3R - 100

ABRAMS J#1

REPORTS

DATE:
1998-1996

CROSS TIMBERS OIL COMPANY

GROUNDWATER REMEDIATION REPORT

1996-1998

ABRAMS J #1
(I) SECTION 29, T29N, R10W, NMPM
SAN JUAN COUNTY, NEW MEXICO

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

FEBRUARY 1999

PREPARD BY:
BLAGG ENGINEERING, INC.

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

ABRAMS J # 1 - Separator Pit
Ne/4 Se/4 Sec. 29, T29N, R10W

Site Assessment Date:	**Not Applicable**
Pit closure Date:	**9/7/93 (Documentation Included)**
Monitor Well Installation Dates:	**9/93, 6/96, 7/96, 8/96**
Monitor Well Sampling Dates:	**9/11/93, 6/11/96, 8/16/96**

Historical Summary:

1). Envirotech, Inc. initiates pit verification in September, 1993 with pit being excavated to a total depth of 27 ft. below ground surface.
2). MW # 1 installed and sampled immediately after excavation was completed (September, 1993).
3). Amoco and current landowner in communications about property use in and around well site.
4). Blagg Engineering, Inc. (BEI) resumes investigation in June, 1996 with 2 additional monitor well installed (MW #2 & 3).
5). BEI notifies New Mexico Oil Conservation Division of physical evidence of groundwater impact with letter correspondence dated June 7, 1996.
6). BEI conducts sampling event on June 11, 1996 for MW #1, 2, & 3. MW #1 & 3 reveal free phase product measuring approximately 7 and 4 inches respectively.
7). BEI installs 8 additional monitor wells between June 26 and August 9, 1996.
8). BEI conducts sampling event on August 16, 1996 for MW #4, 5, 7, 9, 10, & 11.
9). BEI initiates development of proposed remediation plan from finding during the previous sampling events (August-December, 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 place 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.

Abrams J # 1 - Blow & Separator Pit
Ne/4 Se/4 Sec. 29, T29N, R10W

Monitor Well Installation Dates: Mar. 26, 1997 (MW # 8R)

Monitor Well Sampling Dates: Apr. 7, Jun. 27, Sept. 15, Dec. 30, 1997

Water Quality Information:

BTEX and general chemistry results for all 1997 quarterly sampling events are summarized in the following tables. The existing air sparge reclamation system (Figure 7) was installed between March 10 and April 1, 1997 to address the suspected hydrocarbon plume shown in Figure 8. Prior to start up of the reclamation system, MW #'s 1, 3, and 6 (Figure 1) contained free phase product as measured during the April 7th sampling event (1.80 ft., 1.55 ft., and 1.15 ft. respectively). MW #'s 5, 9, and 10 tested BTEX levels exceeding New Mexico Water Quality Control Commission's (NMWQCC) allowable concentrations for groundwater, and BTEX levels were below the allowable concentration in MW #'s 2, 4, 7, 8R, and 11.

Soil gas vapor wells (SGV) were installed prior to the reclamation system start up. Their locations and completion details are shown in Figures 9 and 10.

The reclamation system initial start up date commenced April 22, 1997 with the furthest up and down gradient sparge points (called legs) being activated (Figure 9 - as built). Monitoring of the SGV wells was conducted utilizing an organic vapor meter (OVM) initially on a daily basis for a one week period, followed by a weekly, biweekly, and monthly schedule until the sale of the well site to Cross Timbers Co. was completed (see summary following Figure 10). As monitoring of the SGV was ongoing, the OVM results then determined activation ofthe other sparge point legs.

Summary, Conclusions and Recommendations:

Based on the enclosed documentation, the air sparge system appears to be effectively degrading the free and dissolved phase hydrocarbon impact on the groundwater. After review of the monitor well groundwater summary, the free phase product observed in MW #'s 1, 3, and 6 has been eradicated. MW #5 has shown a steady decrease in the BTEX levels and is below standards as of the December 30th sampling event. MW #'s 9 and 10 have tested decreasing BTEX valves and currently fluctuate in BTEX below and above NMWQCC's standards.

The SGV well summary has concluded that vertical migration of hydrocarbon vapors from the reclamation system has been steadily decreasing to almost non detectable levels. It appears that the furthest down gradient sparge point leg has effectively contained any groundwater or vapor migration from beyond the suspected impacted area. In addition, there is no indication that any ground surface vegetation damage has resulted from the vertical migration of vapor from the reclamation system.

It is recommended that operation of the reclamation system continue to be utilized and further monitoring of MW #'s 1, 3, 4, 5, 6, 9, and 10 be conducted on a quarterly or annual basis (dependent upon ongoing laboratory results).

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

June 7, 1996

Mr. Roger Anderson
Chief of Environmental Bureau
State of New Mexico Oil Conservation Division
2040 So. Pacheco
Santa Fe, New Mexico 87505

RE: Groundwater Impact
Amoco Production Company: Abrams J1 Well site
Legal Description: Unit I, Sec. 29, T29N, R10W
San Juan County, New Mexico

Dear Mr. Anderson:

Physical observation of groundwater after monitor well construction was completed at the above referenced well site indicates contamination to be above the State of New Mexico Water Quality Control Commission's regulatory standards for Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX). Further assessment will be conducted and a remediation plan drafted after more data is collected.

If you have any questions concerning this information, please do not hesitate to contact us at (505) 632-1199. Thank you for your cooperation.

Respectfully submitted,
Blagg Engineering, Inc.

Jeffrey C. Blagg, P.E.
President

cc: Denny Foust, Deputy Oil & Gas Inspector, NMOCD, Aztec, NM
Buddy Shaw, Environmental Coordinator, Amoco Production Company, Farmington, NM

NV/nv

ABRAM-J1.LTR

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

F.E

March 13, 1997

Mr. William Olson, Hydrogeologist
New Mexico Oil Conservation Division
2040 So. Pacheco
Santa Fe, New Mexico 87505

RE: Remedial Action

Abrams J1 Well site
Legal Description: Unit I, Sec. 29, T29N, R10W
San Juan County, New Mexico

Dear Mr. Olson:

On behalf of Amoco Production Company, Blagg Engineering, Inc. (BEI) proposes remedial action at the referenced well location. Correspondence transmitted to your office dated June 7, 1996 (attached) outlined physical observations of groundwater indicating contamination in excess of New Mexico Water Quality Control Commission regulatory standards for Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX). Further investigations have revealed free product in three (3) monitor wells at the site (see attached site map and lab results summary).

As of this date installation of an air sparge remediation system has been initiated for future site reclamation (see attached air sparge system schematic). In order to achieve groundwater clean up standards it is necessary that the air sparge remediation system be installed. The proposed system is designed to contain potential down gradient migration of contamination.

NMOCD's concurrence with reclamation of contamination is requested. If you have any questions concerning this transmittal, please do not hesitate to contact Blagg Engineering at (505) 632-1199. Thank you for your cooperation.

Respectfully submitted,
Blagg Engineering, Inc.

Nelson J. Velez
Staff Geologist

cc: Denny Foust, Deputy Oil & Gas Inspector, NMOCD, Aztec, NM
Buddy Shaw, Environmental Coordinator, Amoco Production Company, Farmington, NM

Attachments: June 7, 1996 letter, Site Map, Lab Results Summary, & Air Sparge System Schematic.

NV/nv

AB-J1-WO.LTR

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

March 24, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-269-269-287

Mr. B.D. Shaw
Amoco Production Company
200 Amoco Court
Farmington, New Mexico 87401

RE: GROUND WATER REMEDIATION PLAN
ABRAMS J#1 WELL SITE

Dear Mr. Shaw:

The New Mexico Oil Conservation Division (OCD) has completed a review of Amoco Production Company's (Amoco) March 13, 1997 "ABRAMS J1 WELL SITE, LEGAL DESCRIPTION: UNIT I, SEC. 29, T29N, R10W, SAN JUAN COUNTY, NEW MEXICO" which was submitted on behalf of Amoco by their consultant Blagg Engineering, Inc. This document contains Amoco's work plan for remediation of contaminated ground related to the former use of a former unlined oilfield production pit at Amoco's Abrams J#1 well site.

The above referenced work plan is approved with the following conditions:

1. Amoco will determine the downgradient extent of ground water contamination according to Amoco's prior approved ground water investigation work plan.

2. The air sparge wells will be completed by placing a 2-3 foot bentonite seal approximately 2-3 feet above the well screen interval with the remainder of the annulus above the bentonite seal grouted to the surface with cement containing 5% bentonite.

3. Amoco will include the results of the remedial actions in Amoco's annual ground water investigation/remedial action report. The report will include:

   a. A description of all activities which occurred during the investigations and remedial actions including conclusions and recommendations.

b. A summary of all laboratory analytic results of ground water quality sampling and copies of the recent laboratory analyses and associated quality assurance/quality control data.

c. A site map and water table elevation map using the water table elevation of ground water in all monitor wells.

d. A geologic log and completion diagram for each monitor well and air sparge well.

e. The disposition of any wastes generated.

4. All wastes generated will be disposed of at an OCD approved facility or in an OCD approved manner.

Please be advised that OCD approval does not relieve Amoco of liability if contamination exists which is beyond the scope of the work plan; if the activities fail to adequately determine the extent of contamination; or if the activities fail to adequately remediate contamination related to Amoco's activities. In addition, OCD approval does not relieve Amoco of responsibility for compliance with any other federal, state or local laws and/or regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

cc: Denny Foust, OCD Aztec District Office
Nelson Velez, Blagg Engineering, Inc.

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

ABRAMS J # 1 - SEPARATOR PIT
UNIT I, SEC. 29, T29N, R10W

REVISED DATE: JANUARY 27, 1999

FILENAME: (AB-1Q-99.WK3) NJV

SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (ft.)	BTEX EPA METHOD 8020 (PPB) Benzene	Toluene	Ethyl Benzene	Total Xylene
11-Jun-96	MW #1	45.17	45.73				0.58				
07-Apr-97		-					1.80				
27-Jun-97		-					0.70				
15-Sep-97		-					0.01				
30-Dec-97		44.59						748	3280	1050	5490
25-Jan-99		44.35			1,200	6.9		214	3130	707	7090
11-Jun-96	MW #2	42.30	50.00	435	600	7.5		ND	ND	ND	ND
07-Apr-97		42.86		394	700	7.5		ND	ND	ND	ND
19-May-97		43.13						ND	ND	ND	0.7
15-Sep-97		42.45						ND	ND	0.3	0.6
25-Jan-99		MONITOR WELL NOT FOUND - PRESUMED DESTROYED									
11-Jun-96	MW #3	44.58	50.00				0.33				
07-Apr-97		-					1.55				
27-Jun-97		-					1.10				
15-Sep-97		-					0.01				
30-Dec-97		44.11						78.1	891	138	3731
25-Jan-99		43.93			1,400	7.3		18.9	123	70.9	3809
16-Aug-96	MW #4	43.75	50.00					ND	0.56	ND	ND
07-Apr-97		44.93		2815	2,400	7.0		ND	ND	ND	ND
27-Jun-97		45.90			2,100	6.7		139	1.6	1.6	9.4
15-Sep-97		44.38						ND	8.3	ND	1.1
30-Dec-97		44.35						0.6	1.5	0.4	2.6
25-Jan-99		44.11			1,400	7.1		324	ND	13.0	ND
16-Aug-96	MW #5	45.28	50.00					553	1300	74.3	1077
07-Apr-97		46.44		1487	2,000	7.0		161	394	25.6	313.6
27-Jun-97		46.18			1,800	6.9		286	474	238	492
15-Sep-97		45.95						5.9	5.8	1.1	42.5
30-Dec-97		45.86						1.3	1.7	0.2	4.3
25-Jan-99		45.63			2,000	7.0		10.9	3.5	96.6	39.7
30-Jun-96	MW #6	-	50.00				0.70				
07-Apr-97		-					1.15				
27-Jun-97		-					1.25				
15-Sep-97		-					0.05				
30-Dec-97		45.08						782	2560	465	5240
25-Jan-99		44.86			900	7.3		327	1940	508	4810
16-Aug-96	MW #7	43.32	50.00					ND	ND	ND	ND
07-Apr-97		44.55		414	700	7.5		ND	0.73	ND	0.54
15-Sep-97		43.88						ND	ND	ND	0.5
30-Dec-97		43.91						1.1	3.7	0.2	18.3
25-Jan-99		43.69			600	7.5		1.6	ND	ND	ND

CROSS TIMBERS GROUNDWATER MONITOR WELL LABORATORY RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

ABRAMS J # 1 - SEPARATOR PIT
UNIT I, SEC. 29, T29N, R10W

REVISED DATE: JANUARY 27, 1999

FILENAME: (AB-1Q-99.WK3) NJV

SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (ft.)	BTEX EPA METHOD 8020 (PPB) Benzene	Toluene	Ethyl Benzene	Total Xylene
07-Apr-97	MW #8R	45.10	53.10	2439	2,200	7.3		ND	1.06	ND	0.54
19-May-97		45.10						ND	0.3	0.3	1.6
27-Jun-97		45.09			1,800	7.3		ND	ND	0.2	0.7
15-Sep-97		44.32						ND	ND	ND	ND
30-Dec-97		44.49						ND	0.3	ND	0.1
25-Jan-99		44.25			2,300	7.1		2.2	ND	ND	ND
16-Aug-96	MW #9	44.59	50.00					74.8	ND	ND	ND
07-Apr-97		45.84		6397	3,900	6.9		341	0.86	0.64	ND
27-Jun-97		45.86			3,800	6.9		48.6	0.2	0.2	1.0
15-Sep-97		45.09						113	0.8	1.4	20.3
30-Dec-97		45.24						0.9	0.4	0.3	2.4
25-Jan-99		44.98			2,000	7.1		13.9	ND	ND	2.6
16-Aug-96	MW #10	44.71	50.00					1600	6280	511	6190
07-Apr-97		45.88		1164	1,500	6.9		1010	1940	66.8	514
19-May-97		46.20						0.5	23.8	152	752
27-Jun-97		46.65			1,600	6.9		5.0	0.5	7.1	56.6
15-Sep-97		45.39						492	329	426	1038
30-Dec-97		45.30						96.8	6.6	60.9	660
25-Jan-99		45.06			1,800	6.8		43.6	53.0	253	1397
16-Aug-96	MW #11	45.76	50.00					ND	ND	ND	ND
07-Apr-97		47.02		315	700	7.5		ND	ND	ND	ND
25-Jan-99		46.16			600	7.3		ND	ND	ND	0.7

GENERAL WATER QUALITY
AMOCO PRODUCTION COMPANY
ABRAMS J # 1
SAMPLE DATE : JUNE 11, 1996

PARAMETERS		MW # 2	Units
GENERAL	LAB pH	7.8	s. u.
	LAB CONDUCTIVITY (25 DEG. CELCIUS)	669	umhos cm
	TOTAL DISSOLVED SOLIDS (180 DEG. CELCIUS)	435	mg / L
	TOTAL DISSOLVED SOLIDS (CALCULATED)	425	mg / L
ANIONS	TOTAL ALKALINITY AS CaCO3	287	mg / L
	BICARBONATE ALKALINITY (AS CaCO3)	287	mg / L
	CARBONATE ALKALINITY (AS CaCO3)	NA	mg / L
	HYDROXIDE ALKALINITY (AS CaCO3)	NA	mg / L
	CHLORIDE	5.00	mg / L
	SULFATE	90.5	mg / L
	NITRATE + NITRITE – N	NA	
	NITRATE – N	NA	
	NITRITE – N	NA	
CATIONS	TOTAL HARDNESS AS CaCO3	189	mg / L
	CALCIUM	67.8	mg / L
	MAGNESIUM	4.84	mg / L
	POTASSIUM	<5.0	mg / L
	SODIUM	84.0	mg / L
DATA VALIDATION			ACCEPTANCE LEVEL
	CATION/ANION DIFFERENCE	1.95	+/– 5 %
	TDS (180):TDS (CALCULATED)	1.0	1.0 – 1.2

GENERAL WATER QUALITY

AMOCO PRODUCTION COMPANY

ABRAMS J # 1

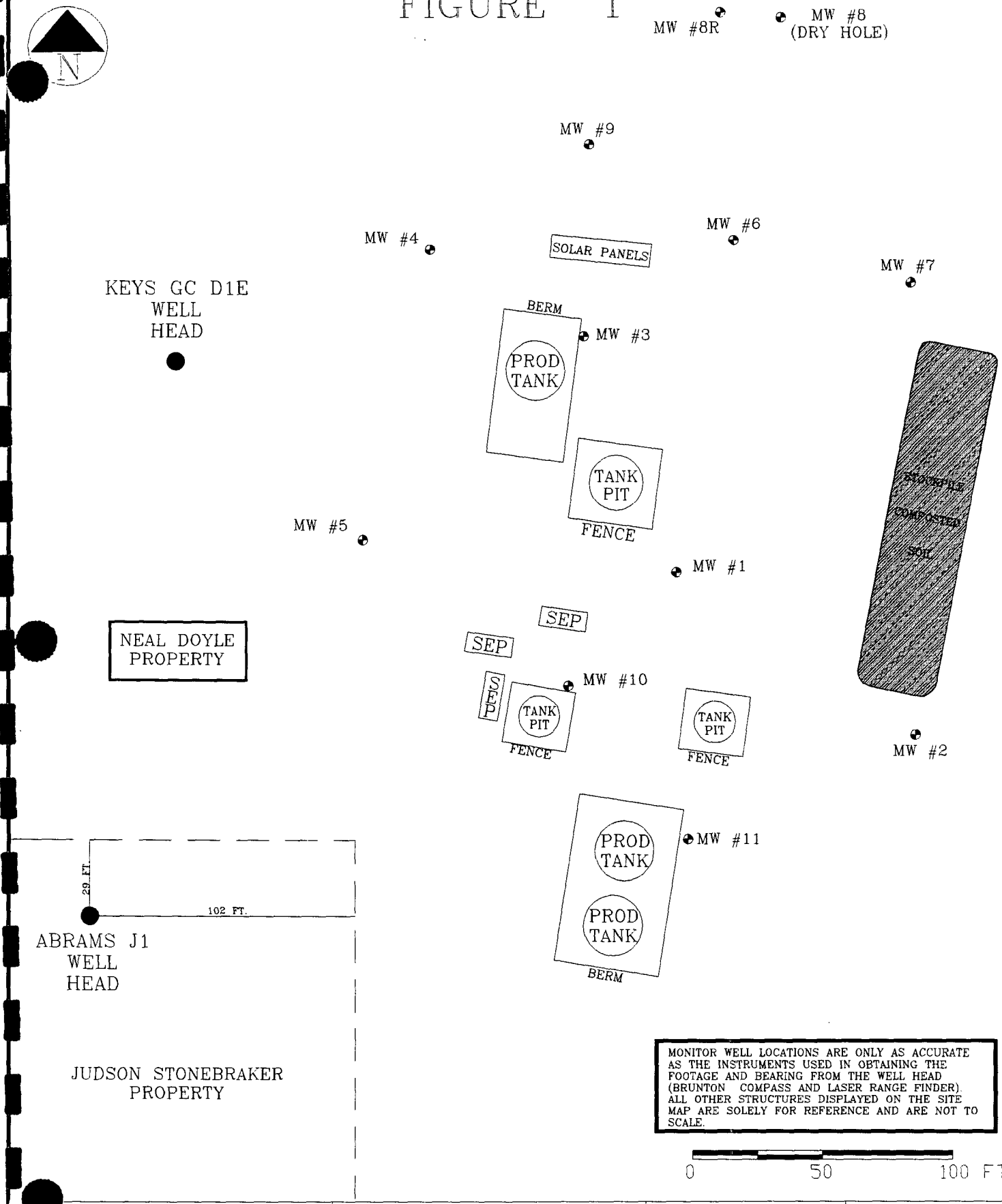
SAMPLE DATE : APRIL 7, 1997

PARAMETERS		MW # 2	MW # 4	MW # 5	MW # 7	Units
GENERAL	LAB pH	7.05	6.76	6.47	7.01	s. u.
	LAB CONDUCTIVITY (25 DEG. CELCIUS)	609	5,637	2,980	831	umhos cm
	TOTAL DISSOLVED SOLIDS (180 DEG. CELCIUS)	375	2,780	1,460	404	mg / L
	TOTAL DISSOLVED SOLIDS (CALCULATED)	394	2,815	1,487	414	mg / L
ANIONS	TOTAL ALKALINITY AS CaCO3	268	438	392	267	mg / L
	BICARBONATE AS HC03	268	438	392	267	mg / L
	CARBONATE AS CO3	<1	<1	<1	<1	mg / L
	HYDROXIDE AS OH	<1	<1	<1	<1	mg / L
	CHLORIDE	6.20	75.6	46.0	4.2	mg / L
	FLUORIDE	0.56	0.88	0.71	0.67	mg / L
	PHOSPHATE	<0.1	0.2	0.2	0.1	mg / L
	SULFATE	99.2	1,565	729	113	mg / L
	NITRATE + NITRITE - N	NA	NA	NA	NA	
	NITRATE NITROGEN	0.4	3.9	4.3	0.8	
	NITRITE NITROGEN	0.011	0.023	0.074	0.008	
CATIONS	TOTAL HARDNESS AS CaCO3	320	500	492	299	mg / L
	CALCIUM	102	105	124	97.0	mg / L
	MAGNESIUM	16.0	57.0	44.0	14.0	mg / L
	POTASSIUM	3.04	6.27	3.46	3.34	mg / L
	SODIUM	4.3	735	298	18.9	mg / L
DATA VALIDATION						
	CATION/ANION DIFFERENCE	0.03	0.12	0.65	0.02	%
	SODIUM ABSORPTION RATIO	0.10	14.35	5.85	0.47	ratio

GENERAL WATER QUALITY
AMOCO PRODUCTION COMPANY
ABRAMS J # 1
SAMPLE DATE : APRIL 7, 1997

PARAMETERS		MW # 8R	MW # 9	MW # 10	MW # 11	Units
GENERAL	LAB pH	6.99	6.68	6.52	6.52	s. u.
	LAB CONDUCTIVITY (25 DEG. CELCIUS)	4,875	12,800	2,330	695	umhos cm
	TOTAL DISSOLVED SOLIDS (180 DEG. CELCIUS)	2,410	6,360	1,150	330	mg / L
	TOTAL DISSOLVED SOLIDS (CALCULATED)	2,439	6,397	1,164	315	mg / L
ANIONS	TOTAL ALKALINITY AS CaCO3	312	498	478	284	mg / L
	BICARBONATE AS HC03	312	498	478	284	mg / L
	CARBONATE AS CO3	<1	<1	<1	<1	mg / L
	HYDROXIDE AS OH	<1	<1	<1	<1	mg / L
	CHLORIDE	25.5	33.0	42.2	5.10	mg / L
	FLUORIDE	1.09	1.32	0.73	0.48	mg / L
	PHOSPHATE	0.1	0.3	0.2	0.2	mg / L
	SULFATE	1,440	3,995	434	30.2	mg / L
	NITRATE + NITRITE - N	NA	NA	NA	NA	
	NITRATE NITROGEN	2.0	0.1	1.1	0.4	
	NITRITE NITROGEN	0.021	0.006	0.048	0.002	
CATIONS	TOTAL HARDNESS AS CaCO3	483	440	471	367	mg / L
	CALCIUM	138	78.0	141	89.0	mg / L
	MAGNESIUM	36.0	60.0	29.0	7.04	mg / L
	POTASSIUM	29.2	7.35	61.30	1.07	mg / L
	SODIUM	578	1920	164	9.60	mg / L
DATA VALIDATION						
	CATION/ANION DIFFERENCE	0.47	0.20	0.00	0.00	%
	SODIUM ABSORPTION RATIO	11.33	39.75	3.29	0.26	ratio

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.

0 50 100 FT.

AMOCO PRODUCTION COMPANY

ABRAMS J1

NE/4 SE/4 SEC. 29, 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: 1/4 by SAMP.

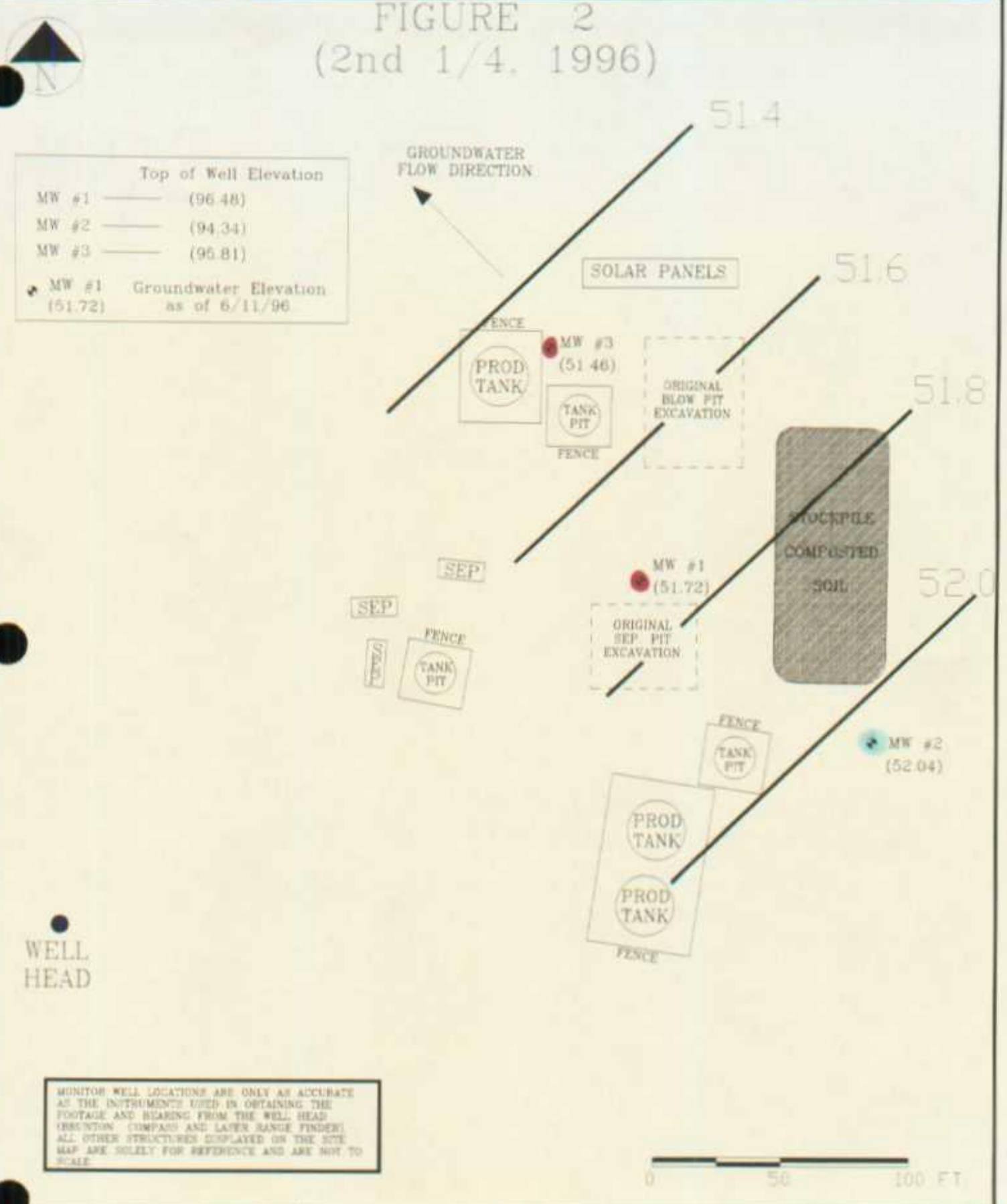
DRAWN BY: NJV

FILENAME: 04-07-97

GROUNDWATER CONTOUR MAP

4/97

FIGURE 2
(2nd 1/4, 1996)



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

AMOCO PRODUCTION COMPANY

ABRAMS J1

NE/4 SE/4 SEC. 29, T29N, R10W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE (505) 632-1199

PROJECT: MW INSTALL

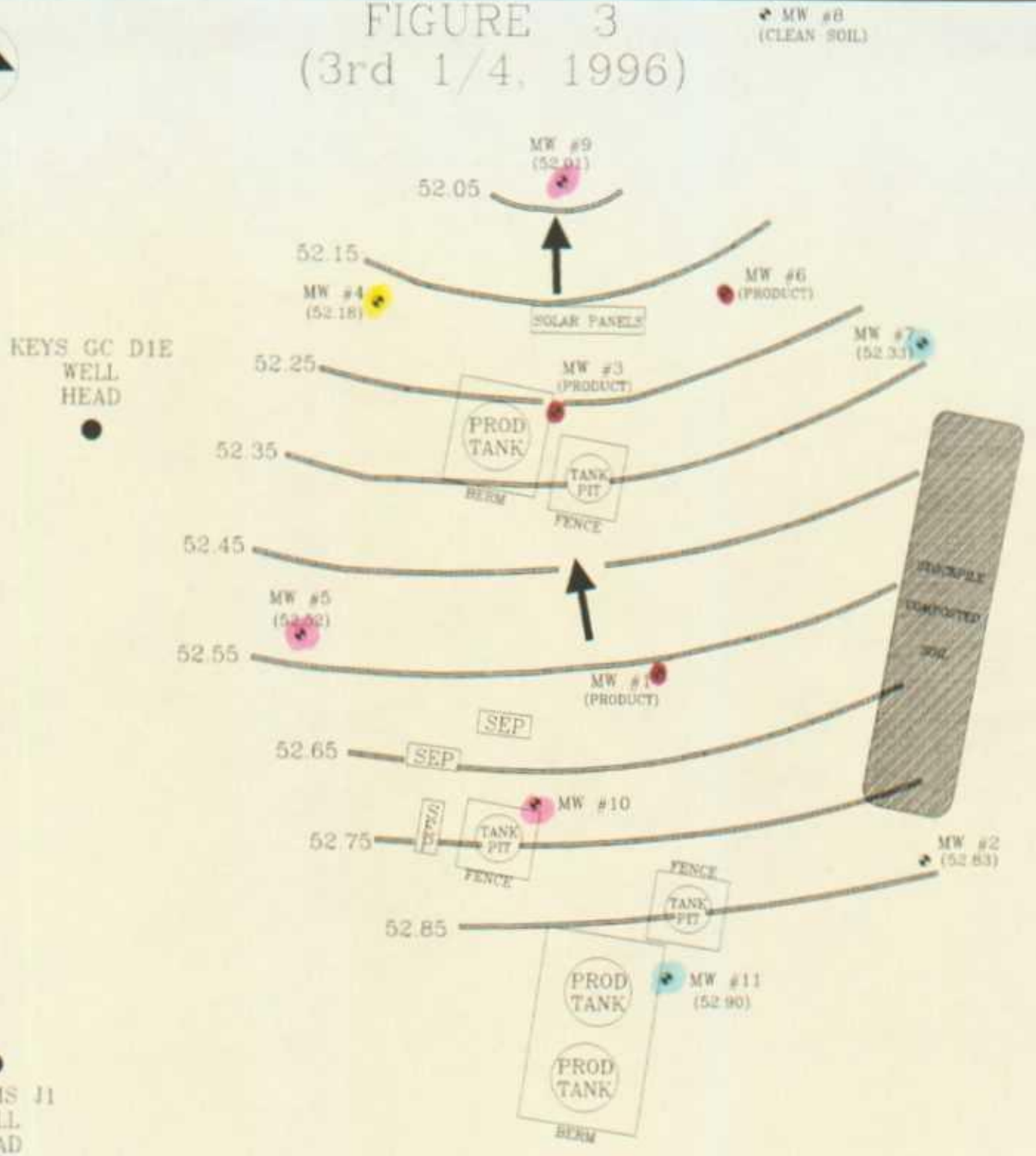
DRAWN BY: MJV

FILENAME: ABRAM-J1

REVISED: 7/16/96 RED

GROUNDWATER GRADIENT MAP 6/96

FIGURE 3
(3rd 1/4, 1996)



LEGEND

52.85 — RELATIVE GROUNDWATER ELEVATION CONTOUR (IN FEET)

GROUNDWATER MONITOR WELL LOCATION (with relative groundwater elevation)

APPARENT GROUNDWATER FLOW DIRECTION

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

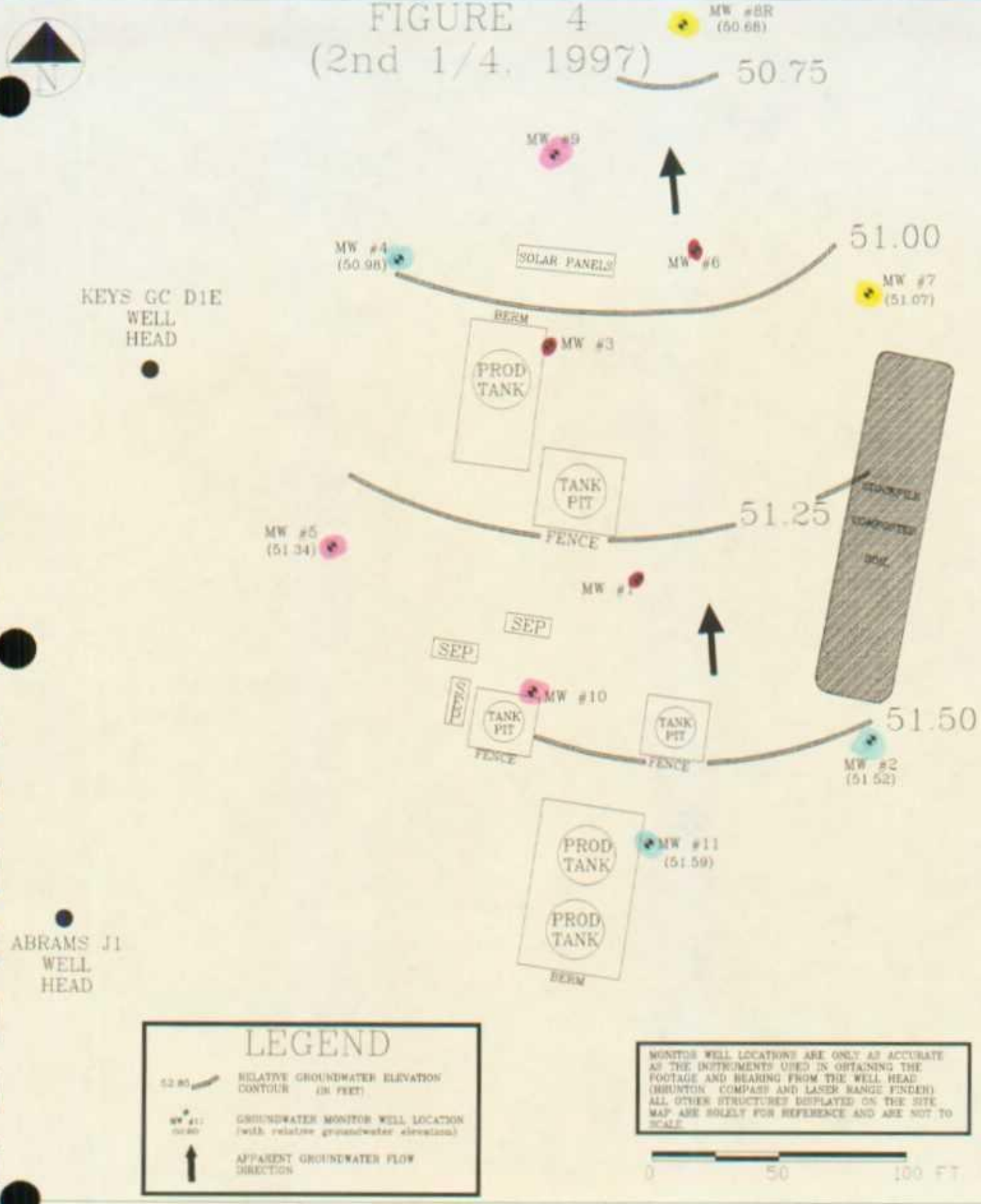
AMOCO PRODUCTION COMPANY
ABRAMS J1
NE/4 SE/4 SEC 29 T29N R10W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: MW INSTALL
DRAWN BY: NJV
FILENAME: ABR-GW2

GROUNDWATER CONTOUR MAP
8/96

FIGURE 4
(2nd 1/4, 1997)



LEGEND

52.80 — RELATIVE GROUNDWATER ELEVATION CONTOUR (IN FEET)

MW #11 (51.59) — GROUNDWATER MONITOR WELL LOCATION (with relative groundwater elevation)

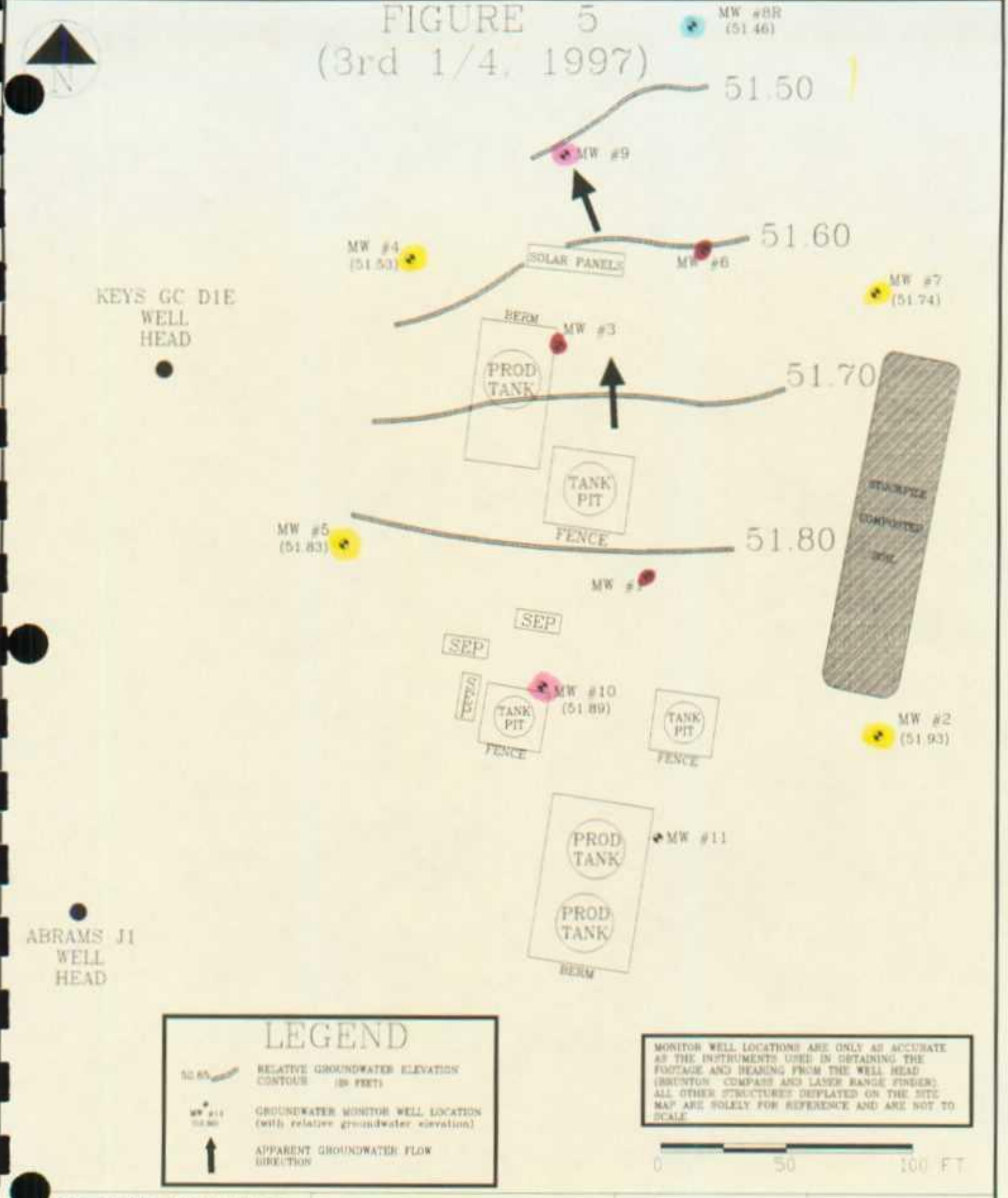
APPARENT GROUNDWATER FLOW DIRECTION

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 ABRAMS J1 NE/4 SE/4 SEC. 29, 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: 1/4 by SAMP DRAWN BY: MJV FILENAME: 04-97-GW	GROUNDWATER CONTOUR MAP 4/97

FIGURE 5
(3rd 1/4, 1997)



LEGEND

- 50.65 — RELATIVE GROUNDWATER ELEVATION CONTOUR (IN FEET)
- MW #14 (51.80) — GROUNDWATER MONITOR WELL LOCATION (with relative groundwater elevation)
- APPARENT GROUNDWATER FLOW DIRECTION

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 DEPLATED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

0 50 100 FT

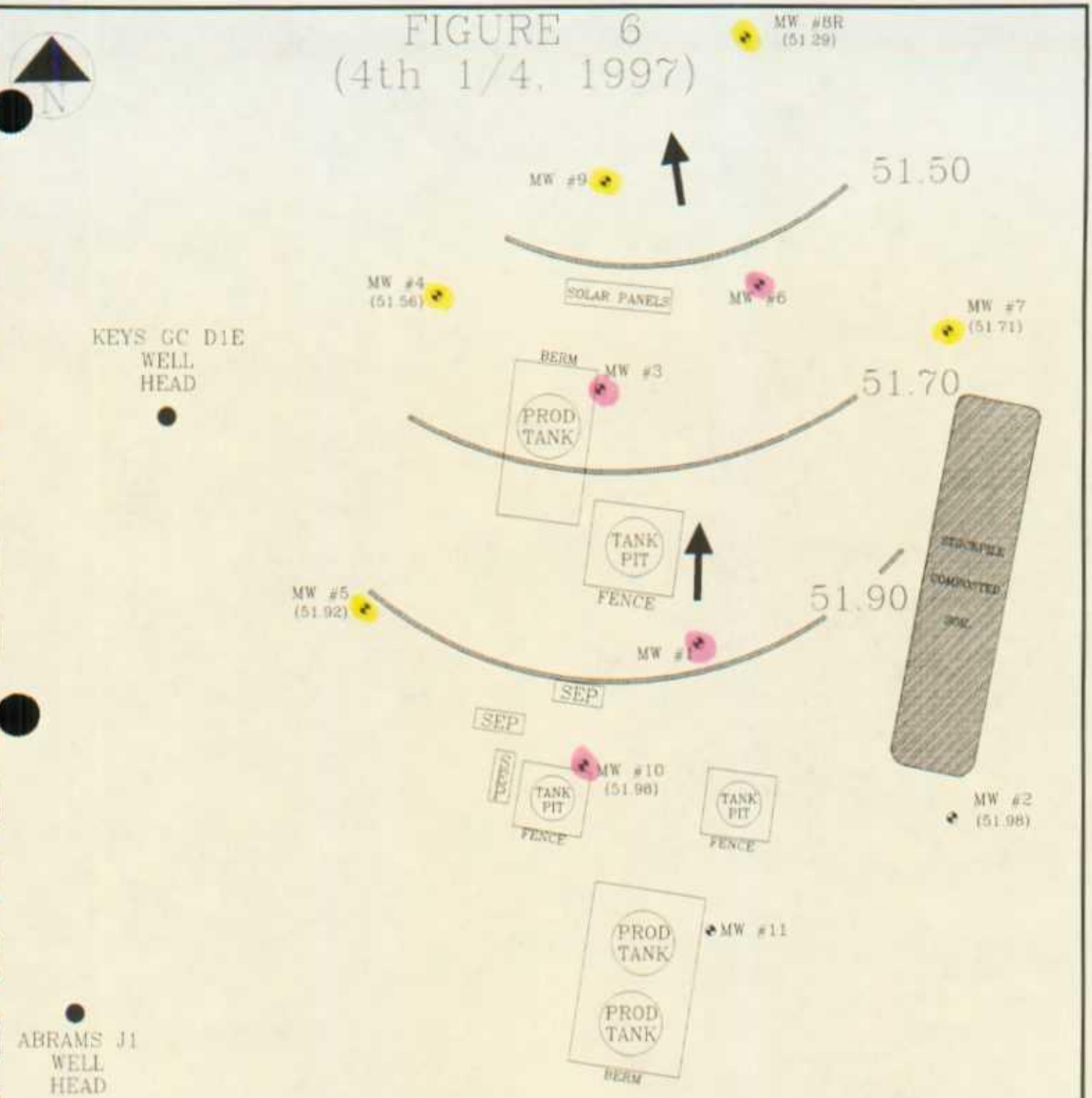
MOCO PRODUCTION COMPANY
ABRAMS J1
NE/4 SE/4 SEC. 29, T29N, R10W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: 1/4 x 1/4 MAP
DRAWN BY: NJV
FILENAME: 04-15-04

GROUNDWATER CONTOUR MAP
9/97

FIGURE 6
(4th 1/4, 1997)



LEGEND

52.85 — RELATIVE GROUNDWATER ELEVATION CONTOUR (20 FEET)

MW #1 (51.98) — GROUNDWATER MONITOR WELL LOCATION (with relative groundwater elevation)

APPARENT GROUNDWATER FLOW DIRECTION

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

ABRAMS J1

NE/4 SE/4 SEC. 29 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: 1/4 ly SAMP

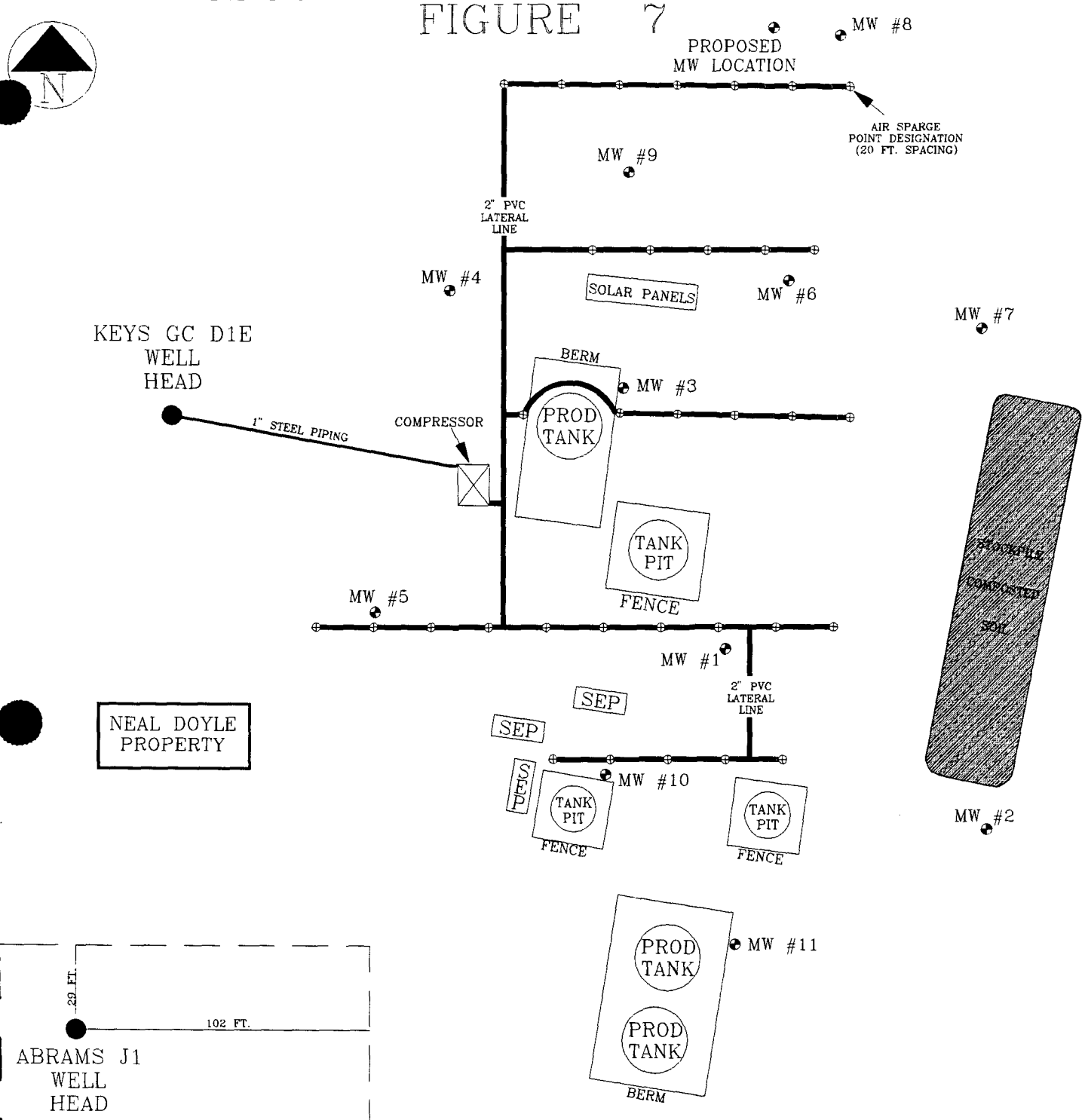
DRAWN BY: N.V

FILENAME: 12-30-97

GROUNDWATER CONTOUR MAP

12/97

FIGURE 7



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

ABRAMS J1

NE/4 SE/4 SEC. 29, 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: REMED INSTALL.

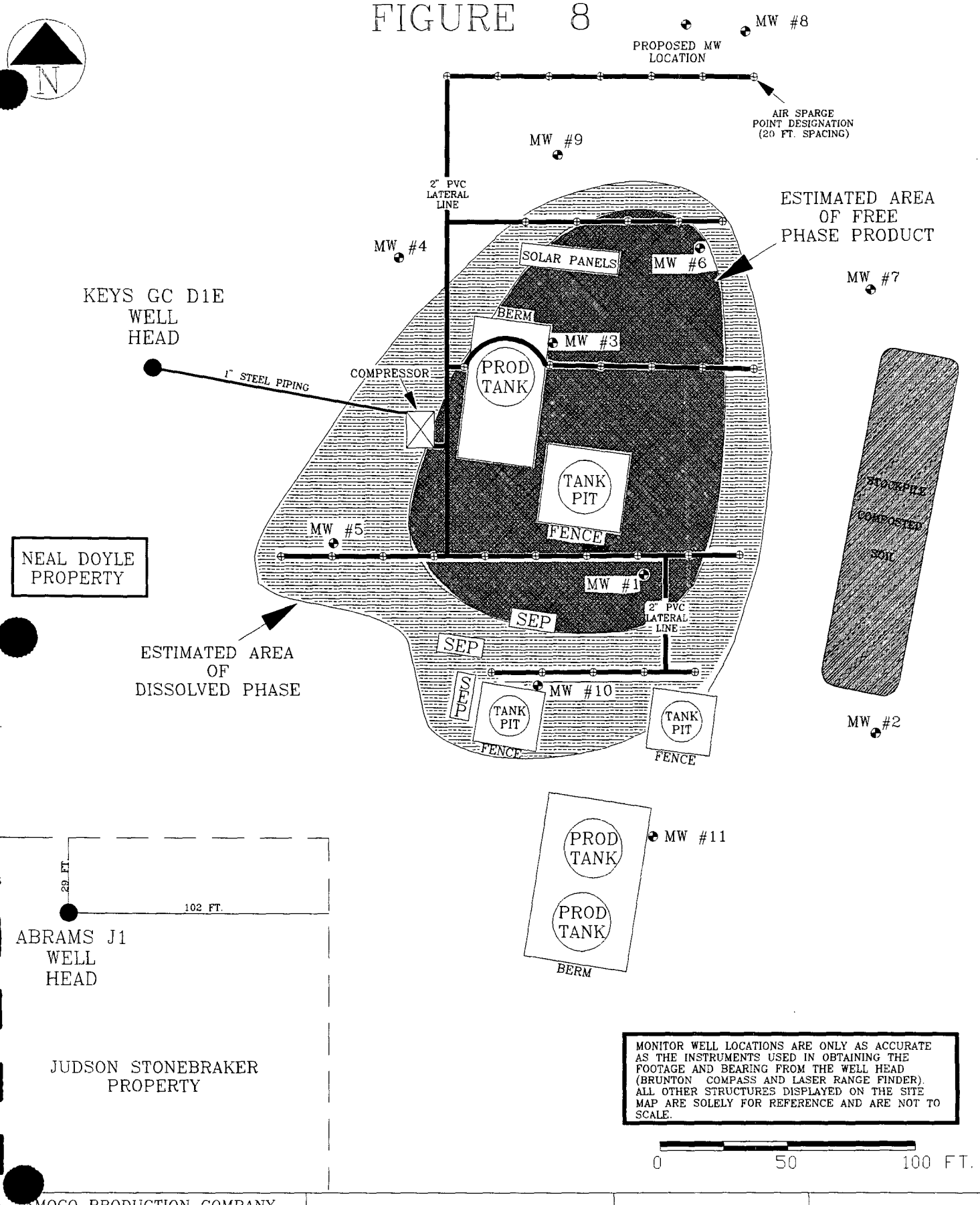
DRAWN BY: NJV

FILENAME: REM-SYS

PROPOSED AIR SPARGE SYSTEM LAY OUT

12/96

FIGURE 8

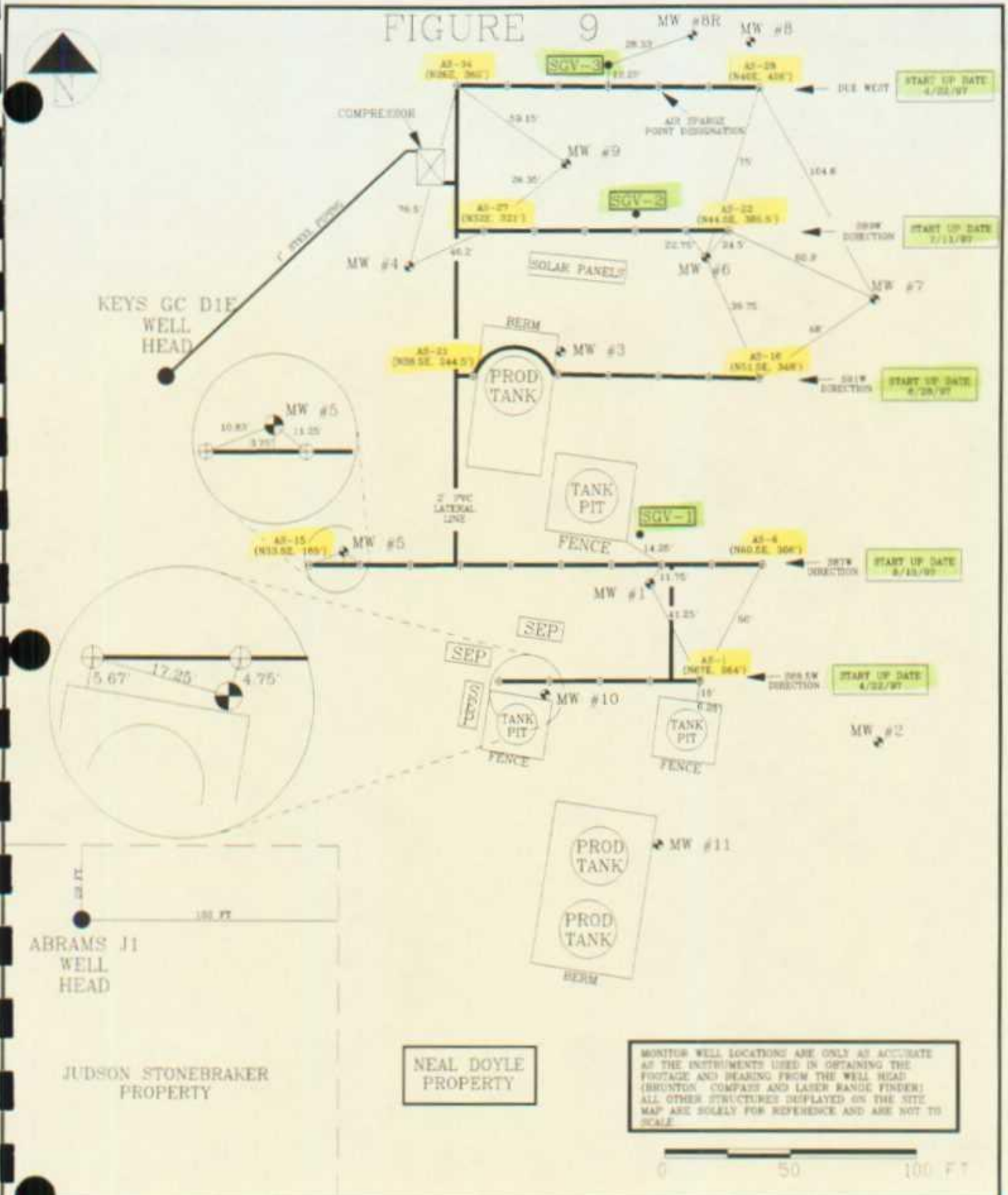


MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

0 50 100 FT.

AMOCO PRODUCTION COMPANY ABRAMS J1 NE/4 SE/4 SEC. 29, 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: REMED. PLAN DRAWN BY: NJV FILENAME: ABRAM-PA	INTERPRETATIVE HYDROCARBON PLUME AREA 12/96

FIGURE 9



AMOCO PRODUCTION COMPANY

ABRAMS J1

NE/4 SE/4 SEC 29 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: AMOCO SYSTEM

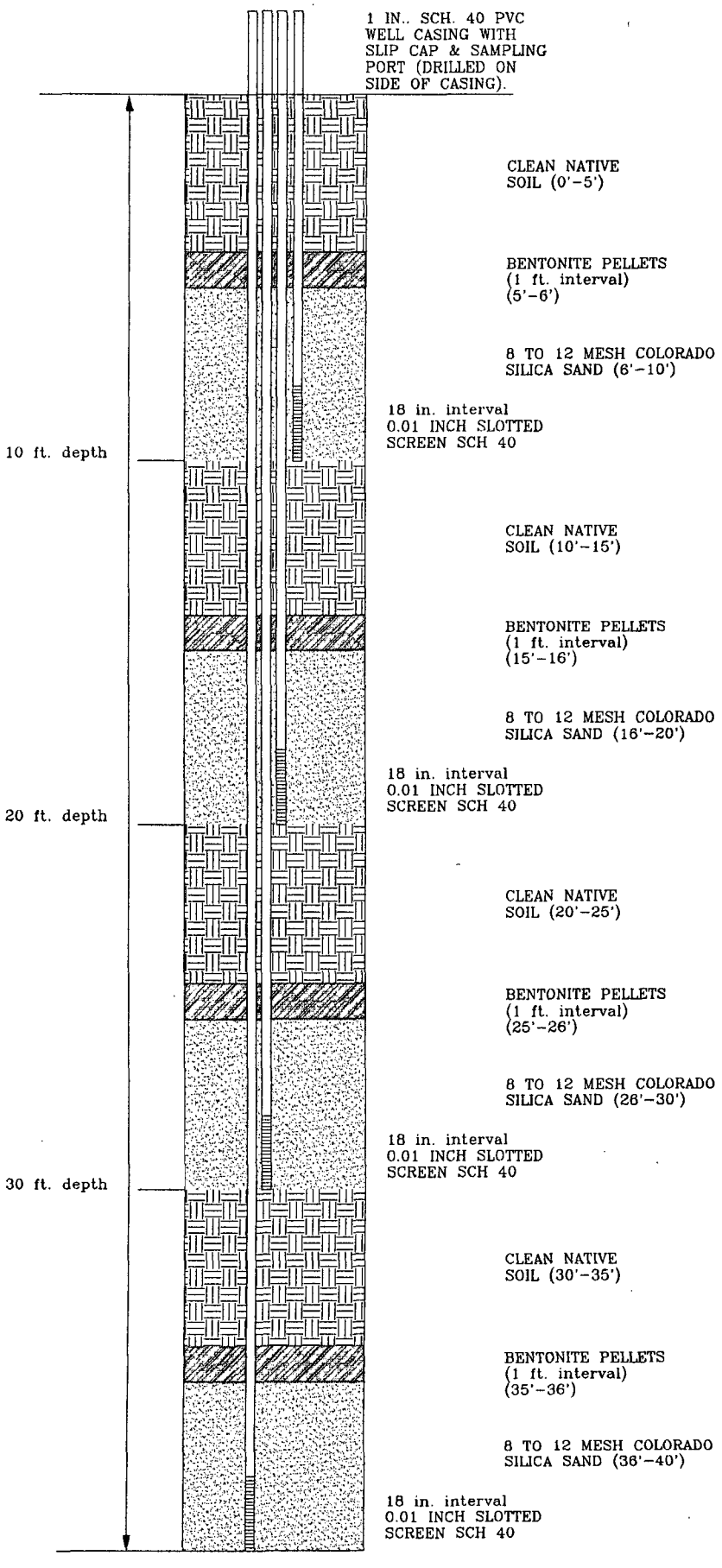
DRAWN BY: NJV

FILENAME: AS-BUILT

AS BUILT

5/97

FIGURE 10



AMOCO PRODUCTION COMPANY

GROUNDWATER REMEDIATION PLAN

SOIL GAS VAPOER MONITOR POINTS

CONSTRUCTION & COMPLETION

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: GW REMED. PLAN

DRAFTED BY: NJV

DATE: MAR. '98

FILENAME: SGV-CCD

AMOCO PRODUCTION COMPANY

ABRAMS J #1

NE/4 SE/4 SEC. 29, T29N, R10W

SOIL GAS VAPOR MONITORING DATA SUMMARY
(REFER TO AS BUILT : FIGURE 9)

PREPARED BY : BLAGG ENGINEERING, INC.
DRAFTED BY : NJV
FILENAME : SGV-READ.WK3

SGV - 1
OVM READINGS (PPM)

DATE	10 ft.	20 ft.	30 ft.	35 ft.
23-Apr-97	256	1099	875	1349
24-Apr-97	251	1023	616	1112
25-Apr-97	247	995	294	888
28-Apr-97	697	801	887	372
29-Apr-97	221	209	169	403
30-Apr-97	543	960	730	405
07-May-97	240	215	285	298
15-May-97	354	346	391	314
22-May-97	869	911	790	610
30-May-97	275	186	178	305
12-Jun-97	180	119	71	377
27-Jun-97	105.1	51.4	17.9	332
09-Jul-97	28.4	123.2	3.0	273
14-Jul-97	24.2	8.6	0	280
15-Jul-97	25.8	4.6	0	334
29-Jul-97	11.5	19.3	0	251
04-Aug-97	3.8	11.5	0	246
15-Aug-97	0	0	0	542
22-Aug-97	0	0	0	426
28-Aug-97	0	2.5	0	301
15-Sep-97	0	16.2	0	305
13-Nov-97	0	0	141	134
11-Dec-97	0	0	72.3	322

NEAR PROD. TANK
TANK PIT
INITIATED ON 8 / 15 / 97

SGV - 2
OVM READINGS (PPM)

DATE	10 ft.	20 ft.	30 ft.	40 ft.
23-Apr-97	0	0	0	0
24-Apr-97	0	0	0	0
25-Apr-97	0	0	0	0
28-Apr-97	0	0	0	0
29-Apr-97	0	0	0	0
30-Apr-97	0	0	0	0
07-May-97	0	0	0	0
15-May-97	0	0	0	0
22-May-97	0	6.3	0	0
30-May-97	2.2	9.9	1.5	1.5
12-Jun-97	0	22.6	2.6	8.0
27-Jun-97	0	24.9	0	2.3
09-Jul-97	0	20.3	0	9.0
14-Jul-97	0	46.1	11.1	30.4
15-Jul-97	3.9	39.0	26.4	39.8
29-Jul-97	0	7.7	0	3.8
04-Aug-97	0	7.7	13.9	36.3
15-Aug-97	0	1.5	5.5	28.4
22-Aug-97	0	0	3.2	32.8
28-Aug-97	0	20.0	10.0	25.2
15-Sep-97	0	56.0	0	21.3
13-Nov-97	0	51.7	49.4	17.1
11-Dec-97	0	60.6	0	0

DOWN GRADIENT BET-
WEEN MW #6 & #9
INITIATED ON 7 / 11 / 97

SGV - 3
OVM READINGS (PPM)

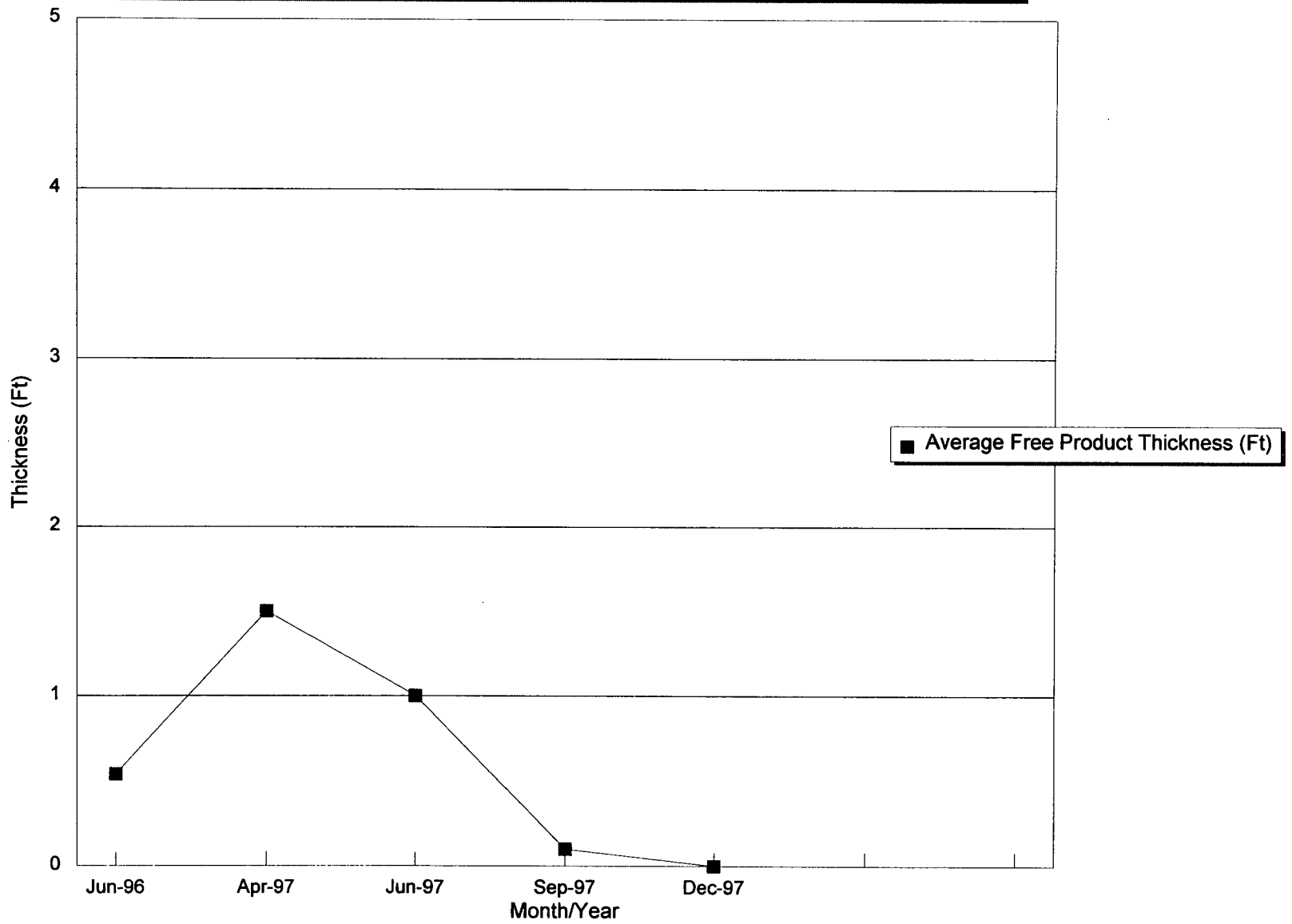
DATE	10 ft.	20 ft.	30 ft.	40 ft.
23-Apr-97	0	0	0	0
24-Apr-97	0	0	0	0
25-Apr-97	0	0	0	0
28-Apr-97	0	0	0	0
29-Apr-97	0	0	0	0
30-Apr-97	0	0	0	0
07-May-97	0	0	0	0
15-May-97	0	0	0	0
22-May-97	0	0	0	0
30-May-97	0	0	0	0
12-Jun-97	0	0	0	0
27-Jun-97	0	0	0	0
09-Jul-97	0	0	0	0
14-Jul-97	0	0	0	0
15-Jul-97	0	0	0	0
29-Jul-97	0	0	0	0
04-Aug-97	0	0	0	0
15-Aug-97	0	0	0	0
22-Aug-97	0	0	0	0
28-Aug-97	0	0	0	0
15-Sep-97	0	0	0	0
13-Nov-97	0	0	0	0
11-Dec-97	0	0	0	0

NEAR DOWN GRADIENT
SPARGE PT. LEG
INITIATED ON 4 / 22 / 97

SYSTEM START UP (FURTHEST UP & DOWN GRADIENT SPARGE PT. LEGS INTIATED ON 4 / 22 / 97 (SEE AS BUILT FIGURE 9) .

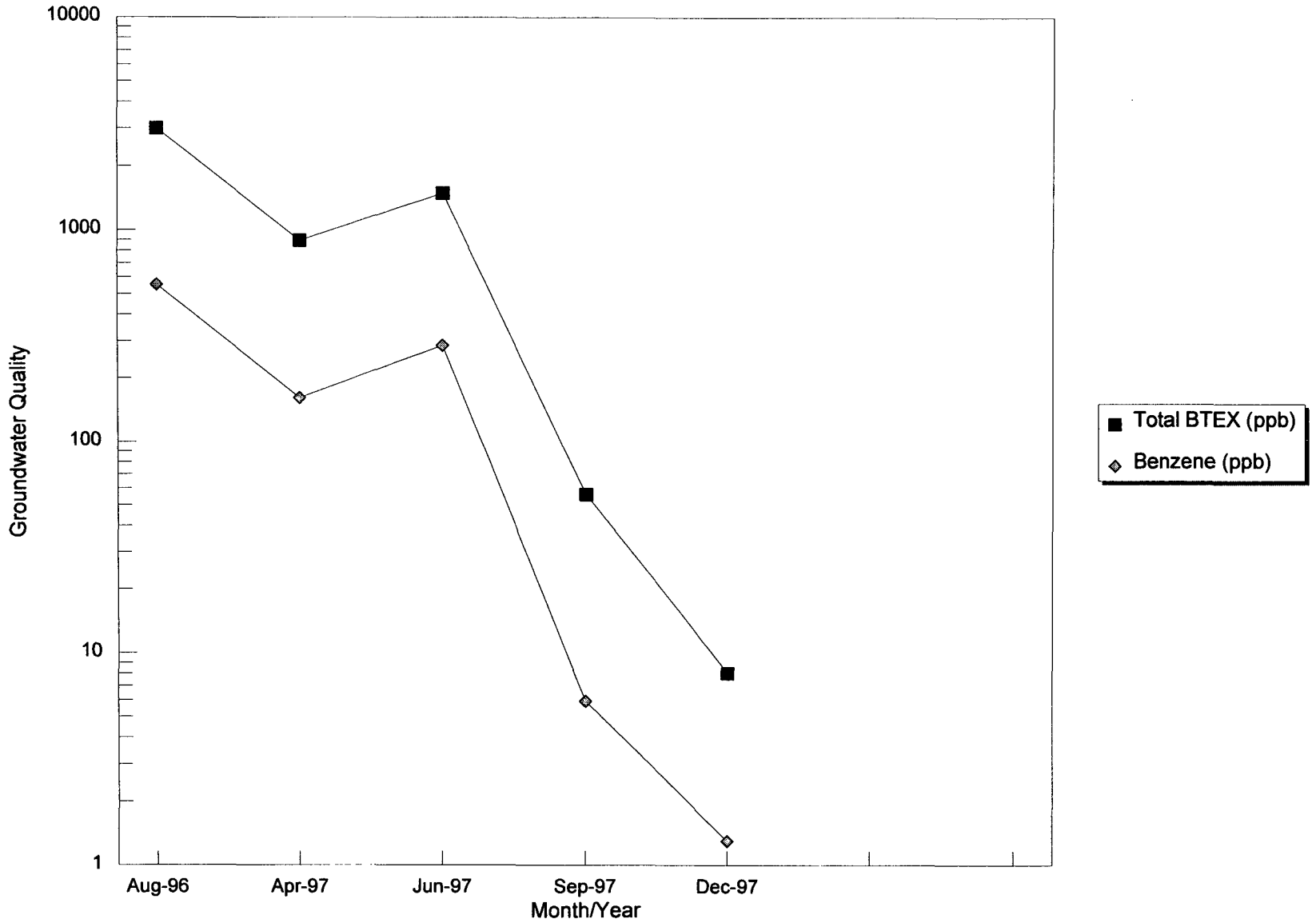
Amoco Abrams J 1 Well Site - Average Free Product

Figure FP



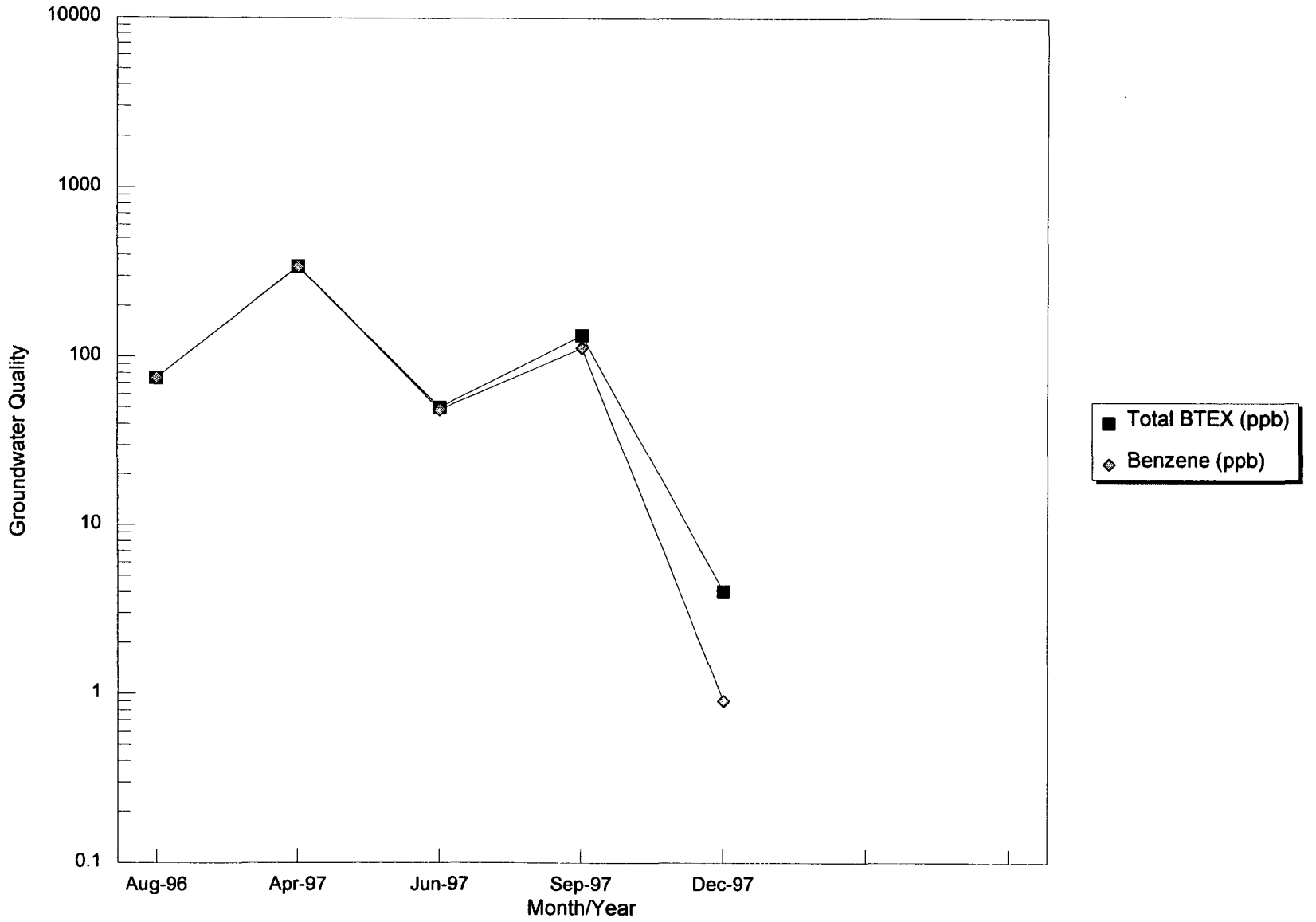
Amoco Abrams J 1 Well Site - MW#5

Figure 1



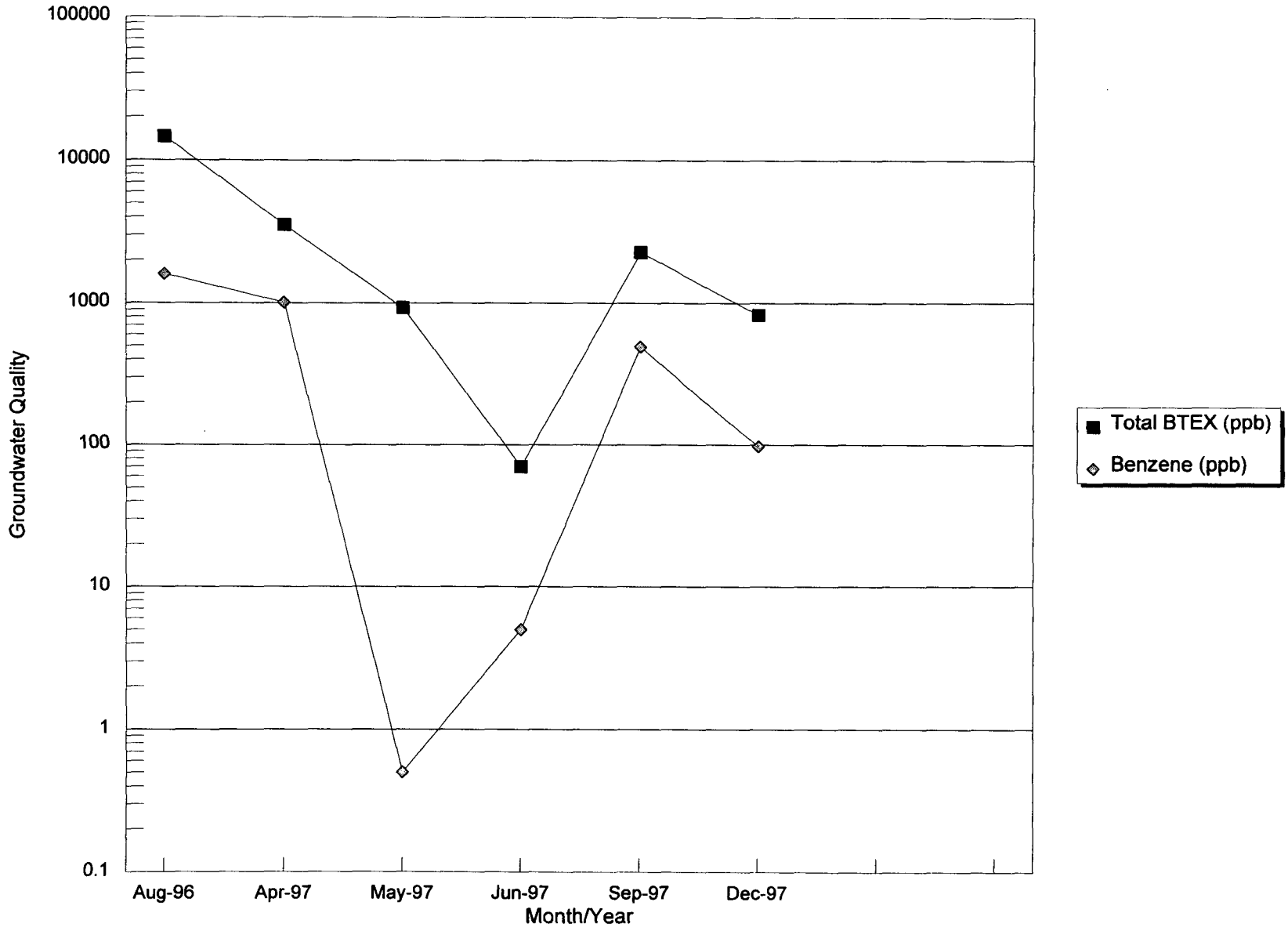
Amoco Abrams J 1 Well Site - MW#9

Figure 2



Amoco Abrams J 1 Well Site - MW#10

Figure 3



BLAGG ENGINEERING, Inc.

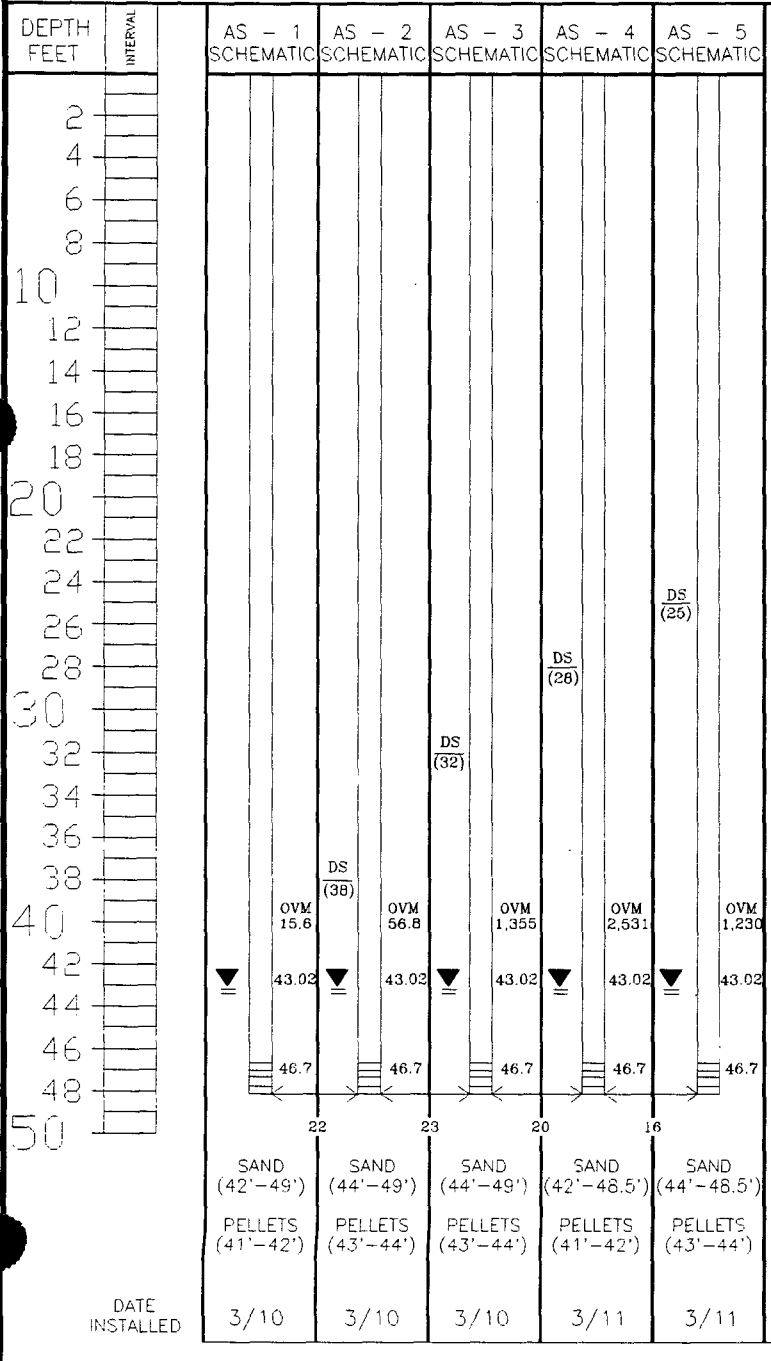
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

AIR SPARGE SYSTEM BORE HOLE SCHEMATIC

PAGE #..... 1

LOCATION NAME:	ABRAMS J # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG
BORING LOCATION:	SEE AIR SPARGING SITE SCHEMATIC.

DATE STARTED 3/10/97
DATE FINISHED 3/31/97
OPERATOR..... BB
PREPARED BY NJV



OVM READING IN PARTS PER MILLION.

DS = DISCOLORED SOIL.

(25) = FOOTAGE BELOW GROUND SURFACE.

AS-1 = AIR SPARGE POINT DESIGNATION.

DRAWING: ABR-AS-1	DATE: 3/12/97	DWN BY: NJV

BLAGG ENGINEERING, Inc.

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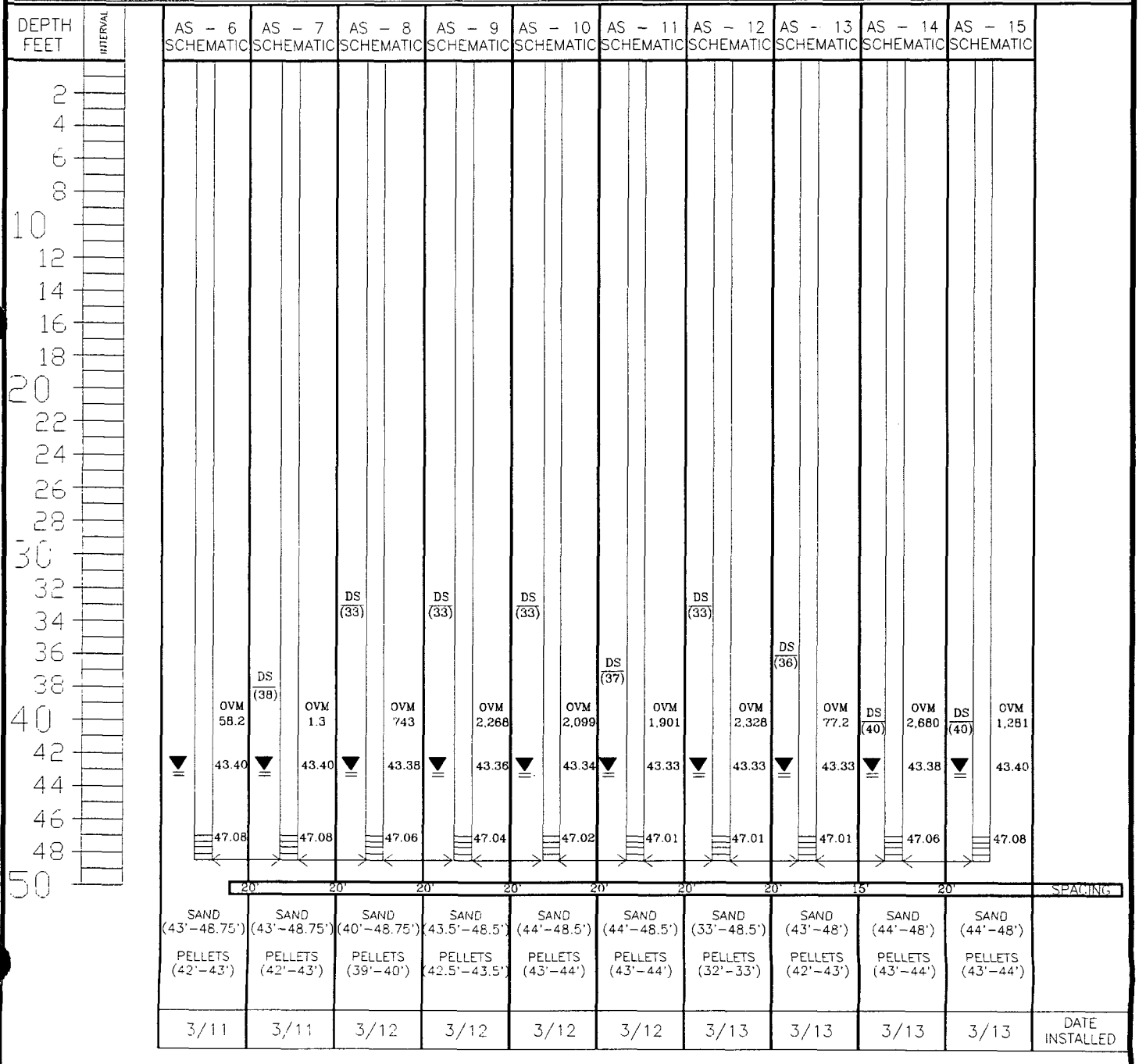
BLOOMFIELD, NM 87413
(505) 632-1199

AIR SPARGE SYSTEM BORE HOLE SCHEMATIC

PAGE #..... 2

LOCATION NAME:	ABRAMS J # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG
BORING LOCATION:	SEE AIR SPARGING SITE SCHEMATIC.

DATE STARTED 3/10/97
DATE FINISHED 3/31/97
OPERATOR..... BB
PREPARED BY NJV



DRAWING: ABR-AS-2 | DATE: 3/13/97 | DWN BY: NJV

BLAGG ENGINEERING, Inc.

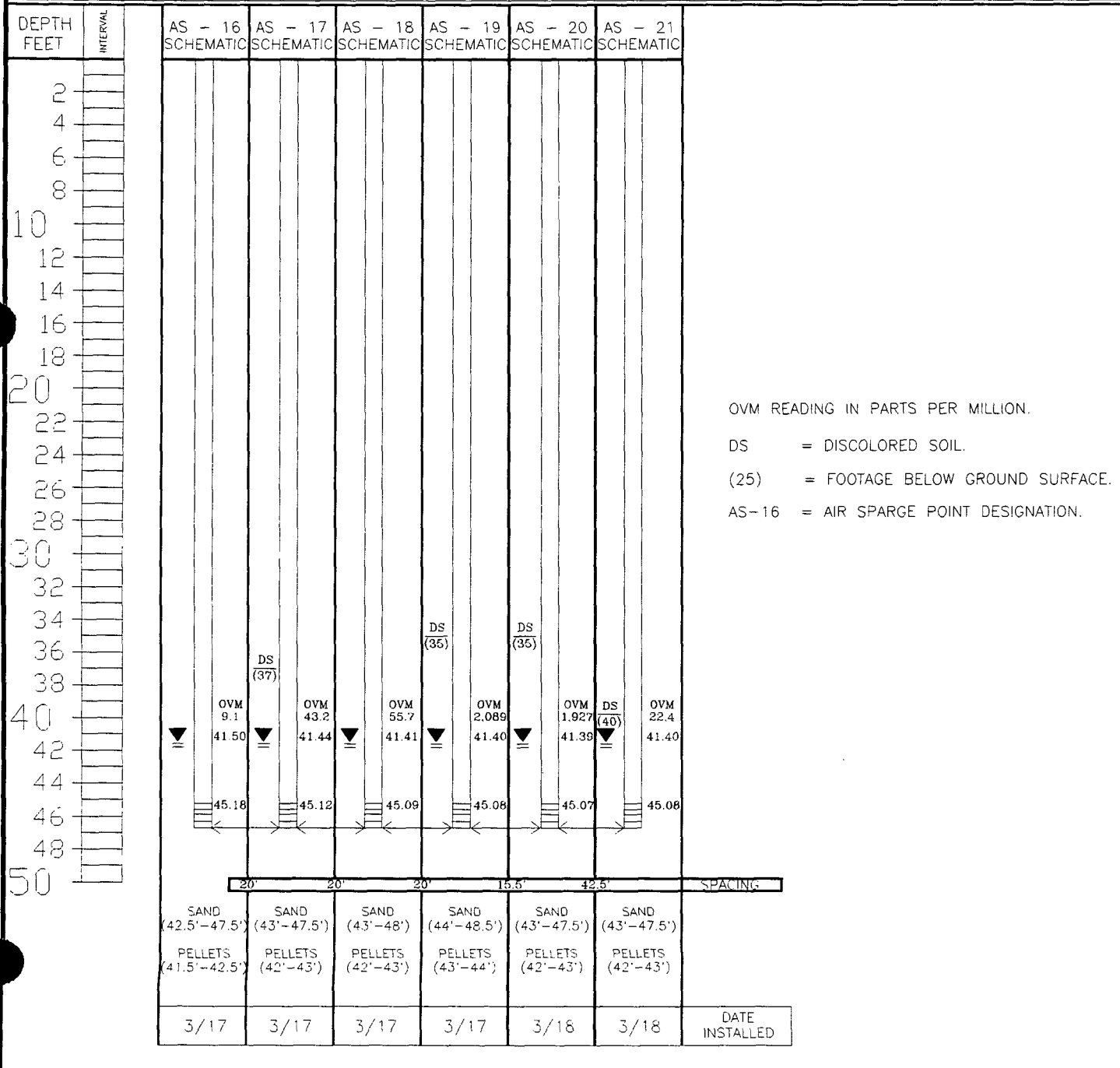
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

AIR SPARGE SYSTEM BORE HOLE SCHEMATIC

PAGE #..... 3

LOCATION NAME:	ABRAMS J # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG
BORING LOCATION:	SEE AIR SPARGING SITE SCHEMATIC.

DATE STARTED 3/10/97
DATE FINISHED 3/31/97
OPERATOR..... BB
PREPARED BY NJV



OVM READING IN PARTS PER MILLION.

DS = DISCOLORED SOIL.

(25) = FOOTAGE BELOW GROUND SURFACE.

AS-16 = AIR SPARGE POINT DESIGNATION.

DRAWING: ABR-AS-3	DATE: 3/18/97	DWN BY: NJV

BLAGG ENGINEERING, Inc.

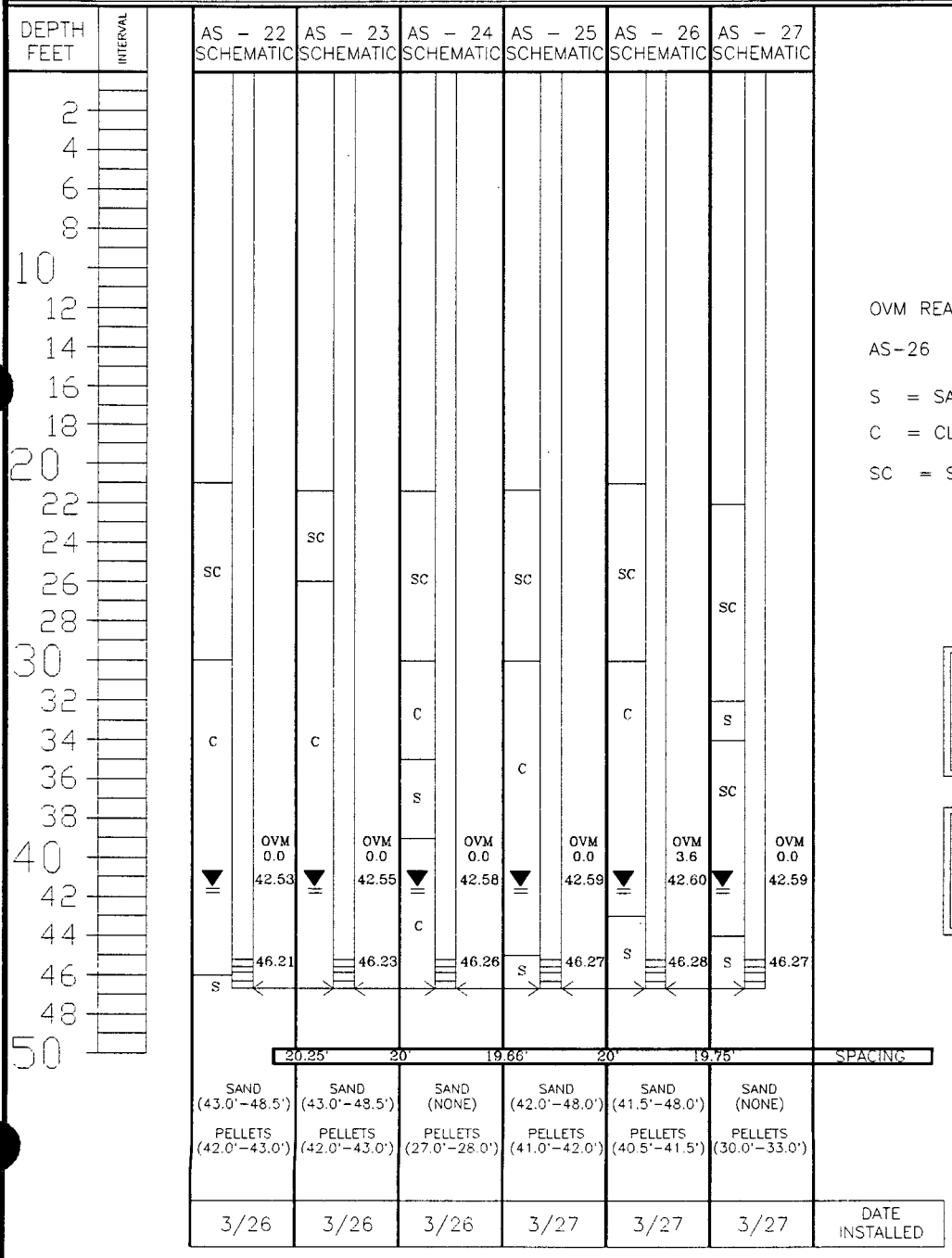
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

AIR SPARGE SYSTEM BORE HOLE SCHEMATIC

PAGE #..... 4

LOCATION NAME:	ABRAMS J # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC. / ENVIROTECH, INC.
EQUIPMENT USED:	MOBILE DRILL RIG
BORING LOCATION:	SEE AIR SPARGING SITE SCHEMATIC.

DATE STARTED 3/10/97
DATE FINISHED 3/31/97
OPERATOR..... BB
PREPARED BY NJV



OVM READING IN PARTS PER MILLION.

AS-26 = AIR SPARGE POINT DESIGNATION.

S = SAND, NON COHESIVE.

C = CLAY, HIGHLY PLASTIC.

SC = SILTY CLAY, SLIGHTLY PLASTIC.

AS-24 - EXISTING SOIL SLUFFED IN UP TO 28 FT.

AS-27 - EXISTING SOIL SLUFFED IN UP TO 33 FT.

DRAWING: ABR-AS-4 | DATE: 3/28/97 | DWN BY: NJV

ENVIROTECH INC.

FIELD BORING LOG

[redacted]

TEST BORING No.	MONITOR WELL No.	PROJECT No.	PROJECT NAME:	SHEET:
1		92140 PIT: C4279	AMOCO PIT ASSESSMENT & CLOSURES	OF: 1/1

MFG. DESIGNATION OF DRILL:	PROJECT LOCATION:
CME 55	ABRAMS 'J' No. 1; NE/SE S29, T29N, R10W

TYPE OF BIT:	SURFACE ELEVATION OF TB OR MW:	TOTAL DEPTH OF HOLE:
8" HSA		43'9" BGS

DATE		DRILLING Co.:
STARTED: 9/7/93		ENVIROTECH INC.
COMPLETED:		

COMPLETION TYPE:	ENGINEER:	GROUNDWATER DEPTH	TIME
2" MW SCH 40 PVC 15' (0.020" SLOT) 8-12 SAND TO 27' SCH 40 27'	H LANE CREW: MD/G	37'	1500'

SURFACE CONDITIONS: SILTY SAND TO WELL GRADED SAND, MOIST, DENSE, LT. BROWN,

DIST FROM SURF.	SAMPLE TYPE	SAMPLE No.	OVM READ IN PPM	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL/COMMENTS
1	CTG	1@5'	12.1		SM/SW	LT. BROWN, SILTY SAND TO WELL GRADED SAND, MOIST, DENSE, NON-COHESIVE, NO ODOR.
102	CTG	1@10'	38.0			
3	CTG	1@15'	8.0			
204	CTG	1@20'	8.0		CL/ML	LT. BRW TO BRW. GREY, SANDY CLAY TO SILT, MOIST, SL. STIFF, MOIST, PLASTIC, NO ODOR.
5	CTG	1@25'	50.0			
6	SFT	1@30'	2.0		CL/ML	LT. BRW GREY, SANDY SILT, MOIST, SL. STIFF, PLASTIC, NO ODOR
7	SFT	1@35'	12.0		SM/ML	GREY TO LT. BLUE GREY SILTY FINE SAND TO SANDY SILT, SL. PLASTIC, MOIST, FIRM, NO ODOR.
408	SFT	1@40'	12.2			
9						TOTAL DEPTH 43'
0						GW @ 37'.
1						15' SCREEN 0.010"
2						8-12 SAND 2' ABOVE SCREEN
3						3/8" BENTONITE PELLETS 2' ABOVE FILTER
4						PORTLAND GROUT & CUTTINGS TO SURF.
5						
6						
7						
8						
9						
0						
1						
2						

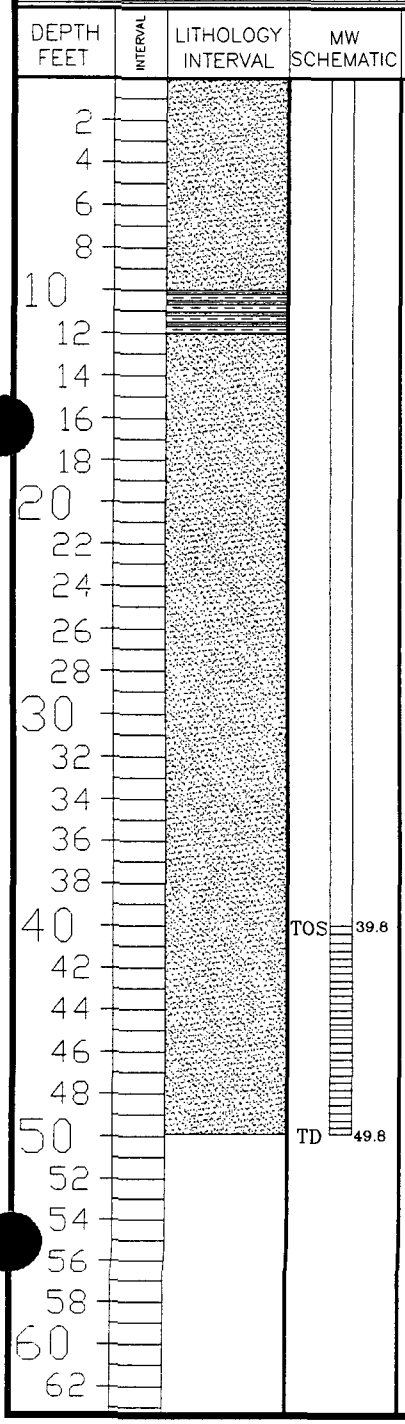
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	ABRAMS J # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	N78E, 324 FEET FROM WELL HEAD.

BORING #.....	BH - 1
MW #.....	2
PAGE #.....	1
DATE STARTED	6/04/96
DATE FINISHED	6/04/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 0.20 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 10.0 FT. INTERVAL).

DARK YELLOWISH BROWN CLAY, PLASTIC, SLIGHTLY MOIST, STIFF TO HARD, NO APPARENT HYDROCARBON ODOR OBSERVED (10.00 - 12.00 FT. INTERVAL).

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR OBSERVED (12.0 - 49.8 FT. INTERVAL).

▼ GW DEPTH ON 7/26/96 = 41.53 FT. (APPROX.) FROM GROUND SURFACE.

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

DRAWING: ABR-J1-1	DATE: 3/06/97	DWN BY: NJV

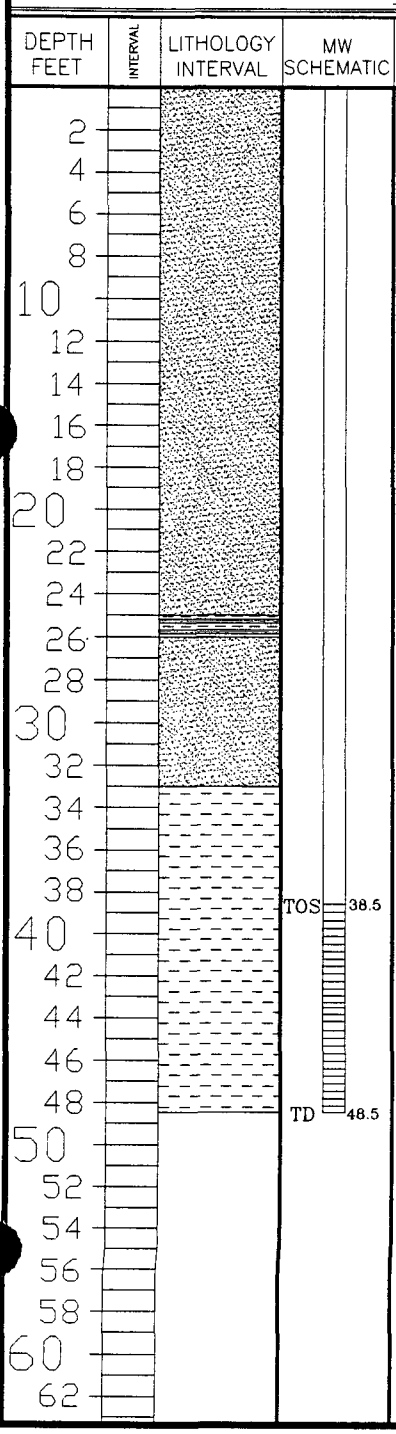
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

BORING #..... BH - 2
MW #..... 3
PAGE #..... 2
DATE STARTED 6/04/96
DATE FINISHED 6/04/96
OPERATOR..... JCB
PREPARED BY NJV

LOCATION NAME: ABRAMS J # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N41E, 291 FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.50 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 25.0 FT. INTERVAL).

DARK YELLOWISH BROWN CLAY, PLASTIC, SLIGHTLY MOIST, STIFF TO HARD, NO APPARENT HYDROCARBON ODOR OBSERVED (25.0 - 26.0 FT. INTERVAL).

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (26.0 - 30.0 FT. INTERVAL), STRONG HYDROCARBON ODOR OBSERVED (30.0 - 33.0 FT. INTERVAL).

LIGHT TO MEDUIM GRAY SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, STRONG HYDROCARBON ODOR OBSERVED (33.0 - 48.5 FT. INTERVAL).

▼ GW DEPTH ESTIMATED AT 42.0 FT. FROM GROUND SURFACE, 0.33 FT. PRODUCT ENCOUNTERED ON 6/11/96.

NOTES:
- SAND TO SILTY SAND.
- CLAY.
- SAND TO SILTLY SAND (DISCOLORED).
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING: ABR-J1-2 | DATE: 3/06/97 | DWN BY: NJV

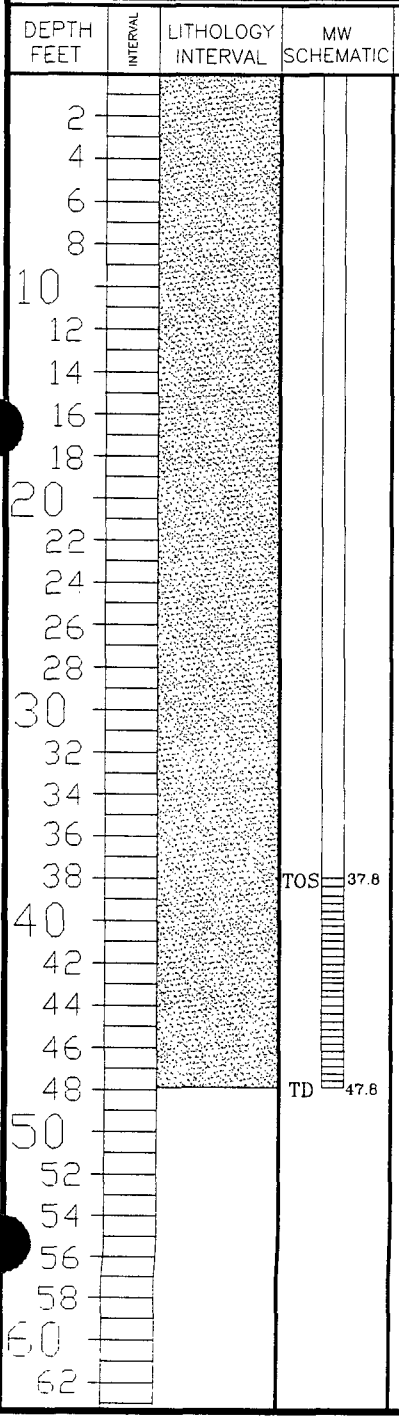
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	ABRAMS J # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	N27E, 285 FEET FROM WELL HEAD.

BORING #.....	BH - 3
MW #.....	4
PAGE #.....	3
DATE STARTED	7/26/96
DATE FINISHED	7/26/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.20 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 47.8 FT. INTERVAL).

▼ GW DEPTH ON 8/16/96 = 41.55 FT. (APPROX.) FROM GROUND SURFACE.

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

DRAWING: ABR-J1-3	DATE: 3/06/97	DWN BY: NJV

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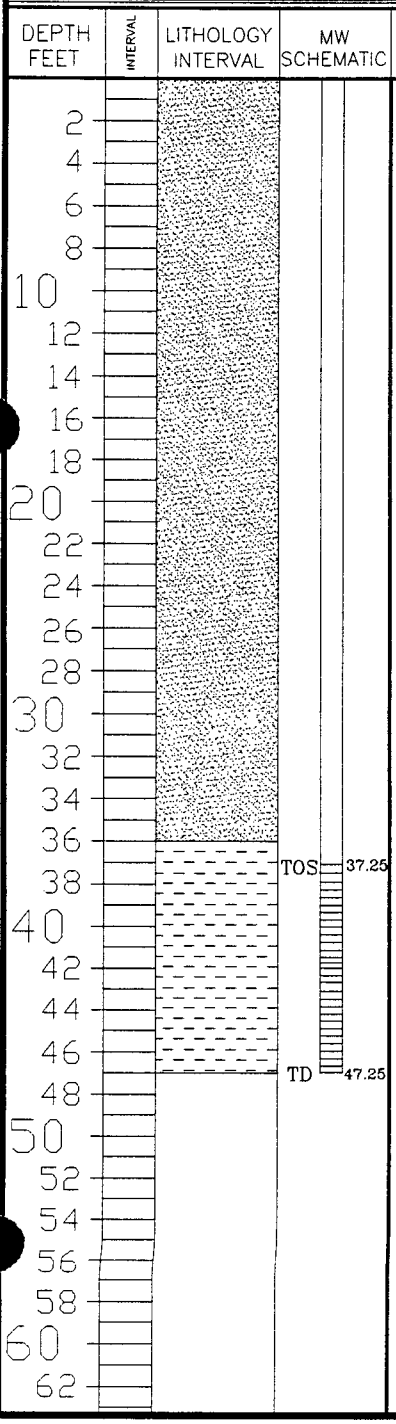
BORE / TEST HOLE REPORT

BORING # ..... BH - 4
MW # 5
PAGE # 4
DATE STARTED 7/26/96
DATE FINISHED 7/26/96
OPERATOR ..... JCB
PREPARED BY NJV

LOCATION NAME: ABRAMS J # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N36E, 177 FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.75 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 36.0 FT. INTERVAL).

DARK YELLOWISGH BROWN TO LIGHT TO MEDUIM GRAY SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, STRONG HYDROCARBON ODOR OBSERVED (36.0 - 47.25 FT. INTERVAL).

▼ GW DEPTH ON 8/16/96 = 42.53 FT. (APPROX.) FROM GROUND SURFACE.

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

DRAWING: ABR-J1-4 | DATE: 3/06/97 | DWN BY: NJV

BLAGG ENGINEERING, Inc.

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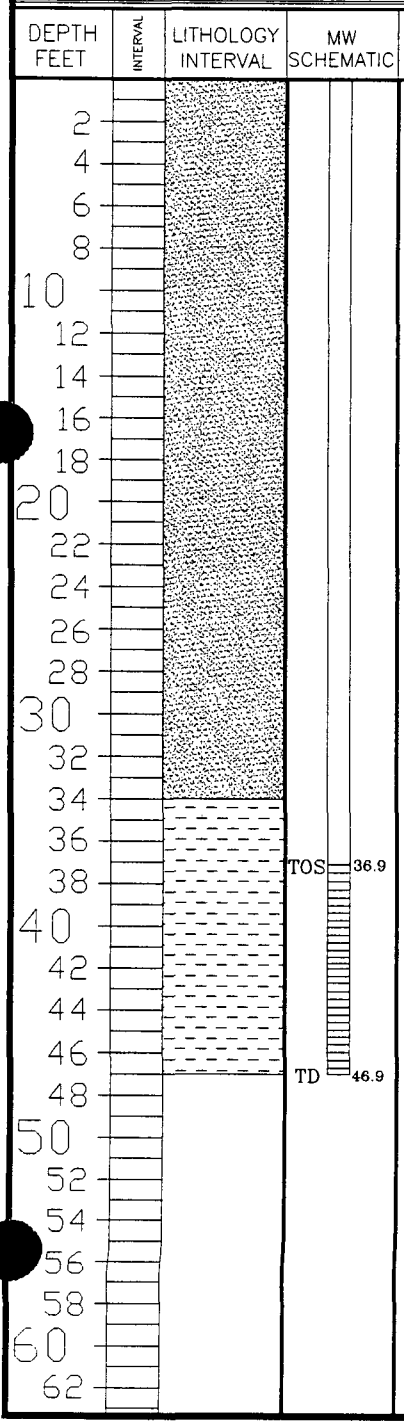
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	ABRAMS J # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	N44E, 357 FEET FROM WELL HEAD.

BORING #.....	BH - 5
MW #.....	6
PAGE #.....	5
DATE STARTED	7/29/96
DATE FINISHED	7/29/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 3.10 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 30.0 FT. INTERVAL), STRONG HYDROCARBON ODOR OBSERVED (30.0 - 34.0 FT. INTERVAL).

LIGHT TO MEDUIM GRAY SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, STRONG HYDROCARBON ODOR OBSERVED (34.0 - 46.9 FT. INTERVAL).

▼ GW DEPTH ESTIMATED AT 42.25 FT. FROM GROUND SURFACE, 0.7 FT. PRODUCT ENCOUNTERED ON 6/30/96.

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

DRAWING: ABR-J1-5	DATE: 3/06/97	DWN BY: NJV

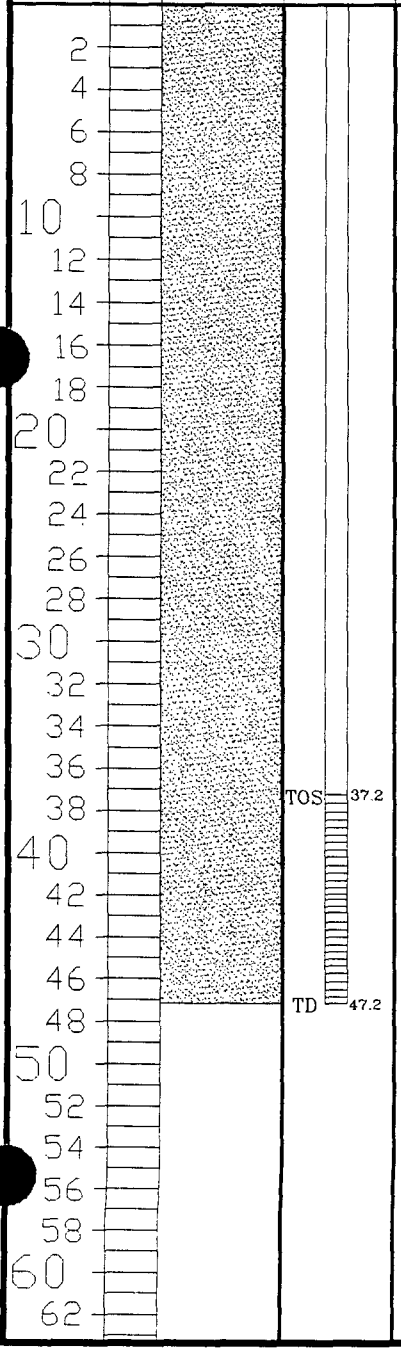
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

BORING #..... BH - 6
MW #..... 7
PAGE #..... 6
DATE STARTED 7/29/96
DATE FINISHED 7/29/96
OPERATOR..... JCB
PREPARED BY NJV

LOCATION NAME: ABRAMS J # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N53E, 396 FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

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

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 47.2 FT. INTERVAL).

▼ GW DEPTH ON 8/16/96 = 40.52 FT. (APPROX.) FROM GROUND SURFACE.

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

DRAWING: ABR-J1-6 | DATE: 3/06/97 | DWN BY: NJV

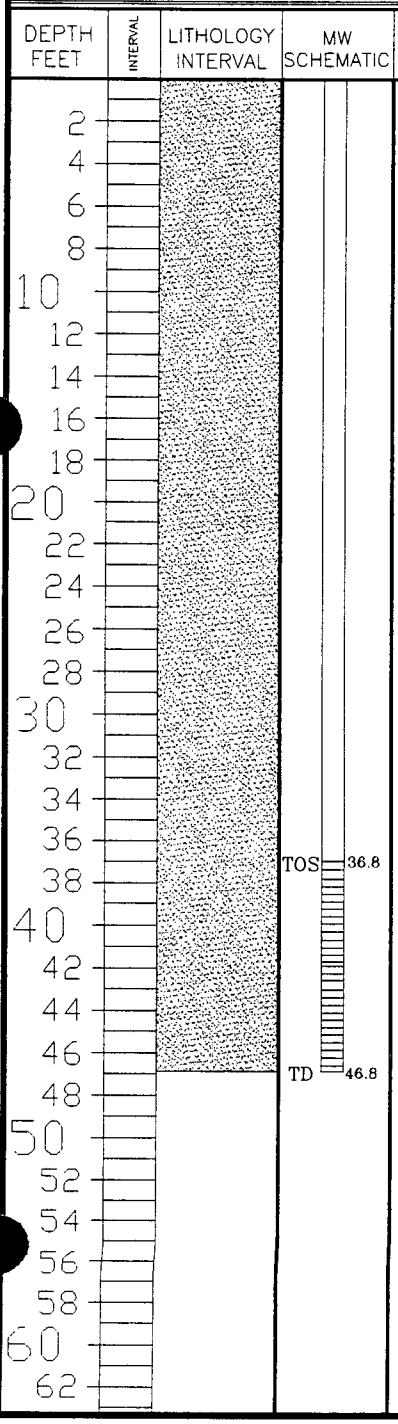
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	ABRAMS J # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	N33E, 354 FEET FROM WELL HEAD.

BORING #.....	BH - 8
MW #.....	9
PAGE #.....	8
DATE STARTED	7/30/96
DATE FINISHED	7/30/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 3.20 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 46.8 FT. INTERVAL).

▼ GW DEPTH ON 8/16/96 = 41.39 FT. (APPROX.) FROM GROUND SURFACE.

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

DRAWING: ABR-J1-8	DATE: 3/06/97	DWN BY: NJV

BLAGG ENGINEERING, Inc.

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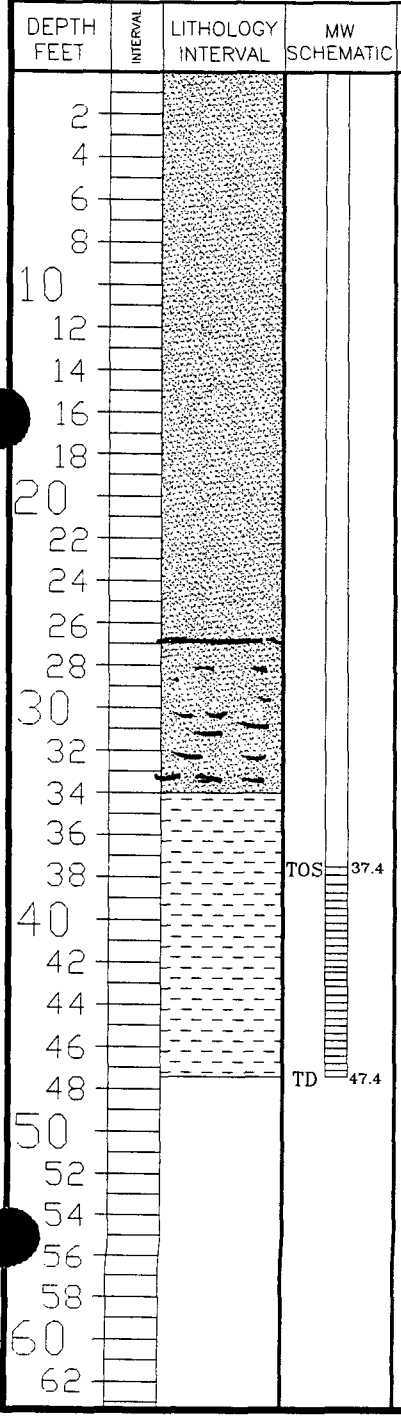
(505) 632-1199

BORE / TEST HOLE REPORT

BORING # ..... BH - 9
MW # 10
PAGE # 5
DATE STARTED 8/09/96
DATE FINISHED 8/09/96
OPERATOR ..... JCB
PREPARED BY NJV

LOCATION NAME: ABRAMS J # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N64E, 204 FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.60 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 34.0 FT. INTERVAL).

LIGHT TO MEDUIM GRAY SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, STRONG HYDROCARBON ODOR OBSERVED (34.0 - 47.4 FT. INTERVAL).

▼ GW DEPTH ON 8/16/96 = 42.11 FT. (APPROX.) FROM GROUND SURFACE.

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

DRAWING: ABR-J1-9 | DATE: 3/06/97 | DWN BY: NJV

BLAGG ENGINEERING, Inc.

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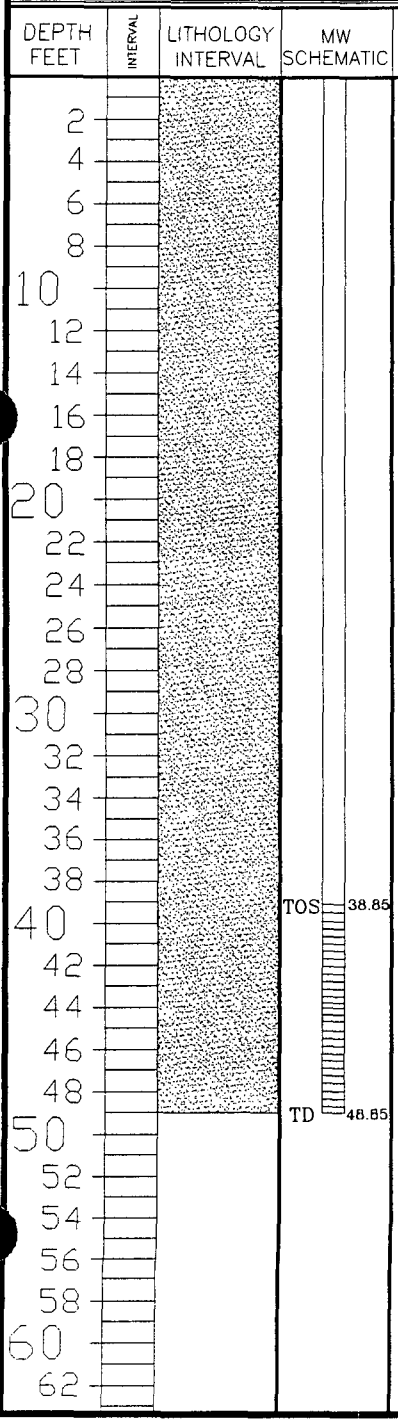
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	ABRAMS J # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	N82E, 231 FEET FROM WELL HEAD.

BORING #.....	BH-10
MW #.....	11
PAGE #.....	10
DATE STARTED	8/09/96
DATE FINISHED	8/09/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.15 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 48.85 FT. INTERVAL).

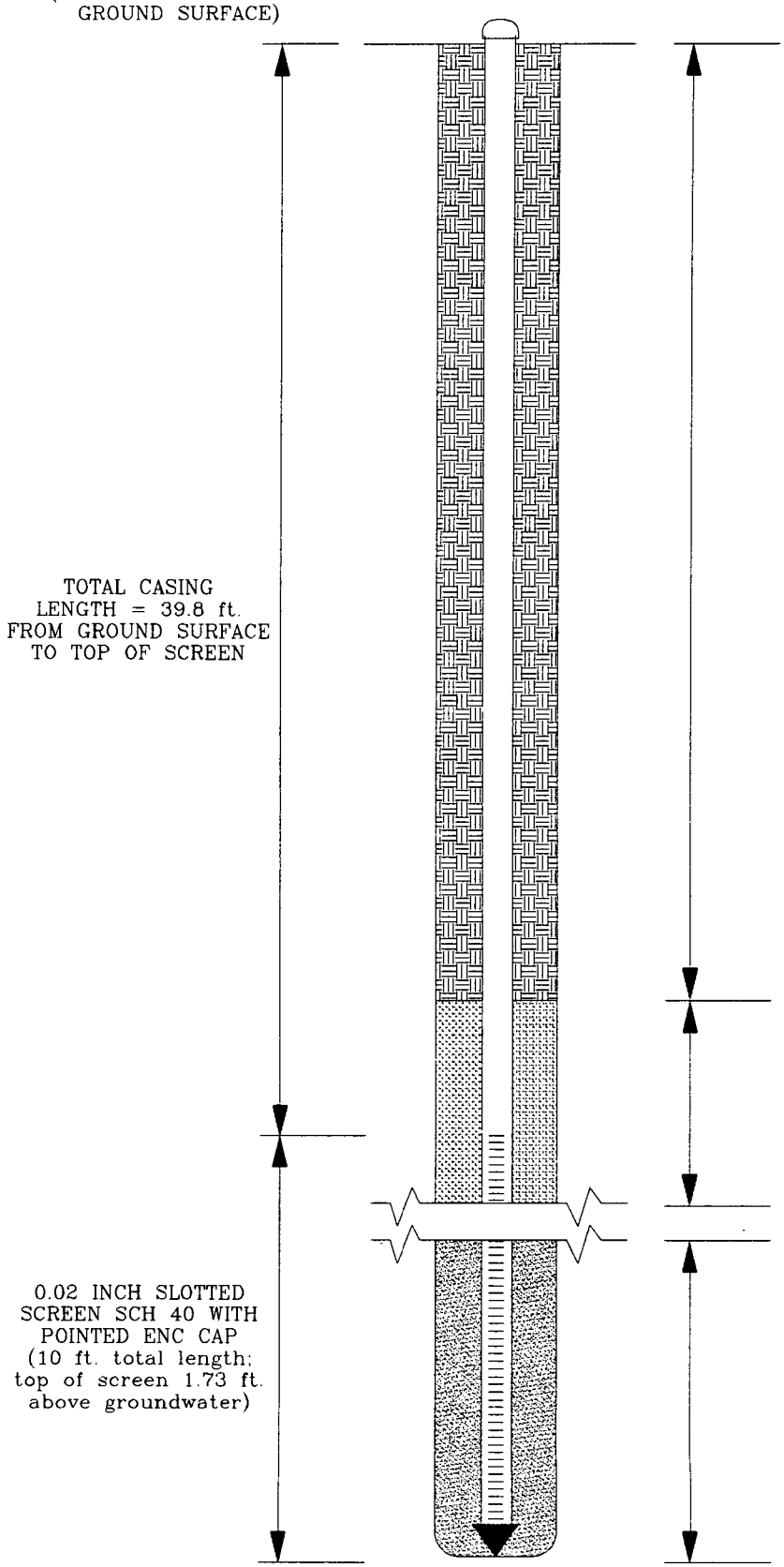
▼ GW DEPTH ON 8/16/96 = 44.61 FT. (APPROX.) FROM GROUND SURFACE.

NOTES: ▒ - SAND TO SILTY SAND.

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

DRAWING: ABRJ1-10	DATE: 3/06/97	DWN BY: NJV

MONITOR WELL #2



AMOCO PRODUCTION COMPANY

ABRAMS J # 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: APR. '97

FILENAME: MW-2

MONITOR WELL #3

AMOCO PRODUCTION COMPANY

ABRAMS J # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

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PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: APR. '97

FILENAME: MW-3

MONITOR WELL #4

AMOCO PRODUCTION COMPANY

ABRAMS J # 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

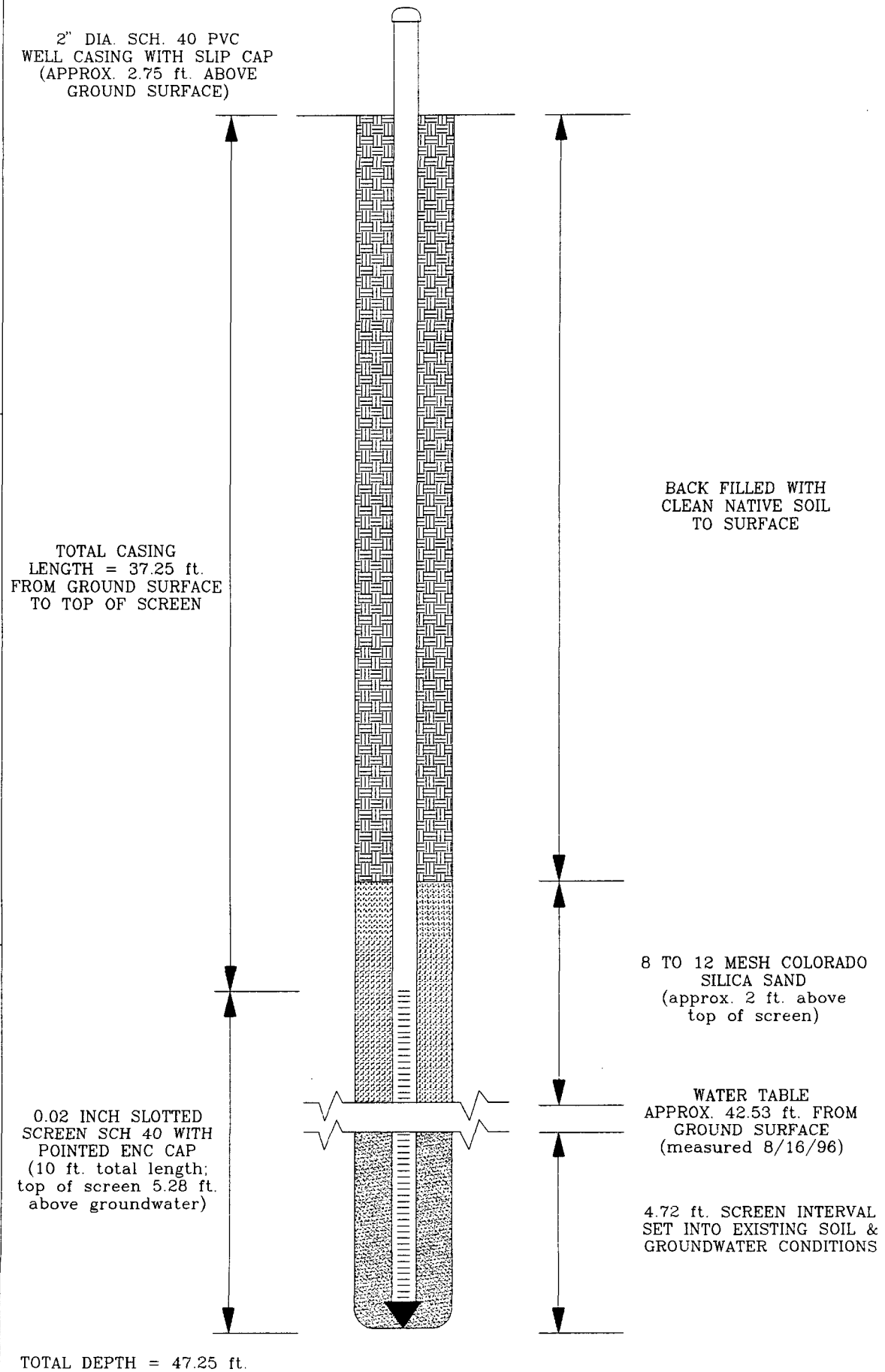
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: APR. '97

FILENAME: MW-

MONITOR WELL #5



AMOCO PRODUCTION COMPANY

ABRAMS J # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

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PHONE: (505) 632-1199

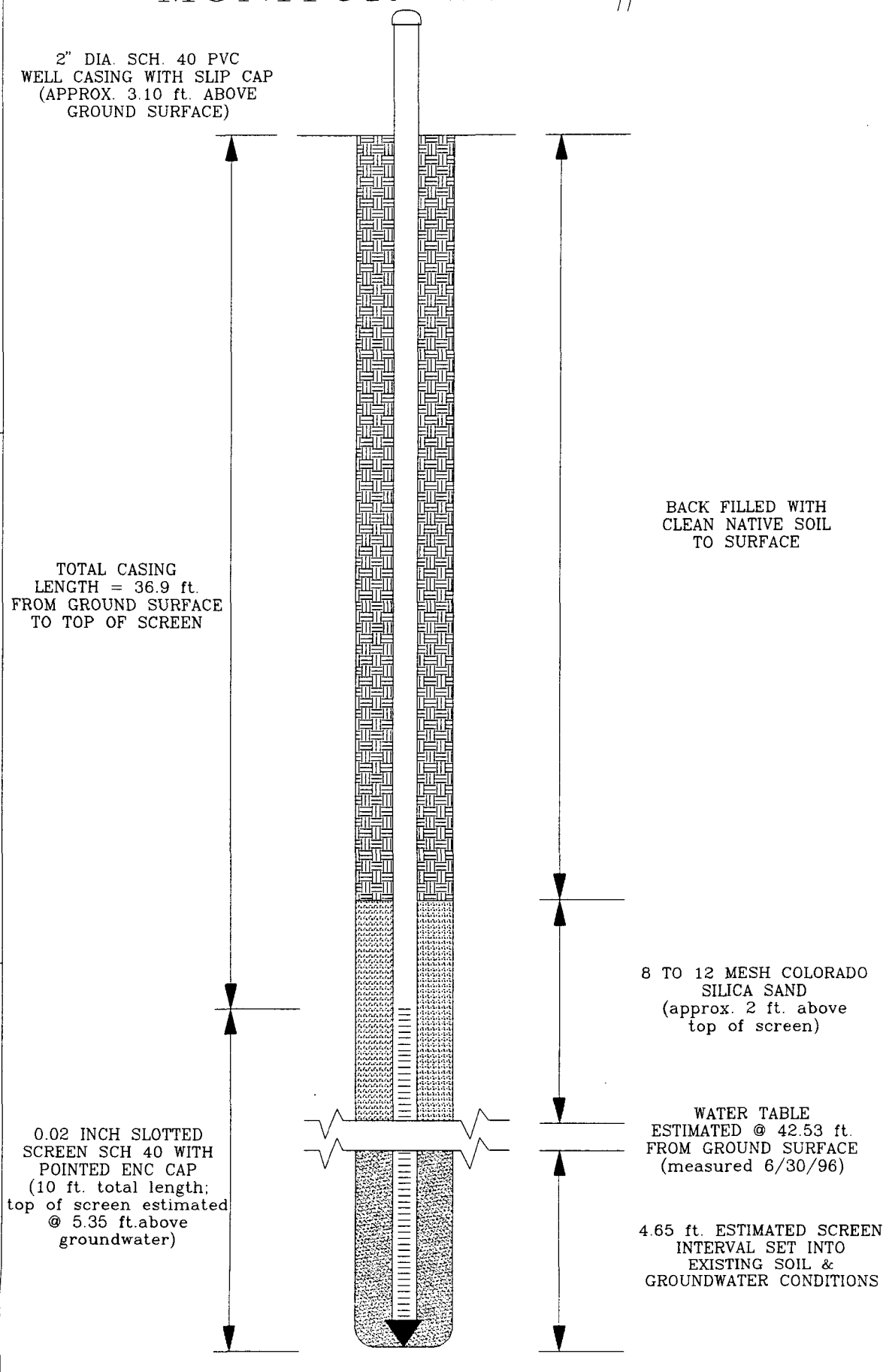
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: APR. '97

FILENAME: MW-5

MONITOR WELL #6



AMOCO PRODUCTION COMPANY

ABRAMS J # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

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PHONE: (505) 632-1199

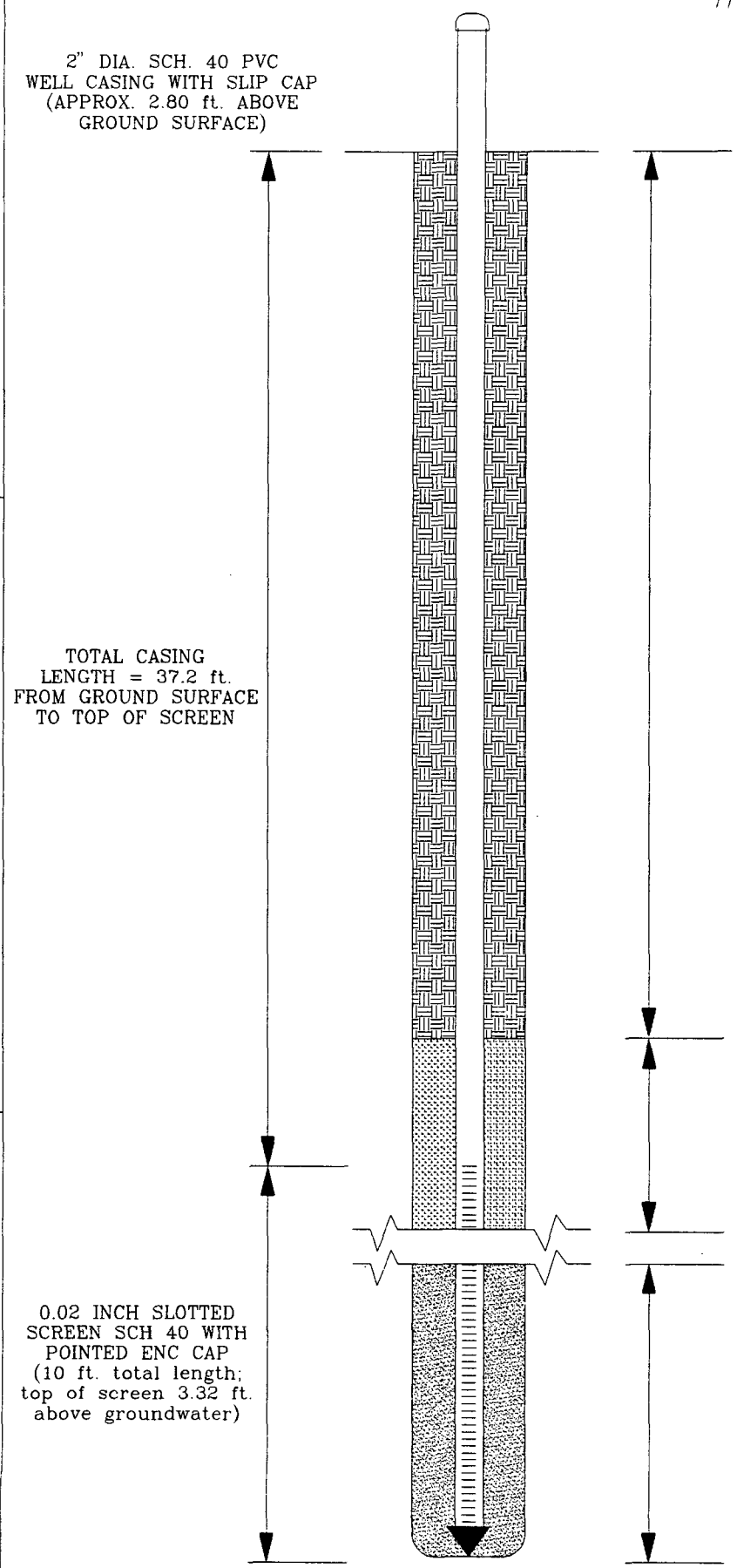
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: APR. '97

FILENAME: MW-

MONITOR WELL #7



AMOCO PRODUCTION COMPANY

ABRAMS J # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

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PHONE: (505) 632-1199

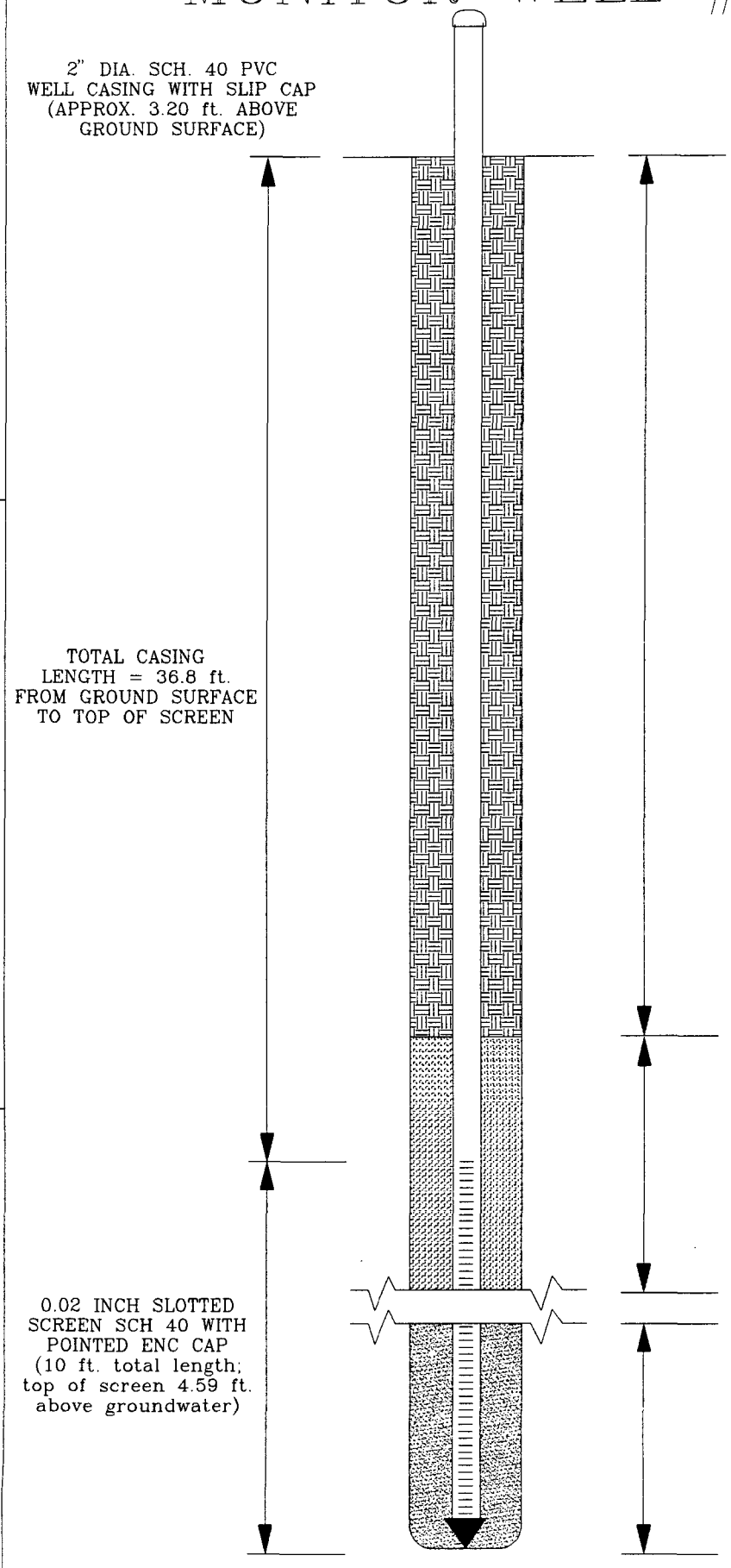
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: APR. '97

FILENAME: MW-

MONITOR WELL #9



AMOCO PRODUCTION COMPANY

ABRAMS J # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

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PHONE: (505) 632-1199

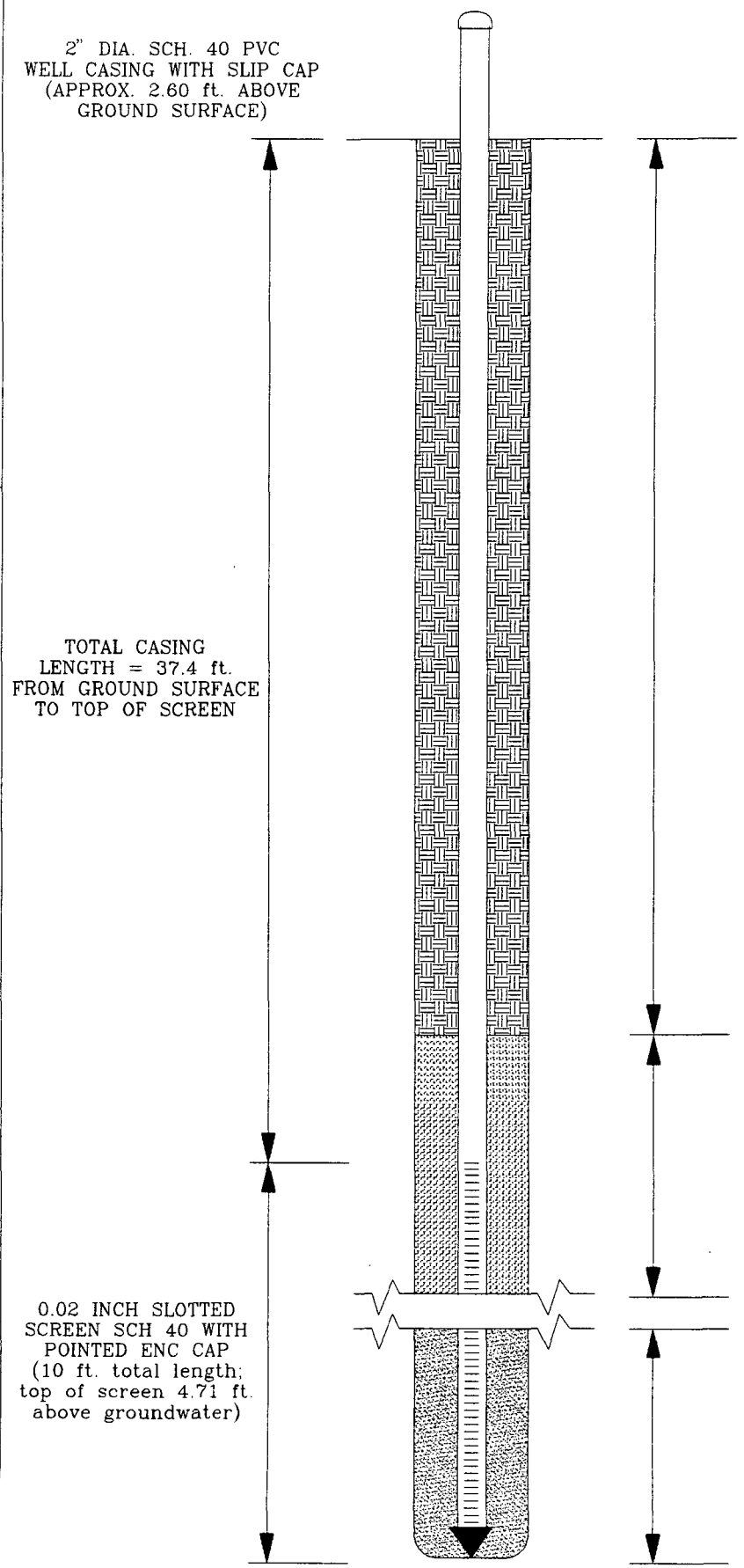
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: APR. '97

FILENAME: MW-

MONITOR WELL #10



AMOCO PRODUCTION COMPANY

ABRAMS J # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

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PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: APR. '97

FILENAME: MW-

MONITOR WELL #11

AMOCO PRODUCTION COMPANY

ABRAMS J # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

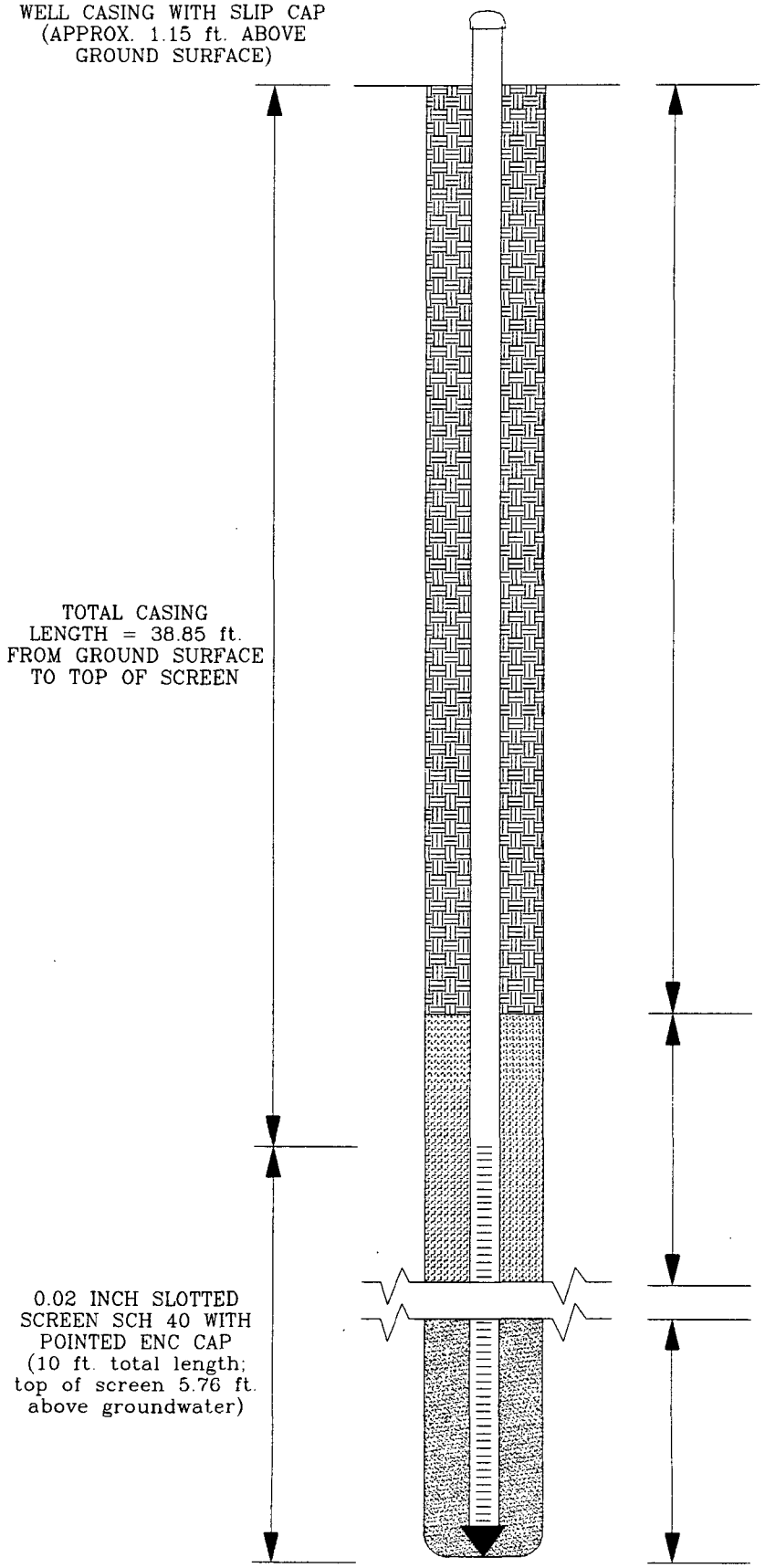
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: APR. '97

FILENAME: MW-



ENVIROTECH INC.

MONITOR WELL QUARTERLY MONITORING DATA

DATE: 9/11/93 PROJECT NO: 92140-C4279

CLIENT: Amoco

LOCATION: ABRAMS J #1 - SEP

PROJECT MANAGER: MRL CHAIN-OF-CUSTODY NO: 3004

MONITOR WELL DATA

WELL #	OVM (PPM)	pH (7.6)	COND. (µMHO) (4100)	TEMP (°C) (70°)	D.T.W. (FT.)	T.D. (FT.)	BAILED (GAL.)	PRODUCT (IN.)
1	882	7.6	4400	18.3	39.34	45.73	3.0	—
		"		65°F				

Notes: DTW = Depth to water
TD = Total depth
Bailed = Volume of water bailed from well prior to sampling.
A minimum of 3 well volumes.
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".
GROUNDWATER MURKY, VERY STRONG ODOR. COLLECTED SAMPLE FOR BTEX.

TOC 1.83

45.73
39.34
6.39

3.2

TO FR/GS 43.90

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:	MW #1	Date Reported:	09-15-93
Laboratory Number:	6085	Date Sampled:	09-11-93
Sample Matrix:	Water	Date Received:	09-11-93
Preservative:	HgCl and Cool	Date Analyzed:	09-15-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	54	2.5
Toluene	4,980	3.0
Ethylbenzene	920	1.0
p,m-Xylene	4,000	1.5
o-Xylene	2,420	1.0

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	101 %
Bromofluorobenzene	100 %

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

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

ND - Parameter not detected at the stated detection limit.

Comments: Abrams J #1 Separator Pit C4279

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:	NA	Project #:	NA
Sample ID:	Laboratory Blank	Date Reported:	09-13-93
Laboratory Number:	0913am.blk	Date Sampled:	NA
Sample Matrix:	Water	Date Received:	NA
Preservative:	NA	Date Analyzed:	09-13-93
Condition:	NA	Analysis Requested:	BTEX

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

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	95 %
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:

Analyst

Review

3004

CHAIN OF CUSTODY RECORD

C4279

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

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)						Remarks
MW #1	9/11/93	1335	6085	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	9/13/93	0725	[signature]	9-13-93	07.30
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 2489

ABRAMS J # 1
UNIT I, SEC. 29, T29N, R10W

LABORATORY (S) USED : ANAITAS

Date : June 11, 1996

SAMPLER : REO

Filename : 06-11-96.WK3

PROJECT MANAGER : REO

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	96.48	51.31	45.17	–	–	–	–	–	0.58
2	94.34	52.04	42.30	49.70	0900	7.5	600	2.00	–
3	95.81	51.23	44.58	–	–	–	–	–	0.33

NOTES : Volume of water purged from well prior to sampling; V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

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 ".

Factor in free phase product – water elevation S6 = 0.7 product :

MW # 1 = 51.72', MW # 3 = 51.46'.

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	06/20/96
Sample ID:	MW - 2	Date Sampled:	06/11/96
Lab ID:	3905	Date Received:	06/11/96
Sample Matrix:	Water	Date Analyzed:	06/19/96
Preservative:	Cool, HgCl2		
Condition:	Intact		

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%
Bromofluorobenzene	102	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality
Blagg Engineering, Inc.

Project ID:	Abrams J 1	Date Reported:	06/21/96
Sample ID:	MW - 2	Date Sampled:	06/11/96
Laboratory ID:	3905	Time Sampled:	9:00
Sample Matrix:	Water	Date Received:	06/11/96

Parameter		Analytical Result	Units
General	Lab pH	7.8	s.u.
	Lab Conductivity @ 25° C	669	µmhos/cm
	Total Dissolved Solids @ 180°C	435	mg/L
	Total Dissolved Solids (Calc)	425	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	5.00	mg/L
	Sulfate	90.5	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	189	mg/L
	Calcium	67.8	mg/L
	Magnesium	4.84	mg/L
	Potassium	< 5.0	mg/L
	Sodium	84.0	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	1.95	+/- 2 %
	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

ANAITAS
ENVIRONMENTAL LABS

June 21, 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 sample received June 11, 1996. The sample was from the Abrams J 1 site. Analyses for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) and general water quality parameters were performed on the sample, 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 btex analytes were not found in the sample, as reported.

Water parameters were determined for the sample 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,

Denise A. Bohemier
Lab Director

807 SOUTH CARLTON • FARMINGTON, NM 87401 • (505) 326-2395 PH • 326-2486 FAX

PURGEABLE AROMATICS

Quality Control Report

Method Blank Analysis

Sample Matrix:	Water	Report Date:	06/20/96
Lab ID:	MB35235	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:

Surrogate	Percent Recovery	Acceptance Limits
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	Report Date:	06/20/96
Sample Matrix:	Water	Date Sampled:	06/05/96
Preservative:	Cool, $HgCl_2$	Date Received:	06/05/96
Condition:	Intact	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.

	Surrogate	Percent Recovery	Acceptance Limits
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	Report Date:	06/20/96
Sample Matrix:	Water	Date Sampled:	06/05/96
Preservative:	Cool, $HgCl_2$	Date Received:	06/05/96
Condition:	Intact	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:

Surrogate	Percent Recovery	Acceptance Limits
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

General Water Quality

Quality Control Report

Blagg Engineering, Inc.

Report Date: 6/21/96

Parameter	Analytical Result	Certified Value	Acceptance Range	Units
Laboratory pH	9.07	9.09	8.89 - 9.29	s.u.
Conductivity	1295	1220	1040 - 1400	µmhos/cm
Total Dissolved Solids	960	913	794 - 1030	mg/L
Total Alkalinity	191	180	160 - 200	mg/L
Chloride	135	138	128 - 148	mg/L
Sulfate	115	124	107 - 141	mg/L
Total Hardness	253	254	218 - 290	mg/L
Calcium	57.8	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

ANAITAS ENVIRONMENTAL LABS

807 S. CARLTON • FARMINGTON, NM 87401 • (505) 326-2395

CHAIN OF CUSTODY

PROJECT MANAGER:
Anaitas Lab I.D.:

Company: BLAGG
Address:

Phone: 632-1199
Fax:

Bill To: SAME
Company:
Address:

Sample ID	Date	Time	Matrix	Lab ID	Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HCs BTEX/MTBE (602 / 8020)	Chlorinated Hydrocarbons (8010)	SDWA Volatiles (502.1 / 503.1)	Chlorinated Pesticides / PCBs (608 / 8080)	Herbicides (615 / 8150)	Volatiles GC/MS (624 / 8240 / 8260)	Base / Neutral / Acid GC/MS (625 / 8270)	Polynuclear Aromatic Hydrocarbons (8100)	TCLP Extraction	Other (specify):	Cation / Anion	Specific Cations (specify):	Specific Anions (specify):	BOD / Fecal / Total Coliform	Solids: TDS / TSS / SS	Nutrients: NH4+ / NO2- / NO3- / TKN	Oil and Grease	Other (specify):	Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):	COMMENTS
MW-2	6-11	0900	WATER					✓										✓												

Project Information	Sample Receipt
Proj. #:	No. Containers:
Proj. Name: AMOCO	Custody Seals: Y / N / NA
P. O. No:	Received Intact:
Shipped Via: DEL'D	Received Cold:

Required Turnaround Time (Prior Authorization Required for Rush)

ABRAMS J 1

Sampled By:	Relinquished By:	Relinquished By:
Signature: RW Date: 6-11-96	Signature: RW Date: 6-11-96	Signature: Date:
Company: BEI Time: —	Company: BEI Time: 1430	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature: Date:	Signature: Date:	Signature: Date: 6/11/96
Company: Time:	Company: Time:	Company: Anaitas Time: 14:30

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Anaitas
Pink: Client

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 2260

ABRAMS J # 1
UNIT I, SEC. 29, T29N, R10W

LABORATORY (S) USED : ANAITAS

Date : August 16, 1996

SAMPLER : NJV

Filename : 08-16-96.WK3

PROJECT MANAGER : REO

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	96.48	–	–	45.73	–	–	–	–	–
2	94.38	–	–	50.00	–	–	–	–	–
3	95.83	–	–	50.00	–	–	–	–	–
4	95.91	52.16	43.75	50.00	0745	–	–	3.30	–
5	97.78	52.50	45.28	50.00	1030	–	–	2.00	–
6	96.61	–	–	50.00	–	–	–	–	–
7	95.62	52.30	43.32	50.00	0850	–	–	3.50	–
8	DRY HOLE – SAND OBSERVED IN ANNULAR								
9	96.54	51.95	44.59	50.00	0955	–	–	2.75	–
10	97.28	52.57	44.71	50.00	1120	–	–	2.80	–
11	98.61	52.85	45.76	50.00	0925	–	–	2.25	–

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

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 ".

MW #'s 4, 9, & 10 – poor recovery, # 5 – very poor . Collected BTEX for MW #'s 4, 5, 7, 9, 10, & 11 .

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	08/23/96
Sample ID:	MW - 4	Date Sampled:	08/16/96
Lab ID:	4741	Date Received:	08/16/96
Sample Matrix:	Water	Date Analyzed:	08/21/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	0.56	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50
Total BTEX	**0.56**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	102	88 - 110%
Bromofluorobenzene	97	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	08/23/96
Sample ID:	MW - 5	Date Sampled:	08/16/96
Lab ID:	4745	Date Received:	08/16/96
Sample Matrix:	Water	Date Analyzed:	08/21/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	553	50.0
Toluene	1,300	50.0
Ethylbenzene	74.3	5.00
m,p-Xylenes	914	100
o-Xylene	163	5.00
Total BTEX	**3,010**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	97	88 - 110%
Bromofluorobenzene	99	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	08/23/96
Sample ID:	MW - 7	Date Sampled:	08/16/96
Lab ID:	4742	Date Received:	08/16/96
Sample Matrix:	Water	Date Analyzed:	08/21/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

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	99	88 - 110%
Bromofluorobenzene	99	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	08/23/96
Sample ID:	MW - 9	Date Sampled:	08/16/96
Lab ID:	4744	Date Received:	08/16/96
Sample Matrix:	Water	Date Analyzed:	08/21/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	74.8	5.00
Toluene	ND	5.00
Ethylbenzene	ND	5.00
m,p-Xylenes	ND	10.0
o-Xylene	ND	5.00
Total BTEX	**74.8**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	101	88 - 110%
Bromofluorobenzene	99	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	08/23/96
Sample ID:	MW - 10	Date Sampled:	08/16/96
Lab ID:	4746	Date Received:	08/16/96
Sample Matrix:	Water	Date Analyzed:	08/21/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	1,600	125
Toluene	6,280	125
Ethylbenzene	511	25.0
m,p-Xylenes	5,070	250
o-Xylene	1,120	25.0
Total BTEX	**14,600**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
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

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	08/23/96
Sample ID:	MW - 11	Date Sampled:	08/16/96
Lab ID:	4743	Date Received:	08/16/96
Sample Matrix:	Water	Date Analyzed:	08/21/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

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	102	88 - 110%
Bromofluorobenzene	98	86 - 115%

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

Comments:

Analyst

Review

ANAITAS
ENVIRONMENTAL LABS

August 23, 1996

Nelson Velez
Blagg Engineering, Inc.
PO Box 87
Bloomfield, NM 87413

Dear Mr. Velez:

Enclosed are the results for the analysis of the samples received August 16, 1996. The samples were from the Abrams J1 location. 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 samples 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 btex 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,

Denise A. Bohemier
Lab Director

807 SOUTH CARLTON • FARMINGTON, NM 87401• (505) 326-2395 PH • 326-2486 FAX

PURGEABLE AROMATICS
Quality Control Report

Method Blank Analysis

Sample Matrix: Water
Lab ID: MB35298

Report Date: 08/23/96
Date Analyzed: 08/21/96

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:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	100	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:	4744Dup	Report Date:	08/23/96
Sample Matrix:	Water	Date Sampled:	08/16/96
Preservative:	Cool, $HgCl_2$	Date Received:	08/16/96
Condition:	Intact	Date Analyzed:	08/21/96

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	74.8	72.9	59.4 - 88.4
Toluene	3.43	5.11	2.54 - 6.00
Ethylbenzene	ND	ND	NA
m,p-Xylenes	ND	ND	NE
o-Xylene	ND	ND	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.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	Trifluorotoluene	99	88 - 110%
	Bromofluorobenzene	97	86 - 115%

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

Comments:

Analyst

Review

Purgeable Aromatics

Matrix Spike Analysis

Lab ID:	4741Spk	Report Date:	08/23/96
Sample Matrix:	Water	Date Sampled:	08/16/96
Preservative:	Cool, HgCl2	Date Received:	08/16/96
Condition:	Intact	Date Analyzed:	08/21/96

Target Analyte	Spike Added (ug/L)	Original Conc. (ug/L)	Spiked Sample Conc. (ug/L)	% Recovery	Acceptance Limits (%)
Benzene	10	ND	10.1	100%	39 -150
Toluene	10	0.56	10.7	101%	46 - 148
Ethylbenzene	10	ND	10.3	102%	32 - 160
m,p-Xylenes	20	ND	20.8	102%	NE
o-Xylene	10	ND	10.4	102%	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:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	96	88 - 110%
Bromofluorobenzene	99	86 - 115%

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

Comments:

Analyst

Review

2260

ANAITAS ENVIRONMENTAL LABS

807 S. CARLTON • FARMINGTON, NM 87401 • (505) 326-2395

CHAIN OF CUSTODY

Page 1 of 1

PROJECT MANAGER:
Anaitas Lab I.D.:

Company: BLAGG
Address:

Phone:
Fax:

Bill To: SAME AS ABOVE
Company:
Address:

Sample ID	Date	Time	Matrix	Lab ID	Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HCs (BTEX/MTBE (602 (8020))	Chlorinated Hydrocarbons (8010)	SDWA Volatiles (502.1 / 503.1)	Chlorinated Pesticides / PCBs (608 / 8080)	Herbicides (615 / 8150)	Volatiles GC/MS (624 / 8240 / 8260)	Base / Neutral / Acid GC/MS (625 / 8270)	Polynuclear Aromatic Hydrocarbons (8100)	TCLP Extraction	Other (specify):	Cation / Anion	Specific Cations (specify):	Specific Anions (specify):	BOD / Fecal / Total Coliform	Solids: TDS / TSS / SS	Nutrients: NH4+ / NO2- / NO3- / TKN	Oil and Grease	Other (specify):	Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):
MW #4	8/16/96	0745	WATER	4741				✓																					
MW #7	8/16/96	0850	WATER	4742				✓																					
MW #11	8/16/96	0925	WATER	4743				✓																					
MW #9	8/16/96	0955	WATER	4744				✓																					
MW #5	8/16/96	1030	WATER	4745				✓																					
MW #10	8/16/96	1120	WATER	4746				✓																					

ORGANIC ANALYSES | WATER ANALYSES | METALS

COMMENTS: ALL SAMPLES PRESERV. - $HgCl_2$ & COOL

Project Information	Sample Receipt
Proj. #:	No. Containers:
Proj. Name: ABRAMS J#1	Custody Seals: Y / N / NA
P. O. No:	Received Intact:
Shipped Via:	Received Cold:

Required Turnaround Time (Prior Authorization Required for Rush)

Sampled By:	Relinquished By:	Relinquished By:
Signature: [signature] Date: 8/16/96	Signature: [signature] Date: 8/16/96	Signature: Date:
Company: BLAGG Time: SEE SAMPLE ID'S	Company: BLAGG Time: 1151	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature: Date:	Signature: Date:	Signature: [signature] Date: 8/16/96
Company: Time:	Company: Time:	Company: Anaitas Time: 1151

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Anaitas
Pink: Client

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 2132
5177

ABRAMS J # 1
UNIT I, SEC. 29, T29N, R10W

LABORATORY (S) USED : ANAITAS
ENVIROTECH, INC.

Date : April 7, 1997

SAMPLER : N J V

Filename : 04-07-97.WK3

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	96.48	–	–	45.73	–	–	–	–	1.80
2	94.38	51.52	42.86	50.00	0945	7.5	700	3.60	–
3	95.83	–	–	50.00	–	–	–	–	1.55
4	95.91	50.98	44.93	50.00	1145	7.0	2,400	2.50	–
5	97.78	51.34	46.44	50.00	1320	7.0	2,000	1.80	–
6	96.61	–	–	50.00	–	–	–	–	1.15
7	95.62	51.07	44.55	50.00	1025	7.5	700	2.70	–
8R	95.78	50.68	45.10	53.10	1110	7.3	2,200	4.00	–
9	96.54	50.70	45.84	50.00	1215	6.9	3,900	2.10	–
10	97.28	51.40	45.88	50.00	1415	6.9	1,500	2.10	–
11	98.61	51.59	47.02	50.00	0915	7.5	700	1.50	–

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

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 ".

MW #'s 4, 9, 10, & 11 – poor recovery, # 5 – very poor. Collected Anion / Cation &

BTEX samples for each MW + duplicates for MW #'s 9 & 10.

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	04/15/97
Sample ID:	MW - 2	Date Sampled:	04/07/97
Lab ID:	6685	Date Received:	04/07/97
Sample Matrix:	Water	Date Analyzed:	04/10/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

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	102	88 - 110%
Bromofluorobenzene	101	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	04/15/97
Sample ID:	MW - 4	Date Sampled:	04/07/97
Lab ID:	6686	Date Received:	04/07/97
Sample Matrix:	Water	Date Analyzed:	04/10/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

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	101	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	04/15/97
Sample ID:	MW - 5	Date Sampled:	04/07/97
Lab ID:	6687	Date Received:	04/07/97
Sample Matrix:	Water	Date Analyzed:	04/10/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	161	25.0
Toluene	394	25.0
Ethylbenzene	25.6	0.50
m,p-Xylenes	251	50.0
o-Xylene	62.6	25.0
Total BTEX	**894**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	94	88 - 110%
Bromofluorobenzene	97	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	04/15/97
Sample ID:	MW - 7	Date Sampled:	04/07/97
Lab ID:	6688	Date Received:	04/07/97
Sample Matrix:	Water	Date Analyzed:	04/10/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	0.73	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	0.54	0.50
Total BTEX	**1.27**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	102	88 - 110%
Bromofluorobenzene	99	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	04/15/97
Sample ID:	MW - 8R	Date Sampled:	04/07/97
Lab ID:	6689	Date Received:	04/07/97
Sample Matrix:	Water	Date Analyzed:	04/10/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	1.06	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50
Total BTEX	**1.06**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	98	88 - 110%
Bromofluorobenzene	98	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	04/15/97
Sample ID:	MW - 9	Date Sampled:	04/07/97
Lab ID:	6690	Date Received:	04/07/97
Sample Matrix:	Water	Date Analyzed:	04/10/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	341	25.0
Toluene	0.86	0.50
Ethylbenzene	0.64	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50
Total BTEX	**343**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	98	88 - 110%
Bromofluorobenzene	102	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	04/15/97
Sample ID:	MW - 10	Date Sampled:	04/07/97
Lab ID:	6691	Date Received:	04/07/97
Sample Matrix:	Water	Date Analyzed:	04/10/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	1,010	25.0
Toluene	1,940	50.0
Ethylbenzene	66.8	25.0
m,p-Xylenes	396	50.0
o-Xylene	118	25.0
Total BTEX	**3,530**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	98	88 - 110%
Bromofluorobenzene	100	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Abrams J1	Report Date:	04/15/97
Sample ID:	MW - 11	Date Sampled:	04/07/97
Lab ID:	6692	Date Received:	04/07/97
Sample Matrix:	Water	Date Analyzed:	04/10/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

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	103	88 - 110%
Bromofluorobenzene	100	86 - 115%

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

Comments:

Analyst

Review

2132

ANAITAS ENVIRONMENTAL LABS

807 S. CARLTON • FARMINGTON, NM 87401 • (505) 326-2395

CHAIN OF CUSTODY

Page 1 of 1

PROJECT MANAGER:
Anaitas Lab I.D.:

Company: BLAGG
Address:

Phone:
Fax:

Bill To: SAME AS ABOVE
Company:
Address:

Sample ID	Date	Time	Matrix	Lab ID	Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HCs (BTEX/MTBE (602/ 8020)	Chlorinated Hydrocarbons (8010)	SDWA Volatiles (502.1 / 503.1)	Chlorinated Pesticides / PCBs (608 / 8080)	Herbicides (615 / 8150)	Volatiles GC/MS (624 / 8240 / 8260)	Base / Neutral / Acid GC/MS (625 / 8270)	Polynuclear Aromatic Hydrocarbons (8100)	TCLP Extraction	Other (specify):	Cation / Anion	Specific Cations (specify):	Specific Anions (specify):	BOD / Fecal / Total Coliform	Solids: TDS / TSS / SS	Nutrients: NH4+ / NO2– / NO3– / TKN	Oil and Grease	Other (specify):	Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):
MW #2	4/7/97	0945	WATER					✓																					
MW #4	4/7/97	1145	WATER					✓																					
MW #5	4/7/97	1320	WATER					✓																					
MW #7	4/7/97	1025	WATER					✓																					
MW #8R	4/7/97	1110	WATER					✓																					
MW #9	4/7/97	1215	WATER					✓																					
MW #10	4/7/97	1415	WATER					✓																					
MW #11	4/7/97	0915	WATER					✓																					

ORGANIC ANALYSES | WATER ANALYSES | METALS

COMMENTS: ALL SAMPLES PRESERV. WITH $HgCl_2$ & COOL.

Project Information	Sample Receipt
Proj. #:	No. Containers: 16
Proj. Name: ABRAMS J1	Custody Seals: Y / (N) / NA
P. O. No:	Received Intact:
Shipped Via:	Received Cold: Y

Required Turnaround Time (Prior Authorization Required for Rush)

Sampled By:	Relinquished By:	Relinquished By:
Signature / Date: Nelson Velez 4/7/97	Signature / Date: Nelson Velez 4/7/97	Signature / Date:
Company: BLAGG Time: SEE SAMPLE ID	Company: BLAGG Time: 1509	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature / Date:	Signature / Date:	Signature / Date: 4/07/97
Company: Time:	Company: Time:	Company: Anaitas Time: 1510

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Anaitas
Pink: Client

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	MW #9	Date Reported:	04-08-97
Chain of Custody:	5177	Date Sampled:	04-07-97
Laboratory Number:	B081	Date Received:	04-07-97
Sample Matrix:	Water	Date Analyzed:	04-08-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**183**	**1**	**0.2**
Toluene	**0.6**	**1**	**0.2**
Ethylbenzene	**1.0**	**1**	**0.2**
p,m-Xylene	**1.5**	**1**	**0.2**
o-Xylene	**0.9**	**1**	**0.1**
Total BTEX	**187**		

ND - Parameter not detected at the stated detection limit.

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

References: 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. 1994.

Comments: **Abrams J #1.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	MW #10	Date Reported:	04-08-97
Chain of Custody:	5177	Date Sampled:	04-07-97
Laboratory Number:	B082	Date Received:	04-07-97
Sample Matrix:	Water	Date Analyzed:	04-08-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**640**	**10**	**1.8**
Toluene	**739**	**10**	**1.7**
Ethylbenzene	**111**	**10**	**1.5**
p,m-Xylene	**445**	**10**	**2.2**
o-Xylene	**167**	**10**	**1.0**
Total BTEX	**2,100**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**98 %**
	Bromofluorobenzene	**100 %**

References: 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. 1994.

Comments: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	MW #2	Date Reported:	04-10-97
Laboratory Number:	B076	Date Sampled:	04-07-97
Sample Matrix:	Water	Date Received:	04-07-97
Preservative:	Cool	Date Analyzed:	4/7/97 - 4/9/97
Condition:	Cool & Intact	Chain of Custody:	5177

Parameter	Analytical Result	Units		Units
pH	**7.05**	s.u.		
Conductivity @ 25° C	**609**	umhos/cm		
Total Dissolved Solids @ 180C	**375**	mg/L		
Total Dissolved Solids (Calc)	**394**	mg/L		
SAR	**0.10**	ratio		
Total Alkalinity as CaCO3	**268**	mg/L		
Total Hardness as CaCO3	**320**	mg/L		
Bicarbonate as HCO3	**268**	mg/L	4.39	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	**0.011**	mg/L	0.00	meq/L
Chloride	**6.20**	mg/L	0.17	meq/L
Fluoride	**0.56**	mg/L	0.03	meq/L
Phosphate	**<0.1**	mg/L	0.00	meq/L
Sulfate	**99.2**	mg/L	2.07	meq/L
Calcium	**102**	mg/L	5.09	meq/L
Magnesium	**16.0**	mg/L	1.32	meq/L
Potassium	**3.04**	mg/L	0.08	meq/L
Sodium	**4.3**	mg/L	0.19	meq/L
Cations			6.67	meq/L
Anions			6.67	meq/L
Cation/Anion Difference			**0.03%**	

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: **Abrams J #1.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	MW #5	Date Reported:	04-10-97
Laboratory Number:	B078	Date Sampled:	04-07-97
Sample Matrix:	Water	Date Received:	04-07-97
Preservative:	Cool	Date Analyzed:	4/7/97 - 4/9/97
Condition:	Cool & Intact	Chain of Custody:	5177

Parameter	Analytical Result	Units		Units
pH	**6.47**	s.u.		
Conductivity @ 25° C	**2,980**	umhos/cm		
Total Dissolved Solids @ 180C	**1,460**	mg/L		
Total Dissolved Solids (Calc)	**1,487**	mg/L		
SAR	**5.85**	ratio		
Total Alkalinity as CaCO3	**392**	mg/L		
Total Hardness as CaCO3	**492**	mg/L		
Bicarbonate as HCO3	**392**	mg/L	6.42	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**4.3**	mg/L	0.07	meq/L
Nitrite Nitrogen	**0.074**	mg/L	0.00	meq/L
Chloride	**46.0**	mg/L	1.30	meq/L
Fluoride	**0.71**	mg/L	0.04	meq/L
Phosphate	**<0.1**	mg/L	0.00	meq/L
Sulfate	**729**	mg/L	15.18	meq/L
Calcium	**124**	mg/L	6.19	meq/L
Magnesium	**44.0**	mg/L	3.62	meq/L
Potassium	**3.46**	mg/L	0.09	meq/L
Sodium	**298**	mg/L	12.96	meq/L
Cations			22.86	meq/L
Anions			23.01	meq/L
Cation/Anion Difference			**0.65%**	

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: **Abrams J #1.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	MW #4	Date Reported:	04-10-97
Laboratory Number:	B077	Date Sampled:	04-07-97
Sample Matrix:	Water	Date Received:	04-07-97
Preservative:	Cool	Date Analyzed:	4/7/97 - 4/9/97
Condition:	Cool & Intact	Chain of Custody:	5177

Parameter	Analytical Result	Units		Units
pH	**6.76**	s.u.		
Conductivity @ 25° C	**5,637**	umhos/cm		
Total Dissolved Solids @ 180C	**2,780**	mg/L		
Total Dissolved Solids (Calc)	**2,815**	mg/L		
SAR	**14.35**	ratio		
Total Alkalinity as CaCO3	**438**	mg/L		
Total Hardness as CaCO3	**500**	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	**3.9**	mg/L	0.06	meq/L
Nitrite Nitrogen	**0.023**	mg/L	0.00	meq/L
Chloride	**75.6**	mg/L	2.13	meq/L
Fluoride	**0.88**	mg/L	0.05	meq/L
Phosphate	**0.2**	mg/L	0.01	meq/L
Sulfate	**1,565**	mg/L	32.58	meq/L
Calcium	**105**	mg/L	5.24	meq/L
Magnesium	**57.0**	mg/L	4.69	meq/L
Potassium	**6.27**	mg/L	0.16	meq/L
Sodium	**735**	mg/L	31.97	meq/L
Cations			42.06	meq/L
Anions			42.01	meq/L
Cation/Anion Difference			**0.12%**	

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: **Abrams J #1.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	MW #7	Date Reported:	04-10-97
Laboratory Number:	B079	Date Sampled:	04-07-97
Sample Matrix:	Water	Date Received:	04-07-97
Preservative:	Cool	Date Analyzed:	4/7/97 - 4/9/97
Condition:	Cool & Intact	Chain of Custody:	5177

Parameter	Analytical Result	Units		Units
pH	**7.01**	s.u.		
Conductivity @ 25° C	**831**	umhos/cm		
Total Dissolved Solids @ 180C	**404**	mg/L		
Total Dissolved Solids (Calc)	**414**	mg/L		
SAR	**0.47**	ratio		
Total Alkalinity as CaCO3	**267**	mg/L		
Total Hardness as CaCO3	**299**	mg/L		
Bicarbonate as HCO3	**267**	mg/L	4.38	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**0.8**	mg/L	0.01	meq/L
Nitrite Nitrogen	**0.008**	mg/L	0.00	meq/L
Chloride	**4.2**	mg/L	0.12	meq/L
Fluoride	**0.67**	mg/L	0.04	meq/L
Phosphate	**0.1**	mg/L	0.00	meq/L
Sulfate	**113**	mg/L	2.35	meq/L
Calcium	**97.0**	mg/L	4.84	meq/L
Magnesium	**14.0**	mg/L	1.15	meq/L
Potassium	**3.34**	mg/L	0.09	meq/L
Sodium	**18.9**	mg/L	0.82	meq/L
Cations			6.90	meq/L
Anions			6.90	meq/L
Cation/Anion Difference			**0.02%**	

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: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	MW #8R	Date Reported:	04-10-97
Laboratory Number:	B080	Date Sampled:	04-07-97
Sample Matrix:	Water	Date Received:	04-07-97
Preservative:	Cool	Date Analyzed:	4/7/97 - 4/9/97
Condition:	Cool & Intact	Chain of Custody:	5177

Parameter	Analytical Result	Units		Units
pH	**6.99**	s.u.		
Conductivity @ 25° C	**4,875**	umhos/cm		
Total Dissolved Solids @ 180C	**2,410**	mg/L		
Total Dissolved Solids (Calc)	**2,439**	mg/L		
SAR	**11.33**	ratio		
Total Alkalinity as CaCO3	**312**	mg/L		
Total Hardness as CaCO3	**483**	mg/L		
Bicarbonate as HCO3	**312**	mg/L	5.11	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**2.0**	mg/L	0.03	meq/L
Nitrite Nitrogen	**0.021**	mg/L	0.00	meq/L
Chloride	**25.5**	mg/L	0.72	meq/L
Fluoride	**1.09**	mg/L	0.06	meq/L
Phosphate	**0.1**	mg/L	0.00	meq/L
Sulfate	**1,440**	mg/L	29.98	meq/L
Calcium	**138**	mg/L	6.89	meq/L
Magnesium	**36.0**	mg/L	2.96	meq/L
Potassium	**29.2**	mg/L	0.75	meq/L
Sodium	**578**	mg/L	25.14	meq/L
Cations			35.74	meq/L
Anions			35.91	meq/L
Cation/Anion Difference			**0.47%**	

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: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	MW #9	Date Reported:	04-10-97
Laboratory Number:	B081	Date Sampled:	04-07-97
Sample Matrix:	Water	Date Received:	04-07-97
Preservative:	Cool	Date Analyzed:	4/7/97 - 4/9/97
Condition:	Cool & Intact	Chain of Custody:	5177

Parameter	Analytical Result	Units		Units
pH	**6.68**	s.u.		
Conductivity @ 25° C	**12,800**	umhos/cm		
Total Dissolved Solids @ 180C	**6,360**	mg/L		
Total Dissolved Solids (Calc)	**6,397**	mg/L		
SAR	**39.75**	ratio		
Total Alkalinity as CaCO3	**498**	mg/L		
Total Hardness as CaCO3	**440**	mg/L		
Bicarbonate as HCO3	**498**	mg/L	8.16	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**0.1**	mg/L	0.00	meq/L
Nitrite Nitrogen	**0.006**	mg/L	0.00	meq/L
Chloride	**33.0**	mg/L	0.93	meq/L
Fluoride	**1.32**	mg/L	0.07	meq/L
Phosphate	**0.3**	mg/L	0.01	meq/L
Sulfate	**3,995**	mg/L	83.18	meq/L
Calcium	**78.0**	mg/L	3.89	meq/L
Magnesium	**60.0**	mg/L	4.94	meq/L
Potassium	**7.35**	mg/L	0.19	meq/L
Sodium	**1,920**	mg/L	83.52	meq/L
Cations			92.54	meq/L
Anions			92.35	meq/L
Cation/Anion Difference			**0.20%**	

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: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	MW #10	Date Reported:	04-10-97
Laboratory Number:	B082	Date Sampled:	04-07-97
Sample Matrix:	Water	Date Received:	04-07-97
Preservative:	Cool	Date Analyzed:	4/7/97 - 4/9/97
Condition:	Cool & Intact	Chain of Custody:	5177

Parameter	Analytical Result	Units		Units
pH	**6.52**	s.u.		
Conductivity @ 25° C	**2,330**	umhos/cm		
Total Dissolved Solids @ 180C	**1,150**	mg/L		
Total Dissolved Solids (Calc)	**1,164**	mg/L		
SAR	**3.29**	ratio		
Total Alkalinity as CaCO3	**478**	mg/L		
Total Hardness as CaCO3	**471**	mg/L		
Bicarbonate as HCO3	**478**	mg/L	7.83	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**1.1**	mg/L	0.02	meq/L
Nitrite Nitrogen	**0.048**	mg/L	0.00	meq/L
Chloride	**42.2**	mg/L	1.19	meq/L
Fluoride	**0.73**	mg/L	0.04	meq/L
Phosphate	**0.2**	mg/L	0.01	meq/L
Sulfate	**434**	mg/L	9.04	meq/L
Calcium	**141**	mg/L	7.04	meq/L
Magnesium	**29.0**	mg/L	2.39	meq/L
Potassium	**61.3**	mg/L	1.57	meq/L
Sodium	**164**	mg/L	7.13	meq/L
Cations			18.12	meq/L
Anions			18.12	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: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	MW #11	Date Reported:	04-10-97
Laboratory Number:	B083	Date Sampled:	04-07-97
Sample Matrix:	Water	Date Received:	04-07-97
Preservative:	Cool	Date Analyzed:	4/7/97 - 4/9/97
Condition:	Cool & Intact	Chain of Custody:	5177

Parameter	Analytical Result	Units		Units
pH	**6.52**	s.u.		
Conductivity @ 25° C	**695**	umhos/cm		
Total Dissolved Solids @ 180C	**330**	mg/L		
Total Dissolved Solids (Calc)	**315**	mg/L		
SAR	**0.26**	ratio		
Total Alkalinity as CaCO3	**284**	mg/L		
Total Hardness as CaCO3	**367**	mg/L		
Bicarbonate as HCO3	**284**	mg/L	4.65	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	**0.002**	mg/L	0.00	meq/L
Chloride	**5.10**	mg/L	0.14	meq/L
Fluoride	**0.48**	mg/L	0.03	meq/L
Phosphate	**0.2**	mg/L	0.01	meq/L
Sulfate	**30.2**	mg/L	0.63	meq/L
Calcium	**89.0**	mg/L	4.44	meq/L
Magnesium	**7.04**	mg/L	0.58	meq/L
Potassium	**1.07**	mg/L	0.03	meq/L
Sodium	**9.60**	mg/L	0.42	meq/L
Cations			5.47	meq/L
Anions			5.47	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: **Abrams J #1.**

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5177

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLAGG/AMOCO	ABRAMS J#1

Sampler: (Signature)	Chain of Custody Tape No.
Nelson Velez	04034

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	ANALYSIS/PARAMETERS: Anion/ Cation	BTEX (8020)					Remarks: ALL SAMPLES - PRESERV. COOL
MW #2	4/7/97	0945	B076	WATER	1	✓						
MW #4	4/7/97	1145	B077	WATER	1	✓						
MW #5	4/7/97	1320	B078	WATER	1	✓						
MW #7	4/7/97	1025	B079	WATER	1	✓						
MW #8R	4/7/97	1110	B080	WATER	1	✓						
MW #9	4/7/97	1215	B081	WATER	3	✓	✓					ALSO PRESERV. w/ $HgCl_2$
MW #10	4/ /97	1415	B082	WATER	3	✓	✓					ALSO PRESERV. w/ $HgCl_2$
MW #11	4/7/97	0915	B083 ~~WATER~~	WATER	1	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	4/7/97	1456	Glenna L. Querna	4/7/97	1456
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.
5796 U.S. Highway 64-3014
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BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5094

ABRAMS J # 1
UNIT I, SEC. 29, T29N, R10W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : May 19, 1997

SAMPLER : N J V

Filename : 05-19-97.WK3

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	96.48	–	–	45.73	–	–	–	–	–
2	94.38	51.25	43.13	50.00	1425	–	–	3.50	NA
3	95.83	–	–	50.00	–	–	–	–	–
4	95.91	–	–	50.00	–	–	–	–	–
5	97.78	–	–	50.00	–	–	–	–	–
6	96.61	–	–	50.00	–	–	–	–	–
7	95.62	–	–	50.00	–	–	–	–	–
8R	95.78	50.68	45.10	55.20	1500	–	–	5.00	NA
9	96.54	–	–	50.00	–	–	–	–	–
10	97.28	51.08	46.20	50.00	1340	–	–	0.75	NA
11	98.61	–	–	50.00	–	–	–	–	–

NOTES : Volume of water purged from well prior to sampling; V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

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 ".

MW # 10 – very poor recovery. BTEX samples for MW #'s 2, 8R, & 10.

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #2	Date Reported:	05-20-97
Chain of Custody:	5094	Date Sampled:	05-19-97
Laboratory Number:	B258	Date Received:	05-20-97
Sample Matrix:	Water	Date Analyzed:	05-20-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

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

ND - Parameter not detected at the stated detection limit.

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

References: 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. 1994.

Comments: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #8R	Date Reported:	05-20-97
Chain of Custody:	5094	Date Sampled:	05-19-97
Laboratory Number:	B259	Date Received:	05-20-97
Sample Matrix:	Water	Date Analyzed:	05-20-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**0.3**	**1**	**0.2**
Ethylbenzene	**0.3**	**1**	**0.2**
p,m-Xylene	**1.2**	**1**	**0.2**
o-Xylene	**0.4**	**1**	**0.1**
Total BTEX	**2.2**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**98 %**
	Bromofluorobenzene	**99 %**

References: 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. 1994.

Comments: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #10	Date Reported:	05-20-97
Chain of Custody:	5094	Date Sampled:	05-19-97
Laboratory Number:	B260	Date Received:	05-20-97
Sample Matrix:	Water	Date Analyzed:	05-20-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.5**	**1**	**0.2**
Toluene	**23.8**	**1**	**0.2**
Ethylbenzene	**152**	**1**	**0.2**
p,m-Xylene	**374**	**1**	**0.2**
o-Xylene	**378**	**1**	**0.1**
Total BTEX	**928**		

ND - Parameter not detected at the stated detection limit.

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

References: 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. 1994.

Comments: **Abrams J #1.**

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CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG/AMOCO	ABRAMS J #1	
Sampler: (Signature) Nelson Velez	Chain of Custody Tape No. 04034-10	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)						Remarks
												PRESERV. - COOL & $HgCl_2$
MW #2	5/19/97	1425	B258	WATER	2	✓						↓
MW #8R	5/19/97	1500	B259	WATER	2	✓						
MW #10	5/19/97	1340	B260	WATER	2	✓						

Samples received cool & intact DM

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	5/20/97	0712	[signature]	5/20/97	0712
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5125

ABRAMS J # 1
UNIT I, SEC. 29, T29N, R10W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : June 27, 1997

SAMPLER : N J V

Filename : 06-27-97.WK3

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	96.48	–	–	45.73	–	–	–	–	0.70
2	94.38	–	–	50.00	–	–	–	–	–
3	95.83	–	–	50.00	–	–	–	–	1.10
4	95.91	50.82	45.09	50.00	1115	6.7	2,100	2.50	–
5	97.78	51.60	46.18	50.00	1310	6.9	1,800	2.00	–
6	96.61	–	–	50.00	–	–	–	–	1.25
7	95.62	–	–	50.00	–	–	–	–	–
8R	95.78	50.69	45.09	53.10	1040	7.3	1,800	5.10	–
9	96.54	50.68	45.86	50.00	1150	6.9	3,800	2.10	–
10	97.28	50.63	46.65	50.00	1230	6.9	1,600	1.75	–
11	98.61	98.61	–	50.00	–	–	–	–	–

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 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 ".

MW #'s 4, 9, & 10 – poor recovery, # 5 – very poor. Collected BTEX samples for each MW & checked MW's # 1, # 3, & # 6 for free product .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #4	Date Reported:	07-01-97
Chain of Custody:	5125	Date Sampled:	06-27-97
Laboratory Number:	B549	Date Received:	06-27-97
Sample Matrix:	Water	Date Analyzed:	06-30-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**139**	**1**	**0.2**
Toluene	**1.6**	**1**	**0.2**
Ethylbenzene	**1.6**	**1**	**0.2**
p,m-Xylene	**7.9**	**1**	**0.2**
o-Xylene	**1.5**	**1**	**0.1**
Total BTEX	**152**		

ND - Parameter not detected at the stated detection limit.

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

References: 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. 1994.

Comments: **Abrams J 1.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #5	Date Reported:	07-01-97
Chain of Custody:	5125	Date Sampled:	06-27-97
Laboratory Number:	B552	Date Received:	06-27-97
Sample Matrix:	Water	Date Analyzed:	06-30-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**286**	**10**	**1.8**
Toluene	**474**	**10**	**1.7**
Ethylbenzene	**238**	**10**	**1.5**
p,m-Xylene	**388**	**10**	**2.2**
o-Xylene	**104**	**10**	**1.0**
Total BTEX	**1,490**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**97 %**
	Bromofluorobenzene	**99 %**

References: 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. 1994.

Comments: **Abrams J 1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #8R	Date Reported:	07-01-97
Chain of Custody:	5125	Date Sampled:	06-27-97
Laboratory Number:	B548	Date Received:	06-27-97
Sample Matrix:	Water	Date Analyzed:	06-30-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**0.2**	**1**	**0.2**
p,m-Xylene	**0.5**	**1**	**0.2**
o-Xylene	**0.2**	**1**	**0.1**
Total BTEX	**0.9**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**96 %**
	Bromofluorobenzene	**100 %**

References: 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. 1994.

Comments: **Abrams J 1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #9	Date Reported:	07-01-97
Chain of Custody:	5125	Date Sampled:	06-27-97
Laboratory Number:	B550	Date Received:	06-27-97
Sample Matrix:	Water	Date Analyzed:	06-30-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**48.6**	**1**	**0.2**
Toluene	**0.2**	**1**	**0.2**
Ethylbenzene	**0.2**	**1**	**0.2**
p,m-Xylene	**0.8**	**1**	**0.2**
o-Xylene	**0.2**	**1**	**0.1**
Total BTEX	**50.0**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**96 %**
	Bromofluorobenzene	**99 %**

References: 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. 1994.

Comments: **Abrams J 1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #10	Date Reported:	07-01-97
Chain of Custody:	5125	Date Sampled:	06-27-97
Laboratory Number:	B551	Date Received:	06-27-97
Sample Matrix:	Water	Date Analyzed:	06-30-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**5.0**	**1**	**0.2**
Toluene	**0.5**	**1**	**0.2**
Ethylbenzene	**7.1**	**1**	**0.2**
p,m-Xylene	**31.6**	**1**	**0.2**
o-Xylene	**25.0**	**1**	**0.1**
Total BTEX	**69.2**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**98 %**
	Bromofluorobenzene	**99 %**

References: 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. 1994.

Comments: **Abrams J 1.**

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CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG / AMOCO	ABRAMS J1	

Sampler: (Signature)	Chain of Custody Tape No.
Nelson Velez	04034-10

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)						Remarks
MW # 8R	6/27/97	1040	B548	WATER	2	✓						ALL SAMPLES
MW # 4	6/27/97	1115	B549	WATER	2	✓						PRESERV. - COOL &
MW # 9	6/27/97	1150	B550	WATER	2	✓						w/ $HgCl_2$
MW # 10	6/27/97	1230	B551	WATER	2	✓						
MW # 5	6/27/97	1310	B552	WATER	2	✓						
				Samples received cool & intact								

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	6/27/97	1443	Glenn L. Spencer	6-27-97	1443
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5415

ABRAMS J # 1
UNIT I, SEC. 29, T29N, R10W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : Sept. 15, 1997

SAMPLER : N J V

Filename : 09-15-97.WK3

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	96.48	–	–	45.73	–	–	–	–	0.01
2	94.38	51.93	42.45	50.00	0945	7.6	600	2.75	–
3	95.83	–	–	50.00	–	–	–	–	0.01
4	95.91	51.53	44.38	50.00	1240	7.1	2,100	2.75	–
5	97.78	51.83	45.95	50.00	1500	7.2	1,900	2.00	–
6	96.61	–	–	50.00	–	–	–	–	0.05
7	95.62	51.74	43.88	50.00	1020	7.2	800	3.00	–
8R	95.78	51.46	44.32	53.10	1140	7.3	1,700	4.30	–
9	96.54	51.45	45.09	50.00	1320	6.9	1,800	2.40	–
10	97.28	51.89	45.39	50.00	1415	6.9	1,400	2.25	–
11	98.61	98.61	–	50.00	–	–	–	–	–

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 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 ".

MW #'s 4, 9, & 10 – poor recovery, # 5 – very poor. Collected BTEX samples for each MW & checked MW's # 1, # 3, & # 6 for free product .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #2	Date Reported:	09-17-97
Chain of Custody:	5415	Date Sampled:	09-15-97
Laboratory Number:	C038	Date Received:	09-16-97
Sample Matrix:	Water	Date Analyzed:	09-16-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**0.3**	**1**	**0.2**
p,m-Xylene	**0.4**	**1**	**0.2**
o-Xylene	**0.2**	**1**	**0.1**
Total BTEX	**0.9**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**97 %**
	Bromofluorobenzene	**97 %**

References: 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. 1994.

Comments: **ABRAMS J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #4	Date Reported:	09-17-97
Chain of Custody:	5415	Date Sampled:	09-15-97
Laboratory Number:	C041	Date Received:	09-16-97
Sample Matrix:	Water	Date Analyzed:	09-16-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**8.3**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**1.0**	**1**	**0.2**
o-Xylene	**0.1**	**1**	**0.1**
Total BTEX	**9.4**		

ND - Parameter not detected at the stated detection limit.

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

References: 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. 1994.

Comments: **ABRAMS J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #5	Date Reported:	09-17-97
Chain of Custody:	5415	Date Sampled:	09-15-97
Laboratory Number:	C044	Date Received:	09-16-97
Sample Matrix:	Water	Date Analyzed:	09-16-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**5.9**	**1**	**0.2**
Toluene	**5.8**	**1**	**0.2**
Ethylbenzene	**1.1**	**1**	**0.2**
p,m-Xylene	**34.3**	**1**	**0.2**
o-Xylene	**8.2**	**1**	**0.1**
Total BTEX	**55.3**		

ND - Parameter not detected at the stated detection limit.

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

References: 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. 1994.

Comments: **ABRAMS J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #7	Date Reported:	09-17-97
Chain of Custody:	5415	Date Sampled:	09-15-97
Laboratory Number:	C039	Date Received:	09-16-97
Sample Matrix:	Water	Date Analyzed:	09-16-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**0.3**	**1**	**0.2**
o-Xylene	**0.2**	**1**	**0.1**
Total BTEX	**0.5**		

ND - Parameter not detected at the stated detection limit.

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

References: 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. 1994.

Comments: **ABRAMS J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #8R	Date Reported:	09-17-97
Chain of Custody:	5415	Date Sampled:	09-15-97
Laboratory Number:	C040	Date Received:	09-16-97
Sample Matrix:	Water	Date Analyzed:	09-16-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

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

ND - Parameter not detected at the stated detection limit.

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

References: 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. 1994.

Comments: **ABRAMS J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #9	Date Reported:	09-17-97
Chain of Custody:	5415	Date Sampled:	09-15-97
Laboratory Number:	C043	Date Received:	09-16-97
Sample Matrix:	Water	Date Analyzed:	09-16-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**113**	**1**	**0.2**
Toluene	**0.8**	**1**	**0.2**
Ethylbenzene	**1.4**	**1**	**0.2**
p,m-Xylene	**18.7**	**1**	**0.2**
o-Xylene	**1.6**	**1**	**0.1**
Total BTEX	**136**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**97 %**
	Bromofluorobenzene	**97 %**

References: 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. 1994.

Comments: **ABRAMS J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #10	Date Reported:	09-17-97
Chain of Custody:	5415	Date Sampled:	09-15-97
Laboratory Number:	C042	Date Received:	09-16-97
Sample Matrix:	Water	Date Analyzed:	09-16-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**492**	**10**	**1.8**
Toluene	**329**	**10**	**1.7**
Ethylbenzene	**426**	**10**	**1.5**
p,m-Xylene	**672**	**10**	**2.2**
o-Xylene	**366**	**10**	**1.0**
Total BTEX	**2,285**		

ND - Parameter not detected at the stated detection limit.

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

References: 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. 1994.

Comments: **ABRAMS J #1.**

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CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLAGG / AMOCO	ABRAMS J #1
Sampler: (Signature) Nelson Velez	Chain of Custody Tape No. 04034-10

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)						Remarks
												ALL SAMPLES PRESERV. COOL & $HgCl_2$
MW #2	9/15/97	0945	C038	WATER	2	✓						
MW #7	9/15/97	1020	C039	WATER	2	✓						
MW #8R	9/15/97	1140	C040	WATER	2	✓						
MW #4	9/15/97	1240	C041	WATER	2	✓						
MW #10	9/15/97	1415	C042	WATER	2	✓						
MW #9	9/15/97	1320	C043	WATER	2	✓						
MW #5	9/15/97	1500	C044	WATER	2	✓						
				All samples received cool & intact. CW								

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	9/16/97	0815	Christine Walters	9-16-97	08:15
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5667

ABRAMS J # 1
UNIT I, SEC. 29, T29N, R10W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : December 30, 1997

SAMPLER : N J V

Filename : 12-30-97.WK3

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	96.48	51.89	44.59	45.73	1510	7.3	700	0.60	–
2	94.38	51.98	42.40	50.00	–	–	–	–	–
3	95.83	51.72	44.11	50.00	1340	7.2	600	3.00	–
4	95.91	51.56	44.35	50.00	1030	7.2	1,900	2.80	–
5	97.78	51.92	45.86	50.00	1120	7.3	1,700	2.00	–
6	96.61	51.53	45.08	50.00	1425	7.0	800	2.50	–
7	95.62	51.71	43.91	50.00	0945	7.3	700	3.00	–
8R	95.78	51.29	44.49	53.10	0900	7.3	2,100	4.25	–
9	96.54	51.30	45.24	50.00	1205	7.0	1,800	2.50	–
10	97.28	51.98	45.30	50.00	1255	7.1	1,200	2.30	–

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

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 ".

MW #'s 4, 9, & 10 – poor recovery, # 5 – very poor . Collected BTEX for all MW listed above except MW # 2 . Air sparge system not operational @ time of sampling .

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:	01-05-98
Chain of Custody:	5667	Date Sampled:	12-30-97
Laboratory Number:	C759	Date Received:	12-31-97
Sample Matrix:	Water	Date Analyzed:	01-02-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**748**	**10**	**1.8**
Toluene	**3,280**	**10**	**1.7**
Ethylbenzene	**1,050**	**10**	**1.5**
p,m-Xylene	**3,090**	**10**	**2.2**
o-Xylene	**2,400**	**10**	**1.0**
Total BTEX	**10,570**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

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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:	01-05-98
Chain of Custody:	5667	Date Sampled:	12-30-97
Laboratory Number:	C760	Date Received:	12-31-97
Sample Matrix:	Water	Date Analyzed:	01-02-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**78.1**	**10**	**1.8**
Toluene	**891**	**10**	**1.7**
Ethylbenzene	**138**	**10**	**1.5**
p,m-Xylene	**3,060**	**10**	**2.2**
o-Xylene	**671**	**10**	**1.0**
Total BTEX	**4,840**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 4	Date Reported:	01-05-98
Chain of Custody:	5667	Date Sampled:	12-30-97
Laboratory Number:	C761	Date Received:	12-31-97
Sample Matrix:	Water	Date Analyzed:	01-02-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.6**	**1**	**0.2**
Toluene	**1.5**	**1**	**0.2**
Ethylbenzene	**0.4**	**1**	**0.2**
p,m-Xylene	**1.9**	**1**	**0.2**
o-Xylene	**0.7**	**1**	**0.1**
Total BTEX	**5.1**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 5	Date Reported:	01-05-98
Chain of Custody:	5667	Date Sampled:	12-30-97
Laboratory Number:	C762	Date Received:	12-31-97
Sample Matrix:	Water	Date Analyzed:	01-02-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1.3**	**1**	**0.2**
Toluene	**1.7**	**1**	**0.2**
Ethylbenzene	**0.2**	**1**	**0.2**
p,m-Xylene	**3.6**	**1**	**0.2**
o-Xylene	**0.7**	**1**	**0.1**
Total BTEX	**7.5**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 6	Date Reported:	01-05-98
Chain of Custody:	5667	Date Sampled:	12-30-97
Laboratory Number:	C763	Date Received:	12-31-97
Sample Matrix:	Water	Date Analyzed:	01-02-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**782**	**10**	**1.8**
Toluene	**2,560**	**10**	**1.7**
Ethylbenzene	**465**	**10**	**1.5**
p,m-Xylene	**4,190**	**10**	**2.2**
o-Xylene	**1,050**	**10**	**1.0**
Total BTEX	**9,050**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 7	Date Reported:	01-05-98
Chain of Custody:	5667	Date Sampled:	12-30-97
Laboratory Number:	C764	Date Received:	12-31-97
Sample Matrix:	Water	Date Analyzed:	01-02-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1.1**	**1**	**0.2**
Toluene	**3.7**	**1**	**0.2**
Ethylbenzene	**0.2**	**1**	**0.2**
p,m-Xylene	**15.8**	**1**	**0.2**
o-Xylene	**2.5**	**1**	**0.1**
Total BTEX	**23.3**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**97 %**
	Bromofluorobenzene	**97 %**

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: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 8R	Date Reported:	01-05-98
Chain of Custody:	5667	Date Sampled:	12-30-97
Laboratory Number:	C765	Date Received:	12-31-97
Sample Matrix:	Water	Date Analyzed:	01-02-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**0.3**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**0.8**	**1**	**0.2**
o-Xylene	**0.2**	**1**	**0.1**
Total BTEX	**1.3**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 9	Date Reported:	01-05-98
Chain of Custody:	5667	Date Sampled:	12-30-97
Laboratory Number:	C766	Date Received:	12-31-97
Sample Matrix:	Water	Date Analyzed:	01-02-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.9**	**1**	**0.2**
Toluene	**0.4**	**1**	**0.2**
Ethylbenzene	**0.3**	**1**	**0.2**
p,m-Xylene	**1.9**	**1**	**0.2**
o-Xylene	**0.5**	**1**	**0.1**
Total BTEX	**4.0**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 10	Date Reported:	01-05-98
Chain of Custody:	5667	Date Sampled:	12-30-97
Laboratory Number:	C767	Date Received:	12-31-97
Sample Matrix:	Water	Date Analyzed:	01-02-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**96.8**	**1**	**0.2**
Toluene	**6.6**	**1**	**0.2**
Ethylbenzene	**60.9**	**1**	**0.2**
p,m-Xylene	**374**	**1**	**0.2**
o-Xylene	**286**	**1**	**0.1**
Total BTEX	**824**		

ND - Parameter not detected at the stated detection limit.

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

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: **Abrams J #1.**

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5667

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLAGG / Amoco	ABRAMS J #1
Sampler: (Signature) Nelson Velez	Chain of Custody Tape No. 04034-10

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)						Remarks
MW #1	12/30/97	1510	C759	WATER	2	✓						Preserv. - $HgCl_2$ & cool
MW #3	12/30/97	1340	C760	WATER	2	✓						
MW #4	12/30/97	1030	C761	WATER	2	✓						
MW #5	12/30/97	1120	C762	WATER	2	✓						
MW #6	12/30/97	1425	C763	WATER	2	✓						
MW #7	12/30/97	0945	C764	WATER	2	✓						
MW #8R	12/30/97	0900	C765	WATER	2	✓						
MW #9	12/30/97	1205	C766	WATER	2	✓						
MW #10	12/30/97	1255	C767	WATER	2	✓		SAMPLES RECEIVED COOL & INTACT				DLH

ANALYSIS/PARAMETERS

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	12/31/97	0742	Dennis L. Queen	12-31-97	0742
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

SAMPLES RECEIVED COOL & INTACT DLH

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL DOCUMENTATION

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	04-08-97
Laboratory Number:	04-08-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-08-97
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	**100 %**
	Bromofluorobenzene	**100 %**

References: 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. 1994.

Comments: **QA/QC for samples B075 and B081 - B082.**

Analyst

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	04-08-97
Laboratory Number:	B075	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	04-08-97
Condition:	Cool and Intact	Analysis Requested:	BTEX-MTBE

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	**4.8**	**4.8**	**0.0%**	**0.2**	**1**
Ethylbenzene	**7.3**	**7.2**	**0.6%**	**0.2**	**1**
p,m-Xylene	**13.2**	**13.2**	**0.0%**	**0.2**	**1**
o-Xylene	**6.0**	**6.0**	**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 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. 1994.

Comments: **QA/QC for samples B075 and B081 - B082.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spike	Date Reported:	04-08-97
Laboratory Number:	B075	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	04-08-97
Condition:	Cool and Intact		

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**	**50.1**	**0.2**	**100%**	**39-150**
Toluene	**4.8**	**50.0**	**55.2**	**0.2**	**101%**	**46-148**
Ethylbenzene	**7.3**	**50.0**	**57.1**	**0.2**	**100%**	**32-160**
p,m-Xylene	**13.2**	**100**	**114**	**0.2**	**100%**	**46-148**
o-Xylene	**6.0**	**50.0**	**55.4**	**0.1**	**99%**	**46-148**

ND - Parameter not detected at the stated detection limit.

References: 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. 1994.

Comments: **QA/QC for samples B075 and B081 - B082.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	05-20-97
Laboratory Number:	05-20-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	05-20-97
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	**98 %**
	Bromofluorobenzene	**100 %**

References: 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. 1994.

Comments: **QA/QC for samples B215 - B216 and B258 - B260.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	05-20-97
Laboratory Number:	B258	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	05-20-97
Condition:	Cool and Intact	Analysis Requested:	BTEX-MTBE

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	**ND**	**ND**	**0.0%**	**0.2**	**1**
Ethylbenzene	**ND**	**ND**	**0.0%**	**0.2**	**1**
p,m-Xylene	**0.6**	**0.6**	**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 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. 1994.

Comments: **QA/QC for samples B215 - B216 and B258 - B260.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spike	Date Reported:	05-20-97
Laboratory Number:	B258	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	05-20-97
Condition:	Cool and Intact		

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**	**50.3**	**0.2**	**101%**	**39-150**
Toluene	**ND**	**50.0**	**50.4**	**0.2**	**101%**	**46-148**
Ethylbenzene	**ND**	**50.0**	**50.3**	**0.2**	**101%**	**32-160**
p,m-Xylene	**0.6**	**100**	**101**	**0.2**	**100%**	**46-148**
o-Xylene	**0.1**	**50.0**	**50.4**	**0.1**	**100%**	**46-148**

ND - Parameter not detected at the stated detection limit.

References: 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. 1994.

Comments: **QA/QC for samples B215 - B216 and B258 - B260.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	06-30-97
Laboratory Number:	06-30-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-30-97
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	**99 %**

References: 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. 1994.

Comments: **QA/QC for samples B548 - B554.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	06-30-97
Laboratory Number:	B548	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	06-30-97
Condition:	Cool and Intact	Analysis Requested:	BTEX-8020

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	**ND**	**ND**	**0.0%**	**0.2**	**1**
Ethylbenzene	**0.2**	**0.2**	**0.0%**	**0.2**	**1**
p,m-Xylene	**0.5**	**0.5**	**0.0%**	**0.2**	**1**
o-Xylene	**0.2**	**0.2**	**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 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. 1994.

Comments: **QA/QC for samples B548 - B554.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spike	Date Reported:	06-30-97
Laboratory Number:	B548	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	06-30-97
Condition:	Cool and Intact		

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**	**50.2**	**0.2**	**100%**	**39-150**
Toluene	**ND**	**50.0**	**50.0**	**0.2**	**100%**	**46-148**
Ethylbenzene	**0.2**	**50.0**	**50.1**	**0.2**	**100%**	**32-160**
p,m-Xylene	**0.5**	**100**	**100**	**0.2**	**100%**	**46-148**
o-Xylene	**0.2**	**50.0**	**50.1**	**0.1**	**100%**	**46-148**

ND - Parameter not detected at the stated detection limit.

References: 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. 1994.

Comments: **QA/QC for samples B548 - B554.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	09-17-97
Laboratory Number:	09-16-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	09-16-97
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 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
USEPA, Sept. 1994.

Comments: **QA/QC for samples C038 - C044.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	09-17-97
Laboratory Number:	C038	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	09-16-97
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	**ND**	**ND**	**0.0%**	**0.2**	**1**
Ethylbenzene	**0.3**	**0.3**	**0.0%**	**0.2**	**1**
p,m-Xylene	**0.4**	**0.4**	**0.0%**	**0.2**	**1**
o-Xylene	**0.2**	**0.2**	**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 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. 1994.

Comments: **QA/QC for samples C038 - C044.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spike	Date Reported:	09-17-97
Laboratory Number:	C038	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	09-16-97
Condition:	Cool and Intact		

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**	**48.2**	**0.2**	**96%**	**39-150**
Toluene	**ND**	**50.0**	**48.7**	**0.2**	**97%**	**46-148**
Ethylbenzene	**0.3**	**50.0**	**49.2**	**0.2**	**98%**	**32-160**
p,m-Xylene	**0.4**	**100**	**97.0**	**0.2**	**97%**	**46-148**
o-Xylene	**0.2**	**50.0**	**48.3**	**0.1**	**96%**	**46-148**

ND - Parameter not detected at the stated detection limit.

References: 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. 1994.

Comments: **QA/QC for samples C038 - C044.**

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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:	01-05-98
Laboratory Number:	01-02-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-02-98
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	**98 %**
	Bromofluorobenzene	**99 %**

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

Comments: **QA/QC for samples C759 - C767.**

Analyst

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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:	01-05-98
Laboratory Number:	C759	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	01-02-98
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	**748**	**733**	**2.0%**	**1.8**	**10**
Toluene	**3,280**	**3,250**	**1.0%**	**1.7**	**10**
Ethylbenzene	**1,050**	**1,040**	**1.0%**	**1.5**	**10**
p,m-Xylene	**3,090**	**3,050**	**1.4%**	**2.2**	**10**
o-Xylene	**2,400**	**2,380**	**1.0%**	**1.0**	**10**

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 C759 - C767.**

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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 Spike	Date Reported:	01-05-98
Laboratory Number:	C759	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	01-02-98
Condition:	Cool and Intact		

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	**748**	**50.0**	**797**	**1.8**	**99%**	**39-150**
Toluene	**3,280**	**50.0**	**3,330**	**1.7**	**100%**	**46-148**
Ethylbenzene	**1,050**	**50.0**	**1,100**	**1.5**	**100%**	**32-160**
p,m-Xylene	**3,090**	**100**	**3,190**	**2.2**	**100%**	**46-148**
o-Xylene	**2,400**	**50.0**	**2,450**	**1.0**	**100%**	**46-148**

ND - Parameter not detected at the stated detection limit.

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 C759 - C767.**

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ENVIROTECH Inc.

5796 US HWY. 64, FARMINGTON, NM 87401
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FIELD REPORT: CLOSURE VERIFICATION

JOB No: 92140/C4279
PAGE No: 1 of 1

LOCATION: LEASE: ABRAMS 'J' WELL: #1 QD: NE/SE (I)
SEC: 29 TWP: 29N RNG: 10W BM: NMPM CNTY: SJ ST: NM PIT: SEP
CONTRACTOR: MOSS EXCAVATION
EQUIPMENT USED: TRACKHOE

DATE STARTED: 9/7/93
DATE FINISHED: 9/7/93

ENVIRONMENTAL SPECIALIST: MKL

SOIL REMEDIATION: QUANTITY: 45'x40'x26±' (NOT INCLUDING RAMP)
DISPOSAL FACILITY: CROUCH MESA
LAND USE: RANGE & HAY (FEE LEASE)
SURFACE CONDITIONS: VISIBLE DISCOLORATION (CONTAMINATION) ON BOTTOM, SO. NO. & EAST SIDEWALLS

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 80 YARDS N65°E FROM WELLHEAD.

DEPTH TO GROUNDWATER: 40'
NEAREST WATER SOURCE: UNKNOWN
NEAREST SURFACE WATER: 600' IRRIGATION DITCH

DUE TO SIZE OF EXCAVATION AT TIME OF VERIFICATION & SIDEWALL IN-STABILITY ONLY EAST PORTION OF EXCAVATION SAMPLED. SOILS APPEAR TO BE RELATIVELY HOMOGENEOUS WELL GRADED SAND WITH INCREASE OF SILT & CLAY @ 26± FEET. DUE TO EXTENT OF EXCAVATION ELECTED TO CONDITIONALLY CLOSE.

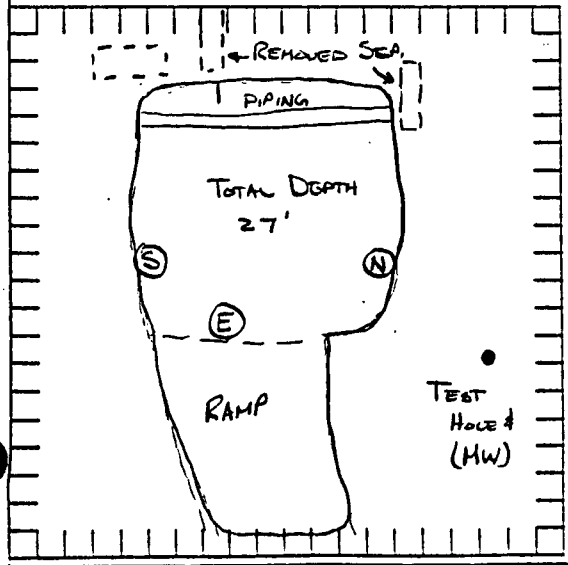
~~EPA~~ 418.1 ~~CALCULATIONS~~

SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
E @ 27'		NA	NA	NA	NA	
S @ 25'		1	1	1	1	

SCALE
0 10 20 FEET

N

PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
E 27	191
N 25	261
S 25	533

PIT PROFILE

TRAVEL NOTES: CALLOUT: 800 9/7/93 ONSITE: 1100 CALL OUT DRILL RIG ALSO, ENA ON SITE @ 1215 DRILL TH #1 TO 43' SET MW.

LAB RESULTS REPORTED TO EARL RANDALMAN 9-13-93 @ 0750 by Rmy. Recommended additional excavation on South and Bott.
OVM RESULTS REPORTED TO EARL RANDALMAN (MOSS EXCAVATION) 8-30-93 @ 1345 by RMY.

ENVIROTECH Inc.

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

CoC 2956
C4938

FIELD REPORT: CLOSURE VERIFICATION

JOB No: 92140
PAGE No: 1 of 1

LOCATION: LEASE: ABRAMS "J" WELL: No. 1 QD: NE/4 SE/4 (I)
SEC: 29 TWP: 29N RNG: 10W BM: NMPM CNTY: SJ ST: NM PIT: BLOW
CONTRACTOR: MOSS EXCAVATION
EQUIPMENT USED: TRACK-HOE

DATE STARTED: 8-30-93
DATE FINISHED: 8-30-93
ENVIRONMENTAL SPECIALIST: RMY

SOIL REMEDIATION: QUANTITY: 35' X 45' X 25' deep (NOT INCLUDING RAMP)
DISPOSAL FACILITY: ON-SITE?
LAND USE: RANGE - PRIVATE LEASE
SURFACE CONDITIONS: VISIBLE STAINING ON BOTH EAST AND WEST WALLS.

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 110 YARDS N30°E FROM WELLHEA
DEPTH TO GROUNDWATER: 40'
NEAREST WATER SOURCE: UNKNOWN
NEAREST SURFACE WATER: 600' - SMALL DITCH

LOCATION SHARED W/WELL "KEYS GAS COM D 1E, I, S29, T29N, R10W"
- KEYS APPEARS TO BE THE SOURCE WELL FOR PIT, ALTHOUGH ABRAMS WAS REPORTED, BY MOSS, AS THE SOURCE WELL.

STAINING NOTED IN EAST WALL APPARENTLY MOISTURE, NOT HYDROCARBO
SAMPLE 4@3' FROM STAINED AREA - SOURCE IS HYDROCARBONS. (10' WIDE, 4-5' HIG

LAB SAMPLES 4@3' bgs AND "5@26' bgs TAKEN FOR 8015 AND 418.1(T
LABORATORY ANALYSIS

RECOMMEND ADDITIONAL EXCAVATION ALONG BOTTOM AND SOUTH WA
ALSO - RECOMMEND REMOVAL OF STAINED AREA IN WEST WALL.

FIELD 418.1 CALCULATIONS

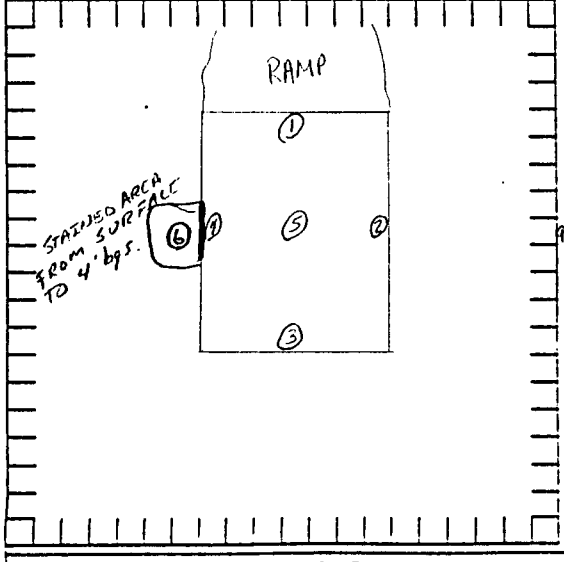
SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

SCALE
0 10 20
FEET

1 SURFACE FLOW AND SUSP. GW DOWNGRAD

1 N

PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)	
1@17'	SP/SW	0.9
2@15'	SP/SW	ND
3@20'	SM/MH	563.
4@23'	SM/ML	6.8
4@3'	SP/SM	462.
5@26'	SM/ML	669.
9-7-93 6@26'	SM/ML	10.1

PIT PROFILE

UNIFORM SOILS:

0'-19' SP/SW: SAND, PALE YELLOWISH BROWN, LOOSE, NON-COHESIVE, MODERATE HC STAINING IN EAST & WEST SIDEWALL MILD HC ODOR IN STAINED AREAS. MOIST TO W

19'-26' SM/ML SILTY SAND. DARK YELLOWISH BROWN ON NORTH, WEST & SOUTH WALL. GRAY TO GREEN ON SOUTH WALL AND BOTT FIRM, STIFF, WET, HC OD ON SOUTH WALL AND BOTT

TRAVEL NOTES: CALLOUT: _____ ONSITE: _____

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	4 @ 3' bgs	Date Sampled:	08-30-93
Laboratory Number:	5981	Date Received:	08-30-93
Sample Matrix:	Soil	Date Analyzed:	08-31-93
Preservative:	Cool	Date Reported:	08-31-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	23,800	250

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: Abrams J No.1, Blow Pit, C4938.

Analyst

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	4 @ 3' BGS	Date Reported:	09-01-93
Laboratory Number:	5981	Date Sampled:	08-30-93
Sample Matrix:	Soil	Date Received:	08-30-93
Preservative:	Cool	Date Extracted:	08-31-93
Condition:	Cool & Intact	Date Analyzed:	09-01-93
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	1,950	40.0
Toluene	16,400	100.0
Ethylbenzene	6,100	40.0
p,m-Xylene	131,400	120.0
o-Xylene	81,500	60.0

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	101 %
Bromofluorobenzene	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: Abrams J No. 1 Blow Pit C4938

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	5 @ 26' bgs	Date Sampled:	08-30-93
Laboratory Number:	5982	Date Received:	08-30-93
Sample Matrix:	Soil	Date Analyzed:	08-31-93
Preservative:	Cool	Date Reported:	08-31-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	9,100	250

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: Abrams J No.1, Blow Pit, C4938.

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	~~Amoco~~	Project #:	92140
Sample ID:	5 @ 26' BGS	Date Reported:	09-01-93
Laboratory Number:	5982	Date Sampled:	08-30-93
Sample Matrix:	Soil	Date Received:	08-30-93
Preservative:	Cool	Date Extracted:	08-31-93
Condition:	Cool & Intact	Date Analyzed:	09-01-93
		Analysis Requested:	BTEX

Parameter	~~Concentration~~ (ug/Kg)	Det. Limit (ug/Kg)
Benzene	170	80.0
Toluene	4,260	200.0
Ethylbenzene	9,500	80.0
p,m-Xylene	79,500	240.0
o-Xylene	42,400	120.0

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	98 %
Bromofluorobenzene	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: Abrams J No. 1 Blow Pit C4938

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	#6 @ 6'	Date Sampled:	09-07-93
Laboratory Number:	6049	Date Received:	09-07-93
Sample Matrix:	Soil	Date Analyzed:	09-08-93
Preservative:	Cool	Date Reported:	09-08-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	39.7	5.0

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: Abrams 'J' #1, Prod/Blow Pit, C4938.

Analyst

Review

2956

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	C4938 ANALYSIS/PARAMETERS
Amoco 92140	Abrams J No. 1 Blanco P.C.	
Sampler: (Signature)	Chain of Custody Tape No.	
Robert M Young		

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX	418.1					Remarks
4@3'kgs	8-30-93	1010	5981	SOIL	1	✓	✓					
5@26'kgs	8-30-93	1000	5982	SOIL	1	✓	✓					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Robert M Young	8-30-93	1335	Lee Chadwick	8-30-93	1400
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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2987

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
AMOCO 92140	#C4438 ABRAMS J #1 Pictured Cliffs	
Sampler: (Signature)	Chain of Custody Tape No.	
MICHAEL K. LANE		

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH 418.1						Remarks
#6 @ 6'	9/7/93	1630	6049	Soil	1	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	9/7/93	1700	[signature]	9-7-93	1710
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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94293 JJ

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1408

FIELD REPORT: SITE ASSESSMENT

JOB No: 92140
PAGE No: 1 of 1

PROJECT: PIT ASSESSMENTS & CLOSURE
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: ENVIROTECH, INC.
EQUIPMENT USED: EXTENDAHOE

DATE STARTED: 6-11-92
DATE FINISHED: 6-11-92
ENVIRO. SPCLT: J.W.
OPERATOR: G.S.
ASSISTANT: T.C.

LOCATION: LSE: Keys Gas Com D WELL: No 1E QD: NE 1/4 SE 1/4 (I)
SEC: 29 TWP: 29N RNG: 10W PM: NM CNTY: SJ ST: NM PIT: ~~Separator~~ Blow

LAND USE: IRRIGATED Fields on East and west sides of location
SURFACE CONDITIONS: Earthen Pit approx 6' deep

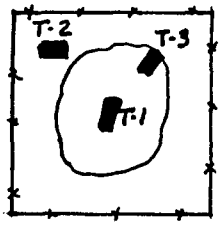
FIELD NOTES & REMARKS: Pit is located approx. 175' East of well head. Pit is not longer in service. Test hole No. at center of pit depth of Test hole are from bottom of pit 6' below ground level.

SAMPLE INVENTORY:

SMPL ID:	SMPL TYPE:	LABORATORY ANALYSIS:	
T-1@10'	Soil	TPH	935
T-1@16'	Soil	Headspace	945
T-2@18'	Soil	Headspace	1035
T-3@16'	Soil	Headspace	1110

SCALE
0 10' 20' FEET

SITE DIAGRAM



TEST HOLE LOGS:

TH#: 1			TH#: 2			TH#: 3			TH#:
SOIL TYPE:	SMPL TYPE:	OVM/TPH	SOIL TYPE:	SMPL TYPE:	OVM/TPH	SOIL TYPE:	SMPL TYPE:	OVM/TPH	SOIL TYPE: SMPL TYPE: OVM/TPH
SM	Soil	336	SM	Soil	000	SM	Soil	000	
SC	Soil	31.6	SM	Soil	86	SM	Soil	4.8	
			TD	18'					

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

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	AMOCO	Project #:	92140
Sample ID:	T-1 @ 10'	Date Reported:	06-19-92
Laboratory Number:	1283	Date Sampled:	06-11-92
Sample Matrix:	Soil	Date Received:	06-11-92
Preservative:	Cool	Date Analyzed:	06-18-92
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	71	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: Keys GC D #1E Blow Pit 94293

Vanessa Ranson
Analyst

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
HEADSPACE EXTRACTION

Client:	Amoco	Project #:	92140
Sample ID:	T1 @16'	Date Reported:	09-16-92
Laboratory Number:	1284	Date Sampled:	06-11-92
Sample Matrix:	Soil	Date Received:	06-11-92
Preservative:	Cool	Date Analyzed:	08-31-92
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	1.6
Toluene	ND	8.0
Ethylbenzene	2.2	1.6
p,m-Xylene	5.4	4.0
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: keys GC D 1E-Blow Pit---94293

Analyst

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
HEADSPACE EXTRACTION

Client:	Amoco	Project #:	92140
Sample ID:	T2 @ 18'	Date Reported:	09-16-92
Laboratory Number:	1285	Date Sampled:	06-11-92
Sample Matrix:	Soil	Date Received:	06-11-92
Preservative:	Cool	Date Analyzed:	08-31-92
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	2.4	1.6
Toluene	ND	8.0
Ethylbenzene	6.1	1.6
p,m-Xylene	10.9	4.0
o-Xylene	18.7	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: keys GC D 1E-Blow Pit---94293

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
HEADSPACE EXTRACTION

Client:	Amoco	Project #:	92140
Sample ID:	T3 @ 16'	Date Reported:	09-16-92
Laboratory Number:	1286	Date Sampled:	06-11-92
Sample Matrix:	Soil	Date Received:	06-11-92
Preservative:	Cool	Date Analyzed:	08-31-92
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	1.6
Toluene	ND	8.0
Ethylbenzene	7.0	1.6
p,m-Xylene	ND	4.0
o-Xylene	5.1	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: keys GC D 1E-Blow Pit---94293

Analyst

Review

1408

CHAIN OF CUSTODY RECORD

94293

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
Amoco 92140	Blow pit Keys GCD #1E	
Sampler: (Signature) Tommy Collington	Chain of Custody Tape No.	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH	Head Space					Remarks
T-1@ 10'	6-11-92	9:35	1283	Soil	1	✓						
T-1@ 16'	6-11-92	9:45	1284	Soil	1		✓					
T-2@ 18'	6-11-92	10:45	1285	Soil	1		✓					
T-3@ 16'	6-11-92	11:10	1286	Soil	1		✓					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Tommy Collington	6-11-92	17:26	Vanessa Ransom	6/11/92	1726
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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CLIENT: Amoco

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

LOCATION NO: _____
C.O.C. NO: 5031

FIELD REPORT: LANDFARM/COMPOST PILE CLOSURE VERIFICATION

LOCATION: NAME: ABLAMS WELL #: J 1 PITS: SEP
QUAD/UNIT: I SEC: 29 TWP: 29N RNG: 11W PM: NM CNTY: SJ ST: NM
QTR/FOOTAGE: NE/4 SE/4 CONTRACTOR: MOSS

DATE STARTED: 2/28/97
DATE FINISHED: _____
ENVIRONMENTAL SPECIALIST: NV

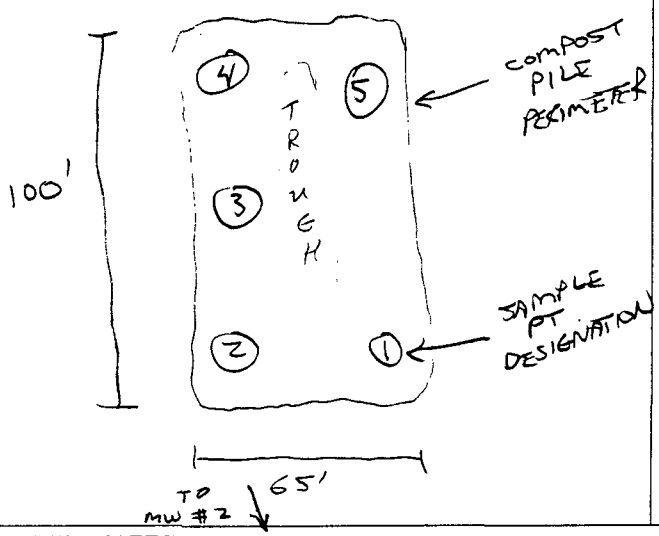
SOIL REMEDIATION:
REMEDIATION SYSTEM: COMPOSTED
APPROX. CUBIC YARDAGE: 1000
LAND USE: RANGE
LIFT DEPTH (ft): NA

FIELD NOTES & REMARKS:
DEPTH TO GROUNDWATER: < 50' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'
NMOCD RANKING SCORE: 20 NMOCD TPH CLOSURE STD: 100 PPM
VARYING COLOR RANGING FROM DK. YELL. ORANGE TO LT. OLIVE GRAY SAND, NON-COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HC ODOR IN ANY OF THE OVM SAMPLES, NO NOTICEABLE DISCOLORATION OBSERVED IN ANY OF THE SAMPLE PT. DESIGNATION AREAS (SEE SKETCH BELOW). COMPOST PILE LOCATED EAST OF WELL SITE & NORTH OF MW #2 (APPROX. 30'). COLLECTED APPROX. 8 OZ. FROM EACH SAMPLE PT. FOR 5 PT. COMPOSITE.

FIELD 418.1 CALCULATIONS

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

SKETCH/SAMPLE LOCATIONS



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
①	0.0
②	0.0
③	1.4
④	0.0
⑤	0.0
COMP.	0.0

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME	RESULTS
CP-2	TPH (8015)	1005	33.9 ppm
③ & CPC	BTEX	1015	ND / 73.8 ppb
			↑ ↑
			BEN. / TOTAL BTEX

CPC = COMPOST PILE CENTER

SCALE
0 FT

TRAVEL NOTES: CALLOUT: NA ONSITE: 2/28/97

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	CP - 2	Date Reported:	03-03-97
Laboratory Number:	A991	Date Sampled:	02-28-97
Chain of Custody No:	5031	Date Received:	02-28-97
Sample Matrix:	Soil	Date Extracted:	03-03-97
Preservative:	Cool	Date Analyzed:	03-03-97
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**33.9**	**0.1**
Total Petroleum Hydrocarbons	**33.9**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Comments: **Abrams J #1. Compost Pile. 5 Pt. Composite.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034
Sample ID:	3 @ CPC	Date Reported:	03-03-97
Laboratory Number:	A992	Date Sampled:	02-28-97
Chain of Custody:	5031	Date Received:	02-28-97
Sample Matrix:	Soil	Date Analyzed:	03-03-97
Preservative:	Cool	Date Extracted:	03-03-97
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**8.8**
Toluene	**32.3**	**8.4**
Ethylbenzene	**ND**	**7.6**
p,m-Xylene	**31.7**	**10.8**
o-Xylene	**9.8**	**5.2**
Total BTEX	**73.8**	

ND - Parameter not detected at the stated detection limit.

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

References: 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. 1994.

Comments: **Abrams J #1 Compost Pile. Grab Sample.**

Analyst

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CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG/ AMOCO	COMPOST PILE ABRAMS J #1	
Sampler: (Signature) Nelson Velez	Chain of Custody Tape No. 04034	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH (8015)	BTEX (8020)					Remarks
CP - 2	2/27/97	1005	A991	SOIL	1	✓						PRESERV. - COOL
③ @ CPC	2/27/97	1015	A992	SOIL	1		✓					PRESERV. - COOL
												CP-2 5 PT. COMPOSITE
												③ @ CPC GRAB SAMPLE

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	2/28/97	1105	Glenn S. Spencer	2/28/97	1105
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6345

ABRAMS J # 1
UNIT I, SEC. 29, T29N, R10W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : January 25, 1999

SAMPLER : N J V

Filename : 01-25-99.WK3

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	96.48	52.13	44.35	45.73	1425	6.9	1,200	0.70	-
2	MONITOR WELL NOT FOUND - PRESUMED DESTROYED								
3	95.83	51.90	43.93	50.00	1325	7.3	1,400	3.25	-
4	95.91	51.80	44.11	50.00	1345	7.1	1,400	3.00	-
5	97.78	52.15	45.63	50.00	1400	7.0	2,000	2.00	-
6	96.61	51.75	44.86	50.00	1310	7.3	900	2.50	-
7	95.62	51.93	43.69	50.00	1115	7.5	600	3.00	-
8R	95.78	51.53	44.25	53.10	1150	7.1	2,300	4.50	-
9	96.54	51.56	44.98	50.00	1220	7.1	2,000	2.50	-
10	97.28	52.22	45.06	50.00	1410	6.8	1,800	2.50	-
11	98.61	52.45	46.16	50.00	1045	7.3	600	2.00	-

NOTES : Volume of water purged from well prior to sampling; V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

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 ".

MW #'s 4, 9, & 10 - poor recovery, # 5 - very poor . Collected BTEX for all MW listed above except MW # 2 . Air sparge system not operational @ time of sampling .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 1	Date Reported:	01-27-99
Chain of Custody:	6435	Date Sampled:	01-25-99
Laboratory Number:	E578	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-27-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**214**	**5**	**0.9**
Toluene	**3,130**	**5**	**0.8**
Ethylbenzene	**707**	**5**	**0.8**
p,m-Xylene	**4,980**	**5**	**1.1**
o-Xylene	**2,110**	**5**	**0.5**
Total BTEX	**11,140**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Ulagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 3	Date Reported:	01-27-99
Chain of Custody:	6435	Date Sampled:	01-25-99
Laboratory Number:	8577	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-27-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**18.9**	**5**	**0.9**
Toluene	**123**	**5**	**0.8**
Ethylbenzene	**70.9**	**5**	**0.8**
p,m-Xylene	**3,020**	**5**	**1.1**
o-Xylene	**789**	**5**	**0.5**
Total BTEX	**4,020**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 4	Date Reported:	01-26-99
Chain of Custody:	6435	Date Sampled:	01-25-99
Laboratory Number:	E573	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-26-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**324**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**13.0**	**1**	**0.2**
p,m-Xylene	**ND**	**1**	**0.2**
o-Xylene	**ND**	**1**	**0.1**
Total BTEX	**337**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 5	Date Reported:	01-26-99
Chain of Custody:	6435	Date Sampled:	01-25-99
Laboratory Number:	E575	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-26-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**10.9**	**1**	**0.2**
Toluene	**3.5**	**1**	**0.2**
Ethylbenzene	**96.6**	**1**	**0.2**
p,m-Xylene	**38.9**	**1**	**0.2**
o-Xylene	**0.9**	**1**	**0.1**
Total BTEX	**151**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 6	Date Reported:	01-27-99
Chain of Custody:	6435	Date Sampled:	01-25-99
Laboratory Number:	E579	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-27-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**327**	**5**	**0.9**
Toluene	**1,940**	**5**	**0.8**
Ethylbenzene	**508**	**5**	**0.8**
p,m-Xylene	**3,650**	**5**	**1.1**
o-Xylene	**1,160**	**5**	**0.5**
Total BTEX	**7,590**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**97 %**
	Bromofluorobenzene	**97 %**

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: **Abrams J #1.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 7	Date Reported:	01-26-99
Chain of Custody:	6435	Date Sampled:	01-25-99
Laboratory Number:	E571	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-26-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1.6**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**ND**	**1**	**0.2**
o-Xylene	**ND**	**1**	**0.1**
Total BTEX	**1.6**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**101 %**
	Bromofluorobenzene	**101 %**

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: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 8R	Date Reported:	01-26-99
Chain of Custody:	6435	Date Sampled:	01-25-99
Laboratory Number:	E572	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-26-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**2.2**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**ND**	**1**	**0.2**
o-Xylene	**ND**	**1**	**0.1**
Total BTEX	**2.2**		

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 9	Date Reported:	01-26-99
Chain of Custody:	6435	Date Sampled:	01-25-99
Laboratory Number:	E574	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-26-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**13.9**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**ND**	**1**	**0.2**
o-Xylene	**2.6**	**1**	**0.1**
Total BTEX	**16.5**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**97 %**
	Bromofluorobenzene	**97 %**

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: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 10	Date Reported:	01-27-99
Chain of Custody:	6435	Date Sampled:	01-25-99
Laboratory Number:	E576	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-27-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**43.6**	**1**	**0.2**
Toluene	**53.0**	**1**	**0.2**
Ethylbenzene	**253**	**1**	**0.2**
p,m-Xylene	**1,110**	**1**	**0.2**
o-Xylene	**287**	**1**	**0.1**
Total BTEX	**1,750**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**101 %**
	Bromofluorobenzene	**101 %**

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: **Abrams J #1.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 11	Date Reported:	01-26-99
Chain of Custody:	6435	Date Sampled:	01-25-99
Laboratory Number:	E570	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-26-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

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

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Abrams J #1.**

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CHAIN OF CUSTODY RECORD

6435

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / CROSS TIMBERS	ABRAMS J #1	
Sampler: REP	Client No. 04034-10	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW #11	1/25/99	1045	E570	WATER	2	✓						ALL SAMPLES
MW # 7	1/25/99	1115	E571	WATER	2	✓						PRESERV. - $HgCl_2$
MW # 8R	1/25/99	1150	E572	WATER	2	✓						& COOL
MW # 4	1/25/99	1345	E573	WATER	2	✓						
MW # 9	1/25/99	1220	E574	WATER	2	✓						
MW # 5	1/25/99	1400	E575	WATER	2	✓						
MW # 10	1/25/99	1410	E576	WATER	2	✓						
MW # 3	1/25/99	1425	E577	WATER	2	✓						
MW # 1	1/25/99	1425	E578	WATER	2	✓						
MW # 6	1/25/99	1310	E579	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Ed Potter	1/26/99	0645	Nelson Velez	1/26/99	0645
Relinquished by: (Signature) Nelson Velez	1/26/99	0659	Received by: (Signature)	1.26.99	0659
Relinquished by: (Signature)			Received by: (Signature)		

Rp COC 6435-6436

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	01-26-BTEX QA/QC	Date Reported:	01-26-99
Laboratory Number:	E570	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-26-99
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	1.0822E-001	1.0857E-001	0.32%	ND	0.2
Toluene	5.6859E-002	5.6972E-002	0.20%	ND	0.2
Ethylbenzene	6.8692E-002	6.8982E-002	0.42%	ND	0.2
p,m-Xylene	6.7811E-002	6.7824E-002	0.02%	ND	0.2
o-Xylene	7.0740E-002	7.0953E-002	0.30%	ND	0.1

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

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

ND - Parameter not detected at the stated detection limit.

* - Administrative Limits set at 80 - 120%.

References:

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

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

Comments: **QA/QC for samples E570 - E575.**

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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:	01-27-BTEX QA/QC	Date Reported:	01-27-99
Laboratory Number:	E580	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-27-99
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	1.0822E-001	1.0857E-001	0.32%	ND	0.2
Toluene	5.6859E-002	5.6972E-002	0.20%	ND	0.2
Ethylbenzene	6.8692E-002	6.8982E-002	0.42%	ND	0.2
p,m-Xylene	6.7811E-002	6.7824E-002	0.02%	ND	0.2
o-Xylene	7.0740E-002	7.0953E-002	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	ND	ND	0.0%	0 - 30%
Toluene	0.7	0.7	0.0%	0 - 30%
Ethylbenzene	26.7	25.8	3.4%	0 - 30%
p,m-Xylene	172	172	0.0%	0 - 30%
o-Xylene	47.9	46.1	3.8%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	ND	50.0	50.0	100%	39 - 150
Toluene	0.7	50.0	50.7	100%	46 - 148
Ethylbenzene	26.7	50.0	75.6	99%	32 - 160
p,m-Xylene	172	100.0	264	97%	46 - 148
o-Xylene	47.9	50.0	95.3	97%	46 - 148

ND - Parameter not detected at the stated detection limit.

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 E576 - E580.**

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