

3R - 183

REPORTS

DATE:

2000-1999

CROSS TIMBERS OPERATING COMPANY

GROUNDWATER REMEDIATION REPORT

1999-2000

**PRESPENTT GC #1
(O) SECTION 21, T29N, R10W, NMPM
SAN JUAN COUNTY, NEW MEXICO**

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

MAY 2001

**PREPARED BY:
BLAGG ENGINEERING, INC.**

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

**Cross Timbers Operating Company (CTOC)
Prespentt GC # 1 - Blow Pit
Sw/4 Se/4 Sec. 21, T29N, R10W**

<u>Site Assessment Date:</u>	June 8, 1992 & October 18, 1993 (Documentation Included)
<u>Pit closure Date:</u>	November 1, 1993 (Documentation Included)
<u>Monitor Well Installation Date:</u>	December 7, 1999
<u>Monitor Well Sampling Date:</u>	12/9/99, 2/21/00, 4/17/00

Groundwater Monitor Well Sampling Procedures:

Groundwater samples were collected from site monitor wells (MW's) following US EPA: 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 US EPA Method 8021. Additional groundwater was collected and placed in laboratory supplied 500 ml plastic containers and analyzed for general water quality per US EPA 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 due east from the well head.

Water Quality Information:

BTEX and general chemistry results for the three (3) quarterly sampling events are summarized in the following tables. All MW BTEX constituents satisfactorily meet the New Mexico Water Quality Control Commission's (NMWQCC) allowable concentrations for groundwater. The general water quality results also met NMWQCC standards for groundwater or was less than/statistically equal to the apparent background levels derived from MW #1.

Summary:

MW #3 is located in the down gradient direction from the source area (figure 4), but appears in a more lateral position during the December, 1999 and February, 2000 sampling events (figures 2 and 3).

In accordance with the attached correspondence (refer to letter dated May 11, 2001 - RE: CTOC, 2000 Annual Groundwater Reports, San Juan County, NM, Permanent Closure Requested) and the NMOCD previously approved groundwater management plan (GMP), specifically Section 2.0, CTOC respectfully request permanent closure for the site blow pit.

This document contains all pertinent information detailed in section 5.0 (Reporting) of the GMP. Upon receiving permanent closure notification from NMOCD, CTOC will conduct plug and abandonment of all sampling points as addressed in Section 6.0 of the GMP.

CROSS TIMBERS GROUNDWATER MONITOR WELL LAB RESULTS
SUBMITTED BY BLAGG ENGINEERING, INC.

PRESPENTT GC # 1 - BLOW PIT
UNIT O, SEC. 21, T29N, R10W

REVISED : APRIL 28, 2000

FILENAME: (P1-2Q-00.WK4) NJV

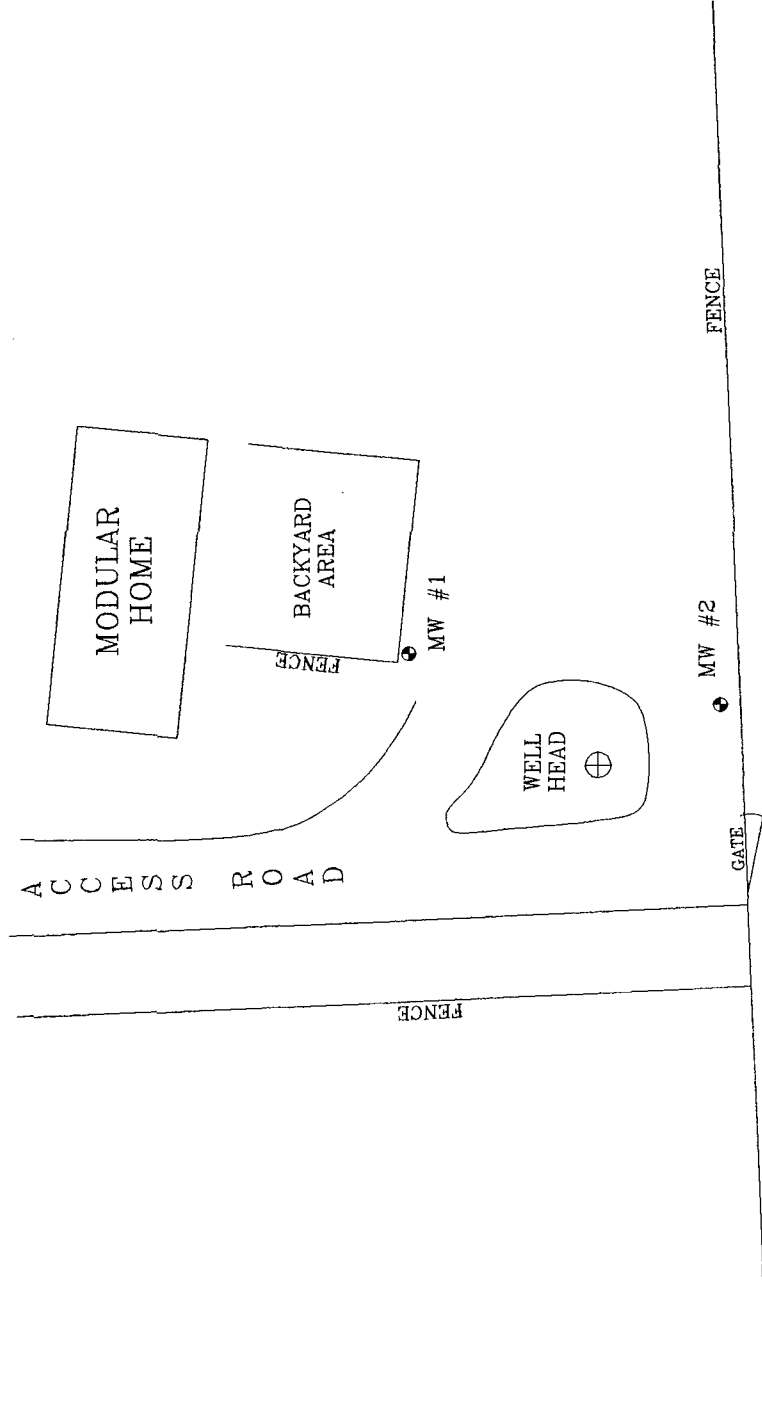
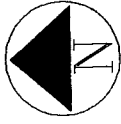
SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (in)	BTEX EPA METHOD 8021 (PPB)			
								Benzene	Toluene	Ethyl Benzene	Total Xylene
09-Dec-99	MW #1	14.27	20.00	460	945	7.1		1.2	1.2	0.7	1.8
21-Feb-00		16.36			-	-		-	-	-	-
09-Dec-99	MW #2	14.38	20.00	275	505	6.5		7.9	14.9	26.9	73.4
21-Feb-00		16.38			500	7.0		ND	ND	ND	0.6
18-Apr-00		17.10			700	7.0		ND	1.2	3.9	211.9
09-Dec-99	MW #3	13.84	20.00	260	515	7.2		9.4	20.9	15.7	33.0
21-Feb-00		15.68			500	7.6		ND	ND	0.9	19.2
18-Apr-00		16.02			500	7.5		1.6	0.8	1.1	16.4

GENERAL WATER QUALITY
CROSS TIMBERS OPERATING COMPANY
PRESPENTT GC # 1

SAMPLE DATE : December 9 , 1999

PARAMETERS	MW # 1	MW # 2	MW # 3	Units
LAB pH	7.05	6.54	7.16	s. u.
LAB CONDUCTIVITY @ 25 C	945	505	515	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	460	275	260	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	450	280	260	mg / L
SODIUM ABSORPTION RATIO	0.9	0.3	0.0	ratio
TOTAL ALKALINITY AS CaCO ₃	282	188	244	mg / L
TOTAL HARDNESS AS CaCO ₃	290	202	230	mg / L
BICARBONATE as HCO ₃	282	188	244	mg / L
CARBONATE AS CO ₃	< 0.1	< 0.1	< 0.1	mg / L
HYDROXIDE AS OH	< 0.1	< 0.1	< 0.1	mg / L
NITRATE NITROGEN	3.0	0.2	0.2	mg / L
NITRITE NITROGEN	0.043	0.010	0.007	mg / L
CHLORIDE	9.6	11.8	2.0	mg / L
FLUORIDE	0.56	0.29	0.40	mg / L
PHOSPHATE	< 0.1	1.3	< 0.1	mg / L
SULFATE	116	57.1	20.5	mg / L
IRON	0.004	2.15	0.385	mg / L
CALCIUM	110	71.2	72.0	mg / L
MAGNESIUM	3.91	5.86	12.2	mg / L
POTASSIUM	3.10	5.5	1.5	mg / L
SODIUM	34.0	11.0	< 0.1	mg / L
CATION / ANION DIFFERENCE	0.24	0.18	2.85	%

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 MAY NOT BE TO SCALE.

1 INCH = 40 FT.
0 40 80 FT.

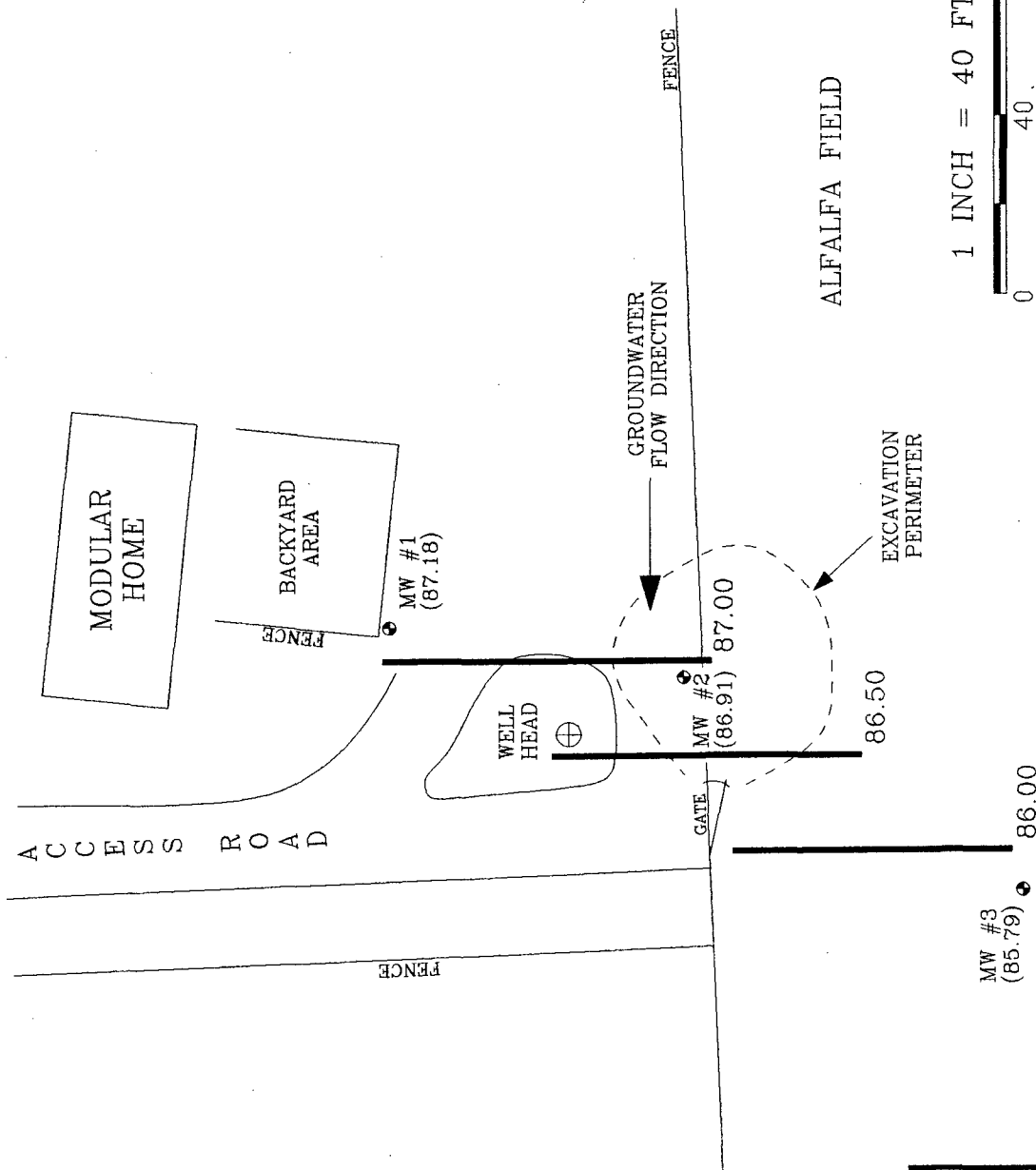
CROSS TIMBERS OPERATING CO.
PRESPELTT GC #1
SW/4 SE/4 SEC. 21, T29N, R10W
SAN JUAN COUNTY, NEW MEXICO

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: PRES-SM.SKD

SITE
MAP
12/99

FIGURE 2
(4th 1/4, 1999)



Top of Well Elevation	
MW #1	(101.45)
MW #2	(101.29)
MW #3	(99.63)
● MW #1 Groundwater Elevation as of 12/9/99.	

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 MAY NOT BE TO SCALE.

CROSS TIMBERS OPERATING CO.

PRESIDENT GC #1

SW/4 SE/4 SEC. 21, 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

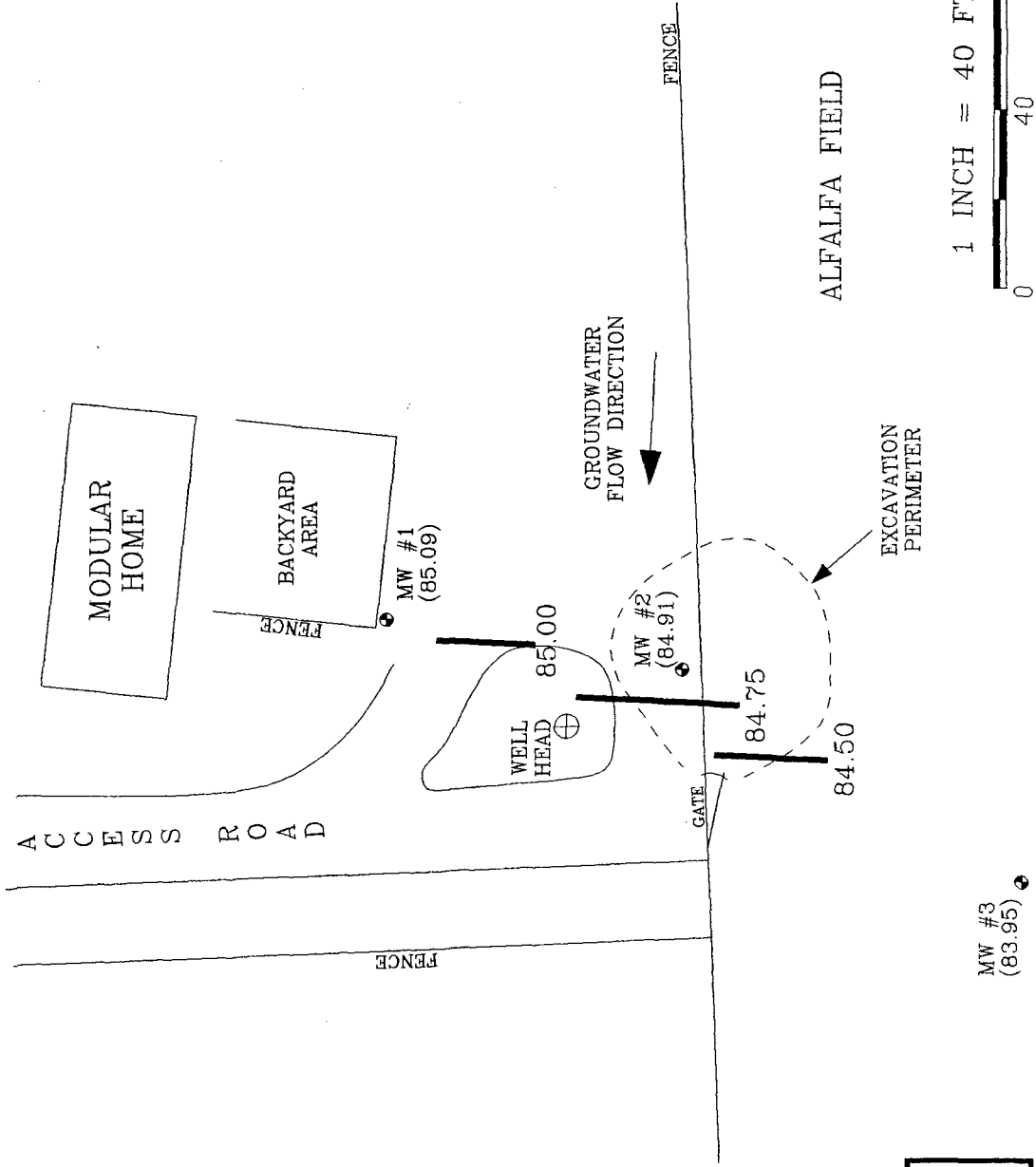
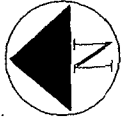
DRAWN BY: NJV

FILENAME: PRES-GW.SKD

GROUNDWATER
GRADIENT
MAP

12/99

FIGURE 3
(1st 1/4, 2000)

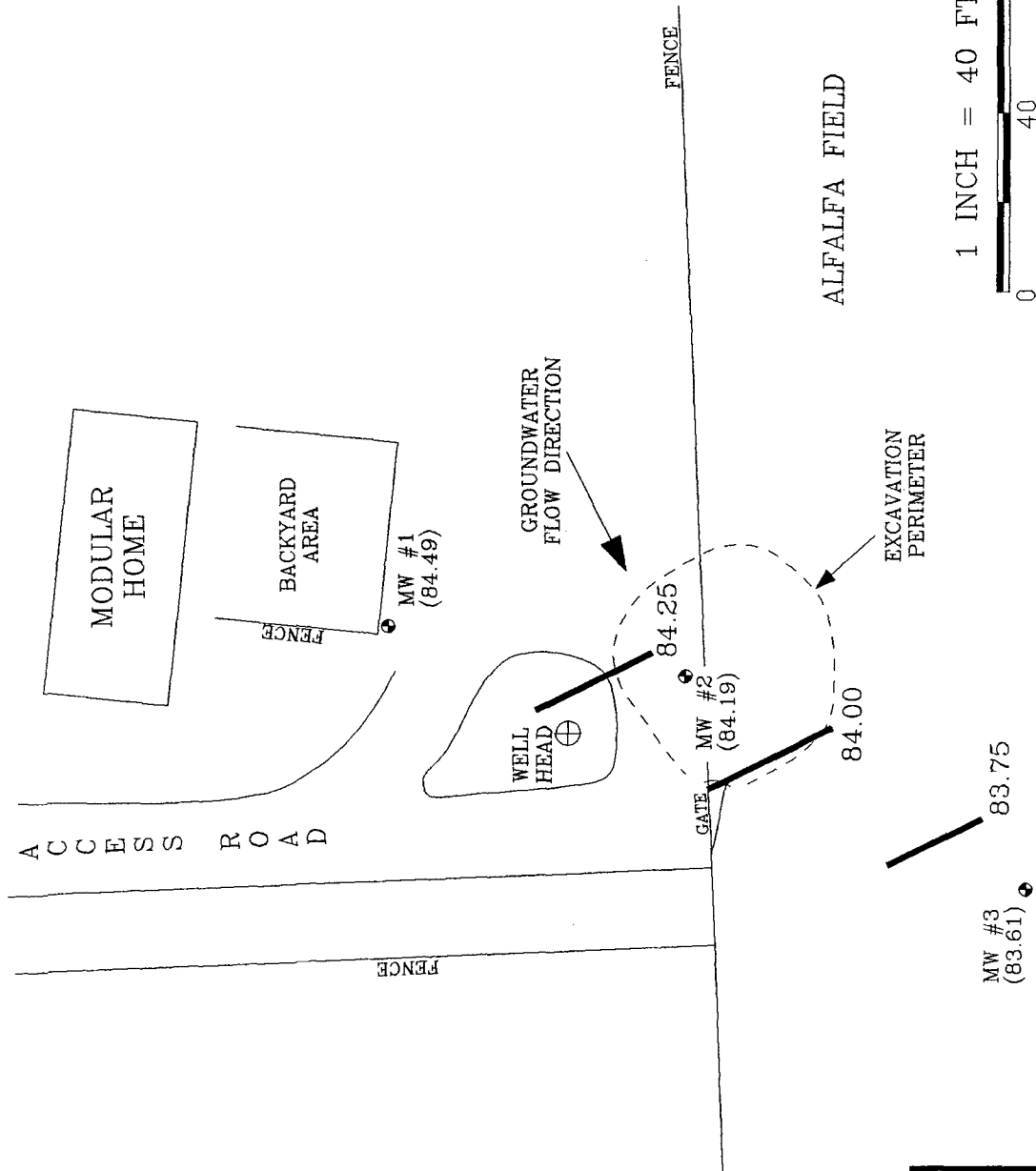
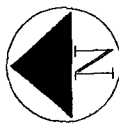


Top of Well Elevation	
MW #1	(101.45)
MW #2	(101.29)
MW #3	(99.63)
MW #1 Groundwater Elevation as of 2/21/00.	
●	(85.09)

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 MAY NOT BE TO SCALE.

CROSS TIMBERS OPERATING CO. PRESPEYTT GC #1 SW/4 SE/4 SEC. 21, 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: 02-21-GW.SKD	GROUNDWATER GRADIENT MAP 02/00
	1 INCH = 40 FT. 0 40 80 FT.			

FIGURE 4
(2nd 1/4, 2000)



Top of Well Elevation	
MW #1	(101.45)
MW #2	(101.29)
MW #3	(99.63)
● MW #1 Groundwater Elevation as of 4/18/00.	
	(84.49)

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 MAY NOT BE TO SCALE.

CROSS TIMBERS OPERATING CO.

PRESPEPNT GC #1

SW/4 SE/4 SEC. 21, 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: 04-18-GW.SKD

GROUNDWATER
GRADIENT
MAP

04/00

BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

BORING #..... BH - 1
MW #..... 1
PAGE #..... 1
DATE STARTED 12/7/99
DATE FINISHED 12/7/99
OPERATOR..... REP
PREPARED BY NJV

CLIENT: CROSS TIMBERS OPERATING COMPANY
LOCATION NAME: PRESENTT GC #1
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: 47 FT., N31E FEET FROM WELL HEAD.

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
1				TOP OF CASING APPROX. 1.70 FT. ABOVE GROUND SURFACE.
2				
3				
4				
5				
6				MODERATE TO DARK YELLOWISH BROWN SAND TO SILTY SAND THROUGHOUT THE ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED, FIRM, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (0.00 - 20.00 FT. INTERVAL).
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

NOTE:  - SAND TO SILTY SAND.

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

GW DEPTH ON 12/9/99 = 12.57 FT. (APPROX.) FROM GROUND SURFACE.

TOS 8.30
TD 18.30

DRAWING: BH-1.SKD

DATE: 1/21/00

DWN BY: NJV

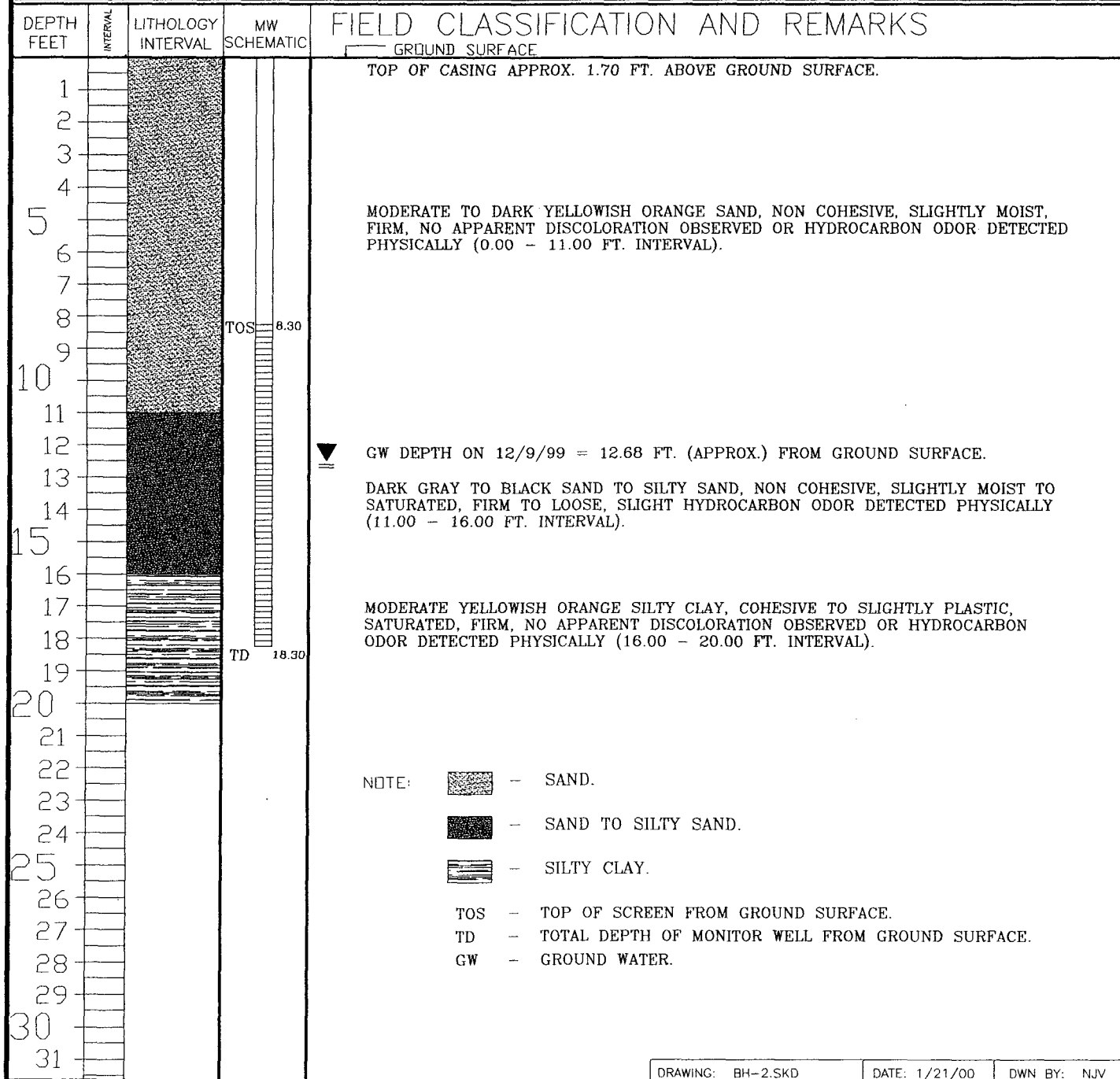
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

BORING #..... BH - 2
MW #..... 2
PAGE #..... 2
DATE STARTED 12/7/99
DATE FINISHED 12/7/99
OPERATOR..... REP
PREPARED BY NJV

CLIENT: CROSS TIMBERS OPERATING COMPANY
LOCATION NAME: PRESPENTT GC #1
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: 29 FT., S26E FEET FROM WELL HEAD.



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

CLIENT: CROSS TIMBERS OPERATING COMPANY
LOCATION NAME: PRESPENTT GC #1
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: 108 FT., S19W FEET FROM WELL HEAD.

BORING #..... BH - 3
MW #..... 3
PAGE #..... 3
DATE STARTED 12/7/99
DATE FINISHED 12/7/99
OPERATOR..... REP
PREPARED BY NJV

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
1				TOP OF CASING APPROX. 0.80 FT. ABOVE GROUND SURFACE.
2				
3				
4				
5				MODERATE TO DARK YELLOWISH BROWN SAND TO SILTY SAND THROUGHOUT THE ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED, FIRM, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED PHYSICALLY (0.00 - 20.00 FT. INTERVAL).
6				
7				
8				
9				
10			TOS 9.10	
11				
12				
13				▼ GW DEPTH ON 12/9/99 = 13.04 FT. (APPROX.) FROM GROUND SURFACE.
14				
15				
16				
17				
18				
19			TD 19.10	
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

NOTE:  - SAND TO SILTY SAND.

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

MONITOR WELL #1

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP
CAP (approx. 1.70 ft.
above ground surface)

GROUND
SURFACE

TOTAL CASING
LENGTH = 8.30 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

8.30 ft. ANNULAR ABOVE
WATER TABLE COMPLETED
WITH COLORADO SILICA SAND

0.02 INCH SLOTTED
SCREEN SCH 40
(approx. 4.27 ft.
above water table)

WATER TABLE
APPROX. 12.57 ft. FROM
GROUND SURFACE
(measured 12/9/99)

0.02 INCH SLOTTED
SCREEN SCH 40 WITH
POINTED END CAP
(10 ft. total length;
approx. 5.73 ft. below
water table)

7.43 ft. ANNULAR BELOW
WATER TABLE COMPLETED
WITH EXISTING SOIL
CONDITIONS

TOTAL DEPTH = 18.30 ft.
FROM GROUND SURFACE

CROSS TIMBERS OPERATING CO.

PRESPENNT 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

MONITOR WELL #2

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP
CAP (approx. 1.70 ft.
above ground surface)

GROUND
SURFACE

TOTAL CASING
LENGTH = 8.30 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

8.30 ft. ANNULAR ABOVE
WATER TABLE COMPLETED
WITH COLORADO SILICA SAND

0.02 INCH SLOTTED
SCREEN SCH 40
(approx. 4.38 ft.
above water table)

WATER TABLE
APPROX. 12.68 ft. FROM
GROUND SURFACE
(measured 12/9/99)

0.02 INCH SLOTTED
SCREEN SCH 40 WITH
POINTED END CAP
(10 ft. total length;
approx. 5.62 ft. below
water table)

7.32 ft. ANNULAR BELOW
WATER TABLE COMPLETED
WITH EXISTING SOIL
CONDITIONS

TOTAL DEPTH = 18.30 ft.
FROM GROUND SURFACE

CROSS TIMBERS OPERATING CO.

PRESIDENT 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-2

MONITOR WELL #3

CROSS TIMBERS OPERATING CO.
PRESENTT 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-3

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP
CAP (approx. 0.80 ft.
above ground surface)

GROUND
SURFACE

TOTAL CASING
LENGTH = 9.10 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

0.02 INCH SLOTTED
SCREEN SCH 40
(approx. 3.94 ft.
above water table)

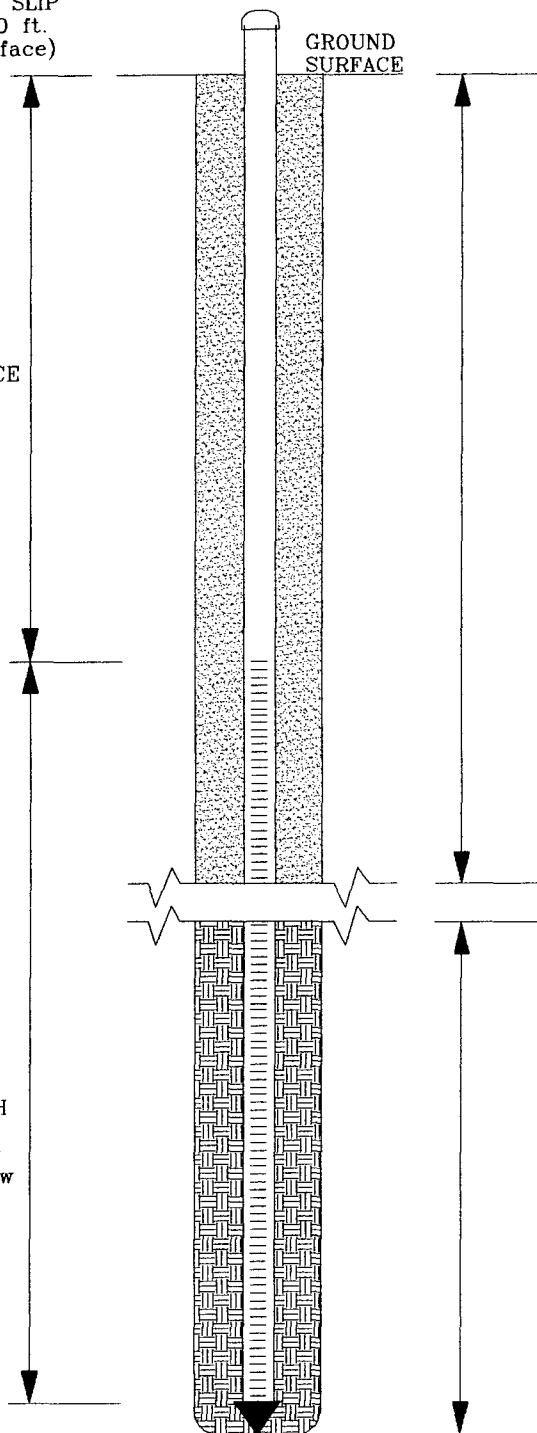
0.02 INCH SLOTTED
SCREEN SCH 40 WITH
POINTED END CAP
(10 ft. total length;
approx. 6.06 ft. below
water table)

TOTAL DEPTH = 19.10 ft.
FROM GROUND SURFACE

9.10 ft. ANNULAR ABOVE
WATER TABLE COMPLETED
WITH COLORADO SILICA SAND

WATER TABLE
APPROX. 13.04 ft. FROM
GROUND SURFACE
(measured 12/9/99)

6.94 ft. ANNULAR BELOW
WATER TABLE COMPLETED
WITH EXISTING SOIL
CONDITIONS



BLAGG ENGINEERING, INC.**MONITOR WELL SAMPLING DATA**CLIENT : CROSS TIMBERS OPER. CO.CHAIN-OF-CUSTODY # : 7315LOCATION : PRESPENTT GC # 1LABORATORY (S) USED : ENVIROTECH, INC.Date : December 9, 1999SAMPLER : REPFilename : 12-09-99.WK4PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	101.45	87.18	14.27	20.00	1110	7.8	5,000	3.00	-
2	101.29	86.91	14.38	20.00	1040	7.4	3,000	2.75	-
3	99.63	85.79	13.84	20.00	1100	7.7	3,000	3.00	-

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$
(i.e. 2" MW $r = (1/12) \text{ ft.}$ $h = 1 \text{ ft.}$) (i.e. 4" MW $r = (2/12) \text{ ft.}$ $h = 1 \text{ ft.}$)

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2 "

Collected BTEX and anion / cation samples for all MW 's listed above .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	MW # 1	Date Reported:	12-10-99
Chain of Custody:	7315	Date Sampled:	12-09-99
Laboratory Number:	G571	Date Received:	12-09-99
Sample Matrix:	Water	Date Analyzed:	12-09-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	1.2	1	0.2
Toluene	1.2	1	0.2
Ethylbenzene	0.7	1	0.2
p,m-Xylene	1.2	1	0.2
o-Xylene	0.6	1	0.1
Total Xylene	1.8		
Total BTEX	4.9		

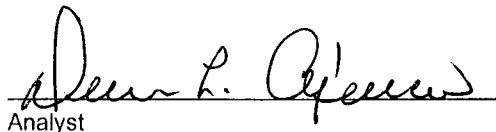
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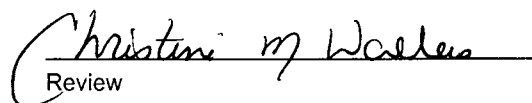
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	99 %

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: Prespentt GC # 1.


Analyst


Review

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:	12-10-99
Chain of Custody:	7315	Date Sampled:	12-09-99
Laboratory Number:	G572	Date Received:	12-09-99
Sample Matrix:	Water	Date Analyzed:	12-09-99
Preservative:	HgCl ₂ & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	7.9	1	0.2
Toluene	14.9	1	0.2
Ethylbenzene	26.9	1	0.2
p,m-Xylene	41.3	1	0.2
o-Xylene	29.4	1	0.1
Total Xylene	70.7		
Total BTEX	120		

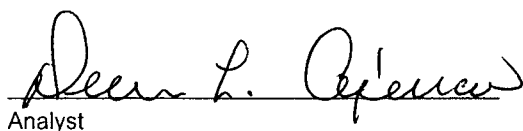
ND - Parameter not detected at the stated detection limit.

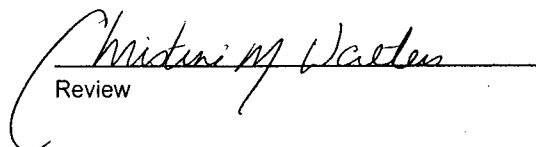
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	98 %
	Bromofluorobenzene	98 %

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: Prespentt GC # 1.


Analyst


Review

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:	12-10-99
Chain of Custody:	7315	Date Sampled:	12-09-99
Laboratory Number:	G573	Date Received:	12-09-99
Sample Matrix:	Water	Date Analyzed:	12-09-99
Preservative:	HgCl ₂ & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	9.4	1	0.2
Toluene	20.9	1	0.2
Ethylbenzene	15.7	1	0.2
p,m-Xylene	20.4	1	0.2
o-Xylene	12.6	1	0.1
Total Xylene	33.0		
Total BTEX	79.0		

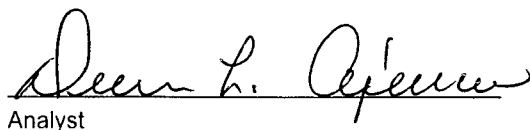
ND - Parameter not detected at the stated detection limit.

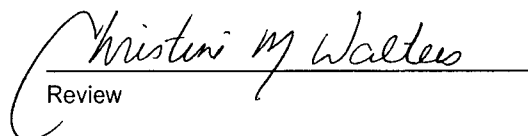
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	100 %
	Bromofluorobenzene	100 %

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: Prespentt GC # 1.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

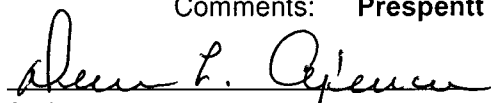
Client: Blagg / Cross Timbers
Sample ID: MW # 1
Laboratory Number: G571
Chain of Custody: 7315
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

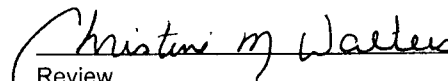
Project #: 403410
Date Reported: 12-10-99
Date Sampled: 12-10-99
Date Received: 12-10-99
Date Extracted: N/A
Date Analyzed: 12-10-99

Parameter	Analytical Result	Units		Units
pH	7.05	s.u.		
Conductivity @ 25° C	945	umhos/cm		
Total Dissolved Solids @ 180C	460	mg/L		
Total Dissolved Solids (Calc)	450	mg/L		
SAR	0.9	ratio		
Total Alkalinity as CaCO3	282	mg/L		
Total Hardness as CaCO3	290	mg/L		
Bicarbonate as HCO3	282	mg/L	4.62	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	3.0	mg/L	0.05	meq/L
Nitrite Nitrogen	0.043	mg/L	0.00	meq/L
Chloride	9.6	mg/L	0.27	meq/L
Fluoride	0.56	mg/L	0.03	meq/L
Phosphate	<0.1	mg/L	0.00	meq/L
Sulfate	116	mg/L	2.42	meq/L
Iron	0.004	mg/L		
Calcium	110	mg/L	5.49	meq/L
Magnesium	3.91	mg/L	0.32	meq/L
Potassium	3.1	mg/L	0.08	meq/L
Sodium	34.0	mg/L	1.48	meq/L
Cations			7.37	meq/L
Anions			7.39	meq/L
Cation/Anion Difference			0.24%	

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: Prespentt GC # 1.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

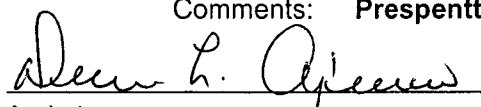
Client: Blagg / Cross Timbers
Sample ID: MW # 2
Laboratory Number: G572
Chain of Custody: 7315
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

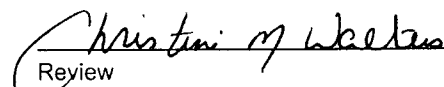
Project #: 403410
Date Reported: 12-10-99
Date Sampled: 12-10-99
Date Received: 12-10-99
Date Extracted: N/A
Date Analyzed: 12-10-99

Parameter	Analytical Result	Units		Units
pH	6.54	s.u.		
Conductivity @ 25° C	505	umhos/cm		
Total Dissolved Solids @ 180C	275	mg/L		
Total Dissolved Solids (Calc)	280	mg/L		
SAR	0.3	ratio		
Total Alkalinity as CaCO3	188	mg/L		
Total Hardness as CaCO3	202	mg/L		
Bicarbonate as HCO3	188	mg/L	3.08	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	0.2	mg/L	0.00	meq/L
Nitrite Nitrogen	0.010	mg/L	0.00	meq/L
Chloride	11.8	mg/L	0.33	meq/L
Fluoride	0.29	mg/L	0.02	meq/L
Phosphate	1.3	mg/L	0.04	meq/L
Sulfate	57.1	mg/L	1.19	meq/L
Iron	2.15	mg/L		
Calcium	71.2	mg/L	3.55	meq/L
Magnesium	5.86	mg/L	0.48	meq/L
Potassium	5.5	mg/L	0.14	meq/L
Sodium	11.0	mg/L	0.48	meq/L
Cations			4.65	meq/L
Anions			4.66	meq/L
Cation/Anion Difference			0.18%	

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: Prespentt GC # 1.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

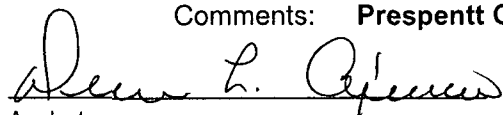
Client: Blagg / Cross Timbers
Sample ID: MW # 3
Laboratory Number: G573
Chain of Custody: 7315
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

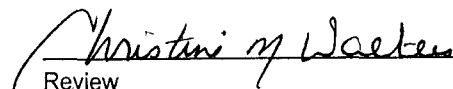
Project #: 403410
Date Reported: 12-10-99
Date Sampled: 12 ~~10~~-09-99
Date Received: 12 ~~10~~-09-99
Date Extracted: N/A
Date Analyzed: 12-10-99

Parameter	Analytical Result	Units	Units
pH	7.16	s.u.	
Conductivity @ 25° C	515	umhos/cm	
Total Dissolved Solids @ 180C	260	mg/L	
Total Dissolved Solids (Calc)	260	mg/L	
SAR	0.0	ratio	
Total Alkalinity as CaCO3	244	mg/L	
Total Hardness as CaCO3	230	mg/L	
Bicarbonate as HCO3	244	mg/L	4.00 meq/L
Carbonate as CO3	<0.1	mg/L	0.00 meq/L
Hydroxide as OH	<0.1	mg/L	0.00 meq/L
Nitrate Nitrogen	0.2	mg/L	0.00 meq/L
Nitrite Nitrogen	0.007	mg/L	0.00 meq/L
Chloride	2.0	mg/L	0.06 meq/L
Fluoride	0.40	mg/L	0.02 meq/L
Phosphate	<0.1	mg/L	0.00 meq/L
Sulfate	20.5	mg/L	0.43 meq/L
Iron	0.385	mg/L	
Calcium	72.0	mg/L	3.59 meq/L
Magnesium	12.2	mg/L	1.00 meq/L
Potassium	1.5	mg/L	0.04 meq/L
Sodium	<0.1	mg/L	0.00 meq/L
Cations			4.64 meq/L
Anions			4.51 meq/L
Cation/Anion Difference			2.85%

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: Prespentt GC # 1.


Analyst


Review

CHAIN OF CUSTODY RECORD

7315

Client / Project Name		Project Location		ANALYSIS / PARAMETERS												
BLAGG / CROSS TIMBERS		PRESPEMIT GC # 1														
Sampler:		Client No.														
		403410														
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (AOC) ANALYSIS									Remarks	
MW # 1	12.9.99	1110	G571	WATER	3	✓	✓									
MW # 2	12.9.99	1040	G572	WATER	3	✓	✓									
MW # 3	12.9.99	1100	G573	WATER	3	✓	✓									
															BTEX SAMPLES	
															HC12 - PRESERVE - COOL	
															A/C SAMPLES	
															PRESERVE - COOL	
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time						
<i>[Signature]</i>		12.9.99		1245		<i>[Signature]</i>		12.9.99		1245						
Relinquished by: (Signature)						Received by: (Signature)										
Relinquished by: (Signature)						Received by: (Signature)										
														Sample Receipt		
														Y	N	N/A
														Received Intact		
														Cool - Ice/Blue Ice		

ENVIROTECH INC.

5796 U.S. Highway 64
Farmington, New Mexico 87401
(505) 622-0615

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:	12-09-BTEX QA/QC	Date Reported:	12-10-99
Laboratory Number:	G571	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	12-09-99
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF	C-Cal RF	%Diff	Blank Conc	Detect. Limit
		Accept. Range 0 - 15%			
Benzene	2.2294E-001	2.2366E-001	0.32%	ND	0.2
Toluene	9.8579E-002	9.8599E-002	0.02%	ND	0.2
Ethylbenzene	7.8696E-002	7.8790E-002	0.12%	ND	0.2
p,m-Xylene	7.2057E-002	7.2071E-002	0.02%	ND	0.2
o-Xylene	6.6135E-002	6.6334E-002	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff	Accept Limit
Benzene	1.2	1.2	0.0%	0 - 30%
Toluene	1.2	1.2	0.0%	0 - 30%
Ethylbenzene	0.7	0.7	0.0%	0 - 30%
p,m-Xylene	1.2	1.3	8.3%	0 - 30%
o-Xylene	0.6	0.6	0.0%	0 - 30%

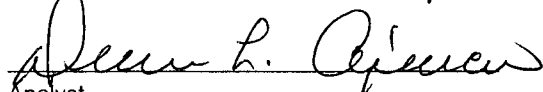
Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	1.2	50.0	51.1	100%	39 - 150
Toluene	1.2	50.0	51.2	100%	46 - 148
Ethylbenzene	0.7	50.0	50.7	100%	32 - 160
p,m-Xylene	1.2	100.0	101	100%	46 - 148
o-Xylene	0.6	50.0	50.6	100%	46 - 148

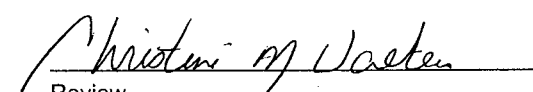
ND - Parameter not detected at the stated detection limit.

* - 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 G571 - G576.


Analyst


Review

BLAGG ENGINEERING, INC.**MONITOR WELL SAMPLING DATA**CLIENT : CROSS TIMBERS OPER. CO.CHAIN-OF-CUSTODY # : 10354LOCATION : PRESPENTT GC # 1LABORATORY (S) USED : ON - SITE TECH.Date : February 21, 2000SAMPLER : N J VFilename : 02-21-00.WK4PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	101.45	85.09	16.36	20.00	-	-	-	-	-
2	101.29	84.91	16.38	20.00	0825	7.0	500	1.75	-
3	99.63	83.95	15.68	20.00	0850	7.6	500	2.25	-

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.(i.e. 2" MW $r = (1/12) \text{ ft}$. $h = 1 \text{ ft}$.) (i.e. 4" MW $r = (2/12) \text{ ft}$. $h = 1 \text{ ft}$.)

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2 "Fair recovery in MW # 2 . Excellent recovery in MW # 3 . Collected BTEX samples fromMW #'s 2 & 3 . DTW decreased approx. 2 ft. since last sampling event (12 / 9 / 99) .

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 01-Mar-00

Client:	Blagg Engineering	Client Sample Info:	CTOC - Prespentt GC #1
Work Order:	0002046	Client Sample ID:	MW #2
Lab ID:	0002046-01A	Matrix:	AQUEOUS
Project:	CTOC- Prespentt GC #1	Collection Date:	2/21/2000 8:25:00 AM
		COC Record:	10354

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DM		
Benzene	ND	0.5		µg/L	1	2/25/2000
Toluene	ND	0.5		µg/L	1	2/25/2000
Ethylbenzene	ND	0.5		µg/L	1	2/25/2000
m,p-Xylene	ND	1		µg/L	1	2/25/2000
o-Xylene	0.6	0.5		µg/L	1	2/25/2000

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

1 of 1

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 01-Mar-00

Client:	Blagg Engineering	Client Sample Info:	CTOC - Prespentt GC #1
Work Order:	0002046	Client Sample ID:	MW #3
Lab ID:	0002046-02A	Matrix:	AQUEOUS
Project:	CTOC- Prespentt GC #1	Collection Date:	2/21/2000 8:50:00 AM
		COC Record:	10354

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DM		
Benzene	ND	0.5		µg/L	1	2/25/2000
Toluene	ND	0.5		µg/L	1	2/25/2000
Ethylbenzene	0.9	0.5		µg/L	1	2/25/2000
m,p-Xylene	16	1		µg/L	1	2/25/2000
o-Xylene	3.2	0.5		µg/L	1	2/25/2000

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

1 of 1

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

On Site Technologies, LTD.

Date: 01-Mar-00

CLIENT: Blagg Engineering
 Work Order: 0002046
 Project: CTOC- Prespentt GC #1

QC SUMMARY REPORT

Method Blank

Sample ID: MB1	Batch ID: GC-1_000225	Test Code: SW8021B	Units: µg/L	Analysis Date 2/25/2000	Prep Date:						
Client ID:	0002046	Run ID: GC-1_000225A		SeqNo: 24479							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.139	0.5									J
Ethylbenzene	.0595	0.5									J
m,p-Xylene	.1049	1									J
Methyl tert-Butyl Ether	ND	1									J
o-Xylene	.0485	0.5									J
Toluene	.1347	0.5									J

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 01-Mar-00

CLIENT: Blagg Engineering
 Work Order: 0002046
 Project: CTOC- Prespentt GC #1

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 0002042-02AMS	Batch ID: GC-1_000225	Test Code: SW8021B	Units: µg/L	Analysis Date 2/25/2000	Prep Date:						
Client ID:	0002046	Run ID:	GC-1_000225A	SeqNo: 24480							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21250	120	10000	12000	92.6%	73	126				ES✓
Ethylbenzene	11460	120	10000	1328	101.3%	88	113				
m,p-Xylene	19960	250	20000	539.9	97.1%	83	112				
Methyl tert-Butyl Ether	52230	250	10000	45200	70.2%	81	125				
o-Xylene	10540	120	10000	336.6	102.1%	93	110				
Toluene	11160	120	10000	1020	101.5%	76	126				

Sample ID: 0002042-02AMSD		Batch ID: GC-1_000225		Test Code: SW8021B		Units: µg/L		Analysis Date 2/25/2000		Prep Date:	
Client ID:		0002046		Run ID: GC-1_000225A				SeqNo: 24481			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20810	120	10000	12000	88.2%	73	126	21250	2.1%	6	
Ethylbenzene	11230	120	10000	1328	99.0%	88	113	11460	2.0%	5	
m,p-Xylene	19580	250	20000	539.9	95.2%	83	112	19960	1.9%	7	
Methyl tert-Butyl Ether	52130	250	10000	45200	69.3%	81	125	52230	0.2%	9	ES ✓
o-Xylene	10390	120	10000	336.6	100.5%	93	110	10540	1.4%	6	
Toluene	10940	120	10000	1020	99.2%	76	126	11160	2.0%	6	

CONFIRMED L.C.S
 03/11/2000

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 01-Mar-00

CLIENT: Blagg Engineering
 Work Order: 0002046
 Project: CTOC- Prespentt GC #1

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: LCS WATER		Batch ID: GC-1_000225		Test Code: SW8021B		Units: µg/L		Analysis Date 2/25/2000		Prep Date:	
Client ID:		0002046		Run ID:		GC-1_000225A		SeqNo: 24478			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.92	0.5	40	0.139	102.0%	89	112				
Ethylbenzene	41.42	0.5	40	0.0595	103.4%	93	112				
m,p-Xylene	78.63	1	80	0.1049	98.2%	88	108				
Methyl tert-Butyl Ether	41.32	1	40	0	103.3%	87	115				
o-Xylene	41.44	0.5	40	0.0485	103.5%	93	112				
Toluene	41.14	0.5	40	0.1347	102.5%	92	111				

Qualifiers: NID - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 01-Mar-00

QC SUMMARY REPORT

Continuing Calibration Verification Standard

CLIENT: Blagg Engineering
 Work Order: 0002046
 Project: CTOC- Prespentt GC #1

Sample ID: CCV1 BTEX_0001		Batch ID: GC-1_000225		Test Code: SW8021B		Units: µg/L		Analysis Date 2/25/2000			Prep Date:	
Client ID:		0002046		Run ID:		GC-1_000225A		SeqNo: 24475				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Benzene	20.45	0.5	20	0	102.2%	85	115					
Ethylbenzene	20.85	0.5	20	0	104.3%	85	115					
m,p-Xylene	39.34	1	40	0	98.3%	85	115					
Methyl tert-Butyl Ether	20.41	1	20	0	102.0%	85	115					
o-Xylene	20.78	0.5	20	0	103.9%	85	115					
Toluene	20.31	0.5	20	0	101.6%	85	115					
1,4-Difluorobenzene	90.02	0	100	0	90.0%	80	105					
4-Bromochlorobenzene	89.28	0	100	0	89.3%	78	108					
Fluorobenzene	89.34	0	100	0	89.3%	78	108					

Sample ID: CCV2 BTEX_0001		Batch ID: GC-1_000225	Test Code: SW8021B	Units: µg/L		Analysis Date 2/25/2000		Prep Date:						
Client ID:		0002046	Run ID:	GC-1_000225A	PQL	SPK value	SPK Ref Val	%REC	SeqNo:	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Analyte	Result													
Benzene	19.74			0.5		20	0	98.7%	85		115			
Ethylbenzene	20.35			0.5		20	0	101.8%	85		115			
m,p-Xylene	38.38			1		40	0	95.9%	85		115			
Methyl tert-Butyl Ether	20.52			1		20	0	102.6%	85		115			
o-Xylene	20.42			0.5		20	0	102.1%	85		115			
Toluene	19.92			0.5		20	0	99.6%	85		115			
1,4-Difluorobenzene	89.37			0		100	0	89.4%	80		105			
4-Bromochlorobenzene	89.5			0		100	0	89.5%	78		108			
Fluorobenzene	89.36			0		100	0	89.4%	78		108			

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0002046
Project: CTOC- Prespentt GC #1

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV3 BTEX_0001		Batch ID: GC-1_000225		Test Code: SW8021B		Units: µg/L		Analysis Date 2/25/2000		Prep Date:		
Client ID:		0002046		Run ID:		GC-1_000225A		SeqNo: 24477				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		40.08	0.5	40	0	100.2%	85	115				
Ethylbenzene		40.36	0.5	40	0	100.9%	85	115				
m,p-Xylene		76.66	1	80	0	95.8%	85	115				
Methyl tert-Butyl Ether		41.52	1	40	0	103.8%	85	115				
o-Xylene		40.6	0.5	40	0	101.5%	85	115				
Toluene		40.21	0.5	40	0	100.5%	85	115				
1,4-Difluorobenzene		88.88	0	100	0	88.9%	80	105				
4-Bromochlorobenzene		89.24	0	100	0	89.2%	78	108				
Fluorobenzene		88.61	0	100	0	88.6%	78	108				

CLIENT: Blagg Engineering
Work Order: 0002046
Project: CTOC- Prespentt GC #1
Test No: SW8021B

QC SUMMARY REPORT SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ					
0002042-02A	89	89.1	88.1					
0002042-02AMS	88.4	90.4	87.3					
0002042-02AMSD	87.9	90.4	87.2					
0002042-03A	90.5	89.2	89.5					
0002042-04A	90.2	89.5	89.4					
0002042-05A	90.6	89.4	89.6					
0002042-06A	90	88.2	89.1					
0002042-07A	89.1	88.8	89.2					
0002042-09A	90	89.4	89.6					
0002043-01A	89.6	88.3	89					
0002043-03A	90.4	89.5	89.6					
0002044-01A	90.4	89.8	89.6					
0002044-03A	90	89.1	90.1					
0002046-01A	90.2	89.4	89.6					
0002046-02A	90.8	90.4	91.4					
0002047-01A	90.6	89.1	89.6					
0002047-02A	90	89.1	90					
0002049-01A	89.8	89.3	90.1					
CCV1 BTEX_00010	90	89.3	89.3					
CCV2 BTEX_00010	89.4	89.5	89.4					
CCV3 BTEX_00010	88.9	89.2	88.6					
LCS WATER	89.5	89.4	88.1					
MBI	90.5	88.2	89.4					

Acronym**Surrogate****QC Limits**

14FBZ

= 1,4-Difluorobenzene

80-105

4BCBZ

= 4-Bromochlorobenzene

78-108

FLBZ

= Fluorobenzene

78-108

* Surrogate recovery outside acceptance limits

BLAGG ENGINEERING, INC.**MONITOR WELL SAMPLING DATA**CLIENT : CROSS TIMBERS OPER. CO.CHAIN-OF-CUSTODY # : 10578LOCATION : PRESPENTT GC # 1LABORATORY (S) USED : ON - SITE TECH.Date : April 18, 2000SAMPLER : N J VFilename : 04-18-00.WK4PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	101.45	84.49	16.96	20.00	-	-	-	-	-
2	101.29	84.19	17.10	20.00	0925	7.0	700	1.50	-
3	99.63	83.61	16.02	20.00	0840	7.5	500	2.00	-

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.(i.e. 2" MW $r = (1/12) \text{ ft.}$ $h = 1 \text{ ft.}$) (i.e. 4" MW $r = (2/12) \text{ ft.}$ $h = 1 \text{ ft.}$)

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2 ".Fair recovery in MW # 2 . Excellent recovery in MW # 3 . Collected BTEX samples fromMW #'s 2 & 3 . DTW decreased between 0.3 - 0.72 ft. since last sampling event (02 / 21 / 00) .

OFF: (505) 325-5667
FAX: (505) 327-1496



LAB: (505) 325-1556
FAX: (505) 327-1496

ANALYTICAL REPORT

Date: 26-Apr-00

Client:	Blagg Engineering	Client Sample Info:	Prespentt GC #1
Work Order:	0004046	Client Sample ID:	MW #2
Lab ID:	0004046-01A	Matrix:	AQUEOUS
Project:	CTOC; Prespentt GC #1	Collection Date:	4/18/2000 9:25:00 AM
		COC Record:	10578

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: DM
Benzene	ND	0.5		µg/L	1	4/19/2000
Toluene	1.2	0.5		µg/L	1	4/19/2000
Ethylbenzene	3.9	0.5		µg/L	1	4/19/2000
m,p-Xylene	210	1		µg/L	1	4/19/2000
o-Xylene	1.9	0.5		µg/L	1	4/19/2000

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surf: - Surrogate

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667
FAX: (505) 327-1496



LAB: (505) 325-1556
FAX: (505) 327-1496

ANALYTICAL REPORT

Date: 26-Apr-00

Client:	Blagg Engineering	Client Sample Info:	Prespentt GC #1
Work Order:	0004046	Client Sample ID:	MW #3
Lab ID:	0004046-02A	Matrix:	AQUEOUS
Project:	CTOC; Prespentt GC #1	Collection Date:	4/18/2000 8:40:00 AM
		COC Record:	10578

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: DM
Benzene	1.6	0.5		µg/L	1	4/19/2000
Toluene	0.8	0.5		µg/L	1	4/19/2000
Ethylbenzene	1.1	0.5		µg/L	1	4/19/2000
m,p-Xylene	14	1		µg/L	1	4/19/2000
o-Xylene	2.4	0.5		µg/L	1	4/19/2000

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

CHAIN OF CUSTODY RECORD

Date: 5/18/00
Page: 1 of 1

612 E. Murray Dr. • P.O. Box 2606 • Farmington, NM 87499
LAB: (505) 325-5667 • FAX: (505) 327-1496

[illegible]

On Site Technologies, LTD.

Date: 26-Apr-00

CLIENT: Blagg Engineering
 Work Order: 0004046
 Project: CTOC; Prespentt GC #1

QC SUMMARY REPORT

Method Blank

Sample ID: MB1	Batch ID: GC-1_000419	Test Code: SW8021B	Units: µg/L	Analysis Date: 4/19/2000	Prep Date:						
Client ID:	0004046	Run ID: GC-1_000419A		SeqNo: 26833							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.1683	0.5									J
Ethylbenzene	.2724	0.5									J
m,p-Xylene	.5229	1									J
Methyl tert-Butyl Ether	ND	1									J
o-Xylene	.2791	0.5									J
Toluene	.311	0.5									J

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 26-Apr-00

CLIENT: Blagg Engineering
 Work Order: 0004046
 Project: CTOC; Prespentt GC #1

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 0004040-02AMS		Batch ID: GC-1_000419		Test Code: SW8021B		Units: µg/L		Analysis Date: 4/19/2000		Prep Date:	
Client ID: 0004046		Run ID: GC-1_000419A		SeqNo: 26834							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	539.7	2.5	200	309.3	115.2%	73	126				
Ethylbenzene	393	2.5	200	177.8	107.6%	88	113				
m,p-Xylene	1556	5	400	1115	110.1%	83	112				
Methyl tert-Butyl Ether	220.6	5	200	0	110.3%	81	125				
o-Xylene	379.4	2.5	200	167	106.2%	93	110				
Toluene	366.1	2.5	200	148.7	108.7%	76	126				

Sample ID: 0004040-02AMSD		Batch ID: GC-1_000419		Test Code: SW8021B		Units: µg/L		Analysis Date: 4/19/2000		Prep Date:	
Client ID: 0004046		Run ID: GC-1_000419A		SeqNo: 26835							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	527.3	2.5	200	309.3	109.0%	73	126	539.7	2.3%	6	
Ethylbenzene	380.5	2.5	200	177.8	101.3%	88	113	393	3.2%	5	
m,p-Xylene	1507	5	400	1115	98.0%	83	112	1556	3.2%	7	
Methyl tert-Butyl Ether	216.9	5	200	0	108.5%	81	125	220.6	1.7%	9	
o-Xylene	369	2.5	200	167	101.0%	93	110	379.4	2.8%	6	
Toluene	354.8	2.5	200	148.7	103.0%	76	126	366.1	3.2%	6	

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 26-Apr-00

CLIENT: Blagg Engineering
Work Order: 0004046
Project: CTOC; Prespentt GC #1

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: LCS WATER		Batch ID: GC-1_000419		Test Code: SW8021B		Units: µg/L		Analysis Date: 4/19/2000		Prep Date:	
Client ID:		0004046		Run ID: GC-1_000419A				SeqNo: 26832			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	42.2	0.5	40	0.1683	105.1%	89	112				
Ethylbenzene	42.72	0.5	40	0.2724	106.1%	93	112				
m,p-Xylene	80.36	1	80	0.5229	99.8%	88	108				
Methyl tert-Butyl Ether	42.27	1	40	0	105.7%	87	115				
o-Xylene	42.14	0.5	40	0.2791	104.6%	93	112				
Toluene	42.09	0.5	40	0.311	104.4%	92	111				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 26-Apr-00

CLIENT: Blagg Engineering
Work Order: 0004046
Project: CTOC; Prespent GC #1

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV1 BTEX_0004		Batch ID: GC-1_000419	Test Code: SW8021B	Units: µg/L		Analysis Date: 4/19/2000			Prep Date:			
Client ID: 0004046		Run ID: GC-1_000419A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Analyte	Result											
Benzene	21.37	0.5	20	0	106.8%	85	115					
Ethylbenzene	21.42	0.5	20	0	107.1%	85	115					
m,p-Xylene	40.04	1	40	0	100.1%	85	115					
Methyl tert-Butyl Ether	21.18	1	20	0	105.9%	85	115					
o-Xylene	21.22	0.5	20	0	106.1%	85	115					
Toluene	20.96	0.5	20	0	104.8%	85	115					
1,4-Difluorobenzene	89.97	0	100	0	90.0%	80	105					
4-Bromochlorobenzene	90.67	0	100	0	90.7%	78	108					
Fluorobenzene	89.11	0	100	0	89.1%	78	108					

Sample ID: CCV2 BTEX_0004		Batch ID: GC-1_000419		Test Code: SW8021B		Units: µg/L		Analysis Date: 4/19/2000		Prep Date:	
Client ID:		0004046		Run ID:		GC-1_000419A		SeqNo: 26831			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.31	0.5	20	0	101.5%	85	115				
Ethylbenzene	21.16	0.5	20	0	105.8%	85	115				
m,p-Xylene	39.62	1	40	0	99.1%	85	115				
Methyl tert-Butyl Ether	21.1	1	20	0	105.5%	85	115				
o-Xylene	20.92	0.5	20	0	104.6%	85	115				
Toluene	20.64	0.5	20	0	103.2%	85	115				
1,4-Difluorobenzene	89.66	0	100	0	89.7%	80	105				
4-Bromochlorobenzene	90.7	0	100	0	90.7%	78	108				
Fluorobenzene	88.48	0	100	0	88.5%	78	108				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 26-Apr-00

CLIENT: Blagg Engineering
Work Order: 0004046
Project: CTOC; Prespentt GC #1
Test No: SW8021B

QC SUMMARY REPORT SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ					
0004040-01A	88.6	89.2	87.4					
0004040-02A	87.3	90.6	86.5					
0004040-02AMS	87.6	92.2	86.6					
0004040-02AMSD	87.8	91.4	87.1					
0004045-01A	90.2	89.5	89.3					
0004046-01A	89.9	89.6	89.6					
0004046-02A	90.1	89.9	89.2					
0004047-01A	90.5	90.6	89.9					
CCV1 BTEX_00040	90	90.7	89.1					
CCV2 BTEX_00040	89.7	90.7	88.5					
LCS WATER	89.4	91.1	88.2					
MB1	90	89.3	88.7					

Acronym	Surrogate	QC Limits
14FBZ	= 1,4-Difluorobenzene	80-105
4BCBZ	= 4-Bromochlorobenzene	78-108
FLBZ	= Fluorobenzene	78-108

* Surrogate recovery outside acceptance limits

6.4265 JJ

1374

JOB No: 92146
PAGE No: 1 of 1

DATE STARTED: 6/8/92
DATE FINISHED: 6/8/92
ENVIRO. SPCLT: RB
OPERATOR: BWJ
ASSISTANT: LF

LAND USE: Agricultural (alfalfa field) + rural homesites
SURFACE CONDITIONS: Earthen pit w/ 20'x25' perimeter fence

FIELD NOTES & REMARKS: Earthen pit had trash (branches & ^{tires} ^{boxes} solid waste) in pit area. Mr. Prespartit informed us that Blow pit had not been used within 12st ten(10) yrs. Heavy oil field waste smell upon pit excavation. Soil profile black from 1' below pit surface to max. reach of backhoe @ 15'. Addition of drilling required on this site & possibly drilling outside pit perimeter fence in alfalfa field w/ land owner's (Mr. Prespartit) permission. TCEP sampling recommended.

SAMPLE INVENTORY:		
SAMPL ID:	SAMPL TYPE:	LABORATORY ANALYSIS:
TCS'	SOIL	HEAD
TCS'	SOIL	TDH/BCE

TEST HOLE LOGS:

[illegible]

0 10 20 FEET

A hand-drawn map showing a 'ROAD' on the left, a 'WELLHEAD' (a square with a cross) in the upper left, and an 'ALFALFA FIELD' (a rectangle with a dashed border) in the lower center. A line connects the wellhead to the field. To the right of the field is a 'Catholics' church, indicated by a cross and an arrow. The map is framed by a grid of lines.

TEST HOLE LOGS:

• TH#:

SOIL	SMPL	OVM/
TYPE:	TYPE:	IPH

A vertical scale diagram with a central column and two side columns. The central column has four rectangular boxes with an 'X' pattern inside, located at depths of 5, 8, 10, and 15 feet. To the left of the central column, the depths 5, 8, 10, and 15 are marked. To the right, the values 534, 412, 357, and 361 are listed. A horizontal line labeled 'SW' is drawn across the diagram at the 5-foot depth. Above this line, the text 'PIT BOTTOM' is written. Below the 10-foot mark, the text 'TD 15'' is written.

Depth (ft)	Value
5	534
8	412
10	357
15	361

TH#:

SOIL	SMPL	DVM,
TYPE:	TYPE:	TPH

[illegible]

TH# :

SOIL	SMPL	OVM,
TYPE:	TYPE:	TPH

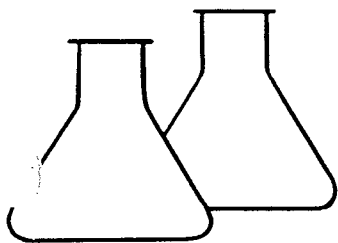
[illegible]

TH#

SOIL	SMPL	OVM,
TYPE:	TYPE:	TPH

	1972	1973	1974
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99			
100			

SOIL TYPE: C - Clay, M - SIL, S - Sand, G - Gravel Plasticity L - None, H - Plastic Grading P - Pearls, W - Well



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client: AMOCO
Sample ID: T-1 @ 5'
Laboratory Number: 1146
Sample Matrix: Soil
Preservative: Cool
Condition: Cool & Intact

Project #: 92140
Date Reported: 07-16-92
Date Sampled: 06-08-92
Date Received: 06-08-92
Date Analyzed: 07-15-92
Analysis Needed: TPH

Parameter -----	Concentration (mg/kg) -----	Det. Limit (mg/kg) -----
Total Petroleum Hydrocarbons	650	5.0

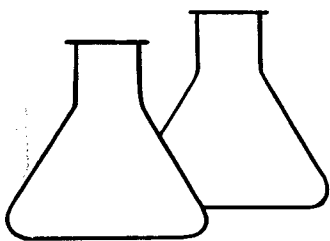
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

ND - Parameter not detected at the stated detection limit.

Comments: Prespentt 1 Blow Pit 94265

Vanessa Panson
Analyst

Val Panson
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS HEADSPACE EXTRACTION

Client:	Amoco	Project #:	92140
Sample ID:	T1 @ 5'	Date Reported:	09-04-92
Laboratory Number:	1145	Date Sampled:	06-08-92
Sample Matrix:	Soil	Date Received:	06-08-92
Preservative:	Cool	Date Analyzed:	08-20-92
Condition:	Cool and Intact	Analysis Requested:	BTEX

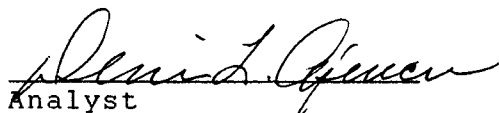
Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	101	3.2
Toluene	8,900	4.8
Ethylbenzene	3,130	3.2
p,m-Xylene	14,500	6.4
o-Xylene	3,230	4.0

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

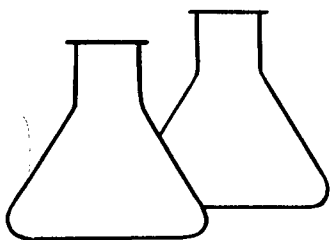
Method 8020, Aromatic Volatile Organics, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Prespent GC 1 Blow Pit 94265


Analyst


Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	T1 @ 5'	Date Reported:	11-03-92
Laboratory Number:	1146	Date Sampled:	06-08-92
Sample Matrix:	Soil	Date Received:	06-08-92
Preservative:	Cool	Date Extracted:	07-15-92
Condition:	Cool & Intact	Date Analyzed:	10-02-92
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	151	31.3
Toluene	5,900	31.3
Ethylbenzene	18,200	41.7
p,m-Xylene	63,900	52
o-Xylene	24,500	73

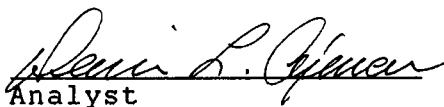
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	106 %
	Bromfluorobenzene	96 %

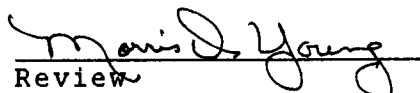
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

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: Prespent GC 1 Blow Pit 94265


Analyst


Review

ASSESSMENT HOLES OK, WATER XYLENES STILL HIGH

ENVIROTECH Inc.

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

PIT NO: C4265

C.O.C. NO: 3116

FIELD REPORT SITE ASSESSMENT

JOB No: 92140
PAGE No: 1 of 1

PROJECT: PIT ASSESSMENT
CLIENT: Amoco
CONTRACTOR: ENVIROTECH INC.
EQUIPMENT USED: HAND AUGER

DATE STARTED: 10-18-93
DATE FINISHED: 10-18-93
ENVIRO. SPCLT: RED
OPERATOR: —
ASSISTANT: —

LOCATION: LEASE: PRESIDENT GAS CO. WELL # 1 QD: SW/4, SE/4 (0)
SEC: 21 TWP: 29N RNG: 10W PM: NM CNTY: SJ ST: NM PIT: BLOW

LAND USE: FARMING - HAY

SURFACE CONDITIONS: ALFALFA FIELD SURROUNDING PIT

PIT CENTER IS LOCATED APPROXIMATELY 50 FEET S.60°E. OF WELLHEAD.

PRESENT EX CAVATION APPROX. 20 FEET IN DIAMETER - WATER IN PIT BOTTOM @ 12'.

FIELD 418.1 CALCULATIONS

SAMPLE I.D.	LAB No.	WEIGHT (g)	ML. FREON	DILUTION	READING	CALC. ppm
T2@10'	0283	10.0	20	1:1	5	10
T3@12'	0284	10.0	20	1:1	2	ND
T1@11'	0285	10.0	20	1:1	3	ND

DEPTH TO GROUNDWATER: ~11'
NEAREST WATER SOURCE/TYPE: WELL ~150' NORTH
NEAREST SURFACE WATER: SAN JUAN ~
NMOC RANKING SCORE: >20
NMOC TPH CLOSURE STD: 100 ppm TPH

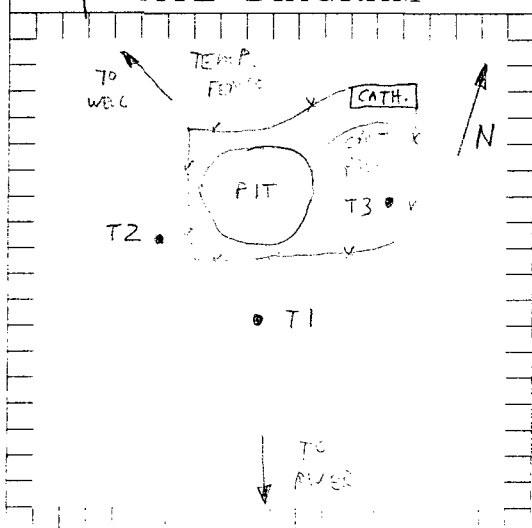
SAMPLE INVENTORY		
SMPL ID	SMPL TYPE	LABORATORY ANALYSIS
PIT @12'	WATER	BTEX

SCALE



0 10 20 FEET

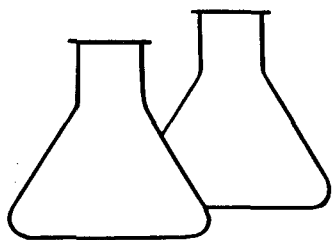
SITE DIAGRAM



TH#	SOIL TYPE	SMPL TYPE	OVM/TPH
TH# 1	SOIL TYPE	SMPL TYPE	OVM/TPH
TH# 2	SOIL TYPE	SMPL TYPE	OVM/TPH
TH# 3	SOIL TYPE	SMPL TYPE	OVM/TPH
TH# 4	SOIL TYPE	SMPL TYPE	OVM/TPH

SOIL TYPE: C - Clay, M - Silt, S - Sand, G - Gravel, F - Fracture, L - None, H - Plastic, Grading: P - Poorly, W - Well

T1 = 13' FROM PIT, T2 = 11' FROM PIT, T3 = 12' FROM PIT



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FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	T1 @ 11'	Date Analyzed:	10-18-93
Project Location:	Prespentt Gas Com #1	Date Reported:	10-20-93
Laboratory Number:	GAC0285	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	ND	10

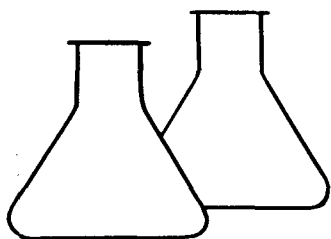
QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% Diff.
	2,800	2,400	15

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

Comments: Blow Pit 94265

R. E. O'neal
Analyst

Tony Tristano
Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	T2 @ 10'	Date Analyzed:	10-18-93
Project Location:	Prespentt Gas Com #1	Date Reported:	10-20-93
Laboratory Number:	GAC0283	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	10	10

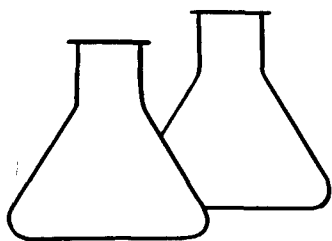
QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% Diff.
	-----	-----	-----
	2,800	2,400	15

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

Comments: Blow Pit 94265

R. E. O'Neill
Analyst

Tony Tristano
Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	T3 @ 12'	Date Analyzed:	10-18-93
Project Location:	Prespentt Gas Com #1	Date Reported:	10-20-93
Laboratory Number:	GAC0284	Sample Matrix:	Soil

Parameter -----	Result, mg/kg -----	Detection Limit, mg/kg -----
Total Recoverable Petroleum Hydrocarbons	ND	10

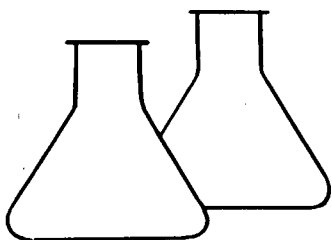
QA/QC:	QA/QC Sample TPH mg/kg -----	Duplicate TPH mg/kg -----	% Diff. -----
	2,800	2,400	15

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

Comments: Blow Pit 94265

R. E. O'Neill
Analyst

Tony Tristano
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	Pit @ 12'	Date Reported:	10-19-93
Laboratory Number:	6349	Date Sampled:	10-18-93
Sample Matrix:	Water	Date Received:	10-18-93
Preservative:	HgCl and Cool	Date Analyzed:	10-19-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	0.6	0.2
Toluene	5.1	0.6
Ethylbenzene	ND	0.3
p,m-Xylene	496	0.3
o-Xylene	325	0.3

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	93 %
	Bromofluorobenzene	100 %

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: Prespent Gas Com #1 Blow Pit C4265

Devin L. Givner
Analyst

Tony Tristano
Review

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: PRESIDENT GC #1
Well Name
Location: Unit or Qtr/Qtr Sec 0 Sec 21 T29N R10W County SAN JUAN
Pit Type: Separator Dehydrator other BLOW
Land Type: BLM State, Fee ✓, other

Pit Location: Pit dimensions: length 55', width 45', depth 15'
(attach diagram) Reference: wellhead X, other
Footage from reference: 51'
Direction from reference: 26 Degrees X East North
of
 West South X

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) <u>20</u>
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) <u>0</u>
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) <u>10</u>

RANKING SCORE (TOTAL POINTS): 30

Date Remediation Started: _____ Date Completed: 11/10/93

Remediation Method: Excavation X Approx. cubic yards 960
 (Check all appropriate sections) Landfarmed X Insitu Bioremediation _____
 Other _____

Remediation Location: Onsite _____ Offsite X GARCIA GC B #1 (J-21-29-10)
 (ie. landfarmed onsite,
 name and location of
 offsite facility) _____

General Description Of Remedial Action: _____

Excavation, GROUNDWATER IMPACT.

Ground Water Encountered: No _____ Yes ✓ Depth 13'Final Pit: Sample location see Attached DocumentsClosure Sampling: MULTIPLE SAMPLES
 (if multiple samples,
 attach sample results
 and diagram of sample
 locations and depths)

Sample depth _____

Sample date _____ Sample time _____

Sample Results

Benzene(ppm) _____

Total BTEX(ppm) _____

Field headspace(ppm) _____

TPH _____

Ground Water Sample: Yes ✓ 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 ^{mv}

SIGNATURE

B. ShawPRINTED NAME
AND TITLEBuddy D. Shaw
ENVIRONMENTAL COORDINATOR

LAB RESULTS TO PAUL U. ON NOV. 7, 1993: SOIL OK, WATER STILL CONTAMINATED.
11/12/93 Lab Results to E. RANNEYMAN & NO Recommendations - RMY

ENVIROTECH Inc.

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

PIT # C4265

COC # 3148
COC 3174

FIELD REPORT: CLOSURE VERIFICATION

JOB No: 92140
PAGE No: of

LOCATION: LEASE: PRESIDENT G.C. WELL: #1 QD: SW/4, SE/4, (0)
SEC: 21 TWP: 29 N RNG: 10 W BM: NM CNTY: SJ ST: NM PIT: Blow
CONTRACTOR: BILL MOSS
EQUIPMENT USED: EXCAVATOR

DATE STARTED: 11-1-93
DATE FINISHED: 11-1-93

ENVIRONMENTAL
SPECIALIST: REC

SOIL REMEDIATION: QUANTITY: EXCAVATION APPROX. 55' x 45' OVAL x 15' MAX. DEPTH
DISPOSAL FACILITY: OFF-SITE → GARCIA GC BL WATER @ ~ 13'
LAND USE: FARMING ~ 960 YDS EXCAVATED
SURFACE CONDITIONS: EXCAVATED ~ ALFALFA FIELD

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 17 YARDS S 60° E 41' FROM WELLHEAD.
526E

DEPTH TO GROUNDWATER: ~ 13'
NEAREST WATER SOURCE: HOUSE ~ 150'
NEAREST SURFACE WATER: - SAN JUAN ~

SAMPLES 1, 3, 4 CONSISTED OF BROWN SAND - NO ODOR.

SAMPLE # 2, CONSISTED OF GRAY SANDY SILT - SLIGHT ODOR.

ADDITIONAL EXCAVATION OF PIT COMPLETED TODAY. - POSSIBLY OVER-EXCAVATED
PER LIMITED ENVIROTECH ASSESSMENT DONE 10-18-93

FIELD 418.1 CALCULATIONS

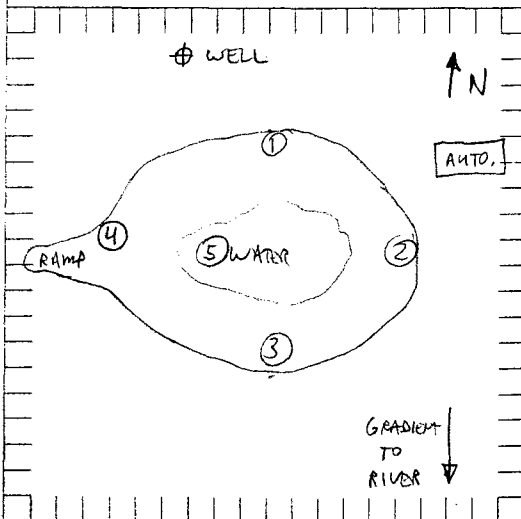
SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

SCALE



0 10 20 FEET

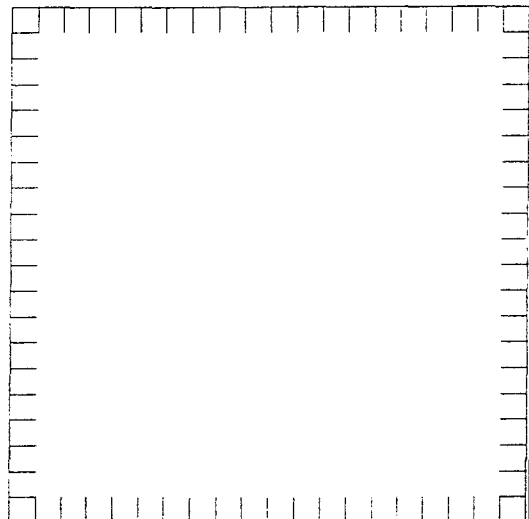
PIT PERIMETER



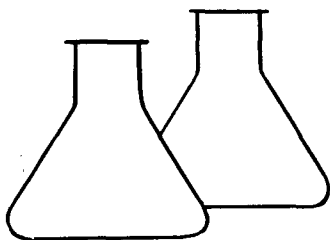
OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 NS@ 8'	5.4
2 ES@ 10'	35
3 SS@ 8'	2.8
4 WS@ 11'	2.8
LAB	
② ES@ 10'	418.1
⑤ B@ 13'	WATER 1414 BTEX

PIT PROFILE



TRAVEL NOTES: CALLOUT: 11-1-93 ONSITE: 11-1-93 1330 HAS



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	ES @ 10'	Date Sampled:	11-01-93
Laboratory Number:	6425	Date Received:	11-01-93
Sample Matrix:	Soil	Date Analyzed:	11-02-93
Preservative:	Cool	Date Reported:	11-02-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter -----	Concentration (mg/kg) -----	Det. Limit (mg/kg) -----
Total Petroleum Hydrocarbons	ND	10.0

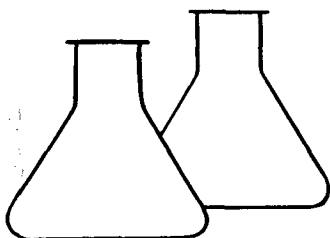
ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

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

Comments: Perspentt GC #1, Blow Pit, C4265

Tony Tristano
Analyst

Maris D. Young
Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	5 B @ 13'	Date Reported:	11-02-93
Laboratory Number:	6424	Date Sampled:	11-01-93
Sample Matrix:	Water	Date Received:	11-01-93
Preservative:	HgCl and Cool	Date Analyzed:	11-01-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	29.0	1.0
Toluene	22.5	1.0
Ethylbenzene	210	1.0
p,m-Xylene	2,370	1.0
o-Xylene	1,080	1.0
	<u>3,450</u>	

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	98 %

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

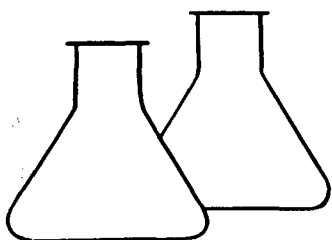
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Prespentt GC #1 Blow Pit C4265

Dennis L. Jensen
Analyst

Morris D. Young
Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	Pit Water	Date Reported:	11-10-93
Laboratory Number:	6459	Date Sampled:	11-09-93
Sample Matrix:	Water	Date Received:	11-09-93
Preservative:	HgCl and Cool	Date Analyzed:	11-10-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	4.6	0.2
Toluene	ND	0.3
Ethylbenzene	ND	0.3
p,m-Xylene	ND	0.4
o-Xylene	5.7	0.4

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	97 %
	Bromofluorobenzene	99 %

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: Prespentt GC #1 Blow Pit C4265

Kevin L. Grewer
Analyst

M. D. Young
Review

CHAIN OF CUSTODY RECORD

[illegible]

ENVIROTECH INC.

5796 U.S. Highway 64-3014

Farmington, New Mexico 87401

(505) 632-0615