3R - 125

REPORTS

DATE:

1999

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

February 21, 2000

Mr. William C. Olson - Hydrologist
State of New Mexico Oil Conservation Division
2040 South Pacheco
State Land Office Building
Santa Fe, NM 87505

RECEIVED
FEB 25 2000
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

RE: 1999 ANNUAL GROUNDWATER REPORTS
SAN JUAN COUNTY, NEW MEXICO
PERMANENT CLOSURE REQUESTED

Dear Mr. Olson:

Blagg Engineering, Inc., on behalf of Cross Timbers Oil Company, respectfully submits the attached 1999 annual groundwater reports in which permanent closure is requested. This reporting adheres to the NMOCD's previously approved groundwater management plan.

A total of ten (10) well sites, listed on the following page, are associated with this correspodence. All work performed on the these well sites have been incorporated into individual packets.

The summary, conclusions, and/or recommendations made within these reports are based on information made available from the enclosed material. Any site specific inquiries should be examined within the individual packets.

If you have questions, please call and contact either myself or Jeffrey C. Blagg. Thank you for your cooperation and assistance.

Sincerely,
BLAGG ENGINEERING, INC.

Nelson Velez
Staff Geologist

Reviewed by:

Jeffrey C. Blagg, P.E.
President

Attachments: Individual Well site packets

cc: Denny Foust, Deputy Oil & Gas Inspector, New Mexico Oil Conservation Division, Aztec, NM
Bill Liese, Regional Environmental Officer, Bureau of Land Management, Farmington, NM (2 copies)
Nina Hutton, Environmental & Safety Manager, Cross Timbers Oil Company, Ft. Worth, TX

NV/nv

PERM-99.CVL

Groundwater Sites Requesting Permanent Closure

1.	Baca GC A #1A	Unit G, Sec. 26, T29N, R10W
2.	Haney GC B #1E	Unit M, Sec. 20, T29N, R10W
3.	Hare GC C #1	Unit M, Sec. 25, T29N, R10W
4.	Masden GC # 1E	Unit D, Sec. 28, T29N, R11W
5.	McDaniel GC B # 1E	Unit F, Sec. 26, T29N, R10W
6.	Pearce GC # 1E	Unit J, Sec. 23, T29N, R11W
7.	Sanchez GC # 1	Unit G, Sec. 28, T29N, R10W
8.	Snyder GC # 1A	Unit F, Sec. 19, T29N, R9W
9.	Sullivan Frame A # 1E	Unit A, Sec. 30, T29N, R10W
10.	Texas National GC # 1	Unit K, Sec. 19, T29N, R9W

CROSS TIMBERS OIL COMPANY

GROUNDWATER REMEDIATION REPORT

1999

SANCHEZ GC #1
(G) SECTION 28, T29N, R10W, NMPM
SAN JUAN COUNTY, NEW MEXICO

RECEIVED
FEB 25 2000
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

PREPARED FOR:
MR. WILLIAM C. OLSON
NEW MEXICO OIL CONSERVATION DIVISION

FEBRUARY 2000

PREPARD BY:
BLAGG ENGINEERING, INC.

Consulting Petroleum / Reclamation Services
P.O. Box 87
Bloomfield, New Mexico 87413

Cross Timbers Oil Company (CTOC)
Sanchez GC # 1 - Blow Pit
Sw/4 Ne/4 Sec. 28, T29N, R10W

Site Assessment Date:	**June 9, 1992 (Documentation Included)**
Pit closure Date:	**October 21, 1993 (Documentation Included)**
Monitor Well Installation Date:	**October 19, 1999**
Monitor Well Sampling Date:	**November 4, 1999**

Groundwater Monitor Well Sampling Procedures:

Groundwater samples were collected from site monitor wells (MW's) following USEPA: SW-846 protocol. The samples were collected using new disposable bailers and placed in new laboratory supplied 40 ml glass vials with teflon septa caps. Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) per USEPA Method 8021. Additional groundwater was collected and place in laboratory supplied 500 ml plastic containers and analyzed for general water quality per USEPA Method 600/4-79-020. The samples were preserved cool (BTEX samples also preserved with mercuric chloride) and hand delivered to a qualified laboratory for testing. Waste generated during monitor well sampling and development was disposed of utilizing the separator tank pit located on the well site.

Water Quality Information:

The BTEX results for all three (3) MW's during the November 4, 1999 sampling event were non detectable at practical quantitation limits. The general water quality results did meet New Mexico Water Quality Control Commission's regulatory standards for nearly all constituents or was less than/statistically equal to the apparent background levels derived from MW #1.

Summary and/or Recommendations:

The groundwater gradient, as evident in figure 2, appears to be flowing in southeast direction. Blagg Engineering, Inc. was not able to install a monitor well in this direction from the pit due to an existing tree line and close proximity to an apparent neck (or former primary channel) to the San Juan River. It was therefore decided to place a monitor well (MW #3) in an area potentially susceptible to impact from the blow pit in question.

Based on the enclosed documentation, the groundwater within the blow pit area appears to meet all criteria for permanent closure. All aspects of the NMOCD previously approved groundwater management plan has been adhered to. Therefore, CTOC is requesting permanent closure status for this pit.

CROSS TIMBERS OIL CO. GROUNDWATER MONITOR WELL LAB RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

SANCHEZ GC # 1 - BLOW PIT

UNIT G, SEC. 28, T29N, R10W

DRAFTED : DECEMBER 4, 1999

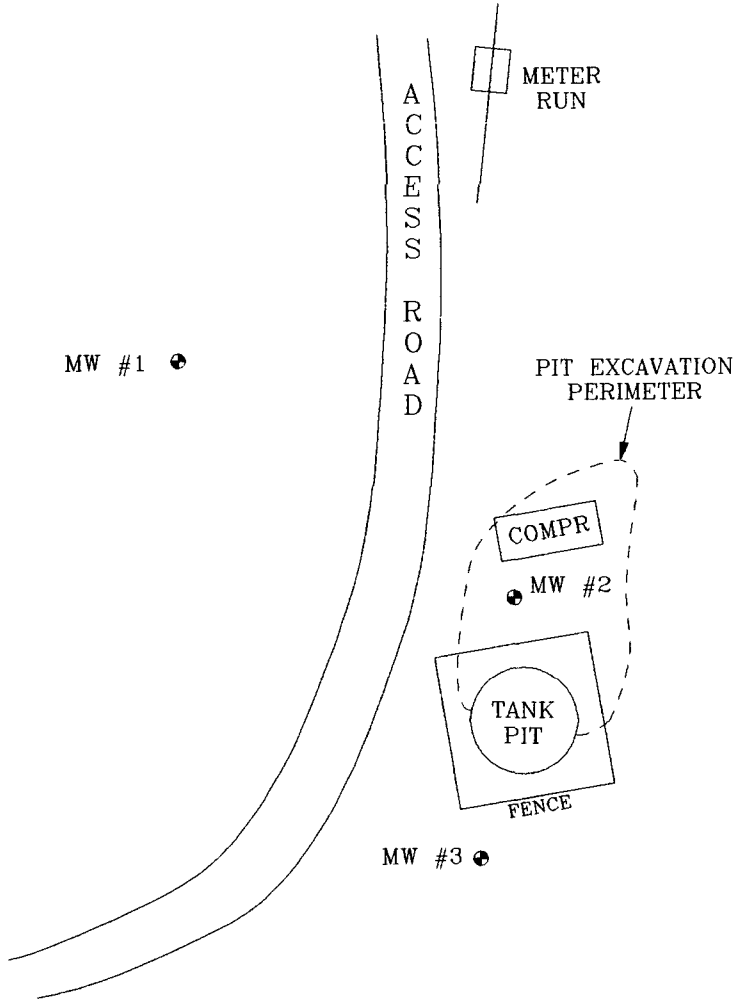
FILENAME: (SA-4Q-99.WK4) NJV

SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (in)	BTEX EPA METHOD 8020 (PPB) Benzene	Toluene	Ethyl Benzene	Total Xylene
04-Nov-99	MW #1	7.01	15.00	2,150	4,300	7.0		ND	ND	ND	ND
04-Nov-99	MW #2	7.88	15.00	2,425	4,860	7.1		ND	ND	ND	ND
04-Nov-99	MW #3	8.54	15.00	2,440	4,900	7.3		ND	ND	ND	ND

GENERAL WATER QUALITY
CROSS TIMBERS OIL COMPANY
SANCHEZ GC # 1
SAMPLE DATE : November 4 , 1999

PARAMETERS	MW # 1	MW # 2	MW # 3	Units
LAB pH	6.99	7.08	7.33	s. u.
LAB CONDUCTIVITY @ 25 C	4,300	4,860	4,900	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	2,150	2,425	2,440	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	2,138	2,383	2,416	mg / L
SODIUM ABSORPTION RATIO	10.9	17.9	15.7	ratio
TOTAL ALKALINITY AS CaCO3	326	354	354	mg / L
TOTAL HARDNESS AS CaCO3	432	268	335	mg / L
BICARBONATE as HCO3	326	354	354	mg / L
CARBONATE AS CO3	< 1	< 1	< 1	mg / L
HYDROXIDE AS OH	< 1	< 1	< 1	mg / L
NITRATE NITROGEN	< 0.1	0.1	< 0.01	mg / L
NITRITE NITROGEN	0.003	0.005	0.003	mg / L
CHLORIDE	4.5	4.1	2.7	mg / L
FLUORIDE	1.33	1.37	1.68	mg / L
PHOSPHATE	0.3	0.1	< 0.1	mg / L
SULFATE	1,250	1,393	1,425	mg / L
IRON	< 0.001	0.531	0.050	mg / L
CALCIUM	120	47.8	55.5	mg / L
MAGNESIUM	32.2	36.2	47.6	mg / L
POTASSIUM	11.6	10.7	8.22	mg / L
SODIUM	520	675	660	mg / L
CATION / ANION DIFFERENCE	0.06	0.04	0.08	%

FIGURE 1



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

CROSS TIMBERS OIL COMPANY

SANCHEZ GC #1

SW/4 NE/4 SEC. 28, T29N, R10W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW INSTALL.

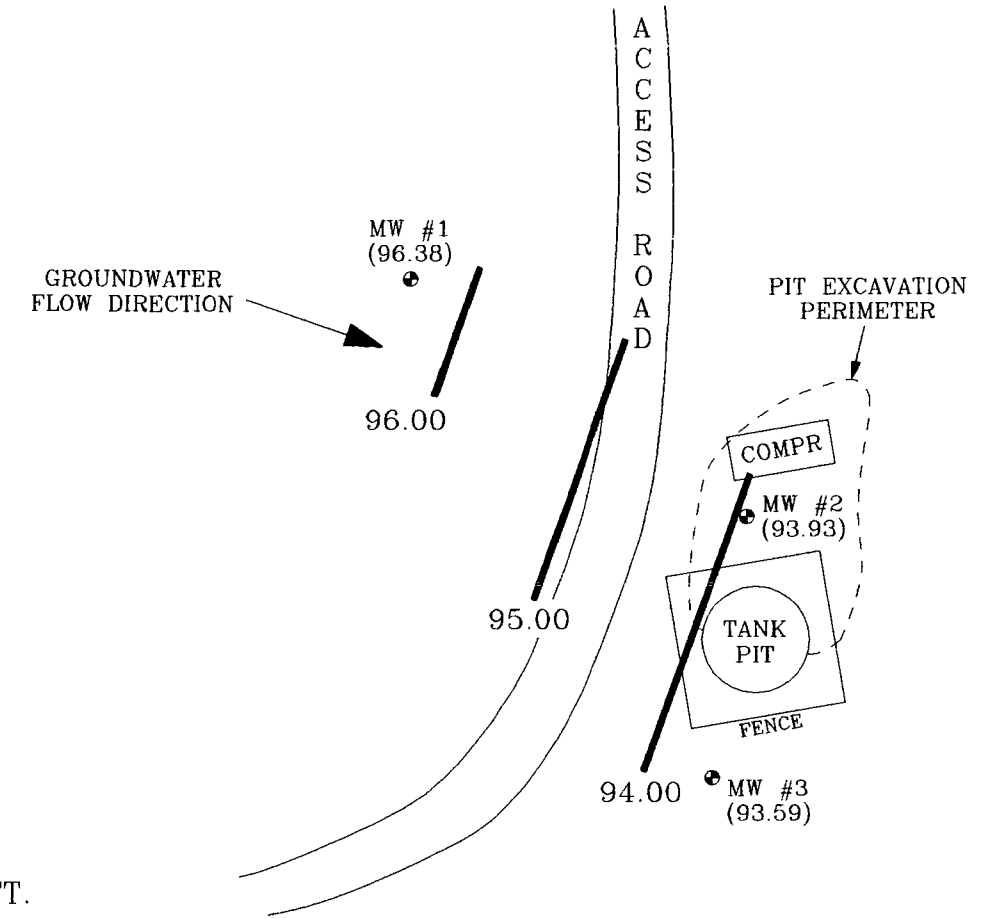
DRAWN BY: NJV

FILENAME: SANC1-SM.SKD

SITE MAP

10/99

FIGURE 2
(4th 1/4, 1999)



CROSS TIMBERS OIL COMPANY

SANCHEZ GC #1

SW/4 NE/4 SEC. 28, T29N, R10W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: MW SAMPLING

DRAWN BY: NJV

FILENAME: SANC1-GW.SKD

GROUNDWATER GRADIENT MAP

11/99

BLAGG ENGINEERING, Inc.

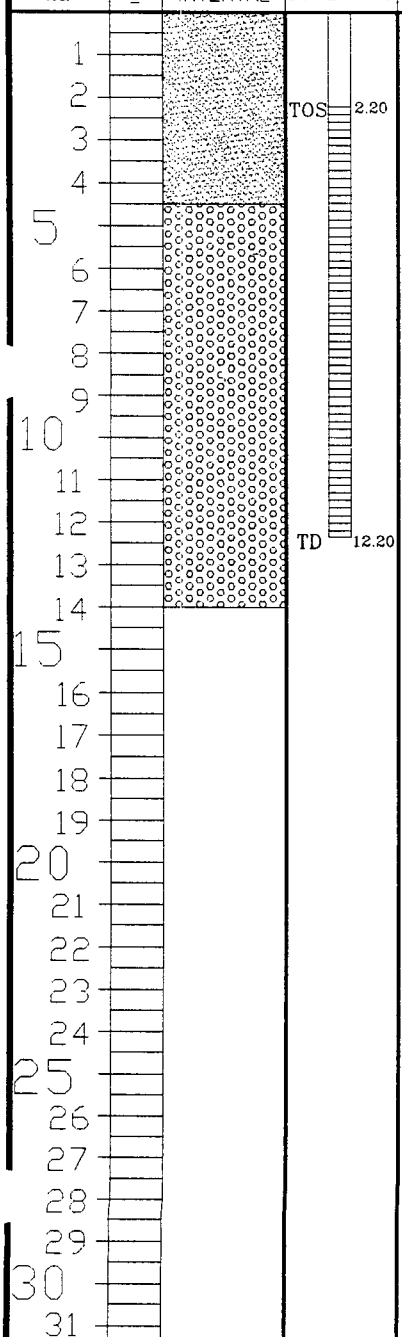
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

BORING # BH - 1
MW # 1
PAGE # 1

CLIENT: CROSS TIMBERS OIL COMPANY
LOCATION NAME: SANCHEZ GC #1
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (ENVIROTECH CME61)
BORING LOCATION: 132 FT., N14W FEET FROM WELL HEAD.

DATE STARTED 10/19/99
DATE FINISHED 10/19/99
OPERATOR DE
PREPARED BY NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.80 FT. ABOVE GROUND SURFACE.

MODERATE YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST TO SATURATED, FIRM TO LOOSE, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (0.00 - 4.50 FT. INTERVAL).

▼ GW DEPTH ON 11/4/99 = 4.21 FT. (APPROX.) FROM GROUND SURFACE.

DARK YELLOWISH BROWN SAND AND GRAVEL, NON COHESIVE, SATURATED, FIRM TO LOOSE, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (4.50 - 14.00 FT. INTERVAL).

NOTE:
- SAND.
- SAND AND GRAVEL.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

DRAWING: BH-1.SKD | DATE: 1/21/00 | DWN BY: NJV

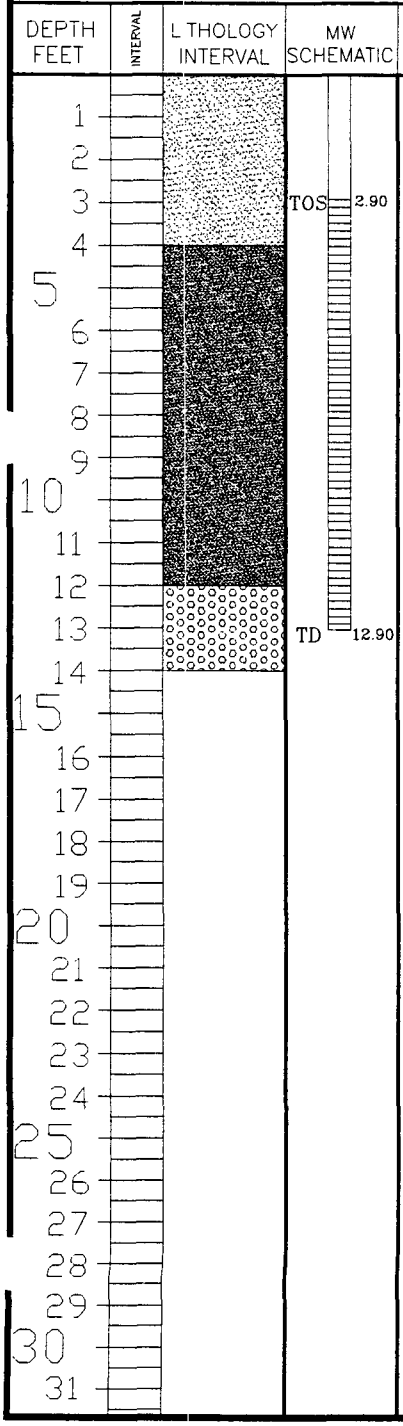
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

BORING #..... BH - 2
MW #..... 2
PAGE #..... 2
DATE STARTED 10/19/99
DATE FINISHED 10/19/99
OPERATOR..... DE
PREPARED BY NJV

CLIENT: CROSS TIMBERS OIL COMPANY
LOCATION NAME: SANCHEZ GC #1
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (ENVIROTECH CME61)
BORING LOCATION: 93 FT., N12.5E FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.10 FT. ABOVE GROUND SURFACE.

MODERATE YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (0.00 - 4.00 FT. INTERVAL).

▼ GW DEPTH ON 11/4/99 = 5.78 FT. (APPROX.) FROM GROUND SURFACE.

MEDIUM GRAY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY (4.00 - 12.00 FT. INTERVAL).

MEDIUM GRAY SAND AND GRAVEL, NON COHESIVE, SATURATED, FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY (12.00 - 14.00 FT. INTERVAL).

NOTE:
- SAND.
- DISCOLORED SAND.
- SAND AND GRAVEL.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

DRAWING: BH-2.SKD	DATE: 1/21/00	DWN BY: NJV

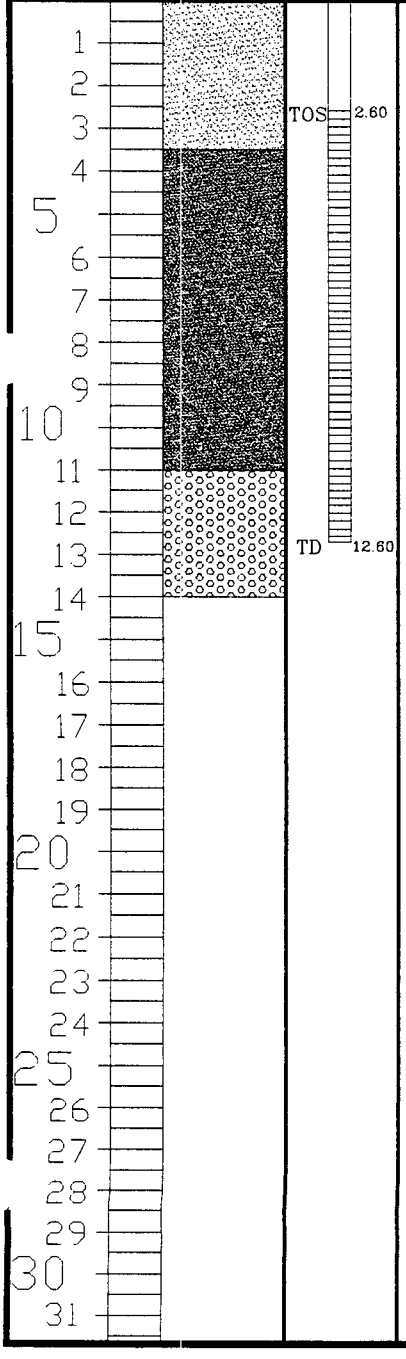
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

BORING # BH - 3
MW # 3
PAGE # 3
DATE STARTED 10/19/99
DATE FINISHED 10/19/99
OPERATOR DE
PREPARED BY NJV

CLIENT: CROSS TIMBERS OIL COMPANY
LOCATION NAME: SANCHEZ GC #1
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (ENVIROTECH CME61)
BORING LOCATION: 52 FT., N16.5E FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.40 FT. ABOVE GROUND SURFACE.

MODERATE YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (0.00 - 3.50 FT. INTERVAL).

▼ GW DEPTH ON 11/4/99 = 6.14 FT. (APPROX.) FROM GROUND SURFACE.

MEDIUM GRAY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY (3.50 - 11.00 FT. INTERVAL).

MEDIUM GRAY SAND AND GRAVEL, NON COHESIVE, SATURATED, FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY (11.00 - 14.00 FT. INTERVAL).

NOTE:
- SAND.
- DISCOLORED SAND.
- SAND AND GRAVEL.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

DRAWING: BH-3.SKD | DATE: 1/21/00 | DWN BY: NJV

MONITOR WELL #1

CROSS TIMBERS OIL COMPANY

SANCHEZ GC # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: JAN. '00

FILENAME: MW-1

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	MW #2	Date Reported:	11-07-99
Chain of Custody:	7309	Date Sampled:	11-04-99
Laboratory Number:	G374	Date Received:	11-04-99
Sample Matrix:	Water	Date Analyzed:	11-05-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**ND**	**1**	**0.2**
o-Xylene	**ND**	**1**	**0.1**
Total Xylene	**ND**		
Total BTEX	**ND**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**95 %**
	Bromofluorobenzene	**95 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **Sanchez GC #1.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	MW #3	Date Reported:	11-07-99
Chain of Custody:	7309	Date Sampled:	11-04-99
Laboratory Number:	G375	Date Received:	11-04-99
Sample Matrix:	Water	Date Analyzed:	11-05-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**ND**	**1**	**0.2**
o-Xylene	**ND**	**1**	**0.1**
Total Xylene	**ND**		
Total BTEX	**ND**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**98 %**
	Bromofluorobenzene	**98 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **Sanchez GC #1.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	MW #3	Date Reported:	11-08-99
Laboratory Number:	G375	Date Sampled:	11-04-99
Chain of Custody:	7309	Date Received:	11-04-99
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	11-05-99
Condition:	Cool & Intact		

Parameter	Analytical Result	Units		Units
pH	**7.33**	s.u.		
Conductivity @ 25° C	**4,900**	umhos/cm		
Total Dissolved Solids @ 180C	**2,440**	mg/L		
Total Dissolved Solids (Calc)	**2,416**	mg/L		
SAR	**15.7**	ratio		
Total Alkalinity as CaCO3	**354**	mg/L		
Total Hardness as CaCO3	**335**	mg/L		
Bicarbonate as HCO3	**354**	mg/L	5.80	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**<.01**	mg/L	0.00	meq/L
Nitrite Nitrogen	**0.003**	mg/L	0.00	meq/L
Chloride	**2.7**	mg/L	0.08	meq/L
Fluoride	**1.68**	mg/L	0.09	meq/L
Phosphate	**<0.1**	mg/L	0.00	meq/L
Sulfate	**1,425**	mg/L	29.67	meq/L
Iron	**0.050**	mg/L		
Calcium	**55.5**	mg/L	2.77	meq/L
Magnesium	**47.6**	mg/L	3.92	meq/L
Potassium	**8.22**	mg/L	0.21	meq/L
Sodium	**660**	mg/L	28.71	meq/L
Cations			35.61	meq/L
Anions			35.64	meq/L
Cation/Anion Difference			**0.08%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Water And Waste Water", 18th ed., 1992.

Comments: **Sanchez GC #1.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

7309

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / CROSSTIMBERS	SANCHEZ GC #1	
Sampler: REP	Client No. 403410	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)	ANION CATION					Remarks
MW#1	11.4.99	0945	G373	WATER	3	✓	✓					
MW#2	11.4.99	1010	G374	WATER	3	✓	✓					
MW#3	11.4.99	1030	G375	WATER	3	✓	✓					
												BTEX SAMPLES, HgCl2 PRESERVE - COOL
												A/C SAMPLES
												PRESERVE - COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Ed Pownall	11.4.99	1215	Jennifer L. Ojeda	11.4.99	1215
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

5796 U.S. Highway 64
Farmington, New Mexico 87401
(505) 632-0615

Sample Receipt	Y	N	N/A
Received Intact	✓		
Cool - Ice/Blue Ice	✓		

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	11-05-BTEX QA/QC	Date Reported:	11-07-99
Laboratory Number:	G373	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	11-05-99
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	1.5053E-001	1.5102E-001	0.32%	ND	0.2
Toluene	3.0995E-001	3.1001E-001	0.02%	ND	0.2
Ethylbenzene	8.9920E-002	9.0028E-002	0.12%	ND	0.2
p,m-Xylene	2.7841E-001	2.7847E-001	0.02%	ND	0.2
o-Xylene	2.6467E-002	2.6546E-002	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	ND	ND	0.0%	0 - 30%
Toluene	ND	ND	0.0%	0 - 30%
Ethylbenzene	ND	ND	0.0%	0 - 30%
p,m-Xylene	ND	ND	0.0%	0 - 30%
o-Xylene	ND	ND	0.0%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	ND	50.0	50.0	100%	39 - 150
Toluene	ND	50.0	50.0	100%	46 - 148
Ethylbenzene	ND	50.0	50.0	100%	32 - 160
p,m-Xylene	ND	100.0	100	100%	46 - 148
o-Xylene	ND	50.0	50.0	100%	46 - 148

ND - Parameter not detected at the stated detection limit.

* - Administrative level set at 80 - 120.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **QA/QC for samples G373 - G378.**

Analyst

Review

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ENVIROTECH Inc.

5796 US HWY. 64, FARMINGTON, NM 87401
(505) 632-0615

94277
1389

FIELD REPORT: SITE ASSESSMENT

JOB No: 92140
PAGE No: 1 of 1

PROJECT: PIT ASSESSMENTS & CLOSURE
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: ENVIROTECH, INC.
EQUIPMENT USED: Backhoe w/ 24"

DATE STARTED: 6/9/92
DATE FINISHED: 6/9/92
ENVIRO. SPCLT: RB
OPERATOR: BW
ASSISTANT: LT

LOCATION: LSE: Sanchez WELL: 1 QD: SW/4 NE/4 (G)
SEC: 28 TWP: T29N RNG: R10W PM: NMPM CNTY: SJ ST: NM PIT: BLOW PIT
LAND USE: Rangeland / wildlife habitat
SURFACE CONDITIONS: Earthen Pit (20'wx30'lx4'd) situated on site

FIELD NOTES & REMARKS: This earthen pit contain old growth (trees) and other trash. Lotsa woody vegetation in and around pit site. T1 dug in middle interior of BLOW PIT. Black soils w/ strong odor associated w/ gasoline & waste oils encountered. T2 dug down gradient from BLOW PIT. Black soils @ 4'-5' on ground water depth. T2 trench approximately 20' Soils clean up at S. end of trench at about 35-40' from BLOW PIT w/ OVM read of 6 ppm.

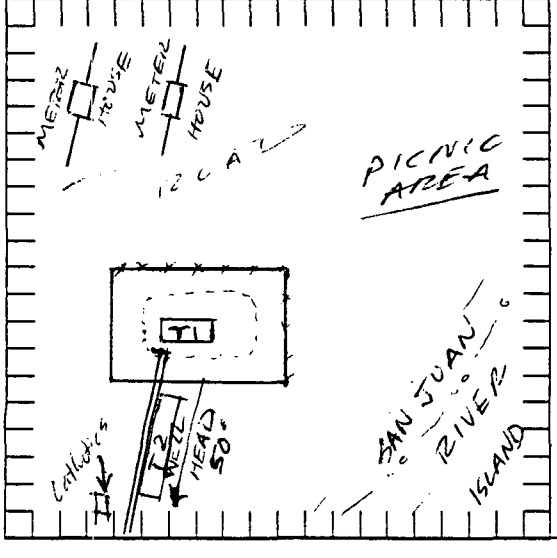
SAMPLE INVENTORY:

SMPL ID:	SMPL TYPE:	LABORATORY ANALYSIS:
T1@5'	SOIL	HEAD
T1@5'	SOIL	TPH/8020
T1@GW	WATER	8020
T1@GW	WATER	TPH/418.1

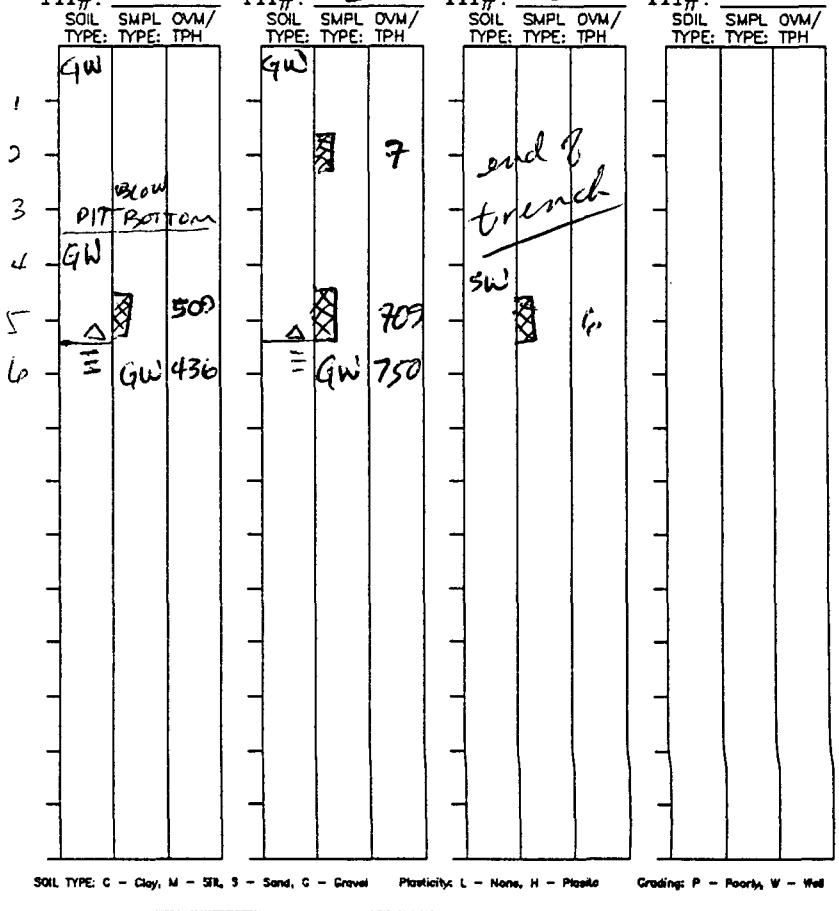
2x

SCALE
0 10 20 FEET

SITE DIAGRAM



TEST HOLE LOGS:



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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	AMOCO	Project #:	92140
Sample ID:	T-1 @ 5'	Date Reported:	07-20-92
Laboratory Number:	1195	Date Sampled:	06-09-92
Sample Matrix:	Soil	Date Received:	06-09-92
Preservative:	Cool	Date Analyzed:	07-17-92
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	1,250	5.0

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

ND - Parameter not detected at the stated detection limit.

Comments: Sanchez 1 Blow Pit 94277

Vanessa Ransom
Analyst

Review

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	T1 @ 5'	Date Reported:	10-08-92
Laboratory Number:	1195	Date Sampled:	06-09-92
Sample Matrix:	Soil	Date Received:	06-09-92
Preservative:	Cool	Date Extracted:	07-17-92
Condition:	Cool & Intact	Date Analyzed:	10-04-92
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	2,780	29.9
Toluene	11,400	60
Ethylbenzene	102,700	29.9
p,m-Xylene	25,600	110
o-Xylene	49,700	49.8

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	118 %
Bromfluorobenzene	107 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Sanchez GC 1---Blow Pit---94277

Analyst

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
HEADSPACE EXTRACTION

Client:	Amoco	Project #:	92140
Sample ID:	T1 @ 5'	Date Reported:	09-08-92
Laboratory Number:	1194	Date Sampled:	06-09-92
Sample Matrix:	Soil	Date Received:	06-09-92
Preservative:	Cool	Date Analyzed:	08-25-92
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	9,400	80.0
Toluene	3,900	320.0
Ethylbenzene	22,100	400.0
p,m-Xylene	20,400	200.0
o-Xylene	10,900	480.0

Method: Method 3810, Headspace, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Sanchez G.C. 1 Blow Pit 94277

Analyst

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	AMOCO	Project #:	92140
Sample ID:	T-1 @ GW	Date Reported:	06-18-92
Laboratory Number:	1197	Date Sampled:	06-09-92
Sample Matrix:	Water	Date Received:	06-09-92
Preservative:	Cool	Date Analyzed:	06-10-92
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
TPH	358	10.0

Method: Method 418.1, Total Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

ND - Parameter not detected at the stated detection limit.

Comments: Sanchez #1 Blow Pit 94277

Analyst

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	T1 @ GW	Date Reported:	09-25-92
Laboratory Number:	1196	Date Sampled:	06-09-92
Sample Matrix:	Water	Date Received:	06-09-92
Preservative:	Cool	Date Analyzed:	08-11-92
Condition:	Cool and intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	2.0
Toluene	52	3.5
Ethylbenzene	41.6	2.0
p,m-Xylene	1,240	2.5
o-Xylene	720	2.5

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Bromfluorobenzene	92.7 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Sanchez GC 1---Blow Pit---94277.

Robert M Young
Analyst

Review

(1089)

CHAIN OF CUSTODY RECORD 94277

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
AMOCO / 92140	BLOW PIT Sanchez GC 1	

Sampler: (Signature) Larry Brumley

Chain of Custody Tape No.

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BETX HEAD	BETX GC22	TPH/418.1				Remarks
T1 @ 5'	6/9/92	0810	1194	SOIL	1	✓						
T1C @ 5'	6/9/92	0825	1195	SOIL	1		✓	✓				
T1C GW	6/9/92	0840	1196	WATER	2		✓					
T1C GW	6/9/92	0845	1197	WATER				✓				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Larry Brumley	6/9/92	1750	Michael J. Em	6-9-92	1750
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
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C4277

District I
P.O. Box 1980, Hobbs, NM
District II
P.O. Drawer DD, Artesia, NM 88211
District III
1000 Rio Brazos Rd, Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

SUBMIT 1 COPY TO APPROPRIATE DISTRICT OFFICE AND 1 COPY TO SANTA FE OFFICE

PIT REMEDIATION AND CLOSURE REPORT

Operator: Amoco Production Company **Telephone:** (505) - 326-9200

Address: 200 Amoco Court, Farmington, New Mexico 87401

Facility Or: Well Name: SANCHEZ GC #1

Location: Unit or Qtr/Qtr Sec G Sec 28 T 29N R 10W County SAN JUAN

Pit Type: Separator ___ Dehydrator ___ Other BLOW

Land Type: BLM ___, State ___, Fee ___, Other FEE

Pit Location: (Attach diagram)

Pit dimensions: length 28', width 44', depth 6'

Reference: wellhead X, other ___

Footage from reference: 96'

Direction from reference: 16 Degrees X East North X of ___ West South ___

Depth To Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water)	Less than 50 feet (20 points) 50 feet to 99 feet (10 points) Greater than 100 feet (0 Points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources)	Yes (20 points) No (0 points)	0
Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet (20 points) 200 feet to 1000 feet (10 points) Greater than 1000 feet (0 points)	20
	RANKING SCORE (TOTAL POINTS):	40

C4277 BLOW PIT

Date Remediation Started: _____ **Date Completed:** 10/22/93

emediation Method: (Check all appropriate sections) Excavation X Approx. cubic yards 274

Landfarmed X Insitu Bioremediation ___

Other _____

Remediation Location: (ie. landfarmed onsite, name and location of offsite facility) Onsite ___ Offsite X P&S ROCK CRUSHER FACILITY NEAR GARCIA GC B #1 (J-21-29-10).

General Description Of Remedial Action: Excavation. GROUNDWATER IMPACT. PUMPED & DISPOSED GW PRIOR TO SAMPLING (BY TRIPLE SSS).

Ground Water Encountered: No ___ Yes X Depth 6'

Final Pit: Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)

Sample location see Attached Documents - INCLUDES RESULTS.

Sample depth 6' EXPOSED GROUNDWATER

Sample date 10/21/93 Sample time 1715

Sample Results

Benzene(ppm) _____

Total BTEX(ppm) _____

Field headspace(ppm) _____

TPH _____

Ground Water Sample: Yes X No ___ (If yes, attach sample results)

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

DATE 2/15/00 RV

SIGNATURE B J Shaw PRINTED NAME AND TITLE Buddy D. Shaw ENVIRONMENTAL COORDINATOR

ENVIROTECH Inc.

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COCR 3131

C4 277

FIELD REPORT: CLOSURE VERIFICATION

JOB No: 92140
PAGE No: 1 of 1

LOCATION: LEASE: SANCHEZ GC WELL #: 1 QD: SW/4 NE/4 (G)
SEC: 28 TWP: 29N RNG: 10W BM: NM CNTY: SAN JUAN ST: NM PIT: BLOW
CONTRACTOR: MOSS EXCAVATION
EQUIPMENT USED: TRACKHOE

DATE STARTED: 10/21/93
DATE FINISHED: 10/21/93
ENVIRONMENTAL SPECIALIST: MV

SOIL REMEDIATION: QUANTITY: 44' x 28' x 6'
DISPOSAL FACILITY: UNKNOWN → GARCIA GC #1
LAND USE: RANGE
SURFACE CONDITIONS: UNKNOWN (SEE SITE ASSESSMENT 94277)

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 32 YARDS N16E FROM WELLHEAD.
DEPTH TO GROUNDWATER: 0-10'
NEAREST WATER SOURCE:
NEAREST SURFACE WATER:

NO APPARENT PRODUCT, ISOLATED PATCHES OF SHEEN ON SURFACE.
GW PUMPED & DISPOSED BY TRIPLE SSS PRIOR TO SAMPLING.
SIDEWALLS INACCESSIBLE.
LAB SAMPLE TAKEN FOR BTEX (PIT WATER) @ (1715 - TIME).

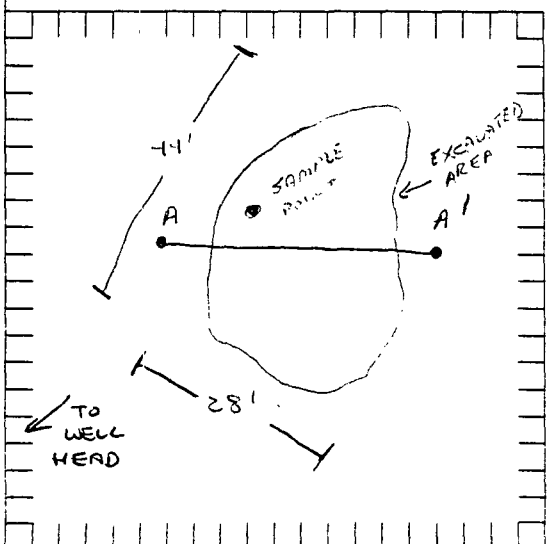
FIELD 418.1 CALCULATIONS

SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

SCALE
0 FEET

N

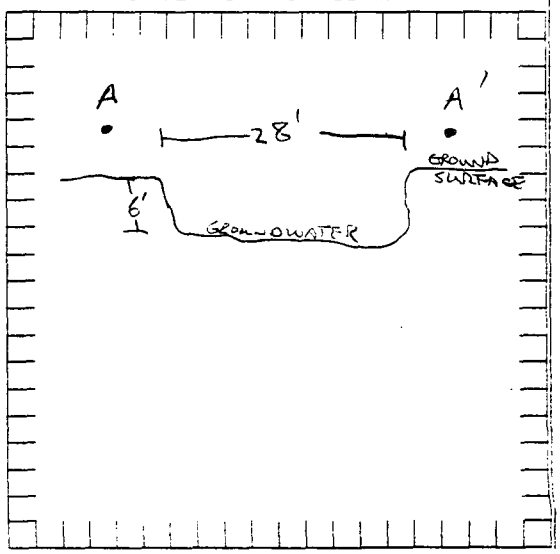
PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)

PIT PROFILE



TRAVEL NOTES: CALLOUT: 10/21/93 ONSITE: 10/21/93

p 6a

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	Pit Water	Date Reported:	10-22-93
Laboratory Number:	6381	Date Sampled:	10-21-93
Sample Matrix:	Water	Date Received:	10-22-93
Preservative:	HgCl and Cool	Date Analyzed:	10-22-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	0.4	0.2
Toluene	4.2	0.6
Ethylbenzene	0.8	0.2
p,m-Xylene	20.3	0.3
o-Xylene	22.5	0.3

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	100 %
Bromofluorobenzene	95 %

Method: Method 5030A, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Sanchez GC #1 Blow Pit C4277

Analyst

Review

3131

CHAIN OF CUSTODY RECORD

C4277

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
Amoco 92140	BLOW PIT SANCHEZ GC #1	
Sampler: (Signature) Nelson Velez	Chain of Custody Tape No.	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)						Remarks
PIT WATER	10/21/93	1715	6381	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	10/22/93	0716	Dawn L. Peterson	10-22-93	0716
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.
5796 U.S. Highway 64-3014
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