

3R - 119

REPORTS

DATE:

Feb 19, 1999

BLAGG ENGINEERING, INC.

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

February 17, 1999

Mr. William C. Olson -Hydrogeologist
Environmental Bureau
New Mexico Oil Conservation Division
2040 Pacheco
State Land Building
Santa Fe, New Mexico 87505

RECEIVED

FEB 19 1999

**ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION**

RE: Cross Timbers Oil Co. (Amoco) Pit Closure/Groundwater Monitoring Reports
San Juan County, New Mexico

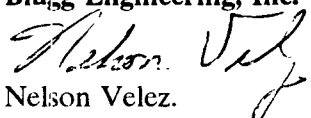
Dear Mr. Olson:

The attached reports on pit closure/groundwater monitoring at nineteen (19) previously owned Amoco well locations is being submitted for your review. These well sites have been acquired by Cross Timbers Co. as of December, 1997. The well names are listed on the following page of this correspondence. The reports for each individual well site are laid out in the following order;

- 1) Pit Closure documentation and/or a brief description of all activities which occurred during the investigation, sampling procedures, and/or interpretations, conclusions, and possible recommendations.
- 2) A summary spreadsheet (when applicable) containing laboratory BTEX, general chemistry (if applicable), and any other pertinent information.
- 3) When applicable: site and groundwater gradient maps, boring logs, and monitor well detail schematics.
- 4) Laboratory reports for each sampling event.
- 5) Quality Assurance/Quality Control data.

A copy of this report is also being submitted to Mr. Denny Foust at the Aztec NMOCD office. If you have any questions or comments concerning this report, please contact Blagg Engineering at 632-1199.

Respectfully submitted,
Blagg Engineering, Inc.


Nelson Velez.
Staff Geologist

Attachments: Pit Closure/Groundwater Monitoring Reports

xc: Denny Foust, NMOCD Aztec Office; Nina Hutton, Cross Timbers Oil Co.

NJV/njv

FEB99-PC.COV

Cross Timbers Oil Company
Pit Closure/Groundwater Monitoring Reports
Well Sites being submitted, February 1999

1) Abrams GC C # 1	Unit F, Sec. 25, T29N, R10W
2) Abrams L # 1A	Unit I, Sec. 26, T29N, R10W
3) Anderson GC A # 1	Unit C, Sec. 28, T29N, R10W
4) Armenta GC A # 1	Unit D, Sec. 27, T29N, R10W
5) Baca GC A # 1	Unit H, Sec. 26, T29N, R10W
6) Baca GC A # 1A	Unit F, Sec. 26, T29N, R10W
7) Chavez GC C # 1R	Unit J, Sec. 23, T29N, R10W
8) Federal GC 3-1	Unit N, Sec. 23, T29N, R10W
9) Garcia GC B # 1E	Unit M, Sec. 21, T29N, R10W
10) Haney GC B # 1E	Unit M, Sec. 20, T29N, R10W
11) Hare GC C # 1	Unit M, Sec. 25, T29N, R10W
12) Hare GC C # 1E	Unit F, Sec. 25, T29N, R10W
13) Hare GC F # 1	Unit G, Sec. 23, T29N, R11W
14) Lefkovitz GC B # 1	Unit A, Sec. 25, T29N, R10W
15) Masden GC # 1	Unit A, Sec. 28, T29N, R11W
16) Romero GC A # 1	Unit K, Sec. 27, T29N, R10W
17) Stedje GC # 1	Unit F, Sec. 27, T30N, R12W
18) Stedje GC # 1E	Unit A, Sec. 27, T30N, R12W
19) Trujillo GC A # 1	Unit C, Sec. 28, T29N, R10W

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

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APPROVED
C4126

FEB 19 1999

PIT REMEDIATION AND CLOSURE REPORT

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Operator: Amoco Production Company Telephone: (505) - 326-9200
Address: 200 Amoco Court, Farmington, New Mexico 87401
Facility Or: Masden GC #1
Well Name _____
Location: Unit or Qtr/Qtr Sec NE/4 NE/4 (A) Sec 28 T 29N R 11W County SAN JUAN
Pit Type: Separator ☒ Dehydrator _____ Other _____
Land Type: BLM _____, State _____, Fee ☒ Other _____

Pit Location: Pit dimensions: length 65', width 100', depth 5'
(Attach diagram) Reference: wellhead ☒, other _____
Footage from reference: 110'
Direction from reference: 60 Degrees _____ East North ☒
_____ of _____
☒ 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) 20
high water elevation of ground water)

Wellhead Protection Area: Yes (20 points)
(Less than 200 feet from a private No (0 points) 0
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) 10
lakes, ponds, rivers, streams, creeks, Greater than 1000 feet (0 points)

RANKING SCORE (TOTAL POINTS): 30

Date Remediation Started: _____

Date Completed: 2/14/94

Remediation Method: Excavation ☒
(Check all appropriate sections)

Approx. cubic yards 740

Landfarmed ☐

Insitu Bioremediation ☐

Other Composted on Site

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

Onsite ☒ Offsite ☐

General Description Of Remedial Action: _____

Pit Excavated & Soils Composted on Site

Ground Water Encountered:

No ☐

Yes ☒

Depth _____

Final Pit:

Closure Sampling:

(if multiple samples,
attach sample results
and diagram of sample
locations and depths)

Sample location Refer to "Closure Verification" Sheet

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 1/22/94

SIGNATURE

B. Shaw

PRINTED NAME
AND TITLE

Buddy D. Shaw
ENVIRONMENTAL COORDINATOR

**MASDEN GC # 1 - Separator Pit
Ne/4 Ne/4 Sec. 28, T29N, R11W**

<u>Site Assessment Date:</u>	May 11, 1992 (Documentation Included)
<u>Pit closure Date:</u>	February 8 - March 12, 1994 (Documentation Included)
<u>Monitor Well Installation Date:</u>	April 23, 1996
<u>Monitor Well Sampling Date:</u>	June 5, 1996

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 8020. 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:

The BTEX results for all three (3) monitor wells during the June 5, 1996 sampling event were non detectable or below 25% of the New Mexico Water Quality Control Commission's (NMWQCC) allowable concentration for groundwater. The general water quality results revealed total dissolved solids (TDS) within the separator pit area (MW #2) and down gradient direction (MW #3) to be above the apparent background level (MW #1).

Summary and/or Recommendations:

Based on the enclosed documentation, the groundwater within the separator pit area appears to have been remediated during the closure activities between February and March, 1994. Although the TDS levels exceed the NMWQCC's allowable concentrations, it does not appear that the elevated TDS levels poses any threat to foreseeable domestic use (based on the well site location - see Figure 1).

All aspects of the Amoco groundwater plan dated October 22, 1996 (approved by NMOCD with letter dated February 7, 1997) has been adhered to. Therefore, Amoco is requesting permanent closure status for this pit.

JJ

5798 US HWY. 84, FARMINGTON, NM 87401
(505) 632-0815

94126

1220

JOB No: 92140
PAGE No: 1 of

PROJECT: PIT ASSESSMENTS & CLOSURE
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: ENVIROTECH, INC.
EQUIPMENT USED: Barillae w/ 2

DATE STARTED: 5/11/92
DATE FINISHED: 5/11/92
ENVIRO. SPCLT: JRB
OPERATOR: DJB
ASSISTANT: LT

LOCATION: LSE: Marden Gas WELL: 1 QD: NE/4 NE/4 (A)
SEC: 28 TWP: T29N RNG: R11W PM: NMPM CNTY: ST ST: NM PIT:

LAND USE: City of Bloomfield Municipal Operation Center yard, ^{SAWYER} PL214
SURFACE CONDITIONS: Fiberglass tank (12'x6'h) buried on site

FIELD NOTES & REMARKS:

MARKS: Soils at this site are clean to 4' depth
4'-7' depth soils are black with sewer (H₂S)
strong odor. Entire yard is littered w/ pipes,
gravel piles, PVC pipes etc. TH4 dugged
up some old trash pipes & other abandoned
water manhole cover, TH4 has dark band
of soil @ 4'-5' depth w/ over read of 4 ppm.
Soil + Groundwater not contaminated at
TH4 site.

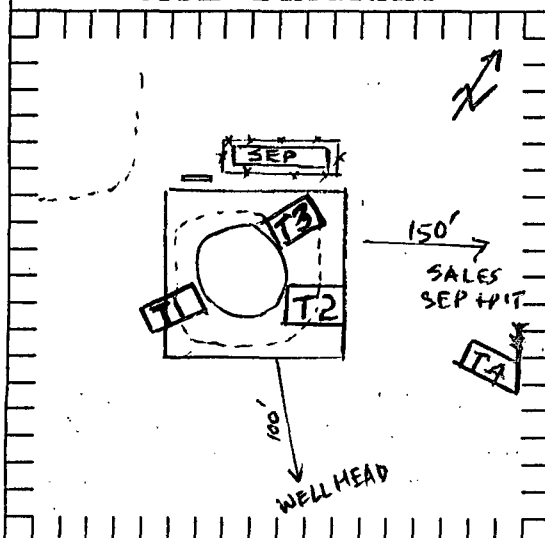
SAMPLE INVENTORY:

[illegible]

SCALE

0 10 20 FEET

SITE DIAGRAM



TEST HOLE LOGS:

TH#: 1
SOIL SMPL OVM/
TYPE: TYPE: TPH

SW

2

5

7

7

894

1117

1215

GW

TH#: 2
SOIL SMPL OVM,
TYPE: TYPE: TPH

			4
			935
			1173
GPO	GW	FZ	

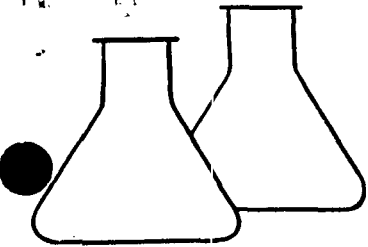
TH#: 3
SOIL SMPL OVM,
TYPE: TYPE: TPH

	FILE	FILE	R#
			7
			44
A =			1165 1783
	G.W.		980

TH#: 4
SOIL SMPL OVM/
TYPE: TYPE: TPH

TYPE	TYPE	TYPE
		4
		49
		3
≡	qw	2

SOIL TYPE: C - Clay, M - Silt, S - Sand, G - Gravel Plasticity: L - None, H - Plastic Gradings: P - Poor, 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 @ 7'
Laboratory Number: 0603
Sample Matrix: Soil
Preservative: Cool
Condition: Cool & Intact

Project #: 92140
Date Reported: 06-15-92
Date Sampled: 05-11-92
Date Received: NA
Date Analyzed: 06-04-92
Analysis Needed: TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	12.2	5.0

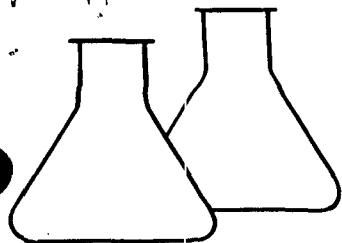
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

ND -- Parameter not detected at the stated detection limit.

Comments: Masden Gas 1 Separator Pit 94126

Tony Tristao
Analyst

Neil Samuel
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:	T 1 @ 7'	Date Reported:	09-23-92
Laboratory Number:	0603	Date Sampled:	05-11-92
Sample Matrix:	Soil	Date Received:	05-11-92
Preservative:	Cool	Date Extracted:	06-04-92
Condition:	Cool & Intact	Date Analyzed:	09-23-92
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	70
Toluene	820	70
Ethylbenzene	96	50
p,m-Xylene	370	110
o-Xylene	152	90

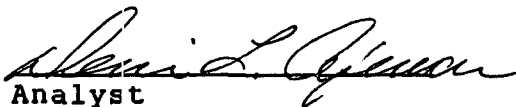
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	79 %
	Bromfluorobenzene	92 %

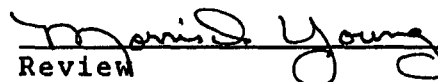
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

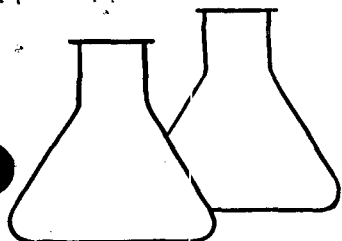
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Masden GC 1 Separator Pit 94126


Analyst


Review



ENVIROTECH LABS

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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:	T1 @ 7'	Date Reported:	08-31-92
Laboratory Number:	0598	Date Sampled:	05-11-92
Sample Matrix:	Soil	Date Received:	05-11-92
Preservative:	NA	Date Analyzed:	07-09-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	1.6
Toluene	ND	1.6
Ethylbenzene	ND	1.6
p,m-Xylene	14.9	12.0
o-Xylene	168	1.6

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

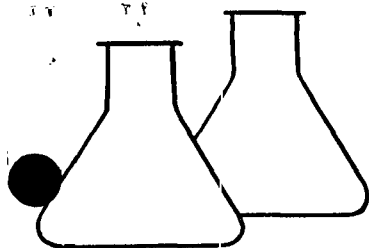
Method 8020, Aromatic Volatile Organics, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Masden Gas Com 1---Separator Pit---94126

Al Chabauty
Analyst

Maria D. Young
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 @ GW	Date Reported:	08-21-92
Laboratory Number:	0600	Date Sampled:	05-11-92
Sample Matrix:	Water	Date Received:	05-11-92
Preservative:	HgCl & Cool	Date Analyzed:	06-25-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	3,090	40.0
Toluene	670	260
Ethylbenzene	1,300	60
p,m-Xylene	15,700	140
o-Xylene	3,960	80

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	94.7 %
	Bromfluorobenzene	81.7 %

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

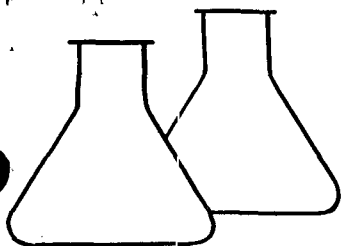
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Masden Gas 1---Separator Pit---94126

Robert M Young
Analyst

Maris D Young
Review



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

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	T 2 @ 5'	Date Reported:	09-23-92
Laboratory Number:	0599	Date Sampled:	05-11-92
Sample Matrix:	Soil	Date Received:	05-11-92
Preservative:	Cool	Date Extracted:	06-04-92
Condition:	Cool & Intact	Date Analyzed:	09-23-92
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	177	70
Toluene	2,2530	70
Ethylbenzene	ND	50
p,m-Xylene	56,700	110
o-Xylene	18,300	90

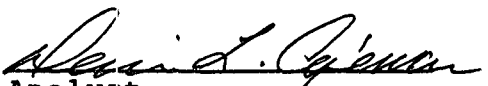
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	113 %
	Bromfluorobenzene	110 %

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

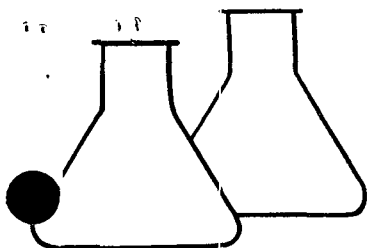
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Masden GC 1 Separator Pit 94126


Analyst


Review



ENVIROTECH LABS

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

TOTAL RECOVERABLE PETROLEUM HYDROCARBON

Client: Amoco
Sample ID: T1-3 @GW
Laboratory Number: 0602
Analysis Requested: 418.1
Sample Matrix: Water
Condition: Received on Ice

Report Date: 5-14-92
Date Sampled: 5-11-92
Date Received: 5-11-92
Date Extracted: 5-12-92
Date Analyzed: 5-12-92
Preservative: Cool

Parameter	Concentration (mg/l)	Det. Limit (mg/l)
Total Recoverable Petroleum Hydrocarbons	550.0	10.0

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

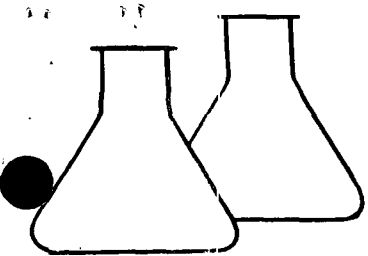
ND - Parameter not detected at the stated detection limit.

Comments: Masden Gas 1 - Separator Pit 94126

Michael D. E.
Analyst

Mavis D. Young
Review

COMPOSITE
IN VIALS



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:	T3 @ GW	Date Reported:	08-21-92
Laboratory Number:	0601	Date Sampled:	05-11-92
Sample Matrix:	Water	Date Received:	05-11-92
Preservative:	HgCl & Cool	Date Analyzed:	06-25-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	20.0
Toluene	ND	130
Ethylbenzene	38.0	30.0
p,m-Xylene	101	70
o-Xylene	84	40.0

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	106.9 %
	Bromfluorobenzene	146.2 %

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: Masden Gas 1---Separator Pit---94126
Excessive surrogate recovery due to coelution of surrogate with hydrocarbons from sample.

Robert M. Young
Analyst

Margaret L. Young
Review

94126

CHAIN OF CUSTODY RECORD

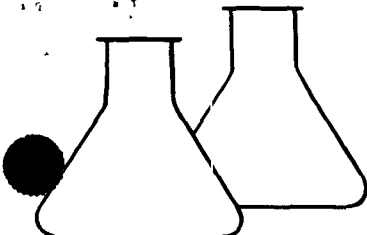
Client/Project Name		Project Location		ANALYSIS/PARAMETERS						
AMOCO / 92140		SEP PIT								
Sampler: (Signature)		Madden Gas Co.								
Chain of Custody Tape No.										
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BETX HEAD	8020	TPH/H ₂ O	Remarks	
T1Q7'	5/11/92	1115	0528	SOIL	1	✓				
T2Q5'	5/11/92	1300	0529	SOIL	1	✓	✓			
T1C GW	5/11/92	1130	0600	WATER	2	✓	✓			
T3Q GW	5/11/92	1350	0601	WATER	2	✓	✓			
T1-3 GW	5/11/92	1350	0602	WATER	1	✓	✓			
T1Q7'	5/11/92	1115	0603	SOIL	1	✓	✓			
Relinquished by: (Signature) <i>Larry Benally</i>				Date	Time	Received by: (Signature) <i>Mickel L. E...</i>		Date	Time	
Relinquished by: (Signature)				5/11/92	1725			5-11-92	1725	
Relinquished by: (Signature)										
Relinquished by: (Signature)										

ENVIROTECH INC.

5796 U.S. Highway 64-3014

Farmington, New Mexico 87401

(505) 632-0615



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:	1 @ GW (6')	Date Reported:	02-11-94
Laboratory Number:	6821	Date Sampled:	02-08-94
Sample Matrix:	Water	Date Received:	02-09-94
Preservative:	HgCl & Cool	Date Analyzed:	02-10-94
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	131	1.0
Toluene	444	2.0
Ethylbenzene	4.5	1.0
p,m-Xylene	320	1.0
o-Xylene	960	1.0

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	98 %
	Bromofluorobenzene	103 %

Method: Method 5030, 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: Masden GC #1 Separator Pit C4126

Dennis L. Jensen
Analyst

Maris D. Young
Review

WATER ANALYSIS

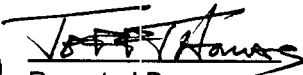
Client: ENVIROTECH
Project: Masden GC #1 Sep Pit
Sample ID: Pit Water @ 6'
Laboratory ID: 4731
Sample Matrix: Water
Condition: Cool/Intact

Date Reported: 02/14/94
Date Sampled: 02/09/94
Date Received: 02/09/94
Date Analyzed: 02/09/94

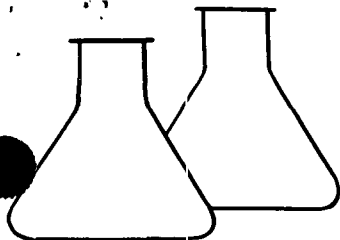
Parameter	Analytical Result	Units
Fecal Coliform Bacteria	0	Colonies/100 mls

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", 17th ed., 1989.

Comments: Contained two unidentified bacteria colonies.


Reported By:


Reviewed By:



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:	NA	Project #:	NA
Sample ID:	Laboratory Blank	Date Reported:	02-11-94
Laboratory Number:	0210am.blk	Date Sampled:	NA
Sample Matrix:	Water	Date Received:	NA
Preservative:	NA	Date Analyzed:	02-10-94
Condition:	NA	Analysis Requested:	BTEX

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

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	94 %
	Bromofluorobenzene	98 %

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

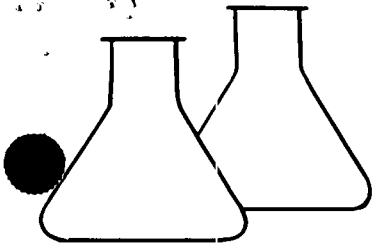
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments:

Devin L. Ciemer
Analyst

Mavis D. Young
Review



ENVIROTECH LABS

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

**** QUALITY ASSURANCE EPA METHOD 8020**
MATRIX SPIKE - AROMATIC VOLATILE ORGANICS

Client:	NA	Project #:	NA
Sample ID:	Sample Spike	Date Reported:	02-11-94
Laboratory Number:	6821-S-BTEX	Date Sampled:	02-08-94
Sample Matrix:	Water	Date Received:	02-09-94
Analysis Requested:	BTEX	Date Analyzed:	02-10-94
Condition:	NA		

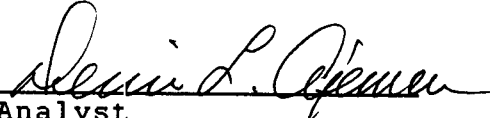
Parameter	Sample Result (ug/L)	Spike Added (ug/L)	Spiked Sample Result (ug/L)	Det. Limit (ug/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Benzene	131	20.0	148	1.0	98	39-150
Toluene	444	20.0	463	2.0	100	46-148
Ethylbenzene	4.5	20.0	24.8	1.0	101	32-160
p,m-Xylene	320	20.0	327	1.0	96	46-148
o-Xylene	964	20.0	981	1.0	100	46-148

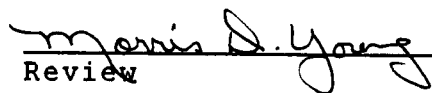
Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

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:


Analyst


Review

Lab Results to Mr Helwig on 3/2/94 by Remy - No recommendations

ENVIROTECH Inc

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

C4126

FIELD REPORT: CLOSURE VERIFICATION

JOB No. 92140
PAGE No. 131

LOCATION: LEASE MARDEN GC WELL #1 QD. NE/4 NE/4
SEC 28 TWP: 29N RNG: 11W BM: NMPA CNTY: ST. NM PIT. SEP
CONTRACTOR: VALSARV-E
EQUIPMENT USED: TRAC 110C

DATE STARTED: 2/10/54
DATE FINISHED: 2/14/54

ENVIRONMENTAL
SPECIALIST: NV/Kong

SOIL REMEDIATION: QUANTITY: Refer to Pit dimensions (5'-6' deep)

DISPOSAL FACILITY: on Site?

LAND USE: Rosefield Sewage Treatment Plant + Yard

SURFACE CONDITIONS: Excavated (200) Arr. var.

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 37 YARDS N 60° W FROM WELLHEAD.

DEPTH TO GROUNDWATER: 5' 21.00'

NEAREST WATER SOURCE:

NEAREST SURFACE WATER: 600-900' San Juan River

Sample # 1, 2, B
taken on 2/10/94.

7. NE Corner backfilled from Site Visit on 2/14/99

TRACE OF FREE PRODUCT ON GROUNDWATER

MR. VERASQUEZ WILL CLOSE AT 10:00-05:00 OF JAN 13/13.

Lab Sample "Pit Water" taken for ETEX
" " " " taken for ETEX/418.1

FIELD 418.1 CALCULATIONS

No. Recommendation
Rony.

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

No observed soil
contam above
water table

SCALE

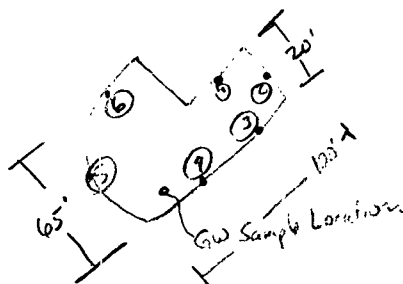
0

FEET

PIT PERIMETER

OVM RESULTS

PIT PROFILE



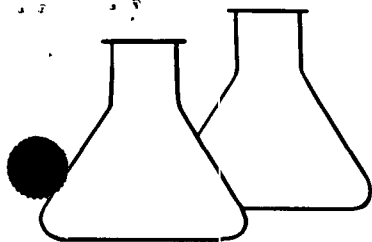
③ is noted as East Cms. 016 - bgs in Lab Sample
taken on 2/10/94.

[illegible]

Refer to 2/8/94 Assessment!

TRAVEL NOTES CALLOUT:

ON SITE



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:	East End @ 6' bgs	Date Reported:	02-11-94
Laboratory Number:	6845	Date Sampled:	02-10-94
Sample Matrix:	Soil	Date Received:	02-11-94
Preservative:	Cool	Date Extracted:	02-11-94
Condition:	Cool & Intact	Date Analyzed:	02-11-94
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	12.8
Toluene	48.6	25.7
Ethylbenzene	73	19.3
p,m-Xylene	144	51
o-Xylene	ND	25.7

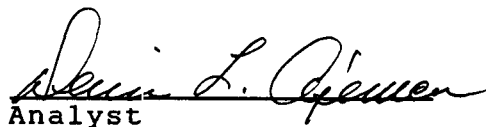
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	97 %
	Bromofluorobenzene	98 %

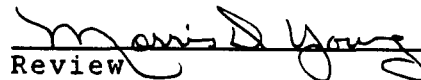
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, July 1992

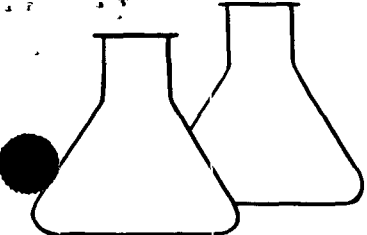
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Masden GC #1 Separator Pit C4126


Analyst


Review



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

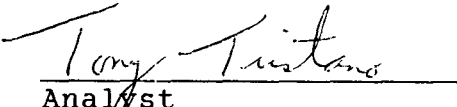
Client:	Amoco	Project #:	92140
Sample ID:	E end @ 6' bgs	Date Sampled:	02-10-94
Laboratory Number:	6845	Date Received:	02-11-94
Sample Matrix:	Soil	Date Analyzed:	02-15-94
Preservative:	Cool	Date Reported:	02-15-94
Condition:	Cool & Intact	Analysis Needed:	TPH

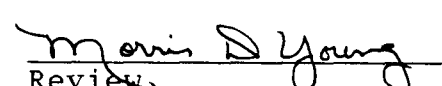
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	217	10.0

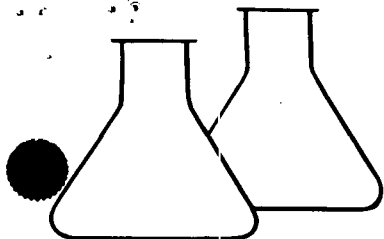
ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

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

Comments: Masden GC #1 Sep Pit C4126


Analyst


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:	02-16-94
Laboratory Number:	6862	Date Sampled:	02-14-94
Sample Matrix:	Water	Date Received:	02-15-94
Preservative:	HgCl and Cool	Date Analyzed:	02-15-94
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	13.8	0.2
Toluene	115	0.4
Ethylbenzene	182	0.2
p,m-Xylene	560	0.5
o-Xylene	910	0.5

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	97 %
	Bromofluorobenzene	98 %

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

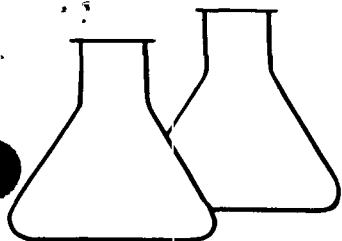
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Masden #1 Separator Pit C4126

Shawn L. Gasser
Analyst

Maris D. Young
Review



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

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	#4 @ 5' bgs	Date Reported:	02-16-94
Laboratory Number:	6863	Date Sampled:	02-14-94
Sample Matrix:	Soil	Date Received:	02-15-94
Preservative:	Cool	Date Extracted:	02-15-94
Condition:	Cool & Intact	Date Analyzed:	02-15-94
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	13.3
Toluene	72	26.5
Ethylbenzene	ND	13.3
p,m-Xylene	43.9	33.1
o-Xylene	ND	33.1

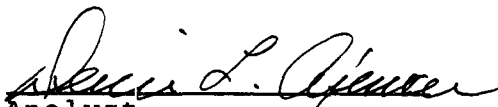
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	96 %

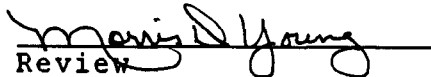
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, July 1992

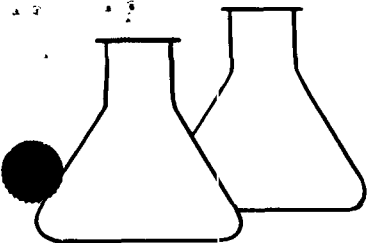
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Masden #1 Separator Pit C4126


Analyst


Review



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:	#4 @ 5' bgs	Date Sampled:	02-14-94
Laboratory Number:	6863	Date Received:	02-15-94
Sample Matrix:	Soil	Date Analyzed:	02-15-94
Preservative:	Cool	Date Reported:	02-15-94
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	19.5	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: Masden GC #1 Sep Pit C4126

Tony Triano
Analyst

Morris D. Young
Review

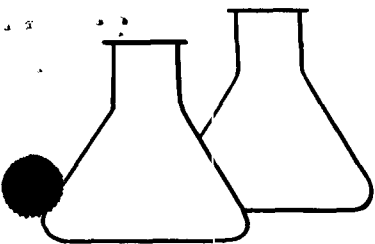
CHAIN OF CUSTODY RECORD

[illegible]**ENVIROTECH INC.**

5796 U.S. Highway 64-3014

Farmington, New Mexico 87401

(505) 632-0615



ENVIROTECH LABS

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

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	S. COMP	Date Analyzed:	4-12-94
Project Location:	Masden GC #1	Date Reported:	4-12-94
Laboratory Number:	GAC0422	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	52	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	510	490	4

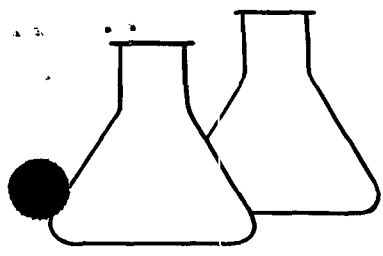
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit C4126 South Compost Pile

R. E. O'Neil
Analyst

Morris D. Young
Review



ENVIROTECH LABS

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

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	W. COMP	Date Analyzed:	4-12-94
Project Location:	Masden GC #1	Date Reported:	4-12-94
Laboratory Number:	GAC0423	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	340	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	510	490	4

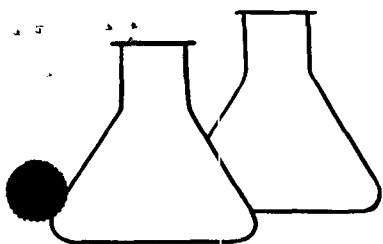
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit C4126 West Compost Pile

R. E. Snell
Analyst

Mavis D. Young
Review



ENVIROTECH LABS

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

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	C. COMP	Date Analyzed:	4-12-94
Project Location:	Masden GC #1	Date Reported:	4-12-94
Laboratory Number:	GAC0424	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	82	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	510	490	4

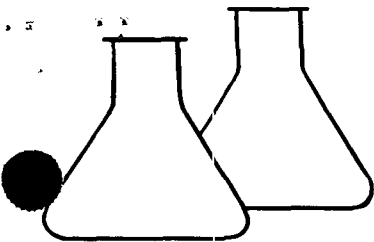
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit C4126 Center Compost Pile

R. E. O'neal
Analyst

Morris D. Young
Review



ENVIROTECH LABS

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

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	E. COMP	Date Analyzed:	4-12-94
Project Location:	Masden GC #1	Date Reported:	4-12-94
Laboratory Number:	GAC0425	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	150	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	-----	-----	-----
	510	490	4

*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit C4126 East Compost Pile

R. E. O'Neil
Analyst

Maria D. Young
Review

AMOCO GROUNDWATER MONITOR WELL LABORATORY RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

MASDEN GC # 1 - SEPARATOR PIT
UNIT A, SEC. 28, T29N, R11W

REVISED DATE: JANUARY 13, 1997

FILENAME: (MA-2Q-96.WK3) NJV

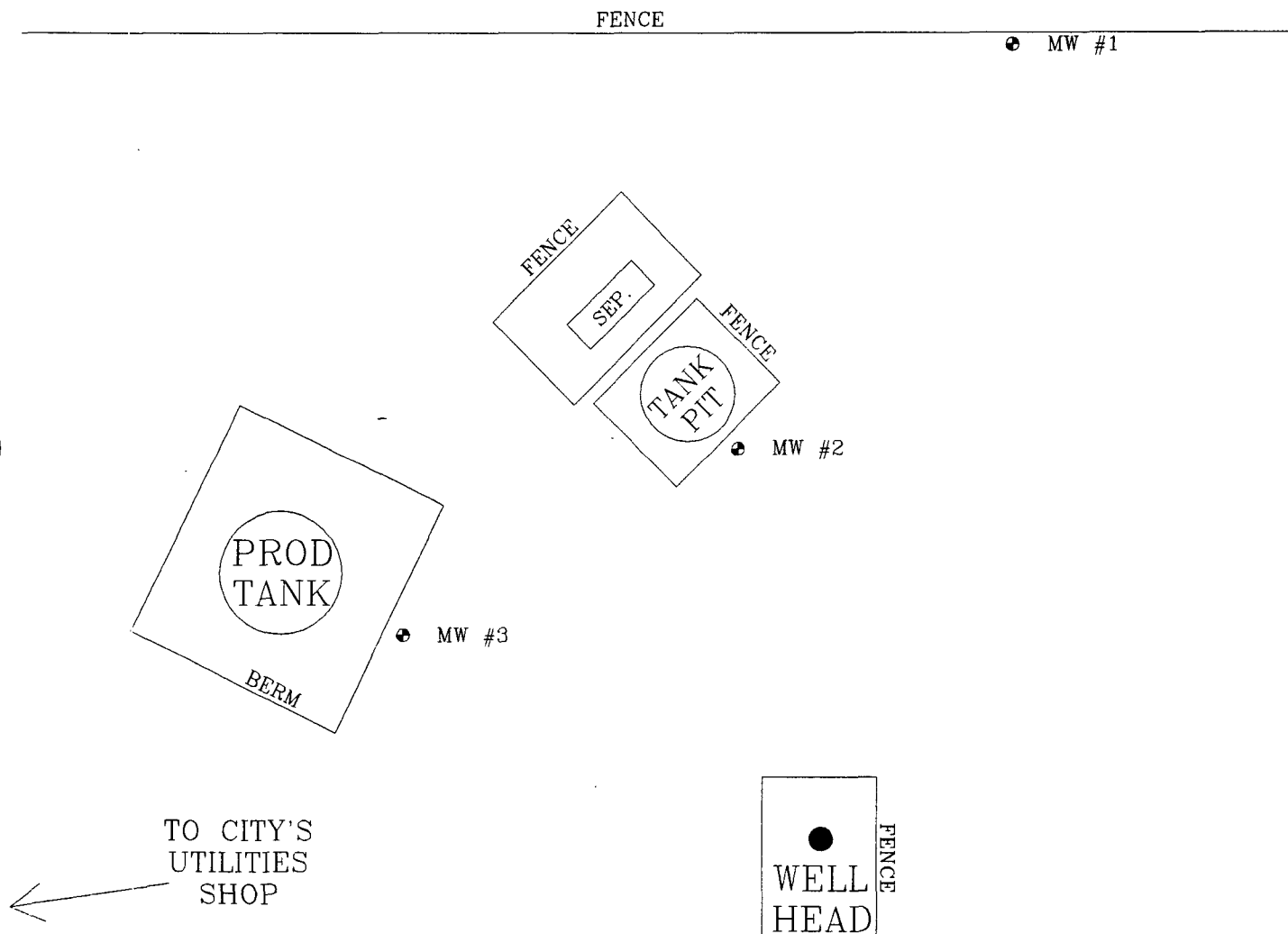
SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (in)	BTEX EPA METHOD 8020 (PPB)			
								Benzene	Toluene	Ethyl Benzene	Total Xylene
05-Jun-96	MW #1	9.38	10.32	3490	2800	7.1		ND	ND	ND	ND
05-Jun-96	MW #2	7.39	10.24	4070	2800	6.9		ND	ND	ND	ND
05-Jun-96	MW #3	8.11	10.35	6320	4300	7.2		ND	24	7	7

GENERAL WATER QUALITY
AMOCO PRODUCTION COMPANY
MASDEN GC # 1
SAMPLE DATE : JUNE 10, 1996

PARAMETERS		MW # 1	MW # 2	MW # 3	Units
GENERAL	LAB pH	7.6	7.2	7.4	s. u.
	LAB CONDUCTIVITY (25 DEG. CELCIUS)	4,090	4,760	6,610	umhos cm
	TOTAL DISSOLVED SOLIDS (180 DEG. CELCIUS)	3,490	4,070	6,320	mg / L
	TOTAL DISSOLVED SOLIDS (CALCULATED)	3,230	3,960	6,000	mg / L
ANIONS	TOTAL ALKALINITY AS CaCO3	287	430	692	mg / L
	BICARBONATE ALKALINITY (AS CaCO3)	287	430	692	mg / L
	CARBONATE ALKALINITY (AS CaCO3)	NA	NA	NA	mg / L
	HYDROXIDE ALKALINITY (AS CaCO3)	NA	NA	NA	mg / L
	CHLORIDE	47.5	35.0	65.0	mg / L
	SULFATE	2,060	2,490	3,750	mg / L
	NITRATE + NITRITE - N	NA	NA	NA	
	NITRATE - N	NA	NA	NA	
	NITRITE - N	NA	NA	NA	
CATIONS	TOTAL HARDNESS AS CaCO3	1,570	1,630	1,920	mg / L
	CALCIUM	619	536	498	mg / L
	MAGNESIUM	4.91	70.0	166	mg / L
	POTASSIUM	5.00	5.00	5.00	mg / L
	SODIUM	320	570	1,100	mg / L
DATA VALIDATION					ACCEPTANCE LEVEL
	CATION/ANION DIFFERENCE	4.87	3.38	4.06	+/- 5 %
	TDS (180):TDS (CALCULATED)	1.1	1.0	1.1	1.0 - 1.2

FIGURE 1

CITY OF BLOOMFIELD SEWER TREATMENT FACILITY



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.

0 50 100 FT.

AMOCO PRODUCTION COMPANY

MASDEN GC 1

NE/4 NE/4 SEC. 28. T29N, R11W

SAN JUAN CCUNTY, 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: MASDEN

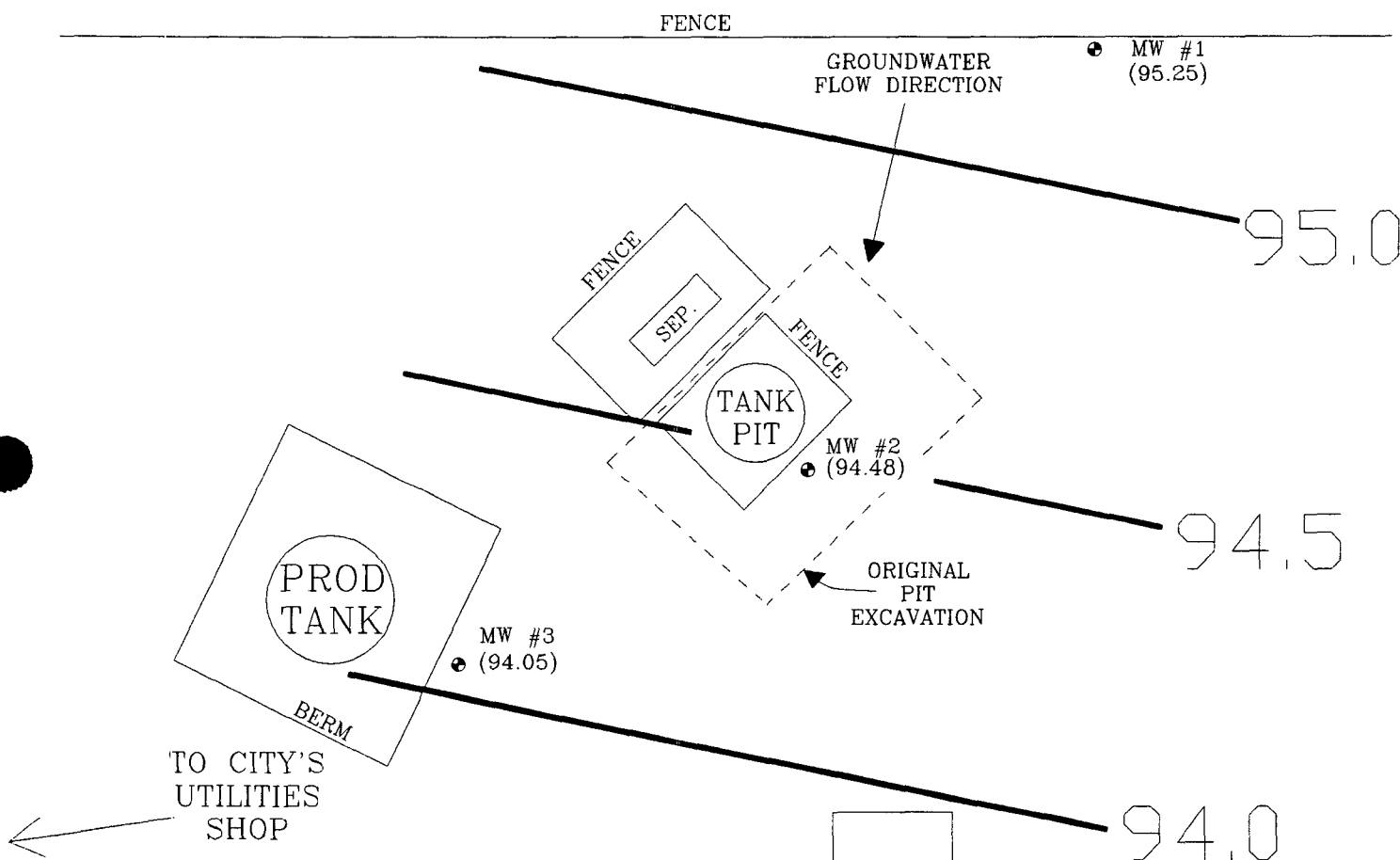
SITE
MAP

6/96



FIGURE 2 (2nd 1/4, 1996)

CITY OF BLOOMFIELD SEWER TREATMENT FACILITY



Top of Well Elevation	
MW #1	(104.63)
MW #2	(101.87)
MW #3	(102.16)
● MW #1	Groundwater Elevation as of 6/5/96.
(95.25)	

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.

0 50 100 FT.

AMOCO PRODUCTION COMPANY
MASDEN GC 1
NE/4 NE/4 SEC. 28, T29N, R11W
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 MONITOR.
DRAWN BY: NJV
FILENAME: MASDEN
REVISED 2/10/97 NJV

GROUNDWATER
GRADIENT
MAP
6/96

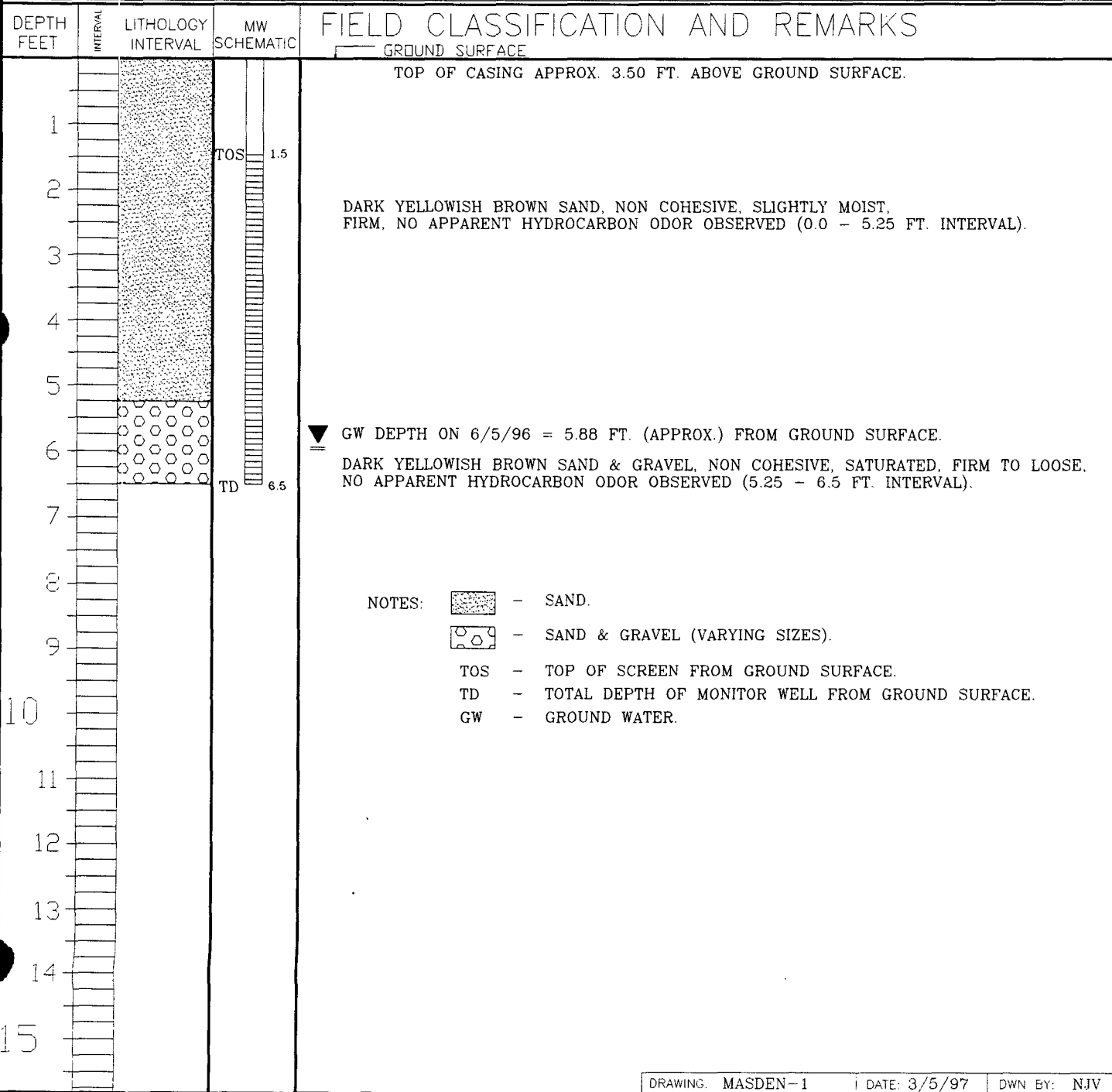
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

BORING #..... BH - 1
MW #..... 1
PAGE #..... 1
DATE STARTED 4/23/96
DATE FINISHED 4/23/96
OPERATOR..... JCB
PREPARED BY NJV

LOCATION NAME: MASDEN GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N14E, 235 FEET FROM WELL HEAD.



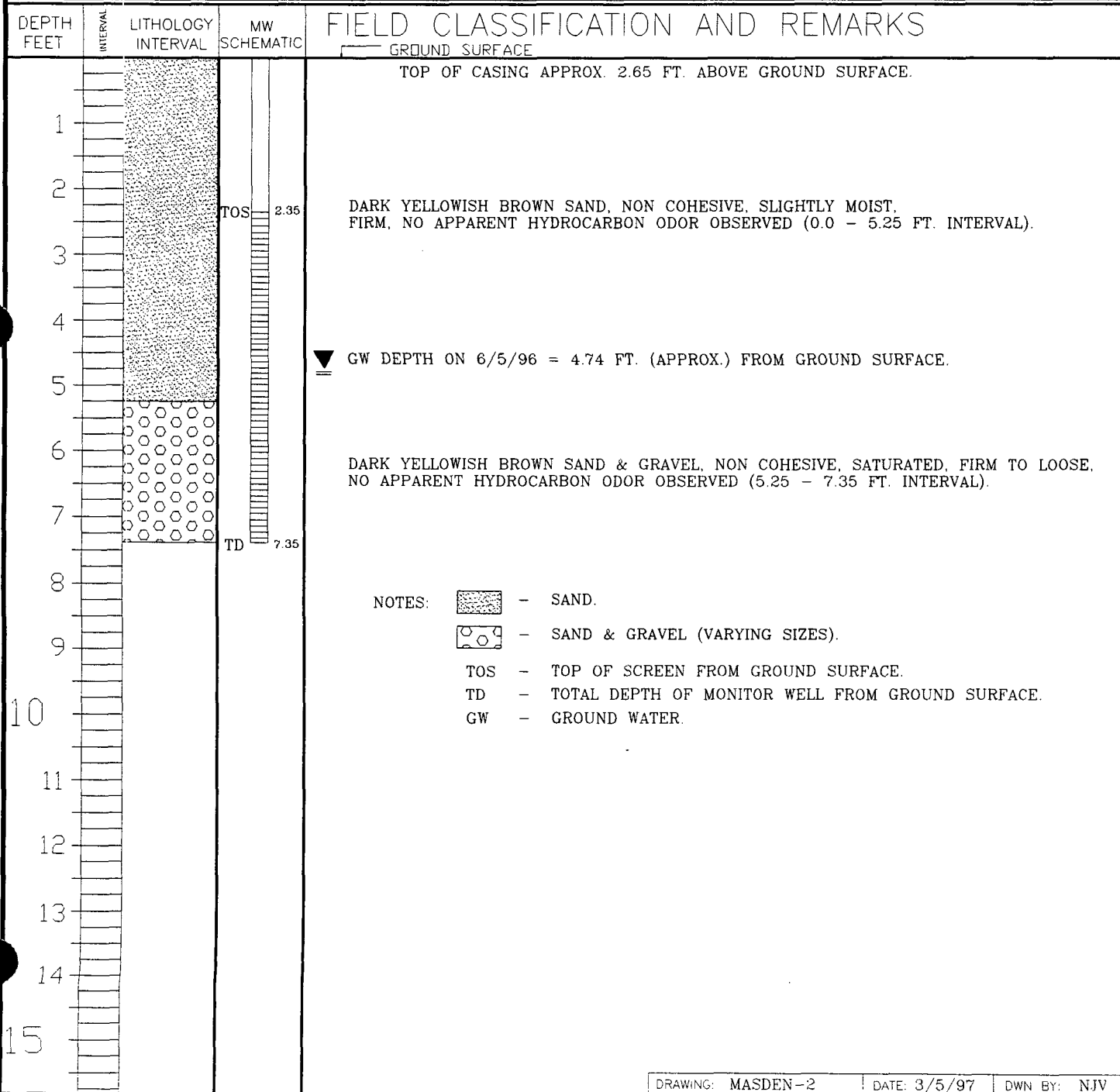
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

BORING #..... BH - 2
MW #..... 2
PAGE #..... 2
DATE STARTED 4/23/96
DATE FINISHED 4/23/96
OPERATOR..... JCB
PREPARED BY NJV

LOCATION NAME: MASDEN GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N12W, 115 FEET FROM WELL HEAD.



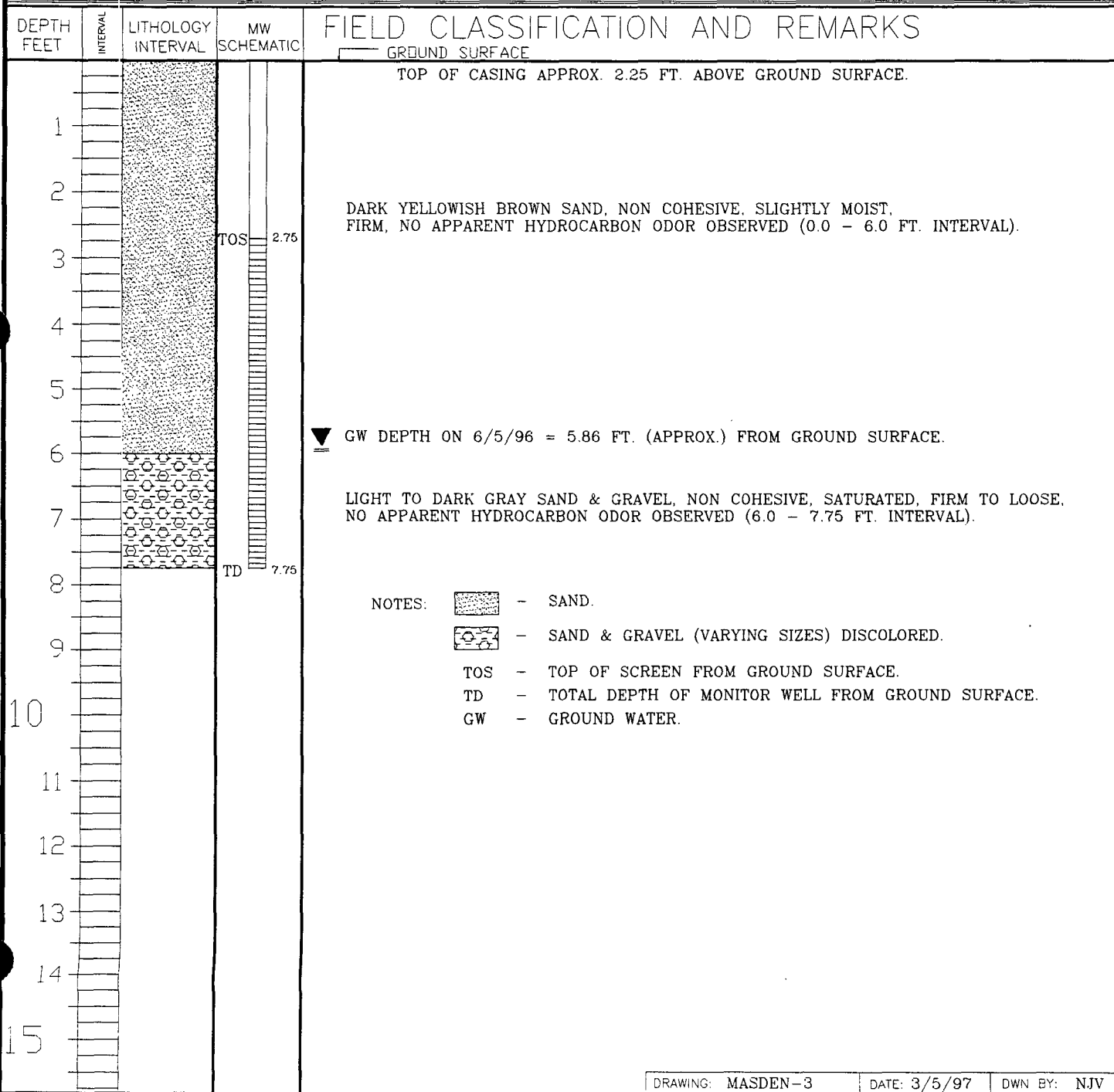
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

BORING #..... BH - 3
MW #..... 3
PAGE #..... 3
DATE STARTED 4/23/96
DATE FINISHED 4/23/96
OPERATOR..... JCB
PREPARED BY NJV

LOCATION NAME: MASDEN GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N64W, 135 FEET FROM WELL HEAD.



MONITOR WELL #1

AMOCO PRODUCTION COMPANY
MASDEN 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: MAR. '97
FILENAME: MW-

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP CAP
(approx. 3.50 ft. above
ground surface)

TOTAL CASING
LENGTH = 1.5 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

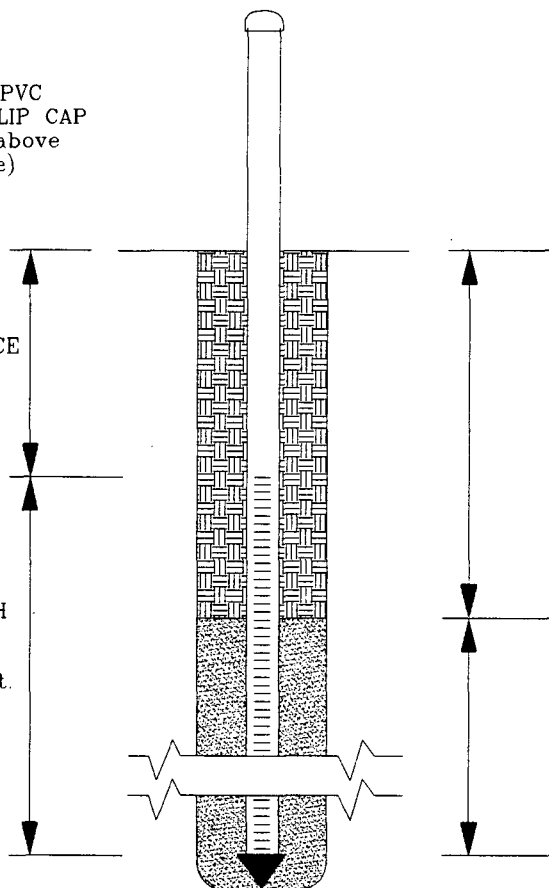
0.02 INCH SLOTTED
SCREEN SCH 40 WITH
POINTED ENC CAP
(5 ft. total length;
top of screen 4.38 ft.
above groundwater)

TOTAL DEPTH = 6.5 ft.
FROM GROUND SURFACE

BACK FILLED WITH
CLEAN NATIVE SOIL
TO SURFACE

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

WATER TABLE
APPROX. 5.88 ft. FROM
GROUND SURFACE
(measured 6/5/96)



MONITOR WELL #2

AMOCO PRODUCTION COMPANY

MASDEN 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: MAR. '97

FILENAME:

MW-

2" DIA. SCH. 40 PVC
WELL CASING WITH SLIP CAP
(approx. 2.65 ft. above
ground surface)

TOTAL CASING
LENGTH = 2.35 ft.
FROM GROUND SURFACE
TO TOP OF SCREEN

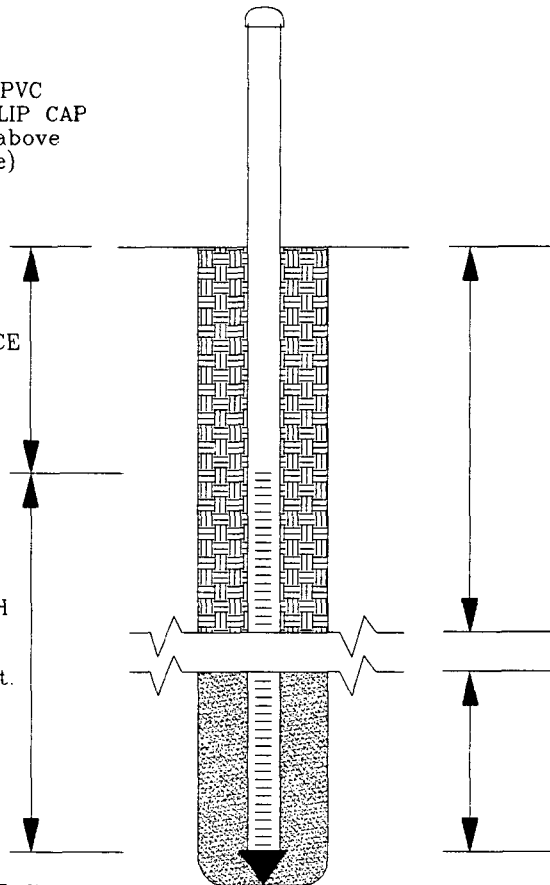
0.02 INCH SLOTTED
SCREEN SCH 40 WITH
POINTED ENC CAP
(5 ft. total length;
top of screen 2.39 ft.
above groundwater)

TOTAL DEPTH = 7.35 ft.
FROM GROUND SURFACE

BACK FILLED WITH
CLEAN NATIVE SOIL
TO SURFACE

WATER TABLE
APPROX. 4.74 ft. FROM
GROUND SURFACE
(measured 6/5/96)

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



MONITOR WELL #3

AMOCO PRODUCTION COMPANY
MASDEN 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: MAR. '97
FILENAME: MW-3

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

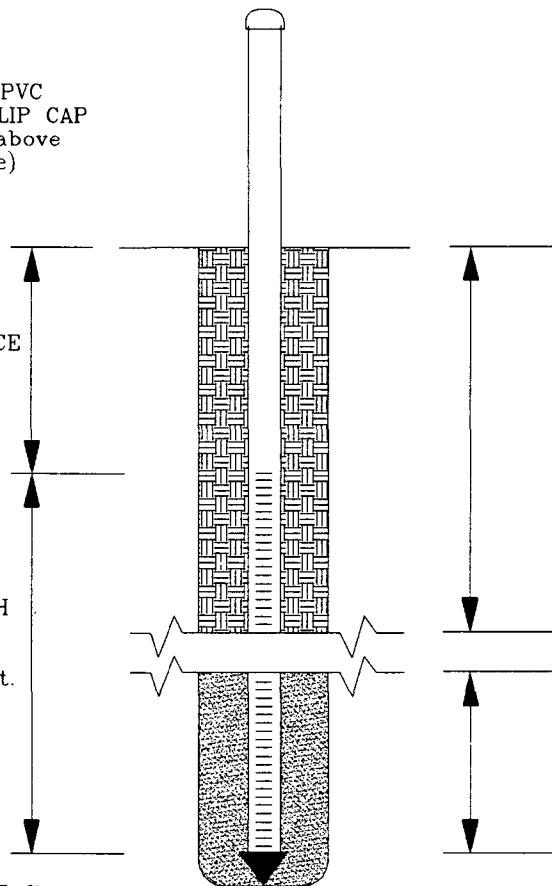
0.02 INCH SLOTTED
SCREEN SCH 40 WITH
POINTED ENC CAP
(5 ft. total length;
top of screen 3.11 ft.
above groundwater)

TOTAL DEPTH = 7.75 ft.
FROM GROUND SURFACE

BACK FILLED WITH
CLEAN NATIVE SOIL
TO SURFACE

WATER TABLE
APPROX. 5.86 ft. FROM
GROUND SURFACE
(measured 6/5/96)

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



BLAGG ENGINEERING INC.

MONITOR WELL QUARTERLY MONITORING DATA

DATE: 6-5-96

PROJECT NO: _____

CLIENT: Amoco

CHAIN-OF-CUSTODY NO: ANALYST 2479

LOCATION: MASDEN GC 1

2483

PROJECT MANAGER: REO

SAMPLER: REO

MONITOR WELL DATA

X X

WELL #	WELL ELEV.	WATER ELEV.	DTW (FT)	T.D. (FT)	TIME	pH	COND. (uMHO)	BAIL (GAL)	PROD (IN)
MW-1	104.63	95.25	9.38	10.32	1000	7.1	2800	0	—
MW-2	101.87	94.48	7.39	10.24	1020	6.9	2800	0.2	—
MW-3	102.16	94.05	8.11	10.35	1035	7.2	4300	0.2	—
		DRIVE #1 DOWN ~ 2' more + cut off TRENDS							
		CANNOT DRIVE DEEPER -							
		SAMPLED CATION/ANION ON 6-10-96							

CUT 0.12"
AFTER
SAMPLING

Notes: Volume of water bailed from well prior to sampling.

Ideally a minimum of 3 well volumes:

1.25" well = 24 oz. per foot of water.

= 2 bails per foot - small teflon bailer

= 3 bails per foot - 3/4" disposable bailer

2" well = 0.49 gallons per foot of water.

4" well = 1.95 gallons per foot of water.

Note well diameter if not standard 2".

SAMPLED, THEN TRENDS CUT OFF ON 6-10-96
CUT OFF 0.12" MW #1

PURGEABLE AROMATICSBlagg Engineering, Inc.

Project ID: Masden GC 1
Sample ID: MW - 1
Lab ID: 3794
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 06/20/96
Date Sampled: 06/05/96
Date Received: 06/05/96
Date Analyzed: 06/19/96

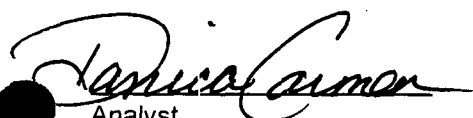
Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50
Total BTEX		ND

ND - Analyte not detected at the stated detection limit.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Trifluorotoluene	97	88 - 110%
	Bromofluorobenzene	95	86 - 115%

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

Comments:


Analyst
Review



PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Masden GC 1
Sample ID: MW - 2
Lab ID: 3795
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 06/20/96
Date Sampled: 06/05/96
Date Received: 06/05/96
Date Analyzed: 06/19/96

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:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	93	88 - 110%
	Bromofluorobenzene	96	86 - 115%

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

Comments:


Analyst


Review

PURGEABLE AROMATICS**Blagg Engineering, Inc.**

Project ID: Masden GC 1
Sample ID: MW - 3
Lab ID: 3796
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 06/20/96
Date Sampled: 06/05/96
Date Received: 06/05/96
Date Analyzed: 06/19/96

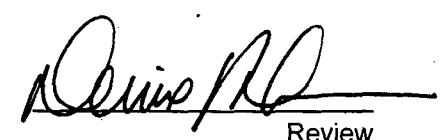
Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	23.6	0.50
Ethylbenzene	6.94	0.50
m,p-Xylenes	3.14	1.00
o-Xylene	3.48	0.50
Total BTEX		37.1

ND - Analyte not detected at the stated detection limit.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Trifluorotoluene	103	88 - 110%
	Bromofluorobenzene	130	86 - 115%

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

Comments: High bromofluorobenzene recovery is due to hydrocarbon interference at the BFB retention times.


Analyst
Review

General Water Quality

Blagg Engineering, Inc.

Project ID: Masden GC 1
 Sample ID: MW - 1
 Laboratory ID: 3876
 Sample Matrix: Water

Date Reported: 07/02/96
 Date Sampled: 06/10/96
 Time Sampled: 8:05
 Date Received: 06/10/96

Parameter		Analytical Result	Units
General	Lab pH.....	7.6	s.u.
	Lab Conductivity @ 25° C.....	4,090	µmhos/cm
	Total Dissolved Solids @ 180°C.....	3,490	mg/L
	Total Dissolved Solids (Calc).....	3,230	mg/L
Anions	Total Alkalinity as CaCO ₃	287	mg/L
	Bicarbonate Alkalinity as CaCO ₃	287	mg/L
	Carbonate Alkalinity as CaCO ₃	NA	mg/L
	Hydroxide Alkalinity as CaCO ₃	NA	mg/L
	Chloride.....	47.5	mg/L
	Sulfate.....	2,060	mg/L
	Nitrate + Nitrite - N.....	NA	
	Nitrate - N.....	NA	
Cations	Nitrite - N.....	NA	
	Total Hardness as CaCO ₃	1,570	mg/L
	Calcium.....	619	mg/L
	Magnesium.....	4.91	mg/L
	Potassium.....	5.00	mg/L
	Sodium.....	320	mg/L

Data Validation
Acceptance Level

Cation/Anion Difference.....	4.87	+/- 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

General Water Quality

Blagg Engineering, Inc.

Project ID: Masden GC 1
 Sample ID: MW - 2
 Laboratory ID: 3877
 Sample Matrix: Water

Date Reported: 07/02/96
 Date Sampled: 06/10/96
 Time Sampled: 8:15
 Date Received: 06/10/96

Parameter		Analytical Result	Units
General	Lab pH.....	7.2	s.u.
	Lab Conductivity @ 25° C.....	4,760	µmhos/cm
	Total Dissolved Solids @ 180°C.....	4,070	mg/L
	Total Dissolved Solids (Calc).....	3,960	mg/L
Anions	Total Alkalinity as CaCO ₃	430	mg/L
	Bicarbonate Alkalinity as CaCO ₃	430	mg/L
	Carbonate Alkalinity as CaCO ₃	NA	mg/L
	Hydroxide Alkalinity as CaCO ₃	NA	mg/L
	Chloride.....	35.0	mg/L
	Sulfate.....	2,490	mg/L
	Nitrate + Nitrite - N.....	NA	
	Nitrate - N.....	NA	
Cations	Nitrite - N.....	NA	
	Total Hardness as CaCO ₃	1,630	mg/L
	Calcium.....	536	mg/L
	Magnesium.....	70.0	mg/L
	Potassium.....	5.00	mg/L
	Sodium.....	570	mg/L

Data Validation
Acceptance Level

Cation/Anion Difference.....	3.38	+/- 5 %
TDS (180):TDS (calculated).....	1.0	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

**General Water Quality
Blagg Engineering, Inc.**

Project ID: Masden GC 1
Sample ID: MW - 3
Laboratory ID: 3878
Sample Matrix: Water

Date Reported: 07/02/96
Date Sampled: 06/10/96
Time Sampled: 8:20
Date Received: 06/10/96

Parameter	Analytical Result	Units
General		
Lab pH.....	7.4	s.u.
Lab Conductivity @ 25° C.....	6,610	µmhos/cm
Total Dissolved Solids @ 180°C.....	6,320	mg/L
Total Dissolved Solids (Calc).....	6,000	mg/L
Anions		
Total Alkalinity as CaCO ₃	692	mg/L
Bicarbonate Alkalinity as CaCO ₃	692	mg/L
Carbonate Alkalinity as CaCO ₃	NA	mg/L
Hydroxide Alkalinity as CaCO ₃	NA	mg/L
Chloride.....	65.0	mg/L
Sulfate.....	3,750	mg/L
Nitrate + Nitrite - N.....	NA	
Nitrate - N.....	NA	
Nitrite - N.....	NA	
Cations		
Total Hardness as CaCO ₃	1,920	mg/L
Calcium.....	498	mg/L
Magnesium.....	166	mg/L
Potassium.....	5.00	mg/L
Sodium.....	1,100	mg/L

Data Validation

Acceptance Level

Cation/Anion Difference.....	4.06	+/- 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



June 20, 1996

Bob O'Neill
Blagg Engineering, Inc.
PO Box 87
Bloomfield, NM 87413

Dear Mr. O'Neill:

Enclosed are the results for the analysis of the samples received June 5, 1996. The samples were from the Masden GC 1 site. Analysis for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) was performed on the samples as per the accompanying chain of custody form.

Analysis was performed on the sample according to EPA Method 602, using a Hewlett-Packard 5890 gas chromatograph equipped with an OI Analytical purge and trap (model 4560) and a photoionization detector. Detectable levels of btx analytes were found in the samples, as reported.

Quality control reports appear at the end of the analytical package and can be identified by title. Should you have any questions regarding the analysis, feel free to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Denise A. Bohemier".

Denise A. Bohemier
Lab Director

PURGEABLE AROMATICS

Quality Control Report

Method Blank Analysis

Sample Matrix: Water
Lab ID: MB35235

Report Date: 06/20/96
Date Analyzed: 06/19/96

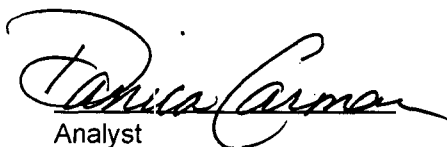
Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50

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%
	Bromofluorobenzene	99	86 - 115%

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

Comments:


Analyst


Review

Purgeable Aromatics

Duplicate Analysis

Lab ID: 3796Dup
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 06/20/96
Date Sampled: 06/05/96
Date Received: 06/05/96
Date Analyzed: 06/19/96

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	ND	ND	NA
Toluene	23.6	20.9	17.3 - 27.2
Ethylbenzene	6.94	6.30	3.45 - 9.79
m,p-Xylenes	3.14	2.71	NE
o-Xylene	3.48	3.01	NE

ND - Analyte not detected at the stated detection limit.

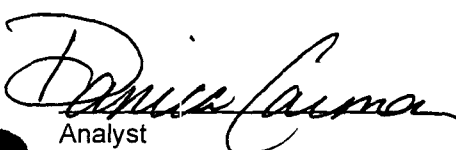
NA - Not applicable or not calculated.

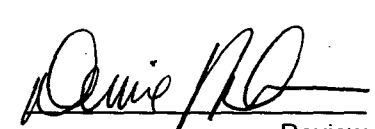
NE - Duplicate acceptance range not established by the EPA.

	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
Quality Control:	Trifluorotoluene	105	88 - 110%
	Bromofluorobenzene	125	86 - 115%

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

Comments: High bromofluorobenzene recovery is due to hydrocarbon interference at the BFB retention times.


Analyst


Review

Purgeable Aromatics

Matrix Spike Analysis

Lab ID: 3794Spk
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 06/20/96
Date Sampled: 06/05/96
Date Received: 06/05/96
Date Analyzed: 06/19/96

Target Analyte	Spike Added (ug/L)	Original Conc. (ug/L)	Spiked Sample Conc. (ug/L)	% Recovery	Acceptance Limits (%)
Benzene	10	ND	9.92	99%	39 - 150
Toluene	10	ND	9.97	98%	46 - 148
Ethylbenzene	10	ND	10.0	100%	32 - 160
m,p-Xylenes	20	ND	19.9	98%	NE
o-Xylene	10	ND	10.2	101%	NE

ND - Analyte not detected at the stated detection limit.

NA - Not applicable or not calculated.

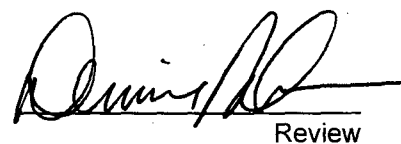
NE - Spike acceptance range not established by the EPA.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	99	88 - 110%
	Bromofluorobenzene	101	86 - 115%

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

Comments:


Analyst


Review



July 2, 1996

Bob O'Neill
Blagg Engineering, Inc.
PO Box 87
Bloomfield, NM 87413

Dear Mr. O'Neill:

Enclosed are the results for the analysis of the samples received June 10, 1996. The samples were from the Masden GC 1 site. Analyses for general water quality parameters were performed on the samples, as per the accompanying chain of custody form.

Water parameters were determined for the samples according to the appropriate methodologies as outlined in Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992.

Quality control reports appear at the end of the analytical package and can be identified by title. Should you have any questions regarding the analysis, feel free to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Denise A. Bohemier".

Denise A. Bohemier
Lab Director

General Water Quality Quality Control Report

Blagg Engineering, Inc.

Report Date: 7/2/96

Parameter	Analytical Result	Certified Value	Acceptance Range	Units
Laboratory pH	9.05	9.09	8.89 - 9.92	s.u.
Conductivity	1341	1210	1030 - 1400	µmhos/cm
Total Dissolved Solids	950	913	794 - 1030	mg/L
Total Alkalinity	191	180	160 - 200	mg/L
Chloride	130	138	128 - 148	mg/L
Sulfate	128	124	107 - 141	mg/L
Total Hardness	257	254	218 - 290	mg/L
Calcium	56.7	54.6	47.0 - 62.2	mg/L
Magnesium	NA	NA	NA	mg/L
Potassium	120	123	105 - 141	mg/L
Sodium	170	173	147 - 199	mg/L

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.

Comments:


Review

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator

Amoco Production Company

3. Address and Telephone No.

200 Amoco Court, Farmington, N.M. 87401 Tel: (505) 326-9200

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

NE/4, NE/4, SEC. 28, T 29 N, R 11 W, N.M.P.M.
1130' FNL / 820' FEL

5. Lease Designation and Serial No.

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

8. Well Name and No.

MASDEN GC #1

9. API Well No.

3004507894

10. Field and Pool, or Exploratory Area

BASIN DAKOTA

11. County or Parish, State

SAN JUAN, N.M.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

- ☐ Notice of Intent
☒ Subsequent Report
☐ Final Abandonment Notice

TYPE OF ACTION

- ☐ Abandonment
☐ Recompletion
☐ Plugging Back
☐ Casing Repair
☒ Altering Casing
☒ Other Pit closure
☐ Change of Plans
☐ New Construction
☐ Non-Routine Fracturing
☐ Water Shut-Off
☐ Conversion to Injection
☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Pit closure verification - see attached documentation.

(1) SEPARATOR PIT - STEEL TANK INSTALLED, GROUNDWATER IMPACTED,
CLOSED UNDER Amoco's GW PLAN (SEC. 2.3) -
REVISED 5/11/98.

NMCOED LETTER CORRESPONDENCE DATED 1/16/97.

14. I hereby certify that the foregoing is true and correct

Signed

B. Shaw

Title

Enviro. Coordinator

Date

7/26/98

(This space for Federal or State office use)

Approved by

Conditions of approval, if any:

Title

Date

District I
P.O. Box 1980, Hobbs, NM
District II
P.O. Drawer DD, Aztec, 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

Denied
GW above limits
C4126

Operator: Amoco Production Company Telephone: (505) - 326-9200
Address: 200 Amoco Court, Farmington, New Mexico 87401
Facility Or: Masden GC #1
Well Name
Location: Unit or Qtr/Qtr Sec NE/4 NE/4 (A) Sec 28 T 29N R 11W County SAN JUAN
Pit Type: Separator ☒ Dehydrator ☐ Other ☐
Land Type: BLM ☐ State ☐ Fee ☒ Other ☐

Pit Location: Pit dimensions: length 65', width 100', depth 5'
(Attach diagram)
Reference: wellhead ☒, other ☐
Footage from reference: 110'
Direction from reference: 60 Degrees East North ☒
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) 20
high water elevation of
ground water)

Wellhead Protection Area: Yes (20 points)
(Less than 200 feet from a private No (0 points) 0
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) 10
irrigation canals and ditches)

RANKING SCORE (TOTAL POINTS): 30

Date Remediation Started: _____ Date Completed: 2/14/94

Remediation Method: Excavation X Approx. cubic yards 740
(Check all appropriate sections) Landfarmed _____ Insitu Bioremediation _____

Other Composted on Site

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

General Description Of Remedial Action: _____

Pit Excavated & Soils Composted on Site

Ground Water Encountered: No _____ Yes X Depth _____

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

Sample location Refer to "Closure Verification" Sheet

Sample depth _____

Sample date _____ 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 OF MY KNOWLEDGE AND BELIEF

DATE 4/22/94

SIGNATURE

B. Shaw

PRINTED NAME
AND TITLE

Buddy D. Shaw
Environmental Coordinator

५७

C4126

JOB No. 92140
PAGE No. 11

DATE STARTED 2/10/64
DATE FINISHED 2/14/64

ENVIRONMENTAL
SPECIALIST: NV/King

FIELD NOTES & REMARKS: FIT LOCATED APPROXIMATELY $\frac{37}{1.1}$ YARDS N 60° W FROM WELLHEAD
 DEPTH TO GROUNDWATER: 5' $> 1000'$
 NEAREST WATER SOURCE:
 NEAREST SURFACE WATER: 600-900' San Juan River

pt NE corner excavated for Site Visit on 2/14/94

TRACED OF FREE PRODUCT ON GROUNDWATER

MR. VERNER L. WILSON, JR., 1000 15th St. N.W., Wash., D.C.

Lab Sample #1 + Notes taken on 13 Feb

FIELD 4181 CALCULATIONS

FIELD 418.1 CALCULATIONS

SAMPLE ID.	LAB No:	WEIGHT (g)	mL. FREQN	DILUTION	READING (4-20. ppm)

No Comment.
Romy.

No observed side
control 4500
1-4-10-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1035-1036-1037-1038-1039-1040-1041-1

SCALE

1000

0

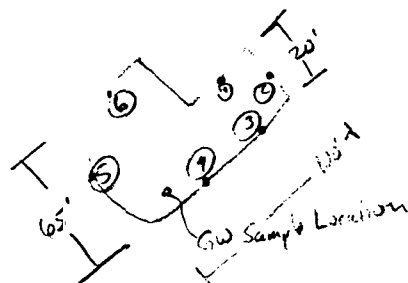
FEET

PIT PERIMETER

OVM

RESULTS

PIT PROFILE



③, noted as East Creek #12 bgs in Lab Sample
taken on 2/10/94.

[illegible]

Refer to 2/8/94 Assessment.

TRAVEL NOTES CALLOUT: _____ ONSITE

ENVIROTECH Inc.

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

PIT NO: C4126

C.O.C. NO: _____

FIELD REPORT: CLOSURE VERIFICATION

JOB No: 92140
PAGE No: 1 of 1

LOCATION: LEASE: MADSEN GC WELL #1 QD NE/4 NE/4 (A)
SEC: 28 TWP: 29N RNG: 11W BM: NM CNTY: SJ ST: NM PIT: SEP
CONTRACTOR: PAUL VELASQUEZ
EQUIPMENT USED: _____

DATE STARTED: 4-12-99
DATE FINISHED: 4-12-99

ENVIRONMENTAL
SPECIALIST: REO

SOIL REMEDIATION: QUANTITY: PILE PERIMETER $\approx$ 85' x 110' x 10' HIGH

DISPOSAL FACILITY: ON SITE COMPOST PILES

LAND USE: CITY OF BLOOMFIELD MUNICIPAL OPERATIONS

SURFACE CONDITIONS: COMPOST PILES

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY _____ FEET _____ FROM WELLHEAD.

AREA PREVIOUSLY EXCAVATED - MATERIAL COMPOSTED ON SITE.

SAMPLE COMPOST PILES TO CHECK PROGRESS OF BIOREMEDIATION

PREPARED 4 COMPOSITES - (5 SAMPLES / COMPOSITE)

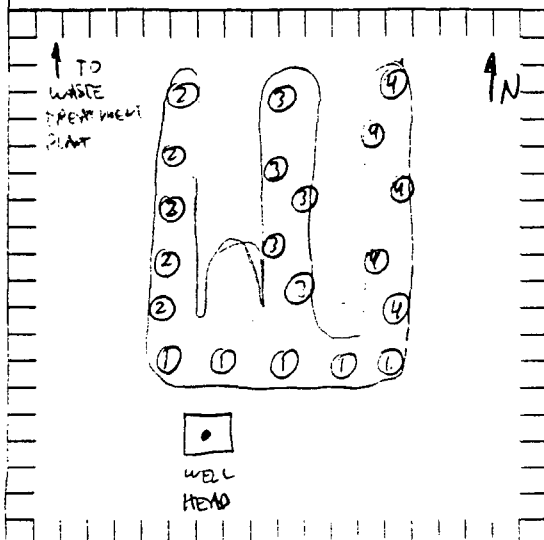
FIELD 418.1 CALCULATIONS

SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
① S. Comp.	422	10.00	20.00	—	26	52
② W. Comp	423	10.00	20.00	—	172	344
③ C. Comp	424	10.00	20.00	—	41	82
④ E. Comp	425	10.00	20.00	—	73	146

DEPTH TO GROUNDWATER: < 20'
NEAREST WATER SOURCE: _____
NEAREST SURFACE WATER: _____
MODED RAINFALL SCORE: > 20
MODED TRF CLOSURE STD: 100 ppm PH

0 20 40 FEET

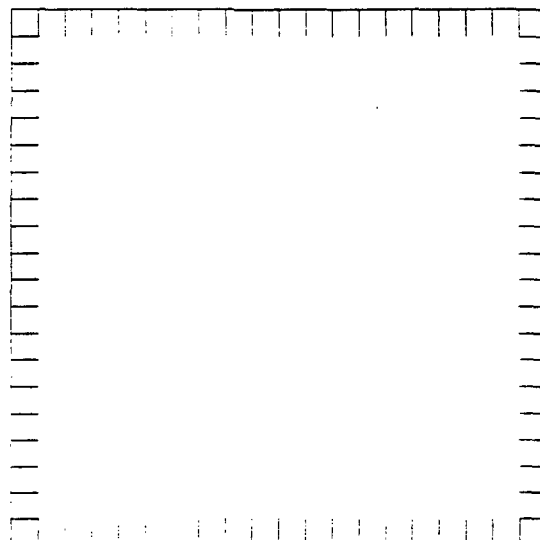
PIT PERIMETER



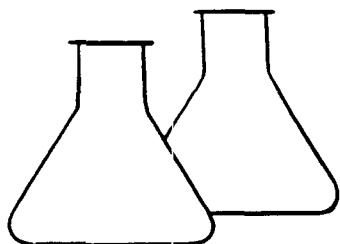
OVM RESULTS

SAMPLE ID	FIELD HEADSPACE (in 100m)
S	70
W	253
C	81
E	66

PIT PROFILE



TRAVEL NOTES: CALLOUT: 4-11-99 ONSITE: 4-12-99 0900



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:	East End @ 6' bgs	Date Reported:	02-11-94
Laboratory Number:	6845	Date Sampled:	02-10-94
Sample Matrix:	Soil	Date Received:	02-11-94
Preservative:	Cool	Date Extracted:	02-11-94
Condition:	Cool & Intact	Date Analyzed:	02-11-94
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	12.8
Toluene	48.6	25.7
Ethylbenzene	73	19.3
p,m-Xylene	144	51
o-Xylene	ND	25.7

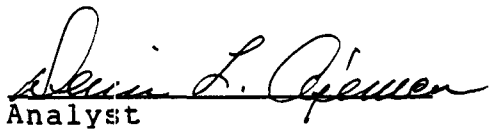
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	97 %
	Bromofluorobenzene	98 %

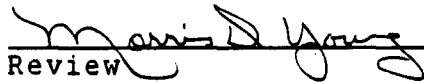
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, July 1992

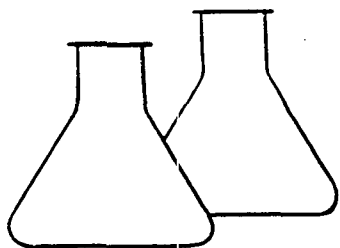
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Masden GC #1 Separator Pit C4126


Analyst


Review



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	Project #:	92140
Sample ID:	E end @ 6' bgs	Date Sampled:	02-10-94
Laboratory Number:	6845	Date Received:	02-11-94
Sample Matrix:	Soil	Date Analyzed:	02-15-94
Preservative:	Cool	Date Reported:	02-15-94
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----	-----	-----
Total Petroleum Hydrocarbons	217	10.0

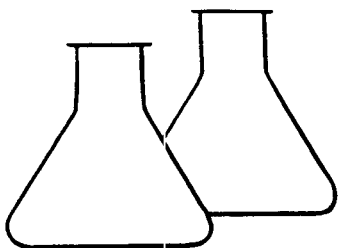
ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

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

Comments: Masden GC #1 Sep Pit C4126

Tony Tristano
Analyst

Mavis D Young
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 Water	Date Reported:	02-16-94
Laboratory Number:	6862	Date Sampled:	02-14-94
Sample Matrix:	Water	Date Received:	02-15-94
Preservative:	HgCl and Cool	Date Analyzed:	02-15-94
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	13.8	0.2
Toluene	115	0.4
Ethylbenzene	182	0.2
p,m-Xylene	560	0.5
o-Xylene	910	0.5

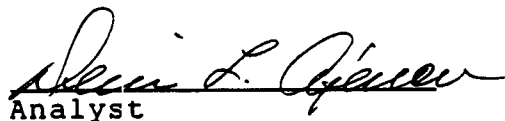
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	97 %
	Bromofluorobenzene	98 %

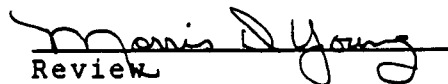
Method: Method 5030A, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

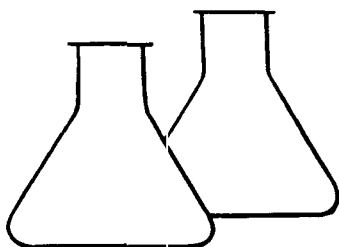
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Masden #1 Separator Pit C4126


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:	#4 @ 5' bgs	Date Reported:	02-16-94
Laboratory Number:	6863	Date Sampled:	02-14-94
Sample Matrix:	Soil	Date Received:	02-15-94
Preservative:	Cool	Date Extracted:	02-15-94
Condition:	Cool & Intact	Date Analyzed:	02-15-94
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	13.3
Toluene	72	26.5
Ethylbenzene	ND	13.3
p,m-Xylene	43.9	33.1
o-Xylene	ND	33.1

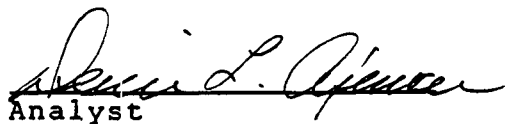
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	96 %

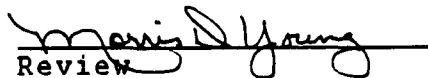
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, July 1992

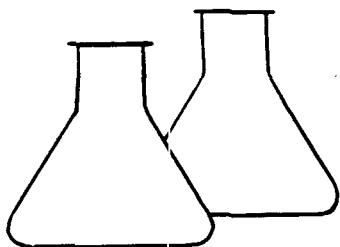
Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Masden #1 Separator Pit C4126


Analyst


Review



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	Project #:	92140
Sample ID:	#4 @ 5' bgs	Date Sampled:	02-14-94
Laboratory Number:	6863	Date Received:	02-15-94
Sample Matrix:	Soil	Date Analyzed:	02-15-94
Preservative:	Cool	Date Reported:	02-15-94
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----	-----	-----
Total Petroleum Hydrocarbons	19.5	10.0

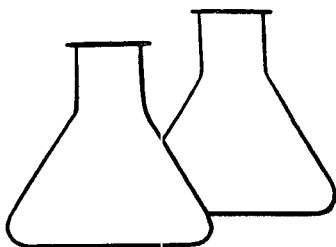
ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

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

Comments: Masden GC #1 Sep Pit C4126

Tony Tristano
Analyst

Morris D. Young
Review



ENVIROTECH LABS

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

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client: Amoco
Sample ID: S. COMP
Project Location: Masden GC #1
Laboratory Number: GAC0422

Project #: 92140
Date Analyzed: 4-12-94
Date Reported: 4-12-94
Sample Matrix: Soil

Parameter -----	Result, mg/kg -----	Detection Limit, mg/kg -----
Total Recoverable Petroleum Hydrocarbons	52	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg -----	Duplicate TPH mg/kg -----	% *Diff. -----
	510	490	4

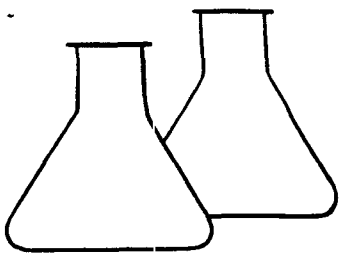
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit C4126 South Compost Pile

R. E. O'Neil
Analyst

Morris D. Young
Review



ENVIROTECH LABS

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

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	W. COMP	Date Analyzed:	4-12-94
Project Location:	Masden GC #1	Date Reported:	4-12-94
Laboratory Number:	GAC0423	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	340	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	-----	-----	-----
	510	490	4

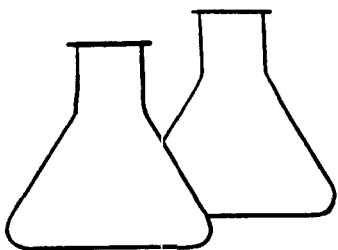
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit C4126 West Compost Pile

R. E. Small
Analyst

Maris D. Young
Review



ENVIROTECH LABS

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

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	C. COMP	Date Analyzed:	4-12-94
Project Location:	Masden GC #1	Date Reported:	4-12-94
Laboratory Number:	GAC0424	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	82	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	-----	-----	-----
	510	490	4

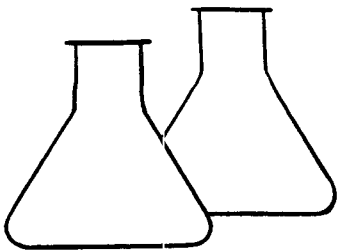
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit C4126 Center Compost Pile

R. E. O'Neil
Analyst

Morris D. Young
Review



ENVIROTECH LABS

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

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	E. COMP	Date Analyzed:	4-12-94
Project Location:	Masden GC #1	Date Reported:	4-12-94
Laboratory Number:	GAC0425	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	150	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	-----	-----	-----
	510	490	4

*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit C4126 East Compost Pile

R. E. O'Neil
Analyst

M. S. Young
Review