:	Numerous hydrocarbons were observed by GC/MS in the C11 to C 15 range with an approximate total concentration of 20 ug/ml.			
* "Library MS Match" is a number showing the approximate percentage agreement with our 60,000 compound, NIST mass spectral library.				
"Retention Time" is the time required for the specific compound to pass through the chromatographic column.				

**QUALITY CONTROL SUMMARY**

Surrogate compounds are added to samples to determine extraction efficiency and QC	SURROGATE COMPOUNDS ADDED TO SAMPLE BEFORE EXTRACTION	Surrogate Recovered	% RECOVERY	QC Eval.
	Nitrobenzene-d5 (Neutral Surrogate added at 50 ug/L)	30.0	60%	Normal
	2-Fluorobiphenyl (Neutral Surrogate added at 50 ug/L)	32.0	64%	Normal
	Terphenyl-d14 (Neutral Surrogate added at 50 ug/L)	41.0	82%	Normal
LABORATORY FORTIFIED	The % recoveries of target analytes in the batch spike(s) were within the expected range with the following exceptions:			

STANDARD LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de S. NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

REPORT TO CLIENT:

Attn: Rob Pine
Ground Water Quality Bureau
P.O. Box 26110
Santa Fe, New Mexico 87502

SLD No.: OR-9602619
REQUEST ID No.: 154586
RECEIVED AT SLD: 7/31/96
USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: na BY: Pin  
 SAMPLING LOCATION: Baker Oil WW-1  
o Water REPORTING UNITS: ug/L

Remarks: Hydrochloric acid was used as a preservative in this sample.

EPA METHOD 8021 VOLATILES BY GAS CHROMATOGRAPHY (PID/ELCD)

DATE EXTRACTED: N/A  
 DATE ANALYZED: 8/2/96 4 Days: Within EPA Analysis Time  
 SAMPLE VOL (ml): 5  
 0

ANALYSIS No.: OR-9602619
SLD BATCH No.: 400
DILUTION FACTOR: 1.00
REQUEST ID No.: 154586

SAMPLE PRESERVATION: Sample Temperature when received: 19 Degrees C.; pH = 2

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL ug/L
71-43-2	Benzene	6.7		1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane*		U	1.0
75-25-2	Bromoform*		U	1.0
24-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	10.0
104-51-8	n-Butylbenzene		U	1.0
135-98-8	sec-Butylbenzene		U	1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	10.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene (monochlorobenzene)		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform*		U	1.0
74-87-3	Chloromethane		U	1.0
95-49-8	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	1.0
124-48-1	Dibromochloromethane*		U	1.0
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	1.0
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	1.0
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-2	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene		U	1.0
87-68-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene		U	1.0
99-87-6	4-Isopropyltoluene		U	2.0
75-09-2	Methylene chloride (Dichloromethane)		U	2.0

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103-65-1	Propylbenzene	0.7	J	1.0
100-42-5	Styrene		U	1.0
630-20-6	1,1,1,2-Tetrachloroethane		U	1.0
79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	10.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene	0.7	J	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene*	0.8	J	1.0
N/A	p- & m-Xylene*	1.0		1.0
N/A	*Total Xylenes*	1.8		1.0
N/A	*Total Trihalomethanes*		U	1.0

**LABORATORY BATCH QUALITY CONTROL SUMMARY**

SURROGATE RECOVERIES:	SURROGATE COMPOUNDS	CONCENTRATION	% RECOVERY
	2-Bromochlorobenzene (Photoionization Detector Surrogate)	23.51	94.0%
	2-Bromochlorobenzene (Electrolytic Conductivity Detector Surrogate)	23.1	92.4%

<b>LABORATORY FORTIFIED BLANK RECOVERIES</b>	The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:						
	<table border="1"> <thead> <tr> <th>COMPOUND</th> <th>CONCENTRATION (ug/L)</th> <th>% RECOVERY</th> </tr> </thead> <tbody> <tr> <td>cis-1,2-Dichloroethene</td> <td>10</td> <td>79%</td> </tr> </tbody> </table>	COMPOUND	CONCENTRATION (ug/L)	% RECOVERY	cis-1,2-Dichloroethene	10	79%
COMPOUND	CONCENTRATION (ug/L)	% RECOVERY					
cis-1,2-Dichloroethene	10	79%					

<b>LABORATORY BLANKS</b>	No target compounds were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:				
	<table border="1"> <thead> <tr> <th>COMPOUND</th> <th>CONCENTRATION (ug/L)</th> </tr> </thead> <tbody> <tr> <td align="center" colspan="2">No Exceptions</td> </tr> </tbody> </table>	COMPOUND	CONCENTRATION (ug/L)	No Exceptions	
COMPOUND	CONCENTRATION (ug/L)				
No Exceptions					

ANALYST: Patrick Basile

QC APPROVED BY: Ken Sherrell *KS*

**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given (  $-5 \times$  SDL)
  - U No analyte was detected above the Sample Detection Limit.
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

ED FIELD OFFICE: 

Rob Pine

NMED/Ground Water Bureau

PO Box 26110

Santa Fe, NM 87502

SLD No.: OR- 9602624

REQUEST ID No.: 154591

RECEIVED AT SLD: 7/31/96

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USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96

TIME: 0

SAMPLING LOCATION: Baker Oil WW-1

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

SAMPLE MATRIX: water, c

REPORTING UNITS: ug/L



## EPA METHOD 625 NEUTRAL AND BASIC SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

DATE EXTRACTED: 8/5/96 7 Days: Within EPA Holding Time

DATE ANALYZED: 8/5/96 7 Days: Within EPA Analysis Time

SAMPLE VOL (ml): 980

ANALYSIS No.: OR- 9602624

SLD BATCH No.: 405

DILUTION FACTOR: 1.02

REQUEST ID No.: 154591

SAMPLE PRESERVATION: Sample Temperature when received: 23 Degrees C.; pH = 2  
NOT COMPOSITED

EXTRACTION TECHNIQUE: Separatory Funnel

PERCENT MOISTURE: N/A

GPC CLEANUP: Not Used

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL
83-32-9	Acenaphthene		U	0.95
208-96-8	Acenaphthylene		U	0.89
120-12-7	Anthracene		U	0.37
103-33-3	Azobenzene		U	1.02
92-87-5	Benzidine		U	1.02
56-55-3	Benzo(a)anthracene		U	0.12
205-99-2	Benzo(b)fluoranthene		U	0.34
207-08-9	Benzo(k)fluoroanthene		U	0.34
191-24-2	Benzo(g,h,i)perylene		U	1.01
50-32-8	Benzo(a)pyrene		U	0.02
111-91-1	Bis(2-chloroethoxy)methane		U	0.70
111-44-4	Bis(2-chloroethyl)ether		U	0.40
108-60-1	Bis(2-chloroisopropyl)ether		U	0.46
117-81-7	Bis(2-ethylhexyl)phthalate	9		0.34
101-55-3	4-Bromophenylphenyl ether		U	0.49
85-68-7	Butylbenzyl phthalate		U	0.64
106-47-8	4-Chloroaniline		U	0.58
91-58-7	2-Chloronaphthalene		U	0.52
7005-72-3	4-Chlorophenylphenyl ether		U	0.43
218-01-9	Chrysene		U	0.24
53-70-3	Dibenz(a,h)anthracene		U	10.20
132-64-9	Dibenzofuran		U	0.73
84-74-2	Di-n-butyl phthalate	1	J	0.49
95-50-1	1,2-Dichlorobenzene		U	0.15
541-73-1	1,3-Dichlorobenzene		U	0.24
106-46-7	1,4-Dichlorobenzene		U	0.34
91-94-1	3,3'-Dichlorobenzidine		U	0.18

84-66-2	Diethylphthalate	U	0.80
131-11-3	Dimethylphthalate	U	0.49
121-14-2	2,4-Dinitrotoluene	U	0.46
606-20-2	2,6-Dinitrotoluene	U	0.40
117-84-0	Di-n-octyl phthalate	U	0.31
206-44-0	Fluoranthene	U	0.77
86-73-7	Fluorene	U	0.77
118-74-1	Hexachlorobenzene	U	0.77
87-68-3	Hexachlorobutadiene	U	0.31
77-47-4	Hexachlorocyclopentadiene	U	10.20
67-72-1	Hexachloroethane	U	0.31
193-39-5	Indeno(1,2,3-cd)pyrene	U	10.20
78-59-1	Isophorone	U	0.92
91-57-6	2-Methylnaphthalene	U	1.01
91-20-3	Naphthalene	U	0.64
88-74-4	2-Nitroaniline	U	0.52
99-09-2	3-Nitroaniline	U	0.34
100-01-6	4-Nitroaniline	U	0.52
98-95-3	Nitrobenzene	U	0.42
86-30-6	N-nitrosodiphenylamine	U	0.49
62-75-9	N-nitrosodimethylamine	U	0.49
621-64-7	N-nitroso-di-n-propylamine	U	0.03
85-01-8	Phenanthrene	U	0.24
129-00-0	Pyrene	U	0.34
120-82-1	1,2,4-Trichlorobenzene	U	0.31

**QUALITY CONTROL SUMMARY**

Surrogate compounds are added to samples to determine extraction efficiency and QC	SURROGATE COMPOUNDS ADDED TO SAMPLE BEFORE EXTRACTION	Surrogate Recovered	% RECOVERY	QC Eval.					
	Nitrobenzene-d5 (Neutral Surrogate added at 50 ug/L)	26.0	52%	Normal					
	2-Fluorobiphenyl (Neutral Surrogate added at 50 ug/L)	25.0	50%	Normal					
	Terphenyl-d14 (Neutral Surrogate added at 50 ug/L)	34.0	68%	Normal					
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries of target analytes in the batch spike(s) were within the expected range with the following exceptions:								
	<table border="1"> <thead> <tr> <th>COMPOUND</th> <th>CONCENTRATION</th> <th>% RECOVERY</th> </tr> </thead> <tbody> <tr> <td align="center" colspan="3">No Exceptions</td> </tr> </tbody> </table>	COMPOUND	CONCENTRATION	% RECOVERY	No Exceptions				
COMPOUND	CONCENTRATION	% RECOVERY							
No Exceptions									
LABORATORY BLANKS	No target analytes were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:								
	<table border="1"> <thead> <tr> <th>COMPOUND</th> <th>CONCENTRATION (ug/L)</th> </tr> </thead> <tbody> <tr> <td align="center" colspan="2">No Exceptions</td> </tr> </tbody> </table>	COMPOUND	CONCENTRATION (ug/L)	No Exceptions					
COMPOUND	CONCENTRATION (ug/L)								
No Exceptions									

ANALYST: Tim Chapman

QC APPROVED BY: Roberta Hine

**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given (~5 \* SDL)
  - U No analyte was detected above the Sample Detection Limit.
- MCL Maximum Contamination Level Allowed by EPA for regulated analytes
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

REPORT TO CLIENT:

Attn: Rob Pine
Ground Water Quality Bureau
P.O. Box 26110
Santa Fe, New Mexico 87502

SLD No.: OR- 9602620
REQUEST ID No.: 154587
RECEIVED AT SLD: 7/31/96
SLD COPY USER 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: na BY: Pin  
 SAMPLING LOCATION: Baker Oil MW-1  
o Water REPORTING UNITS: ug/L

Remarks: Hydrochloric acid was used as a preservative in this sample.  
No Targeted Compounds were detected in this sample.

## EPA METHOD 8021 VOLATILES BY GAS CHROMATOGRAPHY (PID/ELCD)

DATE EXTRACTED: N/A  
 DATE ANALYZED: 8/2/96 4 Days: Within EPA Analysis Time  
 SAMPLE VOL (ml): 5

ANALYSIS No.: OR- 9602620

SLD BATCH No.: 400  
 DILUTION FACTOR: 1.00  
 REQUEST ID No.: 154587

SAMPLE PRESERVATION: Sample Temperature when received: 18 Degrees C.; pH = 4

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL ug/L
71-43-2	Benzene		U	1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane*		U	1.0
75-25-2	Bromoform*		U	1.0
24-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	10.0
104-51-8	n-Butylbenzene		U	1.0
135-98-8	sec-Butylbenzene		U	1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	10.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene (monochlorobenzene)		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform*		U	1.0
74-87-3	Chloromethane		U	1.0
95-49-8	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	1.0
124-48-1	Dibromochloromethane*		U	1.0
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	1.0
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	1.0
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-2	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene		U	1.0
87-68-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene		U	1.0
99-87-6	4-Isopropyltoluene		U	2.0
75-09-2	Methylene chloride (Dichloromethane)		U	2.0

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91-20-3	Naphthalene		U	1.0
103-65-1	Propylbenzene		U	1.0
100-42-5	Styrene		U	1.0
630-20-6	1,1,1,2-Tetrachloroethane		U	1.0
79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	10.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene		U	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene*		U	1.0
N/A	p- & m-Xylene*		U	1.0
N/A	*Total Xylenes*	0.0	U	1.0
N/A	*Total Trihalomethanes*		U	1.0

**LABORATORY BATCH QUALITY CONTROL SUMMARY**

SURROGATE RECOVERIES:	SURROGATE COMPOUNDS	CONCENTRATION	% RECOVERY
	2-Bromochlorobenzene (Photoionization Detector Surrogate)	23.85	95.4%
	2-Bromochlorobenzene (Electrolytic Conductivity Detector Surrogate)	26.58	106.3%

<b>LABORATORY FORTIFIED BLANK RECOVERIES</b>	The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below: <table border="1"> <thead> <tr> <th>COMPOUND</th> <th>CONCENTRATION (ug/L)</th> <th>% RECOVERY</th> </tr> </thead> <tbody> <tr> <td>cis-1,2-Dichloroethene</td> <td>10</td> <td>79%</td> </tr> </tbody> </table>	COMPOUND	CONCENTRATION (ug/L)	% RECOVERY	cis-1,2-Dichloroethene	10	79%
COMPOUND	CONCENTRATION (ug/L)	% RECOVERY					
cis-1,2-Dichloroethene	10	79%					

<b>LABORATORY BLANKS</b>	No target compounds were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below: <table border="1"> <thead> <tr> <th>COMPOUND</th> <th>CONCENTRATION (ug/L)</th> </tr> </thead> <tbody> <tr> <td align="center" colspan="2">No Exceptions</td> </tr> </tbody> </table>	COMPOUND	CONCENTRATION (ug/L)	No Exceptions	
COMPOUND	CONCENTRATION (ug/L)				
No Exceptions					

ANALYST: Patrick Basile

QC APPROVED BY: Ken Sherrell 

**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given (-5 \* SDL)
  - U No analyte was detected above the Sample Detection Limit.
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

ED FIELD OFFICE: 

Rob Pine

NMED/Ground Water Quality Bureau

PO Box 26110

Santa Fe, NM 87502

SLD No.: OR- 9602625

REQUEST ID No.: 154592

RECEIVED AT SLD: 7/31/96

USER: 55321

 SLD COPY

AUG 1998

RECEIVED

BY: Pin

SAMPLE COLLECTION: DATE: 7/29/96 TIME: 0

SAMPLING LOCATION: Baker Oil MW-1

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

SAMPLE MATRIX: water

REPORTING UNITS: ug/L

## EPA METHOD 625 NEUTRAL AND BASIC SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

DATE EXTRACTED: 8/5/96 7 Days: Within EPA Holding Time

DATE ANALYZED: 8/5/96 7 Days: Within EPA Analysis Time

SAMPLE VOL (ml): 910

ANALYSIS No.: OR- 9602625

SLD BATCH No.: 405

DILUTION FACTOR: 1.10

REQUEST ID No.: 154592

SAMPLE PRESERVATION: Sample Temperature when received: 21 Degrees C.; pH = 7

NOT COMPOSITED

EXTRACTION TECHNIQUE: Separatory Funnel

PERCENT MOISTURE: N/A

GPC CLEANUP: Not Used

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL
83-32-9	Acenaphthene		U	1.02
208-96-8	Acenaphthylene		U	0.96
120-12-7	Anthracene		U	0.40
103-33-3	Azobenzene		U	1.10
92-87-5	Benzidine		U	1.10
56-55-3	Benzo(a)anthracene		U	0.13
205-99-2	Benzo(b)fluoranthene		U	0.36
207-08-9	Benzo(k)fluoroanthene		U	0.36
191-24-2	Benzo(g,h,i)perylene		U	1.09
50-32-8	Benzo(a)pyrene		U	0.02
111-91-1	Bis(2-chloroethoxy)methane		U	0.76
111-44-4	Bis(2-chloroethyl)ether		U	0.43
108-60-1	Bis(2-chloroisopropyl)ether		U	0.49
117-81-7	Bis(2-ethylhexyl)phthalate	4		0.36
101-55-3	4-Bromophenylphenyl ether		U	0.53
85-68-7	Butylbenzyl phthalate		U	0.69
106-47-8	4-Chloroaniline		U	0.63
91-58-7	2-Chloronaphthalene		U	0.56
7005-72-3	4-Chlorophenylphenyl ether		U	0.46
218-01-9	Chrysene		U	0.26
53-70-3	Dibenz(a,h)anthracene		U	10.99
132-64-9	Dibenzofuran		U	0.79
84-74-2	Di-n-butyl phthalate		U	0.53
95-50-1	1,2-Dichlorobenzene		U	0.16
541-73-1	1,3-Dichlorobenzene		U	0.26
106-46-7	1,4-Dichlorobenzene		U	0.36
91-94-1	3,3'-Dichlorobenzidine		U	0.20

84-66-2	Diethylphthalate		U	0.86
131-11-3	Dimethylphthalate		U	0.53
121-14-2	2,4-Dinitrotoluene		U	0.49
606-20-2	2,6-Dinitrotoluene		U	0.43
117-84-0	Di-n-octyl phthalate		U	0.33
206-44-0	Fluoranthene		U	0.62
86-73-7	Fluorene		U	0.62
118-74-1	Hexachlorobenzene		U	0.82
87-68-3	Hexachlorobutadiene		U	0.33
77-47-4	Hexachlorocyclopentadiene		U	10.99
67-72-1	Hexachloroethane		U	0.33
193-39-5	Indeno(1,2,3-cd)pyrene		U	10.99
78-59-1	Isophorone		U	0.99
91-57-6	2-Methylnaphthalene		U	1.09
91-20-3	Naphthalene		U	0.69
88-74-4	2-Nitroaniline		U	0.56
99-09-2	3-Nitroaniline		U	0.36
100-01-6	4-Nitroaniline		U	0.56
98-95-3	Nitrobenzene		U	0.45
86-30-6	N-nitrosodiphenylamine		U	0.53
62-75-9	N-nitrosodimethylamine		U	0.53
621-64-7	N-nitroso-di-n-propylamine		U	0.03
85-01-8	Phenanthrene		U	0.26
129-00-0	Pyrene		U	0.36
120-82-1	1,2,4-Trichlorobenzene		U	0.33

#### QUALITY CONTROL SUMMARY

Surrogate compounds are added to samples to determine extraction efficiency and QC	SURROGATE COMPOUNDS ADDED TO SAMPLE BEFORE EXTRACTION	Surrogate Recovered	% RECOVERY	QC Eval.
	Nitrobenzene-d5 (Neutral Surrogate added at 50 ug/L)	29.0	58%	Normal
	2-Fluorobiphenyl (Neutral Surrogate added at 50 ug/L)	27.0	54%	Normal
	Terphenyl-d14 (Neutral Surrogate added at 50 ug/L)	40.0	80%	Normal
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries of target analytes in the batch spike(s) were within the expected range with the following exceptions:			
	COMPOUND	CONCENTRATION	% RECOVERY	
	No Exceptions			
LABORATORY BLANKS	No target analytes were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:			
	COMPOUND	CONCENTRATION (ug/L)		
	No Exceptions			

ANALYST: Tim Chapman

QC APPROVED BY: Roberta Hine

#### DEFINITIONS

**	Concentration Exceeds EPA's allowable Maximum Contamination Level
CAS#	Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
CONC.	Concentration (ug/L) of analyte actually detected in the sample
QUAL	Qualifier of analytical results as follows: B Analyte was detected in laboratory blank J Analyte was detected at a level below which an accurate quantitation can be given (-5 * SDL) U No analyte was detected above the Sample Detection Limit.
MCL	Maximum Contamination Level Allowed by EPA for regulated analytes
SDL	Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
ug/L	Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

**SCIENTIFIC LABORATORY DIVISION**

P.O. Box 470  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

REPORT TO CLIENT:

Attn: Rob Pine  
Ground Water Quality Bureau  
P.O. Box 26110  
Santa Fe, New Mexico 87502

SLD No.: OR- 9602621  
REQUEST ID No.: 154588  
RECEIVED AT SLD: 7/31/96  
USER: 55321

SLD COPY

SAMPLE COLLECTION: DATE: 7/29/96 TIME: na BY: Pin  
SAMPLING LOCATION: Baker Oil MW-2  
0 Water REPORTING UNITS: ug/L

Remarks: Hydrochloric acid was used as a preservative in this sample.  
No Targeted Compounds were detected in this sample.

**EPA METHOD 8021 VOLATILES BY GAS CHROMATOGRAPHY (PID/ELCD)**

DATE EXTRACTED: N/A  
DATE ANALYZED: 8/2/96 4 Days: Within EPA Analysis Time  
SAMPLE VOL (ml): 5  
0

ANALYSIS No.: OR- 9602621  
SLD BATCH No.: 400  
DILUTION FACTOR: 1.00  
REQUEST ID No.: 154588

SAMPLE PRESERVATION: Sample Temperature when received: 18 Degrees C.; pH = 4

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL
				ug/L
71-43-2	Benzene		U	1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane*		U	1.0
75-25-2	Bromoform*		U	1.0
24-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	10.0
104-51-8	n-Butylbenzene		U	1.0
135-98-8	sec-Butylbenzene		U	1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	10.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene (monochlorobenzene)		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform*		U	1.0
74-87-3	Chloromethane		U	1.0
95-49-8	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	1.0
124-48-1	Dibromochloromethane*		U	1.0
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	1.0
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	1.0
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-2	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene		U	1.0
87-68-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene		U	1.0
99-87-6	4-Isopropyltoluene		U	2.0
75-09-2	Methylene chloride (Dichloromethane)		U	2.0

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103-65-1	Propylbenzene		U	1.0
100-42-5	Styrene		U	1.0
630-20-6	1,1,1,2-Tetrachloroethane		U	1.0
79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	10.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene		U	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene*		U	1.0
N/A	p- & m-Xylene*		U	1.0
N/A	*Total Xylenes*	0.0	U	1.0
N/A	*Total Trihalomethanes*		U	1.0

Laboratory Remarks: Acetone was observed in this sample at 35 ppb.

LABORATORY BATCH QUALITY CONTROL SUMMARY

SURROGATE	SURROGATE COMPOUNDS	CONCENTRATION	% RECOVERY
RECOVERIES:	2-Bromochlorobenzene (Photoionization Detector Surrogate)	24.14	96.6%
	2-Bromochlorobenzene (Electrolytic Conductivity Detector Surrogate)	26.18	104.7%

LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:		
	COMPOUND	CONCENTRATION (ug/L)	% RECOVERY
	cis-1,2-Dichloroethene	10	79%

LABORATORY BLANKS	No target compounds were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:		
	COMPOUND	CONCENTRATION (ug/L)	
	No Exceptions		

ANALYST: Patrick Basile

QC APPROVED BY: Ken Sherrell *KS*

DEFINITIONS

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
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- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

ED FIELD OFFICE: 

Rob Pine

NMED/Ground Water Quality Bureau

PO Box 26111

Santa Fe, NM 87502

SLD No.: OR- 9602626

REQUEST ID No.: 154593

RECEIVED AT SLD: 7/31/96

 SLD COPY

USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: 0

BY: Pin

SAMPLING LOCATION: Baker Oil MW-2

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

SAMPLE MATRIX: water

REPORTING UNITS: ug/L

## EPA METHOD 625 NEUTRAL AND BASIC SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

DATE EXTRACTED: 8/5/96 7 Days: Within EPA Holding Time

DATE ANALYZED: 8/5/96 7 Days: Within EPA Analysis Time

SAMPLE VOL (ml): 900

ANALYSIS No.: OR- 9602626

SLD BATCH No.: 405

DILUTION FACTOR: 1.11

REQUEST ID No.: 154593

SAMPLE PRESERVATION: Sample Temperature when received: 23 Degrees C.; pH = 7  
NOT COMPOSITED

EXTRACTION TECHNIQUE: Separatory Funnel

PERCENT MOISTURE: N/A

GPC CLEANUP: Not Used

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL
83-32-9	Acenaphthene		U	1.03
208-96-8	Acenaphthylene		U	0.97
120-12-7	Anthracene		U	0.40
103-33-3	Azobenzene		U	1.11
92-87-5	Benzidine		U	1.11
56-55-3	Benzo(a)anthracene		U	0.13
205-99-2	Benzo(b)fluoranthene		U	0.37
207-08-9	Benzo(k)fluoroanthene		U	0.37
191-24-2	Benzo(g,h,i)perylene		U	1.10
50-32-8	Benzo(a)pyrene		U	0.02
111-91-1	Bis(2-chloroethoxy)methane		U	0.77
111-44-4	Bis(2-chloroethyl)ether		U	0.43
108-60-1	Bis(2-chloroisopropyl)ether		U	0.50
117-81-7	Bis(2-ethylhexyl)phthalate	3		0.37
101-55-3	4-Bromophenylphenyl ether		U	0.53
85-68-7	Butylbenzyl phthalate		U	0.70
106-47-8	4-Chloroaniline		U	0.63
91-58-7	2-Chloronaphthalene		U	0.57
7005-72-3	4-Chlorophenylphenyl ether		U	0.47
218-01-9	Chrysene		U	0.27
53-70-3	Dibenz(a,h)anthracene		U	11.11
132-64-9	Dibenzofuran		U	0.80
84-74-2	Di-n-butyl phthalate		U	0.53
95-50-1	1,2-Dichlorobenzene		U	0.17
541-73-1	1,3-Dichlorobenzene		U	0.27
106-46-7	1,4-Dichlorobenzene		U	0.37
91-84-1	3,3'-Dichlorobenzidine		U	0.20

84-66-2	Diethylphthalate		U	0.87
131-11-3	Dimethylphthalate		U	0.53
121-14-2	2,4-Dinitrotoluene		U	0.50
606-20-2	2,6-Dinitrotoluene		U	0.43
117-84-0	Di-n-octyl phthalate		U	0.33
206-44-0	Fluoranthene		U	0.83
86-73-7	Fluorene		U	0.83
118-74-1	Hexachlorobenzene		U	0.83
87-68-3	Hexachlorobutadiene		U	0.33
77-47-4	Hexachlorocyclopentadiene		U	11.11
67-72-1	Hexachloroethane		U	0.33
193-39-5	Indeno(1,2,3-cd)pyrene		U	11.11
78-59-1	Isophorone		U	1.00
91-57-6	2-Methylnaphthalene		U	1.10
91-20-3	Naphthalene		U	0.70
88-74-4	2-Nitroaniline		U	0.57
99-09-2	3-Nitroaniline		U	0.37
100-01-6	4-Nitroaniline		U	0.57
98-95-3	Nitrobenzene		U	0.46
86-30-6	N-nitrosodiphenylamine		U	0.53
62-75-9	N-nitrosodimethylamine		U	0.53
621-64-7	N-nitroso-di-n-propylamine		U	0.03
85-01-8	Phenanthrene		U	0.27
129-00-0	Pyrene		U	0.37
120-82-1	1,2,4-Trichlorobenzene		U	0.33

**QUALITY CONTROL SUMMARY**

Surrogate compounds are added to samples to determine extraction efficiency and QC	SURROGATE COMPOUNDS ADDED TO SAMPLE BEFORE EXTRACTION	Surrogate Recovered	% RECOVERY	QC Eval.
	Nitrobenzene-d5 (Neutral Surrogate added at 50 ug/L)	31.0	62%	Normal
	2-Fluorobiphenyl (Neutral Surrogate added at 50 ug/L)	29.3	59%	Normal
	Terphenyl-d14 (Neutral Surrogate added at 50 ug/L)	65.7	131%	Normal
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries of target analytes in the batch spike(s) were within the expected range with the following exceptions:			
	COMPOUND	CONCENTRATION	% RECOVERY	
	No Exceptions			
LABORATORY BLANKS	No target analytes were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:			
	COMPOUND	CONCENTRATION (ug/L)		
	No Exceptions			

ANALYST: Tim Chapman

QC APPROVED BY: Roberta Hine

**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given ( $-5 * \text{SDL}$ )
  - U No analyte was detected above the Sample Detection Limit.
- MCL Maximum Contamination Level Allowed by EPA for regulated analytes
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de ... Id, NE  
[505] 841-2500

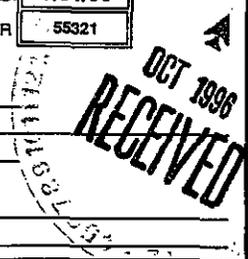
ORGANIC CHEMISTRY SECTION [505] 841-2570

REPORT TO CLIENT:

Attn: Rob Pine  
Ground Water Quality Bureau  
P.O. Box 26110  
Santa Fe, New Mexico 87502

SLD No.: OR- 9602622  
REQUEST ID No.: 154589  
RECEIVED AT SLD: 7/31/96  
USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: na BY: Pin  
SAMPLING LOCATION: Baker Oil MW-3  
Water REPORTING UNITS: ug/L



Remarks: Hydrochloric acid was used as a preservative in this sample.  
No Targeted Compounds were detected in this sample.

EPA METHOD 8021 VOLATILES BY GAS CHROMATOGRAPHY (PID/ELCD)

DATE EXTRACTED: N/A  
DATE ANALYZED: 8/2/96 4 Days: Within EPA Analysis Time  
SAMPLE VOL (ml): 5

ANALYSIS No.: OR- 9602622  
SLD BATCH No.: 400  
DILUTION FACTOR: 1.00  
REQUEST ID No.: 154589

SAMPLE PRESERVATION: Sample Temperature when received: 17 Degrees C.; pH = 3

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL ug/L
71-43-2	Benzene		U	1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane*		U	1.0
75-25-2	Bromoform*		U	1.0
24-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	10.0
104-51-8	n-Butylbenzene		U	1.0
135-98-8	sec-Butylbenzene		U	1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	10.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene (monochlorobenzene)		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform*		U	1.0
74-87-3	Chloromethane		U	1.0
95-43-8	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	1.0
124-48-1	Dibromochloromethane*		U	1.0
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	1.0
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	1.0
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-2	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene		U	1.0
87-68-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene		U	1.0
99-87-6	4-Isopropyltoluene		U	2.0
75-09-2	Methylene chloride (Dichloromethane)		U	2.0
91-20-3	Naphthalene		U	1.0
103-65-1	Propylbenzene		U	1.0
100-42-5	Styrene		U	1.0

79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	10.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene		U	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene*		U	1.0
N/A	p- & m-Xylene*		U	1.0
N/A	*Total Xylenes*	0.0	U	1.0
N/A	*Total Trihalomethanes*		U	1.0

Laboratory Remarks: Acetone was observed in this sample at 22 ppb. There were 28 compounds observed at approximately 1-10 ppb on the photoionization detector, but not identified.

The Following Compound(s) Were Tentatively (by Library Match of Mass Spectrum) Identified by GC/MS Sample Reanalysis					
CAS #	Tentatively Identified Compound Name	GC/MS Match %	R.T.	Approx. Conc.	
611-14-3	1-Ethyl-2-Methyl-Benzene	97.9%	31.82	50.00	ug/L
2870-04-4	2-Ethyl-1,3-Dimethyl-Benzene	98.0%	37.12	5.00	ug/L
27133-93-3	2,3-Dihydro-1-Methyl-Indene	98.2%	37.54	5.00	ug/L
488-23-3	1,2,3,4-Tetramethyl-Benzene	98.2%	38.8	5.00	ug/L

LABORATORY BATCH QUALITY CONTROL SUMMARY			
SURROGATE	SURROGATE COMPOUNDS	CONCENTRATION	% RECOVERY
RECOVERIES:	2-Bromochlorobenzene (Photoionization Detector Surrogate)	26.18	104.7%
	2-Bromochlorobenzene (Electrolytic Conductivity Detector Surrogate)	28.34	113.4%
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:		
	COMPOUND	CONCENTRATION (ug/L)	% RECOVERY
	cis-1,2-Dichloroethene	10	79%
LABORATORY BLANKS	No target compounds were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:		
	COMPOUND	CONCENTRATION (ug/L)	
	No Exceptions		

ANALYST: Patrick Basile

QC APPROVED BY: Ken Sherrell

#### DEFINITIONS

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given ( -5 \* SDL)
  - U No analyte was detected above the Sample Detection Limit.
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

ED FIELD OFFICE: 

Rob Pine

NMED/Ground Water Quality Bur.

PO Box 26110

Santa Fe, NM 87502

SLD No.: OR- 9602627

REQUEST ID No.: 154594

RECEIVED AT SLD: 7/31/96

USER: 55321

 SLD COPY

AUG 1996

RECEIVED

BY: Pin

SAMPLE COLLECTION: DATE: 7/29/96 TIME: 0

SAMPLING LOCATION: Baker Oil MW-3

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

SAMPLE MATRIX: water

REPORTING UNITS: ug/L

## EPA METHOD 625 NEUTRAL AND BASIC SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

DATE EXTRACTED: 8/5/96 7 Days: Within EPA Holding Time

DATE ANALYZED: 8/5/96 7 Days: Within EPA Analysis Time

SAMPLE VOL (ml): 1000

ANALYSIS No.: OR- 9602627

SLD BATCH No.: 405

DILUTION FACTOR: 1.00

REQUEST ID No.: 154594

SAMPLE PRESERVATION: Sample Temperature when received: 23 Degrees C.; pH = 7  
NOT COMPOSITED

EXTRACTION TECHNIQUE: Separatory Funnel

PERCENT MOISTURE: N/A

GPC CLEANUP: Not Used

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL
83-32-9	Acenaphthene		U	0.93
208-96-8	Acenaphthylene		U	0.87
120-12-7	Anthracene		U	0.36
103-33-3	Azobenzene		U	1.00
92-87-5	Benzidine		U	1.00
56-55-3	Benzo(a)anthracene		U	0.12
205-99-2	Benzo(b)fluoranthene		U	0.33
207-08-9	Benzo(k)fluoroanthene		U	0.33
191-24-2	Benzo(g,h,i)perylene		U	0.99
50-32-8	Benzo(a)pyrene		U	0.02
111-91-1	Bis(2-chloroethoxy)methane		U	0.69
111-44-4	Bis(2-chloroethyl)ether		U	0.39
108-60-1	Bis(2-chloroisopropyl)ether		U	0.45
117-81-7	Bis(2-ethylhexyl)phthalate	1	J	0.33
101-55-3	4-Bromophenylphenyl ether		U	0.48
85-68-7	Butylbenzyl phthalate		U	0.63
106-47-8	4-Chloroaniline		U	0.57
91-58-7	2-Chloronaphthalene		U	0.51
7005-72-3	4-Chlorophenylphenyl ether		U	0.42
218-01-9	Chrysene		U	0.24
53-70-3	Dibenz(a,h)anthracene		U	10.00
132-64-9	Dibenzofuran		U	0.72
84-74-2	Di-n-butyl phthalate		U	0.48
95-50-1	1,2-Dichlorobenzene		U	0.15
541-73-1	1,3-Dichlorobenzene		U	0.24
106-46-7	1,4-Dichlorobenzene		U	0.33
91-94-1	3,3'-Dichlorobenzidine		U	0.18

84-66-2	Diethylphthalate		U	0.78
131-11-3	Dimethylphthalate		U	0.48
121-14-2	2,4-Dinitrotoluene		U	0.45
606-20-2	2,6-Dinitrotoluene		U	0.39
117-84-0	Di-n-octyl phthalate		U	0.30
206-44-0	Fluoranthene		U	0.75
86-73-7	Fluorene		U	0.75
118-74-1	Hexachlorobenzene		U	0.75
87-68-3	Hexachlorobutadiene		U	0.30
77-47-4	Hexachlorocyclopentadiene		U	10.00
67-72-1	Hexachloroethane		U	0.30
193-39-5	Indeno(1,2,3-cd)pyrene		U	10.00
78-59-1	Isophorone		U	0.90
91-57-6	2-Methylnaphthalene		U	0.99
91-20-3	Naphthalene		U	0.63
88-74-4	2-Nitroaniline		U	0.51
99-09-2	3-Nitroaniline		U	0.33
100-01-6	4-Nitroaniline		U	0.51
98-95-3	Nitrobenzene		U	0.41
86-30-6	N-nitrosodiphenylamine		U	0.48
62-75-9	N-nitrosodimethylamine		U	0.48
621-64-7	N-nitroso-di-n-propylamine		U	0.03
85-01-8	Phenanthrene		U	0.24
129-00-0	Pyrene		U	0.33
120-82-1	1,2,4-Trichlorobenzene		U	0.30

#### QUALITY CONTROL SUMMARY

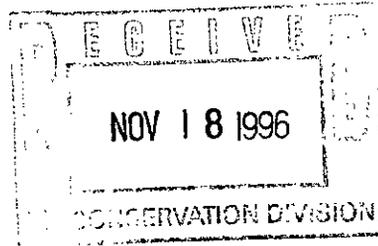
Surrogate compounds are added to samples to determine extraction efficiency and QC	SURROGATE COMPOUNDS ADDED TO SAMPLE BEFORE EXTRACTION	Surrogate Recovered	% RECOVERY	QC Eval.
	Nitrobenzene-d5 (Neutral Surrogate added at 50 ug/L)	28.0	56%	Normal
	2-Fluorobiphenyl (Neutral Surrogate added at 50 ug/L)	28.0	56%	Normal
	Terphenyl-d14 (Neutral Surrogate added at 50 ug/L)	37.0	74%	Normal
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries of target analytes in the batch spike(s) were within the expected range with the following exceptions:			
	COMPOUND	CONCENTRATION	% RECOVERY	
	No Exceptions			
LABORATORY BLANKS	No target analytes were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:			
	COMPOUND	CONCENTRATION (ug/L)		
	No Exceptions			

ANALYST: Tim Chapman

QC APPROVED BY: Roberta Hine

#### DEFINITIONS

**	Concentration Exceeds EPA's allowable Maximum Contamination Level
CAS#	Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
CONC.	Concentration (ug/L) of analyte actually detected in the sample
QUAL	Qualifier of analytical results as follows: B Analyte was detected in laboratory blank J Analyte was detected at a level below which an accurate quantitation can be given ( ~5 * SDL) U No analyte was detected above the Sample Detection Limit.
MCL	Maximum Contamination Level Allowed by EPA for regulated analytes
SDL	Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
ug/L	Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)



Nov 13, 1996

Mr. William Olson, Hydrogeologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

Dear Mr. Olson:

Baker Oil Tools is submitting the fourth required monitoring in response to the NMOCD request of June 20, 1995 to provide quarterly monitoring data for groundwater contamination in the direct vicinity of the former disposal pit on the property located at 2800 W. Marland in Hobbs, New Mexico. The NMOCD requested the following three items from BOT for each monitoring session:

1. A brief description of all monitoring activities which occurred during the quarter.

BOT performed sampling on October 23, 1996. Each well was bailed of three volumes and allowed to equalize prior to sampling except for WW-1 which is a 125' deep water well (only 1 volume was removed). The wells were gauged for depth and bailed on the 23rd with sampling occurring on the 23rd. The Hobbs district office of the NMOCD was notified prior to sampling as required. Samples were packaged and submitted to the laboratory for analysis.

2. A summary of the laboratory analytical results of water quality sampling of the monitoring wells. The data will be presented in tabular form showing past and present sampling results.

Tables 1a through 1g present the sampling data.

Table 1a  
BENZENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 Feb. 17, 1995	Quarter 2 December 20, 1995	Quarter 3 January 11, 1996	Quarter 4 April 1, 1996	Quarter 5 July 9, 1996	Quarter 6 October 23, 1996
Trip Blank	<0.5	<2	<2	<0.5	<2.0	NA	<2
MW-1	<0.5	<2	<2	<0.5	<2.0	<1.0	<2
MW-2	<0.5	<2	<2	<0.5	<2.0	<1.0	<2
MW-3	<0.5	<2	<2	<0.5	<2.0	<1.0	<2
WW-1	260	51	<2	0.5	<2.0	6.7	27
R-1	<0.5	<2	<20	1.3	10	1.3	<2

Table 1b  
TOLUENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 Feb. 17, 1995	Quarter 2 December 20, 1995	Quarter 3 January 11, 1996	Quarter 4 April 1, 1996	Quarter 5 July 9, 1996	Quarter 6 October 23, 1996
Trip Blank	<0.5	<2	<2	<0.5	<2.0	NA	<2
MW-1	<0.5	<2	<2	<0.5	<2.0	<1.0	<2
MW-2	0.5	<2	<2	<0.5	<2.0	<1.0	<2
MW-3	<0.5	<2	<2	<0.5	<2.0	<1.0	<2
WW-1	1.9	<2	<2	<0.5	<2.0	<1.0	<2
R-1	3.0	<2	<20	1.9	<2.0	1.6	<2

Table 1c  
ETHYL BENZENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 Feb. 17, 1995	Quarter 2 December 20, 1995	Quarter 3 January 11, 1996	Quarter 4 April 1, 1996	Quarter 5 July 9, 1996	Quarter 6 October 23, 1996
Trip Blank	<0.5	<2	<2	<0.5	<2.0	NA	<2
MW-1	<0.5	<2	<2	<0.5	<2.0	<1.0	<2
MW-2	<0.5	<2	<2	<0.5	<2.0	<1.0	<2
MW-3	<0.5	<2	<2	<0.5	<2.0	<1.0	<2
WW-1	180	<2	<2	1.0	<2.0	<1.0	7
R-1	49	52	46	40.0	16	45	230

Table 1d  
XYLENE (µg/L)

Well ID	Previous Nov 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 26, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996	Quarter 5 July 29, 1996	Quarter 6 October 23, 1996
Trip Blank	<0.5	<2	<2	<0.5	<2.0	NA	<2
MW-1	1.2	<2	<2	<0.5	<2.0	<1.0	<2
MW-2	0.5	<2	<2	<0.5	<2.0	<1.0	<2
MW-3	0.8	<2	<2	<0.5	<2.0	<1.0	<2
WW-1	7.0	<2	<2	0.6	<2.0	1.8	<2
R-1	94	64	72	67.0	20	41	410

Table 1e  
MTBE (µg/L)

Well ID	Previous Nov 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 26, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996	Quarter 5 July 29, 1996	Quarter 6 October 23, 1996
Trip Blank	<2.5	<2	<2	<2.5	<2.0	NA	<2
MW-1	<2.5	<2	<2	<2.5	<2.0	<10.0	<2
MW-2	<2.5	<2	<2	<2.5	<2.0	<10.0	<2
MW-3	2.6	<2	<2	<2.5	<2.0	<10.0	<2
WW-1	4.1	<2	<2	<2.5	<2.0	<10.0	15
R-1	<2.5	21	<20	<2.5	<2.0	<10.0	<5

Table 1f  
NAPHTHALENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 Feb. 17, 1995	Quarter 2 October 26, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996	Quarter 5 July 29, 1996	Quarter 6 October 31, 1996
Trip Blank	<0.3	<5	not analyzed	<0.5	not analyzed	NA	NA
MW-1	<0.3	<5	<10	<0.5	<5.0	nd	<10
MW-2	<0.3	<5	<10	<0.5	<5.0	nd	<10
MW-3	<0.3	not available*	<10	<0.5	<5.0	nd	<10
WW-1	46	12.9	<10	<0.5	<5.0	nd	<10
R-1	240	101	39.4	140.0	33.0	81	140

\*sample broke during shipment

Table 1g  
2-METHYL NAPHTHALENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 Feb. 17, 1995	Quarter 2 October 26, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996	Quarter 5 July 29, 1996	Quarter 6 October 31, 1996
Trip Blank	<0.3	<5	not analyzed	<1.0	not analyzed	NA	NA
MW-1	<0.3	<5	<10	<1.0	<10.0	nd	<10
MW-2	<0.3	<5	<10	<1.0	<10.0	nd	<10
MW-3	1.0	not available*	<10	<1.0	<10.0	nd	<10
WW-1	14	<5	<10	<1.0	<10.0	nd	<10
R-1	360	115	56.2	170.0	35	113	240

\*sample broke during shipment

3. A ground water elevation map using the water table elevation of the ground water in all monitoring wells.

Figure 1 presents the water elevation data as requested. Table 2 lists the well number, the depth of the well, the depth to the top of the water, the elevation of the well casing and the actual depth to ground water.

The previous quarter sampling was performed by New Mexico Environmental Department (NMED) and those results, which were just received (Nov 12, 1996), are presented as well.

If you have any questions or require additional information, please do not hesitate in contacting me at (713)466-2520.

Sincerely,  
For Baker Oil Tools



Thomas V. Stenbeck  
Manager of Health, Safety and Environment

Table 2  
Ground Water Elevation Data

Well ID	Well Elevation	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Quarter 5		Quarter 6	
		gauged depth	actual depth										
MW-1	100.19	33.2	66.99	32.5	67.69	32.32	67.87	32.7	67.49	32.96	67.23	33.10	67.09
MW-2	99.56	32.5	67.06	32.0	67.56	31.97	67.59	32.4	67.16	32.63	66.93	32.70	66.86
MW-3	99.15	32.7	66.45	32.0	67.15	31.55	67.60	32.0	67.15	32.26	66.89	32.30	66.85
WW-1	99.52	32.3	67.22	31.8	67.72	31.65	67.87	32.0	67.52	32.34	67.18	32.40	67.12
R-1	100.03	33.0	67.03	32.8	67.23	32.24	67.79	32.9	67.13	32.96	67.07	33.10	66.93

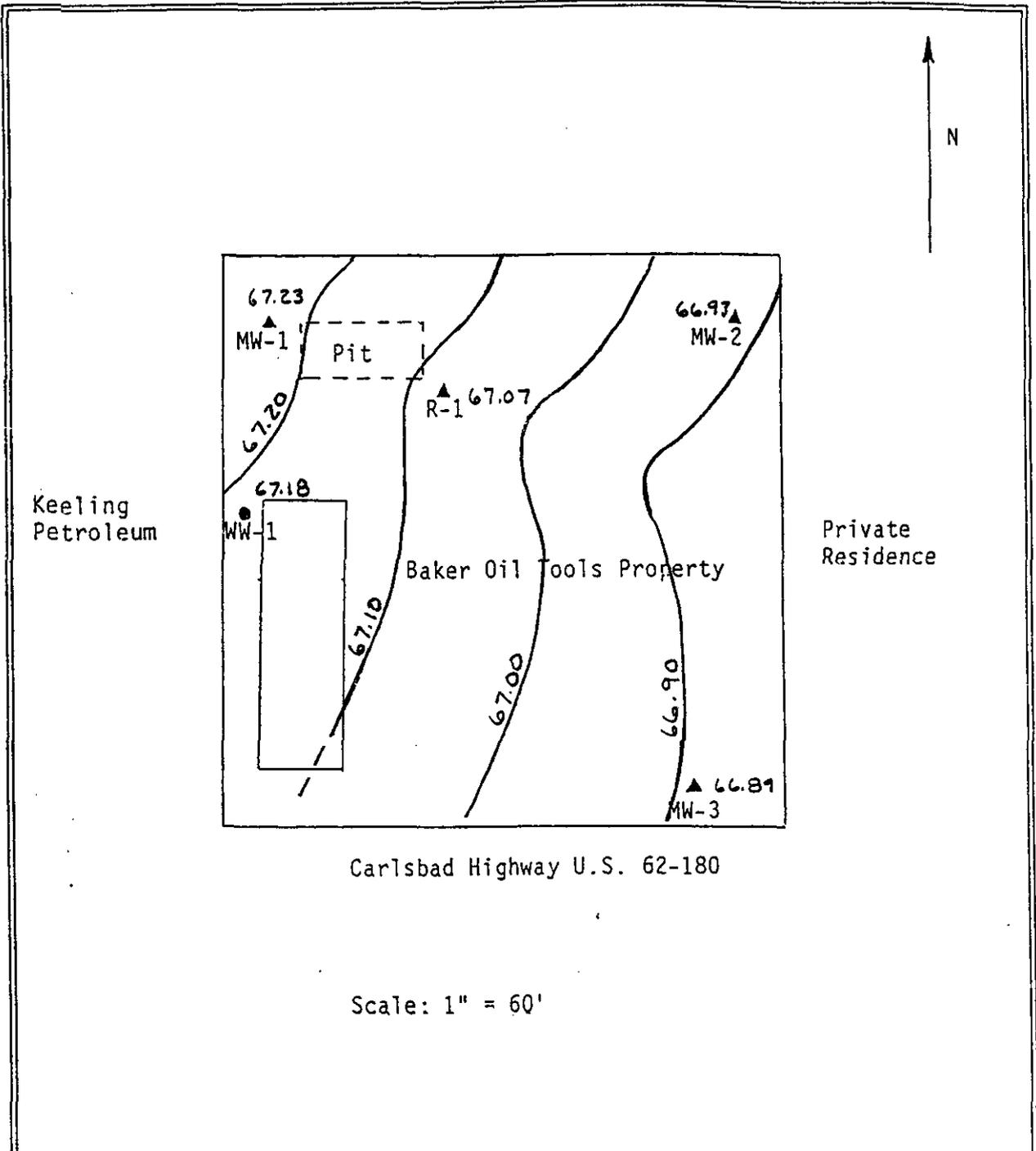


Figure  
No. 1  
Qtr. 5

Qtr. 5. Water Elevation  
Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM

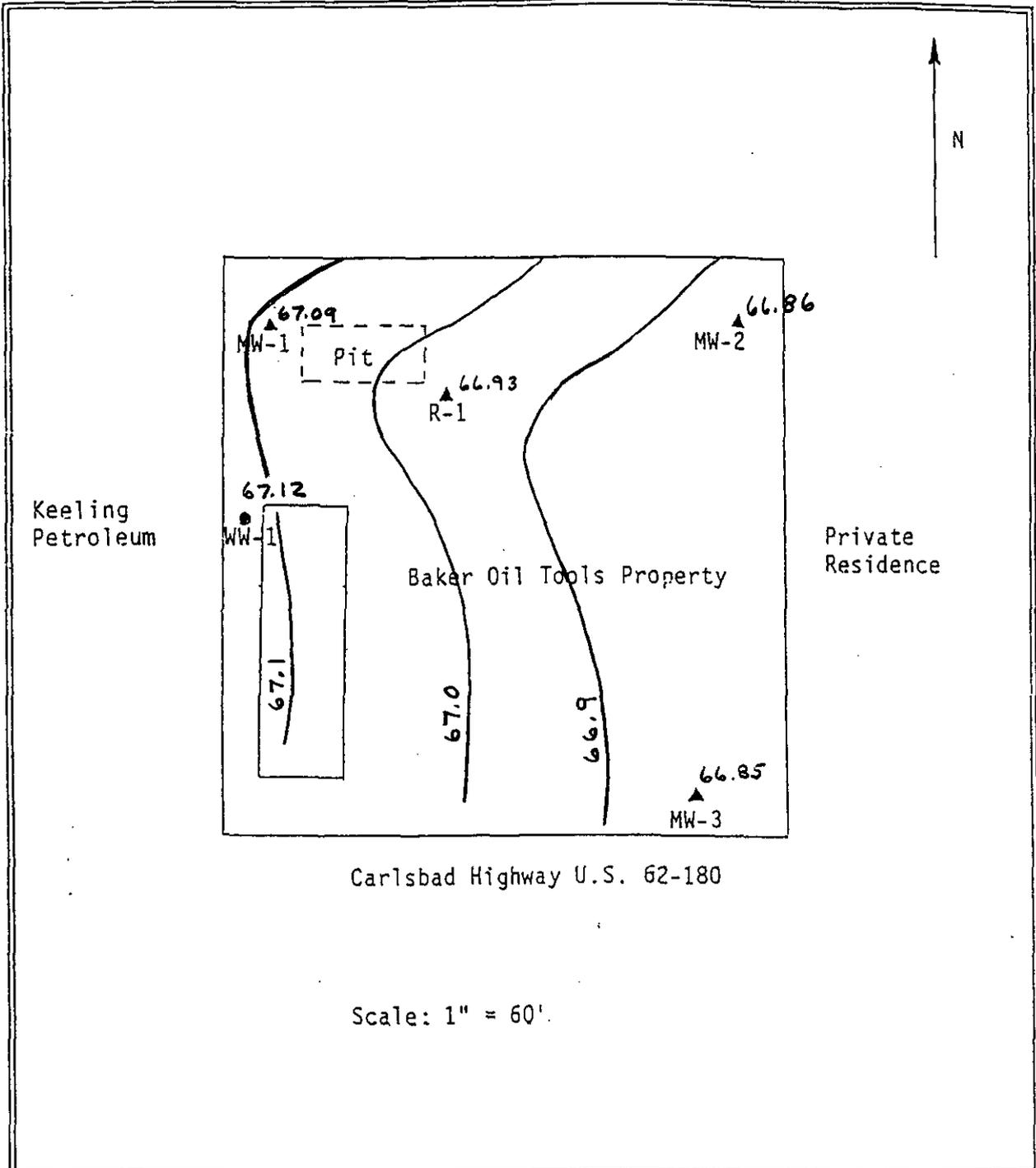


Figure  
No. 1  
Qtr. 6

Qtr 6 - Water Elevation  
Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM



GARY E. JOHNSON  
GOVERNOR

State of New Mexico  
**ENVIRONMENT DEPARTMENT**  
Ground Water Protection and Remediation Bureau

Harold Runnels Building  
1190 St. Francis Drive, P.O. Box 26110  
Santa Fe, New Mexico 87502  
(505) 827-2918 phone  
(505) 827-2965 fax



MARK E. WEIDLER  
SECRETARY

EDGAR T. THORNTON, III  
DEPUTY SECRETARY

November 8, 1996

Mr. Thomas Stenbeck  
Baker Oil Tools  
P.O. Box 40129  
9100 Emmott Rd.  
Houston, TX 77240-0129

RE: Ground Water Analyses at Hobbs Facility

Dear Mr. Stenbeck:

Enclosed you will find copies of the laboratory analyses of the ground water samples collected from the monitor wells at Baker Oil Tools' Hobbs facility. I apologize for delay, but our lab only recently sent me the last of the results. You might note the elevated levels of polycyclic aromatic hydrocarbons in well R-1. Copies of these analyses have been forwarded to Bill Olson with the Oil Conservation Division.

Thank you very much for your cooperation. If you should have any questions, please call me at 505-827-0178.

Sincerely,

A handwritten signature in cursive script that reads "Robert Pine".

Robert Pine  
Hydrologist  
Assessment & Abatement Section

Enclosures: Lab Analyses

**SCIENTIFIC LABORATORY DIVISION**

DEPARTMENT OF HEALTH

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

REPORT TO CLIENT:

Attn: Rob Pine
Ground Water Quality Bureau
P.O. Box 26110
Santa Fe, New Mexico 87502

SLD No.: OR-9602620
REQUEST ID No.: 154587
RECEIVED AT SLD: 7/31/96
USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: na BY: Pin  
 SAMPLING LOCATION: Baker Oil MW-1  
0 Water REPORTING UNITS: ug/L

Remarks: Hydrochloric acid was used as a preservative in this sample.  
No Targeted Compounds were detected in this sample.

**EPA METHOD 8021 VOLATILES BY GAS CHROMATOGRAPHY (PID/ELCD)**

DATE EXTRACTED: N/A  
 DATE ANALYZED: 8/2/96 4 Days: Within EPA Analysis Time  
 SAMPLE VOL (ml): 5

ANALYSIS No.: OR-9602620
SLD BATCH No.: 400
DILUTION FACTOR: 1.00
REQUEST ID No.: 154587

SAMPLE PRESERVATION: Sample Temperature when received: 18 Degrees C.; pH = 4

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL ug/L
71-43-2	Benzene		U	1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane*		U	1.0
75-25-2	Bromoform*		U	1.0
24-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	10.0
104-51-8	n-Butylbenzene		U	1.0
135-98-8	sec-Butylbenzene		U	1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	10.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene (monochlorobenzene)		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform*		U	1.0
74-87-3	Chloromethane		U	1.0
95-49-8	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	1.0
124-48-1	Dibromochloromethane*		U	1.0
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	1.0
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	1.0
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-2	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene		U	1.0
87-68-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene		U	1.0
99-87-6	4-Isopropyltoluene		U	2.0
75-09-2	Methylene chloride (Dichloromethane)		U	2.0

SEP 2 1996  
RECEIVED

91-20-3	Naphthalene		U	1.0
103-65-1	Propylbenzene		U	1.0
100-42-5	Styrene		U	1.0
630-20-6	1,1,1,2-Tetrachloroethane		U	1.0
79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	10.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene		U	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene		U	1.0
N/A	p- & m-Xylene		U	1.0
N/A	*Total Xylenes*	0.0	U	1.0
N/A	*Total Trihalomethanes*		U	1.0

**LABORATORY BATCH QUALITY CONTROL SUMMARY**

SURROGATE	SURROGATE COMPOUNDS	CONCENTRATION	% RECOVERY
RECOVERIES:	2-Bromochlorobenzene (Photoionization Detector Surrogate)	23.85	95.4%
	2-Bromochlorobenzene (Electrolytic Conductivity Detector Surrogate)	26.58	106.3%

<b>LABORATORY FORTIFIED BLANK RECOVERIES</b>	The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:		
	<b>COMPOUND</b>	<b>CONCENTRATION (ug/L)</b>	<b>% RECOVERY</b>
	cis-1,2-Dichloroethene	10	79%

<b>LABORATORY BLANKS</b>	No target compounds were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:		
	<b>COMPOUND</b>	<b>CONCENTRATION (ug/L)</b>	
	No Exceptions		

ANALYST: Patrick Basile

QC APPROVED BY: Ken Sherrell 

**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given ( ~5 \* SDL)
  - U No analyte was detected above the Sample Detection Limit.
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

ED FIELD OFFICE: 

Rob Pine

NMED/Ground Water Quality Bureau

PO Box 26110

Santa Fe, NM 87502

SLD No.: OR- 9602625

REQUEST ID No.: 154592

RECEIVED AT SLD: 7/31/96

USER: 55321

SLD COPY

AUG 1996

RECEIVED

SAMPLE COLLECTION: DATE: 7/29/96

TIME: 0

SAMPLING LOCATION: Baker Oil MW-1

BY: Pin

WSS #:

SAMPLE MATRIX: water

REPORTING UNITS: ug/L

## EPA METHOD 625 NEUTRAL AND BASIC SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

DATE EXTRACTED: 8/5/96 7 Days: Within EPA Holding Time

DATE ANALYZED: 8/5/96 7 Days: Within EPA Analysis Time

SAMPLE VOL (ml): 910

ANALYSIS No.: OR- 9602625

SLD BATCH No.: 405

DILUTION FACTOR: 1.10

REQUEST ID No.: 154592

SAMPLE PRESERVATION: Sample Temperature when received: 21 Degrees C.; pH = 7  
NOT COMPOSITED

EXTRACTION TECHNIQUE: Separatory Funnel

PERCENT MOISTURE: N/A

GPC CLEANUP: Not Used

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL
83-32-9	Acenaphthene		U	1.02
208-96-8	Acenaphthylene		U	0.96
120-12-7	Anthracene		U	0.40
103-33-3	Azobenzene		U	1.10
92-87-5	Benzidine		U	1.10
56-55-3	Benzo(a)anthracene		U	0.13
205-99-2	Benzo(b)fluoranthene		U	0.36
207-08-9	Benzo(k)fluoroanthene		U	0.36
191-24-2	Benzo(g,h,i)perylene		U	1.09
50-32-8	Benzo(a)pyrene		U	0.02
111-91-1	Bis(2-chloroethoxy)methane		U	0.76
111-44-4	Bis(2-chloroethyl)ether		U	0.43
108-60-1	Bis(2-chloroisopropyl)ether		U	0.49
117-31-7	Bis(2-ethylhexyl)phthalate	4		0.36
101-55-3	4-Bromophenylphenyl ether		U	0.53
85-68-7	Butylbenzyl phthalate		U	0.69
106-47-8	4-Chloroaniline		U	0.63
91-58-7	2-Chloronaphthalene		U	0.56
7005-72-3	4-Chlorophenylphenyl ether		U	0.46
218-01-9	Chrysene		U	0.26
53-70-3	Dibenz(a,h)anthracene		U	10.99
132-64-9	Dibenzofuran		U	0.79
84-74-2	Di-n-butyl phthalate		U	0.53
95-50-1	1,2-Dichlorobenzene		U	0.16
541-73-1	1,3-Dichlorobenzene		U	0.26
106-46-7	1,4-Dichlorobenzene		U	0.36
91-94-1	3,3'-Dichlorobenzidine		U	0.20

84-66-2	Diethylphthalate	U	0.86
131-11-3	Dimethylphthalate	U	0.53
121-14-2	2,4-Dinitrotoluene	U	0.49
606-20-2	2,6-Dinitrotoluene	U	0.43
117-84-0	Di-n-octyl phthalate	U	0.33
206-44-0	Fluoranthene	U	0.82
86-73-7	Fluorene	U	0.82
118-74-1	Hexachlorobenzene	U	0.82
87-68-3	Hexachlorobutadiene	U	0.33
77-47-4	Hexachlorocyclopentadiene	U	10.99
67-72-1	Hexachloroethane	U	0.33
193-39-5	Indeno(1,2,3-cd)pyrene	U	10.99
78-59-1	Isophorone	U	0.99
91-57-6	2-Methylnaphthalene	U	1.09
91-20-3	Naphthalene	U	0.69
88-74-4	2-Nitroaniline	U	0.56
99-09-2	3-Nitroaniline	U	0.36
100-01-6	4-Nitroaniline	U	0.56
98-95-3	Nitrobenzene	U	0.45
86-30-6	N-nitrosodiphenylamine	U	0.53
62-75-9	N-nitrosodimethylamine	U	0.53
621-64-7	N-nitroso-di-n-propylamine	U	0.03
85-01-8	Phenanthrene	U	0.26
129-00-0	Pyrene	U	0.36
120-82-1	1,2,4-Trichlorobenzene	U	0.33

**QUALITY CONTROL SUMMARY**

Surrogate compounds are added to samples to determine extraction efficiency and QC	SURROGATE COMPOUNDS ADDED TO SAMPLE BEFORE EXTRACTION		Surrogate Recovered	% RECOVERY	QC Eval.
	Nitrobenzene-d5 (Neutral Surrogate added at 50 ug/L)		29.0	58%	Normal
	2-Fluorobiphenyl (Neutral Surrogate added at 50 ug/L)		27.0	54%	Normal
	Terphenyl-d14 (Neutral Surrogate added at 50 ug/L)		40.0	80%	Normal
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries of target analytes in the batch spike(s) were within the expected range with the following exceptions:				
	COMPOUND	CONCENTRATION	% RECOVERY		
	No Exceptions				
LABORATORY BLANKS	No target analytes were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:				
	COMPOUND	CONCENTRATION (ug/L)			
	No Exceptions				

ANALYST: Tim Chapman

QC APPROVED BY: Roberta Hine

**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given (  $-5 \cdot \text{SDL}$  )
  - U No analyte was detected above the Sample Detection Limit.
- MCL Maximum Contamination Level Allowed by EPA for regulated analytes
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de S. J, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

REPORT TO CLIENT:

Attn: Rob Pine  
Ground Water Quality Bureau  
P.O. Box 26110  
Santa Fe, New Mexico 87502

SLD No.: OR-9602621  
REQUEST ID No.: 154588  
RECEIVED AT SLD: 7/31/96  
USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: na BY: Pin  
SAMPLING LOCATION: Baker Oil MW-2  
o Water REPORTING UNITS: ug/L

Remarks: Hydrochloric acid was used as a preservative in this sample.  
No Targeted Compounds were detected in this sample.

EPA METHOD 8021 VOLATILES BY GAS CHROMATOGRAPHY (PID/ELCD)

DATE EXTRACTED: N/A  
DATE ANALYZED: 8/2/96 4 Days: Within EPA Analysis Time  
SAMPLE VOL (ml): 5

ANALYSIS No.: OR-9602621  
SLD BATCH No.: 400  
DILUTION FACTOR: 1.00  
REQUEST ID No.: 154588

SAMPLE PRESERVATION: Sample Temperature when received: 18 Degrees C.; pH = 4

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL
				ug/L
71-43-2	Benzene		U	1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane*		U	1.0
75-25-2	Bromoform*		U	1.0
24-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	10.0
104-51-8	n-Butylbenzene		U	1.0
135-98-8	sec-Butylbenzene		U	1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	10.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene (monochlorobenzene)		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform*		U	1.0
74-87-3	Chloromethane		U	1.0
95-49-8	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	1.0
124-48-1	Dibromochloromethane*		U	1.0
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	1.0
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	1.0
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-2	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene		U	1.0
87-88-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene		U	1.0
99-87-6	4-Isopropyltoluene		U	2.0
75-09-2	Methylene chloride (Dichloromethane)		U	2.0

REC'D 1996  
RECEIVED

103-65-1	Propylbenzene		U	1.0
100-42-5	Styrene		U	1.0
630-20-6	1,1,1,2-Tetrachloroethane		U	1.0
79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	10.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene		U	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene*		U	1.0
N/A	p- & m-Xylene*		U	1.0
N/A	*Total Xylenes*	0.0	U	1.0
N/A	*Total Trihalomethanes*		U	1.0

Laboratory Remarks: Acetone was observed in this sample at 35 ppb.

LABORATORY BATCH QUALITY CONTROL SUMMARY

SURROGATE	SURROGATE COMPOUNDS	CONCENTRATION	% RECOVERY
RECOVERIES:	2-Bromochlorobenzene (Photoionization Detector Surrogate)	24.14	96.6%
	2-Bromochlorobenzene (Electrolytic Conductivity Detector Surrogate)	26.18	104.7%
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:		
	COMPOUND	CONCENTRATION (ug/L)	% RECOVERY
	cis-1,2-Dichloroethene	10	79%
LABORATORY BLANKS	No target compounds were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:		
	COMPOUND	CONCENTRATION (ug/L)	
	No Exceptions		

ANALYST: Patrick Basile

QC APPROVED BY: Ken Sherrell

KS

DEFINITIONS

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given (-5 \* SDL)
  - U No analyte was detected above the Sample Detection Limit.
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

ED FIELD OFFICE: 

Rob Pine

NMED/Ground Water Quality Bureau

PO Box 26111

Santa Fe, NM 87502

SLD No.: OR- 9602626

REQUEST ID No.: 154593

RECEIVED AT SLD: 7/31/96

 SLD COPY

USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: 0 BY: Pin

SAMPLING LOCATION: Baker Oil MW-2

WSS #:

SAMPLE MATRIX: water

REPORTING UNITS: ug/L

## EPA METHOD 625 NEUTRAL AND BASIC SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

DATE EXTRACTED: 8/5/96 7 Days: Within EPA Holding Time

DATE ANALYZED: 8/5/96 7 Days: Within EPA Analysis Time

SAMPLE VOL (ml): 900

ANALYSIS No.: OR- 9602626

SLD BATCH No.: 405

DILUTION FACTOR: 1.11

REQUEST ID No.: 154593

SAMPLE PRESERVATION: Sample Temperature when received: 23 Degrees C.; pH = 7

NOT COMPOSITED

EXTRACTION TECHNIQUE: Separatory Funnel

PERCENT MOISTURE: N/A

GPC CLEANUP: Not Used

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL
83-32-9	Acenaphthene		U	1.03
208-96-8	Acenaphthylene		U	0.97
120-12-7	Anthracene		U	0.40
103-33-3	Azobenzene		U	1.11
92-87-5	Benzidine		U	1.11
56-55-3	Benzo(a)anthracene		U	0.13
205-99-2	Benzo(b)fluoranthene		U	0.37
207-08-9	Benzo(k)fluoroanthene		U	0.37
191-24-2	Benzo(g,h,i)perylene		U	1.10
50-32-8	Benzo(a)pyrene		U	0.02
111-91-1	Bis(2-chloroethoxy)methane		U	0.77
111-44-4	Bis(2-chloroethyl)ether		U	0.43
108-60-1	Bis(2-chloroisopropyl)ether		U	0.50
117-81-7	Bis(2-ethylhexyl)phthalate	3		0.37
101-55-3	4-Bromophenylphenyl ether		U	0.53
85-68-7	Butylbenzyl phthalate		U	0.70
106-47-8	4-Chloroaniline		U	0.63
91-58-7	2-Chloronaphthalene		U	0.57
7005-72-3	4-Chlorophenylphenyl ether		U	0.47
218-01-9	Chrysene		U	0.27
53-70-3	Dibenz(a,h)anthracene		U	11.11
132-64-9	Dibenzofuran		U	0.80
84-74-2	Di-n-butyl phthalate		U	0.53
95-50-1	1,2-Dichlorobenzene		U	0.17
541-73-1	1,3-Dichlorobenzene		U	0.27
106-46-7	1,4-Dichlorobenzene		U	0.37
91-94-1	3,3'-Dichlorobenzidine		U	0.20

84-66-2	Diethylphthalate	U	0.57
131-11-3	Dimethylphthalate	U	0.53
121-14-2	2,4-Dinitrotoluene	U	0.50
606-20-2	2,6-Dinitrotoluene	U	0.43
117-84-0	Di-n-octyl phthalate	U	0.33
206-44-0	Fluoranthene	U	0.83
86-73-7	Fluorene	U	0.83
118-74-1	Hexachlorobenzene	U	0.83
87-68-3	Hexachlorobutadiene	U	0.33
77-47-4	Hexachlorocyclopentadiene	U	11.11
67-72-1	Hexachloroethane	U	0.33
193-39-5	Indeno(1,2,3-cd)pyrene	U	11.11
78-59-1	Isophorone	U	1.00
91-57-6	2-Methylnaphthalene	U	1.10
91-20-3	Naphthalene	U	0.70
88-74-4	2-Nitroaniline	U	0.57
99-09-2	3-Nitroaniline	U	0.37
100-01-6	4-Nitroaniline	U	0.57
98-95-3	Nitrobenzene	U	0.46
86-30-6	N-nitrosodiphenylamine	U	0.53
62-75-9	N-nitrosodimethylamine	U	0.53
621-64-7	N-nitroso-di-n-propylamine	U	0.03
85-01-8	Phenanthrene	U	0.27
129-00-0	Pyrene	U	0.37
120-82-1	1,2,4-Trichlorobenzene	U	0.33

**QUALITY CONTROL SUMMARY**

Surrogate compounds are added to samples to determine extraction efficiency and QC	SURROGATE COMPOUNDS ADDED TO SAMPLE BEFORE EXTRACTION	Surrogate Recovered	% RECOVERY	QC Eval.
	Nitrobenzene-d5 (Neutral Surrogate added at 50 ug/L)	31.0	62%	Normal
	2-Fluorobiphenyl (Neutral Surrogate added at 50 ug/L)	29.3	59%	Normal
	Terphenyl-d14 (Neutral Surrogate added at 50 ug/L)	65.7	131%	Normal
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries of target analytes in the batch spike(s) were within the expected range with the following exceptions:			
	COMPOUND	CONCENTRATION	% RECOVERY	
	No Exceptions			
LABORATORY BLANKS	No target analytes were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:			
	COMPOUND	CONCENTRATION (ug/L)		
	No Exceptions			

ANALYST: Tim Chapman

QC APPROVED BY: Roberta Hine

**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given (-5 \* SDL)
  - U No analyte was detected above the Sample Detection Limit.
- MCL Maximum Contamination Level Allowed by EPA for regulated analytes
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

**SCIENTIFIC LABORATORY DIVISION**

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION (505) 841-2570

REPORT TO CLIENT:

Attn: Rob Pine
Ground Water Quality Bureau
P.O. Box 26110
Santa Fe, New Mexico 87502

SLD No.: OR- 9602622
REQUEST ID No.: 154589
RECEIVED AT SLD: 7/31/96
USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: na BY: Pin  
 SAMPLING LOCATION: Baker Oil MW-3  
Water REPORTING UNITS: ug/L



Remarks: Hydrochloric acid was used as a preservative in this sample.  
 No Targeted Compounds were detected in this sample.

**EPA METHOD 8021 VOLATILES BY GAS CHROMATOGRAPHY (PID/ELCD)**

DATE EXTRACTED: N/A  
 DATE ANALYZED: 8/2/96 4 Days: Within EPA Analysis Time  
 SAMPLE VOL (ml): 5

ANALYSIS No.: OR- 9602622
SLD BATCH No.: 400
DILUTION FACTOR: 1.00
REQUEST ID No.: 154589

SAMPLE PRESERVATION: Sample Temperature when received: 17 Degrees C.; pH = 3

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL
				ug/L
71-43-2	Benzene		U	1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane*		U	1.0
75-25-2	Bromoform*		U	1.0
24-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	10.0
104-51-8	n-Butylbenzene		U	1.0
135-98-8	sec-Butylbenzene		U	1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	10.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene (monochlorobenzene)		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform*		U	1.0
74-87-3	Chloromethane		U	1.0
95-43-3	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	1.0
124-48-1	Dibromochloromethane*		U	1.0
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	1.0
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	1.0
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-2	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene		U	1.0
87-63-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene		U	1.0
99-87-6	4-Isopropyltoluene		U	2.0
75-09-2	Methylene chloride (Dichloromethane)		U	2.0
91-20-3	Naphthalene		U	1.0
103-65-1	Propylbenzene		U	1.0
100-42-5	Styrene		U	1.0

79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	10.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene		U	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene		U	1.0
N/A	p- & m-Xylene		U	1.0
N/A	*Total Xylenes*	0.0	U	1.0
N/A	*Total Trihalomethanes*		U	1.0

Laboratory Remarks: Acetone was observed in this sample at 22 ppb. There were 28 compounds observed at approximately 1-10 ppb on the photoionization detector, but not identified.

The Following Compound(s) Were Tentatively (by Library Match of Mass Spectrum) Identified by GC/MS Sample Reanalysis					
CAS #	Tentatively Identified Compound Name	GC/MS Match %	R.T.	Approx. Conc.	
611-14-3	1-Ethyl-2-Methyl-Benzene	97.9%	31.82	50.00	ug/L
2870-04-4	2-Ethyl-1,3-Dimethyl-Benzene	98.0%	37.12	5.00	ug/L
27133-93-3	2,3-Dihydro-1-Methyl-indene	98.2%	37.54	5.00	ug/L
488-23-3	1,2,3,4-Tetramethyl-Benzene	99.2%	38.8	5.00	ug/L

LABORATORY BATCH QUALITY CONTROL SUMMARY			
SURROGATE	SURROGATE COMPOUNDS	CONCENTRATION	% RECOVERY
RECOVERIES:	2-Bromochlorobenzene (Photoionization Detector Surrogate)	26.18	104.7%
	2-Bromochlorobenzene (Electrolytic Conductivity Detector Surrogate)	28.34	113.4%
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:		
	COMPOUND	CONCENTRATION (ug/L)	% RECOVERY
	cis-1,2-Dichloroethene	10	79%
LABORATORY BLANKS	No target compounds were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:		
	COMPOUND	CONCENTRATION (ug/L)	
	No Exceptions		

ANALYST: Patrick Basile

QC APPROVED BY: Ken Sherrell



**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL. Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given (-5 \* SDL)
  - U No analyte was detected above the Sample Detection Limit.
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

ED FIELD OFFICE: 

Rob Pine

NMED/Ground Water Quality Bur.

PO Box 26110

Santa Fe, NM 87502

SLD No.: OR- 9602627

REQUEST ID No.: 154594

RECEIVED AT SLD: 7/31/96

USER: 55321

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AUG 1996

RECEIVED

SAMPLE COLLECTION: DATE: 7/29/96 TIME: 0

SAMPLING LOCATION: Baker Oil MW-3

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

SAMPLE MATRIX: water

REPORTING UNITS:  $\mu\text{g/L}$ 

## EPA METHOD 625 NEUTRAL AND BASIC SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

DATE EXTRACTED: 8/5/96 7 Days: Within EPA Holding Time

DATE ANALYZED: 8/5/96 7 Days: Within EPA Analysis Time

SAMPLE VOL (ml): 1000

ANALYSIS No.: OR- 9602627

SLD BATCH No.: 405

DILUTION FACTOR: 1.00

REQUEST ID No.: 154594

SAMPLE PRESERVATION: Sample Temperature when received: 23 Degrees C.; pH = 7

NOT COMPOSITED

EXTRACTION TECHNIQUE: Separatory Funnel

PERCENT MOISTURE: N/A

GPC CLEANUP: Not Used

CAS #	ANALYTE NAME	CONC. ( $\mu\text{g/L}$ )	QUAL	SDL
83-32-9	Acenaphthene		U	0.93
208-96-8	Acenaphthylene		U	0.87
120-12-7	Anthracene		U	0.36
103-33-3	Azobenzene		U	1.00
92-87-5	Benzidine		U	1.00
56-55-3	Benzo(a)anthracene		U	0.12
205-99-2	Benzo(b)fluoranthene		U	0.33
207-08-9	Benzo(k)fluoroanthene		U	0.33
191-24-2	Benzo(g,h,i)perylene		U	0.99
50-32-8	Benzo(a)pyrene		U	0.02
111-91-1	Bis(2-chloroethoxy)methane		U	0.69
111-44-4	Bis(2-chloroethyl)ether		U	0.39
108-60-1	Bis(2-chloroisopropyl)ether		U	0.45
117-81-7	Bis(2-ethylhexyl)phthalate	1	J	0.33
101-55-3	4-Bromophenylphenyl ether		U	0.48
85-68-7	Butylbenzyl phthalate		U	0.63
106-47-8	4-Chloroaniline		U	0.57
91-58-7	2-Chloronaphthalene		U	0.51
7005-72-3	4-Chlorophenylphenyl ether		U	0.42
218-01-9	Chrysene		U	0.24
53-70-3	Dibenz(a,h)anthracene		U	10.00
132-64-9	Dibenzofuran		U	0.72
84-74-2	Di-n-butyl phthalate		U	0.48
95-50-1	1,2-Dichlorobenzene		U	0.15
541-73-1	1,3-Dichlorobenzene		U	0.24
106-46-7	1,4-Dichlorobenzene		U	0.33
91-94-1	3,3'-Dichlorobenzidine		U	0.18

84-66-2	Diethylphthalate	U	0.78
131-11-3	Dimethylphthalate	U	0.48
121-14-2	2,4-Dinitrotoluene	U	0.45
606-20-2	2,6-Dinitrotoluene	U	0.39
117-84-0	Di-n-octyl phthalate	U	0.30
206-44-0	Fluoranthene	U	0.75
86-73-7	Fluorene	U	0.75
118-74-1	Hexachlorobenzene	U	0.75
87-68-3	Hexachlorobutadiene	U	0.30
77-47-4	Hexachlorocyclopentadiene	U	10.00
67-72-1	Hexachloroethane	U	0.30
193-39-5	Indeno(1,2,3-cd)pyrene	U	10.00
78-59-1	Isophorone	U	0.90
91-57-6	2-Methylnaphthalene	U	0.99
91-20-3	Naphthalene	U	0.63
88-74-4	2-Nitroaniline	U	0.51
99-09-2	3-Nitroaniline	U	0.33
100-01-6	4-Nitroaniline	U	0.51
98-95-3	Nitrobenzene	U	0.41
86-30-6	N-nitrosodiphenylamine	U	0.48
62-75-9	N-nitrosodimethylamine	U	0.48
621-64-7	N-nitroso-di-n-propylamine	U	0.03
85-01-8	Phenanthrene	U	0.24
129-00-0	Pyrene	U	0.33
120-82-1	1,2,4-Trichlorobenzene	U	0.30

**QUALITY CONTROL SUMMARY**

Surrogate compounds are added to samples to determine extraction efficiency and QC	SURROGATE COMPOUNDS ADDED TO SAMPLE BEFORE EXTRACTION	Surrogate Recovered	% RECOVERY	QC Eval.
	Nitrobenzene-d5 (Neutral Surrogate added at 50 ug/L)	28.0	56%	Normal
	2-Fluorobiphenyl (Neutral Surrogate added at 50 ug/L)	28.0	56%	Normal
	Terphenyl-d14 (Neutral Surrogate added at 50 ug/L)	37.0	74%	Normal
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries of target analytes in the batch spike(s) were within the expected range with the following exceptions:			
	COMPOUND	CONCENTRATION	% RECOVERY	
	No Exceptions			
LABORATORY BLANKS	No target analytes were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:			
	COMPOUND	CONCENTRATION (ug/L)		
	No Exceptions			

ANALYST: Tim Chapman

QC APPROVED BY: Roberta Hine

**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given ( ~5 \* SDL)
  - U No analyte was detected above the Sample Detection Limit.
- MCL Maximum Contamination Level Allowed by EPA for regulated analytes
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

ED FIELD OFFICE: 

Rob Pine

NMED/Ground Water Bureau

PO Box 26110

Santa Fe, NM 87502

SLD No.: OR- 9602624

REQUEST ID No.: 154591

RECEIVED AT SLD: 7/31/96

USER: 55321

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SAMPLE COLLECTION: DATE: 7/29/96

TIME: 0 BY: Pin

SAMPLING LOCATION: Baker Oil WW-1

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

SAMPLE MATRIX: water, c. REPORTING UNITS: ug/L

## EPA METHOD 625 NEUTRAL AND BASIC SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

DATE EXTRACTED: 8/5/96 7 Days: Within EPA Holding Time

DATE ANALYZED: 8/5/96 7 Days: Within EPA Analysis Time

SAMPLE VOL (ml): 980

ANALYSIS No.: OR- 9602624

SLD BATCH No.: 405

DILUTION FACTOR: 1.02

REQUEST ID No.: 154591

SAMPLE PRESERVATION: Sample Temperature when received: 23 Degrees C.; pH = 2  
NOT COMPOSITED

EXTRACTION TECHNIQUE: Separatory Funnel

PERCENT MOISTURE: N/A

GPC CLEANUP: Not Used

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL
83-32-9	Acenaphthene		U	0.95
208-96-8	Acenaphthylene		U	0.89
120-12-7	Anthracene		U	0.37
103-33-3	Azobenzene		U	1.02
92-87-5	Benzidine		U	1.02
56-55-3	Benzo(a)anthracene		U	0.12
205-99-2	Benzo(b)fluoranthene		U	0.34
207-08-9	Benzo(k)fluoroanthene		U	0.34
191-24-2	Benzo(g,h,i)perylene		U	1.01
50-32-8	Benzo(a)pyrene		U	0.02
111-91-1	Bis(2-chloroethoxy)methane		U	0.70
111-44-4	Bis(2-chloroethyl)ether		U	0.40
108-60-1	Bis(2-chloroisopropyl)ether		U	0.46
117-81-7	Bis(2-ethylhexyl)phthalate	9		0.34
101-55-3	4-Bromophenylphenyl ether		U	0.49
85-68-7	Butylbenzyl phthalate		U	0.64
106-47-8	4-Chloroaniline		U	0.58
91-58-7	2-Chloronaphthalene		U	0.52
7005-72-3	4-Chlorophenylphenyl ether		U	0.43
218-01-9	Chrysene		U	0.24
53-70-3	Dibenz(a,h)anthracene		U	10.20
132-64-9	Dibenzofuran		U	0.73
84-74-2	Di-n-butyl phthalate	1	J	0.49
95-50-1	1,2-Dichlorobenzene		U	0.15
541-73-1	1,3-Dichlorobenzene		U	0.24
106-46-7	1,4-Dichlorobenzene		U	0.34
91-94-1	3,3'-Dichlorobenzidine		U	0.18

84-66-2	Diethylphthalate		U	0.60
131-11-3	Dimethylphthalate		U	0.49
121-14-2	2,4-Dinitrotoluene		U	0.46
606-20-2	2,6-Dinitrotoluene		U	0.40
117-84-0	Di-n-octyl phthalate		U	0.31
206-44-0	Fluoranthene		U	0.77
86-73-7	Fluorene		U	0.77
118-74-1	Hexachlorobenzene		U	0.77
87-68-3	Hexachlorobutadiene		U	0.31
77-47-4	Hexachlorocyclopentadiene		U	10.20
67-72-1	Hexachloroethane		U	0.31
193-39-5	Indeno(1,2,3-cd)pyrene		U	10.20
78-59-1	Isophorone		U	0.92
91-57-6	2-Methylnaphthalene		U	1.01
91-20-3	Naphthalene		U	0.64
88-74-4	2-Nitroaniline		U	0.52
99-09-2	3-Nitroaniline		U	0.34
100-01-6	4-Nitroaniline		U	0.52
98-95-3	Nitrobenzene		U	0.42
86-30-6	N-nitrosodiphenylamine		U	0.49
62-75-9	N-nitrosodimethylamine		U	0.49
621-64-7	N-nitroso-di-n-propylamine		U	0.03
85-01-8	Phenanthrene		U	0.24
129-00-0	Pyrene		U	0.34
120-82-1	1,2,4-Trichlorobenzene		U	0.31

**QUALITY CONTROL SUMMARY**

Surrogate compounds are added to samples to determine extraction efficiency and QC	SURROGATE COMPOUNDS ADDED TO SAMPLE BEFORE EXTRACTION	Surrogate Recovered	% RECOVERY	QC Eval.
	Nitrobenzene-d5 (Neutral Surrogate added at 50 ug/L)	26.0	52%	Normal
	2-Fluorobiphenyl (Neutral Surrogate added at 50 ug/L)	25.0	50%	Normal
	Terphenyl-d14 (Neutral Surrogate added at 50 ug/L)	34.0	68%	Normal
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries of target analytes in the batch spike(s) were within the expected range with the following exceptions:			
	COMPOUND	CONCENTRATION	% RECOVERY	
	No Exceptions			
LABORATORY BLANKS	No target analytes were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:			
	COMPOUND	CONCENTRATION (ug/L)		
	No Exceptions			

ANALYST: Tim Chapman

QC APPROVED BY: Roberta Hine

**DEFINITIONS**

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given (  $-5 * \text{SDL}$  )
  - U No analyte was detected above the Sample Detection Limit.
- MCL Maximum Contamination Level Allowed by EPA for regulated analytes
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

REPORT TO CLIENT:

Attn: Rob Pine  
Ground Water Quality Bureau  
P.O. Box 26110  
Santa Fe, New Mexico 87502

SLD No.: OR-9602619  
REQUEST ID No.: 154586  
RECEIVED AT SLD: 7/31/96  
USER: 55321

SLD COPY

SAMPLE COLLECTION: DATE: 7/29/96 TIME: na BY: Pin  
SAMPLING LOCATION: Baker Oil WW-1  
o Water REPORTING UNITS: ug/L

Remarks: Hydrochloric acid was used as a preservative in this sample.

EPA METHOD 8021 VOLATILES BY GAS CHROMATOGRAPHY (PID/ELCD)

DATE EXTRACTED: N/A  
DATE ANALYZED: 8/2/96 4 Days: Within EPA Analysis Time  
SAMPLE VOL (ml): 5

ANALYSIS No.: OR-9602619  
SLD BATCH No.: 400  
DILUTION FACTOR: 1.00  
REQUEST ID No.: 154586

SAMPLE PRESERVATION: Sample Temperature when received: 19 Degrees C.; pH = 2

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL ug/L
71-43-2	Benzene	6.7		1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane*		U	1.0
75-25-2	Bromoform*		U	1.0
24-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	10.0
104-51-8	n-Butylbenzene		U	1.0
135-98-8	sec-Butylbenzene		U	1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	10.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene (monochlorobenzene)		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform*		U	1.0
74-87-3	Chloromethane		U	1.0
95-49-8	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	1.0
124-48-1	Dibromochloromethane*		U	1.0
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	1.0
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	1.0
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-2	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene		U	1.0
87-68-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene		U	1.0
99-87-6	4-Isopropyltoluene		U	2.0
75-09-2	Methylene chloride (Dichloromethane)		U	2.0

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103-65-1	Propylbenzene		J	1.0
100-42-5	Styrene		U	1.0
630-20-6	1,1,1,2-Tetrachloroethane		U	1.0
79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	10.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene	0.7	J	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene*	0.8	J	1.0
N/A	p- & m-Xylene*	1.0		1.0
N/A	*Total Xylenes*	1.8		1.0
N/A	*Total Trihalomethanes*		U	1.0

LABORATORY BATCH QUALITY CONTROL SUMMARY									
SURROGATE	SURROGATE COMPOUNDS	CONCENTRATION	% RECOVERY						
RECOVERIES:	2-Bromochlorobenzene (Photoionization Detector Surrogate)	23.51	94.0%						
	2-Bromochlorobenzene (Electrolytic Conductivity Detector Surrogate)	23.1	92.4%						
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below: <table border="1"> <thead> <tr><th>COMPOUND</th><th>CONCENTRATION (ug/L)</th><th>% RECOVERY</th></tr> </thead> <tbody> <tr><td>cis-1,2-Dichloroethene</td><td>10</td><td>79%</td></tr> </tbody> </table>			COMPOUND	CONCENTRATION (ug/L)	% RECOVERY	cis-1,2-Dichloroethene	10	79%
COMPOUND	CONCENTRATION (ug/L)	% RECOVERY							
cis-1,2-Dichloroethene	10	79%							
LABORATORY BLANKS	No target compounds were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below: <table border="1"> <thead> <tr><th>COMPOUND</th><th>CONCENTRATION (ug/L)</th></tr> </thead> <tbody> <tr><td>No Exceptions</td><td></td></tr> </tbody> </table>			COMPOUND	CONCENTRATION (ug/L)	No Exceptions			
COMPOUND	CONCENTRATION (ug/L)								
No Exceptions									

ANALYST: Patrick Basile

QC APPROVED BY: Ken Sherrell *KS*

DEFINITIONS	
**	Concentration Exceeds EPA's allowable Maximum Contamination Level
CAS#	Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
CONC.	Concentration (ug/L) of analyte actually detected in the sample
QUAL	Qualifier of analytical results as follows: <ul style="list-style-type: none"> <li>B Analyte was detected in laboratory blank</li> <li>J Analyte was detected at a level below which an accurate quantitation can be given ( -5 * SDL)</li> <li>U No analyte was detected above the Sample Detection Limit.</li> </ul>
SDL	Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
ug/L	Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

## SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de Salud, NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

ED FIELD OFFICE: 

Rob Pine
NMED/Ground Water Bureau
PO Box 26110
Santa Fe, NM 87502

SLD No.: OR- 9602628

REQUEST ID No.: 154595

RECEIVED AT SLD: 7/31/96  
SLD COPY  USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: 0

SAMPLING LOCATION: Baker Oil R-1

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

SAMPLE MATRIX: water

REPORTING UNITS: ug/L<sup>v</sup>

## EPA METHOD 625 NEUTRAL AND BASIC SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

DATE EXTRACTED: 8/5/96 7 Days: Within EPA Holding Time

DATE ANALYZED: 8/5/96 7 Days: Within EPA Analysis Time

SAMPLE VOL (ml): 770

ANALYSIS No.: OR- 9602628

SLD BATCH No.: 405

DILUTION FACTOR: 1.30

REQUEST ID No.: 154595

SAMPLE PRESERVATION: Sample Temperature when received: 22 Degrees C.; pH = 7  
NOT COMPOSITED

EXTRACTION TECHNIQUE: Separatory Funnel

PERCENT MOISTURE: N/A

GPC CLEANUP: Not Used

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL
83-32-9	Acenaphthene	5	J	1.21
208-96-8	Acenaphthylene		U	1.13
120-12-7	Anthracene		U	0.47
103-33-3	Azobenzene		U	1.30
92-87-5	Benzidine		U	1.30
56-55-3	Benzo(a)anthracene		U	0.16
205-99-2	Benzo(b)fluoranthene		U	0.43
207-08-9	Benzo(k)fluoroanthene		U	0.43
191-24-2	Benzo(g,h,i)perylene		U	1.29
50-32-8	Benzo(a)pyrene		U	0.03
111-91-1	Bis(2-chloroethoxy)methane		U	0.90
111-44-4	Bis(2-chloroethyl)ether		U	0.51
108-60-1	Bis(2-chloroisopropyl)ether		U	0.58
117-81-7	Bis(2-ethylhexyl)phthalate	6		0.43
101-55-3	4-Bromophenylphenyl ether		U	0.62
85-68-7	Butylbenzyl phthalate		U	0.82
106-47-8	4-Chloroaniline		U	0.74
91-58-7	2-Chloronaphthalene		U	0.66
7005-72-3	4-Chlorophenylphenyl ether		U	0.55
218-01-9	Chrysene		U	0.31
53-70-3	Dibenz(a,h)anthracene		U	12.99
132-64-9	Dibenzofuran		U	0.94
84-74-2	Di-n-butyl phthalate		U	0.62
95-50-1	1,2-Dichlorobenzene		U	0.19
541-73-1	1,3-Dichlorobenzene		U	0.31
106-46-7	1,4-Dichlorobenzene		U	0.43
91-94-1	3,3'-Dichlorobenzidine		U	0.23

84-66-2	Diethylphthalate		U	1.01
131-11-3	Dimethylphthalate		U	0.62
121-14-2	2,4-Dinitrotoluene		U	0.58
606-20-2	2,6-Dinitrotoluene		U	0.51
117-84-0	Di-n-octyl phthalate		U	0.39
206-44-0	Fluoranthene		U	0.97
86-73-7	Fluorene	6		0.97
118-74-1	Hexachlorobenzene		U	0.97
87-68-3	Hexachlorobutadiene		U	0.39
77-47-4	Hexachlorocyclopentadiene		U	12.99
67-72-1	Hexachloroethane		U	0.39
193-39-5	Indeno(1,2,3-cd)pyrene		U	12.99
78-59-1	Isophorone		U	1.17
91-57-6	2-Methylnaphthalene	113		1.29
91-20-3	Naphthalene	81		0.82
88-74-4	2-Nitroaniline		U	0.66
99-09-2	3-Nitroaniline		U	0.43
100-01-6	4-Nitroaniline		U	0.66
98-95-3	Nitrobenzene		U	0.53
86-30-6	N-nitrosodiphenylamine		U	0.62
62-75-9	N-nitrosodimethylamine		U	0.62
621-64-7	N-nitroso-di-n-propylamine		U	0.04
85-01-8	Phenanthrene	2		0.31
129-00-0	Pyrene		U	0.43
120-82-1	1,2,4-Trichlorobenzene		U	0.39

**COMPOUNDS DETECTED AND TENTATIVELY IDENTIFIED BY MASS SPECTROMETRY (TIC's)**

CAS #	TENTATIVE ANALYTE NAME	EST CONC. (ug/L)	LIBRARY MS MATCH	RETENTION TIME (MIN)
13151-29-6	4-Methyl-1-Decene	300	815	19.90
17301-28-9	3,6-Dimethyl-undecane	300	793	18.12
57289-26-6	2-Methyl-1-Dodecanol	200	853	18.30
2217-43-8	5,6,7,8-Tetrahydro-2-Napthalenamine	200	790	19.53
247183-2	1-Ethylidene-1H-Indene	200	881	20.95
54833-48-6	2,6,10,15-Tetramethyl-Heptadecane	200	797	20.73
56292-65-0	2,5-Dimethyl-Dodecane	200	765	16.50
589-90-2	1,4-Dimethyl-Cyclohexane	200	850	20.34
7058-01-7	1-Methyl-2-(1-Methylethyl)-Benzene	100	869	13.85
934-74-7	1-Ethyl-3,5-Dimethyl-Benzene	100	793	18.87

Comment: Numerous hydrocarbons were observed by GC/MS in the C11 to C 15 range with an approximate total concentration of 20 ug/ml.

\* "Library MS Match" is a number showing the approximate percentage agreement with our 60,000 compound, NIST mass spectral library.  
 "Retention Time" is the time required for the specific compound to pass through the chromatographic column.

**QUALITY CONTROL SUMMARY**

Surrogate compounds are added to samples to determine extraction efficiency and QC	SURROGATE COMPOUNDS ADDED TO SAMPLE BEFORE EXTRACTION	Surrogate Recovered	% RECOVERY	QC Eval.
	Nitrobenzene-d5 (Neutral Surrogate added at 50 ug/L)	30.0	60%	Normal
	2-Fluorobiphenyl (Neutral Surrogate added at 50 ug/L)	32.0	64%	Normal
	Terphenyl-d14 (Neutral Surrogate added at 50 ug/L)	41.0	82%	Normal
LABORATORY FORTIFIED	The % recoveries of target analytes in the batch spike(s) were within the expected range with the following exceptions:			

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700  
Albuquerque, NM 87196-4700

700 Camino de S. NE  
[505] 841-2500

ORGANIC CHEMISTRY SECTION (505) 841-2570

REPORT TO CLIENT:

Attn: Rob Pine  
Ground Water Quality Bureau  
P.O. Box 26110  
Santa Fe, New Mexico 87502

SLD No.: OR-9602623  
REQUEST ID No.: 154590  
RECEIVED AT SLD: 7/31/96  
USER: 55321

SAMPLE COLLECTION: DATE: 7/29/96 TIME: na BY: Pin  
SAMPLING LOCATION: Baker Oil R-1 Water REPORTING UNITS: ug/L

Remarks: Hydrochloric acid was used as a preservative in this sample.

EPA METHOD 8021 VOLATILES BY GAS CHROMATOGRAPHY (PID/ELCD)

DATE EXTRACTED: N/A  
DATE ANALYZED: 8/2/96 4 Days: Within EPA Analysis Time  
SAMPLE VOL (ml): 5

ANALYSIS No.: OR-9602623  
SLD BATCH No.: 400  
DILUTION FACTOR: 1.00  
REQUEST ID No.: 154590

SAMPLE PRESERVATION: Sample Temperature when received: 18 Degrees C.; pH = 7

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL ug/L
71-43-2	Benzene	1.3		1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane*		U	1.0
75-25-2	Bromoform*		U	1.0
24-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	10.0
104-51-8	n-Butylbenzene	73		1.0
135-98-8	sec-Butylbenzene	48		1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	10.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene (monochlorobenzene)		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform*		U	1.0
74-87-3	Chloromethane		U	1.0
95-49-3	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	1.0
124-48-1	Dibromochloromethane*		U	1.0
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	1.0
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	1.0
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-2	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-5	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene	45		1.0
87-68-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene	9.8		1.0
99-87-6	4-Isopropyltoluene		U	2.0
75-09-2	Methylene chloride (Dichloromethane)		U	2.0
91-20-3	Naphthalene	200		10
103-65-1	Propylbenzene	45		1.0
100-42-5	Styrene		U	1.0

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79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	10.0
108-88-3	Toluene	1.6		1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene	110		10
108-67-8	1,3,5-Trimethylbenzene	12		1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene*	28		1.0
N/A	p- & m-Xylene*	12		1.0
N/A	*Total Xylenes*	41		1.0
N/A	*Total Trihalomethanes*		U	1.0

Laboratory Remarks: This sample was diluted and re-analyzed on 8/21/96 to quantitate Naphthalene and 1,2,4-Trimethyl Benzene. The ELCD surrogate recovery was extremely high due to co-eluting peaks, however, the internal standard area was at 94.5% of the expected area. There were 80 compounds observed on the photoionization detector at approximately 10-40 ppb, but not identified.

LABORATORY BATCH QUALITY CONTROL SUMMARY

SURROGATE RECOVERIES:	SURROGATE COMPOUNDS	CONCENTRATION	% RECOVERY
	2-Bromochlorobenzene (Photoionization Detector Surrogate)	132	528.0% High
	2-Bromochlorobenzene (Electrolytic Conductivity Detector Surrogate)	23.9	95.6%
LABORATORY FORTIFIED BLANK RECOVERIES	The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:		
	COMPOUND	CONCENTRATION (ug/L)	% RECOVERY
	cis-1,2-Dichloroethene	10	79%
LABORATORY BLANKS	No target compounds were detected above the sample detection limit in laboratory blank with the exception of the compound(s) listed below:		
	COMPOUND	CONCENTRATION (ug/L)	
	No Exceptions		

ANALYST: Patrick Basile

QC APPROVED BY: Ken Sherrell

DEFINITIONS

- \*\* Concentration Exceeds EPA's allowable Maximum Contamination Level
- CAS# Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
- CONC. Concentration (ug/L) of analyte actually detected in the sample
- QUAL Qualifier of analytical results as follows:
  - B Analyte was detected in laboratory blank
  - J Analyte was detected at a level below which an accurate quantitation can be given ( -5 \* SDL)
  - U No analyte was detected above the Sample Detection Limit.
- SDL Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
- ug/L Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

**EPIC**

LABORATORIES, INC.

**ANALYTICAL AND QUALITY CONTROL REPORT**

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

11/04/1996

EPIC Job Number: 96.07903

Enclosed is the Analytical and Quality Control report for the following samples submitted to the Dallas Division of EPIC Laboratories, Inc. for analysis. Reproduction of this analytical report is permitted only in its entirety.

<u>Sample Number</u>	<u>Sample Description</u>	<u>Date Taken</u>	<u>Date Received</u>
321462	MW-3	10/23/1996	10/24/1996
321463	MW-2	10/23/1996	10/24/1996
321464	MW-1	10/23/1996	10/24/1996
321465	WW-1	10/23/1996	10/24/1996
321466	R-1	10/23/1996	10/24/1996
321467	TRIP BLANK	10/18/1996	10/24/1996

EPIC Laboratories, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

**Holding Times:** All holding times were within method criteria.

**Method Blanks:** All method blanks were within quality control criteria.

**Instrument calibration:** All calibrations were within method quality control criteria.

**Analysis Comments:** No Unusual Comments



Jim Rowley  
Project Manager

# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

11/04/1996  
Job No.: 96.07903

Page: 2

Project Name: BOT HOBBS/4TH QT MONITOR 1996

Date Received: 10/24/1996

321462 MW-3  
Taken: 10/23/1996 14:30

pH	6.7	units
Conductivity	2220	umhos/cm
EPA-8020 AQ (PRESERVED)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<5	ug/L
SURR: a,a,a-TFT	81	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<10	ug/L
Naphthalene	<10	ug/L
SURR: 2-Fluorobiphenyl	55	% Rec
SURR: Nitrobenzene-d5	62	% Rec
SURR: Terphenyl-d14	96	% Rec

321463 MW-2  
Taken: 10/23/1996 14:45

pH	6.8	units
Conductivity	4800	umhos/cm
EPA-8020 AQ (PRESERVED)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<5	ug/L
SURR: a,a,a-TFT	83	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<10	ug/L
Naphthalene	<10	ug/L
SURR: 2-Fluorobiphenyl	66	% Rec
SURR: Nitrobenzene-d5	73	% Rec
SURR: Terphenyl-d14	107	% Rec

321464 MW-1  
Taken: 10/23/1996 15:00

pH	6.9	units
Conductivity	1370	umhos/cm
EPA-8020 AQ (PRESERVED)		

# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

11/04/1996  
Job No.: 96.07903

Page: 3

Project Name: BOT HOBBS/4TH QT MONITOR 1996

Date Received: 10/24/1996

321464 MW-1  
Taken: 10/23/1996 15:00

Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<5	ug/L
SURR: a,a,a-TFT	73	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<10	ug/L
Naphthalene	<10	ug/L
SURR: 2-Fluorobiphenyl	59	% Rec
SURR: Nitrobenzene-d5	65	% Rec
SURR: Terphenyl-d14	96	% Rec

321465 WW-1  
Taken: 10/23/1996 15:30

pH	6.9	units
Conductivity	1970	umhos/cm
EPA-8020 AQ (PRESERVED)		
Benzene	27	ug/L
Ethylbenzene	7	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	15	ug/L
SURR: a,a,a-TFT	71	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<10	ug/L
Naphthalene	<10	ug/L
SURR: 2-Fluorobiphenyl	62	% Rec
SURR: Nitrobenzene-d5	62	% Rec
SURR: Terphenyl-d14	118	% Rec

321466 R-1  
Taken: 10/23/1996 16:00

pH	6.7	units
Conductivity	2110	umhos/cm
EPA-8020 AQ (PRESERVED)		
Benzene	<2	ug/L
Ethylbenzene	230	ug/L
Toluene	<2	ug/L

# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

11/04/1996  
Job No.: 96.07903

Page: 4

Project Name: BOT HOBBS/4TH QT MONITOR 1996

Date Received: 10/24/1996

321466 R-1  
Taken: 10/23/1996 16:00

Xylenes, Total	410	ug/L
MTBE	<5	ug/L
SURR: a,a,a-TFT	67	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	240	ug/L
Naphthalene	140	ug/L
SURR: 2-Fluorobiphenyl	58	% Rec
SURR: Nitrobenzene-d5	84	% Rec
SURR: Terphenyl-d14	113	% Rec

321467 TRIP BLANK  
Taken: 10/18/1996 16:45

EPA-8020 AQ (PRESERVED)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<5	ug/L
SURR: a,a,a-TFT	70	% Rec

QUALITY CONTROL REPORT  
Continuing Calibration Verification  
(CCV)

JOB NUMBER: 96.07903

PARAMETER	ANALYST	DATE ANALYZED	METHOD	CCV	CCV	‡ REC.	FLAG
				RESULT	TRUE CONCENTRATION		
pH	jmd	10/24/1996	SM-4500H.	7.9	8.0	99	NA
Conductivity	kwo	10/31/1996	E-120.1	1387	1410	98	NA
EPA-8020 AQ (PRESERVED)			S-8020M				
Benzene	dtw	10/28/1996	S-8020M	16.5	20	83	NA
Ethylbenzene	dtw	10/28/1996	S-8020M	18.0	20	90	NA
MTBE	dtw	10/28/1996	S-8020M	14.7	20	74	NA
Toluene	dtw	10/28/1996	S-8020M	17.3	20	87	NA
Xylenes, Total	dtw	10/28/1996	S-8020M	63	60	105	NA
EPA-8020 AQ (PRESERVED)			S-8020M				
Benzene	dtw	10/30/1996	S-8020M	16.5	20	83	NA
Ethylbenzene	dtw	10/30/1996	S-8020M	18	20	90	NA
MTBE	dtw	10/30/1996	S-8020M	14.7	40	37	NA
Toluene	dtw	10/30/1996	S-8020M	17.3	20	87	NA
Xylenes, Total	dtw	10/30/1996	S-8020M	63	60	105	NA

Method References and Codes

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.

E-100 through 493: "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

E-601 through 625: "Guidelines Establishing Test Procedures for the Analysis of Pollutants", U.S. EPA, 40CFR, Part 136, rev. 1990.

S-1000 through 9999: "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd Edition, 1986.

A: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, 1985.

SM: "Standard Methods for the Examination of Water and Wastewater", 18th Edition, APHA, 1992.

D: ASTM Method

M: Method has been modified

\*: Other Reference

QUALITY CONTROL REPORT  
BLANKS

JOB NUMBER: 96.07903

PARAMETER	DATE		UNITS	REPORTING	
	ANALYZED	BLANK		LIMIT	FLAG
Conductivity	10/31/1996	<5.0	umhos	5.0	NA
EPA-8020 AQ (PRESERVED)					
Benzene	10/28/1996	<2	ug/L	2	NA
Ethylbenzene	10/28/1996	<2	ug/L	2	NA
MTBE	10/28/1996	<5	ug/L	5	NA
Toluene	10/28/1996	<2	ug/L	2	NA
Xylenes, Total	10/28/1996	<2	ug/L	2	NA
BASE/NEUTRALS - 8270 AQUEOUS					
2-Methylnaphthalene	10/31/1996	<10	ug/L	10	NA
Naphthalene	10/31/1996	<10	ug/L	10	NA

Advisory Control Limits for Blanks

Metals/Wet Chemistry/Conventionals/GC - All compounds should be less than the Reporting Limit.

GC/MS Semi-Volatiles - All compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the Reporting Limit.

GC/MS Volatiles - Toluene, Methylene chloride, Acetone and Chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT  
Laboratory Control Sample  
(LCS)

JOB NUMBER: 96.07903

<u>PARAMETER</u>	<u>LCS</u> <u>RESULT</u>	<u>TRUE</u> <u>CONC.</u>	<u>LCS</u> <u>% REC.</u>	<u>FLAG</u>
Conductivity	2720	2764	98	
EPA-8020 AQ (PRESERVED)				
Benzene	13	20	65	
Ethylbenzene	14	20	70	
MTBE	12	20	60	
Toluene	14	20	70	
Xylenes, Total	45	40	113	

Advisory Control Limits for LCS

Inorganic Parameters - The LCS recovery should be 80-120%.

QUALITY CONTROL REPORT  
 Matrix Spike / Matrix Spike Duplicate  
 (MS / MSD)

JOB NUMBER: 96.07903

PARAMETER	SAMPLE RESULT	MS RESULT	MSD RESULT	SPIKE AMOUNT	MS % REC.	MSD % REC.	MS/MSD RPD	FLAG
EPA-8020 AQ (PRESERVED)								
Benzene	15	26	29	20	55	70	24	
Ethylbenzene	<2	12	15	20	60	75	22	
Toluene	<2	12	15	20	60	75	22	
Xylenes, Total	<2	25	33	40	63	83	28	
MTBE	190	173	164	20	-84	-129	42	

Advisory Control Limits for MS/MSDs

Inorganic Parameters - The spike recovery should be 75-125% if the spike amount value is greater than or equal to one fourth of the sample result value. The RPD for the MS/MSD should be less than 20.

NOTE: Matrix Spike Samples may not be samples from this job.

QUALITY CONTROL REPORT  
DUPLICATES

JOB NUMBER: 96.07903

PARAMETER	SAMPLE	DUPLICATE	RPD	SPIKE	SPIKE	SPIKE	‡ REC.	FLAG
	RESULT	RESULT		SAMPLE	RESULT	AMOUNT		
pH	6.8	6.8	0.0	NA	NA	NA	NA	
Conductivity	2220	2230	0.4	NA	NA	NA	NA	

Advisory Control Limits for Spikes

The spike recovery should be 75-125% if the spike amount is greater than or equal to one fourth of the sample result value.

NOTE: Spike Samples may not be samples from this job.

Advisory Control Limits for Duplicates

The RPD for the sample and duplicate should be less than 20.



LABORATORIES, INC.

1548 VALWOOD PARKWAY, SUITE 118  
CARROLLTON, TEXAS 75006  
DALLAS (972) 406-8100  
AUSTIN (512) 928-8905

# CHAIN OF CUSTODY RECORD

COMPANY Baker Oil Tools (BOT)  
ADDRESS \_\_\_\_\_  
PHONE 713 4662520 FAX \_\_\_\_\_  
PROJECT NAME/LOCATION BOT Hobbs / 4th Rt Monit 96  
PROJECT NUMBER \_\_\_\_\_  
PROJECT MANAGER Tom Stanbeck

REPORT TO: Tom Stanbeck  
INVOICE TO: Tom Stanbeck  
P.O. NO. BOT Emmot Rd.  
EPIC QUOTE NO. \_\_\_\_\_

SAMPLED BY John Bairetti  
(PRINT NAME)

[Signature]  
SIGNATURE

(PRINT NAME)

[Signature]  
SIGNATURE

DATE	TIME	SAMPLE ID/DESCRIPTION	# and Type of Containers					ANALYSES	COMMENTS
			MATRIX	GRAB	COMP	4 HCl	OTHER		
10/23	2:30	MW-3	N	X		X		X	cond.
	2:45	MW-2						X	PH
	3:00	MW-1						X	2-Methyl Naphth
	3:30	WW-1						X	MRE
	4:00	R-1						X	BTEX
10/18	10:15	Trip Blanks							

[Signature]  
10/23

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO \_\_\_\_\_  
FIELD FILTERED? YES / NO \_\_\_\_\_

COC SEALS PRESENT AND INTACT? YES / NO \_\_\_\_\_  
VOLATILES FREE OF HEADSPACE? YES / NO \_\_\_\_\_

TEMPERATURE UPON RECEIPT: \_\_\_\_\_  
Bottles supplied by EPIC? YES / NO \_\_\_\_\_

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA \_\_\_\_\_  
REQUEST EPIC TO DISPOSE OF ALL SAMPLE REMAINDERS \_\_\_\_\_

RECEIVED BY: [Signature] DATE: 10/23/96 TIME: 5:00 pm

RELINQUISHED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

RECEIVED FOR EPIC BY: [Signature] DATE: 10/21/96 TIME: 0930

METHOD OF SHIPMENT: GREDEX

REMARKS: Result to Tom S. BOT Emmot Rd Houston



A Baker Hughes company

9100 Emmott Road  
P.O. Box 40129  
Houston, Texas 77240-0129  
Telephone (713) 466-1322

July 22, 1996

Mr. William C. Olsen, Hydrogeologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

Dear Mr. Olsen:

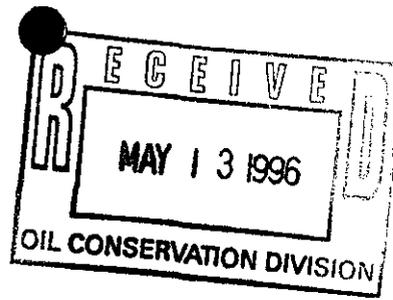
Baker Oil Tools is requesting an extension of the report due date for the quarterly monitoring report due August 1, 1996 for the Baker Oil Tools, 2800 West Marland, Hobbs, NM facility. The sampling is being rescheduled to coordinate sampling with Mr. Ron Pine of the New Mexico Environmental Division, who would like to sample the wells on July 29, 1996 as part of the investigation of the adjoining property (Keeling Petroleum). Our sampling report should be submitted by August 23, 1996. Should any further delay be incurred, BOT will notify you immediately. If you require any additional information please contact me at (713)466-2520.

Sincerely,

A handwritten signature in cursive script, appearing to read "Thomas V. Stenbeck".

Thomas V. Stenbeck  
Health, Safety and Environmental Manager

xc Mr. Wayne Price NMOCD-Hobbs



1 May 1996

Mr. William Olson, Hydrogeologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

Dear Mr. Olson:

Baker Oil Tools is submitting the fourth required monitoring in response to the NMOCD request of June 20, 1995 to provide quarterly monitoring data for groundwater contamination in the direct vicinity of the former disposal pit on the property located at 2800 W. Marland in Hobbs, New Mexico. The NMOCD requested the following three items from BOT for each monitoring session:

1. A brief description of all monitoring activities which occurred during the quarter.

BOT performed sampling on April 4, 1996. Each well was bailed of three volumes and allowed to equalize prior to sampling except for WW-1 which is a 125' deep water well. The wells were gauged for depth and bailed on the 3rd with sampling occurring on the 4th.. The Hobbs district office of the NMOCD was notified prior to sampling as required. Samples were packaged and submitted to the laboratory for analysis.

2. A summary of the laboratory analytical results of water quality sampling of the monitoring wells. The data will be presented in tabular form showing past and present sampling results.

Tables 1a through 1g present the sampling data.

Table 1a  
BENZENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996
Trip Blank	<0.5	∆	∆	<0.5	∆2.0
MW-1	<0.5	∆	∆	<0.5	∆2.0
MW-2	<0.5	∆	∆	<0.5	∆2.0
MW-3	<0.5	∆	∆	<0.5	∆2.0
WW-1	260	51	∆	0.5	∆2.0
R-1	<0.5	∆	<20	1.3	10

Table 1b  
TOLUENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996
Trip Blank	<0.5	∆	∆	<0.5	∆2.0
MW-1	<0.5	∆	∆	<0.5	∆2.0
MW-2	0.5	∆	∆	<0.5	∆2.0
MW-3	<0.5	∆	∆	<0.5	∆2.0
WW-1	1.9	∆	∆	<0.5	∆2.0
R-1	3.0	∆	∆20	1.9	∆2.0

Table 1c  
ETHYL BENZENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996
Trip Blank	<0.5	∆	∆	<0.5	∆2.0
MW-1	<0.5	∆	∆	<0.5	∆2.0
MW-2	<0.5	∆	∆	<0.5	∆2.0
MW-3	<0.5	∆	∆	<0.5	∆2.0
WW-1	180	∆	∆	1.0	∆2.0
R-1	49	52	46	40.0	16

Table 1d  
XYLENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996
Trip Blank	<0.5	∆	∆	<0.5	∆2.0
MW-1	1.2	∆	∆	<0.5	∆2.0
MW-2	0.5	∆	∆	<0.5	∆2.0
MW-3	0.8	∆	∆	<0.5	∆2.0
WW-1	7.0	∆	∆	0.6	∆2.0
R-1	94	64	72	67.0	20

Table 1e  
MTBE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996
Trip Blank	<2.5	<2	<2	<2.5	<2.0
MW-1	<2.5	<2	<2	<2.5	<2.0
MW-2	<2.5	<2	<2	<2.5	<2.0
MW-3	2.6	<2	<2	<2.5	<2.0
WW-1	4.1	<2	<2	<2.5	<2.0
R-1	<2.5	21	<20	<2.5	<2.0

Table 1f  
NAPHTHALENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996
Trip Blank	<0.3	<5	not analyzed	<0.5	not analyzed
MW-1	<0.3	<5	<10	<0.5	<5.0
MW-2	<0.3	<5	<10	<0.5	<5.0
MW-3	<0.3	not available*	<10	<0.5	<5.0
WW-1	46	12.9	<10	<0.5	<5.0
R-1	240	101	39.4	140.0	33.0

\*sample broke during shipment

Table 1g  
2-METHYL NAPHTHALENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3 January 11, 1996	Quarter 4 April 4, 1996
Trip Blank	<0.3	<5	not analyzed	<1.0	not analyzed
MW-1	<0.3	<5	<10	<1.0	<10.0
MW-2	<0.3	<5	<10	<1.0	<10.0
MW-3	1.0	not available*	<10	<1.0	<10.0
WW-1	14	<5	<10	<1.0	<10.0
R-1	360	115	56.2	170.0	35

\*sample broke during shipment

3. A ground water elevation map using the water table elevation of the ground water in all monitoring wells.

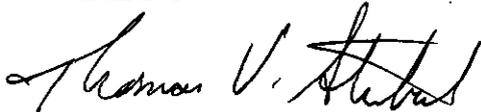
Figure 1 presents the water elevation data as requested. Table 2 lists the well number, the depth of the well, the depth to the top of the water, the elevation of the well casing and the actual depth to ground water.

Table 2  
Ground Water Elevation Data

Well ID	Well Depth	Elevation	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
			gauged depth	actual depth						
MW-1	46.0	100.19	33.2	66.99	32.5	67.69	32.32	67.87	32.7	67.49
MW-2	45.7	99.56	32.5	67.06	32.0	67.56	31.97	67.59	32.4	67.16
MW-3	39.3	99.15	32.7	66.45	32.0	67.15	31.55	67.60	32.0	67.15
WW-1	125.0	99.52	32.3	67.22	31.8	67.72	31.65	67.87	32.0	67.52
R-1	40.0	100.03	33.0	67.03	32.8	67.23	32.24	67.79	32.9	67.13

The next scheduled monitoring will occur in July with the report submitted by August 1996. If you have any questions or require additional information, please do not hesitate in contacting me at (713)466-2520.

Sincerely,  
For Baker Oil Tools



Thomas V. Stenbeck  
Manager of Health, Safety and Environment

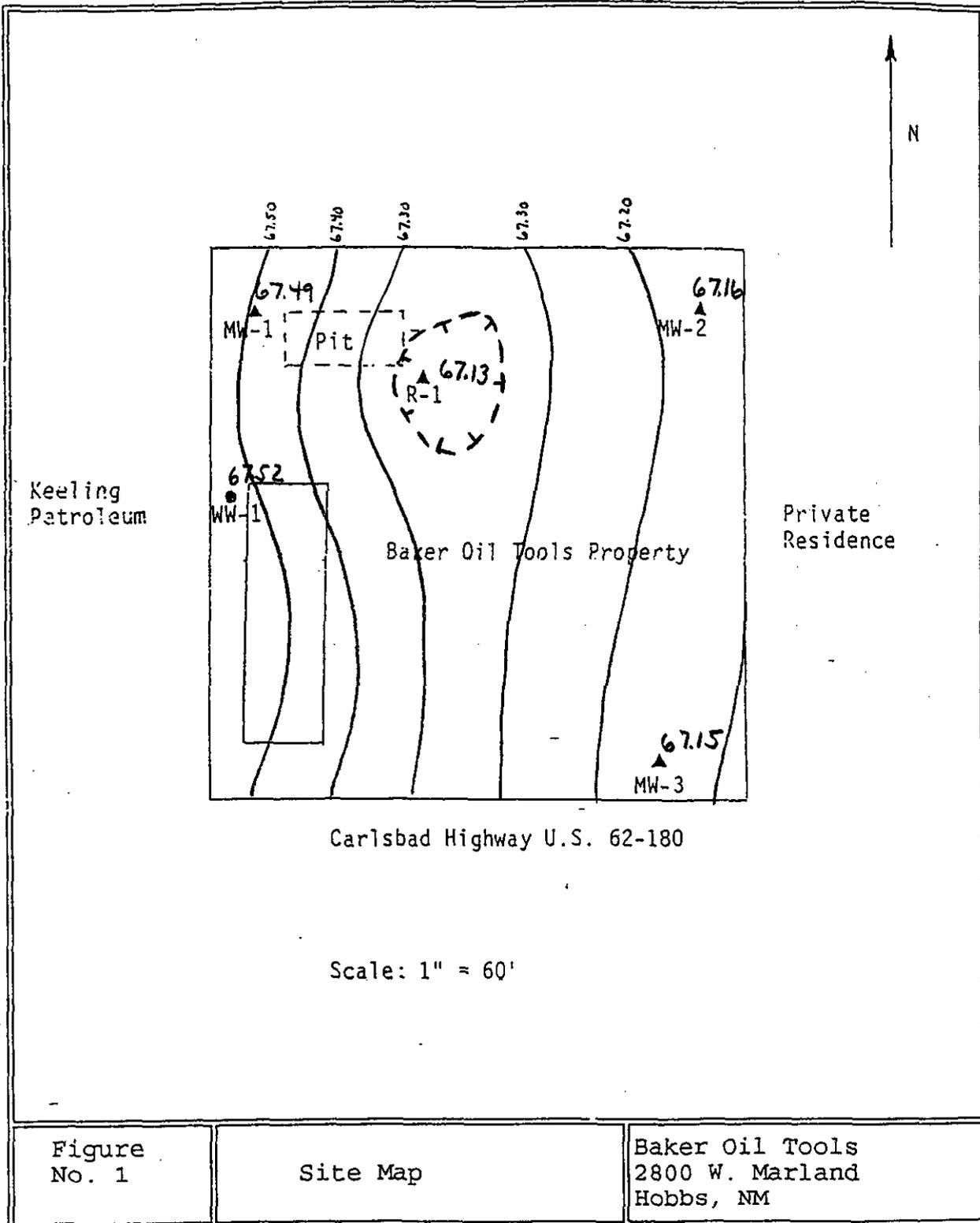


Figure  
No. 1

Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM



NATIONAL ENVIRONMENTAL TESTING, INC.

Dallas Division  
1548 Valwood Parkway  
Suite 118  
Carrollton, TX 75006  
Tel: (214) 406-8100  
Fax: (214) 484-2969

## ANALYTICAL AND QUALITY CONTROL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

04/22/1996

NET Job Number: 96.02648

Enclosed is the Analytical and Quality Control report for the following samples submitted to the Dallas Division of NET, Inc. for analysis. Reproduction of this analytical report is permitted only in its entirety.

<u>Sample Number</u>	<u>Sample Description</u>	<u>Date Taken</u>	<u>Date Received</u>
301973	MW-3	04/04/1996	04/05/1996
301974	MW-2	04/04/1996	04/05/1996
301975	MW-1	04/04/1996	04/05/1996
301976	WW-1	04/04/1996	04/05/1996
301977	R-1	04/04/1996	04/05/1996
301978	TRIP BLANK		04/05/1996

National Environmental Testing, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

**Holding Times:** All holding times were within method criteria.

**Method Blanks:** All method blanks were within quality control criteria.

**Instrument calibration:** All calibrations were within method quality control criteria.

**Analysis Comments:** No Unusual Comments

  
Gregory K. Horton  
Project Manager



## ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

04/22/1996  
Job No.: 96.02648

Page: 2

Project Name: BOT HOBBS, N.M.

Date Received: 04/05/1996

301973 MW-3  
Taken: 04/04/1996 11:00

pH	6.5	units
Conductivity	2000	umhos/cm
EPA-8020 AQ (PRESERVED)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	73	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<10	ug/L
Naphthalene	<5	ug/L
SURR: 2-Fluorobiphenyl	72.8	% Rec
SURR: Nitrobenzene-d5	76.4	% Rec
SURR: Terphenyl-d14	83.3	% Rec

301974 MW-2  
Taken: 04/04/1996 10:30

pH	6.6	units
Conductivity	4030	umhos/cm
EPA-8020 AQ (PRESERVED)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	73	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<10	ug/L
Naphthalene	<5	ug/L
SURR: 2-Fluorobiphenyl	64.8	% Rec
SURR: Nitrobenzene-d5	66.8	% Rec
SURR: Terphenyl-d14	73.7	% Rec



# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

04/22/1996  
Job No.: 96.02648

Page: 3

Project Name: BOT HOBBS, N.M.

Date Received: 04/05/1996.

301975 MW-1  
Taken: 04/04/1996 11:00

pH	6.8	units
Conductivity	1470	umhos/cm
EPA-8020 AQ (PRESERVED)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	70	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<10	ug/L
Naphthalene	<5	ug/L
SURR: 2-Fluorobiphenyl	67.2	% Rec
SURR: Nitrobenzene-d5	67.0	% Rec
SURR: Terphenyl-d14	89.0	% Rec

301976 WW-1  
Taken: 04/04/1996 11:20

pH	7.7	units
Conductivity	279	umhos/cm
EPA-8020 AQ (PRESERVED)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	75	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<10	ug/L
Naphthalene	<5	ug/L
SURR: 2-Fluorobiphenyl	66.1	% Rec
SURR: Nitrobenzene-d5	70.5	% Rec
SURR: Terphenyl-d14	87.8	% Rec



# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

04/22/1996  
Job No.: 96.02648

Page: 4

Project Name: BOT HOBBS, N.M.

Date Received: 04/05/1996

301977 R-1  
Taken: 04/04/1996 12:00

pH	6.6	units
Conductivity	1900	umhos/cm
EPA-8020 AQ (PRESERVED)		
Benzene	10	ug/L
Ethylbenzene	16	ug/L
Toluene	<2	ug/L
Xylenes, Total	20	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	78	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	35	ug/L
Naphthalene	33	ug/L
SURR: 2-Fluorobiphenyl	62.5	% Rec
SURR: Nitrobenzene-d5	59.7	% Rec
SURR: Terphenyl-d14	76.7	% Rec

301978 TRIP BLANK  
Taken:

EPA-8020 AQ (PRESERVED)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	70	% Rec



QUALITY CONTROL REPORT  
Continuing Calibration Verification  
(CCV)

JOB NUMBER: 96.02648

PARAMETER	ANALYST	DATE		METHOD	CCV		% REC.	FLAG
		ANALYZED			RESULT	TRUE CONCENTRATION		
pH	rsd	04/08/1996		SM-4500H.	8.01	8.00	100	NA
Conductivity	des	04/09/1996		E-120.1	1390	1409	99	NA
EPA-8020 AQ (PRESERVED)				S-8020M				
Benzene	bdb	04/08/1996		S-8020M	18	20	90	NA
Ethylbenzene	bdb	04/08/1996		S-8020M	16	20	80	NA
MTBE	NA	NA		S-8020M	NA		NA	NA
Toluene	bdb	04/08/1996		S-8020M	17	20	85	NA
Xylenes, Total	bdb	04/08/1996		S-8020M	48	60	80	NA
EPA-8020 AQ (PRESERVED)				S-8020M				
Benzene	bdb	04/09/1996		S-8020M	22	20	110	NA
Ethylbenzene	bdb	04/09/1996		S-8020M	23	20	115	NA
MTBE	bdb	04/09/1996		S-8020M	33	40	83	NA
Toluene	bdb	04/09/1996		S-8020M	23	20	115	NA
Xylenes, Total	bdb	04/09/1996		S-8020M	70	60	117	NA
EPA-8020 AQ (PRESERVED)				S-8020M				
Benzene	bdb	04/11/1996		S-8020M	19	20	95	NA
Ethylbenzene	bdb	04/11/1996		S-8020M	17	20	85	NA
MTBE	bdb	04/11/1996		S-8020M	34	40	85	NA
Toluene	bdb	04/11/1996		S-8020M	18	20	90	NA
Xylenes, Total	bdb	04/11/1996		S-8020M	54	60	90	NA
EPA-8020 AQ (PRESERVED)				S-8020M				
Benzene	bdb	04/10/1996		S-8020M	21	20	105	NA

Method References and Codes

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.

E-100 through 493: "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

E-601 through 625: "Guidelines Establishing Test Procedures for the Analysis of Pollutants", U.S. EPA, 40CFR, Part 136, rev. 1990.

S-1000 through 9999: "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd Edition, 1986.

A: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, 1985.

SM: "Standard Methods for the Examination of Water and Wastewater", 18th Edition, APHA, 1992.

D: ASTM Method

M: Method has been modified

\*: Other Reference



QUALITY CONTROL REPORT  
Continuing Calibration Verification  
(CCV)

JOB NUMBER: 96.02648

PARAMETER	ANALYST	DATE	METHOD	CCV	CCV	% REC.	FLAG
		ANALYZED		RESULT	TRUE CONCENTRATION		
Ethylbenzene	bdb	04/10/1996	S-8020M	21	20	105	NA
MTBE	bdb	04/10/1996	S-8020M	32	40	80	NA
Toluene	bdb	04/10/1996	S-8020M	21	20	105	NA
Xylenes, Total	bdb	04/10/1996	S-8020M	67	60	112	NA
EPA-8020 AQ (PRESERVED)			S-8020M				
Benzene	tcc	04/11/1996	S-8020M	19	20	95	NA
Ethylbenzene	tcc	04/11/1996	S-8020M	17	20	85	NA
MTBE	tcc	04/11/1996	S-8020M	33	40	83	NA
Toluene	tcc	04/11/1996	S-8020M	18	20	90	NA
Xylenes, Total	tcc	04/11/1996	S-8020M	55	60	92	NA
EPA-8020 AQ (PRESERVED)			S-8020M				
Benzene	tcc	04/12/1996	S-8020M	20	20	100	NA
Ethylbenzene	tcc	04/12/1996	S-8020M	20	20	100	NA
MTBE	tcc	04/12/1996	S-8020M	32	40	80	NA
Toluene	tcc	04/12/1996	S-8020M	20	20	100	NA
Xylenes, Total	tcc	04/12/1996	S-8020M	64	60	107	NA
EPA-8020 AQ (PRESERVED)			S-8020M				
Benzene	tcc	04/15/1996	S-8020M	21	20	105	NA
Ethylbenzene	tcc	04/15/1996	S-8020M	20	20	100	NA
MTBE	tcc	04/15/1996	S-8020M	32	40	80	NA
Toluene	tcc	04/15/1996	S-8020M	22	20	110	NA
Xylenes, Total	tcc	04/15/1996	S-8020M	64	60	107	NA

Method References and Codes

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.

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E-601 through 625: "Guidelines Establishing Test Procedures for the Analysis of Pollutants", U.S. EPA, 40CFR, Part 136, rev. 1990.

S-1000 through 9999: "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd Edition, 1986.

A: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, 1985.

SM: "Standard Methods for the Examination of Water and Wastewater", 18th Edition, APHA, 1992.

D: ASTM Method

M: Method has been modified

\*: Other Reference



QUALITY CONTROL REPORT  
Continuing Calibration Verification  
(CCV)

JOB NUMBER: 96.02648

PARAMETER	ANALYST	DATE ANALYZED	METHOD	CCV RESULT	CCV TRUE CONCENTRATION	% REC.	FLAG
BASE/NEUTRALS - 8270 AQUEOUS			S-8270A				
2-Methylnaphthalene	cac	04/17/1996	S-8270A	47.2	50.0	94	NA
Naphthalene	cac	04/17/1996	S-8270A	46.5	50.0	93	NA

Method References and Codes

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.

E-100 through 493: "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

E-601 through 625: "Guidelines Establishing Test Procedures for the Analysis of Pollutants", U.S. EPA, 40CFR, Part 136, rev. 1990.

S-1000 through 9999: "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd Edition, 1986.

A: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, 1985.

SM: "Standard Methods for the Examination of Water and Wastewater", 18th Edition, APHA, 1992.

D: ASTM Method

M: Method has been modified

\*: Other Reference



# QUALITY CONTROL REPORT BLANKS

JOB NUMBER: 96.02648

PARAMETER	DATE		UNITS	REPORTING	FLAG
	ANALYZED	BLANK		LIMIT	
pH	04/08/1996	N/A	units	N/A	NA
Conductivity	04/09/1996	<5.0	umhos	5.0	NA
EPA-8020 AQ (PRESERVED)					
Benzene	04/08/1996	<2	ug/L	2	NA
Ethylbenzene	04/08/1996	<2	ug/L	2	NA
MTBE	04/08/1996	<2	ug/L	2	NA
Toluene	04/08/1996	<2	ug/L	2	NA
Xylenes, Total	04/08/1996	<2	ug/L	2	NA
EPA-8020 AQ (PRESERVED)					
Benzene	04/09/1996	<2	ug/L	2	NA
Ethylbenzene	04/09/1996	<2	ug/L	2	NA
MTBE	04/09/1996	<2	ug/L	2	NA
Toluene	04/09/1996	<2	ug/L	2	NA
Xylenes, Total	04/09/1996	<2	ug/L	2	NA
EPA-8020 AQ (PRESERVED)					
Benzene	04/11/1996	<2	ug/L	2	NA
Ethylbenzene	04/11/1996	<2	ug/L	2	NA
MTBE	04/11/1996	<2	ug/L	2	NA
Toluene	04/11/1996	<2	ug/L	2	NA
Xylenes, Total	04/11/1996	<2	ug/L	2	NA
BASE/NEUTRALS - 8270 AQUEOUS					
2-Methylnaphthalene	04/17/1996	<10	ug/L	5	NA
Naphthalene	04/17/1996	<5	ug/L	5	NA

### Advisory Control Limits for Blanks

Metals/Wet Chemistry/Conventionals/GC - All compounds should be less than the Reporting Limit.

GC/MS Semi-Volatiles - All compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the Reporting Limit.

GC/MS Volatiles - Toluene, Methylene chloride, Acetone and Chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.



QUALITY CONTROL REPORT  
Laboratory Control Sample  
(LCS)

JOB NUMBER: 96.02648

PARAMETER	LCS RESULT	TRUE CONC.	LCS % REC.	FLAG
pH	N/A	0	0	
EPA-8020 AQ (PRESERVED)				
Benzene	18	20	90	
Ethylbenzene	17	20	85	
MTBE	NA		NA	
Toluene	16	20	80	
Xylenes, Total	52	60	87	
EPA-8020 AQ (PRESERVED)				
Benzene	15	20	75	
Ethylbenzene	14	20	70	
MTBE	32	40	80	
Toluene	14	20	70	
Xylenes, Total	45	60	75	
EPA-8020 AQ (PRESERVED)				
Benzene	20	20	100	
Ethylbenzene	18	20	90	
MTBE	34	40	85	
Toluene	18	20	90	
Xylenes, Total	64	60	107	
BASE/NEUTRALS - 8270 AQUEOUS				
Naphthalene	65.2	100	65	

Advisory Control Limits for LCS

Inorganic Parameters - The LCS recovery should be 80-120%.



QUALITY CONTROL REPORT  
Matrix Spike / Matrix Spike Duplicate  
(MS / MSD)

JOB NUMBER: 96.02648

PARAMETER	SAMPLE RESULT	MS RESULT	MSD RESULT	SPIKE AMOUNT	MS % REC.	MSD % REC.	MS/MSD RPD	FLAG
EPA-8020 AQ (PRESERVED)								
Benzene	<2	14	12	20	70	60	15	
Ethylbenzene	<2	15	13	20	75	65	14	
Toluene	<2	14	13	20	70	65	7.4	
Xylenes, Total	<2	46	39	60	77	65	17	
EPA-8020 AQ (PRESERVED)								
Benzene	<2	15	16	20	75	80	6.5	
Ethylbenzene	<2	14	14	20	70	70	0	
Toluene	<2	14	15	20	70	75	6.9	
Xylenes, Total	<2	45	45	60	75	75	0	
EPA-8020 AQ (PRESERVED)								
Benzene	2.5	17	19	20	73	83	13	
Ethylbenzene	11	26	29	20	75	90	18	
Toluene	<2	16	18	20	80	90	12	
Xylenes, Total	34	80	89	60	77	92	18	
EPA-8020 AQ (PRESERVED)								
Benzene	<2	15	27	20	75	135	57	
Ethylbenzene	<2	14	30	20	70	150	73	MI
Toluene	<2	14	28	20	70	140	67	MI
Xylenes, Total	<2	44	88	60	73	147	67	MI
EPA-8020 AQ (PRESERVED)								
Benzene	<2	15	16	20	75	80	6.5	
Ethylbenzene	<2	13	12	20	65	60	8	
Toluene	<2	13	14	20	65	70	7.4	
Xylenes, Total	<2	41	41	60	68	68	0	
MTBE	<2	31	33	40	78	83	6.3	

MI - MS/MSD outside limits - matrix interference suspected

Advisory Control Limits for MS/MSDs

Inorganic Parameters - The spike recovery should be 75-125% if the spike amount value is greater than or equal to one fourth of the sample result value. The RPD for the MS/MSD should be less than 20.

NOTE: Matrix Spike Samples may not be samples from this job.



QUALITY CONTROL REPORT  
DUPLICATES

JOB NUMBER: 96.02648

PARAMETER	SAMPLE RESULT	DUPLICATE RESULT	RPD	SPIKE			% REC.	FLAG
				SAMPLE RESULT	SPIKE RESULT	SPIKE AMOUNT		
pH	6.5	6.5	0.0	NA	NA	NA	NA	
pH	8.0	8.0	0.0	NA	NA	NA	NA	

Advisory Control Limits for Spikes

The spike recovery should be 75-125% if the spike amount is greater than or equal to one fourth of the sample result value.

NOTE: Spike Samples may not be samples from this job.

Advisory Control Limits for Duplicates

The RPD for the sample and duplicate should be less than 20.



NATIONAL ENVIRONMENTAL TESTING, INC.

**CHAIN OF CUSTODY RECORD**

COMPANY Palco Oil  
 ADDRESS 3900 Essex Ln Ste 1200  
 PHONE 713 439 8983 FAX 713 439 8383  
 PROJECT NAME/LOCATION Bot Habbs, NIM  
 PROJECT NUMBER \_\_\_\_\_  
 PROJECT MANAGER Tom Stenbeck

REPORT TO: Tom Stenbeck  
 INVOICE TO: Bot EMMHOT Hwy TX  
 P.O. NO. \_\_\_\_\_  
 NET QUOTE NO. \_\_\_\_\_

SAMPLED BY Jon Barrett SIGNATURE \_\_\_\_\_  
 (PRINT NAME)  
 SIGNATURE \_\_\_\_\_  
 (PRINT NAME)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OR CONTAINERS	MATRIX	PRESERVED Y/N	ANALYSES		COMMENTS
								WTEC	PH	
6/4/06	11:40am	MW-3	N	X	1	H <sub>2</sub> O	N	X	X	
10:30am		MW-2								
11:00am		MW-1								
11:20		NW-1								
12:00		R-1								
		Trip Blank	ML							* Sheen Present Hydrocarbon Odor Strong

CONDITION OF SAMPLE: BOTTLES INTACT? YES/NO \_\_\_\_\_  
 FIELD FILTERED? YES/NO \_\_\_\_\_  
 COC SEALS PRESENT AND INTACT? YES/NO \_\_\_\_\_  
 VOLATILES FREE OF HEADSPACE? YES/NO \_\_\_\_\_  
 TEMPERATURE UPON RECEIPT: \_\_\_\_\_

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA \_\_\_\_\_  
 I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS \_\_\_\_\_  
 DATE \_\_\_\_\_

RELINQUISHED BY: \_\_\_\_\_ RECEIVED BY: \_\_\_\_\_  
 DATE/TIME: \_\_\_\_\_ DATE/TIME: \_\_\_\_\_  
 4/15/06 11:00 Lisa Samalen

METHOD OF SHIPMENT: FED-EX REMARKS: FAX RESULTS TO TOM STENBECK EMMHOT Rd Houston, TX



MONITORING WELL SAMPLE LOG

Name of Site BOT Hobbs Date of Sample 4/4/96  
Name of Person Completing Log Jon Barrett  
Samples for the 2 Quarter of 1996 Page      of     

Monitoring Well Number NW 3 Date 4/3/96 Time 3:00 pm  
Outage to Static Water Level 32' - 38.5' = 6.5 x 6.6 gal = 4.29 gal x 3  
Elevation of Top of Casing 12.87 gal  
Water Temperature Before Bailing       
Water Volume in Well 12.87 gal  
Number of Bailer Volumes Removed to Purge Well 13  
Water Temperature After Bailing     

Quantity of Water Removed to Purge Well 13 gal  
\* Static Water Level After Recharge 32'

Quantity of Sample Collected 1L / 1 VOA  
Sample Number MWA 3 Sample Sealed By J. B  
Observed Water Recharge Rate Overnight  
Did Well Bail Dry During Purge or Sample No  
pH 7.6 Conductivity 1.6

Notes and Remarks: Water Clear

Signature J. Barrett

MONITORING WELL SAMPLE LOG

Name of Site BOT Hobbs Date of Sample 4/4/96  
Name of Person Completing Log Jon Barrett  
Samples for the 2 Quarter of 1996 Page      of     

Monitoring Well Number WW-1 Date 4/3/96 Time 5:40<sup>pm</sup>  
Outage to Static Water Level  $32 - 125 = 93 \times .66 = 61 \text{ gal}$   
Elevation of Top of casing 32  
Water Temperature Before Bailing       
Water Volume in Well 61 gal  
Number of Bailer Volumes Removed to Purge Well 184  
Water Temperature After Bailing       
Quantity of Water Remover to Purge Well       
Static Water Level After Recharge 32'  
Quantity of Sample Collected 1L/100A  
Sample Number WW-1 Sample Sealed By J.B.  
Observed Water Recharge Rate Overnight  
Did Well Bail Dry During Purge or Sample       
pH 6.4 Conductivity 64  
Notes and Remarks: Not Bailed.

Signature

J.B.

MONITORING WELL SAMPLE LOG

Name of Site POT Hobbs Date of Sample 4/4/96  
Name of Person Completing Log JON BARRETT  
Samples for the 2 Quarter of 1996 Page      of     

Monitoring Well Number R-1 Date 4/3/96 Time 5:25p  
Outage to Static Water Level 32.9 - 43' = 15.3K.17 = 2.6 gal x 3

Elevation of Top of Casing

Water Temperature Before Bailing     

Water Volume in Well 2.6 gal

Number of Bailer Volumes Removed to Purge Well 8 gal / 400z bailer  
↑ 25 barrels

Water Temperature After Bailing     

Quantity of Water Removed to Purge Well 8 gal

Static Water Level After Recharge 32.9

Quantity of Sample Collected 1L / 1 VOA

Sample Number R-1 Sample Sealed By TJB

Observed Water Recharge Rate Overnight

Did Well Bail Dry During Purge or Sample NO

pH 6.5 Conductivity 6.5

Notes and Remarks: Hydrocarbon Odor present  
Sheen w/ Black & Grey Water

Signature Jon Barrett

**MONITORING WELL SAMPLE LOG**

Name of Site BOT Hobbs Date of Sample 4/14/96  
Name of Person Completing Log Jon Barrett  
Samples for the 2 Quarter of 19 96 Page      of     

Monitoring Well Number MW1 Date 4/13/96 Time 4:40  
Outage to Static Water Level 32.7 - 45.7' x .66 = 8.58 gal x 3  
Elevation of Top of Casing 32.7  
Water Temperature Before Bailing       
Water Volume in Well 8.6 gal  
Number of Bailer Volumes Removed to Purge Well 26  
Water Temperature After Bailing       
Quantity of Water Removed to Purge Well 26 gal  
\* Static Water Level After Recharge 32.6  
Quantity of Sample Collected 1L / 1 VOA  
Sample Number MW1 Sample Sealed By J.B.  
Observed Water Recharge Rate Overnight  
Did Well Bail Dry During Purge or Sample No  
pH 7.6 Conductivity 166  
Notes and Remarks: Water Cloudy w/ sediment (brown)

Signature J. Barrett

MONITORING WELL SAMPLE LOG

Name of Site BOT Hobbs Date of Sample 4/4/96  
Name of Person Completing Log JON BARRETT  
Samples for the 2 Quarter of 19 96 Page      of     

Monitoring Well Number MW 2 Date 4/3/96 Time 4:00 pm  
Outage to Static Water Level 32.4' - 45' = 12.6' x .66 = 8.32 gal x 3  
Elevation of Top of Casing 32.4'  
Water Temperature Before Bailing       
Water Volume in Well 8.32 gal  
Number of Bailer Volumes Removed to Purge Well 25 bails  
Water Temperature After Bailing       
Quantity of Water Removed to Purge Well 25 gal  
\* Static Water Level After Recharge 32.3'  
Quantity of Sample Collected 1L/1000  
Sample Number MW#2 Sample Sealed By MW#2  
Observed Water Recharge Rate overnight  
Did Well Bail Dry During Purge or Sample NO  
pH lab Conductivity lab  
Notes and Remarks: Water Clear

Signature

J Barrett



CONSERVATION DIVISION  
RECEIVED

FEB 01 1996



1 February 1996

Mr. William Olson, Hydrogeologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

Dear Mr. Olson:

Baker Oil Tools is submitting the third required monitoring in response to the NMOCD request of June 20, 1995 to provide quarterly monitoring data for groundwater contamination in the direct vicinity of the former disposal pit on the property located at 2800 W. Marland in Hobbs, New Mexico. The NMOCD requested the following three items from BOT for each monitoring session:

1. A brief description of all monitoring activities which occurred during the quarter.

BOT contracted Rhino Environmental Services, Inc. to perform sampling on January 11, 1996. Each well was bailed of three volumes and allowed to equalize prior to sampling except for WW-1 which is a 125' deep water well. The wells were gauged for elevation and depth and sampled on the 11th. The Hobbs district office of the NMOCD was notified prior to sampling as required. Samples were packaged and submitted to the laboratory for analysis.

2. A summary of the laboratory analytical results of water quality sampling of the monitoring wells. The data will be presented in tabular form showing past and present sampling results.

Tables 1a through 1g present the sampling data.

Table 1a  
BENZENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3 January 17, 1996	Quarter 4
Trip Blank	<0.5	<2	<2	<0.5	
MW-1	<0.5	<2	<2	<0.5	
MW-2	<0.5	<2	<2	<0.5	
MW-3	<0.5	<2	<2	<0.5	
WW-1	260	51	<2	0.5	
R-1	<0.5	<2	<20	1.3	

Table 1b  
TOLUENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.5	<2	<2	<0.5	
MW-1	<0.5	<2	<2	<0.5	
MW-2	0.5	<2	<2	<0.5	
MW-3	<0.5	<2	<2	<0.5	
WW-1	1.9	<2	<2	<0.5	
R-1	3.0	<2	<20	1.9	

Table 1c  
ETHYL BENZENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.5	<2	<2	<0.5	
MW-1	<0.5	<2	<2	<0.5	
MW-2	<0.5	<2	<2	<0.5	
MW-3	<0.5	<2	<2	<0.5	
WW-1	180	<2	<2	1.0	
R-1	49	52	46	40.0	

Table 1d  
XYLENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.5	<2	<2	<0.5	
MW-1	1.2	<2	<2	<0.5	
MW-2	0.5	<2	<2	<0.5	
MW-3	0.8	<2	<2	<0.5	
WW-1	7.0	<2	<2	0.6	
R-1	94	64	72	67.0	

Table 1e  
MTBE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<2.5	<2	<2	<2.5	
MW-1	<2.5	<2	<2	<2.5	
MW-2	<2.5	<2	<2	<2.5	
MW-3	2.6	<2	<2	<2.5	
WW-1	4.1	<2	<2	<2.5	
R-1	<2.5	21	<20	<2.5	

Table 1f  
NAPHTHALENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.3	<5	not analyzed	<0.5	
MW-1	<0.3	<5	<10	<0.5	
MW-2	<0.3	<5	<10	<0.5	
MW-3	<0.3	not available*	<10	<0.5	
WW-1	46	12.9	<10	<0.5	
R-1	240	101	39.4	140.0	

\*sample broke during shipment

Table 1g  
2-METHYL NAPHTHALENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.3	<5	not analyzed	<1.0	
MW-1	<0.3	<5	<10	<1.0	
MW-2	<0.3	<5	<10	<1.0	
MW-3	1.0	not available*	<10	<1.0	
WW-1	14	<5	<10	<1.0	
R-1	360	115	56.2	170.0	

\*sample broke during shipment

3. A ground water elevation map using the water table elevation of the ground water in all monitoring wells.

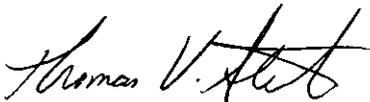
Figure 1 presents the water elevation data as requested. Table 2 lists the well number, the depth of the well, the depth to the top of the water, the elevation of the well casing and the actual depth to ground water.

Table 2  
Ground Water Elevation Data

Well ID	Well Depth	Elevation	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
			gauged depth	actual depth						
MW-1	46.0	100.19	33.2	66.99	32.5	67.69	32.32	67.87		
MW-2	45.7	99.56	32.5	67.06	32.0	67.56	31.97	67.59		
MW-3	39.3	99.15	32.7	66.45	32.0	67.15	31.55	67.60		
WW-1	125.0	99.52	32.3	67.22	31.8	67.72	31.65	67.87		
R-1	40.0	100.03	33.0	67.03	32.8	67.23	32.24	67.79		

The next scheduled monitoring will occur in April with the report submitted by May 1, 1996. If you have any questions or require additional information, please do not hesitate in contacting me at (713)466-2520.

Sincerely,  
For Baker Oil Tools



Thomas V. Stenbeck  
Manager of Health, Safety and Environment

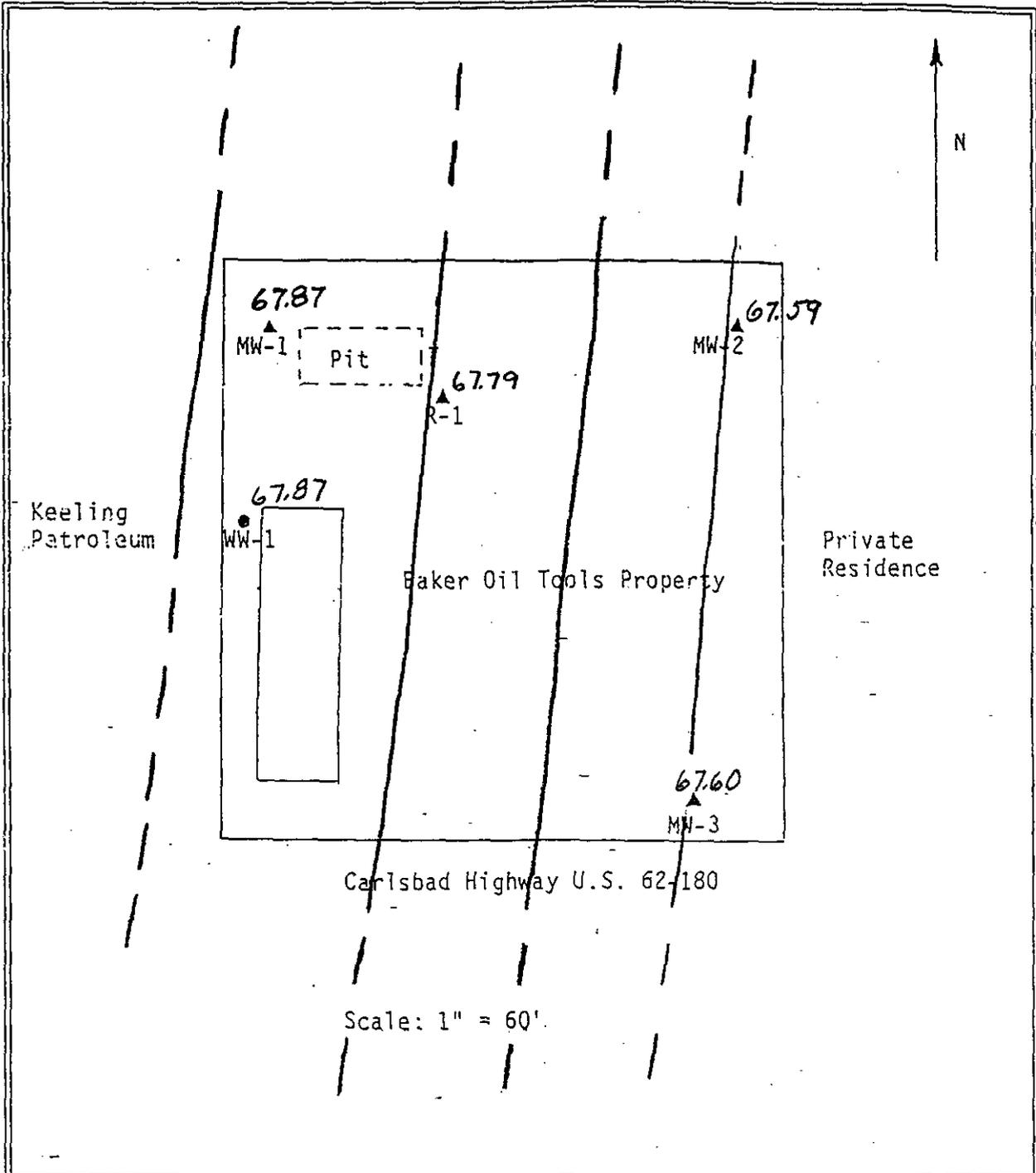


Figure No. 1

Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM.



Tightness Tests  
Removals  
New Installations  
Repairs  
Remedial Services  
Contaminated Soils Disposal  
Leak Detection

P.O. BOX 2327 • HOBBS, NM 88241 • PHONE & FAX (505) 393-4100

Tom Stenbeck  
Baker Oil Tools  
9100 Emmott Rd  
PO Box 40129  
Houston, TX 77040-3514

February 12, 1996

Re: Baker Oil Tools Facility  
2800 W. Marland  
Hobbs, NM

Dear Tom,

On January 11, 1996 Rhino gauged, purged and sampled five monitor wells at the above referenced site. The depths to water in the wells are summarized in Table No. 1. The wells were not surveyed.

TABLE NO. 1 SUMMARY OF WATER LEVELS	
WELL NO.	DEPTH TO WATER (FEET)
MW-1	32.32
MW-2	31.97
MW-3	31.55
WW-1	31.65
R-1	32.24

A copy of the analytical results are attached.

If you have any questions, please call me.

Sincerely,

Royce Cooper, Jr.

ATI I.D. 601347

January 26, 1996

Rhino Environmental  
P.O. Box 2327  
Hobbs, NM 88240

Project Name/Number: BAKER-OIL MARLAND

Attention: Royce Cooper

On 01/15/96, Analytical Technologies, of New Mexico Inc., (ADHS License No. A20015), received a request to analyze aqueous samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

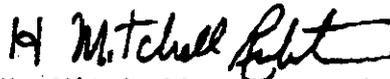
EPA method 8310 analyses were performed by Analytical Technologies, Inc., 225 Commerce Drive, Fort Collins, CO.

All other analyses were performed by Analytical Technologies, Inc., Albuquerque, NM.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.



Kimberly D. McNeill  
Project Manager



H. Mitchell Rubenstein, Ph.D.  
Laboratory Manager

MR:jt

Enclosure

CLIENT : RHINO ENVIRONMENTAL                      DATE RECEIVED : 01/15/96  
 PROJECT # : (NONE)  
 PROJECT NAME : BAKER-OIL MARLAND                      REPORT DATE : 01/26/96

ATI ID: 601347

	ATI ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	601347-01	MW-1	AQUEOUS	01/11/96
02	601347-02	MW-2	AQUEOUS	01/11/96
03	601347-03	MW-3	AQUEOUS	01/11/96
04	601347-04	R-1	AQUEOUS	01/11/96
05	601347-05	WW-1	AQUEOUS	01/11/96
06	601347-06	TRIP BLANK	AQUEOUS	01/09/96

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	6

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

## GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)  
 CLIENT : RHINO ENVIRONMENTAL ATI I.D.: 601347  
 PROJECT # : (NONE)  
 PROJECT NAME : BAKER-OIL MARLAND

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-1	AQUEOUS	01/11/96	NA	01/17/96	1
02	MW-2	AQUEOUS	01/11/96	NA	01/17/96	1
03	MW-3	AQUEOUS	01/11/96	NA	01/17/96	1
PARAMETER		UNITS		01	02	03
BENZENE		UG/L		<0.5	<0.5	<0.5
TOLUENE		UG/L		<0.5	<0.5	<0.5
ETHYLBENZENE		UG/L		<0.5	<0.5	<0.5
TOTAL XYLENES		UG/L		<0.5	<0.5	<0.5
METHYL-t-BUTYL ETHER		UG/L		<2.5	<2.5	<2.5

## SURROGATE:

BROMOFLUOROBENZENE (%) 90 91 91

## GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)  
 CLIENT : RHINO ENVIRONMENTAL ATI I.D.: 601347  
 PROJECT # : (NONE)  
 PROJECT NAME : BAKER-OIL MARLAND

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	R-1	AQUEOUS	01/11/96	NA	01/17/96	1
05	WW-1	AQUEOUS	01/11/96	NA	01/17/96	1
06	TRIP BLANK	AQUEOUS	01/09/96	NA	01/17/96	1
PARAMETER		UNITS		04	05	06
BENZENE		UG/L		1.3	0.5	<0.5
TOLUENE		UG/L		1.9	<0.5	<0.5
ETHYLBENZENE		UG/L		40	1.0	<0.5
TOTAL XYLENES		UG/L		67	0.6	<0.5
METHYL-t-BUTYL ETHER		UG/L		<2.5	<2.5	<2.5

## SURROGATE:

BROMOFLUOROBENZENE (\*) 131\* 92 90

\*OUTSIDE ATI QUALITY CONTROL LIMITS DUE TO MATRIX INTERFERENCE

## GAS CHROMATOGRAPHY RESULTS

## REAGENT BLANK

TEST	: BTEX, MTBE (EPA 8020)	ATI I.D.	: 601347
BLANK I.D.	: 011796	MATRIX	: AQUEOUS
CLIENT	: RHINO ENVIRONMENTAL	DATE EXTRACTED	: NA
PROJECT #	: (NONE)	DATE ANALYZED	: 01/17/96
PROJECT NAME	: BAKER-OIL MARLAND	DILUTION FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5

## SURROGATE:

BROMOFLUOROBENZENE (%)	91
------------------------	----

## GAS CHROMATOGRAPHY - QUALITY CONTROL

## MSMSD

TEST : BTEX, MTBE (EPA 8020)  
 MSMSD # : 011796 ATI I.D. : 601347  
 CLIENT : RHINO ENVIRONMENTAL DATE EXTRACTED : NA  
 PROJECT # : (NONE) DATE ANALYZED : 01/17/96  
 PROJECT NAME : BAKER-OIL MARLAND SAMPLE MATRIX : AQUEOUS  
 REF. I.D. : 011796 UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10.0	8.9	89	9.1	91	2
TOLUENE	<0.5	10.0	9.1	91	9.3	93	2
ETHYLBENZENE	<0.5	10.0	9.1	91	9.3	93	2
TOTAL XYLENES	<0.5	30.0	27.4	91	28.0	93	2
METHYL-t-BUTYL ETHER	<2.5	20.0	17.1	86	18.0	90	5

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

## POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI-NM

Client Project ID: Baker Oil-Marland: RES

Lab Sample ID: 96-01-081-01

Sample Matrix: Water

Cleanup: N/A

Sample ID

MW-1

Date Collected: 1-11-96

Date Extracted: 1-16-96

Date Analyzed: 1-19-96

Sample Volume: 1000 mL

Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Flouranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

### SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	85	15 - 117

ND = Not Detected at or above client requested detection limit.

**POLYNUCLEAR AROMATIC HYDROCARBONS**  
Method 8310

Lab Name: Analytical Technologies of Colorado, Inc.  
Client Name: ATI-NM  
Client Project ID: Baker Oil-Marland: RES  
Lab Sample ID: 96-01-081-02

Sample Matrix: Water  
Cleanup: N/A

Sample ID

<b>MW-2</b>
-------------

Date Collected: 1-11-96  
Date Extracted: 1-16-96  
Date Analyzed: 1-19-96

Sample Volume: 1000 mL  
Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	0.020 J	0.050
Anthracene	ND	0.10
Fluoranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

**SURROGATE RECOVERY**

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	89	15 - 117

ND = Not Detected at or above client requested detection limit.  
J = Estimated value.

## POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Analytical Technologies of Colorado, Inc.  
 Client Name: ATI-NM  
 Client Project ID: Baker Oil-Marland: RES  
 Lab Sample ID: 96-01-081-03

Sample ID

MW-3

Sample Matrix: Water  
 Cleanup: N/A

Date Collected: 1/11/96  
 Date Extracted: 1/16/96  
 Date Analyzed: 1/19/96

Sample Volume: 1000 mL  
 Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	0.74 J	1.0
Acenaphthene	ND	1.0
Fluorene	0.11	0.10
Phenanthrene	0.40	0.050
Anthracene	ND	0.10
Flouranthrene	0.073 J	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

### SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	84	15 - 117

ND = Not Detected at or above client requested detection limit.

J = Estimated value.

## POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Analytical Technologies of Colorado, Inc.  
 Client Name: ATI-NM  
 Client Project ID: Baker Oil-Marland: RES  
 Lab Sample ID: 96-01-081-04

Sample ID

R-1

Date Collected: 1-11-96  
 Date Extracted: 1-16-96  
 Date Analyzed: 1-22-96

Sample Matrix: Water  
 Cleanup: N/A

Sample Volume: 1000 mL  
 Final Volume: 100 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	140	50
Acenaphthylene	ND	100
1-Methylnaphthalene	170	100
2-Methylnaphthalene	180	100
Acenaphthene	ND	100
Fluorene	5.8 J	10
Phenanthrene	ND	5.0
Anthracene	ND	10
Flouranthrene	ND	10
Pyrene	ND	5.0
Benzo(a)anthracene	ND	5.0
Chrysene	ND	5.0
Benzo(b)fluoranthrene	ND	10
Benzo(k)fluoranthrene	ND	5.0
Benzo(a)pyrene	ND	5.0
Dibenzo(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10
Indeno(1,2,3-c,d)pyrene	ND	10

### SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	I	15 - 117

ND = Not Detected at or above client requested detection limit.

J = Estimated value.

I = Surrogate recovery not reported due to high level of sample dilution.

## POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI-NM

Client Project ID: Baker Oil-Marland: RES

Lab Sample ID: 96-01-081-05

Sample Matrix: Water

Cleanup: N/A

Sample ID

WW-1

Date Collected: 1-11-96

Date Extracted: 1-16-96

Date Analyzed: 1-19-96

Sample Volume: 1000 mL

Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	0.027 J	0.050
Anthracene	ND	0.10
Flouranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

### SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	85	15 - 117

ND = Not Detected at or above client requested detection limit.

J = Estimated value.

**POLYNUCLEAR AROMATIC HYDROCARBONS**  
Method 8310

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI-NM

Client Project ID: Baker Oil-Marland: RES

Lab Sample ID: WRB1 01/16/96

Sample Matrix: Water

Cleanup: N/A

Sample ID

<b>Reagent Blank</b>
----------------------

Date Collected: N/A

Date Extracted: 1-16-96

Date Analyzed: 1-19-96

Sample Volume: 1000 mL

Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Flouranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

**SURROGATE RECOVERY**

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	92	15 - 117

ND = Not Detected at or above client requested detection limit.

**POLYNUCLEAR AROMATIC HYDROCARBONS BLANK SPIKE**  
Method 8310

Lab Name: Analytical Technologies of Colorado, Inc.

Lab Sample ID: WBS1,2 01/16/96

Client Name: ATI-NM

Date Extracted: 1/16/96

Client Project ID: Baker Oil-Mariland: RES

Date Analyzed: 1/19/96

Sample Matrix: Water

Cleanup: N/A

Sample Volume: 1,000 mL

Final Volume: 1 mL

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
Acenaphthylene	10.0	6.52	65	23 - 122
Phenanthrene	1.00	0.768	77	34 - 112
Pyrene	1.00	0.672	67	35 - 116
Dibenzo(a,b)anthracene	1.00	0.779	78	33 - 123
Benzo(k)fluoranthene	0.250	0.240	96	39 - 119

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD Percent Recovery	RPD	QC Limits RPD
Acenaphthylene	10.0	6.74	67	3	20
Phenanthrene	1.00	0.776	78	1	20
Pyrene	1.00	0.690	69	3	20
Dibenzo(a,b)anthracene	1.00	0.782	78	0.4	20
Benzo(k)fluoranthene	0.250	0.244	97	1	20

**SURROGATE RECOVERY BS/BSD**

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
2-Chloroanthracene	92	93	15 - 117







OIL CONSERVATION DIVISION  
RECEIVED

FILE NO 9 111 8 52

1 November, 1995

Mr. William Olson, Hydrogeologist  
State of New Mexico  
Energy, Mineral and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

Dear Mr. Olson:

Baker Oil Tools is submitting the second required monitoring in response to the NMOCD request of June 20, 1995 to provide quarterly monitoring data for groundwater contamination in the direct vicinity of the former disposal pit on the property located at 2800 W. Marland in Hobbs, New Mexico. The NMOCD requested the following three items from BOT for each monitoring session:

1. A brief description of all monitoring activities which occurred during the quarter.

BOT performed sampling on October 19 and 20, 1995. Each well was bailed of three volumes and allowed to equalize prior to sampling except for WW-1 which is a 125' deep water well. The wells were gauged for elevation and depth then bailed on the 19th and subsequently sampled on the 20th. The Hobbs district office of the NMOCD was notified prior to sampling as required. Samples were packaged and submitted to the laboratory for analysis.

2. A summary of the laboratory analytical results of water quality sampling of the monitoring wells. The data will be presented in tabular form showing past and present sampling results.

Tables 1a through 1g present the sampling data.

Table 1a  
BENZENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.5	<2	<2		
MW-1	<0.5	<2	<2		
MW-2	<0.5	<2	<2		
MW-3	<0.5	<2	<2		
WW-1	260	51	<2		
R-1	<0.5	<2	<20		

Table 1b  
TOLUENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.5	<2	<2		
MW-1	<0.5	<2	<2		
MW-2	0.5	<2	<2		
MW-3	<0.5	<2	<2		
WW-1	1.9	<2	<2		
R-1	3.0	<2	<20		

Table 1c  
ETHYL BENZENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.5	<2	<2		
MW-1	<0.5	<2	<2		
MW-2	<0.5	<2	<2		
MW-3	<0.5	<2	<2		
WW-1	180	<2	<2		
R-1	49	52	46		

Table 1d  
XYLENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.5	<2	<2		
MW-1	1.2	<2	<2		
MW-2	0.5	<2	<2		
MW-3	0.8	<2	<2		
WW-1	7.0	<2	<2		
R-1	94	64	72		

Table 1e  
MTBE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<2.5	<2	<2		
MW-1	<2.5	<2	<2		
MW-2	<2.5	<2	<2		
MW-3	2.6	<2	<2		
WW-1	4.1	<2	<2		
R-1	<2.5	21	<20		

Table 1f  
NAPHTHALENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.3	<5	not analyzed		
MW-1	<0.3	<5	<10		
MW-2	<0.3	<5	<10		
MW-3	<0.3	not available*	<10		
WW-1	46	12.9	<10		
R-1	240	101	39.4		

\*sample broke during shipment

Table 1g  
2-METHYL NAPHTHALENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2 October 20, 1995	Quarter 3	Quarter 4
Trip Blank	<0.3	<5	not analyzed		
MW-1	<0.3	<5	<10		
MW-2	<0.3	<5	<10		
MW-3	1.0	not available*	<10		
WW-1	14	<5	<10		
R-1	360	115	56.2		

\*sample broke during shipment

3. A ground water elevation map using the water table elevation of the ground water in all monitoring wells.

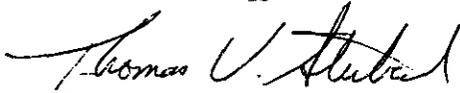
Figure 1 presents the water elevation data as requested. Table 2 lists the well number, the depth of the well, the depth to the top of the water, the elevation of the well casing and the actual depth to ground water.

Table 2  
Ground Water Elevation Data

Well ID	Well Depth	Elevation	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
			gauged depth	actual depth						
MW-1	46.0	100.19	33.2	66.99	32.5	67.69				
MW-2	45.7	99.56	32.5	67.06	32.0	67.56				
MW-3	39.3	99.15	32.7	66.45	32.0	67.15				
WW-1	125.0	99.52	32.3	67.22	31.8	67.72				
R-1	40.0	100.03	33.0	67.03	32.8	67.23				

The next scheduled monitoring will occur in January with the report submitted by February 1, 1996. If you have any questions or require additional information, please do not hesitate in contacting me at (713)466-2520.

Sincerely,  
For Baker Oil Tools



Thomas V. Stenbeck  
Manager of Health, Safety and Environment

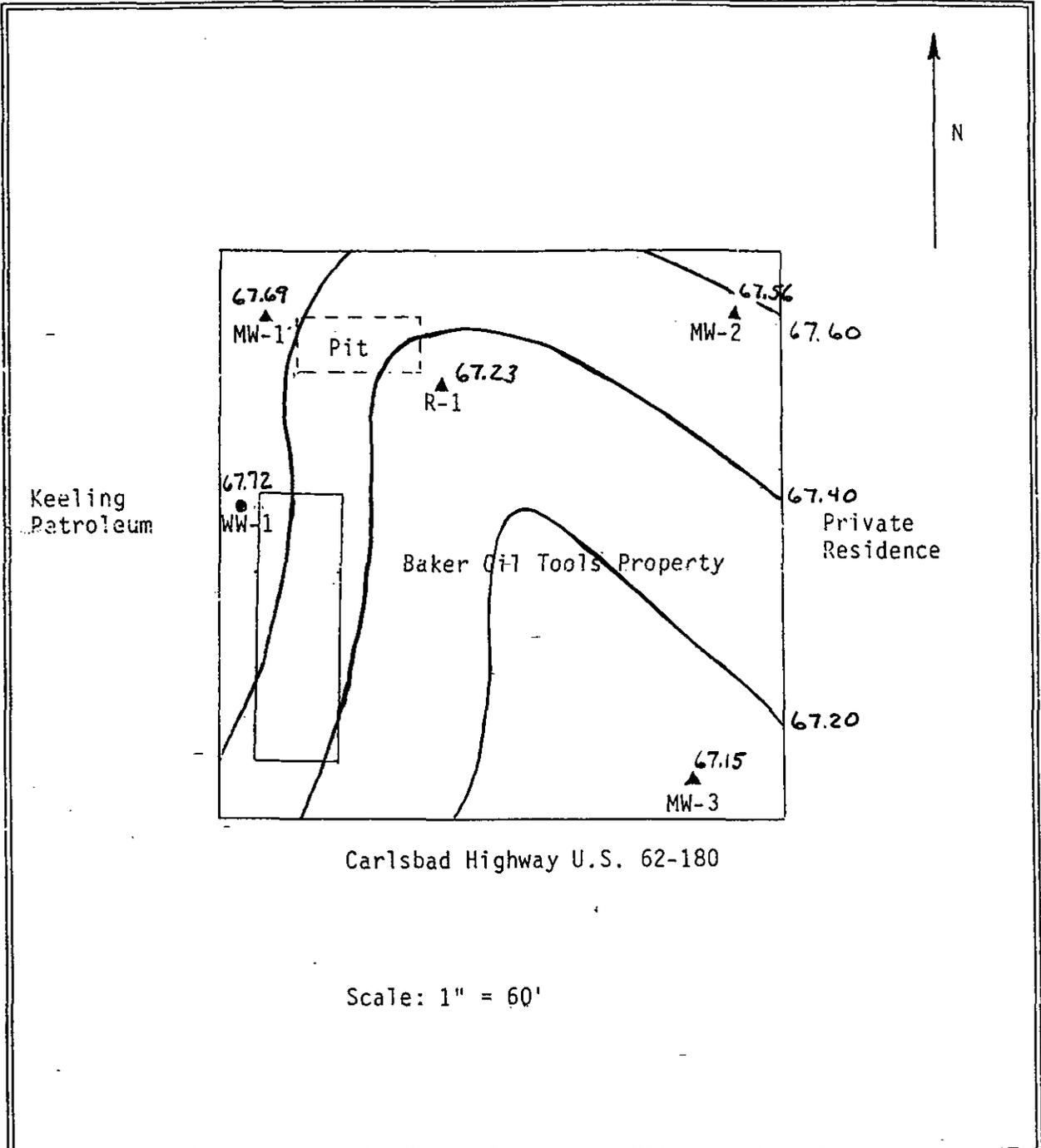


Figure  
No. 1

Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM

MONITORING WELL SAMPLE LOG

Name of Site BOT - Hobbs N/A Date of Sample 10/20/95

Name of Person Completing Log J. Barrett

Samples for the \_\_\_\_\_ Quarter of 19 95 Page \_\_\_\_\_ of \_\_\_\_\_

46  
45.7  
Depth

Monitoring Well Number #1 Date 10/19/95 Time 4:30 p

Outage to Static Water Level 45.7 Depth

Elevation of Top of Casing 32.5' - 45.7 = 13.2' x .66 = 8.7 gal x 2

Water Temperature Before Bailing \_\_\_\_\_

Water Volume in Well 8.7 gal

Number of Bailer Volumes Removed to Purge Well 26

Water Temperature After Bailing \_\_\_\_\_

Quantity of Water Removed to Purge Well 26 gal

Static Water Level After Recharge 22.5

Quantity of Sample Collected 1L / 100A

Sample Number MW-1 Sample Sealed By J.B

Observed Water Recharge Rate overnight

Did Well Bail Dry During Purge or Sample NO

pH \_\_\_\_\_ Conductivity \_\_\_\_\_

Notes and Remarks: ph found - tab

Signature \_\_\_\_\_

MONITORING WELL SAMPLE LOG

Name of Site BOT - Hobbs NM Date of Sample 10/20/95

Name of Person Completing Log T. Barlett

Samples for the \_\_\_\_\_ Quarter of 1995 Page \_\_\_\_\_ of \_\_\_\_\_

Monitoring Well Number #2 Date 10/19/95 Time 3:30

Outage to Static Water Level 32' - 45' = 13' x .66 = 8.58 x 3

Elevation of Top of Casing 32'

Water Temperature Before Bailing \_\_\_\_\_

Water Volume in Well 8.58 gal

Number of Bailer Volumes Removed to Purge Well 26

Water Temperature After Bailing \_\_\_\_\_

Quantity of Water Removed to Purge Well 26 gals

Static Water Level After Recharge 12/110A

Quantity of Sample Collected 32

Sample Number MW#2 Sample Sealed By J.B

Observed Water Recharge Rate overnight

Did Well Bail Dry During Purge or Sample No

pH \_\_\_\_\_ Conductivity \_\_\_\_\_

Notes and Remarks: ph/cond - lab

Signature \_\_\_\_\_

~~40~~  
45  
Depth

MONITORING WELL SAMPLE LOG

Name of site BOT Hobbs Date of Sample 10/2/95

Name of Person Completing Log Tou Barrett

Samples for the \_\_\_\_\_ Quarter of 1995 Page \_\_\_\_\_ of \_\_\_\_\_

~~38.5~~  
38.5  
Depth

Monitoring Well Number #3 Date 10/19/95 Time 2:44 p

Outage to Static Water Level 32' - 38.5' = 6.5 x .66 = 4.29 gal x 3

Elevation of Top of Casing 12.87g

Water Temperature Before Bailing \_\_\_\_\_

Water Volume in Well 12.87 gal.

Number of Bailer Volumes Removed to Purge Well 13

Water Temperature After Bailing \_\_\_\_\_

Quantity of Water Removed to Purge Well 13 gal (3 vols)

Static Water Level After Recharge 31.8'

Quantity of Sample Collected 1L / 1 vol

Sample Number MW # 3 Sample Sealed By J.B

Observed Water Recharge Rate 1 vol / 1 hr

Did Well Bail Dry During Purge or Sample NO

pH \_\_\_\_\_ Conductivity \_\_\_\_\_

Notes and Remarks: ph / cond. not taken - 102

Signature [Signature]

MONITORING WELL SAMPLE LOG

Name of site BOT Hobbs NM Date of Sample 1/20/95  
Name of Person Completing Log J. Barrett  
Samples for the \_\_\_\_\_ Quarter of 19\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

<sup>42'</sup> <sup>125'</sup> <sub>Depth</sub> Monitoring Well Number WN-1 Date 10/17/95 Time 5:30p  
Outage to Static Water Level 31.8' - <sup>125'</sup> ~~93.2'~~ = 93.2' x .66 61.5 gal  
Elevation of Top of Casing 31.8'  
Water Temperature Before Bailing \_\_\_\_\_  
Water Volume in Well 61.5 gal  
Number of Bailer Volumes Removed to Purge Well 184  
Water Temperature After Bailing \_\_\_\_\_  
Quantity of Water Removed to Purge Well 25 bails 10 bails  
Static Water Level After Recharge 32'  
Quantity of Sample Collected 1L / 100#  
Sample Number WN-1 Sample Sealed By J. Barrett  
Observed Water Recharge Rate overnight  
Did Well Bail Dry During Purge or Sample No  
pH \_\_\_\_\_ Conductivity \_\_\_\_\_  
Notes and Remarks: pb / road - 10h

Signature \_\_\_\_\_

**MONITORING WELL SAMPLE LOG**

Name of Site BOT - Hobbs NM Date of Sample 10/20/95  
Name of Person Completing Log J. Barrett  
Samples for the \_\_\_\_\_ Quarter of 19\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

48'  
Depth

Monitoring Well Number R-1 Date 10/20/95 Time 11:00 am

Outage to Static Water Level 32.8 - 48' = 15.2 x .17 = 2.58 gal

Elevation of Top of Casing 32.8 -

Water Temperature Before Bailing \_\_\_\_\_

Water Volume in Well 2.58 gal x 3 vols = 7.75 gal x 128 oz = 992 oz = 4000

Number of Bailer Volumes Removed to Purge Well 25 bails

Water Temperature After Bailing \_\_\_\_\_

Quantity of Water Removed to Purge Well 7.75 gal

Static Water Level After Recharge 32.8 -

Quantity of Sample Collected 1L / 1V

Sample Number R-1 Sample Sealed By J. Barrett

Observed Water Recharge Rate rapid

Did Well Bail Dry During Purge or Sample \_\_\_\_\_

pH \_\_\_\_\_ Conductivity \_\_\_\_\_

Notes and Remarks: ph / cond = lab

1st bail clear; subsequent cloudy gray

Signature \_\_\_\_\_



NATIONAL  
ENVIRONMENTAL  
TESTING, INC.

Dallas Division  
1548 Valwood Parkway  
Suite 118  
Carrollton, TX 75006  
Tel: (214) 406-8100  
Fax: (214) 484-2969

## ANALYTICAL AND QUALITY CONTROL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

10/27/1995

NET Job Number: 95.07544

Enclosed is the Analytical and Quality Control report for the following samples submitted to the Dallas Division of NET, Inc. for analysis. Reproduction of this analytical report is permitted only in its entirety.

<u>Sample Number</u>	<u>Sample Description</u>	<u>Date Taken</u>	<u>Date Received</u>
280642	MW-3	10/20/1995	10/21/1995
280643	MW-2	10/20/1995	10/21/1995
280644	MW-1	10/20/1995	10/21/1995
280645	WW-1	10/20/1995	10/21/1995
280646	R-1	10/20/1995	10/21/1995
280647	TRIP BLANK		10/21/1995

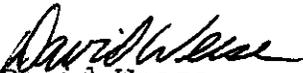
National Environmental Testing, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

**Holding Times:** All holding times were within method criteria.

**Method Blanks:** All method blanks were within quality control criteria.

**Instrument calibration:** All calibrations were within method quality control criteria.

**Analysis Comments:** No Unusual Comments

  
David Weese  
Project Coordinator





# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

10/27/1995  
Job No.: 95.07544

Page: 2

Project Name: BOT, HOBBS, N.M.

Date Received: 10/21/1995

280642 MW-3  
Taken: 10/20/1995 09:00

pH	6.5		units
Conductivity	2,210		umhos/cm
EPA 8020-AQ (Preserved)			
Benzene	<2		ug/L
Ethylbenzene	<2		ug/L
Toluene	<2		ug/L
Xylenes, Total	<2		ug/L
MTBE	<2		ug/L
SURR: a,a,a-TFT	109		% Rec
BASE/NEUTRALS - 8270 AQUEOUS			
2-Methylnaphthalene	<10	RLI	ug/L
Naphthalene	<10	RLI	ug/L
SURR: 2-Fluorobiphenyl	66		% Rec
SURR: Nitrobenzene-d5	78		% Rec
SURR: Terphenyl-d14	68		% Rec

280643 MW-2  
Taken: 10/20/1995 09:30

pH	6.7		units
Conductivity	3,800		umhos/cm
EPA 8020-AQ (Preserved)			
Benzene	<2		ug/L
Ethylbenzene	<2		ug/L
Toluene	<2		ug/L
Xylenes, Total	<2		ug/L
MTBE	<2		ug/L
SURR: a,a,a-TFT	127		% Rec
BASE/NEUTRALS - 8270 AQUEOUS			
2-Methylnaphthalene	<10	RLI	ug/L
Naphthalene	<10	RLI	ug/L
SURR: 2-Fluorobiphenyl	57		% Rec
SURR: Nitrobenzene-d5	59		% Rec
SURR: Terphenyl-d14	63		% Rec

RLI - Reporting Limit Increased, sample volume < method specification



# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

10/27/1995  
Job No.: 95.07544

Page: 3

Project Name: BOT, HOBBS, N.M.

Date Received: 10/21/1995

280644 MW-1  
Taken: 10/20/1995 09:45

pH	6.8		units
Conductivity	1,650		umhos/cm
EPA 8020-AQ (Preserved)			
Benzene	<2		ug/L
Ethylbenzene	<2		ug/L
Toluene	<2		ug/L
Xylenes, Total	<2		ug/L
MTBE	<2		ug/L
SURR: a,a,a-TFT	110		% Rec
BASE/NEUTRALS - 8270 AQUEOUS			
2-Methylnaphthalene	<10	RLI	ug/L
Naphthalene	<10	RLI	ug/L
SURR: 2-Fluorobiphenyl	60		% Rec
SURR: Nitrobenzene-d5	72		% Rec
SURR: Terphenyl-d14	66		% Rec

280645 WW-1  
Taken: 10/20/1995 10:00

pH	8.3		units
Conductivity	289		umhos/cm
EPA 8020-AQ (Preserved)			
Benzene	<2		ug/L
Ethylbenzene	<2		ug/L
Toluene	<2		ug/L
Xylenes, Total	<2		ug/L
MTBE	<2		ug/L
SURR: a,a,a-TFT	129		% Rec
BASE/NEUTRALS - 8270 AQUEOUS			
2-Methylnaphthalene	<10	RLI	ug/L
Naphthalene	<10	RLI	ug/L
SURR: 2-Fluorobiphenyl	54		% Rec
SURR: Nitrobenzene-d5	67		% Rec
SURR: Terphenyl-d14	64		% Rec

RLI - Reporting Limit Increased, sample volume < method specification



# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

10/27/1995  
Job No.: 95.07544

Page: 4

Project Name: BOT, HOBBS, N.M.

Date Received: 10/21/1995

280646 R-1  
Taken: 10/20/1995 10:30

pH	6.6		units
Conductivity	2,350		umhos/cm
EPA 8020-AQ (Preserved)			
Benzene	<20	EDL	ug/L
Ethylbenzene	46		ug/L
Toluene	<20	EDL	ug/L
Xylenes, Total	72		ug/L
MTBE	<20	EDL	ug/L
SURR: a,a,a-TFT	114		% Rec
BASE/NEUTRALS - 8270 AQUEOUS			
2-Methylnaphthalene	56.2		ug/L
Naphthalene	39.4		ug/L
SURR: 2-Fluorobiphenyl	19	SU	% Rec
SURR: Nitrobenzene-d5	21	SU	% Rec
SURR: Terphenyl-d14	19	SU	% Rec

280647 TRIP BLANK  
Taken:

EPA 8020-AQ (Preserved)			
Benzene	<2		ug/L
Ethylbenzene	<2		ug/L
Toluene	<2		ug/L
Xylenes, Total	<2		ug/L
MTBE	<2		ug/L
SURR: a,a,a-TFT	125		% Rec

EDL - Elevated Detection Limit due to matrix interference.  
SU - Surrogate outside limits due to matrix interference.



QUALITY CONTROL REPORT  
Continuing Calibration Verification  
(CCV)

JOB NUMBER: 95.07544

PARAMETER	ANALYST	DATE ANALYZED	METHOD	CCV RESULT	CCV TRUE CONCENTRATION	% REC.	FLAG
pH	rsd	10/23/1995	SM-4500H.	7.77	8.0	97	NA
Conductivity	des	10/23/1995	E-120.1	1430	1410	101	NA
EPA 8020-AQ (Preserved)			S-8020M				
Benzene	tcc	10/24/1995	S-8020M	21	20	105	NA
Ethylbenzene	tcc	10/24/1995	S-8020M	23	20	115	NA
MTBE	tcc	10/24/1995	S-8020M	36	40	90	NA
Toluene	tcc	10/24/1995	S-8020M	22	20	110	NA
Xylenes, Total	tcc	10/24/1995	S-8020M	67	60	112	NA
EPA 8020-AQ (Preserved)			S-8020M				
Benzene	tcc	10/25/1995	S-8020M	21	20	105	NA
Ethylbenzene	tcc	10/25/1995	S-8020M	22	20	110	NA
MTBE	tcc	10/25/1995	S-8020M	41	40	103	NA
Toluene	tcc	10/25/1995	S-8020M	23	20	115	NA
Xylenes, Total	tcc	10/25/1995	S-8020M	69	60	115	NA
EPA 8020-AQ (Preserved)			S-8020M				
Benzene	bwb	10/26/1995	S-8020M	23	20	115	NA
Ethylbenzene	bwb	10/26/1995	S-8020M	23	20	115	NA
MTBE	bwb	10/26/1995	S-8020M	41	40	103	NA
Toluene	bwb	10/26/1995	S-8020M	23	20	115	NA
Xylenes, Total	bwb	10/26/1995	S-8020M	69	60	115	NA
BASE/NEUTRALS - 8270 AQUEOUS			S-8270				
2-Methylnaphthalene	slw	10/17/1995	S-8270	47.6	50.0	95	NA

Method References and Codes

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.

E-100 through 493: "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

E-601 through 625: "Guidelines Establishing Test Procedures for the Analysis of Pollutants", U.S. EPA, 40CFR, Part 136, rev. 1990.

S-1000 through 9999: "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd Edition, 1986.

A: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, 1985.

SM: "Standard Methods for the Examination of Water and Wastewater", 18th Edition, APHA, 1992.

D: ASTM Method

M: Method has been modified

\*: Other Reference



QUALITY CONTROL REPORT  
Continuing Calibration Verification  
(CCV)

JOB NUMBER: 95.07544

PARAMETER	ANALYST	DATE ANALYZED	METHOD	CCV RESULT	CCV TRUE CONCENTRATION	% REC.	FLAG
Naphthalene	slw	10/17/1995	S-8270	55.2	50.0	110	NA
BASE/NEUTRALS - 8270 AQUEOUS			S-8270				
2-Methylnaphthalene	slw	10/11/1995	S-8270	48.1	50.0	96	NA
Naphthalene	slw	10/11/1995	S-8270	54.1	50.0	108	NA
BASE/NEUTRALS - 8270 AQUEOUS			S-8270				
2-Methylnaphthalene	slw	10/20/1995	S-8270	51.8	50.0	104	NA
Naphthalene	slw	10/20/1995	S-8270	50.0	50.0	100	NA
BASE/NEUTRALS - 8270 AQUEOUS			S-8270				
2-Methylnaphthalene	slw	10/25/1995	S-8270	53.0	50.0	106	NA
Naphthalene	slw	10/25/1995	S-8270	54.7	50.0	109	NA
BASE/NEUTRALS - 8270 AQUEOUS			S-8270				
2-Methylnaphthalene	slw	10/25/1995	S-8270	52.2	50.0	104	NA
Naphthalene	slw	10/25/1995	S-8270	56.4	50.0	113	NA

Method References and Codes

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.

E-100 through 493: "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

E-601 through 625: "Guidelines Establishing Test Procedures for the Analysis of Pollutants", U.S. EPA, 40CFR, Part 136, rev. 1990.

S-1000 through 9999: "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd Edition, 1986.

A: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, 1985.

SM: "Standard Methods for the Examination of Water and Wastewater", 18th Edition, APHA, 1992.

D: ASTM Method

M: Method has been modified

\*: Other Reference



QUALITY CONTROL REPORT  
BLANKS

JOB NUMBER: 95.07544

PARAMETER	DATE		UNITS	REPORTING	
	ANALYZED	BLANK		LIMIT	FLAG
pH	10/23/1995	N/A	units	N/A	NA
Conductivity	10/23/1995	<5.0	umhos	5.0	NA
EPA 8020-AQ (Preserved)					
Benzene	10/24/1995	<2	ug/L	2	NA
Ethylbenzene	10/24/1995	<2	ug/L	2	NA
MTBE	10/24/1995	<4	ug/L	4	NA
Toluene	10/24/1995	<2	ug/L	2	NA
Xylenes, Total	10/24/1995	<2	ug/L	2	NA
EPA 8020-AQ (Preserved)					
Benzene	10/25/1995	<2	ug/L	2	NA
Ethylbenzene	10/25/1995	<2	ug/L	2	NA
MTBE	10/25/1995	<4	ug/L	4	NA
Toluene	10/25/1995	<2	ug/L	2	NA
Xylenes, Total	10/25/1995	<2	ug/L	2	NA
EPA 8020-AQ (Preserved)					
Benzene	10/26/1995	<2	ug/L	2	NA
Ethylbenzene	10/26/1995	<2	ug/L	2	NA
MTBE	10/26/1995	<4	ug/L	4	NA
Toluene	10/26/1995	<2	ug/L	2	NA
Xylenes, Total	10/26/1995	<2	ug/L	2	NA
BASE/NEUTRALS - 8270 AQUEOUS					
2-Methylnaphthalene	10/17/1995	<5	ug/L	5	NA
Naphthalene	10/17/1995	<5	ug/L	5	NA
BASE/NEUTRALS - 8270 AQUEOUS					
2-Methylnaphthalene	10/25/1995	<5	ug/L	5	NA
Naphthalene	10/25/1995	<5	ug/L	5	NA

Advisory Control Limits for Blanks

Metals/Wet Chemistry/Conventionals/GC - All compounds should be less than the Reporting Limit.

GC/MS Semi-Volatiles - All compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the Reporting Limit.

GC/MS Volatiles - Toluene, Methylene chloride, Acetone and Chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.



QUALITY CONTROL REPORT  
Laboratory Control Sample  
(LCS)

JOB NUMBER: 95.07544

<u>PARAMETER</u>	<u>LCS</u> <u>RESULT</u>	<u>TRUE</u> <u>CONC.</u>	<u>LCS</u> <u>% REC.</u>	<u>FLAG</u>
pH	N/A	9.18	NA	
EPA 8020-AQ (Preserved)				
Benzene	30	20	150	
Ethylbenzene	28	20	140	
MTBE	45	40	113	
Toluene	29	20	145	
Xylenes, Total	79	60	132	

Advisory Control Limits for LCS

Inorganic Parameters - The LCS recovery should be 80-120%.



QUALITY CONTROL REPORT  
Matrix Spike / Matrix Spike Duplicate  
(MS / MSD)

JOB NUMBER: 95.07544

PARAMETER	SAMPLE RESULT	MS RESULT	MSD RESULT	SPIKE AMOUNT	MS % REC.	MSD % REC.	MS/MSD RPD	FLAG
EPA 8020-AQ (Preserved)								
Benzene	4	27	26	20	115	110	4.4	
Ethylbenzene	<2	27	26	20	135	130	3.8	
MTBE	<4	46	45	40	115	113	2.2	
Toluene	<2	27	28	20	135	140	3.6	
Xylenes, Total	<2	80	80	60	133	133	0	

Advisory Control Limits for MS/MSDs

Inorganic Parameters - The spike recovery should be 75-125% if the spike amount value is greater than or equal to one fourth of the sample result value. The RPD for the MS/MSD should be less than 20.

NOTE: Matrix Spike Samples may not be samples from this job.



QUALITY CONTROL REPORT  
DUPLICATES

JOB NUMBER: 95.07544

PARAMETER	SAMPLE	DUPLICATE	RPD	SPIKE			% REC.	FLAG
	RESULT	RESULT		SAMPLE RESULT	SPIKE RESULT	SPIKE AMOUNT		
pH	6.5	6.5	0.0	NA	NA	NA	NA	
pH	5.9	6.1	3.3	NA	NA	NA	NA	
Conductivity	3,150	3,160	0.3	NA	NA	NA	NA	

Advisory Control Limits for Spikes

The spike recovery should be 75-125% if the spike amount is greater than or equal to one fourth of the sample result value.

NOTE: Spike Samples may not be samples from this job.

Advisory Control Limits for Duplicates

The RPD for the sample and duplicate should be less than 20.





OIL CONSERVATION DIVISION  
RECEIVED

1995 AUG 7 AM 8 52

9100 Emmott Road  
P.O. Box 40129  
Houston, Texas 77240-0129  
Tel: 713/466/1322

2 August, 1995

Mr. William Olson, Hydrologist  
State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

Dear Mr. Olson:

Upon review of the information submitted to you regarding the quarterly monitoring at the Baker Oil Tools facility located at 2800 W. Marland in Hobbs, New Mexico, I realized an item had been unintentionally omitted from the report. I have included under this cover the analytical results from the laboratory. Sorry for the omission.

If you have any questions or require additional information, please do not hesitate in contacting me at (713)466-2520.

Sincerely,  
For Baker Oil Tools

A handwritten signature in cursive script, appearing to read "Thomas V. Stenbeck".

Thomas V. Stenbeck  
Manager of Health, Safety and Environmental - North America

attachments



NATIONAL  
ENVIRONMENTAL  
TESTING, INC.

Dallas Division  
1548 Valwood Parkway  
Suite 118  
Carrollton, TX 75006  
Tel: (214) 406-8100  
Fax: (214) 484-2969

## ANALYTICAL AND QUALITY CONTROL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

07/26/1995

NET Job Number: 95.04703

Enclosed is the Analytical and Quality Control report for the following samples submitted to the Dallas Division of NET, Inc. for analysis. Reproduction of this analytical report is permitted only in its entirety.

<u>Sample Number</u>	<u>Sample Description</u>	<u>Date Taken</u>	<u>Date Received</u>
268203	TRIP BLANK		07/20/1995
268204	MW-1	07/19/1995	07/20/1995
268205	MW-2	07/19/1995	07/20/1995
268206	WW-1	07/19/1995	07/20/1995
268207	R-1	07/19/1995	07/20/1995
268208	MW-3	07/19/1995	07/20/1995

National Environmental Testing, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

**Holding Times:** All holding times were within method criteria.

**Method Blanks:** All method blanks were within quality control criteria.

**Instrument calibration:** All calibrations were within method quality control criteria.

**Analysis Comments:** No Unusual Comments

  
Beth Freeman  
Project Coordinator





# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

07/26/1995  
Job No.: 95.04703

Page: 2

Project Name: HOBBS NEW MEXICO

Date Received: 07/20/1995

268203 TRIP BLANK  
Taken:

EPA 8020-AQ (Preserved)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	109	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<5	ug/L
Naphthalene	<5	ug/L
SURR: 2-Fluorobiphenyl	53	%
SURR: Nitrobenzene-d5	52	%
SURR: Terphenyl-d14	66	%

268204 MW-1  
Taken: 07/19/1995 14:30

EPA 8020-AQ (Preserved)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	97	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<5	ug/L
Naphthalene	<5	ug/L
SURR: 2-Fluorobiphenyl	44	%
SURR: Nitrobenzene-d5	36	%
SURR: Terphenyl-d14	57	%

268205 MW-2  
Taken: 07/19/1995 14:00

EPA 8020-AQ (Preserved)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L



# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

07/26/1995  
Job No.: 95.04703

Page: 3

Project Name: HOBB NEW MEXICO

Date Received: 07/20/1995

268205 MW-2  
Taken: 07/19/1995 14:00

Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	83	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<5	ug/L
Naphthalene	<5	ug/L
SURR: 2-Fluorobiphenyl	46	%
SURR: Nitrobenzene-d5	42	%
SURR: Terphenyl-d14	60	%

268206 WW-1  
Taken: 07/19/1995 15:00

EPA 8020-AQ (Preserved)		
Benzene	51	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	109	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	<5	ug/L
Naphthalene	12.9	ug/L
SURR: 2-Fluorobiphenyl	63	%
SURR: Nitrobenzene-d5	68	%
SURR: Terphenyl-d14	79	%

268207 R-1  
Taken: 07/19/1995 14:45

EPA 8020-AQ (Preserved)		
Benzene	<2	ug/L
Ethylbenzene	52	ug/L
Toluene	<2	ug/L
Xylenes, Total	64	ug/L
MTBE	21	ug/L



# ANALYTICAL REPORT

Tom Stenbeck  
BAKER OIL TOOLS  
9100 Emmott Road  
Houston, TX 77040

07/26/1995  
Job No.: 95.04703

Page: 4

Project Name: HOBB NEW MEXICO

Date Received: 07/20/1995

268207 R-1  
Taken: 07/19/1995 14:45

SURR: a,a,a-TFT	119	% Rec
BASE/NEUTRALS - 8270 AQUEOUS		
2-Methylnaphthalene	115	ug/L
Naphthalene	101	ug/L
SURR: 2-Fluorobiphenyl	67	%
SURR: Nitrobenzene-d5	56	%
SURR: Terphenyl-d14	78	%

268208 :MW-3  
Taken: 07/19/1995 13:45

EPA 8020-AQ (Preserved)		
Benzene	<2	ug/L
Ethylbenzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L
MTBE	<2	ug/L
SURR: a,a,a-TFT	117	% Rec



QUALITY CONTROL REPORT  
Continuing Calibration Verification  
(CCV)

JOB NUMBER: 95.04703

PARAMETER	ANALYST	DATE ANALYZED	METHOD	CCV RESULT	CCV TRUE CONCENTRATION	% REC.	FLAG
EPA 8020-AQ (Preserved)			S-8020M				
Benzene	dwr	07/21/1995	S-8020M	21	20	105	NA
Ethylbenzene	dwr	07/21/1995	S-8020M	23	20	115	NA
MTBE	dwr	07/21/1995	S-8020M	39	40	98	NA
Toluene	dwr	07/21/1995	S-8020M	22	20	110	NA
Xylenes, Total	dwr	07/21/1995	S-8020M	68	60	113	NA
EPA 8020-AQ (Preserved)			S-8020M				
Benzene	dwr	07/24/1995	S-8020M	20	20	100	NA
Ethylbenzene	dwr	07/24/1995	S-8020M	23	20	115	NA
MTBE	dwr	07/24/1995	S-8020M	37	40	93	NA
Toluene	dwr	07/24/1995	S-8020M	21	20	105	NA
Xylenes, Total	dwr	07/24/1995	S-8020M	64	60	107	NA
EPA 8020-AQ (Preserved)			S-8020M				
Benzene	dwr	07/25/1995	S-8020M	19	20	95	NA
Ethylbenzene	dwr	07/25/1995	S-8020M	23	20	115	NA
MTBE	dwr	07/25/1995	S-8020M	36	40	90	NA
Toluene	dwr	07/25/1995	S-8020M	21	20	105	NA
Xylenes, Total	dwr	07/25/1995	S-8020M	66	60	110	NA
BASE/NEUTRALS - 8270 AQUEOUS			S-8270				
2-Methylnaphthalene	slw	07/21/1995	S-8270	46.7	50.0	93	NA
Naphthalene	slw	07/21/1995	S-8270	45.2	50.0	90	NA
BASE/NEUTRALS - 8270 AQUEOUS			S-8270				

Method References and Codes

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.

E-100 through 493: "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

E-601 through 625: "Guidelines Establishing Test Procedures for the Analysis of Pollutants", U.S. EPA, 40CFR, Part 136, rev. 1990.

S-1000 through 9999: "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd Edition, 1986.

A: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, 1985.

SM: "Standard Methods for the Examination of Water and Wastewater", 18th Edition, APHA, 1992.

D: ASTM Method

M: Method has been modified

\*: Other Reference



QUALITY CONTROL REPORT  
Continuing Calibration Verification  
(CCV)

JOB NUMBER: 95.04703

PARAMETER	ANALYST	DATE ANALYZED	METHOD	CCV RESULT	CCV TRUE CONCENTRATION	% REC.	FLAG
2-Methylnaphthalene	slw	07/25/1995	S-8270	49.2	50.0	98	NA
Naphthalene	slw	07/25/1995	S-8270	47.7	50.0	95	NA
BASE/NEUTRALS - 8270 AQUEOUS			S-8270				
2-Methylnaphthalene	slw	07/26/1995	S-8270	56.8	50.0	114	NA
Naphthalene	slw	07/26/1995	S-8270	56.2	50.0	112	NA

Method References and Codes

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.

E-100 through 493: "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

E-601 through 625: "Guidelines Establishing Test Procedures for the Analysis of Pollutants", U.S. EPA, 40CFR, Part 136, rev. 1990.

S-1000 through 9999: "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd Edition, 1986.

A: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, 1985.

SM: "Standard Methods for the Examination of Water and Wastewater", 18th Edition, APHA, 1992.

D: ASTM Method

M: Method has been modified

\*: Other Reference



QUALITY CONTROL REPORT  
BLANKS

JOB NUMBER: 95.04703

PARAMETER	DATE ANALYZED	BLANK	UNITS	REPORTING LIMIT	FLAG
EPA 8020-AQ (Preserved)					
Benzene	07/21/1995	<2	ug/L	2	NA
Ethylbenzene	07/21/1995	<2	ug/L	2	NA
MTBE	07/21/1995	<2	ug/L	2	NA
Toluene	07/21/1995	<2	ug/L	2	NA
Xylenes, Total	07/21/1995	<2	ug/L	2	NA
EPA 8020-AQ (Preserved)					
Benzene	07/24/1995	<2	ug/L	2	NA
Ethylbenzene	07/24/1995	<2	ug/L	2	NA
MTBE	07/24/1995	<2	ug/L	2	NA
Toluene	07/24/1995	<2	ug/L	2	NA
Xylenes, Total	07/24/1995	<2	ug/L	2	NA
EPA 8020-AQ (Preserved)					
Benzene	07/25/1995	<2	ug/L	2	NA
Ethylbenzene	07/25/1995	<2	ug/L	2	NA
MTBE	07/25/1995	<2	ug/L	2	NA
Toluene	07/25/1995	<2	ug/L	2	NA
Xylenes, Total	07/25/1995	<2	ug/L	2	NA
BASE/NEUTRALS - 8270 AQUEOUS					
2-Methylnaphthalene	07/25/1995	<5	ug/L	5	NA
Naphthalene	07/25/1995	<5	ug/L	5	NA

Advisory Control Limits for Blanks

Metals/Wet Chemistry/Conventionals/GC - All compounds should be less than the Reporting Limit.

GC/MS Semi-Volatiles - All compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the Reporting Limit.

GC/MS Volatiles - Toluene, Methylene chloride, Acetone and Chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.



QUALITY CONTROL REPORT  
Laboratory Control Sample  
(LCS)

JOB NUMBER: 95.04703

<u>PARAMETER</u>	<u>LCS RESULT</u>	<u>TRUE CONC.</u>	<u>LCS % REC.</u>	<u>FLAG</u>
EPA 8020-AQ (Preserved)				
Benzene	19	20	95	
Ethylbenzene	25	20	125	
MTBE	39	40	98	
Toluene	21	20	105	
Xylenes, Total	74	60	123	
BASE/NEUTRALS - 8270 AQUEOUS				
2-Methylnaphthalene	93.8	100	94	
Naphthalene	52.8	100	53	

Advisory Control Limits for LCS

Inorganic Parameters - The LCS recovery should be 80-120%.



QUALITY CONTROL REPORT  
Matrix Spike / Matrix Spike Duplicate  
(MS / MSD)

JOB NUMBER: 95.04703

PARAMETER	SAMPLE RESULT	MS RESULT	MSD RESULT	SPIKE AMOUNT	MS % REC.	MSD % REC.	MS/MSD RPD	FLAG
EPA 8020-AQ (Preserved)								
Benzene	<2	18	19	20	90	95	5.4	
Ethylbenzene	<2	25	26	20	125	130	3.9	
MTBE	<2	39	41	40	98	103	4.9	
Toluene	<2	21	22	20	105	110	4.7	
Xylenes, Total	<2	72	76	60	120	127	5.4	

BASE/NEUTRALS - 8270 AQUEOUS      Insufficient sample within batch to perform spike

Advisory Control Limits for MS/MSDs

Inorganic Parameters - The spike recovery should be 75-125% if the spike amount value is greater than or equal to one fourth of the sample result value. The RPD for the MS/MSD should be less than 20.

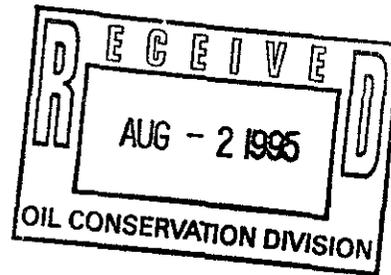
NOTE: Matrix Spike Samples may not be samples from this job.





9100 Emmott Road  
P.O. Box 40129  
Houston, Texas 77240-0129  
Tel: 713/466/1322

31 July, 1995



Mr. William Olson, Hydrologist  
State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

Dear Mr. Olson:

Baker Oil Tools (BOT) is responding to the NMOCD request of June 20, 1995 to submit quarterly monitoring data for groundwater contamination in the direct vicinity of the former pit on the property located at 2800 W. Marland in Hobbs, New Mexico. The NMOCD requested the following 3 items from BOT for each monitoring session:

1. A brief description of all monitoring activities which occurred during the quarter:

BOT conducted the monitoring on 7/19/95. Each well was bailed of three volumes and allowed to equalize except for WW-1 which is a 125' deep water well. The wells were bailed with either a 30 oz or 40 oz bailer. The wells were gauged for depth and ground water elevation, temperature of water taken before and after bailing, sampled and a monitoring well sampling log completed for each well. (A copy of the sampling log for each well is included as Appendix 1.) Your Hobbs district office was notified of the sampling and stated they would come out to the location if schedule allowed. The local inspector did not make it to the location while we were sampling. Samples were packed and sent for laboratory analysis.

2. A summary of the laboratory analytic results of water quality sampling of the monitoring wells. The data will be presented in tabular form showing past and present sampling results.

Tables 1a through 1g, below presents the sampling data for this quarter. The 1 liter sample bottle for MW-3 broke during shipment to the laboratory so only the BTEX and MTBE analyses were performed on the sample.

Table 1a  
BENZENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2	Quarter 3	Quarter 4
Trip Blank	<0.5	<2			
MW-1	<0.5	<2			
MW-2	<0.5	<2			
MW-3	<0.5	<2			
WW-1	260	51			
R-1	<0.5	<2			

Table 1b  
TOLUENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2	Quarter 3	Quarter 4
Trip Blank	<0.5	<2			
MW-1	<0.5	<2			
MW-2	0.5	<2			
MW-3	<0.5	<2			
WW-1	1.9	<2			
R-1	3.0	<2			

Table 1c  
ETHYL BENZENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2	Quarter 3	Quarter 4
Trip Blank	<0.5	<2			
MW-1	<0.5	<2			
MW-2	<0.5	<2			
MW-3	<0.5	<2			
WW-1	180	<2			
R-1	49	52			

Table 1d  
XYLENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2	Quarter 3	Quarter 4
Trip Blank	<0.5	<2			
MW-1	1.2	<2			
MW-2	0.5	<2			
MW-3	0.8	<2			
WW-1	7.0	<2			
R-1	94	64			

Table 1e  
MTBE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2	Quarter 3	Quarter 4
Trip Blank	<2.5	<2.0			
MW-1	<2.5	<2.0			
MW-2	<2.5	<2.0			
MW-3	2.6	<2.0			
WW-1	4.1	<2.0			
R-1	<2.5	21			

Table 1f  
NAPHTHALENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2	Quarter 3	Quarter 4
Trip Blank	<0.3	<5			
MW-1	<0.3	<5			
MW-2	<0.3	<5			
MW-3	<0.3	not available*			
WW-1	46	12.9			
R-1	240	101			

\*sample broke during shipment

Table 1g  
2-METHYL NAPHTHALENE (µg/L)

Well ID	Previous Nov. 17, 1994	Quarter 1 July 17, 1995	Quarter 2	Quarter 3	Quarter 4
Trip Blank	<0.3	<5			
MW-1	<0.3	<5			
MW-2	<0.3	<5			
MW-3	1.0	not available*			
WW-1	14	<5			
R-1	360	115			

\*sample broke during shipment

3. A water table elevation map using the water table elevation of the ground water in all monitoring wells.

Figure 1 presents the water elevation data as requested. Table 8 below lists the well number, the depth of the well, the depth to top of water, the elevation of the well casing and the actual depth to groundwater.

**Table 8  
GROUNDWATER DATA**

Well ID	Well Depth	Elevation	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
			gauged depth	actual depth						
MW-1	46.0'	100.19	33.2'	66.99						
MW-2	45.7'	99.56	32.5'	67.06						
MW-3	39.3'	99.15	32.7'	66.45						
WW-1	125.0'	99.52	32.3'	67.22						
R-1	40.0'	100.03	33.0'	67.03						

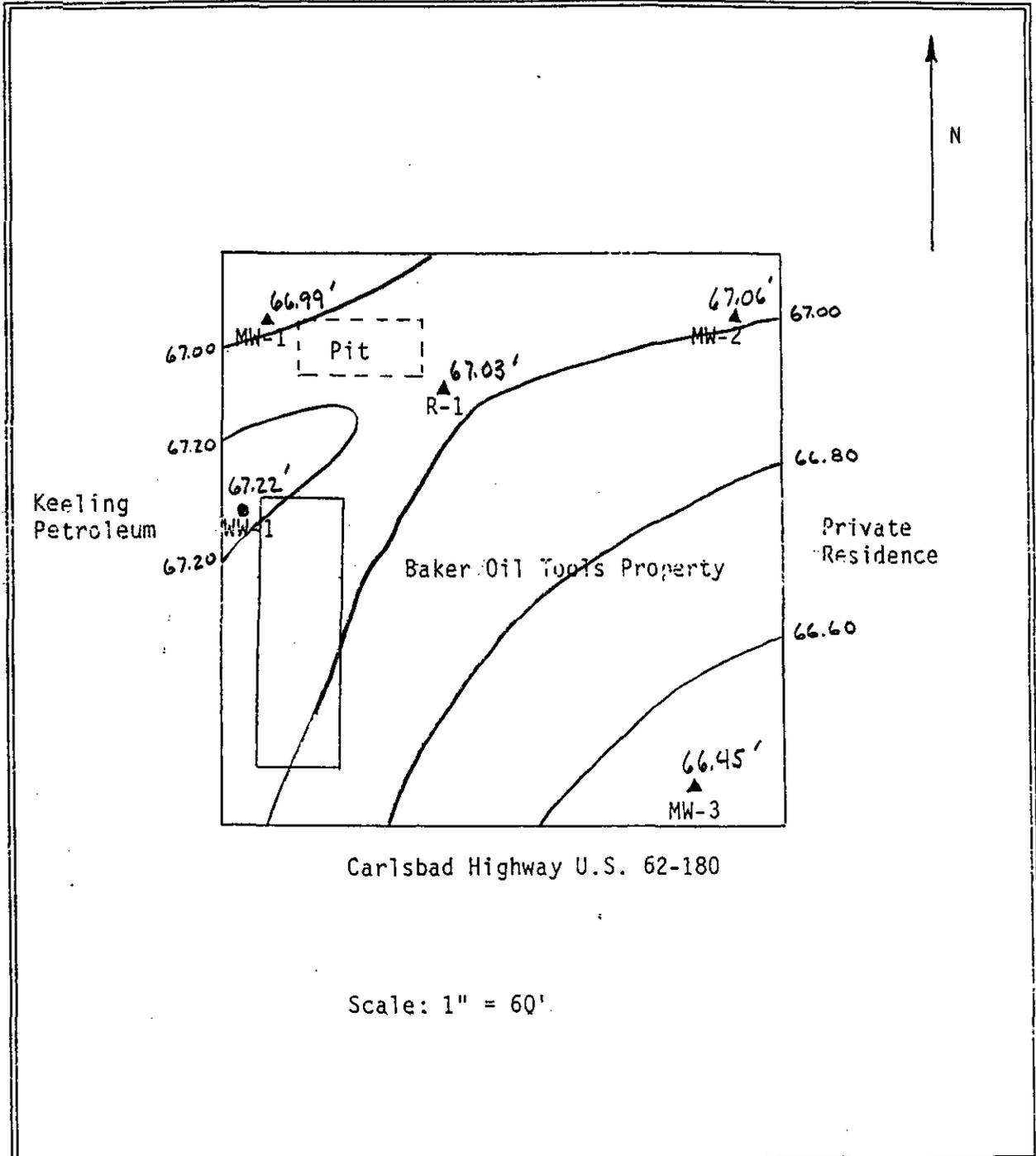
Additionally BOT has included maps indicating the contaminant concentrations at each well location for the site. These are included as figures 1a-1g.

The next monitoring is scheduled for October with the report submitted by November 1, 1995. If you have any questions or require additional information, please do not hesitate in contacting me at (713)466-2520.

Sincerely,  
For Baker Oil Tools



**Thomas V. Stenbeck**  
Manager of Health, Safety and Environmental - North America



<p>Figure No. 1</p>	<p>Groundwater Elevations Site Map</p>	<p>Baker Oil Tools 2800 W. Marland Hobbs, NM</p>
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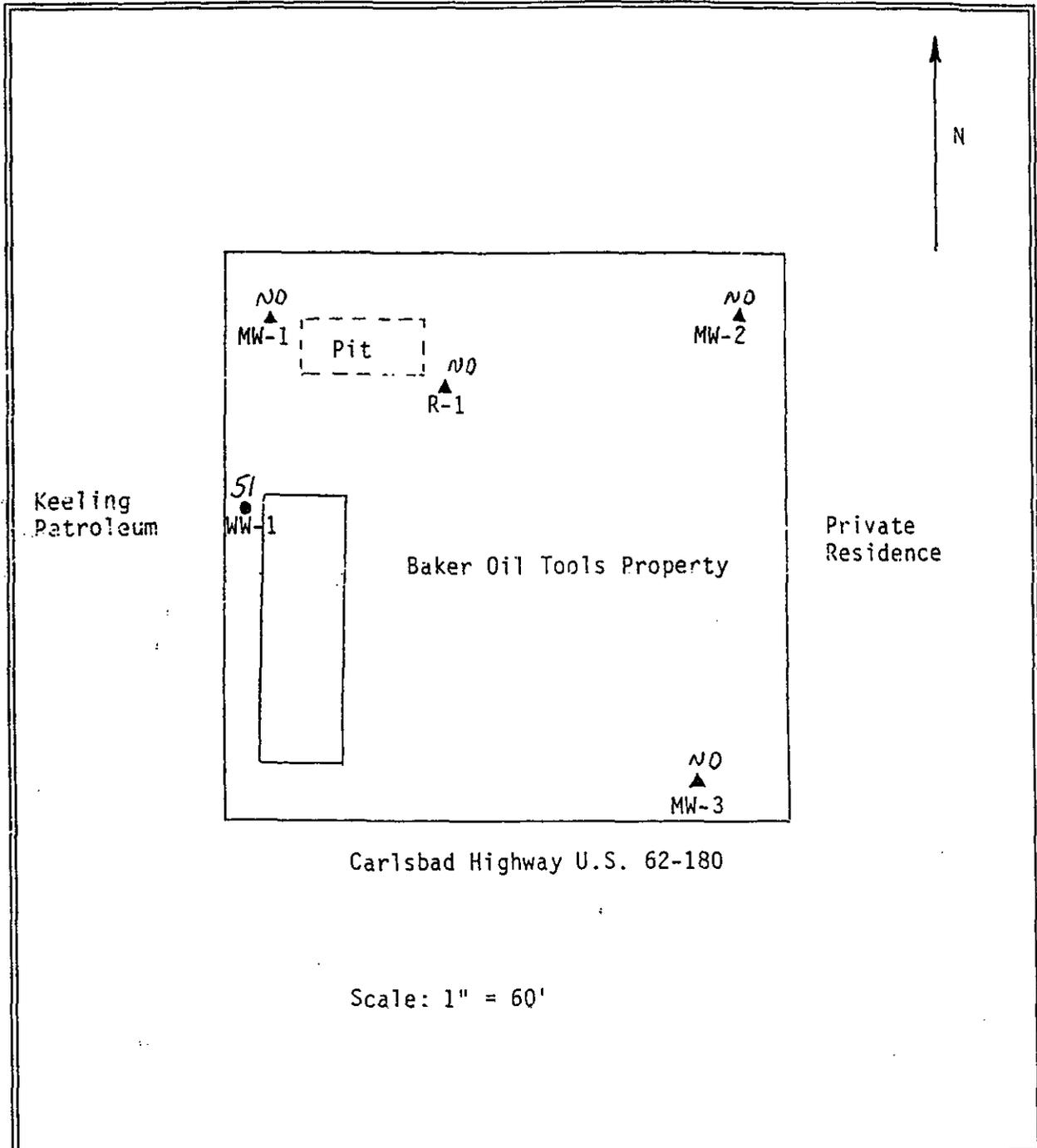
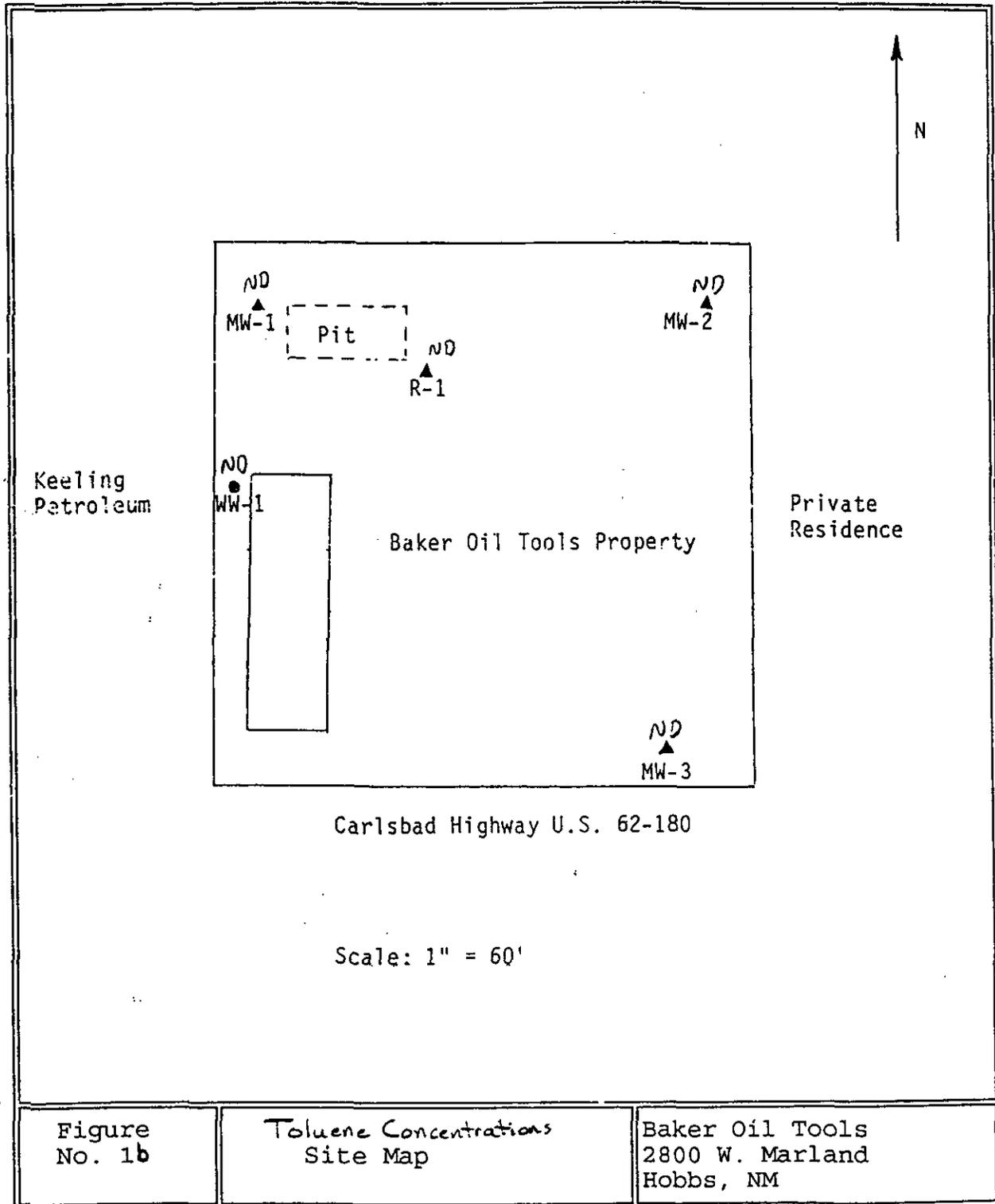


Figure  
No. 1a

Benzene Concentrations  
Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM



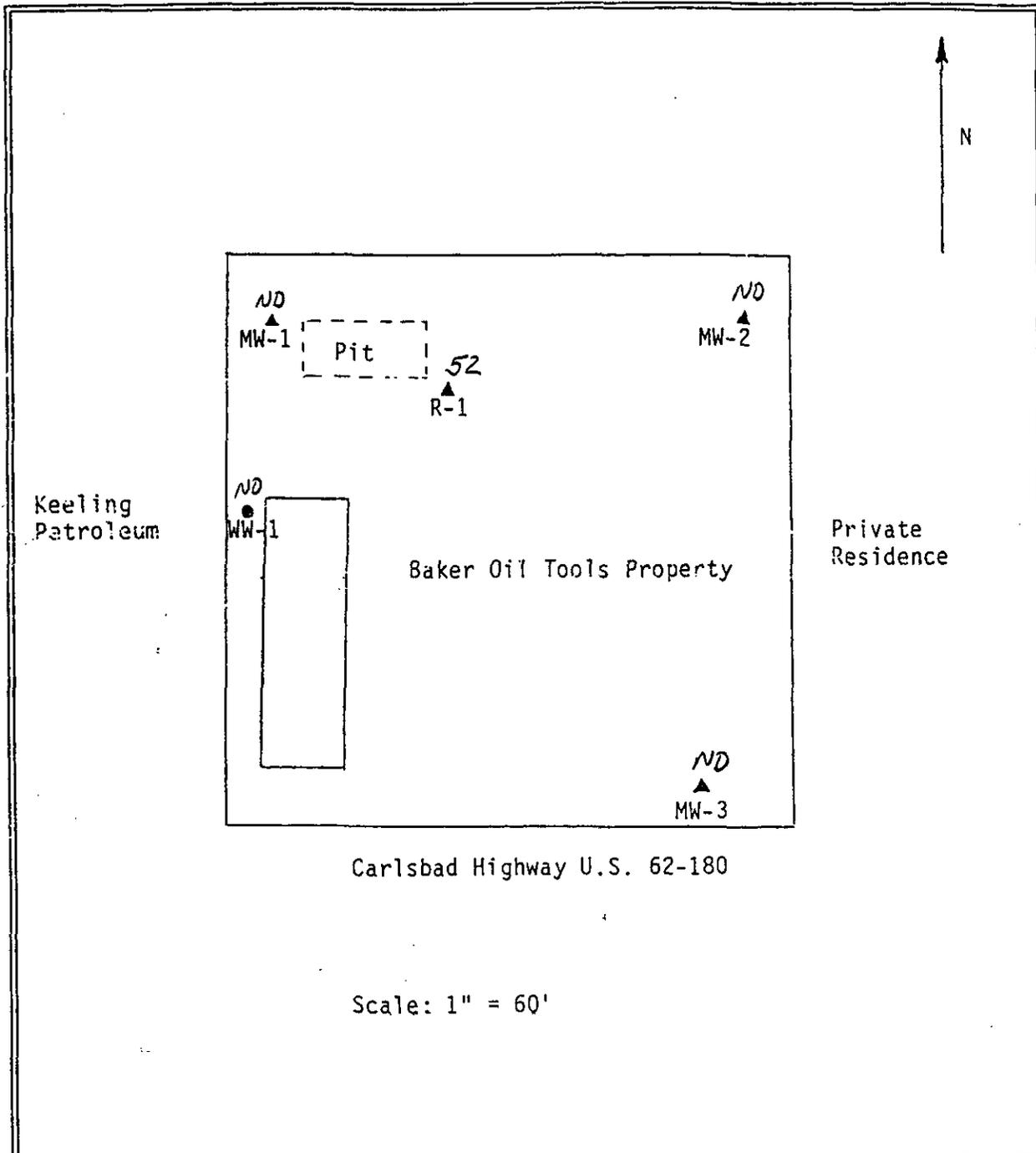


Figure  
No. 1c

Ethyl benzene Concentrations  
Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM

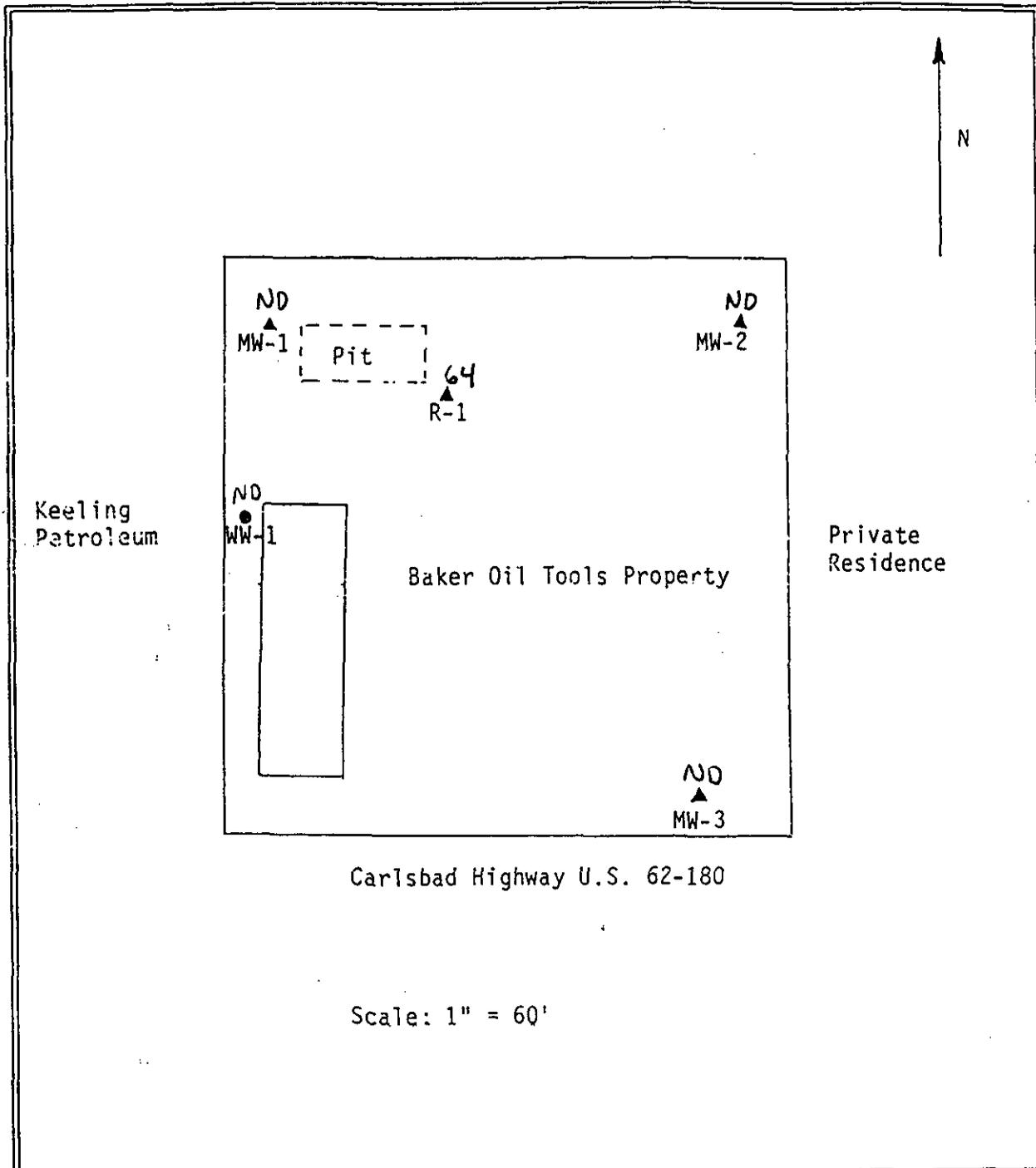


Figure  
No. 1d

Xylene Concentrations  
Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM

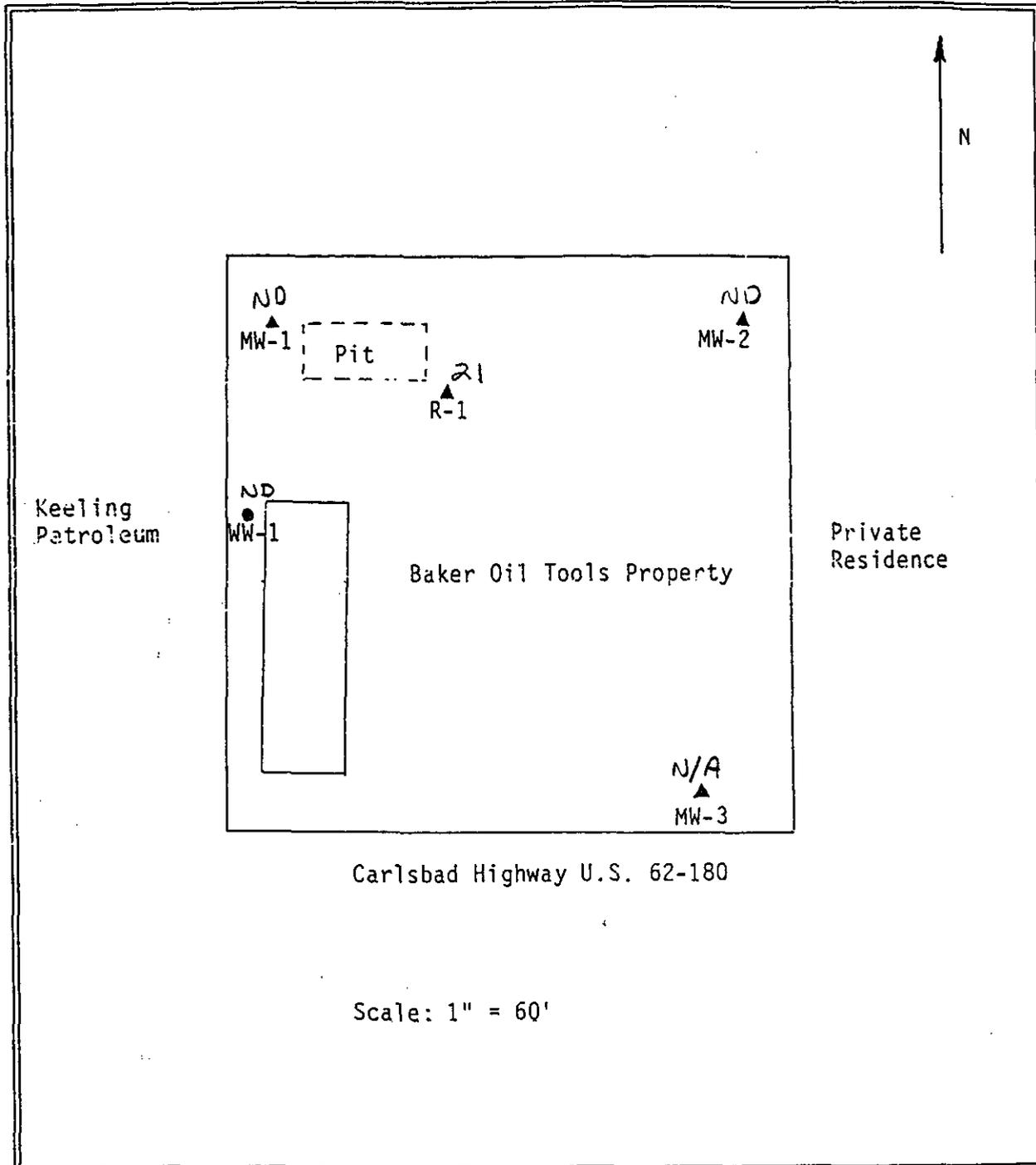


Figure  
No. 1e

MTBE Concentrations  
Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM

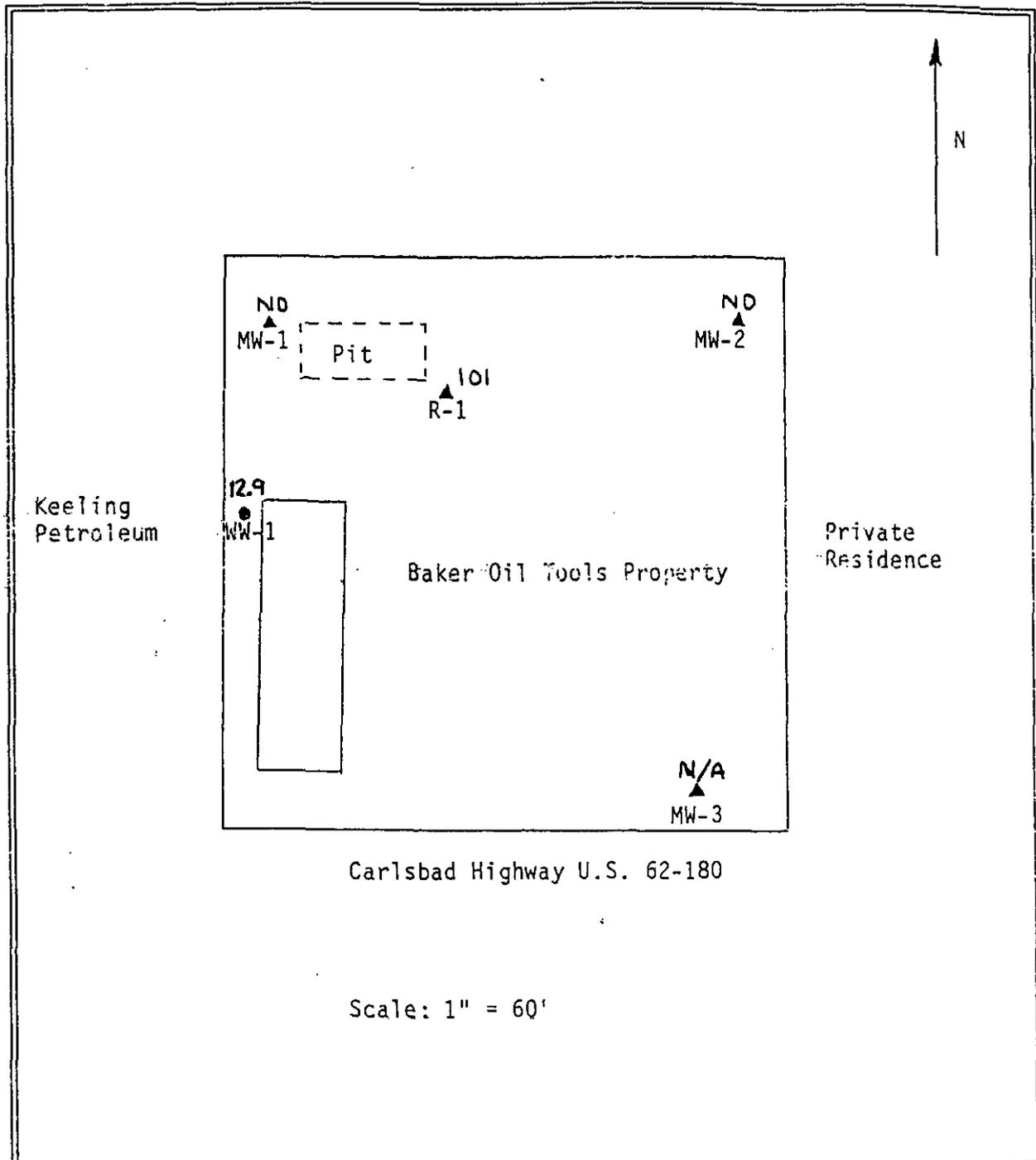
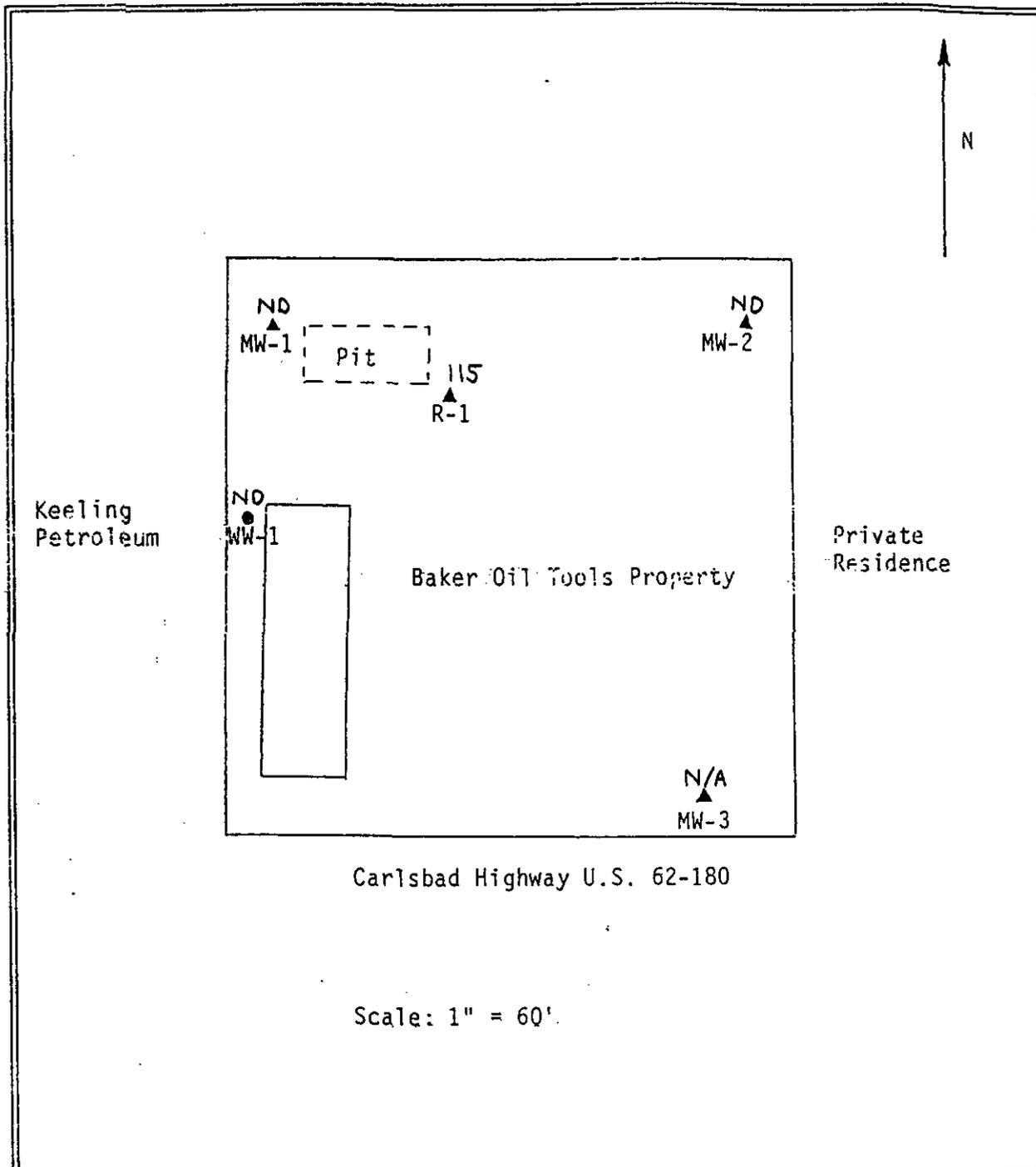


Figure  
No. 1f

Naphthalene Concentrations  
Site Map

Baker Oil Tools  
2800 W. Marland  
Hobbs, NM



<p>Figure No. 1g</p>	<p>2-Methyl Naphthalene Concentrations Site Map</p>	<p>Baker Oil Tools 2800 W. Marland Hobbs, NM</p>
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STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

June 20, 1995

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. P-667-242-277**

Mr. Thomas V. Stenbeck  
Baker Oil Tools  
P.O. Box 40129  
9100 Emmott Rd.  
Houston, Texas 77240-0129

**RE: BAKER OIL TOOLS HOBBS FACILITY**

Dear Mr. Stenbeck:

The New Mexico Oil Conservation Division (OCD) has completed a review of Baker Oil Tools, Inc. (BOT) April 12, 1995 correspondence providing a plan to address ground water contamination at BOT's oilfield service company facility located at 2800 West Marland in Hobbs, New Mexico. This document proposes to defer ground water remedial actions for naphthalenes at the site until petroleum contaminants which have migrated onsite from the upgradient Keeling Petroleum facility are addressed. BOT instead proposes interim monitoring of ground water quality from all of the site monitor wells on a quarterly basis.

The above referenced interim ground water monitoring plan is approved with the following conditions:

1. BOT will submit quarterly reports on the site ground water monitoring to the OCD by February 1, May 1, August 1 and November 1 of each respective year with the first report due on August 1, 1995. The reports will contain:
  - a. A description of all monitoring activities which occurred during the quarter.
  - b. A summary of the laboratory analytic results of water quality sampling of the monitor wells. The data will be presented in tabular form showing past and present sampling results.
  - c. A water table elevation map using the water table elevation of the ground water in all monitor wells.

Mr. Thomas V. Stenbeck  
June 20, 1995  
Page 2

2. BOT will notify the OCD at least one week in advance of all scheduled activities such that the OCD has the opportunity to witness the events and/or split samples.
3. BOT will submit all original documents to the OCD Santa Fe Office with copies provided to the OCD Hobbs District Office.

Please be advised that OCD approval does not relieve BOT of liability if contamination exists which is beyond the scope of the plan. In addition, OCD approval does not relieve BOT of responsibility for compliance with any other federal, state or local laws and/or regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,



William C. Olson  
Hydrogeologist  
Environmental Bureau

xc: Jerry Sexton, OCD Hobbs District Supervisor  
Wayne Price, OCD Hobbs Office  
Shelda Mendoza, Acting NMED UST Bureau Chief

PS Form 3800, June 1990

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**Bill Olson**

---

**From:** Bill Olson  
**To:** Jerry Sexton  
**Cc:** Wayne Price  
**Subject:** Baker Oil Tools  
**Date:** Wednesday, June 14, 1995 2:56PM  
**Priority:** High

Attached is a draft approval letter for Baker Oil Tools recent ground water monitoring plan. Please provide me with any comments by 6/16/95. Thanks!

<< File Attachment: REMEDY2.APR >>

**Bill Olson**

---

**From:** POSTOFFICE  
**To:** Bill Olson  
**Subject:** Registered: Wayne Price  
**Date:** Thursday, June 15, 1995 7:07AM

[013] \*\*\*\*\* CONFIRMATION OF REGISTERED MAIL \*\*\*\*\*  
Your message:

**TO:** Wayne Price **DATE:** 06-14-95  
**SUBJECT:** Baker Oil Tools **TIME:** 14:59

Was accessed on 06-15-95 07:07

**Bill Olson**

---

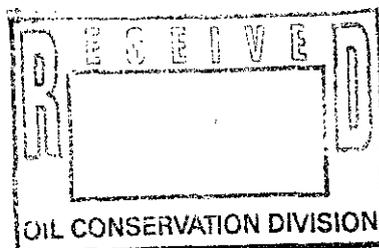
**From:** Jerry Sexton  
**Date sent:** Friday, June 16, 1995 7:53AM  
**To:** Bill Olson  
**Subject:** Registered: Jerry Sexton

**Your message**

**To:** Jerry Sexton  
**Subject:** Baker Oil Tools  
**Date:** Wednesday, June 14, 1995 2:56PM  
**was accessed on**  
**Date:** Friday, June 16, 1995 7:53AM



9100 Emmott Road  
P.O. Box 40129  
Houston, Texas 77240-0129  
Tel: 713/466/1322



12 April, 1995

Mr. William Olsen, Hydrologist  
State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

Dear Mr. Olsen:

Baker Oil Tools (BOT) is responding to your request to submit a plan to address the contamination in the direct vicinity of the former pit on the property located at 2800 W. Marland in Hobbs, New Mexico. BOT proposes to defer any remedial actions on the naphthalene present in the groundwater until the contamination which is coming onto the property from up gradient is addressed. The health risk posed by the offsite sourced BTEX (which includes a known carcinogen) contamination in the groundwater is far greater than the risk posed by the naphthalene present in the groundwater which may have arisen due to BOT activities. BOT proposes to defer remedial action because any remedial actions on BOT's part could actually increase the amount of up-gradient sourced contamination being brought onto the BOT property.

The monitoring wells with contaminants believed to have an off-site (i.e.) up-gradient source are listed below.

Contaminant	Maximum Concentration Detected (ug/l)	Well(s) where detected
Benzene	260.0	WW-1, R-1
Toluene	3.0	WW-1, MW-2, R-1
Ethylbenzene	180.0	WW-1, R-1
Xylene	94.0	WW-1, MW-1, MW-2, MW-3, R-1
MTBE	4.1	WW-1, MW-3
2-Methylnaphthalene	14.0	WW-1
Naphthalene	46.0	WW-1
Acenaphthylene	6.3	WW-1
1-Methylnaphthalene	10.0	WW-1

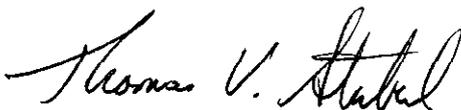
BOT proposes to sample the monitoring wells at the BOT property according to the following schedule for the first year, to document the levels of the naphthalene and address the question: "is the naphthalene contaminant spreading outward to adjacent properties?".

SCHEDULE	WELLS MONITORED	CONSTITUENT SAMPLED	OTHER ACTIVITIES
June 95	MW-1, MW-2, MW-3, R-1, WW-1	BTEX, MTBE, 2-methylnaphthalene, naphthalene	Groundwater elevations
September 95	MW-1, MW-2, MW-3, R-1, WW-1	BTEX, MTBE, 2-methylnaphthalene, naphthalene	Groundwater elevations
December 95	MW-1, MW-2, MW-3, R-1, WW-1	BTEX, MTBE, 2-methylnaphthalene, naphthalene	Groundwater elevations
March 96	MW-1, MW-2, MW-3, R-1, WW-1	BTEX, MTBE, 2-methylnaphthalene, naphthalene	Groundwater elevations

If the first year data indicates the levels of the naphthalene contamination are remaining somewhat constant, BOT will propose to sample selected wells on a semi-annual basis instead of quarterly. This request will be submitted to the New Mexico Oil Conservation Division after the results of the March 96 sampling are known.

In summary, BOT proposes to perform additional sampling at the 2800 W. Marland site in Hobbs, New Mexico, to define the levels of contaminants which may have been sourced from onsite activities as well as better define the levels of higher risk contaminants which are continuing to impact the property from an offsite (i.e. up gradient) source. BOT is presenting a proposed monitoring schedule for the site, as well as a proposed list of constituents to analyze for. Should this plan prove acceptable to your office, please notify me and BOT will proceed with the implementation of this plan with the first scheduled monitoring to take place in June 1995. Upon receipt of the analytical data, BOT will submit the data to your office for review. If you have any questions or require additional information, please do not hesitate in contacting me at (713)466-2520.

Sincerely,  
For Baker Oil Tools



Thomas V. Stenbeck  
Manager of Health, Safety and Environmental - North America

OIL CONSERVATION DIVISION  
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'95 APR 6 PM 8 52

**NMOCD Inter-Correspondence**

**To:** Chris Eustice-Environmental Geologist  
**From:** Wayne Price-Environmental Engineer District I   
**Date:** April 5, 1995  
**Reference:** Baker Oil Tools- Hobbs old yard  
**Subject:** Solid Waste

**Comments:**

Dear Chris,

This material has been generated at the Baker Oil Tools old yard which is located at 2800 W. Marland, Hobbs, NM. Please note that Bill Olson is handling the ground water contamination issue. You should also be aware that the NMED is involved at the site next to Baker, which is Keeling Petroleum, and Roger Anderson has corresponded with NMED on the groundwater issue.

cc: Jerry Sexton-District I Supervisor  
Bill Olson-Hydrogeologist

Attachments-1



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES

OIL CONSERVATION DIVISION  
2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

March 8, 1995

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. P-667-242-219**

Mr. Thomas V. Stenbeck  
Baker Oil Tools  
P.O. Box 40129  
9100 Emmott Rd.  
Houston, Texas 77240-0129

**RE: BAKER OIL TOOLS HOBBS FACILITY**

Dear Mr. Stenbeck:

The New Mexico Oil Conservation Division (OCD) has completed a review of Baker Oil Tools, Inc. (Baker) January 13, 1995 "SITE ASSESSMENT REPORT, BAKER OIL TOOLS, 2800 W. MARLAND, HOBBS, NM". This document contains the results of Baker's investigation of ground water contamination at Baker's oilfield service company facility located at 2800 West Marland in Hobbs, New Mexico.

While the OCD approves of the investigation work performed, the investigation does show high levels of naphthalenes directly adjacent to the former pit location and high levels of benzene in well WW-1. It appears that the high levels of benzene in well WW-1 are a result of contamination migrating from the upgradient Keeling Petroleum site and the OCD has referred the contamination in this well to the New Mexico Environment Department for action. However, the naphthalenes in the ground water and high soil TPH levels in the former pit appear to result from Baker's pit disposal activities.

Therefore, the OCD requests that Baker submit a plan to address the contamination in the direct vicinity of the former pit. Please submit the plan to the OCD Santa Fe Office with a copy provided to the OCD Hobbs Office.

If you have any questions, please call me at (505) 827-7154.

Sincerely,  
  
William C. Olson  
Hydrogeologist  
Environmental Bureau

xc: Jerry Sexton, OCD Hobbs District Supervisor  
Wayne Price, OCD Hobbs Office

P 667 242 219



**Certified Mail Receipt**  
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TOTAL Postage & Fees	\$
Postmark or Date	

Form 3800, June 1990

**Bill Olson**

---

**From:** Bill Olson  
**To:** Jerry Sexton  
**Cc:** Wayne Price  
**Subject:** Baker Oil Tools Site Investigation  
**Date:** Wed, Mar 8, 1995 3:51PM  
**Priority:** High

Attached is a letter providing a review of Baker's Investigation report. Please provide me with any written comments by 4:00 pm on 3/10/95. Thanks.

<<File Attachment: REMEDY1.REQ>>

**Bill Olson**

---

**From:** Jerry Sexton  
**Date sent:** Wed, Mar 8, 1995 3:57PM  
**To:** Bill Olson  
**Subject:** Registered: Jerry Sexton

**Your message**

**To:** Jerry Sexton  
**Subject:** Baker Oil Tools Site Investigation  
**Date:** Wed, Mar 8, 1995 3:51PM  
**was accessed on**  
**Date:** Wed, Mar 8, 1995 3:57PM

**Bill Olson**

---

**From:** POSTOFFICE  
**To:** Bill Olson  
**Subject:** Registered: Wayne Price  
**Date:** Thu, Mar 9, 1995 5:52PM

[013] \*\*\*\*\* CONFIRMATION OF REGISTERED MAIL \*\*\*\*\*

Your message:

**TO:** Wayne Price **DATE:** 03-08-95  
**SUBJECT:** Baker Oil Tools Site Investigation **TIME:** 15:56

Was accessed on 03-09-95 17:52

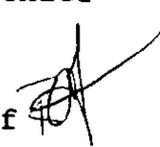


STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

MEMORANDUM

**TO:** James Bearzi, NMED Underground Storage Tank Bureau Chief  
Marcy Leavitt, NMED Ground Water Protection and  
Remediation Bureau Chief

**FROM:** Roger C. Anderson, NMOCD Environmental Bureau Chief 

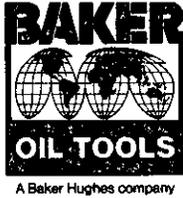
**DATE:** March 8, 1995

**RE: KEELING PETROLEUM  
HOBBS, NEW MEXICO**

Enclosed you will find a copy of an investigation report for the Baker Oil Tools site in Hobbs, New Mexico. The results of the investigation have shown that an upgradient monitor well on Baker's property has high levels of benzene and also contains MTBE. Keeling Petroleum's site on the Carlsbad Highway U.S. 62-180 in Hobbs is directly upgradient of Baker's site and appears to be the source of these contaminants.

The OCD is working with Baker to address contaminants related to their disposal practices (ie. naphthalenes in ground water and TPH in soils). However, since the benzene, toluene, ethylbenzene, xylene and MTBE contamination appear to be from the Keeling Petroleum site which is not regulated by the NMOCD, the OCD refers the investigation and remediation of these contaminants to the NMED.

If you have any questions, please contact Bill Olson of my staff at (505) 827-7154.



9100 Emmott Road  
P.O. Box 40129  
Houston, Texas 77240-0129  
Tel: 713/466-1322

13 January, 1995

Mr. William C. Olson  
State of New Mexico - Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
P.O. Box 2088  
State Land Office Building  
Santa Fe, New Mexico 87504

Dear Mr. Olson:

In response to your request dated October 6, 1994 for additional information at the Baker Oil Tools, Inc. (Baker), 2800 West Marland, Hobbs, New Mexico facility, Baker is submitting the following information provided to Baker by Rhino Environmental Services, Inc. (Rhino). I believe the report addresses all information requested in items 1-3 of your October 6, 1994 letter. Should you have any questions about the report or require additional information, please do not hesitate in contacting me at (713)466-2520.

Sincerely  
For Baker Oil Tools, Inc.

Thomas V. Stenbeck  
Manager of Health, Safety and Environmental - North America

OIL CONSERVATION DIVISION  
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'95 JAN 18 AM 8 52

Site Assessment Report  
Baker Oil Tools  
2800 W. Marland  
Hobbs, NM

RECEIVED

JAN 18 1995

OIL CONSERVATION DIV.  
SANTA FE

HISTORY

On October 6, 1994, Rhino Environmental Services installed a 2" monitor well (R-1) down gradient of the former wastewater disposal pit at the Baker Oil Tools Site located at 2800 W. Marland in Hobbs, NM. Figure No. 1 is a Site Map. The monitor well was requested by the Oil Conservation Division (OCD) to determine if the pit had contaminated groundwater. This work was in addition to a site investigation performed by Simon Hydro-Search in late 1991 and early 1992. Rhino's scope of work consisted of installing and sampling monitor well R-1, sampling the three monitor wells installed by Simon and sampling the existing water well. Rhino also sampled the drums of water and soils on-site that were generated during the Simon investigation. The results of this investigation are presented below.

MONITOR WELL R-1 INSTALLATION

Rhino contracted Techna Environmental Drilling to install monitor well R-1. The location of R-1 is shown in Figure No. 1. Techna used a CME-75 hollow stem auger rig to install the well. Soil samples were taken every 5 feet. The samples were retrieved with a split spoon sampler. The soil samples were split. One sample was sent to ATI Laboratory and one sample was tested in the field by the Vapor Headspace Method using a MINI-RAE photoionization detector. The samples were analyzed by the lab for Total Petroleum Hydrocarbon (TPH) by EPA Method 418.1 and for BTEX/MTBE by EPA Method 8020. The TPH results are summarized in Table No. 1. All the BTEX/MTBE results were non-detect except for sample R1-30

**TABLE NO. 1  
SUMMARY OF SOIL TESTING**

<b>SAMPLE ID</b>	<b>DEPTH (FT)</b>	<b>TPH (PPM)</b>	<b>TOTAL XYLENES (PPM)</b>	<b>HEADSPACE (PPM)</b>
R1-5'	5	<20	non-detect	non-detect
R1-10'	10	55	non-detect	non-detect
R1-15'	15	<20	non-detect	non-detect
R1-20'	20	<20	non-detect	non-detect
R1-25'	no sample due to rock			
R1-30'	30	1400	0.066	245
R1-35'	35	49	non-detect	18

which had a Total Xylenes of 0.066 ppm. Copies of the analytical reports are shown in Appendix A. R-1 was complete as a 2" monitor well using 2" flush thread casing. The depth to water was 32.36 feet. The well was screened from a depth of 25 feet to 40 feet. A monitor well completion diagram is shown in Figure No. 2.

**GROUNDWATER SAMPLING**

On November 17, 1994, Rhino surveyed, gauged and sampled R-1, MW-1, MW-2, MW-3 and WW-1. The local OCD office was notified prior to the sampling event. However, due to a scheduling conflict, Rhino was told to proceed even though they would not be able to be on site during the sampling. The groundwater elevations are summarized in Table No.2. Each well was purged of three well

**TABLE NO. 2  
SUMMARY OF GROUNDWATER ELEVATION DATA  
(all data in feet)**

<b>WELL NO.</b>	<b>TOP OF CASING</b>	<b>DEPTH TO WATER</b>	<b>DEPTH TO PRODUCT</b>	<b>GROUNDWATER ELEVATION</b>
R1	100.03	32.36	ND	67.67
MW-1	100.19	32.40	ND	67.79
MW-2	99.56	32.02	ND	67.54
MW-3	99.15	31.66	ND	67.49
WW-1	99.52	31.76	ND	67.76

casing volumes prior to sampling. Samples were retrieve using "VOSS" disposable bailers. The samples were placed in laboratory supplied containers, packaged and shipped via UPS to ATI Laboratory in Albuquerque, NM. The wells were analyzed as per the following:

<u>ANALYSIS</u>	<u>R-1</u>	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	<u>WW-1</u>
BTEX/MTBE	X	X	X	X	X
Chlorinated Volatiles (8010)	X				
Major Cations	X				
Major Anions	X				
Semivolatile Organics (8270)	X				
Polynuclear Aromatics (8310)		X	X	X	X
Ion Balance	X				
Total Dissolved Solids	X				
RCRA Metals	X				

The positive results from the analyses are shown in Table No. 3.

TABLE NO. 3 SUMMARY OF ANALYTICAL RESULTS					
<u>ANALYTE/ PARAMETER</u>	<u>R-1</u>	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	<u>WW-1</u>
Benzene: ug/l	1.5				260.0
Toluene: ug/l	3.0		0.5		1.9
Ethylbenzene: ug/l	49.0				180.0
Total Xylenes: ug/l	94.0	1.2	0.5	0.8	7.0
MTBE: ug/l				2.6	4.1
Arsenic: mg/l	0.038				
Barium: mg/l	10.1				
Calcium: mg/l	155				

Cadmium: mg/l	0.0006				
Chromium: mg/l	0.505				
Mercury: mg/l	<0.0002				
Potassium: mg/l	24.4				
Magnesium: mg/l	40.9				
Sodium: mg/l	170				
Lead: mg/l	0.028				
Phenanthrene: ug/l				0.60	
Flouranthene: ug/l				0.15	
Pyrene: ug/l				0.04	
2- Methylnaphthal ene: ug/l	360.0			1.0	14.0
Naphthalene: ug/l	240.0				46.0
Acenaphthylene : ug/l					6.3
1- Methylnaphthal ene: ug/l					10.0
Dibenzofuran: ug/l	25.0				
Bis(2- ethylhexyl)pht halate: ug/l	28.0				
Bicarbonate: mg/l	462				
Total Alkalinity: mg/l	462				
Chloride: mg/l	340				
Flouride: mg/l	1.61				
Sulfate: mg/l	42				

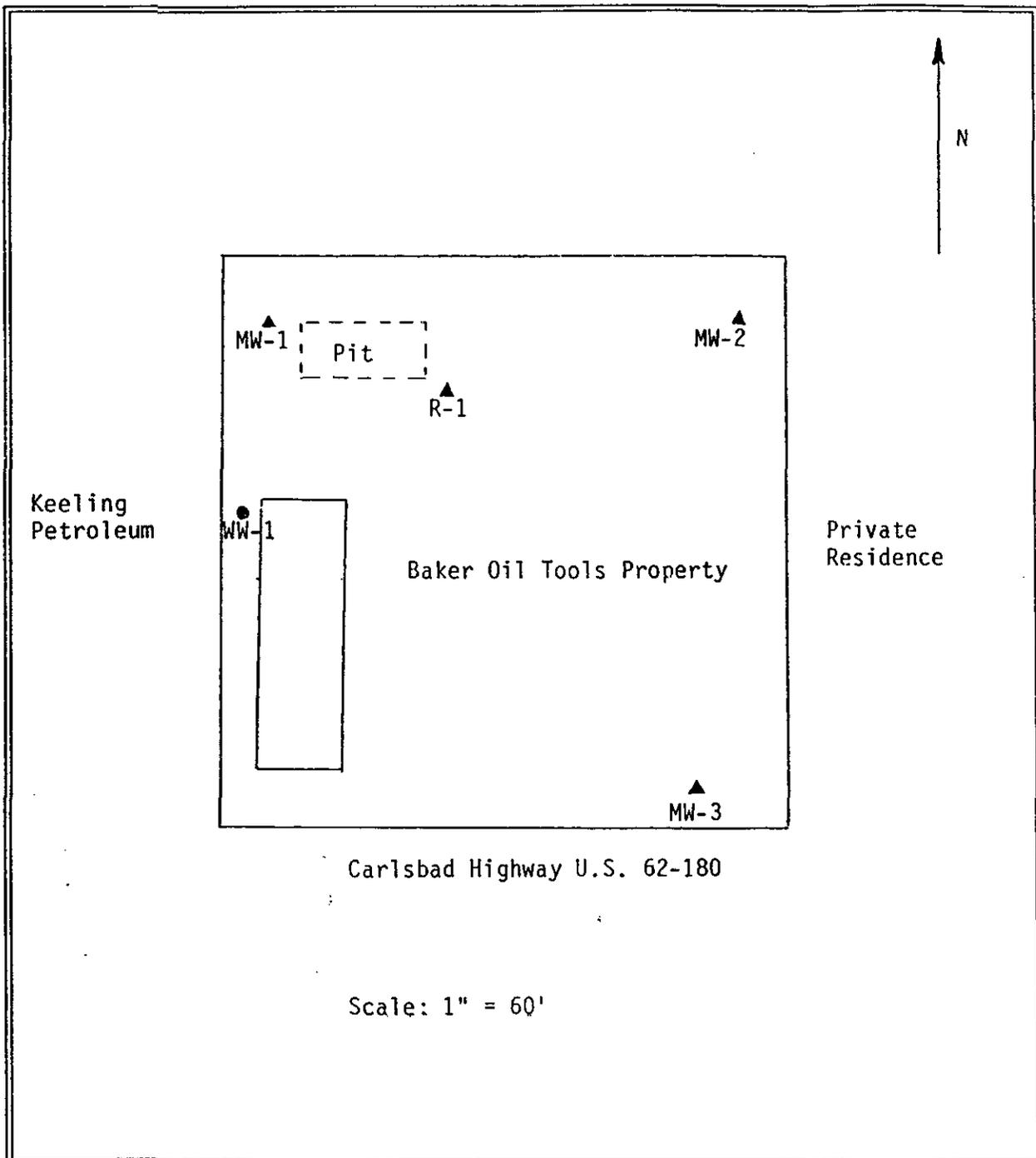
Total Dissolved Solids: mg/l	1100				
Calcium: mg/l	155				
Potassium: mg/l	24.4				
Magnesium: mg/l	40.9				
Sodium: mg/l	170				

#### GROUNDWATER GRADIENT

The groundwater gradient flows in the southeast direction. The groundwater elevations are shown in Table No. 2. Figure No. 3 is a Groundwater Gradient Map.

#### DRUM SAMPLING

On November 17, 1994, Rhino took a composite sample from the water drums and a composite sample from the soil drums that were generated during the Simon investigation. The soil drums were analyzed for TPH. The water drums were analyzed for halogenated volatiles (8010). The TPH for the soil drums was 1200 ppm. No positive results were shown in the water sample. The analytical results are shown in Appendix A.



<p>Figure No. 1</p>	<p>Site Map</p>	<p>Baker Oil Tools 2800 W. Marland Hobbs, NM</p>
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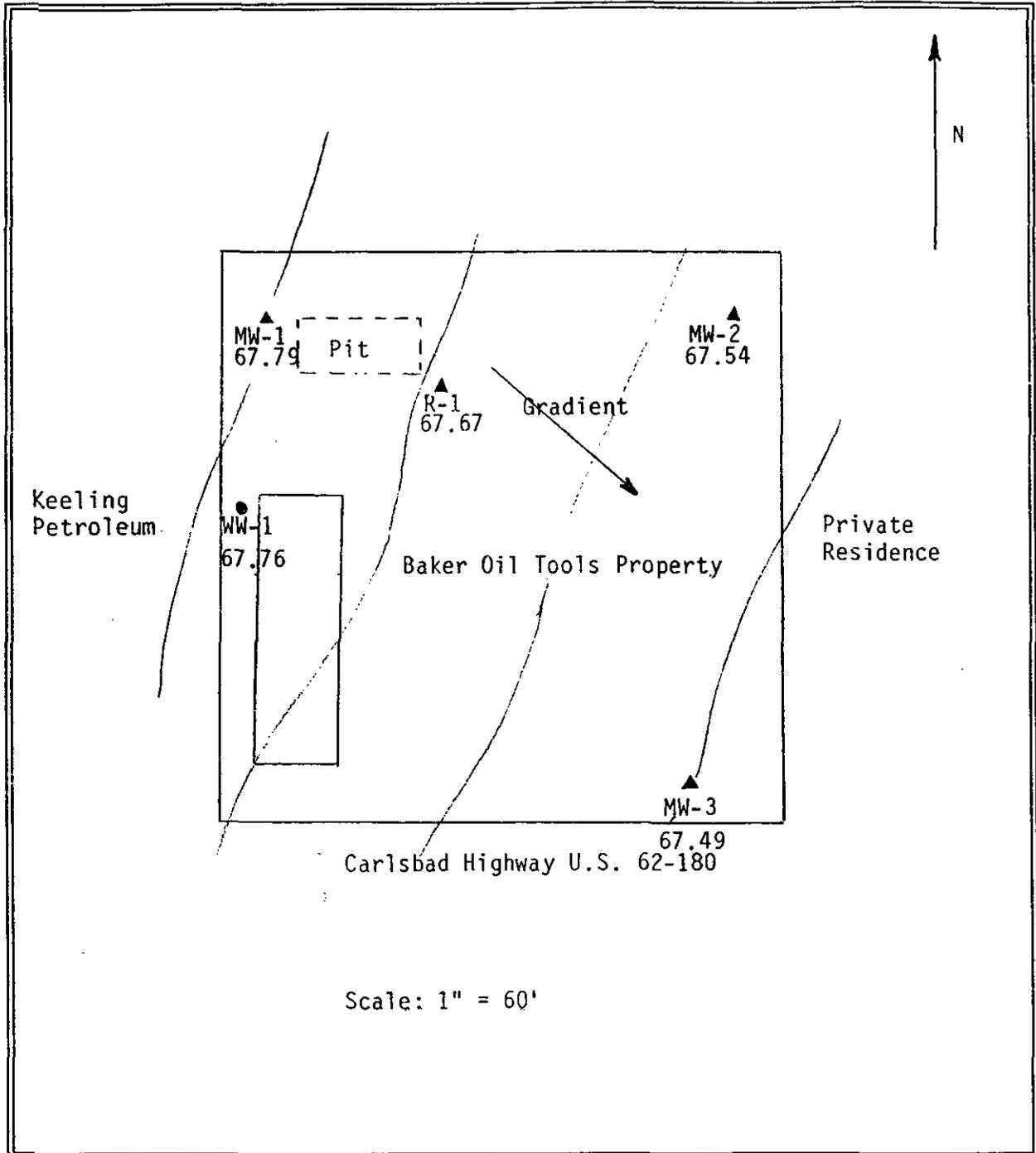


Figure No. 3	Groundwater Gradient Map	Baker Oil Tools 2800 W. Marland Hobbs, NM
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APPENDIX A  
ANALYTICAL LABORATORY RESULTS



Analytical **Technologies**, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107  
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. 410342

October 18, 1994

Rhino Environmental  
P.O. Box 2327  
Hobbs, NM 88240

Project Name/Number: BAKER OIL TOOLS

Attention: Royce Cooper

On 10/07/94, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Letitia Krakowski, Ph.D.  
Project Manager

H. Mitchell Rubenstein, Ph.D.  
Laboratory Manager

MR:jt

Enclosure

RECEIVED OCT 19 1994



Analytical Technologies, Inc.

CLIENT : RHINO ENVIRONMENTAL DATE RECEIVED : 10/07/94  
PROJECT # : (NONE)  
PROJECT NAME : BAKER OIL TOOLS REPORT DATE : 10/18/94

ATI ID: 410342

---

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	R1-5'	NON-AQ	10/06/94
02	R1-10'	NON-AQ	10/06/94
03	R1-15'	NON-AQ	10/06/94
04	R1-20'	NON-AQ	10/06/94
05	R1-30'	NON-AQ	10/06/94
06	R1-35'	NON-AQ	10/06/94

---

---TOTALS---

<u>MATRIX</u>	<u>#SAMPLES</u>
NON-AQ	6

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



Analytical **Technologies**, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: RHINO ENVIRONMENTAL	ATI I.D.	: 410342		
PROJECT #	: (NONE)	DATE RECEIVED	: 10/07/94		
PROJECT NAME	: BAKER OIL TOOLS	DATE ANALYZED	: 10/11/94		
PARAMETER	UNITS	01	02	03	04
PETROLEUM HYDROCARBONS, IR	MG/KG	<20	55	<20	<20



Analytical **Technologies**, Inc.

### GENERAL CHEMISTRY RESULTS

CLIENT	: RHINO ENVIRONMENTAL	ATI I.D.	: 410342
PROJECT #	: (NONE)	DATE RECEIVED	: 10/07/94
PROJECT NAME	: BAKER OIL TOOLS	DATE ANALYZED	: 10/11/94
<hr/>			
PARAMETER	UNITS	05	06
PETROLEUM HYDROCARBONS, IR	MG/KG	1400	49



## GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)  
 CLIENT : RHINO ENVIRONMENTAL ATI I.D.: 410342  
 PROJECT # : (NONE)  
 PROJECT NAME : BAKER OIL TOOLS

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	R1-5'	NON-AQ	10/06/94	10/14/94	10/14/94	1
02	R1-10'	NON-AQ	10/06/94	10/14/94	10/14/94	1
03	R1-15'	NON-AQ	10/06/94	10/14/94	10/14/94	1

PARAMETER	UNITS	01	02	03
BENZENE	MG/KG	<0.025	<0.025	<0.025
TOLUENE	MG/KG	<0.025	<0.025	<0.025
ETHYLBENZENE	MG/KG	<0.025	<0.025	<0.025
TOTAL XYLENES	MG/KG	<0.025	<0.025	<0.025
METHYL-t-BUTYL ETHER	MG/KG	<0.12	<0.12	<0.12

## SURROGATE:

BROMOFLUOROBENZENE (%)	114	117	117
------------------------	-----	-----	-----



GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)  
 CLIENT : RHINO ENVIRONMENTAL                      ATI I.D.: 410342  
 PROJECT # : (NONE)  
 PROJECT NAME : BAKER OIL TOOLS

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	R1-20'	NON-AQ	10/06/94	10/14/94	10/14/94	1
05	R1-30'	NON-AQ	10/06/94	10/14/94	10/14/94	1
06	R1-35'	NON-AQ	10/06/94	10/14/94	10/14/94	1

PARAMETER	UNITS	04	05	06
BENZENE	MG/KG	<0.025	<0.025	<0.025
TOLUENE	MG/KG	<0.025	<0.025	<0.025
ETHYLBENZENE	MG/KG	<0.025	<0.025	<0.025
TOTAL XYLENES	MG/KG	<0.025	0.066	<0.025
METHYL-t-BUTYL ETHER	MG/KG	<0.12	<0.12	<0.12

SURROGATE:

BROMOFLUOROBENZENE (%)	107	116	98
------------------------	-----	-----	----



Analytical **Technologies**, Inc.

## GAS CHROMATOGRAPHY RESULTS

### REAGENT BLANK

TEST	: BTEX, MTBE (EPA 8020)	ATI I.D.	: 410342
BLANK I.D.	: 101494	MATRIX	: NON-AQ
CLIENT	: RHINO ENVIRONMENTAL	DATE EXTRACTED	: 10/14/94
PROJECT #	: (NONE)	DATE ANALYZED	: 10/14/94
PROJECT NAME	: BAKER OIL TOOLS	DILUTION FACTOR	: 1

PARAMETER	UNITS	
BENZENE	MG/KG	<0.025
TOLUENE	MG/KG	<0.025
ETHYLBENZENE	MG/KG	<0.025
TOTAL XYLENES	MG/KG	<0.025
METHYL-t-BUTYL ETHER	MG/KG	<0.12

#### SURROGATE:

BROMOFLUOROBENZENE (%)	106
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Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST : BTEX, MTBE (EPA 8020)  
 MSMSD # : 41033902 ATI I.D. : 410342  
 CLIENT : RHINO ENVIRONMENTAL DATE EXTRACTED : 10/14/94  
 PROJECT # : (NONE) DATE ANALYZED : 10/14/94  
 PROJECT NAME : BAKER OIL TOOLS SAMPLE MATRIX : NON-AQ  
 REF. I.D. : 41033902 UNITS : MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.025	1.0	0.99	99	0.99	99	0
TOLUENE	<0.025	1.0	0.96	96	0.96	96	0
ETHYLBENZENE	<0.025	1.0	0.94	94	0.94	94	0
TOTAL XYLENES	<0.025	3.0	3.0	100	2.9	97	3
METHYL-t-BUTYL ETHER	<0.12	2.0	2.0	100	2.0	100	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$





Analytical **Technologies**, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107  
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. 411377

December 13, 1994

Rhino Environmental  
P.O. Box 2327  
Hobbs, NM 88240

Project Name/Number: BAKER OIL TOOLS

Attention: Royce Cooper

On 11/18/94, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **aqueous and non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

For EPA Method 8270 analysis, sample "R-1" had a corrupt file for the neat run so a 1:10 dilution is reported. There was insufficient sample for a Matrix Spike/Matrix Spike Duplicate to be analyzed.

Ignitability, Reactivity and Corrosivity analyses were performed by Analytical Technologies, Inc., 5550 Morehouse Drive, San Diego, CA.

EPA Method 8310 & 8270 analyses were performed by Analytical Technologies, Inc., 225 Commerce Drive, Fort Collins, CO.

EPA Method 418.1, 8010 and 8020 analyses were performed by Analytical Technologies, Inc., Albuquerque, NM.

All other analyses were performed by Analytical Technologies, Inc., 9830 S. 51st Street, Suite B-113, Phoenix, AZ.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Letitia Krakowski, Ph.D.  
Project Manager

H. Mitchell Rubenstein, Ph.D.  
Laboratory Manager

MR:jt  
Enclosure



Analytical **Technologies**, Inc.

CLIENT : RHINO ENVIRONMENTAL DATE RECEIVED: 11/18/94  
 PROJECT # : (NONE)  
 PROJECT NAME : BAKER OIL TOOLS REPORT DATE : 12/13/94

ATI ID: 411377

	ATI SAN DIEGO ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	411377-01	R-1	AQUEOUS	11/17/94
02	411377-02	MW1	AQUEOUS	11/17/94
03	411377-03	MW2	AQUEOUS	11/17/94
04	411377-04	MW3	AQUEOUS	11/17/94
05	411377-05	WW-1	AQUEOUS	11/17/94
06	411377-06	DRUM COMPOSITE-W	AQUEOUS	11/17/94
07	411377-07	DRUM COMPOSITE-SOIL	NON-AQ	11/17/94
08	411377-08	TRIP BLANK	AQUEOUS	11/09/94

---TOTALS---

<u>MATRIX</u>	<u>#SAMPLES</u>
AQUEOUS	7
NON-AQ	1

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)  
CLIENT : RHINO ENVIRONMENTAL ATI I.D.: 411377  
PROJECT # : (NONE)  
PROJECT NAME : BAKER OIL TOOLS

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	R-1	AQUEOUS	11/17/94	NA	11/21/94	1
02	MW1	AQUEOUS	11/17/94	NA	11/19/94	1
03	MW2	AQUEOUS	11/17/94	NA	11/19/94	1

PARAMETER	UNITS	01	02	03
BENZENE	UG/L	1.5	<0.5	<0.5
TOLUENE	UG/L	3.0	<0.5	0.5
ETHYLBENZENE	UG/L	49	<0.5	<0.5
TOTAL XYLENES	UG/L	94	1.2	0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5	<2.5	<2.5

SURROGATE:

BROMOFLUOROBENZENE (%) 119 98 99

## GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)  
 CLIENT : RHINO ENVIRONMENTAL ATI I.D.: 411377  
 PROJECT # : (NONE)  
 PROJECT NAME : BAKER OIL TOOLS

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW3	AQUEOUS	11/17/94	NA	11/19/94	1
05	WW-1	AQUEOUS	11/17/94	NA	11/19/94	1
08	TRIP BLANK	AQUEOUS	11/09/94	NA	11/19/94	1

PARAMETER	UNITS	04	05	08
BENZENE	UG/L	<0.5	260 D(10)	<0.5
TOLUENE	UG/L	<0.5	1.9	<0.5
ETHYLBENZENE	UG/L	<0.5	180	<0.5
TOTAL XYLENES	UG/L	0.8	7.0	<0.5
METHYL-t-BUTYL ETHER	UG/L	2.6	4.1	<2.5

## SURROGATE:

BROMOFLUOROBENZENE (%)	104	101	99
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D(10)=DILUTED 10X, ANALYZED 11/21/94





Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST : BTEX, MTBE (EPA 8020)  
 MSMSD # : 41137702 ATI I.D. : 411377  
 CLIENT : RHINO ENVIRONMENTAL DATE EXTRACTED : NA  
 PROJECT # : (NONE) DATE ANALYZED : 11/19/94  
 PROJECT NAME : BAKER OIL TOOLS SAMPLE MATRIX : AQUEOUS  
 REF. I.D. : 41137702 UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10	8.3	83	8.0	80	4
TOLUENE	<0.5	10	10	100	8.5	85	16
ETHYLBENZENE	<0.5	10	8.9	89	8.6	86	3
TOTAL XYLENES	1.2	30	31	99	28	89	10
METHYL-t-BUTYL ETHER	<2.5	20	19	95	19	95	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS (EPA 8010)  
 CLIENT : RHINO ENVIRONMENTAL ATI I.D.: 411377  
 PROJECT # : (NONE)  
 PROJECT NAME : BAKER OIL TOOLS

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	R-1	AQUEOUS	11/17/94	NA	11/30/94	1
06	DRUM COMPOSITE-W	AQUEOUS	11/17/94	NA	11/29/94	1
08	TRIP BLANK	AQUEOUS	11/09/94	NA	11/29/94	1
PARAMETER			UNITS	01	06	08
BROMODICHLOROMETHANE			UG/L	<0.2	<0.2	<0.2
BROMOFORM			UG/L	<0.5	<0.5	<0.5
BROMOMETHANE			UG/L	<1.0	<1.0	<1.0
CARBON TETRACHLORIDE			UG/L	<0.2	<0.2	<0.2
CHLOROBENZENE			UG/L	<0.5	<0.5	<0.5
CHLOROETHANE			UG/L	<0.5	<0.5	<0.5
CHLOROFORM			UG/L	<0.5	<0.5	<0.5
CHLOROMETHANE			UG/L	<1.0	<1.0	<1.0
DIBROMOCHLOROMETHANE			UG/L	<0.2	<0.2	<0.2
1,2-DIBROMOETHANE (EDB)			UG/L	<0.2	<0.2	<0.2
1,2-DICHLOROBENZENE			UG/L	<0.5	<0.5	<0.5
1,3-DICHLOROBENZENE			UG/L	<0.5	<0.5	<0.5
1,4-DICHLOROBENZENE			UG/L	<0.5	<0.5	<0.5
1,1-DICHLOROETHANE			UG/L	<0.2	<0.2	<0.2
1,2-DICHLOROETHANE (EDC)			UG/L	<0.5	<0.5	<0.5
1,1-DICHLOROETHENE			UG/L	<0.2	<0.2	<0.2
CIS-1,2-DICHLOROETHENE			UG/L	<0.2	<0.2	<0.2
TRANS-1,2-DICHLOROETHENE			UG/L	<1.0	<1.0	<1.0
1,2-DICHLOROPROPANE			UG/L	<0.2	<0.2	<0.2
CIS-1,3-DICHLOROPROPENE			UG/L	<0.2	<0.2	<0.2
TRANS-1,3-DICHLOROPROPENE			UG/L	<0.2	<0.2	<0.2
METHYLENE CHLORIDE			UG/L	<2.0	<2.0	<2.0
1,1,2,2-TETRACHLOROETHANE			UG/L	<0.2	<0.2	<0.2
TETRACHLOROETHENE			UG/L	<0.5	<0.5	<0.5
1,1,1-TRICHLOROETHANE			UG/L	<1.0	<1.0	<1.0
1,1,2-TRICHLOROETHANE			UG/L	<0.2	<0.2	<0.2
TRICHLOROETHENE			UG/L	<0.2	<0.2	<0.2
TRICHLOROFLUOROMETHANE			UG/L	<0.2	<0.2	<0.2
VINYL CHLORIDE			UG/L	<0.5	<0.5	<0.5
SURROGATE:						
BROMOCHLOROMETHANE (%)				95	101	98



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK

TEST	: EPA 8010	ATI I.D.	: 411377
BLANK I.D.	: 112994	MATRIX	: AQUEOUS
CLIENT	: RHINO ENVIRONMENTAL	DATE EXTRACTED	: NA
PROJECT #	: (NONE)	DATE ANALYZED	: 11/29/94
PROJECT NAME	: BAKER OIL TOOLS	DIL. FACTOR	: 1

PARAMETER	UNITS	
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.2
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.2
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5

SURROGATE:

BROMOCHLOROMETHANE (%)

97



## GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

## REAGENT BLANK

TEST	: EPA 8010	ATI I.D.	: 411377
BLANK I.D.	: 113094	MATRIX	: AQUEOUS
CLIENT	: RHINO ENVIRONMENTAL	DATE EXTRACTED	: NA
PROJECT #	: (NONE)	DATE ANALYZED	: 11/30/94
PROJECT NAME	: BAKER OIL TOOLS	DIL. FACTOR	: 1

PARAMETER	UNITS	
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.2
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.2
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5

## SURROGATE:

BROMOCHLOROMETHANE (%)

102



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST : PURGEABLE HALOCARBONS (EPA 8010)  
 MSMSD # : 41138201 ATI I.D. : 411377  
 CLIENT : RHINO ENVIRONMENTAL DATE EXTRACTED : NA  
 PROJECT # : (NONE) DATE ANALYZED : 11/29/94  
 11/30/94  
 PROJECT NAME : BAKER OIL TOOLS SAMPLE MATRIX : AQUEOUS  
 REF. I.D. : 41138201 UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
CHLOROBENZENE	<0.5	10	8.8	88	8.8	88	0
1,1-DICHLOROETHENE	<0.2	10	9.0	90	9.6	96	6
TRICHLOROETHENE	<0.2	10	9.2	92	9.6	96	4

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

Client : ANALYTICAL TECHNOLOGIES, INC.  
Project # : 411377  
Project Name: RHINO

ATI I.D.: 411319

Sample #	Client ID	Matrix	Date Sampled	Date Received
1	411377-07	SOIL	17-NOV-94	22-NOV-94

Parameter	Units	1
IGNITABILITY		NEGATIVE
pH	UNITS	7.6
REACTIVITY		NEGATIVE



Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

DUP/MS

Client : ANALYTICAL TECHNOLOGIES, INC.

Project # : 411377

ATI I.D. : 411319

Project Name: RHINO

Parameters	REF I.D.	Units	Sample Result	Dup Result	RPD	Spiked Sample	Spike Conc	% Rec
IGNITABILITY	411319-01		NEGATIVE	NEGATIVE	0	N/A	N/A	N/A
REACTIVITY	411319-01		NEGATIVE	NEGATIVE	0	N/A	N/A	N/A
pH	411319-01	UNITS	7.6	7.8	3	N/A	N/A	N/A

% Recovery = (Spike Sample Result - Sample Result)\*100/Spike Concentration

RPD (Relative % Difference) = (Sample Result - Duplicate Result)\*100/Average Result



## GENERAL CHEMISTRY RESULTS

CLIENT : RHINO ENVIRONMENTAL                      ATI I.D. : 411377  
PROJECT # : (NONE)                                      DATE RECEIVED : 11/18/94  
PROJECT NAME : BAKER OIL TOOLS                      DATE ANALYZED : 11/28/94

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PARAMETER	UNITS	07
PETROLEUM HYDROCARBONS, IR	MG/KG	1200

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Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : RHINO ENVIRONMENTAL                      ATI I.D. : 411377  
PROJECT # : (NONE)                                      SAMPLE MATRIX : NON-AQ  
PROJECT NAME : BAKER OIL TOOLS                      UNITS : MG/KG

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PETROLEUM HYDROCARBONS	41138206	<20	<20	NA	170	140	121

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical **Technologies**, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 411377

CLIENT : RHINO ENVIRONMENTAL  
PROJECT # : (NONE)  
PROJECT NAME : BAKER OIL TOOLS

DATE RECEIVED : 11/18/94

REPORT DATE : 12/12/94

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PARAMETER	UNITS	01
CARBONATE (CACO3)	MG/L	<1
BICARBONATE (CACO3)	MG/L	462
HYDROXIDE (CACO3)	MG/L	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	462
CHLORIDE (EPA 325.2)	MG/L	340
FLUORIDE (EPA 340.2)	MG/L	1.61
SULFATE (EPA 375.2)	MG/L	42
T. DISSOLVED SOLIDS (160.1)	MG/L	1100

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Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : RHINO ENVIRONMENTAL  
 PROJECT # : (NONE)  
 PROJECT NAME : BAKER OIL TOOLS

ATI I.D. : 411377

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	41178606	<1	<1	NA	NA	NA	NA
BICARBONATE	MG/L		156	156	0	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		156	156	0	NA	NA	NA
CHLORIDE	MG/L	41138301	650	650	0	1600	1000	95
FLUORIDE	MG/L	41174401	0.23	0.23	0	0.73	0.50	100
SULFATE	MG/L	41163931	1100	1100	0	2000	1000	90
TOTAL DISSOLVED SOLIDS	MG/L	41136801	3400	3400	0	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 411377

CLIENT : RHINO ENVIRONMENTAL  
PROJECT # : (NONE)  
PROJECT NAME : BAKER OIL TOOLS

DATE RECEIVED : 11/18/94

REPORT DATE : 12/12/94

PARAMETER	UNITS	01
SILVER (EPA 200.7/6010)	MG/L	<0.020
ARSENIC (EPA 206.2/7060)	MG/L	0.038
BARIUM (EPA 200.7/6010)	MG/L	10.1
CALCIUM (EPA 200.7/6010)	MG/L	155
CADMIUM (EPA 213.2/7131)	MG/L	0.0006
CHROMIUM (EPA 200.7/6010)	MG/L	0.505
MERCURY (EPA 245.1/7470)	MG/L	<0.0002
POTASSIUM (EPA 200.7/6010)	MG/L	24.4
MAGNESIUM (EPA 200.7/6010)	MG/L	40.9
SODIUM (EPA 200.7/6010)	MG/L	170
LEAD (EPA 239.2/7421)	MG/L	0.028
SELENIUM (EPA 270.2/7740)	MG/L	<0.005



Analytical **Technologies**, Inc.

METALS - QUALITY CONTROL

CLIENT : RHINO ENVIRONMENTAL  
 PROJECT # : (NONE)  
 PROJECT NAME : BAKER OIL TOOLS

ATI I.D. : 411377

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/L	41137304	<0.010	<0.010	NA	0.409	0.500	82
ARSENIC	MG/L	41137304	0.110	0.105	5	0.150	0.050	80
BARIUM	MG/L	41137304	24.0	23.0	4	34.0	10.0	100
CALCIUM	MG/L	41180506	96.3	94.6	2	141	50.0	89
CADMIUM	MG/L	41137304	<0.0005	<0.0005	NA	0.0046	0.0050	92
CHROMIUM	MG/L	41137304	<0.010	<0.010	NA	0.852	1.00	85
MERCURY	MG/L	41138304	<0.0002	0.0002	NA	0.0048	0.0050	96
POTASSIUM	MG/L	41180506	5.0	5.2	4	50.1	50.0	90
MAGNESIUM	MG/L	41180506	21.9	21.5	2	44.7	25.0	91
SODIUM	MG/L	41180506	131	129	2	176	50.0	90
LEAD	MG/L	41137304	<0.002	<0.002	NA	0.042	0.050	84
SELENIUM	MG/L	41172302	<0.005	<0.005	NA	0.033	0.050	66

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



DATE: 12-08-94

ION BALANCE

ATI ACCESSION NUMBER: 41137701  
 SAMPLE IDENTIFICATION: R-1  
 CLIENT: RHINO ENVIRONMENTAL

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO <sub>3</sub> )	462.000	0.02000	9.24000
CHLORIDE	340.000	0.02821	9.59140
FLUORIDE	1.610	0.05254	0.08475
NITRATE AS N	NA	0.01613	0.00000
SULFATE	42.000	0.02082	0.87444
TOTAL ANIONS			19.79059

CATIONS	RESULT	FACTOR	TOTAL
CALCIUM	155.000	0.04990	7.7345
POTASSIUM	24.400	0.02558	0.62415
MAGNESIUM	40.900	0.08229	3.36566
SODIUM	170.000	0.04350	7.39500
COPPER	NA	0.03147	0.00000
IRON	NA	0.05372	0.00000
MANGANESE	NA	0.03640	0.00000
ZINC	NA	0.03059	0.00000
TOTAL CATIONS			19.11931

	%RPD (<10%)		3.45
TOTAL ANIONS/CATIONS	1051		
TOTAL DISSOLVED SOLIDS	1100	%RPD (<15%)	-4.55
ELECTRICAL COND.	NA	TDS/EC RATIO (0.65+/-0.1)	#DIV/0!



Analytical **Technologies**, Inc.

**POLYNUCLEAR AROMATIC HYDROCARBONS**

Method 8310

Sample ID

Lab Name: Analytical Technologies Inc.  
 Client Name: Analytical Technologies, Inc.  
 Client Project ID: Rhino -- 411377  
 Lab Sample ID: 94-11-253-02

**MW1**

Date Collected: 11/17/94  
 Date Extracted: 11/22/94  
 Date Analyzed: 11/29/94

Sample Matrix: Water  
 Cleanup: N/A

Sample Volume: 1000 mL  
 Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.30
Acenaphthylene	ND	0.30
Acenaphthene	ND	0.50
Fluorene	ND	0.040
Phenanthrene	ND	0.030
Anthracene	ND	0.010
Fluoranthene	ND	0.030
Pyrene	ND	0.040
Benzo(a)anthracene	ND	0.010
Chrysene	ND	0.020
Benzo(b)fluoranthene	ND	0.010
Benzo(k)fluoranthene	ND	0.010
Benzo(a)pyrene	ND	0.010
Dibenzo(a,h)anthracene	ND	0.030
Benzo(g,h,i)perylene	ND	0.040
Indeno(1,2,3,c,d)pyrene	ND	0.030
1-Methylnaphthalene	ND	0.30
2-Methylnaphthalene	ND	0.30

**SURROGATE RECOVERY**

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	71	15 - 117

ND = Not Detected



Analytical **Technologies**, Inc.

**POLYNUCLEAR AROMATIC HYDROCARBONS**

Method 8310

Sample ID

**MW2**

Lab Name: Analytical Technologies Inc.  
 Client Name: Analytical Technologies, Inc.  
 Client Project ID: Rhino -- 411377  
 Lab Sample ID: 94-11-253-03

Date Collected: 11/17/94  
 Date Extracted: 11/22/94  
 Date Analyzed: 11/29/94

Sample Matrix: Water  
 Cleanup: N/A

Sample Volume: 1000 mL  
 Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.30
Acenaphthylene	ND	0.30
Acenaphthene	ND	0.50
Fluorene	ND	0.040
Phenanthrene	ND	0.030
Anthracene	ND	0.010
Fluoranthene	ND	0.030
Pyrene	ND	0.040
Benzo(a)anthracene	ND	0.010
Chrysene	ND	0.020
Benzo(b)fluoranthene	ND	0.010
Benzo(k)fluoranthene	ND	0.010
Benzo(a)pyrene	ND	0.010
Dibenzo(a,h)anthracene	ND	0.030
Benzo(g,h,i)perylene	ND	0.040
Indeno(1,2,3,c,d)pyrene	ND	0.030
1-Methylnaphthalene	ND	0.30
2-Methylnaphthalene	ND	0.30

**SURROGATE RECOVERY**

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	65	15 - 117

ND = Not Detected



Analytical Technologies, Inc.

**POLYNUCLEAR AROMATIC HYDROCARBONS**

Method 8310

Sample ID

Lab Name: Analytical Technologies Inc.  
 Client Name: Analytical Technologies, Inc.  
 Client Project ID: Rhino -- 411377  
 Lab Sample ID: 94-11-253-04

<b>MW3</b>
------------

Date Collected: 11/17/94  
 Date Extracted: 11/22/94  
 Date Analyzed: 11/29/94

Sample Matrix: Water  
 Cleanup: N/A

Sample Volume: 1000 mL  
 Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.30
Acenaphthylene	ND	0.30
Acenaphthene	ND	0.50
Fluorene	ND	0.040
Phenanthrene	0.60	0.030
Anthracene	ND	0.010
Fluoranthene	0.15	0.030
Pyrene	0.04	0.040
Benzo(a)anthracene	ND	0.010
Chrysene	ND	0.020
Benzo(b)fluoranthene	ND	0.010
Benzo(k)fluoranthene	ND	0.010
Benzo(a)pyrene	ND	0.010
Dibenzo(a,h)anthracene	ND	0.030
Benzo(g,h,i)perylene	ND	0.040
Indeno(1,2,3,c,d)pyrene	ND	0.030
1-Methylnaphthalene	ND	0.30
2-Methylnaphthalene	1.0	0.30

**SURROGATE RECOVERY**

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	63	15 - 117

ND = Not Detected



Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS  
Method 8310

Lab Name: Analytical Technologies Inc.  
Client Name: Analytical Technologies, Inc.  
Client Project ID: Rhino -- 411377  
Lab Sample ID: 94-11-253-05

Sample Matrix: Water  
Cleanup: N/A

Sample ID

**WW-1**

Date Collected: 11/17/94  
Date Extracted: 11/22/94  
Date Analyzed: 11/30/94

Sample Volume: 1000 mL  
Final Volume: 10 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	46	3.0
Acenaphthylene	6.3	3.0
Acenaphthene	ND	5.0
Fluorene	ND	0.40
Phenanthrene	ND	0.30
Anthracene	ND	0.10
Fluoranthene	ND	0.30
Pyrene	ND	0.40
Benzo(a)anthracene	ND	0.10
Chrysene	ND	0.20
Benzo(b)fluoranthene	ND	0.10
Benzo(k)fluoranthene	ND	0.10
Benzo(a)pyrene	ND	0.10
Dibenzo(a,h)anthracene	ND	0.30
Benzo(g,h,i)perylene	ND	0.40
Indeno(1,2,3,c,d)pyrene	ND	0.30
1-Methylnaphthalene	10	3.0
2-Methylnaphthalene	14	3.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	78	15 - 117

ND = Not Detected



Analytical **Technologies**, Inc.

**POLYNUCLEAR AROMATIC HYDROCARBONS**

Method 8310

Sample ID

Lab Name: Analytical Technologies Inc.  
 Client Name: Analytical Technologies, Inc.  
 Client Project ID: Rhino -- 411377  
 Lab Sample ID: WRB1 11/22/94

**Reagent Blank**

Sample Matrix: Water  
 Cleanup: N/A

Date Collected: N/A  
 Date Extracted: 11/22/94  
 Date Analyzed: 11/29/94

Sample Volume: 1000 mL  
 Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.30
Acenaphthylene	ND	0.30
Acenaphthene	ND	0.50
Fluorene	ND	0.040
Phenanthrene	ND	0.030
Anthracene	ND	0.010
Fluoranthene	ND	0.030
Pyrene	ND	0.040
Benzo(a)anthracene	ND	0.010
Chrysene	ND	0.020
Benzo(b)fluoranthene	ND	0.010
Benzo(k)fluoranthene	ND	0.010
Benzo(a)pyrene	ND	0.010
Dibenzo(a,h)anthracene	ND	0.030
Benzo(g,h,i)perylene	ND	0.040
Indeno(1,2,3,c,d)pyrene	ND	0.030
1-Methylnaphthalene	ND	0.30
2-Methylnaphthalene	ND	0.30

**SURROGATE RECOVERY**

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	67	15 - 117

ND = Not Detected



Analytical Technologies, Inc.

**POLYNUCLEAR AROMATIC HYDROCARBON BLANK SPIKE**

Method 8310

Lab Name: Analytical Technologies, Inc.

Lab Sample ID: WBS1, 2 11/22/94

Client Name: Analytical Technologies, Inc.

Date Extracted: 11/22/94

Client Project ID: Rhino -- 411377

Date Analyzed: 11/29/94

Sample Matrix: Water

Instrument ID: HPLC

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
Acenaphthylene	10.0	7.5	75	36-113
Phenanthrene	1.00	0.89	89	30-114
Pyrene	1.00	0.76	76	43-108
Dibenzo(a,h)anthracene	1.00	0.72	72	42-111
Benzo(k)fluoranthene	0.25	0.20	80	35-104

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD Percent Recovery	RPD	QC Limits RPD
Acenaphthylene	10	7	70	8	20
Phenanthrene	1.0	0.8	82	8	20
Pyrene	1.0	0.7	72	5	20
Dibenzo(a,h)anthracene	1.0	0.6	62	14	20
Benzo(k)fluoranthene	0.25	0.2	87	9	20

**SURROGATE RECOVERY BS/BSD**

Analyte	% Recovery (BS)	% Recovery (BSD)	% Rec Limits
2-Chloroanthracene	69	65	15 - 117



Analytical Technologies, Inc.

### SEMIVOLATILE ORGANICS

Method 8270

Sample ID

R - 1

Lab Name: Analytical Technologies, Inc.

Client Name: ATI -NM

Client Project: Rhino -- 411377

Lab Sample ID.: 94-11-253-01

Date Collected: 11/17/94

Date Extracted: 11/22/94

Date Analyzed: 11/29/94

Sample Matrix: Water

Cleanup: None

Sample Volume: 1000 mL

Final Volume: 10 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Phenol	ND	100
bis (2-Chloroethyl) ether	ND	100
2-Chlorophenol	ND	100
1,3-Dichlorobenzene	ND	100
1,4-Dichlorobenzene	ND	100
Benzyl alcohol	ND	100
1,2-Dichlorobenzene	ND	100
2-Methylphenol	ND	100
bis (2-Chloroisopropyl) ether	ND	100
4-Methylphenol	ND	100
N-Nitroso-di-n-propylamine	ND	100
Hexachloroethane	ND	100
Nitrobenzene	ND	100
Isophorone	ND	100
2-Nitrophenol	ND	100
2,4-Dimethylphenol	ND	100
Benzoic acid	ND	500
bis (2-Chloroethoxy) methane	ND	100
2,4-Dichlorophenol	ND	100
1,2,4-Trichlorobenzene	ND	100
Naphthalene	240	100
4-Chloroaniline	ND	100
Hexachlorobutadiene	ND	100
4-Chloro-3-methylphenol	ND	100
2-Methylnaphthalene	360	100
Hexachlorocyclopentadiene	ND	100
2,4,6-Trichlorophenol	ND	100
2,4,5-Trichlorophenol	ND	500
2-Chloronaphthalene	ND	100
2-Nitroaniline	ND	500
Dimethyl phthalate	ND	100
Acenaphthylene	ND	100
2,6-Dinitrotoluene	ND	100
3-Nitroaniline	ND	500
Acenaphthene	ND	100
2,4-Dinitrophenol	ND	500



Analytical Technologies, Inc.

**SEMIVOLATILE ORGANICS**

Method 8270

Lab Name: Analytical Technologies, Inc.  
Lab Sample ID.: 94-11-253-01

Sample ID

R - 1

Analyte	Results (ug/L)	Detection Limit (ug/L)
4-Nitrophenol	ND	500
Dibenzofuran	25 J	100
2,4-Dinitrotoluene	ND	100
Diethyl phthalate	ND	100
4-Chlorophenyl phenyl ether	ND	100
Fluorene	ND	100
4-Nitroaniline	ND	500
4,6-Dinitro-2-methylphenol	ND	500
N-Nitrosodiphenylamine	ND	100
4-Bromophenyl phenyl ether	ND	100
Hexachlorobenzene	ND	100
Pentachlorophenol	ND	500
Phenanthrene	ND	100
Anthracene	ND	100
Di-n-butyl phthalate	ND	100
Fluoranthene	ND	100
Pyrene	ND	100
Butyl benzyl phthalate	ND	100
3,3'-Dichlorobenzidine	ND	200
Benzo(a)anthracene	ND	100
Chrysene	ND	100
Bis(2-ethylhexyl)phthalate	28 J	100
Di-n-octyl phthalate	ND	100
Benzo(b)fluoranthene	ND	100
Benzo(k)fluoranthene	ND	100
Benzo(a)pyrene	ND	100
Indeno(1,2,3-cd)pyrene	ND	100
Dibenz(a,h)anthracene	ND	100
Benzo(g,h,i)perylene	ND	100

**SURROGATE RECOVERIES**

Analyte	% Recovery	% Rec Limits
2-Fluorophenol	62	21-110
Phenol-d5	64	10-110
Nitrobenzene-d5	133*	35-114
2-Fluorobiphenyl	90	43-116
2,4,6-Tribromophenol	55	10-123
Terphenyl-d14	45	33-141

ND = Not Detected

\* = Outside QC limits

J = Estimated value, analyte found below detection limit



Analytical Technologies, Inc.

### SEMIVOLATILE ORGANICS

Method 8270

Lab Name: Analytical Technologies, Inc.  
Client Name: ATI -NM  
Client Project: Rhino -- 411377  
Lab Sample ID.: WRB1 11/22/94

Sample ID

Reagent  
Blank

Date Collected: N/A  
Date Extracted: 11/22/94  
Date Analyzed: 11/29/94

Sample Matrix: Water  
Cleanup: None

Sample Volume: 1000 mL  
Final Volume: 1 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Phenol	ND	10
bis (2-Chloroethyl) ether	ND	10
2-Chlorophenol	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
Benzyl alcohol	ND	10
1,2-Dichlorobenzene	ND	10
2-Methylphenol	ND	10
bis (2-Chloroisopropyl) ether	ND	10
4-Methylphenol	ND	10
N-Nitroso-di-n-propylamine	ND	10
Hexachloroethane	ND	10
Nitrobenzene	ND	10
Isophorone	ND	10
2-Nitrophenol	ND	10
2,4-Dimethylphenol	ND	10
Benzoic acid	ND	50
bis (2-Chloroethoxy) methane	ND	10
2,4-Dichlorophenol	ND	10
1,2,4-Trichlorobenzene	ND	10
Naphthalene	ND	10
4-Chloroaniline	ND	10
Hexachlorobutadiene	ND	10
4-Chloro-3-methylphenol	ND	10
2-Methylnaphthalene	ND	10
Hexachlorocyclopentadiene	ND	10
2,4,6-Trichlorophenol	ND	10
2,4,5-Trichlorophenol	ND	50
2-Chloronaphthalene	ND	10
2-Nitroaniline	ND	50
Dimethyl phthalate	ND	10
Acenaphthylene	ND	10
2,6-Dinitrotoluene	ND	10
3-Nitroaniline	ND	50
Acenaphthene	ND	10
2,4-Dinitrophenol	ND	50



Analytical Technologies, Inc.

### SEMIVOLATILE ORGANICS

Method 8270

Lab Name: Analytical Technologies, Inc.  
Lab Sample ID.: WRB1 11/22/94

Sample ID
Reagent
Blank

Analyte	Results (ug/L)	Detection Limit (ug/L)
4-Nitrophenol	ND	50
Dibenzofuran	ND	10
2,4-Dinitrotoluene	ND	10
Diethyl phthalate	ND	10
4-Chlorophenyl phenyl ether	ND	10
Fluorene	ND	10
4-Nitroaniline	ND	50
4,6-Dinitro-2-methylphenol	ND	50
N-Nitrosodiphenylamine	ND	10
4-Bromophenyl phenyl ether	ND	10
Hexachlorobenzene	ND	10
Pentachlorophenol	ND	50
Phenanthrene	ND	10
Anthracene	ND	10
Di-n-butyl phthalate	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Butyl benzyl phthalate	ND	10
3,3'-Dichlorobenzidine	ND	20
Benzo(a)anthracene	ND	10
Chrysene	ND	10
Bis(2-ethylhexyl)phthalate	ND	10
Di-n-octyl phthalate	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenz(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10

### SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
2-Fluorophenol	88	21-110
Phenol-d5	84	10-110
Nitrobenzene-d5	99	35-114
2-Fluorobiphenyl	94	43-116
2,4,6-Tribromophenol	78	10-123
Terphenyl-d14	94	33-141

ND = Not Detected



Analytical Technologies, Inc.

SEMIVOLATILE ORGANICS BLANK SPIKE/BLANK SPIKE DUPLICATE RESULTS

Method 8270

Sample ID

Blank  
Spike

Lab Name: Analytical Technologies, Inc.

Client Name: ATI -NM

Client Project: Rhino -- 411377

Lab Sample ID: WBS 11/22/94

Date Collected: N/A

Date Extracted: 11/22/94

Date Analyzed: 11/29/94

Sample Matrix: Water

Cleanup: None

Sample Volume: 1000 mL

Final Volume: 1 mL

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	BS Concentration (ug/L)	BS % Rec	QC Limit Recovery
Phenol	75	N/A	48.6	65	12-110
2-Chlorophenol	75	N/A	48.6	65	27-123
1,4-Dichlorobenzene	50	N/A	34.6	69	36-97
N-Nitroso-di-n-propylamine	50	N/A	47.8	96	41-116
1,2,4-Trichlorobenzene	50	N/A	38.9	78	39-98
4-Chloro-3-methylphenol	75	N/A	49.1	65	23-97
Acenaphthene	50	N/A	38.1	76	46-118
4-Nitrophenol	75	N/A	48.9	65	10-80
2,4-Dinitrotoluene	50	N/A	40.0	80	24-96
Pentachlorophenol	75	N/A	16.2	22	9-103
Pyrene	50	N/A	38.7	77	26-127

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD % REC #	% RPD	QC LIMITS RPD REC.
Phenol	75	45.5	61	7	42   12-110
2-Chlorophenol	75	45.8	61	6	40   27-123
1,4-Dichlorobenzene	50	32.8	66	5	28   36-97
N-Nitroso-di-n-propylamine	50	42.8	86	11	38   41-116
1,2,4-Trichlorobenzene	50	37.8	76	3	28   39-98
4-Chloro-3-methylphenol	75	47.5	63	3	42   23-97
Acenaphthene	50	36.6	73	4	31   46-118
4-Nitrophenol	75	45.8	61	7	50   10-80
2,4-Dinitrotoluene	50	37.9	76	5	38   24-96
Pentachlorophenol	75	15.1	20	7	50   9-103
Pyrene	50	35.7	71	8	31   26-127

N/A = Not Applicable

# CHAIN OF CUSTODY

ATLABID: **41077**

DATE: **11-17-94** PAGE **1** OF **1**

Analytical Technologies, Inc., Albuquerque, NM  
 San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque

PROJECT MANAGER: **JOYCE COOPER**

COMPANY: **RHINO ENVIRONMENTAL**

ADDRESS: **PO BOX 2327**

**HERBS, NM 88240**

PHONE: **505 392-4498**

FAX: **SAME**

BILL TO: **SAME**

COMPANY: **SAME**

ADDRESS: **SAME**

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
R-1	11/17/94	14:58	WATER	01
MW1	11/17/94	11:56	WATER	02
MW2	"	15:28	WATER	03
MW3	"	15:50	WATER	04
WW-1	"	11:28	WATER	05
DRUM COMPOSITE - W	"	16:06	WATER	06
DRUM COMPOSITE - SOIL	1	16:15	SOIL	07
TRIP BLANK	11-9	14:00	AA	08

## ANALYSIS REQUEST

CONTAINER NUMBER	Petroleum Hydrocarbons (418.1) (TCM, BCP, etc)	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	SO <sub>4</sub> , ALK, F, CL	Na, Ca, Mg, K	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	Tim Balance	SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal	The 13 Priority Pollutant Metals	RCA Metals by Total Digestion	RCA Metals by TCLP (1311)
1			X					X	X			X			X							
2			X					X	X			X			X							
3			X					X	X			X			X							
4			X					X	X			X			X							
4			X					X	X			X			X							
4			X					X	X			X			X							
5			X					X	X			X			X							
2			X					X	X			X			X							
2			X					X	X			X			X							

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJ. NO:	NO. CONTAINERS	NO. CONTAINERS	80
PROJ. NAME: <b>BAKER OIL TOOLS</b>	CUSTODY SEALS	CUSTODY SEALS	(N) N/A
P.O. NO:	RECEIVED INTACT	RECEIVED INTACT	Y
SHIPPED VIA: <b>UPS</b>	RECEIVED COLD	RECEIVED COLD	Y
PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS			
(RUSH) <input type="checkbox"/> 24hr <input type="checkbox"/> 48hr <input type="checkbox"/> 72hr <input type="checkbox"/> 1 WEEK	(NORMAL) <input checked="" type="checkbox"/> 2 WEEK		
Comments:			

SAMPLED & RELINQUISHED BY: 1		RELINQUISHED BY: 2		RELINQUISHED BY: 3	
Signature:	Time: <b>16:31</b>	Signature:	Time:	Signature:	Time:
Printed Name: <b>KAYCE COOPER</b>	Date: <b>11/17/94</b>	Printed Name:	Date:	Printed Name:	Date:
Company: <b>ANALYTICAL TECHNOLOGIES, INC.</b>	Phone: <b>505-392-4498</b>	Company:	Company:	Company:	Company:
RECEIVED BY: 1		RECEIVED BY: 2		RECEIVED BY: 3	
Signature:	Time:	Signature:	Time:	Signature:	Time:
Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:
Company:	Company:	Company:	Company:	Company:	Company:





Analytical Technologies, Inc. Albuquerque, NM

# Chain of Custody

DATE 11/18/94 PAGE 1 OF 1

ANALYSIS REQUEST			
TOX	TOC	ORGANIC LEAD	SURFACTANTS (MBAS)
			Ignite (Conc), Research
			632632 MCD
			619/619 MOD
			610/8310
			X SOYBAK, F.C.I., N.A., M.J.K.
			X Ion Balance
			8240 (TCLP 1311) ZHE
			X TDS
			Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)
			Volatile Organics GC/MS (624/824C)
			X RIA Meth 5 h / 1st. Wash
			NACE
			ASBESTOS
			BOO
			TOTAL COLIFORM
			FECAL COLIFORM
			GROSS ALPHA/BETA
			RADIUM 226/228
			AIR - O2, CO2, METHANE
			AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)
			NUMBER OF CONTAINERS
			2

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER:	411377	TOTAL NUMBER OF CONTAINERS	3
PROJECT NAME:	Rush	CHAIN OF CUSTODY SEALS	Intact?
QC LEVEL:	IV	RECEIVED GOOD COND./COLD	LAB NUMBER 411377
QC REQUIRED:	MS MSD BLANK		
TAT:	STANDARD RUSH		
DUE DATE:	12/6/94		
RUSH SURCHARGE:			
CLIENT DISCOUNT:			

RECEIVED BY: (LAB)		RECEIVED BY: (LAB)	
Signature:	<i>[Signature]</i>	Signature:	<i>[Signature]</i>
Printed Name:	MARJORIE CRANE	Printed Name:	MARJORIE CRANE
Date:	11/18/94	Date:	11/18/94
Company:	ATL	Company:	ATL

Watt LK 1126





Submit to Appropriate District Office in Triplicate

DISTRICT I  
PO Box 1980  
Hobbs, NM 88241-1980

DISTRICT II  
PO Drawer 141  
Artesia, NM 88211-0141

STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

DISTRICT III  
1000 Rio Arriba Rd.  
Aztec, NM 87410

DISTRICT IV  
PO Box 2088  
Santa Fe, NM 87504-2088

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE		XXXXXXXXXXXXXXXXXXXXXXXXXXXX
1. RCRA Exempt: <input type="checkbox"/> Non-Exempt: <input checked="" type="checkbox"/> Verbal Approval Received: Yes <input type="checkbox"/> No <input type="checkbox"/>	4. Generator Baker Oil Tools	
2. Destination Controlled Recovery, Inc.	5. Name of Originating Site Hobbs Yard	
3. Address of Facility Operator P.O. Box 369, Hobbs, NM 88241	6. Name of Transporter Petro Thermo	
7. Location of Material (Street Address or ULSTR) 507 West County Road	8. State NM	
9. <u>Circle One</u> A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job. B. All requests for approval to accept non-oilfield exempt wastes will be accompanied by a certification of waste status from the Generator and the New Mexico Environment Department or other appropriate government agency; two certificates per job. <input checked="" type="radio"/> C. All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analyses to prove the material is non-hazardous and the Generator's certification of origin. No waste classified as hazardous by listing or testing will be approved. All transporters must certify the wastes delivered are only those consigned for transport.		

BRIEF DESCRIPTION OF THE MATERIAL:

The material is from the facility's sump. The analytical results are on file with your office, and a statement from the generator is attached.

RECEIVED

NOV 04 1994

OFFICE

Estimated Volume 40 bbls. cy Known Volume (to be entered by the operator at the end of the haul): \_\_\_\_\_ cy  
 I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Annette Curiel TITLE Office Manager DATE 10/31/94  
 TYPE OR PRINT NAME Annette Curiel TELEPHONE NO. (505) 393-1079

(This space for State Use)

APPROVED BY [Signature] TITLE From Eng DATE 11/7/94  
 APPROVED BY [Signature] TITLE Geology IV DATE 11/17/94

CONTINUED ON REVERSE IF ANY

**BAKER OIL TOOLS  
P.O. BOX 1828  
HOBBS, NM 88241  
(505) 393-4147**

**STATEMENT OF CONDITION FOR ACCEPTANCE**

We are requesting permission to dispose of waste material from our Hobbs yard at the Controlled Recovery, Inc. facility. The waste is generated from our sump, which is a concrete holding area for water that is used to wash off oil tools at our yard. As a condition of acceptance for disposal, I hereby certify that the analytical results dated March 17, 1994 still reflect the characteristics of this waste. In addition, I certify that no "hazardous waste" has been added or mixed with the sump waste.

BY: *Dennis Collier J.*  
Name  
*District Manager*  
Title  
10-31-94  
Date  
Hobbs yard - 507 West County Road  
Project Location

**RECEIVED**

NOV 04 1994

**CONTROLLED RECOVERY  
OFFICE**



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION



BRUCE KING  
GOVERNOR

ANITA LOCKWOOD  
CABINET SECRETARY

October 6, 1994

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. P-667-242-170**

Mr. Victor Bedford  
Baker Oil Tools  
9100 Emmott Rd.  
Houston, Texas 77040

**RE: MONITOR WELL INSTALLATION  
BAKER OIL TOOLS HOBBS FACILITY**

Dear Mr. Bedford:

The New Mexico Oil Conservation Division (OCD) has completed a review of Baker Oil Tools (BOT) October 5, 1994 and September 27, 1994 correspondence which was submitted on behalf of BOT by Rhino Environmental Services, Inc. These documents contain BOT's work plan for installation of an additional monitor well directly downgradient of the former unlined pit at BOT's oilfield service company facility located at 2800 West Marland in Hobbs, New Mexico.

The above referenced monitor well installation work plan is approved with the following conditions:

1. In addition to the analyses proposed, ground water from the new monitor well will also be sampled and analyzed for major cations and anions and heavy metals using EPA approved methods.
2. Ground water from the previously installed monitoring wells will be sampled and analyzed for benzene, toluene, ethylbenzene, xylene and polynuclear aromatic hydrocarbons using EPA approved methods.
3. BOT will submit a report on the site investigations to the OCD by January 14, 1995. The report will contain the results of all investigation activities including a water table elevation map for the site, well logs, monitor well completion diagrams, all soil and ground water sampling analytical results and any other pertinent information.

Mr. Victor Bedford  
October 6, 1994  
Page 2

4. BOT will notify the OCD at least 72 hours in advance of all scheduled activities such that the OCD has the opportunity to witness the events and/or split samples.
5. All original documents submitted for approval will be submitted to the OCD Santa Fe Office with copies provided to the OCD Hobbs Office.

Please be advised that OCD approval does not relieve BOT of liability should the investigation activities determine that contamination exists which is beyond the scope of the work plan or if the closure activities fail to adequately determine the extent of contamination related to BOT's activities. In addition, OCD approval does not relieve BOT of responsibility for compliance with any other federal, state or local laws and/or regulations.

If you have any questions, please call me at (505) 827-5885.

Sincerely,



William C. Olson  
Hydrogeologist  
Environmental Bureau

xc: Jerry Sexton, OCD Hobbs District Supervisor  
Wayne Price, OCD Hobbs Office

P 667 242 170  
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No Insurance Coverage Provided  
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