

1R - 43

REPORTS

DATE:

2004

1R43

**Baker Oil Tools
Hobbs, New Mexico
Groundwater Sampling
Calendar Year 2004
NMOCD Project # 60260-8-1332-04**

Prepared for:
Baker Oil Tools
9100 Emmott Road
Houston, Texas

RECEIVED
JUL 02 2004
Oil Conservation Division
Environmental Bureau

Prepared by:
Stenbeck & Associates, Inc.
PO Box 841005
Houston, Texas
(281)345-2340

June 14, 2004

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

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JUL 02 2004

Oil Conservation Division
Environmental Bureau

Annual Sampling 2004
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 April 6, 2004. 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 quarterly schedule was changed to annual monitoring beginning in 2001 after additional correspondence between Baker Oil Tools and the State of 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.

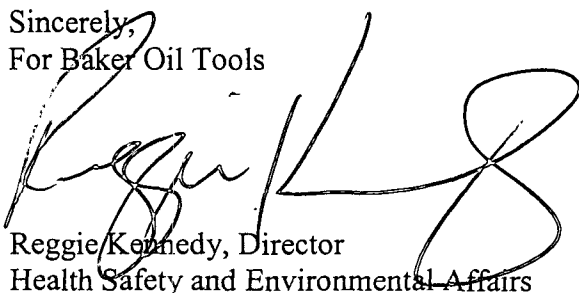
1. BOT performed the monitoring event on April 6, 2004. During this monitoring event, the wells were gauged for depth, purged and sampled. Monitoring tasks began at 2:30 p.m. (MT). Purging of the wells was accomplished by bailing with a small electric pump placed in each well. Sampling of the wells was 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. 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 via FedEx to Ace Technologies Laboratory in The Woodlands, Texas for analysis. 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. Samples from MW-1, MW-2 and WW-1 were non-detect for the contaminants of concern. MW-3 had the following contaminants present: methyl tert-butyl ether (60.5 µg/L), benzene (1.6 µg/L) and m/p xylene (0.8 µg/L). R-1 had the following contaminants present: ethyl benzene (1.1 µg/L) and o-xylene (0.8µg/L). The constituents in MW-3 do not appear to be sourced from any contamination onsite but instead appear to be constituents from gasoline contamination from some offsite source (due to the presence of MTBE). R-1 constituents are similar to those previously encountered from this well.

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. 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

A handwritten signature in black ink, appearing to read 'Reggie Kennedy', is written over the typed name and title.

Reggie Kennedy, Director
Health Safety and Environmental Affairs

Tables
1A – 1E

TABLE 1A
MW-1

	3rd Quarter 9/27/00	4th Quarter 12/05/00	2001 Sampling 12/05/01	2003 Sampling 03/12/03	2004 Sampling 04/06/04
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.002 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01 mg/l	<0.01mg/l	<0.01mg/l	<0.01 mg/l	<0.01mg/l
Naphthalene	<0.01 mg/l	<0.01mg/l	<0.01mg/l	<0.01 mg/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

EPA 8020A	3rd Quarter 9/27/00	4th Quarter 12/05/00	2001 Sampling 12/05/01	2003 Sampling 03/12/03	2004 Sampling 04/06/04
Benzene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.002 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 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

	3rd Quarter 9/27/00	4th Quarter 12/05/01	2001 Sampling 12/05/01	2003 Sampling 03/12/03	2004 Sampling 04/06/04
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	0.0016 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	0.0382 mg/l	0.0357 mg/l	<0.001 mg/l	<0.01 mg/l	0.0605 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

	3rd Quarter 9/27/00	4th Quarter 12/05/00	2001 Sampling 12/05/01	2003 Sampling 03/12/03	2004 Sampling 04/06/04
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.002 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 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

	3rd Quarter 9/27/00	4th Quarter 12/05/00	2001 Sampling 12/05/01	2003 Sampling 03/12/03	2004 Sampling 04/06/04
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	0.0011 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.001 mg/l	<0.01 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	<0.001 mg/l	<0.01 mg/l	<0.001 mg/l
EPA 8270B					
2-Methylnaphthalene	73.1 µg/L	<10 µg/L	~13 µg/L	<0.01 mg/l	<0.01 mg/l
Naphthalene	164.2 µg/L	21 µg/L	14 µg/L	<0.01 mg/l	<0.01 mg/l

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

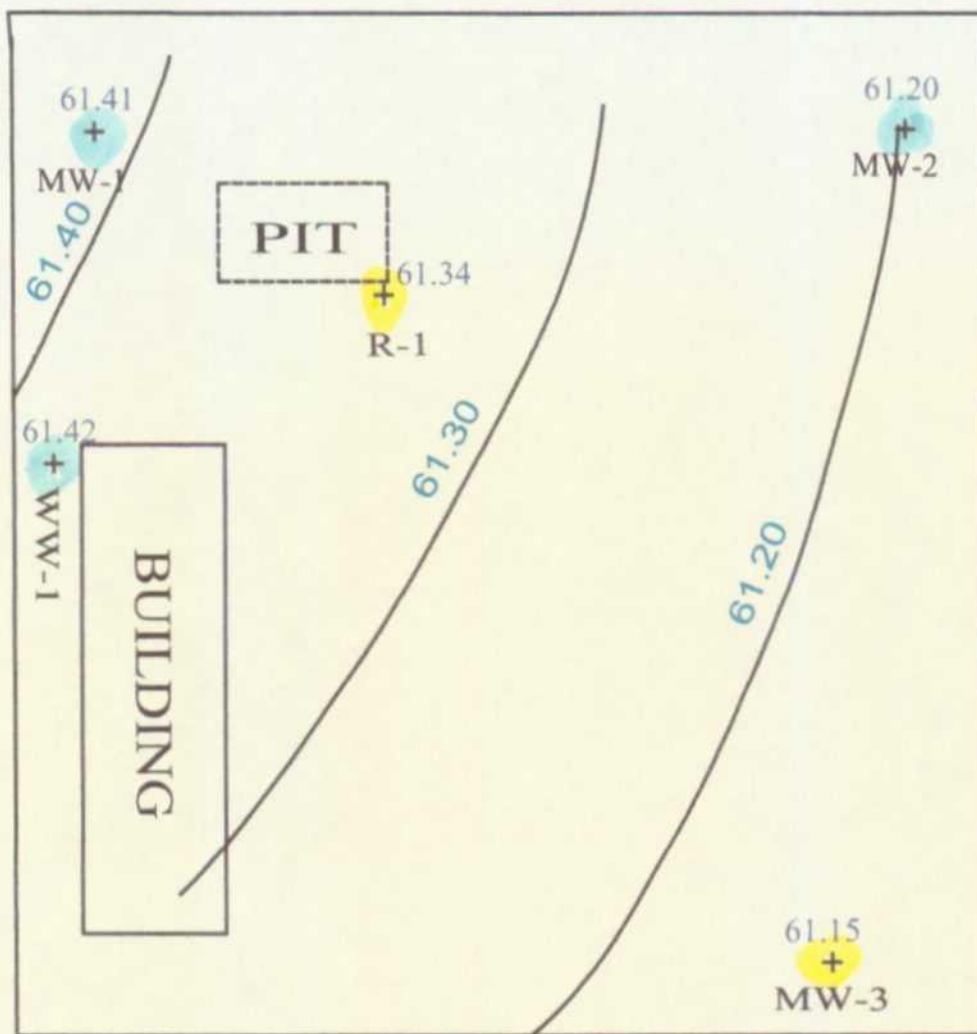
BDL indicates the sum of the individual constituent concentrations is below detectable limits

Table 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)							
			12/21/1999	3/29/2000	6/27/2000	9/27/2000	12/5/2000	12/5/2001	3/12/2003	4/6/2004
MW-1	45.7	100.19	64.73	64.74	64.56	64.10	64.17	63.42	62.31	61.41
MW-2	45.0	99.56	64.51	64.33	64.28	63.88	63.94	62.97	61.79	61.20
MW-3	38.5	99.15	64.46	64.27	64.16	63.80	63.93	62.87	61.60	61.15
WW-1	125.0	99.52	64.96	64.51	64.11	63.95	64.13	63.29	62.24	61.42
R-1	48.0	100.03	64.63	*	64.78	63.95	64.09	63.18	62.11	61.34

Figure 1



Stenbeck and Associates, Inc

Houston, Texas

Figure 1

Groundwater Elevations (2004 sampling event)

Baker Oil Tools

2800 W. Marland

Hobbs, NM

Prepared by TVS

scale 1" = 40' (approx.)

6/14/2004

Analytical Data

BTEX + MTBE

0000005

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LABORATORY REPORT

VOLATILES BY GC/MS

CLIENT NAME : Stenbeck & Associates, Inc.	CLIENT SAMPLE ID : MW-1
PROJECT MANAGER : Mr. Thomas Stenbeck	LAB SAMPLE ID : 24043564
PROJECT NAME : BOT Hobbs 2004	SAMPLE MATRIX : WATER
PROJECT NUMBER :	DATE SAMPLED : 04/06/04
METHOD REFERENCE : SW846-8260B	DATE RECEIVED : 04/08/04
	PRINTED ON : 05/14/04

INSTRUMENT ID : A-HP5973	DATE ANALYSED : 04/09/04
INSTRUMENT FILE : A5594.D	TIME ANALYZED : 22:13
CONTAINER ID : A	ANALYST : ESP
DILUTION : 1	
PURGE VOLUME : 10 ML	

PARAMETER	UNITS	RESULTS	POL	MDL	QUALIFIER
Benzene	ug/L	ND	1.0	0.10	
Ethyl Benzene	ug/L	ND	1.0	0.13	
Methyl tert-Butyl Ether	ug/L	ND	1.0	0.13	
m/p-xylene	ug/L	ND	2.0	0.23	
o-xylene	ug/L	ND	1.0	0.10	
Toluene	ug/L	ND	1.0	0.11	

QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	% RECOVERY
Dibromofluoromethane	10 ug/L	56 - 153	151
1,2-Dichloroethane-d4	10 ug/L	64 - 130	105
Toluene-d8	10 ug/L	68 - 124	93
4-Bromofluorobenzene	10 ug/L	72 - 137	77

BATCH QUALITY CONTROL	SAMPLE IDS
QC BATCH ID : VBLK61	BLANK ID : VBLK61
MS ID :	MSD ID :
	LCS ID : VLCS61
	LCSD ID : VLCS61D

0000006

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LABORATORY REPORT

VOLATILES BY GC/MS			
CLIENT NAME	: Stenbeck & Associates, Inc.	CLIENT SAMPLE ID	: MW-2
PROJECT MANAGER	: Mr. Thomas Stenbeck	LAB SAMPLE ID	: 24043565
PROJECT NAME	: BCT Hobbs 2004	SAMPLE MATRIX	: WATER
PROJECT NUMBER	:	DATE SAMPLED	: 04/06/04
METHOD REFERENCE	: SW846-8260B	DATE RECEIVED	: 04/08/04
		PRINTED ON	: 05/14/04

INSTRUMENT ID	: A-HP5973	DATE ANALYSED	: 04/09/04
INSTRUMENT FILE	: A5595.D	TIME ANALYZED	: 22:44
CONTAINER ID	: A	ANALYST	: ESP
DILUTION	: 1		
PURGE VOLUME	: 10 ML		

PARAMETER	UNITS	RESULTS	LOL	MDL	QUALIFIER
Benzene	ug/L	ND	1.0	0.10	
Ethyl Benzene	ug/L	ND	1.0	0.13	
Methyl tert-Butyl Ether	ug/L	ND	1.0	0.13	
m/p-xylene	ug/L	ND	2.0	0.23	
o-xylene	ug/L	ND	1.0	0.10	
Toluene	ug/L	ND	1.0	0.11	

QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	% RECOVERY
Dibromofluoromethane	10 ug/L	56 - 153	146
1,2-Dichloroethane-d4	10 ug/L	64 - 130	112
Toluene-d8	10 ug/L	68 - 124	92
4-Bromofluorobenzene	10 ug/L	72 - 137	75

BATCH QUALITY CONTROL	SAMPLE IDS
QC BATCH ID : VBLK61	BLANK ID : VBLK61
MS ID :	MSD ID :
	LCS ID : VLCS61
	LCSD ID : VLCS61D

0000007

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LABORATORY REPORT

VOLATILES BY GC/MS

CLIENT NAME : Stenbeck & Associates, Inc.	CLIENT SAMPLE ID : MW-3
PROJECT MANAGER : Mr. Thomas Stenbeck	LAB SAMPLE ID : 24043566
PROJECT NAME : BOT Hobbs 2004	SAMPLE MATRIX : WATER
PROJECT NUMBER :	DATE SAMPLED : 04/06/04
METHOD REFERENCE : SW846-8260B	DATE RECEIVED : 04/08/04
	PRINTED ON : 05/14/04

INSTRUMENT ID : A-HP5973	DATE ANALYSED : 04/09/04
INSTRUMENT FILE : A5596.D	TIME ANALYZED : 23:16
CONTAINER ID : A	ANALYST : ESP
DILUTION : 1	
PURGE VOLUME : 10 ML	

PARAMETER	UNITS	RESULTS	PQL	MDL	QUALIFIER
Benzene	ug/L	1.6	1.0	0.10	
Ethyl Benzene	ug/L	ND	1.0	0.13	
Methyl tert-Butyl Ether	ug/L	60.5	1.0	0.13	
m/p-xylene	ug/L	0.8	2.0	0.23	J
o-xylene	ug/L	ND	1.0	0.10	
Toluene	ug/L	ND	1.0	0.11	

QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	% RECOVERY
Dibromofluoromethane	10 ug/L	56 - 153	127
1,2-Dichloroethane-d4	10 ug/L	64 - 130	123
Toluene-d8	10 ug/L	68 - 124	104
4-Bromofluorobenzene	10 ug/L	72 - 137	94

BATCH QUALITY CONTROL	SAMPLE IDs
QC BATCH ID : VBLK61	BLANK ID : VBLK61
MS ID :	MSD ID :
	LCS ID : VLCS61
	LCSD ID : VLCS61D

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LABORATORY REPORT

VOLATILES BY GC/MS

CLIENT NAME	: Stenbeck & Associates, Inc.	CLIENT SAMPLE ID	: WW-1
PROJECT MANAGER	: Mr. Thomas Stenbeck	LAB SAMPLE ID	: 24043567
PROJECT NAME	: BOT Hobbs 2004	SAMPLE MATRIX	: WATER
PROJECT NUMBER	:	DATE SAMPLED	: 04/06/04
METHOD REFERENCE	: SW846-8260B	DATE RECEIVED	: 04/08/04
		PRINTED ON	: 05/14/04

INSTRUMENT ID	: A-HP5973	DATE ANALYSED	: 04/09/04
INSTRUMENT FILE	: A5597.D	TIME ANALYZED	: 23:47
CONTAINER ID	: A	ANALYST	: ESP
DILUTION	: 1		
PURGE VOLUME	: 10 ML		

PARAMETER	UNITS	RESULTS	POL	MDL	QUALITY
Benzene	ug/L	ND	1.0	0.10	
Ethyl Benzene	ug/L	ND	1.0	0.13	
Methyl tert-Butyl Ether	ug/L	ND	1.0	0.13	
m/p-xylene	ug/L	ND	2.0	0.23	
o-xylene	ug/L	ND	1.0	0.10	
Toluene	ug/L	ND	1.0	0.11	

QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	% RECOVERY
Dibromofluoromethane	10 ug/L	56 - 153	132
1,2-Dichloroethane-d4	10 ug/L	64 - 130	102
Toluene-d8	10 ug/L	68 - 124	97
4-Bromofluorobenzene	10 ug/L	72 - 137	75

BATCH QUALITY CONTROL	SAMPLE IDS
QC BATCH ID : VBLK61	BLANK ID : VBLK61
MS ID :	MSD ID :
	LCS ID : VLCS61
	LCSD ID : VLCS61D

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LABORATORY REPORT

VOLATILES BY GC/MS			
CLIENT NAME	: Stenbeck & Associates, Inc.	CLIENT SAMPLE ID	: R-1
PROJECT MANAGER	: Mr. Thomas Stenbeck	LAB SAMPLE ID	: 24043568
PROJECT NAME	: BOT Hobbs 2004	SAMPLE MATRIX	: WATER
PROJECT NUMBER	:	DATE SAMPLED	: 04/06/04
METHOD REFERENCE	: SW846-8260B	DATE RECEIVED	: 04/08/04
		PRINTED ON	: 05/14/04

INSTRUMENT ID	: A-HP5973	DATE ANALYSED	: 04/10/04
INSTRUMENT FILE	: A5598.D	TIME ANALYZED	: 00:18
CONTAINER ID	: A	ANALYST	: ESP
DILUTION	: 1		
PURGE VOLUME	: 10 ML		

PARAMETER	UNITS	RESULTS	POL	MDL	QUALITY
Benzene	ug/L	ND	1.0	0.10	
Ethyl Benzene	ug/L	1.1	1.0	0.13	
Methyl tert-Butyl Ether	ug/L	ND	1.0	0.13	
m/p-xylene	ug/L	ND	2.0	0.23	
o-xylene	ug/L	0.8	1.0	0.10	J
Toluene	ug/L	ND	1.0	0.11	

QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	% RECOVERY
Dibromofluoromethane	10 ug/L	56 - 153	133
1,2-Dichloroethane-d4	10 ug/L	64 - 130	111
Toluene-d8	10 ug/L	68 - 124	93
4-Bromofluorobenzene	10 ug/L	72 - 137	102

BATCH QUALITY CONTROL	SAMPLE IDS
QC BATCH ID : VBLK61	BLANK ID : VBLK61
MS ID :	MSD ID :
	LCS ID : VLCS61
	LCSD ID : VLCS61D

0000010

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LABORATORY REPORT

VOLATILES BY GC/MS

CLIENT NAME : Stenbeck & Associates, Inc.	CLIENT SAMPLE ID :
PROJECT MANAGER : Mr. Thomas Stenbeck	LAB SAMPLE ID : VBLK61
PROJECT NAME : BOT Hobbs 2004	SAMPLE MATRIX : WATER
PROJECT NUMBER :	DATE SAMPLED :
METHOD REFERENCE : SW846-8260B	DATE RECEIVED :
	PRINTED ON : 05/14/04

INSTRUMENT ID : A-HP5973	DATE ANALYSED : 04/09/04
INSTRUMENT FILE : A5572.D	TIME ANALYZED : 09:50
CONTAINER ID : A	ANALYST : ESP
DILUTION : 1	
PURGE VOLUME : 10 ML	

PARAMETER	UNITS	RESULTS	FOL	MDL	QUALIFIER
Benzene	ug/L	ND	1.0	0.10	
Ethyl Benzene	ug/L	ND	1.0	0.13	
Methyl tert-Butyl Ether	ug/L	ND	1.0	0.13	
m/p-xylene	ug/L	ND	2.0	0.23	
o-xylene	ug/L	ND	1.0	0.10	
Toluene	ug/L	ND	1.0	0.11	

QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE ADDED	QC RECOVERY LIMITS	% RECOVERY
Dibromofluoromethane	10 ug/L	56 - 153	138
1,2-Dichloroethane-d4	10 ug/L	64 - 130	95
Toluene-d8	10 ug/L	68 - 124	102
4-Bromofluorobenzene	10 ug/L	72 - 137	76

BATCH QUALITY CONTROL	SAMPLE IDS
QC BATCH ID : VBLK61	BLANK ID : VBLK61
MS ID :	MSD ID :
	LCS ID : VLCS61
	LCSD ID : VLCS61D

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LCS/LCSD SUMMARY REPORT

VOLATILES BY GC/MS			
CLIENT NAME	: Stenbeck & Associates, Inc.	DATE RECEIVED	:
PROJECT NAME	: BOT Hobbs 2004	PRINTED ON	: 05/14/04
PROJECT NUMBER	:		

SAMPLE MATRIX : WATER LAB CONTROL SAMPLE LCS SAMPLE ID : VLCS61 CLIENT SAMPLE ID : DATE ANALYZED : 04/09/04 INSTRUMENT FILE : A5573.D	METHOD REFERENCE : SW846-8260B LAB CONTROL SAMPLE DUPLICATE LCSD SAMPLE ID : VLCS61D CLIENT SAMPLE ID : DATE ANALYZED : 04/09/04 INSTRUMENT FILE : A5574.D
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PARAMETER	UNITS	LCS TRUE VALUE	LCSD TRUE VALUE	LCS FOUND VALUE	LCSD FOUND VALUE	LCS RECOVERY %	LCSD RECOVERY %	RPD	RPD LIMIT	QC LIMITS REC.
Benzene	ug/L	10.0	10.0	9.4	9.2	94	92	2	25	75 - 143
Ethyl Benzene	ug/L	10.0	10.0	10.0	10.0	100	100	0	25	71 - 141
m/p Xylene	ug/L	20.0	20.0	21.0	20.7	105	103	1	25	69 - 140
Methyl tert-butyl ether	ug/L	10.0	10.0	8.5	8.3	85	83	2	25	75 - 140
o-Xylene	ug/L	10.0	10.0	9.8	9.7	98	97	1	25	67 - 145
Toluene	ug/L	10.0	10.0	9.3	9.1	93	91	2	25	74 - 139

* Indicates values outside of QC limits

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

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SVOA

0000013

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LABORATORY REPORT

SEMIVOLATILES BY GC/MS			
CLIENT NAME	: Stenbeck & Associates, Inc.	CLIENT SAMPLE ID	: MW-1
PROJECT MANAGER	: Mr. Thomas Stenbeck	LAB SAMPLE ID	: 24043564
PROJECT NAME	: BOT Hobbs 2004	SAMPLE MATRIX	: WATER
PROJECT NUMBER	:	DATE SAMPLED	: 04/06/04
METHOD REFERENCE	: SW846-8270C	DATE RECEIVED	: 04/08/04
		PRINTED ON	: 05/14/04

INSTRUMENT ID	: D-HP5972	DATE EXTRACTED	: 04/26/04
INSTRUMENT FILE	: D0010.D	DATE ANALYSED	: 05/04/04
CONTAINER ID	: A	TIME ANALYZED	: 23:03
DILUTION	: 1	ANALYST	: ESP

PARAMETER	UNITS	RESULTS	POL	MDL	QUALIFIER
2-Methylnaphthalene	ug/L	ND	10	2.16	
Naphthalene	ug/L	ND	10	2.52	

QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE ADDED	QC REC LIMITS	% RECOVERY
Nitrobenzene - d5	50 ug/L	35 - 114	53

BATCH QUALITY CONTROL SAMPLE IDS

QC BATCH ID : SVOB02	BLANK ID : SVOB02	LCS ID : SVOL02
MS ID :	MSD ID :	LCSD ID : SVOL02D

0000014

ACE TECHNOLOGIES, Inc.
8707 Technology Forest Pl., The Woodlands, TX 77381

Page 1 of 1

LABORATORY REPORT

SEMIVOLATILES BY GC/MS

CLIENT NAME : Stenbeck & Associates, Inc.	CLIENT SAMPLE ID : MW-2
PROJECT MANAGER : Mr. Thomas Stenbeck	LAB SAMPLE ID : 24043565
PROJECT NAME : BOT Hobbs 2004	SAMPLE MATRIX : WATER
PROJECT NUMBER :	DATE SAMPLED : 04/06/04
METHOD REFERENCE : SW846-8270C	DATE RECEIVED : 04/08/04
	PRINTED ON : 05/14/04

INSTRUMENT ID : D-HP5972	DATE EXTRACTED : 04/26/04
INSTRUMENT FILE : D0011.D	DATE ANALYSED : 05/05/04
CONTAINER ID : A	TIME ANALYZED : 00:08
DILUTION : 1	ANALYST : ESP

PARAMETER	UNITS	RESULTS	PQL	MDL	QUALIFIER
2-Methylnaphthalene	ug/L	ND	10	2.16	
Naphthalene	ug/L	ND	10	2.52	

QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE ADDED	QC REC LIMITS	% RECOVERY
Nitrobenzene - d5	50 ug/L	35 - 114	56

BATCH QUALITY CONTROL	QC SAMPLE IDS
QC BATCH ID : SVOB02	BLANK ID : SVOB02
MS ID :	MSD ID :
	LCS ID : SVOL02
	LCSD ID : SVOL02D

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LABORATORY REPORT

SEMIVOLATILES BY GC/MS

CLIENT NAME : Stenbeck & Associates, Inc.	CLIENT SAMPLE ID : MW-3
PROJECT MANAGER : Mr. Thomas Stenbeck	LAB SAMPLE ID : 24043566
PROJECT NAME : BOT Hobbs 2004	SAMPLE MATRIX : WATER
PROJECT NUMBER :	DATE SAMPLED : 04/06/04
METHOD REFERENCE : SW846-8270C	DATE RECEIVED : 04/08/04
	PRINTED ON : 05/14/04

INSTRUMENT ID : D-HP5972	DATE EXTRACTED : 04/26/04
INSTRUMENT FILE : D0012.D	DATE ANALYSED : 05/05/04
CONTAINER ID : A	TIME ANALYZED : 01:10
DILUTION : 1	ANALYST : ESP

PARAMETER	UNITS	RESULTS	POL	MSD	QUALIFIER
2-Methylnaphthalene	ug/L	ND	10	2.16	
Naphthalene	ug/L	ND	10	2.52	

QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE ADDED	QC REC LIMITS	% RECOVERY
Nitrobenzene - d5	50 ug/L	35 - 114	38

BATCH QUALITY CONTROL SAMPLE IDS			
QC BATCH ID : SVOB02	BLANK ID : SVOB02	LCS ID : SVOL02	
MS ID :	MSD ID :	LCSD ID : SVOL02D	

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LABORATORY REPORT

SEMIVOLATILES BY GC/MS			
CLIENT NAME	: Stenbeck & Associates, Inc.	CLIENT SAMPLE ID	: WW-1
PROJECT MANAGER	: Mr. Thomas Stenbeck	LAB SAMPLE ID	: 24043567
PROJECT NAME	: BOT Hobbs 2004	SAMPLE MATRIX	: WATER
PROJECT NUMBER	:	DATE SAMPLED	: 04/06/04
METHOD REFERENCE	: SW846-8270C	DATE RECEIVED	: 04/08/04
		PRINTED ON	: 05/14/04

INSTRUMENT ID	: D-HP5972	DATE EXTRACTED	: 04/26/04
INSTRUMENT FILE	: D0060.D	DATE ANALYSED	: 05/13/04
CONTAINER ID	: A	TIME ANALYZED	: 13:21
DILUTION	: 1	ANALYST	: ESP

PARAMETER	UNITS	RESULTS	POL	MDL	QUALIFIER
2-Methylnaphthalene	ug/L	ND	10	2.16	
Naphthalene	ug/L	ND	10	2.52	

QUALITY CONTROL DATA			
SURROGATE COMPOUND	SPIKE ADDED	QC REC LIMITS	% RECOVERY
Nitrobenzene - d5	50 ug/L	35 - 114	40

BATCH QUALITY CONTROL SAMPLE IDS			
QC BATCH ID : SVOB02	BLANK ID : SVOB02	LCS ID : SVOL02	
MS ID :	MSD ID :	LCSD ID : SVOL02D	

0000017

ACE TECHNOLOGIES, Inc.
8707 Technology Forest Pl., The Woodlands, TX 77381

Page 1 of 1

LABORATORY REPORT

SEMIVOLATILES BY GC/MS			
CLIENT NAME	: Stenbeck & Associates, Inc.	CLIENT SAMPLE ID	: R-1
PROJECT MANAGER	: Mr. Thomas Stenbeck	LAB SAMPLE ID	: 24043568
PROJECT NAME	: BOT Hobbs 2004	SAMPLE MATRIX	: WATER
PROJECT NUMBER	:	DATE SAMPLED	: 04/06/04
METHOD REFERENCE	: SW846-8270C	DATE RECEIVED	: 04/08/04
		PRINTED ON	: 05/14/04

INSTRUMENT ID	: D-HP5972	DATE EXTRACTED	: 04/26/04
INSTRUMENT FILE	: D0060.D	DATE ANALYSED	: 05/13/04
CONTAINER ID	: A	TIME ANALYZED	: 13:21
DILUTION	: 1	ANALYST	: ESP

PARAMETER	UNITS	RESULTS	POL	MDL	QUALIFIER
2-Methylnaphthalene	ug/L	ND	10	2.16	
Naphthalene	ug/L	ND	10	2.52	

QUALITY CONTROL DATA			
SURROGATE COMPOUND	SPIKE ADDED	QC REC LIMITS	% RECOVERY
Nitrobenzene - d5	50 ug/L	35 - 114	40

BATCH QUALITY CONTROL SAMPLE IDS			
QC BATCH ID : SVOB02	BLANK ID : SVOB02	LCS ID : SVOL02	
MS ID :	MSD ID :	LCSD ID : SVOL02D	

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ACE TECHNOLOGIES, Inc.
8707 Technology Forest Pl., The Woodlands, TX 77381

Page 1 of 1

LABORATORY REPORT

SEMIVOLATILES BY GC/MS			
CLIENT NAME	: Stenbeck & Associates, Inc.	CLIENT SAMPLE ID	:
PROJECT MANAGER	: Mr. Thomas Stenbeck	LAB SAMPLE ID	: SVOB02
PROJECT NAME	: BOT Hobbs 2004	SAMPLE MATRIX	: WATER
PROJECT NUMBER	:	DATE SAMPLED	:
METHOD REFERENCE	: SW846-8270C	DATE RECEIVED	:
		PRINTED ON	: 05/14/04

INSTRUMENT ID	: D-HP5972	DATE EXTRACTED	: 04/26/04
INSTRUMENT FILE	: D0007.D	DATE ANALYSED	: 05/04/04
CONTAINER ID	: A	TIME ANALYZED	: 19:26
DILUTION	: 1	ANALYST	: ESP

PARAMETER	UNITS	RESULTS	LOL	MDL	QUALIFIER
2-Methylnaphthalene	ug/L	ND	10	2.16	
Naphthalene	ug/L	ND	10	2.52	

QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE ADDED	QC REC LIMITS	RECOVERY
Nitrobenzene - d5	50 ug/L	35 - 114	47

BATCH QUALITY CONTROL SAMPLE IDS			
QC BATCH ID : SVOB02	BLANK ID : SVOB02	LCS ID : SVOL02	
MS ID :	MSD ID :	LCSD ID : SVOL02D	

0000019

ACE Technologies, Inc.
8707 Technolgy Forest PL. The Woodlands. TX 77381

LCS/LCSD SUMMARY REPORT
SEMIVOLATILES BY GC/MS

CLIENT NAME	: Stenbeck & Associates, Inc.	DATE RECEIVED	:
PROJECT NAME	: BOT Hobbs 2004	PRINTED ON	: 05/14/04
PROJECT NUMBER	:		
SAMPLE MATRIX	: WATER	METHOD REFERENCE	: SW846-8270C
LAB CONTROL SAMPLE		LAB CONTROL SAMPLE DUPLICATE	
LCS SAMPLE ID	: SVOL02	LCS SAMPLE ID	: SVOL02D
CLIENT SAMPLE ID	:	CLIENT SAMPLE ID	:
DATE ANALYSED	: 05/04/04	DATE ANALYSED	: 05/04/04
INSTRUMENT FILE	: D0008.D	INSTRUMENT FILE	: D0009.D

PARAMETER	UNITS	LCS TRUE VALUE	LCSD TRUE VALUE	LCS FOUND VALUE	LCSD FOUND VALUE	LCS RECOVERY (%)	LCSD RECOVERY (%)	RPD	RPD LIMIT	QC LIMITS REC.
1,2,4-Trichlorobenzene	ug/L	50.0	50.0	22.6	22.8	45	46	1	50	44 - 142
1,4-Dichlorobenzene	ug/L	50.0	50.0	26.6	26.2	53	52	2	50	30 - 125
2,4-Dinitrotoluene	ug/L	50.0	50.0	27.0	28.5	54	57	6	50	39 - 139
2-Chlorophenol	ug/L	75.0	75.0	44.7	44.4	60	59	1	50	41 - 125
4-Chloro-3-methylphenol	ug/L	75.0	75.0	46.4	51.3	62	68	10	50	44 - 125
4-Nitrophenol	ug/L	75.0	75.0	36.3	35.8	48	48	1	50	25 - 131
Acenaphthene	ug/L	50.0	50.0	27.0	25.4	54	51	6	50	49 - 125
N-Nitroso-di-propylamine	ug/L	50.0	50.0	48.9	48.5	98	97	1	50	37 - 125
Pentachlorophenol	ug/L	75.0	75.0	69.1	67.1	92	89	3	50	28 - 136
Phenol	ug/L	75.0	75.0	20.3	20.7	27	28	2	50	18 - 125
Pyrene	ug/L	50.0	50.0	33.2	32.1	66	64	3	50	47 - 136

*Indicate Values outside of QC limits

RPD	:	0	out of	11	outside limits
Spike Recovery	:	0	out of	22	outside limits

0000020

END OF THE REPORT

TOTAL NUMBER OF PAGES : 21

0000021

CHAIN OF CUSTODY

0000001

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 + Associates, Inc.
Client Contact: Theresa Stenbeck
Address: PO Box 841005
City, State, Zip Code: Houston TX 77284
Project Name: Bot Hobbs 2004
Project Number: _____
Project Location: 770665 New Mexico
Phone/Fax: 281-345-2240

SAMPLE ID	Date	Time	C/G	Temp
MW-1	04-06-04	4:35		Amb
MW-2	"	4:40		"
MW-3	"	4:00		"
MW-4	"	4:50		"
R-1	"	5:00		"

matrix	bottle	size	pres.	Number of Containers	Requested Analysis	Lab ID
W = water S = soil SL = sludge O = other	P = Plastic A = Amber Glass G = glass V = vial	1 = 1 liter 4 = 40Z 40 = vial 8 = 8oz 16 = 16oz	1 = HCl 2 = HNO ₃ 3 = H ₂ SO ₄ O = other	4	MTBF BTX 2-methyl naphthalene	3564
W	A V	1,40		4		3565
W	A V	1,40		4		3566
W	A V	1,40		4		3567
W	A V	1,40		4		3568

Client/Consultant Pen in is

Any Questions Please call

Turn Around Time

24hr ☐ 48hr ☐
72hr ☐ Standard ☒
Other ☐

Special Reporting Requirements

Standard QC ☒
1. Relinquished by Sampler
Theresa Stenbeck
3. Relinquished by:
5. Relinquished by:

Level 3 QC ☐ Level 4 QC ☐

date 04-06-04
time 5:30pm
date
time
date
time

Temp

Intact ☐ Yes ☐ No ☒

Received by:

4 Received by:

Received by:

6 Received by: Wendy Dishner 04/08/04

10:55

ACE TECHNOLOGIES
 8707 Technology Forest Pl., The Woodlands, TX 77381
SAMPLE LOG-IN CHECKLIST/DISCREPANCY REPORT

EPISODE #: 3564-68 DATE REC'D: 04/08 TIME REC'D: 1055 TEMP: 4°C

CLIENT NAME: Stenbeck + Associates

PROJECT NAME: BOT Halls 2004

PROJECT NUMBER: _____

1 AQUEOUS, # _____ SOIL SAMPLES, # _____ SLUDGE, # _____ OTHER _____

COURIER/AIRBILL # _____

SAMPLE CONTAINER SEALS: present absent intact broken

COOLER CUSTODY SEALS: present absent intact broken NAME & DATE: _____

HOW MANY AND WHERE _____

	YES	NO
Were samples screened for radioactivity?	☒	☐
Chain-of-custody present?	☒	☐
Custody documents: Sealed in a plastic bag?	☒	☒
Signed and dated by field personnel	☒	☐
Filled out properly in indelible ink?	☒	☐
Signed and dated by log-in personnel?	☒	☐
Container Condition: Each containers sealed in a separate plastic bag?	☒	☒
Labels complete (ID, date, time, signature, preservative, etc.)?	☒	☐
Labels agree with chain-of-custody?	☒	☐
Received without leakage or breakage? If no, list:	☒	☐
Correct quantity indicated on chain-of-custody?	☒	☐
Sample Integrity: Correct containers used for the test indicated? If no, list:	☒	☐
Correct preservatives added to the samples? If no, list:	☒	☐
Sufficient sample amount sent for the tests indicated? If no, list:	☒	☐
VOA vials filled completely? If no, list:	☒	☐
Aqueous volatiles samples preserved? If no, list:	☒	☒
Discrepancy Report:		
Discrepancies to be discussed with the client?		
Project Manager's recommendations?		
Who was notified?	By whom?	Date:
Client's comments:		
Corrective actions carried out?		

COMMENTS:

For those short holding time and fast turn-around parameters, has a Rush Notification sheet been issued to the lab?

LOG-IN BY: Daugherty

DATE: 04/08/04

RECEIVED

JUN 18 1992

**OIL CONSERVATION DIV.
SANTA FE**

**APPENDIX G
Certified Analytical Results
and
Chain of Custody**

(1 of 2)

 **SIMON** HYDRO-SEARCH

December 1991 Investigation
(Various Analytical Results)



SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: F 1-12-409
F1-12-410

Approved for release by:

Shawn G. Grice Date: 1/8/92
S. Grice, UST Coordinator

Michael Sample Date: 1/10/92
S. Sample, Project Management Supervisor

Cynthia Schreiner Date: 1/9/92
C. Schreiner, QA Manager



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: Sump:S

SPL #: F112409-03C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	2.08	2.41	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: B1: 5/6

SPL #: F112409-04C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.028	0.041	5.0
BARIUM	1.08	1.22	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID:B1: 9/10

SPL #: F112409-05C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.035	0.051	5.0
BARIUM	0.86	0.97	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: B2: 5/6

SPL #: F112409-06C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.040	0.044	5.0
BARIUM	0.68	0.77	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: B2: 10/11

SPL #: F112409-07C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.030	0.030	5.0
BARIUM	0.56	0.63	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID:B3: 5/6

SPL #: F112409-08C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.042	0.061	5.0
BARIUM	0.76	0.86	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: B3: 10/11

SPL #: F112409-09C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.017	0.017	5.0
BARIUM	0.68	0.77	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: B4: 5/6

SPL #: F112409-10C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.039	0.039	5.0
BARIUM	0.67	0.76	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: B4: 10/11

SPL #: F112409-11C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.032	0.047	5.0
BARIUM	0.69	0.78	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: B5: 11/12

SPL #: F112409-13C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	1.64	1.86	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID:B6: 9.5/10.5

SPL #: F112409-14C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.012	0.018	5.0
BARIUM	1.61	1.82	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: BG1: 0/1

SPL #: F112409-16C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.009	0.013	5.0
BARIUM	1.63	1.84	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: BG2: 0/1

SPL #: F112409-17C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	0.91	1.06	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID:BG1: 0/1

SPL #: F112409-16C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	2.73	3.09	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: BG3: 0/1

SPL #: F112409-18C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	1.08	1.25	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: BG4: 0/1

SPL #: F112410-01C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	0.013	0.013	5.0
BARIUM	0.68	0.77	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon EEI - Toxcon Division
CLIENT ID: B5: 15/16.5

SPL #: F112410-03C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	2.11	2.39	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



****SUMMARY REPORT****

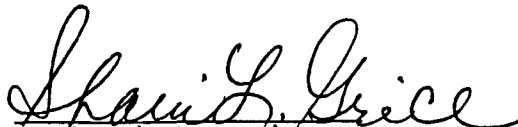
Client: Simon EEI - Toxcon Division

Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico

Project: 504867.00

SPL ID	CLIENT ID	MATRIX	BENZENE	TOLUENE	ETHYLBENZ.	XYLENE	TPH-IR	TPH-GC	LEAD	MTBE
F112409-01	WW121991	Water	6µg/L	2µg/L	1µg/L	4µg/L	NDmg/L			
F112409-02	Sump:L	Water	22µg/L	80µg/L	38µg/L	180µg/L	900mg/L			
F112409-03	Sump:S	Soil	1700µg/Kg	6500µg/Kg	44000µg/Kg	88000µg/Kg	220000mg/Kg			
F112409-04	B1: 5/6	Soil	NDµg/Kg	10µg/Kg	11µg/Kg	63µg/Kg	42mg/Kg			
F112409-05	B1: 9/10	Soil	NDµg/Kg	3µg/Kg	5µg/Kg	32µg/Kg	18mg/Kg			
F112409-06	B2: 5/6	Soil	NDµg/Kg	1µg/Kg	2µg/Kg	4µg/Kg	310mg/Kg			
F112409-07	B2: 10/11	Soil	NDµg/Kg	1µg/Kg	2µg/Kg	5µg/Kg	25mg/Kg			
F112409-08	B3: 5/6	Soil	NDµg/Kg	1µg/Kg	NDµg/Kg	4µg/Kg	74mg/Kg			
F112409-09	B3: 10/11	Soil	NDµg/Kg	3µg/Kg	8µg/Kg	37µg/Kg	58mg/Kg			
F112409-10	B4: 5/6	Soil	NDµg/Kg	11µg/Kg	10µg/Kg	40µg/Kg	220mg/Kg			
F112409-11	B4: 10/11	Soil	NDµg/Kg	2µg/Kg	2µg/Kg	2µg/Kg	97mg/Kg			

BTEX - Method-5030/8020 [SW846]
TPH-IR - Method-418.1


Shari L. Grice
UST Coordinator



*****SUMMARY REPORT*****

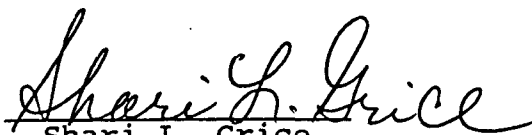
Client: Simon EEI - Toxcon Division

Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico

Project: 504867.00

SPL ID	CLIENT ID	MATRIX	BENZENE	TOLUENE	ETHYLBENZ.	XYLENE	TPH-IR	TPH-GC	LEAD	MTBE
F112409-13	B5: 11/12	Soil	NDµg/Kg	28µg/Kg	860µg/Kg	880µg/Kg	2100mg/Kg			
F112409-14	B6: 9.5/10	Soil	NDµg/Kg	12µg/Kg	290µg/Kg	74µg/Kg	2800mg/Kg			
F112409-15	B6: 14.5/1	Soil	NDµg/Kg	12µg/Kg	230µg/Kg	52µg/Kg	5200mg/Kg			
F112409-16	BG1: 0/1	Soil	NDµg/Kg	NDµg/Kg	2µg/Kg	2µg/Kg	NDmg/Kg			
F112409-17	BG2: 0/1	Soil	NDµg/Kg	NDµg/Kg	NDµg/Kg	1µg/Kg	NDmg/Kg			
F112409-18	BG3: 0/1	Soil	NDµg/Kg	1µg/Kg	1µg/Kg	4µg/Kg	12mg/Kg			

BTEX - Method-5030/8020 [SW846]
TPH-IR - Method-418.1


Shari L. Grice
UST Coordinator



*****SUMMARY REPORT*****

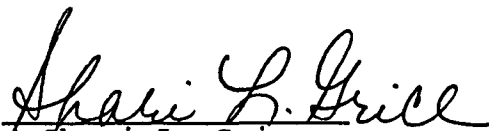
Client: Simon EEI - Toxcon Division

Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico

Project: 504867.00

SPL ID	CLIENT ID	MATRIX	BENZENE	TOLUENE	ETHYLBENZ.	XYLENE	TPH-IR	TPH-GC	LEAD	MTBE
F112410-01	BG4: 0/1	Soil	NDµg/Kg	2µg/Kg	2µg/Kg	12µg/Kg	34mg/Kg			
F112410-03	B5: 15/16.	Soil	74µg/Kg	87µg/Kg	2000µg/Kg	2600µg/Kg	3800mg/Kg			

BTEX - Method-5030/8020 [SW846]
TPH-IR - Method-418.1


Shari L. Grice
UST Coordinator



CASE NARRATIVE

QUALITY CONTROL RESULTS SUMMARY

WORK ORDER NO.: F1-12-409

SAMPLE NO: 04C

Due to matrix interference, the matrix spike recovery for Selenium is below the minimum QC limits.

SOUTHERN PETROLEUM LABORATORIES

Meaza Mariam
Meaza Mariam
Metals Supervisor



CASE NARRATIVE

QUALITY CONTROL RESULTS SUMMARY

WORK ORDER NO.: F1-12-409

SAMPLE NO: 04C

Due to matrix interference, the matrix spike recovery for Arsenic is below the minimum QC limits.

SOUTHERN PETROLEUM LABORATORIES

Meaza Mariam
Meaza Mariam
Metals Supervisor



CASE NARRATIVE

QUALITY CONTROL RESULTS SUMMARY

WORK ORDER NO.: F1-12-410

SAMPLE NO: 03C

Due to matrix interference, the matrix spike recovery for Selenium is below the minimum QC limits.

SOUTHERN PETROLEUM LABORATORIES

Meaza Marian

Meaza Marian
Metals Supervisor



Certificate of Analysis No. F112409-01

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: WW121991
Sample of: Water
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/19/91 17:00:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	6 µg/L	1 µg/L
TOLUENE Method-5030/8020 [SW846]	2 µg/L	1 µg/L
ETHYLBENZENE Method-5030/8020 [SW846]	1 µg/L	1 µg/L
XYLENES Method-5030/8020 [SW846]	4 µg/L	1 µg/L
TOTAL PETROLEUM HYDROCARBONS Method-418.1	ND mg/L	1 mg/L

BTEX ANALYZED BY: BWC
TPH ANALYZED BY: FM

DATE/TIME: 12/26/91
DATE/TIME: 12/23/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-01C
Invoice #: 405614
Report Date: 01/09/92

504867.00
WW121991
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/19/91 17:00:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
pH METHOD 150.1	7.74 pH units		12/26/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-01D
Invoice #: 405614
Report Date: 01/09/92

504867.00
WW121991
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/19/91 17:00:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver total METHOD 272.1	ND mg/L	0.02	12/27/91	JM
Arsenic total METHOD 206.2	ND mg/L	0.007	01/04/92	WFL
Barium total METHOD 6010	1.40 mg/L	0.07	12/26/92	DQ
Cadmium total METHOD 213.1	ND mg/L	0.03	12/27/92	JM
Chromium total METHOD 6010	<0.02 mg/L	0.02	12/21/91	DQ
Mercury, total METHOD 245.1	ND mg/L	0.002	12/27/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/26/91	CG
Lead, Total METHOD 7420	ND mg/L	0.3	12/27/92	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium total METHOD 270.2	ND mg/L	0.007	01/06/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-02

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: Sump:L
Sample of: Water
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/19/91 16:30:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	22 $\mu\text{g/L}$	1 $\mu\text{g/L}$
TOLUENE Method-5030/8020 [SW846]	80 $\mu\text{g/L}$	1 $\mu\text{g/L}$
ETHYLBENZENE Method-5030/8020 [SW846]	38 $\mu\text{g/L}$	1 $\mu\text{g/L}$
XYLENES Method-5030/8020 [SW846]	180 $\mu\text{g/L}$	1 $\mu\text{g/L}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	900 mg/L	10 mg/L

BTEX ANALYZED BY: BWC
TPH ANALYZED BY: FM

DATE/TIME: 12/27/91
DATE/TIME: 12/23/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-02C
Invoice #: 405614
Report Date: 01/09/92

504867.00
Sump:L
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/19/91 16:30:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
pH METHOD 150.1	7.25 pH units		12/26/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-02D
Invoice #: 405614
Report Date: 01/09/92

504867.00
Sump:L
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/19/91 16:30:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver total METHOD 272.1	ND mg/L	0.02	12/27/91	JM
Arsenic total METHOD 206.2	ND mg/L	0.007	01/04/92	WFL
Barium total METHOD 6010	1.48 mg/L	0.07	12/26/92	DQ
Cadmium total METHOD 213.1	ND mg/L	0.03	12/27/92	JM
Chromium total METHOD 6010	0.04 mg/L	0.02	12/21/91	DQ
Mercury, total METHOD 245.1	ND mg/L	0.002	12/27/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/26/91	CG
Lead, Total METHOD 7420	1.6 mg/L	0.3	12/27/92	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium total METHOD 270.2	ND mg/L	0.007	01/06/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-03

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: Sump:S
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/19/91 16:30:00

ANALYTICAL RESULTS

ANALYSIS/METHOD	RESULTS		DETECTION LIMIT	
-----	-----	-----	-----	-----
BENZENE Method-5030/8020 [SW846]	1700	µg/Kg	125	µg/Kg
TOLUENE Method-5030/8020 [SW846]	6500	µg/Kg	125	µg/Kg
ETHYLBENZENE Method-5030/8020 [SW846]	44000	µg/Kg	125	µg/Kg
XYLENES Method-5030/8020 [SW846]	88000	µg/Kg	125	µg/Kg
TOTAL PETROLEUM HYDROCARBONS Method-418.1	220000	mg/Kg	2000	mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/26/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-03B
Invoice #: 405614
Report Date: 01/09/92

504867.00
Sump:S
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/19/91 16:30:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	220000 mg/Kg	2000	12/27/91	LB/JC/FM
pH METHOD 9045	7.59 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-03C
Invoice #: 405614
Report Date: 01/09/92

504867.00
Sump:S
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/19/91 16:30:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	2.08 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/26/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/27/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/06/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-04

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B1: 5/6
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 08:35:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOLUENE Method-5030/8020 [SW846]	10 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
ETHYLBENZENE Method-5030/8020 [SW846]	11 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
XYLENES Method-5030/8020 [SW846]	63 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	42 mg/Kg	10 mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-04B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B1: 5/6
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 08:35:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	42 mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	8.68 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-04C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B1: 5/6
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 08:35:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.028 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	1.08 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/06/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-05

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B1: 9/10
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 09:05:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOLUENE Method-5030/8020 [SW846]	3 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
ETHYLBENZENE Method-5030/8020 [SW846]	5 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
XYLENES Method-5030/8020 [SW846]	32 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	18 mg/Kg	10 mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-05B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B1: 9/10
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 09:05:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	18 mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	9.02 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
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Attn: Roger Pokluda

F112409-05C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B1: 9/10
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 09:05:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.035 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	0.86 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/06/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-06

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B2: 5/6
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 09:50:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOLUENE Method-5030/8020 [SW846]	1 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
ETHYLBENZENE Method-5030/8020 [SW846]	2 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
XYLENES Method-5030/8020 [SW846]	4 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	310 mg/Kg	10 mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
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Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-06B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B2: 5/6
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 09:50:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	310 mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	8.85 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-06C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B2: 5/6
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 09:50:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.040 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	0.68 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/06/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-07

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B2: 10/11
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 10:00:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOLUENE Method-5030/8020 [SW846]	1 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
ETHYLBENZENE Method-5030/8020 [SW846]	2 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
XYLENES Method-5030/8020 [SW846]	5 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	25 mg/Kg	10 mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

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Simon EEI - Toxcon Division
3334 Richmond Ave.
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Houston, TX 77098
Attn: Roger Pokluda

F112409-07B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B2: 10/11
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:00:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	25 mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	8.99 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
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Attn: Roger Pokluda

F112409-07C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B2: 10/11
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:00:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.030 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	0.56 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/06/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-08

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B3: 5/6
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 11:05:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----		DETECTION LIMIT -----	
BENZENE Method-5030/8020 [SW846]	ND	µg/Kg	1	µg/Kg
TOLUENE Method-5030/8020 [SW846]	1	µg/Kg	1	µg/Kg
ETHYLBENZENE Method-5030/8020 [SW846]	ND	µg/Kg	1	µg/Kg
XYLENES Method-5030/8020 [SW846]	4	µg/Kg	1	µg/Kg
TOTAL PETROLEUM HYDROCARBONS Method-418.1	74	mg/Kg	10	mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-08B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B3: 5/6
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 11:05:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	74 mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	8.65 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-08C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B3: 5/6
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 11:05:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.042 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	0.76 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/06/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-09

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B3: 10/11
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 11:25:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD	RESULTS		DETECTION LIMIT	
-----	-----	-----	-----	-----
BENZENE Method-5030/8020 [SW846]	ND	µg/Kg	1	µg/Kg
TOLUENE Method-5030/8020 [SW846]	3	µg/Kg	1	µg/Kg
ETHYLBENZENE Method-5030/8020 [SW846]	8	µg/Kg	1	µg/Kg
XYLENES Method-5030/8020 [SW846]	37	µg/Kg	1	µg/Kg
TOTAL PETROLEUM HYDROCARBONS Method-418.1	58	mg/Kg	10	mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
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Simon EEI - Toxcon Division
3334 Richmond Ave.
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Houston, TX 77098
Attn: Roger Pokluda

F112409-09B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B3: 10/11
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 11:25:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	58 mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	9.00 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-09C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B3: 10/11
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 11:25:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.017 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	0.68 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/07/92	DAO

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-10

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B4: 5/6
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 10:40:00

ANALYTICAL RESULTS

ANALYSIS/METHOD	RESULTS		DETECTION LIMIT	
-----	-----		-----	
BENZENE Method-5030/8020 [SW846]	ND	µg/Kg	1	µg/Kg
TOLUENE Method-5030/8020 [SW846]	11	µg/Kg	1	µg/Kg
ETHYLBENZENE Method-5030/8020 [SW846]	10	µg/Kg	1	µg/Kg
XYLENES Method-5030/8020 [SW846]	40	µg/Kg	1	µg/Kg
TOTAL PETROLEUM HYDROCARBONS Method-418.1	220	mg/Kg	10	mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
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Simon EEI - Toxcon Division
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Houston, TX 77098
Attn: Roger Pokluda

F112409-10B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B4: 5/6
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:40:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	220 mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	8.43 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-10C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B4: 5/6
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:40:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.039 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	0.67 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.03	01/07/92	DAO

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-11

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B4: 10/11
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 10:45:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOLUENE Method-5030/8020 [SW846]	2 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
ETHYLBENZENE Method-5030/8020 [SW846]	2 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
XYLENES Method-5030/8020 [SW846]	2 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	97 mg/Kg	10 mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
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Simon EEI - Toxcon Division
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F112409-11B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B4: 10/11
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:45:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	97 mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	9.21 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
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Houston, TX 77098
Attn: Roger Pokluda

F112409-11C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B4: 10/11
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:45:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.032 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	0.69 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/07/92	DAO

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-13

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B5: 11/12
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 12:15:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
TOLUENE Method-5030/8020 [SW846]	28 $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
ETHYLBENZENE Method-5030/8020 [SW846]	860 $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
XYLENES Method-5030/8020 [SW846]	880 $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	2100 mg/Kg	10 mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-13B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B5: 11/12
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 12:15:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	2100 mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	9.30 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-13C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B5: 11/12
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 12:15:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	1.64 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/07/92	DAO

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-14

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B6: 9.5/10.5
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 13:25:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
TOLUENE Method-5030/8020 [SW846]	12 $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
ETHYLBENZENE Method-5030/8020 [SW846]	290 $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
XYLENES Method-5030/8020 [SW846]	74 $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	2800 mg/Kg	50 mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-14B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B6: 9.5/10.5
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 13:25:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	2800 mg/Kg	50	12/27/91	LB/JC/FM
pH METHOD 9045	8.85 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-14C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B6: 9.5/10.5
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 13:25:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.012 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	1.61 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/07/92	DAO

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-15

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B6: 14.5/15.5
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 13:40:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
TOLUENE Method-5030/8020 [SW846]	12 $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
ETHYLBENZENE Method-5030/8020 [SW846]	230 $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
XYLENES Method-5030/8020 [SW846]	52 $\mu\text{g/Kg}$	5 $\mu\text{g/Kg}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	5200 mg/Kg	100 mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-15B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B6: 14.5/15.5
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 13:40:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	5200 mg/Kg	100	12/27/91	LB/JC/FM
pH METHOD 9045	9.24 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-15C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B6: 14.5/15.5
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 13:40:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	2.73 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/07/92	DAO

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-16

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: BG1: 0/1
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 11:15:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
BENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOLUENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
ETHYLBENZENE Method-5030/8020 [SW846]	2 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
XYLENES Method-5030/8020 [SW846]	2 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	ND mg/Kg	10 mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-16B
Invoice #: 405614
Report Date: 01/09/92

504867.00
BG1: 0/1
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 11:15:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	ND mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	9.07 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-16C
Invoice #: 405614
Report Date: 01/09/92

504867.00
BG1: 0/1
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 11:15:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.009 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	1.63 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/27/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/30/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/07/92	DAO

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-17

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: BG2: 0/1
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 10:45:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD	RESULTS	DETECTION LIMIT
BENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOLUENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
ETHYLBENZENE Method-5030/8020 [SW846]	ND $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
XYLENES Method-5030/8020 [SW846]	1 $\mu\text{g/Kg}$	1 $\mu\text{g/Kg}$
TOTAL PETROLEUM HYDROCARBONS Method-418.1	ND mg/Kg	10 mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-17B
Invoice #: 405614
Report Date: 01/09/92

504867.00
BG2: 0/1
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:45:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	ND mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	8.82 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-17C
Invoice #: 405614
Report Date: 01/09/92

504867.00
BG2: 0/1
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:45:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	0.91 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/26/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/27/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/07/92	DAO

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112409-18

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: BG3: 0/1
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 10:15:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----		DETECTION LIMIT -----	
BENZENE Method-5030/8020 [SW846]	ND	µg/Kg	1	µg/Kg
TOLUENE Method-5030/8020 [SW846]	1	µg/Kg	1	µg/Kg
ETHYLBENZENE Method-5030/8020 [SW846]	1	µg/Kg	1	µg/Kg
XYLENES Method-5030/8020 [SW846]	4	µg/Kg	1	µg/Kg
TOTAL PETROLEUM HYDROCARBONS Method-418.1	12	mg/Kg	10	mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/JC/FM

DATE/TIME: 12/23/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPZ, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-18B
Invoice #: 405614
Report Date: 01/09/92

504867.00
BG3: 0/1
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:15:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	12 mg/Kg	10	12/27/91	LB/JC/FM
pH METHOD 9045	8.99 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112409-18C
Invoice #: 405614
Report Date: 01/09/92

504867.00
BG3: 0/1
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:15:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/27/91	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	1.08 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/27/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/26/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/27/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/24/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/07/92	DAO

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Certificate of Analysis No. F112410-01

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: BG4: 0/1
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 10:05:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD	RESULTS		DETECTION LIMIT	
BENZENE	ND	μg/Kg	1	μg/Kg
Method-5030/8020 [SW846]				
TOLUENE	2	μg/Kg	1	μg/Kg
Method-5030/8020 [SW846]				
ETHYLBENZENE	2	μg/Kg	1	μg/Kg
Method-5030/8020 [SW846]				
XYLENES	12	μg/Kg	1	μg/Kg
Method-5030/8020 [SW846]				
TOTAL PETROLEUM HYDROCARBONS	34	mg/Kg	10	mg/Kg
Method-418.1				

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/FM/JC

DATE/TIME: 12/22/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
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Attn: Roger Pokluda

F112410-01C
Invoice #: 405614
Report Date: 01/09/92

504867.00
BG4: 0/1
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:05:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	12/31/91	JM
Arsenic, TCLP Leachate METHOD 7060	0.013 mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	0.68 mg/L	0.07	12/31/91	MM/DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	12/31/91	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	12/31/91	MM/DAO
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/30/91	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	12/31/91	JM
TCLP Leachate extraction METHOD 1311	Complete		12/28/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/06/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112410-01B
Invoice #: 405614
Report Date: 01/09/92

504867.00
BG4: 0/1
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 10:05:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	34 mg/Kg	10	12/27/91	LB/FM/JC
pH METHOD 9045	9.29 pH units		12/24/91	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Certificate of Analysis No. F112410-03

Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

01/09/92

Project: 504867.00
Site: Baker Hughes
2800 West Marland
Hobbs, New Mexico
Sample No: B5: 15/16.5
Sample of: Soil
Sampled by: Simon EEI - Toxcon Division
Sample Date: 12/20/91 12:50:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----		DETECTION LIMIT -----	
BENZENE Method-5030/8020 [SW846]	74	µg/Kg	50	µg/Kg
TOLUENE Method-5030/8020 [SW846]	87	µg/Kg	50	µg/Kg
ETHYLBENZENE Method-5030/8020 [SW846]	2000	µg/Kg	50	µg/Kg
XYLENES Method-5030/8020 [SW846]	2600	µg/Kg	50	µg/Kg
TOTAL PETROLEUM HYDROCARBONS Method-418.1	3800	mg/Kg	100	mg/Kg

BTEX ANALYZED BY: LT
TPH ANALYZED BY: LB/FM/JC

DATE/TIME: 12/24/91
DATE/TIME: 12/27/91

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112410-03B
Invoice #: 405614
Report Date: 01/09/92

504867.00
B5: 15/16.5
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 12:50:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	3800 mg/Kg	100	12/27/91	LB/FM/JC
pH METHOD 9045	8.56 pH units		12/24/91	KEW

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon EEI - Toxcon Division
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F112410-03C
Invoice #: 405614
Report Date: 01/09/92

504867.00
B5: 15/16.5
Baker Hughes
2800 West Marland
Hobbs, New Mexico

Date Received: 12/21/91
Date Collected: 12/20/91 12:50:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	01/03/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	01/04/92	WFL
Barium, TCLP Leachate METHOD 6010	2.11 mg/L	0.07	01/04/92	DAO
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	01/03/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	01/06/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	12/30/91	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		12/31/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	01/03/92	JM
TCLP Leachate extraction METHOD 1311	Complete		12/28/91	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	01/06/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL AA QC FORM

TEST CODE: Ag
METHOD: FLAADATE: 12/27/91
TIME: 16:00ANALYST: Jm
DETECTION LIMIT: 0.02# SAMPLES IN SET: 23UNITS: mg/LSAMPLE #'S IN SET: 12329-1C ; 12396-2D, 3D ; 12409-1D, 2D, 3C-18C ;
12438-1A ; 12439-1A, 2A

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.075	0.000	0.000	—	—	—
#1	0.085	0.500	0.500	100.0	105%	95%
#2	0.165	0.993	1.000	99.3	↓	↓
#3	0.319	1.982	2.000	99.1	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.839	104.9	110%	90%
LCS	0.050	0.054	108.0	120%	80%
CCV ₁	1.000	1.012	101.2	110%	90%
CCV ₂		1.014	101.4	↓	↓
CCV ₃		1.005	100.5	↓	↓
CCV ₄		1.003	100.3	↓	↓
CCV ₅		1.007	100.7	↓	↓
CCV ₆	↓	1.003	100.3	↓	↓
PB 12/26	0	ND	NA	0.02	-0.02
PB 12/27	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Margie MarianiAPPROVED BY: Cynthia SchreinerDATE: 12/29/91DATE: 12/30/91

TEST: AgMATRIX: TCLP-liquidANALYSIS DATE: 12/27/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12396-3D	ND	ND	NA	20	1
12329-1C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12396-3D	ND	0.050	0.052	0.053	104.0	106.0	2	75 - 125	20
12329-1C	ND	↓	0.045	0.044	90.0	88.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: Cynthia SchmeierDATE: 12/29/91DATE: 12/30/91

TEST: 7^m 764 AgMATRIX: 7CLP-Scz1ANALYSIS DATE: 12/27/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12409-17C ^{9m}	ND	ND	NA	20	1
12409-4C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12409-17C	ND	0.050	0.057	0.058	114.0	116.0	2	75 - 125	20
12409-4C	ND	↓	0.045	0.045	90.0	90.0	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Mearza MariamAPPROVED BY: Cynthia SchmeierDATE: 12/29/91DATE: 12/30/91

TEST CODE: ASDATE: 1/4/92ANALYST: WFLMETHOD: GFAATIME: 08:00DETECTION LIMIT: 6= SAMPLES IN SET: 80UNITS: ug/LSAMPLE #'S IN SET: 12495-1A-3A; 12516-1A-6A; 12517-7A; 12548-1A-6A; 12549-7A-12A; 12550-13A; 12409-1D-2D; 12396-3S-2D; 12409-3C-18C; 12396-1D-4D; 12476-1A; 12541-1F-3F; 12487-1A; 12410-1C-3C; 12219-1A;

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.002	0.0	0.0	NA	—	—
#1	0.111	25.0	25.0	100.0%	105.0%	95.0%
#2	0.222	49.9	50.0	99.8%	↓	↓
#3	0.447	100.0	100.0	100.0%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	73.0	97.3%	110.0%	90.0%
LCS	40.0	40.1	100.2%	120.0%	80.0%
CCV ₁	50.0	46.9	93.8%	110.0%	90.0%
CCV ₂		48.5	97.0%		
CCV ₃		45.3	90.6%		
CCV ₄		48.7	97.4%		
CCV ₅		49.4	98.8%		
CCV ₆		47.3	94.6%		
CCV ₇		50.1	100.2%		
CCV ₈	↓	51.0	102.0%	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Marga MarianoDATE: 1/6/92APPROVED BY: Cynthia SchreinerDATE: 1/6/92

TEST CODE: ASDATE: 1/4/92ANALYST: WFLMETHOD: GFAATIME: 08:00DETECTION LIMIT: 6# SAMPLES IN SET: 87UNITS: ug/LSAMPLE #'S IN SET: 12433-1c-2c; 12438-1A; 12439-1A-2A; 12308-1A-8A; 12324-1A-5A; 12400-1c-6c; 12424-1D, 4D, 7D; 12434-1F-4F; 12406-1A-2F-4F.

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK						
#1						
#2						
#3						
#4						
#5						

See Page I

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV					
LCS					
CCV ₉	50.0	49.9	99.8%	110.0%	90.0%
CCV ₁₀		48.7	97.4%		
CCV ₁₁		49.3	98.6%		
CCV ₁₂		45.3	90.6%		
CCV ₁₃		50.2	100.4%		
PB _{1/3}	0	ND	NA	+6	-6
PB _{12/26}					
PB _{12/30}					
PB _{12/24}					

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Marya MarianAPPROVED BY: Cynthia SchmechelDATE: 1/6/92DATE: 1/6/92

TEST: ASMATRIX: 81580/redANALYSIS DATE: 1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES: =1 =2 RPD (%) RPD QC LIMIT: DILUTION

2517-7A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
2517-7A	ND	40.0	30.2	34.1	75.5%	85.2%	12	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MartinDATE: 1/6/92APPROVED BY: Cynthia SchmeierDATE: 1/6/92

TEST:

Ac

MATRIX:

TCLP Filter

ANALYSIS DATE:

1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
2396-3D	11.7	12.1	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
2396-3D	11.7	40.0	45.0	45.9	83.2%	85.5%	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Marlan

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

AS

MATRIX:

TCLP soil

ANALYSIS DATE:

1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
2409-4c	24.8	23.5	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPD	
2409-4c	24.8	40.0	52.2	53.6	68.5%	72.0%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Meaza Marian

APPROVED BY:

Cynthia Schreener

DATE:

1/6/92

DATE:

1/6/92

TEST:

AS

MATRIX:

TCLP- soil

ANALYSIS DATE:

1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
2319-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS	
								% REC	%RPD
2319-1A	ND	40.0	45.1	44.5	112.8%	111.2%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Marya Matiam

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

AS

MATRIX:

Water

ANALYSIS DATE:

1/14/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12334-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	
12334-1A	ND	40.0	42.8	42.5	107.0%	106.2%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Megza Mariani

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST: AsMATRIX: soilANALYSIS DATE: 1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES: =1 =2 RPD (%) RPD QC LIMIT: DILUTION

12318-1A	ND	ND	1(A)	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPD	
12318-1A	ND	40.0	46.9	45.5	117.2%	113.8%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meega MarionAPPROVED BY: C. SchreinerDATE: 1/6/92DATE: 1/6/92

TEST:

AS

MATRIX:

TCUP-ol

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
2396-48	5.7	5.4	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS	
								% REC	%RPD
2396-48	5.7	40.0	42.8	48.8	92.8%	97.8%	5	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meara Marian

APPROVED BY:

Cynthia Schmeier

DATE:

1/6/92

DATE:

1/6/92

TEST CODE:

AS

DATE:

1/4/92

ANALYST:

WFL

METHOD:

GFAA

TIME:

08:00

DETECTION LIMIT:

6

SAMPLES IN SET:

86

UNITS:

ug/L

SAMPLE #'S IN SET:

12495-1A-3A; 12516-1A-6A; 12517-7A; 12548-1A-6A;
12549-7A-12A; 12550-13A; 12409-1B-2D; 12396-3S; 2D; 12409-3C-18;
12396-1D; 4D; 12476-1A; 12541-1F-3F; 12487-1A; 12410-1C; 3C; 12219-1A;

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.002	0.0	0.0	NA	—	—
#1	0.111	25.0	25.0	100.0%	105.0%	95.0%
#2	0.222	49.9	50.0	99.8%	↓	↓
#3	0.447	100.0	100.0	100.0%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	73.0	97.3%	110.0%	90.0%
LCS	40.0	40.1	100.2%	120.0%	80.0%
CCV ₁	50.0	46.9	93.8%	110.0%	90.0%
CCV ₂		48.5	97.0%		
CCV ₃		45.3	90.6%		
CCV ₄		48.7	97.4%		
CCV ₅		49.4	98.8%		
CCV ₆		47.3	94.6%		
CCV ₇		50.1	100.2%		
CCV ₈	↓	51.0	102.0%	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY:

Menga Marlan

APPROVED BY:

Cynthia Schmeier

DATE:

1/6/92

DATE:

1/6/92

TEST CODE:

AS

DATE:

1/4/92

ANALYST:

WFL

METHOD:

GFAA

TIME:

08:00

DETECTION LIMIT:

6

= SAMPLES IN SET:

87

UNITS:

ug/L

SAMPLE #'S IN SET:

12433-1c-2c; 12438-1A; 12439-1A-2A; 12308-1A-8A;
1244-1A-5A; 12400-1c-6c; 12424-1D, 4D, TD; 12434-1F-4F; 12406-1A-2F-4F.

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK						
#1						
#2						
#3						
#4						
#5						

See Page I

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV					
LCS					
CCV ₉	50.0	49.9	99.8%	110.0%	90.0%
CCV ₁₀		48.7	97.4%		
CCV ₁₁		49.3	98.6%		
CCV ₁₂		45.3	90.6%		
CCV ₁₃		50.2	100.4%		
PB _{1/3}	0	ND	NA	+6	-6
PB _{12/20}					
PB _{12/30}					
PB _{12/24}					
PB					

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY:

Meagan Mariani

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

As

MATRIX:

81580/red

ANALYSIS DATE:

1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
2517-7A	MS	MS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
2517-7A	MS	40.0	34.2	34.1	75.5%	85.2%	12	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Martin

APPROVED BY:

Cynthia Schmeier

DATE:

1/6/92

DATE:

1/6/92

TEST:

Ac

MATRIX:

TCLP Filter

ANALYSIS DATE:

1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
2396-3D	11.7	12.1	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
2396-3D	11.7	40.0	45.0	45.9	83.2%	85.5%	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Margaret Mariani

APPROVED BY:

Cynthia Schinner

DATE:

1/6/92

DATE:

1/6/92

TEST:

AS

MATRIX:

TCLP soil

ANALYSIS DATE:

1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
2409-4c	24.8	23.5	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
2409-4c	24.8	40.0	52.2	53.6	68.5%	72.0%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meara Marion

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

AS

MATRIX:

TCLP- soil

ANALYSIS DATE:

1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
2319-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPD	
2319-1A	ND	40.0	45.1	44.5	112.8%	111.2%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Marya Matiam

APPROVED BY:

Cynthia Schinner

DATE:

1/6/92

DATE:

1/6/92

EST: ASMATRIX: WaterANALYSIS DATE: 1/14/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES: =1 =2 RPD (%) RPD QC LIMIT: DILUTION

12334-1A ND ND NA 20 1

20

20

20

20

20

20

20

20

20

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
<u>12334-1A</u>	<u>ND</u>	<u>40.0</u>	<u>42.8</u>	<u>42.5</u>	<u>107.0%</u>	<u>106.2%</u>	<u>1</u>	<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Meaza Mariam

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

AS

MATRIX:

soil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12318-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS	
								% REC	% RPD
12318-1A	ND	40.0	46.9	45.5	117.2%	113.8%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Meggy Mariam

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

EST:

AS

MATRIX:

TeLP-ol

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
2396-48	5.7	5.4	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) =

$$\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)}$$

X 100

SPIKED
SAMPLESAMPLE
CONC.SPIKE
ADDEDMS
CONCMSD
CONCMS
% RECMSD
% RECRPD
(%)QC LIMITS
% REC

%RPD

2396-48

5.7

40.0

42.8

44.8

92.8

97.8

5

75 - 125

20

75 - 125

20

75 - 125

20

75 - 125

20

75 - 125

20

75 - 125

20

75 - 125

20

75 - 125

20

75 - 125

20

75 - 125

20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Marian

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

SPL ICP (METHOD 6010/200.7) STANDARD QC FORM

DATE: 12/26/91TIME: 15:3FILE: 1226 FANALYST: DA.# SAMPLES IN SET: 7UNITS: mg/LSAMPLE #'s IN SET: 12319 1A, 12254 1A, 12219 1A, 12396 3d, 2d
12409 1d, 2d

TEST CODE	IDL	BLANK		STANDARD	
		EM	CONC	EM	CONC
BA	0.06	1.5	0.000	28381.0	5.000
CR	0.02	6.0	↓	17313.5	↓

REVIEWED BY: Meaga MarianAPPROVED BY: Cynthia SchreinerDATE: 12/27/91DATE: 12/27/91

SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2319 1A	BA	0.989	1.026	4	20	1
↓	CR	Np	Np	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS	
									% REC	% RPD
2319 1A	BA	0.989	0.500	1.424	1.444	87.0	92.0	2	75-125	20
↓	CR	Np	0.200	0.172	0.180	86.0	90.0	5	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY:

Maggie Marion

APPROVED BY:

Cynthia Schriener

DATE:

12/27/91

DATE:

12/27/91

FILE: 1226 FMATRIX: TCLP - FillerANALYSIS DATE: 12/26/91SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2396 3d	BA	0.600	0.577	4	20	1
↓	CA	0.042	0.043	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
2396 3d	BA	0.600	0.500	1.074	1.117	94.8	103.4	4	75-125	20
↓	CA	0.042	0.200	0.232	0.245	95.0	101.5	5	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: Cynthia SchermerDATE: 12/27/91DATE: 12/27/91

SPL ICP (METHOD 6010/200.7) STANDARD QC FORM

DATE: 12/31/91TIME: 10:50FILE: 1231AANALYST: MM# SAMPLES IN SET: 17UNITS: mg/LSAMPLE #'s IN SET: 12409-(3C-11C, 13C-18C)12410-(01C)12329-(01C)

TEST CODE	IDL	BLANK		STANDARD	
		EM	CONC	EM	CONC
Bq	0.06	1.5	0.000	28965.0	5.000
Cr	0.03	6.0	0.000	16251.5	5.000

REVIEWED BY: José MarroquínAPPROVED BY: Cynthia SchmeierDATE: 1/2/92DATE: 1/2/92

SPL ICP CALIBRATION VERIFICATION

ID	TEST CODE	TRUE CONC.	FOUND CONC.	% RECOVERY	QC LIMITS	
					UPPER	LOWER
ICV	Ba	2.000	2.061	103.0	110%	90%
	Cr	2.208	2.266	102.6		
CCV1	Ba	2.000	2.101	105.0		
	Cr	2.208	2.299	104.1		
CCV2	Ba	2.000	2.108	105.4		
	Cr	2.208	2.337	105.8		
CCV3	Ba	2.000	2.087	104.4		
	Cr	2.208	2.282	^{mg} 103.4		
CCV4	Ba	2.000	2.072	103.6		
	Cr	2.208	2.276	103.1	↓	↓
PB 12/26	Ba	0	N.D	N/A	0.06	-0.06
	Ba Cr				0.02	-0.02
PB 12/27	Ba				0.06	-0.06
	Cr				0.02	-0.02
PB 12/30	Ba				0.06	-0.06
	Cr				0.02	-0.02
PB 12/23	Ba				0.06	-0.06
	Cr	↓	↓	↓	0.02	-0.02

CALCULATION: % RECOVERY = $\frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$

REVIEWED BY: Joanne MarroquinAPPROVED BY: Cynthia SchuenerDATE: 1/2/92DATE: 1/2/92

FILE: 1231AMATRIX: TCLP- SoilANALYSIS DATE: 12/31/91SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
12409-17c	Ba	0.822	0.822	0	20	1
	Cr	0.0	0.0	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
12409-17c	Ba	0.822	0.500	1.253	1.242	86.2	84.0	1	75-125	20
	Cr	0.0	0.200	0.194	0.190	97.0	95.0	2	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Joan MarozianAPPROVED BY: Cynthia SchreinerDATE: 1/2/92DATE: 1/2/92

FILE: 1231HMATRIX: TCLP - SoilANALYSIS DATE: 12/31/91SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
12409-40	Ba	0.654	0.631	4	20	1
	Cr	N.D.	N.D.	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
12409-40	Ba	0.654	0.500	1.096	1.084	88.4	86.0	1	75-125	20
	Cr	N.D.	0.200	0.195	0.189	97.5	94.5	3	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Joelle MarroquinAPPROVED BY: Cynthia SchmeierDATE: 1/2/92DATE: 1/2/92

FILE: 1231AMATRIX: TCLP-LiquidANALYSIS DATE: 12/31/91SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
12329-10	Ba	N.D.	N.D.	N/A	20	1
	Cr	N.D.	N.D.	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
12329-10	Ba	N.D.	0.500	0.525	0.523	105.0	104.6	0	75-125	20
	Cr	N.D.	0.200	0.230	0.227	115.0	113.5	1	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Jean MarroquinAPPROVED BY: Cynthia SchmeierDATE: 1/2/92DATE: 1/2/92

SPL AA QC FORM

TEST CODE: CdDATE: 12/27/91ANALYST: gmMETHOD: FLAATIME: 15.03DETECTION LIMIT: 0.03# SAMPLES IN SET: 23 24 25UNITS: mg/LSAMPLE #'S IN SET: 12329-1C ; 12396-2D, 3D ; 12409-1D, 2D, 3C-18C ;
12438-1A ; 12439-1A, 2A

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.112	0.000	0.000	—	—	—
#1	0.0104	0.200	0.200	100.0	105%	95%
#2	0.147	0.494	0.500	98.8	↓	↓
#3	0.271	0.977	1.000	97.7	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.787	98.4	110%	90%
LCS	0.050	0.056	112.0	120%	80%
CCV ₁	0.500	0.518	103.6	110%	90%
CCV ₂		0.516	103.2		
CCV ₃		0.512	102.4		
CCV ₄		0.510	102.0		
CCV ₅	↓	0.510	102.0	↓	↓
PB 12/26	0	ND	NA	0.03	-0.03
PB 12/24	↓	↓	↓	↓	↓
PB 12/27	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Melissa MarionAPPROVED BY: Cynthia SchreinerDATE: 12/29/91DATE: 12/30/91

TEST:

CD

MATRIX:

TCAP-liquid

ANALYSIS DATE:

12/27/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12396-3D	ND	ND	NA	20	1
12329-1C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12396-3D	ND	0.050	0.055	0.057	110.0	114.0	4	75 - 125	20
12329-1C	ND	0.050	0.059	0.058	118.0	116.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meaza Mariam

APPROVED BY:

Cynthia Schreiner

DATE:

12/29/91

DATE:

12/30/91

TEST: CdMATRIX: ICLP- SLIANALYSIS DATE: 12/27/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12409-17C	ND	ND	NA	20	1
12409-4C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12409-17C	ND	0.050	0.058	0.058	116.0	116.0	0	75 - 125	20
12409-4C	ND	0.050	0.056	0.057	112.0	114.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meara MarianiAPPROVED BY: Cynthia SchreinerDATE: 12/29/91DATE: 12/30/91

SPL AA QC FORM

TEST CODE: HgDATE: 12/27/91ANALYST: gmMETHOD: CVATIME: 9:40DETECTION LIMIT: 0.6# SAMPLES IN SET: 30UNITS: ug/LSAMPLE #'S IN SET: 12329-1C ; 12396-2D, 3D ; 12409-1D, 2D ; 12318-1A-4A ;
12324-1A-5A ; 12353-1C, 2C, 4A, 5A, 6C ; 12400-1C-2C ; 12424-1D, 4D, 7D

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.002	0.00	0.00	—	—	—
#1	0.011	0.50	0.50	100.0	105%	95%
#2	0.031	1.04	1.00	104.0	↓	↓
#3	0.138	4.98	5.00	99.6	↓	↓
#4	0.268	9.92	10.00	99.2	↓	↓
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	2.50	2.58	103.2	120%	80%
LCS	2.00	2.27	113.5		
CCV ₁	2.50	2.73	109.2		
CCV ₂		2.83	113.2		
CCV ₃		2.60	104.0		
CCV ₄		2.67	106.8		
CCV ₅		2.48	99.2		
CCV ₆	↓	2.79	111.6	↓	↓
PB	0	ND	NA	0.6	-0.6

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Meagan MottianAPPROVED BY: Cynthia SchmeierDATE: 12/27/91DATE: 12/27/91

TEST:

Hg

MATRIX:

SOIL

ANALYSIS DATE:

12/27/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12318-1A	ND	ND	NA	20	1
12400-1C	0.30	0.29	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12318-1A	ND	2.00	2.32	2.26	116.0	113.0	3	75 - 125	20
12400-1C	0.30 gm/dl	2.00	2.30	2.29	100.0	99.5	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meera Matham

APPROVED BY:

Cynthia Schmeier

DATE:

12/27/91

DATE:

12/27/91

TEST:

Hg

MATRIX:

TCLP-liquid

ANALYSIS DATE:

12/27/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12409-20	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12409-20	ND	2.00	1.85	1.61	92.5	80.5	14	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melissa Matiam

APPROVED BY:

Cynthia Schmeier

DATE:

12/27/91

DATE:

12/27/91

SPL AA QC FORM

TEST CODE: HgDATE: 12/30/91ANALYST: gmMETHOD: CVAATIME: 15:57DETECTION LIMIT: 0.6# SAMPLES IN SET: 24UNITS: ug/LSAMPLE #'S IN SET: 12396-1D, 4D ; 12409-3C-18C, 13C-18C
12410-1C, 3C ; 12433-1C, 2C ; 12438-1A ; 12439-1A, 2A

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.006	0.00	0.00	—	—	—
#1	0.015	0.50	0.50	100.0	105%	95%
#2	0.030	1.00	1.00	100.0		
#3	0.157	5.01	5.00	100.2		
#4	0.281	9.75	10.00	97.5	↓	↓
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	2.50	2.63	105.2	120%	80%
LCS	2.00	2.28	114.0		
CCV ₁	2.50	2.57	102.8		
CCV ₂		2.49	99.6		
CCV ₃		2.51	100.4		
CCV ₄		2.18	87.2		
CCV ₅	↓	2.21	88.4	↓	↓
PB 12/24	0	NO	NA	0.6	-0.6
PB 12/28	↓	↓	↓	↓	↓
PB 12/28	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Marga MariamAPPROVED BY: Cynthia SchreinerDATE: 12/31/91DATE: 12/31/91

TEST:

Hg

MATRIX:

TCLP-SOIL

ANALYSIS DATE:

12/30/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12409-18C	ND	ND	NA	20	4
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12409-18C	ND	2.00	1.98	2.09	99.0	104.5	5	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Maria Mariani

APPROVED BY:

Cynthia Schreiner

DATE:

12/31/91

DATE:

12/31/91

TEST: HgMATRIX: TCLP-liquidANALYSIS DATE: 12/30/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12438-1A	ND	ND	NA	20	4
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12438-1A	NA	2.00	1.73	1.70	86.5	85.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Melissa MarionAPPROVED BY: Cynthia SchmechelDATE: 12/31/91DATE: 12/31/91

TEST: HgMATRIX: TCLP-CLANALYSIS DATE: 12/30/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12396-1D	ND	ND	NA	20	4
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12396-1D	ND	2.00	0.76	0.68	*38.0	*34.0	11	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meaza MarianAPPROVED BY: Cynthia SchreinerDATE: 12/31/91DATE: 12/31/91

SPL AA QC FORM

TEST CODE: PhDATE: 12/27/91ANALYST: JmMETHOD: FLAATIME: 14:07DETECTION LIMIT: 0.3# SAMPLES IN SET: 11UNITS: mg/LSAMPLE #'S IN SET: 12329-1C ; 12396-2D, 3D ; 12409-1D, 2D, 3C, 1K, 18C ;
12438-1A ; 12439-1A, 2A

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.000 ³ gm	0.00	0.00	—	—	—
#1	0.011	0.50	0.50	100.0	105%	95%
#2	0.023	1.01	1.00	101.0	↓	↓
#3	0.045	2.00	2.00	100.0	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	1.00	1.01	101.0	110%	90%
LCS	0.50	0.48	96.0	120%	80%
CCV ₁	1.00	0.94	94.0	110%	90%
CCV ₂	↓	1.00	100.0	↓	↓
CCV ₃	↓	0.94	94.0	↓	↓
PB 12/26	0	ND	NA	0.3	-0.3
PB 12/24	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Melinda MorrisonAPPROVED BY: Cynthia SchinnererDATE: 12/27/91DATE: 12/30/91

TEST:

Pb

MATRIX:

TCLP-liquid

ANALYSIS DATE:

12/27/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12396-30 _{gm}	ND	ND	NA	20	1
12329-1C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12396-30 _{gm}	ND	0.50	0.52	0.53	104.0	106.0	2	75 - 125	20
12329-1C	ND	0.50	0.39	0.42	78.0	84.0	7	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meaza Nativon

APPROVED BY:

Cynthia Schmeier

DATE:

12/27/91

DATE:

12/30/91

TEST: P6MATRIX: TECP-SOILANALYSIS DATE: 12/27/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12409-17C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12409-17C	ND	0.50	0.53	0.49	106.0	98.0	8	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Melissa MatiamAPPROVED BY: Cynthia SchreinerDATE: 12/27/91DATE: 12/30/91

SPL AA QC FORM

TEST CODE: PbDATE: 12/30/91ANALYST: JmMETHOD: FLAATIME: 13:13DETECTION LIMIT: 0.3# SAMPLES IN SET: 16UNITS: mg/LSAMPLE #'S IN SET: 12398-1C-4C ; 12409-4C-^{mm}16C 4C-11C, 13C-16C

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.015	0.00	0.00	—	—	—
#1	0.011	0.50	0.50	100.0	105%	95%
#2	0.023	1.00	1.00	100.0	↓	↓
#3	0.043	1.97	2.00	98.5	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	1.00	0.96	96.0	110%	90%
LCS	0.50	0.48	96.0	120%	80%
CCV ₁	1.00	0.92	92.0	110%	90%
CCV ₂	↓	0.96	96.0	↓	↓
CCV ₃	↓	0.97	97.0	↓	↓
CCV ₄	↓	0.97	97.0	↓	↓
PB ¹⁷ / ₂₇	0	ND	NA	0.3	-0.3
PB ¹² / ₂₇	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Megara MariamAPPROVED BY: Cynthia SchreinerDATE: 12/30/91DATE: 12/30/91

TEST: PbMATRIX: TCLP-soilANALYSIS DATE: 12/30/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12398-1C	ND	ND	NA	20	1
12409-4C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12398-1C	ND	0.50	0.46	0.47	92.0	94.0	2	75 - 125	20
12409-4C	ND	0.50	0.48	0.56	96.0	112.0	15	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meara MarianiAPPROVED BY: Cynthia SchreinerDATE: 12/30/91DATE: 12/30/91

TEST CODE: SCDATE: 1/6/92ANALYST: WFLMETHOD: GFAATIME: 10:52DETECTION LIMIT: 6SAMPLES IN SET: 28UNITS: ug/LSAMPLE #'S IN SET: 12424-4D, 7D; 12329-1c; 12410-3c, 1c; 12489-1A; 12487-1A; 12396-2D, 3D, 4D; 12409-1D, 2D, 3c - 8c; 12318-1A (Qc only); 12325-1D; 12334-1A (Qc only)

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.003	0.0	0.0	NA	—	—
#1	0.072	25.0	25.0	100.0	105.0%	95.0%
#2	0.162	50.8	50.0	101.6%	↓	↓
#3	0.304	98.7	100.0	98.7%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	74.2	98.9%	110.0%	90.0%
LCS	30.0	29.6	98.7%	120.0%	80.0%
CCV ₁	50.0	48.7	97.4%	110.0%	90.0%
CCV ₂		49.1	98.2%	↓	↓
CCV ₃		50.8	101.6%	↓	↓
CCV ₄		48.3	96.6%	↓	↓
CCV ₅		50.5	101.0%	↓	↓
CCV ₆		52.6	105.2%	↓	↓
CCV ₇				↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meara MarzanAPPROVED BY: Cynthia SchmeierDATE: 1/6/92DATE: 1/6/92

11

TEST CODE: SeDATE: 1/6/92ANALYST: WFLMETHOD: GFAA ^{WFL}

TIME: _____

DETECTION LIMIT: 6= SAMPLES IN SET: 28 ^{WFL} ₉UNITS: ug/L

SAMPLE #'S IN SET: _____

SEE PAGE I

STANDARDS	EM. %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK						
#1						
#2						
#3						
#4						
#5						

SEE PAGE I

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV					
LCS					
PB 12/24	0	ND	NA	+6	-6
PB 12/24	↓	↓	↓	↓	↓
PB 12/31					
PB 10/26	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meagan MoranAPPROVED BY: Cynthia SchreinerDATE: 1/6/92DATE: 1/6/92

TEST: SeMATRIX: TCLP-Filtered ANALYSIS DATE: 1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12487-1A	NS	NS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPD	
12487-1A	NS	30.0	20.5	20.8	68.3%*	69.3%*	1	75 - 125	20
								75 - 125	20
								75 - 125	20
*- Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarlanDATE: 1/6/92APPROVED BY: Cynthia SchreinerDATE: 1/6/92

TEST:

Se

MATRIX:

TCLP soil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12410-3c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPD	
12410-3c	ND	30.0	16.0	15.8	53.3%	52.7%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Margo Mariani

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

Se

MATRIX:

TECP-

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
<u>2329-1c</u>	<u>ND</u>	<u>ND</u>	<u>NA</u>	<u>20</u>	<u>5x</u>
				<u>20</u>	
				<u>20</u>	
				<u>20</u>	
				<u>20</u>	
				<u>20</u>	
				<u>20</u>	
				<u>20</u>	
				<u>20</u>	
				<u>20</u>	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
<u>2329-1c</u>	<u>ND</u>	<u>30.0</u>	<u>27.0</u>	<u>24.6</u>	<u>90.5%</u>	<u>82.0%</u>	<u>9</u>	<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>
								<u>75 - 125</u>	<u>20</u>

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meara Marian

APPROVED BY:

Cynthia Schneier

DATE:

1/6/92

DATE:

1/6/92

TEST:

So

MATRIX:

soil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
2315-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED
SAMPLESAMPLE
CONC.SPIKE
ADDEDMS
CONCMSD
CONCMS
% RECMSD
% RECRPD
(%)QC LIMITS
% REC

%RPD

2318-1A ND

30.0 28.0 27.8

93.3% 92.7% 1

75 - 125 20

75 - 125 20

75 - 125 20

75 - 125 20

75 - 125 20

75 - 125 20

75 - 125 20

75 - 125 20

75 - 125 20

75 - 125 20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Meagan Martin

APPROVED BY:

Cynthia Schmeiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

Se

MATRIX:

TECP-Filtered

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
12396-3D	NS	NS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPI	
12396-3D	NS	30.0/18.3	19.1	1.0	61.0	63.7	4	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Morgan Mariani

APPROVED BY:

Cyrellus Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

Sc

MATRIX:

TCLP-oil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
12396-4D	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12396-4D	ND	30.0	25.1	25.1	90.3%	83.7%	8	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Mawham

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

TEST:

SO

MATRIX:

TCLP- Soil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12409-4c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS	
								% REC	% RPD
12409-4c ND		30.0	19.2	21.0	*64.0%	*70.0%	9	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Marlan

APPROVED BY:

Cynthia Schmeier

DATE:

1/6/92

TEST:

Se

MATRIX:

Water

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
2334-1A	ND	ND	N/A	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	
2334-1A	ND	30.0	31.2	31.7	104.0%	105.7%	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meara Mariani

APPROVED BY:

A. J. Thoma Schenker

DATE:

1/6/92

DATE:

1/6/92

01

SPL AA QC FORM

TEST CODE: SpDATE: 1/7/92ANALYST: DFDMETHOD: GFAATIME: 16:48DETECTION LIMIT: 6# SAMPLES IN SET: 92322UNITS: ug/LSAMPLE #'S IN SET: 12409 (9-11C, 13-12C); 12396-30 (QC only); 12438-1A;
12439 (1, 2A); 12433 (1, 2C); 12435 (1-6A); 12436 (7-9A) 12435-1A-3A, 5A, 6A

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.003	0.0	0.0	NA	105.0%	95.0%
#1	0.106	25.0	25.0	100.0%		
#2	0.224	50.6	50.0	101.2%		
#3	0.417	98.6	100.0	98.6%	✓	✓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	76.2	101.6%	110.0%	90.0%
LCS	30.0	27.6	92.0%	120.0%	80.0%
CCV ₁	50.0	52.2	104.4%	110.0%	90.0%
CCV ₂		46.9	93.8%		
CCV ₂		51.1	102.2%		
CCV ₃		50.1	100.2%		
CCV ₄		48.9	97.8%		
CCV ₅		53.3	106.6%		
CCV ₆		46.9	93.8%		
CCV ₇	✓	50.9	101.8%	✓	✓

continued next page

% RECOVERY = $\frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$ REVIEWED BY: Meaga MaxiamAPPROVED BY: Cynthia ScherreiDATE: 1/8/92DATE: 1/8/92

SPL AA QC FORM

TEST CODE: ScDATE: 1/7/92ANALYST: MAOMETHOD: GFAA

TIME: _____

DETECTION LIMIT: 6

SAMPLES IN SET: _____

UNITS: ug/L

SAMPLE #'S IN SET: _____

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK						
#1						
#2						
#3						
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV					
LCS					
PB _{12/26}	0.0	ND	NA	6	-6
PB _{12/27}	0.0	↓	↓	↓	↓
PB _{12/30}	0.0	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Melissa MarionAPPROVED BY: Cynthia SchreinerDATE: 1/8/92DATE: 1/8/92

TEST:

SoMATRIX: TRIPLech. & So. /ANALYSIS DATE: 1/7/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12409-17c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12409-17c	ND	30	17.8	18.8	*59.3%	*62.7%	5	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan M. M...DATE: 1/8/92APPROVED BY: Cynthia SchreinerDATE: 1/8/92

TEST: SeMATRIX: TCLP Leachate FilteredANALYSIS DATE: 1/7/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12396-3D	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12396-3D	ND	30.0	19.2	22.2	* 64.0%	* 74.0%	14	75 - 125	20
								75 - 125	20
								75 - 125	20
*- Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiDATE: 1/8/92APPROVED BY: G. Arthur SchanerDATE: 1/8/92

TEST: SeMATRIX: DissolvedANALYSIS DATE: 1/7/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12435-1A	ND	ND	NA	20	2
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12435-1A	ND	30	32.1	30.7	107.0%	102.3%	4	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meara MarianiAPPROVED BY: Cynthia SchmeierDATE: 1/8/92DATE: 1/8/92



8880 Interchange Drive, Houston, Texas 77054 713/660-0901

Wet Chemistry QA/QC Validation Report

Test Code PHDate 12-26-91Analyst KEWMethod 150.1Time 9:55aMatrix LIQUID# Of Samples in Set 17Detection Limit NONE

Sample #'s in Set	112438-1B	112428-3B, 4B, 8D	Units <u>PH UNIT</u>
112427-1D	112439-1B, 2B	112434-1D → 8D	
112409-1C, 2C			

Standards	EM, %T, ABS.	Actual Concentration	Theoretical Concentration	% Recovery	Upper Limit	Lower Limit
Blank	BUFFERS					
#1 4.00		3.98	4.00	99.5	4.29	3.87
#2 7.00		6.99	7.00	99.9	7.07	6.95
#3 10.00		10.00	10.00	100.0	10.12	9.94
#4	TEMP: 27°C		SLOPE: 101.4			
Check Std.	CALIBRATED w/	4.00 & 10.00	BUFFERS			

Duplicate	#1	#2	RPD (%)	Upper Limit	Lower Limit	Dilution
112439-1B	6.79	6.81	0.29	1.20	0.90	
112434-1D	6.95	6.97	0.29			
112434-8D	7.07	7.07	0			
112428-3B	7.66	7.64	0.26			
112428-4B	7.30	7.30	0			
112428-8D	5.58	5.54	0.72	↓	↓	

Spike Sample	Concentration Before Spike	Amount Added	Concentration After Spike	After - Before	% Recovery	Upper Limit	Lower Limit
N/A							

Spike Recovery Calculation

$$\% \text{ Recovery} = \frac{(\text{Actual} - \text{Original})}{\text{Amount Added}} \times 100$$

Reviewed By [Signature]Date 12/26/91

Relative Percent Difference Calculation

$$\text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

Approved By [Signature]Date 12/27/91



3880 Interchange Drive, Houston, Texas 77054 713/660-0901

Wet Chemistry QA/QC Validation Report

Test Code PHSDate 12-24-91Analyst KEWMethod 9045Time 11:00aMatrix SOIL# Of Samples in Set 18Detection Limit NONE

Sample #'s in Set

Units PH UNIT112391-12C112409-3B, 11B, 13B, 18B112410-1B, 3B

Standards	EM, %T, ABS.	Actual Concentration	Theoretical Concentration	% Recovery	Upper Limit	Lower Limit
Blank	BUFFERS					
#1	4.00	4.00	4.00	100.0	4.29	3.87
#2	7.00	6.99	7.00	99.9	7.07	6.94
#3	10.00	10.05	10.00	100.5	10.12	9.94
#4		CALIBRATED	w/ 4.00 & 10.00	BUFFER		
Check Std.		TEMP: 21.5°C	SLOPE: N/A			

Duplicate	#1	#2	RPD (%)	Upper Limit	Lower Limit	Dilution
112391-12C	9.16	9.13	0.33	1.20	0.90	
112410-1B	9.30	9.28	0.22			
112409-11B	9.23	9.19	0.43			
112409-18B	8.98	8.99	0.11			

Spike Sample	Concentration Before Spike	Amount Added	Concentration After Spike	After - Before	% Recovery	Upper Limit	Lower Limit
NA							

Spike Recovery Calculation

$$\% \text{ Recovery} = \frac{(\text{Actual} - \text{Original}) \times 100}{\text{Amount Added}}$$

Reviewed By

12/26/91

Date

Relative Percent Difference Calculation

$$\text{RPD} = \frac{(\#1 - \#2) \times 100}{(\#1 + \#2)(0.5)}$$

Approved By

Date

12/26/91



**** SPL Quality Control Report ****
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE

SPL Sample ID: F112324-04A

Reported on: 01/09/92

Matrix: Soil

Analyzed on: 12/23/91

This sample was randomly selected for use in the SPL quality control program. One in twenty samples is fortified, in duplicate, with known concentration of the substance being analyzed.

The result are as follows:

---- SPIKE ANALYSIS ----

Compound	Blank Value	Spike Added µg/Kg	Original Sample Concentration µg/Kg	MS Concentration µg/Kg	MS % Rec#	QC Limits Range
BENZENE	ND	50	ND	43	86	39 - 150 %
TOLUENE	ND	50	ND	43	86	46 - 148 %
ETHYL_BENZENE	ND	50	ND	46	92	32 - 160 %
O XYLENE	ND	50	ND	46	92	32 - 160 %
M AND P XYLENE	ND	100	1	95	94	32 - 160 %

---- SPIKE DUPLICATE ANALYSIS ----

Compound	Spike Added µg/Kg	MSD Concentration µg/Kg	MSD % Rec#	% RPD	RPD Limit	QC Rec Range
BENZENE	50	48	96	11	20	39 - 150 %
TOLUENE	50	44	88	2	20	46 - 148 %
ETHYL_BENZENE	50	47	94	2	20	32 - 160 %
O XYLENE	50	46	92	0	20	32 - 160 %
M AND P XYLENE	100	95	94	0	20	32 - 160 %

SPL Incorporated

VARD911223134400


Cynthia Schreiner, QC Officer



**** SPL Quality Control Report ****
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE

SPL Sample ID: F112412-04A

Reported on: 01/09/92

Matrix: Soil

Analyzed on: 12/26/91

This sample was randomly selected for use in the SPL quality control program. One in twenty samples is fortified, in duplicate, with known concentration of the substance being analyzed.

The result are as follows:

---- SPIKE ANALYSIS ----

Compound	Blank Value	Spike Added µg/Kg	Original Sample Concentration µg/Kg	MS Concentration µg/Kg	MS % Rec#	QC Limits Range
BENZENE	ND	50	ND	66	132	39 - 150 %
TOLUENE	ND	50	1	61	120	46 - 148 %
ETHYL_BENZENE	ND	50	ND	54	108	32 - 160 %
O XYLENE	ND	50	ND	52	104	32 - 160 %
M AND P XYLENE	ND	100	1	104	103	32 - 160 %

---- SPIKE DUPLICATE ANALYSIS ----

Compound	Spike Added µg/Kg	MSD Concentration µg/Kg	MSD % Rec#	% RPD	RPD Limit	QC Rec Range
BENZENE	50	65	130	2	20	39 - 150 %
TOLUENE	50	62	122	2	20	46 - 148 %
ETHYL_BENZENE	50	55	110	2	20	32 - 160 %
O XYLENE	50	52	104	0	20	32 - 160 %
M AND P XYLENE	100	106	105	2	20	32 - 160 %

SPL Incorporated


Cynthia Schreiner, QC Officer

VARE911226160000



**** SPL Quality Control Report ****
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE

SPL Sample ID: BLANK MSD

Reported on: 01/09/92

Matrix: Water

Analyzed on: 12/26/91

This sample was randomly selected for use in the SPL quality control program. One in twenty samples is fortified, in duplicate, with known concentration of the substance being analyzed.

The result are as follows:

---- SPIKE ANALYSIS ----

Compound	Blank Value	Spike Added µg/L	Original Sample Concentration µg/L	MS Concentration µg/L	MS % Rec#	QC Limits Range
BENZENE	ND	50	ND	49	98	39 - 150 %
TOLUENE	ND	50	ND	49	98	46 - 148 %
ETHYL_BENZENE	ND	50	ND	46	92	32 - 160 %
O XYLENE	ND	50	ND	49	98	32 - 160 %
M AND P XYLENE	ND	100	ND	99	99	32 - 160 %

---- SPIKE DUPLICATE ANALYSIS ----

Compound	Spike Added µg/L	MSD Concentration µg/L	MSD % Rec#	% RPD	RPD Limit	QC Rec Range
BENZENE	50	46	92	6	20	39 - 150 %
TOLUENE	50	46	92	6	20	46 - 148 %
ETHYL_BENZENE	50	43	86	7	20	32 - 160 %
O XYLENE	50	46	92	6	20	32 - 160 %
M AND P XYLENE	100	92	92	7	20	32 - 160 %

SPL, Incorporated

Cynthia Schreiner, QC Officer

VARJ911226095500



**** SPL Quality Control Report ****
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE

SPL Sample ID: F112452-01A

Reported on: 01/09/92

Matrix: Water

Analyzed on: 12/27/91

This sample was randomly selected for use in the SPL quality control program. One in twenty samples is fortified, in duplicate, with known concentration of the substance being analyzed.

The result are as follows:

---- SPIKE ANALYSIS ----

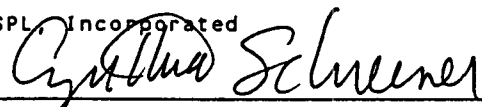
Compound	Blank Value	Spike Added µg/L	Original Sample Concentration µg/L	MS Concentration µg/L	MS % Rec#	QC Limits Range
BENZENE	ND	50	ND	56	112	39 - 150 %
TOLUENE	ND	50	ND	56	112	46 - 148 %
ETHYL_BENZENE	ND	50	ND	50	100	32 - 160 %
O XYLENE	ND	50	ND	52	104	32 - 160 %
M AND P XYLENE	ND	100	ND	111	111	32 - 160 %

---- SPIKE DUPLICATE ANALYSIS ----

Compound	Spike Added µg/L	MSD Concentration µg/L	MSD % Rec#	% RPD	RPD Limit	QC Rec Range
BENZENE	50	54	108	4	20	39 - 150 %
TOLUENE	50	54	108	4	20	46 - 148 %
ETHYL_BENZENE	50	49	98	2	20	32 - 160 %
O XYLENE	50	54	108	4	20	32 - 160 %
M AND P XYLENE	100	110	110	0.9	20	32 - 160 %

SPL, Incorporated

VARJ911227081000


Cynthia Schreiner, QC Officer



**** SPL QUALITY CONTROL REPORT ****
TOTAL PETROLEUM HYDROCARBONS [TPH]

SPL sample Id: BLANK
Matrix: WATER

Reported on: 01/09/92
Analyzed on: 12/23/91

This sample was randomly selected for use in the SPL quality control program. One in ten samples is fortified with a known concentration of the substance being analyzed and one in ten samples is analyzed in duplicate. The result are as follows:

-- SPIKE ANALYSIS --

Sample Id	Blank Value	Spike Added mg/L	Original Sample Concentration mg/L	MS Concentration mg/L	MS % Rec
BLANK	ND	409	ND	343	84

-- SPIKE DUPLICATE ANALYSIS --

Sample Id	Spike Added mg/L	MSD Concentration mg/L	MSD % Rec	% RPD
BLANK	409	345	84	0

SPL, Incorporated

Cynthia Schreiner, QC Officer



**** SPL QUALITY CONTROL REPORT ****
TOTAL PETROLEUM HYDROCARBONS (TPH)

SPL sample Id: F112409-48
Matrix: SOIL

Reported on: 01/09/92
Analyzed on: 12/27/91

This sample was randomly selected for use in the SPL quality control program. One in ten samples is fortified with a known concentration of the substance being analyzed and one in ten samples is analyzed in duplicate. The result are as follows:

-- SPIKE ANALYSIS --

Sample Id	Blank Value	Spike Added mg/L	Original Sample Concentration mg/Kg	MS Concentration mg/Kg	MS % Rec
F112409-48	ND	409	42	387	84

-- SPIKE DUPLICATE ANALYSIS --

Sample Id	Spike Added mg/L	MSD Concentration mg/Kg	MSD % Rec	% RPD
F112409-48	409	368	80	5

SPL, Incorporated

Cynthia Schreiner, QC Officer

SPL AA QC FORM

TEST CODE: Ag
METHOD: FLAADATE: 01/03/92
TIME: 13:26ANALYST: Jm
DETECTION LIMIT: 0.02# SAMPLES IN SET: 3UNITS: mg/LSAMPLE #'S IN SET: 12487-1A ; 12489-1A ; 12410-3C

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.115	0.000	0.000	—	—	—
#1	0.087	0.500	0.500	100.0	105%	95%
#2	0.174	1.000	1.000	100.0	↓	↓
#3	0.338	1.986	2.000	99.3	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.778	97.2	110%	90%
LCS	0.050	0.050	100.0	120%	80%
CCV ₁	1.000	1.005	100.5	110%	90%
CCV ₂	↓	1.003	100.3	↓	↓
PB	0	ND	NA	0.02	-0.02

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meaga MarianAPPROVED BY: Arthur SchreinerDATE: 1/3/92DATE: 1/3/92

TEST: AgMATRIX: RLP-liquidANALYSIS DATE: 1/3/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12487-1A	NA	NA	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12487-1A	NA	0.050	0.050	0.049	100.0	98.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: Cynthia SchreinerDATE: 1/3/92DATE: 1/3/92

TEST:

Ag

MATRIX:

TRIP-SOIL

ANALYSIS DATE:

11/3/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12410-3C	ND	ND	NA	20	1
12489-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12410-3C	ND	0.050	0.054	0.050	108.0	100.0	7	75 - 125	20
12489-1A	ND	↓	0.049	0.051	98.0	102.0	4	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melissa Marian

APPROVED BY:

Cynthia Schmeier

DATE:

11/3/92

DATE:

1/3/92

SPL AA QC FORM

TEST CODE: AgDATE: 12/31/91ANALYST: JmMETHOD: FLAATIME: 14:17DETECTION LIMIT: 0.02# SAMPLES IN SET: 5UNITS: mg/LSAMPLE #'S IN SET: 12396-1D, 4D ; 12410-1C ; 12433-1C, 2C[12422-1A GC only]

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.137	0.000	0.000	—	—	—
#1	0.088	0.500	0.500	100.0	105%	95%
#2	0.172	0.995	1.000	99.5	↓	↓
#3	0.332	1.980	2.000	99.0	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.803	100.4	110%	90%
LCS	0.050	0.049	98.0	120%	80%
COV ₁	1.000	0.993	99.3	110%	90%
COV ₂	↓	0.992	99.2	↓	↓
PB	0	ND	NA	0.02	-0.02

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meagan MarionAPPROVED BY: Cynthia SchmeiderDATE: 1/2/92DATE: 1/2/92

TEST:

Hg

MATRIX:

TCLP-soil

ANALYSIS DATE:

12/31/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12422-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12422-1A	ND	0.050	0.049	0.051	98.0	102.0	4	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Maria Mariam

APPROVED BY:

Cynthia Schmeier

DATE:

1/2/92

DATE:

1/2/92

TEST:

Ag

MATRIX:

TCLP. cil

ANALYSIS DATE:

12/31/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
124 SM 12396-41	NA	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12396-41	NA	0.050	0.052	0.052	104.0	104.0	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Mariani

APPROVED BY:

Cynthia Schmeier

DATE:

12/92

DATE:

1/2/92

TEST CODE: ASDATE: 1/4/92ANALYST: WFLMETHOD: GFAATIME: 08:00DETECTION LIMIT: 6# SAMPLES IN SET: 80UNITS: ug/LSAMPLE #'S IN SET: 12495-1A-3A; 12516-1A-6A; 12517-7A; 12548-1A-6A; 12549-7A-12A; 12550-13A; 12409-1B-2D; 12396-3S-2D; 12409-3C-18C; 12396-1D-4D; 12476-1A; 12541-1F-3F; 12487-1A; 12410-1C-3C; 12214-1A;

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.002	0.0	0.0	NA	—	—
#1	0.111	25.0	25.0	100.0%	105.0%	95.0%
#2	0.222	49.9	50.0	99.8%	↓	↓
#3	0.447	100.0	100.0	100.0%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	73.0	97.3%	110.0%	90.0%
LCS	40.0	40.1	100.2%	120.0%	80.0%
CCV ₁	50.0	46.9	93.8%	110.0%	90.0%
CCV ₂		48.5	97.0%		
CCV ₃		45.3	90.6%		
CCV ₄		48.7	97.4%		
CCV ₅		49.4	98.8%		
CCV ₆		47.3	94.6%		
CCV ₇		50.1	100.2%		
CCV ₈	↓	51.0	102.0%	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Melissa MarianiAPPROVED BY: Cynthia SchreinerDATE: 1/6/92DATE: 1/6/92

TEST CODE: ASDATE: 1/4/92ANALYST: WFLMETHOD: GFAATIME: 08:00DETECTION LIMIT: 6# SAMPLES IN SET: 87UNITS: ug/LSAMPLE #'S IN SET: 12433-1c-2c; 12438-1A; 12439-1A-2A; 12308-1A-8A;
1244-1A-5A; 12400-1c-6c; 12424-1D, 4D, 7D; 12434-1F-4F; 12406-1A-2F-4F.

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK						
#1						
#2						
#3						
#4						
#5						

See Page I

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV					
LCS					
CCV ₆	50.0	49.9	99.8%	110.0%	90.0%
CCV ₁₀		48.7	97.4%		
CCV ₁₁		49.3	98.6%		
CCV ₁₂		45.3	90.6%		
CCV ₁₃		50.2	100.4%		
PB _{1/3}	0	ND	NA	+6	-6
PB _{12/26}					
PB _{12/30}					
PB _{12/24}					

% RECOVERY = $\frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$ REVIEWED BY: Meagan MarianiAPPROVED BY: Cynthia SchmeierDATE: 1/6/92DATE: 1/6/92

TEST: AsMATRIX: 81580/rodANALYSIS DATE: 1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12517-7A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
12517-7A	ND	40.0	30.2	34.1	75.5%	85.2%	12	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meaga MarronDATE: 1/6/92APPROVED BY: Cynthia SchmeiserDATE: 1/6/92

TEST:

As

MATRIX:

TCLP-Filter

ANALYSIS DATE:

1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12396-3D	11.7	12.1	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPC	
12396-3D	11.7	40.0	45.0	45.9	83.2%	85.5%	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Margie Mariani

APPROVED BY:

Cynthia Schinner

DATE:

1/6/92

DATE:

1/6/92

TEST:

AS

MATRIX:

TCLP soil

ANALYSIS DATE:

1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
2409-4c	24.8	23.5	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPI	
2409-4c	24.8	40.0	52.2	53.6	68.5%	72.0%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Marion

APPROVED BY:

Cynthia Schreener

DATE:

1/6/92

DATE:

1/6/92

TEST:

As

MATRIX:

TCLP- soil

ANALYSIS DATE:

1/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
2319-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
2319-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
2319-1A	ND	40.0	45.1	44.5	112.8%	111.2%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meara Marion

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

AS

MATRIX:

Water

ANALYSIS DATE:

1/14/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12334-1A	NB	NS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPD	
12334-1A	NB	40.0	42.8	42.5	107.0%	106.2%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Megza Marian

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

AS

MATRIX:

soil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
12318-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPD	
12318-1A	ND	40.0	46.9	45.5	117.2%	113.8%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Megha Mariani

DATE:

1/6/92

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

TEST:

AS

MATRIX:

TCLP-oil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
2396-48	5.7	5.4	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
2396-48	5.7	40.0	42.8	44.8	92.8%	97.8%	5	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meara Marian

DATE:

1/6/92

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

SPL ICP (METHOD 6010/200.7) STANDARD QC FORM

DATE: 12/31/91TIME: 10:50FILE: 1231AANALYST: MM# SAMPLES IN SET: 17UNITS: mg/LSAMPLE #'s IN SET: 12409-(3C-11C, 13C-18C)12410-(01C)12329-(01C)

TEST CODE	IDL	BLANK		STANDARD	
		EM	CONC	EM	CONC
Bq	0.06	1.5	0.000	28965.0	5.000
Cr	0.02	6.0	0.000	16251.5	5.000

REVIEWED BY: José MarroquínDATE: 1/2/92APPROVED BY: Cynthia SchmeierDATE: 1/2/92

SPL ICP CALIBRATION VERIFICATION

ID	TEST CODE	TRUE CONC.	FOUND CONC.	% RECOVERY	QC LIMITS	
					UPPER	LOWER
ICV	Ba	2.000	2.061	103.0	110%	90%
	Cr	2.208	2.266	102.6		
CCV1	Ba	2.000	2.101	105.0		
	Cr	2.208	2.299	104.1		
CCV2	Ba	2.000	2.108	105.4		
	Cr	2.208	2.337	105.8		
CCV3	Ba	2.000	2.087	104.4		
	Cr	2.208	2.282	^{mg} 103.4		
CCV4	Ba	2.000	2.072	103.6		
	Cr	2.208	2.276	103.1	↓	↓
PB 12/26	Ba	0	N.D.	N/A	0.06	-0.06
	Ba Cr				0.02	-0.02
PB 12/27	Ba				0.06	-0.06
	Cr				0.02	-0.02
PB 12/30	Ba				0.06	-0.06
	Cr				0.02	-0.02
PB 12/23	Ba				0.06	-0.06
	Cr	↓	↓	↓	0.02	-0.02

CALCULATION: % RECOVERY = $\frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$

REVIEWED BY: Joanne MarroquinAPPROVED BY: Cynthia SchreinerDATE: 1/2/92DATE: 1/2/92

FILE: 1231AMATRIX: TCLP- SoilANALYSIS DATE: 12/31/91SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
12409-17c	Ba	0.822	0.822	0	20	1
	Cr	0.0	0.0	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPI
12409-17c	Ba	0.822	0.500	1.253	1.242	86.2	84.0	1	75-125	20
	Cr	0.0	0.200	0.194	0.190	97.0	95.0	2	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Joan MarozinAPPROVED BY: Cynthia SchreinerDATE: 1/2/92DATE: 1/2/92

FILE: 1231AMATRIX: ICLP - SoilANALYSIS DATE: 12/31/91SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
12409-40	Ba	0.654	0.631	4	20	1
	Cr	N/D	N/D	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS	
12409-40	Ba	0.654	0.500	1.096	1.084	88.4	86.0	1	75-125	20
	Cr	N/D	0.200	0.195	0.189	97.5	94.5	3	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY:

Joelle Marroquin

APPROVED BY:

Cynthia Schmeier

DATE:

1/2/92

DATE:

1/2/92

FILE: 1231AMATRIX: TCLP-LiquidANALYSIS DATE: 12/31/91SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
12329-1c	Ba	N.D.	N.D.	N/A	20	1
	Cr	N.D.	N.D.	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
12329-1c	Ba	N.D.	0.500	0.525	0.523	105.0	104.6	0	75-125	20
	Cr	N.D.	0.200	0.230	0.227	115.0	113.5	1	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Jeannette MarroquinAPPROVED BY: Cynthia SchreinerDATE: 1/2/92DATE: 1/2/92

SPL AA QC FORM

TEST CODE: CdDATE: 12/31/91ANALYST: JmMETHOD: FLAATIME: 14:40DETECTION LIMIT: 0.03# SAMPLES IN SET: 5UNITS: mg/LSAMPLE #'S IN SET: 12396-10, 40 ; 12410-1C ; 12433-1C, 2C
[12422-1A & only]

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.089	0.000	0.000	—	—	—
#1	0.066	0.200	0.200	100.0	105%	95%
#2	0.155	0.495	0.500	99.0	↓	↓
#3	0.282	0.974	1.000	97.4	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.795	99.4	110%	90%
LCS	0.050	0.059	98.3 ^{nm} 118	120%	80%
CCU	0.500	0.521	104.2	110%	90%
CCU ₂	↓	0.519	103.8	↓	↓
PB	0	NA	NA	0.03	-0.03

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Megga MarionAPPROVED BY: Cynthia SchmeierDATE: 1/2/92DATE: 1/2/92

TEST:

Cd

MATRIX:

RLP soil

ANALYSIS DATE:

12/31/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12422-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12422-1A	ND	0.050	0.061	0.061	122.0	122.0	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Marion

APPROVED BY:

Cynthia Schreiner

DATE:

12/11/92

DATE:

1/2/92

TEST: CdMATRIX: TEL-01PANALYSIS DATE: 12/31/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12396-40	0.031	0.029	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12396-40	0.031	0.050	0.083	0.083	104.0	104.0	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meaga MarionAPPROVED BY: Cynthia SchreinerDATE: 12/31/91 12/1/92DATE: 1/2/92

SPL ICP (METHOD 6010/200.7) STANDARD QC FORM

DATE: 1/6/92

TIME: 1121

FILE: 0106 A

ANALYST: BA

SAMPLES IN SET: 7

UNITS: mg/L

SAMPLE #'s IN SET: 2497 1A, 2499 1A, 2410 3c, 2396 1d, 4d,
2353 3B, 2400 7c

TEST CODE	IDL	BLANK		STANDARD	
		EM	CONC	EM	CONC
CR	0.02	15.0	0.000	16533.5	5.000

REVIEWED BY: Melissa Martin

APPROVED BY: Cynthia Schmeider

DATE: 1/6/92

DATE: 1/6/92

FILE: 0106AMATRIX: TECP - FilteredANALYSIS DATE: 01/06/92SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2487 1A	CR	NP	NP	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
2487 1A	CR	NP	0.200	0.171	0.172	85.5	86.0	1	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meara MartinAPPROVED BY: Cynthia SchreinerDATE: 1/6/92DATE: 1/6/92

FILE: 0126AMATRIX: TCLP - SoilANALYSIS DATE: 01/06/92SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2489 1A	CR	NP	ND	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS	
									% REC	% RPL
2489 1A	CR	NP	0.200	0.186	0.184	93.0	92.0	1	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Manga MarianAPPROVED BY: Cynthia SchreinerDATE: 1/6/92DATE: 1/6/92

FILE: 0106 AMATRIX: TELP - SOILANALYSIS DATE: 01/06/92SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2410 3c	Ca	ND	ND	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
2410 3c	Ca	ND	0.200	0.182	0.182	91.0	91.0	0	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meaga MarianiAPPROVED BY: Anthony SchmeesDATE: 1/6/92DATE: 1/6/92

FILE: 2126 AMATRIX: TELP - SILANALYSIS DATE: 01/06/92SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2396 4d	CR	ND	ND	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
2396 4d	CR	ND	0.200	0.211	0.201	105.5	100.5	5	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Melissa MarionAPPROVED BY: Cynthia SchreinerDATE: 1/6/92DATE: 1/6/92

FILE: 0106AMATRIX: WATERANALYSIS DATE: 01/26/92SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2400 Tc	CR	0.461	0.506	9	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
2400 Tc	CR	0.461	0.200	0.698	0.640	18.5	89.5	9	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY:

Meagan Marian

APPROVED BY:

Antonia Schreiner

DATE:

1/6/92

DATE:

1/6/92

SPL AA QC FORM

TEST CODE: HgDATE: 12/30/91ANALYST: JmMETHOD: CVATIME: 15.57DETECTION LIMIT: 0.6# SAMPLES IN SET: 24UNITS: LLg/LSAMPLE #'S IN SET: 12396-1D, 4D ; 12409-3C - 11C, 13C - 18C
12410-1C, 3C ; 12433-1C, 2C ; 12438-1A ; 12439-1A, 2A

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.006	0.00	0.00	—	—	—
#1	0.015	0.50	0.50	100.0	105%	95%
#2	0.030	1.00	1.00	100.0		
#3	0.157	5.01	5.00	100.2		
#4	0.281	9.75	10.00	97.5	↓	↓
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	2.50	2.63	105.2	120%	80%
LCS	2.00	2.28	114.0		
CCV ₁	2.50	2.57	102.8		
CCV ₂		2.49	99.6		
CCV ₃		2.51	100.4		
CCV ₄		2.18	87.2		
CCV ₅	↓	2.21	88.4	↓	↓
PB 12/24	0	NO	NA	0.6	-0.6
PB 12/28	↓	↓	↓	↓	↓
PB 12/28	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Marga MariamAPPROVED BY: Cynthia SchreinerDATE: 12/31/91DATE: 12/31/91

TEST: HgMATRIX: TCLP-SOLANALYSIS DATE: 12/30/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12409-18C	ND	ND	NA	20	4
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12409-18C	ND	2.00	1.98	2.09	99.0	104.5	5	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Maria MarianAPPROVED BY: Cynthia SchreinerDATE: 12/31/91DATE: 12/31/91

TEST:

Hg

MATRIX:

TCLP-liquid

ANALYSIS DATE:

12/30/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12438-1A	ND	ND	NA	20	4
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12438-1A	ND	2.00	1.73	1.70	86.5	85.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meaga Marian

APPROVED BY:

Cynthia Schreiner

DATE:

12/31/91

DATE:

12/31/91

TEST:

Hg

MATRIX:

TCLP-CL

ANALYSIS DATE:

12/30/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12396-1D	ND	ND	NA	20	4
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12396-1D	ND	2.00	0.76	0.68	*38.0	*34.0	11	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meaza Marian

APPROVED BY:

Cynthia Schreiner

DATE:

12/31/91

DATE:

12/31/91

SPL AA QC FORM

TEST CODE: PbDATE: 12/31/91ANALYST: JmMETHOD: FLAATIME: 13:49DETECTION LIMIT: 0.3# SAMPLES IN SET: 8UNITS: mg/LSAMPLE #'S IN SET: 12396-10, 4D ; 12410-1C , 12422-1A-3A ;
12433-1C, 2C

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.001	0.00	0.00	—	—	—
#1	0.011	0.50	0.50	100.0	105%	95%
#2	0.022	1.00	1.00	100.0	↓	↓
#3	0.045	2.00	2.00	100.0	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	1.00	1.06	106.0	110%	90%
LCS	0.50	0.51	102.0	120%	80%
CCV ₁	1.00	1.03	103.0	110%	90%
CCV ₂	↓	1.04	104.0	↓	↓
CCV ₃	↓	1.00	100.0	↓	↓
PB	0	ND	NA	0.3	-0.3

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Melissa MarianiAPPROVED BY: Cynthia SchmeierDATE: 1/2/92DATE: 1/2/92

TEST: PbMATRIX: RLP-501PANALYSIS DATE: 12/31/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12422-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12422-1A	ND	0.50	0.52	0.58	104.0	116.0	11	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Melissa MarionAPPROVED BY: Cynthia SchumeyDATE: 1/2/92DATE: 1/2/92

TEST: PbMATRIX: TELP-oilANALYSIS DATE: 12/31/91

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
12396-40	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12396-40	ND	0.50	0.51	0.53	102.0	106.0	4	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarionAPPROVED BY: Cynthia SchreinerDATE: 1/2/92DATE: 1/2/92

TEST CODE: SCDATE: 1/6/92ANALYST: WFLMETHOD: GFAATIME: 10:52DETECTION LIMIT: 6= SAMPLES IN SET: 28UNITS: ug/LSAMPLE #'S IN SET: 12424-4D, 7D; 12329-1c; 12410-3c, 1c; 12489-1A; 12487-1A; 12396-2D, 3D, 4D; 12409-1D, 2D, 3c-8c; 12318-1A (Qc only); 12325-1D; 12334-1A (Qc only);

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.003	0.0	0.0	NA	—	—
#1	0.072	25.0	25.0	100.0	105.0%	95.0%
#2	0.162	50.8	50.0	101.6%	↓	↓
#3	0.304	98.7	100.0	98.7%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	74.2	98.9%	110.0%	90.0%
LCS	30.0	29.6	98.7%	120.0%	80.0%
CCV ₁	50.0	48.7	97.4%	110.0%	90.0%
CCV ₂		49.1	98.2%	↓	↓
CCV ₃		50.8	101.6%	↓	↓
CCV ₄		48.3	96.6%	↓	↓
CCV ₅		50.5	101.0%	↓	↓
CCV ₆		52.6	105.2%	↓	↓
ECV ₇	↓			↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meara MarcanAPPROVED BY: Cynthia SchmeierDATE: 1/6/92DATE: 1/6/92

11

TEST CODE: SeDATE: 1/6/92ANALYST: WFLMETHOD: GFAATIME: WFLDETECTION LIMIT: 6= SAMPLES IN SET: 28/9UNITS: ug/LSAMPLE #'S IN SET: SEE PAGE I

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK						
#1						
#2						
#3						
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV					
LCS					
PB 12/24	0	ND	NA	+6	-6
PB 12/24	↓	↓	↓	↓	↓
PB 12/31					
PB 12/26	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meagan MurrenAPPROVED BY: Cynthia SchreinerDATE: 1/6/92DATE: 1/6/92

TEST:

Se

MATRIX:

TCLP-Filtered

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12487-1A	NS	NS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
12487-1A	NS	30.0	20.5	20.8	68.3%	69.3%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
*- Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Marlan

DATE:

1/6/92

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

TEST:

Se

MATRIX:

TCLP soil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
<u>12410-3c</u>	<u>ND</u>	<u>ND</u>	<u>NA</u>	20	<u>1</u>
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC % RPD	
<u>12410-3c</u>	<u>ND</u>	<u>30.0</u>	<u>16.0</u>	<u>15.8</u>	<u>33.3%</u>	<u>52.7%</u>	<u>1</u>	75 - 125	20
								75 - 125	20
								75 - 125	20
<u>* - Matrix Interference</u>								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Meara Marian

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

Se

MATRIX:

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ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
2329-1c	ND	ND	NA	20	5x
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	
2329-1c	ND	30.0	27.0	24.6	90.5%	82.0%	9	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meara Marian

APPROVED BY:

Cynthia Schneier

DATE:

1/6/92

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1/6/92

TEST:

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MATRIX:

soil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12318-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RPD	
12318-1A	ND	30.0	28.0	27.8	93.3%	92.7%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Meagan Martin

APPROVED BY:

Cynthia Schmeier

DATE:

1/6/92

DATE:

1/6/92

TEST: SeMATRIX: TECP-FilteredANALYSIS DATE: 1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
2396-3D	NS	NS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
2396-3D	NS	30.0	18.9	19.1	61.0%	63.7%	4	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Marga MarianiAPPROVED BY: Cynthia SchreinerDATE: 1/6/92

TEST:

Se

MATRIX:

TCLP-oil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES:	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
12396-4B	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS	
								% REC	%RPD
12396-4B	ND	30.0	27.1	25.1	90.3%	83.7%	8	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Meaga Maxam

APPROVED BY:

Cynthia Schreiner

DATE:

1/6/92

DATE:

1/6/92

TEST:

Se

MATRIX:

TCLP- Soil

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT:	DILUTION
12409-4c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RP
12409-4c ND		30.9	19.2	21.0	*64.0%	*70.0%	9	75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meaga Marlan

DATE:

11/6/92

APPROVED BY:

Cynthia Schmeier

DATE:

1/6/92

TEST:

Se

MATRIX:

Water

ANALYSIS DATE:

1/6/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	=1	=2	RPD (%)	RPD QC LIMIT:	DILUTION
2334-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

RELATIVE PERCENT DIFFERENCE (RPD) = $\frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC %RP	
2334-1A	ND	30.0	31.2	31.7	104.0%	105.7%	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

% RECOVERY = $\frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$

REVIEWED BY:

Marya Mariani

APPROVED BY:

Cynthia Schmeier

DATE:

1/6/92

DATE:

1/6/92

SPL ICP (METHOD 6010 200.7) STANDARD QC FORM

DATE: 1/4/92TIME: 15:47FILE: 0104BANALYST: DMO= SAMPLES IN SET: 178 8UNITS: mg/L

SAMPLE #'s IN SET: 12487-1A; 12489-1A; 12396-(1,2E); 12410-3C;
12353-3B; 12399(1,2E); ~~12400-7C~~; ~~12335(1,2E)~~; 12409-4C (QC);
12335-1C (QC only)]

TEST CODE	IDL	BLANK		STANDARD	
		EM	CONC	EM	CONC
Zn	0.006	20.5	0.000	25550.0	5.000
cd	0.009	3.0		21977.5	
Pb	0.1	11.0		20679.5	
Ba	0.06	4.0		30279.0	
Cu	0.03	118.5	✓	16920.0	✓

REVIEWED BY: Maria MariamiAPPROVED BY: Cynthia SchuenerDATE: 1/6/92DATE: 1/6/92

SPL ICP CALIBRATION VERIFICATION

ID	TEST CODE	TRUE CONC.	FOUND CONC.	% RECOVERY	QC LIMITS	
					UPPER	LOWER
ICV	Zn	2.000	1.976	98.8%	110%	90%
	Cd		1.934	96.7%		
	Pb		1.997	99.8%		
	Ba		2.036	101.8%		
	Cr	2.208	2.202	99.7%		
CCV ₁	Zn	2.000	2.022	101.1%		
	Cd		1.938	96.9%		
	Pb		1.980	99.0%		
	Ba		2.046	102.3%		
	Cr	2.208	2.156	97.6%		
CCV ₂	Zn	2.000	2.001	100.0%		
	Cd		1.907	95.4%		
	Pb		1.975	98.8%		
	Ba		2.017	100.8%		
	Cr	2.208	2.161	97.9%		
CCV ₃	Zn	2.000	1.951	97.6%		
	Cd		1.852	92.6%		
	Pb		1.907	95.4%		
	Ba		1.966	98.3%		
	Cr	2.208	2.129	96.4%	✓	✓
— continued next page —						

CALCULATION: % RECOVERY = $\frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$

REVIEWED BY: Margo MatiamAPPROVED BY: Cynthia SchreinerDATE: 1/6/92DATE: 1/6/92

FILE: 01042

ANALYSIS DATE: 1/4/92

SPL ICP CALIBRATION VERIFICATION

[illegible]
$$\text{CALCULATION: } \% \text{ RECOVERY} = \frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$$

REVIEWED BY: Meera Marion

DATE: 11/6/92

APPROVED BY: Cynthia Schmeck

DATE: 1/6/92

SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
12410-3c	Ba	1.896	1.909	1.0	20	1
	Ca	AD	AD	NA	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
12410-3c	Ba	1.896	2.000	3.662	3.773	88.3%	93.8%	3	75-125	20
	Ca	AD	0.2	0.145	0.147	72.5%	72.5%	+	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: Cynthia SchreinerDATE: 1/6/92DATE: 1/6/92

SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
12409-4C	Ba	0.645	0.625	3	20	1
	Fe	ND	ND	NA	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RE
12409-4C	Ba	0.645	0.5	1.096	1.084	90.2%	87.8%	1	75-125	20
	Fe	ND	0.2	0.145	0.189	97.5%	94.5%	3	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meara MatiamDATE: 1/6/92APPROVED BY: Guthrie SchreinerDATE: 1/6/92

SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
12396-4D	Ba	0.328	0.338	3	20	1
	Ca	ND	ND	NA	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RP
12396-4D	Ba	0.328	2.000	2.289	2.263	98.0%	96.8%	1	75-125	20
	Ca	ND	0.200	0.164	0.157	82.0%	78.5%	4	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meara MarianiDATE: 11/6/92APPROVED BY: Guthrie SchmeinerDATE: 1/6/92

EAD

SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
12335-1c	Zn	0.368	0.367	0	20	1
	Cd	ND	ND	NA	20	1
	Pb	1.081	1.075	1	20	1
	Ba	0.126	0.126	NA	20	1
	Cd	ND	ND	NA	20	1
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
12335-1c	Zn	0.368	0.5	0.870	0.879	100.4%	100.2%	1	75-125	20
	Cd	ND	0.05	0.045	0.046	90.0%	92.0%	2	75-125	20
	Pb	1.081	0.5	1.542	1.526	92.2%	89.0%	1	75-125	20
	Ba	0.126	2.0	2.208	2.200	104.1%	103.7%	0	75-125	20
	Cd	ND	0.2	0.160	0.158	80.0%	79.0%	1	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meara MarianAPPROVED BY: Cynthia SchmeierDATE: 11/6/92DATE: 1/4/92

SPL OA/OC FORM

ANALYST: JC IFM

MATRIX: water

DET. LIMIT: /

UNITS: Agil

2B; 12410-2A; 12426-1A →

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK		21	21			
#1 STD		4.54	4.79	106%	118.2	76.8
#2						
#3						
#4						
LCS						

MATRIX SPIKE DATA

[illegible]
$$\% \text{ RECOVERY} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Added}} \times 100$$
$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Conc MS}) - (\text{Conc MSD})}{(\text{Conc MS} + \text{Conc MSD})(0.5)} \times 100$$

APPROVED BY: Cynthia A. [Signature]

DATE: 12/27/91



8880 Interchange Drive, Houston, Texas 77054 713/660-0901

Wet Chemistry QA/QC Validation Report

Test Code PHSDate 12-24-91Analyst KEWMethod 9045Time 11:00aMatrix SOIL# Of Samples in Set 18Detection Limit NONE

Sample #'s in Set

Units PH UNIT112391-12C112409-3B, 11B, 13B, 18B112410-1B, 3B

Standards	EM, %T, ABS.	Actual Concentration	Theoretical Concentration	% Recovery	Upper Limit	Lower Limit
Blank	BUFFERS					
#1 4.00		4.00	4.00	100.0	4.29	3.87
#2 7.00		6.99	7.00	99.9	7.07	6.94
#3 10.00		10.05	10.00	100.5	10.12	9.94
#4		CALIBRATED	W/ 4.00 & 10.00 BUFFER			
Check Std.		TEMP: 21.5°C	SLOPE: N/A			

Duplicate	#1	#2	RPD (%)	Upper Limit	Lower Limit	Dilution
12391-12C	9.16	9.13	0.33	1.20	0.90	
112410-1B	9.30	9.28	0.22			
12409-11B	9.23	9.19	0.43			
12409-18B	8.98	8.99	0.11			

Spike Sample	Concentration Before Spike	Amount Added	Concentration After Spike	After - Before	% Recovery	Upper Limit	Lower Limit
NA							

Spike Recovery Calculation

$$\% \text{ Recovery} = \frac{(\text{Actual} - \text{Original})}{\text{Amount Added}} \times 100$$

Reviewed By

Date

12/26/91

Relative Percent Difference Calculation

$$\text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

Approved By

Date

12/26/91



**** SPL Quality Control Report ****
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE

SPL Sample ID: F112324-04A

Reported on: 01/07/92

Matrix: Soil

Analyzed on: 12/22/91

This sample was randomly selected for use in the SPL quality control program. One in twenty samples is fortified, in duplicate, with known concentration of the substance being analyzed.

The result are as follows:

---- SPIKE ANALYSIS ----

Compound	Blank Value	Spike Added µg/Kg	Original Sample Concentration µg/Kg	MS Concentration µg/Kg	MS % Rec#	QC Limits Range
BENZENE	ND	50	ND	55	110	39 - 150 %
TOLUENE	ND	50	ND	52	104	46 - 148 %
ETHYL_BENZENE	ND	50	ND	48	96	32 - 160 %
O XYLENE	ND	50	ND	53	106	32 - 160 %
M AND P XYLENE	ND	100	1	97	96	32 - 160 %

---- SPIKE DUPLICATE ANALYSIS ----

Compound	Spike Added µg/Kg	MSD Concentration µg/Kg	MSD % Rec#	% RPD	RPD Limit	QC Rec Range
BENZENE	50	55	110	0	20	39 - 150 %
TOLUENE	50	51	102	2	20	46 - 148 %
ETHYL_BENZENE	50	48	96	0	20	32 - 160 %
O XYLENE	50	54	108	2	20	32 - 160 %
M AND P XYLENE	100	98	97	1	20	32 - 160 %

SPL, Incorporated

Cynthia Schreiner
Cynthia Schreiner, QC Officer

VARE91122233500



**** SPL Quality Control Report ****
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE

SPL Sample ID: F112409-17A

Reported on: 01/07/92

Matrix: Soil

Analyzed on: 12/24/91

This sample was randomly selected for use in the SPL quality control program. One in twenty samples is fortified, in duplicate, with known concentration of the substance being analyzed.

The result are as follows:

---- SPIKE ANALYSIS ----

Compound	Blank Value	Spike Added µg/Kg	Original Sample Concentration µg/Kg	MS Concentration µg/Kg	MS % Rec#	QC Limits Range
BENZENE	ND	50	ND	46	92	39 - 150 %
TOLUENE	ND	50	ND	46	92	46 - 148 %
ETHYL_BENZENE	ND	50	ND	47	94	32 - 160 %
O XYLENE	ND	50	ND	51	102	32 - 160 %
M AND P XYLENE	ND	100	1	101	100	32 - 160 %

---- SPIKE DUPLICATE ANALYSIS ----

Compound	Spike Added µg/Kg	MSD Concentration µg/Kg	MSD % Rec#	% RPD	RPD Limit	QC Rec Range
BENZENE	50	54	108	16	20	39 - 150 %
TOLUENE	50	53	106	14	20	46 - 148 %
ETHYL_BENZENE	50	53	106	12	20	32 - 160 %
O XYLENE	50	50	100	2	20	32 - 160 %
M AND P XYLENE	100	105	104	4	20	32 - 160 %

SPL Incorporated

Cynthia Schreiner
Cynthia Schreiner, QC Officer

VARD911224131800



**** SPL QUALITY CONTROL REPORT ****
TOTAL PETROLEUM HYDROCARBONS (TPH)

SPL sample Id: F112409-48
Matrix: SOIL

Reported on: 01/07/92
Analyzed on: 12/27/91

This sample was randomly selected for use in the SPL quality control program. One in ten samples is fortified with a known concentration of the substance being analyzed and one in ten samples is analyzed in duplicate. The result are as follows:

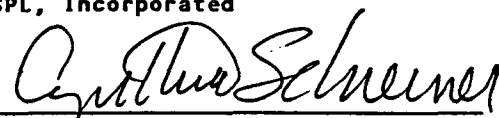
-- SPIKE ANALYSIS --

Sample Id	Blank Value	Spike Added mg/L	Original Sample Concentration mg/Kg	MS Concentration mg/Kg	MS % Rec
F112409-48	ND	409	42	387	84

-- SPIKE DUPLICATE ANALYSIS --

Sample Id	Spike Added mg/L	MSD Concentration mg/Kg	MSD % Rec	% RPD
F112409-48	409	368	80	5

SPL, Incorporated


Cynthia Schreiner, QC Officer

Toxcon Engineering Company, Inc.

3334 Richmond Ave., #200

Houston, Texas 77098

(713) 520-7667

Analysis Request and Chain of Custody Record

Project No.		Client/Project Name		Project Location		Analysis Requested		Laboratory Remarks	
504867.00		Baker Hughes / Hobbs		2800 West Marland Hobbs, New Mexico					
Field Sample No./ Identification	Date and Time	QTY	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	Analysis Requested	Laboratory Remarks		
WW121991	12/19/91 17:00	✓	1 L. glass	liquid	HCl Ice	TPH (418.1)			
WW121991	12/19/91 17:00	✓	3 VOAS	liquid	HCl Ice	BTEX (8020)			
WW121991	12/19/91 17:00	✓	8 oz. glass	liquid	Ice	pH			
WW121991	12/19/91 17:00	✓	8 oz. plastic	liquid	HNO3 Ice	RCRA metals + TCLP extraction (6010/7000/1311)			
Sump: L	12/19/91 16:30	✓	1 L. glass	liquid	HCl Ice	TPH (418.1)			
Sump: L	12/19/91 16:30	✓	3 VOAS	liquid	HCl Ice	BTEX (8020)			
Sump: L	12/19/91 16:30	✓	8 oz. glass	liquid	Ice	pH			
Sump: L	12/19/91 16:30	✓	8 oz. plastic	liquid	HNO3 Ice	RCRA metals + TCLP extraction (6010/7000/1311)			
Sump: S	12/19/91 16:30	✓	16 oz. WMG	sludge (solid)	Ice	TPH (418.1) BTEX (8020) RCRA metals + TCLP extraction (6010/7000/1311)			
BI: 5/6	12/19/91 16:35	✓	16 oz WMG	soil	Ice				
Samplers: (Signature)		Relinquished by: (Signature)		Date: 12/12/91 Time: 5:00 PM		Received by: (Signature)		Date: Time:	
R. Simon		B. Simon						Intact	
R. Simon		B. Simon						Intact	
Simon EET		Simon EET						Intact	
Simon EET		Simon EET						Intact	
SAMPLER REMARKS:				Received for laboratory: (Signature) Date: 12/29/91 Time: 5:00 PM				Laboratory No.	
				Daily Results to: Roger Pollock c/o Simon: EET (Toxic)					
Seal #									

Toxcon Engineering Company, Inc.
3334 Richmond Ave., #200
Houston, Texas 77098
(713) 520-7667

Project No.	Client/Project Name	Project Location						
504867.00	Baker Hughes/Hobbs	2800 West Marland Hobbs, New Mexico						
Field Sample Identification	Date and Time	Grab	Core	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	Analysis Requested	Laboratory Remarks
B1: 9/10	12/20/91 905 A	✓		16 oz. WMG	Soil	Ice	TPH (415.1) ATEX (8020) PH ACRA metals + TELP extraction (6010/7000/1311)	
B2: 5/6	12/20/91 950	✓						
B2: 10/11	12/20/91 1000A	✓						
B3: 5/6	12/20/91 1105	✓						
B3: 10/11	12/20/91 1125	✓						
B4: 5/6	12/20/91 1040	✓						
B4: 10/11	12/20/91 1045	✓						
B5: 7.5/8.5	12/20/91 1150	✓						HOLD THIS SAMPLE UNTIL R. POKLUDGA CALLS
B5: 11/12	12/20/91 1215	✓					8240	
B6: 9.5/10.5	12/20/91 1325	✓					8240	
Relinquished by: (Signature)		Relinquished by: (Signature)		Relinquished by: (Signature)		Received by: (Signature)		Intact
R. J. Hughes	P. J. Hughes	P. J. Hughes	P. J. Hughes	P. J. Hughes	P. J. Hughes	P. J. Hughes	P. J. Hughes	
Affiliation		Affiliation		Affiliation		Date:		Date:
STANON EEI	Simon: EEI	Simon: EEI	Simon: EEI	Simon: EEI	Simon: EEI	Simon: EEI	Simon: EEI	
SAMPLER REMARKS:								
Data Results to: Simon: EEI (Tel: 505-251-1111)								

Analysis Request and Chain of Custody Record

Toxcon Engineering Company, Inc.

3334 Richmond Ave., #200

Houston, Texas 77098

(713) 520-7667

Project No.	Client/Project Name			Project Location		LABORATORY REMARKS
Field Sample No./ Identification	Date and Time	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	
50486700	Baker Hughes/Hobbs	2800 West Merland Hobbs, New Mexico				
B6: 145/155	12/20/91 13:40	✓	16oz WMG	Soil	Ice	TPH (418.1) pH RCRA metals + TCLP extraction (6010/7000/1311) 8240
B61: 0/1	12/20/91 11:59A	✓				
B62: 0/1	12/20/91 10:45A	✓				
B63: 0/1	12/20/91 10:15A	✓				
B64: 0/1	12/20/91 10:05A	✓				
Effluent	12/20/91 12:50P	✓	16oz WMG	Water-Lig Soil	Ice	Oil & Grease (413.1) TPH (418.1) pH RCRA metals + TCLP extraction (6010/7000/1311) 8240
B5-15/165	12/20/91 12:50P	✓				
Relinquished by: (Signature) Relinquished by: (Signature) Relinquished by: (Signature) Date: 12/20/91 Date: 5:00P 91 Date: Received by: (Signature) Received by: (Signature) Received by: (Signature) Date: Date: Date: Intact Intact Intact						
Relinquished by: (Signature) Relinquished by: (Signature) Relinquished by: (Signature) Date: Date: Date: Received for laboratory: (Signature) Date: Laboratory No.						
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Relinqu						

F1.12.409/410

SPL HOUSTON ENVIRONMENTAL LABORATORY

SAMPLE LOGIN CHECKLIST

DATE: 12/20/91 TIME: 5:00 P.M. CLIENT NO. _____
 LOT NO. _____ CONTRACT NO. _____

CLIENT SAMPLE NOS. WW121991, WW121991, WW121991,
WW121991, Sump-L, Sump-L, Sump-L, Sump-L,
Sump-S, B1: 5/4, B1: 9/10, B2: 5/6, B2: 10/11, B3: 5/6
 SPL SAMPLE NOS.: B3: 10/11, B4: 5/6, B4: 10/11, B5: 7.5/2.5,
B5: 11/12, B6: 9.5/10, S,

- | | <u>YES</u> | <u>NO</u> |
|---|--|---|
| 1. Is a Chain-of-Custody form present? | ☒ | ☐ |
| 2. Is the COC properly completed? | ☒ | ☐ |
| If no, describe what is incomplete: | | |
| _____ | | |
| _____ | | |
| _____ | | |
| If no, has the client been contacted about it? | | |
| (Attach subsequent documentation from client about the situation) | | |
| 3. Is airbill/packing list/bill of lading with shipment? | ☒ | ☐ |
| If yes, ID#: <u>1550553572, 1550553561</u> | | |
| 4. Is a USEPA Traffic Report present? | ☐ | ☒ |
| 5. Is a USEPA SAS Packing List present? | ☐ | ☒ |
| 6. Are custody seals present on the package? | ☒ | ☐ |
| If yes, were they intact upon receipt? | | |
| ☒ | | |
| 7. Are all samples tagged or labeled? | ☒ | ☐ |
| Do the sample tags/labels match the COC? | | |
| ☒ | | |
| If no, has the client been contacted about it? | | |
| (Attach subsequent documentation from client about the situation) | | |
| 8. Do all shipping documents agree? | ☒ | ☐ |
| If no, describe what is in nonconformity: | | |
| _____ | | |
| _____ | | |
| 9. Condition/temperature of shipping container: | <u>40C</u> | |
| 10. Condition/temperature of sample bottles: | <u>good</u> | |
| 11. Sample Disposal?: | ☒ SPL disposal | ☐ Return to client |

NOTES (reference item number if applicable): _____

ATTEST: Natale Banks DATE: 12/20/91
 DELIVERED FOR RESOLUTION: REC'D DATE: _____
 RESOLVED: _____ DATE: _____

December 1991 Investigation
(Volatiles by Method 8240)



SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: F2-01-017

Approved for release by:

R. Schrynemeeck Date: 1/17/92
R. Schrynemeeckers, Laboratory Director

M. Scott Sample Date: 1/17/92
for C. Schreiner, QA Manager



CASE NARRATIVE

QUALITY CONTROL RESULTS SUMMARY

WORK ORDER NO.: F2-01-017

SAMPLE NO.: 01A, 02A, 03A, and 04A

The Soil samples in this case wre analyzed outside of the sample hold-time at the client's request. Due to the lack of sufficient sample, the detection limits for fraction 01A are increased.

SOUTHERN PETROLEUM LABORATORIES

A handwritten signature in dark ink, appearing to read "Greg Tatosian", is written over a horizontal line.

Greg Tatosian
GCMS Supervisor



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: B5: 11/12
SPL ID: F20101701A
Analyst: JC

Matrix: SOIL
Dilution: 5
% Moisture: 16
Level: LOW

Received: 20-Dec-91
Extracted: *****
Analyzed: 10-Jan-92

C o m p o u n d	Concentration, ug/Kg	
	Amount	M D L
Acetone	ND	60
Benzene	ND	30
Bromodichloromethane	ND	30
Bromoform	ND	30
Bromomethane	ND	60
2-Butanone	ND	120
Carbon Disulfide	ND	30
Carbon Tetrachloride	ND	30
Chlorobenzene	ND	30
Chloroethane	ND	60
2-Chloroethylvinylether	ND	60
Chloroform	ND	30
Chloromethane	ND	60
Dibromochloromethane	ND	30
1,1-Dichloroethane	ND	30
1,2-Dichloroethane	ND	30
1,1-Dichloroethene	ND	30
Trans-1,2-Dichloroethene	ND	30
1,2-Dichloropropane	ND	30
Cis-1,3-Dichloropropene	ND	30
Trans-1,3-Dichloropropene	ND	30
Ethylbenzene	ND	30
2-Hexanone	ND	60
4-Methyl-2-Pentanone	ND	60
Methylene Chloride	230	30
Styrene	ND	30
1,1,2,2-Tetrachloroethane	ND	30
Tetrachloroethene	ND	30
Toluene	ND	30
1,1,1-Trichloroethane	ND	30
1,1,2-Trichloroethane	ND	30
Trichloroethene	ND	30
Trichlorofluoromethane	ND	30
Vinyl Acetate	ND	60
Vinyl Chloride	ND	60
Total Xylenes	ND	30

SURROGATES

1,2-Dichloroethane-D4	110% Recovery
Toluene-D8	104% Recovery
4-Bromofluorobenzene	83% Recovery

ND-Not Detected. MDL-Method detection limit.



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: B6: 9.5/10.5

SPL ID: F20101702A

Analyst: JC

Matrix: SOIL

Dilution: 1

% Moisture: 10

Level: LOW

Received: 20-Dec-91

Extracted: *****

Analyzed: 10-Jan-92

Compound	Concentration, ug/Kg	
	Amount	M D L
Acetone	45	11
Benzene	ND	6
Bromodichloromethane	ND	6
Bromoform	ND	6
Bromomethane	ND	11
2-Butanone	ND	22
Carbon Disulfide	ND	6
Carbon Tetrachloride	ND	6
Chlorobenzene	ND	6
Chloroethane	ND	11
2-Chloroethylvinylether	ND	11
Chloroform	ND	6
Chloromethane	ND	11
Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6
1,2-Dichloroethane	ND	6
1,1-Dichloroethene	ND	6
Trans-1,2-Dichloroethene	ND	6
1,2-Dichloropropane	ND	6
Cis-1,3-Dichloropropene	ND	6
Trans-1,3-Dichloropropene	ND	6
Ethylbenzene	6	6
2-Hexanone	ND	11
4-Methyl-2-Pentanone	ND	11
Methylene Chloride	41	6
Styrene	ND	6
1,1,2,2-Tetrachloroethane	ND	6
Tetrachloroethene	ND	6
Toluene	ND	6
1,1,1-Trichloroethane	ND	6
1,1,2-Trichloroethane	ND	6
Trichloroethene	ND	6
Trichlorofluoromethane	ND	6
Vinyl Acetate	ND	11
Vinyl Chloride	ND	11
Total Xylenes	11	6

SURROGATES

1,2-Dichloroethane-D4

105% Recovery

Toluene-D8

113% Recovery

4-Bromofluorobenzene

89% Recovery

ND-Not Detected.

MDL-Method detection limit.

**ANALYTICAL RESULTS****Volatile Organics by USEPA Method 8240**

Client ID: B6: 14.5/15.5

SPL ID: F20101703A

Analyst: JC

Matrix: SOIL

Dilution: 1

% Moisture: 11

Level: LOW

Received: 20-Dec-91

Extracted: *****

Analyzed: 10-Jan-92

C o m p o u n d	Concentration, ug/Kg	
	Amount	M D L
Acetone	270	11
Benzene	ND	6
Bromodichloromethane	ND	6
Bromoform	ND	6
Bromomethane	ND	11
2-Butanone	ND	22
Carbon Disulfide	ND	6
Carbon Tetrachloride	ND	6
Chlorobenzene	ND	6
Chloroethane	ND	11
2-Chloroethylvinylether	ND	11
Chloroform	ND	6
Chloromethane	ND	11
Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6
1,2-Dichloroethane	ND	6
1,1-Dichloroethene	ND	6
Trans-1,2-Dichloroethene	ND	6
1,2-Dichloropropane	ND	6
Cis-1,3-Dichloropropene	ND	6
Trans-1,3-Dichloropropene	ND	6
Ethylbenzene	ND	6
2-Hexanone	ND	11
4-Methyl-2-Pentanone	ND	11
Methylene Chloride	36	6
Styrene	ND	6
1,1,2,2-Tetrachloroethane	ND	6
Tetrachloroethene	ND	6
Toluene	ND	6
1,1,1-Trichloroethane	ND	6
1,1,2-Trichloroethane	ND	6
Trichloroethene	ND	6
Trichlorofluoromethane	ND	6
Vinyl Acetate	ND	11
Vinyl Chloride	ND	11
Total Xylenes	11	6

SURROGATES

1,2-Dichloroethane-D4

106% Recovery

Toluene-D8

112% Recovery

4-Bromofluorobenzene

96% Recovery

ND-Not Detected.

MDL-Method detection limit.



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: B5: 15/16.5

SPL ID: F20101704A

Analyst: JC

Matrix: SOIL

Dilution: 1

% Moisture: 11

Level: LOW

Received: 20-Dec-91

Extracted: *****

Analyzed: 10-Jan-92

C o m p o u n d	Concentration, ug/Kg	
	Amount	M D L
Acetone	300	11
Benzene	ND	6
Bromodichloromethane	ND	6
Bromoform	ND	6
Bromomethane	ND	11
2-Butanone	26	22
Carbon Disulfide	ND	6
Carbon Tetrachloride	ND	6
Chlorobenzene	ND	6
Chloroethane	ND	11
2-Chloroethylvinylether	ND	11
Chloroform	ND	6
Chloromethane	ND	11
Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6
1,2-Dichloroethane	ND	6
1,1-Dichloroethene	ND	6
Trans-1,2-Dichloroethene	ND	6
1,2-Dichloropropane	ND	6
Cis-1,3-Dichloropropene	ND	6
Trans-1,3-Dichloropropene	ND	6
Ethylbenzene	61	6
2-Hexanone	ND	11
4-Methyl-2-Pentanone	ND	11
Methylene Chloride	31	6
Styrene	63	6
1,1,2,2-Tetrachloroethane	ND	6
Tetrachloroethene	ND	6
Toluene	ND	6
1,1,1-Trichloroethane	ND	6
1,1,2-Trichloroethane	ND	6
Trichloroethene	ND	6
Trichlorofluoromethane	ND	6
Vinyl Acetate	ND	11
Vinyl Chloride	ND	11
Total Xylenes	110	6

SURROGATES

1,2-Dichloroethane-D4

103% Recovery

Toluene-D8

116% Recovery

4-Bromofluorobenzene

105% Recovery

ND-Not Detected.

MDL-Method detection limit.

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: SPL HOUSTON Contract: _____

Lab Code: SPL Case No.: 201017 SAS No.: _____ SDG No.: 201017

Level: (low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	B5_11_12	104	83	110	0	0
02	B5_15_16_5	116	105	103	0	0
03	B6_14_5_15_5	112	96	106	0	0
04	B6_9_5_10_5	113	89	105	0	0
05	VBLKSOIL01	103	86	109	0	0

QC LIMITS

S1 (TOL) = Toluene-d8 (81-117)
S2 (BFB) = Bromofluorobenzene (74-121)
S3 (DCE) = 1,2-Dichloroethane-d4 (70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON Contract: _____Lab Code: SPL Case No.: 201074 SAS No.: _____ SDG No.: 201017Matrix Spike - EPA Sample No.: HA-1(8.5) Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	65.8	0	69.5	106	59-172
Trichloroethene	65.8	0	75.1	114	62-137
Benzene	65.8	0	73.7	112	66-142
Toluene	65.8	0	76.6	116	59-139
Chlorobenzene	65.8	0	67.9	103	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	65.8	65.5	100	6	22	59-172
Trichloroethene	65.8	69.6	106	7	24	62-137
Benzene	65.8	71.2	108	4	21	66-142
Toluene	65.8	77.5	118	-2	21	59-139
Chlorobenzene	65.8	68.3	104	-1	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limitsSpike Recovery: 0 out of 10 outside limits

COMMENTS: 8240S,201074,,HA-1 (8.5'),L,S,F20107403B,V,E,5.0 GRS,
 PACK,0109VL2B1,0109BFB1,0109VLBB1,,,,45/3-220@8,INST B1,

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: SPL HOUSTON Contract: _____
Lab Code: SPL Case No.: 201017 SAS No.: _____ SDG No.: 201017
Lab File ID: 0110VLSB1 Lab Sample ID: VLBLK010110C
Date Analyzed: 01/10/92 Time Analyzed: 1041
Matrix: (soil/water) SOIL Level: (low/med) LOW
Instrument ID: B1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	B5_11_12	F20101701A	V101701	1455
02	B5_15_16_5	F20101704A	V101704	1659
03	B6_14_5_15_5	F20101703A	V101703	1617
04	B6_9_5_10_5	F20101702A	V101702	1536

COMMENTS: SPLINC,BLANK,,VBLK01,L,,VLBLK010110C,V,B,
PACK,0110VL2B1,0110BFB1,0110VLBB1,,,,45/3-220@8,INST B1,



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: VBLKSOIL01

SPL ID: VLBLK010110C

Analyst: JC

Matrix: SOIL

Dilution: 1

% Moisture: NA

Level: LOW

Received:

Extracted: *****

Analyzed: 10-Jan-92

C o m p o u n d	Concentration, ug/Kg	
	Amount	M D L
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
2-Butanone	ND	20
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethylvinylether	ND	10
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
Trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
Cis-1,3-Dichloropropene	ND	5
Trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
Methylene Chloride	5	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl Acetate	ND	10
Vinyl Chloride	ND	10
Total Xylenes	ND	5

SURROGATES

1,2-Dichloroethane-D4

109% Recovery

Toluene-D8

103% Recovery

4-Bromofluorobenzene

86% Recovery

ND-Not Detected.

MDL-Method detection limit.



8880 Interchange Drive, Houston, Texas 77054 713/660-0901

Wet Chemistry QA/QC Validation Report

Test Code MDISEPDate 1.8.92Analyst KEWMethod GRAVIMETRICTime 9:15aMatrix SOIL# Of Samples in Set 4Detection Limit 1

Sample #'s in Set

Units % WEIGHT201017-1A201058-1F → 3F

Standards	EM, %T, ABS.	Actual Concentration	Theoretical Concentration	% Recovery	Upper Limit	Lower Limit
Blank						
#1	<u>N/A</u>					
#2						
#3						
#4						
Check Std.						

Duplicate	#1	#2	RPD (%)	Upper Limit	Lower Limit	Dilution
<u>201058-3F</u>	<u>35</u>	<u>34</u>	<u>2.9</u>	<u>30.4</u>	<u>22.4</u>	

Spike Sample	Concentration Before Spike	Amount Added	Concentration After Spike	After - Before	% Recovery	Upper Limit	Lower Limit
<u>N/A</u>							

Spike Recovery Calculation

$$\% \text{ Recovery} = \frac{(\text{Actual} - \text{Original})}{\text{Amount Added}} \times 100$$

Reviewed By

Relative Percent Difference Calculation

$$\text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

Approved By



8880 Interchange Drive, Houston, Texas 77054 713/660-0901

Wet Chemistry QA/QC Validation Report

Test Code MD15EPDate 1.14.92Analyst KEWMethod GRAVIMETRICTime 8:10aMatrix SOIL# Of Samples in Set 8Detection Limit 1

Sample #'s in Set	<u>201050-1A</u>	<u>201020-1A → 2A</u>		Units <u>% WEIGHT</u>
		<u>201017-2A → 4A</u>		
		<u>201105-1A → 2A</u>		

Standards	EM, %T, ABS.	Actual Concentration	Theoretical Concentration	% Recovery	Upper Limit	Lower Limit
Blank						
#1	<u>N/A</u>					
#2						
#3						
#4						
Check Std.						

Duplicate	#1	#2	RPD (%)	Upper Limit	Lower Limit	Dilution
<u>201020-2A</u>	<u>21</u>	<u>22</u>	<u>4.7</u>	<u>30.4</u>	<u>22.4</u>	

Spike Sample	Concentration Before Spike	Amount Added	Concentration After Spike	After - Before	% Recovery	Upper Limit	Lower Limit
<u>N/A</u>							

Spike Recovery Calculation

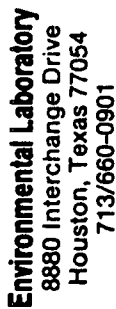
$$\% \text{ Recovery} = \frac{(\text{Actual} - \text{Original}) \times 100}{\text{Amount Added}}$$

Reviewed By Richard ChubbDate 1/15/92

Relative Percent Difference Calculation

$$\text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

Approved By Anthony SchmeinerDate 1/15/92



Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location							
504867.00	TOXCON	BAKER Hughes-Hobbs, NM.							
Field Sample No./ Identification	Date and Time	Gab	Camp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS	
B5-11/2	12/20 12:15						8240		
B6-9.5	12/20 13:25						8240		
B6-14.5	12/20 13:40						8240		
B5-15/-	12/20 12:50						8240		
Samplers: (Signature)				Relinquished by: (Signature) B. Martiney			Received by: (Signature)	Date: Time:	Intact
Affiliation				Relinquished by: (Signature)			Received by: (Signature)	Date: Time:	Intact
				Relinquished by: (Signature)			Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS:									
Date: 12/21 Time:									
Laboratory No.									
Data Results to:									
Seal #									

From FI-17-409/410

RECEIVED

JUN 18 1992

OIL CONSERVATION DIV.
SANTA FE

APPENDIX G
Certified Analytical Results
and
Chain of Custody

(2 of 2)

February 1992 Investigation
(Various Analytical Results)



SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: F2-02-440

Approved for release by:

W. Scott Sample

Date: 3/17/92

S. Sample, Project Management Supervisor

Cynthia Schreiner

Date: 3/17/92

C. Schreiner, Quality Assurance Manager



CASE NARRATIVE

QUALITY CONTROL RESULTS SUMMARY

WORK ORDER NO.: F2-02-440

SAMPLE NO.: 03B

The sample in question was analyzed for the target compound list by USEPA method 8240. However, due to matrix interference, the surrogate recovery for Bromfluorobenzene was outside QC/QC limits.

SOUTHERN PETROLEUM LABORATORIES

A handwritten signature in cursive script, appearing to read "Emmanuel Young", is written over a horizontal line.

**Emmanuel Young
GCMS Supervisor**



CLIENT NAME: Simon Hydro-Search
CLIENT ID:WW22492

SPL #: F202440-01D

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	0.696	0.707	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon Hydro-Search
CLIENT ID: B8:26-27.5

SPL #: F202440-02C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	2.17	2.58	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon Hydro-Search
CLIENT ID: B8:31.5-33.5

SPL #: F202440-03C

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	2.28	2.71	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202440-01A
Invoice #: 406483
Report Date: 03/16/92

504867.00
WW22492

Date Received: 02/27/92
Date Collected: 02/24/92 12:10:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	ND mg/L	1	03/03/92	JC/DC

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202440-01B
Invoice #: 406483
Report Date: 03/16/92

504867.00
WW22492

Date Received: 02/27/92
Date Collected: 02/24/92 12:10:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
pH METHOD 150.1	7.35 pH units		02/28/92	KEW

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: WW22492
SPL ID: F20244001C
Analyst: KAREN

Matrix: WATER
Dilution: 5
% Moisture: NA
Level: LOW

Received: 27-Feb-92
Extracted: *****
Analyzed: 06-Mar-92

C o m p o u n d	Concentration, ug/L	
	Amount	M D L
Acetone	ND	50
Benzene	820	25
Bromodichloromethane	ND	25
Bromoform	ND	25
Bromomethane	ND	50
2-Butanone	ND	100
Carbon Disulfide	ND	25
Carbon Tetrachloride	ND	25
Chlorobenzene	ND	25
Chloroethane	ND	50
2-Chloroethylvinylether	ND	50
Chloroform	ND	25
Chloromethane	ND	50
Dibromochloromethane	ND	25
1,1-Dichloroethane	ND	25
1,2-Dichloroethane	ND	25
1,1-Dichloroethene	ND	25
Trans-1,2-Dichloroethene	ND	25
1,2-Dichloropropane	ND	25
Cis-1,3-Dichloropropene	ND	25
Trans-1,3-Dichloropropene	ND	25
Ethylbenzene	200	25
2-Hexanone	ND	50
4-Methyl-2-Pentanone	ND	50
Methylene Chloride	ND	25
Styrene	ND	25
1,1,2,2-Tetrachloroethane	ND	25
Tetrachloroethene	ND	25
Toluene	300	25
1,1,1-Trichloroethane	ND	25
1,1,2-Trichloroethane	ND	25
Trichloroethene	ND	25
Trichlorofluoromethane	ND	25
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Total Xylenes	300	25

SURROGATES

1,2-Dichloroethane-D4	D	* Recovery
Toluene-D8	89%	Recovery
4-Bromofluorobenzene	88%	Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202440-01D
Invoice #: 406483
Report Date: 03/16/92

504867.00
WW22492

Date Received: 02/27/92
Date Collected: 02/24/92 12:10:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	03/03/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	03/04/92	WFL
Barium, TCLP Leachate METHOD 6010	0.696 mg/L	0.007	03/04/92	DQ
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	03/03/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	03/04/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	03/04/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		03/02/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	03/03/92	JM
TCLP Leachate extraction METHOD 1311	Complete		02/29/92	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	03/04/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202440-02A
Invoice #: 406483
Report Date: 03/16/92

504867.00
B8:26-27.5

Date Received: 02/27/92
Date Collected: 02/25/92 11:10:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	1800 mg/Kg	10	02/28/92	LJ/DC

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: B8:26-27.5
SPL ID: F20244002B
Analyst: JC

Matrix: SOIL
Dilution: 5
% Moisture: 5
Level: LOW

Received: 27-Feb-92
Extracted: *****
Analyzed: 05-Mar-92

C o m p o u n d	Concentration, ug/Kg	
	Amount	M D L
Acetone	ND	53
Benzene	ND	26
Bromodichloromethane	ND	26
Bromoform	ND	26
Bromomethane	ND	53
2-Butanone	ND	110
Carbon Disulfide	ND	26
Carbon Tetrachloride	ND	26
Chlorobenzene	ND	26
Chloroethane	ND	53
2-Chloroethylvinylether	ND	53
Chloroform	ND	26
Chloromethane	ND	53
Dibromochloromethane	ND	26
1,1-Dichloroethane	ND	26
1,2-Dichloroethane	ND	26
1,1-Dichloroethene	ND	26
Trans-1,2-Dichloroethene	ND	26
1,2-Dichloropropane	ND	26
Cis-1,3-Dichloropropene	ND	26
Trans-1,3-Dichloropropene	ND	26
Ethylbenzene	61	26
2-Hexanone	ND	53
4-Methyl-2-Pentanone	ND	53
Methylene Chloride	ND	26
Styrene	ND	26
1,1,2,2-Tetrachloroethane	ND	26
Tetrachloroethene	ND	26
Toluene	ND	26
1,1,1-Trichloroethane	ND	26
1,1,2-Trichloroethane	ND	26
Trichloroethene	ND	26
Trichlorofluoromethane	ND	26
Vinyl Acetate	ND	53
Vinyl Chloride	ND	53
Total Xylenes	300	26

SURROGATES

1,2-Dichloroethane-D4	94%	Recovery
Toluene-D8	106%	Recovery
4-Bromofluorobenzene	120%	Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202440-02C
Invoice #: 406483
Report Date: 03/16/92

504867.00
B8:26-27.5

Date Received: 02/27/92
Date Collected: 02/25/92 11:10:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	03/03/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	03/04/92	WFL
Barium, TCLP Leachate METHOD 6010	2.17 mg/L	0.007	03/04/92	DQ
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	03/03/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	03/04/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	03/04/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		03/02/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	03/03/92	JM
TCLP Leachate extraction METHOD 1311	Complete		02/29/92	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	03/04/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202440-03A
Invoice #: 406483
Report Date: 03/16/92

504867.00
B8:31.5-33.5

Date Received: 02/27/92
Date Collected: 02/25/92 11:40:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Petroleum Hydrocarbons METHOD 418.1	6600 mg/Kg	100	02/28/92	LJ/DC

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: B8:31.5-33.5
SPL ID: F20244003B
Analyst: JC

Matrix: SOIL
Dilution: 5
% Moisture: 12
Level: LOW

Received: 27-Feb-92
Extracted: *****
Analyzed: 05-Mar-92

Compound	Concentration, ug/Kg	
	Amount	M D L
Acetone	ND	57
Benzene	ND	28
Bromodichloromethane	ND	28
Bromoform	ND	28
Bromomethane	ND	57
2-Butanone	ND	110
Carbon Disulfide	ND	28
Carbon Tetrachloride	ND	28
Chlorobenzene	ND	28
Chloroethane	ND	57
2-Chloroethylvinylether	ND	57
Chloroform	ND	28
Chloromethane	ND	57
Dibromochloromethane	ND	28
1,1-Dichloroethane	ND	28
1,2-Dichloroethane	ND	28
1,1-Dichloroethene	ND	28
Trans-1,2-Dichloroethene	ND	28
1,2-Dichloropropane	ND	28
Cis-1,3-Dichloropropene	ND	28
Trans-1,3-Dichloropropene	ND	28
Ethylbenzene	560	28
2-Hexanone	ND	57
4-Methyl-2-Pentanone	ND	57
Methylene Chloride	ND	28
Styrene	ND	28
1,1,2,2-Tetrachloroethane	ND	28
Tetrachloroethene	ND	28
Toluene	ND	28
1,1,1-Trichloroethane	ND	28
1,1,2-Trichloroethane	ND	28
Trichloroethene	ND	28
Trichlorofluoromethane	ND	28
Vinyl Acetate	ND	57
Vinyl Chloride	ND	57
Total Xylenes	2100	28

SURROGATES

1,2-Dichloroethane-D4	94% Recovery
Toluene-D8	102% Recovery
4-Bromofluorobenzene	138% * Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202440-03C
Invoice #: 406483
Report Date: 03/16/92

504867.00
B8:31.5-33.5

Date Received: 02/27/92
Date Collected: 02/25/92 11:40:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	03/03/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	03/04/92	WFL
Barium, TCLP Leachate METHOD 6010	2.28 mg/L	0.007	03/04/92	DQ
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	03/03/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	03/04/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	03/04/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		03/02/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	03/03/92	JM
TCLP Leachate extraction METHOD 1311	Complete		02/29/92	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	03/04/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: SPL HOUSTON Contract: _____

Lab Code: SPL Case No.: 202440 SAS No.: _____ SDG No.: 202440

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	WW22492	89	88	0 *	0	1
02	VBLK01	95	95	0 *	0	1

QC LIMITS

S1 (TOL) = Toluene-d8 (88-110)
S2 (BFB) = Bromofluorobenzene (86-115)
S3 (DCE) = 1,2-Dichloroethane-d4 (76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: SPL HOUSTON Contract: _____

Lab Code: SPL Case No.: 202440 SAS No.: _____ SDG No.: 202440

Level: (low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	B8_26-27_5	106	120	94	0	0
02	B8_31_5-33_5	102	138 *	94	0	1
03	VBLK01	104	105	93	0	0

QC LIMITS

S1 (TOL) = Toluene-d8 (81-117)
S2 (BFB) = Bromofluorobenzene (74-121)
S3 (DCE) = 1,2-Dichloroethane-d4 (70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON Contract: _____Lab Code: SPL Case No.: 202334 SAS No.: _____ SDG No.: 202440Matrix Spike - EPA Sample No.: 101

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0	54.1	108	61-145
Trichloroethene	50.0	0	54.0	108	71-120
Benzene	50.0	0	55.8	112	76-127
Toluene	50.0	0	56.5	113	76-125
Chlorobenzene	50.0	0	57.1	114	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	50.0	53.5	107	1	14	61-145
Trichloroethene	50.0	51.5	103	5	14	71-120
Benzene	50.0	56.3	113	-1	11	76-127
Toluene	50.0	54.7	109	4	13	76-125
Chlorobenzene	50.0	56.0	112	2	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limitsSpike Recovery: 0 out of 10 outside limitsCOMMENTS: ETBZV TOLV, 202334, , 101, L, W, F20233411A, V, E,
C, G0117, G0118, G0119,

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON Contract: _____Lab Code: SPL Case No.: 202211 SAS No.: _____ SDG No.: 202440Matrix Spike - EPA Sample No.: MW4-6_0-8_0 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	60.2	0	66.0	110	59-172
Trichloroethene	60.2	0	76.6	127	62-137
Benzene	60.2	0	74.7	124	66-142
Toluene	60.2	0	58.7	98	59-139
Chlorobenzene	60.2	0	65.1	108	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	60.2	69.3	115	-4	22	59-172
Trichloroethene	60.2	76.0	126	1	24	62-137
Benzene	60.2	73.4	122	2	21	66-142
Toluene	60.2	61.3	102	-4	21	59-139
Chlorobenzene	60.2	65.8	109	-1	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limitsSpike Recovery: 0 out of 10 outside limitsCOMMENTS: 8240S,202211,,MW4-6.0-8.0,L,S,F20221105A,V,E,5.0 GRS,
PACK,0220VS2B2,0220BFB2,0220VSB2,,,,45/3-220@8,INST B1,

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: SPL HOUSTON Contract: _____
Lab Code: SPL Case No.: 202440 SAS No.: _____ SDG No.: 202440
Lab File ID: 0305VSBB1 Lab Sample ID: VSBLK010305B
Date Analyzed: 03/05/92 Time Analyzed: 1038
Matrix: (soil/water) SOIL Level: (low/med) LOW
Instrument ID: B1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	B8_26-27_5	F20244002B	V244002	1357
02	B8_31_5-33_5	F20244003B	V244003	1436

COMMENTS: SPLINC,BLANK,,VBLK01,L,S,VSBLK010305B,V,B,
PACK,0305VS2B1,0305BFB1,0305VSBB1,,,,45/3-22008,INST B1,

**ANALYTICAL RESULTS**

Volatile Organics by USEPA Method 8240

Client ID: VBLK01
SPL ID: VSBLK010305B
Analyst: JC

Matrix: SOIL
Dilution: 1
% Moisture: NA
Level: LOW

Received:
Extracted: *****
Analyzed: 05-Mar-92

C o m p o u n d	Concentration, ug/Kg	
	Amount	M D L
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
2-Butanone	ND	20
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethylvinylether	ND	10
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
Trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
Cis-1,3-Dichloropropene	ND	5
Trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
Methylene Chloride	8	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl Acetate	ND	10
Vinyl Chloride	ND	10
Total Xylenes	ND	5

SURROGATES

1,2-Dichloroethane-D4	93% Recovery
Toluene-D8	104% Recovery
4-Bromofluorobenzene	105% Recovery

ND - Not Detected. MDL - Method detection limit. * - Surrogates out of range

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: SPL HOUSTON Contract: _____
Lab Code: SPL Case No.: 202440 SAS No.: _____ SDG No.: 202440
Lab File ID: G0150 Lab Sample ID: VLBLK010306G
Date Analyzed: 03/06/92 Time Analyzed: 1514
Matrix: (soil/water) WATER Level: (low/med) LOW
Instrument ID: G

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	WW22492	F20244001C	G0151	1717

COMMENTS: SPL,BLANK,,VBLK01,L,W,VLBLK010221G,V,B,
C,G0149,G0148,G0150



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: VBLK01
SPL ID: VLBLK010306G
Analyst: KAREN

Matrix: WATER
Dilution: 1
% Moisture: NA
Level: LOW

Received:
Extracted: *****
Analyzed: 06-Mar-92

Compound	Concentration, ug/L	
	Amount	M D L
Acetone	20	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
2-Butanone	ND	20
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethylvinylether	ND	10
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
Trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
Cis-1,3-Dichloropropene	ND	5
Trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	12	10
4-Methyl-2-Pentanone	14	10
Methylene Chloride	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	7	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl Acetate	ND	10
Vinyl Chloride	ND	10
Total Xylenes	ND	5

SURROGATES

1,2-Dichloroethane-D4	D	* Recovery
Toluene-D8	95%	Recovery
4-Bromofluorobenzene	95%	Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range

SPL AA QC FORM

TEST CODE: AgDATE: 3/3/92ANALYST: JmMETHOD: FLAATIME: 13:49DETECTION LIMIT: 0.02# SAMPLES IN SET: 26UNITS: mg/LSAMPLE #'S IN SET: 02442-1C; 02389-1C-8C; 02447-1C-4C, 6C; 02440-1A, 2C, 3C
(02428-2C GC only); 02417-1C; 02443-1C; 02447-7C, 8C; 02484-1A-4A, 5B (02411-1A
GC only)

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.000	0.000	0.000	—	—	—
#1	0.059	0.500	0.500	100.0	105%	95%
#2	0.114	0.994	1.000	99.4	↓	↓
#3	0.223	1.985	2.000	99.2	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.797	99.6	110%	90%
LCS	1.000	0.992	99.2	120%	80%
CCV ₁		1.033	103.3	110%	90%
CCV ₂		1.018	101.8		
CCV ₃		1.008	100.8		
CCV ₄		1.002	100.2		
CCV ₅		0.999	99.9		
CCV ₆		1.015	101.5		
CCV ₇	↓	1.016	101.6	↓	↓
Cont'd on next page. Jm.					

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Margo MarianiAPPROVED BY: A. Allan SchreinerDATE: 3/3/92DATE: 3/3/92

SPL AA QC FORM

TEST CODE: AgDATE: 3/3/92ANALYST: gmMETHOD: ELAATIME: 13:49DETECTION LIMIT: 0.02

SAMPLES IN SET: _____

UNITS: mg/L

SAMPLE #'S IN SET: _____

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK						
#1						
#2						
#3						
#4						
#5						

CONTINUING CALIBRATION

Cont'd

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
gm IGV PB 3/28	0	ND	NA	0.02	-0.02
gm LGS PB 3/2 Micro- vial					
PB 3/6 EXT					
PB 3/27					
PB 3/2 water	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Melana MarianiAPPROVED BY: Agillua SchenkerDATE: 3/3/92DATE: 3/3/92

TEST:

Ag

MATRIX:

7CP-liquid

ANALYSIS DATE:

3/3/92
2/27/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02428-2c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02428-2c	ND	0.050	0.047	0.047	94.0	94.0	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Mearza Marian

APPROVED BY:

Cynthia S. S. S.

DATE:

3/3/92

DATE:

3/3/92

TEST: AgMATRIX: waterANALYSIS DATE: 3/3/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02411-1C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02411-1C	ND	0.050	0.049	0.046	98.0	92.0	6	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Marya MarianDATE: 3/3/92APPROVED BY: Arthur SchermerDATE: 3/3/92

TEST: AgMATRIX: TELP- SoilANALYSIS DATE: 3/3/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02389-1C	0.011	0.010	NA	20	1
02442-1C	0.013	0.011	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02389-1C	0.011	0.050	0.053	0.055	84.0	88.0	4	75 - 125	20
02442-1C	0.013	↓	0.062	0.064	98.0	102.0	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: C. William SchreinerDATE: 3/3/92DATE: 3/3/92

0304B

SPL AA QC FORM

TEST CODE: AS
METHOD: GFAADATE: 3/4/92
TIME: 10:47ANALYST: WFL
DETECTION LIMIT: 6
UNITS: ug/LSAMPLES IN SET: 21SAMPLE #'S IN SET: 02389-1c-8c; 02442-1c; 02447-1c-3c-4c-6c;
02440-2c-3c; 02347-1c; 02330-1A; 02347-1E; 02417-1c; 02440-1c;
02314-2c & 02402-4A (QC only); 02428-1D (QC only);

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.001	0.0	0.0	NA	—	—
#1	0.130	25.0	25.0	100.0%	105.0%	95.0%
#2	0.258	49.9	50.0	99.8%	↓	↓
#3	0.486	98.4	100.0	98.4%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	73.8	98.4%	110.0%	90.0%
LCS	40.0	42.3	105.8%	120.0%	80.0%
CCV ₁	50.0	49.7	99.4%	110.0%	90.0%
CCV ₂		50.0	100.0%	↓	↓
CCV ₃		51.8	103.6%	↓	↓
CCV ₄		49.4	98.8%	↓	↓
CCV ₅	↓	49.2	98.4%	↓	↓
PB2/28	0	ND	NA	+6	-6
PB3/2	↓	↓	↓	↓	↓
PB2/26	↓	↓	↓	↓	↓
PB2/28	↓	↓	↓	↓	↓

RECOVERY = $\frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$ VIEWED BY: Meagan MarianiAPPROVED BY: Gyralda SchreinerDATE: 3/4/92DATE: 3/5/92

TEST:

AS

MATRIX:

soil

ANALYSIS DATE:

3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02314-2c	11.7	13.6	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02314-2c	11.7	40.0	41.6	41.7	74.8	75.0%	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Mariani

APPROVED BY:

Cynthia Schneier

DATE:

3/4/92

DATE:

3/5/92

TEST:

AS

MATRIX:

Filter-TCLP

ANALYSIS DATE:

3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02428-1D	NS	NS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02428-1D	NS	40.0	41.3	42.8	103.2%	107.0%	4	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Marga Mariam

APPROVED BY:

Cybil Schinner

DATE:

3/4/92

DATE:

3/5/92

TEST: ASMATRIX: TCLP-soilANALYSIS DATE: 3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02389-1c	MS	MS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02389-1c	MS	40.0	41.1	42.3	102.8%	105.8%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Miraga MarianDATE: 3/4/92APPROVED BY: Cynthia SchmeierDATE: 3/5/92

TEST:

AS

MATRIX:

Water

ANALYSIS DATE:

3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02402-4A	7.2	8.8	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02402-4A	7.2	40.0	42.0	44.8	87.0%	94.0%	6	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meara Mariani

APPROVED BY:

Cynthia Schuener

DATE:

3/4/92

DATE:

3/5/92

0304B

SPL AA QC FORM

TEST CODE:

AS

DATE:

3/4/92

ANALYST:

WFL

METHOD:

GFAA

TIME:

10:47

DETECTION LIMIT:

6

SAMPLES IN SET:

21

UNITS:

ug/L

SAMPLE = 'S IN SET:

02389-1c-8c; 02442-1c; 02447-1c-3c4c6c;
 02440-2c-3c; 02347-1c; 02330-1A; 02347-1I; 02417-1c; 02440-1
 02314-2c & 02402-4A (QC only); 02428-1D (QC only);

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.001	0.0	0.0	NA	—	—
#1	0.130	25.0	25.0	100.0%	105.0%	95.0%
#2	0.258	49.9	50.0	99.8%	↓	↓
#3	0.486	98.4	100.0	98.4%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	73.8	98.4%	110.0%	90.0%
LCS	40.0	42.3	105.8%	120.0%	80.0%
CCV ₁	50.0	49.7	99.4%	110.0%	90.0%
CCV ₂		50.0	100.0%		
CCV ₃		51.8	103.6%		
CCV ₄		49.4	98.8%		
CCV ₅	↓	49.2	98.4%	↓	↓
PB2/28	0	ND	NA	+6	-6
PB3/2					
PB2/26	↓			↓	↓
PB2/28	↓			↓	↓

RECOVERY = $\frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$

VIEWED BY:

Marga Mariani

APPROVED BY:

A. Schmeier

DATE:

3/4/92

DATE:

3/5/92

TEST: ASMATRIX: soilANALYSIS DATE: 3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02314-2c	11.7	13.6	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02314-2c	11.7	40.0	41.6	41.7	74.8	75.0%	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiDATE: 3/4/92APPROVED BY: Cynthia SchneierDATE: 3/5/92

TEST:

As

MATRIX:

Filter-TCLP

ANALYSIS DATE:

3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02428-1D	NS	NS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02428-1D	NS	40.0	41.3	42.8	103.2%	107.0%	4	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Marga Mariani

APPROVED BY:

Cynthia Schinner

DATE:

3/4/92

DATE:

3/5/92

TEST:

AS

MATRIX:

TCLP-soil

ANALYSIS DATE:

3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02389-1c	MS	MS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02389-1c	MS	40.0	41.1	42.3	102.8%	105.8%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melissa Marian

APPROVED BY:

Cynthia Schmechel

DATE:

3/4/92

DATE:

3/5/92

TEST:

AS

MATRIX:

Water

ANALYSIS DATE:

3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02402-4A	7.2	8.8	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02402-4A	7.2	40.0	42.0	44.8	87.0%	94.0%	6	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melissa Mariani

APPROVED BY:

Arthur Schuler

DATE:

3/4/92

DATE:

3/5/92

SPL ICP (METHOD 6010/200.7) STANDARD QC FORM

DATE: 3/4/92TIME: 1235 PMFILE: A0304ANALYST: PR# SAMPLES IN SET: 21UNITS: mg/LSAMPLE #'s IN SET: 2347 1c, 2330 1A, 2389 1c - 8c, 2442 1c
2441 1c - 4c, 6c, 2440 1d, 2c, 3c, 2428 1c, 2c

TEST CODE	IDL	BLANK		STANDARD	
		EM	CONC	EM	CONC
Ni	0.03	0.006	0.000	3.41	10.00
Bc	0.003	0.007		5.09	
Sb	0.1	0.003		0.864	
Cl	0.01	0.001		1.93	
Ce	0.02	0.004		3.35	
Cu	0.01	0.003		2.58	
Zn	0.009	0.027		4.61	
BA	0.006	0.00	Y	3.96	Y

REVIEWED BY: Melissa MarianiAPPROVED BY: Cynthia SchmeierDATE: 3/5/92DATE: 3/5/92

SPL ICP CALIBRATION VERIFICATION

ID	TEST CODE	TRUE CONC.	FOUND CONC.	% RECOVERY	QC LIMITS	
					UPPER	LOWER
ICV	Ni	5.00	4.82	96.4	110.2	90.2
	Pb		4.99	99.8		
	Sb		5.23	104.6		
	Cd	↓	4.88	97.6		
	Cr	5.52	5.41	98.0		
	Cu	10.0	10.0	100.0		
	Zn	5.00	4.93	98.6		
↓	BA	↓	5.18	103.6		
CCV1	Ni	5.00	4.79	95.8		
	Pb		4.92	98.4		
	Sb		5.23	104.6		
	Cd	↓	4.92	98.4		
	Cr	5.52	5.41	98.0		
	Cu	10.0	9.79	97.9		
	Zn	5.00	4.95	99.0		
↓	BA	5.00	5.06	101.2		
CCV2	BA	5.00	5.11	102.2		
↓	Cr	5.52	5.44	98.6		
CCV3	BA	5.00	5.11	102.2		
↓	Cr	5.52	5.43	98.4		
CCV4	BA	5.00	5.17	103.4		
↓	Cr	5.52	5.51	99.8	↓	↓

CALCULATION: % RECOVERY = $\frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$

REVIEWED BY: Melinda MarianiAPPROVED BY: Cynthia SchinnerDATE: 3/5/92DATE: 3/5/92

FILE: A0304MATRIX: TC.P - SoilANALYSIS DATE: 3/4/92SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2347 lc	Ni	0.034	0.042	N/A	20	1
	Be	NP	NP		20	
	Sb	↓	↓		20	
	Cd	↓	↓		20	
	Cr	0.022	0.024		20	
	Cu	NP	NP	↓	20	
	Zn	0.135	0.143	6	20	
✓	Ba	1.38	1.41	2	20	Y
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
2347 lc	Ni	0.034	0.500	0.471	0.461	87.4	85.4	2	75-125	20
	Be	NP	0.050	0.045	0.045	90.0	90.0	0	75-125	20
	Sb	↓	0.50	0.446	0.448	89.2	89.6	0	75-125	20
	Cd	↓	0.050	0.043	0.042	86.0	84.0	2	75-125	20
	Cr	0.022	0.20	0.195	0.193	86.5	85.5	1	75-125	20
	Cu	NP	0.25	0.235	0.236	94.0	94.4	0	75-125	20
	Zn	0.134	0.50	0.567	0.570	86.4	87.0	1	75-125	20
✓	Ba	1.38	0.50	1.80	1.80	84.0	84.0	0	75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meaga MariamAPPROVED BY: Agathe SchreinerDATE: 3/5/92DATE: 3/5/92

FILE: A0304MATRIX: TCLP - (Filtered)ANALYSIS DATE: 3/4/92

SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2428 2c	BA	0.072 ATTN	0.071	1	20	1
↓	CR	ND	ND	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
2428 2c	BA	0.072	0.50	0.564	0.562	98.4	98.0	0	75-125	20
↓	CR	ND	0.20	0.190	0.192	95.0	96.0	1	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meara MarianAPPROVED BY: Gail SchreinerDATE: 3/5/92DATE: 3/5/92

SPL AA QC FORM

TEST CODE: CdDATE: 3/3/92ANALYST: JmMETHOD: FLAATIME: 11:28DETECTION LIMIT: 0.03# SAMPLES IN SET: 19UNITS: mg/LSAMPLE #'S IN SET: 02417-1C; 02448-1C; 02442-1C; 02389-1C-8C;
02447-1C-4C, 6C; 02440-1D, 2C, 3C (02411-1A QC only) (02428-2C QC only)

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.003	0.000	0.000	—	—	—
#1	0.045	0.200	0.200	100.0	105%	95%
#2	0.113 0.113	0.500	0.500	100.0	↓	↓
#3	0.214	0.987	1.000	98.7	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.817	102.1	110%	90%
LCS	1.000	0.935	93.5	120%	80%
CCV ₁	0.500	0.522	104.4	110%	90%
CCV ₂	↓	0.499	99.8	↓	↓
CCV ₃	↓	0.500	100.0	↓	↓
CCV ₄	↓	0.500	100.0	↓	↓
PB 2/28	0	ND	NA	0.03	-0.03
PB 3/2	↓	↓	↓	↓	↓
PB 3/2 EXT	↓	↓	↓	↓	↓
PB 2/27	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Meara MarianiAPPROVED BY: C. J. SullivanDATE: 3/3/92DATE: 3/3/92

SPL AA QC FORM

TEST CODE: CdDATE: 3/3/92ANALYST: gmMETHOD: FLAATIME: 11:28DETECTION LIMIT: 0.03

SAMPLES IN SET: _____

UNITS: mg/L

SAMPLE #'S IN SET: _____

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK						
#1						
#2						
#3						
#4						
#5						

CONTINUING CALIBRATION

Cont'd

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
LEV CON ₅	0.500	0.517	103.4	110%	90%
LES CON ₆	↓	0.520	104.0	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Mearza MariamAPPROVED BY: Arthur SchuenerDATE: 3/3/92DATE: 3/3/92

TEST: CdMATRIX: TCP-soilANA: IS DATE: 3/3/92

SPL AA DUPLICATE AND SPIKE DAT

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02389-1C	ND	ND	NA	20	1
02442-1C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02389-1C	ND	0.050	0.049	0.048	98.0	96.0	2	75 - 125	20
02442-1C	ND	↓	0.049	0.048	98.0	96.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Mearza MarlamAPPROVED BY: Cynthia SchreinerDATE: 3/3/92DATE: 3/3/92

TEST: CdMATRIX: waterANALYSIS DATE: 3/3/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02411-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02411-1A	ND	0.050	0.051	0.051	102.0	102.0	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meaga MarianiAPPROVED BY: Agustina SchermerDATE: 3/3/92DATE: 3/3/92

TEST: CdMATRIX: TCP-liquidANALYSIS DATE: 3/3/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02428-2C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02428-2C	ND	0.050	0.056	0.055	112.0	110.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meaga MarianiAPPROVED BY: Arthur SchumiDATE: 3/3/92DATE: 3/3/92

SPL AA QC FORM

TEST CODE: HgDATE: 3/4/92ANALYST: gmMETHOD: CVATIME: 9.16DETECTION LIMIT: 0.6# SAMPLES IN SET: 20UNITS: ug/LSAMPLE #'S IN SET: 02442-1C; 02389-1C-8C; 02447-1C-4C, 6C;
02440-1D, 2C, 3C; 02417-1C; 02448-1C; 02423-1B

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.007	0.00	0.00	—	—	—
#1	0.015	0.50	0.50	100.0	105%	95%
#2	0.028	0.98	1.00	98.0	↓	↓
#3	0.140	5.00	5.00	100.0	↓	↓
#4	0.277	9.98	10.00	99.8	↓	↓
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	2.50	2.51	100.4	120%	80%
LCS	2.00	2.06	103.0	↓	↓
CCV ₁	2.50	2.59	103.6	↓	↓
CCV ₂		2.54	101.6	↓	↓
CCV ₃		2.66	106.4	↓	↓
CCV ₄		2.62	104.8	↓	↓
CCV ₅	↓	2.06	82.4	↓	↓
PB water	0	ND	NA	0.6	-0.6
PB 2/27	↓	↓	↓	↓	↓
PB 2/29	↓	↓	↓	↓	↓
PB 2/29 821	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: Cynthia SchmeierDATE: 3/4/92DATE: 3/4/92

TEST: HgMATRIX: TECP-soilANALYSIS DATE: 3/3/92
9m

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02442-1C	ND	ND	NA	20	4
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02442-1C	ND	2.00	2.13	2.18	106.5	109.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meaga MarianiAPPROVED BY: Cynthia SchreinerDATE: 3/4/92DATE: 3/4/92

TEST: HgMATRIX: 1cup-liquidANALYSIS DATE: 3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02440-1D	ND	ND	NA	20	4
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02440-1D	NA	2.00	2.25	2.17	112.5	108.5	4	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MariamDATE: 3/4/92APPROVED BY: Cynthia SchreinerDATE: 3/4/92

TEST: HgMATRIX: waterANALYSIS DATE: 3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02448-1C	ND	ND	NA	20	2
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02448-1C	ND	2.00	2.14	2.13	107.0	106.5	D	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiDATE: 3/4/92APPROVED BY: C. J. SchreinerDATE: 3/4/92

SPL AA QC FORM

TEST CODE: PbDATE: 3/3/92ANALYST: gmMETHOD: FLAATIME: 15:29DETECTION LIMIT: 0.3# SAMPLES IN SET: 28UNITS: mg/LSAMPLE #'S IN SET: 02442-1C; 02389-1C-8C; 02447-1C-4C, 6C; 02440-1A, 2C, 3C; 02428-1C, 2C; 02417-1C; 02448-1C; 02417-7C, 8C; 02484-1A-4A, 5B (02411-1A 4C only)

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.001	0.00	0.00	—	—	—
#1	0.010	0.50	0.50	100.0	105%	95%
#2	0.019	0.99	1.00	99.0	↓	↓
#3	0.037	1.98	2.00	99.0	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	1.00	1.00	100.0	110%	90%
LCS		0.99	99.0	120%	80%
CCV ₁		0.98	98.0	110%	90%
CCV ₂		0.99	99.0		
CCV ₃		0.99	99.0		
CCV ₄		0.93	93.0		
CCV ₅		0.91	91.0		
CCV ₆	↓	0.91	91.0	↓	↓
Cont'd on next page gm.					

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Meara MarianiAPPROVED BY: Cynthia SchulerDATE: 3/4/92DATE: 3/4/92

SPL AA QC FORM

TEST CODE: PbDATE: 3/3/92ANALYST: JmMETHOD: FLAATIME: 15:29DETECTION LIMIT: 0.3

SAMPLES IN SET: _____

UNITS: mg/L

SAMPLE #'S IN SET: _____

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK						
#1						
#2						
#3						
#4						
#5						

CONTINUING CALIBRATION

Cont'd

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
Jm lev PB 3/2	0	ND	NA	0.3	-0.3
Jm LES PB 3/2	↓	↓	↓	↓	↓
PB 3/2 EXT #2	↓	↓	↓	↓	↓
PB 3/27	↓	↓	↓	↓	↓
PB 3/2 water	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meaga MariamAPPROVED BY: Cynthia SchulerDATE: 3/4/92DATE: 3/4/92

TEST: PbMATRIX: TCUP- 401PANALYSIS DATE: 3/3/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02389-1C	ND	ND	NA	20	1
02442-1C	↓	↓	↓	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02389-1C	ND	0.50	0.45	0.45	90.0	90.0	0	75 - 125	20
02442-1C	↓	↓	0.46	0.48	92.0	96.0	4	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meara MarianiAPPROVED BY: Cynthia SchreinerDATE: 3/4/92DATE: 3/4/92

TEST: PbMATRIX: Tcp-liquidANALYSIS DATE: 3/3/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02428-2C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02428-2C	ND	0.50	0.40 0.59 _{gm}	0.47	80.0	94.0	16	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meara MarianiAPPROVED BY: Cynthia SchreinerDATE: 3/4/92DATE: 3/4/92

TEST: PbMATRIX: waterANALYSIS DATE: 3/3/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02411-1A	0.11	0.14	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02411-1A	0.11	0.50	0.54	0.56	86.0	90.0	4	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarionAPPROVED BY: Cynthia SchreinerDATE: 3/4/92DATE: 3/4/92

0304C

SPL AA QC FORM

EST CODE: SRDATE: 3/4/92ANALYST: WFLMETHOD: GFAATIME: 15:31DETECTION LIMIT: 6SAMPLES IN SET: 19UNITS: ug/L

SAMPLE = 'S IN SET: 02389-1c-8c; 02442-1c; 02447-1c-3c, 4c, 6c;
02440-2c-3c; 02428-1D (QC only); 02347-1c; 02330-1A;
02440-1D.

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.002	0.0	0.0	NA	—	—
#1	0.080	25.0	25.0	100.0%	105.0%	95.0%
#2	0.152	49.7	50.0	99.4%	↓	↓
#3	0.280	97.9	100.0	97.9%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	78.7	104.9%	110.0%	90.0%
LCS	30.0	31.2	104.0%	120.0%	80.0%
CCV	50.0	47.6	95.2%	110.0%	90.0%
ECV ₁		50.0	100.0%	↓	↓
ECV ₂		52.2	104.4%	↓	↓
ECV ₃	↓	48.7	97.4%	↓	↓
PB ^{21/28}	0	ND	NA	+6	-6
PB ^{31/2}	0	ND	NA	+6	-6

% RECOVERY = $\frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$

REVIEWED BY: Magg MarionAPPROVED BY: Cy Arthur SchreinerDATE: 3/5/92DATE: 3/6/92

TEST:

Se

MATRIX:

TCLP-soil

ANALYSIS DATE:

3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02389-1c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02389-1c	ND	30.0	26.3	4.4	87.7%	81.3%	7	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melissa Mariani

APPROVED BY:

Cynthia Schuman

DATE:

3/5/92

DATE:

3/6/92

TEST:

Se

MATRIX:

TCLP Filtered

ANALYSIS DATE:

3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02428-18	NS	NS	N/A	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02428-18	NS	30.0	33.8	34.2	112.7%	114.9%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meaza Marian

APPROVED BY:

Cyrtina Shuler

DATE:

3/5/92

DATE:

3/6/92

0-204C

SPL AA QC FORM

EST CODE: SRDATE: 3/4/92ANALYST: WFLMETHOD: GFAATIME: 15:31DETECTION LIMIT: 6SAMPLES IN SET: 19UNITS: ug/L

SAMPLE #'S IN SET: 02389-1c-8c; 02442-1c; 02447-1c-3c, 4c, 6c;
02440-2c-3c; 02428-1c (QC only); 02347-1c; 02330-1A;
02440-1c.

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.002	0.0	0.0	NA	—	—
#1	0.080	25.0	25.0	100.0%	105.0%	95.0%
#2	0.152	49.7	50.0	99.4%	↓	↓
#3	0.280	97.9	100.0	97.9%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	78.7	104.9%	110.0%	90.0%
LCS	30.0	31.2	104.0%	120.0%	80.0%
CCV	50.0	47.6	95.2%	110.0%	90.0%
CCV ₂	↓	50.0	100.0%	↓	↓
CCV ₃	↓	52.2	104.4%	↓	↓
CCV ₄	↓	48.7	97.4%	↓	↓
PB ^{2/28}	0	ND	NA	+6	-6
PB ^{3/28}	0	ND	NA	+6	-6

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Margo MarianiAPPROVED BY: Cy Arthur SchreinerTE: 3/5/92DATE: 3/6/92

TEST:

Se

MATRIX:

TCLP-soil

ANALYSIS DATE:

3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02389-1c	MS	MS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02389-1c	MS	30.0	26.3	4.4	87.7%	81.3%	7	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melissa Mariani

DATE:

3/5/92

APPROVED BY:

Cynthia Schuener

DATE:

3/6/92

TEST: SeMATRIX: TCLP Filtered ANALYSIS DATE: 3/4/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02428-18	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02428-18	ND	30.0	33.8	34.2	112.7%	114.9%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: Cynthia StuenkelDATE: 3/5/92DATE: 3/6/92



**** SPL QUALITY CONTROL REPORT ****
TOTAL PETROLEUM HYDROCARBONS (TPH)

SPL sample Id: F202452-01B
Matrix: SOIL

Reported on: 03/16/92
Analyzed on: 02/28/92

This sample was randomly selected for use in the SPL quality control program. One in ten samples is fortified with a known concentration of the substance being analyzed and one in ten samples is analyzed in duplicate. The result are as follows:

-- SPIKE ANALYSIS --

Sample Id	Blank Value	Spike Added mg/L	Original Sample Concentration mg/Kg	MS Concentration mg/Kg	MS % Rec
F202452-01B	ND	361	19	368	97

-- SPIKE DUPLICATE ANALYSIS --

Sample Id	Spike Added mg/L	MSD Concentration mg/Kg	MSD % Rec	% RPD
F202452-01B	361	365	96	1

SPL, Incorporated

Cynthia Schreiner, QC Officer



**** SPL QUALITY CONTROL REPORT ****
TOTAL PETROLEUM HYDROCARBONS (TPH)

SPL sample Id: BLANK
Matrix: WATER

Reported on: 03/16/92
Analyzed on: 03/03/92

This sample was randomly selected for use in the SPL quality control program. One in ten samples is fortified with a known concentration of the substance being analyzed and one in ten samples is analyzed in duplicate. The result are as follows:

-- SPIKE ANALYSIS --

Sample Id	Blank Value	Spike Added mg/L	Original Sample Concentration mg/L	MS Concentration mg/L	MS % Rec
BLANK	ND	361	ND	358	99

-- SPIKE DUPLICATE ANALYSIS --

Sample Id	Spike Added mg/L	MSD Concentration mg/L	MSD % Rec	% RPD
BLANK	361	338	94	6

SPL, Incorporated

Cynthia Schreiner, QC Officer



8880 Interchange Drive, Houston, Texas 77054 713/660-0901

Wet Chemistry QA/QC Validation Report

Test Code PHDate 2-28-92Analyst KEWMethod 150.1Time 10:30aMatrix LIQUID# Of Samples in Set 6Detection Limit 1

Sample #'s in Set

202466-1F202474-1C

Units

mg/L PH units
C.S.202440-1B202471-1C202448-1D202472-1C

Standards	EM, %T, ABS.	Actual Concentration	Theoretical Concentration	% Recovery	Upper Limit	Lower Limit
Blank	<u>BUFFERS</u>					
#1	<u>4.00</u>	<u>4.00</u>	<u>4.00</u>	<u>100.0</u>	<u>4.29</u>	<u>3.87</u>
#2	<u>7.00</u>	<u>6.99</u>	<u>7.00</u>	<u>99.9</u>	<u>7.07</u>	<u>6.95</u>
#3	<u>10.00</u>	<u>10.00</u>	<u>10.00</u>	<u>100.1</u>	<u>10.12</u>	<u>9.94</u>
#4	<u>CALIBRATED w/ 4.00 & 10.00 BUFFERS</u>					
Check Std.	<u>TEMP: 21°C</u> <u>SLOPE: 100.5</u>					

Duplicate	#1	#2	RPD (%)	Upper Limit	Lower Limit	Dilution
<u>202448-1D</u>	<u>7.79</u>	<u>7.79</u>	<u>0</u>	<u>1.20</u>	<u>0.90</u>	

Spike Sample	Concentration Before Spike	Amount Added	Concentration After Spike	After - Before	% Recovery	Upper Limit	Lower Limit
<u>N/A</u>							

Spike Recovery Calculation

$$\% \text{ Recovery} = \frac{(\text{Actual} - \text{Original})}{\text{Amount Added}} \times 100$$

Relative Percent Difference Calculation

$$\text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

Reviewed By

Richard Clark2/29/92

Approved By

Cynthia Schreiner3/1/92

Toxcon Engineering Company, Inc.
3334 Richmond Ave., #200
Houston, Texas 77098
(713) 520-7667

Analysis Request and Chain of Custody Record

Project No.		Client/Project Name		Project Location		LABORATORY REMARKS	
504867.00		Baker Oil Tools / Hobbs, N.M.		2500 W. Marland Hobbs, N.M.			
Field Sample No./ Identification	Date and Time	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
WW22492	2/24/92 12:10	✓	1 lg glass	water	HCl ice	TPH (418.1)	
		✓	Bor. glass		ice	pH	
		✓	3 VOA's		HCl ice	Volatiles (8240)	
		✓	1 lg glass		ice	TCLP metals (6010/7000/1311)	
BB:26-27.5	2/25/92 11:10	✓	16 oz WMC	soil	ice	TPH (418.1) Volatiles (8240)	
BB:31.5-33.5	2/25/92 11:40	✓			↓	↓	
Samplers: (Signature)		Relinquished by: (Signature)		Date: 2/26/92		Received by: (Signature)	
Rogee Pohluda		Rogee Pohluda		Time: 14:30		Time: 14:30	
Affiliation		Relinquished by: (Signature)		Date:		Date:	
Simon Hydro-Search		Relinquished by: (Signature)		Time:		Time:	
		Relinquished by: (Signature)		Date:		Date:	
		Relinquished by: (Signature)		Time:		Time:	
		Relinquished by: (Signature)		Date:		Date:	
		Relinquished by: (Signature)		Time:		Time:	
SAMPLER REMARKS:		Received for laboratory: (Signature)		Date: 2/27		Laboratory No. 52	
* send results to Toxcon address above		Data Results to: Rogee Pohluda 46 Toxcon		Time: 9:00			
Seal #							

175-740

50

2-20-2020

5

SPL HOUSTON ENVIRONMENTAL LABORATORY

SAMPLE LOGIN CHECKLIST

DATE: 2/22 TIME: 9:00 CLIENT NO. _____
 LOT NO. _____ CONTRACT NO. _____

CLIENT SAMPLE NOS. _____

SPL SAMPLE NOS.: _____

- | | <u>YES</u> | <u>NO</u> |
|---|-----------------------|------------------------|
| 1. Is a Chain-of-Custody form present? | <u>✓</u> | |
| 2. Is the COC properly completed? | <u>✓</u> | |
| If no, describe what is incomplete:

_____ | | |
| If no, has the client been contacted about it?
(Attach subsequent documentation from client about the situation) | | |
| 3. Is airbill/packing list/bill of lading with shipment? | <u>✓</u> | |
| If yes, ID#: <u>Fey ex</u> | | |
| 4. Is a USEPA Traffic Report present? | | <u>✓</u> |
| 5. Is a USEPA SAS Packing List present? | | <u>✓</u> |
| 6. Are custody seals present on the package? | | <u>✓</u> |
| If yes, were they intact upon receipt? | | |
| 7. Are all samples tagged or labeled? | <u>✓</u> | |
| Do the sample tags/labels match the COC? | | |
| If no, has the client been contacted about it? | | |
| (Attach subsequent documentation from client about the situation) | | |
| 8. Do all shipping documents agree? | | |
| If no, describe what is in nonconformity:

_____ | | |
| 9. Condition/temperature of shipping container: | | <u>Intact - 5°C</u> |
| 10. Condition/temperature of sample bottles: | | <u>6000 - 5°C</u> |
| 11. Sample Disposal?: | SPL disposal <u>✓</u> | Return to client _____ |

NOTES (reference item number if applicable): _____

ATTEST: [Signature] DATE: 2/22
 DELIVERED FOR RESOLUTION: REC'D _____ DATE: _____
 RESOLVED: _____ DATE: _____

February 1992 Investigation
(Various Analytical Results)



SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: F 2-02-493

Approved for release by:

M. Scott Sample Date: 3/18/92

S. Sample, Project Management Supervisor

Cynthia Schreiner Date: 3/18/92

C. Schreiner, Quality Assurance Manager



CASE NARRATIVE

QUALITY CONTROL RESULTS SUMMARY

WORK ORDER NO.: F2-02-493

SAMPLE NO: 03C

Due to matrix interference, the matrix spike recovery for Silver is below the minimum QC limits.

SOUTHERN PETROLEUM LABORATORIES

Meaza Mariam

Meaza Mariam
Metals Supervisor



CLIENT NAME: Simon Hydro-Search
CLIENT ID: B9: 34.5-36

SPL #: F202493-01

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	0.510	0.529	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon Hydro-Search
CLIENT ID: MW1: 33.5-35

SPL #: F202493-02

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	0.829	0.860	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon Hydro-Search
CLIENT ID: MW1: 33.5-35

SPL #: F202493-03

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	0.404	0.404	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon Hydro-Search
CLIENT ID: MW2: 022892

SPL #: F202493-04

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	0.587	0.587	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon Hydro-Search
CLIENT ID: MW2: 31.5-33

SPL #: F202493-05

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	0.938	0.973	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon Hydro-Search
CLIENT ID: MW3: 31-33

SPL #: F202493-06

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS * (mg/L)	REGULATORY LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	1.46	1.51	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



CLIENT NAME: Simon Hydro-Search
CLIENT ID: MW3: 022892

SPL #: F202493-07

TCLP SUMMARY

PARAMETER	UNCORRECTED RESULTS (mg/L)	CORRECTED RESULTS *	REGULATOR LIMIT (mg/L)
ARSENIC	< 0.007	< 0.007	5.0
BARIUM	0.544	0.544	100.0
CADMIUM	< 0.03	< 0.03	1.0
CHROMIUM	< 0.02	< 0.02	5.0
LEAD	< 0.3	< 0.3	5.0
MERCURY	< 0.002	< 0.002	0.2
SELENIUM	< 0.007	< 0.007	1.0
SILVER	< 0.02	< 0.02	5.0

* = Reference Federal Register 55, 26986 (6/29/90), RCRA Toxicity Characteristic Final Rule.

** = These two compounds are quantitated together.

Compounds reflect terminology and regulatory limits as presented in Federal Register, (3/29/90 & 6/29/90).



Certificate of Analysis No. F202493-01

Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

03/18/92

Project: Project No. 504867.00
Site: Baker Oil Tools
2800 W. Marland
Hobbs, NM
Sample No: B9: 34.5-36
Sample of: Soil
Sampled by: Simon Hydro-Search
Sample Date: 02/26/92 14:50:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD	RESULTS	DETECTION LIMIT
TOTAL PETROLEUM HYDROCARBONS Method-418.1	61 mg/Kg	10 mg
TPH ANALYZED BY: DC	DATE/TIME: 03/02/92	

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice

**ANALYTICAL RESULTS**

Volatile Organics by USEPA Method 8240

Client ID: B9: 34.5-36
SPL ID: F20249301B
Analyst: JC

Matrix: SOIL
Dilution: 1
% Moisture: 22
Level: LOW

Received: 2
Extracted: **
Analyzed: 1

Compound	Concentration, ug/Kg	
	Amount	M D L
Acetone	37	13
Benzene	ND	6
Bromodichloromethane	ND	6
Bromoform	ND	6
Bromomethane	ND	13
2-Butanone	ND	26
Carbon Disulfide	ND	6
Carbon Tetrachloride	ND	6
Chlorobenzene	ND	6
Chloroethane	ND	13
2-Chloroethylvinylether	ND	13
Chloroform	ND	6
Chloromethane	ND	13
Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6
1,2-Dichloroethane	ND	6
1,1-Dichloroethene	ND	6
Trans-1,2-Dichloroethene	ND	6
1,2-Dichloropropane	ND	6
Cis-1,3-Dichloropropene	ND	6
Trans-1,3-Dichloropropene	ND	6
Ethylbenzene	19	6
2-Hexanone	ND	13
4-Methyl-2-Pentanone	26	13
Methylene Chloride	9	6
Styrene	ND	6
1,1,2,2-Tetrachloroethane	ND	6
Tetrachloroethene	ND	6
Toluene	16	6
1,1,1-Trichloroethane	ND	6
1,1,2-Trichloroethane	ND	6
Trichloroethene	ND	6
Trichlorofluoromethane	ND	6
Vinyl Acetate	ND	13
Vinyl Chloride	ND	13
Total Xylenes	72	6

SURROGATES

1,2-Dichloroethane-D4	80% Recovery
Toluene-D8	94% Recovery
4-Bromofluorobenzene	87% Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202493-01C
Invoice #: 406525
Report Date: 03/18/92

Project No. 504867.00
B9: 34.5-36

Date Received: 02/29/92
Date Collected: 02/26/92 14:50:00

Test Name Method	Result Units	Detection Limit	Date Started	Analys
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	03/13/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	03/12/92	WFL
Barium, TCLP Leachate METHOD 6010	0.510 mg/L	0.007	03/11/92	DQ
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	03/13/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	03/11/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	03/10/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		03/10/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	03/13/92	JM
TCLP Leachate extraction METHOD 1311	Complete		03/07/92	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	03/12/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Certificate of Analysis No. F202493-02

Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

03/18/92

Project: Project No. 504867.00
Site: Baker Oil Tools
2800 W. Marland
Hobbs, NM
Sample No: MW1: 33.5-35
Sample of: Soil
Sampled by: Simon Hydro-Search
Sample Date: 02/27/92 07:20:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD	RESULTS	DETECTION LIMIT
TOTAL PETROLEUM HYDROCARBONS Method-418.1	ND mg/Kg	10 mg/

TPH ANALYZED BY: DC

DATE/TIME: 03/02/92

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice

**ANALYTICAL RESULTS****Volatile Organics by USEPA Method 8240**

Client ID: MW1: 33.5-35
SPL ID: F20249302B
Analyst: JC

Matrix: SOIL
Dilution: 1
% Moisture: 16
Level: LOW

Received:
Extracted:
Analyzed:

C o m p o u n d	Concentration, ug/Kg	
	Amount	M D L
Acetone	15	12
Benzene	ND	6
Bromodichloromethane	ND	6
Bromoform	ND	6
Bromomethane	ND	12
2-Butanone	ND	24
Carbon Disulfide	ND	6
Carbon Tetrachloride	ND	6
Chlorobenzene	ND	6
Chloroethane	ND	12
2-Chloroethylvinylether	ND	12
Chloroform	ND	6
Chloromethane	ND	12
Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6
1,2-Dichloroethane	ND	6
1,1-Dichloroethene	ND	6
Trans-1,2-Dichloroethene	ND	6
1,2-Dichloropropane	ND	6
Cis-1,3-Dichloropropene	ND	6
Trans-1,3-Dichloropropene	ND	6
Ethylbenzene	ND	6
2-Hexanone	ND	12
4-Methyl-2-Pentanone	ND	12
Methylene Chloride	10	6
Styrene	ND	6
1,1,2,2-Tetrachloroethane	ND	6
Tetrachloroethene	ND	6
Toluene	ND	6
1,1,1-Trichloroethane	ND	6
1,1,2-Trichloroethane	ND	6
Trichloroethene	ND	6
Trichlorofluoromethane	ND	6
Vinyl Acetate	ND	12
Vinyl Chloride	ND	12
Total Xylenes	ND	6

SURROGATES

1,2-Dichloroethane-D4	93%	Recovery
Toluene-D8	96%	Recovery
4-Bromofluorobenzene	95%	Recovery

ND - Not Detected. MDL - Method detection limit. * - Surrogates out of range



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202493-02C
Invoice #: 406525
Report Date: 03/18/92

Project No. 504867.00
MW1: 33.5-35

Date Received: 02/29/92
Date Collected: 02/27/92 07:20:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	03/13/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	03/12/92	WFL
Barium, TCLP Leachate METHOD 6010	0.829 mg/L	0.007	03/11/92	DQ
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	03/13/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	03/11/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	03/10/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		03/10/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	03/13/92	JM
TCLP Leachate extraction METHOD 1311	Complete		03/07/92	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	03/12/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Certificate of Analysis No. F202493-03

Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

03/18/92

Project: Project No. 504867.00
Site: Baker Oil Tools
2800 W. Marland
Hobbs, NM
Sample No: MW1: 022792
Sample of: Water
Sampled by: Simon Hydro-Search
Sample Date: 02/27/92 18:00:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD	RESULTS	DETECTION LIMIT
TOTAL PETROLEUM HYDROCARBONS	ND	1
Method-418.1	mg/L	mg/L

TPH ANALYZED BY: JC/DC

DATE/TIME: 03/03/92

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202493-03B
Invoice #: 406525
Report Date: 03/18/92

Project No. 504867.00
MW1: 022792

Date Received: 02/29/92
Date Collected: 02/27/92 18:00:00

Test Name Method	Result Units	Detection Limit	Date Started	Analy
pH METHOD 150.1	7.52 pH units		03/03/92	DSE

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202493-03C
Invoice #: 406525
Report Date: 03/18/92

Project No. 504867.00
MW1: 022792

Date Received: 02/29/92
Date Collected: 02/27/92 18:00:00

Test Name Method	Result Units	Detection Limit	Date Started	Analy.
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	03/10/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	03/11/92	WFL
Barium, TCLP Leachate METHOD 6010	0.404 mg/L	0.007	03/09/92	DQ
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	03/09/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	03/09/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	03/10/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		03/06/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	03/09/92	JM
TCLP Leachate extraction METHOD 1311	Complete		03/06/92	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	03/13/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.

**ANALYTICAL RESULTS**

Volatile Organics by USEPA Method 8240

Client ID: MW1: 022792
SPL ID: F20249303D
Analyst: JC

Matrix: WATER
Dilution: 1
% Moisture: NA
Level: LOW

Received: 29
Extracted: ***
Analyzed: 10

C o m p o u n d	Concentration, ug/L	
	Amount	M D L
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
2-Butanone	ND	20
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethylvinylether	ND	10
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
Trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
Cis-1,3-Dichloropropene	ND	5
Trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
Methylene Chloride	5	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl Acetate	ND	10
Vinyl Chloride	ND	10
Total Xylenes	ND	5

SURROGATES

1,2-Dichloroethane-D4	79% Recovery
Toluene-D8	108% Recovery
4-Bromofluorobenzene	90% Recovery

ND - Not Detected. MDL - Method detection limit. * - Surrogates out of range



Certificate of Analysis No. F202493-04

Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

03/18/92

Project: Project No. 504867.00
Site: Baker Oil Tools
2800 W. Marland
Hobbs, NM
Sample No: MW2: 022892
Sample of: Water
Sampled by: Simon Hydro-Search
Sample Date: 02/28/92 12:10:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD	RESULTS	DETECTION LIMIT
TOTAL PETROLEUM HYDROCARBONS	ND	1
Method-418.1	mg/L	mg/L

TPH ANALYZED BY: JC/DC

DATE/TIME: 03/03/92

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202493-04B
Invoice #: 406525
Report Date: 03/18/92

Project No. 504867.00
MW2: 022892

Date Received: 02/29/92
Date Collected: 02/28/92 12:10:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
pH METHOD 150.1	7.21 pH units		03/03/92	DSE

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202493-04C
Invoice #: 406525
Report Date: 03/18/92

Project No. 504867.00
MW2: 022892

Date Received: 02/29/92
Date Collected: 02/28/92 12:10:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	03/10/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	03/12/92	WFL
Barium, TCLP Leachate METHOD 6010	0.587 mg/L	0.007	03/09/92	DQ
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	03/09/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	03/09/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	03/10/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		03/06/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	03/09/92	JM
TCLP Leachate extraction METHOD 1311	Complete		03/06/92	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	03/13/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: MW2: 022892
SPL ID: F20249304D
Analyst: JC

Matrix: WATER
Dilution: 1
% Moisture: NA
Level: LOW

Received: 29-Feb-92
Extracted: *****
Analyzed: 10-Mar-92

Compound	Concentration, ug/L	
	Amount	M D L
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
2-Butanone	ND	20
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethylvinylether	ND	10
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethane	ND	5
Trans-1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
Cis-1,3-Dichloropropene	ND	5
Trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
Methylene Chloride	6	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethane	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl Acetate	ND	10
Vinyl Chloride	ND	10
Total Xylenes	ND	5

SURROGATES

1,2-Dichloroethane-D4	86%	Recovery
Toluene-D8	106%	Recovery
4-Bromofluorobenzene	88%	Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range



Certificate of Analysis No. F202493-05

Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

03/18/92

Project: Project No. 504867.00
Site: Baker Oil Tools
2800 W. Marland
Hobbs, NM
Sample No: MW2: 31.5-33
Sample of: Soil
Sampled by: Simon Hydro-Search
Sample Date: 02/27/92 14:30:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD -----	RESULTS -----	DETECTION LIMIT -----
TOTAL PETROLEUM HYDROCARBONS Method-418.1	11 mg/Kg	10 mg/Kg
TPH ANALYZED BY: DC	DATE/TIME: 03/02/92	

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated

Shari L. Grice
Shari L. Grice



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: MW2: 31.5-33

SPL ID: F20249305B

Analyst: JC

Matrix: SOIL

Dilution: 1

% Moisture: 16

Level: LOW

Received: 29-Feb-92

Extracted: *****

Analyzed: 10-Mar-92

C o m p o u n d	Concentration, ug/Kg	
	Amount	M D L
Acetone	16	12
Benzene	ND	6
Bromodichloromethane	ND	6
Bromoform	ND	6
Bromomethane	ND	12
2-Butanone	ND	24
Carbon Disulfide	ND	6
Carbon Tetrachloride	ND	6
Chlorobenzene	ND	6
Chloroethane	ND	12
2-Chloroethylvinylether	ND	12
Chloroform	ND	6
Chloromethane	ND	12
Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6
1,2-Dichloroethane	ND	6
1,1-Dichloroethene	ND	6
Trans-1,2-Dichloroethene	ND	6
1,2-Dichloropropane	ND	6
Cis-1,3-Dichloropropene	ND	6
Trans-1,3-Dichloropropene	ND	6
Ethylbenzene	ND	6
2-Hexanone	ND	12
4-Methyl-2-Pentanone	ND	12
Methylene Chloride	7	6
Styrene	ND	6
1,1,2,2-Tetrachloroethane	ND	6
Tetrachloroethene	ND	6
Toluene	ND	6
1,1,1-Trichloroethane	ND	6
1,1,2-Trichloroethane	ND	6
Trichloroethene	ND	6
Trichlorofluoromethane	ND	6
Vinyl Acetate	ND	12
Vinyl Chloride	ND	12
Total Xylenes	ND	6

SURROGATES

1,2-Dichloroethane-D4	86%	Recovery
Toluene-D8	101%	Recovery
4-Bromofluorobenzene	100%	Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202493-05C
Invoice #: 406525
Report Date: 03/18/92

Project No. 504867.00
MW2: 31.5-33

Date Received: 02/29/92
Date Collected: 02/27/92 14:30:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	03/13/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	03/12/92	WFL
Barium, TCLP Leachate METHOD 6010	0.938 mg/L	0.007	03/11/92	DQ
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	03/13/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	03/11/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	03/10/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		03/10/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	03/13/92	JM
TCLP Leachate extraction METHOD 1311	Complete		03/07/92	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	03/12/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Certificate of Analysis No. F202493-06

Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

03/18/92

Project: Project No. 504867.00
Site: Baker Oil Tools
2800 W. Marland
Hobbs, NM
Sample No: MW3: 31-33
Sample of: Soil
Sampled by: Simon Hydro-Search
Sample Date: 02/28/92 18:30:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD	RESULTS	DETECTION LIMIT
TOTAL PETROLEUM HYDROCARBONS	ND	10
Method-418.1	mg/Kg	mg/Kg
TPH ANALYZED BY: DC	DATE/TIME: 03/02/92	

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Incorporated
Shari L. Grice
Shari L. Grice



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: MW3: 31-33
SPL ID: F20249306B
Analyst: JC

Matrix: SOIL
Dilution: 1
% Moisture: 14
Level: LOW

Received: 29-Feb-92
Extracted: *****
Analyzed: 10-Mar-92

C o m p o u n d	Concentration, ug/Kg	
	Amount	M D L
Acetone	18	12
Benzene	ND	6
Bromodichloromethane	ND	6
Bromoform	ND	6
Bromomethane	ND	12
2-Butanone	ND	23
Carbon Disulfide	ND	6
Carbon Tetrachloride	ND	6
Chlorobenzene	ND	6
Chloroethane	ND	12
2-Chloroethylvinylether	ND	12
Chloroform	ND	6
Chloromethane	ND	12
Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6
1,2-Dichloroethane	ND	6
1,1-Dichloroethene	ND	6
Trans-1,2-Dichloroethene	ND	6
1,2-Dichloropropane	ND	6
Cis-1,3-Dichloropropene	ND	6
Trans-1,3-Dichloropropene	ND	6
Ethylbenzene	ND	6
2-Hexanone	ND	12
4-Methyl-2-Pentanone	ND	12
Methylene Chloride	7	6
Styrene	ND	6
1,1,2,2-Tetrachloroethane	ND	6
Tetrachloroethane	ND	6
Toluene	ND	6
1,1,1-Trichloroethane	ND	6
1,1,2-Trichloroethane	ND	6
Trichloroethene	ND	6
Trichlorofluoromethane	ND	6
Vinyl Acetate	ND	12
Vinyl Chloride	ND	12
Total Xylenes	ND	6

SURROGATES

1,2-Dichloroethane-D4	92%	Recovery
Toluene-D8	112%	Recovery
4-Bromofluorobenzene	108%	Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202493-06C
Invoice #: 406525
Report Date: 03/18/92

Project No. 504867.00
MW3: 31-33

Date Received: 02/29/92
Date Collected: 02/28/92 18:30:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	03/13/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	03/12/92	WFL
Barium, TCLP Leachate METHOD 6010	1.46 mg/L	0.007	03/11/92	DQ
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	03/13/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	03/11/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	03/10/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		03/10/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	03/13/92	JM
TCLP Leachate extraction METHOD 1311	Complete		03/07/92	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	03/12/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



Certificate of Analysis No. F202493-07

Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

03/18/92

Project: Project No. 504867.00
Site: Baker Oil Tools
2800 W. Marland
Hobbs, NM
Sample No: MW3: 022892
Sample of: Water
Sampled by: Simon Hydro-Search
Sample Date: 02/28/92 12:30:00

A N A L Y T I C A L R E S U L T S

ANALYSIS/METHOD	RESULTS	DETECTION LIMIT
TOTAL PETROLEUM HYDROCARBONS	ND	1
Method-418.1	mg/L	mg/L

TPH ANALYZED BY: JC/DC

DATE/TIME: 03/03/92

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL Incorporated

Shari L. Grice
Shari L. Grice



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202493-07B
Invoice #: 406525
Report Date: 03/18/92

Project No. 504867.00
MW3: 022892

Date Received: 02/29/92
Date Collected: 02/28/92 12:30:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
pH METHOD 150.1	7.13 pH units		03/03/92	DSE

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: MW3: 022892
SPL ID: F20249307C
Analyst: JC

Matrix: WATER
Dilution: 1
% Moisture: NA
Level: LOW

Received: 29-Feb-92
Extracted: *****
Analyzed: 10-Mar-92

Compound	Concentration, ug/L	
	Amount	M D L
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
2-Butanone	ND	20
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethylvinylether	ND	10
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
Trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
Cis-1,3-Dichloropropene	ND	5
Trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
Methylene Chloride	6	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl Acetate	ND	10
Vinyl Chloride	ND	10
Total Xylenes	ND	5

SURROGATES

1,2-Dichloroethane-D4	84% Recovery
Toluene-D8	110% * Recovery
4-Bromofluorobenzene	88% Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F202493-07D
Invoice #: 406525
Report Date: 03/18/92

Project No. 504867.00
MW3: 022892

Date Received: 02/29/92
Date Collected: 02/28/92 12:30:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Silver, TCLP Leachate METHOD 7760	ND mg/L	0.02	03/10/92	JM
Arsenic, TCLP Leachate METHOD 7060	ND mg/L	0.007	03/12/92	WFL
Barium, TCLP Leachate METHOD 6010	0.544 mg/L	0.007	03/09/92	DQ
Cadmium, TCLP Leachate METHOD 7130	ND mg/L	0.03	03/09/92	JM
Chromium, TCLP Leachate METHOD 6010	ND mg/L	0.02	03/09/92	DQ
Mercury, TCLP Leachate METHOD 7470	ND mg/L	0.002	03/10/92	JM
Acid Digestion - Microwave EPA CLP SOW	Complete		03/06/92	CG
Lead, TCLP Leachate METHOD 7420	ND mg/L	0.3	03/09/92	JM
TCLP Leachate extraction METHOD 1311	Complete		03/06/92	ET
Selenium, TCLP Leachate METHOD 7740	ND mg/L	0.007	03/13/92	WFL

ND = Parameter analyzed for but not detected. The reported limit is the minimum attainable detection limit for the sample.

SPL ENVIRONMENTAL LABORATORIES, INC.

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: SPL HOUSTON Contract: _____

Lab Code: SPL Case No.: 202493 SAS No.: _____ SDG No.: 202493

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	MW1_022792	108	90	79	0	0
02	MW2_022892	106	88	86	0	0
03	MW3_022892	110	88	84	0	0
04	MW3_022892	110	88	84	0	0
05	MW3_022892	110	88	84	0	0
06	VBLK01	102	96	89	0	0

QC LIMITS

S1 (TOL) = Toluene-d8 (88-110)
S2 (BFB) = Bromofluorobenzene (86-115)
S3 (DCE) = 1,2-Dichloroethane-d4 (76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: SPL HOUSTON Contract: _____

Lab Code: SPL Case No.: 202493 SAS No.: _____ SDG No.: 202493

Level: (low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	B9_34_5-36	94	87	80	0	0
02	MW1_33_5-35	96	95	93	0	0
03	MW1_33_5-35	96	95	93	0	0
04	MW2_31_5-33	101	100	86	0	0
05	MW3_31-33	112	108	92	0	0
06	VBLK01	100	90	93	0	0
07	VBLK01	98	101	86	0	0

QC LIMITS

S1 (TOL) = Toluene-d8 (81-117)

S2 (BFB) = Bromofluorobenzene (74-121)

S3 (DCE) = 1,2-Dichloroethane-d4 (70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON Contract: _____Lab Code: SPL Case No.: 202493 SAS No.: _____ SDG No.: 202493Matrix Spike - EPA Sample No.: MW3_022892

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0	40.2	80	61-145
Trichloroethene	50.0	0	57.6	115	71-120
Benzene	50.0	0	55.0	110	76-127
Toluene	50.0	0	57.4	115	76-125
Chlorobenzene	50.0	0	59.6	119	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1,1-Dichloroethene	50.0	48.9	98	-20 *	14	61-145
Trichloroethene	50.0	56.4	113	2	14	71-120
Benzene	50.0	53.6	107	3	11	76-127
Toluene	50.0	58.4	117	-2	13	76-125
Chlorobenzene	50.0	54.8	110	8	13	75-130

* Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

D: 1 out of 5 outside limitsSpike Recovery: 0 out of 10 outside limitsREMARKS: 8240W,202493,,MW3: 022892,L,W,F20249307C,V,E,5.0 MLS,
PACK,0310VL2B2,0310BFB3,0310VLBB1,,,,45/3-220@8,INST B1,

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON Contract: _____Lab Code: SPL Case No.: 203006 SAS No.: _____ SDG No.: 202493Matrix Spike - EPA Sample No.: S1025-1 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	68.5	0	66.7	97	59-172
Trichloroethene	68.5	0	77.0	112	62-137
Benzene	68.5	0	77.5	113	66-142
Toluene	68.5	0	74.1	108	59-139
Chlorobenzene	68.5	0	76.0	111	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	68.5	77.3	113	-15	22	59-172
Trichloroethene	68.5	84.9	124	-10	24	62-137
Benzene	68.5	85.3	124	-9	21	66-142
Toluene	68.5	84.9	124	-14	21	59-139
Chlorobenzene	68.5	85.3	124	-11	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limitsSpike Recovery: 0 out of 10 outside limitsCOMMENTS: 8240S,203006,,S1025-1,L,S,F20300602A,V,E,5.0 GRS,
PACK,0306VS2B2,0306BFB2,0306VSBB1,,,45/3-220@8,INST B1,

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: SPL HOUSTON Contract: _____
Lab Code: SPL Case No.: 202493 SAS No.: _____ SDG No.: 202493
Lab File ID: 0309VSBB1 Lab Sample ID: VSBLK010309B
Date Analyzed: 03/09/92 Time Analyzed: 943
Matrix: (soil/water) SOIL Level: (low/med) LOW
Instrument ID: B1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	MW1_33_5-35	F20249302B	V249302	1724
02	MW1_33_5-35	F20249302B	V249302	1724

COMMENTS: SPLINC, BLANK,, VBLK01, L, S, VSBLK010309B, V, B,
PACK, 0309VS2B1, 0309BFB1, 0309VSBB1,,,, 45/3-220@8, INST B1,

**ANALYTICAL RESULTS**

Volatile Organics by USEPA Method 8240

Client ID: VBLK01
SPL ID: VSBLK010309B
Analyst: JC

Matrix: SOIL
Dilution: 1
% Moisture: NA
Level: LOW

Received:
Extracted: *****
Analyzed: 09-Mar-92

C o m p o u n d	Concentration, ug/Kg	
	Amount	M D L
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
2-Butanone	ND	20
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethylvinylether	ND	10
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
Trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
Cis-1,3-Dichloropropene	ND	5
Trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
Methylene Chloride	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl Acetate	ND	10
Vinyl Chloride	ND	10
Total Xylenes	ND	5

SURROGATES

1,2-Dichloroethane-D4	93%	Recovery
Toluene-D8	100%	Recovery
4-Bromofluorobenzene	90%	Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: SPL HOUSTON Contract: _____
Lab Code: SPL Case No.: 202493 SAS No.: _____ SDG No.: 202493
Lab File ID: 0310VLBB1 Lab Sample ID: VLBLK010310B
Date Analyzed: 03/10/92 Time Analyzed: 1517
Matrix: (soil/water) WATER Level: (low/med) LOW
Instrument ID: B1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	MW1_022792	F20249303D	V249303A	1652
02	MW2_022892	F20249304D	V249304A	1726
03	MW3_022892	F20249307C	V249307A	1803
04	MW3_022892	F20249307C	V249307A	1803
05	MW3_022892	F20249307C	V249307A	1803

COMMENTS: SPLINC,BLANK,,VBLK01,L,W,VLBLK010310B,V,B,
PACK,0310VL2B2,0310BFB3,0310VLBB1,,,,45/3-220@8,INST B1,



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: VBLK01
SPL ID: VLBLK010310B
Analyst: JC

Matrix: WATER
Dilution: 1
% Moisture: NA
Level: LOW

Received:
Extracted: *****
Analyzed: 10-Mar-92

Compound	Concentration, ug/L	
	Amount	MDL
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
2-Butanone	ND	20
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethylvinylether	ND	10
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
Trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
Cis-1,3-Dichloropropene	ND	5
Trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
Methylene Chloride	7	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl Acetate	ND	10
Vinyl Chloride	ND	10
Total Xylenes	ND	5

SURROGATES

1,2-Dichloroethane-D4	89%	Recovery
Toluene-D8	102%	Recovery
4-Bromofluorobenzene	96%	Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: SPL HOUSTON Contract: _____
Lab Code: SPL Case No.: 202493 SAS No.: _____ SDG No.: 202493
Lab File ID: 0310VSBB1 Lab Sample ID: VSBLK010310B
Date Analyzed: 03/10/92 Time Analyzed: 952
Matrix: (soil/water) SOIL Level: (low/med) LOW
Instrument ID: B1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	B9_34_5-36	F20249301B	V249301A	1036
02	MW2_31_5-33	F20249305B	V249305A	1110
03	MW3_31-33	F20249306B	V249306A	1148

COMMENTS: SPLINC, BLANK, , VBLK01, L, S, VSBLK010310B, V, B,
PACK, 0310VS2B1, 0310BFB1, 0310VSBB1, , , , 45/3-220@8, INST B1,



ANALYTICAL RESULTS

Volatile Organics by USEPA Method 8240

Client ID: VBLK01
SPL ID: VSEHLK010310B
Analyst: JC

Matrix: SOIL
Dilution: 1
% Moisture: NA
Level: LOW

Received:
Extracted: *****
Analyzed: 10-Mar-92

Compound	Concentration, ug/Kg	
	Amount	M D L
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
2-Butanone	ND	20
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethylvinylether	ND	10
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
Trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
Cis-1,3-Dichloropropene	ND	5
Trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
Methylene Chloride	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl Acetate	ND	10
Vinyl Chloride	ND	10
Total Xylenes	ND	5

SURROGATES

1,2-Dichloroethane-D4	86%	Recovery
Toluene-D8	98%	Recovery
4-Bromofluorobenzene	101%	Recovery

ND - Not Detected.

MDL - Method detection limit.

* - Surrogates out of range

SPL AA QC FORM

TEST CODE: AgDATE: 3/13/92ANALYST: JmMETHOD: FLAATIME: 14:23DETECTION LIMIT: 0.02# SAMPLES IN SET: 6UNITS: mg/LSAMPLE #'S IN SET: 02447-5C ; 02443-1C, 2C, 5C, 6C ; 03049-1C

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.001	0.000	0.000	—	—	—
#1	0.073	0.500	0.500	100.0	105%	95%
#2	0.142	0.992	1.000	99.2	↓	↓
#3	0.278	1.986	2.000	99.3	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.769	96.1	110%	90%
LCS	1.000	0.975	97.5	120%	80%
CCV ₁	↓	1.080	108.0	110%	90%
CCV ₂	↓	1.073	107.3	↓	↓
PB 3/11	0	ND	NA	-0.02	-0.02
PB 3/10	↓	↓	↓	↓	↓
PB 3/10 ^{EXT} #2	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meaga MaricamAPPROVED BY: C. J. SchenierDATE: 3/13/92DATE: 3/13/92

TEST:

Ag

MATRIX:

TCU-276

ANALYSIS DATE:

3/13/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02447-5c	NA	NA	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS	
								% REC	%RPD
02447-5c	NA	0.050	0.045	0.048	90.0	96.0	6	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melga Mariani

APPROVED BY:

C. J. Schreiner

DATE:

3/13/92

DATE:

3/13/92

TEST CODE: AgDATE: 3/10/92ANALYST: JmMETHOD: ELAATIME: 14:34DETECTION LIMIT: 0.02# SAMPLES IN SET: 27UNITS: mg/LSAMPLE #'S IN SET: 02461-1A; 02483-1A, 2A; 02485-1A, 2A; 02490-1A; 0245A-K,
0247C-K; 02481-K; 02493-3C, 4C, 7D; 03107-10-8D; 03074-K; 03001-1A; 03045-1E-5E

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.001	0.000	0.000	—	—	—
#1	0.075	0.500	0.500	100.0	105%	95%
#2	0.145	0.995	1.000	99.5	↓	↓
#3	0.281	1.981	2.000	99.0	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.829	103.6	110%	90%
LCS	1.000	0.992	99.2	120%	80%
CCV ₁		1.036	103.6	110%	90%
CCV ₂		1.054	105.4		
CCV ₃		1.014	101.4		
CCV ₄		1.032	103.2		
CCV ₅		1.020	102.0		
CCV ₆		1.031	103.1		
CCV ₇	↓	1.015	101.5	↓	↓
Cont'd on next page. Jm.					

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Marya MariamAPPROVED BY: Agatha S. SluiterDATE: 3/10/92DATE: 3/10/92

TEST CODE: AgDATE: 3/10/92ANALYST: JmMETHOD: FUAATIME: 14:34DETECTION LIMIT: 0.02

SAMPLES IN SET: _____

UNITS: mg/LSAMPLE #'S IN SET: Cont'd from last page Jm.

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK						
#1						
#2						
#3						
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
rev PB 3/5	0	ND	NA	0.02	-0.02
Les PB 3/6	↓	↓	↓	↓	↓
PB 3/9	↓	↓	↓	↓	↓
PB 3/5 water	↓	↓	↓	↓	↓
PB 3/3 water	↓	↓	↓	↓	↓
PB 3/4 water	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meaza MariamAPPROVED BY: Cybilina SchinnerDATE: 3/10/92DATE: 3/10/92

TEST:

Ag

MATRIX:

ICUP- soil

ANALYSIS DATE:

3/10/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02461-1A	ND	ND	NA	20	1
02490-1A	↓	↓	↓	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02461-1A	ND	0.050	0.049	0.050	98.0	100.0	2	75 - 125	20
02490-1A	↓	↓	0.041	0.041	82.0	82.0	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Mariani

APPROVED BY:

Cynthia Schumacher

DATE:

3/10/92

DATE:

3/10/92

TEST: AgMATRIX: ICP-OtherANALYSIS DATE: 3/10/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02481-1C	ND	ND	NA	20	1
02470-1C	↓	↓	↓	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02481-1C	ND	0.050	0.058	0.059	116.0	118.0	2	75 - 125	20
02470-1C	↓	↓	0.052	0.054	104.0	108.0	4	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meara MartinAPPROVED BY: Arthur SchreinerDATE: 3/10/92DATE: 3/10/92

TEST: AgMATRIX: ICP-liquidANALYSIS DATE: 3/10/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02493-3C	ND	ND	NA	20	1
03107-1D	↓	↓	↓	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02493-3C	ND	0.050	0.037	0.035	74.0	70.0	6	75 - 125	20
03107-1D	↓	↓	0.039	0.040	78.0	80.0	MT 23	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Mearza MariamAPPROVED BY: Cynthia SilvermanDATE: 3/10/92DATE: 3/10/92

TEST: AgMATRIX: waterANALYSIS DATE: 3/10/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
03045-5E	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
03045-5E	ND	0.050	0.056	0.055	112.0	110.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarionAPPROVED BY: Arthur SchmeesDATE: 3/10/92DATE: 3/10/92

0312A

SPL AA QC FORM

TEST CODE: AS
METHOD: GFAADATE: 3/12/92
TIME: 07:29ANALYST: WFLDETECTION LIMIT: 6SAMPLES IN SET: 41UNITS: ug/LSAMPLE #'S IN SET: 02490-1A; 02454-1c; 02493-1c2c5c6c; 02470-1c;
02493-1c7b; 02049-1c; 02493-3c (QC only); 03056-1A-2A; 03021-1A-3
03043-7A-29A; 02477-5c; 03042-1A-6A; 03083-1A-6A; 03084-7A-8A
03091-1A-6A; 03095-7A-8A

STANDARDS	EM, %T, ABS.	CONC.	CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.010	0.0	0.0	NA	-	-
#1	0.118	25.0	25.0	100.0%	105.0%	95.0%
#2	0.260	50.5	50.0	101.0%	↓	↓
#3	0.528	100.1	100.0	100.1%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	76.1	101.5%	110.0%	90.0%
LCS	40.0	41.9	104.8%	120.0%	80.0%
CCV ₁	50.0	46.6	93.2%	110.0%	90.0%
CCV ₂		48.0	96.0%		
CCV ₃		51.4	102.8%		
CCV ₄		51.7	103.4%		
CCV ₅		45.0	90.0%		
CCV ₆		51.2	102.4%		
CCV ₇		52.5	105.0%		
PR316	0	NA	NA	+6	-6
PR319					
PR312					

RECOVERY = $\frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$ VIEWED BY: Melissa MurrayAPPROVED BY: Cynthia SchinnererDATE: 3/12/92DATE: 3/12/92

TEST:

AS

MATRIX:

Issoo/val

ANALYSIS DATE:

3/12/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
03097-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
03097-1A	ND	40.0	32.5	32.3	81.2%	80.8%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melinda Marion

APPROVED BY:

Agatha S. Menez

DATE:

3/12/92

DATE:

3/12/92

TEST:

AS

MATRIX:

base lead

ANALYSIS DATE:

3/12/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
03056-2A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
03056-2A ND		40.0	37.7	37.6	94.2%	94.0%	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melinda Mariani

APPROVED BY:

Capt. Phil Schreiner

DATE:

3/12/92

DATE:

3/12/92

TEST:

AS

MATRIX:

TECP-Filtered

ANALYSIS DATE:

3/12/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
<u>02493-3c</u>	<u>ND</u>	<u>ND</u>	<u>NA</u>	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
<u>02493-3c</u>	<u>ND</u>	<u>40.0</u>	<u>36.4</u>	<u>36.5</u>	<u>91.0%</u>	<u>91.2%</u>	<u>0</u>	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melissa Mariani

APPROVED BY:

Cynthia Schreiner

DATE:

3/12/92

DATE:

3/12/92

TEST:

AS

MATRIX:

TCLP other

ANALYSIS DATE:

3/12/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02470-1c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
02470-1c	ND	40.0	36.0	35.1	90.0%	87.8%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Mariani

APPROVED BY:

Cybil Schreiner

DATE:

3/16/92

DATE:

3/12/92

TEST:

AS

MATRIX:

TCLP- soil

ANALYSIS DATE:

3/12/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02490-1A	MS	NS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
02490-1A	NS	40.0	33.9	32.9	84.8%	82.2%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Maria Mariani

APPROVED BY:

William Silver

DATE:

3/12/92

DATE:

3/12/92

0311D

SPL AA QC FORM

TEST CODE: ASDATE: 3/11/92ANALYST: WFLMETHOD: GFAATIME: 14:55DETECTION LIMIT: 6SAMPLES IN SET: 20UNITS: ug/LSAMPLE #'S IN SET: 03074-1C; 03001-1A; 03045-1E-5E; 02483-1A-2A; 02493-3C; 03107-1B-8B; 02485-1A-2A.

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.005	0.0	0.0	NA	—	—
#1	0.123	25.0	25.0	100.0%	105.0%	95.0%
#2	0.254	50.5	50.0	101.0%	↓	↓
#3	0.500	100.1	100.0	100.1%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	72.6	96.8%	110.0%	90.0%
LCS	40.0	34.5	86.2%	120.0%	80.0%
CCV ₁	50.0	51.1	102.2%	110.0%	90.0%
CCV ₂	↓	54.0	108.0%	↓	↓
CCV ₃	↓	49.1	98.2%	↓	↓
PB ³ /6	0	NS	NA	+6	-6
PB ³ /7	0	NS	NA	+6	-6

RECOVERY = $\frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$ REVIEWED BY: MARGA MariamAPPROVED BY: Agatha SherrillDATE: 3/12/92DATE: 3/12/92

TEST:

AS

MATRIX:

Water

ANALYSIS DATE:

3/11/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
03045 TE ND	ND	NA	20		1
			20		
			20		
			20		
			20		
			20		
			20		
			20		
			20		
			20		

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
03045-1E ND	ND	40.0	32.6	31.8	81.5%	79.5%	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Mearza MariamAPPROVED BY: Cynthia SchenkerDATE: 3/12/92DATE: 3/12/92

TEST:

AS

MATRIX:

TELP Filtered

ANALYSIS DATE:

3/11/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02493-3c	NS	NS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
02493-3c	NS	40.0	45.9	46.8	114.8%	117.0%	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Margie Marion

APPROVED BY:

Cy. Howard Silver

DATE:

3/12/92

DATE:

3/12/92

0312A

SPL AA QC FORM

EST CODE:

AS

DATE:

3/12/92

ANALYST:

WFL

METHOD:

GFAA

TIME:

07:29

DETECTION LIMIT:

6

SAMPLES IN SET:

41

UNITS:

ug/L

SAMPLE #'S IN SET:

02490-1A; 02454-1c; 02493-1c 2c 5c 6c; 02470-1c;
 02493-1c 7c; 02049-1c; 02493-3c (GC only); 03056-1A-2A; 03021-1A-3
 03043-7A-9A; 02477-5c; 03042-1A-6A; 03083-1A-6A; 03084-7A-8A
 03097-1A-6A; 03095-7A-8A

STANDARDS

EM, %T, ABS., CONC.

CONC.

%RECOVERY

UPPER LIMIT

LOWER LIMIT

BLANK

-0.010

0.0

0.0

NA

-

-

#1

0.118

25.0

25.0

100.0%

105.0%

95.0%

#2

0.260

50.5

50.0

101.0%

↓

↓

#3

0.528

100.1

100.0

100.1%

↓

↓

#4

#5

CONTINUING CALIBRATION

ID

THEORETICAL

ACTUAL

% RECOVERY

UPPER LIMIT

LOWER LIMIT

ICV

75.0

76.1

101.5%

110.0%

90.0%

LCS

40.0

41.9

104.8%

120.0%

80.0%

CCV₁

50.0

46.6

93.2%

110.0%

90.0%

CCV₂

48.0

96.0%

CCV₃

51.4

102.8%

CCV₄

51.7

103.4%

CCV₅

45.0

90.0%

CCV₆

51.2

102.4%

CCV₇

52.5

103.0%

PB316

0

ND

NA

+6

-6

PB319

PB312

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY:

Margo Marlam

APPROVED BY:

Cynthia Schinnerer

TE:

3/12/92

DATE:

3/12/92

TEST: ASMATRIX: base leadANALYSIS DATE: 3/12/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
03097-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
03097-1A	ND	40.0	32.5	32.3	81.2%	80.8%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Melissa MarionDATE: 3/12/92APPROVED BY: Arthur SchmeierDATE: 3/12/92

TEST:

AS

MATRIX:

base/red

ANALYSIS DATE:

3/12/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
03056-2A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
03056-2A ND		40.0	37.7	37.6	94.2%	94.0%	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melissa Mariani

APPROVED BY:

Cynthia Schreiner

DATE:

3/12/92

DATE:

3/12/92

TEST:

As

MATRIX:

TCLP-Filtered

ANALYSIS DATE:

3/12/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02493-3c	NS	NS	N/A	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
02493-3c	NS	40.0	36.4	36.5	91.0%	91.2%	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Melinda Mariani

APPROVED BY:

Capt. [Signature]

DATE:

3/12/92

DATE:

3/12/92

TEST:

AS

MATRIX:

TCLP other

ANALYSIS DATE:

3/12/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02470-1c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
02470-1c	ND	40.0	36.0	35.1	90.0%	87.8%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meara Mariani

APPROVED BY:

Cynthia Schreiner

DATE:

3/16/92

DATE:

3/12/92

TEST:

AS

MATRIX:

TCLP soil

ANALYSIS DATE:

3/12/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02490-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02490-1A	ND	40.0	33.9	32.9	84.8%	82.2%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meara MarionDATE: 3/12/92

APPROVED BY:

A. William Silverman

DATE:

3/12/92

SPL ICP (METHOD 6010/200.7) STANDARD QC FORM

DATE: 3/11/92TIME: 1239FILE: A0311ANALYST: PS# SAMPLES IN SET: 16UNITS: mg/L

SAMPLE #'s IN SET: 3099 1c, 3049 1c, 2493 1c, 2c, 5c, 6c, 3096 1d
2393 1d, 2d, 3d, 2394 1d, 2d (2394 2H QC ONLY)
2464 1c, 2c, 3128 1d, 3001 1A

TEST CODE	IDL	BLANK		STANDARD	
		EM	CONC	EM	CONC
Ag	0.02	-0.001	0.000	3.40	10.00
As	0.1	-0.001		4.93	
Ba	0.006	0.000		4.42	
Cr	0.02	0.003		3.92	
Cd	0.01	0.001		2.10	
Pb	0.2	0.016		1.04	
Se	0.2	-0.033		2.29	
Al	0.2	0.054		1.68	
Fe	0.01	0.002		4.77	
Zn	0.009	0.025	✓	5.18	✓

REVIEWED BY: Melissa MatlamAPPROVED BY: Cynthia SchulerDATE: 3/12/92DATE: 3/12/92

SPL ICP CALIBRATION VERIFICATION

ID	TEST CODE	TRUE CONC.	FOUND CONC.	% RECOVERY	QC LIMITS	
					UPPER	LOWER
ICV	Ag	5.00	5.40	108.0	110.2	90.2
	As		4.93	98.6		
	Ba	↓	5.22	104.4		
	Cd	5.52	5.43	98.4		
	Cd	5.00	5.09	101.8		
	Pb		5.09	101.8		
	Se		5.03	100.6		
	Al		4.96	99.2		
	Fe		5.38	107.6		
↓	Zn	↓	4.97	99.4		
CCV1	Ag	5.00	5.42	108.4		
	As		5.03	100.6		
	Ba	↓	5.27	105.4		
	Cd	5.52	5.48	99.3		
	Cd	5.00	5.15	103.0		
	Pb		5.18	103.6		
	Se		5.24	104.8		
	Al		4.94	98.8		
	Fe		5.42	108.4		
↓	Zn	↓	5.03	100.6		
CCV2	Ag	5.00	5.43	108.6		
	As		5.05	101.0		
↓	Ba	↓	5.31	106.2	↓	↓

CALCULATION: % RECOVERY = $\frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$

REVIEWED BY: Meaga Mariam

APPROVED BY: A. J. W. Schuener

DATE: 3/18/92

DATE: 3/12/92

SPL ICP CALIBRATION VERIFICATION

ID	TEST CODE	TRUE CONC.	FOUND CONC.	% RECOVERY	QC LIMITS	
					UPPER	LOWER
CCV2	Cu	5.52	5.55	100.5	110.8	90.8
	Cd	5.00	5.20	104.0		
	Pb		5.32	106.4		
	Se		5.21	104.2		
	Al		4.95	99.0		
	Fe		5.47	109.4		
Y	Zn	Y	5.10	102.0		
CCV3	Ag	5.00	5.37	107.4		
	As		5.00	100.0		
	BA	Y	5.35	107.0		
	Cu	5.52	5.55	100.5		
	Cd	5.00	5.22	104.4		
	Pb		5.28	105.6		
	Se		5.18	103.6		
	Al		4.94	98.8		
	Fe		5.45	109.0		
Y	Zn	Y	5.10	102.0		
CCV4	Ag	5.00	5.25	105.0		
	As		4.96	99.2		
	BA	Y	5.24	104.8		
	Cu	5.52	5.45	98.7		
	Cd	5.00	5.13	102.6		
Y	Pb	Y	5.25	105.0	Y	Y

CALCULATION: % RECOVERY = $\frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$

REVIEWED BY: Marga MuriamAPPROVED BY: G. Miller ShumanDATE: 3/12/92DATE: 3/12/92

SPL ICP CALIBRATION VERIFICATION

ID	TEST CODE	TRUE CONC.	FOUND CONC.	% RECOVERY	QC LIMITS	
					UPPER	LOWER
CCV4	Se	5.00	5.15	103.0	110.8	90.8
	Al		4.85	97.0		
	Fe		5.35	107.0		
✓	Zn		5.05	101.0		
CCV5	Ag		5.26	105.2		
	As		4.83	97.6		
	BA	✓	5.29	105.8		
	Ca	5.52	5.45	98.7		
	Cd	5.00	5.09	101.8		
	Pb		5.21	104.2		
	Se		5.14	102.8		
	Al		4.87	97.4		
	Fe		5.34	106.8		
✓	Zn	✓	5.03	100.6	✓	✓
PB 3/10	Ag	0.0	NP	N/A	0.02	-0.02
	As				0.1	-0.1
	Pb				0.2	-0.2
	BA				0.006	-0.006
	Se				0.2	-0.2
	Cd				0.01	-0.01
✓	Ca	✓	✓	✓	0.02	-0.02
PB 3/3	Ag	0.0	NP	N/A	0.02	-0.02
✓	BA	✓	✓	✓	0.006	-0.006

CALCULATION: % RECOVERY = $\frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$

REVIEWED BY: Marga MarianiAPPROVED BY: G. J. SilvaDATE: 3/12/92DATE: 3/12/92

SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
3099 1c	Ag	NP	NP	N/A	20	1
	As	↓	↓	↓	20	
	Pb	↓	↓	↓	20	
	Ba	0.273	0.273	0	20	
	Se	NP	NP	N/A	20	
	Cl	↓	↓	↓	20	
↓	Cr	0.024	0.023	↓	20	↓
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS	
									% REC	% RPD
3099 1c	Ag	NP	0.050	0.050	0.050	100.0	100.0	0	75-125	20
	As	↓	2.00	1.85	1.84	92.5	92.0	1	75-125	20
	Pb	↓	0.500	0.450	0.457	90.0	91.4	2	75-125	20
	Ba	0.273	2.00	2.20	2.18	96.4	95.4	4	75-125	20
	Se	NP	2.00	2.12	2.11	106.0	105.5	0	75-125	20
	Cl	↓	0.050	0.056	0.053	112.0	116.0	4	75-125	20
↓	Cr	0.024	0.200	0.201	0.201	86.5 100.5	88.5 100.5	0	75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Melissa MarianiAPPROVED BY: Cynthia SchenkerDATE: 3/12/92DATE: 3/12/92

FILE: A0311MATRIX: TCLP - TRACERANALYSIS DATE: 3/11/92SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
3096 1d	Ag	NP	NP	N/A	20	1
	As	↓	↓	↓	20	
	Pb	0.300	0.304	2	20	
	Se	NP	NP	N/A	20	
↓	Cd	0.003	0.003	0	20	↓
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
3096 1d	Ag	NP	0.050	0.052	0.048	104.0	96.0	8	75-125	20
	As	↓	2.00	1.91	1.91	95.5	98.5	3	75-125	20
	Pb	0.310	0.50	0.772	0.775	92.4	93.0	0	75-125	20
	Se	NP	2.00	2.06	2.10	103.0	105.0	2	75-125	20
↓	Cd	0.008	0.050	0.068	0.067	120.0	118.0	1	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meaga MarianiAPPROVED BY: Cynthia ShivelyDATE: 3/12/92DATE: 3/12/92

FILE: A0311MATRIX: WATER (P3010)ANALYSIS DATE: 3/11/92SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2394 24	Ag	ND	ND	N/A	20	1
↓	BA	↓	↓	↓	20	↓
↓	Cl	↓	↓	↓	20	↓
↓	Cr	↓	↓	↓	20	↓
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
2394 24	Ag	ND	0.050	0.053	0.048	106.0	96.0	10	75-125	20
↓	BA	↓	0.500	0.509	0.475	101.8	95.0	7	75-125	20
↓	Cl	↓	0.050	0.046	0.043	92.0	86.0	7	75-125	20
↓	Cr	↓	0.200	0.199	0.186	99.5	93.0	7	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Maura MarianiDATE: 3/12/92APPROVED BY: Cynthia SchirmerDATE: 3/12/92

FILE: A0311MATRIX: WATERANALYSIS DATE: 3/11/92SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
3123 1d	Pb	NP	NP	N/A	20	1
	Ba	0.055	0.054	2	20	
	Ca	NP	NP	N/A	20	
	Al	0.533	0.611	14	20	
	Fe	0.267	0.260	3	20	
Y	Zn	0.042	0.050	17	20	Y
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
3123 1d	Pb	NP	0.500	0.455	0.439	91.0	87.8	4	75-125	20
	Ba	0.055	2.00	1.85	1.84	89.8	89.2	1	75-125	20
	Ca	NP	0.200	0.176	0.172	88.0	86.0	2	75-125	20
	Al	0.533	2.00	2.99	2.54	122.8	100.4	16	75-125	20
	Fe	0.267	1.00	1.41	1.36	114.3	109.3	4	75-125	20
Y	Zn	0.042	0.500	0.471	0.457	85.8	83.0	3	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meaga MariamDATE: 3/12/92APPROVED BY: Cynthia SilvestriDATE: 3/12/92

SPL ICP (METHOD 6010/200.7) STANDARD QC FORM

DATE: 3/9/92TIME: 1146FILE: A0329ANALYST: PR# SAMPLES IN SET: 38 39 CSUNITS: mg/L

SAMPLE #'s IN SET: 3045 1E-5E 3053 1A, 2A 3037 1B 3098 1B
2466 1d 2470-1C, 3048 4C 2479 1A-9A 2490 1A 2454 1C 2493 3C
2483 1A, 2A 2485 1A, 2A 2493 4C 7d 3107 1d-8d 3096 1B 1D

TEST CODE	IDL	BLANK		STANDARD	
		EM	CONC	EM	CONC
BA	0.006	0.000	0.00	4.35	10.00
C	0.02	0.004		3.69	
ZN	0.02	0.024		4.89	
Ag	0.02	-0.001		3.33	
PB	0.2	0.016		0.992	
FL	0.03	0.003		4.61	
Mg	0.2	0.000		0.855	
NA	0.2	0.050	✓	2.81	✓

REVIEWED BY: Meagan MarlamAPPROVED BY: Arthur SchmeiderDATE: 3/10/92DATE: 3/10/92

SPL ICP CALIBRATION VERIFICATION

ID	TEST CODE	TRUE CONC.	FOUND CONC.	% RECOVERY	QC LIMITS	
					UPPER	LOWER
Icv	BA	5.00	5.22	104.4	110?	90?
	Ce	5.52	5.54	100.4		
	Zn	5.00	5.01	100.2		
	Ag		5.46	109.2		
	PB		5.13	102.6		
	Fe		5.33	106.6		
	Mg		4.90	98.0		
✓	NA	✓	5.03	100.6		
CCV1	BA	5.00	5.28	105.6		
	Ce	5.52	5.61	101.6		
	Zn	5.00	5.08	101.6		
	Ag		5.49	109.8		
	PB		5.19	103.8		
	Fe		5.39	107.8		
	Mg		4.94	98.8		
✓	NA	✓	5.06	101.2		
CCV2	BA	5.00	5.26	105.2		
	Ce	5.52	5.60	101.4		
	Zn	5.00	5.08	101.6		
	Ag		5.45	109.0		
	PB		5.16	103.2		
	Fe		5.38	107.6		
✓	Mg	✓	4.93	98.6	✓	✓

CALCULATION: % RECOVERY = $\frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$

REVIEWED BY: Meaga MarianAPPROVED BY: Cynthia SchreinerDATE: 3/10/92DATE: 3/10/92

SPL ICP CALIBRATION VERIFICATION

ID	TEST CODE	TRUE CONC.	FOUND CONC.	% RECOVERY	QC LIMITS	
					UPPER	LOWER
CCV2	NA	5.00	5.17	103.4	110.8	90.2
CC-V3	BA	5.00	5.22 5.27	104.4 105.4		
	Ca	5.52	5.60	101.4		
	Zn	5.00	5.08	101.6		
	Ag		5.41	108.2		
	Pb		5.20	104.0		
	Fe		5.37	107.4		
	Mg		4.97	99.4		
↓	NA	↓	5.35	107.0		
CCV4	BA	5.00	5.11	102.2		
↓	Ca	5.52	5.56	100.7		
CCV5	BA	5.00	4.92	98.4		
↓	Ca	5.52	5.49	99.5		
	NA	5.00	5.10	102.0		
↓	Mg	4.83 4.83	4.83	99.6 96.6		
CC-V6	BA	5.00	4.98	99.6		
	Ca	5.52	5.44	98.6		
	Zn	5.00	5.01	100.2		
	Ag		5.37	107.4		
	Pb		5.16	103.2		
	Fe		5.20	104.0		
	Mg		4.78	95.6		
↓	NA	↓	4.91	98.2	↓	↓

CALCULATION: % RECOVERY = $\frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$

REVIEWED BY: Marya MarianiAPPROVED BY: Amy M. SchumacherDATE: 3/10/92DATE: 3/10/92

SPL ICP CALIBRATION VERIFICATION

ID	TEST CODE	TRUE CONC.	FOUND CONC.	% RECOVERY	QC LIMITS	
					UPPER	LOWER
CCV7	BA	5.00	4.99	99.8	110.2	90.2
↓	Ca	5.52	5.48	99.3		
	Zn	5.00	5.06	101.2		
	Ag		5.27 5.24	105.4		
	Pb		5.18	103.6		
	Fe		5.23	104.6		
	Mg		4.82	96.4		
Y	NA	Y	4.89	97.8		
CCV8	BA	5.00	4.86	97.2		
↓	Ca	5.52	5.40	97.8		
CCV9	BA	5.00	4.86	97.2		
↓	Ca	5.52	5.40	97.8	Y	Y
PB 3/5	BA	0.0	ND	N/A	0.006	-0.006
	Ca				0.02	-0.02
	Zn				0.02	-0.02
	Ag				0.02	-0.02
	Pb				0.2	-0.2
	Fe				0.03	-0.03
	Mg				0.2	-0.2
Y	NA	Y	Y	Y	0.2	-0.2

CALCULATION: % RECOVERY = $\frac{(\text{FOUND CONC.})}{(\text{TRUE CONC.})} \times 100$

REVIEWED BY: Melissa MarianiAPPROVED BY: Cynthia SchinnerDATE: 3/10/92DATE: 3/10/92

SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
3045 SE	BA	0.063	0.071	12	20	1
	CA	NP	NP	N/A	20	
	Zn				20	
	Ag				20	
	PB				20	
	Fe	↓	↓	↓	20	
	Mg	17.4	19.0	9	20	
↓	NA	15.2	16.7	9	20	↓
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC % R.	
3045 SE	BA	0.063	2.00	2.06	2.08	99.8	100.8	1	75-125	20
	CA	NP	0.200	0.187	0.199	93.5	99.5	6	75-125	20
	Zn		0.500	0.460	0.472	92.0	94.4	3	75-125	20
	Ag		0.050	0.055	0.062	110.0	124.0	12	75-125	20
	PB		0.500	0.458	0.505	91.6	101.0	10	75-125	20
	Fe	↓	1.00	0.939	0.986	93.9	98.6	5	75-125	20
	Mg	17.4	10.0	26.4	26.9	90.0	95.0	2	75-125	20
↓	NA	15.2	↓	23.7	24.1	85.0	99.0	2	75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Melissa MarianiAPPROVED BY: Amy L. SchinnerDATE: 3/10/92DATE: 3/10/92

FILE: A0304MATRIX: TELP- OTHERANALYSIS DATE: 3/9/92SPL ICP DUPLICATES DATA

SAMPLE ID	TEST CODE	#1	#2	RPD (%)	QC LIMITS	DILUTION
2470 1c	BA	0.235	0.236	0	20	1
↓	Ca	NP	NP	N/A	20	1
					20	
					20	
					20	
					20	
					20	
					20	
					20	
					20	

$$\text{RELATIVE PERCENT DIFFERENCE} = \text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPL ICP MATRIX SPIKE DATA

SAMPLE ID	TEST CODE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPI
2470 1c	BA	0.235	2.00	2.00	2.03	88.2	89.8	1	75-125	20
↓	Ca	NP	0.200	0.162	0.166	81.0	83.0	2	75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20
									75-125	20

$$\% \text{ RECOVERY} = \frac{(\text{SPIKED SAMPLE RESULT} - \text{SAMPLE RESULT})}{(\text{SPIKE ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: Aytha Schenker

DATE:

3/10/92

DATE:

3/10/92

SPL AA QC FORM

TEST CODE: CdDATE: 3/13/92ANALYST: JmMETHOD: FLAATIME: 12:09DETECTION LIMIT: 0.03# SAMPLES IN SET: 6UNITS: mg/LSAMPLE #'S IN SET: 02447-5C ; 02493-1C, 2C, 5C, 4C ; 03049-1C
(03099-1C QC only)

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.010	0.000	0.000	—	—	—
#1	0.046	0.200	0.200	100.0	105%	95%
#2	0.115	0.499	0.500	99.8	↓	↓
#3	0.215	0.984	1.000	98.4	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.814	101.8	110%	90%
LCS	1.000	0.928	92.8	120%	80%
CCV	0.500	0.520	104.0	110%	90%
CC _{1/2}	↓	0.515	103.0	↓	↓
PB 3 ₁₁	0	NA	NA	0.03	-0.03
PB 3 ₁₀	↓	↓	↓	↓	↓
PB 3 ₁₀ EXT	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meaga MariamAPPROVED BY: Arthur SchreinerDATE: 3/13/92DATE: 3/13/92

SPL AA QC FORM

TEST CODE: CdDATE: 3/9/92ANALYST: JmMETHOD: FLAATIME: 15:50DETECTION LIMIT: 0.03# SAMPLES IN SET: 17UNITS: mg/LSAMPLE #'S IN SET: 02461-1A; 02483-1A, 2A; 02485-1A, 2A; 02490-1A; 02454-1C;
02470-1C; 02481-1C; 02493-3C, 4C, 7D; 03045-1E-5E

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	-0.071	0.000	0.000	—	—	—
#1	0.047	0.300	0.300	100.0	105%	95%
#2	0.108	0.493	0.500	98.6	↓	↓
#3	0.207	0.986	1.000	98.6	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	0.800	0.782	97.8	110%	90%
LCS	1.000	0.937	93.7	120%	80%
CCN ₁	0.500	0.510	102.0	110%	90%
CCN ₂	↓	0.515	103.0	↓	↓
CCN ₃	↓	0.496	99.2	↓	↓
CCN ₄	↓	0.511	102.2	↓	↓
CCN ₅	↓	0.512	102.4	↓	↓
PB 3/5	0	N/D	NA	0.03	-0.03
PB 3/6	↓	↓	↓	↓	↓
PB 3/5	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Mary MardamAPPROVED BY: Cynthia SchermerDATE: 3/10/92DATE: 3/10/92

TEST: CdMATRIX: TOP- soilANALYSIS DATE: 3/9/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02461-1A	ND	ND	NA	20	1
02490-1A	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02461-1A	ND	0.050	0.049	0.049	98.0	98.0	0	75 - 125	20
02490-1A	ND	↓	0.055	0.056	110.0	112.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Mearza MariamAPPROVED BY: Cynthia SchreinerDATE: 3/10/92DATE: 3/10/92

TEST: CdMATRIX: TRIP-OtherANALYSIS DATE: 3/9/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02481-1C	ND	ND	NA	20	1
02470-1C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02481-1C	ND	0.050	0.049	0.056	98.0	112.0	13	75 - 125	20
02470-1C	↓	↓	0.049	0.048	98.0	96.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: Cynthia SchuenerDATE: 3/10/92DATE: 3/10/92

TEST: CdMATRIX: ICLP- liquidANALYSIS DATE: 3/9/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02493-3C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02493-3C	ND	0.050	0.053	0.050	106.0	100.0	6	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meara MarlamAPPROVED BY: Cynthia SchreinerDATE: 3/10/92DATE: 3/10/92

TEST: CdMATRIX: waterANALYSIS DATE: 3/9/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
03045-5E	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
03045-5E	ND	0.050	0.049	0.055	98.0	110.0	12	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MaximDATE: 3/10/92APPROVED BY: William SchenneyDATE: 3/10/92

SPL AA QC FORM

TEST CODE: HgDATE: 3/10/92ANALYST: JmMETHOD: CVATIME: 9.53DETECTION LIMIT: 0.6# SAMPLES IN SET: 21UNITS: ug/LSAMPLE #'S IN SET: 02483-1A, 2A ; 02485-1A, 2A ; 02493-1C-6C, 7D ;
03084-7A, 8A ; 03097-1A-6A ; 03098-7A, 8A

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.003	0.00	0.00	—	—	—
#1	0.017	0.50	0.50	100.0	105%	95%
#2	0.034	1.00	1.00	100.0	↓	↓
#3	0.145	4.95	5.00	99.0	↓	↓
#4	0.285	9.94	10.00	99.4	↓	↓
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	2.50	2.70	108.0	120%	80%
LCS	2.00	2.17	108.5	↓	↓
CCV ₁	2.50	2.65	106.0	↓	↓
CCV ₂	↓	2.53	101.2	↓	↓
CCV ₃	↓	2.51	100.4	↓	↓
CCV ₄	↓	2.49	99.6	↓	↓
CCV ₅	↓	2.51	100.4	↓	↓
PB water	0	ND	NA	0.6	-0.6
PB ^{EXT} #1	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meara MarianiAPPROVED BY: Cynthia SchmeelDATE: 3/10/92DATE: 3/10/92

TEST:

Hg

MATRIX:

ICUP- Soil

ANALYSIS DATE:

3/10/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02493-1C	ND	ND	NA	20	4
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02493-1C	ND	2.00	2.11	2.16	105.5	108.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meera Mariani

APPROVED BY:

Cynthia Schreiner

DATE:

3/10/92

DATE:

3/10/92

TEST: HgMATRIX: 7CUP-liquidANALYSIS DATE: 3/10/92

SPL AA, DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02493-3C	ND	ND	NA	20	4
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02493-3C	ND	2.00	2.20	2.05	110.0	102.5	7	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meara MorrisonDATE: 3/10/92APPROVED BY: Cy. Alvin SchreinerDATE: 3/10/92

SPL AA QC FORM

TEST CODE: PbDATE: 3/13/92ANALYST: JmMETHOD: FLAATIME: 11:15DETECTION LIMIT: 0.3# SAMPLES IN SET: 6UNITS: mg/LSAMPLE #'S IN SET: 02447-5C, 02443-1C, 2C, 5C, 6C; 03049-1C

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.051	0.00	0.00	—	—	—
#1	0.010	0.50	0.50	100.0	105%	95%
#2	0.017	0.98	1.00	98.0	↓	↓
#3	0.033	1.98	2.00	99.0	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	1.00	1.01	101.0	110%	90%
LCS	↓	0.97	97.0	120%	80%
CCV ₁	↓	1.03	103.0	110%	90%
CCV ₂	↓	0.98	98.0	↓	↓
PB 3/11	0	ND	NA	0.3	-0.3
PB 3/10	↓	↓	↓	↓	↓
PB 3/10 EXT #2	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$
REVIEWED BY: Neaga MardamAPPROVED BY: Cynthia SchreinerDATE: 3/13/92DATE: 3/13/92

TEST: PbMATRIX: TCUP- soilANALYSIS DATE: 3/13/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02447-5C	ND	ND	NA	20	1
03099-1C	↓	↓	↓	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02447-5C	ND	0.50	0.44	0.47	88.0	94.0	7	75 - 125	20
03099-1C	↓	↓	0.49	0.48	98.0	96.0	2	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: Cynthia SchreinerDATE: 3/13/92DATE: 3/13/92

SPL AA QC FORM

TEST CODE: PbDATE: 3/9/92ANALYST: JmMETHOD: FLAATIME: 14:15DETECTION LIMIT: 0.3# SAMPLES IN SET: 27UNITS: mg/LSAMPLE #'S IN SET: 02461-1A; 02483-1A,2A; 02485-1A,2A; 02490-1A; 03023-4A
03025-6A; 02454-1C; 02470-1C; 02481-1C; 02493-3C,4C,7D; 03020-1C-7C; 03001-1A
03045-1E-5E

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.002	0.00	0.00	—	—	—
#1	0.009	0.50	0.50	100.0	105%	95%
#2	0.017	0.98	1.00	98.0	↓	↓
#3	0.035	2.01	2.00	100.5	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	1.00	0.97	97.0	110%	90%
LCS		0.97	97.0	120%	80%
CCV ₁		0.93	93.0	110%	90%
CCV ₂		0.92	92.0		
CCV ₃		0.90	90.0		
CCV ₄		0.96	96.0		
CCV ₅		0.91	91.0		
CCV ₆	↓	0.92	92.0	↓	↓
PB 3/5	0	ND	NA	0.3	-0.3
PB 3/6	↓	↓	↓	↓	↓
PB 3/3	↓	↓	↓	↓	↓

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Meaga MarianiAPPROVED BY: Agatha SchenckDATE: 3/10/92DATE: 3/10/92

TEST: PbMATRIX: ICUP- soilANALYSIS DATE: 3/9/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02461-1A	ND	ND	NA	20	1
02490-1A	0.32 NA gm	0.34 NA gm	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02461-1A	ND	0.50	0.51	0.46	102.0	92.0	10	75 - 125	20
02490-1A	0.32 NA gm	↓	0.80	0.81	96.0	98.0	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarianiAPPROVED BY: Cynthia ShreinerDATE: 3/10/92DATE: 3/10/92

TEST: PbMATRIX: ICUP- OtherANALYSIS DATE: 3/9/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02481-1C	ND	ND	NA	20	1
02470-1C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02481-1C	ND	0.50	0.53	0.52	106.0	104.0	2	75 - 125	20
02470-1C	ND	↓	0.44	0.47	88.0	94.0	7	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meaga MariamAPPROVED BY: Cynthia SchreinerDATE: 3/10/92DATE: 3/10/92

TEST: PbMATRIX: TCLP-liquidANALYSIS DATE: 3/9/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02493-3C	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02493-3C	ND	0.50	0.47	0.43	94.0	86.0	9	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Megga MarlamAPPROVED BY: Capt. Thua SchreinerDATE: 3/10/92DATE: 3/10/92

TEST: PbMATRIX: waterANALYSIS DATE: 3/9/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
03045-5E	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
03045-5E	ND	0.50	0.41	0.41	82.0	82.0	0	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Margo MaxhamAPPROVED BY: Cynthia SchreinerDATE: 3/10/92DATE: 3/10/92

03/2B

SPL AA QC FORM

EST CODE: SCDATE: 3/12/98ANALYST: WFLMETHOD: GFAATIME: 14:13DETECTION LIMIT: 6SAMPLES IN SET: 18UNITS: ug/L

SAMPLE = 'S IN SET: 03074-1c; 03001-1A; 02484-1A-4A; 5B; 03045-1E-5E;
02447-5c; 02493-1c, 2c, 5c, 6c; 03049-1c.

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.001	0.0	0.0	NA	—	—
#1	0.096	25.0	25.0	100.0%	105.0%	95.0%
#2	0.188	49.8	50.0	99.6%		
#3	0.372	99.8	100.0	99.8%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	74.9	99.9%	110.0%	90.0%
LCS	30.0	34.5	115.0%	120.0%	80.0%
CCV ₁	50.0	52.9	105.8%	110.0%	90.0%
CCV ₂		50.0	100.0%		
CCV ₃		49.2	98.4%		
CCV ₄		49.5	99.0%		
CCV ₅		47.9	95.8%		
CCV ₆					
PB3/6	0	ND	NA	+6	-6
PB3/11	0	ND	NA	+6	-6

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$$

REVIEWED BY: Marya MarianiAPPROVED BY: Cynthia SchenckDATE: 3/13/98DATE: 3/13/98

TEST:

SO

MATRIX:

Water

ANALYSIS DATE:

3/13/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
03045-1E	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
03045-1E	ND	30.0	28.4	30.9	94.7%	103.0%	8	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meagan Mariani

APPROVED BY:

Cynthia Schirmer

DATE:

3/13/92

DATE:

3/13/92

TEST:

SC

MATRIX:

TCIP-soil

ANALYSIS DATE:

3/13/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02447-5c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPI
02447-5c	ND	30.0	18.8	16.7	62.7%	55.7%	12	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
* - Matrix Interference								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Margo M. M. M.

APPROVED BY:

Cynthia Schuler

DATE:

3/13/92

DATE:

3/13/92

0313B

SPL AA QC FORM

EST CODE: SCDATE: 3/13/92ANALYST: WFLMETHOD: GFAATIME: 10:22DETECTION LIMIT: 6SAMPLES IN SET: 20UNITS: ug/LSAMPLE #'S IN SET: 03168-2c, 3B, 6c, 7c, 11c, 13c; 02463-1A; 02470-1c;
02481-1c; 02493-3c, 4c, 7c; 03107-1B-8B

STANDARDS	EM, %T, ABS.	ACTUAL CONC.	THEORET. CONC.	%RECOVERY	UPPER LIMIT	LOWER LIMIT
BLANK	0.001	0.0	0.0	NA	—	—
#1	0.068	25.0	25.0	100.0%	105.0%	95.0%
#2	0.144	50.7	50.0	101.4%	↓	↓
#3	0.267	98.6	100.0	98.6%	↓	↓
#4						
#5						

CONTINUING CALIBRATION

ID	THEORETICAL	ACTUAL	% RECOVERY	UPPER LIMIT	LOWER LIMIT
ICV	75.0	76.2	101.6%	110.0%	90.0%
LCS	30.0	29.8	99.3%	120.0%	80.0%
CCV ₁	50.0	50.5	101.0%	110.0%	90.0%
CCV ₂		48.2	96.4%		
CCV ₃		47.5	95.0%		
CCV ₄		49.6	99.2%		
CCV ₅		49.7	99.4%		
CCV ₆	↓	50.5	101.0%	↓	↓
PB311	0	ND	NA	+6	-6
PB316	0	ND	NA	+6	-6

RECOVERY = $\frac{(\text{ACTUAL})}{(\text{THEORETICAL})} \times 100$ REVIEWED BY: Marga MarianiAPPROVED BY: Cynthia SchmeesDATE: 3/16/92DATE: 3/16/92

TEST: SeMATRIX: TCLP-otherANALYSIS DATE: 3/13/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02470-1c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	%RPD
02470-1c	ND	30.0	24.7	26.3	82.3%	87.7%	6	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meaga MarianiDATE: 3/16/92APPROVED BY: Cynthia SchmeiserDATE: 3/16/92

TEST: SeMATRIX: soilANALYSIS DATE: 3/13/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
03168-2c	MS	MS	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPD
03168-2c	MS	30.0	28.3	28.6	94.3%	95.3%	1	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY: Meagan MarionAPPROVED BY: Capt. Steve ShinerDATE: 3/16/92DATE: 3/16/92

TEST:

As

MATRIX:

TCLP-Filtered

ANALYSIS DATE

3/13/92

SPL AA DUPLICATE AND SPIKE DATA

DUPLICATES	#1	#2	RPD (%)	RPD QC LIMIT	DILUTION
02493-3c	ND	ND	NA	20	1
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	
				20	

$$\text{RELATIVE PERCENT DIFFERENCE (RPD)} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

SPIKED SAMPLE	SAMPLE CONC.	SPIKE ADDED	MS CONC	MSD CONC	MS % REC	MSD % REC	RPD (%)	QC LIMITS % REC	% RPI
02493-3c	ND	30.0	25.3	26.0	84.3%	86.7%	3	75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20
								75 - 125	20

$$\% \text{ RECOVERY} = \frac{(\text{ACTUAL} - \text{ORIGINAL})}{(\text{AMT. ADDED})} \times 100$$

REVIEWED BY:

Meaza Mariam

APPROVED BY:

Cynthia Schenker

DATE:

3/16/92

DATE:

3/16/92



**** SPL QUALITY CONTROL REPORT ****
TOTAL PETROLEUM HYDROCARBONS (TPH)

SPL sample Id: BLANK
Matrix: WATER

Reported on: 03/18/92
Analyzed on: 03/03/92

This sample was randomly selected for use in the SPL quality control program. One in ten samples is fortified with a known concentration of the substance being analyzed and one in ten samples is analyzed in duplicate. The result are as follows:

-- SPIKE ANALYSIS --

Sample Id	Blank Value	Spike Added mg/L	Original Sample Concentration mg/L	MS Concentration mg/L	MS % Rec
BLANK	ND	361	ND	358	99

-- SPIKE DUPLICATE ANALYSIS --

Sample Id	Spike Added mg/L	MSD Concentration mg/L	MSD % Rec	% RPD
BLANK	361	338	94	6

SPL, Incorporated

Cynthia Schreiner, QC Officer



**** SPL QUALITY CONTROL REPORT ****
TOTAL PETROLEUM HYDROCARBONS (TPH)

SPL sample Id: F202488-06B
Matrix: SOIL

Reported on: 03/18/92
Analyzed on: 03/02/92

This sample was randomly selected for use in the SPL quality control program. One in ten samples is fortified with a known concentration of the substance being analyzed and one in ten samples is analyzed in duplicate. The result are as follows:

-- SPIKE ANALYSIS --

Sample Id	Blank Value	Spike Added mg/L	Original Sample Concentration mg/Kg	MS Concentration mg/Kg	MS % Rec
F202488-06B	ND	361	ND	343	95

-- SPIKE DUPLICATE ANALYSIS --

Sample Id	Spike Added mg/L	MSD Concentration mg/Kg	MSD % Rec	% RPD
F202488-06B	361	350	97	2

SPL, Incorporated

Cynthia Schreiner, QC Officer



8880 Interchange Drive, Houston, Texas 77054 713/660-0901

Wet Chemistry QA/QC Validation Report

Test Code pHDate 03-03-92Analyst DSEMethod 150.1Time 8:00 AMMatrix LIQUID# Of Samples in Set 20Detection Limit NONE

Sample #'s in Set	203011 - 01C	203014 - 01C	203017 - 01C	202483 - 01C, 2C	Units <u>pH UNITS</u>
	203012 - 01C	203015 - 01C	203018 - 01C	202485 - 01C, 02C	
	203013 - 01C	203016 - 01C	203019 - 01A, 05E, 7A, 10A, 14D	202493 - 03B, 04B, 07B	

Standards	EM, %T, ABS.	Actual Concentration	Theoretical Concentration	% Recovery	Upper Limit	Lower Limit
Blank <u>Buffers</u>						
#1 4.00		4.00	4.00	100.0	4.29	3.87
#2 7.00		6.97	7.06	99.6	7.07	6.95
#3 10.00		10.00	10.00	100.0	10.12	9.94
#4		TEMP: 21°C			SLOPE: 100.5	
Check Std.	CALIBRATED with 4.00 & 10.00 Buffers					

Duplicate	#1	#2	RPD (%)	Upper Limit	Lower Limit	Dilution
203012 - 01C	6.94	6.94	0	1.20	0.90	
202485 - 02C	7.09	7.09	0	1.20	0.90	
202493 - 07B	7.13	7.13	0	1.20	0.90	
203019 - 01A	7.50	7.50	0	1.20	0.90	
203019 - 10A	7.26	7.26	0	1.20	0.90	

Spike Sample	Concentration Before Spike	Amount Added	Concentration After Spike	After - Before	% Recovery	Upper Limit	Lower Limit
<u>N/A</u>							

Spike Recovery Calculation

$$\text{Recovery} = \frac{(\text{Actual} - \text{Original}) \times 100}{\text{Amount Added}}$$

viewed By Richard Clark

3/4/92

Relative Percent Difference Calculation

$$\text{RPD} = \frac{(\#1 - \#2) \times 100}{(\#1 + \#2)(0.5)}$$

Approved By Capt. [Signature]

- 1/1/92

Analysis Request and Chain of Custody Record

Toxcon Engineering Company, Inc.

3334 Richmond Ave., #200

Houston, Texas 77098

(713) 520-7667

[illegible]

SPL HOUSTON ENVIRONMENTAL LABORATORY

SAMPLE LOGIN CHECKLIST

DATE: 2/29/92 TIME: 12:30 CLIENT NO. _____
 LOT NO. _____ CONTRACT NO. _____

CLIENT SAMPLE NOS. _____

SPL SAMPLE NOS.: F2-02-493

- | | <u>YES</u> | <u>NO</u> |
|---|-----------------------|------------------------|
| 1. Is a Chain-of-Custody form present? | <u>X</u> | |
| 2. Is the COC properly completed? | <u>X</u> | |
| If no, describe what is incomplete:

_____ | | |
| If no, has the client been contacted about it?
(Attach subsequent documentation from client about the situation) | | |
| 3. Is airbill/packing list/bill of lading with shipment? | <u>X</u> | |
| If yes, ID#: <u>Fedex</u> | | |
| 4. Is a USEPA Traffic Report present? | | <u>X</u> |
| 5. Is a USEPA SAS Packing List present? | | <u>X</u> |
| 6. Are custody seals present on the package? | <u>X</u> | |
| If yes, were they intact upon receipt? | | |
| 7. Are all samples tagged or labeled? | <u>X</u> | |
| Do the sample tags/labels match the COC? | <u>X</u> | |
| If no, has the client been contacted about it?
(Attach subsequent documentation from client about the situation) | | |
| 8. Do all shipping documents agree? | <u>X</u> | |
| If no, describe what is in nonconformity:

_____ | | |
| 9. Condition/temperature of shipping container: | <u>good 24°C</u> | |
| 10. Condition/temperature of sample bottles: | <u>intact 22°C</u> | |
| 11. Sample Disposal?: | SPL disposal <u>X</u> | Return to client _____ |

NOTES (reference item number if applicable):
ph out of hold time upon arrival

ATTEST: [Signature] DATE: 2/29/92
 DELIVERED FOR RESOLUTION: REC'D _____ DATE: _____
 RESOLVED: _____ DATE: _____

February 1992 Investigation
(Total Dissolved Solids)



SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: F2-04-076

Approved for release by:

M Scott Sample Date: 4/9/92

S. Sample, Project Management Supervisor

Cyrtlind Schreiner Date: 4/9/92

C. Schreiner, Quality Assurance Manager



8880 Interchange Drive, Houston, Texas 77054 713/660-0901

CASE NARRATIVE

QUALITY CONTROL RESULTS SUMMARY

WORK ORDER NO(S):: F2-04-076

SAMPLE NO(S):: -01A to -04A

Water samples F2-04-076 -01A to -04A were analyzed for Total Dissolved Solids by USEPA method 160.1. The samples were received after the maximum holding time had expired. In addition, sample -04A was preserved with hydrochloric acid. Method 160.1 does not specify a preservative other than to cool samples to 4 °C.


Cynthia Schreiner
Quality Assurance Manager



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F204076-01A
Invoice #: 406863
Report Date: 04/08/92

Project No. 504867.00
MW1 022792

Date Received: 04/03/92
Date Collected: 02/27/92 18:00:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Total Dissolved Solids METHOD 160.1	801 mg/L	1	04/06/92	DSE

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F204076-02A
Invoice #: 406863
Report Date: 04/08/92

Project No. 504867.00
MW2 022892

Date Received: 04/03/92
Date Collected: 02/28/92 12:10:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Total Dissolved Solids METHOD 160.1	1680 mg/L	1	04/06/92	DSE

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F204076-03A
Invoice #: 406863
Report Date: 04/08/92

Project No. 504867.00
MW3 022892

Date Received: 04/03/92
Date Collected: 02/28/92 12:30:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Total Dissolved Solids METHOD 160.1	1140 mg/L	1	04/06/92	DSE

SPL ENVIRONMENTAL LABORATORIES, INC.



Simon Hydro-Search
3334 Richmond Ave.
Suite 200
Houston, TX 77098
Attn: Roger Pokluda

F204076-04A
Invoice #: 406863
Report Date: 04/08/92

Project No. 504867.00
WW2 2492

Date Received: 04/03/92
Date Collected: 02/24/92 12:10:00

Test Name Method	Result Units	Detection Limit	Date Started	Analyst
Total Dissolved Solids METHOD 160.1	1140 mg/L	1	04/06/92	DSE

SPL ENVIRONMENTAL LABORATORIES, INC.



8880 Interchange Drive, Houston, Texas 77054 713/660-0901

Wet Chemistry QA/QC Validation Report

Test Code TDSDate 4-6-92Analyst DSEMethod 160.1Time 11:00 AMMatrix LIQUID# Of Samples in Set 5Detection Limit 1

Sample #'s in Set	<u>204035-01C</u>	<u>204076-01A-04A</u>			Units <u>Mg/L</u>

Standards	EM, %T, ABS.	Actual Concentration	Theoretical Concentration	% Recovery	Upper Limit	Lower Limit
Blank		<u>0.0002</u>	<u>0.0000</u>	<u>ND</u>	<u>NA</u>	<u>NA</u>
#1						
#2						
#3						
#4						
Check Std.						

Duplicate	#1	#2	RPD (%)	Upper Limit	Lower Limit	Dilution
<u>204076-01A</u>	<u>802</u>	<u>799</u>	<u>0.37</u>	<u>7.6</u>	<u>5.6</u>	<u>1</u>

Spike Sample	Concentration Before Spike	Amount Added	Concentration After Spike	After - Before	% Recovery	Upper Limit	Lower Limit
<u>N/A</u>							

Spike Recovery Calculation

$$\% \text{ Recovery} = \frac{(\text{Actual} - \text{Original})}{\text{Amount Added}} \times 100$$

Relative Percent Difference Calculation

$$\text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

Reviewed By Maria G. VillarrealApproved By Capt. Alan SchulerDate 4/7/92Date 4/7/92

COPIES IN FILE - REF - 202440 - 2024193
204076 TOXENG 770580

Page _____ of _____



Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.		Client/Project Name		Project Location							
504867.00		BAKER OIL TOOLS		HOBBS, NEW MEXICO							
Field Sample No./ Identification	Date and Time	Lab	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS				
MW1022792	2/23/92 18:00		Glass	WATER	NONE	TDS	Needs hold				
MW2022892	2/28/92 12:10					TDS	Time Narration				
MW3022892	2/28/92 12:30					TDS					
MW22292	2/24/92 12:10		Glass	WATER	NONE	TDS					
Samplers: (Signature)		Relinquished by: (Signature)		Date: 4/3/92 Time: 4:00		Received by: (Signature)		Date: Time:		Intact	
		P. Martinez									
		Relinquished by: (Signature)		Date: Time:		Received by: (Signature)		Date: Time:		Intact	
Affiliation		Relinquished by: (Signature)		Date: Time:		Received by: (Signature)		Date: Time:		Intact	
		4/3/92-4:00									
SAMPLER REMARKS:		Received for Laboratory (Signature)		Date: 4/13 Time: 16:30		Received by: (Signature)		Date: Time:		Laboratory No. 412	
Seal #		Data Results to:									

SPL HOUSTON ENVIRONMENTAL LABORATORY

SAMPLE LOGIN CHECKLIST

DATE: 4/3/92 TIME: 7:30 CLIENT NO. TOXENG
 LOT NO. _____ CONTRACT NO. _____

CLIENT SAMPLE NOS. F204076

SPL SAMPLE NOS.: _____

- | | <u>YES</u> | <u>NO</u> |
|---|-----------------------|------------------------|
| 1. Is a Chain-of-Custody form present? | <u>✓</u> | |
| 2. Is the COC properly completed? | <u>✓</u> | |
| If no, describe what is incomplete: | | |
| _____ | | |
| _____ | | |
| If no, has the client been contacted about it? _____ | | |
| (Attach subsequent documentation from client about the situation) | | |
| 3. Is airbill/packing list/bill of lading with shipment? | <u>✓</u> | |
| If yes, ID#: <u>By client / samples in hand</u> | | |
| 4. Is a USEPA Traffic Report present? | | <u>✓</u> |
| 5. Is a USEPA SAS Packing List present? | | <u>✓</u> |
| 6. Are custody seals present on the package? | | <u>✓</u> |
| If yes, were they intact upon receipt? | | |
| 7. Are all samples tagged or labeled? | <u>✓</u> | |
| Do the sample tags/labels match the COC? | | |
| If no, has the client been contacted about it? | | |
| (Attach subsequent documentation from client about the situation) | | |
| 8. Do all shipping documents agree? | <u>✓</u> | |
| If no, describe what is in nonconformity: | | |
| _____ | | |
| 9. Condition/temperature of shipping container: | <u>good 4°C</u> | |
| 10. Condition/temperature of sample bottles: | <u>Intact</u> | |
| 11. Sample Disposal?: | SPL disposal <u>✓</u> | Return to client _____ |

NOTES (reference item number if applicable): (X)
Samples need Hold Time Narrative

ATTEST: Good / Canale DATE: 4/3/92
 DELIVERED FOR RESOLUTION: REC'D _____ DATE: _____
 RESOLVED: _____ DATE: _____

**SUMMARY
REPORT
SITE
INVESTIGATION**

RECEIVED

JUN 18 1992

OIL CONSERVATION DIV.
SANTA FE

Summary Report
Site Investigation
Baker Oil Tools Facility
2800 W. Marland
Hobbs, New Mexico
June, 1992

Prepared by:
Simon Hydro-Search
3334 Richmond Ave, Suite 200
Houston, Texas 77098

SUMMARY REPORT
BAKER OIL TOOLS
2800 W. MARLAND
HOBBS, NEW MEXICO

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LIST OF APPENDICES

<u>Appendix</u>	<u>Description</u>
A	Figures
B	Stratigraphic Logs
C	Well Construction Diagrams
D	Summary Tables of Analytical Results
E	HNU Readings: Soil
F	Water Well Records
G	Certified Analytical Results and Chain of Custody (under separate cover)

SCOPE OF WORK

The December 19-20, 1991, and the February 24-28, 1992, field investigations conducted by Simon Hydro-Search, Inc. (Simon) at the referenced facility included the following:

- (1) Visual inspection and integrity test of interior sump;
- (2) Collection of liquid and solid phase samples of interior sump contents;
- (3) Removal of tubing string and downhole pump from water well;
- (4) Collection of groundwater samples from water well;
- (5) Completion of 12 soil borings and collection of soil samples;
- (6) Collection of background soil samples;
- (7) Installation, development, and sampling of three monitor wells;
- (8) Submittal of collected samples for laboratory analysis;
- (9) Preparation of this investigation report.

BACKGROUND AND PRELIMINARY WORK

Baker Oil Tools (Baker) currently operates an oilfield service tool rental facility at 2800 W. Marland in Hobbs, New Mexico. The site occupies approximately 1.01 acres. Topography at the site is relatively flat. During the operation of the business, tools from the oilfield are brought to the facility, cleaned, and refurbished for reuse. Wastewater generated from this washing operation contains heavy crude distillates, leaded grease sediments, and crude oil (5%) in an aqueous suspension (95%). Historically, the wastewater flowed initially to an interior sump (approximately 100 gallon capacity) and finally to the wastewater disposal pit (pit) described later.

Since the latter part of 1991, the wastewater disposal pit no longer receives discharges from the interior sump. Instead, these discharges from the interior sump flow through an exterior, three-chambered oil/water separator (approximately 150 gallon capacity) and then into the municipal sewer system.

The facility is located in a business/residential area and is bounded to the north by undeveloped land, to the east by a private residence and motel, to the south by U.S. Highway 62-180, and to the west by a truck stop/convenience store. The truck stop and convenience store is adjoined to the north by a wholesale fuel supply facility. This facility, which is owned by Keeling Petroleum, includes several aboveground and underground storage tanks.

The relative location of the site is shown in Figure 1 (Appendix A). Figure 2 is a site map with significant site features indicated (Appendix A).

The approximate pit dimensions were 25 feet long, 16 feet wide, and 6 feet deep. A review of available historical aerial photographs of the site indicates that the pit remained this approximate size since it was installed. From discussions with Baker personnel, historical wastewater flow into the pit varied from 0 to 100 gallons per day.

The object of this investigation is to assess the extent of pollutant contamination associated with the operation of the aforementioned wastewater disposal pit.

SITE INVESTIGATION

Interior Sump

Prior to the inspection of the interior sump, Baker personnel transferred the liquid and solid contents of the sump into a clean, sealable, 55-gallon drum during the week of December 16, 1991. The drum and its contents were stored on-site pending laboratory analysis.

During the visual inspection of the interior sump on December 19, 1991, a seam located approximately 3 inches below the shop floor was found that extended around the perimeter of the sump. Along the east wall of the sump, an upper seam was not structurally sound. The seams along the other three sump walls as well as the remainder of the sump appeared to be structurally sound.

Water was placed in the sump at a measured level slightly below the seam and monitored for approximately 24 hours. At the conclusion of the 24-hour test period, the water level in the interior sump remained at the initial level. Thus, the portion of the sump below the seam in the concrete is structurally sound. The approximate location of the sump is shown in Figure 2 (Appendix A).

Separate samples of both the liquid and solid phases of the drummed interior sump contents were collected for laboratory analysis for benzene, toluene, ethylbenzene, and xylenes (BTEX), Total Petroleum Hydrocarbons (TPH), pH, and RCRA metals. The samples were placed into clean, laboratory-supplied containers, sealed, labeled, placed in an ice-filled cooler, and delivered via Federal Express to Southern Petroleum Laboratories (SPL) in Houston, Texas. Simon personnel initiated Chain of Custody documentation of the submitted samples.

Water Well

On December 19, 1991, the tubing string and downhole pump were removed from the on-site water well (WW-1) to allow for the collection of groundwater samples from the well. After the removal of the tubing string and downhole pump, the bottom of the downhole pump was measured to have been set approximately 60 feet below grade. Several hours after the removal of the tubing and pump, the static water level in the well was measured at approximately 31 feet below the top of the 6.75-inch well casing. The depth of the well was measured to be approximately 93 feet. The location of WW-1 is shown in Figure 2 (Appendix A).

Groundwater samples were collected with a clean bailer for analysis for BTEX, TPH, pH, and RCRA metals. The samples were placed in laboratory-supplied containers, sealed, labeled, placed in an ice-filled cooler, and delivered via Federal Express to SPL in Houston, Texas. No visual or olfactory evidence of hydrocarbons was detected in the collected groundwater samples nor on the pump itself. Simon personnel initiated Chain of Custody documentation of the submitted samples.

For safety, a steel plate and 4-inch nipple assembly were welded to the top of the water well casing. A removable polyvinyl chloride (PVC) cap was placed on top of the nipple to permit future groundwater sampling. After the well location was determined, the well was covered with dirt to prevent vandalism.

Wastewater Disposal Pit

During the week of December 16, 1991, the former wastewater disposal pit at the facility was lined with plastic sheeting and backfilled with clean imported sand. The sand was compacted in lifts and brought to surface grade. The purpose of this work was

two-fold. First, the pit was backfilled to permit the collection of soil samples from below the pit. Soil samples were collected with a truck-mounted drilling rig. The condition of the pit before backfilling would have made rig access difficult. In addition, the plastic liner provides an identifiable boundary between the existing pit material and backfilled sand.

Background Soil Samples

Background soil samples BG1 through BG4 were collected at four on-site locations well away from the pit boundary. Each of them was collected with a hand shovel from a depth of 0-1 foot below grade. The shovel was decontaminated before the collection of each sample to prevent possible cross-contamination. Each sampling location was backfilled with the remaining excavated soil. No visual or olfactory evidence of hydrocarbons was observed in any of the background soil samples. The approximate location of each sampling location is shown in Figure 2 (Appendix A).

Each sample was placed in a clean, laboratory-supplied glass container, sealed, labeled, placed in an ice-filled cooler, and delivered via Federal Express to SPL in Houston, Texas. Simon personnel initiated Chain of Custody documentation of the submitted samples. Each sample was analyzed for BTEX, TPH, pH, and TCLP metals.

Soil Boring/Monitor Well Installation

Simon contracted with Professional Service Industries, Inc. (PSI) to drill, sample, and plug the soil borings and to install the monitor wells. Each borehole was drilled and sampled with a truck-mounted drilling rig equipped with hollow stem augers. Due to the difficulty in drilling through the hard native caliche to install

the monitor wells, Simon contracted Larry's Drilling and Pump Co. (Larry's Drilling), a local water well drilling contractor, to drill approximately the initial 28 feet of each monitor well borehole using a truck-mounted air rotary drilling rig. At this approximate depth, loose sands were encountered. PSI then deepened each monitor well borehole to its terminal depth, collected soil samples, and installed each well using their hollow stem auger drilling rig. The location of each soil boring and monitor well is shown in Figure 2 (Appendix A).

Soil Sampling

A total of 12 boreholes were installed. Nine of the boreholes (borings B1 - B9) were used to collect samples and three of the boreholes were used to collect samples and to install three monitor wells (MW1 - MW3). Borings B1 - B6 were installed during the December 19-20, 1991, investigation. Borings B7 - B9 and monitor wells MW1 - MW3 were installed during the February 24-28, 1992, investigation.

All soil samples were collected from each borehole through the use of either the split spoon or Shelby tube sampling method. Upon removal from a given borehole, each sample was immediately divided into representative halves. One half of the sample was prepared, placed in a clean, laboratory-supplied glass container, sealed, labeled, and placed in an ice-filled cooler. The remainder of the sample was placed in a clean plastic bag, labeled, and sealed. Each plastic bag of soil was left at ambient temperature for later screening with a photoionization detector (HNU meter) calibrated to an isobutylene standard.

The collected samples were visually described regarding their lithology, color, moisture content, etc. Based upon field screening results, soil samples were selected for laboratory

analysis. A stratigraphic log of each monitor well borehole is included in Appendix B.

Throughout the investigation, downhole drilling and sampling equipment was decontaminated between sampling depths and drilling locations to prevent possible cross-contamination. Between uses, the split spoon and Shelby tube sampling devices were first scrubbed with a non-phosphate detergent, followed by scrubbing and rinsing with methanol. Between drilling locations, the drilling augers were steam cleaned.

Within the pit, various types of debris and soil were encountered; both visual and olfactory evidence of hydrocarbon-impacted soil was found in borings B5, B6, and B8 which are located within the pit. While scattered pieces of wire were seen in boring B1 (2.5-3 feet) which is located outside of the pit, it appears that the perimeter borings (B1-B4) are located beyond the limits of the former pit.

Borings B1-B6 were backfilled to the ground surface with a cement/bentonite mixture. Soil cuttings from borings B1-B4 were placed in a single, sealable 55-gallon drum, labeled, and stored on-site. The soil cuttings from borings B5 and B6 were each placed in a separate, sealable 55-gallon drum, labeled, and stored on-site pending analytical results.

Since no visual, olfactory, or HNU evidence of hydrocarbon-impacted soil was encountered in boring B7, this borehole was backfilled to the ground surface with the generated soil cuttings. The soil cuttings from MW1-MW3 were placed in clean, sealable, 55-gallon drums, labeled, and stored on-site pending analytical results.

A bentonite seal was placed in boreholes B8 and B9 from their terminal depths to approximately 20 feet below grade, well above the top of the encountered saturated sand interval. A cement/bentonite grout mixture was used to fill the remainder of

each borehole to the ground surface. The purpose of this seal is to lessen the possibility of contaminants migrating vertically along the boreholes and into the shallow groundwater. The soil cuttings from B8 and B9 were placed in clean, sealable, 55-gallon drums, labeled, and stored on-site pending analytical results.

Monitor Well Installation

Three monitor wells, MW1, MW2, and MW3 were installed during the week of February 24, 1992. Each monitor well borehole was drilled to and terminated at the following depths: MW1 to 48 feet; MW2 to 48 feet; and MW3 to 44 feet. At these respective depths, a hard sandstone layer was reached that prevented the advance of the hollow stem drilling augers. Above this sandstone layer, several feet of water-saturated sand had been encountered. A representative of Larry's Drilling indicated that this sandstone layer exists at this approximate depth throughout the Hobbs, New Mexico area and typically is several feet thick.

Regionally, saturated sand is present below the hard sandstone layer to an approximate depth of 200 feet below grade. Since this sandstone layer provides a relatively low-permeability seal between the two saturated sand layers, none of the boreholes were allowed to penetrate it and enter the deeper saturated sand interval. This will prevent the monitor wells from serving as a migration pathway for possible cross-contamination between the water-bearing intervals.

Each monitor well was constructed of new, 4-inch, PVC casing and screen and equipped with a locking cap. A well construction diagram of each installed monitor well is included in Appendix C.

After installation, each well was initially developed with a surge block and then with a submersible pump. Approximately 70 gallons

(i.e. at least three casing volumes) of groundwater were recovered from each monitor well. At the conclusion of well development, the produced water was clear in color and free of visible suspended solids. The produced water was collected in clean, sealable, 55-gallon drums, labeled, and stored on-site pending analytical results.

John W. West Engineering Company, a local licensed surveyor, was contracted to survey the relative elevation of the water well and the newly-installed monitor wells and the location of all wells relative to significant site features. The location of each of these wells is shown in Figure 2 (Appendix A).

Groundwater Sampling

On December 19, 1991, the static water level in WW-1 was measured and recorded after the tubing string and downhole pump were removed. Groundwater samples were collected from the top of the water column in the water well using a clean bailer. Each sample was properly prepared, placed in laboratory-supplied containers, sealed, labeled, packed in an ice-filled cooler, and delivered via Federal Express to SPL in Houston, Texas. The samples were submitted for analysis of TPH, BTEX, pH, and RCRA metals. Simon personnel initiated Chain of Custody documentation of the groundwater samples. No visual or olfactory evidence of hydrocarbon-impacted water was observed in the collected samples.

During the week of February 24, 1992, groundwater samples were collected from each newly-installed monitor well. After each monitor well sufficiently recovered from the development process, the static water level in each well was measured and recorded. The static water levels were again measured on March 2, 1992, for verification.

Also, during the week of February 24, 1992, a second groundwater sample was collected from WW-1. To obtain a representative sample of the groundwater moving through WW-1, approximately 330 gallons (i.e. three casing volumes) of groundwater were purged from it using a submersible pump prior to sample collection. The purged water was collected in clean, sealable, 55-gallon drums, labeled, and left on-site pending analytical results. Prior to purging the water well, the static water level was measured and recorded. The static water level was again measured on March 2, 1992, for verification.

Groundwater samples were collected from each of the three monitor wells and from WW-1 with clean "Teflon" bailers for analysis of TPH, pH, Volatile Organic Compounds (Volatiles), Total Dissolved Solids (TDS), and TCLP metals. The samples were properly prepared, placed in laboratory-supplied containers, sealed, labeled, packed in ice-filled coolers, and delivered via Federal Express to SPL in Houston, Texas. Simon personnel initiated Chain of Custody documentation of the samples.

FINDINGS

Analytical Results-Interior Sump

Table 1 in Appendix D is a summary of the reported benzene, BTEX, TPH, and detectable metal concentrations of the samples collected on December 19, 1991, from the drummed contents of the interior sump. A certified copy of the analytical results of interior sump samples as well as Chain of Custody documentation are included in Appendix G (under separate cover).

Area Stratigraphy

A generalized stratigraphic section of the material encountered at the site beyond the pit boundary is:

Depth (feet below grade)	Description
0-3	Brown surface sand and silty clay; slightly moist.
3-25	White, hard caliche; dry.
25-28	White, hard caliche with brown sand (sand content increasing with depth); dry to slightly moist.
28-47	Brown sand; moist to saturated at 34 feet.
47-?	Light brown sandstone; dry.

A generalized stratigraphic section of the material encountered within the pit boundary is:

Depth (feet below grade)	Description
0-6	Backfill sand; dry.
6-16.5	Interbedded black/grey silty clay, caliche, debris, and sand; visible staining and hydrocarbon odor; moist to dry.
16.5-22.5	Stained caliche (grey and black); hydrocarbon odor; dry.
22.5-25	White, hard caliche; hydrocarbon odor; dry.
25-28	White, hard caliche with brown sand (sand content increasing with depth); hydrocarbon odor; dry to slightly moist.
28-33.5	Light and dark brown sand (possibly stained); hydrocarbon odor; slightly moist to saturated at 33 feet (dark black staining at saturation level).

Field Screening-Soil

Soil samples from borings B1-B9 and monitor wells MW1, MW2, and MW3 were screened for organic vapors with an HNU meter. Within the pit, the majority of the HNU soil readings were above 40 parts per million (ppm) with a maximum HNU reading of 180 ppm detected in B8 (31.5-33.5 feet). Of the six locations outside of the pit boundary screened with the HNU meter, only one of them (B9) had detectable HNU readings. In boring B9, the HNU readings ranged from non-detectable to 200 ppm (34.5-36 feet). Table 1 in Appendix E summarizes the HNU readings of the screened soil samples.

Visual and olfactory evidence of hydrocarbon-impacted soil was observed in the soil samples collected within the pit in borings

B5, B6, and B8. Outside the pit in boring B9, olfactory evidence of hydrocarbon-impacted soil was apparent in the samples from a depth of 33-36 feet. No visual or olfactory evidence of hydrocarbon-impacted soil was observed in the remaining soil borings or monitor well boreholes.

Analytical Results-Soil

No soil samples from boring B7 were submitted for laboratory analysis since none of the field screening methods indicated the presence of hydrocarbons in them. At least one soil sample from the remaining borings and monitor well boreholes was submitted for laboratory analysis. The selection of these samples was based upon HNU screening results and observations. In general, the soil sample with the highest HNU reading from each location was submitted. Where no detectable HNU readings were recorded, as in the MW-1, MW-2, and MW-3 boreholes, the soil sample immediately above the level of water saturation was submitted. Tables 2-4 in Appendix D summarize the reported BTEX, TPH, Volatiles, and TCLP metals concentrations of the submitted soil samples. The results of the four background soil samples BG1-BG4 are also included. Certified copies of the analytical results and Chain of Custody documentation are included in Appendix G (under separate cover).

Field Screening - Groundwater

No olfactory or visual evidence of hydrocarbons was observed in the groundwater samples collected from water well WW-1 during either investigation. During the February 24-28, 1992, investigation, no olfactory or visual evidence of hydrocarbons was observed in the groundwater samples collected from monitor wells MW1 - MW3.

Analytical Results - Groundwater

Tables 5-7 in Appendix D are summaries of the Volatiles, TPH, pH, TDS, and TCLP metals concentrations from the site monitor wells and from WW-1. Certified copies of the analytical results and Chain of Custody documentation are included in Appendix G (under separate cover).

DISCUSSION

Groundwater Gradient

The groundwater flow direction at the site was determined from depth-to-groundwater data collected on March 2, 1992. The general flow direction of the shallow groundwater at the site is toward the southeast. A groundwater gradient map utilizing the March 2, 1992, data is presented as Figure 3 in Appendix A.

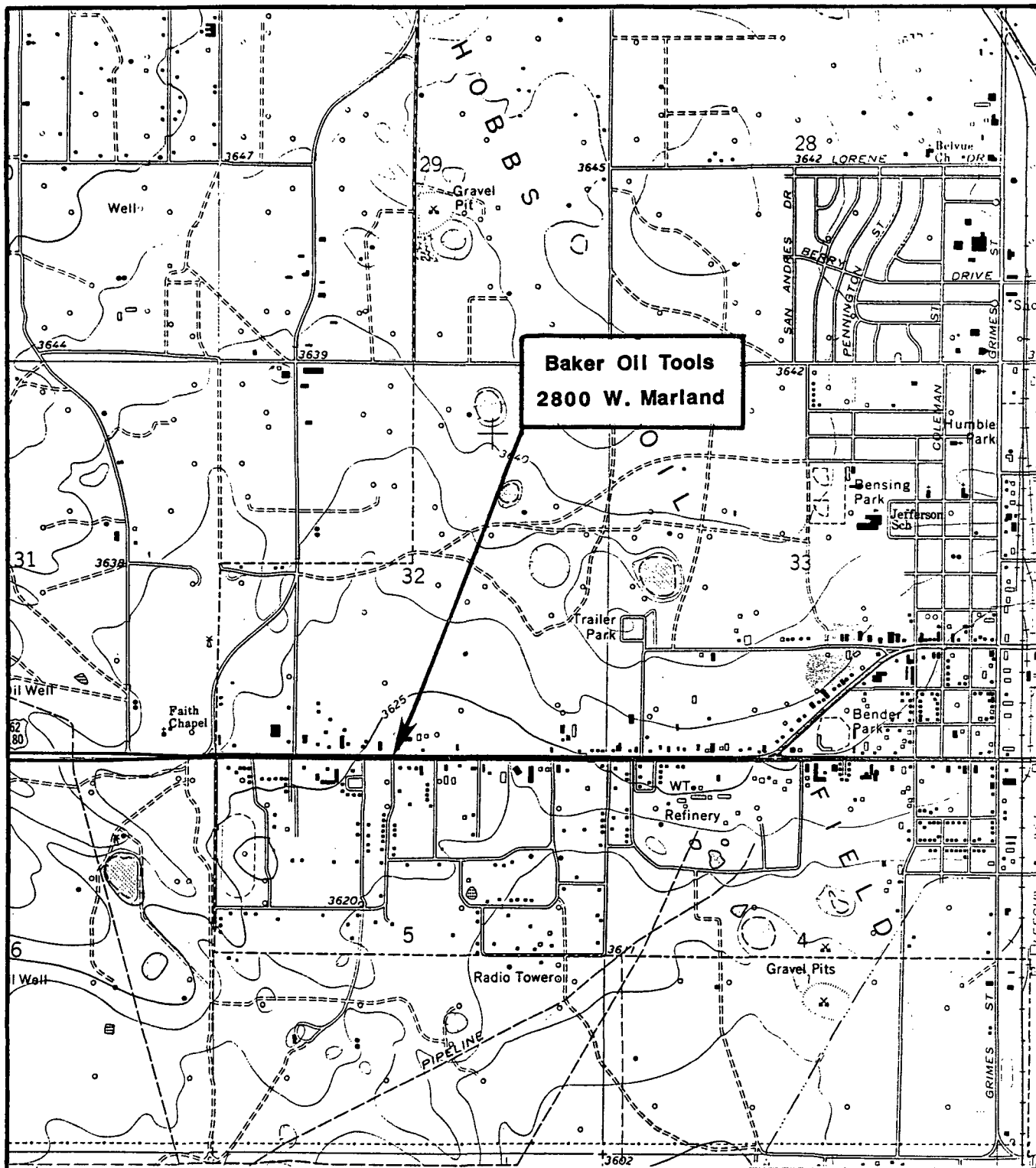
Differentiation of Aquifers

Based upon the stratigraphic section encountered in monitor wells MW1-MW3 and area water well logs, it appears that at least two shallow aquifers exist at the site. Relative to the aquifer characteristics themselves, the sandstone layer encountered in MW1-MW3 at an approximate depth of 47 feet below grade provides a low-permeability boundary between the two aquifers. All three of the installed monitor wells were terminated upon reaching the top of the low-permeability sandstone layer. Therefore, none of the monitor wells are screened in saturated sands located below the sandstone layer (see Appendix C for well construction diagrams).

Review of the well log of the on-site water well indicates that this well penetrates the hard sandstone layer and was drilled to a depth of 100 feet. Furthermore, the screened interval of the water well is from 70-100 feet below grade. Well records of the on-site water well are included in Appendix F.

The monitor wells and WW-1 are not screened in the same sand interval. Based upon available data and treating the hard sandstone as a confining layer, the groundwater samples from the monitor wells and from WW-1 may not be representative of water from the same saturated interval.

APPENDIX A
Figures



0 2000
 |-----|
 Scale Feet

Reference:
 Hobbs West Quadrangle
 7.5 Min. Series

SIMON HYDRO-SEARCH HOUSTON, TEXAS

BAKER OIL TOOLS HOBBS, NEW MEXICO

SCALE AS SHOWN

CHECKED BY

DRAWN BY RAM

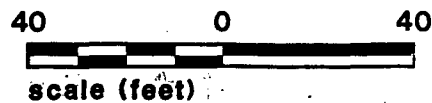
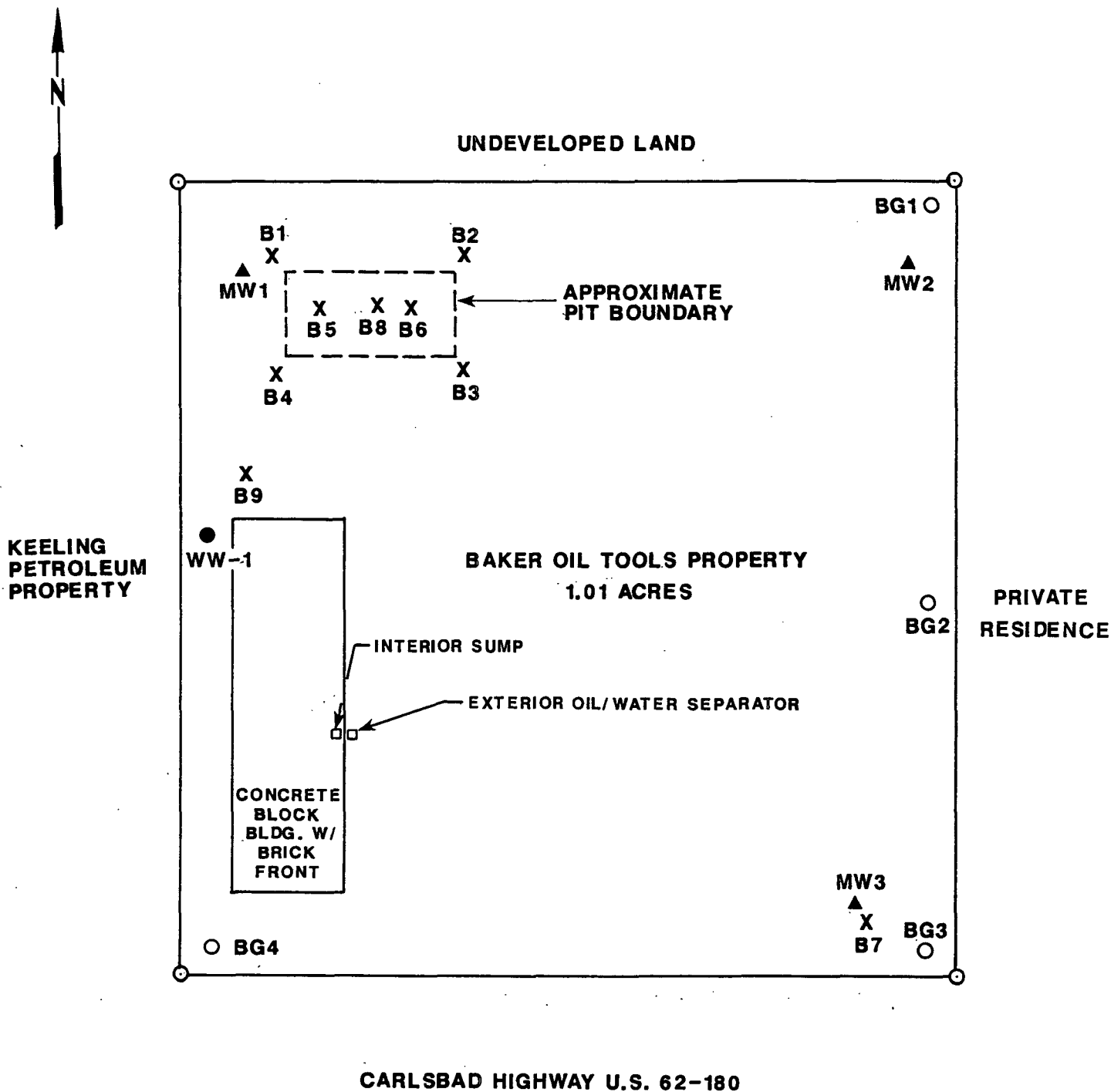
DATE 5/20/92

SIZE

SITE LOCATION MAP

DRAWING NO.

FIGURE 1



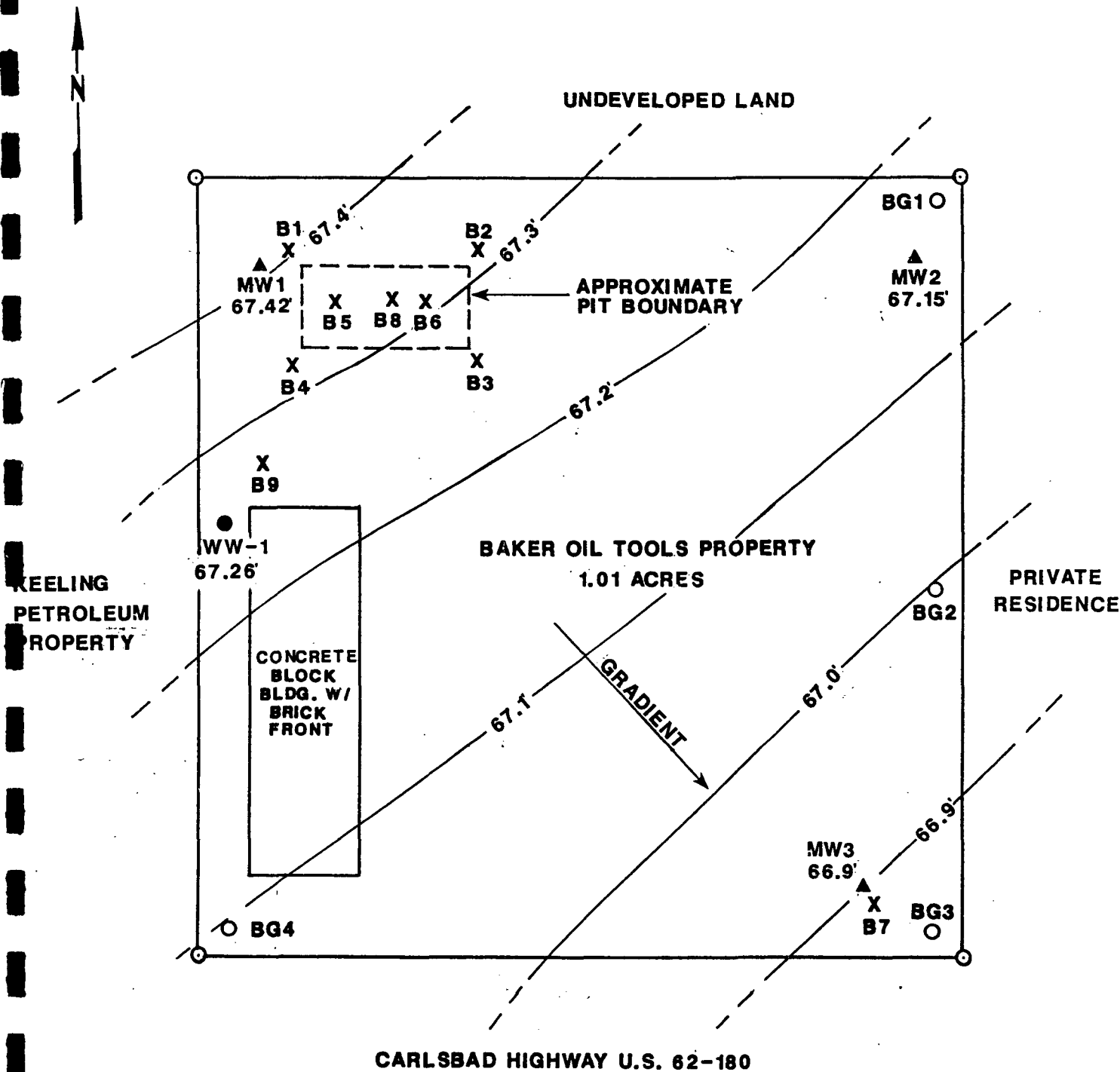
LEGEND:

- X B1 BORING
- O BG1 BACKGROUND SAMPLE
- ▲ MW1 MONITOR WELL
- WW-1 WATER WELL

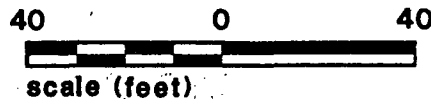
**SIMON HYDRO-SEARCH
HOUSTON, TEXAS**

BAKER OIL TOOLS 2800 W. MARLAND HOBBS, N.M.

SCALE 1"=40'	CHECKED BY	DRAWN BY GAR
DATE 4/22/92		
SIZE	SITE MAP	DRAWING NO. FIGURE 2



Cl: 0.1'



LEGEND:

- X B1 BORING
- O BG1 BACKGROUND SAMPLE
- ▲ MW1 MONITOR WELL
- WW-1 WATER WELL

SIMON HYDRO-SEARCH HOUSTON, TEXAS

BAKER OIL TOOLS 2800 W. MARLAND HOBBS, N.M.

SCALE 1"=40' CHECKED BY DRAWN BY GAR

DATE 4/22/92

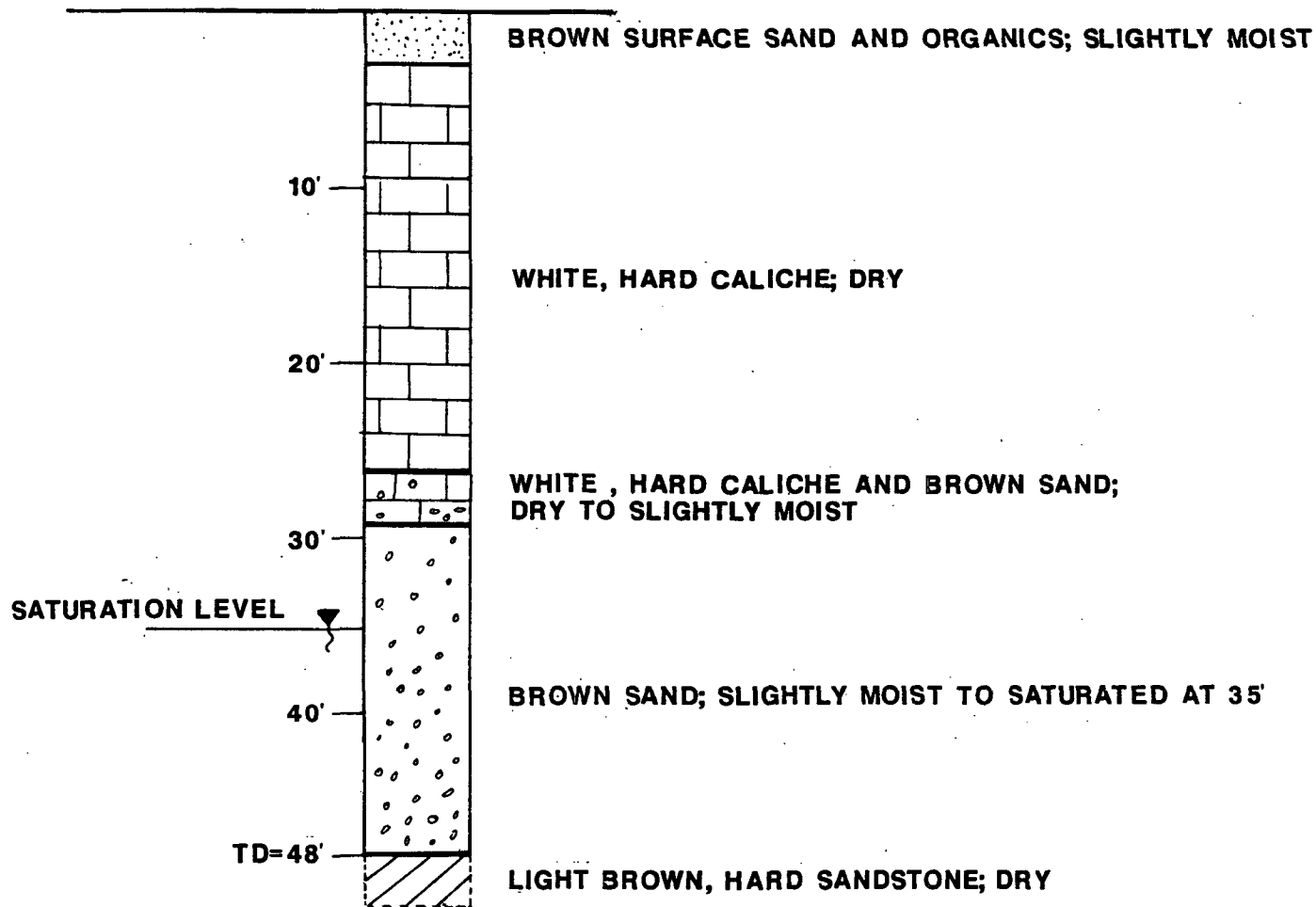
SIZE GROUNDWATER GRADIENT
MAP: 3/2/92

DRAWING NO.

FIGURE 3

APPENDIX B
Stratigraphic Logs

GROUND SURFACE



SIMON HYDRO-SEARCH HOUSTON, TEXAS

BAKER OIL TOOLS 2800 W. MARLAND HOBBS, N.M.

SCALE AS SHOWN

CHECKED BY

DRAWN BY

GAR

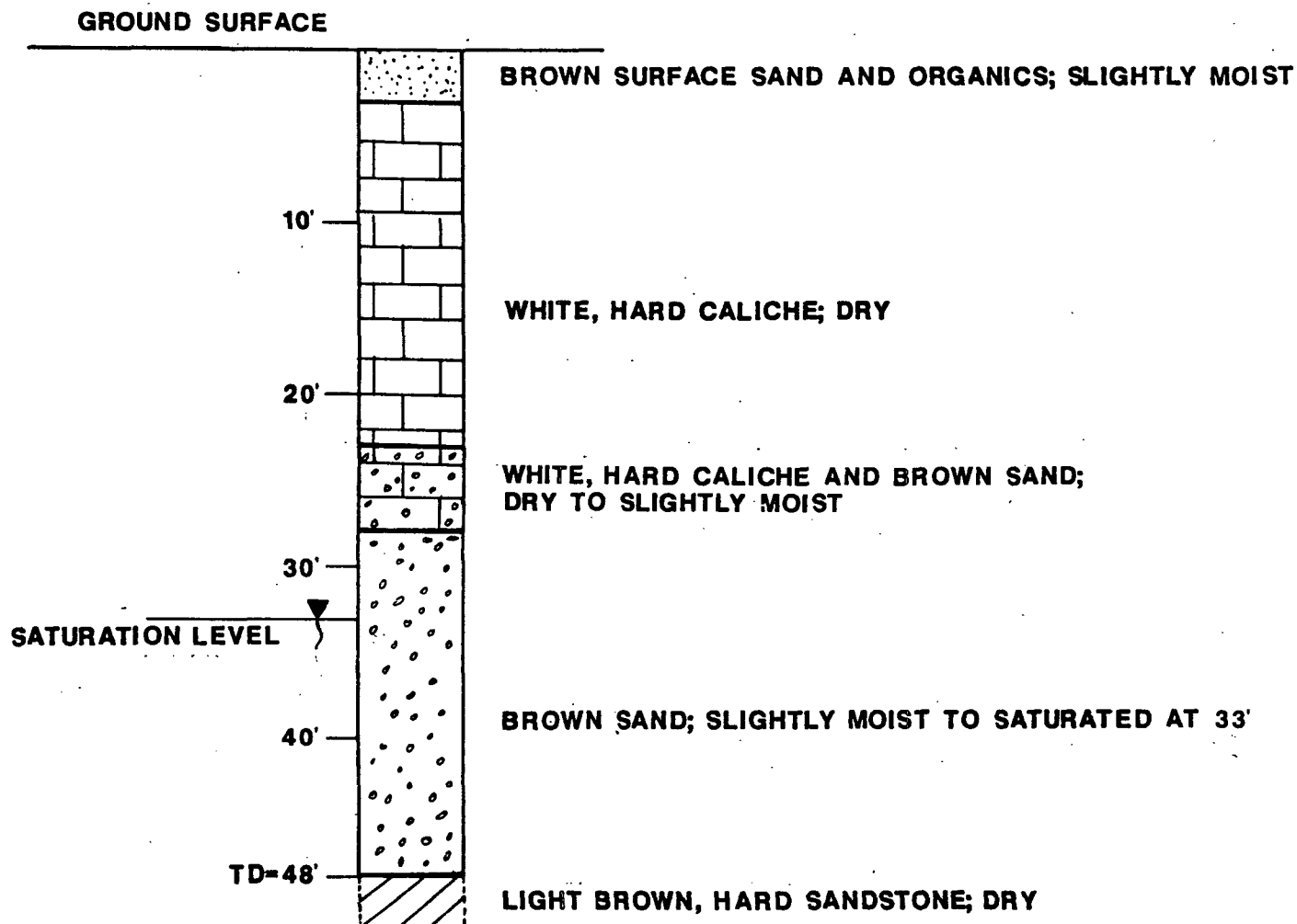
DATE

4/24/92

SIZE

STRATIGRAPHIC LOG: MW1

DRAWING NO.



SIMON HYDRO-SEARCH HOUSTON, TEXAS

BAKER OIL TOOLS 2800 W. MARLAND HOBBS, N.M.

SCALE AS SHOWN

CHECKED BY

DRAWN BY GAR

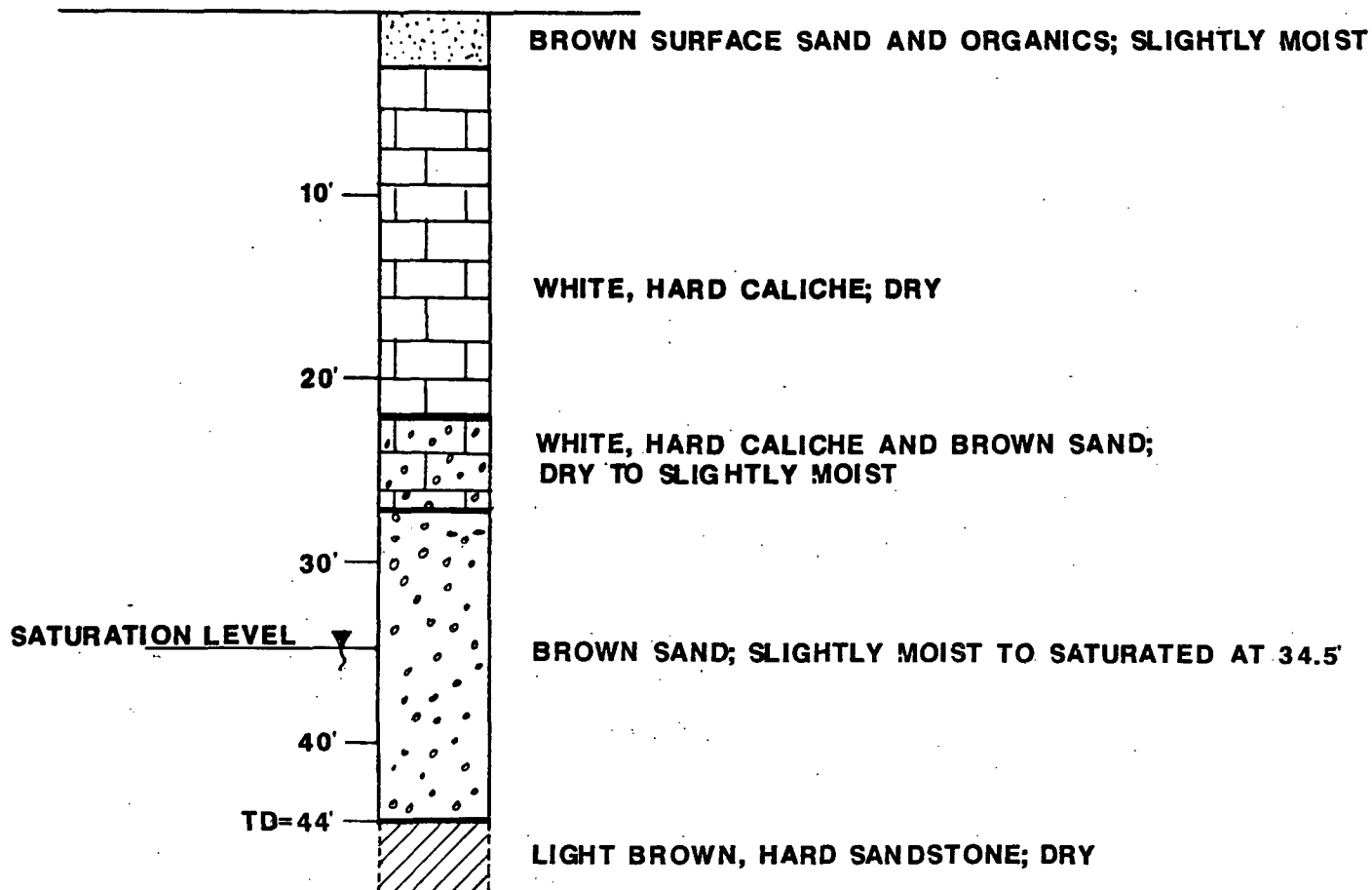
DATE 4/24/92

SIZE

STRATIGRAPHIC LOG: MW 2

DRAWING NO.

GROUND SURFACE



SIMON HYDRO-SEARCH HOUSTON, TEXAS

BAKER OIL TOOLS 2800 W. MARLAND HOBBS, N.M.

SCALE AS SHOWN

CHECKED BY

DRAWN BY GAR

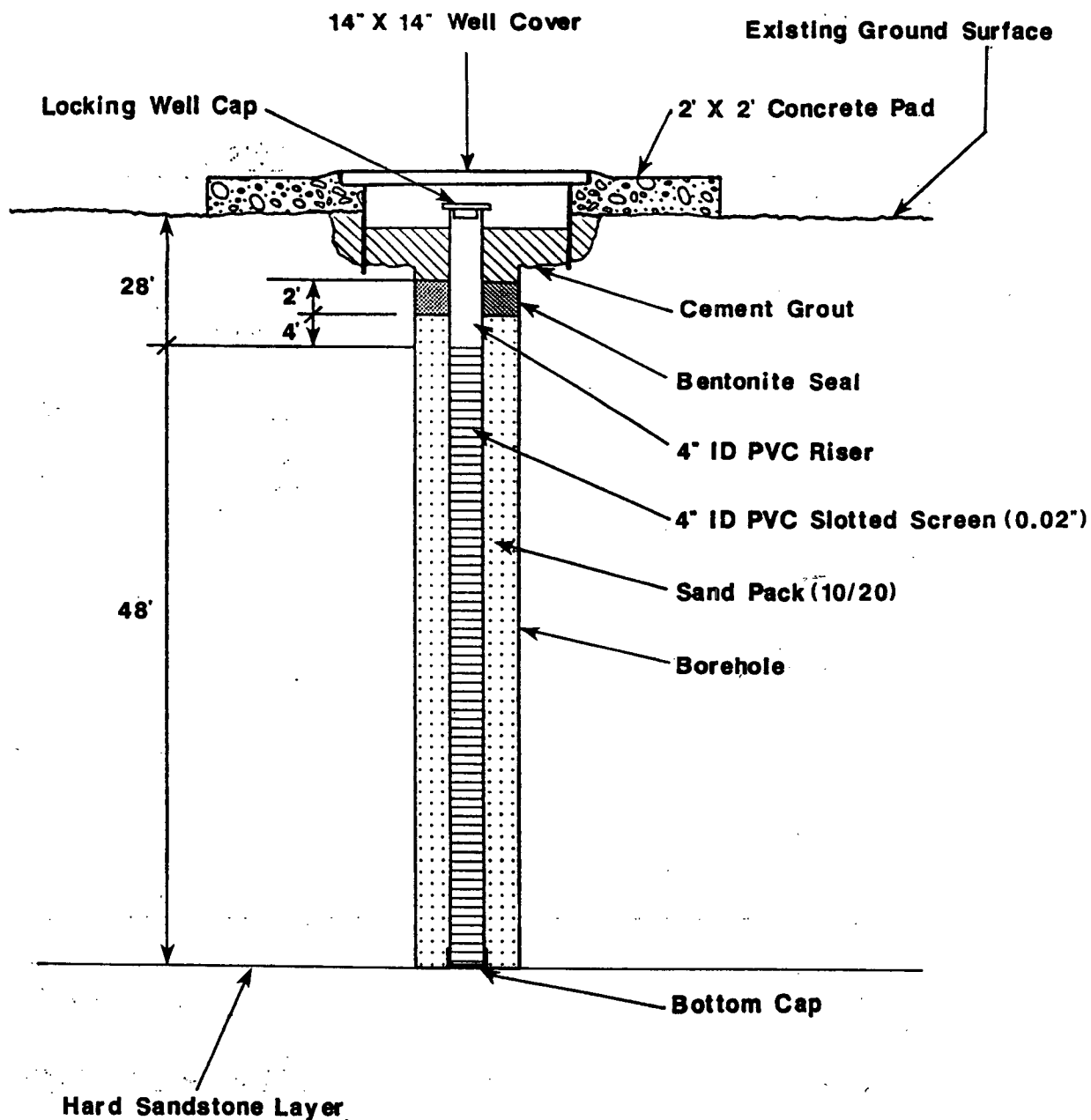
DATE 4/24/92

SIZE

STRATIGRAPHIC LOG: MW 3

DRAWING NO.

APPENDIX C
Well Construction Diagrams



SIMON HYDRO - SEARCH HOUSTON, TEXAS

SCALE: **N T S**

APPROVED BY:

DRAWN BY **RAM**

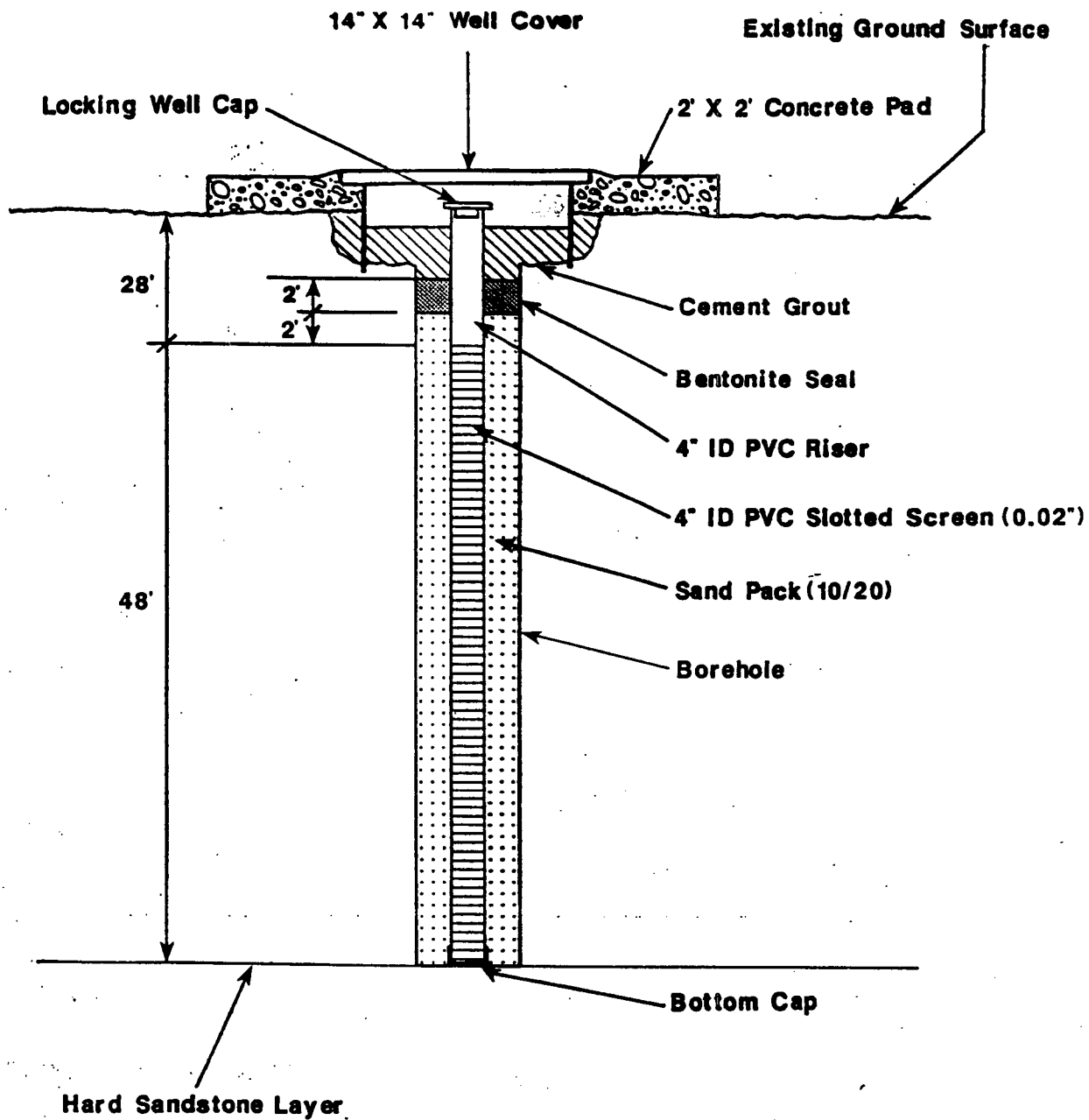
DATE:

REVISED

**Baker Oil Tools
2800 W. Marland
Hobbs, N.M.**

WELL CONSTRUCTION DIAGRAM: MW1

DRAWING NUMBER



SIMON HYDRO - SEARCH HOUSTON, TEXAS

SCALE: N T S

APPROVED BY:

DRAWN BY

RAM

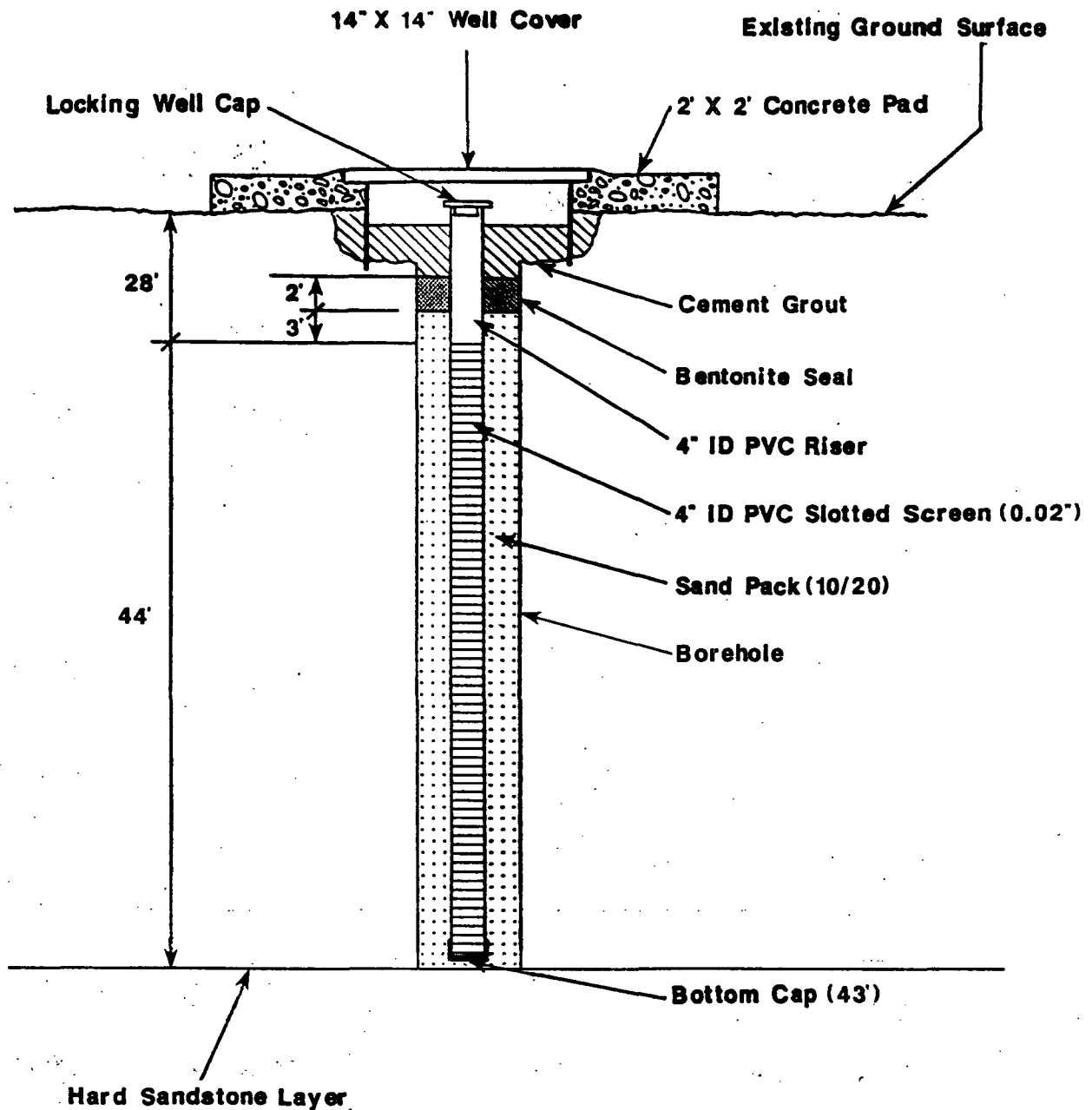
DATE:

REVISED

Baker Oil Tools
2800 W. Marland
Hobbs, N.M.

WELL CONSTRUCTION DIAGRAM: MW 2

DRAWING NUMBER



SIMON HYDRO - SEARCH HOUSTON, TEXAS

SCALE: N T S

APPROVED BY:

DRAWN BY RAM

DATE:

REVISED

Baker Oil Tools
2800 W. Marland
Hobbs, N.M.

WELL CONSTRUCTION DIAGRAM: MW 3

DRAWING NUMBER

APPENDIX D
Summary Tables of Analytical Results

Table 1
 Interior Sump Analytical Results: Benzene, BTEX, TPH, and
 Detectable RCRA Metals
 Baker Oil Tools
 2800 W. Marland
 Hobbs, New Mexico

Sample Phase	Benzene (⁽¹⁾)	BTEX (⁽¹⁾)	TPH (⁽¹⁾)	Barium (mg/l)	Chromium (mg/l)	Lead (mg/l)
Liquid	0.022	0.32	900	1.48	0.04	1.6
Solid	1.7	140.2	220,000	2.08	ND(0.02)	ND(0.3)

Notes: ⁽¹⁾ Concentrations for the liquid phase are in milligrams per liter (mg/l) and in milligrams per kilogram (mg/kg) for the solid phase.

ND - Not detected, detection limit in parentheses.

The liquid-phase sample was analyzed for Total RCRA metals and the solid-phase sample was analyzed for TCLP RCRA metals.

Table 2
Soil Analytical Results: BTEX and TPH
Baker Oil Tools
2800 W. Marland
Hobbs, New Mexico

Sample Number	Sample Depth (feet)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	BTEX (mg/kg)	TPH (mg/kg)
BG1:0/1	0-1	12/20/91	ND(0.001)	ND(0.001)	0.002	0.002	0.004	ND(10)
BG2:0/1	0-1	12/20/91	ND(0.001)	ND(0.001)	ND(0.001)	0.001	0.001	ND(10)
BG3:0/1	0-1	12/20/91	ND(0.001)	0.001	0.001	0.004	0.006	12
BG4:0/1	0-1	12/20/91	ND(0.001)	0.002	0.002	0.012	0.016	34
B1:5/6	5-6	12/20/91	ND(0.001)	0.01	0.011	0.063	0.084	42
B1:9/10	9-10	12/20/91	ND(0.001)	0.003	0.005	0.032	0.04	18
B2:5/6	5-6	12/20/91	ND(0.001)	0.001	0.002	0.004	0.007	310
B2:10/11	10-11	12/20/91	ND(0.001)	0.001	0.002	0.005	0.008	25
B3:5/6	5-6	12/20/91	ND(0.001)	0.001	ND(0.001)	0.004	0.005	74
B3:10/11	10-11	12/20/91	ND(0.001)	0.003	0.008	0.037	0.048	58
B4:5/6	5-6	12/20/91	ND(0.001)	0.011	0.01	0.04	0.061	220
B4:10/11	10-11	12/20/91	ND(0.001)	0.002	0.002	0.002	0.006	97
B5:11/12	11-12	12/20/91	ND(0.005)	0.028	0.86	0.88	1.768	2,100
B5:15/16.5	15-16.5	12/20/91	0.074	0.087	2.0	2.6	4.761	3,800
B6:9.5/10.5	9.5-10.5	12/20/91	ND(0.005)	0.012	0.29	0.074	0.376	2,800
B6:14.5/15.5	14.5-15.5	12/20/91	ND(0.005)	0.012	0.23	0.052	0.294	5,200
B8:26-27.5	26-27.5	2/25/92	ND(0.026)	ND(0.026)	0.061	0.3	0.361	1,800
B8:31.5-33.5	31.5-33.5	2/25/92	ND(0.028)	ND(0.028)	0.56	2.1	2.66	6,600
B9:34.5-36	34.5-36	2/26/92	ND(0.006)	0.016	0.019	0.072	0.107	61
MW1:33.5-35	33.5-35	2/27/92	ND(0.006)	ND(0.006)	ND(0.006)	ND(0.006)	0.0	ND(10)
MW2:31.5-33	31.5-33	2/27/92	ND(0.006)	ND(0.006)	ND(0.006)	ND(0.006)	0.0	11
MW3:31-33	31-33	2/28/92	ND(0.006)	ND(0.006)	ND(0.006)	ND(0.006)	0.0	ND(10)

Notes: mg/kg = milligrams per kilogram.

ND = Not detected, detection limit in parentheses.

BTEX is the summation of individual concentrations of benzene, toluene, ethylbenzene, and xylenes; undetected concentrations are treated as zero.

h:\bakhug\fnlhobbs\692

Table 3
Soil Analytical Results: Detectable Volatile Organic Compounds (Method 8240)
Baker Oil Tools
2800 W. Marland
Hobbs, New Mexico

Sample Number	Sample Depth (feet)	Sample Date	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	Acetone (mg/kg)	Methylene Chloride (mg/kg)	2-Butanone (mg/kg)	Styrene (mg/kg)	4-Methyl-2-Pentanone (mg/kg)
B5:11/12 B5:15/16.5	11-12 15-16.5	12/20/91 12/20/91	ND(0.03) ND(0.006)	ND(0.03) 0.061	ND(0.03) 0.11	ND(0.06) 0.3	0.23 0.031	ND(0.12) 0.026	ND(0.03) 0.063	ND(0.06) ND(0.011)
B6:9.5/10.5 B6:14.5/15.5	9.5-10.5 14.5-15.5	12/20/91 12/20/91	ND(0.006) ND(0.006)	0.006 ND(0.006)	0.011 0.011	0.045 0.27	0.041 0.036	ND(0.022) ND(0.022)	ND(0.006) ND(0.006)	ND(0.011) ND(0.011)
B8:26-27.5 B8:31.5-33.5	26-27.5 31.5-33.5	2/25/92 2/25/92	ND(0.026) ND(0.028)	0.061 0.56	0.3 2.1	ND(0.053) ND(0.057)	ND(0.026) ND(0.028)	ND(0.11) ND(0.11)	ND(0.026) ND(0.028)	ND(0.053) ND(0.057)
B9:34.5-36	34.5-36	2/26/92	0.016	0.019	0.072	0.037	0.009	ND(0.026)	ND(0.006)	0.026
MW1:33.5-35	33.5-35	2/27/92	ND(0.006)	ND(0.006)	ND(0.006)	0.015	0.01	ND(0.024)	ND(0.006)	ND(0.012)
MW2:31.5-33	31.5-33	2/27/92	ND(0.006)	ND(0.006)	ND(0.006)	0.016	0.007	ND(0.024)	ND(0.006)	ND(0.012)
MW3:31-33	31-33	2/28/92	ND(0.006)	ND(0.006)	ND(0.006)	0.018	0.007	ND(0.023)	ND(0.006)	ND(0.012)

Notes: mg/kg = milligrams per kilogram.

ND = Not detected, detection limit in parentheses.

Only those volatile organic compounds detected by Method 8240 in at least one sample are presented. No other sample locations were analyzed by Method 8240.

Table 4
Soil Analytical Results: Detectable TCLP Metals
Baker Oil Tools
2800 W. Marland
Hobbs, New Mexico

Sample Number	Sample Depth (feet)	Sample Date	Arsenic (mg/l)	Barium (mg/l)
BG1:0/1	0-1	12/20/91	0.009	1.63
BG2:0/1	0-1	12/20/91	ND(0.007)	0.91
BG3:0/1	0-1	12/20/91	ND(0.007)	1.08
BG4:0/1	0-1	12/20/91	0.013	0.68
B1:5/6	5-6	12/20/91	0.028	1.08
B1:9/10	9-10	12/20/91	0.035	0.86
B2:5/6	5-6	12/20/91	0.04	0.68
B2:10/11	10-11	12/20/91	0.03	0.56
B3:5/6	5-6	12/20/91	0.042	0.76
B3:10/11	10-11	12/20/91	0.017	0.68
B4:5/6	5-6	12/20/91	0.039	0.67
B4:10/11	10-11	12/20/91	0.032	0.69
B5:11/12	11-12	12/20/91	ND(0.007)	1.64
B5:15/16.5	15-16.5	12/20/91	ND(0.007)	2.11
B6:9.5/10.5	9.5-10.5	12/20/91	0.012	1.61
B6:14.5/15.5	14.5-15.5	12/20/91	ND(0.007)	2.73
B8:26-27.5	26-27.5	2/25/92	ND(0.007)	2.17
B8:31.5-33.5	31.5-33.5	2/25/92	ND(0.007)	2.28
B9:34.5-36	34.5-36	2/26/92	ND(0.007)	0.51
MW1:33.5-35	33.5-35	2/27/92	ND(0.007)	0.829
MW2:31.5-33	31.5-33	2/27/92	ND(0.007)	0.938
MW3:31-33	31-33	2/28/92	ND(0.007)	1.46

Notes: mg/l = milligrams per liter.
ND = Not detected, detection limit in parentheses.

Table 5
Groundwater Analytical Results: Detectable Volatile Organic Compounds⁽¹⁾
Baker Oil Tools
2800 W. Marland
Hobbs, New Mexico

Sample Number	Location	Sample Date	Benzene (mg/l)	Toluene (mg/l)	Ethylbenzene (mg/l)	Xylenes (mg/l)	BTEX (mg/l)
WW121991	Water Well	12/19/91	0.006	0.002	0.001	0.004	0.013
WW22492	Water Well	2/24/92	0.82	0.3	0.2	0.3	1.62
MW1:022792	MW1	2/27/92	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.0
MW2:022892	MW2	2/28/92	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.0
MW3:022892	MW3	2/28/92	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.0

Notes: ⁽¹⁾ Only those volatile organic compounds detected in at least one sample are presented.
mg/l = milligrams per liter.

BTEX is the summation of individual concentrations of benzene, toluene, ethylbenzene, and xylenes; undetected concentrations are treated as zero.

Sample WW121991 was analyzed only for BTEX constituents.
Methylene Chloride was detected in samples MW1:022792, MW2:022892, and MW3:022892 but also in the laboratory blank sample.

Table 6
Groundwater Analytical Results: TPH, pH, and TDS
Baker Oil Tools
2800 W. Marland
Hobbs, New Mexico

Sample Number	Location	Sample Date	TPH (mg/l)	pH (pH units)	TDS (mg/l)
WW121991	Water Well	12/19/91	ND(1)	7.74	NA
WW22492	Water Well	2/24/92	ND(1)	7.35	1,140
MW1:022792	MW1	2/27/92	ND(1)	7.52	801
MW2:022892	MW2	2/28/92	ND(1)	7.21	1,680
MW3:022892	MW3	2/28/92	ND(1)	7.13	1,140

Notes: mg/l = milligrams per liter.
ND = Not detected, detection limit in parentheses.
NA = Not analyzed

Table 7
Groundwater Analytical Results: Detectable TCLP Metals
Baker Oil Tools
2800 W. Marland
Hobbs, New Mexico

Sample Number	Location	Sample Date	Barium (mg/l)
WW121991	Water Well	12/19/91	1.4
WW22492	Water Well	2/24/92	0.696
MW1:022792	MW1	2/27/92	0.404
MW2:022892	MW2	2/28/92	0.587
MW3:022892	MW3	2/28/92	0.544

Notes: mg/l = milligrams per liter.
Sample WW121991 was analyzed for RCRA metals (Total).

APPENDIX E
HNU Readings: Soil

Table 1
HNU Readings: Soil
Baker Oil Tools
2800 W. Marland
Hobbs, New Mexico

Location	Depth (feet)	HNU Reading (ppm)
B1	0-2	ND
	2-3	ND
	3-3.5	ND
	3.5-4	ND
	5-6	ND
	6-6.5	ND
	6.5-8	ND
	8-9	ND
	9-10	ND
B2	5-6	ND
	10-11	ND
B3	5-6	ND
	10-11	ND
B4	5-6	ND
	10-11	ND
B5	6-6.5	ND
	7.5-8.5	80
	10-10.5	50
	11-12	50
	12-13.5	40
	14-15	70
	15-16.5	80
B6	9.5-10.5	40
	14.5-15.5	50
B7	5-10	ND
	10-15	ND
	28-30	ND
	35-40	ND*
	40-42	ND
B8	13-15	50
	15-16.5	90
	17-18	10
	18-19	70*
	19-20.5	125
	22.5-23	110
	24-24.3	110
	25-26	140
	26-27.5	80
	28-30	100
	30-31.5	120
	31.5-33.5	180
B9	26-28.5	ND
	28.5-30	ND
	31-33	7
	33-34.5	30
	34.5-36	200
MW1	30-31.5	ND
	31.5-33.5	ND
	33.5-35	ND
	35-37	ND
MW2	30-31	ND
	31.5-33	ND
	33-35	ND
MW3	31-33	ND
	33-34.5	ND
	34.5-36.5	ND

Notes: ND = Not Detected.

* = Sample of cuttings collected at ground surface.

APPENDIX F
Water Well Records

STATE OF NEW MEXICO STATE ENGINEER

WELL SCHEDULE

Date 8/12 19 57 Record by R. L. BORTONSource of data Bill Scott and field obs.1. Location: County Lea Map 108.4.1
_____ $\frac{1}{4}$ _____ $\frac{1}{4}$ _____ $\frac{1}{4}$ sec. _____ T. _____ R.2. Owner Baker Tool Co.3. Driller Musselwhite4. Topography Hobbs Mesa Elev. 36255. Type drilled 19 55 Use D & C6. Log on file : _____ filed _____7. Depth: Rept. 100: _____ ft. Meas. _____ ft.8. Casing 6 5/8" OD/ 99' ?9. Equipment: Pump, type turbine (sub) make Reda
ser. no./model _____ size of dischg. _____ ins.

Power, kind _____ make _____ H.P. _____

10. Distribution System pressure tank11. Water Level: _____ ft. rept _____ 19 _____ above
meas _____ below
_____ which is _____ ft. above
below

12. Discharge Measurement _____

_____ G. P. M. _____ Temp. _____ ° F.

13. Remarks Sl. gas cut? Took sample from tap. Well
gravel-packed.Well # 8
AQUIFER(S):Well No. _____ on Photograph DPH 15- 34430File No. _____ Location No. 18.38.32.344

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

(A) Owner of well Baker Oil Tools, Inc.
 Street and Number Box 1295
 City Hobbs, State New Mexico
 Well was drilled under Permit No. L-2984 and is located in the
N.E. 1/4 S.W. 1/4 S.W. 1/4 of Section 32 Twp. 18S Rge. 38E
 (B) Drilling Contractor O.R. Musslewhite License No. WD 99
 Street and Number Box 56
 City Hobbs, N State New Mexico
 Drilling was commenced Sept. 10 19 55
 Drilling was completed Sept. 11 19 55

(Plat of 640 acres)

Elevation at top of casing in feet above sea level _____ Total depth of well 100
 State whether well is shallow or artesian shallow Depth to water upon completion 30

Section 2

PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation
	From	To		
1	<u>40</u>	<u>80</u>	<u>40</u>	<u>Sand & sand rock</u>
2				
3				
4				
5				

Section 3

RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth		Feet	Type Shoe	Perforations	
			Top	Bottom			From	To
<u>6 5/8</u>	<u>18</u>	<u>8</u>	<u>0</u>	<u>100</u>	<u>100</u>	<u>Collar</u>	<u>70</u>	<u>100</u>

Section 4

RECORD OF MUDDING AND CEMENTING

Depth in Feet		Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
From	To				

Section 5

PLUGGING RECORD

Name of Plugging Contractor _____ License No. _____
 Street and Number _____ City _____ State _____
 Tons of Clay used _____ Tons of Roughage used _____ Type of roughage _____
 Plugging method used _____ Date Plugged _____ 19 _____
 Plugging approved by: _____ Cement Plugs were placed as follows:

Depth of Plug		No. of Sacks Used
From	To	

Basin Supervisor _____

FOR USE OF STATE ENGINEER ONLY

Date Received SEP 14 1955

FILE NO. L-2984 Use down Location No. 18. N. 32. 38E

LOG OF WELL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

C. R. Musker, Jr.
Well Driller

**GROUND
WATER
SAMPLING
REPORTS**

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

RECEIVED

JUL 23 2001

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Annual Ground-Water Sampling Report

Prepared by:

Page & Kraemer Environmental Services
5635 Northwest Central Dr., Suite 100
Houston, Texas 77092
(713) 460-3233

May 1, 2000

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 2000
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 2000 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.

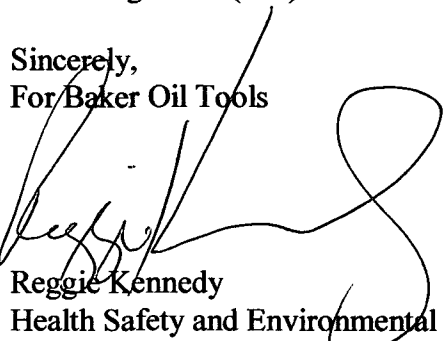
1. BOT performed the first quarter monitoring event on March 29, 2000. During this quarterly monitoring event, the wells were gauged for depth, bailed and sampled. Monitoring tasks began at 10:30 a.m. (MT). Purging of the well was accomplished by hand bailing each well. The bailing of the wells during previous quarters of monitoring was performed using a low volume electric pump. The pump was not utilized during this quarter due to mechanical difficulties. Bailing and 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 sheen was noticed on the initial bailer of liquid removed with a noticeable hydrocarbon odor of the water in this and subsequent bailers of water. Samples were collected from each well and shipped to Von Analytical Laboratory in Houston, Texas for analysis.
2. The passive skimmer in monitoring well R-1 was checked and no free hydrocarbon product was recovered. The type of skimmer installed was a ZORBO float type with a recovery canister. The skimmer was installed with the float/recovery portion of the skimmer at the water/air interface.

3. 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. Positive results on naphthalene (122.1 µg/L) and 2-methylnaphthalene (97.5 µg/L) were detected in well R-1. No other samples yielded positive results.
4. 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 the previous quarter report, WW-1 is not included in well depth measurements. R-1 was not gauged due to the possibility of contamination of the electronic water level indicator by the hydrocarbon present in the well. An updated ground water elevation map using the recent water table elevations of the ground water in the remaining monitoring wells is presented in Figure 1.

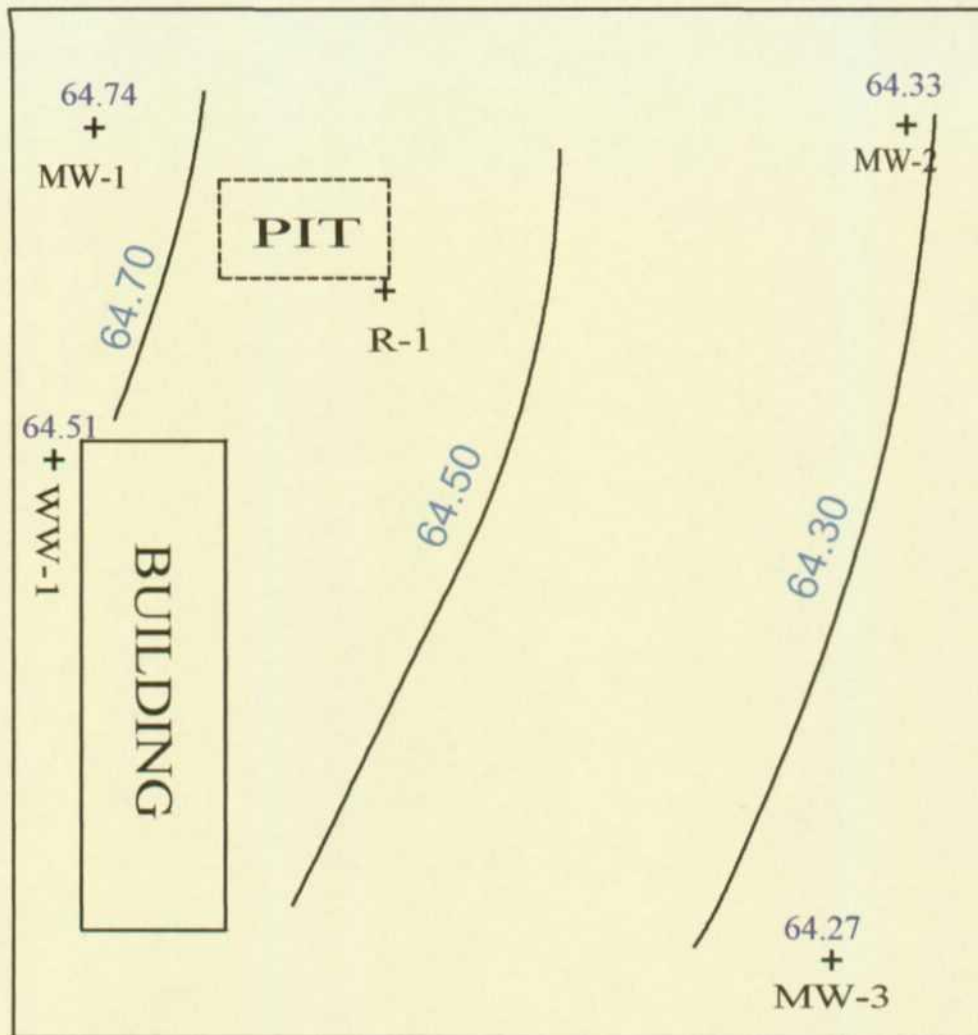
Baker Oil Tools proposed in the previous year to revise the submission frequency from quarterly to an annual report with each quarter a separate section of the report. Each section would contain all appropriate information obtained for the quarterly monitoring event. Please notify us if this report submission frequency change is acceptable.

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
Health Safety and Environmental Affairs Director



Page and Kraemer Environmental Services, Inc.
Lafayette / Houston

Figure 1

Groundwater Elevations (QTR 1, 2000)

Baker Oil Tools
2800 W. Marland
Hobbs, NM

Prepared by TVS
scale 1 = 40' (approx.)
5/1/00

TABLE 1A
MW-1

	1st Quarter 3/26/99	2nd Quarter 6/24/99	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00
EPA 8020A					
Benzene	< 0.0050 ppm	< 0.0050 ppm	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Ethylbenzene	< 0.0050 ppm	< 0.0050 ppm	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Toluene	< 0.0050 ppm	< 0.0050 ppm	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Xylenes	< 0.0050 ppm	< 0.0050 ppm	< 0.003 mg/l	< 0.005 mg/l	< 0.005 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	< 0.0050 ppm	< 0.0050 ppm	< 0.005 mg/l	< 0.005 mg/l	< 0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	< 0.01 mg/l	< 0.01 mg/l	NA	< 0.01mg/l	< 0.01mg/l
Naphthalene	< 0.01 mg/l	< 0.01 mg/l	NA	< 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 3/25/99	2nd Quarter 6/24/99	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00
EPA 8020A					
Benzene	< 0.0050 ppm	< 0.0050 ppm	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Ethylbenzene	< 0.0050 ppm	< 0.0050 ppm	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Toluene	< 0.0050 ppm	< 0.0050 ppm	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Xylenes	< 0.0050 ppm	< 0.0050 ppm	< 0.003 mg/l	< 0.005 mg/l	< 0.005 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	< 0.0050 ppm	< 0.0050 ppm	< 0.005 mg/l	< 0.005 mg/l	< 0.005 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
MV-3

	1st Quarter 3/25/99	2nd Quarter 6/24/99	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00
EPA 8020A					
Benzene	< 0.0050	< 0.0050	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Ethylbenzene	< 0.0050	< 0.0050	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Toluene	< 0.0050	< 0.0050	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Xylenes	< 0.0050	< 0.0050	< 0.003 mg/l	< 0.005 mg/l	< 0.005 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	< 0.0050 ppm	< 0.0050 ppm	< 0.005 mg/l	< 0.005 mg/l	< 0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	< 0.010 mg/l	< 0.010 mg/l	< 0.01 mg/l	< 0.01 mg/l	< 0.01 mg/l
Naphthalene	< 0.010 mg/l	< 0.010 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 3/26/99	2nd Quarter 6/24/99	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00
EPA 8020A					
Benzene	< 0.0050 ppm	< 0.0050 ppm	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Ethylbenzene	< 0.0050 ppm	< 0.0050 ppm	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Toluene	< 0.0050 ppm	< 0.0050 ppm	< 0.001 mg/l	< 0.005 mg/l	< 0.005 mg/l
Xylenes	< 0.0050 ppm	< 0.0050 ppm	< 0.003 mg/l	< 0.005 mg/l	< 0.005 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	< 0.0050 ppm	< 0.0050 ppm	< 0.005 mg/l	< 0.005 mg/l	< 0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	< 0.010 mg/l	< 0.010 mg/l	NA	< 0.01 mg/l	< 0.01 mg/l
Naphthalene	< 0.010 mg/l	< 0.010 mg/l	NA	< 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 3/25/99	2nd Quarter 6/24/99	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00
EPA 8020A	N/A	N/A	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l
Benzene	N/A	N/A	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	N/A	N/A	0.002 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	N/A	N/A	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	N/A	N/A	0.002 mg/l	BDL	BDL
Total BETX	N/A	N/A	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
EPA 8020					
Methyl Tertiary Butyl Ether	N/A	N/A	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	N/A	N/A	<0.01 mg/l	185.2 µg/L	97.5 µg/L
Naphthalene	N/A	N/A	<0.01 mg/l	117.3 µg/L	122.1 µg/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)					
			3/25/1999	6/24/1999	9/30/1999	12/21/1999	3/29/2000	
MW-1	45.7	100.19	65.19	65.17	64.89	64.73	64.74	
MW-2	45.0	99.56	64.88	64.76	64.46	64.51	64.33	
MW-3	38.5	99.15	64.83	64.75	64.50	64.46	64.27	
WW-1	125.0	99.52	65.12	64.01	64.79	64.96	64.51	
R-1	48.0	100.03	*	64.83	64.83	64.63	*	

**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 7, 2000

Mr. Tom Steinbeck

Page & Kraemer Environmental

P. O. Box 841005

Houston, TX 77284-1005

Report: **BOT Hobbs Q1 2000**
Date samples received: **March 30, 2000; 1352**
VAL Lab Numbers: **V97-048 to V79-052**
Client Sample Numbers: **MW-1 to WW-1**

Dear Mr. Steinbeck:

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.

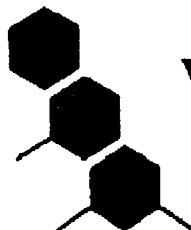
All raw data, spectra and log files shall remain on-file at VAL for a minimum of five years. Unused sample portions shall remain refrigerated at 4°C per EPA requirements for a minimum of 90 days for possible future analyses. After 90 days, we shall dispose of the samples using guidelines stated by state 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
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
Mr. Tom Steinbeck
BOT Hobbs Q1 2000
March 30, 2000; 1352
March 31, 2000
April 4, 2000

Client Sample No:	MW-1	MW-2	MW-3	R-1	WW-1
VAL Sample No.:	V97-048	V97-049	V97-050	V97-051	V97-052
Sample Type:	Water	Water	Water	Water	Water
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Naphthalene:	< 10	< 10	< 10	122.1	< 10
2-Methylnaphthalene:	< 10	< 10	< 10	97.5	< 10
% Surrogate Recovery					
Nitrobenzene-d8	87.7%	96.0%	93.4%	98.3%	88.1%

Client Sample No:

VAL Sample No.:

Sample Type:

Units:

Naphthalene:

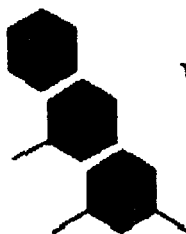
2-Methylnaphthalene:

% Surrogate Recovery

Nitrobenzene-d8

for soils, µg/kg = ppb

for waters, µg/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:	Mr. Tom Steinbeck
Sample Set Identification:	BOT Hobbs Q1 2000
Date collected:	March 29, 2000
Date Received:	March 30, 2000; 1352
Date Samples Analyzed by EPA 8021B:	March 31, 2000
Analyst:	C.F. Bohnstedt

Client Sample No:	MW-1	MW-2	MW-3	R-1	WW-1
VAL Sample No.:	V97-048	V97-049	V97-050	V97-051	V97-052
Sample Type:	Water	Water	Water	Water	Water
	-----	-----	-----	-----	-----
Total BTEX (ppm):	<0.005	<0.005	<0.005	<0.005	<0.005
Benzene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Et-Benzene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Xylene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MTBE (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Quality Control Results

	Blank	Daily Calibration Check	Percent Recovery
	-----	-----	-----
Benzene (ppm):	< 0.005	0.0767	102%
Toluene (ppm):	< 0.005	0.0805	107%
Et-Benzene (ppm):	< 0.005	0.0783	104%
p & m-Xylene (ppm):	< 0.005	0.1520	101%
o-Xylene	< 0.005	0.0750	99%
MTBE (ppm):	< 0.005	0.0746	99%
% Surrogate Recovery	104%	97%	

for soils, ppm = mg/kg

for waters, ppm = mg/l

MTBE = Methyl tert-Butyl Ether

Von Analytical Laboratories

10801 Hammerly #250

Houston, Texas 77043

Office: (713) 827-0737 FAX: (713) 827-8733

Phone No: 713 460 3233

Fax No: 714 460 8208

Company: *Boys 2, Krommer*

Project Location:

Reports Sent to: *Tom Stenskyde*

Hobbs NM

Project Name:

Bot Hobbs Q1 9000

P.O./Project Number:

Sampler(s) Name: (Signature)

Thomas V. Hestfeld

Courier: *Fed Ex*

Fed Sample ID

Sampling

Date

Time

Water

Soil

Sludge

Oil

Other

Composite

Grab Sample

Hz Sample (Y/N)

of Containers

Other

Sludge

Soil

Water

Other

Composite

Grab Sample

Hz Sample (Y/N)

of Containers

Other

Sludge

Soil

Water

Other

Composite

Grab Sample

Hz Sample (Y/N)

of Containers

Other

Sludge

Soil

Water

Other

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of Containers

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Sludge

Soil

Water

Other

Composite

Grab Sample

Hz Sample (Y/N)

of Containers

Other

Sludge

Soil

Water

Other

Composite

Grab Sample

Hz Sample (Y/N)

of Containers

Other

Sludge

Soil

Water

Other

Composite

Grab Sample

Hz Sample (Y/N)

July 31, 2000

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

**Second Quarter of 2000
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 second quarter of calendar year 2000 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 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.

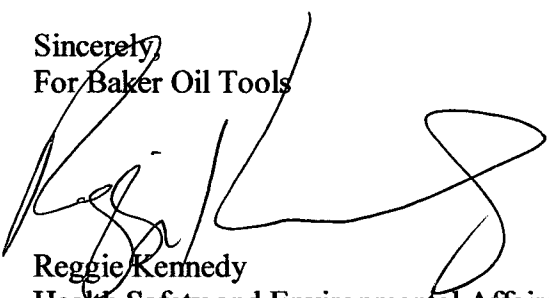
1. BOT performed the second quarter monitoring event on June 27, 2000. During this quarterly monitoring event, the wells were gauged for depth, bailed and sampled. Monitoring tasks began at 11:05 a.m. (MT). Purging of the well was accomplished by hand bailing each well. Bailing and sampling of the wells 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 sheen was noticed on the initial bailer of liquid removed with a noticeable but low hydrocarbon odor of the water in this and subsequent bailers of water. Samples were collected from each well and shipped to Von Analytical Laboratory in Houston, Texas for analysis.
2. The passive skimmer in monitoring well R-1 was checked and again no free hydrocarbon product was recovered. The type of skimmer installed was a ZORBO float type with a recovery canister. The skimmer was installed with the float/recovery portion of the skimmer at the water/air interface.
3. 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. Although no sheen or odor was noticed in MW-1, laboratory analysis detected naphthalene (23.1 µg/L) and 2-methylnaphthalene (15.9 µg/L). Monitoring well MW-1 is located in the northwest corner of the property. Positive results on naphthalene (136.6 µg/L) and 2-methylnaphthalene (84.3 µg/L) were also detected in well R-1. No other wells sampled yielded positive results.

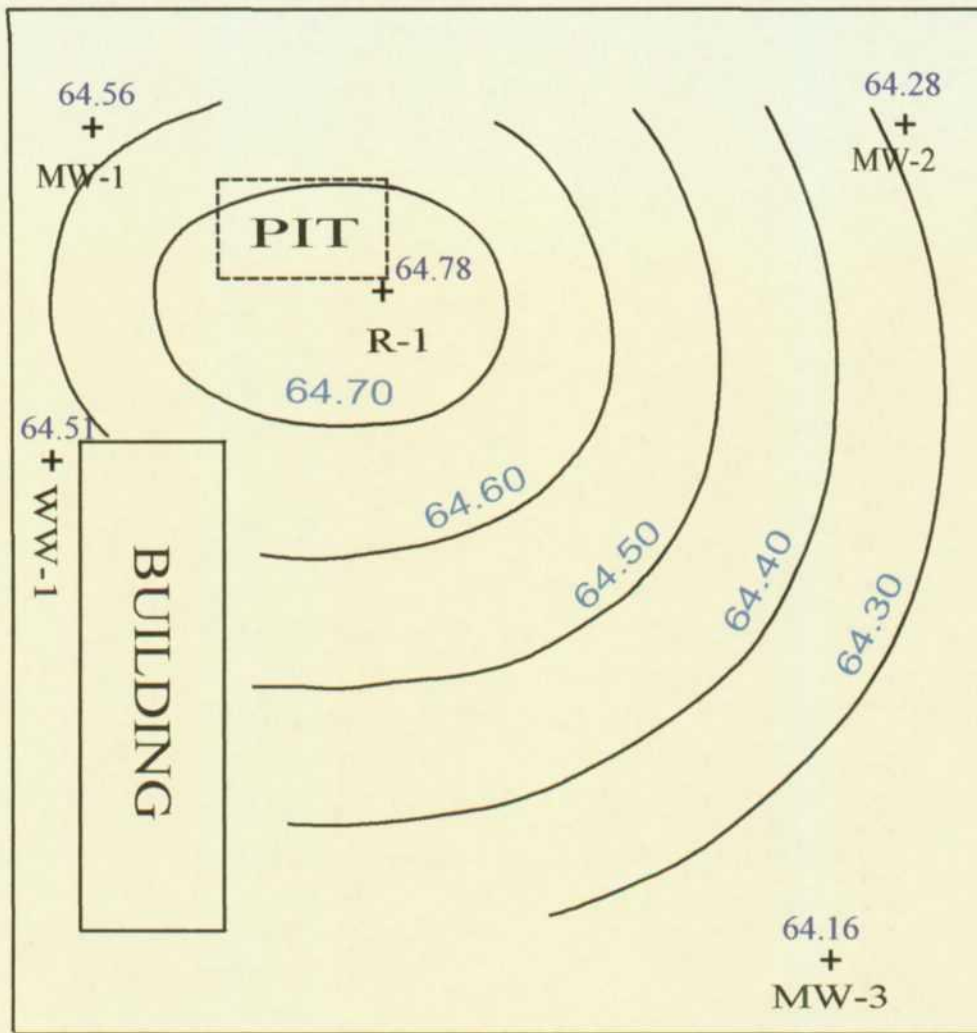
4. Water level and well depth measurements were measured using an electronic water level indicator capable of determining water levels to within 0.01 foot. Table 2 provides cumulative ground water level measurements for the previous four monitoring events. Based on the explanation presented in the previous quarter 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. Based on the groundwater data in this report, there appears to be a doming of the water table in the vicinity of the old pit. Flow may be occurring from the pit to the northwest resulting in the detection of the contaminants in MW-1.

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
Health Safety and Environmental Affairs Director



Page and Kraemer Environmental Services, Inc.
Lafayette / Houston

Figure 1

Groundwater Elevations (QTR 2, 2000)

Baker Oil Tools
2800 W. Marland
Hobbs, NM

Prepared by TVS
scale 1 = 40' (approx.)
7/31/00

TABLE 1A
MVV-1

	2nd Quarter 6/24/99	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00
EPA 8020A					
Benzene	< 0.0050 ppm	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	< 0.0050 ppm	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	< 0.0050 ppm	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	< 0.0050 ppm	<0.003 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	< 0.0050 ppm	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01 mg/l	NA	<0.01mg/l	<0.01mg/l	15.9 µg/L
Naphthalene	<0.01 mg/l	NA	<0.01mg/l	<0.01mg/l	23.1 µg/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 6/24/99	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00
EPA 8020A					
Benzene	< 0.0050 ppm	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	< 0.0050 ppm	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	< 0.0050 ppm	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	< 0.0050 ppm	<0.003 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	< 0.0050 ppm	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 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
MV-3

	2nd Quarter 6/24/99	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00
EPA 8020A					
Benzene	< 0.0050	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	< 0.0050	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	< 0.0050	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	< 0.0050	<0.003 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	< 0.0050 ppm	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.010 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Naphthalene	<0.010 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 6/24/99	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00
EPA 8020A					
Benzene	< 0.0050 ppm	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	< 0.0050 ppm	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	< 0.0050 ppm	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	< 0.0050 ppm	<0.003 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Total BETX	BDL	BDL	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	< 0.0050 ppm	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.010 mg/l	NA	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Naphthalene	<0.010 mg/l	NA	<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

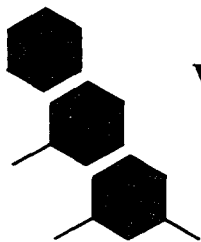
	2nd Quarter 6/24/99	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00
EPA 8020A					
Benzene	N/A	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	N/A	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	N/A	0.002 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	N/A	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Total BETX	N/A	0.002 mg/l	BDL	BDL	BDL
EPA 8020					
Methyl Tertiary Butyl Ether	N/A	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	N/A	<0.01 mg/l	185.2 µg/L	97.5 µg/L	84.3 µg/L
Naphthalene	N/A	<0.01 mg/l	117.3 µg/L	122.1 µg/L	138.6 µg/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)					
			3/25/1999	6/24/1999	9/30/1999	12/21/1999	3/29/2000	6/27/2000
MW-1	45.7	100.19	65.19	65.17	64.89	64.73	64.74	64.56
MW-2	45.0	99.56	64.88	64.76	64.46	64.51	64.33	64.28
MW-3	38.5	99.15	64.83	64.75	64.50	64.46	64.27	64.16
WW-1	125.0	99.52	65.12	64.01	64.79	64.96	64.51	64.11
R-1	48.0	100.03	*	64.83	64.83	64.63	*	64.78



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

July 20, 2000

Mr. Tom Stenbeck

Page & Kraemer Environmental

P. O. Box 841005

Houston, TX 77284-1005

Report:

BOT Hobbs

Date samples received: June 28, 2000; 1100

VAL Lab Numbers: V97-058 to V97-062

Client Sample Numbers: **MW-1 to WW-1**

Dear Mr. Stenbeck:

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.

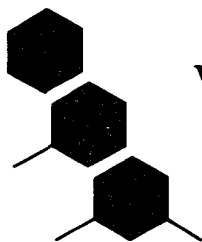
All raw data, spectra and log files shall remain on-file at VAL for a minimum of five years. Unused sample portions shall remain refrigerated at 4°C per EPA requirements for a minimum of 90 days for possible future analyses. After 90 days, we shall dispose of the samples using guidelines stated by state 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:	Page & Kraemer
Submitted by:	Mr. Tom Steinbeck
Sample Set Identification:	BOT Hobbs
Date Received:	June 28, 2000; 1100
Date Samples Extracted by EPA 8270C:	June 30, 2000
Date Samples Analyzed by EPA 8270C:	July 11, 2000

Client Sample No:	MW-1	MW-2	MW-3	R-1	WW-1
VAL Sample No.:	V97-058	V97-059	V97-060	V97-061	V97-062
Sample Type:	Water	Water	Water	Water	Water
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
	-----	-----	-----	-----	-----
Naphthalene:	23.1	< 10	< 10	138.6	< 10
2-Methylnaphthalene:	15.9	< 10	< 10	84.3	< 10
<u>% Surrogate Recovery</u>					
Nitrobenzene-d8	78.8%	84.0%	86.8%	107.3%	105.1%

Client Sample No:

VAL Sample No.:

Sample Type:

Units:

Naphthalene:

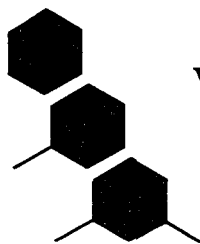
2-Methylnaphthalene:

% Surrogate Recovery

Nitrobenzene-d8

for soils, µg/kg = ppb

for waters, µg/L = ppb



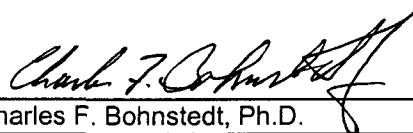
Von Analytical Laboratories

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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
Report to:	T. Stenbeck
Sample Set Identification:	BOT Hobbs
Date Received:	June 28, 2000; 1100
Date Samples Analyzed by EPA 8021B:	June 30, 2000

Client Sample No:	MW-1	MW-2	MW-3	R-1	WW-1
VAL Sample No.:	B64-058	B64-059	B64-060	B64-061	B64-062
Sample Type:	Soil	Soil	Soil	Soil	Soil
	-----	-----	-----	-----	-----
Total BTEX (ppm):	<0.005	<0.005	<0.005	<0.005	<0.005
Benzene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Et-Benzene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Xylene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MTBE (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Quality Control Results			
	Blank	Daily Calibration Check	Percent Recovery
	-----	-----	-----
Benzene (ppm):	< 0.005	0.0721	96%
Toluene (ppm):	< 0.005	0.0664	88%
Et-Benzene (ppm):	< 0.005	0.0686	91%
p & m-Xylene (ppm):	< 0.005	0.1490	99%
o-Xylene	< 0.005	0.0739	98%
MTBE (ppm):	< 0.005	0.0750	97%
% Surrogate Recovery	103%	97%	

for soils, ppm = mg/kg

for waters, ppm = mg/l

MTBE = Methyl tert-Butyl Ether

October 24, 2000

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 of 2000
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 third quarter of calendar year 2000 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 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.

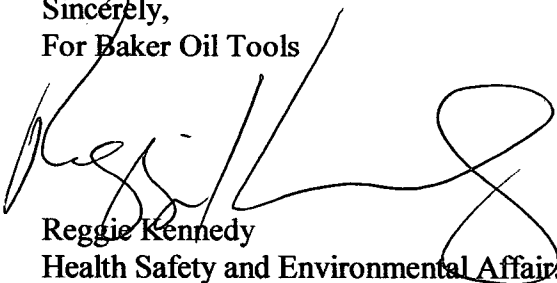
1. BOT performed the third quarter monitoring event on September 27, 2000. During this quarterly monitoring event, the wells were gauged for depth, bailed and sampled. Monitoring tasks began at 10:30 a.m. (MT). Purging of the well was accomplished by hand bailing each well. Sampling of the wells was 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 sheen was noticed on the initial bailer of liquid removed with a noticeable but low hydrocarbon odor of the water in this and subsequent bailers of water. Samples were collected from each well and shipped to Von Analytical Laboratory in Houston, Texas for analysis.
2. The passive skimmer in monitoring well R-1 was checked and again no free hydrocarbon product was recovered. The passive skimmer has recovered no free product since installation. The skimmer was removed for one quarter to evaluate if free product would move into the well when the borehole was open. If no free

product is detected in upcoming monitoring episodes, the skimmer will remain out of the well. The skimmer will be replaced once free product is noticed in this well. The type of skimmer was a ZORBO float type with a recovery canister. The skimmer was previously installed with the float/recovery portion of the skimmer at the water/air interface.

3. 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. Laboratory analysis indicated no naphthalene or 2-methylnaphthalene present in MW-1 as had been found in the previous quarter. Monitoring well MW-1 is located in the northwest corner of the property. Positive results on naphthalene (164.2 µg/L) and 2-methylnaphthalene (73.1 µg/L) were detected in well R-1. Analysis of the sample from monitoring well MW-3 indicated the presence of MTBE (0.0382 ppm). There is no source for MTBE from the Baker property so this material must be sourced from offsite.
4. 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. Based on the groundwater data in this report, the doming which appeared in the previous quarter appears to have flattened. 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
Health Safety and Environmental Affairs Director

Prepared by TVS
scale 1 = 40' (approx.)
10/24/00

TABLE 1A
MW-1

	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00
EPA 8020A					
Benzene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	<0.003 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 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	<0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	NA	<0.01mg/l	<0.01mg/l	15.9 µg/L	<0.01 mg/l
Naphthalene	NA	<0.01mg/l	<0.01mg/l	23.1 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 1B
MW-2

	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00
EPA 8020A					
Benzene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	<0.003 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 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	<0.005 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

	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00
EPA 8020A					
Benzene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	<0.003 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 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	0.0382 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

	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00
EPA 8020A					
Benzene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	<0.003 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 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	<0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	NA	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Naphthalene	NA	<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

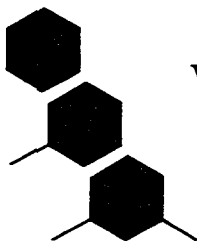
	3rd Quarter 9/30/99	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00
EPA 8020A					
Benzene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	0.002 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	<0.001 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Total BETX	0.002 mg/l	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	<0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01 mg/l	185.2 µg/L	97.5 µg/L	84.3 µg/L	73.1 µg/L
Naphthalene	<0.01 mg/l	117.3 µg/L	122.1 µg/L	138.6 µg/L	164.2 µg/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

Monitoring Well No.	Well Depth (ft)	Top of PVC Casing Elevation (ft MSL)	Ground-water Level Elevation (ft MSL)						
			3/25/1999	6/24/1999	9/30/1999	12/21/1999	3/29/2000	6/27/2000	9/27/2000
MW-1	45.7	100.19	65.19	65.17	64.89	64.73	64.74	64.56	64.10
MW-2	45.0	99.56	64.88	64.76	64.46	64.51	64.33	64.28	63.88
MW-3	38.5	99.15	64.83	64.75	64.50	64.46	64.27	64.16	63.80
WW-1	125.0	99.52	65.12	64.01	64.79	64.96	64.51	64.11	63.95
R-1	48.0	100.03	*	64.83	64.83	64.63	*	64.78	63.95



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

October 5, 2000

Mr. Tom Stenbeck

Page & Kraemer Environmental

P. O. Box 841005

Houston, TX 77284-1005

Report:

Hobbs Q3

Date samples received:

September 28, 2000; 1055

VAL Lab Numbers:

V97-070 to V97-074

Client Sample Numbers:

MW-1 to WW-1

Dear Mr. Stenbeck:

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.

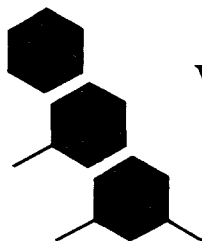
All raw data, spectra and log files shall remain on-file at VAL for a minimum of five years. Unused sample portions shall remain refrigerated at 4°C per EPA requirements for a minimum of 90 days for possible future analyses. After 90 days, we shall dispose of the samples using guidelines stated by state 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:	Page & Kraemer
Submitted by:	Mr. Tom Steinbeck
Sample Set Identification:	BOT Hobbs
Date Received:	September 28, 2000; 1055
Date Samples Extracted by EPA 8270C:	October 2-3, 2000
Date Samples Enalyzed by EPA 8270C:	October 4, 2000

Client Sample No:	MW-1	MW-2	MW-3	R-1	WW-1
VAL Sample No.:	V97-070	V97-071	V97-072	V97-073	V97-074
Sample Type:	Water	Water	Water	Water	Water
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
	-----	-----	-----	-----	-----
Naphthalene:	< 10	< 10	< 10	164.2	< 10
2-Methylnaphthalene:	< 10	< 10	< 10	73.1	< 10
<u>% Surrogate Recovery</u>					
Nitrobenzene-d8	104.9%	106.0%	80.7%	104.7%	96.8%

Client Sample No:

VAL Sample No.:

Sample Type:

Units:

Naphthalene:

2-Methylnaphthalene:

% Surrogate Recovery

Nitrobenzene-d8

for soils, µg/kg = ppb

for waters, µg/L = ppb



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email: cfb@flash.net

Charles F. Bohnstedt, Ph.D.

Client:	Page & Kraemer Environmental
Report to:	Tom Stenbeck
Sample Set Identification:	Hobbs Q3
Date Received:	September 28, 2000; 1055
Date Samples Analyzed by EPA 8021B:	November 28-29, 2000
Analyst:	C.F. Bohnstedt

Client Sample No:	MW-1	MW-2	MW-3	R-1	WW-1
VAL Sample No.:	V97-070	V97-071	V97-072	V97-073	V97-074
Sample Type:	Water	Water	Water	Water	Water
	-----	-----	-----	-----	-----
Total BTEX (ppm):	<0.005	<0.005	<0.005	<0.005	<0.005
Benzene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Et-Benzene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Xylene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MTBE (ppm):	< 0.005	< 0.005	0.0382	< 0.005	< 0.005

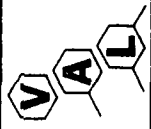
Quality Control Results

	Blank	Daily Calibration Check	Percent Recovery
	-----	-----	-----
Benzene (ppm):	< 0.005	0.0766	102%
Toluene (ppm):	< 0.005	0.0763	102%
Et-Benzene (ppm):	< 0.005	0.0693	92%
p & m-Xylene (ppm):	< 0.005	0.1550	103%
o-Xylene	< 0.005	0.0723	96%
MTBE (ppm):	< 0.005	0.0771	100%
% Surrogate Recovery	101%	108%	

for soils, ppm = mg/kg

for waters, ppm = mg/l

MTBE = Methyl tert-Butyl Ether



Von Analytical Laboratories
10801 Hammerly #250
Houston, Texas 77043
Office: (713) 827-0737 FAX: (713) 827-8733

Request for Analysis

Company: Pagz + Kraemer Phone No: 713 460 3233
Fax No: 713 460 8298
Reports Sent to: Tom Stenbech Project Location:
Project Name: Hobbs Q3 P. O./Project Number:

Sampler(s) Name: (Signature) Thomas V. Stenbech
Courier:
Matrix:
Water
Soil
Sludge
Oil
Other
of Containers
Haz. Sample (Y/N)
Grab Sample
Composite

	Field Sample ID	Sampling		
		Date	Time	
1.	MW-1	9/27	11:30	✓
2.	MW-2		12:15	✓
3.	MW-3		12:30	✓
4.	R-1		12:40	✓
5.	WW-1		11:45	✓
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				

Naphthalene 2-methylnaphthalene
BTEX, MTBE

Laboratory Number
V97-070
V97-071
V97-072
V97-073
V97-074

Relinquished by Sampler: (Signature) Thomas V. Stenbech
Relinquished by: (Signature)
Relinquished by: (Signature)

Date: 9/27
Date: 9/28
Date:

Time: 12:50
Time: 1055
Time:

Received by: (Signature)
Received by: (Signature) Joe Turner
Received by Laboratory: (Signature)

Special Turnaround:

Remarks/Special Instructions:

January 5, 2001

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 of 2000
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 calendar year 2000 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 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.

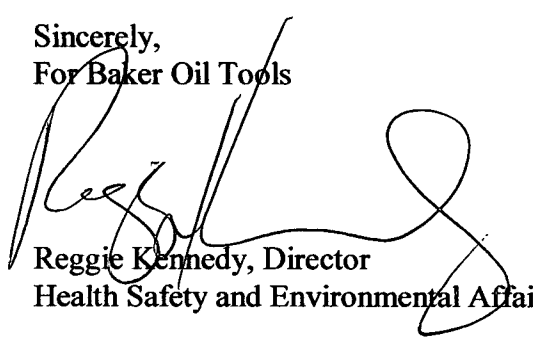
1. BOT performed the fourth quarter monitoring event on December 5, 2000. During this quarterly monitoring event, the wells were gauged for depth, bailed and sampled. Monitoring tasks began at 10:30 a.m. (MT). Purging of the well was accomplished by hand bailing each well. Sampling of the wells was accomplished 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 sheen was noticed on the initial bailer of liquid removed with a noticeable but low hydrocarbon odor of the water in this and subsequent bailers of water. Samples were collected from each well and shipped to Von Analytical Laboratory in Houston, Texas for analysis.
2. The passive skimmer in monitoring well R-1 was not replaced after removal last quarter. With the very slight sheen in R-1 it was not deemed necessary to replace the passive skimmer since the skimmer has not recovered any hydrocarbon since being placed in the well. As stated in the previous quarterly reporting the passive skimmer

will remain out of the well until more than a sheen of free product is noted again in well R-1.

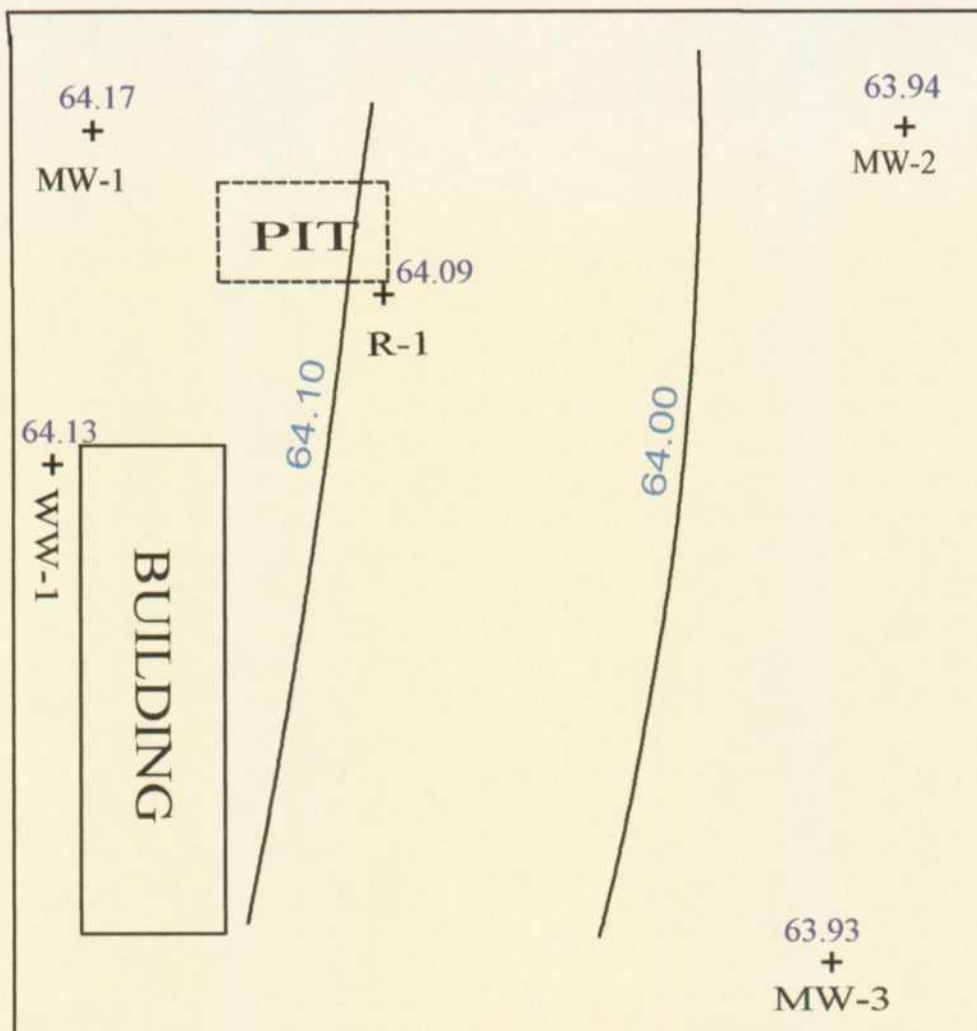
3. A summary of the laboratory analytical results of water quality sampling of the monitoring wells is provided in the attached Table 1A through 1E. This data is presented in tabular form showing the previous four monitoring events sampling results. A copy of the original laboratory analytical results is also attached. The only positive result for naphthalene (21.4 µg/L) was detected in well R-1. No 2-methylnaphthalene was detected in the well this time. Analysis of the sample from monitoring well MW-3 again indicated the presence of MTBE (0.0357 ppm). There is no source for MTBE from the Baker property so this material must be sourced from offsite.
4. 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



Page and Kraemer Environmental Services, Inc.
Lafayette / Houston

Figure 1

Groundwater Elevations (QTR 4, 2000)

Baker Oil Tools
2800 W. Marland
Hobbs, NM

Prepared by TVS
scale 1 = 40' (approx.)
1/5/01

TABLE 1A
MW-1

	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/00
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 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	<0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	<0.01mg/l	<0.01mg/l	15.9 µg/L	<0.01 mg/l	<0.01mg/l
Naphthalene	<0.01mg/l	<0.01mg/l	23.1 µg/L	<0.01 mg/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

	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/00
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 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	<0.005 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

	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/01
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 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	0.0382 mg/l	0.0357 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

	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/05/00
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 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	<0.005 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

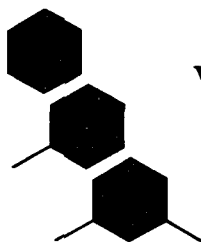
	4th Quarter 12/21/99	1st Quarter 3/29/00	2nd Quarter 6/27/00	3rd Quarter 9/27/00	4th Quarter 12/21/99
EPA 8020A					
Benzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Ethylbenzene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Toluene	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l
Xylenes	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	<0.005 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	<0.005 mg/l
EPA 8270B					
2-Methylnaphthalene	185.2 µg/L	97.5 µg/L	84.3 µg/L	73.1 µg/L	<10 µg/L
Naphthalene	117.3 µg/L	122.1 µg/L	138.6 µg/L	164.2 µg/L	21 µg/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)						
			06/24/1989	09/30/1989	12/21/1999	03/29/2000	06/27/2000	09/27/2000	12/05/2000
MW-1	45.7	100.19	65.17	64.89	64.73	64.74	64.56	64.10	64.17
MW-2	45.0	99.56	64.76	64.46	64.51	64.33	64.28	63.88	63.94
MW-3	38.5	99.15	64.75	64.50	64.46	64.27	64.16	63.80	63.93
WW-1	125.0	99.52	64.01	64.79	64.96	64.51	64.11	63.95	64.13
R-1	48.0	100.03	64.83	64.83	64.63	*	64.78	63.95	64.09



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

December 8, 2000

Mr. Tom Stenbeck

Page & Kraemer Environmental

P. O. Box 841005

Houston, TX 77284-1005

Report:

BOT Hobbs

Date samples received:

December 6, 2000; 1130

VAL Lab Numbers:

C64-101 to C64-105

Client Sample Numbers:

MW-1 to R-1

Dear Mr. Stenbeck:

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.

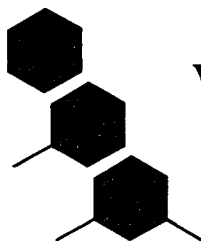
The analytical results pertain only to the samples analyzed as received. Von Analytical Laboratories assumes no responsibility for any subsequent use or interpretation of the analytical results.

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

Sincerely,

Charles F. Bohnstedt, Ph.D.

Senior Analyst



Von Analytical Laboratories

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Ph. (713) 827-0737 • Fax (713) 827-8733

email: cfb@flash.net

Charles F. Bohnstedt, Ph.D.

Client:	Page & Kraemer
Report to:	Tom Stenbeck
Sample Set Identification:	BOT Hobbs
Date Received:	December 6, 2000; 1130
Date Samples Analyzed by EPA 8021B:	December 6, 2000
Analyst:	C.F. Bohnstedt

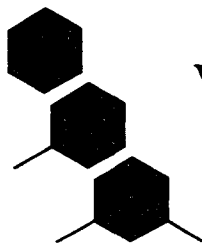
Client Sample No:	MW-1	MW-2	MW-3	VW-1	R-1
VAL Sample No.:	C64-101	C64-102	C64-103	C64-104	C64-105
Sample Type:	Water	Water	Water	Water	Water
	-----	-----	-----	-----	-----
Total BTEX (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Benzene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Et-Benzene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Xylene (ppm):	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MTBE (ppm):	< 0.005	< 0.005	0.0357	< 0.005	< 0.005

Quality Control Results			
	Blank	Daily Calibration Check	Percent Recovery
	-----	-----	-----
Benzene (ppm):	< 0.005	0.0718	95%
Toluene (ppm):	< 0.005	0.0733	98%
Et-Benzene (ppm):	< 0.005	0.0739	98%
p & m-Xylene (ppm):	< 0.005	0.1497	100%
o-Xylene	< 0.005	0.0746	99%
MTBE (ppm):	< 0.005	0.0705	91%
% Surrogate Recovery	97%	92%	

for soils, ppm = mg/kg

for waters, ppm = mg/l

MTBE = Methyl tert-Butyl Ether



Von Analytical Laboratories

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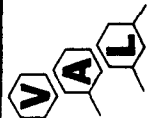
Charles F. Bohnstedt, Ph.D.

Client:	Page & Kraemer
Samples Submitted by:	Tom Stenbeck
Project:	BOT Hobbs
Date/Time Samples Received:	December 6, 2000; 1130
BNA Analytical Method:	EPA SW-846, Method 8270C
Date Analyzed:	December 6, 2000 Extracted / December 7, 2000 Analyzed

Client Sample ID:	MW-1	MW-2	MW-3	WW-1	R-1
VAL Sample ID:	C64-101	C64-102	C64-103	C64-104	C64-105
Sample Type:	Water	Water	Water	Water	Water
Compound	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Naphthalene	< 10	< 10	< 10	< 10	21.4
2-methylnaphthalene	< 10	< 10	< 10	< 10	< 10

Surrogate Standards

Nitrobenzene-d5 (SS)	65.6%	70.3%	54.0%	60.3%	73.4%
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Von Analytical Laboratories
10801 Hammerly #250
Houston, Texas 77043
Office: (713) 827-0737 FAX: (713) 827-8733

Company:

Page: i Kraemer

Phone No: 713 460 3333

Fax No: 713 460 8322

Reports Sent to:

Tom Stenbeck

Project Location:

Bot Hobbs

Project Name:

P. O./Project Number:

Sampler(s) Name: (Signature)

Thomas V. Stenbeck

Courier:

F-EDex 809 295843960

Sampling

Field Sample ID

Date

Time

m.t.

1.

MW-1

12/5/00

11:00A

2.

MW-2

12/5/00

11:00A

3.

MW-3

12/5/00

11:00A

4.

MW-1

12/5/00

11:00A

5.

R-1

12/5/00

11:00A

6.

7.

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12.

13.

14.

Relinquished by Sampler: (Signature)

Relinquished by: (Signature)

Relinquished by: (Signature)

Date:

Date:

Date:

Time:

Time:

Time:

Received by: (Signature)

Received by: (Signature)

Received by Laboratory: (Signature)

Remarks/Special Instructions:

Special Turnaround:

Request for Analysis

C64 -
Laboratory Number

101

102

103

104

105

Matrix
Water
Sludge
Oil
Other

Haz. Sample (Y/N)

of Containers

Grab Sample

Composite

Other

Oil

Sludge

Soil

Water

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**CERTIFIED
ANALYTICAL
RESULTS
&
CHAIN of
CUSTODY**