

3R - 113

REPORTS

DATE:

1996-1998

CROSS TIMBERS OIL COMPANY

GROUNDWATER REMEDIATION REPORT

1996-1998

**HANEY GC B #1E
(M) SECTION 20, T29N, R10W, NMPM
SAN JUAN COUNTY, NEW MEXICO**

RECEIVED

FEB 19 1999

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

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

DENIED

Chloride above stds.

FEBRUARY 1999

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

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

HANEY GC B # 1E - Separator Pit
Sw/4 Sw/4 Sec. 20, T29N, R10W

<u>Site Assessment Date:</u>	June 3, 1992 (Documentation Included)
<u>Pit Closure Date:</u>	February 12 - 16, 1996 (Documentation Included)
<u>Monitor Well Installation Date:</u>	December 17, 1997
<u>Monitor Well Sampling Date:</u>	December 18, 1997

Groundwater Monitor Well Sampling Procedures:

Groundwater samples were collected from site monitor wells 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 8021B. When applicable, additional groundwater was collected and placed in laboratory supplied 250 or 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:

BTEX and general chemistry results for the 1997 initial sampling event are summarized in the following tables. Following Amoco's NMOC approved groundwater plan, sampling of all monitor wells (#s 1, 2, & 3) was terminated after the initial BTEX results revealed non detectable levels or well below 25% of the New Mexico Water Quality Control Commission's (NMWQCC) allowable concentration for groundwater. The general chemistry results indicate that the total dissolved solids for the pit area and immediate down gradient direction are below that of the apparent background levels (MW #1).

Summary and/or Recommendations:

After review of the enclosed documentation, the groundwater within the separator pit area appears to have been remediated during the pit closure activities. In addition, an air sparge system developed and installed by Paul & Sons, Inc. (operational between June 1996 until December, 1997) appears to have contributed to the clean up of the impacted area. It is therefore concluded that the groundwater impact to the separator pit has been effectively remediated for closure. AMOCO therefore request review of the enclosed documentation for formal closure of the separator pit.

All aspects of the Amoco revised groundwater plan dated October 22, 1996 (approved by NMOC with letter dated February 7, 1997) has been adhered to.

AMOCO GROUNDWATER MONITOR WELL LABORATORY RESULTS
 SUBMITTED BY BLAGG ENGINEERING, INC.

HANEY GC B # 1E - SEPARATOR PIT UNIT M, SEC. 20, T29N, R10W
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REVISED DATE: DECEMBER 31, 1997

FILENAME: (HA-4Q-97.WK3) NJV

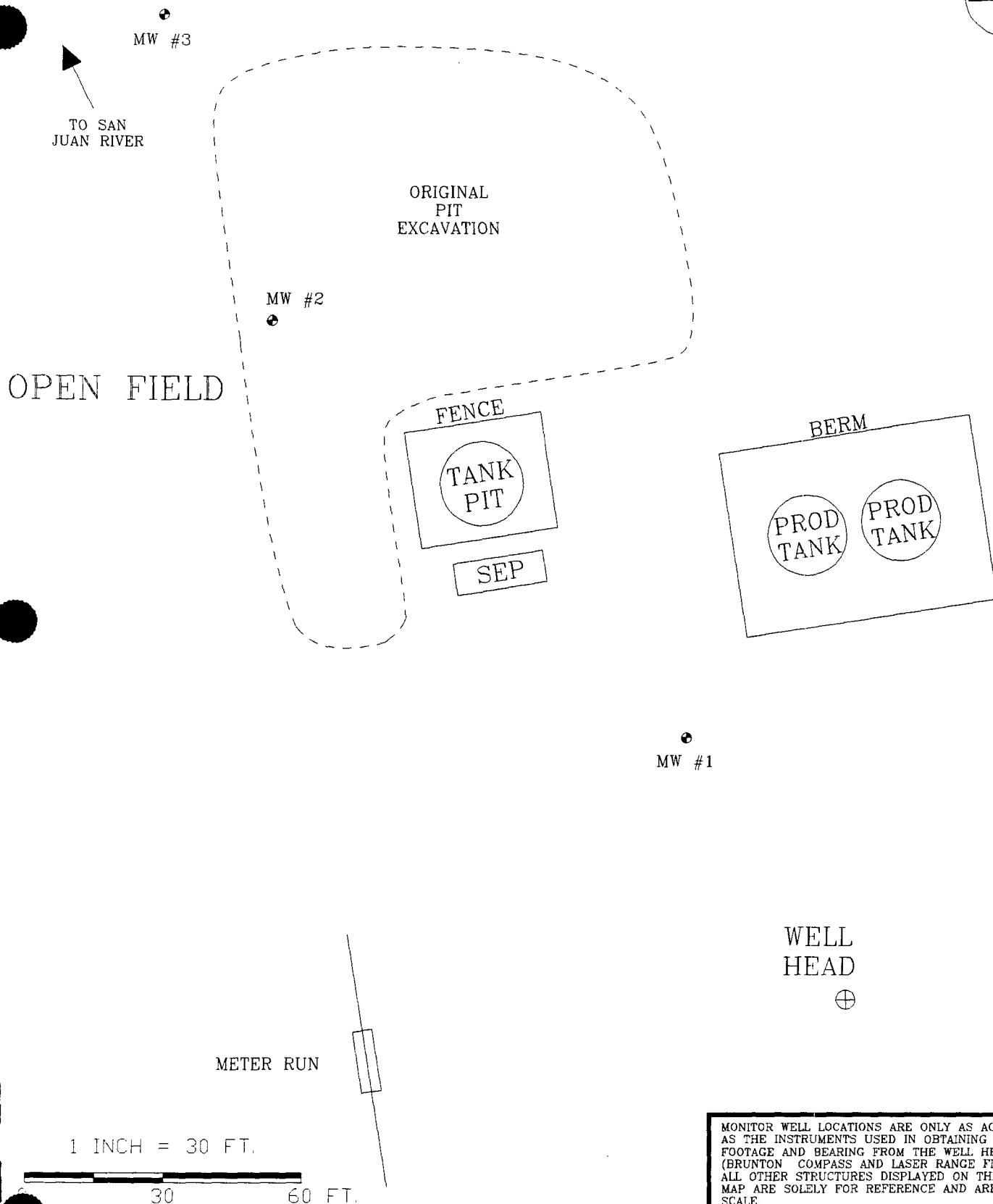
SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (in)	BTEX EPA METHOD 8020 (PPB)			
								Benzene	Toluene	Ethyl Benzene	Total Xylene
18-Dec-97	MW #1	6.75	9.00	2807	3300	7.1		ND	ND	ND	0.1
18-Dec-97	MW #2	9.07	15.00	1620	2700	7.1		ND	ND	1.5	0.4
18-Dec-97	MW #3	10.34	15.00	1544	2700	7.0		ND	0.7	2.4	10.6

GENERAL WATER QUALITY
AMOCO PRODUCTION COMPANY
HANEY GC B # 1E

SAMPLE DATE : DECEMBER 18, 1997

PARAMETERS		MW # 1	MW # 2	MW # 3	Units
GENERAL	LAB pH	7.27	7.07	7.07	s. u.
	LAB CONDUCTIVITY (25 DEG. CELCIUS)	5,584	3,280	3,092	umhos cm
	TOTAL DISSOLVED SOLIDS (180 DEG. CELCIUS)	2,792	1,636	1,544	mg / L
	TOTAL DISSOLVED SOLIDS (CALCULATED)	2,807	1,620	1,544	mg / L
ANIONS	TOTAL ALKALINITY AS CaCO3	620	400	438	mg / L
	BICARBONATE ALKALINITY (AS HCO3)	620	400	438	mg / L
	CARBONATE ALKALINITY (AS CO3)	< 1	< 1	< 1	mg / L
	HYDROXIDE ALKALINITY (AS CaCO3)	< 1	< 1	< 1	mg / L
	CHLORIDE	1546	755	719	mg / L
	SULFATE	46.6	54.5	23.2	mg / L
	PHOSPHATE	0.8	0.2	0.1	mg / L
	FLUORIDE	1.75	4.40	1.14	mg / L
	NITRATE NITROGEN	0.4	0.3	0.2	mg / L
	NITRITE NITROGEN	0.013	0.001	0.007	mg / L
CATIONS	TOTAL HARDNESS AS CaCO3	2,704	1,378	1,332	mg / L
	CALCIUM	402	476	448	mg / L
	MAGNESIUM	415	46.0	51.8	mg / L
	POTASSIUM	7.00	4.70	5.70	mg / L
	SODIUM	11.0	36.2	28.7	mg / L
DATA VALIDATION					ACCEPTANCE LEVEL
	CATION/ANION DIFFERENCE	0.00	0.00	0.00	+/- 5 %
	SODIUM ABSORPTION RATIO	0.1	0.4	0.3	

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.

AMOCO PRODUCTION COMPANY
HANEY GC # 1E
SW/4 SW/4 SEC. 20, T29N, R10W
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1189

PROJECT: 1/4ly Samp.
DRAWN BY: NJV
FILENAME: HANE-SM
REVISED: 5/11/98 NJV

SITE
MAP
12/97

FIGURE 2 (4th 1/4, 1997)



MW #3
(92.20)

TO SAN
JUAN RIVER

TREES AND
SCRUBS

92.25

TREES AND
SCRUBS

ORIGINAL
SEP. PIT
EXCAVATION

92.50

MW #2
(92.63)

92.75

FENCE

TANK
PIT

SEP

93.00

BERM

PROD
TANK

PROD
TANK

93.25

MW #1
(93.39)

APPARENT GROUNDWATER
FLOW DIRECTION

⊕ WELL
HEAD

1 INCH = 30 FT.

METER RUN

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
BE USED FOR ANY OTHER PURPOSE.

Top of Well Elevation

MW #1 ——— (100.14)

MW #2 ——— (101.70)

MW #3 ——— (102.54)

● MW #1 Groundwater Elevation
(93.39) as of 12/18/97.

AMOCO PRODUCTION COMPANY

HANEY GC # 1E

SW/4 SW/4 SEC. 20, 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: 1/4ly Samp.

DRAWN BY: NJV

FILENAME: HANE-GW

REVISED: 5/11/98 NJV

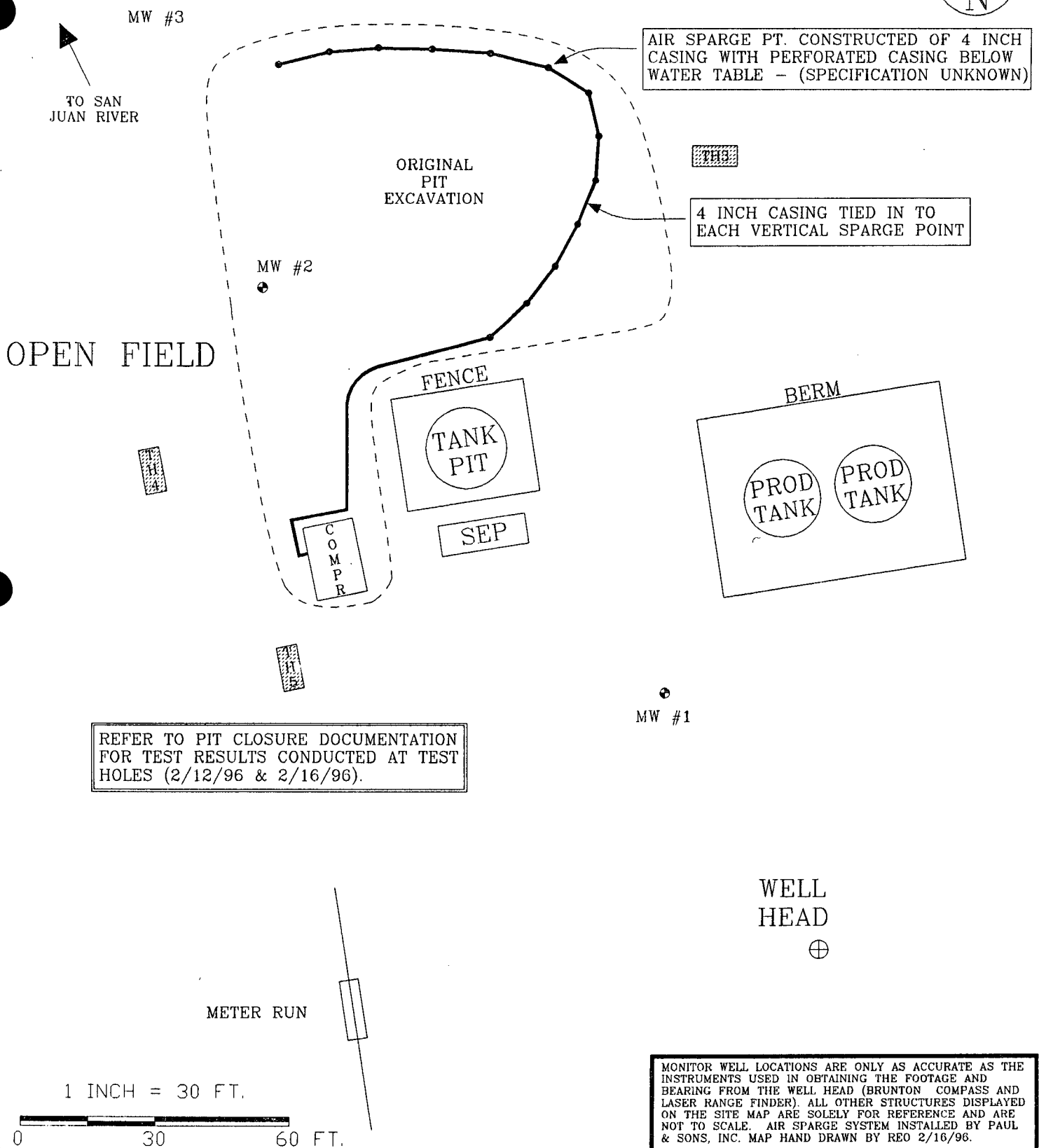
GROUNDWATER

GRADIENT

MAP

12/97

FIGURE 3



AMOCO PRODUCTION COMPANY

HANEY GC # 1E

SW/4 SW/4 .SEC. 20, 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: 1/4ly Samp.

DRAWN BY: RED

FILENAME: HANE-AS

REVISED: 2/3/99 NJV

AIR
SPARGE
SYSTEM
LAY OUT
12/97

BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME: HANEY GC B # 1E

CLIENT: AMOCO PRODUCTION COMPANY

CONTRACTOR: BLAGG ENGINEERING, INC. / PAUL & SONS

EQUIPMENT USED: MOBILE DRILL RIG/PAUL & SONS

BORING LOCATION: N31.5W, 66 FEET FROM WELL HEAD.

BORING #..... BH - 1

MW #..... 1

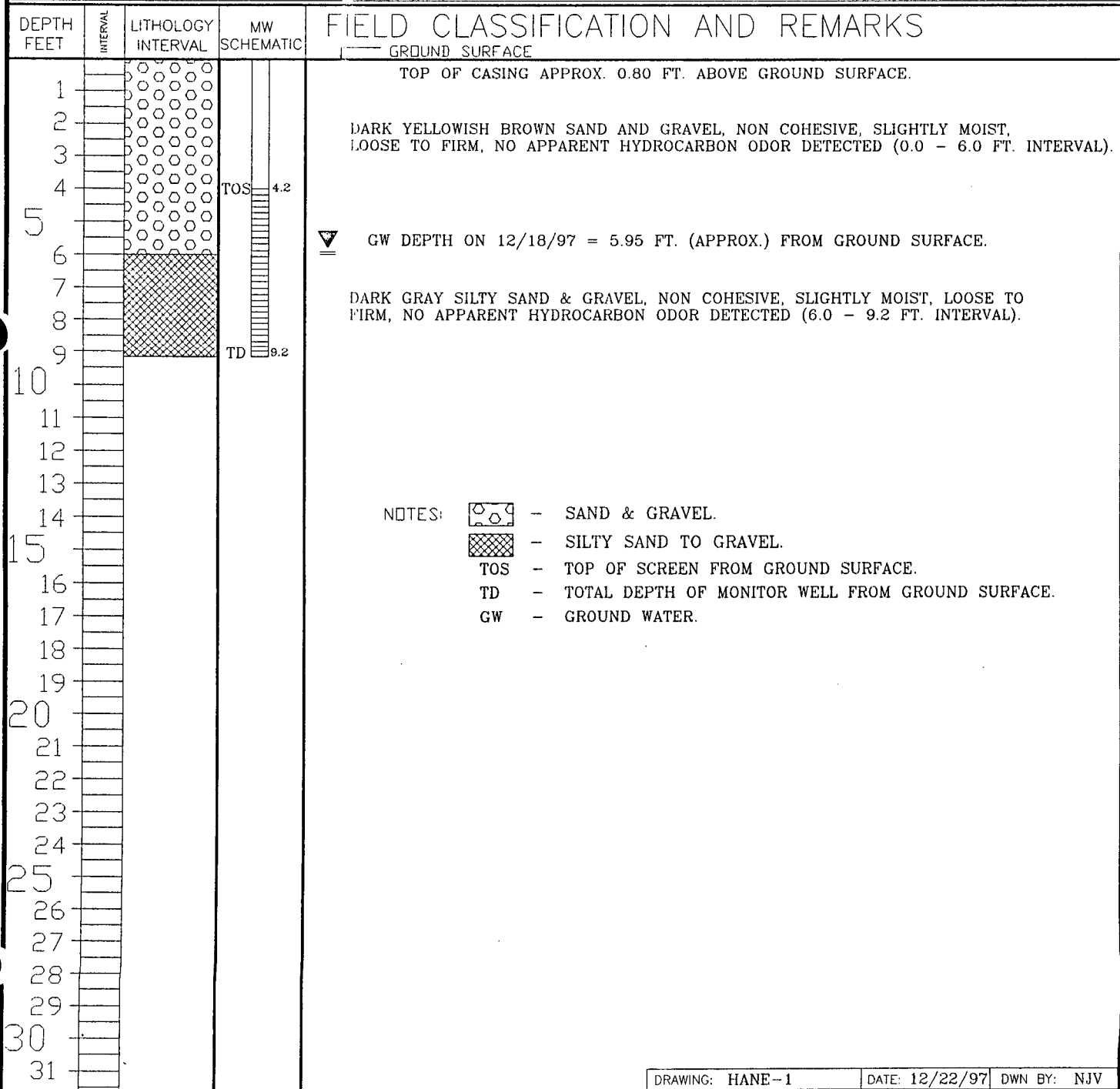
PAGE #..... 1

DATE STARTED 12/17/97

DATE FINISHED 12/17/97

OPERATOR..... GG

PREPARED BY NJV



DRAWING: HANE-1

DATE: 12/22/97

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 12/17/97
DATE FINISHED 12/17/97
OPERATOR..... GG
PREPARED BY NJV

LOCATION NAME: HANEY GC B # 1E
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC. / PAUL & SONS
EQUIPMENT USED: MOBILE DRILL RIG / PAUL & SONS
BORING LOCATION: N40.5W, 192 FEET FROM WELL HEAD.

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
1				TOP OF CASING APPROX. 2.25 FT. ABOVE GROUND SURFACE.
2				
3				
4				
5				
6				
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				

DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (0.0 - 8.0 FT. INTERVAL).

▼ GW DEPTH ON 12/18/97 = 6.82 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT GRAY SILTY SAND & GRAVEL, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (8.0 - 12.75 FT. INTERVAL).

- NOTES:
-  - SAND.
 -  - SILTY SAND TO GRAVEL.
 - TOS - TOP OF SCREEN FROM GROUND SURFACE.
 - TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
 - GW - GROUND WATER.

BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME: HANEY GC B # 1E
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC. / PAUL & SONS
EQUIPMENT USED: MOBILE DRILL RIG / PAUL & SONS
BORING LOCATION: N35W, 258 FEET FROM WELL HEAD.

BORING #..... BH - 3
MW #..... 3
PAGE #..... 3
DATE STARTED 12/17/97
DATE FINISHED 12/17/97
OPERATOR..... GG
PREPARED BY NJV

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
				GROUND SURFACE
1				TOP OF CASING APPROX. 2.00 FT. ABOVE GROUND SURFACE.
2				
3				
4				
5				DARK YELLOWISH BROWN SAND THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HYDROCARBON ODOR OR DISCOLORATION DETECTED (0.0 - 13.0 FT. INTERVAL).
6				
7				
8				▼ GW DEPTH ON 12/18/97 = 8.34 FT. (APPROX.) FROM GROUND SURFACE.
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

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

MONITOR WELL #1

AMOCO PRODUCTION COMPANY
HANEY GC B # 1E
MONITOR WELL CONSTRUCTION & COMPLETION
INSTALLED WITH MOBILE DRILL 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: DEC. '97
FILENAME: MW-1

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP CAP
(APPROX. 0.80 ft. ABOVE
GROUND SURFACE)

TOTAL CASING
LENGTH = 4.20 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

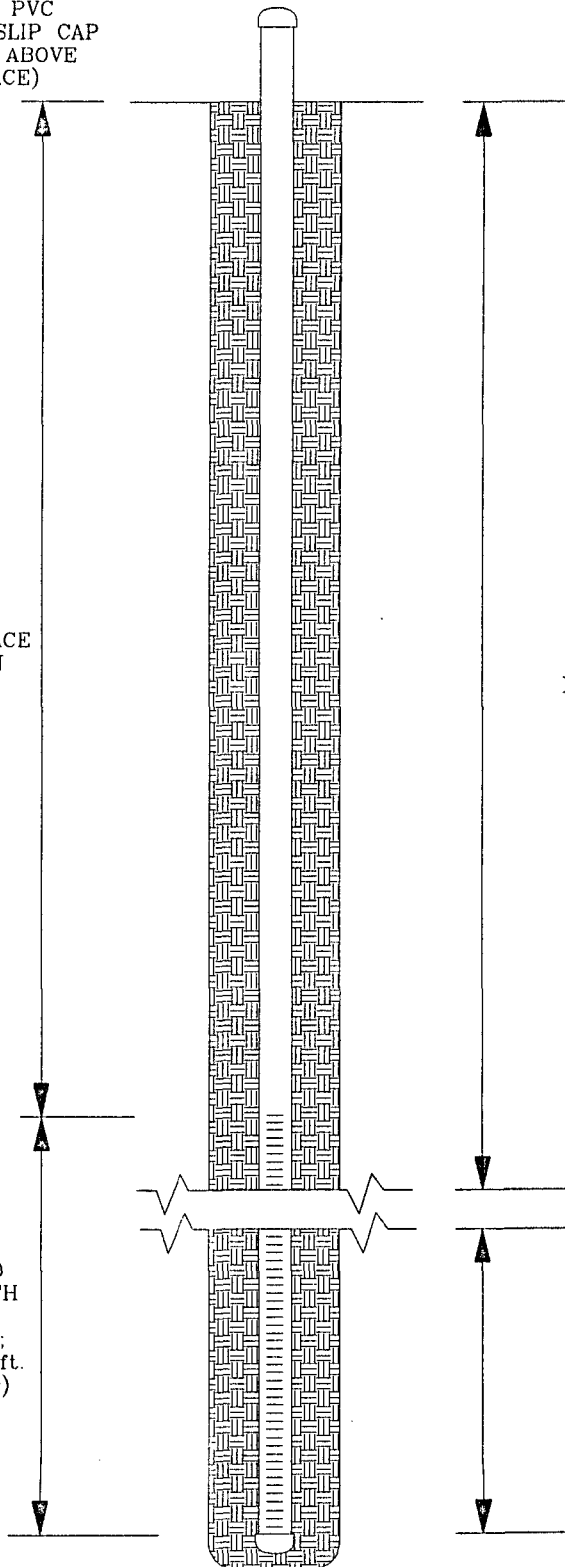
0.02 INCH SLOTTED
SCREEN SCH 40 WITH
SLIP CAP
(5 ft. total length;
top of screen 1.75 ft.
above groundwater)

TOTAL DEPTH = 9.20 ft.
FROM GROUND SURFACE

BACK FILLED TO SURFACE
USING EXISTING SOILS
FROM ADVANCED EXCAVATION

WATER TABLE
APPROX. 5.95 ft. FROM
GROUND SURFACE
(measured 12/18/97)

3.25 ft. SCREEN INTERVAL
SET INTO EXISTING SOIL &
GROUNDWATER CONDITIONS



MONITOR WELL #2

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP CAP
(APPROX. 2.25 ft. ABOVE
GROUND SURFACE)

TOTAL CASING
LENGTH = 2.75 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

0.02 INCH SLOTTED
SCREEN SCH 40 WITH
SLIP CAP
(10 ft. total length;
top of screen 4.07 ft.
above groundwater)

TOTAL DEPTH = 12.75 ft.
FROM GROUND SURFACE

BACK FILLED TO SURFACE
USING EXISTING SOILS
FROM ADVANCED EXCAVATION

WATER TABLE
APPROX. 6.82 ft. FROM
GROUND SURFACE
(measured 12/18/97)

5.93 ft. SCREEN INTERVAL
SET INTO EXISTING SOIL &
GROUNDWATER CONDITIONS

AMOCO PRODUCTION COMPANY

HANEY GC B # 1E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE DRILL 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: DEC. '97

FILENAME: MW-2

MONITOR WELL #3

AMOCO PRODUCTION COMPANY
HANEY GC B # 1E
MONITOR WELL CONSTRUCTION & COMPLETION
INSTALLED WITH MOBILE DRILL 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: DEC. '97
FILENAME: MW-2

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP CAP
(APPROX. 2.00 ft. ABOVE
GROUND SURFACE)

TOTAL CASING
LENGTH = 3.00 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

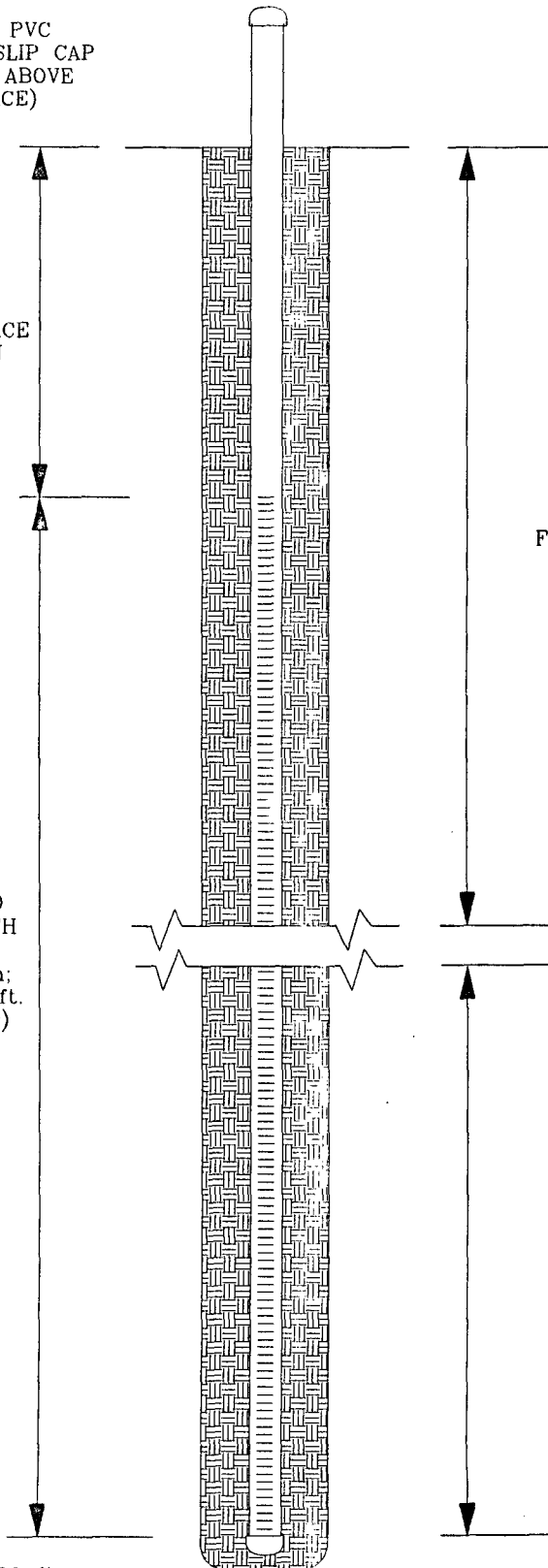
0.02 INCH SLOTTED
SCREEN SCH 40 WITH
SLIP CAP
(10 ft. total length;
top of screen 5.34 ft.
above groundwater)

TOTAL DEPTH = 13.00 ft.
FROM GROUND SURFACE

BACK FILLED TO SURFACE
USING EXISTING SOILS
FROM ADVANCED EXCAVATION

WATER TABLE
APPROX. 8.34 ft. FROM
GROUND SURFACE
(measured 12/18/97)

4.66 ft. SCREEN INTERVAL
SET INTO EXISTING SOIL &
GROUNDWATER CONDITIONS



BLAGG ENGINEERING, INC.
MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5660

HANEY GC B # 1E - SEPARATOR PIT
UNIT M, SEC. 20, T29N, R10W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : December 18, 1997

SAMPLER : NJV

Filename : 12-18-97.WK3

PROJECT MANAGER : NJV

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	100.14	93.39	6.75	9.00	1200	7.1	3,300	1.25	-
2	101.70	92.63	9.07	15.00	1225	7.1	2,700	3.00	-
3	102.54	92.20	10.34	15.00	1300	7.0	2,700	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 ".

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 1	Date Reported:	12-19-97
Chain of Custody:	5660	Date Sampled:	12-18-97
Laboratory Number:	C711	Date Received:	12-18-97
Sample Matrix:	Water	Date Analyzed:	12-19-97
Preservative:	HgCl ₂ & 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	0.7	1	0.2
o-Xylene	0.3	1	0.1

Total BTEX 1.0

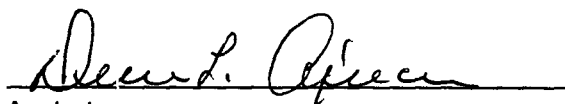
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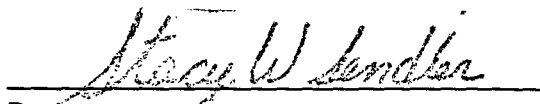
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	99 %

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

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 199

Comments: Haney GC B #1E.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 2	Date Reported:	12-19-97
Chain of Custody:	5660	Date Sampled:	12-18-97
Laboratory Number:	C712	Date Received:	12-18-97
Sample Matrix:	Water	Date Analyzed:	12-19-97
Preservative:	HgCl ₂ & 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	1.5	1	0.2
p,m-Xylene	0.4	1	0.2
o-Xylene	ND	1	0.1
Total BTEX	1.9		

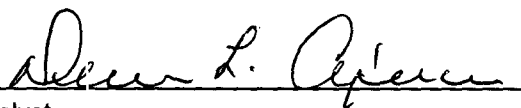
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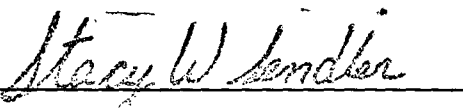
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	100 %
	Bromofluorobenzene	100 %

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

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 199

Comments: Haney GC B #1E.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 3	Date Reported:	12-19-97
Chain of Custody:	5660	Date Sampled:	12-18-97
Laboratory Number:	C713	Date Received:	12-18-97
Sample Matrix:	Water	Date Analyzed:	12-19-97
Preservative:	HgCl ₂ & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	ND	1	0.2
Toluene	0.7	1	0.2
Ethylbenzene	2.4	1	0.2
p,m-Xylene	5.7	1	0.2
o-Xylene	4.9	1	0.1

Total BTEX 13.7

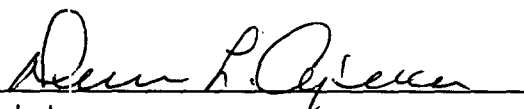
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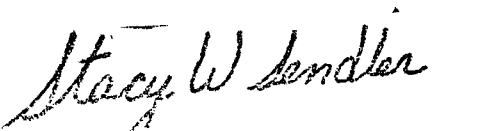
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	96 %
	Bromofluorobenzene	96 %

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

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 199

Comments: Haney GC B #1E.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client: Blagg / AMOCO
Sample ID: MW #1
Laboratory Number: C711
Chain of Custody: 5660
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

Project #: 04034-10
Date Reported: 12-22-97
Date Sampled: 12-18-97
Date Received: 12-18-97
Date Extracted: N/A
Date Analyzed: 12-19-97

Parameter	Analytical Result	Units		Units
pH	7.27	s.u.		
Conductivity @ 25° C	5,584	umhos/cm		
Total Dissolved Solids @ 180C	2,792	mg/L		
Total Dissolved Solids (Calc)	2,807	mg/L		
SAR	0.1	ratio		
Total Alkalinity as CaCO3	620	mg/L		
Total Hardness as CaCO3	2,704	mg/L		
Bicarbonate as HCO3	620	mg/L	10.16	meq/L
Carbonate as CO3	<1	mg/L	0.00	meq/L
Hydroxide as OH	<1	mg/L	0.00	meq/L
Nitrate Nitrogen	0.4	mg/L	0.01	meq/L
Nitrite Nitrogen	0.013	mg/L	0.00	meq/L
Chloride	1,546	mg/L	43.61	meq/L
Fluoride	1.75	mg/L	0.09	meq/L
Phosphate	0.8	mg/L	0.03	meq/L
Sulfate	46.6	mg/L	0.97	meq/L
Calcium	402	mg/L	20.06	meq/L
Magnesium	415	mg/L	34.15	meq/L
Potassium	7.00	mg/L	0.18	meq/L
Sodium	11.0	mg/L	0.48	meq/L
Cations			54.87	meq/L
Anions			54.87	meq/L
Cation/Anion Difference			0.00%	

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

Comments: Haney GC B #1E.

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client: Blagg / AMOCO
Sample ID: MW #2
Laboratory Number: C712
Chain of Custody: 5660
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

Project #: 04034-10
Date Reported: 12-22-97
Date Sampled: 12-18-97
Date Received: 12-18-97
Date Extracted: N/A
Date Analyzed: 12-19-97

Parameter	Analytical Result	Units	Units
pH	7.07	s.u.	
Conductivity @ 25° C	3,280	umhos/cm	
Total Dissolved Solids @ 180C	1,636	mg/L	
Total Dissolved Solids (Calc)	1,620	mg/L	
SAR	0.4	ratio	
Total Alkalinity as CaCO ₃	400	mg/L	
Total Hardness as CaCO ₃	1,378	mg/L	
Bicarbonate as HCO ₃	400	mg/L	6.56 meq/L
Carbonate as CO ₃	<1	mg/L	0.00 meq/L
Hydroxide as OH	<1	mg/L	0.00 meq/L
Nitrate Nitrogen	0.3	mg/L	0.00 meq/L
Nitrite Nitrogen	0.001	mg/L	0.00 meq/L
Chloride	755	mg/L	21.30 meq/L
Fluoride	4.40	mg/L	0.23 meq/L
Phosphate	0.2	mg/L	0.01 meq/L
Sulfate	54.5	mg/L	1.13 meq/L
Calcium	476	mg/L	23.75 meq/L
Magnesium	46.0	mg/L	3.79 meq/L
Potassium	4.70	mg/L	0.12 meq/L
Sodium	36.2	mg/L	1.57 meq/L
Cations			29.23 meq/L
Anions			29.23 meq/L
Cation/Anion Difference			0.00%

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

Comments: Haney GC B #1E.

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client: Blagg / AMOCO
Sample ID: MW #3
Laboratory Number: C713
Chain of Custody: 5660
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

Project #: 04034-10
Date Reported: 12-22-97
Date Sampled: 12-18-97
Date Received: 12-18-97
Date Extracted: N/A
Date Analyzed: 12-19-97

Parameter	Analytical Result	Units		Units
pH	7.07	s.u.		
Conductivity @ 25° C	3,092	umhos/cm		
Total Dissolved Solids @ 180C	1,544	mg/L		
Total Dissolved Solids (Calc)	1,544	mg/L		
SAR	0.3	ratio		
Total Alkalinity as CaCO3	438	mg/L		
Total Hardness as CaCO3	1,332	mg/L		
Bicarbonate as HCO3	438	mg/L	7.18	meq/L
Carbonate as CO3	<1	mg/L	0.00	meq/L
Hydroxide as OH	<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	719	mg/L	20.28	meq/L
Fluoride	1.14	mg/L	0.06	meq/L
Phosphate	0.1	mg/L	0.00	meq/L
Sulfate	23.2	mg/L	0.48	meq/L
Calcium	448	mg/L	22.36	meq/L
Magnesium	51.8	mg/L	4.26	meq/L
Potassium	5.70	mg/L	0.15	meq/L
Sodium	28.7	mg/L	1.25	meq/L
Cations			28.01	meq/L
Anions			28.01	meq/L
Cation/Anion Difference			0.00%	

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

Comments: Haney GC B #1E.

Analyst

Review

CHAIN OF CUSTODY RECORD

Client/Project Name				Project Location		ANALYSIS/PARAMETERS									
Blas / Amoco				HANEY GC B#1E											
Sampler: (Signature) <i>Johnson VJ</i>				Chain of Custody Tape No. 04034-10											
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)	ANION/CATION						Remarks		
MW #1	12/18/97	1200	C711	WATER	3	✓	✓						Reserv - HgCl ₂ & cool		
MW #2	12/18/97	1225	C712	WATER	3	✓	✓						Reserv. - HgCl ₂ & cool		
MW #3	12/18/97	1300	C713	WATER	3	✓	✓						Reserv. - HgCl ₂ & cool		
													ANION/CATION		
													SAMPLES PRESERV. - cool only.		
Relinquished by: (Signature) <i>Johnson VJ</i>				Date 12/18/97	Time 1453	Received by: (Signature) <i>John L. Givens</i>				Date 12-18-97	Time 1410				
Relinquished by: (Signature)						Received by: (Signature)									
Relinquished by: (Signature)						Received by: (Signature)									

Rafael's STG-Steel

ENVIROTECH INC.

5796 U.S. Highway 64-3014

Farmington, New Mexico 87401

(505) 632-0615

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

**QUALITY ASSURANCE / QUALITY CONTROL
DOCUMENTATION**

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:	Laboratory Blank	Date Reported:	12-19-97
Laboratory Number:	12-19-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	12-19-97
Condition:	N/A	Analysis Requested:	BTEX

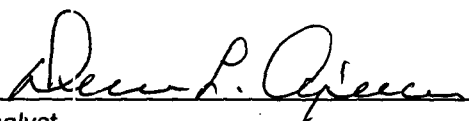
Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	0.2
Toluene	ND	0.2
Ethylbenzene	ND	0.2
p,m-Xylene	ND	0.2
o-Xylene	ND	0.1

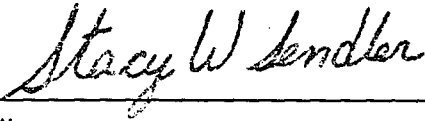
ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	100 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEP December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 199

Comments: QA/QC for samples C709- C715.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	12-19-97
Laboratory Number:	C709	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	12-19-97
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Sample Result (ug/L)	Duplicate Result (ug/L)	Percent Diff.	Det. Limit (ug/L)	Dilution Factor
Benzene	ND	ND	0.0%	0.2	1
Toluene	0.4	0.4	0.0%	0.2	1
Ethylbenzene	ND	ND	0.0%	0.2	1
p,m-Xylene	0.5	0.5	0.0%	0.2	1
o-Xylene	0.1	0.1	0.0%	0.1	1

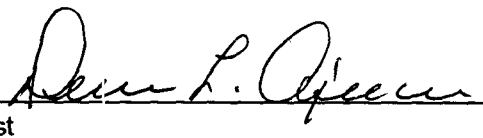
ND - Parameter not detected at the stated detection limit.

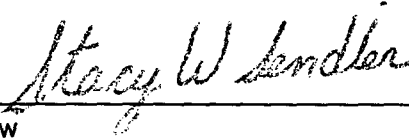
QA/QC Acceptance Criteria:	Parameter	Maximum Difference
	8020 Compounds	30 %

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 C709- C715.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Form
June

Client: QA/QC
Sample ID: Matrix Spike
Laboratory Number: C709
Sample Matrix: Water
Preservative: Cool
Condition: Cool and Intact

Project #: N/A
Date Reported: 12-19-97
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 12-19-97

Parameter	Sample Result (ug/L)	Spike Added (ug/L)	Spiked Sample Result (ug/L)	Det. Limit (ug/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Benzene	ND	50.0	50.0	0.2	100%	39-150
Toluene	0.4	50.0	50.8	0.2	101%	46-148
Ethylbenzene	ND	50.0	50.8	0.2	101%	32-160
p,m-Xylene	0.5	100	101	0.2	100%	46-148
o-Xylene	0.1	50.0	50.0	0.1	100%	46-148

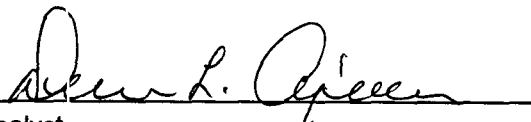
ND - Parameter not detected at the stated detection limit.

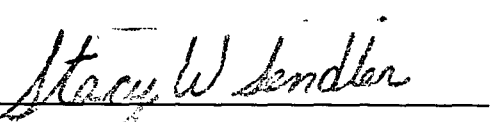
* - Administrative Recovery Acceptance Range = 80% - 115%

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 C709- C715.


Analyst


Review

Signed
This

80332

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 REPORTOperator: Amoco Production Company Telephone: (505) - 326-9200Address: 200 Amoco Court, Farmington, New Mexico 87401Facility or: HANEY GC BIE
Well NameLocation: Unit or Qtr/Qtr Sec M Sec 20 T 29N R 10W County SAN JUANPit Type: Separator X Dehydrator OtherLand Type: BLM State, Fee Other COM. AGMT.Pit Location: Pit dimensions: length 110', width 100', depth 8'
(attach diagram)Reference: wellhead X, otherFootage from reference: 150Direction from reference: 45 Degrees East North X
of
X West South

Depth To Ground Water:	Less than 50 feet	(20 points)	
(Vertical distance from	50 feet to 99 feet	(10 points)	
contaminants to seasonal	Greater than 100 feet	(0 Points)	<u>20</u>
high water elevation of			
ground water)			

Wellhead Protection Area:	Yes (20 points)	
(Less than 200 feet from a private	No (0 points)	<u>20</u>
domestic water source, or; less than		
1000 feet from all other water sources)		

Distance To Surface Water:	Less than 200 feet	(20 points)	
(Horizontal distance to perennial	200 feet to 1000 feet	(10 points)	
lakes, ponds, rivers, streams, creeks,	Greater than 1000 feet	(0 points)	<u>10</u>
irrigation canals and ditches)			

RANKING SCORE (TOTAL POINTS): 50

Date Remediation Started: _____ Date Completed: IN PROGRESS
Remediation Method: Excavation X Approx. cubic yards 3000
(Check all appropriate sections) Landfarmed _____ Insitu Bioremediation _____
Other Compost

Remediation Location: Onsite X Offsite _____
(ie. landfarmed onsite, name and location of offsite facility)

General Description Of Remedial Action: _____

Excavation OF SOILS - PUMP CONTAMINATED WATER.

GROUNDWATER CONTAMINATION EXTENT DEFINED - SOIL EXCAVATION LIMITED
BY EQUIPMENT ON LOCATION. AIR SYSTEM INSTALLED TO REMEDIATE
REMAINING SOIL + WATER CONTAMINATION.

Ground Water Encountered: No _____ Yes X Depth 8'

Final Pit: Sample location see Attached Documents - MULTIPLE
Closure Sampling: SAMPLES
(if multiple samples, attach sample results and diagram of sample locations and depths)

Sample depth ~ 8'

Sample date 2/12 - 2/16 Sample time _____

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
MY KNOWLEDGE AND BELIEF

DATE 4-9-96

SIGNATURE

B. Shaw

PRINTED NAME
AND TITLE

Buddy D. Shaw
ENVIRONMENTAL COORDINATOR

AWM CO

B0332

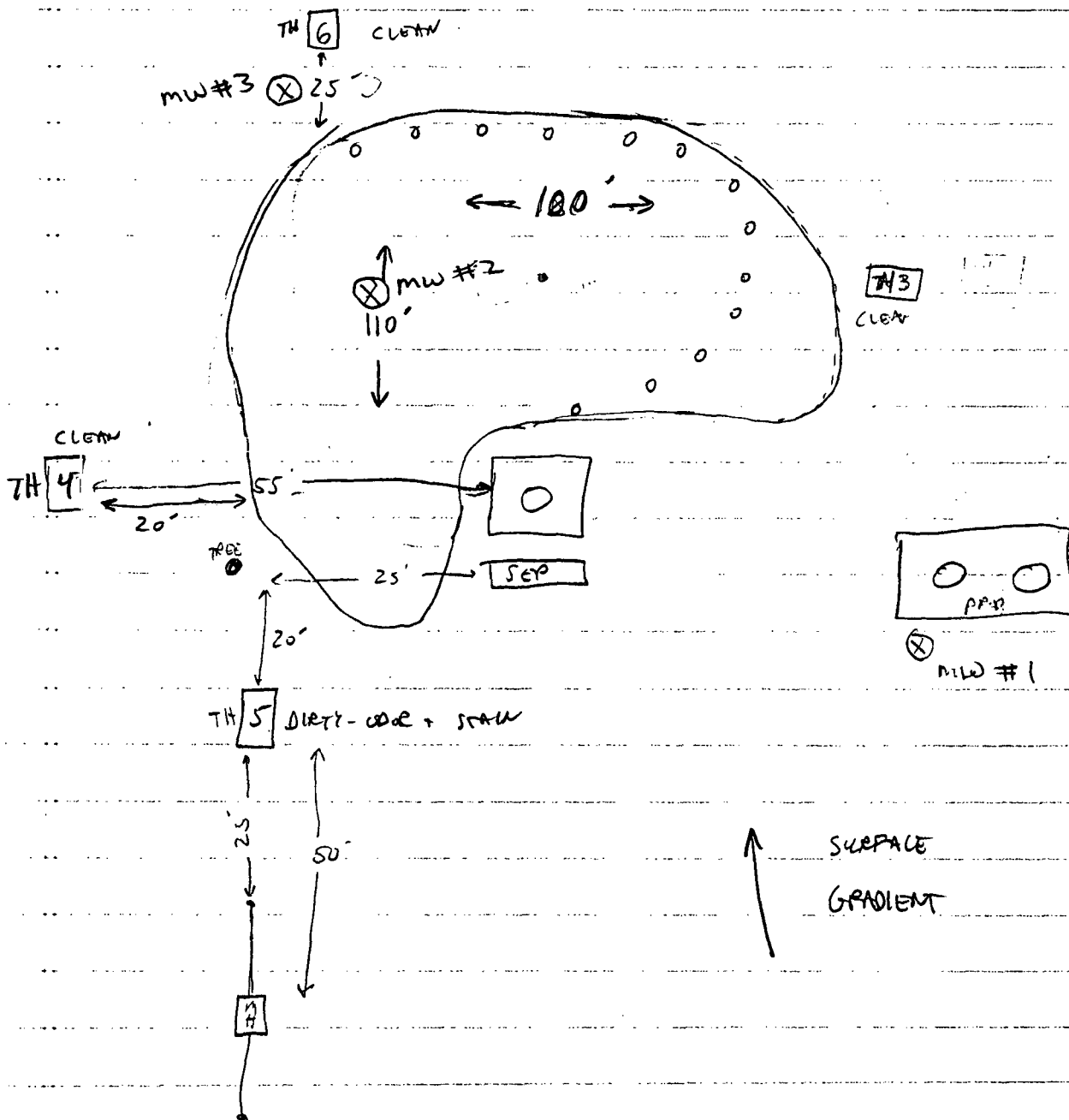
HANET GC BIE

2-16-96

↑ N

↑ TO
STW JUAN RIVER

N ↑



PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Haney GC B1E
Sample ID: Pit water
Lab ID: 2615
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 02/13/96
Date Sampled: 02/12/96
Date Received: 02/12/96
Date Analyzed: 02/12/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	195	40.0
Toluene	720	40.0
Ethylbenzene	127	40.0
m,p-Xylenes	1,350	80.0
o-Xylene	287	40.0

Total BTEX	2,680
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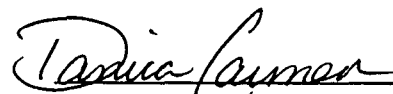
ND - Analyte not detected at the stated detection limit.

Quality Control: Surrogate Percent Recovery Acceptance Limits
Trifluorotoluene 100 88 - 110%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Haney GC B1E
Sample ID: TH - 3 @ 5'
Lab ID: 2616
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 02/13/96
Date Sampled: 02/12/96
Date Received: 02/12/96
Date Analyzed: 02/12/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	3.77	0.20
Toluene	15.2	0.20
Ethylbenzene	13.4	0.20
m,p-Xylenes	95.0	4.00
o-Xylene	21.8	0.20

Total BTEX	168
------------	-----

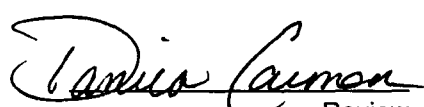
ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	102	88 - 110%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Haney GC B 1E
Sample ID: TH - 4
Lab ID: 2691
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 02/23/96
Date Sampled: 02/16/96
Date Received: 02/16/96
Date Analyzed: 02/19/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	2.21	1.00
o-Xylene	ND	0.50

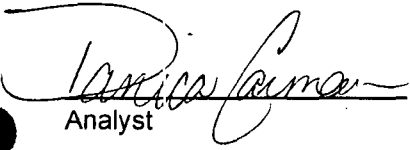
Total BTEX	2.21
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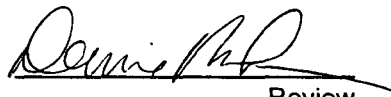
ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	98	88 - 110%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Haney GC B 1E
Sample ID: TH - 6
Lab ID: 2692
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 02/22/96
Date Sampled: 02/16/96
Date Received: 02/16/96
Date Analyzed: 02/19/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50

Total BTEX	ND
------------	----

ND - Analyte not detected at the stated detection limit.

Quality Control: Surrogate Percent Recovery Acceptance Limits
Trifluorotoluene 98 88 - 110%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:


Analyst


Review

General Water Quality

Blagg Engineering, Inc.

Project ID: Haney GC B1E
 Sample ID: Pit Water
 Laboratory ID: 2615
 Sample Matrix: Water

Date Reported: 02/15/96
 Date Sampled: 02/12/96
 Time Sampled: 8:30
 Date Received: 02/12/96

Parameter	Analytical Result	Units
General		
Lab pH.....	7.3	s.u.
Lab Conductivity @ 25° C.....	5,090	µmhos/cm
Total Dissolved Solids @ 180°C.....	4,650	mg/L
Total Dissolved Solids (Calc).....	4,330	mg/L
Anions		
Total Alkalinity as CaCO ₃	503	mg/L
Bicarbonate Alkalinity as CaCO ₃	503	mg/L
Carbonate Alkalinity as CaCO ₃	NA	mg/L
Hydroxide Alkalinity as CaCO ₃	NA	mg/L
Chloride.....	5.50	mg/L
Sulfate.....	2,740	mg/L
Nitrate + Nitrite - N.....	NA	
Nitrate - N.....	NA	
Nitrite - N.....	NA	
Cations		
Total Hardness as CaCO ₃	1,560	mg/L
Calcium.....	424	mg/L
Magnesium.....	121	mg/L
Potassium.....	13	mg/L
Sodium.....	720	mg/L
Data Validation		<u>Acceptance Level</u>
Cation/Anion Difference.....	3.53	+/- 5 %
TDS (180):TDS (calculated).....	1.1	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.


 Review

PROJECT MANAGER:
Anaiytica Lab I.D.:

Company:
Address:

BLAGG

Phone: _____
Fax: _____

632-1191

Bill To:

Stufe

Company:
Address:

CHAIN OF CUSTODY

[illegible]

PROJECT MANAGER:
Analytica Lab I.D.:

Company: BLA66
Address:
Phone: 632-1199
Fax:
Bill To: Same
Company:
Address:

CHAIN OF CUSTODY

[illegible]

94238 JJ

ENVIROTECH Inc.

5796 US HWY. 84, FARMINGTON, NM 87401
(505) 832-0815

1359

FIELD REPORT: SITE ASSESSMENT

JOB No: 92140
PAGE No: 1 of 1PROJECT: PIT ASSESSMENTS & CLOSURE
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: ENVIROTECH INC.
EQUIPMENT USED: EXTENDAHOEDATE STARTED: 6-3-92
DATE FINISHED: 6-3-92
ENVIRO. SPCLT: J.W.
OPERATOR: G.S.
ASSISTANT: T.C.LOCATION: LSE: HANEY Gas Com 'B' WELL: No. 1E QD: SW 1/4 SW 1/4 (M)
SEC: 20 TWP: 29N RNG: 10W PM: N.M CNTY: S.J. ST: N.M PIT: Separator
LAND USE: River Bottom Federal Com. No. 94000208
SURFACE CONDITIONS: Steel tank 12' x 5'

FIELD NOTES & REMARKS: Pit is located approx. 115' North and 95' west of well head. Most of the contamination seems to be on North side of pit area.

SAMPLE INVENTORY:

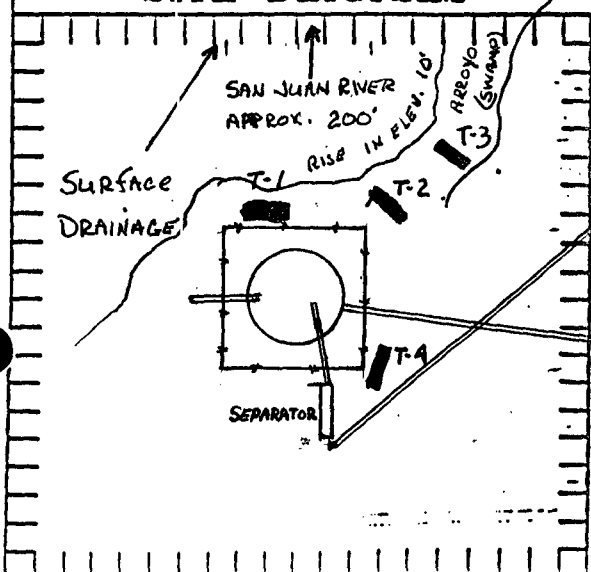
SMPL ID	SMPL TYPE	LABORATORY ANALYSIS
T-1 @ 5'	Soil	TPH
T-1 @ 5'	WATER	TPH
T-1 @ 5'	WATER	BETEX - (B020)
T-1 @ 5'	WATER	BETEX - (B030)
T-2 @ 5'	WATER	HEADSPACE Betex
T-3 @ 5'	WATER	HEADSPACE Betex
T-4 @ 8'	WATER	HEADSPACE Betex

SCALE



FEET

SITE DIAGRAM



TEST HOLE LOGS:

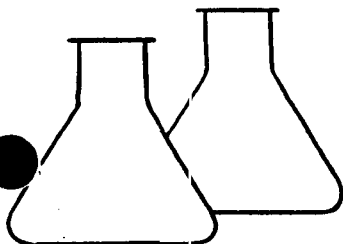
TH#	SOIL TYPE	SMPL TYPE	OVN/TPH
1			
2			
3			
4			
5	SP	Soil	235
		H2o	319
6			
7			
8			
9			
10			
12			
14			
16			
18			
20			

TH#	SOIL TYPE	SMPL TYPE	OVN/TPH
1			
2			
3			
4			
5	SC	Soil	875
		H2o	724
6			
7			
8			
9			
10			
12			
14			
16			
18			
20			

TH#	SOIL TYPE	SMPL TYPE	OVN/TPH
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
12			
14			
16			
18			
20			

TH#	SOIL TYPE	SMPL TYPE	OVN/TPH
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
12			
14			
16			
18			
20			

SOIL TYPE: C - Clay, M - Silt, S - Sand, G - Gravel, P - Peat, L - Lignite, H - Hard, V - Volcanic, C - Coal, P - Peat, V - Volcanic



ENVIROTECH LABS

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

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client: AMOCO
Sample ID: T-1 @ 5'
Laboratory Number: 1074
Sample Matrix: Soil
Preservative: Cool
Condition: Cool & Intact

Project #: 92140
Date Reported: 07-16-92
Date Sampled: 06-03-92
Date Received: 06-03-92
Date Analyzed: 07-15-92
Analysis Needed: TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----	-----	-----
Total Petroleum Hydrocarbons	2,790	5.0

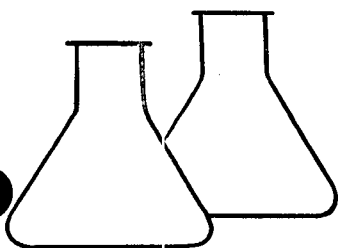
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

ND - Parameter not detected at the stated detection limit.

Comments: Haney Gas Com. 'B' #1E Separator Pit 94238

Vannesa Ransom
Analyst

Val Ransom
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:	T1 @ 5'	Date Reported:	10-05-92
Laboratory Number:	1074	Date Sampled:	06-03-92
Sample Matrix:	Soil	Date Received:	06-03-92
Preservative:	Cool	Date Extracted:	07-15-92
Condition:	Cool & Intact	Date Analyzed:	10-01-92
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	20,800	19.6
Toluene	326,100	79
Ethylbenzene	118,700	29.5
p,m-Xylene	444,600	59
o-Xylene	225,200	39.3

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Bromfluorobenzene	101 %

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

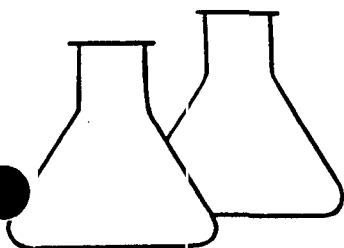
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Haney Gas Com B 1E---Separator Pit---94238.

Robert M Young
Analyst

Marion D Young
Review



ENVIROTECH LABS

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EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client: AMOCO
Sample ID: T-1 @ 5'
Laboratory Number: 1075
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

Project #: 92140
Date Reported: 06-18-92
Date Sampled: 06-03-92
Date Received: 06-03-92
Date Analyzed: 06-04-92
Analysis Needed: TPH

Parameter -----	Concentration (mg/L) -----	Det. Limit (mg/L) -----
TPH	2,630	10.0

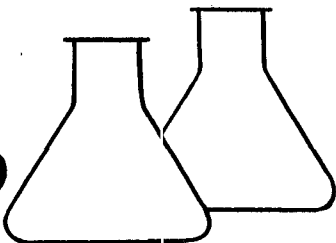
Method: Method 418.1, Total Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

ND - Parameter not detected at the stated detection limit.

Comments: Haney Gas Com. 'B' 1E Separator Pit 94238


Analyst


Review



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EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	T1 @ 5'	Date Reported:	09-15-92
Laboratory Number:	1076	Date Sampled:	06-03-92
Sample Matrix:	Water	Date Received:	06-03-92
Preservative:	HgCl & Cool	Date Analyzed:	07-22-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	8,000	40.0
Toluene	12,900	100
Ethylbenzene	740	40.0
p,m-Xylene	5,100	60
o-Xylene	1,810	60

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	80.8 %

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

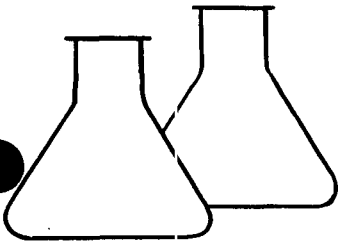
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Haney Gas Com 'B' No.1E---Separator Pit---94238

Al Chaharlang
Analyst

Marissa Young
Review



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EPA METHOD 8020 AROMATIC VOLATILE ORGANICS HEADSPACE EXTRACTION

Client:	Amoco	Project #:	92140
Sample ID:	T2 @ 5'	Date Reported:	09-03-92
Laboratory Number:	1077	Date Sampled:	06-03-92
Sample Matrix:	Water	Date Received:	06-03-92
Preservative:	Cool	Date Analyzed:	08-13-92
Condition:	Cool and Intact	Analysis Requested:	BTEX

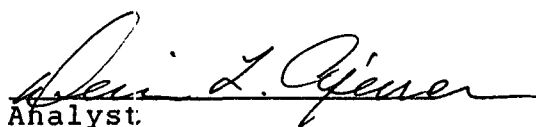
Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	9.0	6.4
Toluene	16.0	1.6
Ethylbenzene	6.4	5.6
p,m-Xylene	ND	6.4
o-Xylene	33.9	4.0

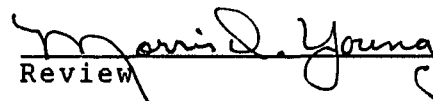
Method: Method 3810, Headspace, Test Methods for Evaluating
Solid Waste, SW-846, USEPA, Sept. 1986

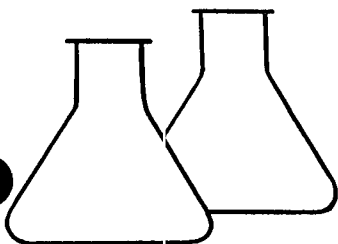
Method 8020, Aromatic Volatile Organics, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Haney Gas Com 'B' No. 1E Separator Pit 94238


Analyst


Review



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

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS HEADSPACE EXTRACTION

Client:	AMOCO	Project #:	92140
Sample ID:	T4 @ 8'	Date Reported:	11-02-92
Laboratory Number:	1079	Date Sampled:	06-03-92
Sample Matrix:	Soil	Date Received:	06-03-92
Preservative:	Cool	Date Analyzed:	08-17-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	1.6
Toluene	ND	4.8
Ethylbenzene	ND	10.4
p,m-Xylene	ND	6.4
o-Xylene	ND	4.8

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: Haney GC B 1E---Separator Pit---94238.

Robert M. Young
Analyst

Maris D. Young
Review

CHAIN OF CUSTODY RECORD

94238

Client/Project Name				Project Location		ANALYSIS/PARAMETERS									
Sampler: (Signature)				Chain of Custody Tape No.											
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH	BETEX	HEADSPACE	BETEX	Remarks					
T-1 @ 5'	6-3-92	617	1074	SOL	1	✓	✓								
T-1 @ 5'	6-3-92	940	1075	WATER	1	✓									
T-1 @ 5'	6-3-92	940	1076	WATER	2		✓								
T-2 @ 5'	6-3-92	1015	1077	WATER	1			✓							
T-3 @ 5'	6-3-92	1030	1078	WATER	1			✓							
T-4 @ 8'	6-3-92	1050	1079	WATER	1			✓							
Relinquished by: (Signature)					Date	Time	Received by: (Signature)					Date	Time		
Relinquished by: (Signature)					6-3-92	1725	Received by: (Signature)					6-3-92	1725		
Relinquished by: (Signature)							Received by: (Signature)								

ENVIROTECH INC.

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